

Executive Summary

Administrative Action

- (X) Environmental Assessment
- (X) Alternatives Analysis
- () Draft Environmental Impact Statement
- () Section 4(f) Evaluation

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Description of Action/Purpose and Need

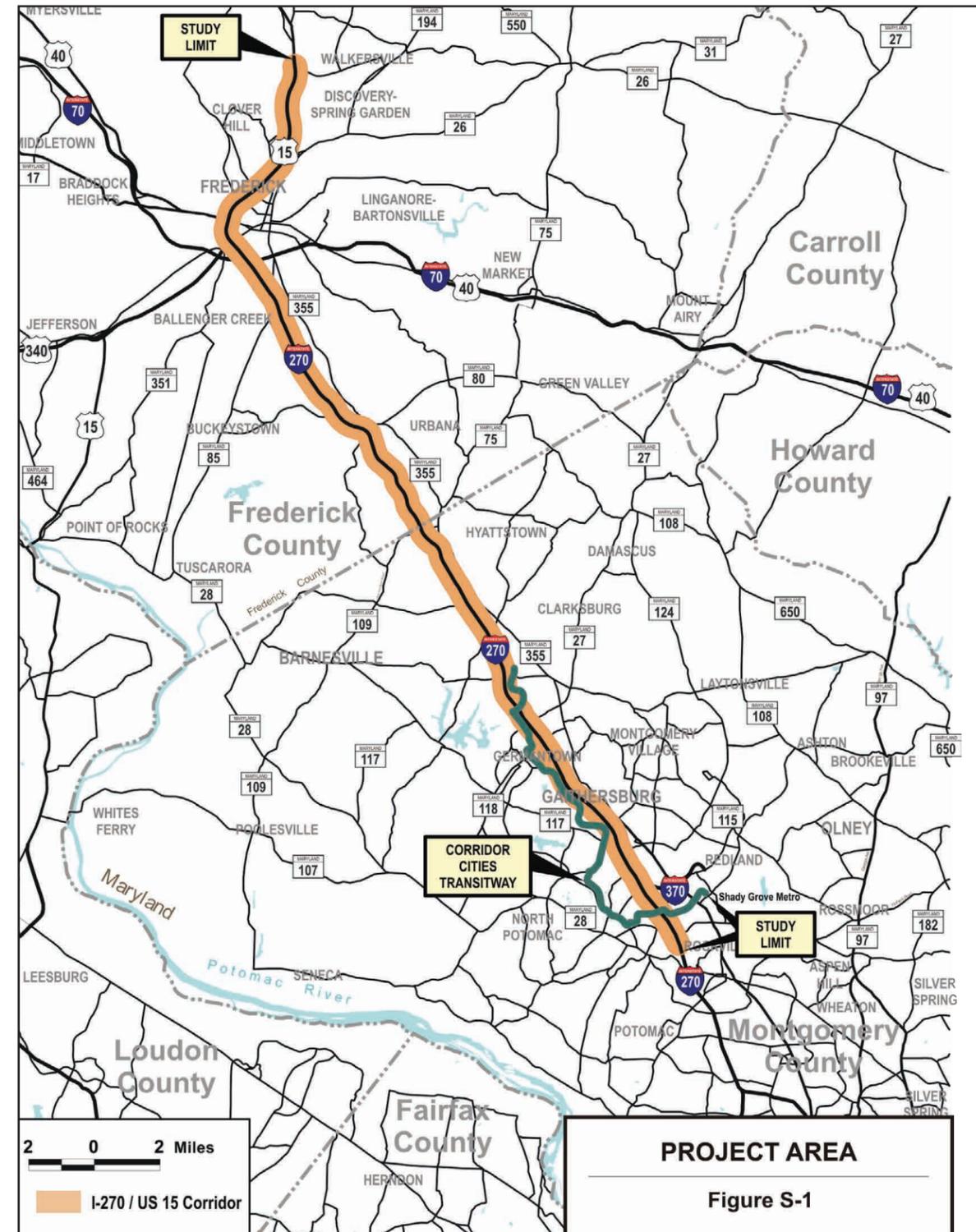
Description of the Action

The Maryland State Highway Administration (SHA) and Maryland Transit Administration (MTA) are developing a multimodal transportation project along the I-270/US 15 Corridor in Montgomery and Frederick Counties, Maryland. The project study area extends from I-270 at Shady Grove Road in Montgomery County to the US 15/Biggs Ford Road intersection in Frederick County. The project includes the development of transportation systems management (TSM)/transit demand management (TDM) strategies, enhancing the highway corridor with additional capacity in the form of general purpose and managed lanes, and constructing a new transit corridor for either light rail transit (LRT) or bus rapid transit (BRT). The project study area is shown in **Figure S-1**.

Initially, the study presented alternatives in a Draft Environmental Impact Statement (DEIS) that was published in June 2002. This document is intended to serve as a companion to the 2002 DEIS, and presents two new highway project alternatives that were developed since the 2002 DEIS was published for public review and comment.

This Alternatives Analysis/Environmental Assessment (AA/EA) document serves two purposes. As an EA, the document supplements the environmental evaluation presented in the 2002 DEIS. This EA provides an environmental evaluation, as required by the National Environmental Policy Act (NEPA) of two new highway build alternatives that propose Express Toll LanesSM (ETLsSM) along with two transit alternatives that will provide LRT or BRT on the Corridor Cities Transitway (CCT). The EA provides the information that will allow a comparison of the DEIS alternatives and the new ETL alternatives to guide decision makers in the selection of a Locally Preferred Alternative and, finally, a Selected Alternative for construction.

Figure S-1: Project Area





As an AA, this document provides a key part of the Federal Transit Administration (FTA) process for advancing transit projects that are seeking federal New Starts funding. This AA evaluates the performance of two build transit alternatives, LRT and BRT, and a TSM alternative that supplements the proposed highway alternatives. The AA will guide local decision-makers in selecting a preferred transit mode and alignment that best meets the transportation needs of the corridor, and ensures that the project is technically and financially feasible.

Additional information about the document purpose is included in the Introduction. The Purpose and Need and Goals and Objectives are detailed in **Chapter I**.

Project Purpose

The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to address congestion, improve mobility options and improve safety conditions along the I-270/US 15 Corridor.

The I-270/US 15 Corridor is a vital component of the surface transportation system in the Metropolitan Washington region and includes portions of I-270 and US 15 in Montgomery and Frederick counties. The I-270/US 15 Corridor provides an essential connection between the Washington, DC metropolitan area and both central and western Maryland and is an important corridor for carrying local and long distance trips, both individual and commercial.

Project Need

The need for the project results from the mobility challenges presented by the growing traffic congestion in the I-270/US 15 Corridor. The I-270/US 15 Corridor is currently served by a variety of transportation modes (including interstate highway, high-occupancy vehicle lanes, commuter rail, and bus service) and intermodal opportunities (including park and ride lots and Metrorail). However, even with the variety of modal options available, the corridor is highly congested at many locations within the project area. There are no efficient, high-speed alternative routes to carry north/south vehicle traffic. The area surrounding the corridor is served by local bus routes. Buses operate in mixed traffic with frequently congested conditions that can

create unreliable service and slow travel times. Metrorail service ends at the southern end of the study area at Shady Grove. Parking serving Metrorail commuters is at capacity at the Shady Grove Metrorail station.

MARC trains intersect the corridor and have several stops in the I-270/US 15 study area, including stops in Frederick, Monocacy, Washington Grove, and Gaithersburg, and more directly in the CCT corridor at Germantown and Metropolitan Grove. MARC provides direct access to the Metrorail Red Line at Rockville and Silver Spring stations. However, the MARC service overall is not conveniently located to serve trips from the highly developed and populated areas of southeastern Frederick County and northern Montgomery County. More about the MARC system is discussed in Chapter 1 in the section entitled *Current Transit Services*.

Congestion in the corridor is expected to increase. Average daily traffic volumes on I-270 and US 15 are projected to increase by between 12 and 76 percent along various segments of the corridor by the year 2030. The greatest increase is predicted on the roadway segment of I-270 between MD 80 and MD 85 (76 percent), and the lowest increase (12 percent) is predicted on US 15 between Opossumtown Pike and MD 26. The demand for transit service, especially rail transit, in the area is strong. Growth in demand for transit trips within the study area in Montgomery County in the Gaithersburg/Derwood and Germantown/Clarksburg transit market districts, is anticipated to have a 99 to 110 percent increase by 2030 respectively. This represents a larger growth rate than the expected growth in population (26 percent). The Frederick County market district is anticipated to have over 450 percent growth in demand for transit trips. There is also a strong need for reverse commuter transit options to service the projected employment growth along the corridor, especially through the Montgomery County “Technology Corridor.”

Major factors affecting travel through the project area are continuing population and employment growth in Montgomery and Frederick Counties. Montgomery County’s population grew by approximately 16 percent from 1990 to 2000, and is forecast to increase by almost 26 percent by 2030, surpassing one million persons. Frederick County’s population grew by approximately

30 percent between 1990 and 2000, and is forecast to increase by 67 percent by 2030, to almost 325,000 persons. Employment is projected to increase by more than 40 percent in Montgomery County and by more than 70 percent in Frederick County by 2030. A pipeline of development projects in Montgomery and Frederick Counties includes residential, mixed-use, office, retail and light industrial projects that are planned, approved, and/or under construction.

Even in the current tumultuous economic environment, developers and Montgomery County continue to stand by the projects within this pipeline and the analysis assumes their development as planned. Nevertheless, we recognize that there is a degree of uncertainty with regard to the future of the development, particularly in light of the current credit market and similar factors that might delay or even prevent some projects going forward.

Transportation improvements, including roadway widening projects, new interchanges where crossroads intersect with I-270 or US 15, new transit centers, and roadway extensions are underway or in the planning stage. None are anticipated to fully provide the solution to the increased congestion that continued development will cause. In 2000, the US Census indicated that nearly 22 percent of workers in Montgomery County, an estimated 99,700 commuters, work within Washington DC. Annual ridership on the Shady Grove Metrorail is over 7.5 million and almost two million on the MARC Brunswick Line. Bus service, including MTA’s Route 991 Commuter Bus, WMATA’s MetroBus (Routes J7, J9 and Q2), and Montgomery County’s Ride On Bus, serve over 31.5 million passengers annually. Transit trips are projected to increase 72 percent by 2030.

Project Goals

Five goals have been identified that are used to evaluate the proposed transportation strategies.

Support Orderly Economic Growth – Support the orderly economic development of the I-270/US 15 Corridor consistent with the local government land use plans and Maryland’s Economic Growth, Resource Protection and Planning Act.

Enhance Mobility – Provide enhanced traveler mobility throughout the I-270/US 15 Corridor by

optimizing travel choices by destination, mode and route; minimizing delay; and improving the safety and overall efficiency of the transportation system.

Improve Goods Movement – Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

Preserve and Protect the Environment – Deliver transportation services in a manner that preserves, protects and enhances the quality of life and the social, cultural and natural environment in the I-270/US 15 Corridor.

Optimize Public Investment – Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

Alternatives Considered

Alternatives Considered in the 2002 DEIS

The alternatives considered in the 2002 DEIS included a No-Build Alternative, a TSM/TDM Alternative, and Build Alternatives that each consisted of a TSM/TDM component, a highway component, and a transit component. Refer to the DEIS, Chapter II for further details of each alternative. The DEIS is provided on the DVD included with this document.

- The No-Build Alternative represents existing conditions, with only routine maintenance and spot improvements. The No-Build Alternative, as well as all of the other alternatives, includes programmed improvements that are listed in the Metropolitan Washington Council of Government (MWCOG) Constrained Long Range Plan (CLRP), except the I-270/US 15 Multi-Modal Corridor improvements. The No-Build Alternative provides a basis to compare each of the build alternatives.
- Alternative 2: TSM/TDM includes a number of relatively low-cost strategies, which are meant to improve the overall operation of the existing transportation system without adding capacity. TSM measures include increased local bus service, enhanced feeder bus service to existing fixed guideway transit, the addition of intelligent transportation

HIGHWAY BUILD ALTERNATIVES

The highway build alternatives considered are numbered 3, 4, 5, 6 and 7. Each highway alternative is paired with either the light rail (LRT) transit option (A), the bus rapid transit option (B), or the Premium Bus option (C). Alternatives are thus identified as 3A, 3B, 4A, 4B, 5A, 5B, 5C, 6A, 6B, 7A and 7B. When the highway component is the same for more than one transit option, the alternatives are referred to as 3A/B, 4A/B, 5A/B/C, 6A/B and 7A/B.

systems (ITS) to improve traffic flow and incident management on I-270, and interactive transit information made available at major employment centers. TDM measures include adding park and ride lots, rideshare programs, vanpool, pedestrian and bicycle programs, and telecommuting and flexible work hours programs. The TSM/TDM alternative also includes programmed improvements.

- Alternatives 3A/B consist of a TSM/TDM component; a highway component with general purpose (GP), high-occupancy vehicle (HOV), and collector-distributor (CD) lanes, proposed interchanges, and improvements to existing interchanges; and a transit component with either LRT (3A) or BRT (3B) on the CCT from the Shady Grove Metrorail station to the Communications Satellite, Inc. (COMSAT) area in Clarksburg.
- Alternatives 4A/B consist of a TSM/TDM component; a highway component with GP, HOV, and CD lanes; proposed interchanges and improvements to existing interchanges; and either LRT (4A) or BRT (4B) on the CCT. Alternatives 4A/B are the same as Alternatives 3A/B except between MD 121 and I-70, where the HOV lanes of Alternatives 3A/B would be replaced by general purpose lanes.
- Alternatives 5A/B/C consist of a TSM/TDM component; a highway component with GP, HOV, and CD lanes; proposed interchanges, improvements

to existing interchanges; and either LRT (5A) or BRT (5B) on the CCT alignment or Premium Bus on the HOV Lanes (5C). This alternative includes one additional GP lane (beyond those proposed in Alternatives 3A/B and 4A/B) in each direction along I-270 between MD 121 and the Montgomery/Frederick county line.

Alternatives Considered in the AA/EA

The alternatives considered in this AA/EA include the No-Build Alternative and two build alternatives: Alternative 6A/B and Alternative 7A/B. Alternatives considered in the AA include: Alternative 6.1: No-Build Transit; Alternative 6.2: Transit TSM; and Alternatives 6A/B and 7A/B. Refer to **Chapter II** for more detailed information.

Alternatives 6A/B and 7A/B each consist of a TSM/TDM component; a highway component with general purpose lanes and ETLs; proposed interchanges and improvements to existing interchanges; and a transit component (LRT or BRT on the CCT alignment). Alternatives 6A/B and 7A/B have an identical physical footprint with different numbers of ETL and general purpose lanes in the section of roadway between the proposed Newcut Road interchange and I-70.

The alternatives under consideration in this AA/EA are as follows:

Alternative 1: No-Build Alternative

The No-Build Alternative, updated to 2008, provides a basis to compare the build alternatives and represents existing conditions, with only routine maintenance and programmed improvements listed in the MWCOG CLRP. The existing I-270 corridor is a multi-lane, access-controlled highway with GP lanes, HOV lanes, auxiliary lanes and CD lanes. The existing US 15 roadway corridor is a multi-lane, partially access-controlled roadway with GP lanes. The existing transit component includes local and express buses on existing roadways; Metrorail train service from Washington, DC to the Shady Grove Metrorail Station; and MARC train service from Washington, DC to West Virginia on the CSX Metropolitan Line through the southern portion of the project study area that serves the Potomac River

valley with regional stops in Rockville, Gaithersburg, Germantown and Frederick.

Alternatives 6A/B and 7A/B – Highway Component

The highway component of Alternatives 6A/B and 7A/B would provide general purpose lanes, auxiliary lanes, ETLs, additional interchanges and improvements to existing interchanges. The two alternatives are designed on an identical physical footprint throughout their length.

ETLs are generally new capacity tolled highway lanes which can be combined with general purpose highway lanes, providing motorists a choice for a relatively congestion-free trip when travel time is critical. In Maryland, the primary purpose of ETLs is to provide new capacity to existing highways and to provide a toll revenue stream to help advance the construction of key highway improvement projects. ETLs provide everyone the opportunity of paying a fee to drive in separate, relatively free-flowing lanes on a given trip or remaining in the general purpose lanes. Toll rates would vary based on demand, either by time of day or actual traffic conditions, and would be collected electronically at full highway speeds. ETLs would be barrier-separated from general purpose lanes and occupy the median-side lanes in both directions. Access would be gained via either open access areas between the general purpose lanes and ETLs or direct access ramps at select interchanges.

The highway component of Alternatives 6A/B and 7A/B would have the following configuration:

- Both Alternatives 6A/B and 7A/B would have four GP lanes and two ETLs in each direction between Shady Grove Road and MD 124.
- Both Alternatives 6A/B and 7A/B would have three GP lanes and two ETLs in each direction between MD 124 and proposed Newcut Road.
- Alternative 6A/B would have three GP lanes and one ETL in each direction between proposed Newcut Road and MD 121, and Alternative 7A/B would have three GP lanes and two ETLs in this section.
- Alternative 6A/B would have two GP lanes and one ETL in each direction between MD 121 and north of MD 80, and Alternative 7A/B would have two

GP lanes and two ETLs in each direction in this section. The ETLs will terminate north of MD 80 in the vicinity of Park Mills Road.

- Alternative 6A/B would have three GP lanes in each direction from north of MD 80 in the vicinity of Park Mills Road to I-70, and Alternative 7A/B would have four GP lanes in each direction in this section.
- Both Alternatives 6A/B and 7A/B would have three GP lanes in each direction from I-70 north to Biggs Ford Road.

Alternatives 6A/B and 7A/B – Transit Component

The transit component of Alternatives 6A/B and 7A/B would provide a fixed guideway service on the proposed CCT alignment from the Shady Grove Metrorail Station to the COMSAT area in Montgomery County. Service would be provided by light rail or by bus on the guideway. Twelve new stations are proposed to be located at residential, mixed-use, and employment centers along the route. Four additional station locations have been identified as future facilities (beyond 2030) to be built as needed. A new Operations and Maintenance (O&M) facility would be constructed to service transit vehicles.

The transit component includes new feeder bus routes, new premium bus routes, park and ride facilities, and interactive transit information. A shared use hiker-biker trail adjacent to the transitway is also included.

The proposed CCT alignment is included as a component of Montgomery County’s master planning documents, and the proposed alignment of the hiker-biker trail is described in the *Montgomery County Countywide Bikeways Functional Master Plan* (2005).

Alternative 6.1: No-Build Transit

The No-Build Transit Alternative is identical to the highway component of Alternative 6A/B but without the transit component. The No-Build Transit Alternative includes the existing transit services and programmed improvements listed in the CLRP. This alternative is included to support the transit Alternatives Analysis.

Alternative 6.2 Transit TSM

The Transit TSM Alternative provides a baseline for the FTA cost effectiveness evaluation, an important component of the transit Alternatives Analysis. The Transit TSM Alternative is designed to provide comparable quality and levels of transit service at lower cost than Alternatives 6A/B, without major investment in a transit fixed guideway and using the same assumptions for the highway network as Alternatives 6A/B. The purpose of this alternative is to enable an effective comparison of different levels of investment in high quality transit between the Alternative 6.2: Transit TSM, Alternative 6A and Alternative 6B. Alternative 6.2 includes the operation of high-quality transit service to a comparable level as the CCT, but without construction of the exclusive transitway. Additionally, the Transit TSM alternative includes new premium bus routes from Frederick that will operate on I-270 managed lanes using direct access ramps with service to the corridor park and ride lots, major activity centers, and transit stations. Alternative 6.2 also includes enhanced feeder bus routes to Metrorail and MARC stations and programmed improvements listed in the MWCOG CLRP.

Summary of Transportation/ Mobility Impacts

The transportation characteristics and impacts of implementing the transit component of the I-270/ US 15 Multi-Modal Corridor project include effects on geographic coverage, hours of service, reliability of service, ride quality, trunkline and feeder service, frequency of service, transit travel times, estimated ridership (the number of transit trips taken), and traffic impacts. These are described in detail in **Chapter III**. Both the LRT (A) and BRT (B) alternatives are projected to improve service in the corridor with more frequent, faster service; improved reliability and ride quality; and better station amenities and information dissemination.

Geographic coverage and hours of service will generally mimic existing coverage and service times. By using a dedicated guideway, transit service is expected to be faster and more reliable than could be provided on existing, crowded roadways in mixed traffic. New stations would be equipped to provide real-time transit information as

EXPRESS TOLL LANES

The new highway build alternatives presented in this AA/EA document propose the use of a type of managed lane called Express Toll Lanes (ETLs). ETLs are new capacity tolled highway lanes that operate in conjunction with toll-free lanes that will provide a relatively congestion-free trip when travel time is critical. The ETLs will use variable rate tolling to manage the amount of traffic, and thus the level of congestion, within the lanes. Alternatives 6A/B and 7A/B include the construction of new ETL lanes along the median of existing I-270.

The long-term vision of the Maryland Department of Transportation’s Managed Lane Network Initiative is to:

- Provide a new type of optional transportation service with reliable, relatively free-flowing travel for time-sensitive trips,
- Create infrastructure for regional express bus service on the busiest commuting routes,
- Provide increased roadway capacity in the most severely congested transportation corridors,
- Provide a sustainable solution and long-term congestion relief, and
- Make congestion relief projects affordable decades sooner than traditional approaches would allow.

The I-270 ETLs are part of a broader managed lane network planned in Maryland and northern Virginia. Roadways included in the managed lane network in Montgomery County in Maryland include the Intercounty Connector (ICC), I-270, and the Capital Beltway. In northern Virginia, the managed lane network includes the Capital Beltway, I-95, I-395, and the Dulles Toll Road.

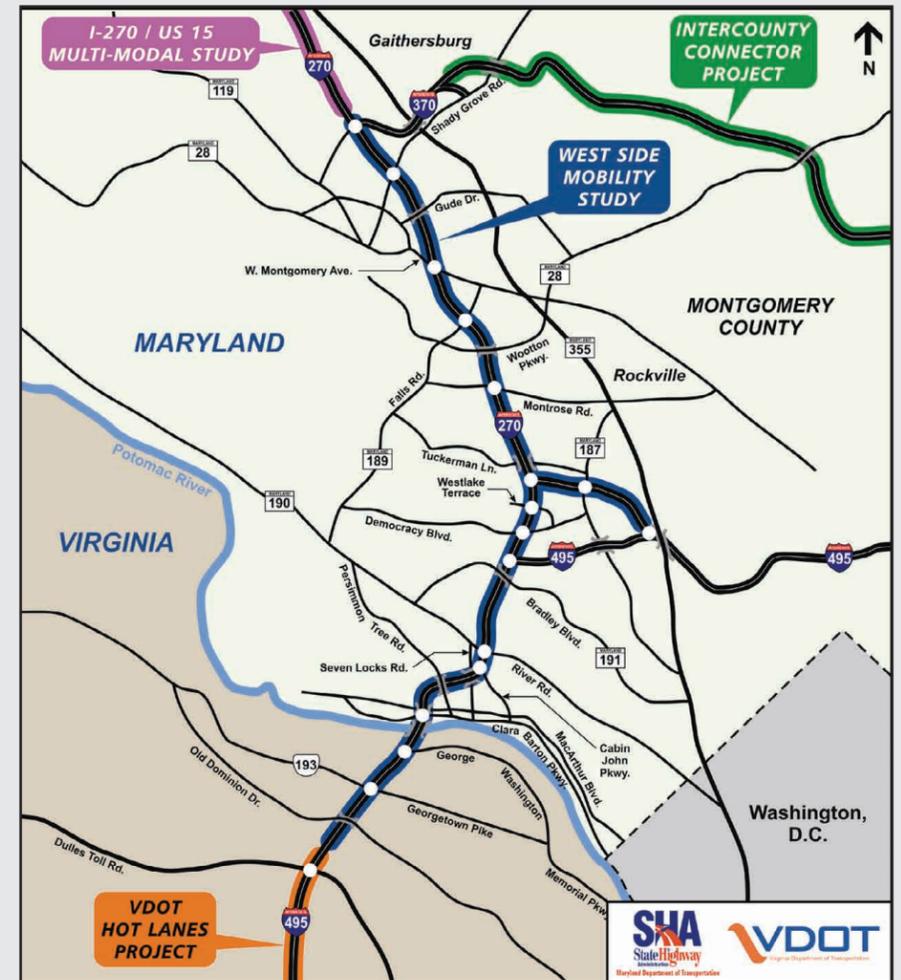
ETLs differ from the High Occupancy/Toll, or HOT, lanes that are being considered on I-95 and the Capital Beltway in Northern Virginia. On HOT lanes, a solo driver pays a fee to access High Occupancy Vehicle (HOV) lanes normally reserved for transit buses and carpools. HOVs generally are allowed to use HOT lanes free of charge or at a discounted rate. The HOT lane approach is not under consideration for the I-270 Corridor at this time primarily because of limitations on the ability to enforce lane restrictions and occupancy requirements.

The ETLs proposed in Alternatives 6A/B and 7A/B of the I-270/US 15 Multi-Modal Corridor study will be placed in the median of I-270, and will be barrier-separated from the toll-free general-purpose lanes. Access to the ETL is gained via direct access ramps at selected interchanges or through open access areas along I-270 that operate similar to the ramps between the “local” and “express” lanes on I-270 today.

The ICC is a fully-tolled roadway that connects to I-270 at the I-370 interchange. Alternative 6A/B and 7A/B provide a direct connection between the ICC and the segment of I-270 north of I-370 via a single ETL. The ETL is on the median side of the roadway and begins approximately one mile east of I-270. There is also approximately one mile between the ICC terminus and the ETL terminus on I-370.

The Virginia HOT Lane project extends from the I-95/I-395 interchange to Virginia Route 193. Vanpools, carpools, and motorcycles will utilize the lanes for free, while other vehicles could access the lanes by paying a toll. Tolls will be collected at highway speeds, and two HOT lanes are proposed in each direction in the median of I-95. Once the HOT Lane project is complete, the two HOT lanes will reduce to a single lane that will tie in with the HOV lane currently in place on I-270 in Maryland. A “non-enforcement” zone is proposed to allow single-passenger vehicles to merge out of the HOV lane and into the general-purpose lanes.

The West Side Mobility Study is a feasibility study that is being undertaken by SHA to introduce managed lanes between the northern limit of the Virginia HOT Lane project, the southern limit of the I-270/US 15 Multi-Modal Corridor study, and the ICC. The



feasibility study recommends adding two managed lanes in each direction from Virginia Route 193 to I-370. The pricing on the Virginia HOT lane system may be different than the Maryland managed lane system. The same “non-enforcement” zone will need to be in place to allow those who want to leave the HOT lanes to enter the general purpose lanes. It is anticipated that the West Side Mobility Study will develop into a NEPA planning study in the future. When complete, the project will connect the Virginia managed lane network to the northern portion of the Maryland managed lane network.



Table S-1: Transportation Impacts on Level of Service in 2030

	ALTERNATIVE 1: NO-BUILD	ALTERNATIVE 6A/B	ALTERNATIVE 7A/B
Total Miles of Roadway Lanes	64	64	64
Number of Miles with LOS F (peak direction)	43	31	17
Total Roadway Segments Analyzed	42	48	48
Number of Segments with LOS F	23	14	7

well as commuter amenities. Existing transit schedules may be adjusted to provide better connections to the new stations. New transit vehicles (light rail cars or articulated buses) would provide a comfortable ride. The BRT Alternative would also allow some connecting feeder bus routes to be continuous by using the guideway between stations.

Travel time between destinations is projected to be reduced by almost 40 percent (from a projected 57.6 minutes via highway versus 23.7 minutes via the CCT) from Shady Grove to COMSAT, and comparable savings would be realized for shorter trips. Ridership on the CCT is projected to average 28,000 riders daily and attract over 7,000 new transit riders. User benefit hours, a measure of the time saved by all transit passengers, are projected to average 5,800 hours daily.

The transportation characteristics and impacts of implementing the I-270/US 15 highway component with ETLs include the resulting forecasted Level of Service (LOS) improvements for the general purpose lanes on both roadways and the reduced number of LOS F peak direction roadway miles (*Table S-1*). Both Alternatives 6A/B and 7A/B highway improvements are projected to improve highway operating conditions for I-270 and US 15 over the future No-Build condition.

Following the AA/EA Alternatives public meeting, the traffic growth in the corridor for all 2002 DEIS and 2009 AA/EA alternatives will be re-examined for their traffic performance characteristics.

Summary of Environmental Impacts and Permits Required

The construction of a build alternative in the I-270/US 15 Corridor will cause impacts to the environment. Both Alternative 6A/B and Alternative 7A/B have the same physical footprint, as an equal width of pavement will be provided for both highway alternatives between MD 121 and north of MD 80, where there is a difference in the number of ETLs proposed. Therefore, the impacts of the two build alternatives are identical. These impacts are discussed in detail in **Chapter IV** and summarized in the following sections. *Table S-2* provides a summary of the potential impacts of Alternatives 6A/B and 7A/B, and includes a summary comparison of Alternatives 3A/B, 4A/B and 5A/B/C from the 2002 DEIS. *Table S-3* presents the impacts associated with the potential O&M sites. See Chapter III of the 2002 DEIS for further details about the impacts of Alternatives 3A/B, 4A/B and 5A/B/C.

All of the potential impacts are based upon the preliminary engineering designs for the project as shown on the *Plan Sheets* in **Appendix A** of this document and in Chapter XI of the DEIS. The design of Alternatives 6A/B and 7A/B incorporates 2:1 side slopes for the highway alternatives and allows a 25-foot buffer beyond the proposed cut/fill line or a 10-foot buffer beyond a retaining wall. Potential impacts may be reduced during final design.

Land Use

Alternatives 6A/B and 7A/B will alter existing land uses adjacent to the existing I-270/US 15 corridor and along the CCT master plan reserved alignment. These uses include residential and commercial land use, forest land, parkland and farmland. When selected, the O&M facility will alter existing and proposed land uses; however, some of the land uses surrounding the sites under consideration are zoned for commercial or transit-oriented development. Changes in land use are compatible with area master plans. Impacts to land use are detailed in **Chapter IV.A**.

Alternatives 6A/B and 7A/B would require the acquisition of 578 acres for the proposed right-of-way for the highway component. The transitway component would require the acquisition of 170 acres. An additional 12-40 acres of land would be required for the O&M facility, depending on the location that is selected.

Social Resources

Regional and county population and growth statistics define the area within which the project corridor is located. The social resources that are evaluated include neighborhoods and communities and community facilities. The impacts of the alternatives on minority and low-income (environmental justice) populations are identified and discussed. A full discussion of the social resources within the study area, the impacts of Alternatives 6A/B and 7A/B, and potential avoidance and minimization measures is presented in **Chapter IV.B** of this document.

Regional Population and Household Growth

Information about the current and projected future population of the Metropolitan Washington Region, Montgomery County and Frederick County are identified from the MWCOG Round 6.4a Cooperative Forecasting (Fall 2004). The year 2000 and forecasted 2030 population and household information for the Region, Montgomery County and Frederick County are shown in *Table S-4*. The Region's growth rate is the result of the long-term strength of the region's economy and high rates of national and international immigration to the area.

Montgomery County's future growth rate is slightly below the Region's, and Frederick County's growth is expected to be greater than the Regional growth rate.

Neighborhoods and Communities

Neighborhoods and communities were identified along the highway and transitway corridors. Incorporated places and Corridor Cities include the Cities of Gaithersburg and Rockville; Clarksburg; Germantown; Hyattstown; Montgomery Village; Shady Grove; and the City of Frederick. Abundant neighborhoods and neo-traditional communities lie adjacent to the I-270/US 15 Corridor. New or emerging communities include Cabin Branch, Upper Rock District, Casey East, Casey West, King Farm and Crown Farm in Montgomery County and the Villages of Urbana in Frederick County. New construction of residential subdivisions continues to add to the growing number of neighborhoods and communities in the study area.

The No-Build Alternative would have an impact on community sustainability and access, and would not address the growing congestion and safety hazards along I-270 and US 15.

The highway alignment will displace a large number of residences and requires minor property takings along I-270. Minimization evaluations completed to date show many of these potential displacements could be reduced. Overall, these displacements will have limited impacts on community cohesion due to their locations at the outside boundaries of the affected neighborhoods or communities. As some residences are displaced, newly exposed residents may experience more noise, light, and an altered visual setting as a result of the increased exposure to the new highway.

The proposed transit lines and stations would benefit the communities in Montgomery County by providing enhanced access to employment and social centers. The transitway stations would serve the communities and support transit-oriented development in those areas along the corridor for which it is appropriate. The presence of the transitway and associated stations and O&M facility would bring increased visual elements into adjacent neighborhoods. Also, where the transitway is close to residential areas, there are potential safety concerns.

Table S-2: Summary of Impacts of All Build Alternatives

RESOURCE	ALTERNATIVES 3A/B ¹	ALTERNATIVES 4A/B ¹	ALTERNATIVES 5A/B ¹	ALTERNATIVE 5C ¹	ALTERNATIVES 6A/B ²	ALTERNATIVES 7A/B ²	NOTES:
Natural Environment		DEIS Alternatives			AA/EA Alternatives		
Total Limit of Disturbance (Edge of Pavement to new ROW) Highway Component Transitway Component					1,476 acres 1,192 acres 284 acres ⁴	1,476 acres 1,192 acres 284 acres ⁴	
Prime Farmland Soils Total Highway component Transitway component	284.6 acres 195.8 acres 88.8 acres	284.6 acres 195.8 acres 88.8 acres	290.2 acres 202.4 acres 88.8 acres	207.7 acres 207.7 acres n/a	742.6 acres 642 acres 100.6 acres ⁴	742.6 acres 642 acres 100.6 acres ⁴	
Soils of Statewide Importance Total Highway component Transitway component	367 acres ³	367 acres ³	391.9 acres ³	339.6 acres ³	488.7 acres 460 acres 28.7 acres ⁴	488.7 acres 460 acres 28.7 acres ⁴	
Number of farmlands Active Farmland required	30 133 acres	30 133 acres	30 143 acres	27 106 acres	38 parcels 191 acres	38 parcels 191 acres	
Floodplains – Total Highway component Transitway component	23 acres 20 acres 3 acres	23 acres 20 acres 3 acres	24 acres 21 acres 3 acres	21 acres 21 acres n/a	28.4 acres 25.6 acres 2.8 acres ⁴	28.4 acres 25.6 acres 2.8 acres ⁴	
Forest – Total Highway component Transitway component	183 acres 156 acres 27 acres	183 acres 156 acres 27 acres	199 acres 172 acres 27 acres	180 acres 180 acres n/a	295.8 acres ⁴ 268.6 acres 27.2 acres	295.8 acres ⁴ 268.6 acres 27.2 acres	
Rare, Threatened and Endangered Species					Potential ⁵	Potential ⁵	
Waters of the US – Total Streams ⁷ Waters of the US – Total Wetlands Highway Component Streams Ephemeral channels ⁷ Wetlands Transitway Component Streams Ephemeral channels ⁷ Wetlands	14,185 linear feet streams ^{6,7} 10.7 acres wetlands 11,245 linear feet – 9.1 acres 2,940 linear feet – 1.6 acres	14,185 linear feet streams ^{6,7} 10.7 acres wetlands 11,245 linear feet – 9.1 acres 2,940 linear feet – 1.6 acres	16,331 linear feet streams ^{6,7} 11.6 acres wetlands 13,391 linear feet – 10.0 acres 2,940 linear feet – 1.6 acres	13,407 linear feet streams ^{6,7} 10.7 acres wetlands 13,407 linear feet – 10.7 acres n/a – n/a	24,204 linear feet streams ^{4,6,7} 15.6 acres wetlands 20,198 linear feet 10,812 linear feet ⁷ 13 acres 4,006 linear feet 1,646 linear feet 2.6 acres	24,204 linear feet streams ^{4,6,7} 15.6 acres wetlands 20,198 linear feet 10,812 linear feet ⁷ 13 acres 4,006 linear feet 1,646 linear feet 2.6 acres	
Cultural Resources							
Historic Properties Highway component (number/acres) Transitway component (number/acres)	7 properties ⁸	7 properties ⁸	7 properties ⁸	5 properties ⁸	7 properties/43.28 acres ⁹ 5/31.17 acres 3/12.11 acres	7 properties/43.28 acres ⁹ 5/31.17 acres 3/12.11 acres	
Socioeconomic Resources							
Public Parks – Total Highway component (number/acres) Transitway component (number/acres)	11 parks/37 acres	11 parks/37 acres	12 parks/44 acres	13 parks/48 acres	13 parks/42.72 acres ¹⁰ 13/37.56 acres 1/5.16 acres	13 parks/42.72 acres ¹⁰ 13/37.56 acres 1/5.16 acres	
Right-of-Way – Total ¹¹ Highway component Transitway component (not including O&M facility)	562 acres 392 acres 170 acres	562 acres 392 acres 170 acres	592 acres 422 acres 170 acres	446 acres 446 acres n/a	748 acres 578 acres 170 acres	748 acres 578 acres 170 acres	
Residential Displacements ¹² – Total Highway component Transitway component	64-127	64-127	64-128	127-385	256-260 251 5-9	256-260 251 5-9	
Business Displacements ¹² – Total Highway component Transitway component (not including O&M facility)	4-11	4-11	4-12	2-11	13-43 10-11 3-32	13-43 10-11 3-32	
Air Quality - Number of receptors with CO violations	0	0	0	0	0	0	
Noise – Highway Total monitored/modeled locations Locations exceeding abatement criteria Transitway Total monitored/modeled locations Locations exceeding abatement criteria	55 locations 26 residential impacts 10 non-residential impacts 15 locations 13 residential impacts with horn noise (LRT) 7 residential impacts without horn noise (LRT)	55 locations 26 residential impacts 10 non-residential impacts 15 locations 13 residential impacts with horn noise (LRT) 7 residential impacts without horn noise (LRT)	55 locations 26 residential impacts 9 non-residential impacts 15 locations 13 residential impacts with horn noise (LRT) 7 residential impacts without horn noise (LRT)	55 locations 35 residential impacts 9 non-residential impacts 15 locations n/a	55 locations 27 residential impacts 13 non-residential impacts 5 locations 4 residential impacts (LRT)	55 locations 26 residential impacts 13 non-residential impacts 25 locations 4 residential impacts (LRT)	
Hazardous Materials – Number of affected properties	6 (4 highway, 2 transitway)	6 (4 highway, 2 transitway)	6 (4 highway, 2 transitway)	4 (highway)	6 (4 highway, 2 transitway)	6 (4 highway, 2 transitway)	

- Impacts of Alternatives 3A/B, 4A/B, 5A/B and 5C are from the 2002 DEIS.
- Alternatives 6A/B and 7A/B have an identical highway footprint.
- Total includes all soils in Frederick County (including prime farmland and soils of statewide importance) plus soils of statewide importance in Montgomery County (as calculated in the 2002 DEIS).
- Does not include potential impacts of transit O&M facilities, as only one may be chosen.
- Potential direct and indirect impacts to two fish species: pearl dace and comely shiner.
- Does not include ephemeral streams
- Since 2002, the USACE has broadened the definition of waters of the US to include ephemeral channels. Ephemeral channels were not quantified in the 2002 DEIS.
- The Atomic Energy Commission Building was not evaluated for eligibility in the 2002 DEIS and is not included in these numbers. It is presumed that the DEIS alternatives 3A/B, 4A/B and 5A/B would have similar impacts as Alternatives 6A/B and 7A/B. Alternative 5C would only have highway impacts.
- Two resources, Seneca Creek State Park and the Atomic Energy Commission Building, are impacted by both highway and transitway. One additional property is only affected by noise.
- One park is impacted by both the highway and transit components.
- Highway component for Alternatives 6A/B and 7A/B includes one park and ride lot. Highway component for the 2002 DEIS alternatives includes three park and ride lots.
- Updates to displacements are ongoing.

For O&M facility impacts, see **Table S-3**.



Table S-3: Summary of Impacts of the Potential O&M Sites

SITE	SHADY GROVE AREA SITES			METROPOLITAN GROVE AREA SITES			COMSAT AREA SITE	RANGE OF IMPACTS
	REDLAND ROAD LRT (1D)	REDLAND ROAD BRT (1D)	CRABBS BRANCH WAY BRT (6)	PEPCO LRT (4/5)	POLICE VEHICLE IMPOUND LOT LRT (6)	POLICE VEHICLE IMPOUND LOT BRT (6)	OBSERVATION DRIVE BRT (5)	
Total Right-of-Way, acres	17.7	16	12	22	18.7	18.7	40	12-40
Prime Farmland Soils, acres	7.4	5.89	8.23	2.68	12.48	12.48	6.29	2.68-12.48
Soils of Statewide Importance, acres	7.4	0	0.72	12.03	1.92	0.55	5.74	0.55-12.03
Floodplains, acres	0	0	0	0	0	0	0	0
Wetlands, acres	0	0	0	0	0	0	0	0
Streams, linear feet	0	0	0	660	486	486	0	0-660
Forest, acres	0	0	0	18.7	10.2	10.2	0.8	0-18.7
Historic Properties, number	0	0	0	0	0	0	0	0
Public Parks, number	0	0	0	0	0	0	0	0
Residential Displacements, number	0	0	0	4	0	0	1	0-4
Business Displacements, number	9	9	0	0	1	1	0	0-9

NOTE: Only one site will be chosen for an O&M Site. Any of the appropriate O&M sites (LRT sites for alternatives 'A' and BRT sites for alternatives 'B') could be constructed with any of the build alternatives (3A/B, 4A/B, 5A/B, 6A/B, or 7A/B).

Table S-4: Regional and County Population and Households, 2000 to 2030

	METROPOLITAN WASHINGTON REGION			MONTGOMERY COUNTY			FREDERICK COUNTY		
	2000	2030	% GROWTH	2000	2030	% GROWTH	2000	2030	% GROWTH
Population (in rounded millions)	4.6	6.2	35 %	0.87	1.1	26 %	0.20	0.32	67 %
Households (in rounded millions)	1.7	2.4	41 %	0.32	0.42	31 %	0.07	0.12	71 %

Source: MWCOG Round 6.4a Cooperative Forecasting (Fall 2004)

Alternatives 6A/B and 7A/B will benefit residents by providing greater transportation access than the No-Build Alternative. Benefits associated with the project include overall improvement in access and mobility in the project area, enhancing connectivity by transit, automobile, bicycle and pedestrian modes. Transit benefits would be highest near stations, particularly for homes and businesses within walking distance.

Potential avoidance and minimization measures to reduce residential displacements may include retaining walls and narrower highway shoulders. Noise barriers and landscaping will be considered to minimize potential noise and visual impacts to neighborhoods and communities. The transitway stations, alignment, and O&M facility would be designed to complement the surrounding communities as much as possible. Safety fencing, warning signs, lighting and other measures would lessen the potential dangers associated with the highway and transitway.

Community Facilities and Services

Community facilities and services are located throughout the study area. They include 12 schools, two libraries, 16 places of worship, three post offices, six public safety departments (police/fire/rescue), eight hospitals and 20 parks and recreational facilities.

The No-Build Alternative would not impact any of these community facilities. Increased congestion might impede the fast response of emergency vehicles.

The build alternatives would require the acquisition of up to 45 acres from 13 existing parks and recreation areas. Potential impacts include loss of acreage and loss of buffer landscapes adjacent to the highway and transitway. None of the proposed transit O&M facilities would result in parkland impacts. Parks impacts are discussed again in **Chapter IV.E**.

Impacts to other community facilities would include the partial acquisition of right-of-way, including undeveloped land, from a church and a college. No adverse changes in access are anticipated for any community facilities.

Benefits associated with the build alternatives include improved access to parks and other community facilities and reduced travel times.

The completion of a build alternative would provide improved response times for emergency services; the inclusion of appropriate width shoulders on the highway lanes would provide an area for emergency responders' travel as well as a refuge from the travel lanes for vehicles in emergency situations.

Potential mitigation strategies include the use of retaining walls, reduced shoulder widths and minor alignment shifts to avoid or minimize impacts.

Displacements and Relocations

Alternatives 6A/B and 7A/B would potentially displace between 256 and 260 residences (251 from highway construction and 5-9 from the transitway). **Table IV-13** provides a summary of the locations of the potential residential displacements. During final design, additional minimization efforts, such as retaining walls and/or reduced shoulder widths, may reduce the potential displacements to between 12 and 83 (9-74 from highway impacts and 5-9 from the transitway).

Between 13 and 43 businesses may be displaced by the build alternatives (see **Table IV-14**). By incorporating retaining walls into the final design where appropriate, these impacts may be reduced to 5-36 businesses.

The construction of a transit O&M facility may displace up to 4 residences and up to 29 businesses, depending upon the site chosen. **Tables IV-13** and **IV-14** include the potential displacements associated with the O&M site locations being considered.

Affected property owners will receive relocation assistance in accordance with federal and/or state requirements depending on the funding source. The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, with implementing regulations at 49CFR Part 24, will provide guidance for the relocation process.

Environmental Justice (EJ)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, directs federal agencies to "promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public

participation in, matters relating to human health or the environment.” The Order directs agencies to ensure that:

- They do not discriminate on the basis of race, color, or national origin.
- They identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income communities.
- They provide opportunities for community input in the NEPA process, including input on potential effects and mitigation measures.

The analysis identified 21 census block groups that met the threshold where there could be a potentially disproportionate number of minority or low-income persons affected by the project. The block groups that met the minority EJ threshold are located adjacent to the corridor between I-370 and MD 124 in Montgomery County and north of MD 80 in Frederick County. These affected areas of EJ populations were compared to areas of no-impact or less impact to determine if the environmental effects could be considered “disproportionately high and adverse” on minority populations and/or low-income populations. The potential effects on land use, community facilities and services, air, noise, public health and safety, visual effects, and traffic and transportation are comparable throughout the corridor, and generally occur equally on both sides of the highway. Impacts and proposed mitigations in EJ areas were reviewed with regard to the following impact categories: displacements and relocation; community cohesion and access; economic activity; visual conditions; noise; and traffic and transportation.

Displacements and Relocation

Of the 256-260 potential displacements, 244 are located in areas considered potential EJ areas: between I-370 and MD 117 in the Brighton West (81 residences), London Derry (150 residences) and Caulfield (one residence) communities in Montgomery County and in the Foxcroft II community in the City of Frederick. The extent of the proposed impacts with regard to these resources would not be considered a disproportionately high and adverse effect under the EJ

guidelines. However, the potential number of property displacements and adverse effects in EJ areas, when compared to non-EJ areas along the corridor, suggests a disproportionately high or adverse impact. Alternatives 6A/B and 7A/B follow existing I-270 and include relatively equal widening on both sides of the roadway for the entire length of the project. The highway design is similar in other areas along the corridor but results in more adverse effects in the EJ areas due to the density of the residential areas and their proximity to the highway.

The widening of I-270 would result in unavoidable adverse effects to EJ areas on both sides of the roadway. Given that the corridor widening is relatively equal on both sides of the existing roadway, the potential impacts to adjacent EJ areas will be generally distributed equally on both sides, as well, with no intent to incur greater impacts to one side of the roadway and avoid impacts to the other side. The large number of potential displacements in these EJ areas (compared to other areas along the corridor) may be reduced through the use of retaining walls and narrowed shoulders that will be determined during design.

The transitway will also affect the same residence in the Caulfield community. A potential O&M site in this same census tract would displace up to four additional residences in this area. The final location of an O&M facility for the transitway has not yet been identified, and this site may not be chosen. These displacements may be considered a disproportionately high or adverse impact to EJ populations if this site is chosen.

Community Cohesion and Access

The alternatives would not affect community cohesion in the traditional sense, as the communities and the impacts to those communities are located adjacent to an existing highway facility. The improvements would not divide communities. The loss of neighbors adjacent to the highway would interrupt the sense of community cohesion as they are relocated. There are no impacts to access with the build alternatives. Relocations within the same neighborhoods, if available, could minimize the sense of loss of community.

Economic Activity

The analysis identified positive economic impacts associated with the project including potential increases in property value due to increased transit access, improved travel time in both ETLs and general purpose lanes, and the addition of three transitway station locations in EJ areas (East Gaither, West Gaither, and Metropolitan Grove) that would provide improved access to transit opportunities. The potential for increased housing costs does exist for historically minority and low-income neighborhoods located in or near the City of Frederick due to improved access to the corridor that would be provided by the highway improvements. Another potential concern is determining the extent to which low-income populations would be able to benefit from the use of ETLs based upon the pricing index and trip diversions to the general purpose lanes.

Visual Conditions

Alternatives 6A/B and 7A/B would increase the visual presence of the highway with additional lanes, retaining walls (recommended for minimizing potential displacements), and noise barriers (for noise reduction). Alternatives 6A/B and 7A/B are expected to have similar visual effects although Alternative 7A/B would add two lanes in each direction between MD 121 and north of MD 80 in Frederick County and Alternative 6A/B would add one lane in each direction. Noise barriers would provide a measure of visual screening as well as noise abatement where they are installed.

The transitway alignment will have moderate visual effects since it would travel mostly at ground level. The potential transit station sites would have the greatest degree of visual effect on EJ areas. These station sites will use land within several new and emerging communities. The East and West Gaither Stations and the Metropolitan Grove Station would add new visual elements and public activity centers within EJ areas. The visual effects may be somewhat offset by designing stations to be visually compatible with the surrounding neighborhoods.

Noise

Potential noise effects from the project would occur throughout the corridor. Noise barriers would reduce adverse noise effects from the project. Noise barriers will be provided where feasible and reasonable. After mitigation, no further noise impacts are anticipated on EJ areas from the highway or transitway alignments or associated facilities. Therefore, the extent of the projected impacts on the block groups identified within EJ areas would not be considered a disproportionately high and adverse impact under the EJ guidelines.

Traffic and Transportation

All residents in the corridor, including those who live in EJ areas, can expect to benefit from the project through improved transportation access and a modest reduction in traffic on local roads with the provision of more public transportation to the area. Alternatives 6A/B and 7A/B include improvements to existing interchanges, construction of new interchanges, and construction of access roads in several locations that will improve traffic, transportation access, and safety. The access improvements would benefit all travelers within the corridor including those who live and work in EJ areas. Four of ten interchange improvements are located in EJ areas, but no new interchanges are located in EJ areas.

Both residents and employees in the corridor can expect transportation benefits from the project. With the transitway, area residents will have improved access throughout the corridor and the surrounding area can expect a modest reduction in traffic on local roads as a result of more public transportation in the area.

Economic Environment

Existing Economic Environment

The I-270/US 15 Corridor is one of Maryland’s premier economic regions. Frederick and Montgomery Counties combined account for 21.8 percent of all jobs in Maryland. Many of those jobs are located directly along the I-270/US 15 and CCT alignments, with the highest concentrations in central Montgomery County. Workers in Montgomery and Frederick Counties actually take home over a quarter (25.4 percent) of the state’s total wages.

Montgomery County’s economy is led by three industries that make up over half of the county’s total employment: professional and business services; education and health services; and trade, transportation and utility-related industries. Montgomery County’s portion of the I-270/US 15 corridor is the favored location for many high-tech businesses, especially biotechnology and information technology firms. Montgomery County leads the state in the number of high-tech firms.

The Frederick County economy is led by four key industries that also account for over half of the county’s employment: education and health services; trade, transportation and utilities; professional and business services; and construction. Frederick County is developing two technology parks, Mount Saint Mary’s Bio Park and Jefferson Technology Park, and already houses several major bio-tech employers including the US Army Medical Research Institute of Infectious Diseases at Fort Detrick.

In the I-270/US 15 Corridor, most major employment centers in the corridor are located in the southern end in Montgomery County, within the Corridor Cities of Rockville, Gaithersburg, Germantown and Clarksburg. The City of Frederick is the major location of employment in Frederick County.

Economic Impacts

Overall, the build alternatives will create relatively small positive economic development effects when compared with the large amount of economic growth forecasted to occur in the project area, with or without the project. Nonetheless, the congestion relief provided will provide a positive impact with increased accessibility of people, goods, and markets, thus helping the area maintain its economic edge. Accessibility is measured in three areas: ease of getting to employment destinations; ease in getting to shopping destinations; and, from a business perspective, ease in attracting potential customers.

Consumers would benefit from the project with better access to shopping destinations. Retail businesses could see a benefit from a broader customer base that can reach stores in a shorter time. Workers would benefit in two ways. In the shorter term, workers would benefit from the number of jobs that construction of the project would provide. Both Alternative 6A/B and 7A/B would provide a similar amount of jobs, with the construction of the

light rail requiring about 400 more jobs than building the bus rapid transit line. A more permanent benefit to workers is increased accessibility to jobs in a shorter time and/or within a wider area.

Local government property tax revenues could be influenced in three ways by the project: (1) through direct takings of property off the tax rolls to construct the improvements, (2) the stimulation of new development which would increase property tax revenues, and (3) general property value increases associated with the accessibility improvements. Both highway options are expected to increase the value of, and development potential for, open lands along the corridor, especially in northern Montgomery County and central and southern Frederick County. The transit options also have the potential to increase transit oriented development opportunities.

Cultural Resources

Cultural resources and the impacts of the project on these resources are described in greater detail in **Chapter IV.D**. Ten historic properties were identified within the Area of Potential Effects (APE) of Alternatives 6A/B and 7A/B. Impacts to historic properties include the physical taking of land, noise, and visual changes that would result in adverse effects.

Of the ten historic properties within the APE, Alternatives 6A/B and 7A/B would have an adverse effect on eight, listed below with their Maryland Inventory of Historic Properties (MIHP) numbers:

- England/Crown Farm (M:20-17)
- Belward Farm (M:20-21)
- Atomic Energy Commission Building (M:19-41)
- Monocacy National Battlefield (F-3-42)
- Schifferstadt (F-3-47)
- Rose Hill Manor (F-3-126)
- Spring Bank (F-3-22)
- Birely-Roelkey Farm (F-3-134)

Alternatives 6A/B and 7A/B would have no adverse effect on the remaining two properties, Worman House (F-3-198) and Harmony Grove Union Chapel (F-3-197).

No additional archeological investigations were done since the DEIS. Additional archeological investigations

will be necessary once an alternative is selected. Owners of the properties have been notified and have been invited to consult with SHA, MTA and the MD SHPO about the effects of the project and potential minimization and mitigation efforts. A Memorandum of Agreement (MOA) is being coordinated with the MD SHPO and the owners of affected properties that will identify the measures to be taken to address the adverse effects. The MOA will also include stipulations to identify and treat any unanticipated archeological discoveries if they are found.

Section 4(f) Summary

The Section 4(f) evaluation was performed in accordance with the US Department of Transportation Act of 1966, 49 USC 303(c), as implemented through 23 CFR 774 by the FHWA. In summary, the evaluation, detailed in **Chapter IV.E**, identified 13 publicly-owned public parks or recreation areas and seven historic properties that would be affected by Alternatives 6A/B and 7A/B. The methodology to evaluate Section 4(f) resources included the following steps: identification of resources via coordination with the agency with jurisdiction over the resource; identification of potential uses of Section 4(f) properties caused by Alternatives 6A/B and 7A/B (including property acquisition, impacts to activities, impacts such as noise and visual effects); exploring potential avoidance alternatives; and evaluating planning to minimize harm. Quantitative efforts included measurements of property acreage impacts, predicting future noise levels, and projecting future air quality in the project corridor. Qualitative efforts included an assessment of visual impacts, including those from mitigation efforts. The project team intends to pursue a *de minimis* finding for nine public parks that are impacted by the alternatives. Throughout the Section 4(f) process, SHA and MTA have consulted with the Maryland State Historic Preservation Officer (SHPO), owners of the historic resources, and parks officials in matters of potential impacts including potential avoidance and minimization efforts.

Section 4(f) Resources

The following publicly-owned public parks and recreation areas would be impacted by Alternatives

6A/B and 7A/B: Malcolm King Park, Morris Park, Seneca Creek State Park, Middlebrook Hill Neighborhood Conservation Area, North Germantown Greenway, Black Hill Regional Park, Little Bennett Regional Park, Urbana Lake Fish Management Area, Urbana Elementary School Recreation Area, Urbana Community Park, Monocacy National Battlefield, Baker Park and Rose Hill Manor Park. Historic properties impacted by Alternatives 6A/B and 7A/B include England/Crown Farm, Belward Farm, the Atomic Energy Commission Building, Monocacy National Battlefield National Historic Landmark, Schifferstadt, Rose Hill Manor, and Birely-Roelkey Farm.

Section 4(f) Uses

Alternatives 6A/B and 7A/B would require right-of-way from each Section 4(f) resource listed above for the construction of additional lanes, ramps and intersections along the I-270/US 15 corridor. Most of these impacts would require the acquisition of a narrow strip of land from the resource adjacent to the existing highway. The uses and impacts are shown on Table **IV-18** and **Table IV-19** in **Chapter IV.E**.

Avoidance Analysis

While the No-Build Alternative and the TSM/TDM Alternative (discussed in the 2002 DEIS) would be considered as avoidance alternatives, they do not meet the project’s purpose and need. Due to the magnitude and scope of the project, an avoidance alternative that eliminates all of the impacts is not prudent or feasible.

The project team intends to pursue a *de minimis* finding for nine of the public parks (not including Urbana Elementary School Recreation Area, Monocacy National Battlefield, Baker Park and Rose Hill Manor Park) impacted by the alternatives.

Least Overall Harm Analysis

Avoidance options, including retaining walls, centerline shifts and design changes, were evaluated for each individual resource. Measures to minimize harm to each of the resources impacted include the use of 2:1 slopes in the conceptual highway design as well as the potential for retaining walls, minimized shoulder widths, and design modifications. These minimization

MONOCACY NATIONAL BATTLEFIELD

The Monocacy National Battlefield is a National Historic Landmark (NHL) that is under the jurisdiction of the National Park Service (NPS). The battlefield is located in Frederick County, Maryland, approximately three miles south of the center of the City of Frederick. Although this area of the county is developing rapidly, the national battlefield is remarkably free of intrusive elements. Only I-270 intrudes on the historic landscape, essentially bisecting the battlefield (see aerial view, page S-11). The CSX Railroad also extends through the national battlefield, paralleling the Monocacy River and Bush Creek. Historic Urbana Pike (MD 355) runs north-south through the eastern part of the battlefield, and provides the main access for visitors to the battlefield. Urbana Pike provides much of the access to the important features within the battlefield; however, the heavy traffic volumes of commercial and commuter traffic and narrow shoulders encroach upon the visitor experience.

The national battlefield’s boundaries encompass most of the lands upon which the Battle of Monocacy was fought. Six farmsteads that existed during the battle still exist within the national battlefield. Surrounding agricultural fields retain the feel of the Civil War era landscape, with few changes to field configurations and fence rows. Forested areas include Brooks Hill and areas along the Monocacy River and Bush Creek, which provide a buffer from development outside the boundaries.

“The Battle That Saved Washington”

In the summer of 1864, Confederate Lieutenant General Jubal Early launched a campaign down the Shenandoah Valley with a corps of approximately 15,000 troops. The campaign was a last attempt to carry the war to the north and to relieve some pressure from General Robert E. Lee in the south. Early’s ultimate objective for the campaign was to march down the Valley, to swing to the east through Frederick, then to attack and possibly capture Washington, D.C. from the north.

Agents of the B&O Railroad learned of the Confederate movement and alerted John Garrett, president of the B&O Railroad. Garrett informed



Best Farm

Union Major General Lew Wallace, in command of the Middle Department at Baltimore, who hastily organized a force of 6,550 men at Monocacy Junction in an attempt to delay Early’s advance on the capital. On the morning of July 9, 1864, Confederate and Union forces engaged each other along the banks of the Monocacy River.

Although the battle was a military victory for the Confederates and their only victory in the north, it was also a defeat. The time spent fighting the battle cost the Confederates a crucial day of marching and provided the Union time to send reinforcements to Washington, D.C. General Early’s army returned to Virginia and the remainder of the war was fought on southern soil. Because of General Wallace’s valiant delaying action, the Battle of Monocacy became known as “The Battle That Saved Washington, D.C.”

Battlefield Amenities and Activities

Today, visitors begin their journey through this hallowed ground at the Visitor Center. The original on-site visitor contact station was replaced in 2007 by a new visitor center near the northern boundary of the battlefield off of MD 355. The interactive and multimedia exhibits located in the Visitor Center include numerous vignettes encompassing events before, during, and after the Battle of Monocacy as well as fiber optic maps, historical artifacts and interpretive displays of the battle. A bookstore offers



Worthington House

literature which provides in-depth discussions of the Civil War and the Battle of Monocacy, as well as other interpretive items for people of all ages and interest levels.

A self-guided, auto tour provides visitors an overview of key locations where the Battle of Monocacy was fought. The route follows the public roadway system and totals approximately 6 miles round-trip. Parking is provided at the Best Farm, Worthington Farm, Thomas Farm, and at Gambrill Mill.

There are several hiking trails within Monocacy National Battlefield. The accessible Gambrill Mill trail provides scenic views of the Monocacy River as well as interpretive waysides. The Thomas Farm features two walking trails: the Thomas Farm Loop trail, which traces the key events in the Battle of Monocacy; and the Middle Ford Ferry Loop trail, which explores the early settlement of the Monocacy Region and provides peaceful views of the Monocacy River. Two walking trails are featured at the Worthington Farm: The Ford Loop, which interprets key events in the Battle of Monocacy, and the Brooks Hill Loop trail, a nature walk.

The Monocacy River flows for a length of two miles within the battlefield. This portion of the Monocacy is popular for kayaking and canoeing.

Nature enthusiasts can spot several species of birds and a variety of plant species within the battlefield, including the Short’s Rockcress, Harbinger of Spring, and Dwarf Larkspur. Throughout the park there are a number of trees which are referred to as “witness” trees, or trees that were present at the time of the battle.

Monocacy National Battlefield Draft General Management Plan (GMP)

The Monocacy National Battlefield GMP has been developed by the NPS to serve as the foundation for making decisions about managing the battlefield’s natural and cultural resources, enhancing the visitor experience, and for preparing more specific resource plans. The NPS presented the draft plan to the public on September 2, 2008 with the public comment period open until June 26, 2009. Completion of the final plan is anticipated by Fall 2009. The GMP can be viewed in its entirety at <http://parkplanning.nps.gov/mono>.

The GMP included several alternatives which represented different approaches to managing the national battlefield. A “no-action” and three “action” alternatives were presented, with the no-action alternative serving as the baseline for comparison with the action alternatives. The preferred alternative incorporates several of the advantageous features of the other build alternatives. These features include:

- Visitors would use their own vehicles to drive around the battlefield.
- A deck would be installed over I-270, connecting the two sides of the battlefield.
- All historic structures would be preserved and maintained. The Worthington House would be rehabilitated and the first floor would be open with exhibits. Parking near the Worthington House would be relocated closer to the building. Outbuildings on the Best Farm would remain open. Administration offices would move into the Thomas House. The stone tenant house on the Thomas Farm would contain exhibits and restrooms; parking would be available near a non-historic outbuilding on the farm.

MONOCACY NATIONAL BATTLEFIELD (CONT)

- The entrance to the 14th New Jersey Monument would be shifted south to allow better sight distances. A landscaped commemorative area would be created at the site of the Pennsylvania and Vermont monuments as a location for new memorials.
- The Gambrill Mill trail would be extended to allow visitors to walk to the railroad junction, sites of Union entrenchments, and General Wallace’s headquarters.

Summary of Impacts to Monocacy National Battlefield

The proposed I-270 widening alternatives will impact the battlefield to varying degrees. Potential impacts include right-of-way acquisition (about 12 to 14 acres) and impacts to forested lands, prime farmland soils, wetlands that parallel I-270, and the historic viewshed of the battlefield. Vehicle noise is also a primary concern within the battlefield, as several of the amenities are in close proximity to I-270. I-270 bridges the Monocacy River, which is a state-designated Wild and Scenic river, within the battlefield. For detailed descriptions of how the proposed alternatives impact Monocacy National Battlefield, please refer to Chapter IV of this EA (Environmental Resources and Consequences) and Chapter III of the DEIS (Affected Environment and Environmental Consequences).

Potential Mitigation for Battlefield Impacts

The SHA and NPS have discussed potential minimization of the roadway impacts and mitigation opportunities that could support the GMP preferred alternative. It is important to note that coordination is ongoing, and will continue throughout the planning, design, and ultimately the construction stages of the project. Minimization efforts incorporated to date have included shifting all roadway widening to the west (to areas that have previously been disturbed) and reducing the typical section of the proposed roadway through the battlefield.

Ideas for mitigation that have been discussed include:

- Construction of a deck over I-270 to connect the two sides of the battlefield.
- Bridges along I-270 within the battlefield would have aesthetic treatments, coordinated with NPS.
- Using underground stormwater management facilities within the I-270 roadway footprint to minimize the right-of-way impacts.
- Using noise-reducing pavement within the battlefield.
- Constructing noise abatement measures, provided they do not mar the battlefield viewshed.
- Installing signing. Signs include directional signs to lead visitors to the park; interpretive signing along MD 355, MD 85, the Byron Overlook, and possibly MD 144 to note sites of historical significance; and “monument”-style signing on I-270 at the park boundaries.
- Landscaping, including the removal of invasive species.

Next Steps

The I-270 Multi-Modal team will continue coordination with the NPS and the other consulting parties, including the Civil War Preservation Trust, American Battlefield Protection Program, Advisory Council on Historic Preservation, Maryland State Historic Preservation Office (MD SHPO), Frederick County Department of Planning, The Heart of the Civil War State Heritage Area, and Journey Through Hallowed Ground National Heritage Area concerning the minimization and mitigation of the impacts of the selected alternative. Minimization strategies for the roadway and conceptual mitigation will be finalized and a Memorandum of Agreement will be developed between the FHWA, MD SHPO, and the NPS. SHA will be included as a signatory and other groups that have responsibilities under the MOA will also be invited to participate as appropriate.



Source: SHA, Aerial Flown 2005

efforts will be evaluated further during the design phase of the project. For one resource, the Monocacy National Battlefield, a National Historic Landmark, the centerline of the roadway is proposed to be shifted to the west to avoid impacts on the east (northbound) side of I-270, thus eliminating impacts to the east side resource areas of importance.

Additional measures to minimize harm to each resource will be considered in consultation with the jurisdictional officers. These could include:

- Providing replacement land of equal or greater natural resource and economic value as per Program Open Space and Section 6(f) funding requirements
- Implementing erosion and sediment control measures
- Use of SWM Best Management Practices
- Replacement wetlands
- Vegetation mitigation and replanting historic landscape buffers
- Landscaping with viewshed considerations
- Relocation of facilities or installation of new facilities within resource boundaries.

The least overall harm analysis will be completed prior to a recommendation for a preferred alternative. Consultation and coordination with jurisdictional officers, including the National Park Service, will continue through the design phase of the project, in an effort to avoid, minimize or mitigate the impacts to identified Section 4(f) properties.

Natural Resources

The potential impacts of Alternatives 6A/B and 7A/B on natural resources within the project’s limits of disturbance are detailed in **Chapter IV.F**. The impacts of the two build alternatives would be identical, as they have the same physical footprint. The No-Build Alternative will have no impacts on the natural environment. **Table S-5** summarizes the natural resources impacts of Alternatives 6A/B and 7A/B.

Geology, Topography and Soils

Alternatives 6A/B and 7A/B are not expected to impact geology. There are no major impacts to topography, as most of the roadway is proposed to be at-grade; some minor differences would occur at interchange overpasses and underpasses, for roadway grading and fill placement, and to construct bridge abutments.

Alternatives 6A/B and 7A/B would potentially impact 720.7 acres of prime farmland soils and 483.5 acres of soils of statewide importance.

Groundwater

Alternatives 6A/B and 7A/B could potentially impact shallow groundwater levels in areas of new pavement. Impacts to deep groundwater aquifers are not anticipated. Alternatives 6A/B and 7A/B will cross the Piedmont Sole Source Aquifer (SSA). Potential impacts to the SSA could occur in areas where new pavement is proposed, directly impacting recharge and stream flow zones. The amount of impervious surface added would be minimal and the same for both alternatives.

Surface Water

Alternative 1 (No-Build Alternative) will not have an impact on major stream systems within the project corridor. Alternatives 6A/B and 7A/B will have the same impacts to the major stream systems within the project study area, as both alternatives have the same physical footprint. Alternatives 6A/B and 7A/B will directly impact 24,204 linear feet of streams (perennial and intermittent): 20,198 linear feet for highway and 4,006 for transitway. Two of the five O&M facilities, the Metropolitan Grove Road site (486 linear feet) and the PEPCO Transmission Lines site (660 linear feet), would impact streams (see **Table S-6**). The highway improvements would cross 77 tributaries of various sizes, while the transit component would cross 16 streams. Direct impacts of the highway component on stream channels would be caused by extensions of existing bridge and culvert crossings. Transitway impacts would be associated with new culvert or bridge crossings.

Table S-5: Summary of Natural Resources Impacts

RESOURCE	ALTERNATIVE 6A/B AND 7A/B		
	HIGHWAY	TRANSITWAY ¹	TOTAL
Prime Farmland Soils (acres)	642	78.7	720.7
Soils of Statewide Importance (acres)	460	23.5	483.5
Streams (linear feet)	20,198	4,006	24,204
Ephemeral Streams/Channels	10,812	1,646	12,458
Wetlands (acres)	13.0	2.6 ²	15.6
100-year Floodplain (acres)	25.6	2.8	28.4
Forests (acres)	268.6	27.2	295.8

¹ Does not include O&M facilities

² Wetlands impacts include all of the O&M facilities; only one would be chosen.

Table S-6: Summary of Natural Resources Impacts of the O&M Facilities

SITE LOCATION	WETLANDS IMPACTS (ACRES)	STREAMS IMPACTS (LINEAR FEET)	FOREST IMPACTS (ACRES)
Shady Grove Area - Redland Road	0	0	0
Shady Grove Area - Crabbs Branch Way	0.04*	0	0
Metropolitan Grove Area – PEPCO/Game Preserve Road Site	0	660	18.7
Metropolitan Grove Area – Police Vehicle Impound Lot	0	486 (LRT) 328 (BRT)	10.2 (LRT) 7.8 (BRT)
COMSAT Area – Observation Drive	3.3 plus 2.1*	0	0.8

* Represents the area for wetland buffer.

Complete avoidance of impacts to surface waters is not possible due to the number of these systems in the project area and their orientation perpendicular to the proposed alternatives. However, impacts have been avoided or minimized wherever possible through the realignment of the transitway and the shift of lane additions to one side of the existing highway or another. Investigations of further avoidance and minimization measures are ongoing and will continue throughout all phases of engineering design for the project.

Surface Water Quality

The Code of Maryland Regulations (COMAR) sets forth water quality criteria specific to designated uses (Title 26, §08.02.02 and §08.02.08 (2006)). All stream segments within the project area are designated as Use Class I-P (water contact recreation and the protections of aquatic life and public water supplies), Use Class III-P (natural trout waters and the protection of public water supplies), or Use Class IV-P (recreational trout waters and the protection of public water supplies).

The No-Build Alternative will have no effect on the surface water quality of the study area watersheds. Both Alternatives 6A/B and 7A/B have the potential to affect the surface water quality in the project area. Direct impacts to streams could include sediment releases and vegetation removal. Sediment releases can damage fish and macroinvertebrate habitat or cause fish mortality, and tree removal reduces shade to the stream causing in-stream temperatures to rise, which can affect sensitive fish species.

Total avoidance of impacts to surface water quality is not possible because of the large area of watershed affected by the project and the numerous stream systems that cross the project corridor. Impacts can be minimized and mitigated with the construction of Stormwater Management (SWM) facilities to handle increased stormwater runoff that may occur with the construction of additional highway surfaces. During construction activities, the use of sediment and erosion control measures will be employed to prevent surface water contamination.

Scenic and Wild Rivers

The Monocacy River, which flows perpendicular to the I-270/US 15 Corridor south of Frederick in Frederick County, is designated as a State Scenic River based on the criteria established within the Scenic and Wild Rivers Act of 1968. Alternatives 6A/B and 7A/B will directly impact the Monocacy River (approximately 75 linear feet by 8 feet wide) for a new bridge pier to accommodate the roadway widening.

Prior to the implementation of a build alternative, project plans would be provided to the Maryland Department of Natural Resources (MDNR) for review in compliance with the Maryland Scenic and Wild Rivers Act. The MDNR will review how these direct impacts may diminish the character of the Monocacy River. Coordination with MDNR regarding potential impacts to the Monocacy River is ongoing and will continue through all phases of the project.

Floodplains

The No-Build Alternative will not impact 100-year floodplains within the project study area. The highway component of Alternatives 6A/B and 7A/B will impact approximately 25.6 acres of the 100-year floodplain along area streams, while the transitway component will impact 2.8 acres. The majority of floodplain encroachments will be from perpendicular crossings by the highway build alternatives and the transitway alignment.

Efforts to minimize and avoid impacts to 100-year floodplains will continue throughout the planning and engineering process. Techniques that will be investigated to further minimize or avoid impacts may include alignment shifts to ensure the narrowest possible crossing and bridging of floodplains to further reduce encroachment and allow for unrestricted passage of floodwaters. Hydrologic and hydraulic studies will be conducted to determine the appropriate bridge or culvert opening sizes that will not appreciably raise flood levels. All construction occurring within the Federal Emergency Management Agency (FEMA) designated 100-year floodplain must comply with FEMA approved local floodplain construction requirements.

Waters of the US including Wetlands

The No-Build Alternative will have no effect on Waters of the US, including wetlands, within the I-270/US 15 Corridor.

The highway component of Alternatives 6A/B and 7A/B would impact approximately 13 acres of wetlands, while the transitway component could potentially affect 2.6 acres. The impacts of Alternatives 6A/B and 7A/B are identical. Palustrine emergent (PEM) wetlands are the wetland class that would be most affected by the highway build alternatives followed by forested wetlands (PFO), respectively. The transitway alignment would most impact emergent wetlands followed by scrub-shrub wetlands (PSS). Many of the wetlands impacted by the build alternatives are connected to larger wetland systems that provide a diverse and interdependent collection of ecological functions. These systems include Great Seneca Creek, Little Seneca Creek, Monocacy River, Rock Creek, Carroll Creek, and Tuscarora Creek.

Impacts have been avoided or minimized wherever possible through the initial placement of alignments to avoid unnecessary crossings. Investigations of further avoidance and minimization measures are on-going and will continue throughout all phases of engineering design for the project. Short-term construction impacts will be minimized through strict adherence to SHA erosion and sediment control procedures and Maryland Department of the Environment (MDE) SWM regulations.

Mitigation planning for unavoidable wetland and waterway impacts of the project will continue to adhere to the guidelines of the Maryland Compensatory Mitigation Guidance (1994) and Section 404 requirements. Potential mitigation sites were described in the 2002 DEIS and no further investigations were completed for this document.

Terrestrial Vegetation and Wildlife

Vegetation communities and wildlife are the same as identified in the DEIS. The main communities identified include agricultural land, developed land and old field habitat. Forest habitat occurs as small strips between developments or farm fields and larger tracts along stream valleys, within wetlands, on steep-sloped areas, and within parklands. Several large forest tracts occur within parklands.

The No-Build Alternative would not impact wildlife or terrestrial habitat. Alternatives 6A/B and 7A/B would impact a total of 295.8 acres of forest (268.6 for the highway component and 27.2 acres for the transitway component). Forest impacts would also occur with three of the five O&M sites being evaluated (see **Table S-6**). Impacts would occur during clearing for roadway/transitway construction and conversion of habitat to pavement. Mitigation for forest impacts would be undertaken in accordance with Maryland's *Forest Conservation Act* and *Reforestation Law*.

Aquatic Habitat and Species

Aquatic habitat assessment is generally completed by state and local agencies alongside benthic macroinvertebrate and fish community field assessments. Since 2002, new aquatic community assessment locations were sampled by the MDNR, Maryland Biological Stream Survey (MBSS), the Montgomery County Department of Environmental Protection (MCDEP), and the Frederick County Department of Public Works. MCDEP assessments provided mixed results ranging from "good" to "fair."

New aquatic habitat assessments were conducted by SHA during the fish and macroinvertebrate community sampling periods in summer 2006 and spring 2007. The resulting Physical Habitat Index scores showed scores in the partially to severely degraded range.

Benthic macroinvertebrate community quality varied throughout the project study area. MCDEP and MBSS produced variable ratings for fish communities in the streams that cross the project area.

The No-Build Alternative will not have an effect on the aquatic biota of the study area watersheds. The build alternatives have the potential to affect aquatic biota. The primary direct impacts to aquatic biota from Alternatives 6A/B and 7A/B would be mortality of aquatic organisms during construction of stream crossings from heavy equipment, and loss of natural habitat from placement of culvert pipes and other in-stream structures.

Complete avoidance of impacts to aquatic habitat and species is not possible with a build alternative due to the quantity of streams and stream crossings within the project area. Impacts have been avoided as much as

possible by the placement of the alternatives to avoid additional unnecessary crossings and linear crossings of aquatic habitats. Investigations of further avoidance and minimization measures are on-going and will continue throughout all phases of engineering design and construction for the project.

Rare, Threatened and Endangered Species

Coordination with the US Fish and Wildlife Service (USFWS) did not indicate the presence of any federally-listed rare, threatened or endangered (RTE) species within the project area. Alternatives 6A/B and 7A/B could potentially adversely affect two state-listed threatened fish species, the pearl dace and the comely shiner, as both species were identified in waters affected by the project during field studies. Impacts could include mortality and loss of habitat. To minimize these impacts and protect these and other species, MDE prohibits in-stream work in Use III streams from October 1 through April 30 and may extend this prohibition to July 31.

Hazardous Materials Sites

An Initial Site Assessment (ISA) for the project area was conducted in 1999 for the 2002 DEIS. The ISA did not identify any sites where construction of the proposed transportation alternatives would be expected to encounter severe soil or groundwater contamination. Modest levels of soil or groundwater contamination were documented at five facilities and suspected at four facilities within the project area. These facilities include six leaking underground storage tank (LUST) sites under MDE regulation and three No Further Remedial Action Planned (NFRAP) sites regulated by the US Environmental Protection Agency (EPA). An additional nine potential sites of concern (PSC) were identified during field studies that were not identified in the ISA as contaminant release sites. These locations of potential contamination were identified based on their proximity to the proposed alignments and observation of site operations (heavy equipment storage and maintenance, underground storage tank replacement, monitoring well installation or electrical power distribution). These sites could be considered as potential sources of

environmental contamination during construction of either Alternative 6A/B or 7A/B.

Additional site investigations are recommended following the identification of a build alternative and prior to right-of-way acquisition and negotiation.

Air Quality

The air quality analysis used data from the travel demand model to estimate the total emissions produced under the No-Build Alternative and under Alternatives 6A/B and 7A/B. The regional impact of Alternatives 6A/B and 7A/B was predicted to cause changes to regional pollutant [carbon monoxide (CO), nitrogen oxide (NO_x), particulate matter smaller than 10 microns (PM₁₀), particulate matter smaller than 2.5 microns (PM_{2.5}), and volatile organic compounds (VOC)] levels ranging from an increase of 1.1 percent to a reduction of 0.3 percent versus the No-Build Alternative. Based on these differences, Alternatives 6A/B and 7A/B are predicted to have a minimal effect on regional pollutant levels. Refer to *Table IV-28* in **Chapter IV.H**.

Project-level analyses were performed for two specified pollutants: particle matter with a size of 2.5 microns or smaller (PM_{2.5}) and carbon monoxide (CO). The qualitative analysis for PM_{2.5} determined that Alternatives 6A/B and 7A/B meet all project level PM_{2.5} conformity requirements, and that the project will not cause or contribute to a new violation of the National Ambient Air Quality Standards (NAAQS) for PM_{2.5}. Quantitative analysis of CO predicted that there would be no violations of the NAAQS for CO.

Alternatives 6A/B and 7A/B were considered in accordance with EPA's requirements for evaluating mobile source air toxics (MSATs), a group of pollutants that can cause health problems from increased exposure. Construction of a build alternative may result in increased exposure to MSAT emissions in certain locations. As of the current level of knowledge about these pollutants and the concentrations and duration of exposures that can cause health problems are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

Noise and Vibration

Noise impact analysis determined that Alternatives 6A/B and 7A/B would have noise impacts on adjacent noise sensitive areas. Vibration analysis determined that Alternatives 6A/B and 7A/B would not have any vibration impacts. Details of the noise and vibration analyses are presented in **Chapter IV.I**.

Existing noise levels were recorded at 55 sites adjacent to the proposed highway improvements. Future noise levels were predicted based upon projected traffic conditions. Alternative 6 would impact 40 of the 55 highway sites studied, including 27 residential areas and 13 non-residential areas including parks, one hotel, a cemetery and two museums. Of these, six sites (four residential, one park, and one cemetery) were projected to suffer substantial noise level increases of 10 decibels (dBA) or more. Alternative 7A/B was found to impact 39 of the 55 highway sites studied, including 26 residential areas and the same 13 non-residential areas impacted by Alternative 6A/B. Of these 39 impacted sites, seven sites (five residential, one park, and one cemetery) were projected to suffer substantial noise level increases of 10 dBA or more.

Mitigation of noise impacts was evaluated for each of the impacted sites in accordance with SHA noise abatement policy guidelines. Twenty-six potential noise barrier locations were evaluated for feasibility and reasonableness. Twenty locations satisfied SHA criteria for abatement for Alternative 6A/B, and 19 areas satisfied SHA criteria for Alternative 7A/B. Decisions regarding the construction of noise barriers will be made during final engineering.

Future noise levels were predicted at 25 locations near the proposed transitway alignment. Noise impacts from LRT operations with or without horn noise are projected to occur at four residential properties within the transit corridor. Horn noise contributions were determined to not cause any new noise impacts. The four impacted properties were determined to be within the FTA "Moderate Impact" classification. No noise impacts were identified with the BRT alternative. Noise levels from activities at the O&M facilities (i.e. moving

trains and other sources) would generally be acceptable during the daytime hours at most of the residential sites near the potential O&M facilities sites. However, these noise levels would be unacceptable at night; therefore, it is recommended that noise-producing O&M activities be limited to daytime hours.

Visual and Aesthetic Quality

The project will introduce new elements into the visual landscape such as an electrified transit railway (LRT), additional buses, additional highway lanes, structures (bridges and highway ramps), park and ride lots, noise walls and transit stations. Where possible, these elements will be designed to be compatible and integrated with the environmental context of their locations. As discussed in the 2002 DEIS and **Chapter IV.J**, the extent of the visual impacts of these new elements will depend on the existing visual character of each specific area, as well as surrounding land uses.

Mostly, the highway improvements are proposed in areas where there is already significant existing infrastructure, and neither highway component will result in major changes in the visual character of the landscape. The main changes would be a somewhat wider road with additional lanes and additional ramps to accommodate ETL direct access. There will be little overall difference between the visual impact of Alternative 6A/B and Alternative 7A/B.

Noise walls can act to shield visual impacts in areas where they are recommended to reduce noise impacts. Noise walls will be designed and constructed in consultation with the local communities to ensure that they are compatible with the context of the surrounding built and natural environment.

In general, the BRT alternative will have less of a visual impact than the LRT alternative. Most elements introduced by the transit improvements will be the same for BRT and LRT, including stations, park and ride lots, and elevated sections of transitway. The LRT option would introduce additional elements to the landscape such as an overhead catenary system and other aerial structures along the transitway.



Indirect and Cumulative Effects Analysis

A Secondary and Cumulative Effects Analysis (SCEA) was completed for the 2002 DEIS for Alternatives 3A/B, 4A/B and 5A/B/C. That analysis included the use of a panel of land use experts to identify whether a build alternative for the corridor would cause changes in land use that would be substantially different from the changes anticipated in the master plans associated with the I-270 and US 15 project corridor.

A current ICE analysis has been completed to review the 2002 SCEA as well as to analyze the indirect and cumulative effects of Alternatives 6A/B and 7A/B, and to identify if the conclusions reached during the 2002 analysis have changed because of new urban development in the project area environment, new build alternatives proposed for the project, or changes in ICE analysis guidance. Details of this analysis are in **Chapter IV.L**.

Both the 2002 analysis and the current (2008-2009) analysis indicate that there are no substantial changes since the 2002 DEIS in the land use or projected land use, based on area master plans. In the intervening years, projects have continued to be approved and constructed within the designated development areas. The conclusions reached by the analysis, including the projections of the Land Use Expert Panel, were that “select locations in the region would experience future development beyond that planned for Montgomery and Frederick counties” and that “this additional development would occur regardless of the alternate, including the No-Build.” The current analysis did not find any indications that this conclusion has changed, and the conclusions of the former analysis remain valid.

The current ICE analysis also relied on the land use projections of the Panel, which found that in select locations the region would experience future development beyond that planned for by Montgomery and Frederick Counties. The Panel determined that this additional development would occur regardless of the alternative, including the No-Build. Therefore, resources in these locations may be under unanticipated stress.

Energy

The energy analysis, detailed in **Chapter IV.M**, evaluates two components of energy use: the energy required to construct the project, and the change in energy usage relating to daily vehicular travel in the region.

The LRT alternative uses less energy for construction. The energy consumption involved in construction of the transitway would be higher for BRT than for LRT due to the fact that the elevated roadway segments needed for BRT require more energy to construct than elevated trackway. The energy needed to construct the BRT guideway is estimated at 298 billion British Thermal Units (BTUs), compared to 208 billion for the LRT guideway.

Transportation energy usage for the study area and region shows that each of the build alternatives has less than a one percent effect on regional transportation energy consumption, making it almost immeasurable. Highway Alternative 7A/B will encourage more vehicle miles traveled, resulting in higher energy usage than Alternative 6A/B. Of the transit alternatives, BRT appears to use less energy in its daily operations (443 million BTUs) than LRT, which would use 459 million BTUs daily to operate. Alternative 6B is therefore predicted to have the smallest relative increase in transportation energy of all the build alternatives.

Construction of this project would require review and approval for the permits listed in **Table S-7**.

Table S-7: Permits Required

PERMIT REQUIRED	PERMITTING AGENCY
Section 401 Water Quality Certificate	MDE
Section 404 Wetland Permit	USACE/MDE
Non-tidal Wetland and Waterways Permit	MDE
Stormwater Management Plan Approval	MDE
Sediment and Erosion Control Plan Approval	MDE
Forest Conservation Plan	Maryland Department of Natural Resources
National Pollution Discharge Elimination System (NPDES) permit for point discharges	MDE
Archeological Resources Protection Act Permit	NPS

Goals and Objectives/Measures of Effectiveness

Measures of Effectiveness (MOE) were established over the course of the study for purposes of evaluating the proposed alternatives. The alternatives can be evaluated based on the MOE. The goals and measures of effectiveness are presented in **Chapter I** and evaluated in **Chapter VI**, and are summarized in the following text.

Goal 1: Support Orderly Economic Growth

Objective: Support the orderly economic development of the I-270/US 15 Corridor consistent with the existing local government land use plans and Maryland’s Economic Growth, Resource Protection and Planning Act.

Measures of Effectiveness:

- Consistency of project with development policies in local area master plans
- Consistency of project with State Smart Growth policies

Goal 2: Enhance Mobility

Objective: Provide enhanced traveler mobility throughout the I-270/US 15 Corridor by: optimizing travel choices by destination, mode and route; minimizing delay; and improving the safety and overall efficiency of the transportation system.

Measures of Effectiveness:

- Transit ridership, including new transit trips
- Annual user benefit hours (travel time savings)
- Highway level of service
- Increased travel choices
- Improved transit accessibility

Goal 3: Improve Goods Movement

Objective: Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

Measures of Effectiveness:

- Highway level of service

Goal 4: Preserve the Environment

Objective: Deliver transportation services in a manner that preserves, protects, and enhances the quality of life and social, cultural and natural environment in the I-270/US 15 Corridor.

Measures of Effectiveness:

- Support regional air quality conformity goals
- Minimize impacts of transportation system to natural and community environment

Goal 5: Optimize Public Investment

Objective: Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of the existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

Measures of Effectiveness:

- Capital costs
- Operating and maintenance costs
- Transit cost-effectiveness index



Summary of Costs/Financial Analysis

Details of the analyses summarized herein can be found in **Chapter V**.

Capital Cost Estimates

A summary of the capital cost estimates for Alternatives 6A/B and 7A/B is shown in **Table S-8**. The costs for the build alternatives range between approximately \$4.3 billion (Alternatives 6B and 7B) and approximately \$4.7 billion (Alternatives 6A and 7A). The capital cost estimates represent total project costs and include project planning, engineering design, right-of-way, vehicles (transit), and construction.

Operations and Maintenance (O&M) Costs

Highway

Highway O&M costs are relatively low; they include routine repairs and periodic road resurfacing. Following construction, these costs will be incorporated into the overall repair cycle budget for the I-270 and US 15 roadways.

Transit

O&M costs cover labor and material costs to operate the transit service and maintain the vehicles and guideway. O&M costs fluctuate based on the level of transit service provided, e.g., frequency of service, number of vehicles needed to maintain that service. A detailed discussion of the methodology used to develop O&M costs is included in **Chapter V**. A summary of the estimated annual O&M costs is provided in **Table S-9**.

Funding Strategy

Highway funding is anticipated to be through a combination of Federal-aid highway funds and Maryland Transportation Trust Fund (TTF) funds. The collection of tolls on the ETLs will help to provide funds as well. Additional funding options may be evaluated as needed.

Funding for the transit component will be achieved through a variety of sources. Maryland’s TTF will provide funding for capital and operating costs. FTA’s New Starts Program is anticipated to provide a portion

of the capital funding cost. Additional sources of revenue may include funds from Montgomery County; the probable source will be local property tax revenues. Montgomery County is also anticipated to contribute portions of the right-of-way needed for the CCT. Private sector funding options will also be considered. The construction and maintenance of the hiker-biker trail component of the project is not anticipated to be funded as a part of the total package.

Financial Analysis

The estimated cost of the highway alternatives (\$3,879 million) is the same for both Alternatives 6A/B and 7A/B, as they have the same physical footprint and the same quantity of pavement. The capital cost of the LRT Alternative, \$777.5 million, is greater than for the BRT Alternative (\$449.9 million). LRT would be about five percent more expensive in terms of annual operating costs, at \$28.1 million, than BRT (\$26.9 million). While LRT operation along the CCT alignment is about 50 percent more expensive than BRT operation, LRT provides substantial savings in the feeder bus service. Costs and financial feasibility of the alternatives are discussed in **Chapter V**.

Cost Effectiveness

A cost effectiveness analysis of Alternatives 6A/B and 7A/B provides a comparative index for FTA to use in determining the level of New Starts funding that would be provided for the proposed transit component. The detailed discussion is included in **Chapter VI**. The analysis is based upon the comparative effectiveness of the alternatives in meeting the goals and objectives established for the project. The project’s goals and objectives as listed previously in this summary, and the ability of each build alternative to meet the goals is summarized in the following text.

Effectiveness in Meeting Project Goals

Goal 1 – The ability to support orderly economic growth should not be a differentiating factor among the build alternatives because all of the build alternatives include improvements to the same highway corridor, include the addition of ETLs, and propose transit improvements on the same alignment.

Table S-8: Summary of Capital Cost Estimates by Alternative

COST COMPONENT	ALTERNATIVE 6-TSM	ALTERNATIVE 6A OR 7A	ALTERNATIVE 6B OR 7B
Highway			
Project Planning	\$17.37	\$17.37	\$17.37
Engineering Design	\$476.03	\$476.03	\$476.03
Right-of-Way	\$378.65	\$378.65	\$378.65
Construction	\$3,006.85	\$3,006.85	\$3,006.85
Subtotal – Highway	\$3,878.90	\$3,878.90	\$3,878.90
Transit			
Construction	\$49.22	\$455.82	\$281.93
Right-of-Way	\$7.38	\$35.00	\$35.00
Vehicles	\$11.36	\$112.20	\$25.66
Other*	\$18.90	\$174.51	\$107.33
Subtotal – Transit	\$86.86	\$777.53	\$449.92
TOTAL COST	\$3,965.76	\$4,656.43	\$4,328.82

* Includes professional services and contingency.

Cost estimates in \$million 2007

Costs represent a “snapshot” in time for comparison. Project costs are subject to change based on world and local financial markets.

Goal 2 – The ability of the highway component to enhance mobility shows that between Alternatives 6A/B and 7A/B, Alternative 7A/B provides the most mobility improvement to the general purpose lanes, with 30 fewer miles of LOS F conditions during peak hours than the No-Build, versus Alternative 6A/B, with 13 fewer miles of LOS F conditions.

For the transitway, the LRT Alternatives 6A and 7A are projected to have a greater number of daily boardings, 30,000, than the BRT Alternatives 6B (26,000) and 7B (27,000). Conversely, the BRT alternatives would attract more new transit riders (averaging 16,950 on BRT versus 16,350 on LRT). The BRT Alternatives 6B and 7B would provide a greater increase in daily user benefit hours (13,700 and 13,800 hours respectively) over the No-Build Alternative than the LRT Alternatives 6A and 7A (13,200 and 13,300 hours, respectively). Differences can be attributed to the potential for BRT to continue express service on feeder buses onto the guideway and providing a “one-seat”

trip, while LRT feeder bus passengers would have to transfer to the LRT to use the guideway.

Goal 3 – The build alternatives would improve goods movement along the I-270/US 15 corridor by improving LOS during peak travel hours on the general-purpose lanes and providing a faster, more free-flowing traffic stream on the ETLs. Freight and other commercial carriers would be able to use the ETLs and the general-purpose lanes depending on how valuable the time savings is to a particular trip. Alternative 7A/B, which provides two ETLs between MD 121 and north of MD 80, would provide a slight advantage over Alternative 6A/B. Refer to **Chapter VI**.

Goal 4 – In order to preserve the environment, the build alternatives will be engineered to avoid impacts to the environment wherever possible throughout the length of the improvements. As **Chapter IV** indicates, some impacts are not able to be avoided. Minimization strategies have been and will continue to be evaluated



throughout final design. For those impacts that are unable to be avoided, mitigation strategies will lessen the impact to the environment. There is no difference in the physical impacts between Alternatives 6A/B and 7A/B. Differences among the build alternatives in visual, audible, and air quality impacts are minor. A comparison of specific impacts is provided in **Chapter IV** and summarized in **Chapter VI**.

Goal 5 – Each of the build alternatives would optimize public investment by increasing the efficient use of the transportation system by reducing travel times and encouraging the use of transit. Because the BRT Alternatives 6B and 7B have a lower capital cost (see **Table S-10**), they rank much higher in terms of value provided per dollar than the LRT Alternatives 6A and 7A. It is unclear whether Alternative 7A/B would provide the better public investment return because of the additional ETL between MD 121 and north of MD 80. By adding the second ETL, toll revenues may be decreased (to be dynamically determined based on general purpose lane congestion), thereby requiring a higher public capital cost share to construct the same improvements.

In addition to mobility benefits from the public investment, development benefits are predicted to be realized in enhanced valuation of property resulting from greater mobility and accessibility as well as proximity to transit stations.

Effectiveness Analysis

Estimated capital costs are summarized in **Table S-8**. Annual transit O&M costs, summarized in **Table S-9**, include daily operating expenses (fuel, operators and other personnel) as well as guideway maintenance. Cost effectiveness is calculated for FTA using their specified methodology, as discussed in **Chapter VI**. The results (**Table S-10**) show that the two BRT Alternatives 6B and 7B, with ratings of \$18.50 and \$18.25 per hour of user benefit, respectively, meet the FTA threshold with a “medium” cost-effectiveness rating, and would be acceptable to proceed into preliminary engineering, where more detailed studies would be conducted on the alignments and costs. Both of the LRT alternatives have “low” cost-effectiveness ratings.

Related Projects in the Study Area

Related projects in the study area are listed in **Table S-11** and in **Chapter I, Table I-1**.

In addition to these projects, the West Side Mobility Study, a joint effort between SHA and the Virginia Department of Transportation (VDOT), examined the engineering and highway operational effects of adding a managed lane system to I-270 and I-495 from the I-270/I-370 interchange south and west to north of the Dulles Toll Road via the I-270 West Spur and over the American Legion Bridge. The purpose of the study is to develop a range of alternative and operating scenarios to provide additional capacity and a managed lanes network between I-370, the Intercounty Connector (ICC), the I-270/US 15 Multi-Modal Corridor Study, and the VDOT High Occupancy Toll (HOT) lanes project.

A notable change since the 2002 DEIS on related projects is the status of the Intercounty Connector (ICC). The 2002 DEIS does not cite the existence of the ICC since it was not an active project with the Maryland Department of Transportation nor was it included in the MWCOG CLRP. However, in 2003 MDOT and the U.S. Department of Transportation designated the ICC project a priority project and it was added to the region’s CLRP. The ICC is a limited access highway connecting US 1 in Prince George’s County and I-370 in Montgomery County. In 2006, after completion of a DEIS and FEIS, the Record of Decision was signed for the locally preferred alternative (a fully-tolled, limited access highway). The highway is currently under construction with the westernmost segment (Contract A) slated to open in late 2010 and the entire highway to be completed by late 2011 or early 2012.

Issues to be Resolved and Next Steps

As a supplement to the 2002 DEIS, this AA/EA serves to identify additional alternatives that will be considered in a Final Environmental Impact Statement (FEIS). Additional issues will be addressed in the next steps in the planning process. These include:

- Operation of a transit facility

Table S-9: Annual O&M Costs by Transit Alternative

ALTERNATIVE	LIGHT RAIL TRANSIT	BUS RAPID TRANSIT	BACKGROUND BUS	TOTAL
Alternative 6-TSM		\$ 5,842,400	\$8,950,950	\$14,793,350
Alternative 6A, 7A	\$26,985,700		\$1,143,400	\$28,129,100
Alternative 6B, 7B		\$17,907,850	\$8,950,950	\$26,858,800

Note: All costs are shown relative to the No-Build.

Table S-10: Cost-Effectiveness (costs in 2007 dollars)

	ALTERNATIVE 6-TSM	ALTERNATIVE 6A	ALTERNATIVE 6B	ALTERNATIVE 7A	ALTERNATIVE 7B
Capital Costs	\$86,860,000	\$777,530,000	\$449,920,000	\$777,530,000	\$449,920,000
Equivalent Annual Capital Costs*	\$7,440,700	\$62,202,400	\$36,443,500	\$62,202,400	\$36,443,500
Equivalent Annual Capital Costs above TSM		\$54,761,700	\$29,002,800	\$54,761,700	\$29,002,800
Net Change in Operating Costs	\$14,793,000	\$28,129,000	\$26,859,000	\$28,129,000	\$26,859,000
Operating Costs above TSM		\$13,336,000	\$12,066,000	\$13,336,000	\$12,066,000
Daily User Benefit Hours	6,300	13,200	13,700	13,300	13,800
Benefit Hours above TSM		6,900	7,400	7,000	7,500
Annual Benefit Hours		2,070,000	2,220,000	2,100,000	2,250,000
Cost-Effectiveness Index		\$32.90	\$18.50	\$32.43	\$18.25

** These are the one-time capital costs expressed as an annualized stream of payments over 20 years, much as the value of a mortgage can be expressed in terms of annual payments.*

Costs represent a “snapshot” in time for comparison. Project costs are subject to change based on world and local financial markets and will be reevaluated for the Final Environmental Impact Statement.

- Coordination with local agencies and developers on specific site locations for stations, parking facilities, noise walls and maintenance facilities
- Determination and design of stormwater management facilities
- Continuing coordination to minimize harm for Section 4(f) uses
- Continuing coordination with the MD SHPO and owners of affected resources to complete an MOA for adverse effects of the project
- Continuing minimization of residential and business displacements
- Continuing minimization of natural resources impacts
- Continuing Section 106 coordination
- Land Use/Smart Growth

Next steps in the planning process include a hearing to gain input from the public on Alternatives 6A/B and 7A/B, continuing coordination and consultation with the resource and regulatory agencies and the public, and completion of a compensatory mitigation package for all impacts. The publication of a FEIS and issuance of a Record of Decision (ROD) would complete the planning process.



Table S-11: Programmed Transportation Improvements in the Study Area

LOCATION	DESCRIPTION	PROJECTED COMPLETION DATE
Highway Upgrade, Reconstruction, Extension and Widening Projects		
US 15 at Monocacy Boulevard	Construct a new interchange at US 15 and Monocacy Boulevard	2010
I-70 from Mt. Phillip Road to MD 144 (Baltimore National Pike)	Extend MD 475 (East St) from South Street to proposed Monocacy Boulevard, including storm water management ponds and new urban diamond interchange with I-70 and ramps to Walser Drive	Under construction
	Replace I-70 bridge over Reichs Ford Road & reconstruct ramps, widen from MD 144 to west of Monocacy Boulevard; reconstruct Monocacy Boulevard interchange	2015
	Widen to 6 lanes, New Design Road to Mt. Phillip Road	2015
I-270 Interchange at Watkins Mill Road	Widen and extend Watkins Mill Road from 4-6 lanes; construct interchange; add 2-lane collector-distributor roads NB & SB on I-270	2020
I-270 at MD 121	Reconstruct interchange of I-270 and MD 121	2010
MD 27 from MD 355 to Snowden Farm Parkway (A-305)	Widen to 6 lanes from MD 355 to Midcounty Highway.; widen to 4 lanes from Midcounty Highway. to Snowden Farm Parkway	2010
Midcounty Hwy. (M-83) from Montgomery Village Avenue to MD 27	Construct 4 to 6 lane roadway	2020
MD 85 from English Muffin Way to north of Grove Road	Upgrade MD 85 to multi-lane divided highway	2020
MD 117 from Great Seneca Park (sic.) [Seneca Creek State Park] to I-270	Improve roadway and reconstruct intersections to provide capacity and improve operations. Includes sidewalks where appropriate & multi-use path on south side.	Engineering to be completed by 2010
MD 118 from MD 355 to M-83 [Midcounty Highway]/ Watkins Mill Road	Extend MD 118 as a 6-lane divided highway (includes bicycle/pedestrian accommodation)	2020
MD 355/MD 80 Urbana Bypass, east of I-270 north & south of Urbana	Construct to 4 lanes relocated east of I-270, from north of MD 80 to south of MD 80, including intersection (2 separate projects)	2010
Father Hurley Boulevard from Wisteria Road to MD 118 Relocated	Construct final link of Father Hurley Boulevard as a 4- or 6-lane roadway (includes bridge over CSX railroad; includes bicycle/pedestrian accommodation)	2010
Middlebrook Road Extended from MD 355 to M-83	Study to construct 6 lanes	2010
I-270: replace bridge over Doctor Perry Road	Existing bridge is deteriorating	2010
Dorsey Mill Road from Century Boulevard to Observation Drive	Connect Dorsey Mill Road between Century Boulevard and Observation Drive via an overpass of I-270	Not available

Table S-11: Programmed Transportation Improvements in the Study Area (continued)

LOCATION	DESCRIPTION	PROJECTED COMPLETION DATE
Observation Drive extended north to Stringtown Road	Planning study to extend Observation Drive as a 4-lane divided roadway from south of Little Seneca Creek to Clarksburg Town Center	Not available
Intercountry Connector (ICC)	Construct toll freeway between I-270 and I-95/US1; engineering, right-of-way acquisition and construction under way	2012
Transit Extensions and Parking Expansion Projects		
Olney Transit Center	Construction of transit center in Olney	2015
Montgomery County Randolph Road bus enhancements	Bus Rapid Transit from MD 355 to US 29	2010
Clarksburg Transit Center	Construct Transit Center	2015
Paul S. Sarbanes Transit Center Silver Spring	Transit center at Silver Spring to include Metrorail/MARC station, local and intercity bus, and a taxi queue area. Incorporates connections for a possible future Bi-County Transitway (Purple Line) and/or hiker/biker trail. Phase I Construction is complete.	2010
Purple Line	Study of 16-mile transitway between New Carrollton and Bethesda Metrorail stations, connecting the Metrorail Red, Green and Orange lines to key destinations in Prince George's and Montgomery Counties.	Planning to be completed in 2010

Sources: MWCOG 2007 CLRP, Montgomery County's Ten-Year Transportation Plan September 2007, and MDOT 2008-2013 CTP.



Environmental Assessment Form

The Environmental Assessment Form (EAF) is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4 (k) and 1506.2 and 1506.6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of Federal, State and Local procedures be integrated into a single process.

The checklist identifies specific areas of the natural and socioeconomic environment that have been considered while preparing this environmental assessment. The reviewer can refer to the appropriate section of the document, as indicated in the “Comment” column of the form, for a description of specific characteristics of the resource and the potential impacts, beneficial or adverse, that the action may incur. The “No” column indicates that during the scoping and early coordination processes, a specific area of the environment was not identified to be within the project area or would not be impacted by the proposed action.

Environmental Assessment Form

		YES	NO	COMMENTS ATTACHED
Land Use Considerations				
1.	Will the action be within the 100-year floodplain?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
2.	Will the action require a permit for construction or alteration within the 50-year floodplain?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
3.	Will the action require a permit for dredging, filling, draining, or alteration of a wetland?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
4.	Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.	Will the action occur on slopes exceeding 15%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
6.	Will the action require a grading plan or a sediment control permit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
7.	Will the action require a mining permit for deep or surface mining?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8.	Will the action require a permit for drilling a gas or oil well?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9.	Will the action require a permit for airport construction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10.	Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11.	Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Sections IV.B and IV.E

Environmental Assessment Form

		YES	NO	COMMENTS ATTACHED
12.	Will the action affect the use of any natural or man-made features that are unique to the County, State, or Nation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.E
13.	Will the action affect the use of an archeological or historical site or structure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.E
Water Use Considerations				
14.	Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
15.	Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
16.	Will the action change the overland flow of stormwater or the absorption capacity of the ground?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
17.	Will the action require a permit for the drilling of a water well?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
18.	Will the action require a permit for water appropriation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
19.	Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
20.	Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
21.	Will the action result in any discharge into surface or sub-surface water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
22.	If so, will the discharge affect ambient water quality limits or require a discharge permit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
Air Use Considerations				
23.	Will the action result in any discharge into the air?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.H
24.	If so, will the discharge affect ambient air quality limits or produce a disagreeable odor?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
25.	Will the action generate additional noise which differs in character or level from present conditions?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.I
26.	Will the action preclude future use of related air space?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
27.	Will the action generate any radiological, electrical, magnetic, or light influences?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



Environmental Assessment Form

		YES	NO	COMMENTS ATTACHED
Plants and Animals				
28.	Will the action cause the disturbance, reduction, or loss of any rare, unique or valuable plant or animal?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.F
29.	Will the action result in the significant reduction or loss of any fish or wildlife habitats?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
30.	Will the action require a permit for the use of pesticides, herbicides or other biological, chemical, or radiological control agents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Socioeconomic				
31.	Will the action result in a preemption or division of properties or impair their economic use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.B
32.	Will the action cause relocation of activities or structures, or result in a change in the population density of distribution?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.B
33.	Will the action alter land values?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.C
34.	Will the action affect traffic flow and volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section III
35.	Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
36.	Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
37.	Is the action in accord with federal, state, regional and local comprehensive or functional plans including zoning?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.A
38.	Will the action affect the employment opportunities for persons in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.C
39.	Will the action affect the ability of the area to attract new sources of tax revenue?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.C
40.	Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.C
41.	Will the action affect the ability of the area to attract tourism?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Environmental Assessment Form

		YES	NO	COMMENTS ATTACHED
Other Considerations				
42.	Could the action endanger the public health, safety, or welfare?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
43.	Could the action be eliminated without deleterious affects to the public health, safety, welfare, or the natural environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
44.	Will the action be of statewide significance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
45.	Are there any other plans or actions (Federal, State, County or private) that, in conjunction with the subject action, could result in a cumulative or synergistic impact on the public health, safety, welfare, or environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section IV.L
46.	Will the action require additional power generation or transmission capacity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Conclusion				
47.	This agency will develop a complete environmental effects report on the proposed action.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Document