



Chapter 1

Purpose and Need

Chapter 1. Purpose and Need

The Maryland Transit Administration (MTA) has undertaken an Alternatives Analysis and Draft Environmental Impact Statement (AA/DEIS) to study a range of alternative means for addressing mobility and accessibility issues in the corridor between Bethesda and New Carrollton in Montgomery and Prince George’s Counties, Maryland, just north of the District of Columbia boundary. The study is considering a range of alternatives to improve east-west transit mobility in the 16-mile corridor that connects several major activity centers at the Metrorail stations: Bethesda, Silver Spring (both on the Red Line), College Park (Green Line), and New Carrollton (Orange Line) as well as the Takoma Park/Langley Park area and the University of Maryland. This transit project is intended to provide enhanced transportation choices and improved accessibility for people in the corridor; to support local plans for economic development, transit oriented development and community revitalization; to improve system efficiency and intermodal connectivity; and to help address the region’s air quality issues.

This study examines several different alternatives, from modest investments in shared-use roadways, to major investments in a dedicated guideway, grade-separated where necessary, to determine which mix of improvements achieves the greatest mobility and related benefits, balanced against costs and impacts on communities and the environment. Two modes, light rail transit (LRT) and bus rapid transit (BRT), were identified during the public scoping process as the modes most appropriate for this project. This chapter of the AA/DEIS identifies the need for transportation improvements in the corridor and provides an overview of existing transportation facilities and services, transit markets in the corridor, existing transportation problems, and states the goals and

objectives used to evaluate the proposed alternatives.

Improvements to the transportation system in the corridor would address the following transportation challenges:

- Increasing congestion on the roadway system
- Slow and unreliable transit travel times on this congested roadway system
- Limited travel mode options for east-west travel
- Degraded mobility and accessibility between major activity centers and residential areas
- Degraded transit accessibility to the larger metropolitan region due to inferior connections to radial Metrorail lines and to other rail and bus services

For example, a peak period trip by car between the University of Maryland campus and Silver Spring that takes 24 minutes today will take 37 minutes in 2030. A peak period automobile trip from Silver Spring to Bethesda will increase from 14 minutes today to 21 minutes in 2030 while that same trip by bus will increase from 17 minutes to 32 minutes; and a trip by rail will require a 35-minute trip on the Red Line through downtown Washington, DC.

Changing land uses in the Washington metropolitan area have resulted in more suburb-to-suburb travel, while the existing transit system is oriented toward radial travel in and out of downtown Washington, DC. Transit trips within the corridor are expected to increase by 43 percent by 2030.

The only transit service available for east-west travel is bus service, which is slow and unreliable

because it operates on congested roadways in the corridor between major activity centers. A bus trip between New Carrollton to Silver Spring requires a transfer at College Park Metro Station from the WMATA J4 route to the J6 route while the Montgomery County Ride-On and Prince George’s County TheBus services along the corridor terminate at the county line, requiring a transfer in Takoma/Langley Park. There is no efficient, reliable, and high capacity transit for east-west travel in the corridor. Providing more direct transit service between the major activity centers and communities in the two counties would provide travelers with a more efficient and convenient trip. The Purple Line would serve transit patrons whose journey is solely east-west in the corridor, as well as those who want to access the existing north-south Metrorail system. The Purple Line would also provide a direct link to the Brunswick, Camden, and Penn Lines of the Maryland MARC commuter rail system and to Amtrak’s Northeast Corridor service at New Carrollton.

The corridor has a sizeable population that relies heavily on transit; and contains some of the busiest transit routes and transfer areas in the Washington metropolitan area. Many communities in the corridor have a high percentage of households without a vehicle. Continued growth projections of population and employment in the corridor indicate that there

will be a growing need for transit improvements in the corridor. The increasingly congested east-west roadway system does not have adequate capacity to accommodate the existing average daily travel demand, and congestion on the existing routes is projected to worsen as traffic continues to grow through 2030. Many communities in the Purple Line corridor are built out; therefore new road construction or road widening to increase capacity and reduce congestion are not feasible.

Metrorail provides north-south rapid transit in parts of the corridor, but transit users who are not within walking distance of these services must drive or use slow and unreliable buses that often operate over circuitous routes to access Metro stations. Faster and more reliable connections along the east-west Purple Line corridor to the existing radial rail lines (Metrorail and MARC trains), bus routes, and activity centers within the corridor would improve mobility and accessibility. Enhancing the connectivity of the transit system would improve transit efficiencies, making the system more attractive to a larger number of people.

In addition, a need exists to address poor air quality in the region. Changes to the existing transportation infrastructure will help in attaining Federal air quality standards by attracting automobile trips to less polluting transit service,

Purpose and Need for Project

The purpose of the proposed project is to provide faster, more direct and more reliable east-west transit service in the Purple Line corridor, which would connect the four major activity centers, including the Metrorail services located there, to each other, and with the communities located between them. The existing and expected future roadway congestion in the corridor will have an increasingly detrimental effect on the travel times and reliability of east-west bus transit services in the corridor. The proposed Purple Line corridor transit improvements are intended to improve travel times and reliability by providing more direct services that will operate on dedicated and exclusive lanes and guideways.



reducing automobile vehicle miles traveled and combustion engine emissions.

The transit improvements being considered for the Purple Line corridor are intended to address these challenges by providing shorter and more reliable transit travel times by enabling faster transit vehicle operating speeds through the provision of more priority, dedicated and exclusive operating conditions. The degree that the alternatives address these intentions can be measured by reduced transit travel times, time savings for users, improved operating speeds, and attraction of more riders to transit.

This document presents the information developed for the AA/DEIS to support local decision-making regarding the need for transit investments in the Purple Line corridor, as well as the type and scale of that investment.

This study is being conducted to meet the requirements of the National Environmental Policy Act of 1969 (NEPA). This act requires consideration of impacts to the natural and human environment of any federal action. NEPA requires a systematic interdisciplinary approach and requires certain statements, including the following:

- The environmental impacts of the action
- Adverse impacts that cannot be avoided
- Alternatives to the proposed action
- Consequences of the proposed action

In addition, consultation with federal agencies and public participation in the planning process are required.

This document is also an Alternatives Analysis (AA) prepared for the Federal Transit Administration (FTA) in accordance with Congressional mandates. The requirements of the AA process are intended to allow for an objective, efficient, and fully informed

evaluation and rating of the transit projects seeking funding under the Federal New Starts process.

1.1. Project History

The origins of an east-west transit route in this area can be traced to the former railroad freight line spur called the Georgetown Branch. This 11-mile railroad line owned by B & O Railroad carried coal and building supplies on a weekly train from Bethesda to Georgetown until service was discontinued in 1985. The National Park Service purchased the railroad right-of-way between Georgetown and the Washington, DC boundary, and the Montgomery County Council purchased the right-of-way from the Washington, DC boundary to the CSX Metropolitan Branch right-of-way under the National Trails Systems Act in 1988. The Maryland-National Capital Park and Planning Commission (M-NCPPC) was given jurisdiction from the Washington, DC line to Bethesda, and the Department of Public Works and Transportation was given jurisdiction over the right-of-way from Bethesda to Silver Spring for the future development of a transitway, either light rail or bus, in addition to the Capital Crescent Trail.

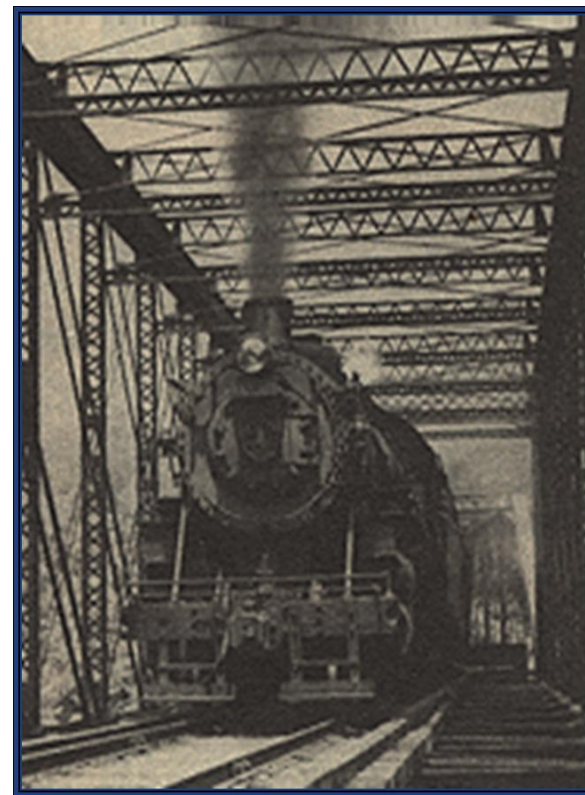
The *Georgetown Branch Master Plan Amendment* (November 1986) designated the right-of-way between Bethesda and the Metropolitan Branch as a public right-of-way intended to be used for public purposes, such as conservation, recreation, transportation, and utilities.

In 1986, Montgomery County issued a report entitled the *East-West Transitway Feasibility Study*. This study was followed by the County's *Georgetown Branch Corridor Study* in 1989. Both studies evaluated the use of the Georgetown Branch right-of-way as a transitway.

In October 1988, the Maryland Department of Transportation (MDOT) released a *Study of the Appropriateness and Applicability of Light Rail Transit in Maryland*, which determined that seven of the 24 study areas identified were potentially appropriate for LRT. Of the seven study areas, the Georgetown Branch project, from Bethesda to Silver Spring, was ranked as the most cost-effective.

In 1989, MDOT identified \$70 million of projected revenues within the six-year Consolidated Transportation Program (CTP) to be earmarked for the project. In winter 1990/spring 1991, the State legislature approved the FY 1990-1995 CTP which included \$70 million for the project – \$1.9 million in FY 1991 and \$3.8 million in FY 1992 for engineering and

Freight Train on Georgetown Branch Trestle Bridge over Rock Creek ca. 1910



design. In May 1990, the MTA conducted further evaluations and cost estimates for the project. The results are summarized in the *Georgetown Branch Trolley/Trail Conceptual Report* (1990). In 1991, the project was suspended because the costs estimated in the 1990 study exceeded the amount allocated by the State.

A report by the Metropolitan Washington Council of Governments (MWCOC), *The Potential for Circumferential Transit in the Washington Region* (August 1993), assessed the potential of circumferential rail, bus, and high occupancy vehicle (HOV) facilities to provide viable links between suburban residential, commercial, and employment centers to maintain mobility in the Washington metropolitan area. The report concluded that the pattern of suburban land activity inherent in 20-year forecasts would not provide a viable basis for circumferential rail transit along the Capital Beltway or along outer suburban corridors. It also identified the Georgetown Branch connection between the Bethesda and Silver Spring Metro Stations as the most promising circumferential rail linkage inside the Capital Beltway.

The MTA completed the *Georgetown Branch Transitway/Trail Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS)* in 1996, which considered both a combined light rail and hiker/biker trail and a busway and trail to connect Bethesda to Silver Spring. The document was available for public review and comment on May 24, 1996, and a public hearing was held on June 26, 1996. A Final Environmental Impact Statement was never produced for this study.

In November 1998 the Montgomery County Council endorsed light rail and a trail as the Preferred Alternative for the Georgetown Branch, Bethesda to Silver Spring segment.

The incorporation of the Georgetown Branch into a larger Purple Line, envisioned to eventually circle Washington, DC, began with

the *Capital Beltway/Purple Line Study* initiated by the Maryland State Highway Administration (SHA) and the MTA in 1996. The study shifted from an original focus on HOV solutions on the Capital Beltway to multimodal transportation improvements in the Capital Beltway corridor. This included the consideration of several heavy rail and light rail lines that extended along the 42-mile segment of the Capital Beltway in Maryland, from the American Legion Bridge to the Woodrow Wilson Bridge. The corridors included routes located along, outside, inside, and crossing the Capital Beltway. In all, six different corridors using either heavy rail (Metrorail) or light rail technology were considered. Of the *Capital Beltway/Purple Line Study* corridors, Options P2 (heavy rail) and P6 (light rail) included the Bethesda to New Carrollton segment. Completed in 2002, the *Capital Beltway/Purple Line Study* recommended the “Inner Purple Line” (inside the Beltway) as the priority transit corridor. The term “Purple Line” was adopted to be consistent with the Washington Metropolitan Area Transit Authority’s (WMATA) practice of naming Metrorail routes by color.

In response to this study, a second project was initiated, the *Purple Line East, Silver Spring to New Carrollton*. This project was initiated by WMATA. Simultaneously the MTA began the preparation of a Supplemental DEIS for the Georgetown Branch. Subsequently the Georgetown Branch became known as the “western” segment of the Purple Line; the *Purple Line West, Bethesda to Silver Spring*.

In October 2001, Governor Parris Glendening directed Transportation Secretary John D. Porcari to make planning, funding, and building the 16-mile P6 light rail project the State’s top transit priority.

In March 2003, under the direction of the new governor, Robert Ehrlich, the two projects were combined and renamed the Bi-County Transitway Project. Transportation Secretary Robert Flanagan announced plans to explore another mode, bus rapid transit (BRT). The BRT alternatives would use dedicated lanes on existing roadways to allow buses to move faster than automobile traffic.

New Starts

The Federal Transit Administration's (FTA) Section 5309 New Starts program is the Federal government's primary financial resource for supporting locally-planned, implemented, and operated transit “guideway” capital investments. From heavy to light rail, from commuter rail to bus rapid transit systems, the New Starts program has helped to make possible nearly 100 new or extended transit fixed guideway systems across the country. If a Build alternative for the Purple Line is selected federal funding will be necessary to finance the project.

As provided in the New Starts regulation (49 CFR part 611), New Starts funding requires the submission of certain specific information to the FTA to support a request to initiate preliminary engineering, which is normally done in conjunction with the NEPA process.

In September 2003, the FTA and the MTA published a Notice of Intent (NOI) that they would be preparing an Environmental Impact Statement (EIS) in accordance to the National Environmental Policy Act (NEPA) of 1969, as amended, on the proposed Bi-County Transitway Project. This NOI for the Bi-County Transitway Project extended the previous projects limits

beyond Silver Spring to New Carrollton. In addition, MTA announced that it intended to seek New Starts funding for the project.

The MTA initiated a joint AA/DEIS following FTA’s Major Capital Projects policies and procedures.

Public and agency scoping for the Bi-County Transitway Project was held in September 2003. The scoping process began with public notification of four public meetings. The four meetings were held in the Takoma/Langley area, Silver Spring, Bethesda, and College Park on four evenings in mid-September 2003. Over 350 comments were submitted through the scoping process. Comments covered a broad range of topics and stated approval or disapproval of both general alignment issues and specific routes. Mode and alignment were the categories that received the most comments.

Scoping

Scoping is the first step in the NEPA planning process and provides agencies and the public opportunity to comment on the range of proposed actions, alternatives, and impacts to be discussed in the DEIS.

In January 2007, at the direction of newly elected Governor Martin O’Malley, the project returned to its former name, the Purple Line.

1.2. Corridor Setting

The Purple Line corridor is located north and northeast of Washington, DC, with a majority of the alignment within one to three miles inside the circumferential I-95/I-495 Capital Beltway (see Figure 1-1).

1.2.1. Existing Land Use

This portion of the Washington metropolitan area experienced rapid development following World War II and now contains mature neighborhoods with the majority of housing constructed prior to 1960. The corridor includes established inner-ring communities that contain pockets of higher-density development in Bethesda, Silver Spring, Takoma Park, Langley Park, and College Park. Many commercial areas are primarily retail, and the activity centers are older in design and function. These activity centers have substantial deficiencies in access, parking, and pedestrian circulation.

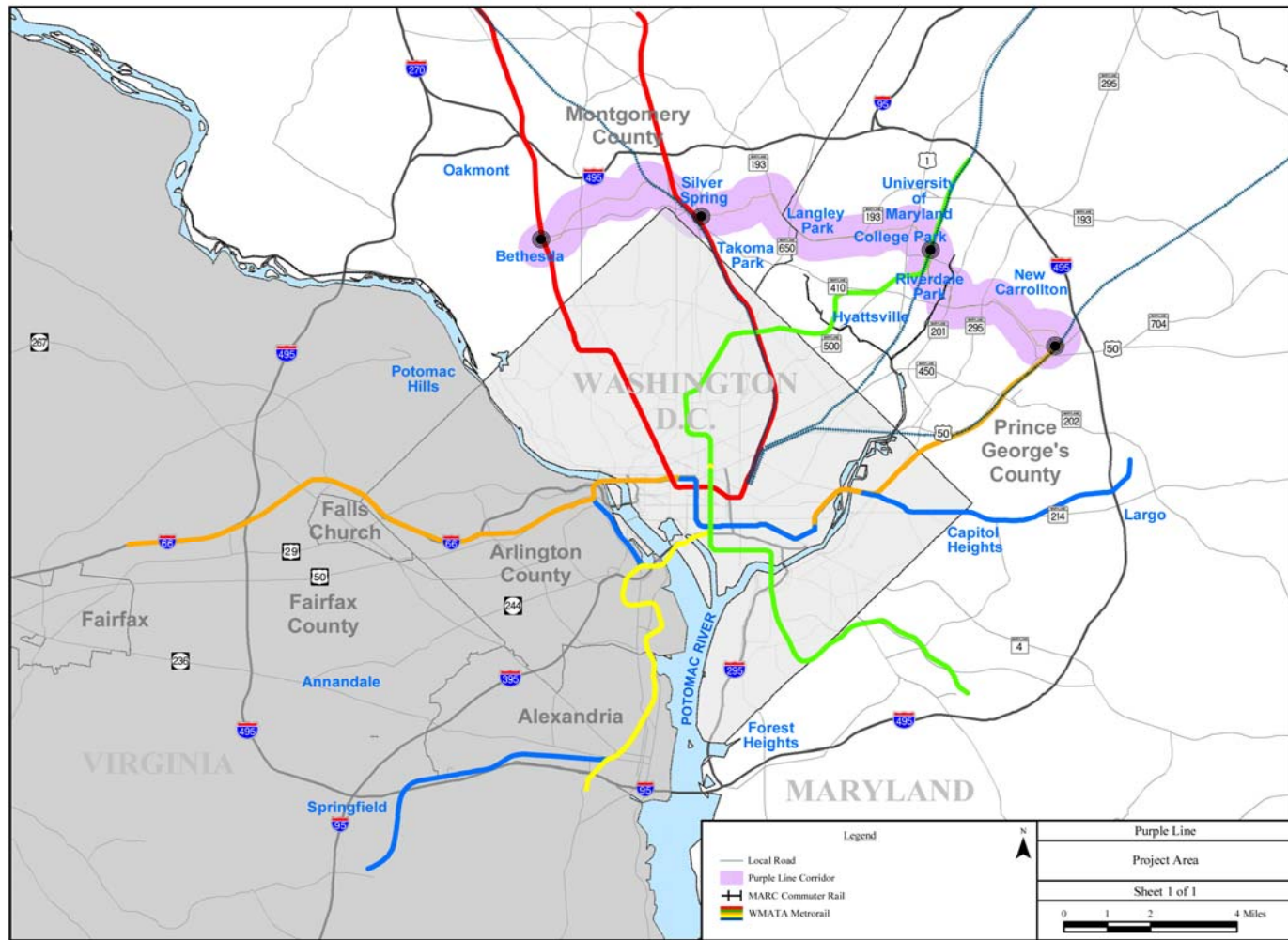
Land use in the Montgomery County portion of the corridor is primarily residential, with large concentrations of commercial development in Bethesda and Silver Spring. The communities in the corridor include a mix of housing types and densities. Most of these areas have, in part or in whole, plans that emphasize transit oriented mixed-use land uses in areas adjacent to transit stations.

Bethesda

The Bethesda central business district is characterized by high-density mixed uses. Montgomery County planned for and encouraged the dense development of Bethesda around the Metro station prior to construction of the Red Line in the area, applying zoning with densities and floor area ratios for high-rise development. The central business district has developed as planned and continues to grow; particularly to the south and west. Indicative of this development is the decision to move forward with the creation of a new south entrance to the Bethesda Metro Station. The need for this entrance was anticipated when the station was initially built, but deferred until the station usage required it.



Figure 1-1: Project Area



Purple Line. The County has leveraged this exceptional accessibility by successfully encouraging dense development in the area with zoning and density bonuses around the transit center.

The eastern Silver Spring, Long Branch, and Takoma Park communities are characterized by established residential neighborhoods that are compactly developed, containing a mix of single-family and multi-family dwellings.

Langley Park

At the border of Montgomery and Prince George’s Counties, Langley Park is characterized by garden apartments, older automobile-oriented commercial areas, and diverse ethnic populations who rely heavily on transit. The area along University Boulevard, known as Maryland’s International Corridor, is a major shopping and entertainment center, particularly for the many immigrant communities in the area. Despite very low levels of automobile ownership among residents, this area is very congested, with many pedestrians crossing busy roadways to access transit and shopping. The intersection of University Boulevard and New Hampshire Avenue, site of the future Takoma/Langley Transit Center, is one of the busiest bus transfer points in the region.

Land use along the remaining Prince George’s County portion of the corridor, from Langley Park to New Carrollton, except for the University of Maryland, is primarily comprised of residential uses, with several

large parks and some commercial areas. Housing types and densities in this area are largely single-family dwellings interspersed with low-rise apartment complexes.

University of Maryland/College Park

The University of Maryland, located in College Park, is the largest employer and trip generator in Prince George’s County. The University currently has 36,000 students and more than 12,000 employees. The University hotel and conference center, and new and existing sports and performing arts facilities are additional sources of activity.

Two other University of Maryland-associated developments will be markets for the Purple Line: the East Campus Redevelopment Initiative and the M-Square Research Park. East Campus is a mixed-use project on the east side of US 1, south of Paint Branch Parkway. This development will be a mix of residential and commercial uses. Goals of the project include

Plaza on Ellsworth Drive, Downtown Silver Spring



East of the Bethesda central business district, single-family and some multi-family residences predominate in the corridor, with some small-scale commercial development.

Silver Spring

Downtown Silver Spring has experienced extensive redevelopment in the last 10 years. Major projects are being developed with nearly \$1 billion in public and private investment in renovations and new construction.

This development, centered on the multimodal Silver Spring Metro Station, is urban in character with a mix of commercial, residential, and entertainment uses. As part of a public/private venture at the existing Silver Spring Metro Station, the MTA, Montgomery County, and WMATA are building a new expanded transit center with adjacent transit oriented development. The Transit Center will serve Metrorail, MARC commuter rail, Amtrak, and WMATA, Montgomery County Ride On, and intercity buses. The Silver Spring Transit Center is also designed to accommodate a station for the



establishing a connection between the University, Metro, and the Research Park.

M-Square, in the River Road area, adjacent to the existing College Park/University of Maryland MARC and Metrorail stations, will include state-of-the-art research, laboratory, and incubator facilities dedicated to the advancement of technology, computer science, mathematics, engineering, biotechnology, and physical and life sciences. It is currently under construction and is expected to employ more than 6,500 people at completion.

WMATA is currently working with private developers, planning joint development at the College Park Metro station. This mixed-use transit oriented development may be an additional source of ridership for the Purple Line.

Riverdale Park

The Riverdale Park area is primarily single-family residential with some older automobile-oriented commercial development. In early 2008 Prince George's County planners and local officials began coordinating on the potential for redevelopment of the west side of Kenilworth Avenue, and at the intersection of Kenilworth Avenue and East West Highway. The MTA is working with the county to integrate the Purple Line and its Riverdale Park station into these plans.

New Carrollton

Annapolis Road is a retail corridor characterized by strip commercial development. Although the residential development near the New Carrollton Metro Station is primarily single-family, several large institutional trip generators, including the Internal Revenue Service, are located there. Local plans for the New Carrollton Metro Station are for high-density transit oriented development. WMATA is pursuing mixed-use joint development for the property it owns on both

sides of the station. Also proposed is an extensive redevelopment of two privately owned sites east of the existing rail tracks. This development includes over 2,400 residential units, and over 900,000 square feet of retail, and office uses in buildings as high as 40 stories. A separate 43-storey municipal building is proposed.

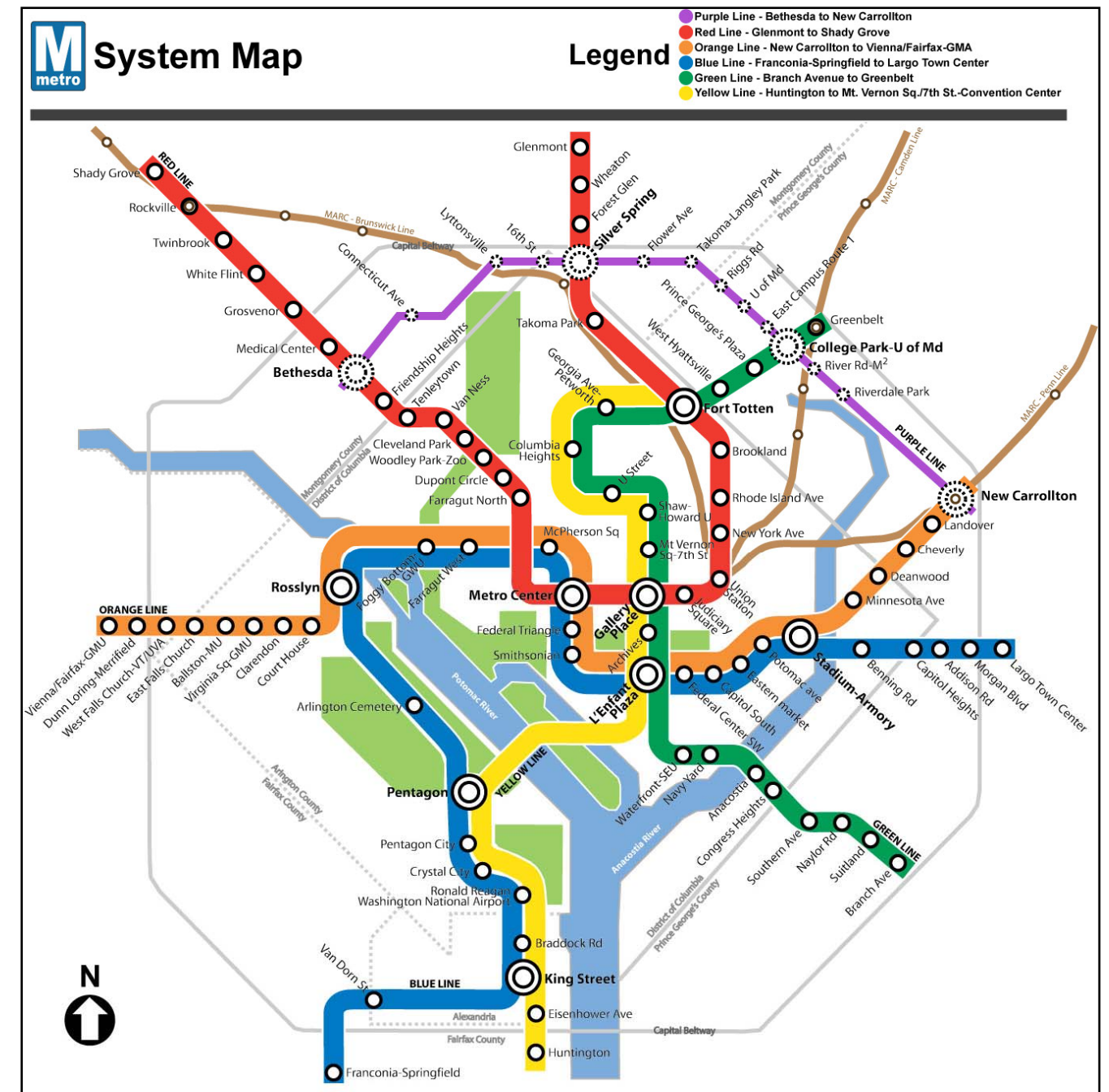
1.2.2. Existing Transit Service

Rail transit, including the WMATA Metrorail Red, Green, and Orange Lines, MTA's MARC service, and Amtrak operate in the corridor. These rail lines are oriented to downtown Washington, DC, and do not provide east-west travel. Bus service in the corridor is provided by all three jurisdictions: WMATA Metrobus, Montgomery County Ride On, and Prince George's County TheBus. The current public transit options that accommodate east-west trips are bus routes traveling in mixed traffic. As a result, the Purple Line corridor is faced with increasing travel times and unreliable transit service; this limits accessibility and negatively affects the corridor's economy and residents' quality of life, particularly for those without a private automobile.

Despite this situation, the Purple Line corridor has a proven high transit patronage. Metrorail, Metrobus, and Ride On have more than 48,000 weekday boardings in Silver Spring, making this one of the busiest transit stations in the region. Twenty-two Metrobus and four Ride On routes serve the Silver Spring Transit Center. The bus stop at the Takoma/Langley Crossroads is Ride On's busiest transit hub not connected to a Metrorail station. Each weekday, more than 15,000 passengers get on and off buses at the Takoma/Langley Crossroads on four Metrobus, three Ride On, and two TheBus routes. The three busiest bus routes in the Ride On system run between Silver Spring and Langley Park. The second highest ridership in the Metrobus service

in Maryland is on the WMATA C2 route, which runs along University Boulevard in the Purple Line corridor. The WMATA F4 and F6, which serve the area between Silver Spring and the New Carrollton Metro Station, have the highest ridership of any line in Prince George's County

and experienced growth of 5.5 percent between May 2006 and May 2007. New Carrollton is second only to Union Station in the Washington metropolitan area as a major multimodal transportation hub with Metrorail, Amtrak, MARC, Greyhound intercity bus, and both





regional (Metrobus) and county (TheBus) bus service available. Daily boardings and alightings for Metrorail at New Carrollton currently average 3,600, and 3,700, respectively. Metrobus serves the station with 20 routes, and TheBus serves it with four routes.

The University of Maryland operates a shuttle bus service for its students, faculty, and staff who make two million trips per year. Three of the 18 UM Shuttle routes operate in the Purple Line corridor serving such major activity centers and destinations as the Silver Spring Metro Station, the College Park Metro Station, and M-Square Research Park. UM Shuttle 111, Silver Spring Metro, duplicates much of the proposed Purple Line alignment, operating on University Boulevard, Piney Branch Road, and Wayne Avenue; and UM Shuttle 104 provides serve

between the University of Maryland campus and the College Park Metro Station.

More than 75 bus routes operate in the Purple Line corridor; of these, only 12 provide east-west service.

Existing bus service operating east-west in the corridor consist of several overlapping or interconnecting routes as shown in Figure 1-2. WMATA operates the regional routes, those that are inter-jurisdictional, while each of the counties operate the local routes. WMATA J1, J2, and J3, with a combined headway of six minutes (a bus every six minutes in the peak period), serve the long-haul trips between Montgomery Mall, Medical Center, Bethesda, and Silver Spring, with 6500 daily weekday passenger trips. Ride On 15 is the primary service between Silver Spring and Langley Park with four-minute

headways in the peak period and nearly 7,200 daily passenger trips. East of Langley Park, WMATA C2 and C4 carry most of the passengers, with C4 diverting south to Prince George’s Plaza and C2 continuing through the University of Maryland campus, then traveling north on US 1 to the Greenbelt Metro Station. WMATA F6 also serves a portion of the corridor, connecting Prince George’s Plaza Metro Station with the University of Maryland Campus, the College Park Metro Station, and the New Carrollton Metro Station. See Table 1-1.

The Silver Spring Metro Station is a major transportation hub, with nearly 120 buses per hour in the peak periods. The majority of these routes terminate in Silver Spring. Approximately 10,000 bus-to-bus transfers take place daily, in

addition to the large number of bus-to-rail transfers. WMATA J4 is the only east-west route that does not terminate at Silver Spring (thus avoiding a transfer time penalty and ridership loss) east and west of Silver Spring.

East-west transit service in the Purple Line corridor is primarily oriented toward short trips focused on major activity centers. In other words, the transit network is a feeder/distributor-based operation that is inadequate for corridor travel, especially longer trips through major activity centers. As such, the network is choppy, disjointed, and operated by three essentially unrelated service providers. There is a lack of coordination and the route structure is not suited for present day mobility needs.

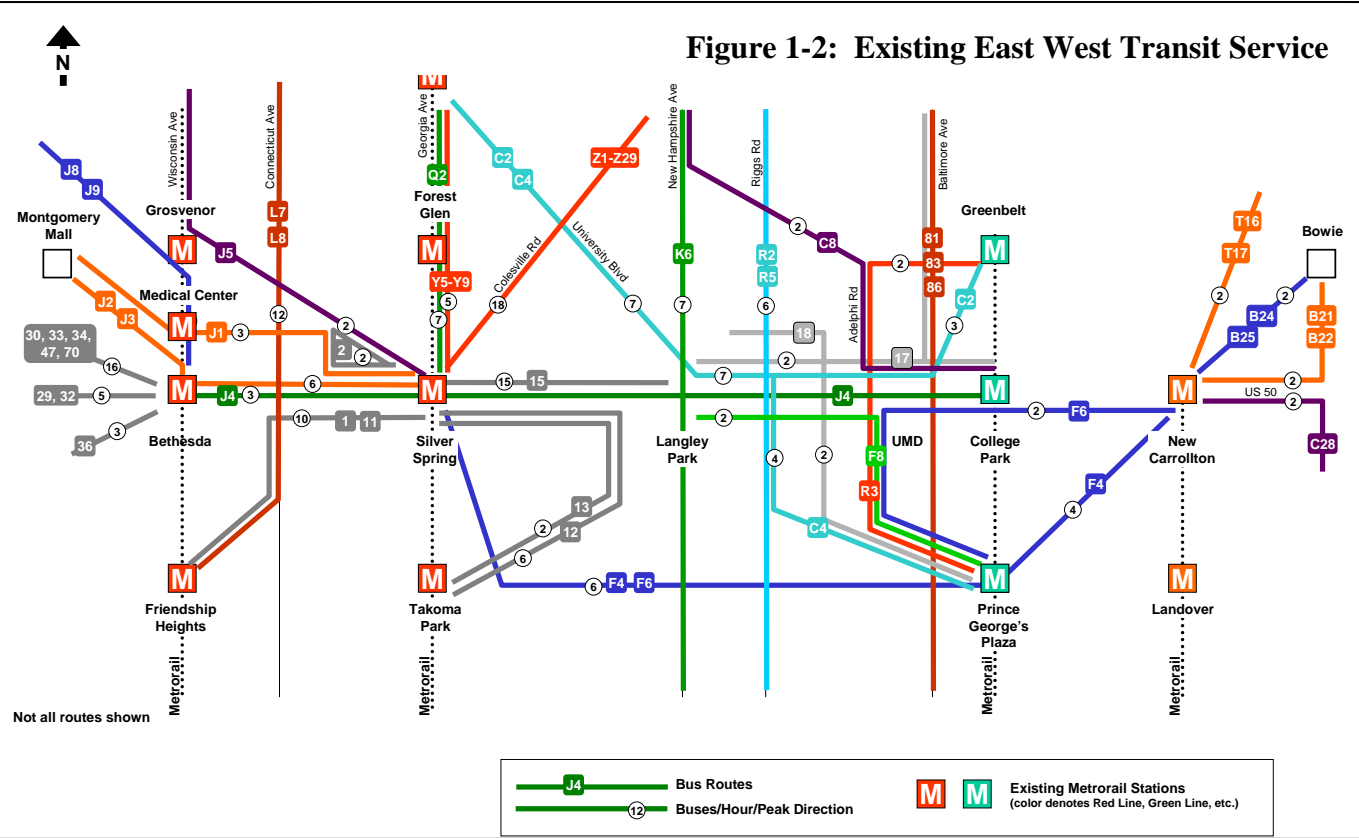


Table 1-1: Existing East-West Bus Service

Route	Terminal and Intermediate Points	Early Morning	AM Peak	Midday	PM Peak	Evening	Saturday	Sunday	Average Daily Riders
J1	Montgomery Mall-Medical Center-Silver Spring Metro	--	20	--	20	--	--	--	790
J2	Montgomery Mall-Bethesda-Silver Spring Metro	20	17	20	24	15	20	25	4,750
J3	Montgomery Mall-Bethesda-Silver Spring Metro	--	17	--	24	--	--	--	1,020
J4	Bethesda Metro-Silver Spring-College Park Metro	--	20	--	20	--	--	--	1,025
C2	Wheaton Metro-Greenbelt Metro	--	22	30	16	--	30	--	5,180
C4	Twinbrook Metro-Prince George’s Plaza Metro	10	22	30	16	30	30	16	7,780
F4	Silver Spring – New Carrollton	12	12	40	15	--	30	60	4,640
F6	Silver Spring – New Carrollton	--	20	40	30	--	--	--	3,090
Ride On 15	Silver Spring Metro-Langley Park	15	4	12	4	30	12	15	7,200
TheBus 17	Langley Park-UM-College Park Metro	45	45	45	45	--	--	--	80
UM Shuttle 111	UM – Silver Spring Metro	--	35	75	45	30	--	--	500
UM Shuttle 104	UM – College Park Metro	8	8	12	8	20	20	20	2,500

Although the Purple Line corridor contains an increasingly substantial population that relies heavily on transit to reach employment and activity centers, new transit services in this east-west corridor have been limited to bus service on local roads that are subject to the same roadway congestion as automobile traffic. To date, there has been no investment in fixed guideway systems or in new highways to facilitate east-west travel and enhance links between the employment and residential centers along circumferential transportation routes in the corridor. The built up character of the corridor precludes the construction or widening of the existing roadways.

1.2.3. Transit Service Markets

The diversity of land uses, markets, and socio-economic characteristics in the Purple Line corridor mean that both origins and destinations are present and, therefore, a significant amount of travel occurs entirely within the corridor. The major activity centers in the corridor include business and retail destinations, educational institutions, and sports and entertainment facilities. Another function of the Purple Line would be to provide access to other transit modes and services.

The Purple Line would serve at least five important travel markets in the corridor:

1. From an origin in one of the “wedges” (a wedge is one of the areas between the four major radial, rail corridors) to a Metrorail station to gain access to Metrorail and to travel to a destination outside the corridor, such as downtown

Washington, DC. This is the conventional suburb-to-downtown work market trip during which the rider would use the Purple Line as a feeder service to the Metro to travel downtown or elsewhere.

2. From one Metrorail station in the corridor to another. The Purple Line would eliminate the need to travel into downtown Washington, DC and back out again on Metrorail to reach a destination in the Purple Line corridor. The Purple Line would provide a connector service between four Metrorail lines.
3. From an origin outside the corridor, such as Shady Grove or the District of Columbia, to a destination within the corridor either at an activity center or in a wedge. This is the converse of the first two types of market and serves as a distributor function to the Metro.
4. Between a wedge and one of the activity centers in the corridor. These activity centers include Bethesda, Silver Spring, Takoma Park/Langley Park, University of Maryland, College Park, Riverdale Park, and New Carrollton. This market is for a single-seat trip from an origin in one of the wedges to one of the major activity centers in the corridor without the need to use Metrorail.
5. From wedge to wedge. This is a market that would be served exclusively by either local bus service or the Purple Line. It would not involve transfer to Metrorail. Wedge-to-wedge travel may be entirely within the corridor and could be a

one-seat ride or it could entail transfer to a local bus for travel from an origin or to a destination outside the corridor.

Each of these markets would be served by the Purple Line, albeit in different ways and for different purposes. Each would dictate different planning strategies and operating paradigms. The first three markets are feeder, connector, or distributor services to Metrorail. For the last two markets, the destination is within or near the Purple Line corridor and does not require use of Metrorail. Feeder or distributor local bus service could supplement the Purple Line to complete the trip in any of these markets.

The Purple Line would directly connect several major activity centers to the MARC Penn Line and to Amtrak’s Northeast Corridor via the New Carrollton station, the MARC Brunswick Line at Silver Spring, and the MARC Camden Line at College Park. Connections to these facilities substantially expand the market reach of the Purple Line by providing access to areas not served by Metrorail, including Frederick, Howard, and Anne Arundel Counties, BWI Airport, the Baltimore central business district, Western Maryland, and major metropolitan areas in the northeast.

Figure 1-3 shows the Washington metropolitan region defined as a set of districts to enable a discussion of the current travel patterns and markets. Districts are identified around the major activity centers of Bethesda, Silver Spring, College Park, and New Carrollton in the Purple Line corridor. Three additional districts are used to describe the “wedge” areas in between the major activity center, Connecticut Avenue/

Lyttonsville, Takoma Park/Langley Park, and Riverdale Park. These seven districts constitute the Purple Line corridor. Other districts are used to define major sections of Washington, DC, and travel market areas around the Metrorail lines (both branches of the Red Line, the Green Line, and the Orange Line) running north and northeast of the corridor. The rest of the region is defined by larger districts for the remainder of Maryland and the areas of Virginia.

Table 1-2 shows the daily transit trips among these districts for the year 2000 for all trips purposes with the origin of the trips listed along the vertical side of the table and the destinations of the trips along the top of the table. The Purple Line corridor has approximately 169,000 daily transit trips that have one or both ends of the trip in the corridor. This represents some 9.5 percent of the transit trips for the Washington region. Some 44,000 of these transit trips have both ends of the trip within the Purple Line corridor while 60,000 transit trips are between the corridor and some part of Washington, DC. A large number of the remaining trips are associated with districts to the north or northeast of the Purple Line corridor along the Metrorail lines. The majority of the trips in the corridor (134,000) are associated with the major activity centers, while the other 35,000 are associated with the wedge districts. Of the trips associated with the major activity centers, only 9,000 are from one major activity center to another. For the wedge district trips, 8,400 are associated with the major activity centers with 15,400 associated with the Washington, DC districts.



What this information shows is that while there is quite a bit of existing transit travel within the corridor, that corridor trips associated with areas outside the corridor are greater, i.e., corridor trips associated with Washington, DC and area north along the Metrorail Red, Green and Orange lines that run through the major activity centers, especially up toward Shady Grove, the Rockville area and the Glenmont area. While the major activity center districts account for most of the trips, a substantial number of trips are associated with the wedge districts, those areas not presently served by Metrorail and dependent on street-running bus service operating in congested mixed traffic, are linked with either one of the major activity centers or areas reachable via the Metrorail system, especially Washington, DC

By the year 2030, daily transit trips are forecast to grow by 52 percent or from 953,000 to 2,711,000. Transit trips associated with the corridor grow by 65,000 or 38 percent to 234,000, while trips within the corridor grow by 18,000 or 43 percent to 62,000 trips. While the general pattern and distribution of these transit trips would be similar to current trips, the level of growth is substantial, increasing the severity and the magnitude of the mobility needs of corridor travelers.

1.3. Need for Transportation Improvements

The Washington metropolitan area has experienced continual population growth, both in employment and population. The existing transportation facilities, especially inside the Capital Beltway (I-95/I-495) often do not meet this increased demand. This is especially true of east-west travel.

Figure 1-3: Purple Line Corridor Travel Districts

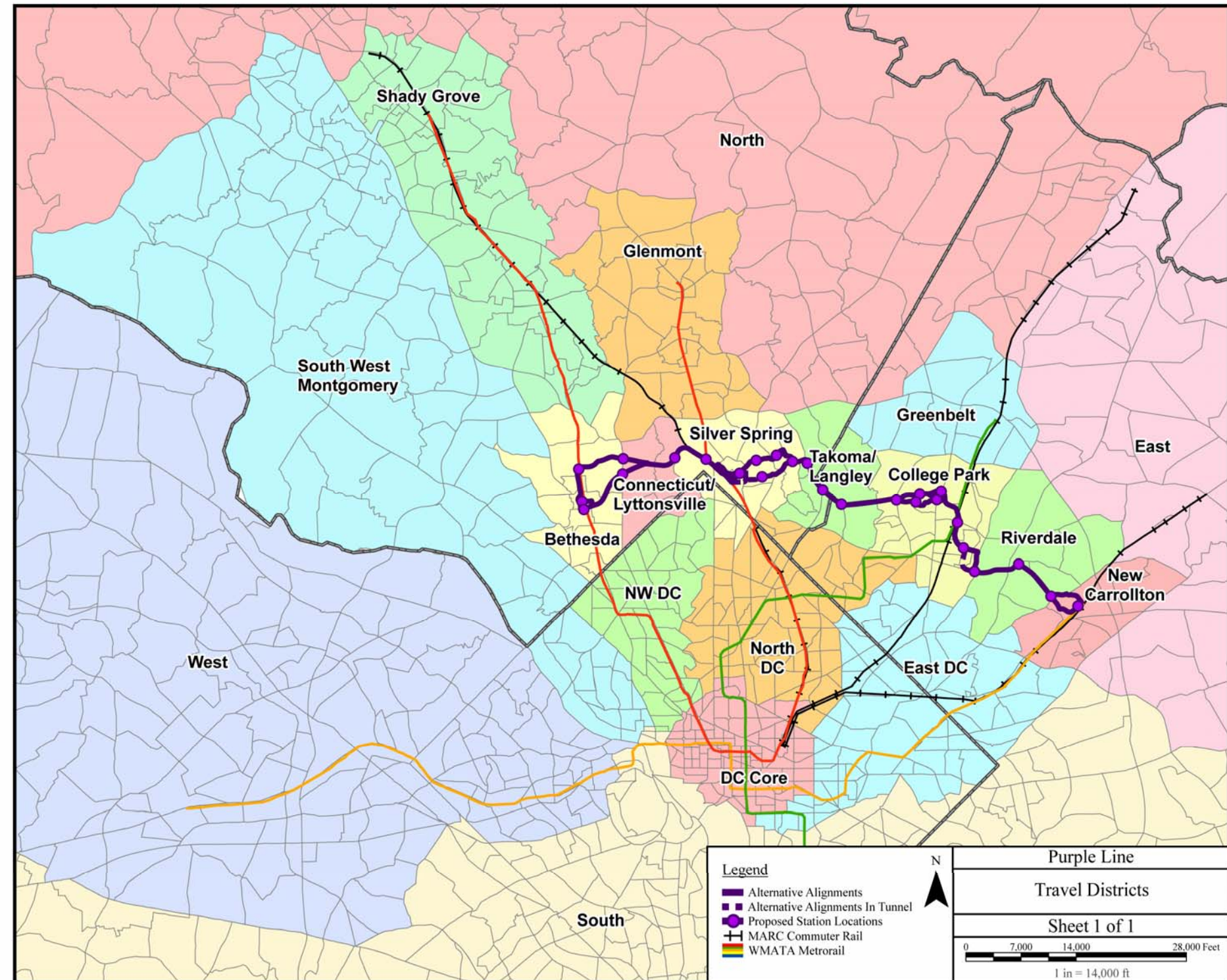


Table 1-2: Daily Transit Trips, Origins, and Destinations by District, 2000

	Bethesda	Connecticut - Lyttonsville	Silver Spring	Takoma - Langley Park	College Park	Riverdale Park	New Carrollton	Corridor TOTAL	Shady Grove	Glenmont	Greenbelt	Northwest DC	North DC	East DC	DC Core	Southwest Montgomery County	North	East	South	West	Total
Bethesda	3,484	358	1,720	583	182	115	64	6,507	4,573	1,978	110	1,532	1,352	514	3,719	2,923	3,081	301	1,533	745	28,870
Connecticut - Lyttonsville	358	14	232	54	15	4	2	680	184	161	7	112	99	20	412	114	123	8	41	24	1,985
Silver Spring	1,720	232	2,378	1,175	403	125	73	6,108	1,325	2,334	196	739	2,526	610	4,797	732	2,164	268	994	284	23,075
Takoma -Langley Park	583	54	1,175	573	819	87	70	3,362	473	503	317	293	1,209	373	2,861	260	644	135	419	152	11,002
College Park	182	15	403	819	679	406	152	2,656	147	229	554	110	1,062	821	1,560	88	657	611	569	69	9,133
Riverdale Park	115	4	125	87	406	191	317	1,246	73	30	176	69	326	547	1,391	45	84	268	367	95	4,718
New Carrollton	64	2	73	70	152	317	466	1,145	43	32	83	36	279	869	1,332	27	109	584	1,112	53	5,702
Corridor TOTAL	6,507	680	6,108	3,362	2,656	1,246	1,145	21,703	6,819	5,267	1,443	2,891	6,854	3,755	16,073	4,187	6,862	2,175	5,035	1,422	84,486
Shady Grove	4,573	184	1,325	473	147	73	43	6,819	10,136	2,924	82	708	743	268	3,696	3,874	5,731	185	798	497	36,461
Glenmont	1,978	161	2,334	503	229	30	32	5,267	2,924	3,469	99	447	770	181	4,104	876	1,972	67	439	218	20,832
Greenbelt	110	7	196	317	554	176	83	1,443	82	99	297	66	415	328	959	47	377	402	267	46	4,828
Northwest DC	1,532	112	739	293	110	69	36	2,891	708	447	66	3,502	3,535	946	13,580	1,806	421	102	2,855	1,029	31,889
North DC	1,352	99	2,526	1,209	1,062	326	279	6,854	743	770	415	3,535	8,390	3,338	25,368	1,225	882	497	5,224	1,023	58,263
East DC	514	20	610	373	821	547	869	3,755	268	181	328	946	3,338	4,571	15,589	401	344	757	6,458	611	37,548
DC Core	3,719	412	4,797	2,861	1,560	1,391	1,332	16,073	3,696	4,104	959	13,580	25,368	15,589	39,853	7,879	7,282	4,457	66,819	20,315	225,975
Southwest Montgomery County	2,923	114	732	260	88	45	27	4,187	3,874	876	47	1,806	1,225	401	7,879	2,865	2,282	94	1,472	751	27,757
North	3,081	123	2,164	644	657	84	109	6,862	5,731	1,972	377	421	882	344	7,282	2,282	11,649	690	905	522	39,918
East	301	8	268	135	611	268	584	2,175	185	67	402	102	497	757	4,457	94	690	1,146	1,150	205	11,927
South	1,533	41	994	419	569	367	1,112	5,035	798	439	267	2,855	5,224	6,458	66,819	1,472	905	1,150	101,432	24,816	217,668
West	745	24	284	152	69	95	53	1,422	497	218	46	1,029	1,023	611	20,315	751	522	205	24,816	39,945	91,399
TOTAL	28,870	1,985	23,075	11,002	9,133	4,718	5,702	84,486	36,461	20,832	4,828	31,889	58,263	37,548	225,975	27,757	39,918	11,927	217,668	91,399	888,951

Note: Shaded cells are districts in the Purple Line corridor



As noted earlier, the *Capital Beltway/Purple Line Study* examined the growing levels of demand in the Washington metropolitan area and the possibilities for increasing capacity on roadways. The conclusion was that roadway capacity alone would not address the problem sufficiently, and that transit was part of the solution. The Inner Purple Line, inside the Capital Beltway between Bethesda and New Carrollton, was identified as the top priority transit project.

The corridor contains a major (and increasing) commuting population that travels to and from Washington, DC, Montgomery and Prince George’s Counties, and other parts of the region. Convenient, efficient east-west transit service is not available in the corridor. The need for improved transit services is heightened as it becomes more difficult to commute from locations with housing choices to jobs that are dispersed along the corridor and throughout the region. New employment opportunities are no longer clustered exclusively in downtown Washington, DC, and a number of Federal functions, such as the Food and Drug Administration and Internal Revenue Service, that were traditionally located in the District, have relocated to the Purple Line corridor.

A number of basic elements contribute to the transportation problem:

- The movement of employment centers out of downtown Washington, DC
- Presence of multiple markets for east-west travel
- A large population that relies on transit
- A transit system that is oriented toward radial travel into and out of Washington, DC
- Projected employment and population increases
- Changing travel patterns

These elements of the transportation problem are the root causes of the more directly perceived transportation problems:

- A highly congested roadway system
- An east-west transit system that is unreliable, slow, and discontinuous

The transit improvements being considered for the Purple Line corridor, as described in more detail in Chapter 2, are intended to address these challenges by providing shorter and more reliable east-west transit travel times by enabling faster transit vehicle operating speeds through the provision of more priority, dedicated and exclusive operating conditions. The degree that the alternatives address these intentions can be measured by reduced transit travel times, time saving for users, improved operating speeds, and attraction of more riders to transit.

1.3.1. Changing Travel Patterns

Historically, downtown Washington, DC, has been the location of most jobs, while people lived outside the center. As the suburbs grew, more people commuted longer distances into the center and the radial Metrorail system was built to serve this travel. However, jobs are increasingly relocating to suburban areas resulting in suburb-to-suburb travel patterns. In the Washington metropolitan area, as is true throughout the United States, suburb-to-suburb travel has increased dramatically in the past 20 years.

Currently, 20 percent of the trips in the region involve travel to and from jobs. These commuting trips are generally twice as long as non-work trips and tend to occur at the same time of day and to go to the same places each day. Although commuter travel, occurring as it does at the same time every day, creates the high levels of congestion that often trigger the demand for improved transportation facilities, more than

80 percent of travel is not to and from work. When people are not commuting, they are traveling for a variety of reasons – picking up children at school, going to movies, eating at restaurants, or shopping for groceries. The locations of these activities are often more spread out than job sites, and this dispersion affects the types of transportation services and facilities needed. As the urban core of Washington, DC, continues to be the center of economic and tourist activities attracting visitors from across the globe, investment in public transit projects is imperative to the region’s economic vitality. Twenty-five years from now the core will continue to have the greatest concentration of jobs in the region; however, increasingly people will be traveling from one suburb to another. By 2030 the majority of trips will be suburb-to-suburb travel.

Most redevelopment of suburban areas in the Purple Line corridor has been mixed use, adding non-residential uses to the corridor. The creation of new jobs and destinations for a variety of activities means new travel patterns in the corridor. Table 1-3 shows the number of jobs at key employment centers in the corridor.

Table 1-3: Existing Employment at Major Centers

Employment Center	Number of Jobs
Bethesda CBD ¹	34,833
Silver Spring CBD ¹	29,741
University of Maryland ²	12,000
New Carrollton ¹	8,705

¹ Source: Round 7.0 Forecast, MWCOG

² Source: University of Maryland

Implications of the Defense Base Realignment and Closure (BRAC) Process

When the BRAC Commission decided to close or combine aging bases nationwide, the State of Maryland was a primary recipient of employment from bases closing in other areas. Fort Meade, Aberdeen Proving Ground, Fort Dietrich, Andrews Air Force Base, and the National Naval Medical Center are expected to grow by 20,000 employees when BRAC is fully implemented in 2011. The shift of 1,750 jobs from Walter Reed Army Medical Center in northeast Washington, DC to National Naval Medical Center (NNMC) is expected to change commuting patterns in the near term for the positions that are being transferred. The actions noted in BRAC identify a changing picture of employment and visitor trips to the new combined medical center being planned on the site of the NNMC in Bethesda with the overall addition of 2,200 to 2,500 jobs and an increase in hospital visitors as noted in the NNMC DEIS.

The Purple Line AA/DEIS used MWCOG Round 7.0 2030 land use forecasts for employment, households and population in the analysis. The assumed growth for these items was based on normal growth assumptions for each zone in the region. A concern was raised about the implications of this change on the long-term assumptions for this project. However, given the scale of the expected growth excluding the BRAC changes, analysis of the changing trip patterns for the 2030 horizon year indicates that the effects of BRAC will be negligible.

The Bethesda area exists today and in the future as a major employment and population center exclusive of the BRAC changes. Combined employment around the Medical Center Metro Station is expected to grow by over 6,000 jobs to 2030 and population is expected to grow by approximately 700 in that time. The Bethesda CBD is expected to grow by 5,000 jobs and show a population increase of over 12,000 residences in that same period. The BRAC changes, while large, are a small percentage of the expected 72,000 jobs in the entire Bethesda CBD - Medical Center area in 2030.

Therefore, given the access afforded by Purple Line alternatives along the Master Plan alignment and connecting the Metrorail Red Line to the Medical Center Station, the impacts of BRAC on travel in the Bethesda area are notable more for the additional delays expected on area roadways than for the potential contributions to Purple Line ridership.

1.3.2. Access for Transit-Reliant Populations

Dense clusters of population along the corridor rely heavily on transit for mobility and accessibility. A study of U.S. Census 2000 data reveals that many communities in the corridor have a high percentage of households without a vehicle (see Table 1-4).

Bethesda, Woodside, Silver Spring, Long Branch, Takoma Park, Langley Park, Lewisdale, Riverdale Park/Heights, and New Carrollton have rates ranging from 15 percent to 25 percent, considerably higher than the Montgomery and Prince George’s County rates of 7 percent and 10 percent, respectively, and the State of Maryland rate of 11 percent. Some of these

Table 1-4: Percent of Households without a Vehicle

Community	Percent of Households without a Vehicle
Bethesda	18%
Chevy Chase	11%
Rock Creek Forest / Lyttonsville / Rosemary Hills	13%
Woodside	16%
Silver Spring	24%
East Silver Spring	12%
Long Branch	18%
Takoma Park	16%
Langley Park	25%
Lewisdale	15%
Adelphi	9%
College Park	10%
Riverdale Park / Heights	15%
Glenridge / Beacon Heights	14%
New Carrollton	18%
West Lanham Hills	9%
Montgomery County	7%
Prince George’s County	10%
State of Maryland	11%

Source: US Census 2000, Summary File 3
Note: Shaded rows are higher than the corresponding county percentage.

communities have low rates of vehicle ownership because of the mobility provided by the existing transit, particularly Metrorail, rather than because of personal financial constraints. This is true of most of the Montgomery County communities, notably Bethesda and Chevy Chase.

1.3.3. Population and Employment Growth

MWCOG has projected continued increases in employment and population in the Maryland suburbs by 2030. The inner suburbs, which include Montgomery and Prince George’s

Counties, will experience the greatest increase in congestion, and will continue to have the most congestion in the region.

Table 1-5 provides growth projections for three major activity centers in the transitway corridor.

These increases will put additional pressure on the already congested roadways. No quality service is available for the east-west travel market that wants or needs an alternative to traveling by automobile. Moreover, this demand is projected to grow as 2030 population, employment, and the resulting traffic increases become a reality.

1.3.4. Traffic Conditions

With the anticipated population and employment growth, the existing Purple Line corridor is facing numerous transportation challenges as a result of limited infrastructure for east-west travel. The primary east-west travel routes, consisting of the Capital Beltway, East West Highway (MD 410), and University Boulevard (MD 193) are heavily congested during peak periods and on weekends, and are unable to accommodate increases in demand for east-west travel. Many major intersections, such as University Boulevard and New Hampshire Avenue, already experience failing levels of service (LOS) in both morning and evening peak periods. Table 1-6 shows the average daily traffic volumes and levels of service for a number of

these primary east-west travel routes within the corridor. The high traffic volumes are above the capacity of the existing east-west roadways and intersections, and this is reflected in the failing levels of service.

Because the corridor is already built-up, expanding highway capacity and building new roadways to address the inadequate capacity of existing roadways is difficult at best. The projected increases in employment and population will only make the situation worse. The impacts of these traffic conditions on street-running transit service could be great. WMATA reports that their actual running times on the J4 route between Bethesda and College Park can range upwards of 50 percent higher than the typical times that are shown in published timetables. Not only does this obviously inconvenience riders, it also means that it is very difficult to operate the network of services reliably and in a manner that optimizes interconnectivity and mobility.

1.3.5. Transit System Efficiency and Connectivity

Although several modal choices (automobiles on highways, commuter rail, and bus service) and intermodal opportunities (park-and-ride lots and Metrorail) are available in the Purple Line corridor, current transit options are limited in many areas because the only modes serving east-

Table 1-5: Household and Employment Forecasts

Location	Households			Employment		
	2000	2030	% Change	2000	2030	% Change
Bethesda CBD	6,720	12,938	93%	34,833	41,567	20%
Silver Spring CBD	5,646	14,016	148%	29,741	34,626	16%
New Carrollton	854	1,430	67%	8,705	15,339	76%

Source: Metropolitan Washington Regional Activity Centers and Clusters, Round 7.0 Forecasts , Metropolitan Washington Council of Governments 2007.



west markets are automobiles and regular buses, both severely impacted by the existing traffic congestion and making access to the radial routes difficult and inconvenient.

The corridor has a lack of direct routes between major activity centers. As a result, a need exists for faster, more reliable and more direct transit service, with greater capacity, and improved system connectivity to address the mobility and accessibility deficiencies of the study corridor.

Currently, transit riders can travel between Bethesda, Silver Spring, College Park, and New Carrollton on an existing Metrorail line. However, travel between these stations requires either riding into Washington, DC and then, in most cases, transferring onto a different radial line or traveling circumferentially on one or more of the many slow, often discontinuous, indirect bus routes.

Bus services between Bethesda and New Carrollton are limited and require transfers

between existing bus routes. This necessity further slows travel times and decreases travel convenience and dependability. Montgomery County’s Ride On bus routes from Bethesda run only as far east as the Takoma/Langley area. In addition, Prince George’s County’s service, TheBus, only runs between the Takoma/Langley area and College Park. Currently, no direct bus service exists from Bethesda to New Carrollton or from Takoma/Langley area to New Carrollton. Metrobus routes bridge the gap in service between Montgomery and Prince George’s Counties by operating several routes through the Takoma/Langley area. One of the busiest transit centers in the corridor is Prince George’s Plaza, which is not along the Purple Line alignment but is, nonetheless, an important destination for Metrobus and TheBus routes in the eastern portion of the Purple Line corridor.

Bus utilization is constrained by trip times. In most cases, bus travel times are slower than individual automobile trips, since buses typically

Table 1-7: Current Scheduled Transit Travel Times for Segments

Location	Rail ¹		Bus ²	
	Distance (miles)	Time (min.) ³	Distance (miles)	Time (min.) ³
Bethesda – Silver Spring	16.5	35	4.4	17
Bethesda – Takoma/Langley	N/A	N/A	7.7	30
Bethesda – UM Campus Center	N/A	N/A	10.2	39
Bethesda – New Carrollton	19.2	50	16.9	87
Silver Spring – Takoma/Langley	N/A	N/A	3.3	16
Silver Spring – UM Campus Center	N/A	N/A	5.8	24
Silver Spring – New Carrollton	19.4	51	12.5	60
Takoma/Langley – College Park	N/A	N/A	4.0	15
Takoma/Langley – New Carrollton	N/A	N/A	9.2	44
College Park – New Carrollton	21.6	55	5.2	17

¹ METRO Rail times are based on peak-hour travel (7:00-7:30 AM and 4:00-4:30 PM)
² Bus times are the quickest time for all possible bus service and routes, including WMATA’s F4, F6, J2, J4; Ride On’s 15, 16, 17, 18 and TheBus 17
³ Times were calculated from published weekday schedules as of September 2007

Table 1-6: Traffic Levels, 2005 and 2030

Location	2005		2030 Projections	
	AADT ¹	LOS AM/PM	AADT	LOS AM/PM
Capital Beltway, Wisconsin Avenue (MD 355) to Georgia Avenue (MD 97) ²	227,575	F/F	285,000	F/F
Capital Beltway, Georgia Avenue (MD 97) to I-95 ²	215,150	F/F	269,000	F/F
Capital Beltway, I-95 to US 502	241,425	E/E	302,000	F/F
Jones Bridge Road at Connecticut Avenue (MD 185) ³	22,300	F/F	27,900	F/F
University Boulevard (MD 193) at New Hampshire Avenue (MD 650) ²	49,825	F/F	62,300	F/F
East West Highway (MD 410) at Connecticut Avenue (MD 185) ²	29,375	F/F	36,700	F/F
East West Highway (MD 410) at 16 th Street (MD 390) ²	32,475	F/F	40,600	F/F
East West Highway (MD 410) at Baltimore Avenue (US 1) ²	25,925	F/F	32,400	F/F
East West Highway (MD 410) at Kenilworth Avenue (MD 201) ²	40,950	F/F	51,200	F/F
Annapolis Road (MD 450) at Veterans Parkway (MD 410) ²	37,925	F/F	47,400	F/F

Notes:
¹ Average Annual Daily Traffic
² Source: MD State Highway Administration, 2005
³ Source: Purple Line Traffic Studies, 2005

make frequent stops. These slow speeds do not provide an incentive for those with automobiles to use transit. Every transfer between routes adds substantially to travel times, inconveniencing transit patrons and discouraging transit use. A faster, more reliable, and more direct transit service with greater capacity would address the mobility and access deficiencies of the Purple Line corridor.

Table 1-7 illustrates the existing travel times for various modes in the segments between Bethesda and New Carrollton. The travel times are based on the published weekday schedules. However, the congested roadways mean that actual travel times, at least for those using bus services, are likely slower. Many of these trips require transfers from one bus route to another.

1.4. Project Goals and Objectives

The goals and objectives of the Purple Line are based on the transportation challenges and needs

identified for the corridor. The goals and objectives discussed below and listed in Table 1-8 were used to develop and evaluate the project alternatives.

1.4.1. Improve Mobility and Accessibility

Improving transit mobility and accessibility in the corridor is the most fundamental goal of the Purple Line. It will support economic viability and accommodate the projected employment and residential growth in the corridor. System connectivity is a major aspect of increasing mobility and improving accessibility.

As discussed earlier, despite the fact that suburb-to-suburb travel is increasing in the Washington metropolitan area, provisions have not been made for improved circumferential connections to the radial network. No major corridor transit or roadway initiatives are planned through 2030 for the Purple Line corridor. Although making circumferential transit in the suburbs work is

very challenging, the Purple Line corridor is a logical opportunity for such service. Historically, lower densities in the suburbs and the lack of a single focus for trip origins and destinations make it necessary to plan circumferential service carefully. A major element in this planning is the recognition that circumferential routes not only play key roles feeding and distributing passengers in the radial corridors, but also provide intra- and inter-community service within the corridor itself.

Increased system connectivity is essential to maximizing the benefits of a transit system and to fully optimize past and future investments in transit service and infrastructure. Where transit users are able to access a wide variety of destinations in different directions, ridership will be higher as the system is able to meet the needs of a wider range of riders. Effective connectivity (i.e., that which is convenient and easy for riders to make use of), extends the service reach of the service area. Travel choices and mobility opportunities in the corridor would drastically increase and become more convenient, improving the efficiency of transit and aiding those who cannot commute via automobile.

Reducing travel time and providing a consistent, predictable travel time are key elements in encouraging people to use transit and in measuring the overall merit of a project.

1.4.2. Enhance Environmental Quality

As we, as a society, develop a better understanding of the impacts of our actions on the human and natural environments, as well as the scope and duration of these impacts, projects such as these should be designed to demonstrate stewardship of our resources and communities. Transit in and of itself is beneficial to the natural

Goal	Objectives
Increase Mobility and Improve Accessibility	<ul style="list-style-type: none"> • Improve transit linkages to existing and planned economic development areas in the corridor • Improve access to jobs in corridor • Increase employers' access to labor pool • Reduce transit travel times between major activity centers in the corridor • Improve mobility for transit-dependent households • Improve intermodal connections • Construct a permanent multi-use trail from Bethesda to Silver Spring if the Georgetown Branch right-of-way is used for the transit alignment • Link radial Metrorail lines for better transit system connectivity
Improve Transit Operations Efficiencies	<ul style="list-style-type: none"> • Improve overall dependability and reliability of transit system in the corridor Increase regional transit usage • Improve feeder services and access facilities at existing and proposed stations appropriate for surrounding land use
Enhance Environmental Quality	<ul style="list-style-type: none"> • Minimize and mitigate impacts to the natural and human environment in the corridor • Provide a safe and attractive transit service that is compatible with local community character • Support local, regional, and state policies and adopted Master Plans
Optimize Public Investment	<ul style="list-style-type: none"> • Demonstrate that the overall benefits of the transit improvements warrant their capital and operating costs • Support Maryland's Smart Growth strategy of supporting existing communities by targeting resources to support development in areas where infrastructure exists • Improve east-west transit services
Support Local Plans for Economic and Community Development	<ul style="list-style-type: none"> • Support of local and state land use plan for transit oriented development at existing and proposed stations • Support development and revitalization of major activity centers such as Bethesda, Silver Spring, Takoma Park, Langley Park, College Park, Riverdale Park, and New Carrollton • Improve access to jobs in the region • Enhance connections within communities in the corridor and to the entire region
Contribute to Attainment of Regional Air Quality Standards	<ul style="list-style-type: none"> • Reduce automobile usage • Support and facilitate energy conservation

environment because it can provide transportation to large numbers of people with fewer environmental impacts than private automobiles.

Nonetheless, all transportation projects have the potential to cause adverse effects to the human

Table 1-8: Project Goals and Objectives

and natural environments. The developed character of the area means that the human environment is of particular significance, but the natural environment has also been carefully considered. This study identifies transit improvements that avoid or minimize effects to these and other resources to the extent possible,

characterize any effects that appear to be unavoidable, and describes actions that could be taken to mitigate adverse effects as part of the implementation of alternatives.

Indirect effects may include the development of nearby areas, traffic associated with new



development, and the environmental effects of the development. The area is largely already developed, and much of it is targeted for revitalization and redevelopment. The study considers the indirect effects and cumulative effects of the alternatives, consistency with state and local land use policies, and potential implications for the region. Alternatives were developed in an environmentally sensitive manner.

1.4.3. Support Local Plans for Economic and Community Development

A number of areas in the corridor, such as Takoma Park, Langley Park, College Park, Riverdale Park, and New Carrollton, are pursuing economic revitalization. Some of these areas are already the focus of economic incentive programs by local governments, and a substantial improvement in the quality of transit services has been identified by local planning agencies as a key factor in these efforts.

Land Use Plans and Policies

The master plans in Montgomery County for areas including Bethesda, Silver Spring, and Takoma Park encourage future development projects that offer integration with existing and planned transportation projects. Maryland Smart Growth strategies likewise support these initiatives. These transit oriented development policies have encouraged continuing infill and redevelopment in areas in the corridor. Moreover, the Purple Line, along the Georgetown Branch alignment between Bethesda and Silver Spring, is a key element of several area master plans in Montgomery County.

In Prince George’s County, the *Approved General Plan*, specifically supports implementation of the circumferential transit alignment (referred to as the Purple Line) and recommends capitalizing on the economic development and community revitalization

potential of such an alignment. The *General Plan* recommends transit oriented, mixed-use development for its “Developed Tier” residential and commercial areas. The Developed Tier consists of all the area inside the Capital Beltway, including Langley Park, the City of College Park (including the University of Maryland), Riverdale Park, and New Carrollton. University Boulevard is designated a “Corridor” where more intensive development is encouraged. Plans for areas along the Purple Line corridor offer support for future transit planning by making it a requirement that any project considered for development in the respective areas have access to, or integration with, existing or planned transportation projects. County master plans in the area support transit oriented mixed-use development.

The Purple Line also supports principles of Smart Growth that have been adopted by the State of Maryland. These principles cover a range of topics but two particularly relevant to the Purple Line are as follows:

- Provide a variety of transportation options
- Strengthen and direct development to existing communities

One of the core objectives of Smart Growth is to encourage new development in currently built-up areas as this will take full advantage of the existing infrastructure, including transportation. Opportunities for infill and transit oriented development in close proximity to Purple Line stations are being explored as an economic redevelopment benefit of this project. This will complement current redevelopment activities occurring in and around Bethesda, Silver Spring, Takoma Park, Langley Park, College Park, Riverdale Park, and New Carrollton.

1.4.4. Optimize Public Investment

Transit investments are huge capital and operating expenditures, and it is clearly fiscally sensible to maximize the value of those investments by creating a system that will attract more riders, support local planning policies, and allow development that will take advantage of the benefits that transit can provide. Key elements in encouraging people to use transit and in measuring the overall merit of a project are reducing travel time and providing a consistent and predictable travel time.

Expansion and Revitalization of Businesses

Transit accessibility and mobility can play an important role in the growth and development of communities and in the quality of life for local residents and transit patrons. This is particularly true for low income residents who do not own a car.

The interrelationship between transit expansion and economic development is well documented, particularly in the Washington, DC region. Transit improvements help to generate employment and economic growth. Based on research conducted by the Center for Transportation Excellence, the Washington region’s Metrorail system has generated nearly \$15 billion in surrounding private development. WMATA projects that this amount is likely to double to as much as \$30 billion in the next 10 to 12 years. Between 1980 and 1990, 40 percent of the region’s retail and office space was built within walking distance of a Metrorail station.

The Purple Line will support economic development in the region. Several areas through which the Purple Line would pass have been designated by local planning authorities as

redevelopment zones and are areas where improved transit connectivity would benefit residents and businesses. The Purple Line would support these revitalization activities, which build upon transit oriented development and design principles.

The Bethesda central business district is densely developed and plays a key role in local and regional economic markets. At least five approved developments are within one-quarter mile of the Purple Line’s proposed terminal station in downtown Bethesda. The majority of these planned development sites, including office, retail, and residential development, are currently under construction.

The expanded regional transit center in Silver Spring will support the revitalization and economic development of its compact central business district. Frequent and reliable transit service is important for providing access and support for the mixed-use development currently under construction in the Silver Spring central business district.

The Long Branch community has been designated a Priority Place by the State of Maryland. Priority Places receive heightened assistance from state agencies, which direct a variety of resources, regulatory help, and technical expertise their way.

Long Branch-Takoma Park has been named an Enterprise Zone Focus Area. One of only three such focus areas in the State of Maryland, the designation provides property owners with:

- Tax Credits
- “Green Tape” expedited review of Development Projects
- Grants for Exterior Renovations
- Loans for Small Businesses
- Economic Development Fund

Proposed Takoma/Langley Park Transit Center



- Exemptions From Washington Suburban Sanitary Commission Systems Development Charge
- Small Business Loans

The Flower Avenue Shopping Center, at the intersection of Piney Branch Road and Flower Avenue, has been identified as the initial focus of redevelopment in the area. This small commercial area has been designated as a Commercial Revitalization Overlay Zone (CROZ). The *Takoma Park Master Plan* (2000) recommends improvements to enhance the pedestrian environment and the implementation of traffic-calming measures. The plan favors preservation of the neighborhood and encourages community-oriented retail with an emphasis on transit and trail connections. Currently, this community has a dense multifamily housing with poor transit accessibility.

The Purple Line would provide access to Takoma/Langley Crossroads located at the intersection of University Boulevard and New Hampshire Avenue, which is also part of a CROZ. The *Takoma Park Master Plan* (2000) envisions a major community commercial center and transit terminal in this area. Currently the Takoma/Langley area is the subject of a sector plan being prepared jointly by Montgomery and Prince George's Counties. The goal of the Takoma/Langley Park Crossroads Sector Plan is to enhance the unique character of this diverse multi-cultural community and implement both counties' existing General Plan recommendations. The emphasis will be on promoting mixed-use, pedestrian friendly, and transit-oriented development opportunities around Purple Line stations. The Takoma/Langley Crossroads Development Authority is leading an effort to improve

conditions of the existing strip commercial centers at this site.

The MTA is designing and engineering the Takoma/Langley Transit Center, which will accommodate the 11 bus routes that currently serve the area, and to consolidate them at one central location, thereby making transfers easy and safe. This Transit Center will be a station on the Purple Line. The extremely low rates of vehicle ownership in this area and the high percentage of people living below the poverty line (18 percent) mean that the addition of the Purple Line will provide a much needed benefit to local residents, improving access to such important destinations as employment, health care, and educational resources.

In College Park and Riverdale Park, a special Transportation District Overlay Zone (TDOZ) has been established just south of the College Park Airport and adjacent to the College Park/University of Maryland Metrorail Station. Prince George's County specifies that the purpose of a TDOZ is to ensure that the development of land near Metrorail stations maximizes transit ridership and takes advantage of the development opportunities associated with mass transit projects. Elements such as building heights, set backs, and density are tailored to promote pedestrian destinations within reach of transit stations, resulting in an increased return on the transit system investment and improving local tax revenues. The plan includes mixed-use development with office, retail, residential, and light industrial components.

The *Annapolis Road Corridor Planning Study* (2004) recommends a development strategy for Annapolis Road between the Capital Beltway and the Baltimore Washington Parkway. The report identifies this area as a focus of redevelopment efforts by Prince George's County. The recommendations include supporting transit oriented development at the

New Carrollton Metro Station; improving the transportation infrastructure, particularly for pedestrians; and designing the Purple Line to ensure good linkages between the Purple Line and the Annapolis Road corridor.

The New Carrollton TDOZ includes an area extending west approximately one-half mile from the New Carrollton Metrorail Station. The envisioned economic effects are the same as those outlined in the College Park TDOZ. Large office building complexes, such as the Federal Internal Revenue Service, have been built on portions of the TDOZ closest to the Metrorail station. The recently completed New Carrollton District Development Plan (2008) presents a development vision of the station area that would leverage the benefits of the transit station. Both WMATA and Prince George's County support mixed-used development within a quarter mile of stations. WMATA is forestalling development on its property adjacent to the Metro station pending selection of the Locally Preferred Alignment to ensure that the development does not conflict with the right-of-way needs of the Purple Line.

1.4.5. Long-Term Attainment of Regional Clean Air Goals

Poor air quality affects the health of residents and affects the availability of federal funding assistance for transportation investments throughout the region.

The Clean Air Act of 1970 and its Amendments (1977 and 1990) (CAA) and the Final Conformity Rule (40 CFR Parts 51 and 93) direct the U.S. Environmental Protection Agency (EPA) to implement environmental policies and regulations that will ensure acceptable levels of air quality. The CAA require the Washington metropolitan area to adopt a structured, multi-year approach to attaining Federal clean air standards. The CAA and the Final Conformity Rule affect proposed transportation projects such



as the Purple Line. According to Title I, Section 101, Paragraph F of the amendments, “No federal agency may approve, accept or fund any transportation plan, program or project unless such plan, program, or project has been found to conform to any applicable State Implementation Plan (SIP) in effect under this act.” The Final Conformity Rule defines conformity as follows:

“Conformity to an implementation plan’s purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of such standards; and that such activities will not:

- i. cause or contribute to any new violation of any NAAQS in any area;
- ii. increase the frequency or severity of any existing violation of any NAAQS in any area; or
- iii. delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.”

Although there are many provisions in the CAA, the major focus for the region will be on reducing mobile sources such as automobile usage. Therefore, the likely effects of the study alternatives on regional air quality have been examined.

Attainment Status in the Corridor

Section 107 of the 1977 CAA requires that EPA publish a list of all geographic areas in compliance with the NAAQS, as well as those not in attainment of the NAAQS. Areas not in compliance with the NAAQS are termed nonattainment areas. Areas that have insufficient data to make a determination are unclassified and are treated as attainment areas until proven otherwise. Areas that were designated as

nonattainment when the CAA were implemented but have since attained compliance with the standards are classified as “maintenance areas.” The designation of an area is made on a pollutant-by-pollutant basis.

Montgomery and Prince George’s Counties were classified, between 1992 and 1995, as serious nonattainment areas for carbon monoxide (CO). They were reclassified as maintenance areas on March 3, 1996. The counties are currently classified as nonattainment areas for particulate matter less than 2.5 microns in diameter (PM_{2.5}) and ozone (O₃) and are classified as being in attainment for particulate matter less than 10 microns in diameter (PM₁₀), lead (Pb), and nitrogen oxide (NO_x).

Almost half of the emissions that cause ozone in the region come from cars, trucks, and buses. According to MWCOG analyses, motor vehicle emission burdens are projected to increase substantially by 2030. The Purple Line supports local and regional planning goals for air quality improvements by providing an alternative to automobile usage for those who work and live in the Purple Line corridor. The western segment of the Purple Line between Bethesda and Silver Spring is in the MWCOG Constrained Long Range Plan (CLRP) as a project. The eastern segment between Silver Spring and New Carrollton is in the plan as a study. The Maryland Department of Transportation is working to ensure that the eastern portion of the project is included in the CLRP as a project.

1.5. Public Involvement and Agency Coordination

Public involvement and agency coordination have been ongoing throughout the Purple Line study as an integral part of the alternatives development and evaluation process. Public input has provided valuable comments that informed decisions throughout this process,

leading to the consideration of new alignment options and station locations and the elimination of other options.

The public outreach strategy for the Purple Line was designed with the following objectives:

- To foster two-way communication that provides opportunities for input and feedback from project stakeholders and ensures that concerns are adequately addressed;
- To reach out to all stakeholders, including residents, business owners, property owners, elected officials, agency representatives, and existing and future transit riders;
- To build on recent successes in outreach along the corridor;
- To help identify the range of issues to be addressed during all phases of the project; and
- To present information in consistent, readily accessible, and easy-to-understand formats.

The project’s public involvement program provided numerous ways to receive information and provide comments. Outreach included project newsletters, fact sheets and flyers, a project website, public meetings, community meetings, Community Focus Groups, letters, and email. Meeting notices and newsletters were distributed to a mailing list that grew from approximately 16,000 individuals and businesses at the time of the scoping meetings to approximately 60,000 when community and public meetings were held. Seven newsletters have been issued, to provide project updates and announce opportunities for public input.

This section summarizes the major components of the public involvement and agency coordination efforts. Detailed information is

presented in the *Public Outreach and Coordination Technical Report*.

1.5.1. Public Meetings

September 2003 Public Scoping Meetings

At the beginning of the Purple Line study in September 2003, four public scoping meetings were held in Bethesda, Silver Spring, Langley Park, and College Park. At these meetings, the public was able to comment on the study’s key planning assumptions, identify issues of concern, and review the scope of the project’s environmental analysis. These meetings provided an opportunity for the public to comment on the initial set of alternatives and identify issues that should be considered during the AA/DEIS process. For those unable to attend meetings, the meeting displays were available on the project website. Comments could be submitted electronically through the website or sent via mail.

The public scoping meetings were held in an “open house” format, where participants could conduct self-paced reviews of project displays. No formal presentation was given. Attendees could visit project information displays and aerial maps, and project representatives were available to answer questions.

Display boards presented the meeting’s purpose, the project’s background and goals, evaluation factors, and environmental considerations. They presented the alternative transit modes to be considered and described BRT and LRT options with examples and issues to be considered. The boards showed potential station locations, described the planning and environmental process, and presented the project’s timeline and next steps. Maps were displayed showing the Purple Line corridor with environmental features and preliminary alignments for evaluation within the corridor. The public examined and

commented on the alternatives proposed for consideration.

A total of 377 people signed attendance sheets at the four meetings and over 350 comments were submitted during the scoping process. Comments covered a broad range of topics and stated approval or disapproval of general alignment issues and specific routes. Mode was the category that received the most comments, with numerous comments in favor of light rail. Over 70 percent of the comments submitted related to the alignment's location and whether it was above, below, or at ground level. Opposition to the Purple Line on Jones Bridge Road, MD 410 east of Silver Spring, and Sligo Avenue far outweighed support. The Interim Capital Crescent Trail (also referred to as the Georgetown Branch Trail), the environment, and station locations were the topic of many comments. Twelve stations were presented at the meetings, but the public suggested additional locations throughout the corridor. Other comments focused on transportation issues, public involvement, the planning process, and pedestrian safety.

November 2004 Public Open House Meetings

In November 2004, the MTA hosted five open houses on the Purple Line. These meetings were held in Bethesda, Silver Spring, Langley Park, College Park, and New Carrollton. A series of large aerial photographs showed the routes under consideration at that time. Display boards showed sketches and photos of LRT and BRT and how they could be incorporated into roadways.

Over 300 people attended these meetings to learn about the most recent project plans and talk with the project staff. MTA received 209 public comments. The most controversial topic was how the transitway would get from the Silver Spring

Transit Center to the proposed Flower Avenue station: concerns were about property takings, the creation of a barrier through the community, safety, noise and vibration, and impacts to the Green Trail along Wayne Avenue.

The Georgetown Branch (or Master Plan alignment) generated both strong support and strong opposition. Community members expressed strong concerns about preserving the Interim Georgetown Branch Trail and the natural environment. A number of people asked for more details on how MTA proposes to include both the hiker/biker trail and the transitway within the Georgetown Branch right-of-way.

At these meetings, the public expressed support for the proposed station locations. Suggestions for several additional stations were made, particularly at East West Highway and Kenilworth Avenue, and the University of Maryland at US 1. Support was expressed for both BRT and LRT transit modes.

June 2006 Public Open House Meetings

Additional open houses were held in June 2006. These meetings were held in the evenings in Bethesda, Silver Spring, Langley Park, and College Park. Similar to the meetings in 2004, a series of large aerial photographs showed the alignments under consideration at that time. Display boards showed sketches and photos of LRT and BRT and how they could be incorporated into roadways. At these meetings, the MTA was seeking public input on station locations and the alternatives retained for detailed study in particular.

Other information presented at these meetings included:

- The trail along the Georgetown Branch right-of-way
- Traffic impacts and how they are studied

- The identification of cultural resources within the corridor
- Goals and objectives of the project
- Environmental resources being studied
- Photo simulations showing how the project could be incorporated on some of the roadways in the corridor
- Public outreach efforts, with special attention on Community Focus Groups

Approximately 300 people came to these meetings to learn about the most recent project plans and talk with project representatives. MTA received 110 comments. In general, the public expressed support for the project and most comments were positive. Many comments identified issues of concern (e.g., the need to maintain pedestrian access to the Interim Capital Crescent Trail). Many stated clear support for LRT, while a few expressed support for BRT. There was some support for the use of heavy rail.

The most controversial alignment continued to be the use of the Georgetown Branch right-of-way. Some expressed strong support for this alignment, not only because it is the most direct route and unimpeded by traffic, but also because this alignment is readily available. Concerns about pedestrian safety, noise and vibration, and traffic were raised.

December 2007 Open House Meetings

The fourth round of open house meetings was held in December 2007. These meetings focused on the overall end-to-end Build alternatives. Preliminary data on estimated ridership, costs, and travel times was presented. Meetings were held in five locations in the corridor: Bethesda, Silver Spring, Langley Park, College Park, and West Lanham Hills.

These meetings were conducted using the previously well received format where people

could attend at any time during the scheduled hours, review information at their own pace, and discuss issues and ask questions of project representatives. Maps showed the alternatives in relation to other transit services and to environmental resources. Display boards provided information on the Purple Line, project needs and benefits, photos of LRT and BRT systems and stations, the alternatives under consideration, typical sections, projected ridership, and cost estimates. They also presented the FTA's process, traffic studies, travel times, environmental resources, and details on special study areas such as the Interim Capital Crescent Trail and the University of Maryland campus.

Over 470 people attended these meetings and 205 written comments were submitted. Many voiced strong support for the project while others voiced their opposition. Concerns were raised about specific issues. These concerns included traffic, pedestrian safety, noise, vibration, impact to the Interim Capital Crescent Trail, and impacts to the environment in general. There was concern that the Purple Line study address BRAC's plans for Bethesda Naval Hospital and NIH. People discussed their opinions on station locations.

Where mode preference was expressed, a large number of people voiced a preference for LRT. Many community members wanted to get information on how the ridership numbers were developed.

May 2008 Open House Meetings

A fifth round of open house meetings was held in May 2008. These meetings were a final opportunity for the public to meeting with the MTA prior to the Public Hearing. Over 340 people attended and 117 comments were submitted. These meetings focused on the refined results of the alternatives analysis and provided project visualizations and updated results of ridership projections, costs, and environmental



impacts. As had been used before, the format was an informal self paced review of boards with project representatives.

Open House Meeting in College Park



Community Focus Groups

In an effort to gain a more local perspective on the project, MTA formed eight Community Focus Groups along the corridor. These groups were small, geographically organized meetings to facilitate open discussions with local community representatives on issues specific to one community or to a portion of the corridor. These focus groups were:

- Master Plan
- Jones Bridge Road
- Lyttonsville/CSX Corridor
- Downtown Silver Spring
- East Silver Spring
- University Boulevard
- University of Maryland/College Park/Riverdale Park
- New Carrollton/West Lanham Hills

Multiple rounds of meetings were held with most Community Focus Groups. Meetings were

scheduled as new information became available, and community representatives provided valuable insight and input on the development and evaluation of alternatives. The MTA gained valuable information from this effort, ranging from details on how local school buses circulate, to delivery vans double parking on narrow commercial streets. This information allowed the MTA to better design the project and develop plans to address community concerns. Modifications were made to alignments, the number and locations of stations being evaluated were adjusted, and some alignments were dropped altogether, in part due to information and input received at these meetings.

Stakeholder Meetings

Since the initial scoping meeting, the MTA has provided over 280 briefings at the request of community, business, or other stakeholder groups. Outreach has included meetings with individual property owners, businesses, community associations, environmental groups, local government agencies, transit advocacy groups, developers, business associations, special interest groups, and other stakeholders. Briefings were generally held at stakeholder groups’ request and in the format and location of their choosing, although on occasion the MTA proposed these meetings when a need for more coordination or information was identified. The MTA continues to advertise its willingness to meet with any interested individual or group.

1.5.2. Additional Outreach

Throughout the course of the project’s planning study, the MTA has used a variety of outreach methods to identify communities and stakeholders that may be under-represented. The MTA has worked with local jurisdictions, elected officials, business leaders, local churches, and advocacy groups to reach out to community members. Newsletters, fact sheets, and comment

sheets have been provided in both English and Spanish.

1.5.3. Agency Coordination

Environmental and regulatory coordination for the Purple Line was initiated at an agency coordination/scoping meeting on September 25, 2003. Invitation letters were extended to 22 regulatory and public agencies. Agency representatives and project staff in attendance included:

- Federal Transit Administration
- Federal Highway Administration
- U.S. National Marine Fisheries
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- Washington Metropolitan Area Transit Authority
- Metropolitan Washington Council of Governments
- Maryland Historical Trust
- Maryland Department of Natural Resources
- Maryland State Highway Administration
- Maryland Department of Planning
- Maryland Department of the Environment
- Maryland-National Capital Park and Planning Commission – Montgomery County
- Maryland-National Capital Park and Planning Commission – Prince George’s County
- Montgomery County Department of Public Works and Transportation
- Prince George’s County Department of Public Works and Transportation

At this meeting, MTA staff presented the Purple Line history and the decision to combine the Georgetown Branch Transitway/Trail project and the Purple Line East project and reconsider bus-based alternatives and new LRT alignments. MTA then reviewed the project goals on which the purpose and need were based, and presented the project alternatives being considered. Agency representatives asked questions and commented on a variety of topics, including fuel type usage for bus as compared to light rail alternatives, quality of service, alternative modes being considered (other than LRT and BRT), additional proposed stations in Prince George’s County, and engineering issues. Agencies were encouraged to provide comments at the meeting and to submit written comments.

An agency field tour was conducted on December 2, 2003. This gave agency representative an opportunity to see the corridor and discuss issues. Some preliminary proposed alignments were dropped at this time because of resource agency concerns about environmental impacts.

Three interagency meetings were held over the next three years, in conjunction with several Project Team meetings (see the following section for a discussion of Project Team meetings). The dates of these meetings were October 1, 2004, April 29, 2005, and April 7, 2006. All meetings provided project updates. The October 2004 meeting focused on the screening process used to evaluate the alignments. The April 2005 meeting gave a detailed presentation of the alignments being carried forward at that point. The April 2006 meeting reviewed the status of the environmental analysis and the need for a second maintenance and storage facility site.

As the alternatives were further refined, additional potential station locations were identified and more detailed information on potential impacts was developed. A second

agency field tour was conducted on November 8, 2007. This gave agency representatives another opportunity to discuss project-related issues.

In addition to the larger agency coordination meetings and field reviews, individual agency coordination was conducted throughout the study, as appropriate.

1.5.4. *Project Team Meetings*

The Project Team includes representatives from the following state, local and regional governments:

- Maryland State Highway Administration
- Metropolitan Washington Council of Governments
- Maryland-National Capital Park and Planning Commission – Montgomery County
- Maryland-National Capital Park and Planning Commission – Prince George’s County
- Montgomery County Department of Public Works and Transportation
- Prince George’s County Department of Public Works and Transportation
- Local municipalities of Takoma Park, College Park, Riverdale Park, and New Carrollton

- Washington Metropolitan Area Transit Authority.

The Project Team has met 13 times over the course of the project’s study, to present and discuss issues and preliminary findings, and inform project decisions.

1.6. **Evaluation of Alternatives**

The evaluation of alternatives is the key component of the Alternatives Analysis process and should contain sufficient information to distinguish between the costs and benefits of the alternatives and to understand the relationships among alternatives, including possible trade-offs. Although the evaluation of alternatives occurs near the end of the Alternatives Analysis process, the development of an evaluation methodology and definition of supporting measures occurs at the beginning of the project to ensure that the correct information is produced in the analytical phase for application of the measures.

The evaluation of the transportation improvement alternatives for the Purple Line draws on the information and analyses gathered from the analysis of the corridor and input from stakeholders. The measures were developed from the goals of the project. The framework for the evaluation involves the following:

- Effectiveness – how well each alternative addresses the purposes of the project

- Cost-effectiveness – the extent to which an alternative provides a level of benefits that is commensurate with its cost, and relative to the other alternatives
- Financial feasibility – the extent to which sufficient funding is available, or can be developed to construct, operate, and maintain the alternatives
- Equity – how well each alternative provides a fair distribution of costs and benefits to the various subgroups and communities in the corridor

This evaluation framework is designed to support the decision-making process regarding the choice of transit improvements in the corridor. It has been followed in the belief that it provides the qualitative and quantitative material needed for decision making in a manner that will successfully build a consensus among those concerned with the selection and implementation of a Locally Preferred Alternative.

1.6.1. *Measures*

To perform this evaluation, a number of measures were developed based on the following goals of the project:

- Improving mobility and accessibility
- Improving transit operations efficiencies

- Optimizing public investment
- Enhancing environmental quality
- Supporting local plans for economic and community development
- Support attainment of regional clean air goals

Specific objectives were developed to meet each of these goals, and, for each objective, evaluation measures were identified. The alternatives are evaluated using a variety of measures relevant to each objective, some qualitative, such as equity considerations and community quality, and some quantitative, such as financial feasibility. Sources for these measures include FTA guidance; the New Starts Criteria, including the Summit model; and corridor-specific needs and issues. The evaluation of the transportation improvement alternatives draws on the information and analyses gathered from the analysis of the corridor, as well as input from stakeholders.

Table 1-9 lists the project objectives and some of the measures used to differentiate among the alternatives. Some different objectives are evaluated with the same measures.



Table 1-9: Objectives and Corresponding Evaluation Measures

Objective		Evaluation Measure
Improve Mobility and Accessibility		
<ul style="list-style-type: none">Improve accessibility to existing and planned economic development areas in the corridorImprove access to jobs in corridorIncrease employers' access to labor pool		User Benefits by alternative, 2030 (daily minutes)
		Percent over TSM
		User Benefits with mode-specific attributes by alternative, 2030 (daily minutes)
		Percent over TSM
		Accessibility of residents to employment: jobs within ¼ to ½ mile of stations
		Accessibility of employers to workers: households within ¼ to ½ mile of stations
<ul style="list-style-type: none">Reduce travel time between major activity centers:		Peak transit travel times for alternatives in 2030 (minutes)
<ul style="list-style-type: none">Bethesda – Silver SpringBethesda – Takoma/LangleyBethesda – UM Campus CenterSilver Spring – Takoma/LangleySilver Spring – Riverdale ParkSilver Spring – UM Campus CenterSilver Spring-College Park Metro	<ul style="list-style-type: none">Takoma/Langley – Riverdale ParkEast Silver Spring – Silver SpringEast Silver Spring – Takoma LangleyNew Carrollton – Riverdale ParkNew Carrollton – University of MarylandNew Carrollton – Silver Spring	
<ul style="list-style-type: none">Improve mobility for transit-dependent households		Number of zero-car households within ¼ mile of stations
Improve Transit Operations Efficiencies		
<ul style="list-style-type: none">Increase interconnectivity of transit system, including bus-to-bus and bus-to-rail transfers		Number of routes connecting at major transfer points
<ul style="list-style-type: none">Integrate radial Metrorail and MARC lines for better transit system connectivity(also see below under Increase regional transit usage)		Transfer walk time
<ul style="list-style-type: none">Increase reliability of transit service		Number of transfers required to access major activity centers
		Comparison of running way characteristics (miles): <ul style="list-style-type: none">DedicatedExclusiveShared (with traffic)
<ul style="list-style-type: none">Increase regional transit usageIntegrate radial Metrorail and MARC lines for better transit system connectivity		Comparison of vertical alignment type (miles): <ul style="list-style-type: none">AerialSurfaceTunnel
		End-to-end peak period running times Bethesda to New Carrollton (minutes)
		Transit ridership (daily boardings) <ul style="list-style-type: none">Purple LinePurple Line via MetrorailPurple Line via MARCTotal
		New transit trips relative to No Build
		Percent new trips relative to No Build
<ul style="list-style-type: none">Reduce transit travel times in the corridor		Change in operating speeds of transit service
<ul style="list-style-type: none">Serve transit oriented populations		Change in travel time between major activity centers
		Number of zero-car households within ¼ and ½ mile of stations

Table 1-9: Objectives and Corresponding Evaluation Measures (continued)

Objective	Evaluation Measure
Enhance Environmental Quality	
<ul style="list-style-type: none">Minimize and mitigate impacts to the natural and human environment in the corridorProvide a safe and attractive transit service that is compatible with local community character	Direct impacts to the natural environment
	Direct impacts to parklands
	Direct impacts to historic properties
	Visual effects
	Direct residential property impacts (number of displacements)
Optimize Public Investment	
<ul style="list-style-type: none">Demonstrate that the overall benefits of the transit improvements warrant their capital and operating costs	Total capital cost (\$2007 in million)
	Annual operating and maintenance costs (\$2007 in millions)
	Annual increase in operating subsidy (\$2007 in millions)
	FTA cost-effectiveness measures (cost per hour of User Benefit)
	Incremental Cost per New Transit Rider
Support Local Plans for Economic and Community Development	
<ul style="list-style-type: none">Support local, regional, and state policies and adopted master plans	Consistency with local, regional, and state policies and adopted master plans
<ul style="list-style-type: none">Support potential for transit oriented development at existing and proposed stations in support of local land use plans	Number and size of transit oriented development opportunities
	Potential for new development
Support Attainment of Regional Clean Air Goals	
<ul style="list-style-type: none">Support attainment of regional air quality goals	Change in regional emission burden