

ES. Executive Summary

The Red Line project's Final Environmental Impact Statement (FEIS) and Draft Section 4(f) Evaluation describes and summarizes the transportation and environmental effects for the implementation of a new east-west light rail transit (LRT) alignment in Baltimore County and Baltimore City, Maryland. The Federal Transit Administration (FTA) is the lead federal agency for this project, while the Maryland Transportation Administration (MTA) is serving as the project sponsor. The Federal Highway Administration (FHWA) is a cooperating agency.

In August 2011, the President issued a memorandum entitled *Speeding Infrastructure Development Through More Efficient and Effective Permitting and Environmental Reviews*, which required federal agencies to identify and expedite a set of priority projects. In October 2011, the Red Line project was selected as one of 14 infrastructure projects around the country for an expedited permitting and environmental review process.

To encourage transparency during the project development process, a Federal Infrastructure Projects Dashboard allows the public to track the progress of each priority project. The dashboard, which is part of the government's performance.gov website, highlights best practices and successful coordination efforts that result in an efficient federal permitting process and review decisions. The performance.gov website informs the public of actions that require cooperation between federal agencies for the Red Line project. It summarizes the substantial public involvement and outreach activities to refine and improve the project.

ES.1 Purpose of the Final Environmental Impact Statement

The FEIS builds upon the analysis in the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS), (September 2008) prepared for the Red Line project. The FEIS provides a comparative analysis between the No-Build Alternative and the Preferred Alternative for the Red Line project so that interested citizens, elected officials, government agencies, businesses, and other stakeholders can assess the potential environmental and socioeconomic effects of the Red Line project.

The FEIS was developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and serves as documentation on the coordination conducted in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the Draft Section 4(f) Evaluation prepared pursuant to Section 4(f) of the US Department of Transportation Act of 1966. The FEIS has been prepared to address comments received on the 2008 AA/DEIS, guide decision-making and meet the federal and state regulatory obligations of the FTA and MTA.

ES.2 Organization of the FEIS

The FEIS is divided into two volumes: **Volume 1** presents the analysis of the No-Build Alternative and the Preferred Alternative, and **Volume 2** includes mapping of transportation and environmental features in the project study corridor and the Plans and Profile Drawings of the Preferred Alternative. **Volume 1** of the FEIS contains nine chapters and appendices A through K:

- **Chapter 1** presents the project study corridor and the purpose and need for the project.
- **Chapter 2** presents a chronology of the alternatives development and analysis for the project. It includes a description of the alternatives considered in the FEIS: the No-Build and Preferred Alternative. The alignment, stations, and project components of the Preferred Alternative are described.
- **Chapter 3** discusses the probable construction methods and activities for the Preferred Alternative.
- **Chapter 4** presents the existing and future transportation conditions in the project study corridor under the No-Build and Preferred Alternative, and discusses commitments and mitigation measures for potential transportation effects.
- **Chapter 5** presents the existing and future environmental conditions in the project study corridor under the No-Build and Preferred Alternative, and discusses commitments and mitigation measures for potential environmental effects.
- **Chapter 6** presents the Draft Section 4(f) evaluation, which discusses the effects of the Preferred Alternative on public parks, recreational areas, and historic properties in compliance with Section 4(f) of the US Department of Transportation Act of 1966.
- **Chapter 7** presents an evaluation of the No-Build Alternative and Preferred Alternative in meeting the project's purpose and need.
- **Chapter 8** presents a summary of the public outreach and agency coordination for the Red Line project that has occurred since the publication of the AA/DEIS in September 2008.
- **Chapter 9** presents a summary of the comments received on the AA/DEIS and responses to those comments, as presented in **Appendix A**.

The appendices are included after **Chapter 9** with the exception of **Appendix A** and **I**, which are included on the DVD.

ES.3 Project Study Corridor

The Red Line project study corridor extends approximately 14 miles from the Centers for Medicare & Medicaid Services (CMS) in the west, in Woodlawn (Baltimore County), to the Johns Hopkins Bayview Medical Center campus in the east (Baltimore City). Eleven miles of the project study corridor are in Baltimore City. The proposed Red Line light rail alignment would utilize a combination of existing transportation rights-of-way for at-grade and aerial segments and underground tunnels as identified in **Figure ES-1**.

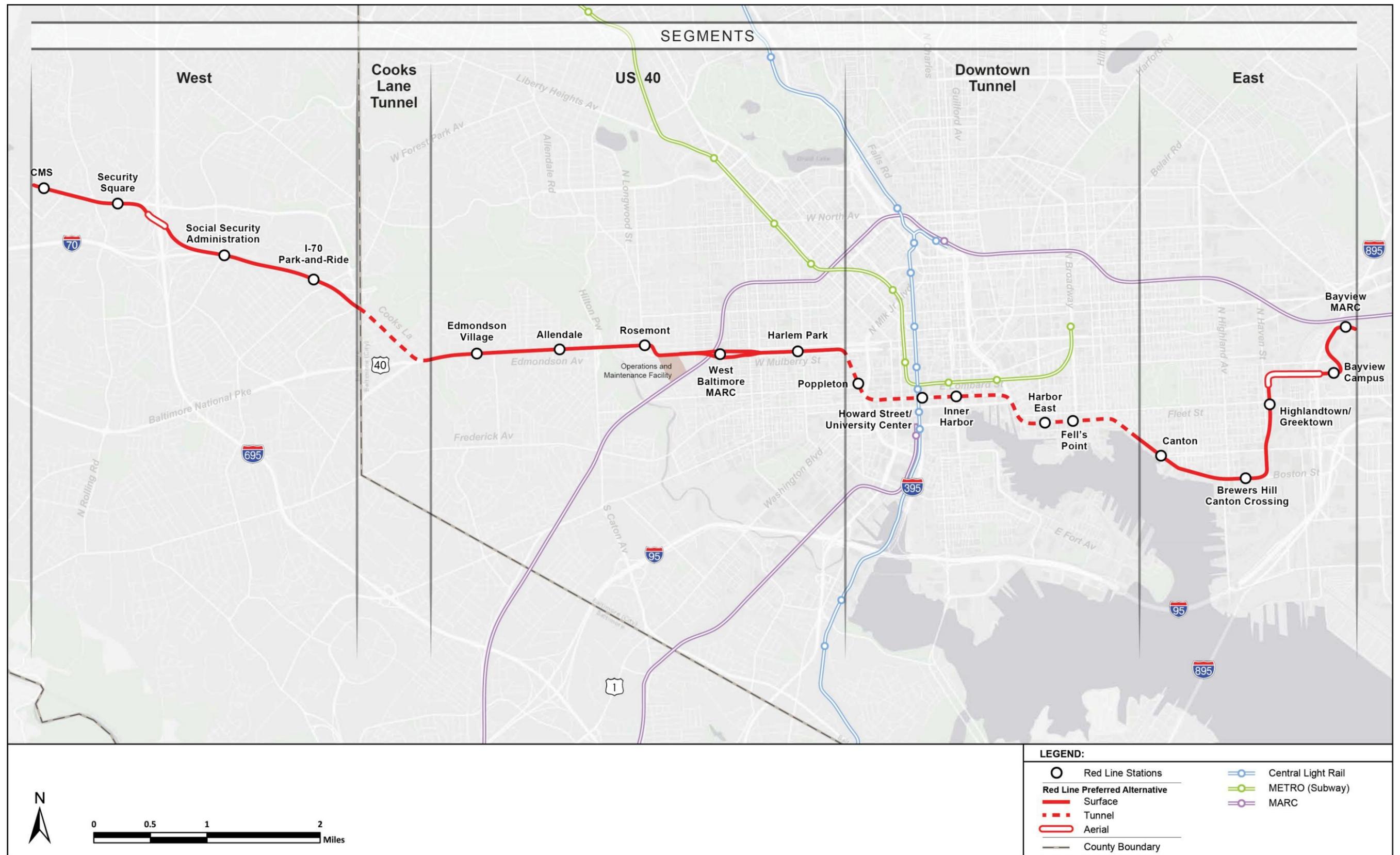


Figure ES-1: Preferred Alternative

ES.4 Project Purpose and Need

The purpose and need for the Red Line project is summarized in **Table ES-1**.

Table ES-1: Project Purpose and Need

Purpose of the Project	Project Need
Improve transit efficiency by reducing travel times for transit trips in the project study corridor	Roadway congestion contributes to slow travel times for automobiles and buses in the project study corridor
Increase transit accessibility in the project study corridor by providing improved transit access to major employment and activity centers	Lack of convenient transit access to existing and future activity centers in the project study corridor, including downtown Baltimore, Fell's Point, and Canton, as well as employment areas in Baltimore County to the west of Baltimore
Provide transportation choices for east-west commuters in the project study corridor by making transit a more attractive option	Lack of viable transit options for east-west commuters in the project study corridor
Enhance connections among existing transit routes in the project study corridor	Lack of connections from existing transit routes (including Central Light Rail, Metro, MARC, and bus network) to the I-70 travel market on the west side of the project study corridor, and to the I-95 and East Baltimore travel markets on the east
Support community revitalization and economic development opportunities in the project study corridor	Need for economic development and community revitalization in communities along the project study corridor, both in Baltimore County and in Baltimore City
Help the region improve air quality by increasing transit use and promoting environmental stewardship	Need to support the regional goal of improving air quality by providing alternatives to automobile usage

ES.5 Alternatives Development

The alternatives development process summarized below is further described in **Chapter 2** of the FEIS and in **Appendix I**, *Alternatives Technical Report – 2012 Update*.

The *2002 Baltimore Regional Rail System Plan* recommended a 109-mile Regional Rail System with 66 new miles added to the existing 43 miles of Metro Subway and Light Rail lines. The finished system could have as many as 122 stations, including 68 new stations in addition to the 54 stations that exist now. The Red Line, as now proposed with 19 stations, was identified as one of the priority projects for the Plan's implementation.

In 2003, the FTA issued a Notice of Intent to prepare an AA/DEIS for the Red Line, followed by Scoping and Alternatives Development. Based on public and agency input, the FTA and MTA developed a range of alternatives for consideration as part of the alternatives screening process.

Between 2005 and 2007, FTA and MTA conducted an alternatives screening process which identified a range of alternatives for detailed study in the AA/DEIS including: No-Build,

Transportation Systems Management (TSM), Bus Rapid Transit (BRT), and LRT. The AA/DEIS was circulated for public and agency comment between October 3, 2009 and January 5, 2010. Although the AA/DEIS did not identify a Preferred Alternative, the FTA New Starts Process requires that the local project sponsor identify a Locally Preferred Alternative (LPA).

In August 2009, the State of Maryland, with consensus from Baltimore City and Baltimore County, identified an LPA which consists of an approximately 14-mile LRT alignment from CMS in Baltimore County to Johns Hopkins Bayview Medical Center in Baltimore City, with tunnel alignments under Cooks Lane and through downtown from Martin Luther King, Jr. Boulevard to Boston Street.

Since the announcement of the LPA, the MTA has conducted technical studies, refined the LPA, and continued public involvement and agency coordination activities, including the Station Area Advisory Committees (SAACs). The results of these studies and definition of the Preferred Alternative are presented in the FEIS and supporting technical reports.

In accordance with 23 CFR 771.129, the MTA prepared a reevaluation because more than three years had passed since publication of the AA/DEIS for this project. MTA submitted the reevaluation to FTA on August 16, 2012. The reevaluation compared the current Preferred Alternative as examined in the FEIS to the build alternatives considered in the AA/DEIS, and concluded that a Supplemental Environmental Impact Statement (EIS) 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 September 17, 2012, FTA concurred with the findings in the reevaluation but indicated that the FEIS should include the information on the changes in the project so that these changes could be subject to public review.

ES.6 Alternatives Evaluated in the FEIS

ES.6.1 No-Build Alternative

The No-Build Alternative represents the future conditions of transportation facilities and services in 2035 if the Red Line is not built. The No-Build Alternative consists of the transit service levels, highway networks and traffic volumes, and forecasted demographics for the year 2035 that are projected in the 2011 Baltimore Regional Transportation Board's Constrained Long Range Plan (CLRP), *Plan It 2035*. The No-Build Alternative provides a baseline by which the environmental effects of the Preferred Alternative are compared.

ES.6.2 Preferred Alternative

The Preferred Alternative is a 14.1-mile light rail transit line that would operate from the CMS in Baltimore County to the Johns Hopkins Bayview Medical Center campus in Baltimore City. For presentation purposes, the project study corridor has been divided into five segments (**Figure ES-1**). Approximately 3 miles of the Preferred Alternative would be in Baltimore County following this general alignment: adjacent to the south side of Security Boulevard; on an aerial structure over I-695; adjacent to existing parking lots at the Social Security Administration and along the north side of the I-70 ramp to I-695; on existing excess pavement of westbound I-70; and on a new alignment across the southwest quadrant of the existing interchange at the end of I-70.

The Preferred Alternative would enter into a tunnel through a portal on the northwest side of the intersection of Cooks Lane/Forest Park Avenue/Security Boulevard. The Cooks Lane Tunnel would be approximately 1.3 miles centered underneath Cooks Lane to Coleherne Avenue curving left towards Edmondson Avenue to a tunnel portal in the median of Edmondson Avenue west of Swann Avenue (**Figure ES-2**). The Red Line would continue for approximately 3.3 miles in median of US 40 along Edmondson Avenue/Franklin Street/US 40 lower level roadway right-of-way.

Figure ES-2: Rendering of Tunnel Portal of Edmondson Avenue



The Red Line would enter the Downtown Tunnel alignment within the median of US 40 immediately west of North Schroeder Street bridge and continue in a tunnel alignment underneath Fremont Avenue, Lombard Street, President Street, Fleet Street and Boston Street for approximately 3.4 miles to a tunnel portal in the median of Boston Street east of the intersection with Montford Avenue/Hudson Street. The Red Line would continue the remainder of the 3.2 miles of the project along the median of Boston Street; transitioning on new right-of-way to the west side of Haven Street continuing north across Haven Street into Norfolk Southern (NS) railroad right-of-way; continuing north over Eastern Avenue ascending and turning east onto a new aerial structure over the NS railroad, CSX railroad, and local city streets to the Johns Hopkins Bayview Medical Center campus; traversing the campus on a future Cassell Drive, Alpha Commons Boulevard, and Bayview Boulevard; the alignment continues north and east adjacent to I-895 terminating at the Bayview MARC Station.

ES.6.3 Stations and Park-and-Ride Facilities

The Preferred Alternative has 19 stations: 14 surface and five underground. There are five park-and-ride facilities proposed for the Preferred Alternative, all of which would be surface parking lots. Two of the five park-and-ride lots would be constructed by separate initiatives (West Baltimore MARC and Bayview MARC) but passengers would be able to park at these facilities and ride the Red Line or the MARC. **Figure ES-3** depicts the concept plan for the I-70 Park-and-Ride.

Figure ES-3: I-70 Park-and-Ride Concept



ES.6.4 Operations and Maintenance Facility

The Operations and Maintenance Facility (OMF), as proposed, would be comprised of 11 parcels, consisting of a total of 20.8 acres, in Baltimore City along the south side of US 40/Franklin Street centered on Calverton Road between Franklinton Road and Warwick Avenue, and referred to as the Calverton Road site. The OMF is where light rail cars would be stored, maintained, and dispatched each day on their daily routes. The facility would accommodate administrative functions and light rail operation functions for the Preferred Alternative. Example operations and maintenance facilities are shown in the photos below.



Maintenance Facility in Tampa, Florida



Maintenance Facility in a historic industrial neighborhood in Charlotte, North Carolina

ES.6.5 System Components

Traction power substations (TPSS), signal central instrument houses (CIH), and an overhead catenary system (OCS) would be placed along the alignment to provide electricity and operating signals for the Red Line light rail vehicles. For the underground portion of the Red Line, mechanical ventilation systems would be required, including a combination of fans, air plenums, and air shafts that connect the tunnels and station platform areas to outside air.

ES.7 Construction of the Preferred Alternative

Construction of the Preferred Alternative is anticipated to begin in 2014 and finish in 2021. The various work activities to be performed over an estimated 7-year construction period would include the following facility and system items:

- Demolition of existing structures, as needed
- Construction of a double-track alignment beginning at the CMS Station, the west terminus, and ending at Bayview MARC Station, the east terminus
- Construction of tail tracks for light rail vehicles at the CMS Station and Bayview MARC Station beyond the operating limits of the Red Line
- Construction of an OMF for storage of up to 38 light rail vehicles
- Construction of TPSS, OCS, and CIH
- Construction of track crossovers to enable single track operations, as needed

- Construction/modification of aerial structures: I-695, Woodlawn Drive, Ingleside Avenue, Eastern Avenue, NS/CSX/I-895
- Construction of 19 stations (14 surface and 5 underground)
- Construction of ventilation system elements including ventilation buildings, fans, air plenums, and shafts for the underground sections
- Construction of three park-and-ride lots: Security Square, I-70 and Brewers Hill/Canton Crossing Construction of protective measures for adjacent utilities and structures
- Construction of retaining walls for bridges and tunnel portals approaches
- Construction of tunnel segments by tunnel boring machines (TBMs)
- Cut-and-cover or open-cut construction of portal structures, tunnel sections, and underground stations
- Relocation, modification, or protection of utilities in conflict or impacted by excavations for street-level track work, tunnels, bridge, and station construction
- Construction of level boarding station platforms at street-level locations
- Construction of both surface drainage and sub-drainage systems
- Installation of intersection controls including traffic signals, pedestrian signals, flashers, and gates
- Construction of station finishes, such as canopies, shelters, ticket vending equipment, agent booths, station furniture, ramps, escalators, etc.
- Modifications to existing buildings, as required, to protect them from the effects of adjacent construction

The types of equipment that would be used for construction activities include various earth-moving apparatus (excavators, graders, bulldozers, loaders, etc.), cranes, pile drivers, augers, drilling equipment, compaction rollers and tampers, concrete trucks, pumping equipment, generators/compressors, and various types of trucks (flat bed, dumps, trailers, etc.).

To enable construction of the underground segments of the project, several different tunneling construction methods for different portions of the tunnel are being considered, including excavation of the running tunnels by TBMs, cut-and-cover excavation for underground stations and tunnel portals, as well as some drilling and blasting at certain areas. The photo identifies an example of the drilling and blasting process.



Example of drilling and blasting process

The FEIS identifies the location of proposed construction staging areas throughout the project study corridor that may be used for the storage of materials and equipment, and other construction-related activities.

Concurrent with FEIS preparation, the Red Line project is undergoing Preliminary Engineering, and detailed project design and construction information is being developed. Thus, construction methods and activities described in **Chapter 3** of the FEIS are based on conceptual studies, as well as other projects of a similar nature with regard to construction methods and activities. As such, these methods and activities will continue to be refined during Final Design, which will occur after completion of the NEPA process. For example, some of the initial construction methodologies may change as the design develops, particularly since the construction contracts for the project could be issued as Design-Build or Design-Bid-Build, or other delivery methods.

The MTA construction specifications will require that construction contractors comply with applicable environmental regulations and obtain necessary permits for the duration of construction. Construction of the project will follow applicable federal, state, and local laws for building and safety, as well as local noise ordinances, as appropriate.

In an effort to avoid and/or minimize potential adverse effects during construction of the project, a number of environmental commitments and mitigation measures have been identified, which construction contractors will be required to follow. As such, these environmental commitments and mitigation measures will be included as part of the project's construction contracts and/or permit conditions. These environmental commitments and mitigation measures are identified as applicable, within the construction impact discussions of the transportation and environmental resource sections in **Chapters 4** and **5** of the FEIS.

ES.8 Summary of Potential Transportation, Socioeconomic and Environmental Effects

The discussion that follows is a summary of the anticipated long- and short-term effects as a result of construction and operation of the Preferred Alternative. Long-term effects with and without the Preferred Alternative have been assessed for 2035, while short-term effects are those associated with construction activities, which have been assessed for a peak construction year of 2016. Details on anticipated long-term effects of the No-Build Alternative are included in **Chapters 4** and **5** of the FEIS along with a more detailed discussion of effects for the Preferred Alternative. Details on short-term effects of both alternatives are detailed in **Chapters 3, 4** and **5** of this FEIS.

ES.8.1 Transportation (FEIS Chapter 4)

a. Public Transportation (FEIS Section 4.1)

Under the Preferred Alternative, the type and quality of transit service in the project study corridor would be improved by adding a new LRT line. A fixed transitway with dedicated right-of-way would provide faster and more reliable service than current bus service, which runs in mixed traffic. The Preferred Alternative would provide park-and-ride facilities and bus service that would expand the ridership market by providing access to the proposed Preferred

Alternative service. In addition, the Preferred Alternative would introduce a new east-west LRT service in the project study corridor, which would be served by a network of feeder bus routes. Feeder bus services increase ridership on rail systems by providing connections between rail stations and homes, businesses, or other destinations.

The total daily boardings for the Preferred Alternative in 2035 is estimated to be 54,520 at the 19 proposed stations located throughout the project study corridor. Close to 226,000 daily linked trips are estimated by 2035 with the No-build Alternative. With the Preferred Alternative, this estimate would increase by 8 percent, adding an additional 18,410 transit trips. An analysis was done by station of individual boardings and alightings (passengers getting on and off a light rail vehicle, respectively) (**Table ES-2**). This analysis identified the Inner Harbor Station located in the central business district (CBD) area as the station with the highest number of boardings, approximately 13,000 per day.

Other stations with significant activity (boardings greater than 4,000 per day) include: Howard Street/University Center Station, West Baltimore MARC Station, and Brewers Hill/Canton Crossing Station. The high use of these stations is not surprising, as they provide connections to other primary transit routes, as well as access to major employment centers, residential areas, and tourist attractions. The Social Security Administration and the Bayview Campus Station show substantial activity with station boardings greater than 1,800 per day.

Table ES-2: Light Rail Daily Boardings Projections (2035)

Station	Daily Boardings (On)		Daily Boardings (Off)		Total Boarding
	Eastbound	Westbound	Eastbound	Westbound	
CMS Station ¹	1,249	0	0	771	1,010
Security Square Station	2,747	30	30	1,627	2,220
Social Security Administration Station	1,751	26	166	3,212	2,580
I-70 Park-and-Ride Station	2,905	74	34	1,230	2,120
Edmondson Village Station	1,546	174	131	442	1,150
Allendale Station	1,343	99	61	493	1,000
Rosemont Station	3,079	351	297	1,537	2,630
West Baltimore MARC Station	4,480	1,410	763	2,441	4,550
Harlem Park Station	892	270	197	217	790
Poppleton Station	304	284	703	751	1,020
Howard Street/University Center Station	2,745	2,729	5,180	4,203	7,430
Inner Harbor Station	4,879	4,130	9,690	7,165	12,930
Harbor East Station	119	831	2,481	599	2,020
Fell's Point Station	187	1,142	793	298	1,210
Canton Station	164	1,370	1,117	218	1,430
Brewers Hill/Canton Crossing Station	276	5,945	1,906	206	4,170

Table ES-2: Light Rail Daily Boardings Projections (2035)

Station	Daily Boardings (On)		Daily Boardings (Off)		Total Boarding
	Eastbound	Westbound	Eastbound	Westbound	
Highlandtown/Greektown Station	14	3,176	2,106	147	2,720
Bayview Campus Station	0	871	2,519	277	1,830
Bayview MARC Station ¹	0	2,923	504	0	1,710
Total	28,680	25,840	28,680	25,830	54,520

Note: ¹ Station Termini

During construction, local area transit would be affected by lane closures and restrictions within the project study corridor. These disruptions could include: bus stop closures, provision of temporary bus stops, schedule delays, and bus route detours. Affected transit stops would be temporarily relocated to the nearest possible location.

b. Roadways and Traffic (FEIS Section 4.2)

The roadway network assumed for the Preferred Alternative would include the existing roadway and transit network, as well as planned and programmed improvements in the region's adopted and financially constrained Long-Range Plan (*Plan It 2035*), the Baltimore Region Transportation Improvement Program (TIP), and approved developer projects along the project study corridor. The improvements that would directly impact travel demand in the project study corridor are:

- Security Boulevard Extension Existing Terminus to Fairbrook Road
- Uplands Development
- US 40/Edmondson Avenue Bridge expansion over Gwynns Falls/CSX Railroad
- West Baltimore MARC Station Improvements
- Boh-Donnell Connector
- Bayview MARC and Intermodal Station

In addition, the Preferred Alternative would include the following:

- Security Square park-and-ride (375 spaces)
- New I-70 park-and-ride (700 spaces)
- Operations and Maintenance Facility at US 40/Calverton Road (200 employee parking spaces)
- Brewers Hill/Canton Crossing park-and-ride (600 spaces)

Constructing the Preferred Alternative would require permanent changes to a number of roadways along the proposed alignment to allow for the LRT to operate in an exclusive guideway and thereby provide a time advantage to transit vehicles. The Preferred Alternative also includes a re-configuration of the I-70 roadway between I-695 and Security

Boulevard/Cooks Lane. The reconfiguration of I-70 includes three connections. These connections are with Parallel Drive, the proposed I-70 Park-and-Ride Station, and a new re-configured signalized intersection at the end of I-70 with Security Boulevard, Cooks Lane, and Forest Park Avenue. The reconfiguration of I-70 and the new connections would alter the traffic flows that exist today, but all traffic movements would be able to be maintained that exist today.

To construct the Preferred Alternative while minimizing property impacts along the project study corridor, the number of traffic lanes would have to be reduced in certain areas. The roadways that would experience a reduction because of the allocation of exclusive lanes for the Preferred Alternative include: Security Boulevard, I-70, Edmondson Avenue, West Franklin Street, Franklinton Road, US 40 lower level roadway section, and Boston Street.

Alpha Commons Drive would be closed (but this is being done as part of the Johns Hopkins Master Plan for the Johns Hopkins Bayview Medical Center campus), and therefore access to the existing buildings would be from Cassell Drive and Bayview Boulevard.

Besides reducing the number of traffic lanes, street patterns would be modified in a number of other ways, including: regulating new turn restrictions, closing some accesses, and removing or installing new traffic signals at several intersections along the alignment where the LRT crosses high-volume side streets.

Construction of the Preferred Alternative would result in roadway closures, detours, and disruption of traffic during peak and non-peak times. Access to local businesses through existing or temporary driveways would be provided where possible; however, there may be some times when access cannot be maintained.

c. Parking (FEIS Section 4.3)

The implementation of the Preferred Alternative would require the permanent elimination of 741 parking spaces along the project study corridor, and would provide 1,134 new parking spaces at park-and-ride facilities. Approximately 400 vehicles which are currently parking in the eliminated spaces could be accommodated nearby (relocated to the adjacent blocks), leaving 380 spaces that would be permanently displaced by the project, and that could not be accommodated at nearby locations on adjacent streets. The locations where parking loss would be the greatest include:

- Social Security West parking lot adjacent to I-70 (30 parking spaces eliminated)
- Edmondson Avenue from Cooks Lane to Franklinton Road (58 parking spaces eliminated)
- Calverton Road because of Red Line OMF (105 parking spaces eliminated)
- Boston Street from Chester Street to Conkling Street (126 parking spaces eliminated)

On-street parking along Edmondson Avenue, Franklinton Road, Franklin Street, Mulberry Street, Boston Street, and Haven Street, as well as in the proposed station and tunnel portal construction areas within the downtown tunnel corridor would be lost during construction. Off-

street parking spaces would also be affected during construction at various locations throughout the project study corridor.

MTA will work with the contractor to develop a plan to minimize the temporary loss of parking during construction. MTA will coordinate with stakeholders and businesses affected by the loss of loading zones to identify alternate or temporary loading areas during construction.

d. Pedestrian and Bicycle Facilities (FEIS Section 4.4)

It is MTA policy that all future MTA transit systems accommodate bicycles. The Preferred Alternative would provide bicycle access to stations by perpendicular access streets that comprise the bicycle network in the project study corridor. The Preferred Alternative would provide sidewalk widths of 5 to 6 feet where possible. Lighting and landscaping would help create a safe and attractive environment that is bicycle and pedestrian-friendly; enhance visibility between bicyclists and pedestrians and other traffic; and increase access to transit and destinations throughout the region.

e. Freight Railroad Facilities (FEIS Section 4.5)

There would be no long-term permanent effects to freight railroad facilities or services. Activities associated with the construction of the Preferred Alternative will be coordinated with NS, CSX, Amtrak, and Canton Railroad to minimize effects to their facilities and services during construction.

f. Safety (FEIS Section 4.6)

Strategies such as crime prevention through environmental design and the use of police, private security patrols, and security cameras would be employed as appropriate to make the LRT facilities as safe and secure as possible. Design considerations such as platform location and length, pedestrian crossings, and alignment design would be used to ensure that the project operates to the safest extent possible.

The introduction of construction equipment and activities throughout the project study corridor could result in potential safety hazards for pedestrians and motorists. In addition, construction workers operating or working in concert with equipment at various surface and underground construction locations could create increased risk to safety and security.

ES.8.2 Environment (FEIS Chapter 5)

Transportation projects have the potential to cause direct, indirect, or cumulative impacts to natural and human environments. The Preferred Alternative is anticipated to have limited potential adverse effects while having beneficial effects related to increased mobility and improved access along the project study corridor. Findings of the impact analyses are summarized in this section. The intent of this section is to summarize key resource effects, both adverse and beneficial.

a. Land Use (FEIS Section 5.2)

Long-term effects to land use in the project study corridor resulting from the Preferred Alternative would be minimal because the current land use plans and zoning for Baltimore

County and Baltimore City have been developed to anticipate the Red Line project, and to maximize the potential benefits from the project.

Overall short-term effects to land use during construction are expected to be minimal and short in duration, as most parcels in the study area would not be directly affected by construction, except to the extent that there is traffic congestion or lane and sidewalk closures that would affect vehicular or pedestrian access. Pedestrian and vehicular access restrictions to some properties throughout the project study corridor would range from several hours to up to 4 years. Overall, however, while the construction activities may affect access to individual parcels or businesses, these activities are not expected to affect or change land use.

b. Neighborhoods and Community Facilities (FEIS Section 5.3)

The Red Line would not substantially alter neighborhood character within the project study corridor. The Preferred Alternative would provide mobility benefits to neighborhood residents by improving access to transit and destinations within the project study corridor.

The Preferred Alternative will not require any acquisition of real property that would result in an involuntary residential displacement (Md. Laws Chapter 569, 2009). Physical effects to neighborhoods would include business displacements, property acquisitions, changes to the visual environmental and setting of neighborhood areas, loss of parking, and noise and vibration impacts. The new LRT system and accompanying features would be carefully designed to be harmonious, to the maximum extent practicable, with the surrounding environment, where feasible.

The Preferred Alternative is not anticipated to have long-term effects on neighborhood cohesion because the proposed transit service would operate almost entirely on existing roadways and thoroughfares or in a tunnel. The Preferred Alternative would serve as a catalyst for greater pedestrian activity and would provide improved accessibility for pedestrians and bicyclists in many areas.

The implementation of the Preferred Alternative would require both temporary and permanent loss of parking spaces within the project study corridor. On-street parking losses would be greatest along portions of Edmondson Avenue and Boston Street because of the need to widen these roadways to accommodate the proposed alignment.

The Preferred Alternative would not result in the displacement of community facilities such as schools, libraries, places of worship, emergency services, or park and recreation areas. Increased access and reduced congestion resulting from the Preferred Alternative are anticipated to improve emergency response times overall within the project study corridor.

Construction of the Preferred Alternative would result in the temporary intrusion of through traffic into local neighborhoods because of congestion and/or detours, disruption of access by motorized and non-motorized modes to local businesses, and the temporary loss of on-street parking. Local businesses could be affected by temporary changes in vehicular and pedestrian access during construction. Local area transit service could be temporarily diverted or relocated to provide service affected by construction activities.

c. Environmental Justice (FEIS Section 5.4)

The project study corridor for the Preferred Alternative includes all or parts of 55 US Census tracts (47 in Baltimore City and 8 in Baltimore County). Forty-three out of 55 census tracts (78 percent) were identified as minority and/or low-income areas using the 50 percent threshold or the “meaningfully greater” threshold criteria for presence of a minority population, a low-income population or both. These locations were considered environmental justice (EJ) areas for the purposes of the FEIS impact analysis.

The MTA and FTA have concluded that the Preferred Alternative as a whole would not have “disproportionately high and adverse effects” on EJ populations. The Preferred Alternative has the potential to cause adverse effects on EJ populations, while also benefiting EJ populations. Potential adverse effects on EJ populations in the study corridor include:

- Business property acquisitions, including some business relocations
- Partial residential property acquisitions (no residential displacements)
- Parking impacts
- Noise and vibration impacts during construction and operation

While these adverse effects would occur on EJ populations, the EJ populations in the corridor benefit from the project. The Preferred Alternative would provide a much-needed improvement in transit service in Baltimore, creating much faster and more direct transit access from residential neighborhoods in EJ areas to employment and commercial centers in Baltimore City and in Baltimore County. This improvement would benefit low-income and minority areas throughout the project corridor, including transit-dependent residents of those areas. Some of the EJ areas that would be most directly affected, such as neighborhoods along Edmondson Avenue, would be among the principal beneficiaries of the project; the Preferred Alternative would greatly improve access to residences and businesses along Edmondson Avenue, helping to promote economic growth.

d. Property Acquisitions and Displacements (FEIS Section 5.5)

The majority of the property acquisitions would be “sliver takes,” or narrow strips of property located directly adjacent to the proposed project, meaning the majority of the property would remain with the current owner and, in most cases, the acquisition would not affect the use of the property. It is estimated that 192 properties would require either a partial or total right-of-way acquisition, totaling approximately 1,840,801 square feet (42 acres) of property. Of these properties, 169 would require partial property acquisition. The majority of these partial acquisitions would occur within the US 40 segment, where narrow strips of right-of-way acquisition from 97 residential properties would be required.

The remaining 23 properties would require total property acquisition and displacement (13 commercial, three industrial, one institutional, and six governmental). Any property that is not currently vacant and would be acquired in full, or a property where the access is permanently eliminated because of the Preferred Alternative, would be considered a displacement. Ten of the displacements are located within the proposed OMF site. The Preferred Alternative will not

require any acquisition of real property that would result in an involuntary residential displacement (Md. Laws Chapter 569, 2009).

The MTA is working with Baltimore City on a Memorandum of Understanding (MOU) for the Red Line project, which would allow the City to conduct acquisition activities for the Preferred Alternative. At the request of the MTA, the City may acquire property rights needed to widen the public right-of-way to accommodate the project. Prior to construction, the City shall convey rights to MTA for the MTA to own, operate, and maintain the Preferred Alternative within the dedicated public right-of-way.

By removing tax-paying properties from the tax base, and converting them to a non-tax-paying public use, some property tax revenues would be permanently lost. However, these acquisitions would result in a negligible loss of property tax revenue to the State, Baltimore County, and Baltimore City when compared to overall tax revenues as detailed in **Chapter 5** of the FEIS and in the *Property Acquisition and Displacements Technical Memorandum* (refer to **Appendix D** of the FEIS).

Temporary surface easements are necessary for project construction, and access is granted for a certain period of time (typically the time of construction activities). Specific activities requiring temporary surface easements may include grading, building formwork for concrete, structural erection, vehicular/equipment access, worker access, etc. A total of approximately 538,568 square feet (12 acres) of temporary easements would be needed for the Preferred Alternative. The temporary easement requirements would impact 269 properties.

During construction, it would be necessary to limit vehicular and pedestrian access in certain areas to address public safety and to accommodate the variety of machinery, storage areas, and construction activities that would occur. Generally, the method of construction would determine the extent of access limitation that would occur along the various lengths of the alignment. It would be necessary to restrict access to buildings for periods ranging from several hours to up to 4 years. The MTA will coordinate with the occupants concerning the affected locations and relocation options.

For example, at the proposed Fell's Point station, the properties located on the south side of Fleet Street between Bethel Street and Broadway would have prohibited access for approximately 9 to 12 months during station excavation and slurry wall construction. Therefore, the MTA conservatively assumes building occupants would need to relocate temporarily during the construction period. While MTA will coordinate with the occupants concerning temporary relocation options, the building occupants could choose not to return to their former building locations.

In other locations, construction-related activities might need to occur in the basements of certain buildings to minimize potential damage during construction. Though access to the ground and upper floors would generally be provided, access to some basements might be temporarily restricted. In such cases, it is not anticipated that MTA would need to acquire the buildings or permanently displace the residents and businesses from the buildings adjacent to the construction work.

e. Economic Activity (FEIS Section 5.6)

The Preferred Alternative would result in new permanent MTA employment positions in operations and maintenance during and after construction, when open for service. Regionally, the Red Line would provide economic benefits by improving transit access and mobility for the work force and consumers within the corridor. Job opportunities would fall into two categories; new jobs and better access to existing jobs.

The MTA has begun work on an initiative that would lead to future employment and training opportunities for local area residents as well as expanded opportunities for local disadvantaged businesses. The initiative will outline a policy and identify potential programs to "put Baltimore to work on the Red Line" as summarized in the *Baltimore City Red Line Community Compact* (see right). The *Compact* is available on the project website. The MTA anticipates having a policy and program in place before construction contracts are advertised (*Economic Activity Technical Memorandum, 2012*).



Red Line Community Compact

In the long-term, better access to existing jobs within the project study corridor would occur. Major employers such as the CMS, Social Security Administration and companies located downtown and at Harbor East would benefit from higher quality transit access and service. Residents who live within the project study corridor not only would have better access to jobs within the project study corridor but to jobs that can be reached via new connections to MARC, Central Light Rail, and Metro. Implementation of the Preferred Alternative would provide access to employment to a greater number of people, and would potentially allow employers to draw upon a larger worker pool within the region.

The *Economic and Job Impacts of the Construction of the Red Line Mass Transit System on Baltimore City* (Baltimore City study) was completed in November 2009 on behalf of Baltimore City. The report concluded that the construction of the Red Line would generate substantial economic benefits to Baltimore City and the portion of Baltimore County within the study corridor. The following is a summary of anticipated Red Line construction effects to local employment and economy:

- The construction of the Red Line would create or support approximately 9,800 direct construction and related jobs earning \$539.7 million in salaries and wages over the construction period
- Including multiplier effects, the construction of the Red Line would create or support approximately 15,000 jobs earning \$775.2 million in salaries and wages over the construction period

- The initial 3-year design and planning phase of the Red Line project would generate \$273.4 million in economic activity in Baltimore City and create or support approximately 2,050 jobs earning \$102.7 million in salaries and wages
- The construction phase of Red Line project would generate \$1.8 billion in economic activity and create or support approximately 12,950 jobs earning \$672.5 million in salaries and wages

Operation and maintenance of the Preferred Alternative could create an additional 200 MTA jobs. The construction phase of the Red Line would likely create job opportunities specifically for residents of in the project study corridor.

In the short-term, disruptions to businesses adjacent to the construction site may occur. Temporary effects from construction to adjacent businesses would include:

- Alterations to property access
- Loss of parking, especially short-term street parking
- Airborne dust
- Noise and vibrations from construction equipment and vehicles

f. Visual and Aesthetic Resources (FEIS Section 5.7)

The introduction of an LRT system into the project study corridor would introduce new visual features that have been assessed in detail in the FEIS. An example of a new visual feature would be the tunnel portal proposed on Boston Street, as shown in **Figure ES-4**. Effects on visual and aesthetic resources were based on the amount of change the introduction of light rail transit components and operation would have on existing visual conditions, and rated as low, medium, or high. Of 16 visual districts or sub-districts identified throughout the project study corridor, the Preferred Alternative would have an overall visual effect of "high" on one sub-district, and an overall visual effect of "medium to high" on five sub-districts. It should be noted that while a component that contrasts substantially from the existing context may be characterized as having a high visual effect, the effect may be considered positive or negative by the community.

Introduction of construction equipment, trucks, fencing, or walls surrounding proposed construction staging and laydown areas, as well as fugitive dust, would create a temporary aesthetic/visual effect to neighborhoods surrounding or adjacent to where these activities would occur.

Figure ES-4: Rendering of Tunnel Portal on Boston Street

g. Parks, Recreation Land and Open Space (FEIS Section 5.8)

Eleven parks, recreation lands, or open space areas are located within or adjacent to the Preferred Alternative. Long-term and short-term effects to park, recreation and open space areas are limited and include:

- Chadwick Elementary School – Of the 13.4-acre parcel, 0.7 acre of the property would be required for construction of and access to a proposed TPSS;
- Uplands Park – Of the 33.6-acre property, a temporary easement of 0.1 acre would be required to accommodate two eastbound lanes of traffic on the south side of Edmondson Avenue during construction, as well as a temporary sidewalk to maintain pedestrian access during construction.
- Edmondson-Westside High School – Of the 26.0-acre property, approximately 150 square feet of school property near the Edmondson Avenue and Athol Avenue intersection would be purchased in fee simple to accommodate intersection improvements and stormwater management. A temporary easement of 0.1 acre along Edmondson Avenue would be required for grading, and erosion and sediment control measures.
- Boston Street Pier Park – Of the 0.8-acre property, a fee-simple area of less than 0.1 acre would be required from this park to accommodate stormwater management for the Preferred Alternative. A temporary easement of less than 0.1 acre would be required for grading, sidewalk reconstruction and erosion and sediment control along Boston Street.

- St. Casimir's Park – Of the 1.4-acre property, a fee-simple area of less than 0.1 acre would be required to accommodate stormwater management for the project. A temporary easement of less than 0.1 acre would be required for curb and sidewalk reconstruction and mill and overlay work on Boston Street.
- Canton Waterfront Park – A temporary easement of 0.1 acre would be required from the 1.4-acre park property for curb and sidewalk reconstruction and erosion and sediment control facilities along Boston Street.
- Canton Park/Du Burns Arena – A temporary easement of less than 0.1 acre would be needed from the 2.5-acre property for sidewalk repairs and modifications.

Each affected park, recreation land, and open space identified above would experience temporary impacts because of nearby construction activities.

h. Built Historic Properties (FEIS Section 5.9)

Seventy-eight historic properties were identified within the Red Line project's Area of Potential Effect (APE). One historic property, the Franklinton Road over Dead Run Bridge (SHA #B0096), is located within Baltimore County. Other historic properties are located in Baltimore City. Two of the National Register (NR)-listed properties, Davidge Hall and the Star-Spangled Banner Flag House, are National Historic Landmarks (NHL). In accordance with Section 106, the Preferred Alternative would have:

- *no effect* on 45 individual historic properties;
- *no adverse effect* on 28 individual historic properties; and
- an *adverse effect* on five individual historic properties, located in Baltimore City: Poppleton Fire Station (Engine House No. 38) – see photo, Business and Government Historic District, South Central Avenue Historic District, Fell's Point Historic District, and Public School No. 25 (Captain Henry Fleete School).



Poppleton Fire Station (Engine House No. 38)

Therefore, an overall finding of adverse effect on historic properties has been proposed for the Preferred Alternative. The historic properties that have proposed adverse effects by the Preferred Alternative are located within Baltimore City. The proposed findings have been submitted to the Maryland Historic Trust (MHT) and consulting parties for their review.

Short-term noise, vibration, visual, and traffic effects would occur during construction. Historic buildings located adjacent to construction activities may be monitored to avoid unanticipated adverse effects. Special attention would be paid to potential effects for historic properties that may require underpinning.

A consulting party meeting was held on September 25, 2012 to share project information and listed/eligible historic properties within the APE identified. A second meeting was held on

October 17, 2012 to provide an overview of potential effects, and to discuss potential avoidance, minimization, and mitigation measures. Additional consulting party meetings are being planned to continue discussions on the effects, potential avoidance, minimization and mitigation measures, and the Programmatic Agreement.

In a letter dated November 6, 2012, the FTA notified the Advisory Council on Historic Preservation (ACHP) of the proposed finding of adverse effect on historic properties. The FTA asked the ACHP to review information attached to the letter, to determine if the agency wishes to join the consultation process.

FTA has identified and contacted nine federally-recognized Native American tribes in October 2012, including the Absentee-Shawnee Tribe of Oklahoma, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe, Oneida Indian Nation, Onondaga Nation, Saint Regis Mohawk Tribe, Shawnee Tribe, and Tuscarora Nation. In addition, FTA has identified and contacted state-recognized tribes with cultural ties to the project area, including the Piscataway Indian Nation, Inc., Piscataway Conoy Confederacy and Subtribes, Inc., and the Cedarville Band of Piscataway Indians.

Additional tasks are required to complete the Section 106 process. Comments on the proposed effects determinations in the *Section 106 Assessment of Effects for Built Historic Properties* from MHT, consulting parties, and the public will be incorporated into a final *Section 106 Assessment of Effects for Built Historic Properties*. Additional consulting parties meetings will be held in December and January, as appropriate, to discuss comments on the effects determinations and finalize the Programmatic Agreement (refer to FEIS **Appendix H** for the Draft Programmatic Agreement). Following formal concurrence on the effects determination and Programmatic Agreement, the Programmatic Agreement will be circulated for signatures. The executed Programmatic Agreement will be completed prior to the Record of Decision (ROD).

i. Archeological Resources (FEIS Section 5.10)

The archeological analysis completed to date has identified 22 areas of sensitivity within six archeological study zones in the limit of disturbance of the Preferred Alternative with the potential to contain archeological resources.

The proposed archeological field effort will be undertaken in two stages:

- Stage 1 - which is currently underway, includes testing of permeable, accessible surface alignment segments within areas of archeological sensitivity in the limit of disturbance. Field surveys include hand-excavated shovel test pits. It is anticipated that this effort, including archival research, shovel test pits, and geomorphological investigations, would be completed prior to the issuance of the ROD based on access to properties.
- Stage 2 - would be undertaken after the issuance of the ROD. It is anticipated that this effort would include Phase IB identification survey of below-ground alignment section, potential Phase II archeological evaluation studies of archeological sites identified within Stage 1, and Phase III archeological data recovery efforts for National Register-eligible sites that cannot be avoided by the effects of the Preferred Alternative. The draft

Section 106 Programmatic Agreement outlines these work efforts (refer to FEIS Appendix H).

Potential archeological resources that would be affected by the Preferred Alternative would be documented prior to construction. Once the Preferred Alternative is constructed and operational, it is anticipated that no further effects to archeological resources would occur.

j. Air Quality (FEIS Section 5.11)

Impacts to air quality from Environmental Protection Agency (EPA)-designated criteria pollutants were assessed for compliance with EPA Transportation Conformity Rule (40 CFR 93), consistent with the National Ambient Air Quality Standards (NAAQS). No long-term air quality impacts would result from the Preferred Alternative. The Preferred Alternative is predicted to decrease regional pollutant burdens by approximately 1.5 to 1.9 percent. No violations of the NAAQS are predicted, and the project is not considered a project of air quality concern regarding fine particulate matter (PM_{2.5}) emissions. This has been confirmed through the interagency consultation process finalized in November 2012. Mobile source air toxic emissions will likely be lower than present levels in the design year as result of EPA's national control programs. Therefore, this project will comply with the conformity requirements established by the Clean Air Act.

Air pollutant emissions from the Preferred Alternative construction would occur as a result of earth excavation and grading, handling and transport of excavated materials, debris, operation of diesel construction equipment and trucks. These impacts would be mitigated with diesel emission and dust, and soil erosion/sediment control plans.

k. Energy (FEIS Section 5.12)

The direct energy use in terms of passenger miles, total daily direct energy would decrease under the Preferred Alternative by 1.7 percent, as compared to the No-Build Alternative. The greater decrease in energy use, when comparing in terms of passenger miles, is because of the fact that the LRT would carry more passengers than a typical roadway vehicle.

l. Noise and Vibration (FEIS Section 5.13)

Corridor-wide project noise exposure levels along the Preferred Alternative are predicted to exceed the FTA *moderate* impact criteria at 96 residences and the FTA *severe* impact criteria at one residence (The Shipyard condominium building at the corner of Boston Street and Lakewood Avenue). These impacts are because of LRT pass-bys, warning bells and switches. For areas identified with moderate or severe impacts for noise during LRT operations, MTA will identify mitigation measures where practicable and reasonable during Final Design.

Corridor-wide vibration levels are predicted to exceed the FTA *frequent* criterion of 72 velocity level in decibels (VdB) at 45 residences. Many of these effects are because of the proximity of residences to proposed switches. Ground-borne noise levels are predicted to exceed the FTA *frequent* criterion of 35 A-weighted decibels (dBA) at 49 residences. Project vibration levels are not predicted to exceed the FTA frequent impact criteria at non-residential land-uses except the proposed University of Maryland Proton Building. For areas identified with the potential for

vibration impacts during LRT operations, MTA will identify mitigation measures that are both feasible and reasonable during Final Design.

Noise and vibration effects are expected during construction of the Red Line at residences and other sensitive receptors along the Preferred Alternative. Construction activities are predicted to exceed both the Maryland Department of the Environment (MDE) daytime and nighttime noise limits. MTA will provide noise and vibration control measures during construction whenever feasible and reasonable in accordance with applicable local and MDE noise ordinances.

m. Ecological Resources (FEIS Section 5.14)

This section summarizes the long- and short-term effects, avoidance and minimization measures, and mitigation to ecological resources, including terrestrial habitat, terrestrial wildlife, aquatic habitat and species, and endangered and threatened species.

Effects to terrestrial habitat would be generally synonymous to forest and hedgerow impacts. The Preferred Alternative alignment has been designed to minimize the effect on the higher value terrestrial habitat that forested areas provide. Unavoidable effects to forest would be mitigated in accordance with state requirements as described below for Forests, which is further described **Section 5.15** of the FEIS.

Long-term effects to wildlife resources are unlikely because the Preferred Alternative would follow existing roadway alignments, and wildlife corridors, such as along Gwynns Falls, would remain intact. Construction may temporarily displace species such as birds and mammals (which would likely move to existing adjacent habitat), but they typically quickly relocate back to their former habitat post-construction. Forest interior dwelling species (FIDS) habitat would be affected by minor encroachment since only slight widening of existing roadways would be necessary to accommodate the Preferred Alternative. Mitigation would not be required since long-term effects would be avoided.

Effects to aquatic habitats and species are related to the permanent or temporary loss of approximately 1,941 linear feet of aquatic stream habitat within the project study corridor, largely as a result of proposed culvert extensions. Extension of culverts could lead to direct loss of fish and macroinvertebrates within the construction zone and would permanently alter the available habitat. However, the species expected to be affected are acclimated to disturbed settings and would likely recolonize to temporarily disturbed areas, though the communities are unlikely to be identical to those present prior to construction.

During operation, the Preferred Alternative would have the potential to increase water quality degradation from stormwater runoff because greater impervious surfaces created by the Preferred Alternative could affect water quality. However, overall net increases in impervious surfaces are expected to be minimal, amounting to an approximately 7-acre increase in impervious area for the approximately 340 total acres of the Preferred Alternative. Because the affected watersheds have already exceeded impervious thresholds for aquatic degradation, the small incremental impervious effects that could be expected from the Preferred Alternative are

unlikely to affect overall aquatic habitat or the makeup of biological communities to an appreciable degree.

Long- and short-term effects to rare, threatened, or endangered species would not be anticipated since rare, threatened, or endangered species are not known to occur within the project study corridor. Short-term effects may occur to species of interest during construction including peregrine falcon and certain fishes. Further consultation with Maryland Department of Natural Resources (DNR) would be required as design proceeds to provide for their review of project details and the need for any mitigation.

n. Forests (FEIS Section 5.15)

The Preferred Alternative would result in 34.8 acres of *forest* effect and the removal of 39 specimen trees. The majority of the long-term forest effects would occur within the West and Cooks Lane Tunnel segments (28.5 acres) in the western reaches of the project study corridor, where most of the resources exist (see photo below). Short-term forest/hedgerow effects would be limited since temporary staging and stockpile areas during construction would be sited primarily in non-forested areas, or within forests to be permanently affected. Staging and stockpiling areas located within forests would be replanted whenever possible following construction.



Typical forest stand within project study corridor

Mitigation for forest impacts would be required to meet state regulations. The final forest conservation obligation for the project will be negotiated between MTA and DNR, during Final Design.

o. Street Trees/Individual Trees (FEIS Section 5.16)

The Preferred Alternative would affect 315 street trees within Baltimore County and 948 in Baltimore City. Long-term street/individual tree effects would result from permanent design elements. Because tree removal would require mitigation, regardless of long-term or short-term effect, all tree effects have been quantified. Short-term effects would result from removal and replacement of trees to accommodate maintenance of traffic during construction, underground utility relocations, erosion and sediment control devices, and staging and stockpiling areas.

Baltimore City requires mitigation for removal of trees located on parkland or City property including street trees and specimen trees. Trees planted in Baltimore City to meet the tree replacement requirement would be applied to the project-wide forest planting obligation. The *Park Master Plans for Baltimore City* may assist in the identification of potential planting sites



Street tree inventory

within City limits. In addition, coordination with DNR and City Planning and Division of Forestry staff would help to identify street tree planting locations within road right-of-way in the immediate vicinity of the affected areas, parks, schools and other City property. Mitigation for individual trees on private property would be provided where possible, as negotiated by MTA and the property owner. Private property

tree effects in Baltimore City total 411 and Baltimore County total 182. The 133 trees affected within roadway right-of-way in Baltimore County would be mitigated to meet state requirements as described in **Section 5.15** of the FEIS. Photo (above) depicts street tree inventory being conducted within the project study corridor.

p. Chesapeake Bay Critical Area (FEIS Section 5.17)

Long-term effects to the Chesapeake Bay Critical Area would occur in the Downtown Tunnel and East segments. Conversion of 1.28 acres of unpaved area to impervious surfaces would occur in the East segment from the construction of the Canton Station and expansion of roadway to accommodate the track in the current median of Boston Street (including within the 100-foot buffer at Harris Creek). The impervious area within the Critical Area would increase from 56 percent cover (existing conditions) to approximately 61 percent cover under the Preferred Alternative. Long-term vegetation effects would occur to landscaping plants, street trees, and park trees within the Critical Area in both the Downtown Tunnel and East segments. The Downtown Tunnel segment tree effects would total 149. The East segment tree effects would total 232, with nine additional trees affected within the 100-foot buffer.

Short-term effects related to increase in impervious area would occur in the Downtown Tunnel and East segments from temporary construction activities such as staging areas, stockpiling and erosion/sediment controls. Short-term effects within these segments would include street tree effects within the Critical Area during maintenance of traffic and for stockpile areas used temporarily during construction. Effects resulting from short-term construction activities require the same mitigation, and therefore have been quantified together with long-term effects.

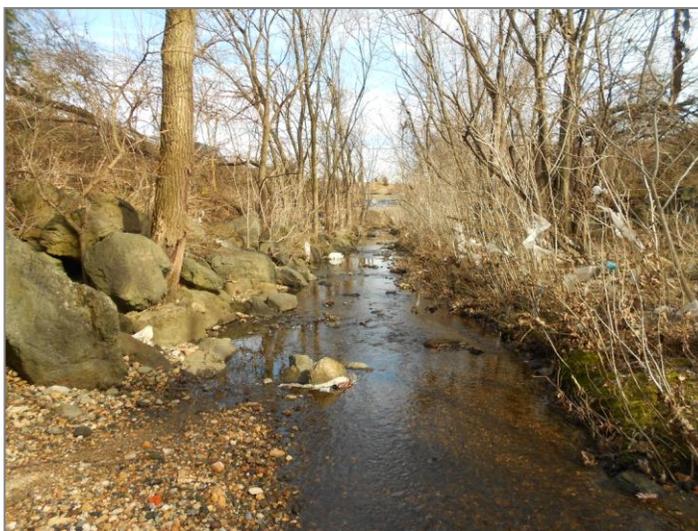
The Project would adhere to the “10 Percent Rule,” to meet required pollutant load reductions through installation of approved stormwater management facilities and implementation of best management practices. Because of the highly developed nature of the project study corridor and very limited available space within the right-of-way, stormwater management is anticipated primarily through linear micro-bioretenion planter boxes. The micro-bioretenion planter box facilities provide landscaped areas to temporarily store and filter impervious runoff through the planting media prior to introduction to the closed pipe storm drain network. The

micro-bioretenion planter boxes are proposed within the existing public right-of-way, and are generally located between the back of sidewalk and right-of-way line.

Street tree replacement required by Baltimore City would fulfill the replacement required by Critical Area, and buffer effects (near Harris Creek Bridge crossing) would have to be mitigated with tree planting within the buffer as coordinated through DNR and Baltimore City during Final Design. Trees affected at staging areas that are not designated for permanent facilities would be replaced on-site to mitigate for short-term construction effects at those locations.

q. Wetlands and Waters of the United States (FEIS Section 5.18)

Effects to waters of the US, including wetlands would only occur within the West segment, Cooks Lane Tunnel segment and East segment. Photo below shows one waters of the US system in the West segment. The majority of the waterway effects would occur where existing roads would be reconfigured or expanded to accommodate the Preferred Alternative, particularly in the West segment where these roads would cross or closely parallel Dead Run and its tributary drainages. There are no effects to tidal waterways, as the only tidal resource crossed by the project study corridor is the Jones Falls, and this would be crossed by the Downtown Tunnel segment, well below the stream bottom.



Waters of the US in West segment

Total effects to wetlands and waterways from all project segments amount to 0.23 acre of palustrine forested wetlands, 0.99 acre palustrine emergent wetlands, 1,941 linear feet of perennial and intermittent streams, and 324 linear feet of ephemeral channel. Based on these impacts, the project would require an Individual Permit from the US Army Corps of Engineers (USACE) and an Individual Non-tidal Wetlands and Waterways Permit from the MDE.

Mitigation measures employed to compensate for unavoidable project effects to waters of the US, including wetlands, will follow applicable federal and state regulations and guidelines, as well as other recommendations from federal and state resource agencies.

A *Phase I Conceptual Mitigation Plan* (October 2012) has been prepared to fulfill the mitigation requirements. As the preliminary step, research and coordination was performed to determine the potential to contribute to an established wetland mitigation bank or in lieu program in accordance with the Mitigation Rule hierarchy. Based on coordination with EPA, USACE, Baltimore County Department of Environmental Protection and Sustainability (BCDEPS), Baltimore City Department of Public Works (BCDPW), and other mitigation banking organizations, it has been determined that there are no active mitigation banks located within

or near the targeted watersheds for this project, and that a fee in lieu program for mitigation is not the preferred mitigation approach for this project.

After completion of desktop site identification and ranking and on-site field investigations, the most viable sites were presented to agency representatives (see photo below). The potential mitigation sites presented in the *Phase I Conceptual Mitigation Plan* total 19.91 acres of



Compensatory mitigation field review

potential wetland mitigation and 22,560 linear feet of potential stream mitigation. The *Phase I Conceptual Mitigation Plan* has been completed as part of the FEIS phase of the Red Line project. In a letter dated November 1, 2012, the USACE acknowledged their review of the *Phase I Conceptual Mitigation Plan*, and determined that it is acceptable for inclusion in and evaluation of this FEIS (**Appendix G**). Furthermore, the USACE acknowledged that the *Phase I Conceptual Mitigation Plan* documents acceptable sites and opportunities to adequately mitigate for anticipated Preferred Alternative

impacts to waters of the US, including jurisdictional wetlands. FTA anticipates that the USACE intends to use this FEIS for fulfilling their NEPA requirements related to permit issuance. Coordination with MDE will continue until concurrence on proposed mitigation is obtained.

The *Phase II Final Mitigation Plan* will be initiated following the ROD, and is required to be complete prior to issuance of the federal wetlands and waterways permit.

r. Surface Waters: Water Quality, Scenic and Wild Rivers, Floodplains and Navigable Waterways (FEIS Section 5.19)

Long-term water quality effects associated with the operation of the Preferred Alternative after construction are mainly based on the potential for contamination of surface waters by run-off from new impervious surfaces. The Preferred Alternative would result in approximately:

- 300 acres of transit alignment;
- 95.7 acres of undisturbed or maintained impervious area (e.g., roadway re-striping, mill and overlay, undisturbed impervious, etc.);
- 60.1 acres of reconstructed impervious area (e.g., full depth roadway replacement, or existing impervious area replaced with different proposed land use such as sidewalk to roadway, or roadway to transitway track bed);
- 23.1 acres of impervious area removal; and
- 30.5 acres of new impervious area, resulting in a net increase of 7.4 acres of impervious area throughout the project study corridor.

The current design results in a net impervious increase of approximately 7 acres over the entire length of the project. Increased site imperviousness associated with the Preferred Alternative could result in increased site runoff volumes and downstream peak discharge rates.

Although the potential for effects to Total Maximum Daily Load (TMDL) management are minimal, potential effects would be addressed through the MDE stormwater and sediment and erosion control permitting process as required under Maryland's Sediment and Erosion Control (COMAR 26.17.01) and Stormwater Management regulations (COMAR 26.17.02). Stormwater management would be implemented to manage runoff for project disturbances in accordance with criteria established by the MDE.

Based on current MDE Stormwater Management (SWM) Guidelines, an estimated 63 acres of impervious surface would need to be treated to meet stormwater management requirements. Stormwater management would be required to intercept, filter, and attenuate runoff from project disturbances through a combination of linear bioretention and underground quantity management. Water quality treatment must be provided through environmental site design (ESD) practices to provide temporary storage and filtration of the contaminants from surface runoff. Increases to peak discharge rates associated with high frequency storm events would be managed through implementation of ESD features to the maximum extent practicable to mimic pre-development hydrology.

There are no designated scenic and wild rivers within the Red Line project study corridor; therefore, no long- or short-term effects would occur.

Table ES-3 shows the acres of combined long- and short-term floodplain effects for each segment of the Preferred Alternative. Analysis of potential project related changes to hydraulic function and elevation of the 100-year floodplain would be determined using hydraulic and hydrologic floodplain modeling as part of the engineering process for each structure in later phases of design. In general, the majority of the floodplain encroachments would be from traverse crossings of floodplains.

Table ES-3: Summary of Short- and Long-Term Floodplain Effects

Project Segment	Non-tidal 100-Year Floodplain (Acres)	Tidal 100-Year Floodplain (Acres)
West Segment	0.7	–
Downtown Tunnel Segment	–	0.8
East Segment	–	0.2
Total	0.7	1.0

Construction occurring within the FEMA designated 100-year floodplain must comply with FEMA approved local floodplain construction requirements. If, after compliance with the requirements of Executive Order 11988 and US DOT Order 5650.2, new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures would be applied to new construction or rehabilitation. To achieve flood protection, wherever practicable, structures should be elevated above the base flood level rather than filling for culvert placement.

No short- or long-term effects to navigable waters are anticipated from the Preferred Alternative. The Jones Falls, the only designated navigable waterway within the project study corridor, is not anticipated to be affected. While no effects to the Jones Falls are anticipated because of the tunnel, the Red Line project would require authorization under Section 10 of the Rivers and Harbors Act, which states that authorization is required for activities “in, upon, over, and/or under navigable waters of the US.” The Downtown Tunnel segment passes beneath this navigable water and is therefore subject to USACE (and potentially US Coast Guard, USCG) navigable waters permitting requirements. MTA will coordinate with USACE and USCG to receive the appropriate approvals.

s. Groundwater (FEIS Section 5.20)

Where aboveground, the Preferred Alternative would primarily occupy existing paved surfaces and other existing transportation rights-of-way. Long-term effects to groundwater resources are anticipated in these highly urbanized areas as runoff would be directed to surface waters through stormwater management or treated as it is being infiltrated into the local groundwater through ESD stormwater facilities.

No mitigation would be required for groundwater; however, construction of both the Cooks Lane and Downtown Tunnel segments may require some level of pumping of groundwater discharge during the tunnel boring activities. A general permit granted by MDE would be obtained prior to disposal into the city sewer system.

t. Soils and Geology (FEIS Section 5.21)

Soil and rock affected by the Preferred Alternative would be excavated and disturbed during construction. Once the Preferred Alternative is operational, no further potential long-term effects to the underlying soils and rock would be anticipated as a result of either Preferred Alignment tunnel or surface alignment design elements. No long-term changes would be expected to geologic structures or faults, to rock or soil stability, to seismicity, or to the rock and soil units surrounding the excavation and underlying and supporting the surface structures.

u. Hazardous Materials (FEIS Section 5.22)

Given the historic and current land uses in the project study corridor, the information obtained during the records review, and the observations made during the site inspections, there is a potential for the presence of hazardous materials to be encountered along the Preferred Alternative. Construction workers would be more likely than the general public or local residents to have complete exposure to soil and groundwater contaminants. Construction contractors will be required to develop and implement a site-specific health and safety plan (HASp) that would address the anticipated contamination including: equipment and procedures to protect the workers and general public, monitoring of contaminant exposures, and identifying the contractor’s chain of command for health and safety.

v. Utilities (FEIS Section 5.23)

All utility-related effects would be addressed in advance of, or in conjunction with, the proposed Preferred Alternative construction. Therefore, there is no required long-term mitigation associated with the anticipated utility effects resulting from the proposed Red Line construction activities. As is typical for utility infrastructure, there would be ongoing system

preservation efforts which include periodic maintenance and construction that would affect distribution and service. However, these efforts are independent of the proposed construction and operation of the Red Line project. The replacement or relocation of some of the aging utilities to current engineering standards should help reduce the probability and frequency of failures and other problems in providing service.

w. Indirect and Cumulative (FEIS Section 5.24)

Indirect effects focus on planned development or land use changes that can only occur if the Preferred Alternative is constructed and if the project changes the rate of development. Coordination with Baltimore City and Baltimore County planning agencies has determined that there are no development projects dependent on the construction of the Red Line project. Cumulative effects include impacts on environmental resources which would result from incremental effects of the Preferred Alternative when added with other past, present, and reasonably foreseeable future actions. Typically, cumulative effects would result from public or private development that may or may not be associated with the Red Line.

As part of the indirect and cumulative effects analysis, direct effects of the Preferred Alternative were evaluated. Potential indirect and cumulative effects were assessed within the overall indirect and cumulative effects analysis boundary by either the subwatershed area in which they are located or by the station area they are located closest to.

Potential indirect negative effects resulting from the project have been and would continue to be minimized through the alignment design and station area planning process, which will continue to include public outreach to residents and communities surrounding station locations.

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, requires that Environmental Impact Statements include the consideration and discussion of possible mitigation for project impacts. Measures that would be appropriate to offset most indirect and cumulative effects will be beyond the control and funding capability of the MTA and FTA. The pace and extent of future development within the indirect and cumulative effects analysis boundary will be influenced and controlled by the state, county and city land use plans and policies. MTA will encourage state and local planning agencies that can influence development patterns and promote the benefits of controls that incorporate environmental protection into all planned development.

Possible mitigation strategies for indirect and cumulative effects could be considered by the responsible parties, including state and local planning agencies. These strategies may include low-impact development measures, land use management through planning regulations and zoning, and public education on the benefits of environmental conservation and smart growth.

Possible mitigation measures include specific zoning recommendations to minimize effects on notable features and area neighborhoods, and discourage development within adjacent neighborhoods located outside of the station areas or other areas where development is slated to occur.

Specific environmental commitments and mitigation measures for direct effects from the Preferred Alternative are identified in **Chapter 5**, when applicable and summarized in **Section 5.27**.

ES.8.3 Short-Term Effects/Long-Term Benefits (FEIS Section 5.25)

NEPA requires that environmental analyses include identification of “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” The FEIS compares the short-term uses of the environment (effects of the Preferred Alternatives) with the long-term benefits of the Preferred Alternative. Short-term refers to the period of construction – the time when the largest number of temporary environmental effects is most likely to occur. Long-term refers to the period following the completion of construction activities.

The No-Build Alternative would not involve project-related construction; therefore, short- and long-term project-related effects from the No-Build Alternative would not be anticipated.

Construction activities associated with the Preferred Alternative would have short-term effects by disrupting traffic flow, travel routes, and parking in the project study corridor. However, the inconveniences to residents, motorists, and transit patrons would be offset by the improved transit system once construction is completed. Short-term uses of human, physical, socio-economic, or cultural and natural resources would contribute to the long-term benefits of improved access to employment centers, improvements in both transit accessibility and availability in the project study corridor, and improved air quality in the region. The long-term benefits of implementing transit supportive land use policies and supporting economic development opportunities would be realized.

ES.9 Draft Section 4(f) Evaluation

A Draft Section 4(f) Evaluation included within **Chapter 6** of this FEIS has been prepared pursuant to federal regulations contained in 23 CFR 774 that implements 49 U.S.C. 303, which were originally enacted as Section 4(f) of the United States Department of Transportation Act of 1966 and are still commonly referred to as “Section 4(f).”

Based upon the Preliminary Engineering undertaken for the Red Line project, it is anticipated that the Preferred Alternative would result in:

- The temporary occupancy of three parklands and one historic property during construction;
- De minimis impacts to 2 parklands and 9 historic properties; and
- The permanent use of two contributing properties within the Business and Government Historic District under the proposed Inner Harbor Station Preferred Alternative, requiring both avoidance and least overall harm analyses.

The Draft Section 4(f) Evaluation provides notification of FTA’s intent to pursue de minimis impact findings for park and recreation properties and historic sites that would be affected by the construction and operation of the Preferred Alternative. The proposed de minimis findings are based on preliminary coordination with the officials with jurisdiction. Final de minimis

impact determinations would be made following continued coordination with the officials with jurisdiction over the resource(s). Pursuant to 23 CFR 774.5(b)(2), all potential de minimis impacts are being presented for public review and comment with the FEIS, in conjunction with the requirements of NEPA. The 45-day comment period for the FEIS also applies to comments on the proposed de minimis impact findings.

The proposed Inner Harbor Station has the potential to result in a permanent, non-de minimis use of land within the Business and Government Historic District, as a result of the demolition of two historic resources that would be required for the construction of the station ancillary building (see photo below).

In accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, the undertaking would result in an “adverse effect” to the Business and Government Historic District, so a finding of de minimis impact cannot be made. Therefore, an avoidance alternative evaluation and least overall harm analysis for the properties was conducted and is included the Draft Section 4(f) Evaluation (**FEIS Chapter 6**). A final analysis and conclusion would be included in the Final Section 4(f) Evaluation, based on the views of the official with jurisdiction, Section 106 consulting parties, and comments on the Draft Section 4(f) Evaluation. The Final Section 4(f) Evaluation will be completed and included as part of the ROD.



Proposed Section 4(f) permanent use of two contributing properties within the Business and Government Historic District

ES.10 Summary of Preferred Alternative Long-Term Effects

Table ES-4 below summarizes the long-term effects to resources that would result from the Preferred Alternative. Specific commitments and mitigation measures for the effects from the Preferred Alternative are identified in **Chapters 4 and 5**, when applicable and summarized in **Sections 4.7 and 5.27** of the FEIS.

Table ES-4: Summary of Preferred Alternative Long-Term Effects

Summary of Preferred Alternative Long-Term Effects	
Land Use	
	<ul style="list-style-type: none"> Minimal because the current land use plans and zoning for Baltimore County and Baltimore City have been developed to anticipate the Red Line project, and to maximize the potential benefits from the project.

Table ES-4: Summary of Preferred Alternative Long-Term Effects

Summary of Preferred Alternative Long-Term Effects
<i>Neighborhoods and Community Facilities</i>
<ul style="list-style-type: none"> • No displacement of community facilities such as schools, libraries, places of worship, emergency services, or park and recreation areas. • Neighborhood cohesion effects are not anticipated because the proposed transit service would operate almost entirely on existing roadways and thoroughfares. • Greater pedestrian activity and would provide improved accessibility for pedestrians and bicyclists.
<i>Parking</i>
<ul style="list-style-type: none"> • Permanent elimination of 741 parking spaces, and would provide 1,134 new parking spaces at park-and-ride facilities. • 380 spaces that would be permanently displaced by the project and that could not be accommodated nearby.
<i>Environmental Justice</i>
<ul style="list-style-type: none"> • No disproportionately high and adverse impact on environmental justice (EJ) populations.
<i>Property Acquisitions and Displacements</i>
<ul style="list-style-type: none"> • No acquisition of real property that would result in an involuntary residential displacement • An estimated 192 properties would require either a partial (169 of 192) or total (23 of 192) right-of-way acquisition totaling approximately 42 acres. The majority of the partial acquisitions are within the US 40 segment, where sliver takes from 97 residential properties would be required. • The 23 total takes include 13 commercial, three industrial, one institutional, and six governmental properties, primarily at the OMF.
<i>Economic Activity</i>
<ul style="list-style-type: none"> • Regional economic benefits by improving transit access and mobility for the work force and consumers within the project study corridor. • Better access to existing jobs. • Creation of approximately 200 permanent MTA jobs.
<i>Visual and Aesthetic Resources</i>
<ul style="list-style-type: none"> • New visual features introduced; of 16 visual districts or sub-districts identified throughout the project study corridor, an overall visual effect of "high" on one sub-district, and an overall visual effect of "medium to high" on five sub-districts

Table ES-4: Summary of Preferred Alternative Long-Term Effects

Summary of Preferred Alternative Long-Term Effects
<i>Parks, Recreation and Open Space</i>
<ul style="list-style-type: none"> • Long-term effects to park, recreation and open space areas are limited and include: <ul style="list-style-type: none"> ○ Chadwick Elementary School – 0.7 acre of the property would be required for construction of and access to a proposed TPSS; ○ Edmondson-Westside High School – approximately 150 square feet of school property near the Edmondson Avenue and Athol Avenue intersection would be purchased in fee simple to accommodate intersection improvements and stormwater management; ○ Boston Street Pier Park – a fee-simple area of less than 0.1 acre would be required from this park to accommodate stormwater management; ○ St. Casimir’s Park – a fee-simple area of less than 0.1 acre would be required to accommodate stormwater management.
<i>Historic Properties</i>
<ul style="list-style-type: none"> • Proposed effects findings include: <ul style="list-style-type: none"> ○ no effect on 45 individual historic properties; ○ no adverse effect on 28 individual historic properties; and ○ an adverse effect on five individual historic properties, located in Baltimore City: Poppleton Fire Station (Engine House No. 38), Business and Government Historic District, South Central Avenue Historic District, Fell’s Point Historic District, and Public School No. 25 (Captain Henry Fleete School). • An overall finding of adverse effect on historic properties has been proposed.
<i>Archeological Resources</i>
<ul style="list-style-type: none"> • The archeological analysis completed to date has identified 22 areas of sensitivity. Potential archeological resources that would be affected would be documented prior to construction and once operational, no further effects to archeological resources are anticipated.
<i>Air Quality</i>
<ul style="list-style-type: none"> • Predicted to decrease regional pollutant burdens by approximately 1.5 to 1.9 percent. • No violations of the NAAQS are predicted • Not considered a project of air quality concern regarding PM_{2.5} emissions.
<i>Noise and Vibration</i>
<ul style="list-style-type: none"> • Corridor-wide project noise exposure levels are predicted to exceed the FTA moderate impact criteria at 96 residences and the FTA severe impact criteria at one residence (The Shipyard condominium building at the corner of Boston Street and Lakewood Avenue). • Vibration levels are predicted to exceed the FTA frequent criterion of 72 VdB at 45 residences. Ground-borne noise levels are predicted to exceed the FTA frequent criterion of 35 dBA at 49 residences. • Vibration levels are not predicted to exceed the FTA frequent impact criteria at non-residential land-uses (Category 1 or 3) except the proposed University of Maryland Proton Building.

Table ES-4: Summary of Preferred Alternative Long-Term Effects

Summary of Preferred Alternative Long-Term Effects
<i>Ecological Resources (terrestrial habitat, terrestrial wildlife, aquatic habitat/species, and rare, threatened and endangered species)</i>
<ul style="list-style-type: none"> • Impacts to 34.8 acres of forests with minimal effects to higher value terrestrial habitat. • Long-term effects to terrestrial wildlife resources are unlikely because on existing roadway alignments, and wildlife corridors, such as along Gwynns Falls, would remain intact. • FIDS habitat would be affected by minor encroachment since only slight widening of existing roadways would be necessary. • Permanent or temporary loss of approximately 1,941 linear feet of aquatic stream habitat, largely as a result of proposed culvert extensions. • Greater impervious surfaces could affect water quality. However, overall net increases in impervious surfaces are expected to be minimal, amounting to an approximately 7-acre increase in impervious area. Incremental impervious effects that could be expected are unlikely to affect overall aquatic habitat or the makeup of biological communities to an appreciable degree. • Long-term effects to rare, threatened, and endangered species would not be anticipated since none are known to occur within the project study corridor.
<i>Forests</i>
<ul style="list-style-type: none"> • Impacts to 34.8 acres of forest and removal of 39 specimen trees. • The majority of the long-term forest effects would occur within the West and Cooks Lane Tunnel segments (28.5 acres) in the western reaches of the project study corridor, where most of the resources exist.
<i>Street Trees/ Individual Trees</i>
<ul style="list-style-type: none"> • Impacts to 315 street trees within Baltimore County and 948 in Baltimore City.
<i>Chesapeake Bay Critical Area</i>
<ul style="list-style-type: none"> • Conversion of 1.28 acres of unpaved area to impervious surfaces would occur in the East segment from the construction of the Canton Station and expansion of roadway to accommodate the track in the current median of Boston Street (including within the 100-foot buffer at Harris Creek). • The impervious area within the Critical Area would increase from 56 percent cover (existing conditions) to approximately 61 percent cover. • Long-term vegetation effects would occur to landscaping plants, street trees, and park trees within the Critical Area in both the Downtown Tunnel and East segments. The Downtown Tunnel segment tree effects would total 149. The East segment tree effects would total 232, with nine additional trees affected within the 100-foot buffer.

Table ES-4: Summary of Preferred Alternative Long-Term Effects

Summary of Preferred Alternative Long-Term Effects
<i>Wetlands and Waters of the United States</i>
<ul style="list-style-type: none"> • Total effects to wetlands and waterways: <ul style="list-style-type: none"> ○ 0.23 acre of palustrine forested wetlands ○ 0.99 acre palustrine emergent wetlands ○ 1,941 linear feet of perennial and intermittent streams ○ 324 linear feet of ephemeral channel. • MTA intends to apply for a Section 404 Individual Permit from the USACE and an Individual Non-tidal Wetlands and Waterways Permit from the MDE.
<i>Surface Waters: Water Quality, Scenic and Wild Rivers, Floodplains and Navigable Waterways</i>
<ul style="list-style-type: none"> • Net impervious increase of approximately 7 acres. • No designated scenic and wild rivers within the project study corridor; therefore, no long- or short-term effects would occur. • 0.7 acre of nontidal and 1.0 acre of tidal floodplain effects (combined long- and short-term). In general, the majority of the floodplain encroachments would be from traverse crossings of floodplains. • No long- or short-term effects to navigable waters are anticipated. While no effects to the Jones Falls are anticipated because of the tunnel, would require authorization under Section 10 of the Rivers and Harbors Act. The Downtown Tunnel segment passes beneath this navigable water and is therefore subject to USACE (and potentially USCG) navigable waters permitting requirements.
<i>Groundwater</i>
<ul style="list-style-type: none"> • Runoff would be directed to surface waters through stormwater management or treated as it is being infiltrated into the local groundwater through ESD stormwater facilities.
<i>Soils and Geology</i>
<ul style="list-style-type: none"> • Once operational, no long-term effects to the underlying soils and rock would be anticipated.
<i>Hazardous Materials</i>
<ul style="list-style-type: none"> • There is a potential for the presence of hazardous materials to be encountered
<i>Utilities</i>
<ul style="list-style-type: none"> • Utility-related effects would be addressed in advance of, or in conjunction with construction.
<i>Draft Section 4(f) Evaluation</i>
<ul style="list-style-type: none"> • The temporary occupancy of three parklands and one historic property during construction; • De minimis impacts to two parklands and nine historic properties; and • The permanent use of two contributing properties within the Business and Government Historic District under the proposed Inner Harbor Station.

ES.11 Next Steps

This FEIS has been signed by the MTA and FTA and distributed to federal, state, and local agencies, as well as organizations and other interested parties (refer to the Distribution List in **Appendix C** for a complete list of recipients). There will be a 45-day review period for the FEIS; the comment deadline is posted on the project website (www.baltimoredline.com). During this 45-day review period, the FEIS is available in local libraries throughout the project study corridor and on the project website. Following the 45-day review period, the FTA will consider the comments received on the FEIS and will prepare a ROD. The ROD will summarize the comments received during the 45-day review period and responses to those comments, alternatives considered, factors that support the selection of the recommended alternative, and commitments and mitigations measures to be carried forth during Final Design and construction.