Executive Summary

The Purple Line Final Environmental Impact Statement and Draft Section 4(f) Evaluation (FEIS) describes and summarizes the transportation and environmental effects of implementing a new east-west light rail transit (LRT) service between Bethesda in Montgomery County and New Carrollton in Prince George's County, Maryland. Briefly, the Purple Line is a proposed 16.2-mile transit service located north and northeast of Washington, DC, inside the circumferential I-95/I-495 Capital Beltway (Figure ES-1). The "Purple Line corridor" includes five major activity centers: Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton. The Federal Transit Administration (FTA) is the lead federal agency for this project, and the Maryland Transit Administration (MTA) is serving as the project sponsor. The National Park Service and the National Capital Planning Commission are cooperating agencies.

ES.1 Purpose of the Final Environmental Impact Statement

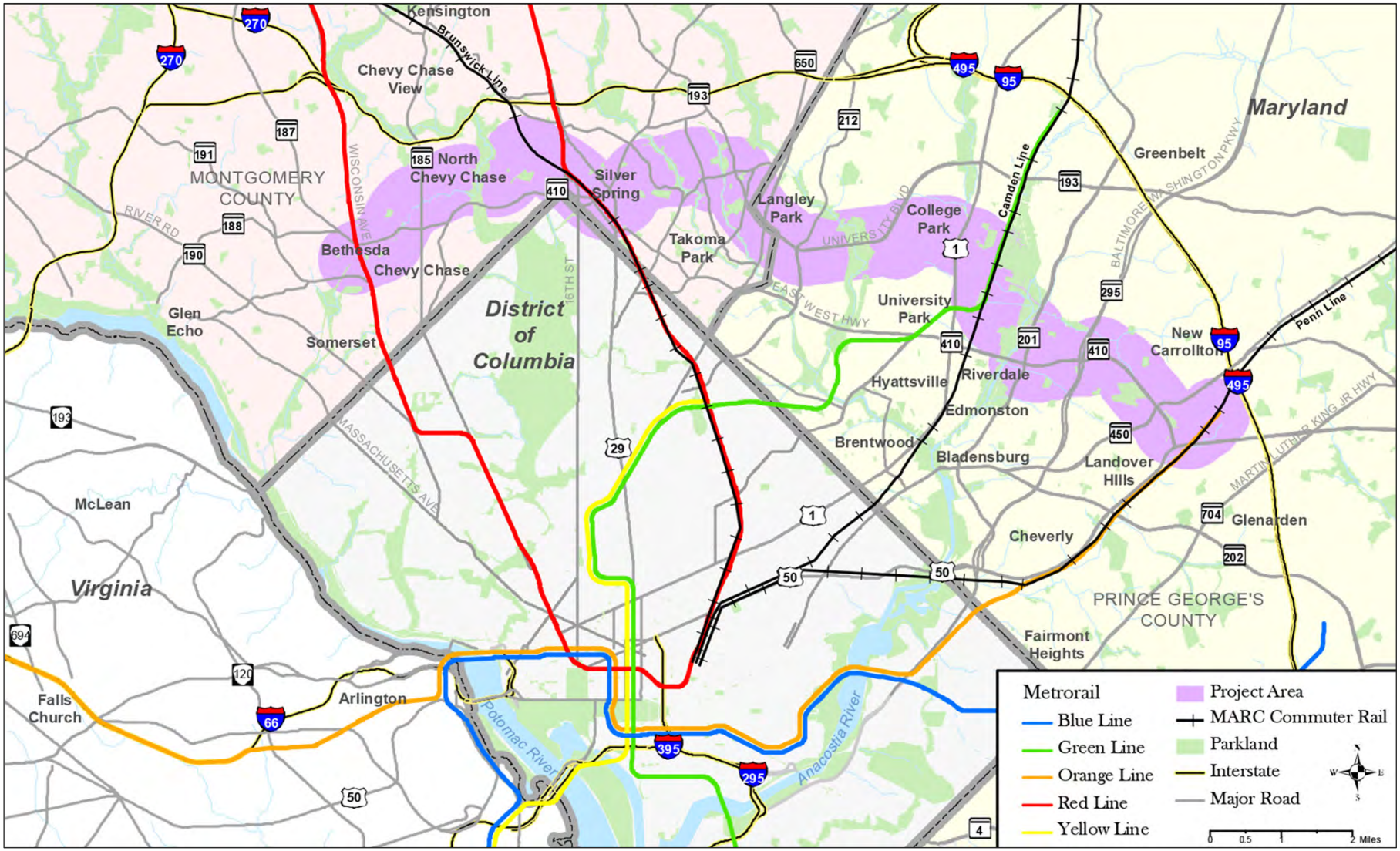
The FEIS builds upon the Alternatives Analysis/ Draft Environmental Impact Statement (AA/DEIS) completed in October 2008. The FEIS assesses the potential transportation and environmental impacts and benefits of the Purple Line Preferred Alternative and the No Build Alternative. The FEIS was prepared by FTA, in cooperation with MTA, in accordance with the National Environmental Policy Act of 1969 (NEPA). It includes a Draft Section 4(f) Evaluation, prepared in accordance with Section 4(f) of the U.S. Department of Transportation Act of 1966, as well as other applicable laws. The FEIS addresses comments on the AA/DEIS, guides decision-making, and meets the federal and state regulatory obligations of FTA and MTA.

ES.2 Project Purpose and Need

The purpose of the Purple Line project is to provide faster, more direct, and more reliable east-west transit service connecting major activity centers in the Purple Line corridor at Bethesda, Silver Spring, Takoma/Langley Park, College Park, and New Carrollton; to provide better connections to Metrorail services located in the corridor; and to improve connectivity to the communities in the corridor located between the Metrorail lines.

For more than 20 years, regional studies and local land use plans have identified a deficiency in east-west transit services in Montgomery and Prince George's Counties. Growing population and employment in the region have resulted in increasingly congested roadways. Changing land use patterns have increased the amount of suburb-to-suburb travel to and from the corridor's major activity centers. The existing transit system is primarily oriented to accommodate travel to and from Washington, DC. The only transit service available for east-west travel is bus service, which often can be slow and unreliable because it operates on a congested roadway system. East-west travel on Metrorail within the corridor is possible but requires a circuitous trip into and then out of Washington, DC. The constraints of growing traffic congestion, lack of opportunity to increase roadway capacity, physical geography, and existing rail infrastructure limit the possible solutions for addressing these needs.

Figure ES-1. Project Area



ES.3 Alternatives Development

In 2003, FTA and MTA initiated the NEPA process for the Purple Line. Between 2004 and 2008, FTA and MTA examined various alternatives and design concepts, retaining eight alternatives and several design options for study in the AA/DEIS. The 90-day public comment period from October 17, 2008 to January 14, 2009, and four public hearings for the AA/DEIS yielded over 3,300 comments. Based on the AA/DEIS findings, as well as input from the public, the local jurisdictions, and elected officials, Governor Martin O'Malley identified a Locally Preferred Alternative (LPA) on August 4, 2009. The LPA was the Medium Investment LRT Alternative, as defined in the AA/DEIS, with elements of the High Investment LRT Alternative.

Since the Governor's announcement, MTA has conducted technical studies and continued to work with the study corridor communities to refine the LPA, yielding the Preferred Alternative that is the subject of this FEIS.

The Locally Preferred Alternative

The **Locally Preferred Alternative (LPA)** is the project alternative announced by the Governor of Maryland on August 4, 2009, as a result of the federal AA/DEIS project development process. In the AA/DEIS process, the LPA was deemed best suited to meet the region's transportation goals, is responsive to community concerns and input, and has been examined and declared superior to the other alternatives that are identified and studied in relation to its social, economic and environmental impacts.

The **Preferred Alternative** is a result of technical studies and MTA's continued work with communities in the study area to refine the LPA.

In accordance with 23 CFR Part 771.129, MTA prepared a re-evaluation because more than three years had passed since publication of the AA/DEIS for this project. MTA submitted the re-evaluation to FTA on August 8, 2012. The re-evaluation compared the current Preferred Alternative as examined in the FEIS to the build alternatives in the AA/DEIS and concluded that a Supplemental Environmental Impact Statement of the AA/DEIS is not required because there are no new significant environmental impacts beyond those evaluated in the AA/DEIS. In correspondence dated October 2, 2012, FTA concurred with the findings in the re-evaluation but indicated that the FEIS should include information on the changes in the project so that these changes could be subject to public review.

This FEIS discusses why alternatives evaluated in the AA/DEIS were eliminated, describes the selection of the LPA, describes the Preferred Alternative, and explains the refinements made to the LPA that led to the Preferred Alternative examined in the FEIS. In addition, the FEIS evaluates the effects of the Preferred Alternative and the No Build Alternative. The No Build Alternative is the future condition of transportation facilities and services in 2040 within the corridor if the Purple Line is not implemented. The Preferred Alternative is the future of transportation facilities and services in 2040 within the corridor if the Purple Line is implemented. The Preferred Alternative assumes the implementation of the funded transportation improvement projects included in the National Capital Region Transportation Planning Board's Constrained Long Range Plan (CLRP) for implementation by 2040 within the Purple Line corridor. The No Build Alternative assumes all the projects in the CLRP except the Purple Line. The No Build Alternative provides the basis against which the Preferred Alternative is compared.

The Preferred Alternative transitway would operate mainly in exclusive or dedicated lanes along existing roadways. (An "exclusive" lane is a right-of-way that is solely for use of transit vehicles and is not occupied by any other type of vehicle or by pedestrians. A "dedicated" lane is used solely for transit vehicles, separated and protected from parallel

traffic but crossed by roads, driveways, and pedestrian pathways at-grade.) The Preferred Alternative transitway would be at would be at grade except for one short tunnel section (a 0.3-mile tunnel between Wayne Avenue and Arliss Street) and three sections elevated on structures. The Preferred Alternative would have 21 stations. The station locations were selected based on connections with existing transit services; urban design principles, including access and safety; public space availability; local plans; ridership catchment areas; and engineering feasibility. Seventeen stations would be at street level, three would be on aerial structures, and one would be in the tunnel portal. The Preferred Alternative would not provide new station parking; passengers would access the Purple Line by walking, bicycling, transferring from other transit lines, or from existing parking facilities. The Preferred Alternative would include constructing the permanent Capital Crescent Trail from Bethesda to Silver Spring. The completion of the trail along the CSXT corridor is contingent on agreement with CSXT on the use of their property on the north side of the CSXT tracks for the trail. If agreement is not reached by the time the Purple Line construction occurs, MTA would construct the trail from Bethesda to Talbot Avenue. From Talbot Avenue to Silver Spring an interim signed bike route on local streets would be used until such time as agreement is obtained.

The transitway, stations, and related infrastructure would be integrated with existing and planned transportation facilities in a manner that accommodates or enhances automobile, bus, bicycle, and pedestrian circulation. For example, MTA's conceptual plans for the Purple Line include roadway and intersection improvements consistent with applicable design standards for safety, enabling the Purple Line and other transportation modes to operate together as efficiently and safely as possible. The Purple Line would comply with the Americans with Disabilities Act of 1990, as amended.

Two maintenance and storage facilities would support the Purple Line. A storage yard would be located along Brookville Road in Lyttonsville. A maintenance facility would be located along Veterans Parkway on the site of the M-NCPPC Northern Area Maintenance – Glenridge Service Center. The Lyttonsville facility would be the primary vehicle storage area and would house the operations and control center, while the Glenridge site would be the primary maintenance and repair shop.

The Purple Line system infrastructure would include an overhead contact system (OCS), providing electricity and operating signals for the light rail vehicles. The traction power substations would convert electric power to the appropriate voltage for light rail operations. Based on the current level of design, the Purple Line would require 18 substations, placed approximately every mile along the transitway, as well as one each at the maintenance facility and yard. In addition, 14 central instrument houses would be at track crossover locations along the transitway.

Additional description of the alignment and station locations of the Preferred Alternative is provided in Section 2.3.2 and shown on Figure 2-6.

ES.4 Transportation Effects

ES.4.1 Public Transportation

The current end-to-end travel time between Bethesda and New Carrollton on Metrorail is 55 minutes, but this route does not provide access to any of the intermediate stops that would be available on the Purple Line. Current bus travel times are longer, and they are expected to increase due to increased traffic congestion under the No Build Alternative. The travel time for peak hour bus service between Bethesda and New Carrollton currently is 92 minutes, and under the No Build Alternative it would increase to 108 minutes. The No Build Alternative would not add a new east-west transit service, and it would not address or improve corridor-wide transit travel times. Under the Preferred Alternative, the peak hour travel time between Bethesda and New Carrollton would be 63 minutes, including stops at all stations.

The Preferred Alternative provides faster travel times than bus service because it is a direct route that would operate in dedicated or exclusive lanes for 13.9 miles of its 16.2-mile length, free from

traffic congestion, allowing for greater efficiency and reliability. The Preferred Alternative would enable east-west transit service to adhere more regularly to its operations schedule and provide more predictable transit times for travelers.

The Preferred Alternative also would connect four Washington Metropolitan Area Transit Authority (WMATA) Metrorail stations and another transit center, thereby enhancing transit connectivity throughout the region. Projections show that the Preferred Alternative would have over 74,000 daily boardings in 2040. Stations associated with WMATA Metrorail stations would have the greatest number of daily boardings, with Bethesda and Silver Spring Transit Center each having over 10,000 daily boardings (Table ES-1).

Daily corridor-related transit trips would be 11 percent higher under the Preferred Alternative than under the No Build Alternative (Table ES-2).

Table ES-1. Year 2040 Daily Purple Line Boardings by Station

Station	Boardings
Bethesda	14,990
Chevy Chase Lake	2,250
Lyttonsville	1,340
Woodside/16th Street	1,620
Silver Spring Transit Center	13,320
Silver Spring Library	3,010
Dale Drive	960
Manchester Place	1,910
Long Branch	890
Piney Branch Road	1,240
Takoma/Langley Transit Center	2,190
Riggs Road	2,320
Adelphi Road/West Campus	1,390
Campus Center	2,500
East Campus	4,600
College Park Metro	7,740
M Square	1,730
Riverdale Park	2,390
Beacon Heights	1,900
Annapolis Road/Glenridge	1,410
New Carrollton	4,460
Total Boardings	**74,160**

Boardings include UMD students and special events.

Source: Travel Forecasts Results Report, (2013)

ES.4.2 Highways and Roadways

Existing and horizon year 2040 roadway network and traffic patterns were analyzed using the Metropolitan Washington Council of Governments' travel demand model.

Currently, 12 (24 percent) of the 51 signalized intersections along the Purple Line alignment operate near or at capacity (level of service [LOS] E or F). Under the No Build Alternative this number would increase to 18 (35 percent) while under the Preferred Alternative it would increase to 14 (27 percent) because of the addition of turn lanes or the modification of the signals. Also, under the Preferred Alternative, 18 of the currently unsignalized intersections along the alignment will be studied to determine if signals would be warranted.

No roadway or traffic impacts would occur as a result of the Yard or Maintenance Facility.

ES.4.3 Pedestrian and Bicycle Facilities

The study corridor includes portions of eight multi-use trails, sidewalks, and a number of bicycle lanes within roadway rights-of-way. The multi-use trails that are adjacent to or cross the Preferred Alternative are Capital Crescent (Georgetown to Bethesda), Georgetown Branch Interim, Rock Creek, planned Green, Sligo Creek, Long Branch, Northwest Branch, Paint Branch, and Northeast Branch. As part of the Preferred Alternative, MTA would make the following improvements to bicycle and pedestrian facilities:

- Construct eastern 4.3-miles of Capital Crescent Trail, replacing Georgetown Branch Interim Trail and extending the permanent trail from Bethesda to Silver Spring (using Montgomery

Table ES-2. Comparative Summary of Transportation Conditions, 2040

	Alternative		Difference	
	No Build	Preferred Alternative	Number	Percentage
Daily transit trips—region	1,655,075	1,683,701	28,626	2%
Corridor –related transit trips	221,833	247,178	25,345	11%
Transit Travel Time (in minutes)				
Bethesda–Silver Spring	17	9	8	-47%
College Park–New Carrollton	20	16	4	-20%
Bethesda–New Carrollton	108	63	29	-42%
Failing or near failing intersections	18	14	4	-22%

County funding). If CSXT allows, the section between Stewart Avenue and Silver Spring will utilize CSXT right-of-way; otherwise, this section will be routed along local streets.
- Provide sidewalks along new and reconstructed roadways at selected locations
- Provide wider outside roadway travel lanes and a 5-foot bicycle lane on some roadways
- Make provision for bicycle racks and storage facilities at stations, where reasonably feasible
- Construct additional sidewalks or crosswalks in station areas where needed

ES.4.4 Safety and Security

MTA's safety and security process and activities for the Purple Line, from planning through Preliminary Engineering, further design development, construction, testing and verification, and pre-revenue operations leading to commencement of revenue service, are governed by FTA requirements, MTA's multi-modal System Safety Program Plan, MTA's System Security and Emergency Preparedness Plan, MTA's LRT Design Criteria Manual, the Maryland Department of Transportation State Safety Oversight Standard, and programs managed by other federal departments, such as the Department of Homeland Security. The Preferred Alternative would feature current safety and security systems and procedures to protect passengers, workers, and adjacent communities.

ES.5 Summary of FEIS Findings

The FEIS evaluated both the No Build and Preferred Alternatives to assess their effectiveness in meeting the proposed project's purpose and need and their overall effects. This evaluation provides a basis for decision-makers and the public to assess the benefits and consequences of implementing the Purple Line.

Definitions of the study area vary according to the environmental resource evaluated. However, generally the study area is the defined by a distance of 500 feet on either side of the Preferred Alternative centerline.

ES.5.1 Effectiveness in Meeting the Purpose and Need

The Preferred Alternative strongly achieves the project's purpose and need (summarized in Section ES.2). It would provide faster end-to-end travel times and would ensure more reliability in transit service in the project study corridor than would occur under the No Build Alternative. The Preferred Alternative also would provide better connectivity to Metrorail, Maryland Regional Commuter (MARC), Amtrak, and other transit services within the project study corridor, as well as direct and improved access to communities, employment centers, educational facilities, activity centers, and other destinations of interest. The value of these benefits of the Preferred Alternative is evident in the projected increases in daily transit trips and projected passenger boardings over the No Build Alternative.

ES.5.2 Impacts to the Natural and Human Environment

Throughout the Preferred Alternative corridor, MTA has refined the alignment, geometry, and right-of-way needs wherever possible to avoid or minimize effects. Yet, some effects cannot be overcome due to the design and safety standards MTA must meet, the developed character of the communities the Purple Line is intended to serve, and the need to avoid adversely affecting future operations of other transportation facilities in the corridor. Therefore, MTA also is committed to mitigating the impacts of the Preferred Alternative, as well as striving to further minimize effects, through specific strategies and actions that this FEIS identifies.

A comparison of the key benefits and effects of the No Build Alternative and the Preferred Alternative indicates that the Preferred Alternative would have high transportation and land use and development benefits compared with the No Build Alternative. Some natural and built environment impacts of the Preferred Alternative would occur despite MTA's refinements to minimize impacts. However, in several cases MTA's mitigation measures will provide a net benefit. In contrast, the No Build

Alternative incurs relatively fewer impacts to the natural and built environment, but it does not meet the project purpose and need.

Table ES-3 summarizes the effects of the Preferred Alternative on transportation and the natural and built environment, and it lists MTA's commitments to minimize and mitigate the effects of implementing the Preferred Alternative.

The Draft Section 4(f) Evaluation in the FEIS, which examines potential uses of publicly-owned parks and historical properties, was prepared pursuant to federal regulations contained in 23 CFR Part 774, which implements 49 USC 303. The Preferred Alternative would use parts of 14 publicly-owned parks or historic properties protected by Section 4(f). Nine of these uses primarily involve acquisition of strips of land adjacent to existing roadways and do not affect the features, attributes, or activities qualifying the properties for protection under Section 4(f). FTA is proposing *de minimis* impact findings for these relatively minor uses.

The following terms are used frequently in this FEIS:

Adverse: A negative or unfavorable condition.

Avoidance: The act of avoiding impacts to, or keeping away from, something or someone.

Minimization: Measures taken to reduce the severity of adverse impacts.

Mitigation: Measures taken to alleviate adverse impacts that remain after minimization.

The Preferred Alternative would require five permanent uses; it would require the complete removal of one resource (Talbot Avenue Bridge), and it would use portions of four properties (Long Branch Local Park, Glenridge Community Park, Metropolitan Branch, and Falkland Apartments). The Draft Section 4(f) Evaluation includes detailed avoidance and least harm analyses for each of these proposed uses. The Preferred Alternative would cause no constructive uses. The Draft Section 4(f) Evaluation considers the views of the officials with jurisdiction, the Section 106 consulting parties (historic properties), and the public.

In accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR 800, and subject to input from the Maryland Historical Trust (MHT) and Consulting Parties, the preliminary effect finding of the Preferred Alternative is an "adverse effect" on three historic properties because it would remove all or part of the resource (all of Talbot Avenue Bridge, a portion of the Falkland Apartments, and a contributing element of the Metropolitan Branch). MTA's on-going consultation with the State Historic Preservation Officer, as required by Section 106, has included determinations of property eligibility for the National Register of Historic Places and the effects of the Preferred Alternative on those eligible properties, including assessments of the means to avoid or minimize effects on protected properties. A preliminary Draft Section 106 Programmatic Agreement for mitigation of adverse effects to historic properties for the Purple Line is included in this FEIS for review in accordance with 36 CFR Part 800.6 and is subject to change based on comments from the public and consulting parties. The preliminary Draft Section 106 Programmatic Agreement (PA) is provided in Appendix H of the FEIS. FTA, MTA, and SHPO, in coordination with the consulting parties and invited signatories, will finalize this PA prior to the Record of Decision (ROD).

ES.5.3 Public Involvement and Outreach

MTA has strived to develop and refine the Preferred Alternative by working with stakeholders and the communities and incorporating their input into the project design. Since the initiation of the Purple Line NEPA process, MTA has undertaken a public involvement and agency outreach program, holding over 900 meetings, including scoping meetings, public open houses, community focus group meetings, stakeholder meetings, agency coordination meetings, public hearings, neighborhood work groups, and general community outreach events.

The culmination of this program is a Preferred Alternative that reflects the community's input.

Chapter 8 provides details on the public involvement and agency outreach efforts. MTA received over 3,300 comments via hard copy written response, email, or verbal testimony during the 90-day public comment period (which included four public hearings) following the release of the AA/DEIS. Comments came from elected officials, community organizations, government and regulatory agencies, residents, special interest groups, and non-profit organizations. MTA reviewed and responded to the comments and opinions in Appendix A of the FEIS. Opinions included support or opposition to all or parts of the project and the alternatives in the AA/DEIS; comments pertained to the type of transit, the transitway alignment, existing natural and human environment features, costs and funding, and natural and human environment effects of the Purple Line alternatives.

During Preliminary Engineering and the preparation of the FEIS, MTA continued its public involvement and agency outreach program with Open Houses to provide information on how the proposed Purple Line would operate as a complete system, benefit communities within the project corridor, and help to connect communities, as well as to solicit public input on the project and its design. Also, MTA used Neighborhood Work Groups to encourage and facilitate detailed discussion regarding location-specific issues.

Coordination and outreach to federal, state, and local agencies also has continued during the FEIS. In addition to meeting with resource agencies at Interagency Review Meetings, MTA has conducted coordination with federal, state, and local agencies and entities, including the National Park Service, National Capital Planning Commission, Montgomery County Department of Transportation, Washington Metropolitan Area Transit Authority, Maryland Department of Transportation, Maryland Historical Trust, Maryland Department of Natural Resources, Maryland Department of the Environment, State Highway Administration, University of Maryland, Montgomery and Prince George's Counties, Maryland-National Capital Park and Planning Commission (Montgomery and Prince George's counties), Prince George's County Department of Public Works, and Washington Suburban Sanitary Commission. MTA also created a Purple Line Project Team, which includes local planners, state and county agencies, and elected officials that meet twice a year; these meetings were used as a forum to evaluate and review proposed refinements to the Preferred Alternative.

Section 4.19.4 provides details on the public involvement and outreach activities, especially as they relate to minority and low-income populations. Table 4-47 presents the range of outreach activities, and Table 4-48 outlines community concerns and MTA actions and responses. Among the key outcomes of the public involvement process are design refinements to avoid or reduce community impacts, such as relocating and redesigning the proposed yard sites; MTA's commitment to specific minimization and mitigation strategies, such as preparing a Business Impact Mitigation Plan to address anticipated impacts to local businesses during construction; and identifying solutions to localized issues, such as identifying opportunities for additional short-term parking during construction.

ES.6 Balancing Benefits and Effects

Throughout the Preferred Alternative corridor, MTA has refined the alignment, geometry, and right-of-way needs wherever possible to avoid or minimize effects. Yet some adverse effects would occur due to the design and safety standards MTA must meet, the developed character of the communities the Purple Line is intended to serve, and the need to avoid adversely affecting future operations of other transportation facilities in the corridor (e.g., reducing the capacity of existing arterial roads). Throughout the project, MTA has worked with the communities and stakeholders to balance the trade-offs between the benefits and the effects of the Purple Line.

On the benefits side, the Preferred Alternative strongly achieves the purpose and need. It would provide faster, more direct, and reliable east-west

transit service in the corridor; it would connect major activity centers, better connect to Metrorail services, and improve connectivity to the communities between the Metrorail lines. It also strongly supports county land use and economic development plans and goals.

The Preferred Alternative also would affect numerous environmental resources in the corridor. Many of the project effects are a result of the need for right-of-way. Unfortunately, while the developed character of the corridor makes it an ideal candidate for LRT transit service, it also poses challenges to introducing a new transportation facility.

On the one hand, MTA desires to make the system as convenient for the community as possible; on the other hand, it has an obligation to preserve existing and planned roadway, transit, freight rail, bicycle, and pedestrian operations. To strike this balance between benefits and effects, MTA has worked with affected parties and the communities to minimize right-of-way needs. It will continue this iterative process beyond the NEPA process, focusing in equal measure on improving the fit of the Preferred Alternative in relation to neighborhoods, historic properties, parks, other community facilities, businesses, and private property owners.

Recognizing that transit projects have the potential to induce community change, MTA is encouraging the counties to put in place land use planning and programs to preserve neighborhood character and affordable housing and to support local businesses.

On the natural environment side, the Purple Line's primary use of existing transportation corridors inherently minimizes effects on land and water resources. MTA will continue to coordinate with the regulatory agencies to identify measures to avoid or minimize natural resource effects during the design and permitting phase of the project. Where adverse effects of the Preferred Alternative remain, MTA has identified mitigation measures intended to offset remaining effects to the natural and human environment. Although some mitigation measures are enforced by federal and state regulations, most of MTA's mitigation measures are project-specific commitments it has made with the affected stakeholders and communities in the Purple Line corridor.

ES.7 Next Steps

FTA has signed the FEIS and distributed it to federal, state, and local agencies, as well as community organizations and other interested parties. There is a 30-day review period for the FEIS; the comment deadline is posted on the project website (www.purplelinemd.com). During the review period, the FEIS is available in local libraries throughout the project study corridor and on the project website. MTA will coordinate with NPS and NCPC regarding any comments received on the Baltimore-Washington Parkway or any properties overseen by NCPC. Following the review period, FTA will consider the comments received on the FEIS and will prepare a ROD. The ROD will summarize the purpose and needs of the project, the alternatives considered, the comments received during the review period and FTA's responses to those comments, the factors that support the selection of the selected alternative, and the commitments to be carried into further engineering and construction of the project.

Once the ROD is signed, MTA would then complete further design, purchase needed right-of-way, and begin construction. MTA is considering a variety of methods for constructing and operating the Purple Line, including the possibility of a Public-Private Partnership (P3), in which one entity would be contracted by MTA to design, build, operate and maintain the facilities, equipment and services, as well as provide project financing. Under any method of constructing and operating the Purple Line, MTA will remain responsible for the Purple Line and will be responsible for honoring all commitments made as part of this NEPA process.

Throughout these steps and throughout construction, MTA will continue to coordinate with stakeholders and communities, including informing the public of construction schedules and activities.

Table ES-3. Summary of Effects - Minimization and Mitigation

Resources	Preferred Alternative Effects	Minimization and Mitigation
Transportation (Chapter 3)	▪ Failing levels of service at two intersections ▪ Modified roadway configurations, traffic patterns, and intersection operations ▪ Transitway/roadway interface safety ▪ Loss of some on-street and off-street parking ▪ The Lyttonsville Yard would displace the parking lot of the Montgomery County maintenance facility	▪ Prior to construction, a Transportation Management Plan for the Purple Line would be developed to minimize potential negative impacts to traffic, transit and pedestrians as described in Section 5.3. This plan will include traffic control plans that illustrate how to maintain transit, vehicular, pedestrian, and bicycle traffic during construction, as well as emergency vehicle and property access. It also will include a public information and outreach program, which is intended to inform motorists, residents, businesses, schools, emergency service and delivery providers, and the public regarding temporary changes to traffic patterns and detours. ▪ Pedestrian movements would be maintained to the extent reasonably feasible and pedestrian access to adjacent properties would be maintained during construction. Where it is not possible to maintain existing movements, alternate routing with appropriate signing would be designated. ▪ Mitigation of permanent impacts to on-street parking on Bonifant Street will be addressed through coordination with Montgomery County. ▪ The parking lot used by Montgomery County Department of Transportation employees at Lyttonsville will be replaced. ▪ On Bonifant Street, where the Purple Line would eliminate parking and loading zones on the north side of the street, MTA will work with Montgomery County and local businesses to identify alternative loading zones. ▪ MTA will work with stakeholders and local businesses affected by the temporary loss of loading zones, or access to loading zones, to identify alternate or temporary loading areas.
Land Use, Public Policy, and Zoning (Section 4.2)	▪ The Preferred Alternative supports current land use plans and zoning because these anticipate the Purple Line project	▪ MTA will provide alternative access for properties that would be subject to changes in access or closures of portions of their property during construction, as necessary.
Neighborhoods and Community Facilities (Section 4.3)	▪ Vehicular and pedestrian access would be affected at some community facilities by changes in driveway locations and circulation patterns ▪ Public parking would be permanently affected at some locations where existing parking is removed ▪ Neighborhood cohesion effects are not anticipated because the proposed transit service would operate largely on existing roadways or transportation corridors	▪ The Purple Line Fire Life/Safety & Security Committee will continue to meet prior to and during construction with emergency responders to identify and resolve issues arising from construction and operation. ▪ MTA will work to negotiate just compensation or mitigation to the First Korean Presbyterian Church on Kenilworth Avenue. ▪ MTA will construct the Glenridge Maintenance Facility at a lower grade than the existing park maintenance facility and provide a landscape buffer, as appropriate, to the adjacent park and school; MTA will install retaining walls to minimize the area of grading needed. ▪ MTA will coordinate with the counties to identify alternative access or temporary off-site parking for community facilities and businesses where access or parking may be temporarily removed, as appropriate. ▪ MTA will coordinate with UMD, Rosemary Hills Elementary School, Sligo Creek Elementary School, and Silver Spring International Middle School to minimize disruptions to the extent reasonably feasible. ▪ MTA will provide alternative access to community facilities if access is temporarily removed, where practical.

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Property Acquisitions and Displacements (Section 4.4)	▪ 389 full or partial property acquisitions ▪ Full acquisitions result in 60 commercial, 53 residential, and 3 institutional displacements	▪ MTA will perform property acquisition and relocation activities in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) as amended and Federal Transit Administration (FTA) Circular 5010.1D, Grants Management Requirements and all applicable Maryland State laws that establish the process through which Maryland Transit Administration (MTA) may acquire real property through a negotiated purchase or through condemnation. – For areas that would be subject to construction easements for staging or access areas, MTA will compensate owners based on fair market appraisal. ▪ MTA will use vacant or publicly-owned property, rather than privately-owned, developed property, for temporary construction activities to the extent reasonably feasible. ▪ MTA will restore properties affected through a temporary easement to an acceptable pre-construction condition following construction activities, in accordance with the individual easement agreements. ▪ MTA will provide a parking facility for both County and MTA employees in Lyttonsville.
Economic Activity (Section 4.5)	▪ Regional and local economic benefits of improved east-west travel, access to and between activity centers, connections to other transit services, better access to jobs, creation of MTA jobs	▪ MTA will continue to coordinate with affected commercial property owners to identify strategies to minimize the effects of temporary construction easements, lane or road closures, and other property restrictions on existing corridor businesses. ▪ MTA will implement a Business Impact Minimization Plan as described in the Environmental Justice section.
Parks, Recreational Land, and Open Space (Section 4.6)	▪ Road and intersection widening or transitway construction would require partial land acquisition from several parks ▪ Land would be acquired from Glenridge Community Park for the Glenridge Maintenance Facility ▪ The bridges carrying the Baltimore-Washington Parkway over Riverdale Road would be replaced; the abutments would be moved, encroaching upon the park ▪ Access to Long Branch Local Park would be changed to right-in/right-out only ▪ Direct connections would be created between many parks and the Capital Crescent Trail	▪ MTA will include drainage improvements and water quality facilities in four stream valley parks (Sligo Creek, Long Branch, Northwest Branch, and Anacostia River), Long Branch Local Park, and New Hampshire Estates Neighborhood Park. ▪ MTA, through coordination with M-NCPPC, the NCPC, the NPS, and the public, will implement the following measures: – Expand and upgrade facilities and plant trees in Glenridge Community Park, as well as convert approximately 2 acres of land currently used for the Prince George's County Parks' Northern Area Maintenance—Glenridge Service Center either to parkland within Glenridge Community Park or to upgrade and expand athletic fields at the Glenridge Elementary School; – Restore park properties that are disturbed as a result of construction activities to acceptable conditions through coordination with the park owners; – Provide replacement parkland for all park impacts; the amount and location of replacement parkland will be determined by MTA in consultation with park owners; and – Coordinate selective tree clearing and identification of significant or champion trees with agencies having jurisdiction. ▪ MTA will continue to coordinate with the public and agencies to develop appropriate minimization strategies during construction. Efforts will include the following: – Roadway or sidewalk closures will be staged to maintain pedestrian and vehicular access. – Trail detours needed during construction will be coordinated with the agency having jurisdiction over the trail to identify and develop a plan for a temporary detour route, and the trail routes would be restored at the end of construction. ▪ MTA will continue to coordinate during further design development with the agencies having jurisdiction over the affected parks to develop additional appropriate long-term minimization and mitigation.

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Historic Properties (Section 4.7) and Archeological Resources (Section 4.8)	▪ Adverse effect on three eligible properties: Talbot Avenue Bridge, Metropolitan Branch, and Falkland Apartments; overall project finding of Section 106 effect is adverse effect	▪ MTA and the Maryland Historic Trust (MHT), in coordination with Consulting Parties, are preparing a Programmatic Agreement that outlines commitments and mitigations concerning historic and archeological resources under Section 106. ▪ MTA will implement the project in accordance with the Section 106 Programmatic Agreement. Preliminary Section 106 mitigation concepts include: – Prepare Historic American Buildings Survey/Historic American Engineering Record documentation for the historic properties that will be demolished – Prepare web-based map providing documentation and educational information on historic properties within the APE – Develop an interpretive plan that will include historically themed signage or incorporation of historic images at stations – Provide Consulting Parties with the opportunity to review and comment on project plans during engineering design phases – Develop a plan to monitor impacts to historic properties during construction – Continue coordination with Consulting Parties throughout design and construction ▪ MTA will continue to plan and implement the project design elements negotiated with the Columbia Country Club and the MHT minimize impacts to the Club. ▪ MTA, in coordination with the M-NCPPC, will provide transitway and pedestrian structures through the Rock Creek Park that include design elements to minimize the effects of the project. ▪ MTA will continue to coordinate with UMD regarding the aesthetic design of the transitway. ▪ Minimization measures for the Baltimore-Washington Parkway, in addition to what is listed above for Parks, Recreational Facilities and Open Space (4.6), are as follows: ▪ The permanent replacement bridges of the Baltimore-Washington Parkway over Riverdale Road will have a similar arch design as the existing bridge structures and would include horizontal arched shields above the transitway overhead wires. ▪ The stone façade from the existing bridge abutments will be re-used on the new bridge abutments. If additional stone is required, it will come from the same source or would be selected in consultation with the NPS to match the existing stone. ▪ The catenary wires will be attached to the bridges to minimize the number of poles throughout the Parkway. ▪ Landscape plans for the Baltimore-Washington Parkway will be developed in accordance with the Baltimore-Washington Parkway Design Elements-Section 2: Parkway Landscape-Recommendations, and submitted to NPS for review and approval. ▪ Protected resources will be identified and marked for protection in field prior to construction activities (i.e., trees, archeological sites). ▪ The proposed temporary bridges to carry Baltimore-Washington Parkway over Riverdale Road will be constructed between the existing ramps and the existing bridges to completely avoid the archaeological site identified in the median.

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Visual Resources (Section 4.9)	▪ New visual features introduced; of 10 visual units in the study area, the project would have an overall "Low" visual effect on three units, a "medium" effect on four units, a "medium to high" effect on two units, and a "high" on one unit ▪ An extensive change to visual character constituting a high visual effect would occur along the Georgetown Branch right-of-way, along Wayne Avenue, and as a result of the aerial structure and Riverdale Park Station across the intersection of Kenilworth Avenue and Riverdale Road	▪ MTA and Montgomery County will continue to coordinate and consult on the design of the future Capital Crescent Trail to provide an aesthetically pleasing facility while meeting safety and ADA requirements. ▪ MTA will continue to coordinate with the Columbia Country Club on the visual and aesthetic elements of the transitway. ▪ MTA will continue to coordinate and consult with Montgomery County and the local community regarding the aesthetic treatment of the bridge structures over Connecticut Avenue. ▪ MTA will continue to coordinate with M-NPPC and the NCPC regarding the design and construction of the Rock Creek bridges. ▪ MTA will continue to coordinate and consult with affected communities regarding the aesthetic treatments of the transitway elements. ▪ MTA will require that the construction contractor utilize best management practices to maintain an orderly appearance of active work zones and staging areas. ▪ MTA will use the state-funded Art-In-Transit program to enhance key elements of the project as appropriate. ▪ MTA will build traction power substations with landscaping or appropriate architectural treatments to be compatible with adjacent land uses in areas of moderate or high visual sensitivity
Air Quality (Section 4.10)	▪ Annual regional VMT would be slightly less than in the No Build Alternative ▪ No violations of air quality standards are predicted	▪ MTA will require the construction contractor to implement dust control measures in accordance with MDE requirements and assure that construction equipment complies with EPA's Tier 2 engine emission standards. Possible dust and emission control measures include the following: – Minimizing land disturbance – Constructing stabilized construction site entrances per construction standard specifications – Covering trucks when hauling soil, stone, and debris – Using water trucks or calcium chloride to minimize dust – Stabilizing or covering stockpiles – Minimization of dirt tracking by washing or cleaning trucks before leaving the construction site – Using ultra-low sulfur diesel fuel for diesel equipment – Equipping some construction equipment with emission control devices such as diesel particulate filters – Permanently stabilizing and seeding any remaining disturbed areas

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Noise (Section 4.11)	▪ Moderate noise impacts to a few properties, largely due to train horns	▪ MTA will minimize noise resulting from Purple Line operations as follows: – Between Bethesda and Rock Creek Stream Valley Park, there will be a minimum four-foot noise wall or retaining wall adjacent to residential areas. – LRT vehicles will include vehicle skirt panels to reduce the noise caused by the vehicles on the track. – Public address systems at stations will have volume adjustment controls designed to maintain announcement volume at the specified noise levels, as appropriate. – The traction power substations will be designed in accordance with design criteria intended to minimize the noise from transformer hum. ▪ Possible noise minimization measures during construction include the following: – Conducting the majority of construction activities during the daytime as reasonably feasible. – Routing construction equipment and other vehicles carrying spoil, concrete, or other materials, where reasonably feasible, over designated truck routes that would minimize disturbance to residents. – Locating stationary equipment away from residential areas to the extent reasonably feasible within the site/staging area – Employing control technologies to limit excessive noise when working near residences – Adequately notifying the public of construction operations and schedules.
Vibration (Section 4.12)	▪ Vibration impacts to three properties	▪ MTA will perform site-specific assessments of those areas identified in the FEIS as having potential vibration impacts. MTA will develop appropriate mitigation measures. ▪ MTA will analyze extremely vibration-sensitive buildings located within the UMD campus, as agreed upon by MTA and UMD. The study will establish criteria; measures regarding mitigation for vibration will be specified in the MTA UMD agreement. MTA will develop appropriate mitigation measures. ▪ MTA will identify control measures be implemented by the contractor during construction activities to minimize the potential for vibration impacts.

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Habitat and Wildlife (Section 4.13)	▪ Partial land acquisitions impact forest edge habitat ▪ Impact of roadway widening and culvert extensions at stream crossings on stream habitat, affecting fish and aquatic biota ▪ No long-term impacts on known rare, threatened or endangered species	▪ MTA will prepare a Forest Conservation Plan, or similar, during the design phase of the project. This plan will detail additional impact avoidance and minimization techniques to be applied during construction. ▪ MTA will comply with MDNR requirements for reforestation. ▪ MTA will continue to coordinate with the NMFS and other regulatory agencies to identify measures to avoid or minimize such as: – Creation of in-stream barriers that block migratory fish from upstream spawning grounds – Alterations of stream configuration, characteristics, and hydrology – Incremental changes to in-stream water quality from deforestation of the riparian zone ▪ MTA will provide a spill management plan and water quality and quantity controls for work area containment, use and storage of fuels and other potential contaminants based on current regulations and project permit conditions. ▪ MTA will design culverts and bridges to MDE standards to avoid or minimize secondary and cumulative impacts to migratory fish and the alteration of habitat. ▪ MTA will restore and stabilize temporarily disturbed aquatic habitat at the end of construction according to a restoration plan developed in coordination with the USACE and MDE permits. ▪ MTA will not undertake in-stream construction during state-mandated stream closure periods. ▪ MTA will coordinate with the MDNR regarding the heron colony located within Coquelin Run.
Water Resources (Section 4.14) and Topography, Geology, and Soils (Section 4.15)	▪ Increased impervious surfaces, stormwater run-off, and non-point source water pollution ▪ Minor wetland impacts primarily due to roadway widening and culvert extensions at stream crossings ▪ Relocate Sligo Creek north of Wayne Avenue ▪ Minor floodplain impacts primarily due to roadway widening and culvert extensions at stream crossings	▪ MTA will mitigate project impacts to Waters of the US, including wetlands, by complying with the Federal Compensatory Mitigation Rule, as well as stipulations from federal and state resource agencies. ▪ MTA will coordinate with regulatory agencies to develop a project-wide compensatory mitigation strategy to offset impacts to wetlands and aquatic resources. ▪ MTA will minimize the area of disturbance to Maryland-designated wild and scenic rivers by clearly marking and fencing the work area and prohibiting activity outside the work area. ▪ MTA will restore Sligo Creek approximately 180 feet upstream and 180 feet downstream of the project bridge to provide long-term benefits and enhance its inherent characteristics. ▪ MTA will submit project plans to MDNR for evaluation in compliance with the Maryland Scenic and Wild Rivers Act to assure that the project will not jeopardize the scenic value of the designated rivers. ▪ MTA will perform hydraulic and hydrologic studies. If these studies find that flood elevation would change, floodplain storage mitigation will be implemented, if required. ▪ MTA will submit project plans to MDE for approval of structural evaluations, fill volumes, proposed grading elevations, structural flood-proofing, and flood protection measures in compliance with FEMA requirements, USDOT Order 5650.2 "Floodplain Management and Protection," and Executive Order 11988. ▪ MTA will obtain applicable environmental permits for water resources. ▪ MTA will develop an Erosion and Sediment Control Plan, in accordance with the Stormwater Management Act of 2007, which will specify proper slope and soil stabilization techniques, erosion and sediment controls, and stormwater management facilities.

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Hazardous Materials (Section 4.16)	▪ Residual contaminants potentially exist along portions of the study area in the underlying soils resulting from former industrial sites, existing and former gasoline service stations, and railroad yards. ▪ While effects are not anticipated, the operation and maintenance of the Purple Line could be associated with petroleum releases from the equipment and materials stored at yard and maintenance facility.	▪ MTA will establish procedures and staff training for proper storage and maintenance of equipment and hazardous materials. ▪ MTA will develop a site-specific health and safety plan including: – Equipment and procedures to protect the workers and general public – Procedures for monitoring contaminant exposures – Identification of the contractor's chain of command for health and safety ▪ MTA will perform a Phase II Environmental Site Assessment (ESA) prior to acquisition of any property with a high potential for concern (sites ranked 1 or 2 in the Phase I ESA) unless the property can be classified accurately by other means or methods. MTA also will perform further records research on sites with a ranking of 4 to determine potential presence of PCBs. ▪ MTA will identify remediation actions to be implemented as needed, if unexpected soil or groundwater contamination is encountered. ▪ If contaminated soils are identified or encountered during construction, MTA will evaluate off-site remediation, chemical stabilization, or other treatments and disposal options, in cooperation with MDE. ▪ MTA will coordinate with MDE to determine the mitigation response and reporting required should a release of hazardous materials occur during operations
Utilities (Section 4.17) and Energy Use (Section 4.18)	▪ Relocation of some utilities in advance of or during construction ▪ Overall reduction in total study area energy consumption by 0.033 percent compared to the No Build Alternative	None

Table ES-3. Summary of Effects—Minimization and Mitigation (continued)

Resources	Preferred Alternative Effects	Minimization and Mitigation
Environmental Justice (Section 4.19)	▪ No disproportionately high and adverse effects on environmental justice populations. However, many of the commercial areas in the corridor are in environmental justice communities; MTA understands small, local, and EJ businesses will require some unique engagement.	In addition to the commitments described above, MTA will work with Montgomery and Prince George's Counties on business improvement initiatives, including: ▪ To address access restrictions or detours to businesses, MTA will work with local business liaisons to understand the characteristics of local businesses (customer origins, peak business times, etc.) and to establish construction stage plans to minimize business disruptions. ▪ MTA will implement a business impact minimization plan. MTA will develop this plan after evaluation of best practices and lessons learned from other light rail construction projects (see Sections 8.2.2). These practices could include: – Maintaining Spanish-speaking outreach staff – Constructing the project in segments to keep disruption to a small area at a time – Maintaining access to businesses during construction for customers and deliveries – Maintaining or relocating bus stops – Maintaining parking lot access – Providing directional signage – Developing "open for business" marketing and advertising tools for use during construction, translated where appropriate – Promotion of local businesses – Providing a construction hotline open 24/7 – Maintaining open communication between the project outreach team and local businesses – Maintaining communication with local support and advocacy groups ▪ MTA will continue communication with local businesses during construction to monitor effects and modify construction plans, if possible, to further reduce impacts. ▪ MTA will work with the counties and other stakeholders to leverage existing resources to support and strengthen small businesses in the corridor. ▪ MTA will work with Montgomery and Prince George's counties to create opportunities for project-related local economic benefits including workforce development programs. ▪ MTA will continue working with the counties and advocacy groups to support engagement of local elected officials regarding affordable housing and increased commercial rents resulting from increased property values as the project moves forward
Draft Section 4(f) Evaluation (Chapter 6)	▪ Use portions of 14 properties protected by Section 4(f) ▪ *De minimis* use finding for 9 of 14 properties	▪ On-going coordination with officials with jurisdiction and public to minimize use and develop appropriate mitigation to minimize harm
Indirect and Cumulative Impacts (Chapter 7)	▪ Induced development in 11 station areas due to new service and related local planning efforts ▪ Incremental cumulative effect	▪ MTA will continue working with the counties and advocacy groups to support engagement of local elected officials regarding land use changes such as gentrification