



TRANSIT ALTERNATIVES ANALYSIS OF THE ROUTE 7 CORRIDOR

Background Information Report

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Northern Virginia Transportation Commission

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1. INTRODUCTION

1.1 Purpose of Report

The Route 7 corridor between Alexandria and Tysons has many characteristics that make it a viable consideration for premium transit service, including several connected activity centers and major retail and employment anchors along the corridor. Studies such as the Countywide Transit Study being conducted by Fairfax County Department of Transportation and “what-if” discussions in the blogosphere¹ about premium transit service indicate the interest in and desire for such service exists. It helps to build a thorough understanding of the environment surrounding the corridor to begin identifying characteristics—existing and planned—supportive of premium transit service and alignment options to be considered for offering a feasible, cost-effective, and rapid means to accessing the numerous destinations within this area.

This background information report provides a comprehensive overview of the built environment surrounding the Route 7 corridor and alignment options defined within. It will aid future tasks within this study where the purpose and need for the study and premium transit mode options will be developed.

1.2 Content of Report

This report contains concise summaries of various studies conducted within the Route 7 study area (defined in Section 1.3 – Study Area Boundary), existing and planned transportation conditions and improvements, as well as land use and environmental conditions. The report also addresses the study area’s pedestrian and bicycle environment and existing and future socio-economic conditions, as well as provides a high-level travel market analysis to help inform the locations of premium transit routes and station locations.

1.3 Study Area Boundary

The Route 7 study area, shown in Figure 1, consists of the area in Northern Virginia within a half-mile of the Route 7 corridor generally between King Street Metrorail station in Alexandria and Dulles Toll Road bounding Tysons. The study area also includes those areas within a half-mile of seven corridor segment options identified as follows:

- The Metrobus 28A bus route along Seminary Road between South George Mason Drive and Howard Street and along West Braddock Road between North Howard Street and Braddock Road Metrorail station
- The Metro Extra Route 28X along South George Mason Drive and Seminary Road between Route 7 and Mark Center
- The Beauregard-Van Dorn alignment identified as one of City of Alexandria’s high capacity transit corridors and along Beauregard Street and North and South Van Dorn Street between Route 7 and Van Dorn Metrorail station

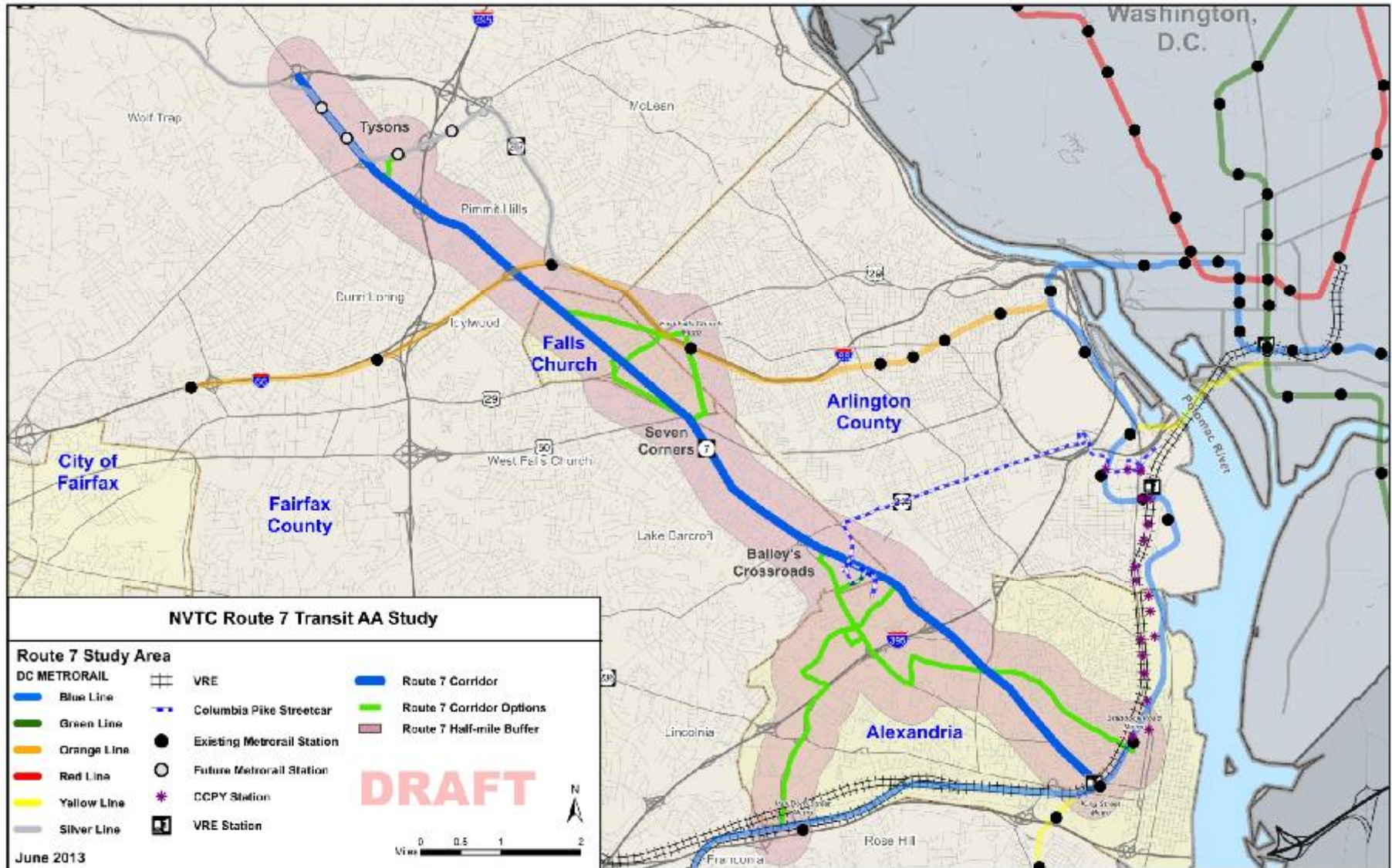
¹<http://greatergreaterwashington.org/post/3750/what-about-a-gold-line-for-route-7/>

- Along Hillwood Avenue and West Annandale Road, bypassing a section of Route 7 in City of Falls Church
- Along Roosevelt Boulevard, North Sycamore Street and Lee Highway, bypassing a section of Route 7 in City of Falls Church and accessing East Falls Church Metrorail station in Arlington County
- Along Roosevelt Boulevard, North Sycamore Street and the W&OD Trail, bypassing a section of Route 7 in City of Falls Church and accessing East Falls Church Metrorail station in Arlington County
- Tysons Metrorail alignment, providing access to the future Tysons and McLean Metrorail stations served by the second phase of the Silver Line

Considering the proposed alignment options, the Route 7 study area traverses four jurisdictions: Fairfax County, Cities of Alexandria and Falls Church, and the western edge of Arlington County.

There are also several existing and planned transit projects within the study area, including three existing (Orange, Blue, and Yellow) and future (Silver) Metrorail lines, proposed circulator routes feeding future Metrorail stations along the Silver Line, and connections to VRE lines serving the western and southern portions of Northern Virginia. Additional planned transit connections within the study area include the southern terminus of the Crystal City/Potomac Yard Transitway at Braddock Road Metrorail station and western terminus of the Columbia Pike Streetcar just south of Bailey's Crossroads.

Figure 1: Route 7 Study Area



Source: Arlington County, City of Alexandria, ESRI, MWCOG, Parsons Brinckerhoff

2.0 REVIEW OF PAST STUDIES AND FINDINGS

2.1 Transportation Studies and Findings

Planning districts, cities, and neighborhoods located in the vicinity of the Route 7 alternatives analysis study area recognize the desired connection between land use and transportation, today and into the future. The various studies identified realistic, but visionary, strategies for enhancing people's mobility through non-single occupant automotive means under existing and future conditions. Planning efforts of the studies culminated in the development of recommendations for a wide range of transit modes as well as transportation demand management programs and infrastructure. Metrorail is the most significant public transportation improvement and is expected to carry the majority of public transportation trips in the near term.

Past studies illustrated several of the core issues for the Route 7 study area, most notably that the travel patterns are marked by a wide variety of short-and medium-length trips connecting various points along the corridor, with relatively few trips covering the entire length of the corridor. Many of different planning districts, cities, counties, and neighborhoods recognized the need for implementing the following measures:

- Provide public transportation facilities in major radial and intra-county commuter corridors, while preserving land and rights-of-way where appropriate
- Establish, expand park-and-ride lots along major inter-county and intra-county corridors and at potential future modal transfer points
- Establish a network of multi-modal centers as necessary to facilitate both inter-county and intra-county travel
- Provide high-occupancy vehicle (HOV) lanes on freeways and major arterials where substantial travel benefits can be realized; includes developing an integrated HOV system with direct connections between park-and-ride lots, transit centers, and other modal transfer facilities and to major mixed-use centers
- Provide safe and convenient non-motorized access to and user amenities for transit services and facilities
- Provide additional mass transit service in major commuter corridors, as needed
- Provide feeder and local bus service to connect to mass transit facilities, mixed-use centers, educational facilities and employment centers
- Provide local circulation service within mixed-use centers and employment centers
- Facilitate transfers between modes at transit centers through coordination of services, schedules, fares, communication systems and information
- Coordinate the planning and provision of public, human service agency, and non-profit transportation services targeted to the senior population, people with disabilities and low-income residents

Tables 1 and 2 provide succinct overviews of various transit and general transportation plans and studies conducted in the Route 7 study area. Further details from each of the listed studies can be found in the appendix of this report.

Table 1: Summary of Past Transit-Related Studies

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
Alexandria Transportation Master Plan, Transit Element	2012	A19	City of Alexandria	Outlines a progressive vision for the future of travel throughout the City of Alexandria with a system of innovative transit vehicles operating along three primary transit corridors within secure rights-of-way dedicated exclusively to transit use.	City of Alexandria	2008/2030	Transit improvements will be developed along routes that parallel existing roads and areas of high travel demand.	<ul style="list-style-type: none"> • Innovative transit vehicles operating along three primary transit corridors within secure rights-of-way dedicated exclusively to transit use. • The entire transit network will be linked by way of Smart Stops, Shelters and Stations located along all transit routes. 	•All of the corridors identified cross Route 7 or potentially serve the King Street Metro station.
Arlington Master Transportation Plan, Transit Element	2012	A17	Arlington County	This Transit Element provides implementation actions to maximize the potential of the existing transit system while the County makes improvements to local and regional transit service and implements new transit service such as streetcar or Bus Rapid Transit (BRT).	Arlington County	2009/2030	In 2007, the County acquired land for the development of an ART bus facility within Arlington and moved into temporary quarters on the site.	<ul style="list-style-type: none"> • Develop a Primary Transit Network (PTN) that extends beyond the established Metrorail corridors and include new surface transit services. • Transit services should operate at 15-minute intervals or better every day for about 18 hours. • Operate a Secondary Transit Network (STN) of bus and paratransit services that improves access to Arlington 	• Coordination with Arlington County Transit could leverage recommended expansion of local bus network that feeds Route 7 premium transit service
Countywide Transit Network Study	2012	A57	Fairfax County	Establish rapid transit corridors to meet future demand; identify policies to support phased implementation	Fairfax County	2050	Fairfax County's land use policies encourage development within designated activity centers. About 70% of the County's residential growth through 2040 will be in multifamily housing units.	<ul style="list-style-type: none"> • Enhance Transit Connections • Increase Ridership • Improve directness of travel • Assessment of viability of ROW acquisition 	•Encourages connections to activity centers and adjacent jurisdictions using high speed commuter corridors such as Route 7—a designated enhance public transportation corridor

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
I-66 Transit/Transportation Demand Management (TDM) Study	2009	A21	Virginia Department of Rail and Public Transportation/ Prince William County/ Fairfax County	The scope of the study involves developing a plan for short- and medium-term transit and TDM service improvements in the I-66 corridor between Haymarket and Washington, D.C.	I-66 corridor (between Haymarket, Virginia and Washington, D.C.)	2015/2030	N/A	<ul style="list-style-type: none"> Priority bus stations and access ramps New and expanded park and ride lots Additional transit service includes three new WMATA-operated bus routes, one priority and two Metrobus Express 	<ul style="list-style-type: none"> The study recommends priority bus service along the I-66 corridor, with one of the recommended stations located at East Falls Church Metrorail station.
MWCOG Bus Priority Hotspots Study	2011	A23	MWCOG	The study created a database of "hotspots" for potential implementation of bus prioritization techniques.	DC, Maryland, and Virginia	2010/2011	N/A	<ul style="list-style-type: none"> For each jurisdiction, two hotspots were selected that will most likely lend themselves to successful transit priority implementations. 	<ul style="list-style-type: none"> Selected hotspot corridors have no implication on Route 7 study area; however, data collected for study can aid in addressing relevant hotspot studies within the Route 7 study area
PRTC Transit Development Plan (2012-2017)	2011	A91	PRTC	The six-year TDP identifies the cost-feasible service needs that are recommended for inclusion in the TDP time period	PRTC service area	2017	N/A	<ul style="list-style-type: none"> Gainesville to DC OmniRide route is included beginning in the second quarter of FY 2013 when the Cushing Road Commuter Lot opens Linton Hall Metro Direct: Beginning in the second quarter of FY 2013, eliminating the two additional express trips per day that were implemented in October 2010. 	<ul style="list-style-type: none"> Service enhancements to Tysons Express route could benefit overall travel times for riders that may want to continue travel using premium transit along Route 7. Gainesville/Litton Hall service—already started in FY2013—serves West Falls Church, a potential station for premium service with Route 7 study area
Super NoVa Transit and TDM Vision Plan	2012	A15	Virginia Department of Rail and Public Transportation	The Vision Plan will evaluate current transit service and TDM programs as a basis for the development of a multi-horizon vision for transit and TDM in the super region.	Northern Virginia	2020/2040	The study has combined land use, population, and employment projections and four regional models into one super-regional trip table that allows them to analyze demand between super zones (person-trip connections).	<ul style="list-style-type: none"> Will identify potential services, such as LRT vs. HRT, and Commuter Rail vs. Commuter Bus. Will identify individual corridors and classify their potential demand level and the conditions to support various transit services in that corridor. 	<ul style="list-style-type: none"> Supports high-capacity transit service along Route 7, Van Dorn/Beauregard, and Duke Street corridors Supports intermodal transportation hubs in the Tysons and Falls Church areas

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Tysons Corner Draft Circulator Study	2010	A47	FCDOT	Design a circulator system that will support the goal of maximizing transit trips and reducing the number of auto trips from and within Tysons Corner.	Tysons	2050	Implementation of Tysons Master Plan	<ul style="list-style-type: none"> Two network alternatives (Three Route and Four Route Network) Use of 40' or 60' buses to provide the services for all routes Transit signal priority 	<ul style="list-style-type: none"> The study identifies three- and four-route network of circulators to serve Tysons once Silver Line is constructed and in operation Identifies three areas recommending a combination of queue jumps and exclusive lanes, including Gosnell Road/Westpark Drive & Route 7 Intersection to Westpark Drive and International Drive intersection; Spring Hill Road/Route7/Tyco Road Loop; and Scotts Crossing Road between Capital One Drive and Old Springhouse Road
Proposed Bus Service at Metrorail Silver Line Stations: Phase I and II	Late-2000s	A4	WMATA	Identify the bus service proposed by Fairfax Connector, WMATA, Loudon County, and PRTC to coincide with Phases I and II of the Silver Line	Falls Church Tysons	2009/2017	Major employment centers (Tysons Corner, Reston-Herndon, Dulles Airport)	<ul style="list-style-type: none"> New bus routes to new Metrorail station Modify existing bus routes and schedules Increase frequency of modified bus routes 	<ul style="list-style-type: none"> None
South Side Mobility Study – MTA	2012	A90	Maryland Transit Administration (MTA)	The scope of this study specifically calls for a feasibility evaluation of transit alternatives connecting the Metrorail Green Line in Maryland with the Metrorail Blue/Yellow Line in Virginia across the WWB based on potential ridership and cost-effectiveness.	I-95/I-495 (between Springfield Interchange in Virginia to MD 5 (Branch Avenue) in Maryland)	2040	N/A	<ul style="list-style-type: none"> Three basic types of guideway are under consideration for the initial alternatives: mixed-traffic operations; at-grade dedicated rights-of-way (ROW), and grade-separated, dedicated ROW. 	<ul style="list-style-type: none"> Potential to connect Prince George's County and Route 7 corridor through premium transit
WMATA Leesburg Pike 28A/B Evaluation Study	2008/2009	A2	WMATA	Assess viability of implementing an express but variant to the existing 28A/B line	Alexandria Tysons	2010	Existing land-use conditions	<ul style="list-style-type: none"> 28X express variant of the Route 7 Elimination of the 28B variant 	<ul style="list-style-type: none"> Laid groundwork for enhanced transit service along Route 7 corridor through the Route 28X, initiated in 2010 Also laid groundwork for transit signal prioritization (TSP) and stop enhancement recommendations along corridor as part of the Priority Corridors Network Plan

Table 2: Summary of Past Transportation-Related Studies

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
Alexandria Transportation Master Plan	2012	A80	City of Alexandria	The Alexandria Transportation Master plan focuses on transit, pedestrian, bicycle, streets, parking and funding.	City of Alexandria	2008/2030	The plan also includes strategies for transit supportive land-use. This includes coordination with City planning efforts by reviewing and commenting on all new land use/development adjacent to the proposed corridors.	<ul style="list-style-type: none"> Establishing three corridors known as corridors A, B and C and different modes from local, shuttle buses to Light Rail. Consolidation of existing private shuttle services Implementation of dedicated transit lanes Implementation of ITS Transit fare reduction program 	<ul style="list-style-type: none"> The City of Alexandria has identified Arterials (Including Route 7) as their primary roadway type for designating dedicated transit lanes in order to provide for the efficient congestion free movement of transit services within dedicated transit lanes.
Mark Center Transportation Study	2009	A28	VDOT	Determine the effects of future build/no-build scenarios on the Mark Center roadway network; anticipated future transit conditions/services within its facility.	Mark Center	2020	Based on MWCOG land use	<ul style="list-style-type: none"> The study notes and anticipates the construction of a Bus Rapid Transit (BRT) station at the intersection of I-395 and Seminary Rd. 	<ul style="list-style-type: none"> None
I-66 Multimodal Study, Inside the Beltway – VDOT	2012	A89	VDOT	Identify a range of current and visionary multimodal and corridor management solutions that can be implemented to reduce highway and transit congestion and improve overall mobility within the corridor and along major arterial roadways and bus routes within the study area	I-66 corridor between I-495 and the Theodore Roosevelt Bridge	2040	Based on MWCOG land use	<ul style="list-style-type: none"> The project continues to analyze and evaluate transportation strategies, projects, policies, or programs to identify 8-10 options with the most potential for enhancing mobility in the I-66 corridor inside the Beltway. One of the options being evaluated is titled: Bus Transit Level of Service and Capacity 	<ul style="list-style-type: none"> None
I-95 Integrated Corridor Management System – VDOT	2012	A88	VDOT	This study will develop an ICM project definition and concept of operations for the I-95/395 corridor between Fredericksburg and the 14th Street Bridge.	I-95/395 corridor between Fredericksburg and the 14th Street Bridge	Mid-2010s and beyond	Based on MWCOG land use	<ul style="list-style-type: none"> Develop an integrated resource for customers to find real-time / schedule information for all carriers Provide accurate travel time information for express bus and rail transit services Enhanced parking information 	<ul style="list-style-type: none"> Recommendations for the ICM system include technology and infrastructure improvements that would benefit transit, however no recommendations related to transit service itself in the document.

2.2 Subarea/Neighborhood Plans

The subarea and neighborhood plans prepared for the corridor reflect the broad range of land uses found along the corridor through Tysons, Falls Church, Seven Corners, Bailey's Crossroads, Skyline, and into the City of Alexandria. Most of the plans identify areas of higher density along Route 7 and call for stronger linkages between transportation and land use decisions and look to focus higher density development in areas around existing or proposed transit stations. Some call for maintaining suburban single-family home developments as a method to maintain the existing character of the neighborhoods.

Most plans identify the benefits of transit along the various identified corridor alignments for Route 7, with specific emphasis placed on connecting Bailey's Crossroads with Tysons via Route 7, and the Van Dorn Metro station and Shirlington along the Beauregard Corridor. Fairfax County's comprehensive plan identifies the strategy of further exploring high occupancy toll (HOT) lane concepts on major roadways, which provide opportunities for transit service.

Table 3: Summary of Past Planning Studies

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
Alexandria Waterfront Small Area Plan	2011	A86	City of Alexandria	The Plan embraces the recommendations of the Alexandria History Plan— Alexandria and the Alexandria Waterfront Art Plan by capturing the waterfront’s history and preserving it through art, programming, historic preservation and conservation	City of Alexandria	2030	Old Town Alexandria – and the Waterfront Small Area Plan (Plan) planning area in particular – is predominantly mixed-use and pedestrian-oriented, having been used by City residents, businesses and visitors for more than 400 years	<ul style="list-style-type: none"> • The city does not plan to add or widen streets • Signal timing adjustments and exploring the addition of protected left turn movements • Consider transportation linkages between the waterfront, Braddock Road Metro, Potomac Yard and Del Ray. • Increase King Street Trolley service between the King Street Metrorail station and the waterfront 	<ul style="list-style-type: none"> • Because of the waterfronts significance as a vibrant destination, the small area plan could provide some insights into transportation implications to the southern end of the Route 7 corridor that may affect alignment options.
Baileys Planning District	2012	A77	Fairfax County	The planning guidance provided by the Concept for Future Development is one of the principal elements used in formulating Area Plan recommendations.	Baileys Planning District	2030	The Concept for Future Development envisions that the Baileys Planning District will develop primarily as Suburban Neighborhoods with commercial development focused in the Seven Corners and Baileys Crossroads Community Business Centers	<ul style="list-style-type: none"> •The major multi-modal transportation hub planned in the Baileys Crossroads CBC is located along Jefferson Street • Reducing the number of driveway access points on Leesburg Pike and Columbia Pike, and collectors should be implemented to improve safety, connectivity and mobility. 	<ul style="list-style-type: none"> • Leesburg Pike (Route 7) from the intersection with Columbia Pike, heading north to the City of Falls Church, and then to Tysons Corner is designated as an Enhanced Public Transportation Corridor (EPTC).
Beauregard Small Area Plan	2010	A67	City of Alexandria	The Plan proposes a framework to guide the expected growth in a manner that will be economically, socially, and environmentally sustainable for the City.	Beauregard	2040	The greatest level of development is generally located adjacent to planned transit stops, with lesser intensity farther from the stops; the blocks adjacent to the transit stops are generally a mix of retail, residential, hotel and office, while other blocks are predominantly residential.	<ul style="list-style-type: none"> • Ellipse at Seminary Road/Beauregard Street • Transitway • Roadway improvements in vicinity of Seminary Road/I-395 • Internal street network New HOV ramp I-395/Seminary Road 	<ul style="list-style-type: none"> • Identified transitway is one of the alignment options within Route 7 study area • The transitway will connect to the Van Dorn Metrorail station, using Beauregard Street, Sanger Avenue and Van Dorn Street • The transitway will provide access for high capacity transit in a dedicated guideway along almost all its length

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
Braddock Neighborhood Plan	2008	A62	City of Alexandria	The plan has several topic areas in which it seeks to make improvements to the neighborhood.	Braddock Neighborhood	20-year period	The Braddock Neighborhood plan recommends an active plaza space at the site of the existing Metro station. The plan suggests that there is unmet potential for a total of 75,000 square feet based on anticipated growth of other land uses.	<ul style="list-style-type: none"> • Braddock neighborhood plan does not anticipate the physical expansion of any of its roadways to accommodate higher traffic volumes. • Geometric constraints of the existing neighborhood street system is a contributing factor to decreased share in auto trips 	<ul style="list-style-type: none"> • Braddock Road identified as an alignment option within Route 7 study area • Summarizes information on existing and proposed transportation and land-use conditions that could influence alignment selection for ultimate Route 7 study alignment
Fairfax County FY2012 Capital Improvement Plan	2012	A42	Fairfax County	This review outlines the Fairfax County Capital Improvement Program for FY 2012.	Fairfax County	2012	N/A	<ul style="list-style-type: none"> • Most of the transportation projects listed are not ranked as priority as their anticipated construction/implementation exceeds the timeframe for which the CIP accounts for. 	<ul style="list-style-type: none"> • None
Fairfax County Comprehensive Plan, 2011 Edition	2011	A44	Fairfax County	Emphasize the need to maximize the efficient use of the existing and future Fairfax County transportation system by reducing reliance on automobile travel, and by coordinating land use decisions and transportation planning within Fairfax County and the region as a whole.	Fairfax County	20-year period	Establish right-of-way requirements and preserve the land for future interchanges, and transit stations.	<ul style="list-style-type: none"> • Consider providing HOT lanes on limited access roadways • Establish and/or expand park-and-ride lots along major inter-county and intracounty corridors and at potential future modal transfer points. • Establish a network of multi-modal centers • Promote and market public transit 	<ul style="list-style-type: none"> • Support public transportation and non-motorized travel through the design and development of mixed-use projects in Tyson's Corner Urban Center, Suburban Centers, Revitalization Areas, Transit Station Areas, and Community Business Centers.
Jefferson Planning District	2012	A38	Fairfax County	Preserve stable residential neighborhoods, well buffered from higher intensity use and through-traffic arterials.	Jefferson Planning District	20-year period	Parcels along Route 7 west of Idylwood Road are planned for residential development. These parcels are only suitable for low density residential development due to their small size and access constraints to Route 7.	<ul style="list-style-type: none"> • Access orientation • Circulation plans • Interchange impact areas and generalized locations of proposed transit facilities 	<ul style="list-style-type: none"> • Identified Route 7 as an enhance public transportation corridor • Provides information about the planning sectors adjacent to Route 7 corridor that could inform future environmental scanning efforts

Study/Plan Name	Year Completed	Page Number in Appendix	Sponsoring Agency	Purpose	Study Plan Area	Analysis Year/ Implementation Year	Land Use Assumptions	Transportation Improvements Recommendations	Implications for Route 7 High Capacity Transit Study
McLean Planning District	2012	A24	McLean Planning District	Ensure that development within the McLean CBC is at a scale compatible with the service requirements and shopping needs of McLean residents and compatible with the CBC's transportation facilities	Northeast Fairfax County	20-year period	The McLean CBC is a large community shopping, service and residential area. The CBC provides shopping and professional services to the surrounding community. It is located within two miles of Tysons Corner, a major regional employment center with extensive residential, employment, and retail uses.	<ul style="list-style-type: none"> • Ridesharing programs • Bus transit planning and promotion • Parking management programs • Non-motorized connections 	<ul style="list-style-type: none"> • Consideration should also be given to providing a peak period shuttle bus service from the apartments and condominiums at Idylwood Road and Route 7 to the station. • A streetscape program should be developed for the segments of Route 7, Haycock Road and Great Falls Street that lie within the vicinity of the Transit Station Area.
Tysons Corner Urban Center District	2010	A47	Fairfax County	This section of the Plan contains specific recommendations for the eight districts in Tysons.	Tyson Urban Center	2050	The phasing of planned development with necessary public facility, transportation and infrastructure improvements and appropriate mitigation measures, consistent with the guidance in the Areawide Recommendations.	<ul style="list-style-type: none"> • Public facility, transportation and infrastructure analyses should be performed in conjunction with any development application. 	<ul style="list-style-type: none"> • This redesign should result in a calming of traffic through the area while maintaining the roadway capacity of Route 7 • Running through Tysons Central, Route 7 will be redesigned as pedestrian friendly, tree lined boulevard
Vienna Planning District	2012	A6	Fairfax County	Achieve appropriate development and redevelopment in the Vienna Transit Station Area, and Merrifield Suburban Center	Spring Lake Community Planning Sector	20-year period	This land unit represents an excellent opportunity to promote transit oriented mixed-use development at the Vienna Metro station.	<ul style="list-style-type: none"> • A TDM program should be provided that encourages the use of transit (Metro and bus) and high occupant vehicle commuting modes 	<ul style="list-style-type: none"> • None

3.0 TRANSPORTATION CONDITIONS

3.1 Roadways

3.1.1 Functional Classification

Figure 2 shows the functional classification of the key roadways within and surrounding the Route 7 study area². Route 7 is classified as a principal arterial throughout the study area, while the other potential premium transit corridor segment options are classified as minor arterials. The key roadways intersect the potential route options at various locations that could create opportunities for intermodal connections to a premium transit service being considered for the Route 7 corridor. However, most of these key roadways emanate in radial patterns from Washington, DC; with Route 7 serving as a primary connection among these radial corridors and the major destinations within the study area

3.1.2 Physical and Maintenance Jurisdiction

Information on the physical and maintenance jurisdictions of roadways within the study area was obtained from each agency's web site. This information addressed the Route 7 corridor and potential route options within the study area and indicates that VDOT maintains all roadways and signals in Fairfax County, as well as primary roadways and signals along them in Arlington County. The remaining jurisdictions maintain all roadways and signals within their limits. The limits of physical and maintenance jurisdictions of the identified roadways are illustrated in Figure 3 and listed in Table 4.

² Based on 2005 Virginia Highway Functional Classification – VDOT (2005), http://www.virginiadot.org/projects/fxn_class/northern_virginia.asp, accessed February 27, 2013

Table 4: Physical/Maintenance Jurisdiction on Route 7 Corridor and Alignment Options

Roadway	Limits	Maintenance Agency
Arlington County		
• US 29 - Lee Hwy	• Falls Church border to Washington Blvd	VDOT
City of Alexandria		
• Route 7 – King St • Seminary Rd • Van Dorn St	• Alexandria border to West Rd • I-395 to Quaker Ln • Seminary Rd to Alexandria border	City of Alexandria Department of Transportation and Environmental Services (T&ES) – all three segments
City of Falls Church		
• Route 7 – Broad St • US 29 – N Washington St • Hillwood Ave	• Western Falls Church border to eastern Falls Church border • Route 7 – Broad St to Arlington County border • Annandale Rd to eastern Falls Church border	Cit of Falls Church Department of Public Works (DPW) – all three roadway segments
Fairfax County		
• Route 7 – Leesburg Pk • Route 7 – Leesburg Pk	• Eastern Falls church border to Alexandria border • Dulles Toll Road to western Falls Church border	VDOT – both segments

3.1.3 Street Configuration

The street configuration of Route 7 and other premium transit corridor options range from two-lane undivided roadways to six-lane divided roadways. The majority of Route 7 ranges from four to six lanes and is divided in the sections north of I-66 and south of Bailey’s Crossroads up to Braddock Road. The southernmost section of Route 7 reduces to two and three travel lanes, creating a challenge for implementing premium transit service that could benefit from dedicated lanes. Other corridor segment options are generally four-lane divided roadways; Braddock Road and Hillwood Avenue generally have three travel lanes. Figure 4 graphically displays the cross sections of the corridor alignments within the study area, while Table 5 provides a tabular summary including the limits of the roadway cross sections.

Right-of-way information is available through GIS planimetric data layers for most jurisdictions; however, the data cannot easily be attributed to individual roadway segments.

3.1.4 Traffic Signals

Figure 5 shows the locations of the traffic signals within the Route 7 study area. Along the Route 7 corridor, there are 49 traffic signals. This reflects an average signal spacing of a little more than a quarter of a mile along the 13.5-mile Route 7 corridor.

3.1.5 Planned and Programmed Highway Improvements

Figure 6 shows the planned and programmed highway improvements for the Washington Metropolitan Area as identified in the Metropolitan Washington Council of Governments’ (MWCOCG) 2012 Constrained Long-Range Transportation Plan (CLRP) and lists those projects specific to Virginia.

Table 5: Summary of Roadway Cross Sections within Route 7 Study Area

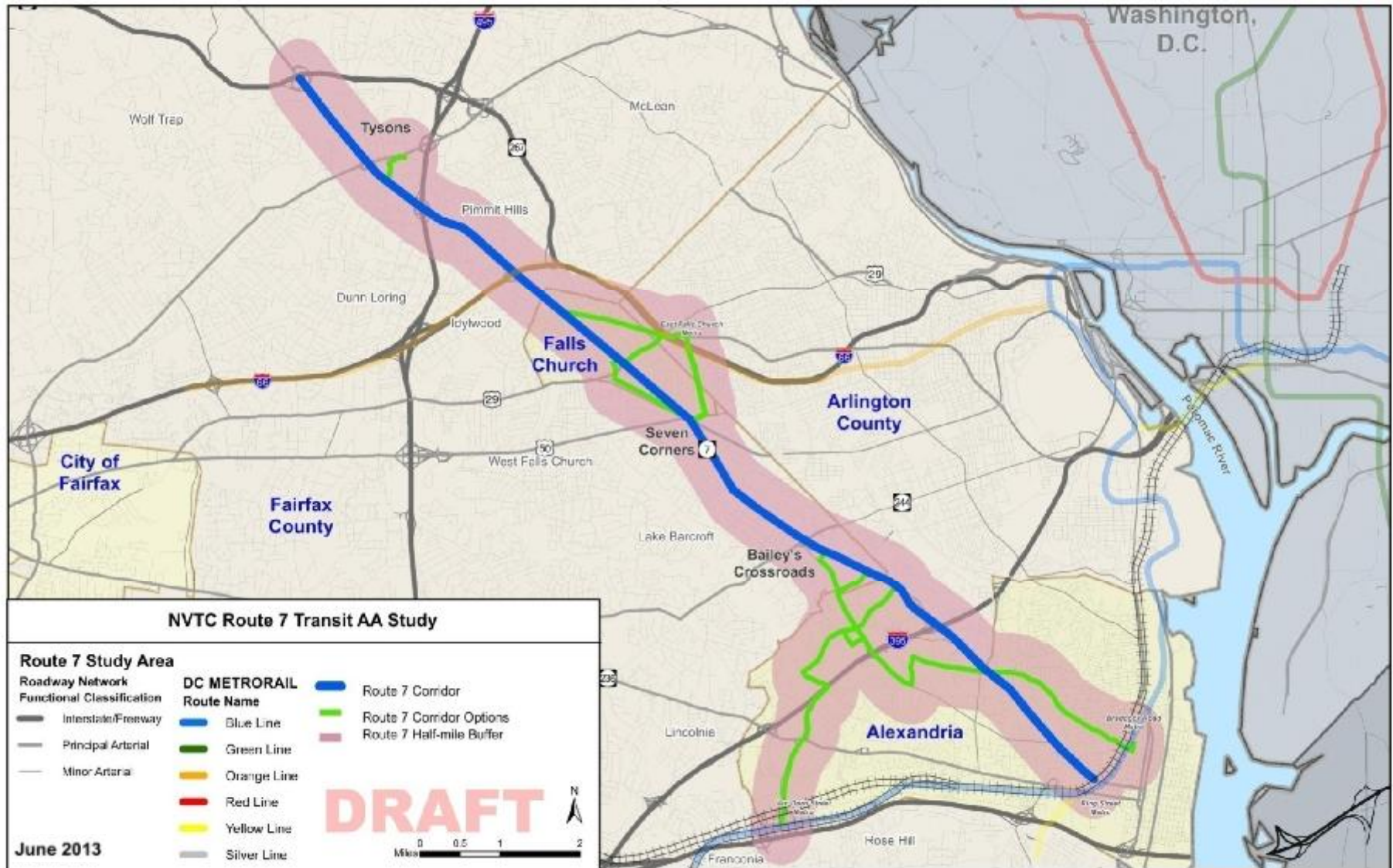
Roadway Segment	2-Lane (U)	3-Lane (U)	4-Lane (U)	4-Lane (D)	5-Lane (U)	5-Lane (D)	6-Lane (U)	6-Lane (D)
Route 7								
Dulles Toll Road to I-495								X
I-495 to Idylwood Dr				X				X
Idylwood Dr to West St					X			
West St to US 50			X					
US 50 to Ped Signal							X	
Ped Signal to Shopping Center Access			X					
Shopping Center Access to Dawes Ave								X
Dawes Ave to Hampton Dr			X					
Hampton Dr to Menakin Rd								X
Menakin Rd to Kenwood St				X				
Kenwood St to Janey's Ln.			X					
Janey's Ln to Callahan Dr	X							
Callahan Dr through Metrorail Underpass		X						
Seminary Road								
Nottingham Dr to Kenmore Ave				X				
Kenmore Ave to Howard St			X					
Howard Street								
Seminary Rd to Braddock Rd			X					
Braddock Road								
Howard St to Route 7				X				
Route 7 to Kenwood Ave		X						
Kenwood Ave to Ramsey St	X							
Ramsey St to West St				X				
Beauregard Street								
Sanger Ave to Highview Ln				X				
Highview Ln to Seminary Rd						X		
Seminary Rd to Branch Ave				X				
Branch Ave to Route 7					X			
Van Dorn Street								
Southern Alexandria border to Holmes Run Pkwy				X				
Holmes Run Pkwy to Sanger Ave			X					
Hillwood Avenue								
Annandale Rd to Route 7		X						
North Sycamore Street/North Roosevelt Street/Roosevelt Boulevard								
Washington Blvd to Arlington border				X				
Arlington border to Wilson Blvd				X				
US 29 – Lee Highway/North Washington Street								
Route 7 to Columbia St			X					
Columbia St to Jefferson St				X				
Jefferson St to Fairfax Dr			X					

(U): Undivided roadway

(D): Divided roadway

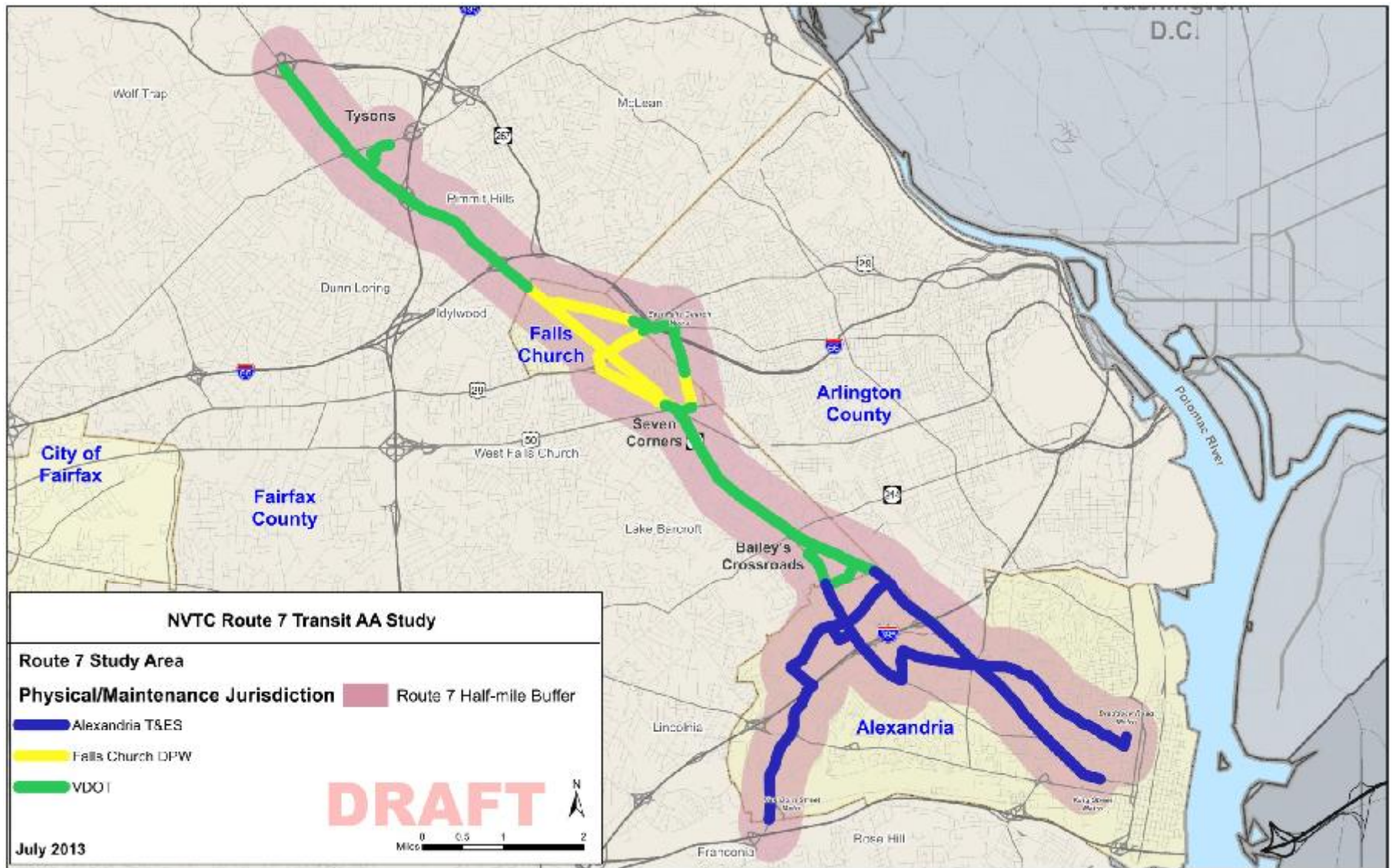
Source: Google Earth, field reviews

Figure 2: Route 7 Functional Classification of Major Roadways



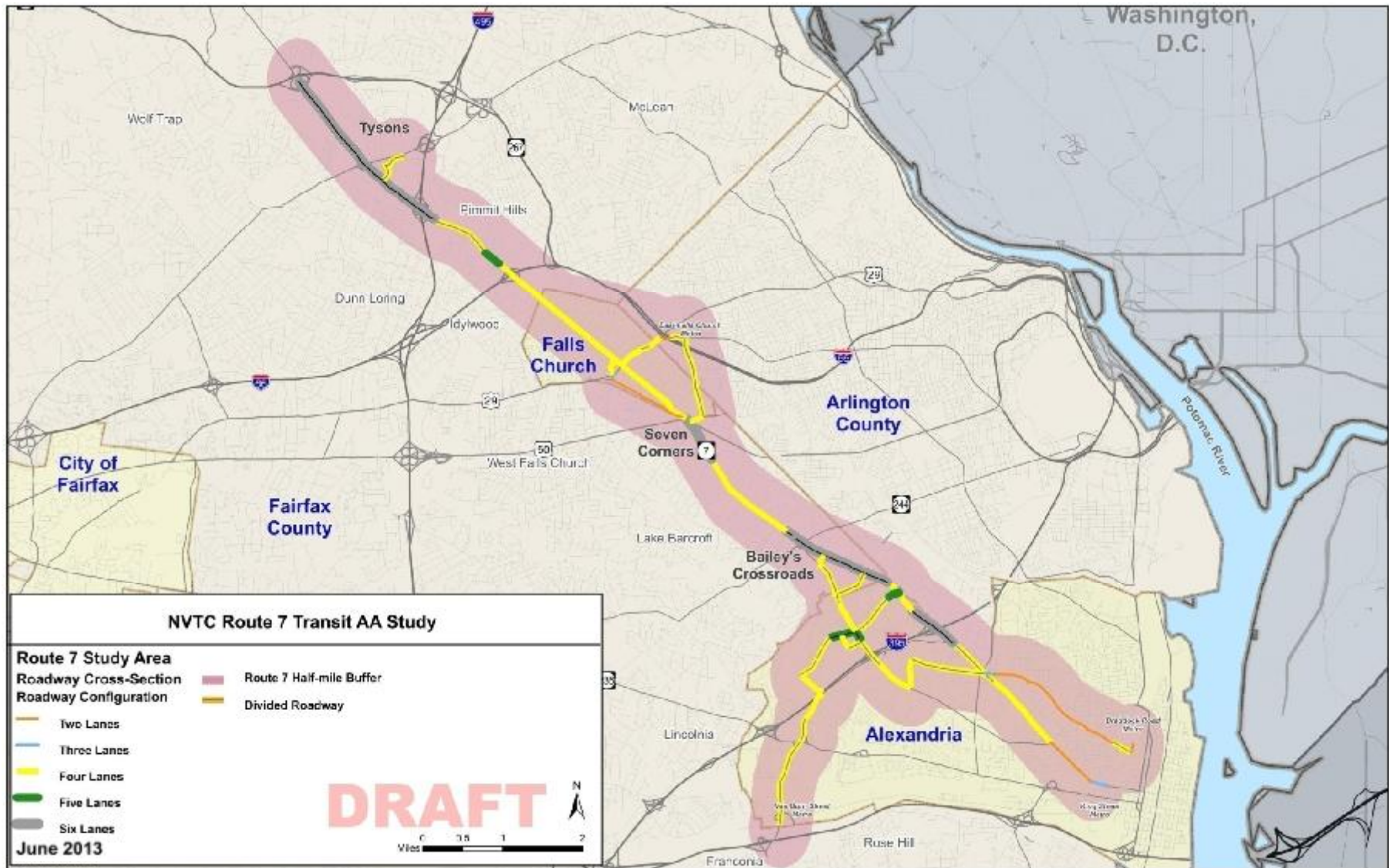
Source: VDOT, ESRI, WMATA, Parsons Brinckerhoff

Figure 3: Physical and Maintenance Jurisdiction within Route 7 Study Area



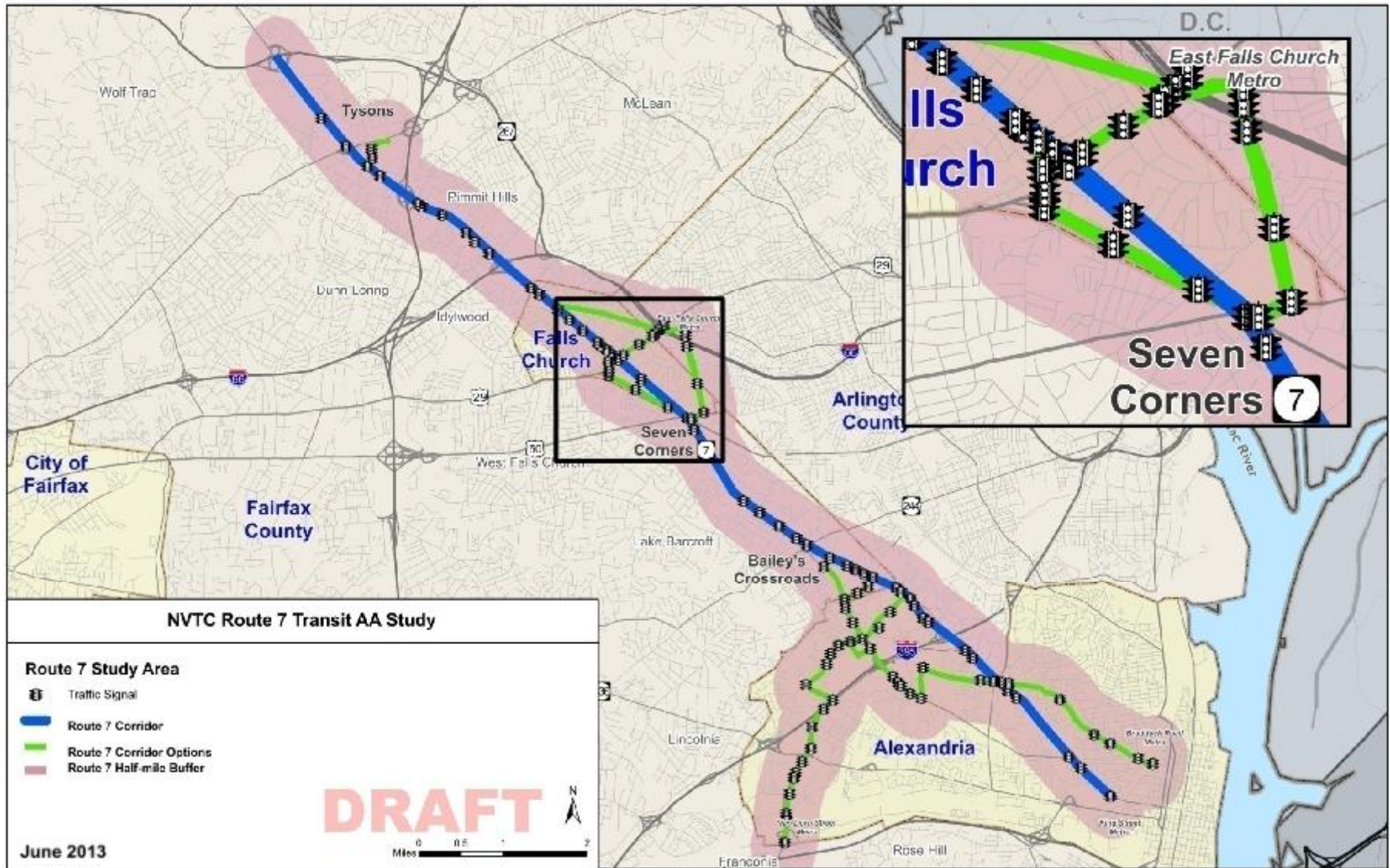
Source: Agency web sites, ESRI, Parsons Brinckerhoff

Figure 4: Roadway Cross-Sections within Route 7 Study Area



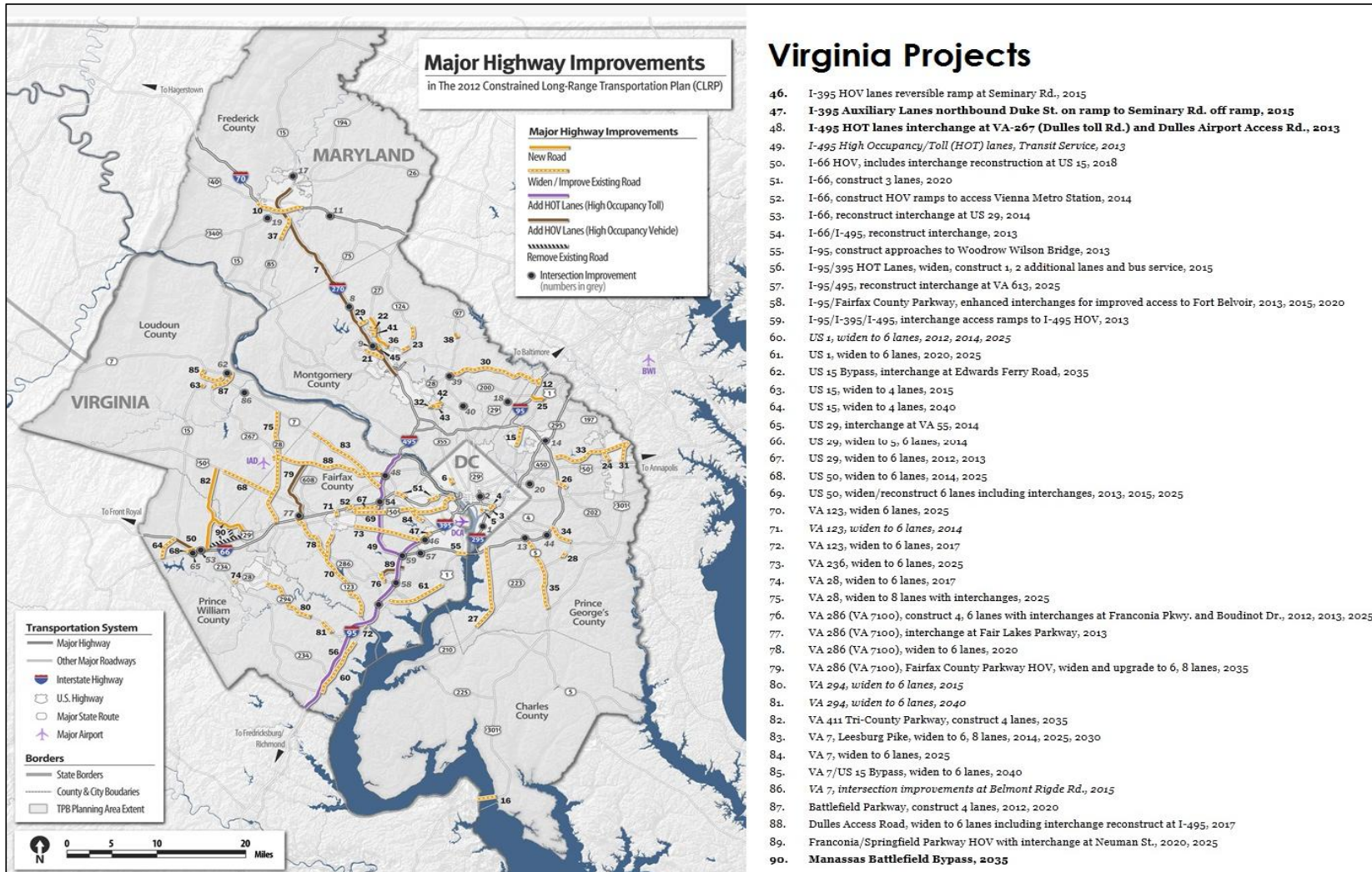
Source: Google Earth, ESRI, Parsons Brinckerhoff

Figure 5: Traffic Signals within Route 7 Study Area



Source: Google Earth, ESRI, Parsons Brinckerhoff

Figure 6: Major Highway Improvement within 2012 MWCOG CLR



Source: MWCOG Constrained Long-Range Transportation Plan

3.2 Traffic

3.2.1 Traffic Volumes

Figure 7 illustrates the range of average daily traffic volumes along primary roadways within the Route 7 study area, based on 2011 data made available by VDOT's Traffic Engineering Division.⁴ Volume data for other roadways within the study area was not readily available as of the writing of this report. Some of the heaviest daily volumes are observed along Route 7 between Dulles Toll Road and I-66, the segment that traverses Tysons Corner. Moderate volumes occur through the center portion of the Route 7 corridor between I-66 and Bailey's Crossroads. Between Bailey's Crossroads and I-395, volumes begin increasing once again before decreasing significantly through Alexandria toward King Street Metrorail station. Section 3.2.2 will discuss segment level of service (LOS) along select corridor segments to provide additional context for the roadway volumes.

3.2.2 Traffic Levels of Service

Intersection and arterial levels of service (LOS) based on Synchro modeling conducted in 2008⁵ was available for weekday AM and PM peak hours along a limited number of corridor segments within the study area. Table 6 through Table 15 summarize the modeled conditions along specific corridor segments. Higher LOS values along intermediate corridor segments or at signalized intersections could indicate challenges to implementing some types of transit priority, such as dedicated curb lanes or signal priority, while lower LOS values may facilitate transit's use of roadway conditions as is. Updated corridor analysis would be needed to better understand the impacts of the existing and proposed surrounding environment on potential transit service along the Route 7 corridor and other corridor options.

⁴ VDOT (2011), <http://www.virginiadot.org/info/ct-TrafficCounts.asp>, accessed on February 11, 2013

⁵ 2012 Synchro data was provided after analysis was initiated on 2008 Synchro data.

Table 6: Route 7 Weekday AM Peak Hour LOS between Dulles Toll Road and Old Gallows Road

Cross Street	Intersection LOS (Peak Hour)	AM Peak Hour - Southbound								AM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec.)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed(mph)	Running Time (sec.)	Signal Delay (sec.)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	---																
Dulles Toll Rd. W	C	III	35	32.8	21.8	54.6	0.27	18.0	D	---	---	---	---	---	---	---	
Dulles Toll Rd. E	A	III	35	29.4	9.6	39.0	0.24	22.6	C	III	35	29.4	6.0	35.4	0.24	24.9	B
Tyc0 Rd.	F	III	35	27.8	85.5	113.3	0.23	7.3	F	III	35	27.8	4.3	32.1	0.23	25.9	B
Spring Hill Rd.	D	III	35	18.0	9.8	27.8	0.14	18.2	C	III	35	18.0	7.4	25.4	0.14	19.9	C
Gosnell Rd./Westpark Dr.	D	III	35	47.4	10.5	57.9	0.39	24.6	B	III	35	47.4	52.2	99.6	0.39	14.3	D
Marshall Entr./Service Rd.	B	III	35	30.2	10.8	41.0	0.25	22.1	C	III	35	30.2	37.8	68.0	0.25	13.3	E
---/Chain Bridge Rd. W.	A	III	35	17.1	0.2	17.3	0.13	27.7	B	III	35	17.1	12.0	29.1	0.13	16.5	D
ChnBrdg E	B	III	35	16.0	7.9	23.9	0.12	17.9	D	III	35	16.0	12.1	28.1	0.12	15.2	D
Gallows Rd./International Dr.	D	III	35	35.5	30.8	66.3	0.30	16.1	D	III	35	35.5	1.9	37.4	0.30	28.5	B
---/Fashion Blvd	E	III	35	22.7	32.6	55.3	0.19	12.3	E	III	35	22.7	19.9	42.6	0.19	16.0	D
Old Gallows Rd./---	F	III	35	18.7	3.0	21.7	0.15	24.3	B	III	35	18.7	49.9	68.6	0.15	7.7	F
Points South	---	---	---	---	---	---	---	---	---	III	35	24.0	0.6	24.6	0.20	29.3	B
Total		III		295.6	222.5	518.1	2.42	16.8	D	III		286.8	204.1	490.9	2.35	17.2	D

Source: VDOT (2008)

Table 7: Route 7 Weekday AM Peak Hour LOS between Ramada Road/Lisle Avenue and Shreve Road/Haycock Road

Cross Street	Intersection LOS (Peak Hour)	AM Peak Hour - Southbound								AM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	--																
Ramada Rd/Lisle Ave	E	III	35	58.9	19.5	78.4	0.49	22.6	C	---	---	---	---	---	---	---	---
George C. Marshall Dr.	D	III	35	32.1	17.2	49.3	0.27	19.5	C	III	35	32.1	81.5	113.6	0.27	8.5	F
Service Rd/Patterson Rd	B	III	35	45.4	22.9	68.3	0.38	19.9	C	III	35	45.4	38.2	83.6	0.38	16.3	D
Pimmit Road	D	III	35	19.0	31.4	50.4	0.15	10.6	E	III	35	19.0	5.0	24.0	0.15	22.2	C
Idylwood Rd	F	III	35	25.7	42.2	67.9	0.21	11.3	E	III	35	25.7	13.7	39.4	0.21	19.5	C
I-66 off-ramp	A	III	35	34.6	1.8	36.4	0.29	28.5	B	III	35	34.6	136.3	170.9	0.29	6.1	F
Shreve Rd/Haycock Rd	D	III	35	43.6	17.0	60.6	0.36	21.6	C	III	35	43.6	3.6	47.2	0.36	27.7	B
Points South	--									III	35	49.1	46.5	95.6	0.41	15.4	D
Total		III		259.3	152.0	411.3	2.15	18.8	C	III		249.5	324.8	574.3	2.07	13.0	E

Source: VDOT (2008)

Table 8: Route 7 Weekday AM Peak Hour LOS between Birch Street and Roosevelt Street

Cross Street	Intersection LOS (Peak Hour)	AM Peak Hour - Southbound								AM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	---																
Birch St.	A	III	33	10.7	5.5	16.2	0.07	16.4	D	---	---	---	---	---	---	---	
West St.	D	III	33	35.2	25.5	60.7	0.29	17.4	D	III	33	35.2	8.3	43.5	0.29	24.3	B
Spring St.	B	III	33	21.6	15.3	36.9	0.18	17.6	D	III	33	21.6	45.5	67.1	0.18	9.7	F
Lee St.	A	III	33	24.7	3.4	28.1	0.21	26.4	B	III	33	24.7	7.8	32.5	0.21	22.8	C
Virginia Ave.	B	III	33	27.3	19.6	46.9	0.23	17.5	D	III	33	27.3	8.3	35.6	0.23	23.0	C
Annandale Rd.	B	III	33	7.1	3.1	10.2	0.05	17.2	D	III	33	7.1	7.4	14.5	0.05	12.1	E
Little Falls St.	A	III	33	12.3	13.2	25.5	0.09	12.8	E	III	33	12.3	21.6	33.9	0.09	9.7	F
Maple St.	B	III	33	10.6	5.4	16.0	0.08	17.6	D	III	33	10.6	4.8	15.4	0.08	18.3	C
US 29	D	III	33	13.6	30.0	43.6	0.10	8.3	F	III	33	13.6	8.0	21.6	0.10	16.8	D
Cherry St.	A	III	33	42.4	1.7	44.1	0.35	28.8	B	III	33	42.4	35.0	77.4	0.35	16.4	D
Roosevelt St.	A	III	33	57.1	1.1	58.2	0.48	29.4	B	III	33	57.1	4.3	61.4	0.48	27.9	B
Points South	---	---	---	---	---	---	---	---	---	III	33	13.8	6.4	20.2	0.10	18.2	C
Total		III		262.6	123.8	386.4	2.13	19.8	C	III		265.7	157.4	423.1	2.16	18.3	C

Source: VDOT (2008)

Table 9: Route 7 Weekday PM Peak Hour LOS between Dulles Toll Road and Old Gallows Road

Cross Street	Intersection LOS (Peak Hour)	PM Peak Hour - Southbound								PM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	---																
		III	35	31.0	11.5	42.5	0.26	21.9	C	---	---	---	---	---	---	---	---
Dulles Toll Rd. W	---																
		III	35	29.4	4.3	33.7	0.24	26.2	B	III	35	29.4	7.2	36.6	0.24	24.1	B
Dulles Toll Rd. E	A																
		III	35	27.8	27.7	55.5	0.23	15.0	D	III	35	27.8	0.6	28.4	0.23	29.3	B
Tyco Rd.	F																
		III	35	18.0	8.9	26.9	0.14	18.8	C	III	35	18.0	28.8	46.8	0.14	10.8	E
Spring Hill Rd.	D																
		III	35	47.4	52.5	99.9	0.39	14.2	D	III	35	47.4	21.5	68.9	0.39	20.6	C
Gosnell Rd./Westpark Dr.	E																
		III	35	30.2	7.4	37.6	0.25	24.1	B	III	35	30.2	47.2	77.4	0.25	11.7	E
Marshall Entr./Service Rd.	C																
		III	35	17.1	0.2	17.3	0.13	27.7	B	III	35	17.1	19.3	36.4	0.13	13.2	E
---/Chain Bridge Rd. W.	A																
		III	35	16.0	1.6	17.6	0.12	24.3	B	III	35	16.0	0.9	16.9	0.12	25.3	B
ChnBrdg E	B																
		III	35	35.5	53.6	89.1	0.30	12.0	E	III	35	35.5	5.1	40.6	0.30	26.2	B
Gallows Rd./International Dr.	D																
		III	35	22.7	22.7	45.4	0.19	15.0	D	III	35	22.7	22.1	44.8	0.19	15.2	D
---/Fashion Blvd	C																
		III	35	18.7	17.6	36.3	0.15	14.5	D	III	35	18.7	21.4	40.1	0.15	13.1	E
Old Gallows Rd./---	F																
		---	---	---	---	---	---	---	---	III	35	24.0	0.2	24.2	0.20	29.8	B
Points South	---																
Total		III		293.8	208.0	501.8	2.41	17.3	D	III		286.8	174.3	461.1	2.35	18.3	C

Source: VDOT (2008)

Table 10: Route 7 Weekday PM Peak Hour LOS between Ramada Road/Lisle Avenue and Shreve Road/Haycock Road

Cross Street	Intersection LOS (Peak Hour)	PM Peak Hour - Southbound								PM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	---																
		III	35	58.9	29.0	87.9	0.49	20.1	C	---	---	---	---	---	---	---	---
Ramada Rd/Lisle Ave	---																
		III	35	32.1	43.9	76.0	0.27	12.7	E	III	35	32.1	65.3	97.4	0.27	9.9	F
George C. Marshall Dr.	A																
		III	35	45.4	2.2	47.6	0.38	28.6	B	III	35	45.4	31.9	77.3	0.38	17.6	D
Service Rd/Patterson Rd	A																
		III	35	19.0	29.2	48.2	0.15	11.1	E	III	35	19.0	13.7	32.7	0.15	16.3	D
Pimmit Road	A																
		III	35	25.7	29.9	55.6	0.21	13.8	E	III	35	25.7	15.9	41.6	0.21	18.5	C
Idylwood Rd	A																
		III	35	34.6	14.5	49.1	0.29	21.1	C	III	35	34.6	83.9	118.5	0.29	8.8	F
I-66 off-ramp	A																
		III	35	43.6	25.3	68.9	0.36	19.0	C	III	35	43.6	8.2	51.8	0.36	25.3	B
Shreve Rd/Haycock Rd	A																
	---	---	---	---	---	---	---	---	---	III	35	49.1	42.3	91.4	0.41	16.1	D
Points South	---																
Total		III		259.3	174.0	433.3	2.15	17.9	D	III		249.5	261.2	510.7	2.07	14.6	D

Source: VDOT (2008)

Table 11: Route 7 Weekday PM Peak Hour LOS between Birch Street and Roosevelt Street

Cross Street	Intersection LOS (Peak Hour)	PM Peak Hour - Southbound								PM Peak Hour - Northbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points North	---																
Birch St.	C	IV	33	12.2	8.3	20.5	0.07	13.0	D	---	---	---	---	---	---	---	---
West St.	D	IV	33	35.8	34.0	69.8	0.29	15.0	C	IV	33	35.8	28.4	64.2	0.29	16.4	C
Spring St.	A	IV	33	23.4	4.4	27.8	0.18	23.0	B	IV	33	23.4	32.4	55.8	0.18	11.6	D
Lee St.	A	IV	33	26.7	3.3	30.0	0.21	25.0	B	IV	33	26.7	4.3	31.0	0.21	23.9	B
Virginia Ave.	B	IV	33	27.8	12.4	40.2	0.23	20.0	B	IV	33	27.8	2.8	30.6	0.23	26.8	A
Annandale Rd.	A	IV	33	8.1	6.4	14.5	0.05	12.0	D	IV	33	8.1	6.2	14.3	0.05	12.3	D
Little Falls St.	B	IV	33	15.0	11.8	26.8	0.09	12.0	D	IV	33	15.0	5.5	20.5	0.09	16.0	C
Maple St.	C	IV	33	12.9	15.7	28.6	0.08	10.0	D	IV	33	12.9	16.1	29.0	0.08	9.7	D
US 29	D	IV	33	16.7	35.0	51.7	0.10	7.0	E	IV	33	16.7	22.7	39.4	0.10	9.2	D
Cherry St.	A	IV	33	43.1	3.0	46.1	0.35	28.0	A	IV	33	43.1	40.4	83.5	0.35	15.2	C
Roosevelt St.	B	IV	33	58.0	3.3	61.3	0.48	28.0	A	IV	33	58.0	5.5	63.5	0.48	27.0	A
Points South	---	---	---	---	---	---	---	---	---	IV	33	16.9	10.2	27.1	0.10	13.6	C
Total		IV		279.7	137.6	417.3	2.13	18.0	C	IV		284.4	174.5	458.9	2.16	16.9	C

Source: VDOT (2008)

Table 12: Lee Highway Weekday AM Peak Hour LOS along Select Corridor Segments

Cross Street	Intersection LOS (Peak Hour)	AM Peak Hour - Eastbound								AM Peak Hour - Westbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points West	---																
		IV	35	18.0	13.2	31.2	0.11	12.6	D	---	---	---	---	---	---	---	---
Westmoreland St.	B																
		IV	35	11.0	20.9	31.9	0.07	7.5	E	III	35	9.7	2.3	12.0	0.07	20.0	C
Fairfax Dr.	C																
		IV	35	12.8	14.6	27.4	0.08	10.2	D	III	35	10.4	6.3	16.7	0.08	16.7	D
Washington Blvd.	D																
	---	---	---	---	---	---	---	---	---	III	35	35.2	22.8	58.0	0.29	18.2	C
Points East	---																
Total		IV		41.8	48.7	90.5	0.25	10.1	D	III		55.3	31.4	86.7	0.44	18.2	C

Source: VDOT (2008)

Table 13: Lee Highway Weekday PM Peak Hour LOS along Select Corridor Segments

Cross Street	Intersection LOS (Peak Hour)	PM Peak Hour - Eastbound								PM Peak Hour - Westbound							
		Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
Points West	---																
		IV	35	18.0	4.4	22.4	0.11	17.5	C	---	---	---	---	---	---	---	---
Westmoreland St.	A																
		IV	35	11.0	32.6	43.6	0.07	5.5	F	III	35	9.7	8.2	17.9	0.07	13.4	E
Fairfax Dr.	C																
		IV	35	12.8	14.8	27.6	0.08	10.1	D	III	35	10.4	18.7	29.1	0.08	9.6	F
Washington Blvd.	D																
	---	---	---	---	---	---	---	---	---	III	35	35.2	39.8	75.0	0.29	14.1	D
Points East	---																
Total		IV		41.8	51.8	93.6	0.25	9.7	D	III		55.3	66.7	122.0	0.44	12.9	E

Source: VDOT (2008)

Table 14: North Sycamore Street Weekday AM Peak Hour LOS along Select Corridor Segments

Cross Street	Intersection LOS (Peak Hour)	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS									
										AM Peak Hour - Northbound					AM Peak Hour - Southbound			
Points South	---																	
I-66 On Ramp/N. 19th St.	C	IV	35	23.7	38.0	61.7	0.17	9.9	D									
I-66 Off Ramp/Metro Entrance	A	IV	35	19.1	4.1	23.2	0.14	21.2	B	III	35	17.5	6.4	23.9	0.14	20.6	C	
Washington Blvd.	D	IV	35	10.5	33.3	43.8	0.06	5.2	F	III	35	9.2	8.1	17.3	0.06	13.2	E	
Points North	---									III	35	24.2	46.8	71.0	0.20	10.2	E	
Total		IV		53.3	75.4	128.7	0.37	10.3	D	III		50.9	61.3	112.2	0.40	12.9	E	

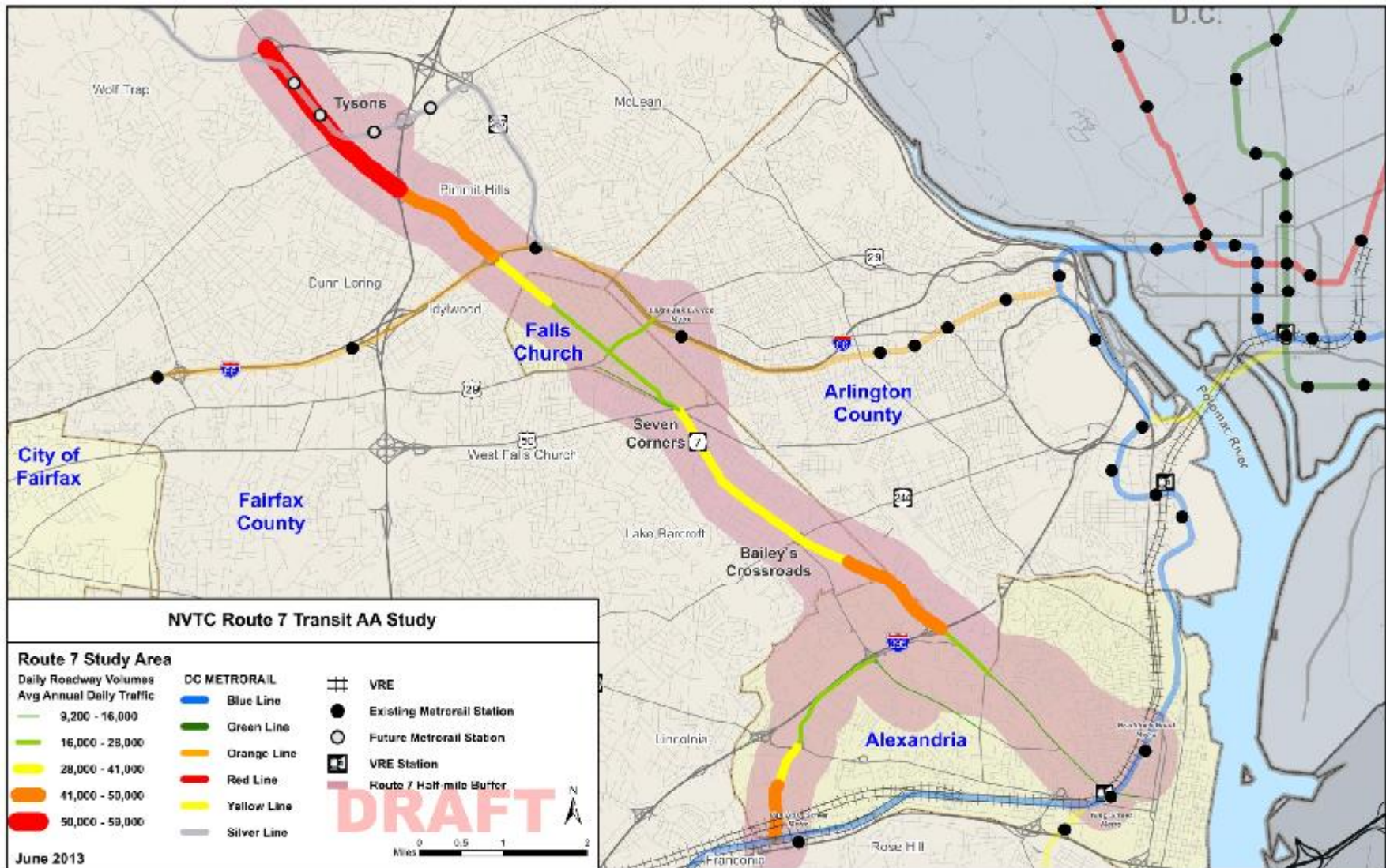
Source: VDOT (2008)

Table 15: North Sycamore Street Weekday PM Peak Hour LOS along Select Corridor Segments

Cross Street	Intersection LOS (Peak Hour)	Arterial Class	Arterial Speed (mph)	Running Time (sec)	Signal Delay (sec)	Travel Time (sec)	Distance (mi)	Arterial Speed	Arterial LOS									
										PM Peak Hour - Northbound					PM Peak Hour - Southbound			
Points South	---																	
I-66 On Ramp/N. 19th St.	B	IV	30	25.4	18.3	43.7	0.17	13.9	C									
I-66 Off Ramp/Metro Entrance	B	IV	30	20.5	4.7	25.2	0.14	19.5	B	III	30	18.3	13.0	31.3	0.14	15.7	D	
Washington Blvd.	C	IV	30	14.4	28.7	43.1	0.06	5.3	F	III	30	9.8	10.1	19.9	0.06	11.5	E	
Points North	---									III	30	25.7	45.9	71.6	0.20	10.2	E	
Total		IV		60.3	51.7	112	0.37	11.9	D	III		53.8	69	122.8	0.40	11.8	E	

Source: VDOT (2008)

Figure 7: Roadway Volumes within Route 7 Study Area



Note: Roadway volumes available for primary and interstate roadways only from VDOT's Traffic Engineering Division
 Source: VDOT, ESRI, WMATA, Parsons Brinckerhoff

3.3 Transit

3.3.1 Bus Service

The Route 7 study area consists of seven different local and commuter bus operators within 1/2-mile of the corridor. Among the different operators, there are close to 120 different routes that operate local or express bus service within the Route 7 study area, with average weekday ridership ranging from 1,900 to 64,000 passengers.

In addition to providing mobility within their respective jurisdictions, many of the services within the Route 7 corridor offer service into the District of Columbia. These services, along with others, provide connections to Metrorail by way of the Orange, Blue and Yellow Lines. Metrobus, which is operated by WMATA, provides transit connections between the various locally operated bus services in the area. In particular, Metrobus connects local bus service in Tysons with local bus service in the City of Alexandria.

Table 16 lists the various operators who provide service within the study area, while Figure 8 displays the various local and commuter bus services within the corridor. The table includes the total number of routes in their respective systems along average weekday ridership. The survey of operators does not include commuter bus service, as most service passes through the study area to serve specific destinations such as Washington, DC.

Table 16: Bus Operations within Study Area

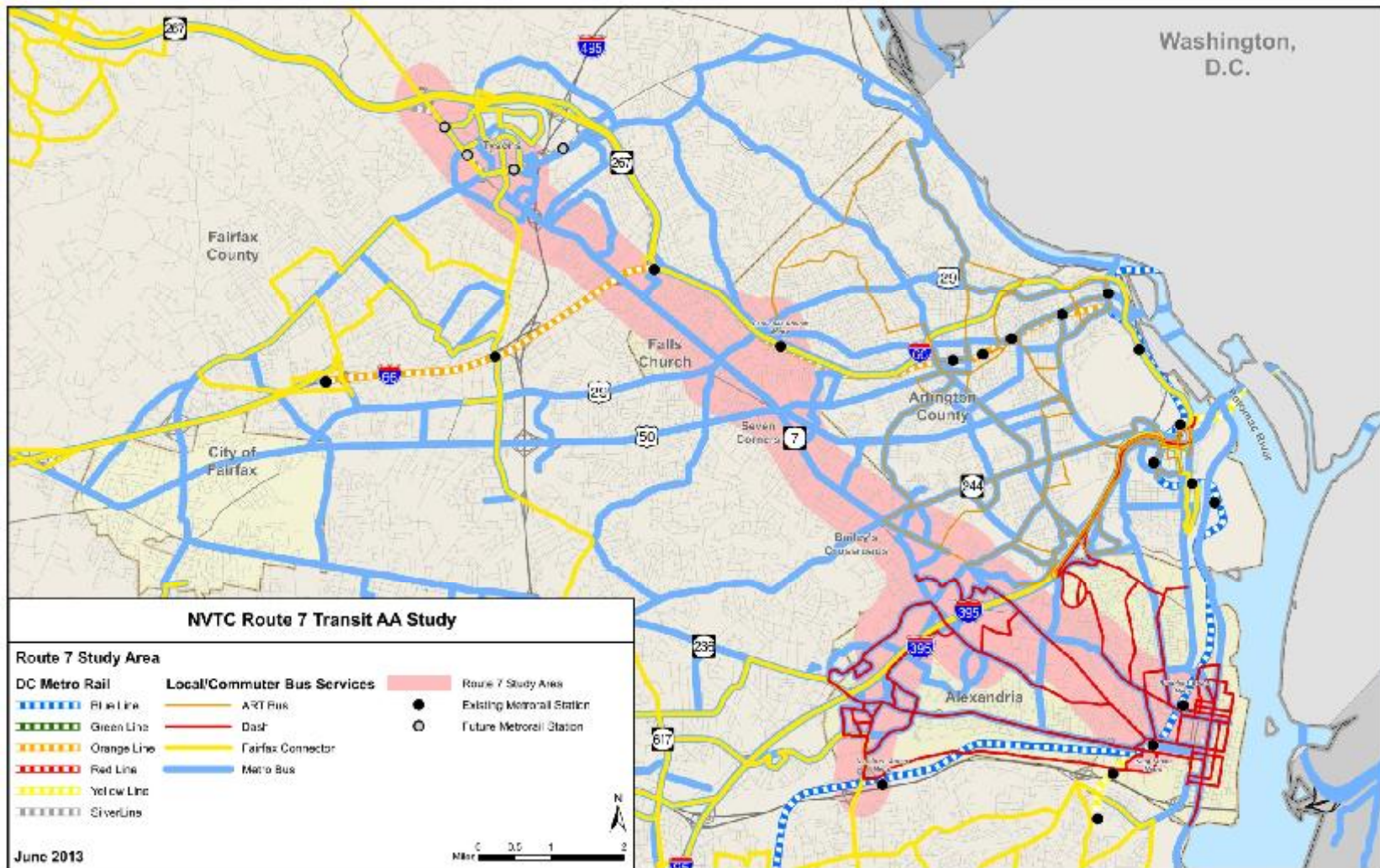
Local and Express Bus Services	Number of Routes	Average Weekday Ridership ⁶
Arlington County Bus (ART Bus)	4	1,900
City of Alexandria (DASH)	9	12,100
Fairfax Connector	25	20,000
Metro Bus (WMATA) ⁷	78	64,000

Source: MWCOC (2012)

⁶ Based on average weekday ridership for April 2012

⁷ Ridership is aggregated for each bus line and includes routes outside the Route 7 study area.

Figure 8: Bus Network within Route 7 Study Area



Source: MWCOG, ESRI, Parsons Brinckerhoff

3.3.2 Metrorail

The Route 7 study area is served by three of the Metrorail system's rail lines: Yellow, Blue and Orange lines. The Route 7 corridor directly connects the Orange and Blue lines via Bailey's Crossroads, Seven Corners and Falls Church. Within the study corridor, five Metrorail stations exist, providing access from the area into Washington, D.C. The American Public Transportation Association reports that Metrorail saw an average weekday ridership of 961,500 in 2011. Figure 9 displays the portion of the Metrorail system within the Route 7 study area.

The total number of Metrorail trips passing through each of the five existing Metrorail stations, as well as the associated districts,⁸ within the study area is shown in Table 17.

Table 17: Top Five Metrorail Stations

Metrorail Station	District	Number of Daily Person Trips
West Falls Church	3 - West Falls Church	10,740
King Street	10 - Old Town	9,306
East Falls Church	4 - East Falls Church	4,102
Braddock Road	11 - East Alexandria	4,559
Van Dorn Street	20 - Southeast Fairfax County	3,653

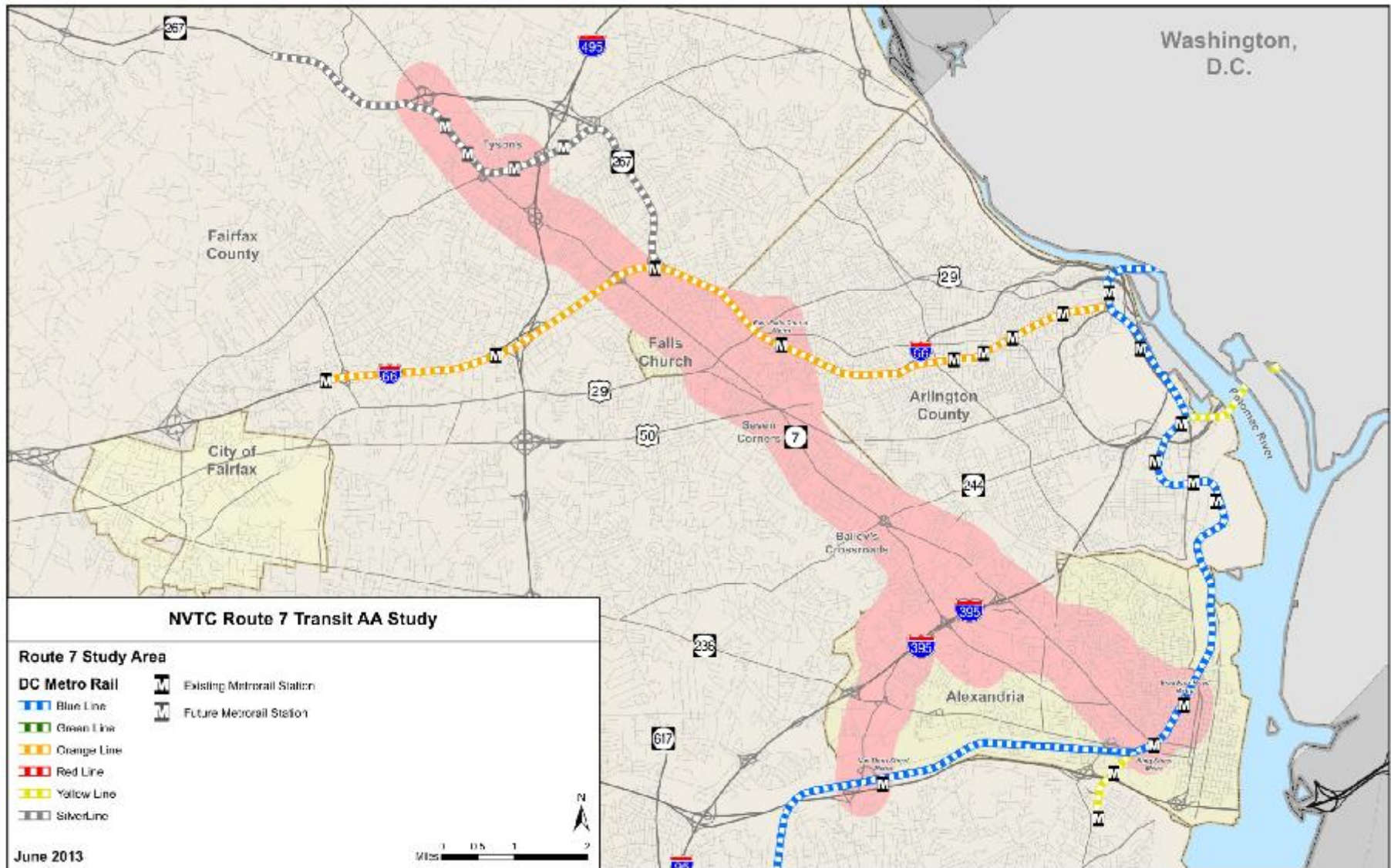
Source: Metrorail Passenger Surveys Average Weekday Passenger Boardings, 2011

3.3.3 Planned and Programmed Transit Improvements

Figure 10 shows the planned and programmed transit improvements for the Washington Metropolitan Area as identified in the MWCOC's 2012 CLRP and lists those projects specific to Virginia. The first phase of the Silver Line for the Metrorail system is scheduled to open in Fall 2013; Phase 2 is currently in the design phase and is scheduled to open in 2016.

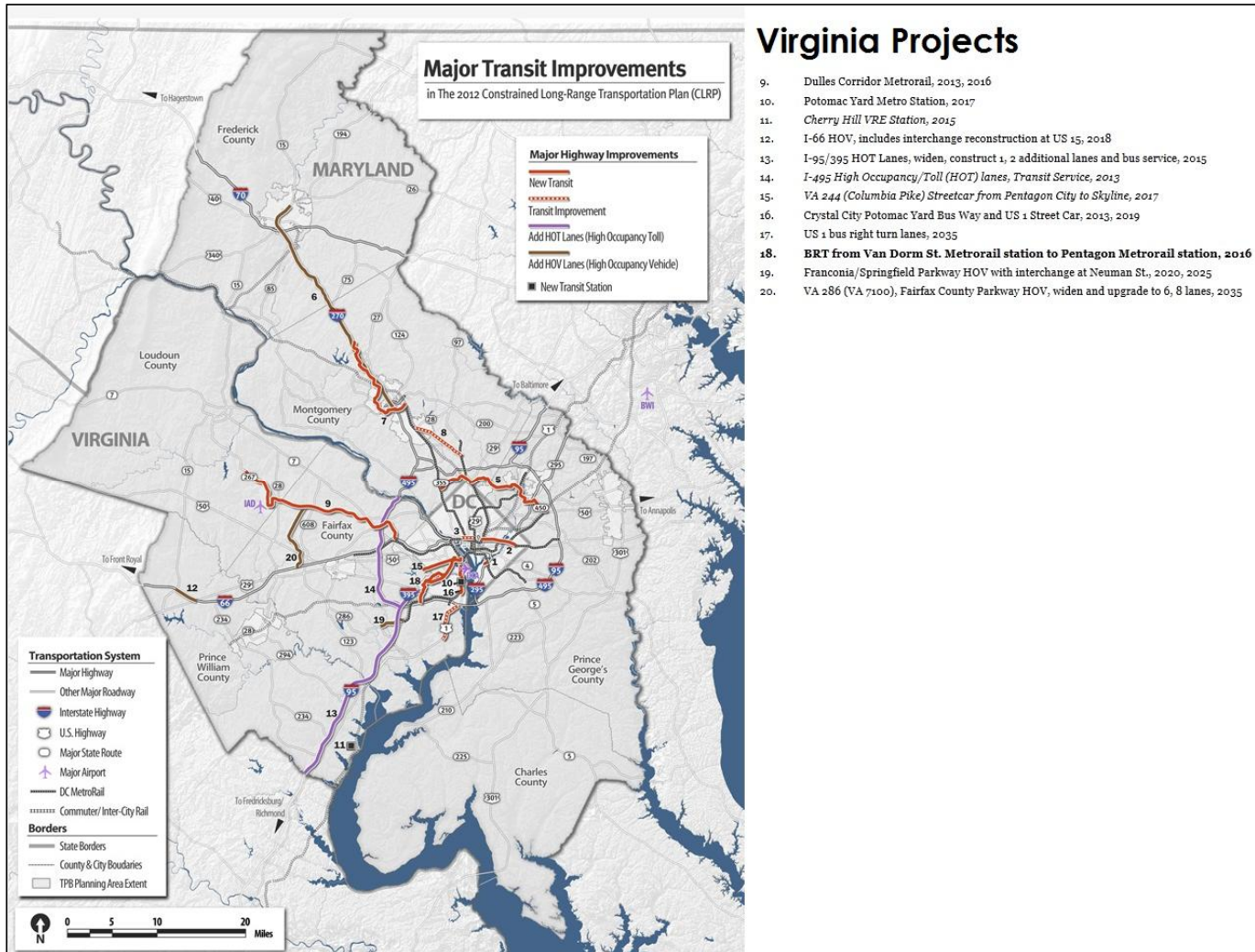
⁸ A district is an aggregate of multiple transportation analysis zones (TAZs) reflecting summarized outputs of the travel demand model.

Figure 9: Metrorail Lines within Route 7 Study Area



Source: WMATA, ESRI, Parsons Brinckerhoff

Figure 10: Planned and Programmed Transit Improvements within 2012 MWCOG CLRP



Source: MWCOG Constrained Long-Range Transportation Plan

3.4 Pedestrian and Bicycle Facilities

3.4.1 Pedestrian Facilities

Fairfax County consists of an extensive network of off-street and on-street bicycle facilities. Despite this extensive network, and the fact that these facilities do interact with the Route 7 study area itself, the portion of the corridor within the County is not widely served by bicycle facilities. The City of Alexandria however does contain an extensive network of on-street and off-street bicycle facilities within the Route 7 study area.

The bicycle network connects most of the Metrorail stations within the corridor to other areas of Fairfax County. There are no direct bicycle connections within the Route 7 study area between the different jurisdictions. The City of Falls Church has a self-contained, circular off street bicycle facility that circulates throughout the area.

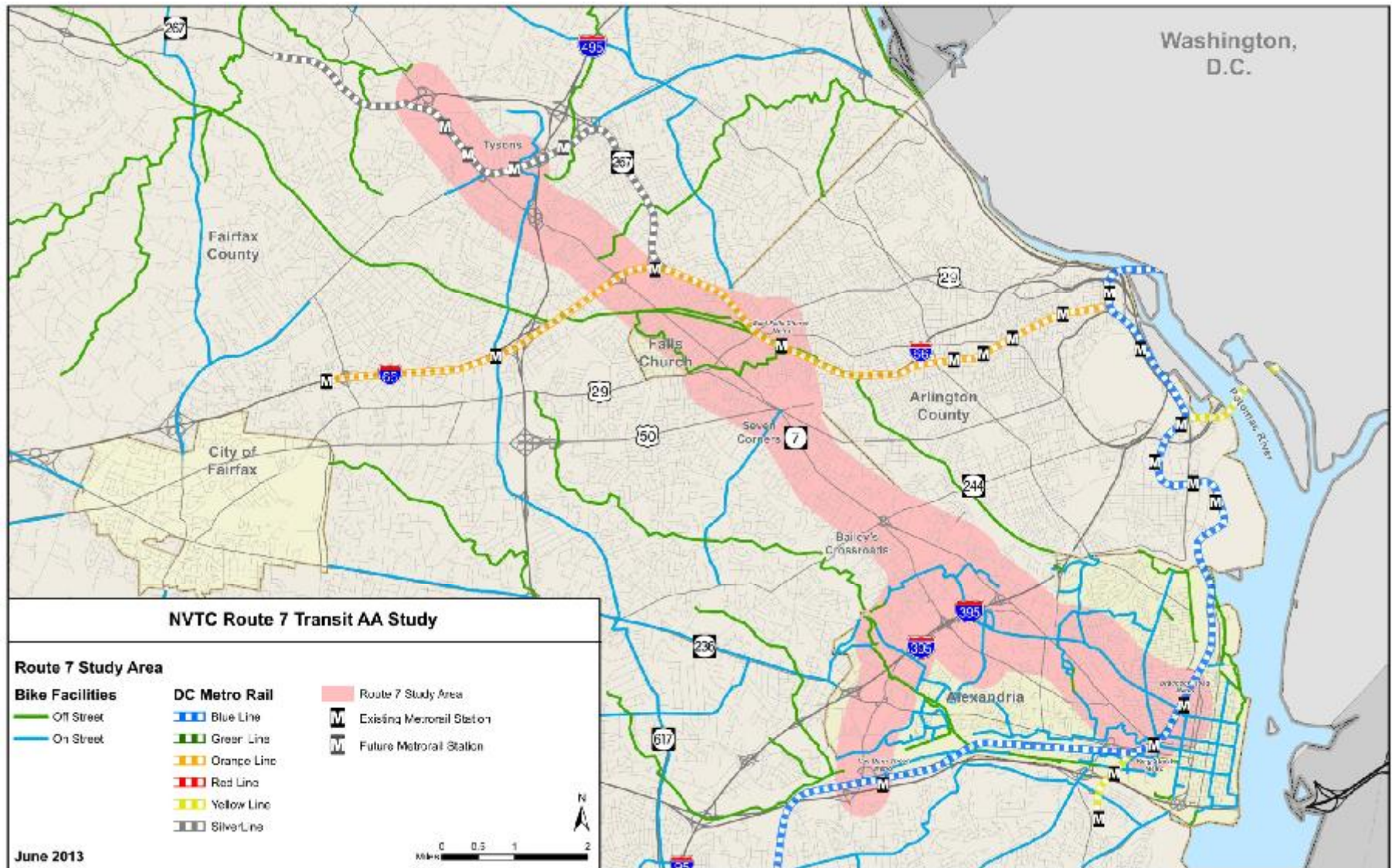
Figure 11 displays the network of off-street and on-street bicycle facilities in Fairfax County and the Route 7 corridor. It also shows the interconnectivity of these facilities and how they interface with the Metrorail system.

3.4.2 Pedestrian Facilities

The Route 7 study area contains a network of interconnected sidewalks. The most extensive networks along the corridor are found within the more urbanized areas such as Alexandria, Falls Church and Tysons. Not all streets and roadways within the study area consist of sidewalks however; the existing network provides connections to the Metrorail stations in the area as well as connections between the different jurisdictions.

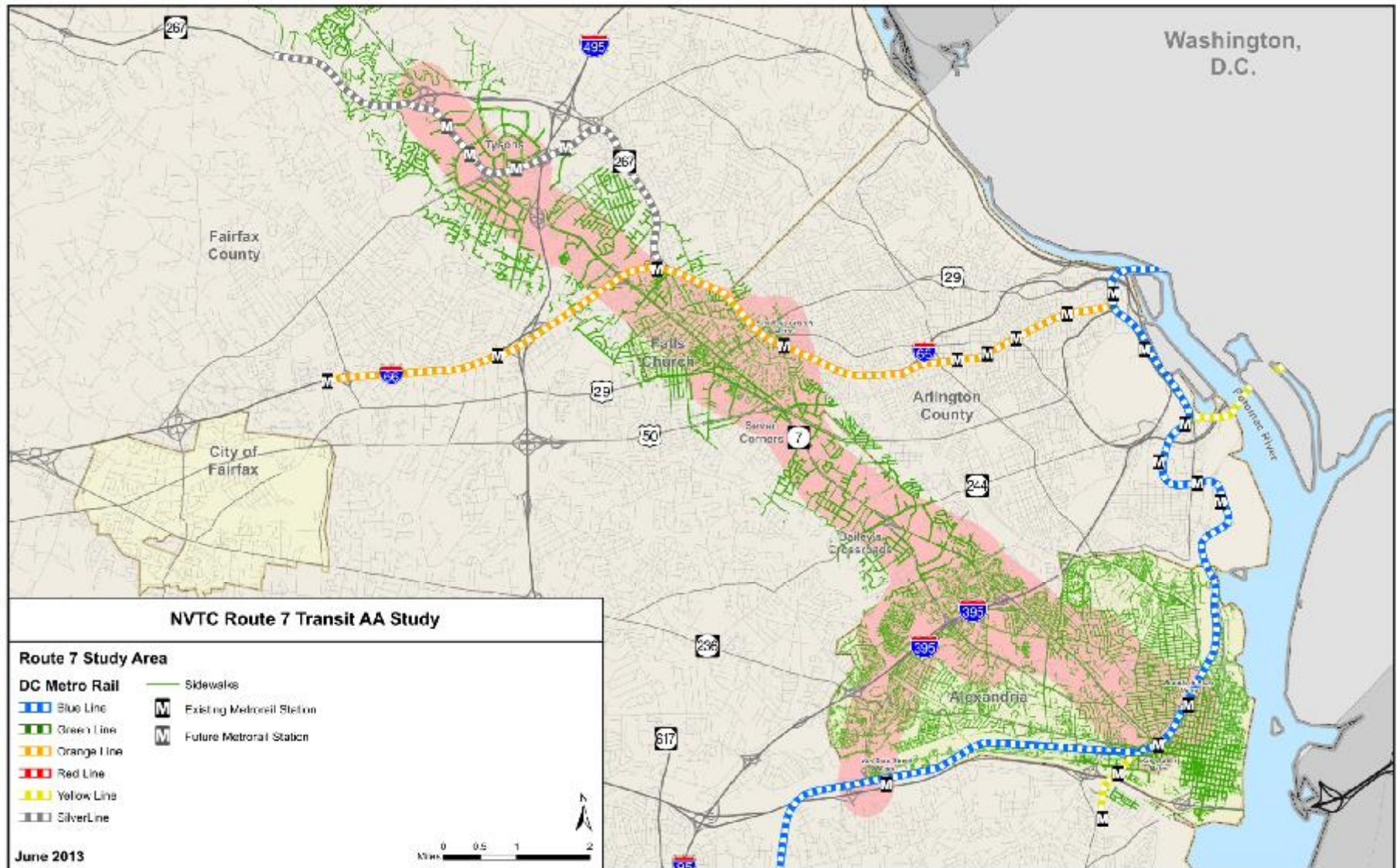
Figure 12 displays the network of sidewalks within the Route 7 study area.

Figure 11: Bicycle Facilities with Route 7 Study Area



Source: GIS data from Fairfax County and Cities of Alexandria and Falls Church, ESRI, WMATA, Parsons Brinckerhoff

Figure 12: Pedestrian Facilities within Route 7 Study Area



Source: GIS data from Arlington and Fairfax Counties and Cities of Alexandria and Falls Church, ESRI, WMATA, Parsons Brinckerhoff

4.0 SOCIO-ECONOMIC CONDITIONS

This chapter describes the socio-economic conditions in the Route 7 Corridor project study area and compares these conditions to those of the jurisdictions of the surrounding area. These jurisdictions include Arlington County, Fairfax County, the City of Alexandria, the City of Fairfax and the City of Falls Church. For the purpose of this report, the Route 7 Corridor project study area is defined as the 2010 US Census tracts that are crossed by or within the area delineated by a half-mile buffer around Route 7 and the other potential premium transit route options. This area is comprised of a swath of land that contains parts of Arlington County, Fairfax County and the City of Alexandria, and all of the City of Falls Church. The information presented in this chapter has been obtained from the 2010 US Census and the Metropolitan Washington Council of Governments (MWCOC).

4.1 General Population

4.1.1 Existing Population

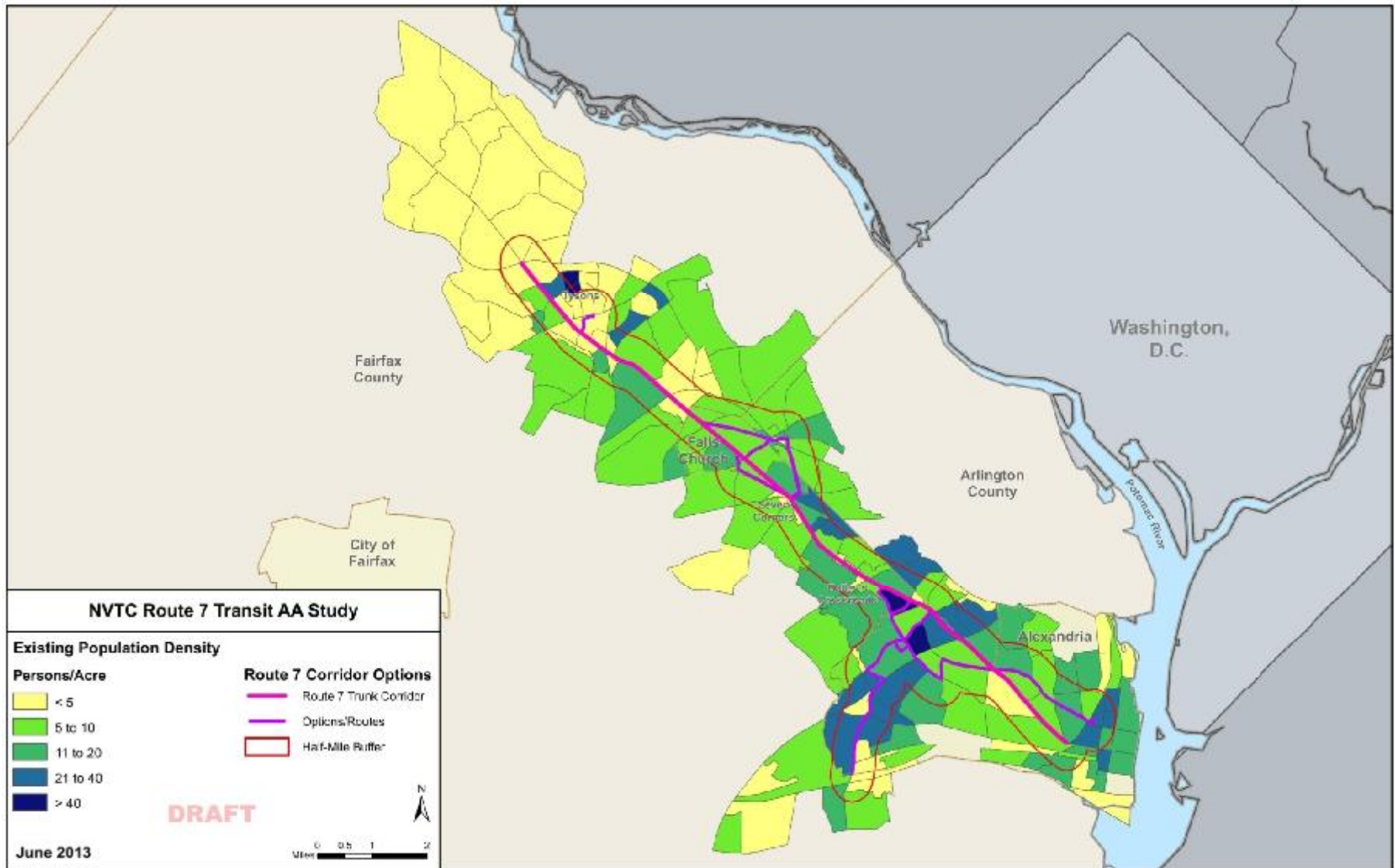
According to the 2010 US Census, the total population of the Route 7 Corridor study area was 300,816. Table 18 presents a comparison of total population and households in the Route 7 Corridor project study area with that of Arlington County, Fairfax County, the City of Alexandria, the City of Fairfax, the City of Falls Church and the State of Virginia, while Figure 13 displays the existing population density. The graphic shows that the study area tends to have medium-to low-population density throughout most of the Route 7 corridor. Areas of higher population densities exist in Tysons, the area southeast of Bailey's Crossroad, west Alexandria, the Landmark area, and the Old Town West area of Alexandria.

Table 18: Total Population and Households

Jurisdiction	Total Population	Total Households
Route 7 Study Area	300,816	131,050
Arlington County	207,627	98,050
Fairfax County	1,081,726	391,627
City of Alexandria	139,966	68,082
City of Falls Church	12,332	5,101
State of Virginia	8,001,024	3,056,058

Source: 2010 US Census

Figure 13: Existing Population Density for Route 7 Study Area



Source: MWCOG Cooperative Forecast Round 8.1, ESRI, Parsons Brinckerhoff

4.1.2 2040 Population

Traffic analysis zone (TAZ) data from Round 8.1 of the MWCOG cooperative forecast was used to determine population projections for the study area and surrounding jurisdictions. The 2010 population and household totals are derived from the 2010 US Census, while the 2040 population and household totals are derived from the MWCOG Round 8.1 data. Table 19 and Table 20 present 2040 forecasts and projected changes in general population and households for the Route 7 study area, surrounding jurisdictions and the State of Virginia.

Tables 19 and 20 indicate that all identified jurisdictions are projected to experience moderate population and household growth through the year 2040. Population and household growth within the project study area will outpace growth in all other jurisdictions except the City of Falls Church.

Figure 14 displays 2040 population density, illustrating that by 2040 the Route 7 study area will continue to be mostly comprised of areas with low to medium population densities. However, there will continue to be projected increase of areas already having higher population densities. These areas include the Tysons area, the area southeast of Bailey's Crossroad, west Alexandria, the Landmark area, and the Old Town West area of Alexandria. Falls Church is also projected to have an increase in higher population density areas.

Table 19: Projected Change in Population

Jurisdiction	2010	2040	% Change
Project Study Area	300,816	399,300	32.7%
Arlington County	207,627	248,699	19.8%
Fairfax County	1,081,726	1,263,383	19.6%
City of Alexandria	139,966	181,801	29.9%
City of Falls Church	12,332	17,009	37.8%

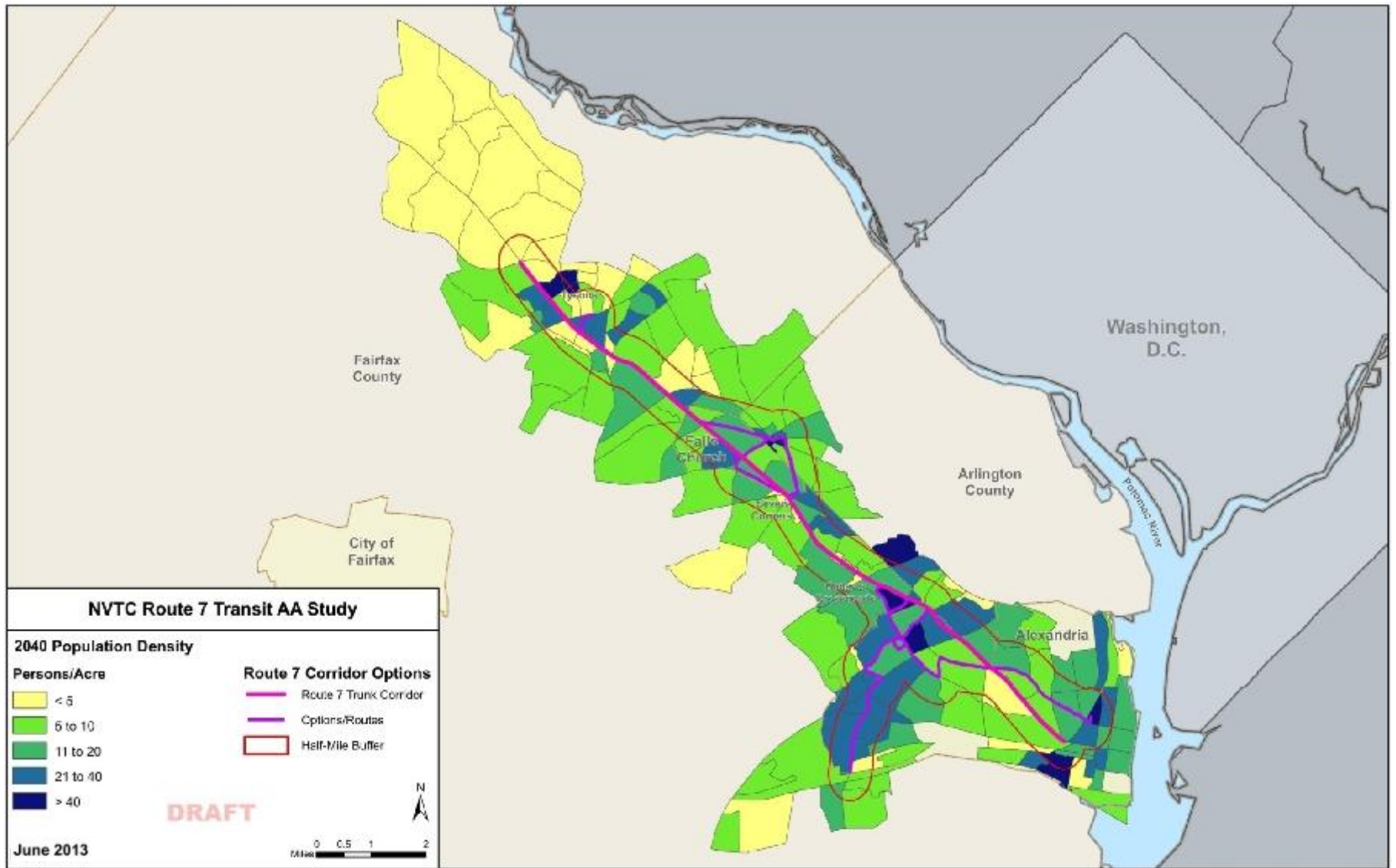
Source: 2010 US Censes, MWCOG Cooperative Forecast Round 8.1

Table 20: Projected Change in Households

Jurisdiction	2010	2040	% Change
Project Study Area	131,050	179,367	36.8%
Arlington County	98,050	117,795	20.1%
Fairfax County	391,627	475,381	21.4%
City of Alexandria	68,082	88,491	30.0%
City of Falls Church	5,101	7,703	51.0%

Source: 2010 US Censes, MWCOG Cooperative Forecast Round 8.1

Figure 14: 2040 Population Density for Route 7 Study Area



Source: MWCOG Cooperative Forecast Round 8.1, ESRI, Parsons Brinckerhoff

4.2 Transit-Dependent Population

4.2.1 Minority Population

The population of the Route 7 study area is made up of a diverse collection of ethnic groups. According to the 2010 US Census, the study area minority population was 137,063. 13.3% of this population was Black/African American, 17.3% was Hispanic (of any race), 0.2% was American Indian or Alaskan Native, 11.7% was Asian or Pacific Islander, 0.4% was categorized as Other, and 2.7% was categorized as two or more races.

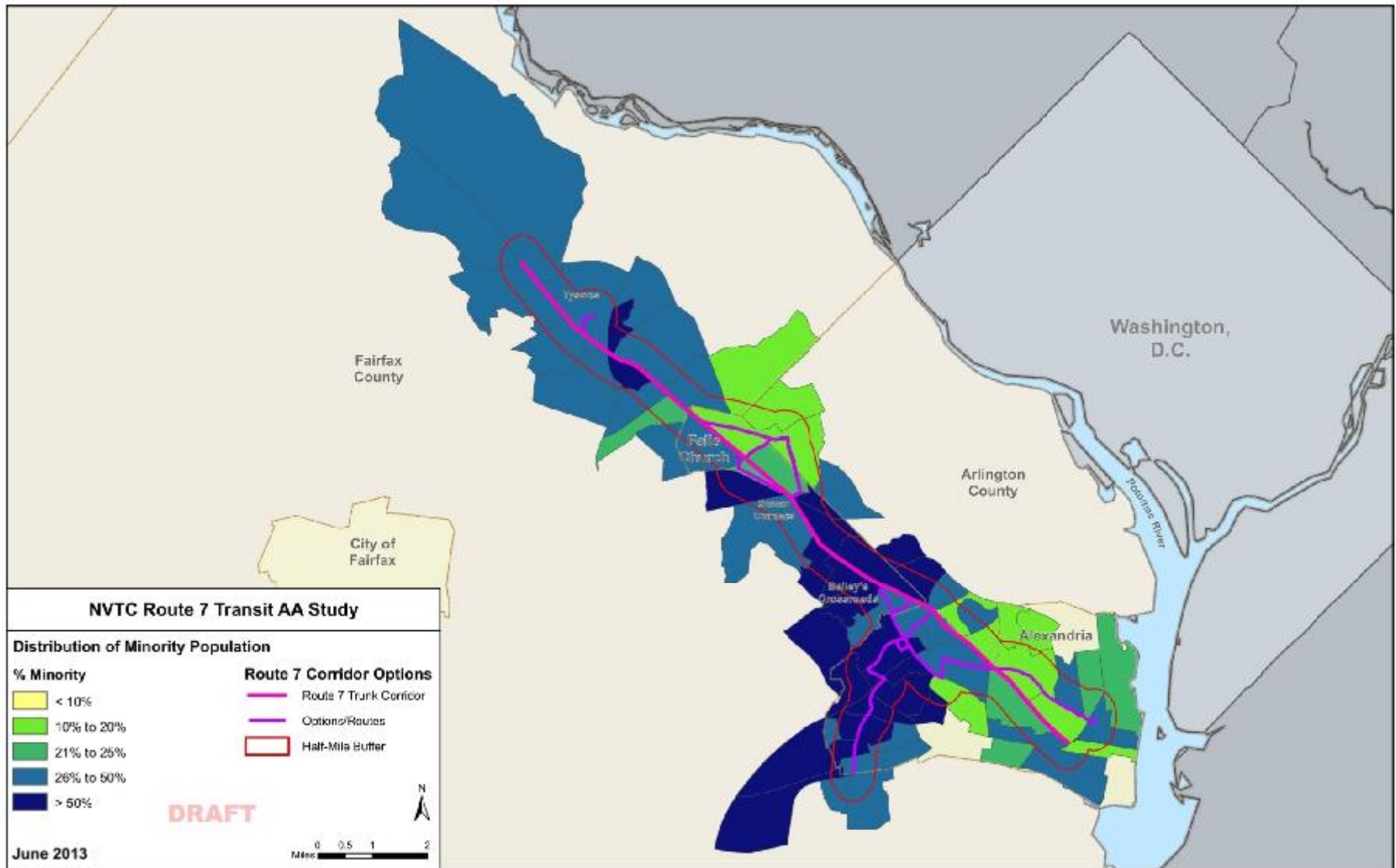
Table 21 presents a breakdown of the ethnicity in the study area and compares this breakdown with that of the surrounding jurisdictions as well as the State of Virginia. It indicates that the percentage of minority population in the study area is comparable to that of the surrounding jurisdictions. Figure 15 displays the distribution of minority population, showing that the population in the Route 7 study area is comprised of medium to high percentages of minorities. The areas with the highest minority population percentages include the areas of Seven Corners, the Bailey's Crossroads and Landmark. The Tysons area also has areas with moderate-to-high percentages of minority residents.

Table 21: Total Population and Racial Distribution (2010)

Race	Study Area	Arlington County	Fairfax County	City of Alexandria	City of Falls Church	State of Virginia
White	163,753 (54.4%)	132,961 (64.0%)	590,622 (54.6%)	74,878 (53.5%)	9,093 (73.7%)	5,186,450 (64.8%)
Black/African American	39,877 (13.3%)	17,088 (8.2%)	96,078 (8.9%)	29,778 (21.3%)	523 (4.2%)	1,523,704 (19.0%)
American Indian/Alaskan Native	553 (0.2%)	394 (0.2%)	1,843 (0.2%)	327 (0.2%)	23 (0.2%)	20,679 (0.3%)
Asian/Pacific Islander	35,351 (11.7%)	19,895 (9.6%)	189,516 (17.5%)	8,460 (6.0%)	1,154 (9.4%)	441,359 (5.5%)
Other	1,064 (0.4%)	611 (0.3%)	3,359 (0.3%)	485 (0.3%)	20 (0.2%)	15,338 (0.2%)
Two or More Races	8,148 (2.7%)	5,296 (0.1%)	31,826 (0.4%)	3,514 (< 0.1%)	410 (< 0.1%)	181,669 (2.3%)
Total Hispanic	52,070 (17.3%)	31,382 (15.1%)	168,482 (15.6%)	22,524 (16.1%)	1,109 (9%)	631,825 (7.9%)
Total Population	300,816 (100%)	207,627 (100%)	1,081,726 (100%)	139,966 (100%)	12,332 (100%)	8,001,024 (100%)

Source: 2010 US Census

Figure 15: Distribution of Minority Population for Route 7 Study Area



Source: 2010 US Census, ESRI, Parsons Brinckerhoff

4.2.2 Low-Income Populations

Low-income families are typically more transit dependent because their income does not enable them to own and maintain a car. Low-income populations are defined as families with an annual income that is below the Department of Health and Human Services poverty threshold, which varies based upon the number of people per family. The data used to analyze this population group comes from the 5-Year Estimate data from the 2010 American Community Survey. This data is derived from a sample survey and not a 100 percent count of the actual population.

Table 22 presents the population below the poverty level for the study area, surrounding jurisdictions and the State of Virginia. Although the study area's 2010 population was 300,816, the population that was surveyed in the ACS 5-Year Estimate for the study area's census tracts was 282,232. The low-income population computed for the study area was 19,931. Based on this refined census tract information, the percentage of low-income population within the study area is low and shown to be relatively consistent with that of the surrounding jurisdictions.

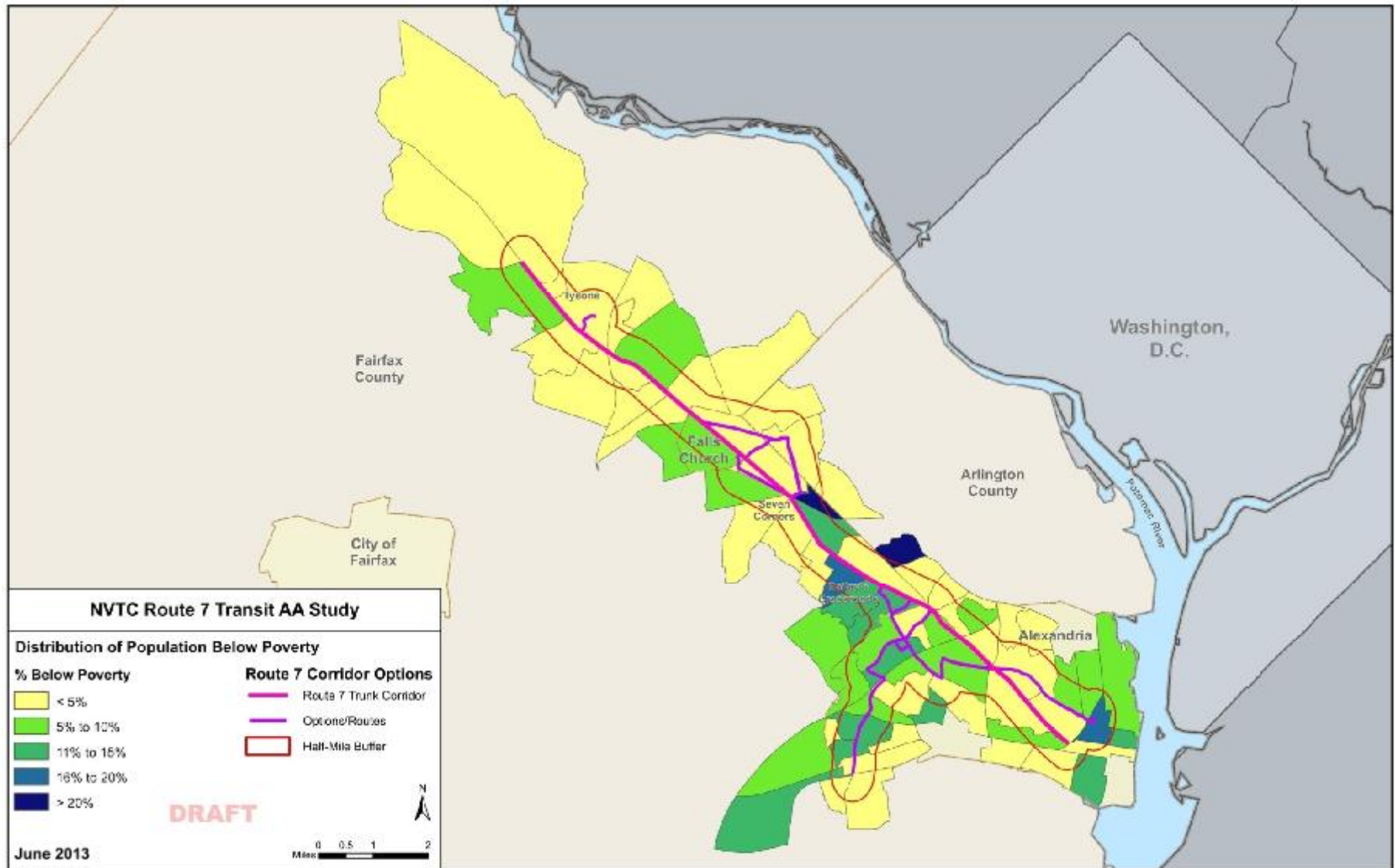
Figure 16 displays the distribution of the population below the poverty level. According to this analysis, the percentage of low-income individuals in the study area tend to be concentrated in the areas of an in between Bailey's Crossroads and the Landmark area. Other areas in the corridor that have low-to-medium low-income population percentages include the Western portion of Falls Church, the area east of Seven Corners, and Old Town West area of Alexandria.

Table 22: 2010 Surveyed Population below Poverty Level

Jurisdiction	Population Surveyed	Below Poverty Level	Percent of Population Surveyed Below Poverty Level
Study Area	282,232	19,931	7%
Arlington County	194,184	13,556	7%
Fairfax County	1,039,870	53,181	5%
Alexandria city	132,224	10,295	8%
Falls Church city	11,444	546	5%
Virginia	7,595,386	781,516	10%

Source: 2010 American Community Survey, 5-Year Estimate

Figure 16: Distribution of Population below Poverty for Route 7 Study Area



Source: 2010 American Community Survey, 5-Year Estimate; ESRI; Parsons Brinckerhoff

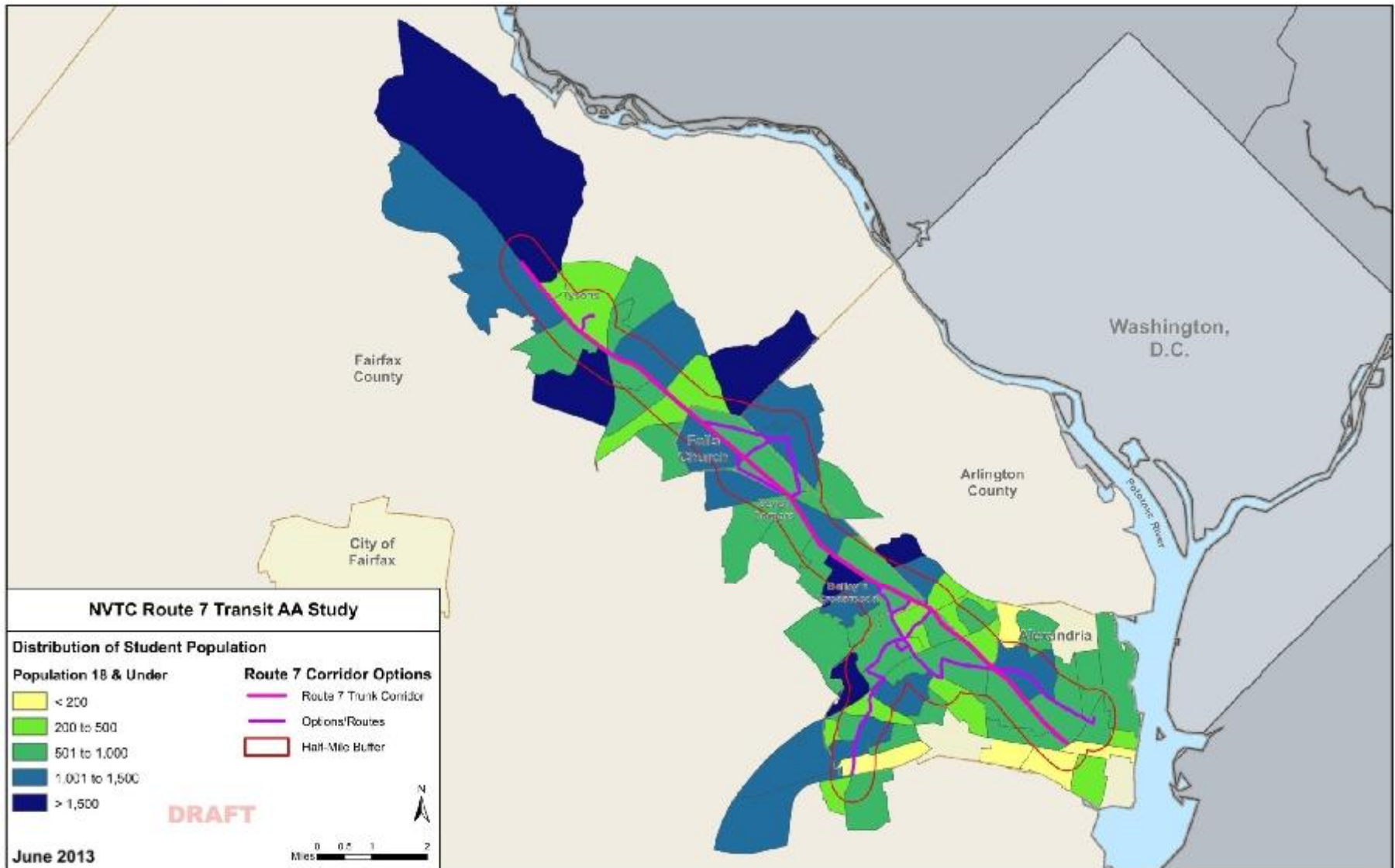
4.2.3 Low Car Ownership

People with no vehicle available are dependent on other forms of transportation, such as walking, biking, or transit, to travel to desired destinations. Therefore, these people would typically have a higher dependence on transit than others. Although the Route 7 study area's 2010 household population was 131,050, the total number of households surveyed in the ACS 5-Year Estimate for the study area's census tracts was 124,076. The total number of households in the study area with no vehicles in 2010 was 9,603, or about eight percent of households without vehicles.

4.2.4 Student Population

Student-age population is defined for this study as individuals below the age of 18. According to the 2010 US Census, the student-age population for the study area was 59,930. Figure 17 displays the distribution of the student population. It illustrates that study area contains a medium to high number of student-aged individuals. The only areas with less than 200 student-aged individuals are the area south of the Landmark area and the area south of Old Town West in Alexandria. Areas in the corridor with high numbers of student-aged individuals include the areas northwest and south of Tysons; western Falls Church and the area to the north; Bailey's Crossroads; and the Landmark area.

Figure 17: Distribution of Student Population for Route 7 Study Area



Source: 2010 US Census, ESRI, Parsons Brinckerhoff

4.3 Employment

4.3.1 Existing Employment

TAZ data from Round 8.1 of the MWCOG Cooperative Forecast was used to determine current and forecasted employment data. In 2010, total employment in the project study area was 264,639. In comparison, employment was 223,264 in Arlington County, 641,340 in Fairfax County, 106,046 in the City of Alexandria, and 11,400 in the City of Falls Church. According to Figure 18, which displays the existing employment density, existing employment will surround Tysons, Bailey's Crossroads, and both the Southwest Quadrant and Old Town West areas of Alexandria.

4.3.2 2040 Employment

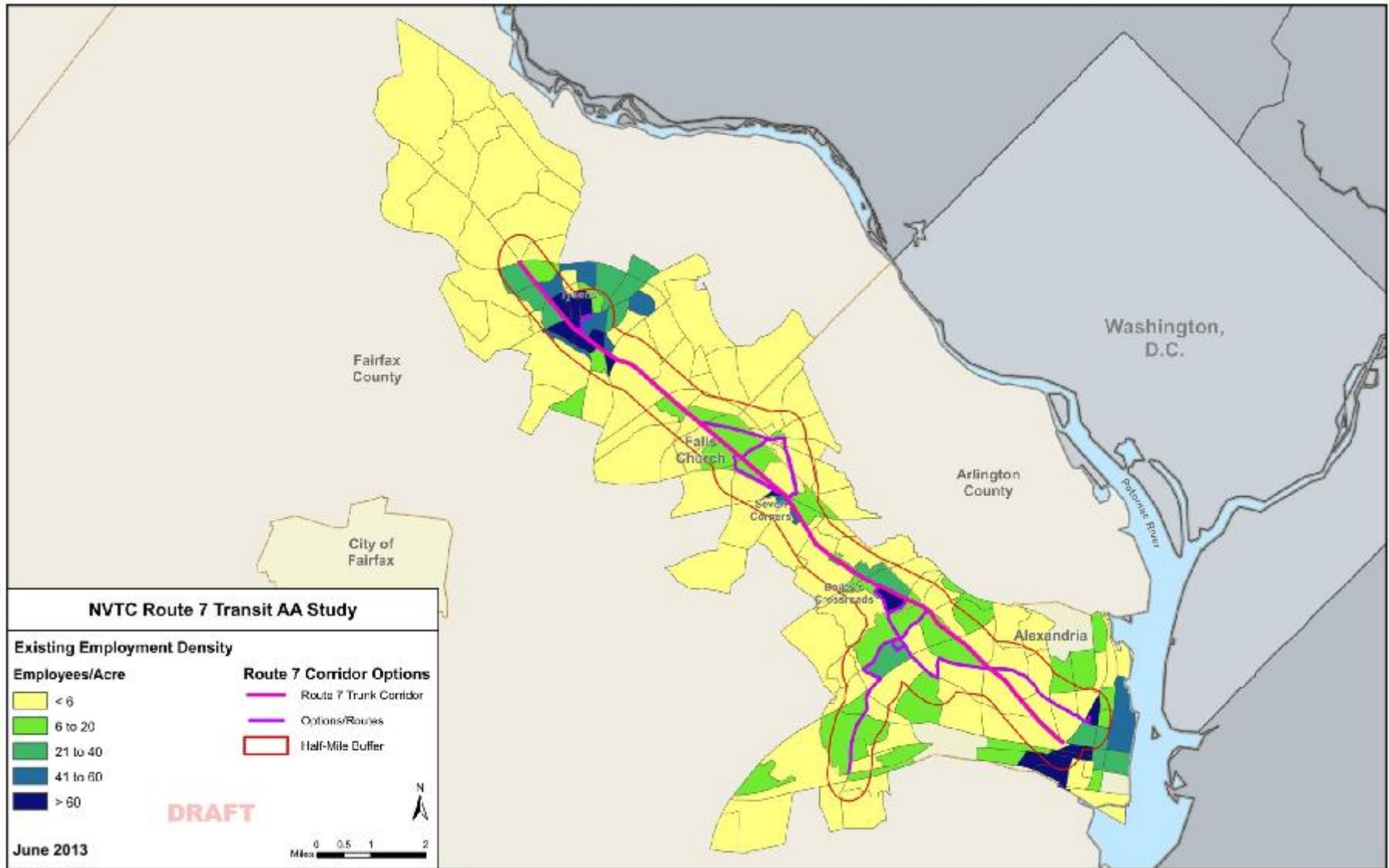
According to the Round 8.1 TAZ data from MWCOG, the 2040 forecasted employment for the study area is projected to increase to 386,578. In comparison, 2040 forecasted employment will be 305,514 in Arlington County, 851,988 in Fairfax County, 149,755 in the City of Alexandria, and 18,000 in the City of Falls Church. Table 23 presents this data and the projected change in employment from 2010 to 2040. Employment centers will generally be found in the same locations as under existing conditions. Increased employment is projected to occur in the Falls Church/Seven Corners area; and the areas in and north of the Landmark area. Figure 19 conveys this information in a graphical form.

Table 23: Projected Change in Employment

Jurisdiction	2010	2040	% Change
Project Study Area	264,639	386,578	46.1%
Arlington County	223,264	305,514	36.8%
Fairfax County	641,340	851,988	32.8%
City of Alexandria	106,046	149,755	41.2%
City of Falls Church	11,400	18,000	57.9%

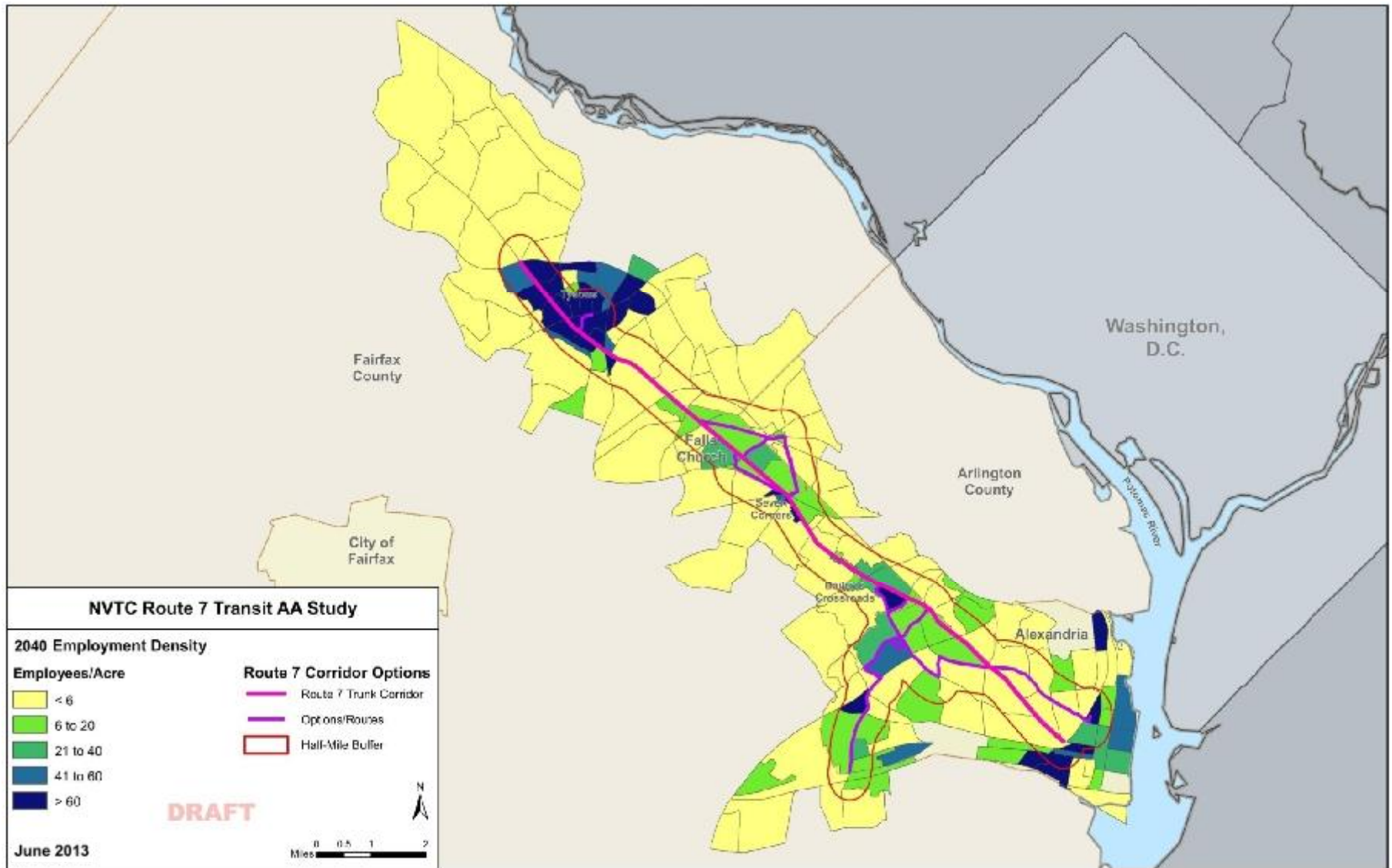
Source: MWCOG Cooperative Forecast, Round 8.1; ESRI; Parsons Brinckerhoff

Figure 18: Existing Employment Density for Route 7 Study Area



Source: MWCOC Cooperative Forecast, Round 8.1; ESRI; Parsons Brinckerhoff

Figure 19: 2040 Employment Density for Route 7 Study Area



Source: MWCOG Cooperative Forecast, Round 8.1; ESRI; Parsons Brinckerhoff

5.0 LAND USE AND ENVIRONMENTAL CONDITIONS

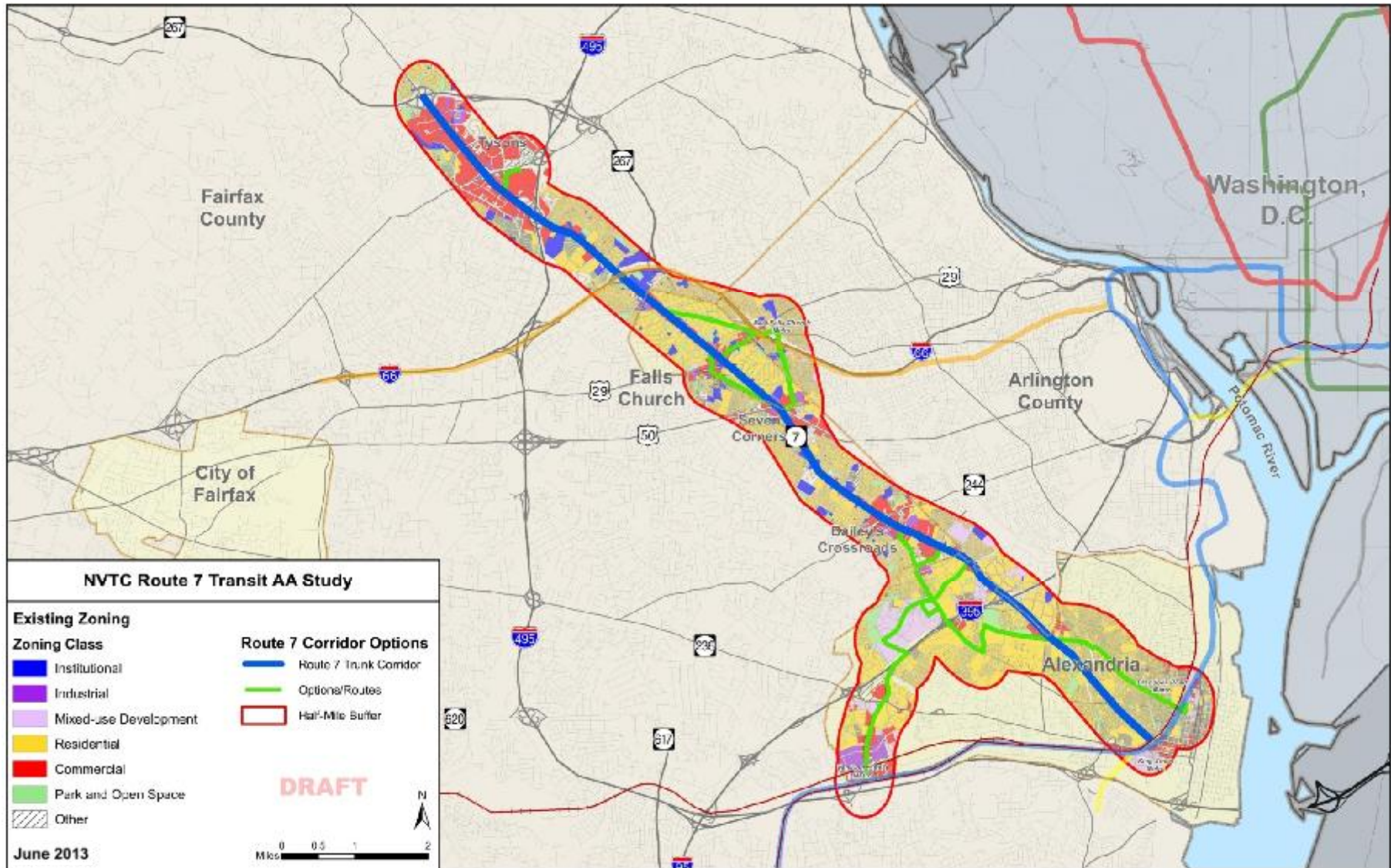
5.1 Land Use

5.1.1 Overall Land Use

Existing and future zoning data was requested from Arlington and Fairfax Counties as well as Cities of Alexandria and Falls Church. Property assessment data was used as a proxy for existing zoning throughout the Route 7 study area, and omits roadways and other public rights-of-way as compared to the future zoning data. Future zoning for the study area represents the land uses to be planned for each jurisdiction over 20-30-year horizons. Figure 20 and Figure 21 show the existing and future zoning for the land uses within one-half-mile of the Route 7 corridor and corridor options, respectively. Existing and future zoning codes were assigned to overarching zoning classes according to the classes identified on each jurisdiction's general land use maps. As shown in the existing zoning map, the heaviest concentration of non-residential development is in Tysons, confirming the current commercial land uses in that area. Bailey's Crossroads follows as the next area with a sizeable concentration of commercial zoning, including Skyline Mall, Crossroads Place, and Crossroads Center. Other concentrations of commercial zoning can be found in Old Town Alexandria, Landmark, and along the US 29 corridor in Falls Church. Institutional zoning is spread along the length of the Route 7 corridor, while mixed-use zoning is identified around the Beauregard Street corridor, the southwest corner of Old Town Alexandria, and along the western edge of Arlington County within the study area.

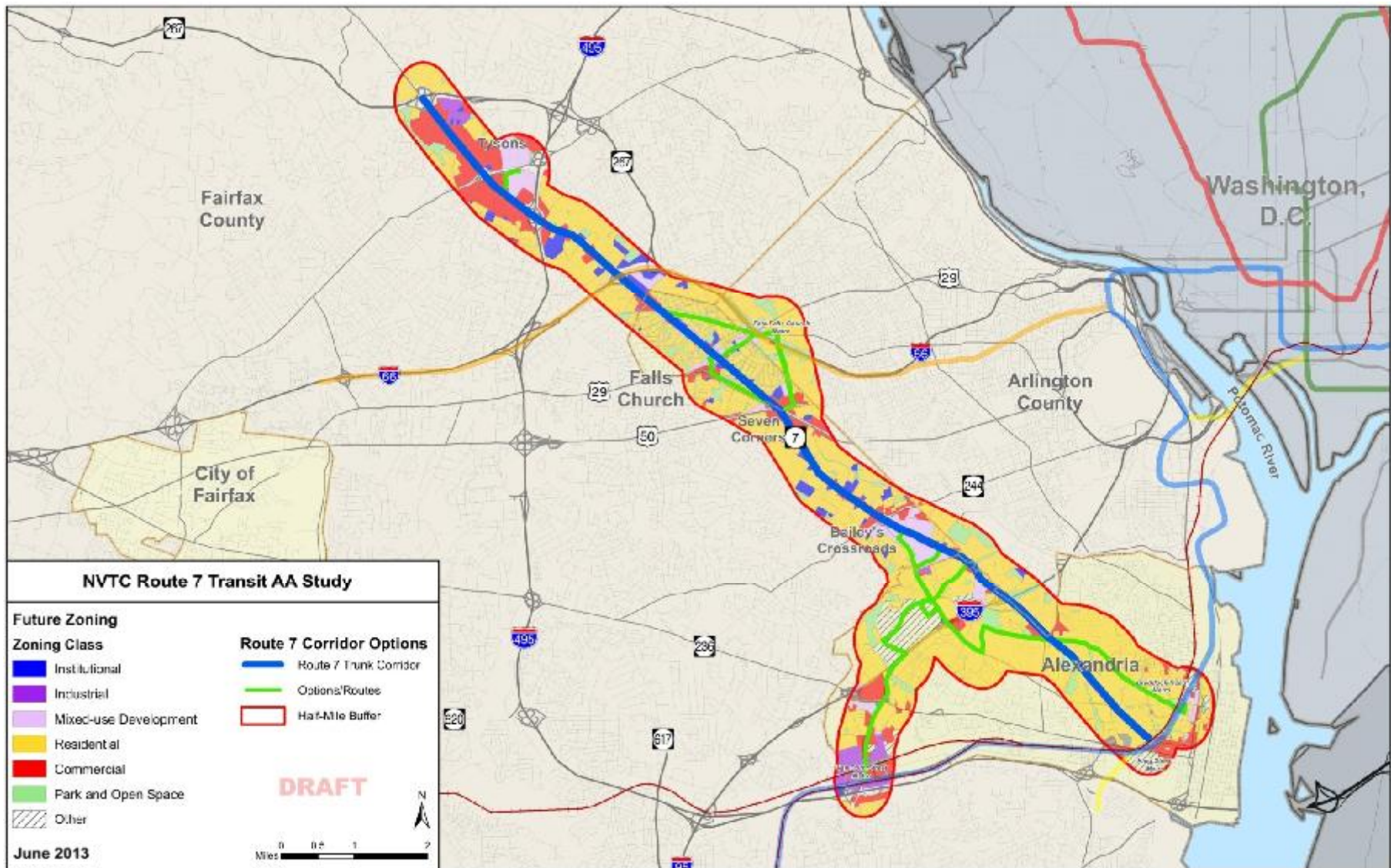
A visual comparison of the future zoning map in Figure 21 and existing zoning map in Figure 20 shows very few changes to the zoning within the Route 7 study area. Residential will remain the dominant zoning class and the primary commercial centers remain in the same locations as they are currently. There will be some changes to some zoned locations over to mixed-use development, as seen in Tysons, Bailey's Crossroads, and near the West Falls Church Metrorail station.

Figure 20: Existing Zoning within Route 7 Study Area



Source: GIS data from Arlington and Fairfax Counties and Cities of Alexandria and Falls Church, ESRI, WMATA, Parsons Brinckerhoff

Figure 21: Future Zoning within Route 7 Study Area

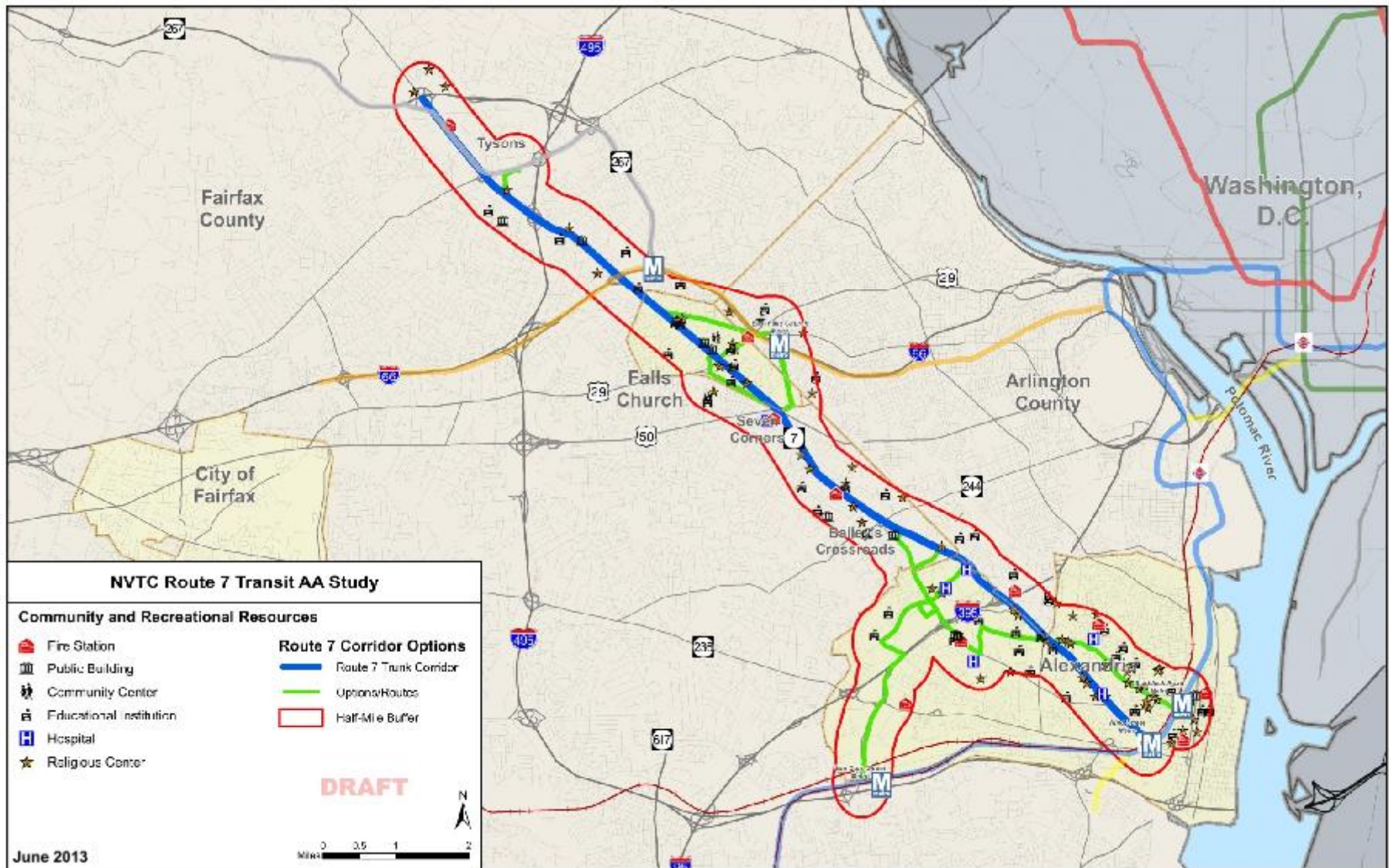


Source: GIS data from Arlington and Fairfax Counties and Cities of Alexandria and Falls Church, ESRI, WMATA, Parsons Brinckerhoff

5.1.2 Community and Recreational Resources

Figure 22 shows the various community and recreational resources within the study area. The resources identified in the data obtained from Economic and Social Research Institute (ESRI) consist of various community centers, fire stations, government buildings, libraries, hospitals, educational institutions, and religious centers. In all, about 140 community and recreational resources were identified within the study area.

Figure 22: Community and Recreational Resources within Route 7 Study Area



Source: ESRI, WMATA, Parsons Brinckerhoff

5.1.3 New Developments

Figure 23 shows the new development and redevelopment sites for the Route 7 study area. Planned development information was obtained from the web site for Arlington Economic Development⁹, City of Alexandria's Planning and Development Viewer¹⁰, Fairfax County's Land Development System¹¹, and Falls Church's Planning Division¹². The map shows that almost all new developments within the study area will occur in the Cities of Falls Church and Alexandria. Within Falls Church most developments are pending approval, while two developments have been approved. Table 24 lists the planned developments within the study area.

⁹<http://www.arlingtonvirginiausa.com/development/>, accessed on February 18, 2013

¹⁰<http://gis.alexandriava.gov/development/viewer.htm>, accessed on February 18, 2013

¹¹<http://ldsnet.fairfaxcounty.gov/ldsnet/>, accessed on February 18, 2013

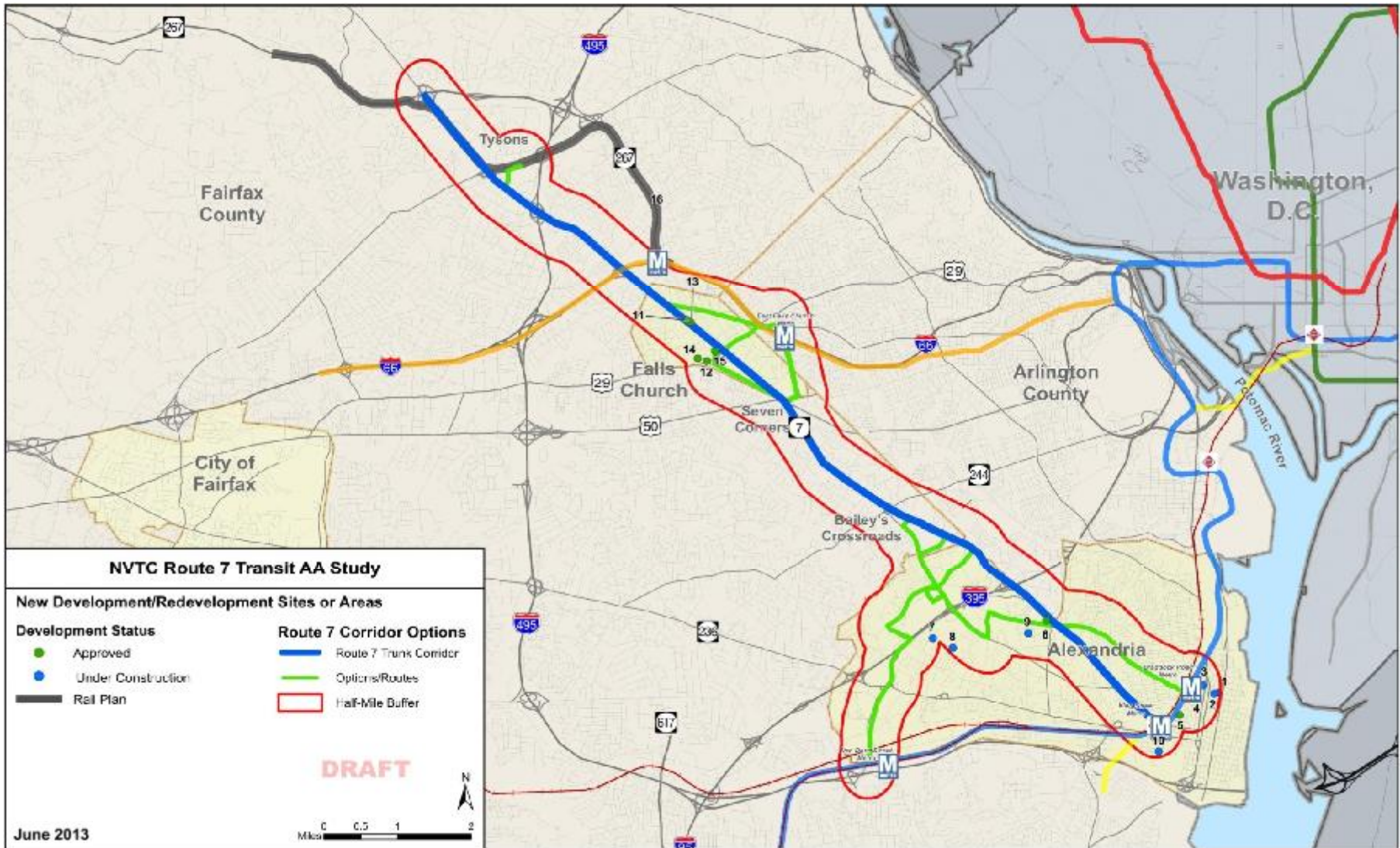
¹²<http://www.fallschurchva.gov/content/government/departments/developmentservices/planning/projects/default.aspx?cnlid=5066> and <http://www.fallschurchva.gov/content/government/departments/economicdevelopment/newdevelopment.aspx?cnlid=2099>, accessed on February 18, 2013

Table 24: New Development and Redevelopment Sites within Route 7 Study Area

Number	Name	Status	Jurisdiction
1	St. Joseph Church Parking Lot	Under Construction	City of Alexandria
2	James Bland (DSP2010-00018)	Under Construction	City of Alexandria
3	The Madison	Under Construction	City of Alexandria
4	The Asher	Under Construction	City of Alexandria
5	Jefferson-Houston School Redevelopment	Approved	City of Alexandria
6	Safeway on King Street	Approved	City of Alexandria
7	Syme Property	Under Construction	City of Alexandria
8	Pickett's Ridge - Phase II	Under Construction	City of Alexandria
9	Episcopal High School Gym Addition	Under Construction	City of Alexandria
10	Carlyle - Block O	Under Construction	City of Alexandria
11	800 West Broad Street	Approved	City of Falls Church
12	New Intermodal Plaza	Approved	City of Falls Church
13	706 West Broad Street	Approved	City of Falls Church
14	Pearson Square	Approved	City of Falls Church
15	City Center	Approved	City of Falls Church
16	WMATA Silver Line	Under Construction	Fairfax County

Source: City of Alexandria Department of Planning and Zoning, City of Falls Church Planning Division, Fairfax County Department of Planning and Zoning

Figure 23: New Development/Redevelopment Sites within Route 7 Study Area



Source: City of Alexandria Department of Planning and Zoning, City of Falls Church Planning Division, Fairfax County Department of Planning and Zoning, GIS data from Arlington and Fairfax Counties and Cities of Alexandria and Falls Church, ESRI, WMATA, Parsons Brinckerhoff

5.2 Environmental

5.2.1 Environmentally-Sensitive Areas

Figure 24 shows the environmentally-sensitive areas within the study area. For this report, environmentally-sensitive areas include wetlands, floodplains, wildlife conservation, and parks. Data for each resource was obtained from the following agencies:

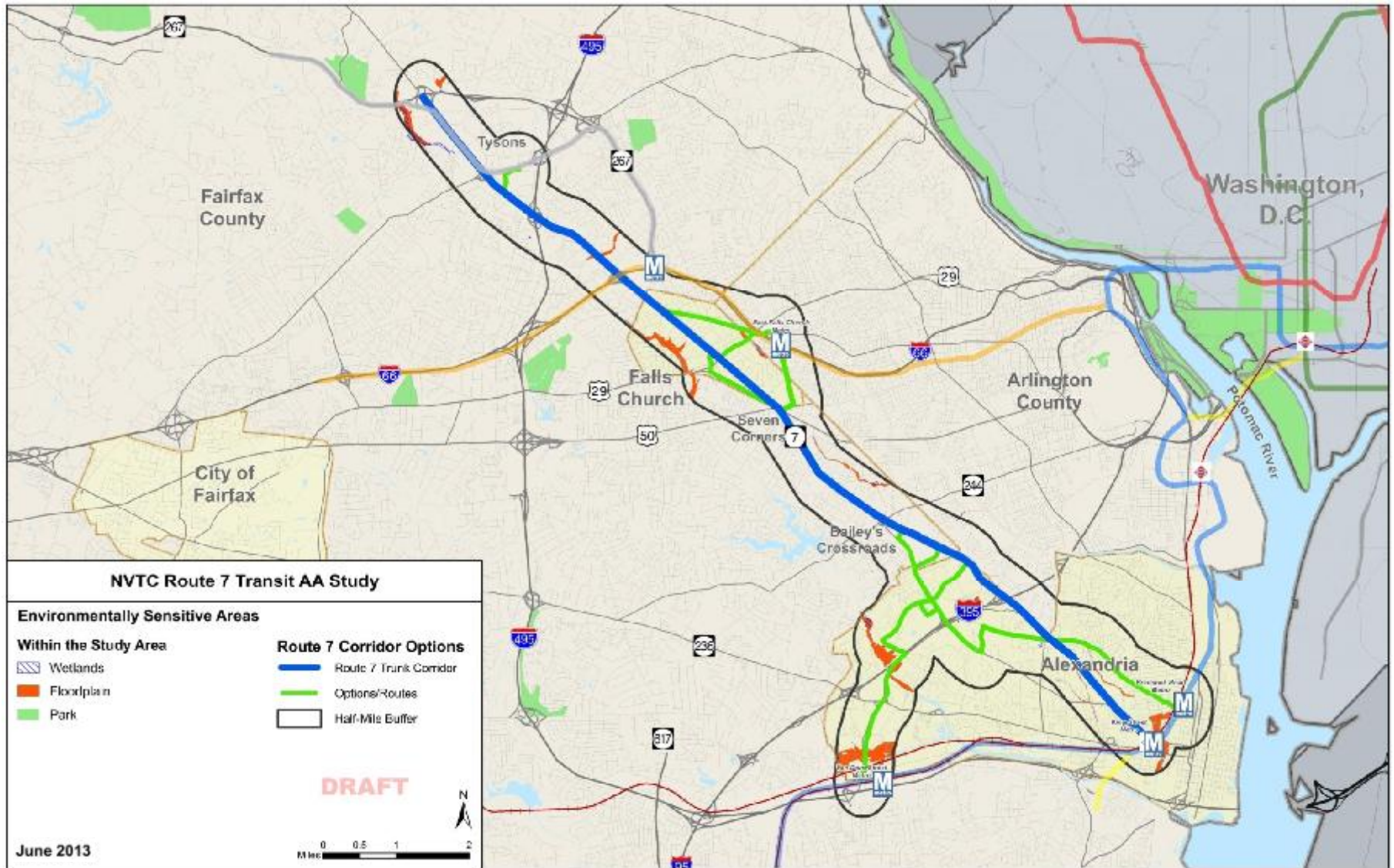
- Wetlands: US Fish and Wildlife Service's National Wetlands Inventory (NWI)
- Floodplains: Federal Emergency Management Agency (FEMA)
- Wildlife conservation: Virginia Department of Game and Inland Fisheries (VDGIF)
- Parks: Economic and Social Research Institute (ESRI)

There are 31 wetland areas identified within the study area. The analysis also identified the locations of 100-year floodplains within the study area, of which 32 were found. No wildlife conservation areas or parks were identified within the study area.

5.2.2 Hazardous Materials

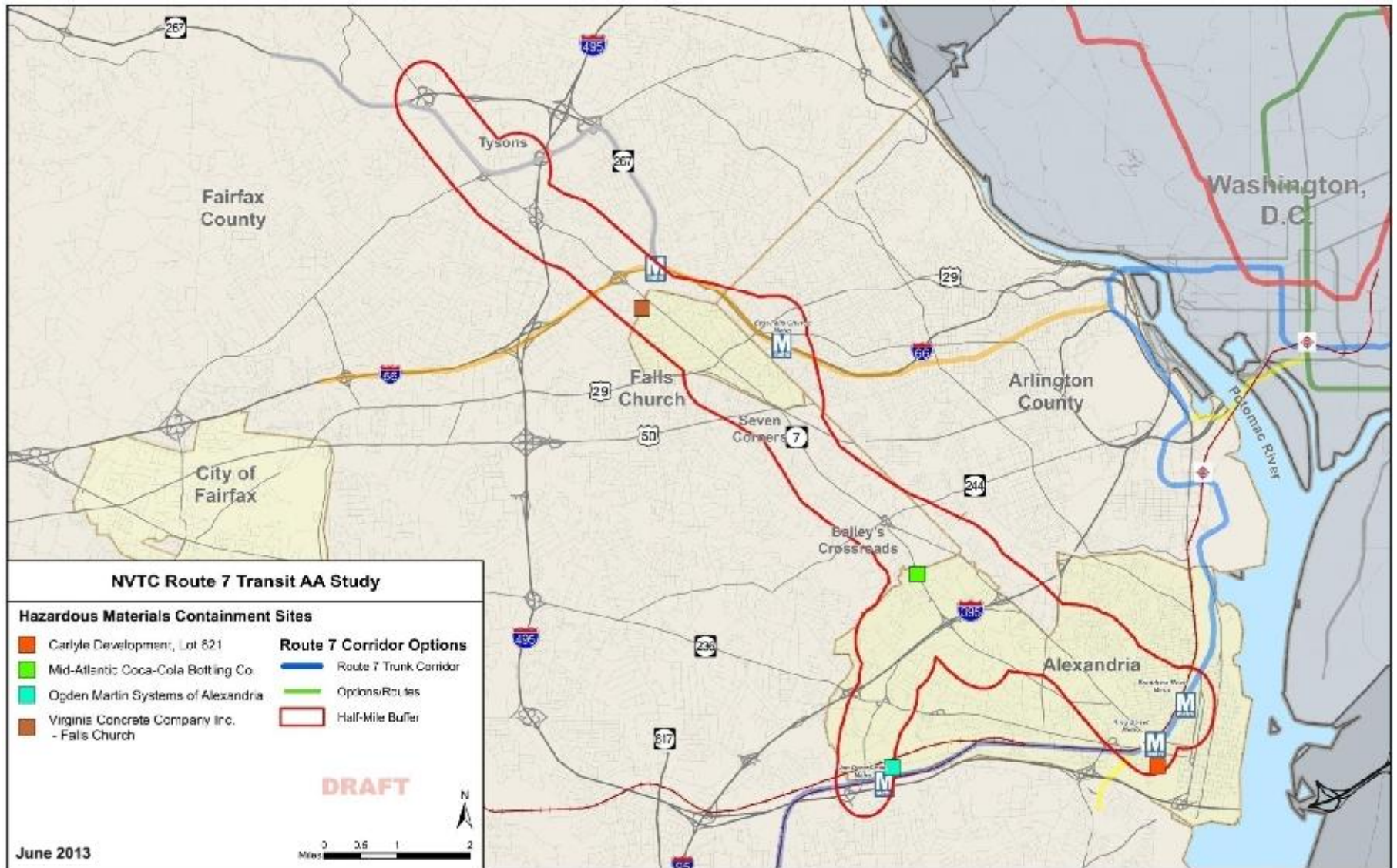
Information on hazardous materials (hazmat) within the Route 7 study area was obtained from the US EPA's geographic information systems website. As shown in Figure 25, there are four hazmat sites within the study area, all within the Cities of Alexandria and Falls Church. As the study progresses and an alignment becomes apparent, more refined analysis will determine the extent to which the locations of any of these hazmat sites could impact the corridor and surrounding area.

Figure 24: Environmentally-Sensitive Areas within Route 7 Study Area



Source: NWI, FEMA, ESRI, WMATA, Parsons Brinckerhoff

Figure 25: Hazmat Sites within Route 7 Study Area



Source: US EPA, WMATA, ESRI, Parsons Brinckerhoff

6.0 MARKET ANALYSIS

6.1 Introduction

Efforts toward developing the background information report included an analysis of the existing travel market¹³ surrounding the Route 7 study area. The region is defined by 23 districts, which are based on the grouping of transportation analysis zones (TAZs). Trip desire lines were then developed between these districts based on total person trips. The 23 districts are defined in Table 25.

Table 25: Definition of TAZ Districts

District Number	District Name
1	Tysons
2	Vienna/Pimmit Hills
3	Falls Church West of Lee Highway/Annandale Road
4	East Falls Church
5	Seven Corners
6	Bailey's Crossing
7	Skyline
8	West Alexandria
9	Shirlington/Fairlington/Beauregard
10	Old Town
11	Eastern Alexandria Outside of Old Town
12	RBC Corridor – Ballston
13	RBC Corridor – Virginia Square to Rosslyn
14	Columbia Pike Corridor West
15	Columbia Pike Corridor East
16	North Arlington
17	McLean
18	Reston/Great Falls
19	Silver Line Phase II Corridor
20	Annandale and Southeastern Fairfax County
21	Remainder of Virginia
22	Washington, D.C.
23	Maryland

¹³ Existing travel market is assumed to be based on data from the year 2005, and used in the MWCOC regional travel forecasting model.

6.2 Total Daily Trip Patterns within Study Area

The individual TAZ districts within the study area were used to provide a more detailed display of daily travel within the Route 7 study area and help give context to some of the regional trip patterns observed in Figure 26. As observed from this figure, the heaviest trip flows occurred between adjacent districts, hinting at shorter trip lengths. The heaviest area trip flows from greatest to least are as follows:

- Districts 1 and 2 (Tysons and Vienna/Pimmit Hills): 23,650 daily trips
- Districts 10 and 11 (Old Town and East Alexandria): 17,500 daily trips
- Districts 8 and 11 (West Alexandria and East Alexandria): 16,200 daily trips

Trips between Districts 1 and 2 may currently be handled by automobiles and local transit service, whereas trips between Districts 8 and 11 could likely be handled by automobile travel and existing Metrorail service between Van Dorn Street and King Street stations. Trips between Districts 10 and 11 also show a strong travel market that is currently served by automobiles and local bus service.

Some of the mid-range trip flows also show shorter trip lengths between adjacent districts; however, those trips traverse Route 7 rather than parallel it. One of these travel flows—between Districts 8 and 9 (West Alexandria and Shirlington)—intersects Route 7 and parallels the Beauregard-Van Dorn corridor options in this study and has close to 11,000 daily trips.

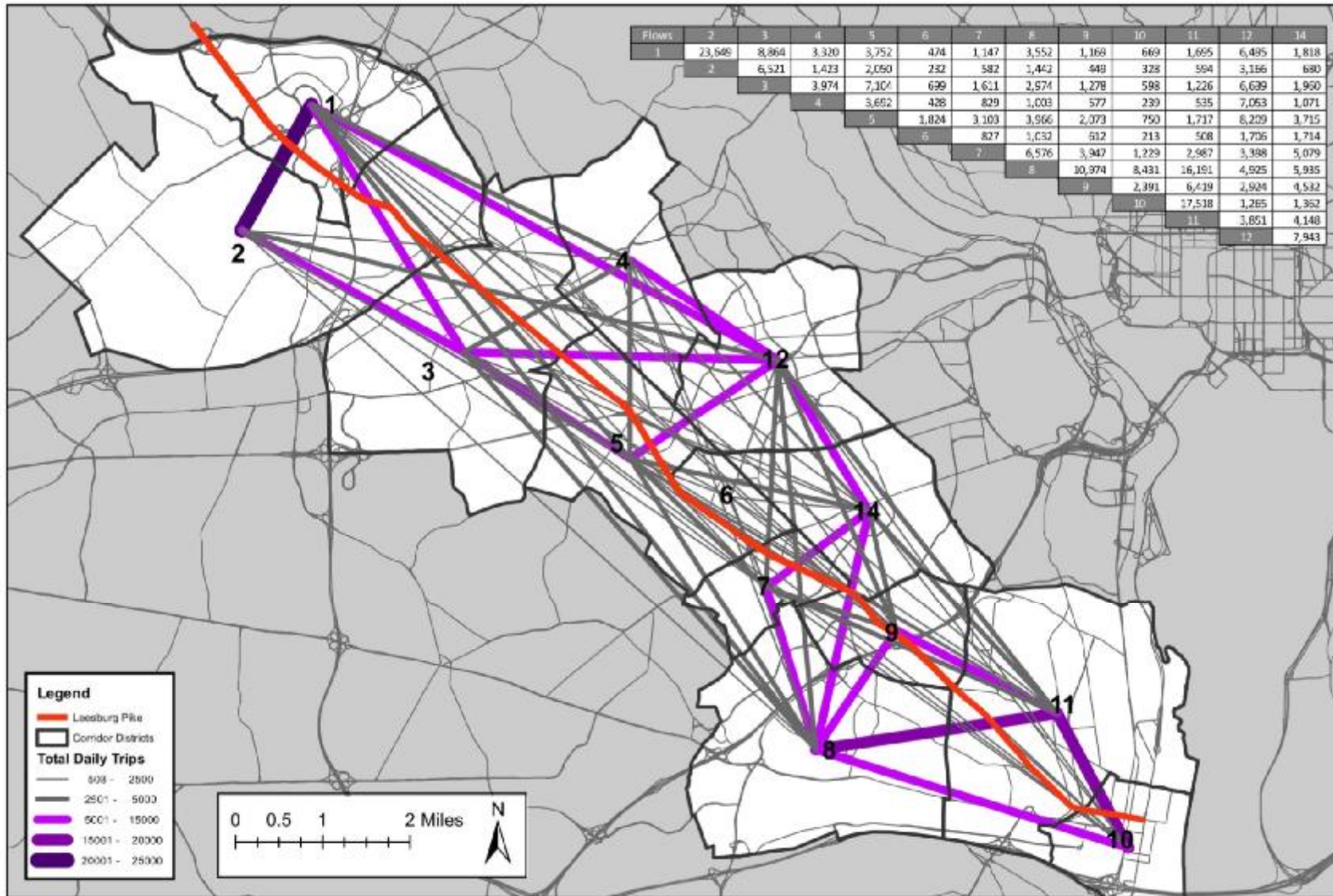
Other shorter and mid-range travel flows begin providing insight into a potential market for premium transit corridor along the Route 7 corridor. Those travel flows occur between the district pairs and are as follows (from greatest to least):

- Districts 1 and 3 (Tysons and West Falls Church): 8,900 daily trips
- Districts 8 and 10 (West Alexandria and Old Town): 8,400 daily trips
- Districts 3 and 12 (West Falls Church and Ballston): 6,600 daily trips
- Districts 7 and 8 (Skyline Drive and West Alexandria):¹⁴ 6,600 daily trips
- Districts 1 and 12 (Tysons and Ballston): 6,500 daily trips
- Districts 2 and 3 (Vienna/Pimmit Hills and West Falls Church): 6,500 daily trips
- Districts 9 and 11 (Shirlington and East Alexandria): 6,400 daily trips
- Districts 8 and 14 (West Alexandria and West Columbia Pike Corridor):¹⁴ 6,000 daily trips

The remaining travel flows represent up to 5,000 daily trips and, as expected, include the longer trip lengths along the Route 7 corridor.

¹⁴ Travel between these districts could be facilitated by a segment heading west from Route 7 along the Beauregard-Van Dorn corridor.

Figure 26: Total Daily Transit Trips within Route 7 Study Area



Source: MDAAll Travel Demand Model, ESRI, Parsons Brinckerhoff

6.3 Total Daily Transit Travel using Metrorail

There are five existing Metrorail stations with the Route 7 study area: West Falls Church, East Falls Church, Van Dorn Street, King Street, and Braddock Street. The analysis for this report also considered the use of these Metrorail stations to better understand the trip patterns associated with those stations within the study area. Drawing on data from the trip generation of the model, the trip productions and attractions were identified by TAZ. Figures 28 through 32 show the production and attraction trips served by each of the five stations. The following subsections briefly discuss those trips for each station.

West Falls Church Metrorail Station

Figure 27 shows a map of the combined production and attraction trips served by West Falls Church Metrorail station, which has the greatest number of daily trips of the stations within the study area as shown in Table 17 in Section 3.2.2 of this report. West Falls Church primarily serves trips produced between US 29 and I-495. A handful of these trips originate in Tysons, Seven Corners, Bailey's Crossroads, and Van Dorn areas. Overall, trips are attracted to locations between Dulles Toll Road and Seven Corners. The majority of trips terminating within the study area are heavily concentrated within Tysons and also cluster near the West Falls Church station.

King Street Metrorail Station

Figure 28 shows the combined production and attraction trips served by King Street Metrorail station. This station primarily serves locations in its immediate area, as well as those within Old Town Alexandria. Trips travelling through the King Street station also begin along the Route 7 corridor up to the Skyline area near I-395. Trips attracted to the Route 7 study area seem to cluster around King Street and Old Town Alexandria, with a handful observed heading north along Route 7 toward Skyline and along the Beauregard corridor.

It is likely that some trips starting along the Van Dorn Street corridor could be using the King Street station to reach the final destinations, and vice versa.

Van Dorn Street Metrorail Station

Figure 29 shows the combined production and attraction trips served by Van Dorn Street Metrorail station. This station primarily serves locations in its immediate area, along the Van Dorn Street corridor, within West Alexandria, and south of Route 236/Little River Turnpike. A handful of trips appear to start along the Beauregard corridor. Trips attracted to the Route 7 study area also cluster around the Van Dorn Street station, as well as heading toward the Mark Center served by the Beauregard corridor. There is a small cluster of trips ending within Old Town Alexandria, as well as trips sparsely scattered along Route 7 between Skyline and Tysons.

East Falls Church Metrorail Station

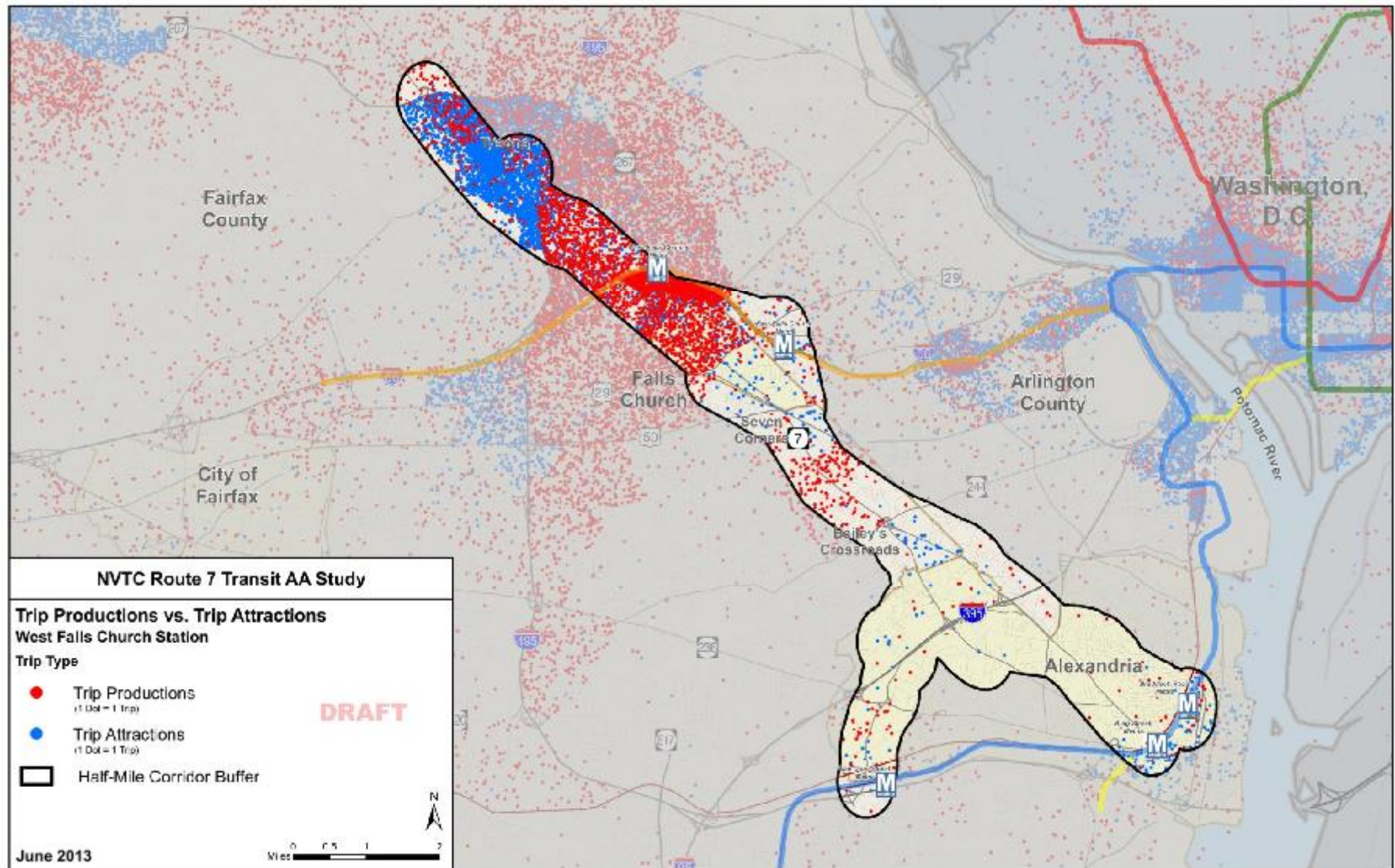
Figure 30 shows a map of the combined production and attraction trips served by East Falls Church Metrorail station. Trips starting within the Route 7 study area and using this station are primarily located between I-66 and Route 244/Columbia Pike. Comparatively few trips start north of the station heading toward Tysons. Those trips attracted to locations within the study

area are also primarily located between I-66 and Route 244/Columbia Pike. More trips are observed ending in the Tysons area.

Braddock Road Metrorail Station

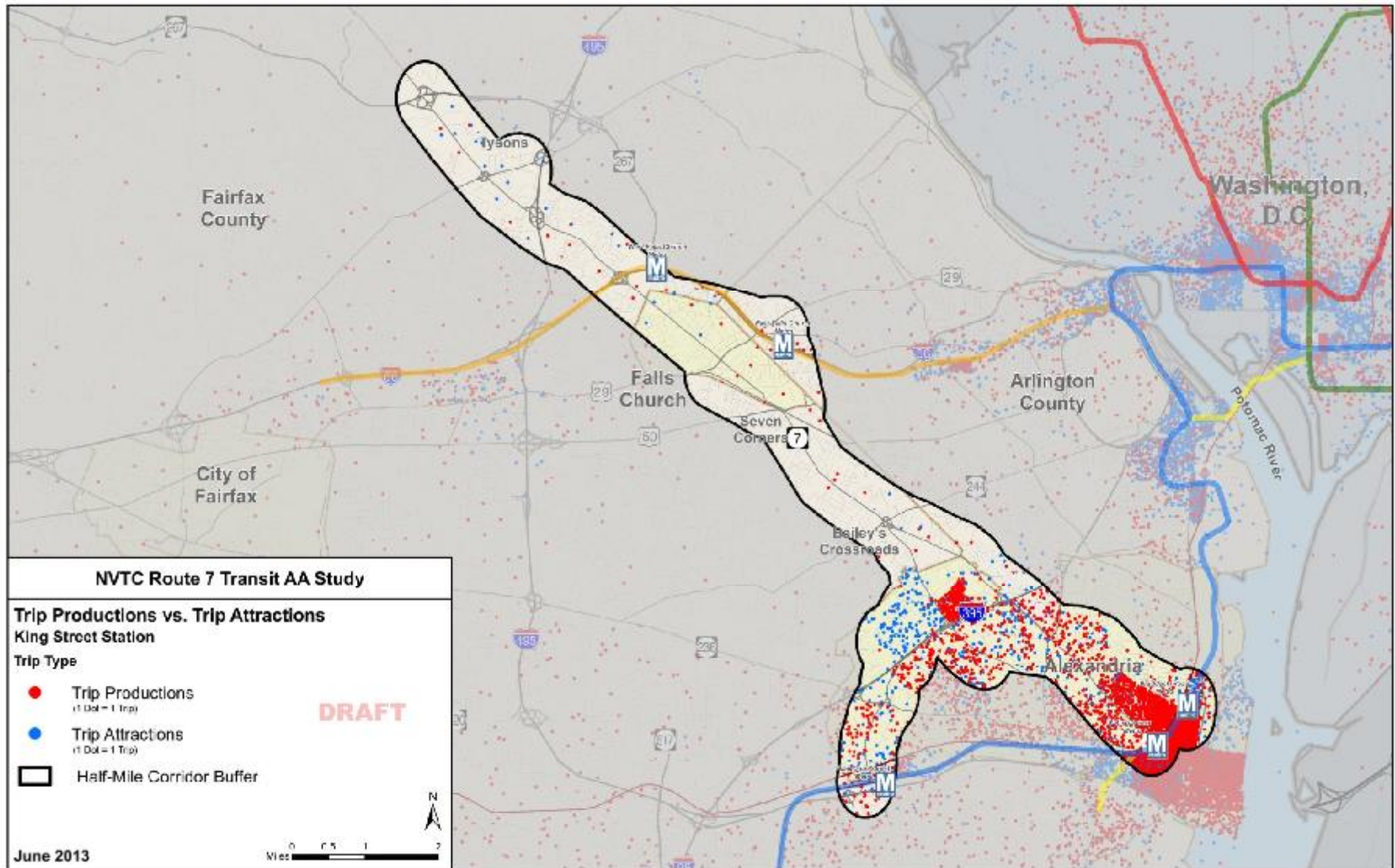
Figure 31 shows the combined production and attraction trips served by Braddock Road Metrorail station. This station primarily serves locations in its immediate area, as well as those within Old Town and East Alexandria. Trips starting within the study area are scattered along the Route 7 corridor or near Van Dorn Street. Trips attracted to the study area primarily terminate in Old Town Alexandria. Very few trips end at locations along Route 7 or Van Dorn Street.

Figure 27: Total Daily Transit Trips Served by West Falls Church Metrorail Station



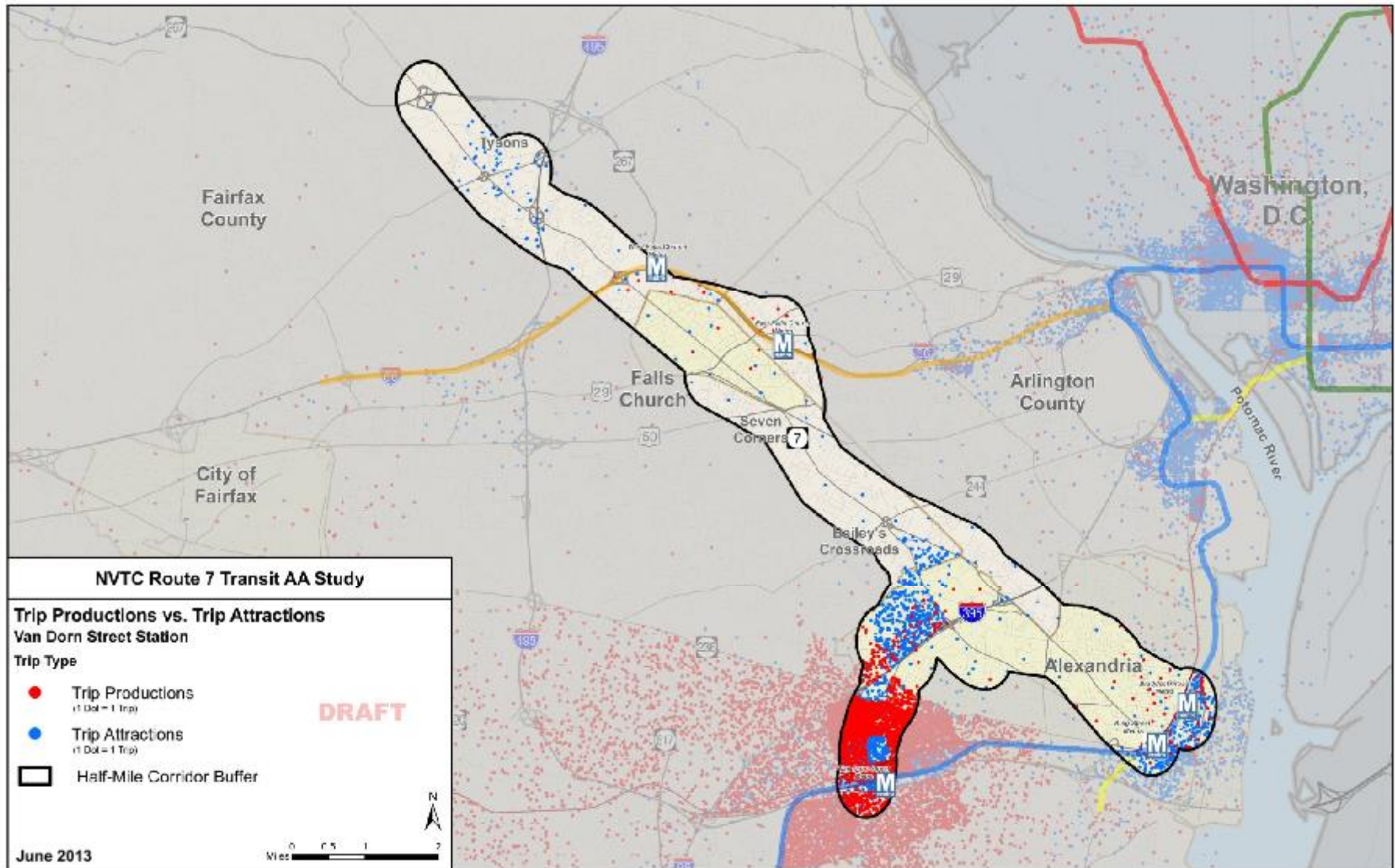
Source: MDAAll Travel Demand Model, ESRI, WMATA, Parsons Brinckerhoff

Figure 28: Total Daily Transit Trips Served by King Street Metrorail Station



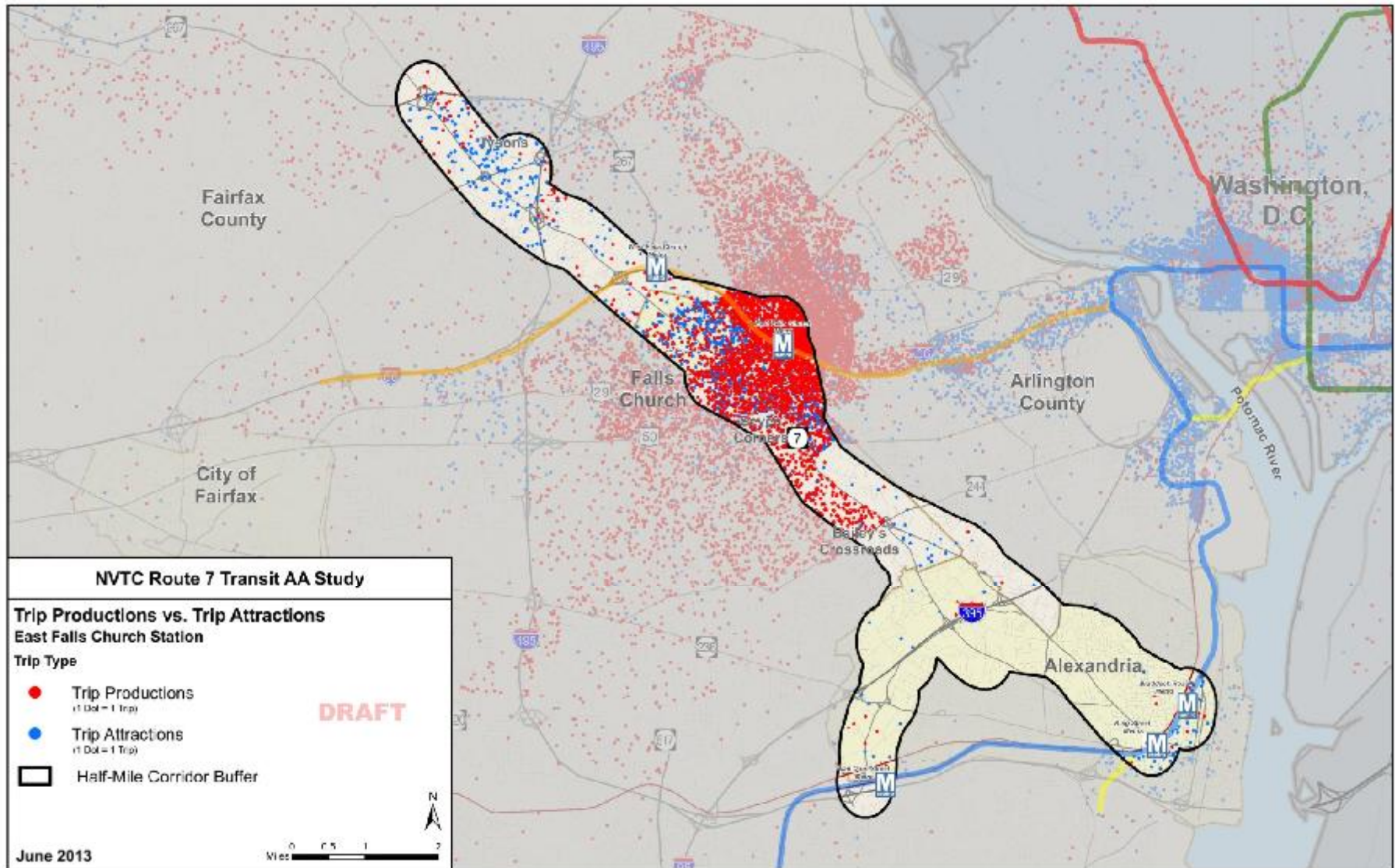
Source: MDAAll Travel Demand Model, ESRI, WMATA, Parsons Brinckerhoff

Figure 29: Total Daily Transit Trips Served by Van Dorn Street Metrorail Station



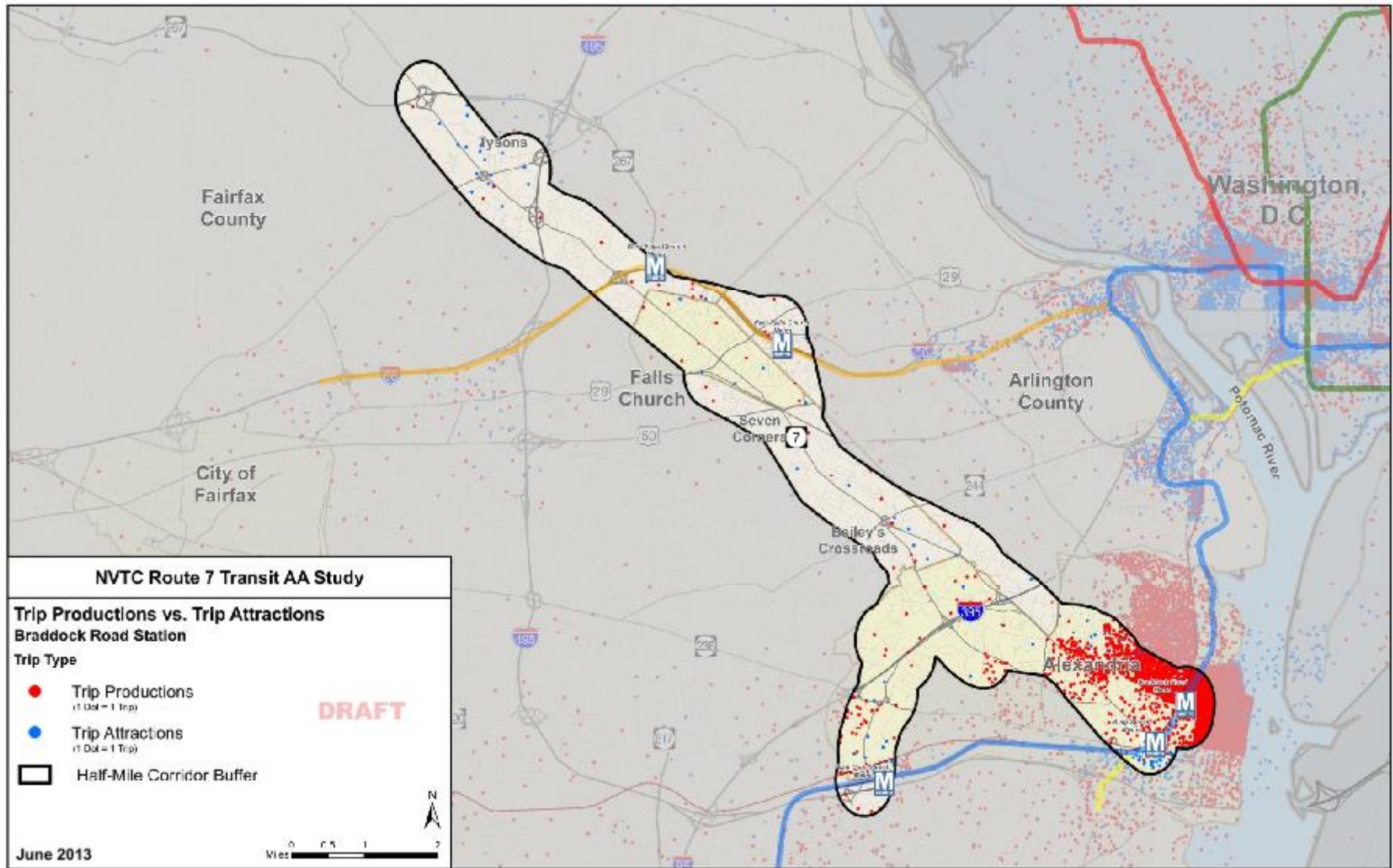
Source: MDAAll Travel Demand Model, ESRI, WMATA, Parsons Brinckerhoff

Figure 30: Total Daily Transit Trips Served by East Falls Church Metrorail Station



Source: MDAAll Travel Demand Model, ESRI, WMATA, Parsons Brinckerhoff

Figure 31: Total Daily Transit Trips Served by Braddock Road Metrorail Station



Source: MDAAll Travel Demand Model, ESRI, WMATA, Parsons Brinckerhoff