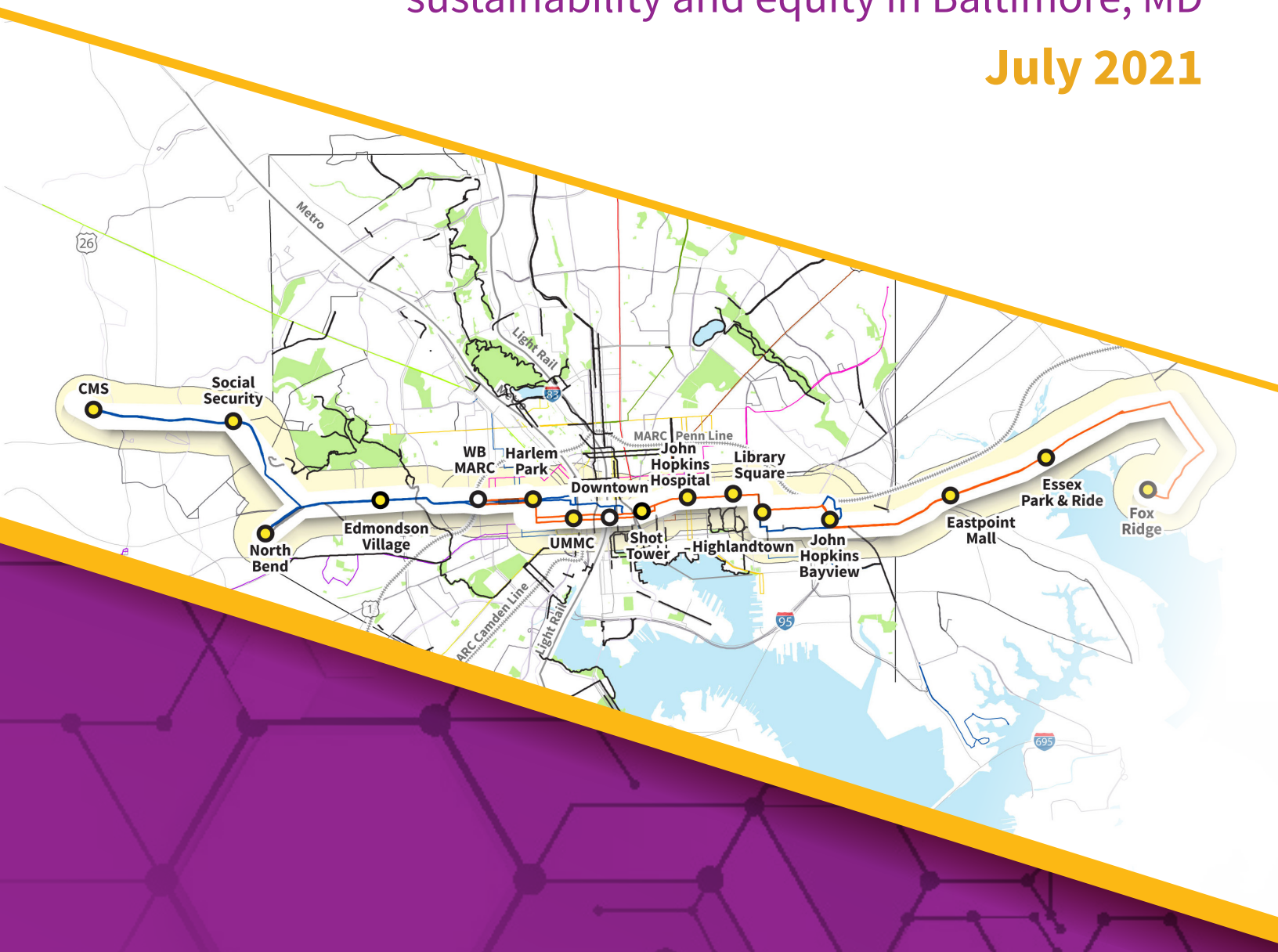
East-West Priority Corridor

Enhancing multi-modal connections to advance sustainability and equity in Baltimore, MD

July 2021



DEPARTMENT OF TRANSPORTATION
BALTIMORE CITY

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION

East-West Priority Corridor

Enhancing multi-modal connections to advance sustainability and equity in Baltimore, MD

Project Name	East-West Priority Corridor
Applicant	Maryland Department of Transportation, Maryland Transit Administration (MDOT MTA)
Co-sponsor	Baltimore Department of Transportation (BCDOT)
Contact Information	Oluseyi Olugbenle, MDOT MTA Acting Director, Office of Planning and Programming 6 Saint Paul Street, 9th Floor Baltimore, MD 21202
Project Type	Urban
Project Description	The Project will add transit, Americans with Disabilities Act (ADA), pedestrian and bicycle improvements on a 20-mile corridor in Baltimore City and Baltimore County, MD. Specifically, the RAISE grant will fund ten miles of dedicated bus lanes, transit signal priority at select intersections, bus stop amenities, bioretention facilities, curb bump-outs, signal improvements, real-time signage, ADA improvements and a bicycle lane along this critical corridor.
Project Cost	$50 million
RAISE Request	$25 million
Source(s) and Amounts	$15 million – MDOT MTA $10 million – Baltimore City DOT Total: $25 million
NEPA Status	Documented Categorical Exclusion expected to be completed by September 2023.
Completion Date	May 2027
Benefit-Cost Analysis Results	Based on the BCA, the *East-West Priority Corridor* is estimated to achieve a 2.32 ratio of benefits to costs at a 7 percent discount rate.

Table of Contents

List of Appendices

1. Project Description

The Maryland Department of Transportation Maryland Transit Administration (MDOT MTA), in partnership with the Baltimore City Department of Transportation (BCDOT), requests $25 million in Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant funds for the *East-West Priority Corridor* Project, a multi-modal transportation enhancement project that will add transit, pedestrian and bicycle infrastructure improvements along a 20-mile corridor in Baltimore, Maryland. **These funds are essential to complete the funding package for a $50 million project that will facilitate faster and more reliable transit trips, strengthen multi-modal connections, and address existing pedestrian safety issues in order to enhance access and mobility to essential services, jobs and schools in this priority corridor in Baltimore.** The Project applies strategies and design guidance from both the MDOT MTA Transit Priority Toolkit and the Baltimore City Complete Streets Manual to directly address existing challenges on a 20-mile corridor that crosses Baltimore City and connects into Baltimore County carrying two of the region's highest-ridership bus routes. As over 17,000 households [1] within a quarter mile of the *East-West Priority Corridor* do not have a car, many residents in the Project area depend on transit to access jobs, education, health care, and other essential services and amenities.

This Project builds from the successes and lessons learned from the 2016 TIGER-funded North Avenue Rising Project. Like North Avenue Rising, the *East-West Priority Corridor* project includes several elements to improve the reliability, speed, safety and accessibility of transit, in addition to pedestrian safety and Americans with Disabilities Act (ADA) accessibility improvements. Together, these investments facilitate safer multi-modal travel along this critical corridor. The Project elements include:

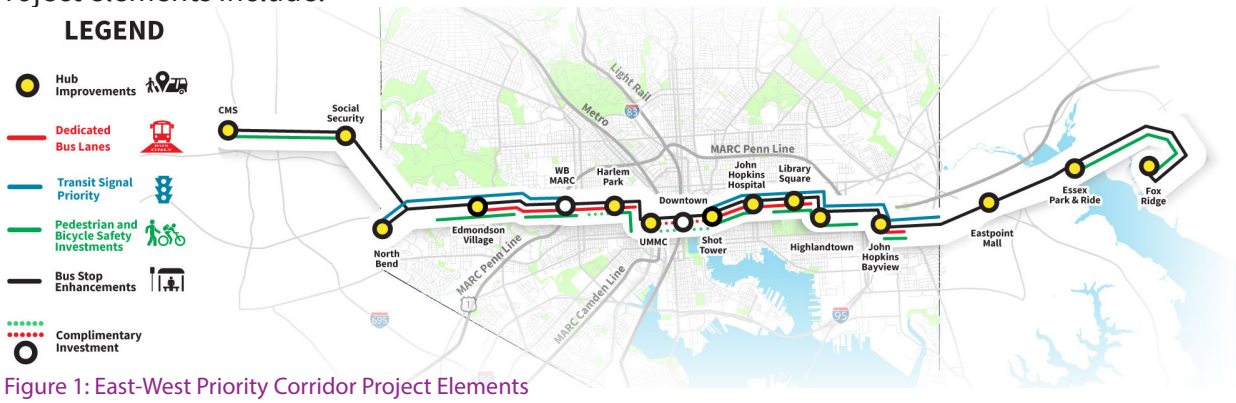


Figure 1: East-West Priority Corridor Project Elements

Project Components

- Dedicated bus lanes on at least 10 miles of the corridor
- Transit signal priority
- Bus stop enhancements, including shelters, benches, bioretention facilities and safety improvements
- Signage upgrades including wayfinding and real-time arrival information focused on high-transfer activity 'hubs'
- ADA improvements to sidewalks and bus stops
- Pedestrian safety improvements, including curb extensions, new crosswalks and signal improvements
- A bicycle lane connecting the Downtown bicycle network to the West Baltimore MARC commuter rail station
- Electric vehicle charging stations through the local utility company

1. American Community Survey, 2014-2018 Five-Year Estimates

This *East-West Priority Corridor* extends from a western terminus in Baltimore County at the Centers for Medicare and Medicaid Services (CMS), travels east through Baltimore City, including downtown Baltimore, and ends in the Fox Ridge community in eastern Baltimore County. **MDOT MTA and BCDOT selected this corridor for significant transit, pedestrian, and bicycle infrastructure investment because of its potential to advance equity in the Baltimore region and expand transit access to over 180,000 jobs.** This Project would shorten transit commute times and improve transit reliability for residents of some of the nation's highest-poverty communities and strengthen direct connections between these communities and employment centers, social services, education, and healthcare. The employers along the *East-West Priority Corridor* route are among the largest trip generators in the Baltimore region, with federal, state, and local government employers; private sector employers; and dense retail areas within a half-mile of the corridor. This corridor also includes the "Highway to Nowhere," an urban highway built in the 1970s that adversely impacted predominantly Black communities and is now a major focus of local, state, and federal elected officials examining options to remove or repurpose the highway to redress the damage caused to these communities.

Figure 2: Dedicated bus lane on the North Avenue Corridor

The Project partners understand that a transit trip does not begin and end at the transit vehicle doors, but rather from the doors at the origins and destinations. Consequently, MDOT MTA has identified this corridor for transit priority improvements complemented by upgrades to pedestrian, ADA, and bicycle infrastructure to allow safer multi-modal travel, enabling transit customers to safely get to their destinations at medical facilities, employment, school and other essential destinations.

This Project will address several key transportation challenges in the Baltimore region, identified through community engagement, a regional transportation planning process, Baltimore City DOT's Transportation Equity Gap Analysis Technical Report, and a Johns Hopkins University transportation equity study. These challenges include:

I. Need for an efficient, reliable route from east to west in Baltimore

The *East-West Priority Corridor* bridges Baltimore's suburbs and downtown, connecting major activity centers, population centers, downtown Baltimore, and areas of persistent poverty. Providing efficient, reliable transit and multi-modal options that connect residents and workers to the jobs and services upon which they depend is critical to equitable growth.

II. Travel delays for riders of the region's most heavily traveled bus routes

The transit routes in this corridor - the CityLink Orange and Blue - currently experience considerable challenges with on-time performance (OTP), as shown in Table 1. Both of these routes have lower performance than the overall average of all BaltimoreLink routes, due in large part to the congestion and sub-optimal signal timing on these streets. By adding 10 miles of bus lanes with complementary investments on the corridor, OTP is expected to increase significantly on the CityLink Blue and Orange.

On-Time Performance Fall 2019 (September-December)

Route	Total On-Time	Total Early	Total Late	Avg Weekday Ridership
Blue	68.3%	6.6%	25.1%	9,307
Orange	63.0%	6.6%	30.4%	9,364
All Core Bus Routes (Avg)	69.6%	7.2%	23.2%	3,345

Table 1: CityLink Blue and Orange OTP Compared to All BaltimoreLink Routes

III. Underserved communities in east and west Baltimore need greater transit reliability

Within a quarter mile of the *East-West Priority Corridor*, more than 12,000 households live below the poverty line and 17,000 households do not have access to private vehicles. The need for efficient, reliable, and accessible transit is critical to connecting these households to key destinations, services, and employers in the region.

	Households in Poverty	Households without Access to Private Vehicle
¼ Mile	12,788 (20%)	17,326 (28%)
½ Mile	16,999 (20%)	23,539 (27%)

Table 2: Households in Poverty and Without Access to Private Vehicle Around East-West Priority Corridor, ACS 2018

Project Goals

- **I.** Improve transit reliability, accessibility and comfort for existing transit riders
- **II.** Attract new riders to transit through faster and more reliable service between communities and major employment centers
- **III.** Connect emerging development to regional transit
- **IV.** Improve safety and accessibility for pedestrians and people with mobility challenges accessing transit
- **V.** Create safe cycling connections
- **VI.** Strengthen neighborhood revitalization efforts in communities with persistent poverty
- **VII.** Ensure sustainable project outcomes by aligning efforts with MDOT MTA's Sustainability Program and statewide climate change adaptation efforts

IV. ADA non-compliance at bus stops poses challenges for riders with mobility challenges to access transit

Nearly 60 percent of bus stops on the corridor (142 stops) are not ADA compliant, making it difficult for riders with mobility challenges to access the bus on more than half of the corridor. MDOT MTA and BCDOT are committed to providing access to transit for riders of all abilities. Funding to perform the needed ADA improvements at many of these stops will help to expand access to individuals with disabilities.

Additionally, addressing existing ADA infrastructure shortcomings will improve access to fixed-route transit service, enabling riders who currently must depend on paratransit to use this more convenient option. When people with disabilities can use fixed-route service, they are afforded significantly higher levels of freedom and flexibility compared to paratransit.

V. Vehicle-centric roadway design presents safety concerns for pedestrians traveling on the corridor

On average, over 1,200 crashes occurred on the corridor between 2017 and 2019, with 3 fatalities and 17 serious injuries per year. Poor pedestrian infrastructure is one contributor to crashes involving pedestrians, and improvements at key locations on the corridor are needed to improve safety for all those who travel in the corridor.

The Project boasts a strong benefit-cost ratio, indicative of its positive impacts on this important corridor.

Total Benefits	$77.7 million
Total Costs	**$33.4 million** [2]
Benefit-Cost Ratio	**2.32**

Table 3: Benefit-Cost Analysis Summary

Project History

An east-west rapid transit corridor in Baltimore has been studied for over 50 years, and the route from east to west along the CityLink Orange and Blue alignments continues to have among the highest demand for high-capacity transit in the region. Transit corridor plans on the alignment of the *East-West Priority Corridor* project extend back to 1968, when the Baltimore region first envisioned building a rapid transit system. Several other plans for rapid transit or a transit priority corridor have been developed for this corridor, including:

- Baltimore Region Rail System Plan (2002)
- East-West Transit Connector Study (2002)
- Baltimore Red Line Alternatives Technical Report (2008)
- QuickBus Service Analysis (2009)
- Baltimore Red Line Final Environmental Impact Statement (2012)
- BaltimoreLink (2017)
- Premium Limited-Stop Bus Service Study (2020)
- Dedicated Bus Lanes Study (2020)
- Central Maryland Regional Transit Plan (2020)

Figure 3: Regional Transit Plan for Central Maryland

Based on the analyses and recommendations in these plans, **the East-West Corridor has risen as one of the highest-priority corridors in the Baltimore region** based on factors such as transit gaps, transfer potential, existing, and future jobs, demographic factors targeting populations with high propensity to use transit, supportive land use and growth areas. Demonstrative of the Project's importance, the *East-West Priority Corridor* has been placed on the 2021 Member Designated Projects, or Earmark, List.

Leading up to 2015, significant planning and engineering work was completed for the Red Line light rail project to connect the Centers for Medicare and Medicaid Services (CMS) and Social Security Administration in the west and Johns Hopkins Bayview Medical Center in the east. The Red Line project was cancelled by the State in 2015 due to cost concerns and the risks associated with the Red Line project's extensive tunneling.

In 2020, MDOT MTA completed a 25-year regional transit plan (RTP) for Central Maryland in consultation with an 11-member commission, including representatives from each of the local jurisdictions. As part of the RTP development process, MDOT MTA and its partners prioritized

2. Note that this value appears lower than the $50 million total project cost reported elsewhere due to the use of 2019 dollars and a discount rate of 7 percent, as dictated by USDOT BCA guidance.

Aligned with federal priorities to remove highways that cut through Black and Brown communities, MDOT MTA, BCDOT and public officials at the local, state and federal level have begun discussions surrounding the removal or retrofitting of the "Highway to Nowhere" (U.S. Route 40) that displaced thousands of Black residents when it was built in the 1970s. The *East-West Priority Corridor* project addresses immediate needs on this corridor while the City and State design and implement a racial justice and equity centered approach to planning the future of U.S. Route 40 and reconnecting the communities impacted by the construction of this highway.

transit corridors based on data showing transit readiness and potential to contribute to equitable transportation outcomes, including access to jobs and other essential trips. Through this plan, MDOT MTA identified several "early opportunity" corridors that were suitable for near-term implementation and is currently leading detailed planning studies on these corridors. The *East-West Priority Corridor* was one of only four corridors to meet all transit readiness conditions and was prioritized for near-term transit investments. While the East-West Corridor plans have identified different modes and alignments over decades of planning, they have all consistently identified the need for additional transit investment to link to the following communities , which are included in the *East-West Priority Corridor* improvements:

- Edmondson Village
- Midtown Edmondson
- Poppleton
- Westside
- Charles Center
- Highlandtown
- Bayview

Complimentary Transportation Investments

The *East-West Priority Corridor* project fits into a broader context of significant recent and ongoing transit, pedestrian, and cycling infrastructure investments in Baltimore. MDOT MTA and BCDOT have ongoing projects to expand Baltimore's transit priority infrastructure, design and implement "Complete Streets" improvements to major corridors, construct system-wide ADA improvements, electrify the bus fleet, and expand the bicycle network.

North Avenue Rising TIGER Grant

In 2016, MDOT MTA and BCDOT successfully applied for TIGER funding to unlock state and local funding to support economic revitalization along North Avenue (a five-mile east-west corridor) to broaden access to economic opportunity throughout Baltimore. The project, which is now under construction, includes dedicated bus lanes supported by transit signal priority, enhanced bus stops, roadway repaving, and streetscaping; as well as renovations to the Penn/North Metro Subway station and a protected bike lane. This $27.3 million project comprises $10 million

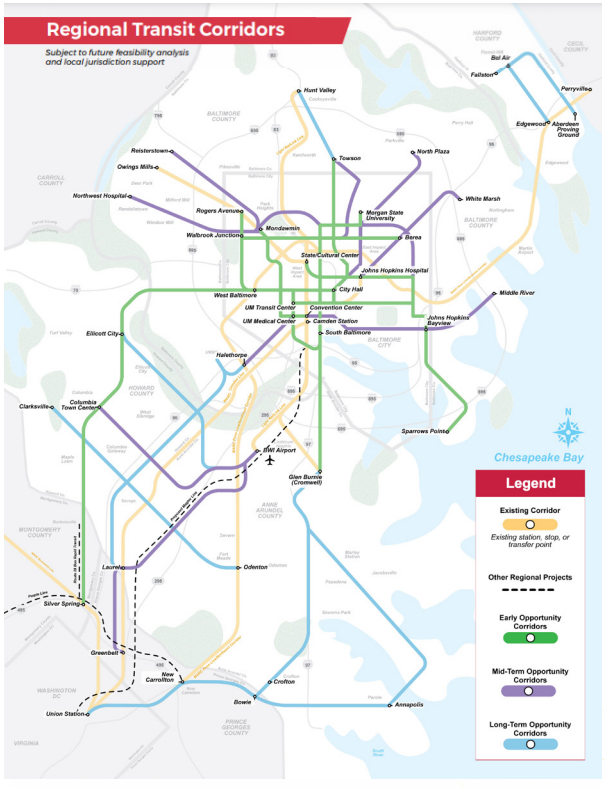


Figure 4: Regional Transit Plan - Regional Transit Corridors Selected for Early, Medium and Long-Term Investment

of federal funds from TIGER, $14.7 million in MDOT funds, and $1 million from Baltimore City. The remaining $1.6 million is funded by the FHWA Surface Transportation Block Grant Program. Supported by the transportation investments on North Avenue, several major housing, mixed-use, and university campus developments are planned or under construction on the corridor.

Transit Priority Infrastructure

Building on its bus network redesign through BaltimoreLink in 2017, MDOT MTA is investing in transit priority corridors throughout the bus system to increase bus reliability, speed and passenger safety. MDOT MTA developed a Transit Priority Toolkit to provide guidance on potential targeted investments to the roadway that prioritize transit riders, including curb extensions at bus stops, transit signal priority, dedicated bus lanes and queue jumps. The *East-West Priority Corridor* project addresses three of the highest priority segments in the system.

MDOT MTA's Dedicated Bus Lane Study (2020) provides a roadmap for dedicated bus lane expansion, identifying the most feasible corridors for this infrastructure. This study identifies conceptual design alternatives for 10 miles of dedicated bus lanes on the *East-West Priority Corridor* to serve the CityLink Blue and CityLink Orange routes. The dedicated bus lanes built through the Project would contribute to the agency's goal to expand dedicated bus lane infrastructure and complement other ongoing investments in transit priority infrastructure.

Additionally, MDOT MTA installed transit signal priority (TSP) throughout the entire bus fleet and nearly 50 intersections, allowing buses to communicate with traffic signals and improve travel times. The Regional Transit Plan establishes a goal to expand the number of intersections with TSP in the BaltimoreLink network from 66 intersections today to 100 intersections in 2025.

Complete Streets

Baltimore City signed a Complete Streets ordinance into law in 2018 and adopted an accompanying Complete Streets Manual in 2021, which sets guidelines for developing infrastructure that is safe, accessible, and efficient for all users of all abilities. The Complete Streets Manual establishes a modal hierarchy that informs City decision-making related to funding, project prioritization, transportation planning, street design, traffic operations, maintenance of streets and sidewalks, and enforcement of traffic laws. The multi-modal improvements through the *East-West Priority Corridor* project follow the guidance of the Complete Streets Manual and would contribute to the BCDOT's citywide efforts to expand its network of Complete Streets.

Americans with Disabilities Act (ADA) Improvements

One of BCDOT's and MDOT MTA's highest priorities is improving the ADA accessibility of infrastructure within Baltimore's transportation system. In June 2021, Mayor Brandon Scott formed a multi-agency task force to address the city's ADA compliance and tasked the Department of Transportation to develop a comprehensive plan to address accessibility needs throughout the city. Earlier this year, BCDOT completed a city-wide self-assssment of its ADA infrastructure and is investing in ADA improvements across the city, prioritizing areas with high concentrations of jobs and neighborhoods with large populations of residents with disabilities.

MDOT MTA has made significant efforts to increase the accessibility of its bus stops and has set a goal to improve 100 percent of its bus stops to comply with ADA requirements by 2045. MDOT MTA developed a system-wide bus stop inventory that identifies each bus stop's compliance with U.S. DOT's ADA requirements. This data, in conjunction with ridership, jobs, and disability

data, is used to guide investments in ADA improvements throughout the bus system and is being used to identify the locations for ADA improvements in the *East-West Priority Corridor* Project.

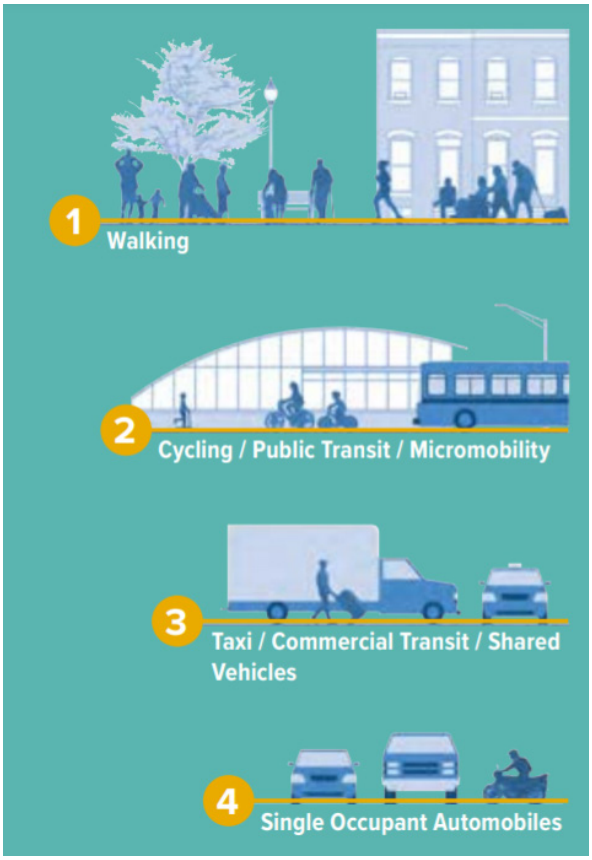


Figure 5: Baltimore's Complete Streets Modal Hierarchy

Bus Fleet Electrification

As context to the agency's broader sustainability efforts, Maryland's Greenhouse Gas Emissions Reduction Act is accelerating the transition to zero-emission vehicles (ZEV) throughout the State of Maryland. The full plan, signed by Governor Larry Hogan in February 2021, includes a commitment for MDOT MTA to transition the bus fleet to 50 percent ZEV by 2030. Further supporting the agency's transition to a full ZEV bus fleet, legislation (SB 137) passed in the Maryland General Assembly in April 2021 prohibits MDOT MTA from purchasing buses that are not zero-emission buses beginning in fiscal year 2023. MDOT MTA's Regional Transit Plan for Central Maryland commits to rail and bus fleet replacement and sets a target to convert 95% of the fleet to zero-emissions vehicles by 2045. To meet these goals, MDOT MTA has developed a plan to convert half of its bus fleet to electric buses by 2030, as well as the associated investments in bus maintenance facilities. MDOT MTA is becoming a leader in its industry, creating a foundation for the transition to ZEV and is committed to expanding this foundation.

Bicycle Infrastructure

The Project advances BCDOT's ongoing effort to expand its bicycle network, with over 100 lane miles of separated cycle tracks and bicycle lanes added in the past 10 years. BCDOT's Bike Master Plan (2015) and Separated Bike Lane Network Plan (2017) identify citywide bicycle investments to create an interconnected network of bicycle infrastructure in the city. BCDOT has also developed plans for a West Baltimore Bike Boulevard network, which will create safer and lower-stress roadway conditions for cyclists on streets around the western portion of the*East-West Priority Corridor* The new 1.5-mile on-street buffered bicycle lane added through the *East-West Priority Corridor* Project will contribute to network-wide investments guided by these plans.

Detailed Statement of Work

The Project will add dedicated bus lanes, transit signal priority, bus stop enhancements, and pedestrian and bicycle safety improvements along the 20-mile *East-West Priority Corridor*. The technical and engineering aspects of the Project are included in Table 4.

Project Element	Lead Agency	Description of Technical and Engineering Aspects
Dedicated Bus Lanes	MDOT MTA	The Project will add dedicated bus lanes to at least ten lane miles of the corridor, with the potential to add up to 12 lane miles based on community engagement. Dedicated bus lanes will be added by converting one existing travel lane in each direction to a bus-only lane using striping, markings, red paint and signage.
Transit Signal Priority	MDOT MTA	The Project includes the purchase and installation of transit signal priority infrastructure to be added to existing traffic signal controllers along the Project corridor. MDOT MTA has already outfitted the entire local bus fleet with transit signal priority equipment and has added infrastructure to individual traffic control devices on a corridor-by-corridor basis. The RAISE grant funding will allow MDOT MTA to investigate, design, and construct improvements to the existing corridor traffic signal system and timing plan.
Bus Stop Enhancements and Hubs	MDOT MTA	The Project will include ADA compliance upgrades, bus shelters, benches and trash cans at over 100 bus stops. Real-time information signs will be added at high-ridership stops. Survey, stormwater management, and utility coordination will be performed.
Pedestrian and Bicycle Safety	BCDOT	The Project will add ADA curb ramps, curb extensions, and new crosswalks at select intersections. The Project will add a 1.5 miles of buffered, on-street bicycle lane along the corridor from Martin Luther King Blvd. to the West Baltimore MARC station. The specific alignment of this infrastructure will be refined through a community engagement process. Survey and stormwater management work will be performed in the design phase. MDOT MTA and BCDOT will present crash safety analysis to the community while gathering guidance on streetscaping and pedestrian safety improvement locations.

Table 4: Project Elements - Technical and Engineering Aspects

2. Project Location

The *East-West Priority Corridor* project is located entirely in the Baltimore, MD Urbanized Area, which is considered urban for the purpose of the RAISE grant. The corridor extends for approximately 20 miles across Baltimore City and into Baltimore County at each end, with termini at the Centers for Medicare and Medicaid Services in the west and the Fox Ridge community of Essex, MD in the east. The Project boundaries follow the alignments of two high-frequency bus routes, the CityLink Orange and CityLink Blue, which run on portions of Security Boulevard, Edmondson Avenue, Franklin Street, Fayette Street, Saratoga Street, Lombard Street and Eastern Avenue.

As shown in Figure 6, the corridor passes through regional employers, commercial centers, medical centers, and communities, including:

- Centers for Medicaid and Medicare Services (CMS)
- Social Security Administration
- North Bend
- Woodlawn
- Edmondson Village
- West Baltimore MARC Station
- Downtown Baltimore
- Johns Hopkins Hospital
- Highlandtown
- Johns Hopkins Bayview
- Eastpoint Mall
- Essex Park & Ride
- Fox Ridge

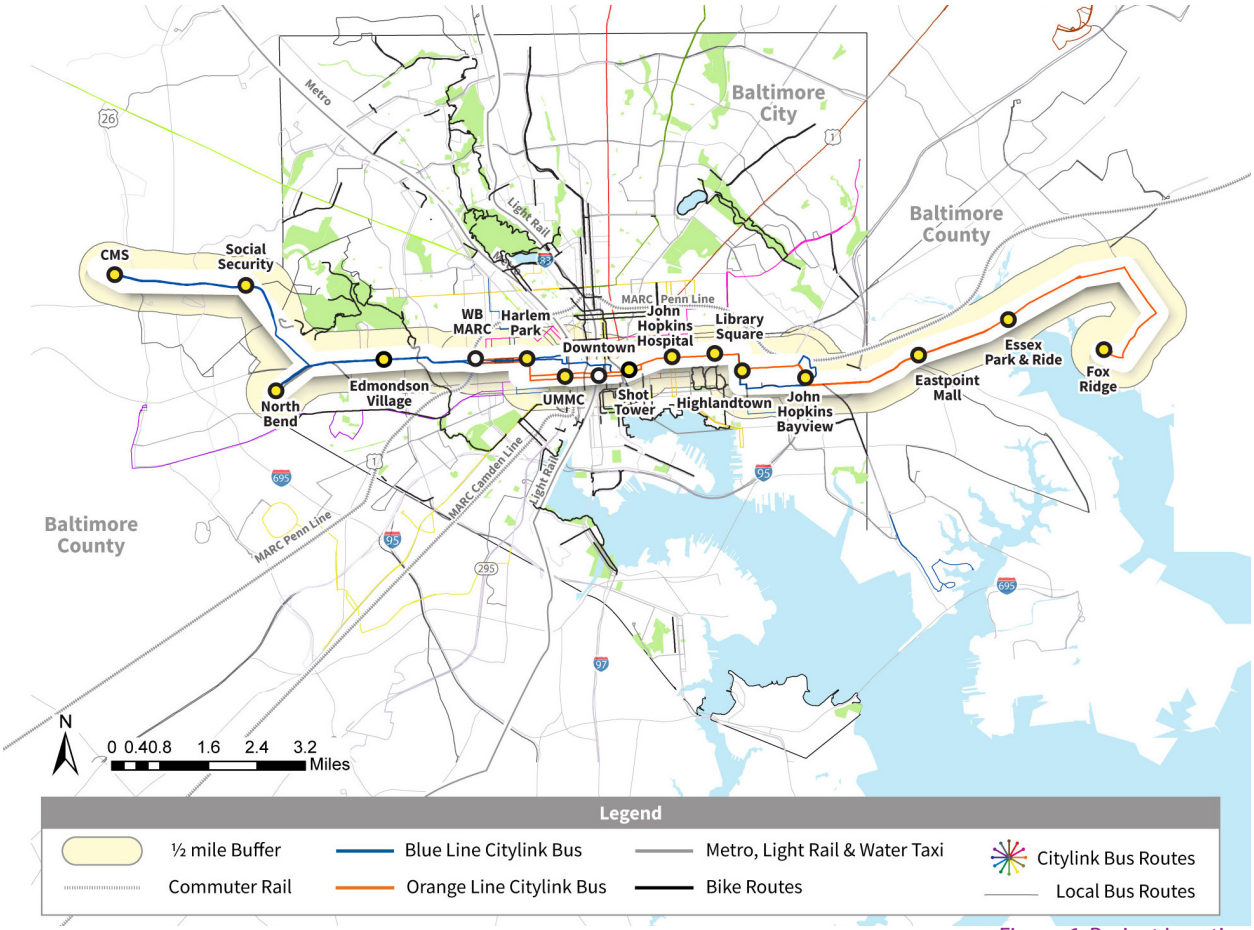


Figure 6: Project Location

Significance of the Project Location

This corridor provides critical connections to jobs, services, and opportunities for transit-dependent households in an area that is majority people of color and hosts historically redlined communities. Nearly a quarter of a million people live within a half-mile of the corridor; nearly two-thirds of that corridor population are people of color and over a quarter of the corridor population live in households without access to a car. This Project advances the Project partners' commitment to apply equity principles to address the needs of traditionally underserved and overburdened populations in areas of persistent poverty. This corridor has been a priority investment for decades, as detailed in the Project History; however, constrained funding has prevented the Project partners to address the needs of this corridor. RAISE grant funds will provide the missing piece to complete the package of funds necessary to serve the needs of this important corridor. Key statistics from the Project are detailed in Table 5.

Key Statistics within a Quarter Mile of the East-West Priority Corridor

Buffer	Total Population	Total Households (HH)	HHs in Poverty	Households without Personal Vehicle	Black, Hispanic, Asian, Indigenous Population	Jobs
¼ Mile	160,634	62,720	12,788 (20%)	17,326 (28%)	103,372 (64%)	88,139
½ Mile	223,334	86,835	16,999 (20%)	23,539 (27%)	145,034 (65%)	189,188

Table 5: Key Statistics Source: American Community Survey, 2018 ; Longitudinal Employer Household Dynamics Survey, 2018

Connections to Existing Transportation Infrastructure

Transit Connections

This corridor is served by the CityLink Blue and CityLink Orange bus lines, which are high-frequency bus routes with 24-hour service and 10-minute peak hour headways. These routes are two of the highest-ridership routes in the MDOT MTA transit system, with over 9,000 trips on an average weekday (Fall 2019), nearly three times higher than the systemwide average for all core bus routes. **Over 20 percent of bus transfers in the entire BaltimoreLink bus system occur on this corridor**, with over 232,000 transfers from the Blue and Orange and 353,000 transfers to the Blue and Orange per month (2018 MDOT MTA Core Bus Origin-Destination Survey).

CityLink Routes	Avg Daily - Weekday	Avg Daily - Weekend
Blue	9,307	4,589
Orange	9,364	5,123
Core Bus (Avg of all routes)	3,345	2,328

Table 6: Fall 2019 MDOT MTA Bus Ridership

This corridor serves an important role in the broader local and regional transit system; additional key connections are listed below:

- All of the high-frequency CityLink bus routes have connections on the corridor. Of the 228 bus stops on the corridor, 202 stops provide transfers to other bus routes.
- The corridor provides direct transfer opportunities to Metro Subway and Light Rail.
- Portions of the corridor in downtown Baltimore have existing dedicated bus lanes that provide priority transit service.
- The corridor connects to the West Baltimore MARC commuter rail station, which provides service to Washington, DC and communities along the MARC Penn Line.
- The corridor connects to the Essex Park & Ride, which provides bus connections for commuters in eastern Baltimore County.

Bicycle Connections

- The bicycle infrastructure added through this Project will complement BCDOT's West Baltimore Bicycle Boulevard network plans, which will add five bike facilities in West Baltimore adjacent to the Highway to Nowhere. The bike infrastructure added through the Project will safely connect these bike boulevards to both Downtown and the West Baltimore MARC station.

Water Taxi Connections

- The corridor is within a half mile of the downtown Baltimore water taxi terminal, which provides water taxi connections across the Inner Harbor to the Under Armour Headquarters, Fort McHenry, and the Fells Point commercial district.

Areas of Persistent Poverty

Baltimore City is an area of persistent poverty as defined by the RAISE Program. The 2019 Poverty and Median Household Income Estimates from the U.S. Census Bureau, released in December 2020, show that Baltimore City has a poverty rate of 20.4 percent, with over 127,000 residents living in poverty, and its poverty rate exceeded 20 percent in both the 2000 and 1990 decennial censuses. **Baltimore City has the highest poverty rate of all counties in Maryland**.

Year	Baltimore City	Baltimore County	Maryland	United States
1990 Decennial Census	21.9%	5.5%	8.3%	13.1%
2000 Decennial Census	22.9%	6.5%	8.5%	12.4%
2019 Small Area Poverty and Median Household Income Estimates	20.4%	8.9%	9.1%	12.3%

Table 7: Poverty Rates in Baltimore City, Baltimore County and United States, 1990, 2000, 2019

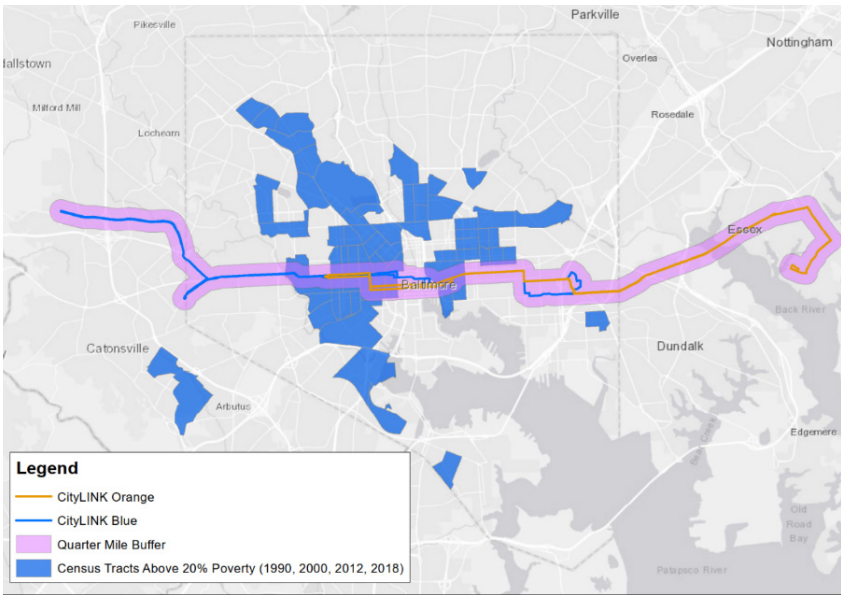


Figure 7: Census tracts in Baltimore with persistent povertySource: U.S. Decennial Census and American Community Survey

Of the 201 Census tracts in Baltimore City, 64 are in areas of persistent poverty and 23 (36%) of these tracts intersect the Project area. Figure 7 illustrates the *East-West Priority Corridor* in relation to tracts with persistent poverty. By improving transit reliability, speed and safety in areas of persistent poverty, MDOT MTA strives to expand access for community members who rely on transit to access opportunities in the region.

Opportunity Zones

Of the 149 Census Tracts in Maryland designated as Opportunity Zones by the U.S. Treasury, 42 are in Baltimore City, nearly a third of which (15) of which are contiguous to the *East-West Priority Corridor*. The City of Baltimore is committed to taking full advantage of Opportunity Zones and is proactively working with investors, developers, businesses, communities, and other stakeholders to provide information and coordination assistance. The Baltimore Development Corporation has created a one-stop resource center to advance development in these Opportunity Zones, and Baltimore City has a designated Opportunity Zones coordinator to help provide information and guide efforts in Baltimore.

Transit Equity Priority Areas

As part of the Unified Planning Work Program, BCDOT developed a methodology for evaluating the level of City-wide transit investment needed for vulnerable citizens to find sustaining employment. The methodology incorporates demographic factors that indicate barriers to employment, including race, poverty, unemployment, no-vehicle households, age, income, public transit commuters, education attainment, and disability status. The resulting composite "transit equity score" assigns values to each City census block. A high score indicates that significant transit investment is needed to create sufficient access to suitable jobs for block residents.

The census blocks within a half-mile of the *East-West Priority Corridor*have an average block score of 54.7, which is above the City-wide mean of 51.2. The *East-West Priority Corridor* travel shed also contains a notable number of extremely high-need census blocks, defined as having a score that is 1.5 standard deviations above the mean. About 6% of the census blocks in Baltimore City are classified as extremely high need; nearly half of those blocks are located in the *East-West Priority Corridor* travel shed.

3. Grant Funds, Sources and Uses of Project Funds

This application requests $25 million in RAISE grant funds to complete the Project's $50-million funding package. Non-federal funds from the State, local, and private sources account for 50 percent of the Project costs. RAISE funding accounts for the remaining 50 percent. Figure 9 presents the funding sources and uses.

Project Budget Summary by Use & Source	Non-Federal		Federal	Total Cost
	MDOT MTA	BCDOT	RAISE	
Dedicated Bus Lanes (DBL): At least 10 lane miles of dedicated bus lanes	$7,770,000	$5,180,000	$12,950,000	**$25,900,000**
Transit Signal Priority (TSP): A combination of active and passive Transit Signal Priority along Edmondson Ave., Fayette St., & Eastern Ave.	$318,000	$212,000	$530,000	**$1,060,000**
Bus Stops and 'Hubs': ADA access improvements, real-time signage, bus shelters, benches, trash cans, bioretention facilities at over 100 bus stops	$4,062,000	$2,708,000	$6,770,000	**$13,540,000**
Pedestrian and Bike Safety: Crosswalks, curb extensions, ADA curb ramps & signal upgrades at select intersections. 1.5-mile on-street buffered bicycle lane.	$2,850,000	$1,900,000	$4,750,000	**$9,500,000**
Total	**$15,000,000**	**$10,000,000**	**$25,000,000**	**$50,000,000**

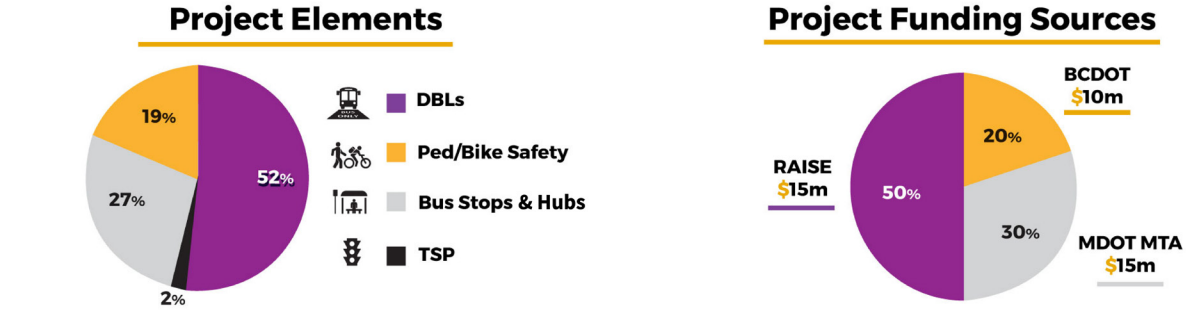


Figure 8: Grant Funds, Sources and Uses of Project Funds

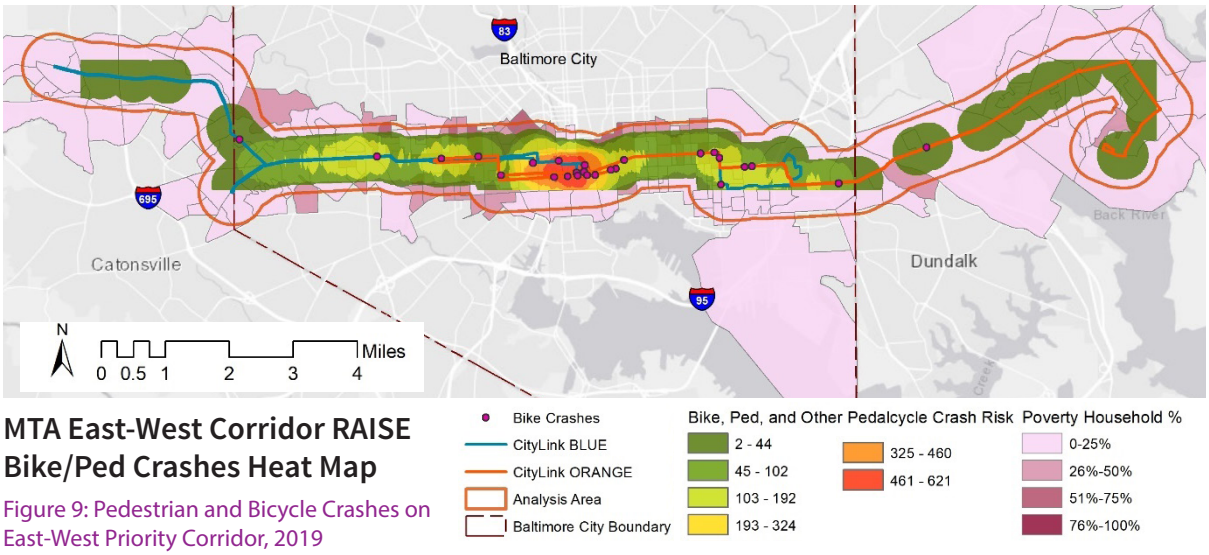
4. Selection Criteria

A. Safety

Improving safety for pedestrians, wheelchair users, and transit users on the *East-West Priority Corridor* is a central goal of this Project. Because the roadways along this route were originally designed for vehicle throughput with less of a focus on the safety of pedestrians, cyclists, and transit users, there are many opportunities to design for multi-modal safety on this corridor. The *East-West Priority Corridor* project addresses existing safety concerns through five primary scope elements:

- **Curb extensions** will decrease the crossing distance for pedestrians at intersections and slow vehicles by visually and physically narrowing the roadway at major conflict points.
- **New crosswalks** at mid-block locations will provide safer crossings for pedestrians at sites with high pedestrian crash rates.

- **Dedicated bus lanes** reduce conflicts between buses and vehicles and have proven to reduce bus crashes in Baltimore.
- **ADA improvements** allow people with mobility challenges to safely access sidewalks and board and alight at bus stops by providing adequate ramps and space for wheelchairs and other mobility devices.
- **Buffered bicycle lanes** will provide physically separated space for cyclists, reducing crash risk by reducing conflict between cyclists and motor vehicles.



MTA East-West Corridor RAISE Bike/Ped Crashes Heat Map

Figure 9: Pedestrian and Bicycle Crashes on East-West Priority Corridor, 2019

Crash data from 2017-2019 show an average of over 1,200 crashes per year and 116 crashes per month on the*East-West Priority Corridor* Over this three-year period, an average of 2.6 fatal crashes, 17 serious injury crashes and 51 injury crashes occurred per year on the corridor. These crash data show significant safety concerns for pedestrians and cyclists on this corridor, with 140 pedestrian-involved crashes and 35 bike-involved crashes in 2019 alone.

Year	Fatal	Serious Injury	Injury	Possible Injury	Not Injured	Total
2017 Total Crashes	**5**	**20**	**48**	**376**	**946**	**1,395**
Pedestrian	0	8	12	34	73	127
Bike	0	0	0	1	14	15
2018 Total Crashes	**3**	**22**	**54**	**338**	**805**	**1,222**
Pedestrian	1	3	8	17	77	106
Bike	1	0	1	0	9	11
2019 Total Crashes	**0**	**8**	**52**	**145**	**921**	**1,126**
Pedestrian	0	4	10	26	100	140
Bike	0	0	1	4	30	35
2017-2019 Total Crashes	**8**	**50**	**154**	**859**	**2,672**	**3,743**

Table 8: Crashes on the East-West Corridor, 2017-2019

Locations for multi-modal safety improvements on the *East-West Priority Corridor* are being selected using a data-driven approach to identify locations with the highest crashes and segments with roadway design most susceptible to fatal or injury crashes.

In addition to providing transit reliability improvements, dedicated bus lanes have proven to significantly reduce bus crashes in Baltimore. MDOT MTA's Before and After Study of dedicated bus lanes in downtown Baltimore found that bus crashes decreased by 11.8 percent after dedicated bus lanes were added, while the overall volume of buses remained constant. On some segments, the crash rate decreased by over 30 percent.

Bus Lane	Bus Crashes (2019)	Projected Change in Bus Crashes (11.8% Reduction)
East Dedicated Bus Lane	96	-11.3
West Dedicated Bus Lane	15	-1.7
Total	**111**	**-13**

Table 9: Projected reduction in bus crashes generated by Project's dedicated bus lanes (Source: MDOT MTA)

In 2019, 111 bus crashes occurred on the roadway segments of the *East-West Priority Corridor* where dedicated bus lanes will be constructed. Using an average rate of 11.8 percent reduction in bus crashes, the ten miles of DBLs on the *East-West Priority Corridor* would lead to a reduction of approximately 13 bus crashes per year.

Addressing Vulnerable Roadway Users

This Project emphasizes the safety of pedestrians and people with mobility challenges. Over 14,600 households living in the Project area do not have access to a car and rely on transit or other non-vehicular modes to travel, get to work, or access essential needs and services. Infrastructure gaps, missing links, and barriers to access disproportionately impact those who do not have alternative means of transportation.

More than 34,000 people with disabilities live within the Project area. In fall and winter of 2019 and 2020, an average of 156 wheelchair users per month boarded bus stops on the corridor and in February 2020, more than 45,000 paratransit trips originated within a quarter-mile of stops on the *East-West Priority Corridor*.

Currently, many bus stops and sidewalks on the corridor are not ADA compliant and do not provide the necessary bus stop boarding space and curb cuts to allow wheelchair users to safely board buses, access the bus stop area, or move onto the sidewalk. In some locations, wheelchair users' only option is to ride in the street – a dangerous alternative for them and other roadway users – because they are unable to access the sidewalks. The lack of ADA infrastructure at bus stops also drives up paratransit usage, a more costly and higher-emissions service, since riders with disabilities are unable to access fixed-route service at non-compliant stops.

The *East-West Priority Corridor* project will improve ADA access to over 100 bus stops to allow individuals with disabilities to access transit and sidewalks that are currently inaccessible. These improvements will be focused in areas with the highest crash rates, which are disproportionately in communities with higher poverty rates.

B. Environmental Sustainability

Planning and Policy

MDOT MTA and BCDOT are committed to strategic infrastructure investments and operations to increase environmental sustainability, confront climate change, and advance environmental justice. In 2018, MDOT MTA created its first agency-wide Sustainability Plan, which applies a decision-making model that allows the agency to balance the needs of people, planet, and prosperity while driving down MDOT MTA's financial, ecological, and social costs. The ongoing MDOT MTA Sustainability Program measures and monitors key performance indicators at both the agency and in the region and is increasingly integrated into projects from the development stage forward. MDOT MTA understands that by creating an attractive and convenient method of transportation, transit alleviates congestion, improves air quality, and strengthens communities. This project also helps to advance the goals of the MDOT Greenhouse Gas Reduction Act Plan by reducing GHG emissions through modal shift from single occupancy vehicles to transit.

Baltimore City is equally committed to environmental sustainability and its role in confronting and mitigating impacts on communities and the environment. The Baltimore City Office of Sustainability adopted a Sustainability Plan in 2019 to guide its project development and investments. One of this plan's primary goals is to shift to reliable, accessible public transit connected to the region. The *East-West Priority Corridor* Project's dedicated bus lanes and other transit priority improvements will advance this goal.

Environmental Justice

Because the Project centers on transit, pedestrian, and bicycle investments within existing right-of-way, it is not anticipated to generate adverse health or environmental effects for Environmental Justice (EJ) communities; rather, the Project will expand multi-modal transportation safety and accessibility to contribute to a shift away from single-occupancy vehicles. MDOT MTA performed an EJ Screening analysis on the Project to identify impacted communities and inform locations for project outreach to ensure equal access and involvement in transportation decision-making processes. The EJ Screen analysis on the Project area shows that approximately one-third of block groups within a half-mile of the Project area are in the 95-100th percentile of EJ communities in the state, confirming that the Project advances MDOT MTA's equity goals by benefiting communities of color and low-income populations.

About a quarter of block groups within a half-mile of the Project area are in the 90th percentile or higher for "traffic proximity," which measures the volume of vehicles passing through these communities per day and correlates with air quality and levels of air pollutants. The Project will begin to mitigate these impacts by adding transit and pedestrian improvements to provide more attractive alternatives to single-occupancy vehicles, and also reducing the number of vehicular travel lanes by repurposing one lane as a bus-only lane.

Additional Climate Change-Related Plans & Policies

- Maryland Greenhouse Gas Reduction Act (GGRA) - 2030 Plan
- MDOT GGRA Report (2020)
- MDOT Climate Change Status Reports (2015-2020)
- MDOT MTA 2020 Adaptation and Resiliency Toolkit
- Baltimore City Green Network Plan (2018)

Reduce Greenhouse Gas Emissions, Promote Energy Efficiency, Expand Zero Emission Vehicle (ZEV) Use, and Enhance Air Quality

The East-West Priority Corridor **intersects five Maryland EV Ready corridors that extend throughout the state to provide reliable access to EV chargers.**

The *East-West Priority Corridor* project is designed to expand transit, pedestrian, and bicycling use, and as a result, will reduce per capita greenhouse gas emissions and criteria air pollutants per mile traveled. Additionally, MDOT MTA is converting half of its clean diesel bus fleet to using ZEV technology, further reducing GHG emissions. Dedicated bus lanes will reduce idling of existing clean diesel buses and thereby reduce emissions of CO, CO_2, PM_{10}, $PM_{2.5}$ per mile traveled.

Additionally, the Project will include at least 25 new EV charging stations along the corridor , installed in partnership with Baltimore Gas and Electric Company (BGE). BGE is installing EV chargers throughout Maryland as part of a program to support and incentivize the use of electric vehicles. To complement the multi-modal transportation improvements added through the *East-West Priority Corridor* RAISE Project and further build upon its sustainability benefits, BGE will install at least 25 EV charging stations in publicly-owned parking lots and public right-of-way along the corridor.

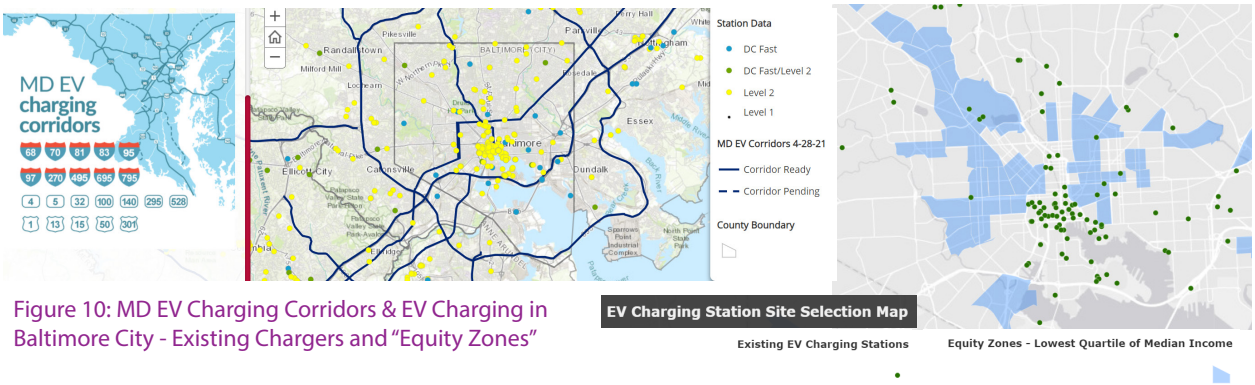


Figure 10: MD EV Charging Corridors & EV Charging in Baltimore City - Existing Chargers and "Equity Zones"

BCDOT and BGE entered a Memorandum of Understanding in May 2020 for the installation of publicly-accessible electric vehicle charging stations in Baltimore City at no cost to the City. Through this program, BGE Provides the following EV charging services: installation, electric power, technical and labor support, data analytics, maintenance and repair. In addition to facilitating EV charger installation in publicly-owned parking facilities, Baltimore City is finalizing a new policy allowing EV chargers to be installed in public right-of-way, expanding access to EV charging in locations without existing City or State-owned lots. This will allow chargers to be added on main streets and major transportation corridors and broadens the reach of EV charging in communities along the *East-West Priority Corridor*.

In addition to supporting U.S. DOT's goals to grow EV charging infrastructure throughout the nation, BGE's program supports the City and State's transportation equity goals. Thirty percent of new chargers are required to be installed within "Equity Zones", which are defined in the program as as areas that are underserved and require equitable access to EV charging stations.

As shown in Figure 10, the Project runs through four miles of "Equity Zones." MDOT MTA and BCDOT will identify the locations of the EV charging stations on the *East-West Priority Corridor* through a community-engaged process that prioritizes Equity Zones and through coordination with the Baltimore City Parking Authority.

Figure 11: Example of a bioretention facility under construction by Baltimore City DPW

Expand Green Infrastructure and Enhance Water Quality

The Baltimore City Department of Public Works (DPW) manages stormwater through its Municipal Separate Storm Sewer System (MS4) permit requirements and in alignment with the 2014 Chesapeake Bay Agreement. Two of DPW's ongoing stormwater management practices include bioretention facilities and removal of impervious surface, helping restore sites to natural hydrological conditions by reducing stormwater runoff quantity and improving water quality. Several of these planned facilities complement the *East-West Priority Corridor*'s transportation investments: DPW is adding two bioretention facilities and removing impervious surface at several sites within a quarter-mile of the Project area in 2022. These investments will help Baltimore City and its residents better adapt to climate change and reduce the risk of storm-related flooding events.

In parallel with DPW's green infrastructure development, MDOT MTA and BCDOT will construct bioretention facilities next to bus stops on the *East-West Priority Corridor* to complement the Project's transit investments and reduce pollutants from stormwater runoff. MDOT MTA will study the impact of these bioretention facilities on bus stop access for transit riders, particularly those with mobility challenges, to see if they should be replicated at other bus stops in the system. Installing bioretention facilities along major transit corridors has previously been a barrier. However, this project offers the opportunity to pilot cross-agency collaboration in future planning, aimed at identifying opportunities to plan projects to meet the requirements of one agency in a way that compliments and provides additional benefits which align with the priorities of another. The incorporation of green infrastructure into the *East-West Priority Corridor* Project also aligns with larger City-wide goals set by the Baltimore Office of Sustainability to increase water quality, improve stormwater management, and reduce the heat island effect that most acutely impacts low-income communities in Baltimore.

Supporting Transit-Oriented Land Use

Transit improvements on this route will support the development of dense, transit-oriented development (TOD) by strengthening transit service to areas with existing transit-supportive zoning. Existing zoning around much of the corridor supports commercial, high-density, and mixed-use/TOD uses. Significant development is already occurring around Johns Hopkins Bayview and the *East-West Priority Corridor*'s improvements will support denser TOD around this significant job center. There are also some struggling auto-centric retail developments, including Security Mall, along the corridor. Investments in transit infrastructure will improve connectivity for community members without access to a personal vehicle and support potential redevelopment that is designed for more multi-modal access. MDOT MTA and

Baltimore City agencies are already working collaboratively to coordinate transit investments and land use decisions as MDOT MTA implements the Central Maryland Regional Transit Plan's long-term Regional Transit Corridor studies as well as near-term investments in the Transit Priority Initiative.

Supporting Brownfield Redevelopment

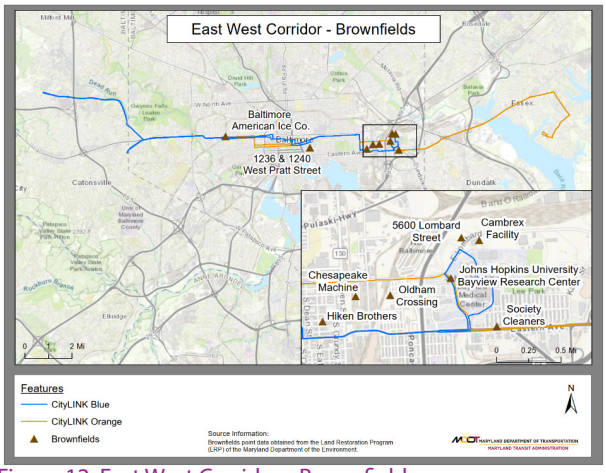


Figure 12: East West Corridor - Brownfields

Nine brownfield sites are located within a quarter-mile of the *East-West Priority Corridor*. While the Project scope does not directly include brownfield redevelopment, the transit improvements on this corridor will strengthen the redevelopment potential of these brownfields by providing efficient and reliable transportation connections.

The American Ice Company, a brownfield site directly adjacent to the West Baltimore MARC station on the *East-West Priority Corridor*, is slated for mixed-use residential and entertainment development. The improvements through this Project will strengthen the transit connections between this brownfield redevelopment and destinations throughout the region.

Explore the Use of Recycled Materials

MDOT MTA will evaluate the potential to use recycled material in the project's design phase, building upon North Avenue Rising's use of alternative asphalts and aligning with Maryland's 2017 Waste Reduction and Resource Recovery Maryland Executive Order. The Project team will be able to draw on expertise from MDOT's Interagency Sustainability Materials Management Working Group, that includes participation from Maryland State Highway Administration, to identify opportunities to use recycled materials in the *East-West Priority Corridor* Project.

C. Quality of Life

Increasing Transportation Choices and Equity for Individuals

When transit is efficient, frequent, and reliable, residents can depend on it to access essential services upon which communities depend. Many essential services, municipal buildings, healthcare facilities, and educational institutions are near transit in Baltimore. However, these destinations are only truly accessible if riders can reach them reliably, efficiently, and easily. By implementing the proposed improvements that will increase the reliability and speed of transit, the Project partners will expand the travel shed for those in the corridor, not only putting destinations in the Project area within reach, but also those in the broader transit network. This is particularly impactful for the households without a car who reside in underserved communities.

As previously detailed, over 17,000 households living within a quarter mile of the *East-West Priority Corridor* do not have a car and rely on public transit or other modes to get to work. By adding dedicated bus lanes on key segments of the corridor that currently experience significant travel delays, this Project will expand access to jobs for residents of these underserved communities within reasonable commute times.

Racial Equity Impact Analysis for the Project

Both MDOT MTA and BCDOT have undergone systemwide equity studies in which they assessed neighborhoods within their service area based on demographic, economic, and infrastructural factors to identify areas with the greatest need for transportation improvements. An assessment of the *East-West Priority Corridor* found that this corridor will provide improved transit service to some of Baltimore's neighborhoods with the greatest need for transportation improvements based on poverty, reliance on transit, and other factors.

The MDOT MTA Equity Index gives neighborhoods an "equity score" on a scale of 1-40 based on their minority population, poverty, limited-English proficiency, and zero vehicle households. As shown in Figure 13, the *East-West Priority Corridor* runs through 52 Census block groups with an equity score over 25, representing communities with the highest combination of indicators.

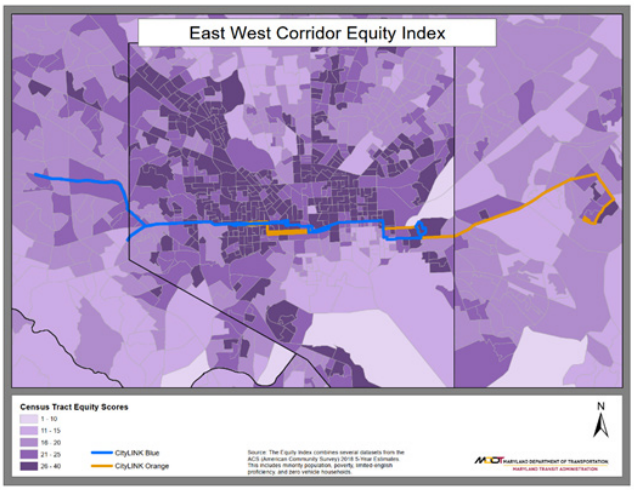


Figure 13: MDOT MTA East-West Priority Corridor Equity Index

Similarly, as described in Project Location, BCDOT developed an equity analysis for Baltimore City in 2020 to guide its transportation investments, identifying neighborhoods with the greatest need for transportation improvements based on demographic factors that indicate barriers to employment, including race, poverty, unemployment, no-vehicle households, age, income, public transit commuters, education attainment, and disability status. The *East-West Priority Corridor* contains half of all census blocks in Baltimore identified as "areas with extremely high need." The Project will direct considerable transportation investment to these communities.

Multi-modal infrastructure to redress past barriers to opportunity

Figure 14: US Route 40 in Baltimore is also known as the "Highway to Nowhere"

Several communities along the *East-West Priority Corridor* were adversely impacted by past transportation investments in urban highway infrastructure and this Project aims to expand multi-modal transportation options to these communities. A segment of the *East-West Priority Corridor* is U.S. Route 40, also known locally as the Franklin-Mulberry Expressway or the "Highway to Nowhere," a 1.39-mile, 6-lane urban freeway through West Baltimore that destroyed large portions of Black communities when it was built in the late 1970s. The Project was planned as part of I-170, an interstate project that was designed to connect I-70 to downtown Baltimore, but widespread opposition by communities along the planned route led to its cancellation after just over one mile was built. Before this one-mile segment of highway was built, the Franklin-Mulberry corridor ran through a vibrant Black neighborhood; now, the neighborhoods adjacent

to the highway have among the highest poverty and vacancy rates in the state. Construction of U.S. Route 40 displaced around 1,500 people and demolished 971 homes and 62 businesses. Recognizing the historic injustice, displacement and destabilization caused by the construction of U.S. Route 40, Baltimore City has elevated the redesign or removal of this highway to one of its highest priorities for transportation investments. Baltimore City is in the early stages of planning for a racial justice and equity-centered approach to identifying the future for this highway to begin to repair the damage caused to communities.

In the near term, the *East-West Priority Corridor* Project adds dedicated bus lanes along U.S. Route 40 and a protected bicycle lane connecting to downtown Baltimore to expand multi-modal transportation options for the communities surrounding the urban highway. **The investments included in this Project as part of this grant application lay the foundation of multi-modal access and safety for a future large-scale investment to redress the detrimental impacts of historic infrastructure that created barriers to opportunity and damage to the community.**

Connectivity to Jobs, Healthcare, and Other Critical Destinations

Many critical destinations are located within a short walk of the *East-West Priority Corridor*. Table 10 shows the quantity of jobs, colleges/universities, schools, hospitals, dialysis centers, recreation centers, rehabilitation and substance abuse facilities, and supermarkets within a quarter mile and half mile of the corridor.

With the transit travel time savings generated from dedicated bus lanes and transit signal priority, in combination with the improvements to pedestrian and ADA infrastructure surrounding bus stops on the corridor, these critical destinations will be easier and faster to access.

New and Improved Walking, Biking, and Rolling Access

This Project will expand access to walking, biking, and rolling access through improvements to sidewalk, crosswalk, and ADA infrastructure. As detailed previously, 34,479 residents living within a quarter mile of the*East-West Priority Corridor* have a disability and 17,326 do not have access to personal vehicles. The addition of ADA improvements, crosswalks at high-crash mid-block crossings, and new bicycle infrastructure will improve access for these individuals.

Crash data show that pedestrian and bike crashes on the corridor are primarily downtown and in communities with majority households of color. The Project's improvements to pedestrian infrastructure, including new crosswalks and ADA curb cut improvements, will be focused in communities with the highest crash rates, which in many cases also align with communities of color that historically have not received significant investment in safe pedestrian infrastructure.

Critical Destinations	¼ Mile of Corridor	½ Mile of Corridor
Jobs	88,139	189,188
Colleges/Universities	4	5
Schools (Elementary, Middle, High)	28	41
Hospitals	4	7
Recreation Centers	7	10
Dialysis Centers	4	9
Rehabilitation and Substance Abuse Facilities	25	36
Supermarkets	6	9

Table 10: Critical Destinations within 1/4 Mile and 1/2 Mile of East-West Priority Corridor

Equity Planning and Policy Initiatives

Baltimore City's Complete Streets Ordinance and accompanying manual require equity to be integrated into the transportation project selection and development process, ensuring

that investments are made in communities with the greatest need. Through this policy, new transportation projects are prioritized through a process that identifies and screens projects through an equity lens. The manual also establishes community engagement policies centered on equity. This policy has been instrumental in focusing improvements on underserved communities and ensuring that community voices help to shape the design of infrastructure.

Like agencies, organizations, and individuals around the nation, the Project partners have been reenergized in their commitment to meaningfully confront and address equity over the past year. While equity has always been a key consideration in its policies and processes, MDOT MTA has recently established an Equity Working Group and launched a senior-level Equity, Diversity, and Inclusion Committee (EDIC), supported by four subcommittees. The Employment subcommittee will make recommendations for employment practices that will yield a more inclusive and diverse workforce reflective of the MDOT MTA service area.

D. Economic Competitiveness

The *East-West Priority Corridor* connects to the Baltimore region's largest employment centers, not only expanding access to opportunity but also reducing travel time for those who travel in this critical corridor. The expansion of dedicated bus lanes on the corridor is expected to generate up to 1,050 hours of travel time savings for transit riders per day and 262,387 hours per year. Table 11 shows travel time savings by segment of dedicated bus lane.

Travel Time Savings Generated by Bus Lanes on East-West Priority Corridor

Segment	Length (Lane miles)	Average Load on Segment	Number of Daily Buses	Daily Passengers Impacted	Total Daily Travel Time Savings (minutes)	Total Daily Travel Time Savings (Hours)	Total Annual Travel Time Savings (Hours)
Franklin St/Mulberry St and Martin Luther King Jr. Blvd to Edmondson Ave and Cooks Ln	7.5	31.8	106.0	3,375	23,622	394	98,424
Fayette St and Washington St to Fayette St and President St	2	27.5	170.0	6,382	31,908	532	132,948
Eastern Ave and Dundalk Ave to Eastern Ave & Bayview Blvd	0.5	43.3	86.0	3,722	7,444	124	31,015
Total	**10**	**35.1**	**-**	**13,478**	**62,973**	**1,050**	**262,387**

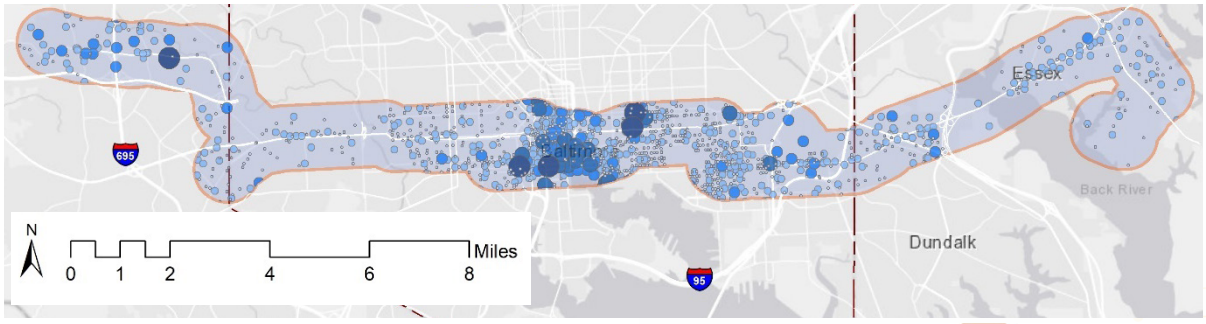
Table 11: Travel Time Savings Generated from Bus Lanes on East-West Priority Corridor

These travel time savings would shorten trip time to many of the Baltimore region's largest employers.

Employment Center	Role in Regional Economy
Downtown Baltimore	**Downtown Baltimore** serves as the city's Central Business District and houses Baltimore City Hall, city agencies, state office buildings, non-profit organizations, and private-sector offices.
Johns Hopkins Hospital	**Johns Hopkins Hospital** in the central portion of the corridor, the Johns Hopkins Hospital complex receives 80,000 visitors weekly.Johns Hopkins is one of the largest employers in Baltimore, with over 30,000 staff and 1,700 doctors.
Johns Hopkins Bayview	**Johns Hopkins Bayview** is a state-of-the-art facility located on a 130-acre campus in East Baltimore, uniquely positioned to serve both an urban and county population. The Johns Hopkins Bayview emergency department sees an annual volume of about 60,000 patients, and has over 3,400 employees.
CMS	**Centers for Medicare and Medicaid Services (CMS)** is the largest employer in Baltimore County, CMMS is located in Woodlawn, MD, and has over 15,400 employees.
SSA	**Social Security Administration (SSA)** located in Woodlawn, MD, SSA provides over 12,000 jobs. The agency has an additional site in downtown Baltimore for its Teleservice Center.
Port of Baltimore	**Port of Baltimore** in Maryland's economy, the Port of Baltimore generates nearly $3.3 billion in total personal income and supports 15,330 direct jobs and 139,180 jobs connected to Port work.
UMMC	**University of Maryland Medical Campus (UMMC)** is the flagship academic medical center at the heart of University of Maryland Medical System (UMMS) and includes the 789-bed downtown Baltimore campus. The medical staff comprises nearly 1,200 attending physicians, as well as 900 residents and fellows in all medical specialties. UMMC is home to the R Adams Cowley Shock Trauma Center, the highest-volume trauma center in the United States.
East Point Mall	**Eastpoint Mall** is a one-level regional enclosed shopping center located in Baltimore County. Eastpoint Mall was one of Baltimore's first shopping centers and features over 130 specialty shops, restaurants, and services.
Regional Employment Hubs	**Regional Employment Hubs** like the connection to the West Baltimore MARC commuter rail station provides access to the greater Baltimore-Washington Metropolitan Area, including BWI Airport Business District, downtown Washington, DC, New Carrollton, Odenton/Fort Meade, and Aberdeen Proving Ground.

Table 12: Employment Centers Connecting to the East-West Priority Corridor

Over 189,000 jobs are located within a half-mile of the corridor, with employers concentrated in downtown Baltimore, along the Inner Harbor, Social Security and the Centers for Medicare and Medicaid Services (CMS), Johns Hopkins Hospital, Johns Hopkins Bayview and growing commercial districts in Baltimore such as the Bromo Arts District in downtown Baltimore, Lexington Market, Canton and Highlandtown (LEHD 2018). This Corridor connects to a wide range of industries, with healthcare representing a quarter of jobs (44,717 jobs), public administration and professional services representing another quarter (46,740 jobs), educational services representing 14 percent of jobs (27,144 jobs), and the remaining industries spanning retail, service, construction and waste management. Figure 15 shows the geographic distribution of jobs along the *East-West Priority Corridor* and table 13 includes a detailed breakdown of the jobs within a half-mile buffer of this corridor by educational attainment.



MTA East-West Corridor RAISE Jobs within 1/2 mile of the Project Area

Figure 15: Jobs within 1/2 mile of the East-West Priority Corridor (LEHD 2018)

Over 52,000 jobs (27.5 percent) within ½ mile of this Corridor are performed by workers with a high school education or less. Industries that do not require college degrees, such as retail, construction, waste management and remediation, accommodation and food services, transportation and warehousing are well-represented within a half-mile of the corridor, and transit is a critical factor in connecting residents from underserved communities with these jobs.

Jobs by Worker Educational Attainment	Count	Share
Less than high school	15,930	8.4
High school or equivalent, no college	36,151	19.1
Some college or Associate degree	44,938	23.8
Bachelor's degree or advanced degree	57,609	30.5
Educational attainment not available	34,560	18.3
Total	**189,188**	**100**

Table 13: Jobs within 1/2 Mile of the East-West Priority Corridor by Worker Educational Attainment

Connectivity to the National and Global Economy

Port of Baltimore

Improvements to transit on the *East-West Priority Corridor* will also support workers' access to the Port of Baltimore, one of the United States' leading ports and a port of global significance with the capacity to accommodate some of the largest container ships in the world. The *East-West Priority Corridor* hosts multiple transfer opportunities to transit that directly serves the Port of Baltimore and adjacent employment. Through these direct transfers, the *East-West Priority Corridor* serves as a high-frequency feeder drawing from across Baltimore. The Port of Baltimore generates nearly $3.3 billion in total personal income and supports 15,330 direct jobs and 139,180 jobs connected to Port work.

Many jobs at the Port of Baltimore do not require advanced degrees and workers at the Port of Baltimore are represented by the International Longshoremen's Association. The *East-West Priority Corridor*'s transit improvements will improve the speed of transit trips from across Baltimore City and Baltimore County to the Port of Baltimore, expanding opportunities for residents quickly access good-paying jobs with the option to join a union.

Connectivity to the National Economy via Baltimore/Washington International Airport and Washington, DC

This Corridor includes a connection to regional rail at the West Baltimore MARC station, which provides access to both the BWI Airport in 30 minutes and Washington, DC in under an hour. Longitudinal Employer-Household Dynamic (LEHD) data show that 2,205 Baltimore City residents worked in Washington, DC in 2018 and another 163,000 Baltimore City residents worked in counties with stops on the MARC Penn Line, including Anne Arundel, Harford, Baltimore and Prince George's Counties. In turn, another 4,221 Washington, DC residents commuted to jobs in Baltimore City.

In 2019, over 760 commuters rode the MARC commuter train from the West Baltimore MARC station on a daily basis to jobs in the region. The growth in MARC ridership outside of nine-to-five commuting hours and weekends has led to the recent addition of all-day service, weekend service and bicycle parking on all trains to support various job types and riders using the train for recreational trips in the region. The Project's improvements to transit on the corridor will

increase the ease, efficiency and mode choices for commuters traveling to the West Baltimore MARC station to access existing rail lines to meet rider demand.

Reducing Burdens to Commuting

The CityLink Orange and CityLink Blue bus lines are two of the highest ridership transit routes in the Baltimore region, with a combined weekday average of over 18,500 passengers per day before COVID-19 (Fall 2019). In Fall 2020, these routes remained two of the five highest ridership routes of the MDOT MTA system, which is indicative of their importance to essential workers during the COVID-19 pandemic. These bus routes also experience considerable challenges with on-time performances on several segments of this Corridor, as high volumes of single-occupancy vehicles also travel on these roads to reach the many employers along the corridor. Table 14 illustrates these routes' low on-time performance, high rate of late trips and lower customer satisfaction scores compared to the system as a whole.

CityLink Blue and Orange Customer Satisfaction, On-Time Performance, Late Trips

2019	Avg. Customer Satisfaction Score (1=lowest, 5=highest)	On-Time Performance	Late Trips
Blue	3.06	68.3%	25.1%
Orange	3.15	63.0%	30.4%
All Routes	3.35	69.6%	23.2%

Table 14: MDOT MTA Customer Satisfaction Scores for CityLink (Source: MDOT MTA)

The Project's construction of dedicated bus lanes at pinch points on the corridor and introduction of transit signal priority at key intersections is projected to significantly reduce transit delay, increase OTP, and in turn reduce the burdens to commuting for transit riders.

Improving Quality of Life

The Project's multi-modal improvements will increase transportation choices for residents of the communities surrounding the *East-West Priority Corridor*, commuters, and visitors.

- **Residents in Historically Redlined Communities:** As previously detailed, the Project area includes many communities that were historically redlined, with institutions historically denying resources and investment to residents in these communities. Due to these structural inequalities, many of the communities have high poverty rates and low employment rates. Creating pathways to opportunity and growth demands meaningful infrastructure investments.
- **Commuters:** As detailed in the section above, the *East-West Priority Corridor* connects to some of the region's largest and most important employers. These employment hubs are not only located in downtown Baltimore, but truly from end to end. Providing safe, reliable, and efficient multi-modal access to these jobs and opportunities is critical for the long-term economic success of individuals, the region, and the nation.
- **Visitors:** In 2019, Baltimore drew 27 million visitors, generating $6 billion in economic impact. Visitor spending sustained nearly 87,000 total jobs (directly and indirectly) and generated $312 million in city tax revenue alone[3]. Many tourist destinations are located along the corridor, including downtown Baltimore, Patterson Park, and Greektown.

Opportunities for Workers to Find Good-Paying Jobs Directly Related to the Project

The Council of Economic Advisors (CEA) estimated that every $1 billion in Federal highway

3. Data from Longwoods International Tourism Economics

and transit investment funded by the American Jobs Act would support 13,000 jobs for one year. Based on this rate, this Project's investment of $50 million in improved transit, pedestrian and bicycle infrastructure on the *East-West Priority Corridor* will support 650 jobs per year of construction.

E. State of Good Repair

The Project addresses state of good repair needs for bus stops and ADA infrastructure on the corridor, many of which are currently in poor condition. MDOT MTA maintains all state-owned transit infrastructure, including dedicated bus lanes and bus stops, and Baltimore City DOT maintains all other transportation infrastructure in the public right-of-way. MDOT MTA has memoranda of understanding (MOU) and franchise agreements with BCDOT for maintaining bus lanes and transit infrastructure. BCDOT and MDOT MTA have experience with collaboratively planning, building, and maintaining grant-funded infrastructure investments, such as the current North Avenue Rising project for which the two agencies are partnered.

The MDOT MTA's Asset Management Program has plans in place covering transit assets and performs regular maintenance to keep its assets in a state of good repair, including on bus stops and bus stop amenities. MDOT MTA is working with its existing dedicated bus lanes to better understand and anticipate maintenance issues. Some of the initial bus lane segments have had to be repainted due to a combination of factors, but MDOT MTA tested several different products in order to ensure that the second round would last the same amount of time as the underlying pavement.

F. Partnership

This Project represents strong partnership between public agencies in Baltimore to achieve long-awaited improvements to this *East-West Priority Corridor*. The following section describes the parties involved in the Project's funding and/or delivery:

State | MDOT MTA

The MDOT MTA is entrusted with guiding the safe, efficient mobility of all those who live, work, and travel in Maryland. As one of the Maryland Department of Transportation's Transportation Business Units (TBUs), MDOT MTA is guided by MDOT's mission statement to be a "customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect customers to life's opportunities." The agency is one of the largest multimodal transit systems in the United States, operating local, express, and commuter bus service; Light Rail, Metro Subway, MARC, and a comprehensive paratransit (Mobility) system. MDOT MTA also manages the taxi access system and directs funding and statewide assistance to Locally Operated Transit Systems (LOTS) in 26 Maryland jurisdictions.

MDOT MTA has a proven track record for grant oversight and implementation, including discretionary grant funding, and therefore will be responsible for grant implementation, including day-today management, coordination among project partners, quality control, and project evaluation.

Local | BCDOT

Baltimore City Department of Transportation will implement roadway, bicycle, and pedestrian components of the Project. With 620,000 residents, the City of Baltimore is the largest city in

Maryland and the 30th most populous in the United States. The City has been leading efforts to revitalize the communities surrounding the *East-West Priority Corridor* and implement multi-modal improvements to create a safer and more accessible transportation system for Baltimore City residents.

Private | Baltimore Gas and Electric Company (BGE)

Baltimore Gas and Electric Company (BGE) has committed to install 25-50 electric vehicle charging stations on the *East-West Priority Corridor* alignment if the Project is awarded. BGE will provide the installation, electric power, technical and labor support, data analytics, maintenance and repair of EV stations.

Downtown Partnership of Baltimore (DPOB)

Downtown Partnership of Baltimore (DPOB) has committed to supporting infrastructure upgrades that will improve pedestrian experiences along the *East-West Priority Corridor* in Downtown Baltimore and its surrounding streets. This includes repairing broken sidewalks, remediating blighted alleyways, adding additional street and overhead lighting, and providing ongoing landscaping and beautification services in public greenspaces. Additionally, DPOB will provide continued safety patrols, cleanliness / sanitation services, and homeless outreach along the East-West Priority Corridor and throughout Downtown. Indeed, in 2020 alone, DPOB collected over 500 tons of garbage, connected to housing 176 individuals experiencing homelessness, and provided over 53,000 citizen assists throughout the Downtown area. In total, DPOB's services will support investments in the *East-West Priority Corridor* by improving commuter experiences and supporting a Downtown community that is clean, safe, inclusive, and thriving.

G. Innovation

The Project's transit priority elements use innovative strategies to increase the speed, reliability and efficiency of the bus routes on the *East-West Priority Corridor*. Dedicated bus lanes, transit signal priority, curb bump-outs and real-time signage are elements of bus rapid transit systems that significantly increase the on-time performance of bus routes and reliability for passengers.

Dedicated Bus Lanes

MDOT MTA and Baltimore City DOT have been collaborating to implement a growing number of dedicated bus lanes throughout the City. MDOT MTA studied the travel time savings from these investments in 2019 and released a Before and After study on their effectiveness. Travel time savings ranged from 4.7 percent on Baltimore Street, to 31.7 percent on Hillen Street/Guilford Avenue, with an average benefit of 9.3 percent shorter travel times per corridor. In addition, the data indicate that the bus lanes have improved safety by reducing the number of bus-involved crashes by nearly 12 percent. The transit priority treatments on the *East-West Priority Corridor* will join a growing network of dedicated bus lanes in Baltimore City. Red paint emphasizes that the lane is for transit only and deters drivers from using the lane, thus reducing the amount of time that buses are slowed by traffic congestion.

Transit Signal Priority (TSP)

Transit Signal Priority (TSP) is a technology that gives transit vehicles priority at signalized intersections by adjusting the signal timing when transit vehicles are present to allow them

to more quickly travel through the intersection. This technology can significantly reduce bus delay, which improves travel time and reliability for transit riders. MDOT MTA has implemented TSP at 66 intersections in the MDOT MTA system and a 2018 analysis showed that run times along certain segments implementing TSP dropped by as much as 20% during peak hours.

Curb Extensions (Bus Bulbs)

Curb extensions are widened sidewalks that, when built at bus stops, expand the bus boarding area into the travel lane. By allowing buses to stop within the travel lane, buses avoid having to wait to re-enter traffic after stopping, creating travel time savings for bus riders. Curb extensions also improve pedestrian safety by shortening the crossing distance at intersections and physically and visually narrowing the roadway to slow vehicular speeds. Figure 16 shows a diagram of a curb extension.

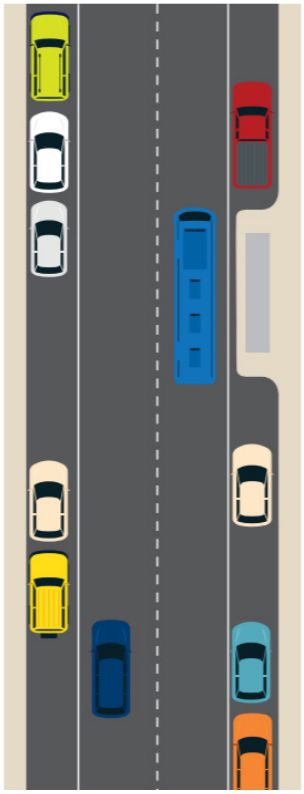


Figure 16: Diagram of a curb extension from MDOT MTA's Transit Priority Toolkit

Real-Time Information Signs

Real-time information signs are digital signs that display route destinations, frequencies, and estimated arrival times for buses, pulling data from several information technology systems to provide valuable information for bus riders. Buses in MDOT MTA's system are equipped with GPS systems to report real-time data, which is shared through a mobile app and real-time signs at several transit hubs. In line with the goals of the Central Maryland Regional Transit Plan, the *East-West Priority Corridor* project will add additional real-time information displays at transit hubs and high-ridership bus stops to improve the availability and accuracy of information to transit riders and improve the transit experience.

5. Demonstrated Project Readiness

A. Environmental Risk

With a RAISE grant in place, the *East-West Priority Corridor* project is poised to implement transit, pedestrian and bicycle improvements and increase travel time reliability and efficiency for all users of the transportation network. MDOT MTA and the other project parties have the technical and financial capacity to undertake this Project quickly and meet all milestones; RAISE funding will provide the final critical missing piece to unlock this Project's transformational impacts.

Project Schedule

With RAISE funding to complete the Project's funding package, the *East-West Priority Corridor* Project is ready to advance. The Project parties are committed to expeditiously complete the design and construction of this Project, building upon a strong history of collaboration on projects of similar scope and size.

In advance of a potential RAISE award, MDOT MTA and BCDOT's Traffic Division and Complete Streets Division have worked together to identify draft concept design for the project's dedicated bus lanes and have completed 15% design on select bus stops along the corridor that exhibit high transfer activity. These advanced activities have given confidence to the project scope and

Project Schedule	Start	End	Time (Weeks)	Time (Months)
Grant Execution	Nov-21	Nov-22	52	12
Preliminary Design	Jan-23	Aug-23	30	7
ROW Acquisition	N/A	N/A	N/A	N/A
NEPA Approval	Jun-23	Sep-23	13	3
Final Design	Aug-23	Jun-24	44	10
Partner Agreement	Aug-23	Jun-24	44	10
Construction Procurement	Jun-24	Feb-25	35	8
Construction	Feb-25	Feb-27	104	24
Project Closeout	Feb-27	May-27	13	3

Table 15: East-West Priority Corridor Project Schedule

will allow the Project Partners to move quickly into full design. MDOT MTA will have all necessary pre-construction activities completed by June 2024. All necessary activities will be complete to allow RAISE grant funds to be obligated sufficiently in advance of the September 30, 2024, statutory deadline; any unexpected delays will not put the funds at risk of expiring before they are obligated. No right-of-way acquisition is necessary.

Upon obligation of RAISE grant funds, this Project will begin construction quickly and funds will be spent expeditiously once construction starts, with substantial completion anticipated in February 2027 and all funds expended by September 30, 2029. The project schedule, shown in Table 15, assumes a RAISE grant award notification in Fall 2021 and a signed grant agreement in April 2022.

Required Approvals and Permits

State and Local Approvals

If awarded a RAISE grant to enhance multimodal connections on the *East-West Priority Corridor*, MDOT MTA and BCDOT will work closely with the Baltimore Region Transportation Board (BRTB) and MDOT to incorporate the Project into local, regional, and state plans expeditiously, as well as to secure the environmental approvals as quickly as is feasible. The Project will be added to the Transportation Improvement Program (TIP) by the end of 2021. The Project team is committed to broad public engagement that reaches the range of stakeholders. The Project partners are ready to continue building upon the public involvement taking place during the application process with local communities and neighborhood associations, elected officials, local and state agencies, major institutions, stakeholder organizations, and the business community.

Environmental Permits and Review

MDOT MTA has already begun investigating the potential for environmental impacts from this Project and expects them to be minimal. Similar to the *North Avenue Rising*, this Project is expected to qualify for a Categorical Exclusion.

Given the limited amounts of ground disturbance, MDOT MTA does not anticipate receiving a National Environmental Policy Act (NEPA) determination that will impede the construction of the Project. Upon notification of the grant award, MDOT MTA will work with federal partners to complete the NEPA process that will run concurrently with design of the Project as shown in the Project schedule.

B. Technical Capacity

MDOT MTA and BCDOT have a strong track record of collaboratively working on projects of similar magnitude to this Project, as well as projects that involve federal and U.S. DOT grant funding. Understanding the symbiotic relationship between the State's transit system and the local roadways, sidewalks, and bike facilities upon which transit patrons depend, MDOT MTA and BCDOT have established several mechanisms to ensure this work is completed in a coordinated manner. MDOT MTA and BCDOT have worked closely over the last several years on several projects, most notably the North Avenue Rising TIGER project, which is currently in construction, with a scheduled completion in 2021.

Senior agency staff meet monthly, with frequent project-specific coordination meetings with staff from all levels of the two agencies. For example, the multi-agency Curbspace Management Work Group meets monthly to discuss transit priority treatments (e.g., dedicated bus lanes) on a corridor-by-corridor basis. For North Avenue Rising, a BCDOT inspector is working side-by-side with MDOT MTA construction management staff in the field to ensure that work is done to City and State standards. This past experience reduces the potential for unexpected delays at all phases of the Project.

C. Financial Capacity

All of the partners in this team have the financial capacity and funding available to complete this Project as proposed. Previous experience partnering on projects in Baltimore City prepare these agencies and organizations to execute the Project efficiently and effectively, as they advance the investments through secure financial support from both the state and local level.

6. Assessment of Project Risk and Mitigation Strategies

Risk	Impact	Mitigation Strategy
Procurement Delays	Limited	MDOT MTA regularly procures construction projects of a substantial nature and this Project would not pose a significant challenge. Procurements of this size require approval by Maryland's Board of Public Works, but that would not be a challenge for a collaborative project with mutual benefits such as this.
Environmental Uncertainties	None	This Project's Limit of Disturbance is entirely located within a dense urban area with little to no natural habitat. The Project work will all be done on areas that are currently impervious surface and should not pose any environmental risks.
Real Estate Acquisition Cost Changes	None	No real estate acquisition is anticipated for this Project.
Legislative Approval	Low	No legislative approval is needed to move forward with the Project itself, although it is possible that some action by the Baltimore City Council would be taken to implement on-street parking changes associated with the Project's dedicated bus lanes.
Increases in Materials Costs	Uncertain	MDOT MTA and BCDOT will coordinate with design consultants to ensure that current materials costs and potential cost increases are reflected when pricing the project components.

Utility Coordination	Low	MDOT MTA and BCDOT have an extensive record of utility coordination with Baltimore Gas & Electric Company (BGE) to improve bus stops, sidewalks and curb cuts and install bus lanes and bike infrastructure. MDOT MTA and BCDOT will have proactive meetings with various DPW units, BGE, and Verizon early in the project to ensure that sub-surface utility issues and utility cuts are coordinated in advance to avoid any impacts to the Project schedule.
MUTCD Red Paint Approvals	Low	MDOT MTA has worked closely with partners, including FHWA, on red paint applications for its existing dedicated bus lane network and now has extensive experience with the approval process for red paint treatments. No delays are anticipated related to red paint approvals.
Lack of Signal for Real-Time Information Systems	Low	MDOT MTA Systems Engineering, in support of the Bus Unified Systems Architecture (USA) project, conducted a cell service strength analysis for the MDOT MTA transit system, which identifies areas with weak cell service that would not be conducive to real-time signage. This analysis and map provide the information needed to ensure that the real-time signage added through the Project is located in areas where it will be supported by strong signal.
COVID-19	Low	While COVID-19 likely will not have a direct impact on the Project, it could continue to have an impact on the supply of raw materials and fabrication of construction components. MDOT MTA will work to realistically factor in these potential delays into the Project schedule.

Table 16: Project Risk and Mitigation Strategies

7. Benefit-Cost Analysis

A benefit-cost analysis (BCA) was conducted for the *East-West Priority Corridor* project by MDOT MTA for the submission to the U.S. Department of Transportation as a requirement of a discretionary grant application for the RAISE 2021 program. The analysis was conducted in accordance with the benefit-cost methodology as outlined by U.S. DOT in the 2021 Benefit-Cost Analysis Guidance for Discretionary Grant Programs. The period of analysis corresponds to 23 years, including 3 years of capital expenditures and 20 years of operations during which benefits accrue.

Type of Benefit	Description	**Discounted** (7%)
Travel Time Savings	Reduction in bus passenger travel times by 4.7 million hours over project	$35.1
Vehicle Operating Cost Savings	Attraction of new bus riders, resulting in lower emissions from automobiles	$1.1
Safety	Bus crash reduction of 12%, eliminating 266 crashes throughout analysis period	$40.4
Emissions Reduction	Attraction of new bus riders, resulting in lower emissions from automobiles	$4.5
Paratransit Cost Savings	Operating cost savings as newly accessible bus stops enable paratransit riders to shift to fixed route buses	$0.5
Change in Maintenance and Repair Costs	Costs (considered a negative benefit) to maintain project infrastructure in state of good repair throughout project life	($3.9)
Total Benefits	Sum of above benefits	$77.7
Total Costs	Includes construction, design, soft costs	$33.4
Benefit Cost Ratio (BCR)	Benefits divided by costs	2.32
Net Present Value (NPV)	Benefits minus costs	$44.2

Table 17: Benefit-Cost Analysis Summary, Source: WSP Analysis

List of Appendices

All appendices are housed on the MDOT website and can be accessed at www.mdot.maryland.gov/RAISE

Appendix 1: Benefit-Cost Analysis Report

Appendix 2: Letters of Financial Commitment and Letters of Support