

A green-tinted photograph of a waterfront promenade. In the foreground, a wooden walkway runs along the water's edge. To the left, a white boat is docked. To the right, a large, multi-story building with a curved facade and many windows is visible. People are walking along the promenade, and there are several trash cans and street lamps. The overall scene is bright and sunny.

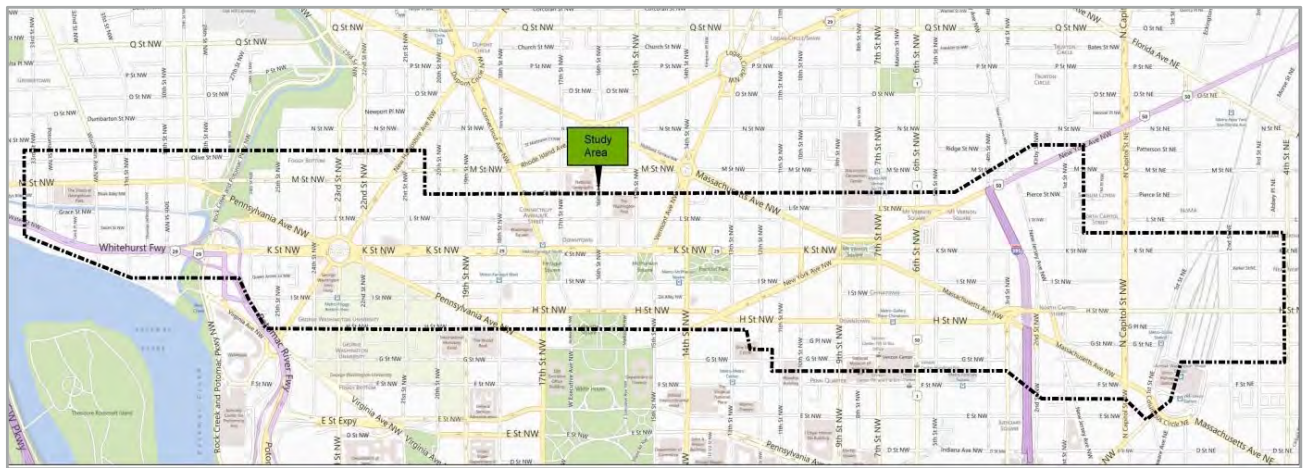
1 INTRODUCTION

Premium transit is high-quality transit that offers improved reliability and speed, and includes enhanced facilities and features, over typical local bus service. It can be Express Bus, Bus Rapid Transit, Streetcar, Light Rail Transit, or another limited-stop mass transit mode.

Chapter 1 → Introduction

The District Department of Transportation (DDOT) received a grant from the Federal Transit Administration (FTA) to conduct an Alternatives Analysis (AA) to evaluate premium transit service options from Union Station to Georgetown. This AA Study builds upon a number of previous studies conducted by DDOT: the 2010 DC's Transit Future System Plan, 2009 K Street Transitway, the 2009 Union Station Intermodal Transportation Center Feasibility Study, and the 2008 Georgetown Transportation Study. The study area, shown in **Figure 1-1**, is approximately 3.3 miles long and includes alternative alignments between Georgetown and Washington Circle, between Washington Circle and Mount Vernon Square, and between Mount Vernon Square and Union Station.

Figure 1-1: Union Station to Georgetown AA Study Area



The purpose of the Alternatives Analysis is to define the transportation needs in the study area, identify reasonable alternatives which address those needs, and provide information to assist in identifying the mode and route for implementation. This AA Report presents the process to identify transit alternatives in the study area, screen preliminary alignment alternatives, and develop and analyze reasonable end-to-end alternatives including a the No-Build, all while gathering public and agency input throughout the process.

The end result of an AA process is the selection of a recommended alternative. From there, DDOT can move forward to environmental analysis, design, funding opportunities, and seek related approvals needed to build and operate the project.

Also as part of this AA Study, a propulsion study has been prepared to evaluate propulsion options for streetcar operations without overhead catenary wires and pantographs. **Appendix C** presents a summary of the independent propulsion study.

A. EXISTING STUDY AREA SETTING

The context for the Union Station to Georgetown Alternative Analysis study area can be viewed at two scales – within the District of Columbia (District), and as a collection of central city neighborhoods.

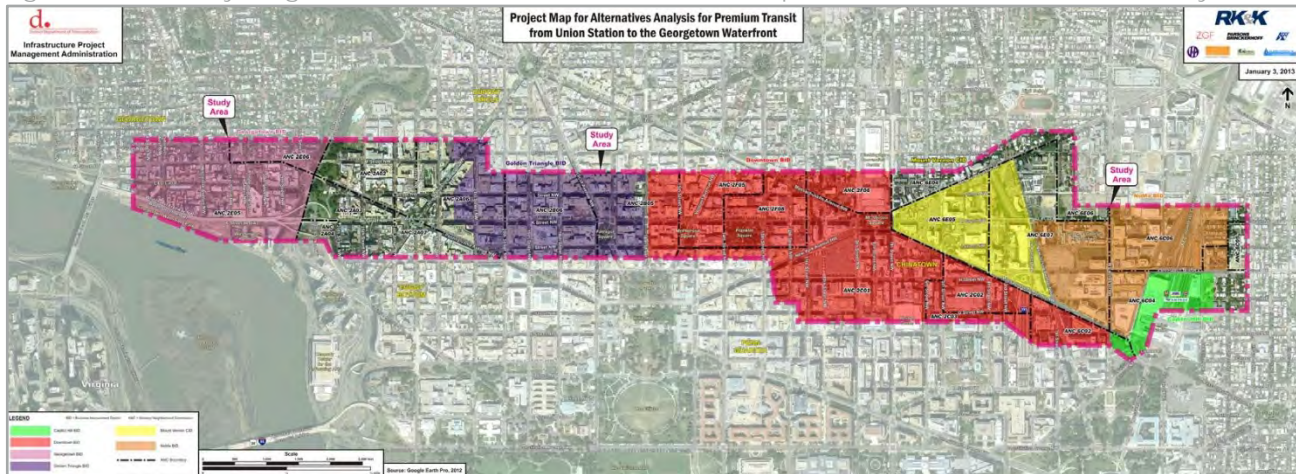
1. The District Context

Georgetown, at the west end, was founded in 1751 and predates the development of the L’Enfant Plan for a new capital city in 1791. The L’Enfant Plan defined four of the significant civic spaces within the study area; Washington Circle, Farragut Square, McPherson Square and Mount Vernon Square, all to be connected by K Street NW. In 1902, the McMillan Plan, which established the formal vision of the Monumental Core and National Mall, also established the location of Union Station.

2. The Neighborhood Setting

The following neighborhoods are included in the study area: Georgetown, West End, Foggy Bottom, Downtown, Mount Vernon Square District/Mount Vernon Triangle, NoMa, and H Street NE/Atlas District. These neighborhoods are represented by Advisory Neighborhood Commissions (ANCs) and Business Improvement Districts (BIDs). Refer to Figure 1-2 for the ANCs and BIDs boundaries in relation to the study area. The neighborhoods are also identified on the mapping in Appendix D at a larger scale.

Figure 1-2: Advisory Neighborhood Commissions and Business Improvement Districts Within the Study Area



Georgetown – Georgetown developed on the bluffs of the Potomac River as a port town. The neighborhood includes several historical landmarks, such as the Old Stone House on M Street NW, and the Chesapeake and Ohio Canal between M and K Streets NW. The main commercial corridors of Georgetown, Wisconsin Avenue and M Street NW are located in the study area and provide a range of retail and restaurant services. The Georgetown waterfront includes commercial, retail, and residential development adjacent to National Park Service parkland. To the west and north of the study area are Georgetown University and residential neighborhoods, respectively.

West End – The West End neighborhood is bounded by Rock Creek Park to the west, K Street to the south, and New Hampshire Avenue NW and Washington Circle to the southeast. The West End was initially developed as a residential neighborhood and has remained primarily residential with a healthy stock of higher end housing and hotels.

Foggy Bottom – Foggy Bottom is one of the earliest neighborhoods developed in Washington DC. The neighborhood is bounded by Rock Creek Park to the west, the National Mall to the south, Pennsylvania Avenue to the north, and 17th Street to the east. Development in the neighborhood includes George Washington University and Hospital, Federal headquarter buildings for the Departments of State, Interior and Federal Reserve, international organizations such as the World Bank, International Monetary Fund, and the Organization of American States. Cultural facilities include the Kennedy Center for the Performing Arts and the DAR Constitution Hall.

Downtown – The study area in the downtown neighborhood encompasses two business improvement districts (BID): the Golden Triangle BID and the Downtown BID. Together, the two BID areas accommodate the highest concentration of non-federal employment in the DC.

The Golden Triangle BID generally includes the area west of 16th Street NW, south of Dupont Circle and north of Pennsylvania Avenue NW. Within the study area, development along H, I, K, L and M Streets NW is primarily commercial office development.

The Downtown BID covers a 138 block area east of 16th Street NW, south of Massachusetts Avenue and north of Constitution Avenue and the White House. Specific areas within the Downtown BID include the original Central Business District (CBD), Federal Triangle, Penn Quarter, and Chinatown. Within the study area, the Gallery Place area has seen significant revitalization since the development of the Verizon Center (previously called MCI Center), and the area that was previously the Washington Convention Center is currently being redeveloped as CityCenter DC, a multi-block office, residential and hotel development.

Mount Vernon Square District and Mount Vernon Triangle – Mount Vernon Square was one of 15 public reservations included in the L’Enfant Plan in 1791. In 1903, the Carnegie Library opened as the District’s central public library. To the north of the library is the new Walter E. Washington Convention Center, a multi-block facility providing approximately 2.3 million square feet of convention space.

Mount Vernon Triangle is a growing neighborhood bounded by New York Avenue to the north, New Jersey Avenue and I-395 to the East, and Massachusetts Avenue to the south. In 2004, the Mount Vernon Triangle Community Improvement District (CID) was established to guide neighborhood revitalization. Since 2004, the housing stock in the neighborhood has increased from 500 units to well over 2,000 units.

NoMa - NoMa, an abbreviation for North of Massachusetts Avenue, is located north west of Capitol Hill and Union Station. Existing development includes the Government Printing Office and Gonzaga College High School. New development, near Union Station and the NoMA metro station, includes several city blocks of commercial office, retail, and residential development.

H Street NE/Atlas District - The H Street NE/Atlas District anchors the east end of the study area. The H Street NE corridor was a significant retail corridor until 1968 when it was one of several neighborhoods in the District damaged during the riots following Martin Luther King, Jr.’s assassination. Since 2000, the area has seen substantial revitalization through the development of art venues and restaurants.

The H Street NE Corridor was designated one of the District’s “Great Streets” which included infrastructure and streetscape improvements to help foster and guide revitalization. The streetscape improvements incorporated the construction of streetcar tracks and the first operating segment of the DC Streetcar System, the H Street-Benning Road Line, is scheduled to open soon. The western stop will be located on the Hopscotch Bridge to provide access to Union Station.

B. EXISTING ROADWAY NETWORK

The study area encompasses numerous roadways through the heart of the District’s central commercial area. The roadway network is primarily an urban grid accented by several diagonal streets and traffic circles. The 3.3-mile study area provides connectivity for automobiles, buses, pedestrians, and bicyclists to the major activity centers such as Georgetown, George Washington University, Mount Vernon Square area, and Union Station.

Specifically, I, K, L, and M Streets serve as the core east-west roads and the numbered streets from 33rd Street NW to 3rd Street NE serve as the north-south routes. The diagonal roads of Rock Creek Parkway, Pennsylvania Avenue, Connecticut Avenue, Vermont Avenue, Massachusetts Avenue, New York Avenue, and New Jersey Avenue also cross through the study area. Finally, Washington Circle, Mount Vernon Square, and Columbus Circle provide key nodes within the study area. This complex network of roadways contributes to the congestion and travel time delays experienced while traveling through the study area.

Table 1-1 lists the key roadways in the study area, along with the number of lanes and the range of ADTs. The existing roadways provide for a wide range of uses including parking (full time and off-peak), deliveries (via bicycle and automobile), passenger drop-off/loading, and bus stops (Metro bus, commuter bus, and DC Circulator bus). There are high volumes of pedestrians on some streets through Georgetown and the center portions of K Street.

Table 1-1: Existing Roadway Network

Roadway	Classification	Number of Travel Lanes	Current ADT
1. M Street NW (Wisconsin Avenue NW to Pennsylvania Avenue NW)	Principal Arterial	6 Lanes	17,725 -35,750
2. Whitehurst Freeway (M Street NW to Rock Creek Parkway)	Other Freeway and Expressway	4 Lanes	35,000
3. K Street NW (Wisconsin Avenue NW to North Capitol Street NW)	Principal Arterial	2 Lanes + Parking or 4 Lanes or 4 Lanes + Parking or 5 Lanes or 6 Lanes + Parking	8,550 – 35,325
4. Pennsylvania Avenue NW (M Street NW to I Street NW)	Principal Arterial	4 Lanes + Parking or 5 Lanes or 6 Lanes or 6 Lanes +Parking or 8 Lanes	12,950 – 15,850
5. Washington Circle	Principal Arterial	4 Lanes	17,950
6. I Street NW (Pennsylvania Avenue NW to New York Avenue NW)	Principal Arterial	3 Lanes + 1 Parking or 4 Lanes	4,375 – 14,925
7. New York Avenue NW (I Street NW to Mt. Vernon Square)	Principal Arterial	4 Lanes + 2 Parking	20,150
8. Mt. Vernon Place NW (New York Avenue NW) (9th Street NW to 7th Street NW)	Principal Arterial	4 Lanes	26,900
9. Massachusetts Avenue NW (7th Street NW to North Capitol Street)	Principal Arterial	4 Lanes or 4 Lanes + 2 Parking	13,625 – 31,175
10. New Jersey Avenue NW (K Street NW to H Street NW)	Minor Arterial	2 Lanes + Parking	4,700
11. H Street (New Jersey Avenue NW to 3rd Street NE)	Principal Arterial	6 Lanes or 7 Lanes	20,500 – 23,875
12. North Capitol Street (Massachusetts Avenue to K Street)	Principal Arterial	6 Lanes	19,300 – 21,925
13. Columbus Circle (Massachusetts Avenue)	Minor Arterial	3 Lanes or 4 Lanes	20,000

C. EXISTING TRANSIT SERVICE IN THE STUDY AREA

Within the study area, existing public transit service is provided by Metrobuses, DC Circulator and Metrorail. The Metrobus routes in the study area that provide east-west service are: 31, 32, 36, 38B, 42, 43, S2, X2, and 80. Metrorail service in the study area includes some east-west service along the Red, Blue and Orange Lines. Metro stations within the study area by line include:

- > Red Line: Union Station, Gallery-Place Chinatown, Farragut North
- > Blue & Orange Lines: McPherson Square, Farragut West, Foggy Bottom-GWU

DC Circulator Bus



The Georgetown-Union Station DC Circulator route was established in 2005 as one of the first DC Circulator routes. The route currently provides bus service between Georgetown and Union Station with 20 westbound stops and 23 eastbound stops. This route is one of the most successful DC Circulator routes with a total ridership of 2,266,713 in 2010 according to the DC Circulator Transit Development Plan, March 2011.

The Georgetown University Transportation Shuttle (GUTS) provides free transportation service for students, faculty, staff, and visitors of Georgetown University and MedStar Georgetown University Hospital (GUH). There are five shuttle routes operated by GUTS.

The Dupont Circle route begins on the southside of the campus and continues off campus on Canal Street to K Street, where it travels around Washington Circle turning north towards Dupont Circle. The western end of the Union Station to Georgetown study area encompasses this GUTS Dupont Circle route. According to the Campus Plan Transportation Report, March 2011, the annual ridership of the GUTS DuPont Circle route was 991,700.

The other GUTS route of relevance to this AA Study is the Law Center route which operates from the south side of campus to the Georgetown Law School campus on New Jersey Avenue, NW, via interstate travel through Virginia instead of on the local roadways through the study area. This route had an annual ridership of 21,600, according to the 2011 Campus Plan Transportation Report and is expected to significantly increase with the opening of the Georgetown Downtown Campus opening in the fall 2013.

D. RELATIONSHIP TO PREVIOUS STUDIES

This AA Study has taken into context previous planning studies conducted by DDOT within or near the study area. The K Street Transitway (a project included in the Metropolitan Washington Council of Governments' (MWCOG) Consolidated Long-range Transportation Plan (CLRP) and the FY 2013-2018 Transportation Improvement Program (TIP) is considered built in all the alternatives, including the No-Build.

The *Mount Vernon Triangle Transportation and Public Realm Design Project, Final Report*, March 2006, was conducted by DDOT and the District Office of Planning to develop a coordinated plan for transportation improvements and streetscape/public realm design in the Mount Vernon Triangle area. The study area included L, K and I Streets, Massachusetts Avenue and New York Avenue between 7th Street and New Jersey Avenue. One of the study goals was to balance pedestrian, bicycle, transit, parking, automobile, and truck needs in the area. Other recommendations specific to K Street included: a bicycle lane, enhanced transit service, new bus service, and a wider promenade sidewalk with landscaping.

The **Georgetown Transportation Study**, October 2008, was conducted by DDOT to evaluate existing and future transportation conditions within Georgetown. The western edge of the Union Station to Georgetown study area was covered within the Georgetown Transportation Study. This study found that there was a general lack of transit service in the Georgetown Area.

The **Union Station Intermodal Transportation Center Feasibility Study**, October 2009, was conducted by DDOT to assess the intermodal transportation facilities around Union Station. The eastern edge of the Union Station to Georgetown study area was covered within the Union Station study area. The study recommends integration of the H Street Streetcar and improved pedestrian access between the transportation modes in the Union Station area.

The **Environmental Assessment/Finding of No Significant Impact for K Street, 24th Street NW to 7th Street NW**, December 2009, was conducted by DDOT and Federal Highway Administration (FHWA) to identify modifications to K Street to accommodate multi-modal traffic. The Selected Alternative identified in the 2009 document, an exclusive, two-way, two-lane median transitway between 20th Street and 9th Street, forms the basis for the end-to-end alternatives considered in this Union Station to Georgetown AA Study.

The **DC's Transit Future System Plan**, April 2010, developed by DDOT and Washington Metropolitan Area Transit Authority (WMATA) recommends a 37-mile network of new streetcar lines operating in eight corridors and new Metro Express bus service operating in 13 corridors across the District. Refer to Figure 1-3. A key segment of the System Plan was the 22-mile line "Georgetown Waterfront to Benning Road – Phase One", building upon the K Street Transitway and the H Street/Benning Streetcar alignment that is currently under construction. The description of the Georgetown to Benning Road Metro Station Streetcar line included in the Transit Future System Plan was:

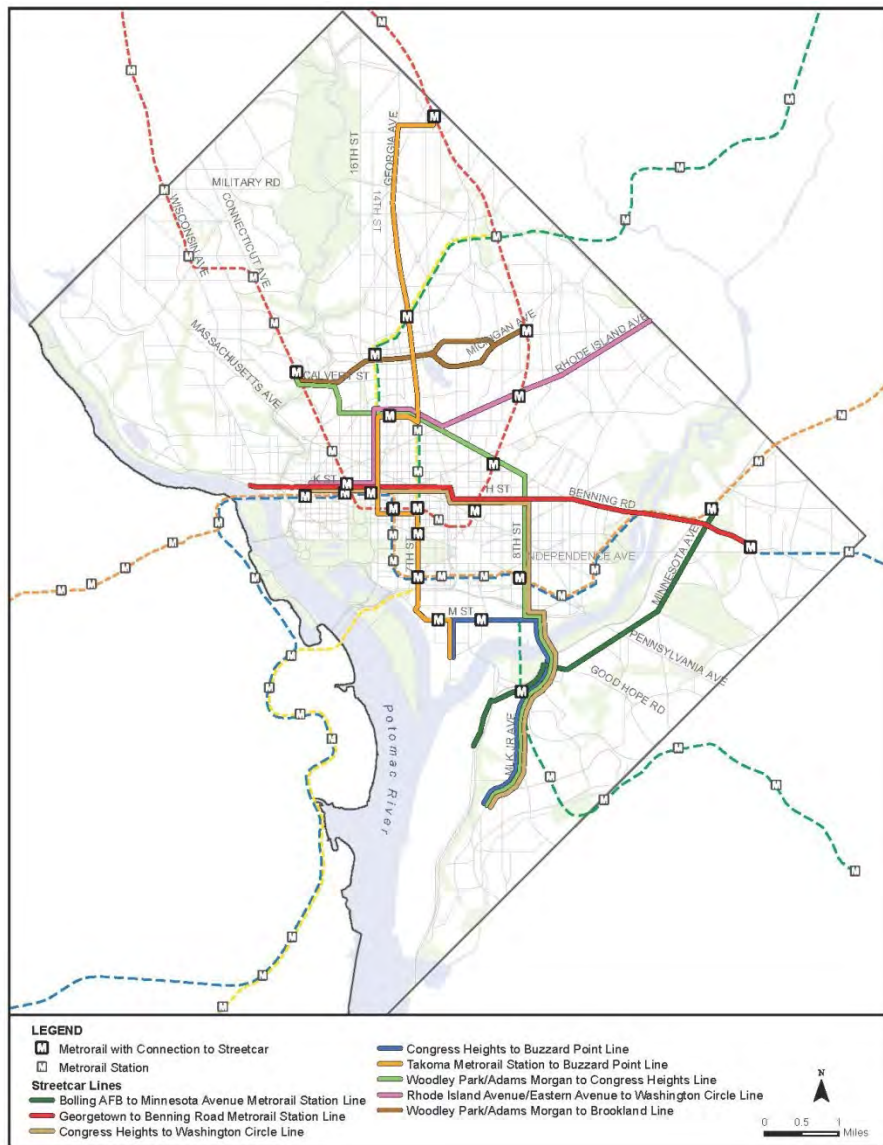
This line will connect the downtown Washington employment core to residential neighborhoods in Northeast DC, a revitalizing commercial district along H Street NE, established commercial retail businesses in Georgetown, and the Union Station Intermodal Transportation Center. The line also will connect to seven Metrorail Stations and serve planned mixed-use development located in downtown Ward 7 near the intersection of Benning Road and Minnesota Avenue (Transit Future System Plan, page 4-1).

The continuation of the H Street/ Benning Road Streetcar to Georgetown was identified as a priority segment for Phase 1 of the plan, as described below:

Extension of the Georgetown to H/ Benning Streetcar Line to Ward 7 and Downtown – After completion of the initial H/ Benning Streetcar segment, expansion plans will focus on extending this line east from Oklahoma Avenue to the Benning Road Metrorail Station and extending it west from Union Station to K Street NW and Washington Circle (near the Foggy Bottom-GWU Metrorail station). Corridor analyses have indicated that the K Street NW segment has the highest ridership potential in the system. The streetcar alignment will utilize the dedicated transit lanes that will be established along K Street NW as part of the planned transitway project (Transit Future System Plan, page 4-9).

As stated above, the vision in the Transit Future System Plan is for a "One City Line," which would include continuous streetcar service from the H Street/Benning Streetcar western terminus at Union Station/ 3rd Street NE, and continuing west on the K Street Transitway to Georgetown. The H Street/ Benning Streetcar project is nearing completion of construction. The vision for a One City Line and the construction of this related project will be considerations in DDOT's recommendation for an alternative for the Union Station to Georgetown Study. The connection of a DDOT Recommended Alternative and H Street Streetcar system will evolve as the H Street Streetcar is operational and DDOT identifies a recommended alternative and propulsion technology for the Union Station to Georgetown Study.

Figure 1-3: DC Transit System Future Plan – Streetcar Element



SOURCE: Figure ES-1: System Plan – Streetcar Element, DC’s Transit Future System Plan, April 2010

The *White House Area Transportation Study*, June 2011 was a study led by the FHWA in cooperation with the National Park Service, DDOT, DC Office of Planning, US Secret Service, the WMATA, and MWCOG. The study area encompassed part of the Union Station to Georgetown study area including K, H, I and M Streets. The study evaluated alternatives to alleviate congestion, compensate for discontinuities in the downtown street grid, and restore congestion to pre-closure conditions in the immediate vicinity of the White House following closures of E Street and Pennsylvania Avenue. The study results identified transit operational improvements in the K Street transitway, such as faster and more reliable east-west bus service in and adjacent to the transitway. However, the study found that the K Street transitway improvements would not benefit the riders in the vicinity of the White House, would create additional congestion on the remainder of the downtown surface transportation network, and reduce K Street’s vehicular capacity and functionality, and shift traffic onto streets already impacted by the closures.

DDOT has published many other studies related to transportation issues in the study area; refer to ddot.dc.gov for additional information.

