SMRT

SOUTHERN MARYLAND RAPID TRANSIT STUDY

Southern Maryland Rapid Transit Project:

Improving Economic Competitiveness and Expanding Travel Options through Local and State Partnership

BUILD Planning Grant Application

May 18, 2020

Submitted to:

United States of America
Department of Transportation

Submitted by:

Charles County in partnership with Prince George's County & Maryland Department of Transportation

BUILD 2020 Project Information - Please complete all fields.
**PLEASE DO NOT CHANGE FILE NAME AND DO NOT COPY/PASTE
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Field Name	Response	Instructions
Project Name	Southern Maryland Rapid Transit Project	Enter a concise descriptive title for the project. This should be the same title used in the Grants.gov SF-424 submission and the application narrative.
Project Description	The BUILD planning grant will be used to complete the draft environmental impact statement (DEIS) for the Southern Maryland Rapid Transit (SMRT) project. Completing the DEIS is an important first step toward delivering this significant project.	Describe the project in plain English terms generally understood by the public, using no more than 100 words. For example, "The project will replace the existing bridge over the W river on Interstate-X between the cities of Y and Z" or "the BUILD Grant will fund construction activities for streetcar service from location X to location Y." Please do not describe the project's benefits, background, or alignment with the selection criteria in this description field.
Urban/Rural	Urban	Identify whether the project is located in a rural or urban area, using the drop-down menu. For BUILD 2020, a project is designated as urban if it is located within (or on the boundary of) a Census-designated urbanized area that had a population greater than 200,000 in the 2010 Census. All other projects will be designated as rural.
Urbanized Area	Washington, DC--VA--MD	If you have identified the project as "urban," please select the associated 2010 Census-designated urbanized area (UA) from the drop-down. If you identified the project as "rural" but it is located in an UA with a population under 200,000, please select the UA from the drop-down. If you have identified the project as "rural" and it is not located in a non-urbanized area, please select "Not located in an urbanized area" from the drop-down.
Capital or Planning	Planning	Identify the project as capital or planning. The "capital" designation should be used for projects that are requesting funding primarily for the physical development, acquisition, or improvement of surface transportation capital infrastructure. The "planning" designation should be used for projects that are requesting funding primarily for aspects of planning, preparation, or design.
Project Type	Transit - Light Rail	Identify the Primary and Secondary project type combination that most closely aligns with your project from the choices in the drop-down menu. See the "Project Types" tab in this file for further information and project type definitions.
Primary Project Location Zip Code	20735	Identify the 5-digit zip code of the project location. If the project is located in multiple zip codes, please identify the most centrally located zip code.
Project Previously Submitted?	No	Identify whether the project was submitted in a prior BUILD/TIGER or INFRA round, using the drop-down menu.

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Field Name	Response	Instructions
Prior BUILD/TIGER Funds Awarded to Project?	No	Identify whether the project has previously received BUILD/TIGER funding, and if so, whether that funding was through a planning or capital grant, using the drop-down menu.
FY20 INFRA or PIDP Applications?	No	Identify whether this project is also being submitted to the Nationally Significant Freight and Highway Projects Program (also known as INFRA) or the Port Infrastructure Development Program (also known as PIDP) for Fiscal Year 2020.
Amount Requested		Enter the total amount of BUILD funds requested for this project in this application. [For capital projects, the minimum urban entry is $5,000,000 and the minimum rural entry is $1,000,000. For planning projects, the minimum entry is $1. The maximum entry for both types is $25,000,000].
Total Project Cost		Enter the total cost of the project. This should equal the sum of Total Federal Funding and Total Non-Federal Funding. This value may not be less than the amount requested.
Total Federal Funding		Enter the amount of funds committed to the project from ALL Federal sources including the proposed BUILD amount. For BUILD projects designated as urban, Federal funding cannot exceed 80% of total project cost.
Total Non-Federal Funding		Enter the amount of funds committed to the project from non-Federal sources. For BUILD projects designated as urban, the total non-Federal funding amount must be greater than or equal to 20% of the project cost.
Tribal Government?	No	Select "Yes" from the drop-down menu if the applicant is a Federally recognized tribal government.
Tribal Benefits?	N/A	If the applicant is not a Federally recognized tribal government, is the project located on tribal land? And if not, does it have direct tribal benefits? Answer using the drop-down menu.
Private Corporation Involvement	No	Does this project involve (a) private entity(ies) that will receive a direct and predictable financial benefit if the project is selected for award? This includes, but it not limited to, private owners of infrastructure facilities being improved and private freight shippers or carriers directly benefitting from completion of the proposed project.
Private Corporation Name(s)		If this project directly involves or benefits a specific private corporation, please list the corporation(s).
TIFIA/RRIF?	Yes - TIFIA	Is the project currently, or does this project anticipate applying for Transportation Infrastructure Finance and Innovation Act (TIFIA) or Railroad Rehabilitation & Improvement Financing (RRIF) loans?
Department Financing Program?	No	If your application is unsuccessful, would you like to be contacted about the Department's financing program?

BUILD 2020 Project Information - Please complete all fields.
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Field Name	Response	Instructions
Designated Opportunity Zone?	The project is partially located within an Opportun	Please indicate if this project is located within a designated Opportunity Zone. To make this determination, review the Department of Housing and Urban Development's interactive map of designated Opportunity Zones by clicking on this cell.

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1. Project Description

1.1. Overview

Charles County, Maryland in partnership with Prince George's County, Maryland and the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA), is submitting a Better Utilizing Investments to Leverage Development (BUILD) Discretionary Grant Program Planning Grant application for $ 4.98 million to fund the completion of the Draft Environmental Impact Statement (DEIS) for the Southern Maryland Rapid Transit (SMRT) project. A separated, high-capacity transit line in this rapidly-growing corridor will transform the greater Washington, D.C. region, and completing the DEIS is an important next step in delivering this vital regional project.

Studies completed to date have identified numerous existing challenges in the corridor that the SMRT Project intends to address:

- The SMRT Project corridor does not have a balance between jobs and housing.
- The existing automobile-based transportation system is not adequate to support existing and planned development.
- Available options do not offer a reliable travel time from Waldorf and Southern Maryland to other parts of the Washington metropolitan region and congestion levels contribute to a higher than average crash rate, especially at intersections.
- There are few alternative travel options within the corridor.
- Transit-dependent populations have poor travel accessibility throughout the corridor.
- As travel demand increases, there is limited potential to expand the transportation footprint.
- Population in the commute shed is projected to grow by 26 percent and jobs are anticipated to increase by 51 percent within 25 years.

SMRT Project Benefits

- Improves traffic safety and enhances quality of life for residents, commuters, and workers.
- Expands the regional transit network by creating a robust link into Southern Maryland.
- Reduces future traffic congestion in the most congested arterial highway in the State and benefits air quality.
- Provides a sustainable transportation alternative in an auto-dependent corridor.
- Implements local and regional multi-modal transportation plans.
- Links planned and developing Transit Oriented Developments through context sensitive stations along the corridor.
- Increases economic competitiveness in the corridor.
- Provides timely transportation choices to underserved and transit dependent communities.
- Future Ready for Automated Vehicle (AV) or other advanced technologies.
- Increases travel capacity in a corridor with limited highway expansion options.

Primary Merit Criteria	Corridor Challenge	SMRT Solution
Safety	• Current transportation system contributes to higher than average rate of personal injuries in the corridor and unhealthy lifestyles	• Making improvements at key intersections and increasing transit travel opportunities through SMRT and other projects reduces travel-related crashes and helps implementation of the bicycle, pedestrian, and healthy community plans prepared by the counties
State of Good Repair	• Limited availability to expand the transportation footprint	• SMRT will substantially increase the corridor's people-moving capacity and help slow congestion growth and expansion of the highway footprint
Economic Competitiveness	• Transportation system is not supportive of existing and planned development • Corridor has limited potential to attract new employment	• Recent planning efforts have suggested that SMRT will help encourage new developments to locate near existing and/or proposed transit facilities • Employment in the MD 5/US 301 corridor is primarily focused in the northern end; SMRT Project can lead to employment growth in the southern portion of the corridor
Environmental Sustainability	• Poor accessibility for transit dependent populations	• There are low income populations in the northern and southern ends of the corridor that would benefit from improved accessibility
Quality of Life	• Limited options for reliable travel from the Waldorf regional activity center to other • Lack of alternative transportation options within the corridor	• SMRT will provide connections to the Branch Avenue Metrorail station, include bike and pedestrian facilities, and be separated from the roadway to the extent practicable. • All-day, one-seat connection along MD 5 / US 301 between Waldorf - White Plains and the Branch Avenue Metrorail station

MD 5 and US 301 are regionally important roads that link Virginia and southern Maryland to points north. This corridor is the least developed of any along the Capitol Beltway and offers few employment opportunities to residents. Reverse commute levels are low. A portion of MD 5 has the highest average daily traffic volume of any arterial road in the State. Some segments in the corridor have higher than average crash rates and many of those crashes occur at intersections.

MD 5 Southbound Spur and bridge over Allentown Road

The SMRT Project corridor connects six local and regional activity centers (see Appendix A). The northern and southern portions of the corridor are designated as growth areas and Priority Funding Areas (PFAs), where commercial and residential land uses dominate. Joint Base Andrews (JBA) and MedStar Southern Maryland Hospital Center (MSMHC) are the two largest employment centers along the corridor. In addition, there are highly-developed regional shopping centers, big box retailers, and large undeveloped parcels throughout the corridor.

In the absence of SMRT, there is limited potential to attract new employment to the corridor. Employment in the MD 5/US 301 corridor is primarily focused in the northern end. Only four percent of the overall commuting volume in the corridor travels from housing in the north toward employment in the south.

This corridor is largely auto-dependent. Local transit routes in the two counties operate independently, with one route that crosses from Prince George's County into Charles County. The MDOT MTA commuter bus service from this area of the State operates at high capacities and carries riders into downtown Washington, D.C. It operates northbound in the morning and southbound in the evening with no stops at the Branch Avenue Metrorail station.

The southern Maryland region (Charles, Calvert, and St. Mary's counties) accounts for the largest commuter bus ridership in the State of Maryland with 130,000 monthly passengers. Nine peak-hour bus routes serve Charles County with 196 daily trips into downtown Washington, D.C. **SMRT would provide direct transit service from Waldorf in Charles County into WMATA's Green Line terminus at the Branch Avenue Metrorail Station.**

Options are limited for expanding highway capacity to connect Southern Maryland with the rest of the Washington Metropolitan Region. The potential for highway widening along MD 5 are limited by the proximity of Joint Base Andrews and by commercial development at several key locations. A rapid transitway would have a footprint and cost comparable to two additional highway lanes, while providing considerably more travel capacity.

The concept of a rapid transit line in Southern Maryland, first envisioned in the 1990s, was manifested in the 1996 Southern Maryland Mass Transportation Study. Since then, numerous transit feasibility studies have been completed in the corridor, culminating with the 2017 Final Alternatives Report. This three-year, pre-National Environmental Policy Act (NEPA) planning study was conducted in collaboration between the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA) and Prince George's and Charles counties. This

study marked a major milestone in the effort to provide sustainable congestion relief along the SMRT Project corridor.

The SMRT Project is an integral part of the on-going development of an interconnected regional transit system that will improve the quality of transit service in the Metropolitan Washington Region. The Metropolitan Washington Council of Governments' (MWCOG) long-range transportation plan forecasts significant population and employment growth along the SMRT corridor. Today, there are 5.7 million people living in the National Capital Region, which is expected to grow to more than 6.9 million by 2045. According to MWCOG's Cooperative Forecasts Round 9.1, Charles County's population will grow at the fastest rate in the region, 55.5 percent. (See Table 1-1.) With limited ability to expand current roadway footprints and the commuter bus system reaching capacity, further expansion of the current transportation facilities is significantly constrained. As travel demand along the SMRT Corridor increases, a separated, high-capacity transit system is needed to accommodate the demand.

Table 1-1: Employment, Population, and Households Growth Forecasts (2010-2040)

	Employment	Population	Households
Prince George's County	+45.3%	+15.3%	+24.7%
Charles County	+33.6%	+55.5%	+68.6%
St. Mary's County	+28.2%	+65.8%	+71.1%

The SMRT Project DEIS will build upon results of previous transit studies in the corridor, particularly the 2017 Southern Maryland Rapid Transit Alternatives Study, to provide an updated analysis of viable alternatives and transit modes along the 18.7-mile long project corridor from the Branch Avenue Metrorail Station in Prince George's County to the Waldorf-White Plains area in Charles County.

The SMRT Project is going to improve the quality of life in Charles and Prince George's counties by providing safe, accessible, efficient, and convenient high-capacity rapid transit during peak and off-peak hours. The SMRT Project provides increased economic competitiveness for the region, as well as sustainable transportation option for individuals who will have greater freedom to travel where and when they want.

Charles County, in partnership with Prince George's County and MDOT MTA, is seeking $ 4.98 million to complete a Draft Environmental Impact Statement (DEIS) – an important next step in implementing a rapid transit system along the SMRT Project corridor in a dedicated transitway. Recognizing the regional significance of this project, Charles County, Prince George's County, and the State of Maryland are each contributing funding of $500,000 to advance this important project towards implementation.

1.2. Transportation Challenges and Mitigation

Providing safe, accessible, efficient, and convenient high-capacity rapid transit during both the peak and off-peak hours in the MD 5 / US 301 corridor will overcome many transportation challenges that exist in the corridor and described below.

Corridor is congested with limited options for expansion

A Transportation System that is not Supportive of Existing and Planned Development. The MD 5/US 301 corridor is a major north/south commuting and shopping corridor and an example of a suburban, highway-centered land use pattern that is congested and has limited transportation alternatives. Figures 1-1 and Figure 1-2 show the level of congestion along the corridor today. Population and employment growth is forecast to continue, and Prince George's and Charles counties have been encouraging development to occur in a new way – in a way that will enhance transit's attractiveness, encourage use of non-motorized travel methods and facilitate alternatives to the private automobile for personal travel. SMRT is consistent with and supportive of the counties' master plans, sector plans, transportation studies, and redevelopment activities. Recent planning efforts have suggested that SMRT will help encourage new developments to locate near existing and/or proposed transit facilities.

Figure 1-1: MD 5/US 301 Traffic Volumes and Average Speeds (2014 AM Peak Period)

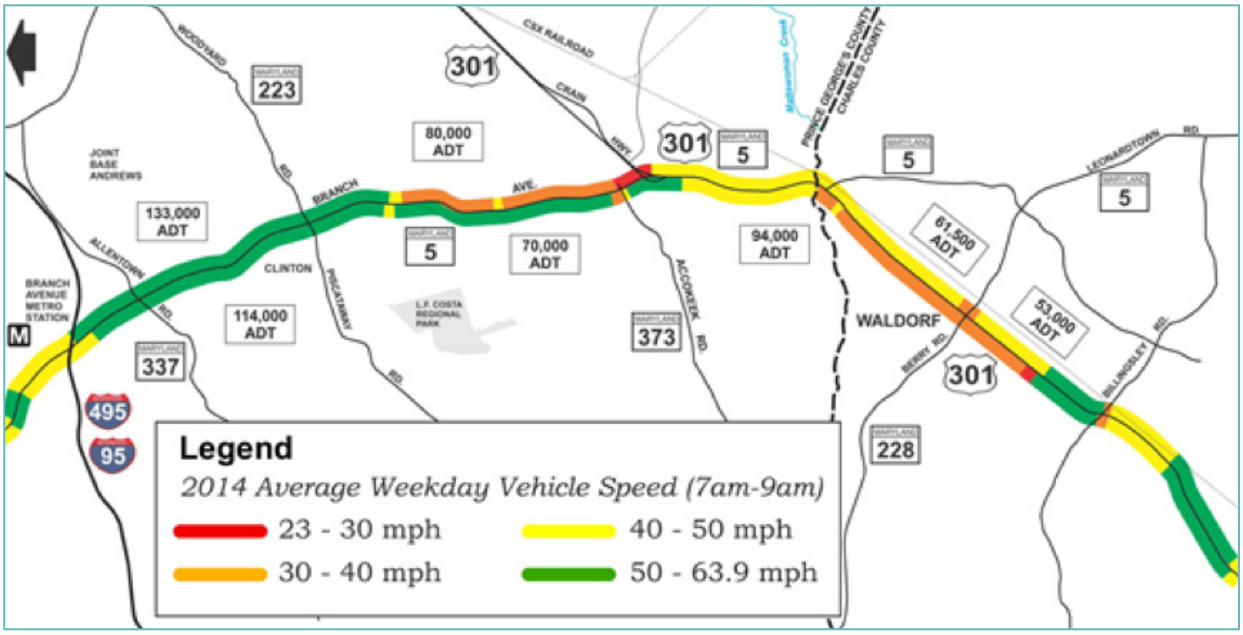
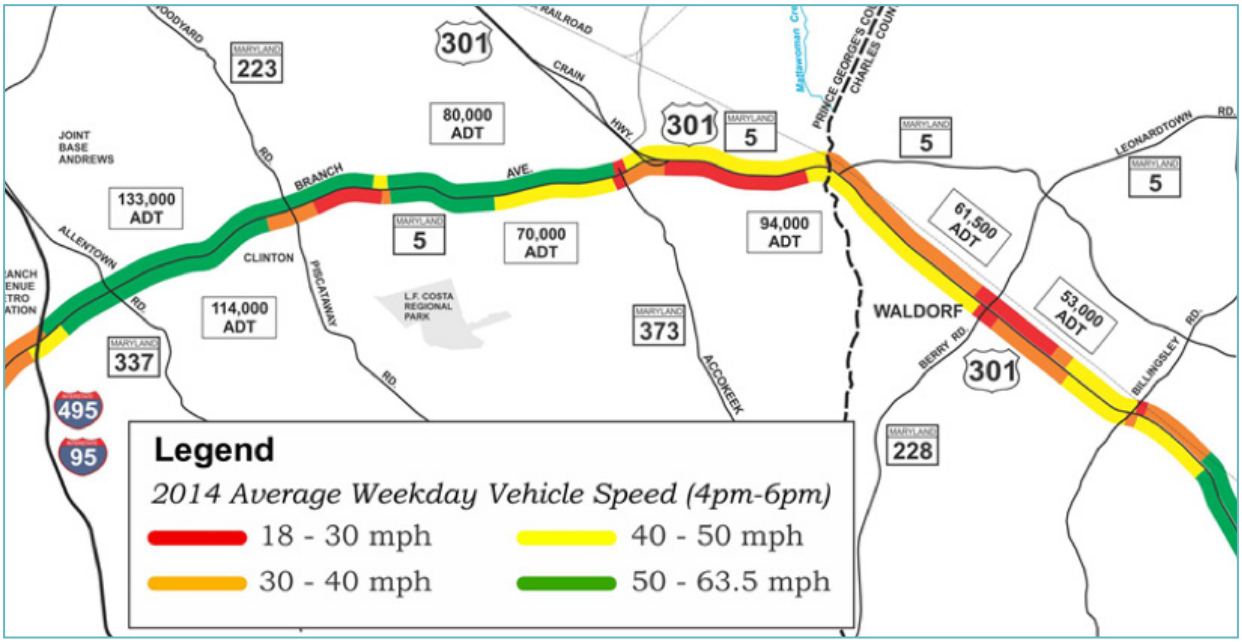


Figure 1-2: MD 5/US 301 Traffic Volumes and Average Speeds (2014 PM Peak Period)



Limited Options for Reliable Travel from the Waldorf Regional Activity Center to Other Parts of the Washington Metropolitan Region. In Waldorf today, private vehicles are virtually the only option for traveling to most parts of the Washington metropolitan region. Along the corridor, there are no bicycle or pedestrian networks, car-share and bike-share opportunities are not available, and the local transit network is not very robust. The existing commuter bus service to downtown Washington, D.C. is heavily used. However, it does not provide off-peak service or connect to the Metrorail system to provide regional access. It provides little to no travel time advantages because it uses the same congested roadways as other travelers. SMRT will operate during peak- and off-peak hours, provide connections to the Branch Avenue Metrorail station, include bike and pedestrian facilities, and be separated from the roadway to the extent practicable.

Lack of Alternative Transportation Options within MD 5/US 301 Corridor. Twenty-seven bus routes traverse the SMRT Project corridor. These routes are operated by MDOT MTA, WMATA, and the local transit providers in Prince George's and Charles counties. However, none of these services provide direct service to the Branch Avenue Metrorail station, and while commuter buses run in the corridor, they do not stop at Branch Avenue Metrorail station and they do not provide access along the entire MD 5/US 301 corridor. Providing an all-day, one-seat connection along MD 5/US 301 between Waldorf - White Plains and the Branch Avenue Metrorail station will increase transportation options along the corridor.

Limited Potential to Attract New Employment. Employment in the MD 5/US 301 corridor is primarily focused in the northern end. Only four percent of the overall commuting volume in the corridor travels from the north to the south. However, regional leaders expect that SMRT, combined with local master planned land use changes, will reduce this imbalance by providing attractions and employment centers in the southern portion of the corridor. Employment growth in the southern portion of the SMRT corridor and efficient rapid transit to serve it would work together to achieve success. The SMRT Project can lead to employment growth in the southern portion of the corridor, and that employment growth can lead to the success of the SMRT transit project.

Poor Accessibility for Transit Dependent Populations. Lower income households generally have lower car ownership and typically depend on local transit service. Providing high-quality, direct transit service along the MD 5/US 301 corridor could improve economic opportunities for transit-dependent populations by providing increased access to healthcare, education and employment opportunities, by reducing travel times and commuting costs and by expanding reverse-commute options. While the SMRT study area overall has a smaller percentage of people living in poverty than in Prince George's or Charles counties (see Table 1-2), there are important low income populations in the northern and southern ends of the corridor that would benefit from improved accessibility.

Table 1-2: Poverty and Median Income the SMRT Study Area

	Prince George's (SMRT study area)	Prince George's County	Charles (SMRT study area)	Charles County	SMRT Study Area
Percent Minority[1]	87.9	80.8	62.4	49.7	78.1
Percent of Individuals Living in Poverty[2]	6.0	10.3[2]	9.6	8.6[2]	7.4[3]
Median Household Income Ranges (highest and lowest within specified geography)[4]	$40,200 – $128,508	$9,495 - $250,000+	$31,477 - $142,679	$31,477 - $148,355	$31,477 - $142,679

1 Total Population and percent Minority using 6 categories from the U.S 2010 Census, Summary File 1 (SF1, 100 percent population data) for all Block Groups within the SMRT study area
2 ACS 5-Year (2009 – 2013), US Census Quickfacts (summarized information) for Prince George's and Charles counties and the State of Maryland
3 ACS Median Household Incomes for all Block Groups within the SMRT study area, in the past 12 months (2013)
4 ACS Poverty Status of Individuals, for Block Groups within the SMRT study area, Prince George's and Charles counties in 2013 inflation adjusted dollars (note the margin of error for median income varies per Block Group and is not shown above)

Increased Travel Demand and Limited Availability to Expand the Transportation Footprint. Regional travel demand models (that do not include SMRT) indicate that by 2040, the total number of commute trips from along the MD 5/US 301 corridor to the Washington, D.C. urban core will increase by 40 percent. While the number of transit riders is forecast to increase, the percentage of travelers using transit is forecast to decrease. Overall travel capacity must expand within the MD 5/US 301 corridor. Without that, bottlenecks and increased congestion will occur in numerous locations, especially along the portion of the corridor adjacent to Joint Base Andrews. However, because the existing MD 5/US 301 corridor right-of-way is quite constrained it will be difficult to provide more highway lanes. SMRT will substantially increase the corridor's people-moving capacity and help slow congestion growth and expansion of the highway footprint because the transit will be in its own dedicated ROW.

Corridor does not provide easy opportunities for roadway expansion

The Current Transportation System Contributes to Significantly Higher than Average Rate of Personal Injuries in the Corridor and Unhealthy Lifestyles. Auto-dependent land uses, increasing volumes of traffic and lack of facilities for non-motorized travel all play roles in the health levels of the corridor's residents. The health outcomes stem from three areas: vehicle crashes, limited opportunities for incidental exercise associated with walking or biking rather than driving to a destination, and health problems associated with degraded air quality. Making improvements at key intersections and increasing transit travel opportunities through SMRT and other projects, helps implement the bicycle, pedestrian, and healthy community plans prepared by Prince George's and Charles counties leading to improved health outcomes along the corridor.

The SMRT Project will improve travel by alternative modes, which are currently limited along the corridor. In conjunction with planned mixed-use and TOD in both counties and through station area planning, the SMRT Project will improve walking and bicycling as a viable transportation option within and to the Project corridor. Creating enhanced modal choices and flexibility into the system will be a critical benefit of this project. Comprehensive plans and conceptual engineering drawings of station areas were created during previous project phases to ensure strong connectivity to existing and planned developments through bicycle and pedestrian facilities.

1.3. SMRT Corridor Vision

The SMRT *Corridor Vision and Challenges*[1] describes how the extension of rapid transit services between Branch Avenue Metrorail Stations and the Waldorf/ White Plains Activity Center addresses limitations of the existing transportation system serving the MD 5/US 301 corridor and supports planned development and redevelopment important to the future of both Charles and Prince George's counties.

Transit improvements along the MD 5/US 301 corridor, from the Branch Avenue Metrorail Station to the Waldorf-White Plains area, would create a more reliable, integrated, and accessible transportation network that enhances choices for transportation users; provides improved access to affordable housing, employment, and other destinations; and promotes a better quality of life for the community. The purpose of a higher capacity transit system is to move more people efficiently, while reducing automobile trips and reducing air pollution caused by idling vehicles in traffic congestion. A fixed transit guideway, either BRT/ LRT or a transition from BRT to LRT, would bypass congested highway corridors. This would offer travel time improvements and improved reliability.

SMRT Corridor Vision

- Link Waldorf to Metrorail at Camp Springs.
- Unlock the full potential of the corridor and bring jobs closer to housing.
- Support transit-oriented and redevelopment opportunities.
- Provide transit throughout the day and evening.
- Ease commuting and improve mobility while preserving highway capacity.
- Improve accessibility to jobs and services for transit-dependent populations.
- Better connect Southern Maryland communities to the larger region and create greater balance in commuting patterns.
- Increase the number of travelers able to travel through the corridor at the same time.
- Provide a sustainable transportation alternative in an auto-dependent corridor.
- Improve safety and health outcomes for residents.

1 https://www.smrtmaryland.com/visionplan

The SMRT Project envisions:

- Connecting corridor growth centers, local, and regional activity centers, such as the Southern Maryland Hospital, in Southern Prince George's and Charles counties to the greater Washington D.C. Metropolitan region by tying into the Washington Metropolitan Area Transit Authority (WMATA) Green Line Metrorail and the Transit-oriented Development (TOD) at the Branch Avenue Station.

Aspire Apollo Apartments, northeast side of Branch Avenue Station

- Supporting TOD, reinvestment/redevelopment, and the creation of new employment opportunities along the SMRT Corridor near regional activity centers and planned development.
- Providing a catalyst for new investment, economic growth, and job creation.
- Enhancing the tools available to allow the transit corridor to be a spine, around which future growth can occur in a transit supportive manner.
- Enhancing connectivity within the Washington Metropolitan area and promote solutions that address A Region Divided[2].
- Improving accessibility to employment and services for transit-dependent populations.
- Expanding commuting options, enhancing local mobility, preserving highway capacity, and managing congestion throughout the SMRT Project corridor.
- Creating a sustainable, multi-modal transportation strategy for this rapidly growing, automobile dependent corridor.
- Promoting positive public health outcomes for residents along the SMRT Project Corridor by offering alternative transportation options.

1.4. Project Scope

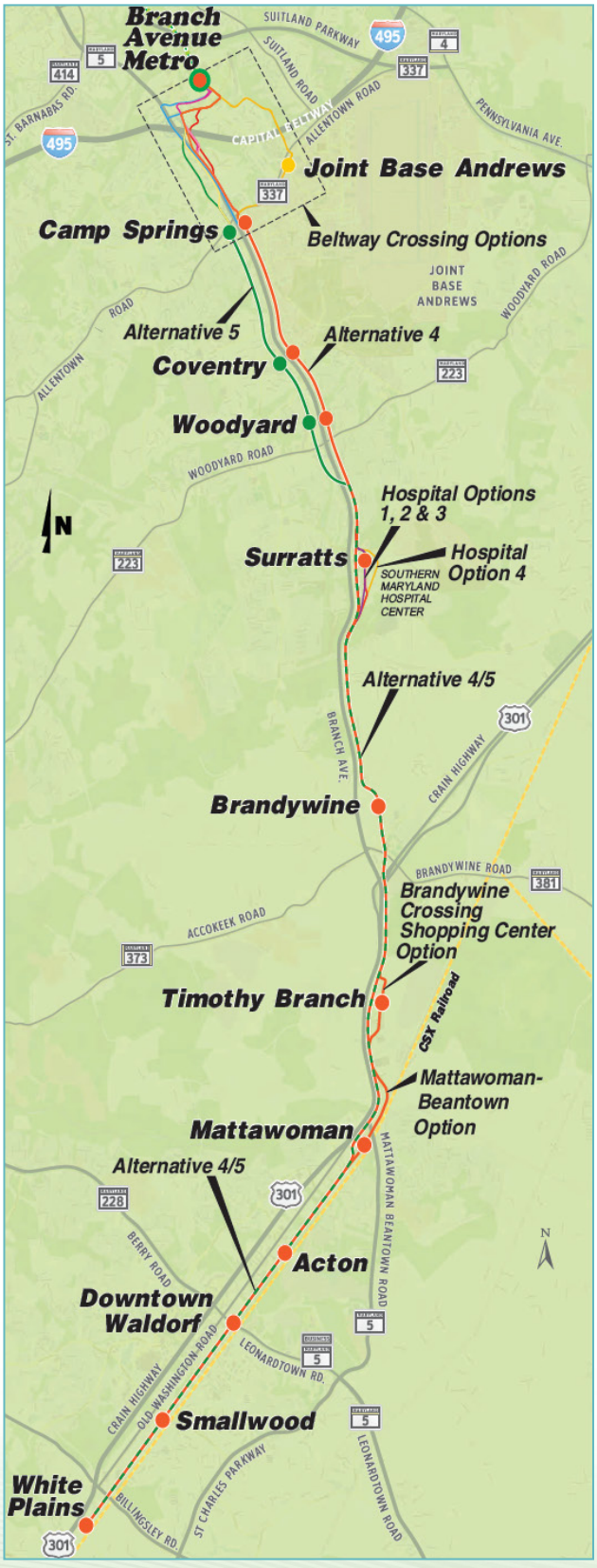
The SMRT Project will provide high-quality rapid transit using a dedicated guideway that will run from the Branch Avenue Metro Station in Camp Springs, adjacent to MD 5 and US 301 in Prince George's County and along the west side of the Pope's Creek Railroad to the Waldorf- White Plains area in Charles County. Peak hour highway congestion along this 19-mile route already results in a 32-minute morning highway commute. Because there is no direct transit service, the bus ride from White Plains to the Branch Avenue Metro Station takes 93 minutes during the morning peak. As growth continues in this corridor, even with the most optimistic of highway construction programs, morning and afternoon peak travel times will increase.

Both LRT and BRT technology are being considered, and Figure 4-1 in Section 4.1 provides information on the typical section for each transit technology. The DEIS will select the preferred technology and finalize the alignment for the SMRT Project.

The SMRT Project BUILD planning grant application is a direct result of an exhaustive alternatives assessment and public outreach effort completed in 2017.The funding received through the BUILD planning grant will complete detailed environmental analysis of the selected alignment. Activities

2 https://www.brookings.edu/research/a-region-divided-the-state-of-growth-in-greater-washington-d-c/

Figure 1-3: SMRT Alignments and Station Locations



include detailed engineering to avoid or further minimize potential adverse impacts on natural and cultural resources, delineation of affected wetlands, detailed analysis of any unavoidable impacts upon identified cultural resources, and negotiation of alignments through the MedStar Southern Maryland Hospital campus, along the north-west border with Joint Base Andrews and through a large regional shopping center near Timothy Branch. The project will advance the NEPA process through completion of a DEIS.

1.5. Project Background and Previous Studies

Previous planning efforts included the SMRT Corridor Vision and SMRT Environmental Inventory (2016), Southern Maryland Transit Corridor Preservation Study (2010), Southern Maryland Commuter Rail Service Feasibility Study (2010), the Southern Maryland Transportation Needs Assessment (2008), and the Transit Services Staging Plan (2004). Previous and related studies are available at https://smrtmaryland.com.

After evaluating multiple alignments, the SMRT Final Alternatives Report (2017)[3] recommended Mainline Alternative 4 based on a comprehensive analysis of the alternatives; their impact to other transportation networks; the environment, land use, and regional economics; reactions from the public during an extensive public outreach effort; and ultimately the results of a comparative screening of each specific alignment scenario based on their performance under each evaluation criteria. Drawings of all the alignments, including conceptual engineering, are available at in Appendices B[4] and E[5] of the Final Alternatives Report. The general locations of Alignments 4 and 5 are shown in Figure 1-3.

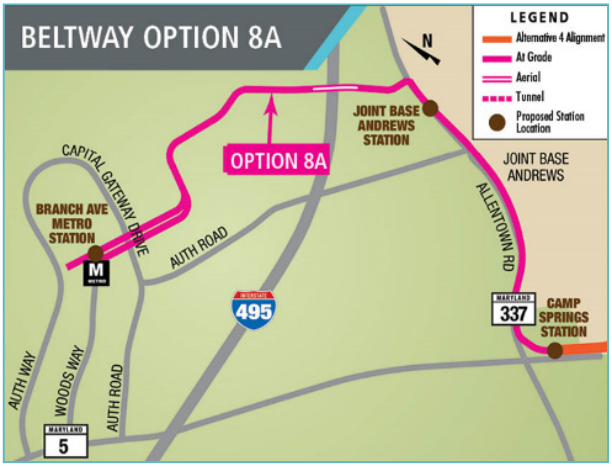
3 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report.pdf

4 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20B.pdf

5 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20E.pdf

Several areas along the alignment required additional analysis, coordination with stakeholders and property owners, and additional public input. For example, at the Capital Beltway crossing, Option 8A (Figure 1-4) was chosen to provide direct access to Joint Base Andrews (JBA).The DEIS would develop optimal solutions for pedestrian access from JBA and address fencing and right-of-way issues. Conceptual engineering, and more detailed engineering for this and other challenging environmental areas, such as the Beltway Crossing and Mattawoman-Beantown Road, would be addressed during the DEIS to refine both environmental impacts and capital costs. Completing the DEIS is an important next step in building upon the assumptions, verifying impacts, and determining with greater certainty the conclusions reached in the 2017 Study in order to best advance this important project.

Figure 1-4: Beltway Crossing Alignment



1.6. SMRT Project Benefits

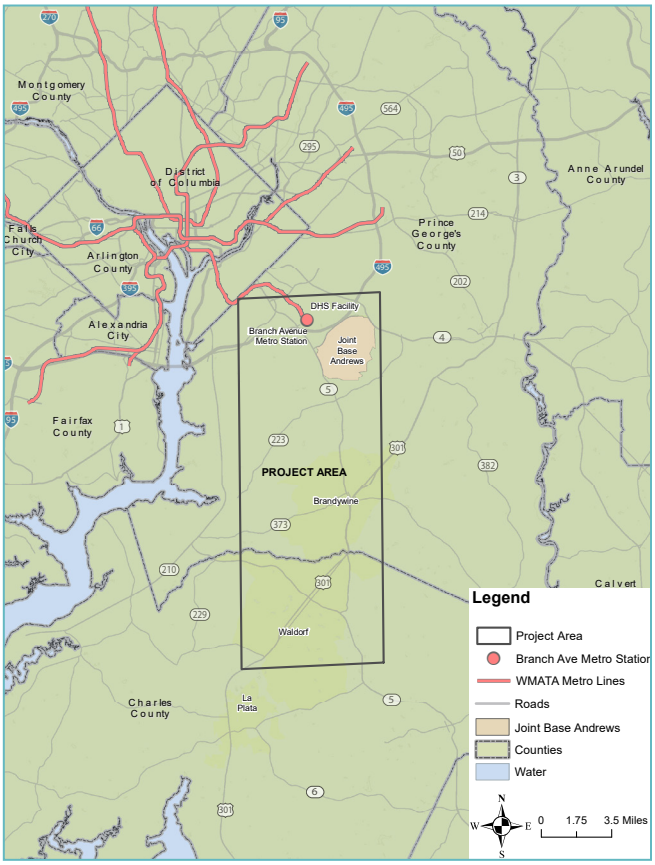
The SMRT Project

- Increases safety and enhances quality of life for Prince George's and Charles counties residents and workers traveling along the corridor.
- Improves environmental sustainability by providing a competitive transportation option to Single-Occupancy Vehicles (SOVs) in Southern Maryland.
- Enhances multimodal connectivity and transit access by providing increased travel capacity in the most congested arterial highway corridor in the State.
- Builds from previous conceptual engineering for the full length of the corridor that determined environmental impacts, capital costs, and bicycle and pedestrian access solutions.
- Uses context-sensitive solutions to pair station area level of investment with existing and planned land uses and Transit Oriented Developments along the Project corridor.
- Lessens the burden on existing constrained transportation infrastructure and improves transportation options in the region.
- Increases economic competitiveness for the corridor by making it more attractive to businesses and developers.
- Help ignite the economic potential of the corridor, while helping to even out commute patterns, which can reduce congestion and benefit the environment.
- Provide vital transportation choices to underserved and transit dependent communities, serving as a major tool in addressing equity and healthier transportation solutions.
- Serve as a lynchpin to bring the region closer together through an enhanced and more interconnected transit network.
- Is Future Ready for Automated Vehicle (AV) or other advanced technologies due to its dedicated guideway.

2. Project Location

The Southern Maryland Rapid Transit (SMRT) Project corridor is located within Charles and Prince George's counties in Maryland (Figure 2-1). The SMRT Project corridor follows MD 5 (Branch Avenue) and US 301 (Crain Highway) between the Branch Avenue Metro Station and the Waldorf-White Plains area. The Northern Terminus at Branch Avenue Metrorail Station is situated between MD 5, I-495, and Suitland Parkway. This location is the current southern end-of-line for the WMATA Green Line. The SMRT Southern Terminus is located along US 301 south of Billingsley Road near the CSX Railroad corridor. Between the termini, the corridor intersects several other major roadways. Major roadways intersecting the Project corridor include I-495, MD 337, MD 223, MD 373, MD 228, and Billingsley Road. The SMRT Project corridor traverses through or near several communities, including Auth Village, Manchester Estates, Camp Springs, Joint Base Andrews, Clinton, Brandywine, Delight, Waldorf, St. Charles, and White Plains. Figure 1-1 in Section 1.4 shows the SMRT alignment and station locations.

Figure 2-1: SMRT Project Location within the Washington, D.C. Region



With the implementation of SMRT, the number of transit trips in the study corridor is expected to increase by approximately 18,000 daily transit trips (18 percent). The total number of transit trips generated in the corridor remains relatively constant across the 12 tested alternatives, varying only between 119,300 and 120,500. The majority of the new transit trips in the SMRT Corridor (over 70 percent) are home-based work and home-based other trips. The largest growth in transit trips occurs for trips within the Charles County portion of the SMRT Corridor. Appendices A[6] and B[7] of the 2017 SMRT Final Alternatives Report provides detailed information on the alignment and station areas.

6 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20A.pdf

7 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20B.pdf

3. Grant Funds and Uses of Project Funds

3.1. Sources and Uses of Funds

Charles County, Prince George's County, and MDOT MTA are seeking a BUILD investment of $ 4.98 million to provide 77 percent of the $ 6.48 million cost to complete a Draft Environmental Impact Statement (DEIS) for the Southern Maryland Rapid Transit (SMRT) project. The remaining funds will be provided by Charles County, Prince George's County, and MDOT MTA. Table 3-1 shows how funds will be expended.

Table 3-1: Project Budget Summary by Source and Use

	Federal Sources	Non-Federal Sources		Total
	BUILD Grant	Counties	State	
Project/Document Management	$445,741	$89,506	$44,753	$580,000
Project Coordination/Meetings	$268,982	$54,012	$27,006	$350,000
Public Outreach/Agency Coordination	$461,111	$92,593	$46,296	$600,000
Intitial Data Collection/ Analysis	$292,037	$58,642	$29,321	$380,000
Purpose and Need/Alternative Analysis	$330,463	$66,358	$33,179	$430,000
Env. Analysis/Socio. Eco. Resources/Natural Resources	$453,426	$91,049	$45,525	$590,000
Traffic/Utility	$307,407	$61,729	$30,864	$400,000
Cultural Resources/Section 106	$345,833	$69,445	$34,722	$450,000
Section 4(f)	$153,704	$30,864	$15,432	$200,000
Environmental Document	$1,921,296	$385,802	$192,902	$2,500,000
Total	**$4,980,000**	**$1,000,000**	**$500,000**	**$6,480,000**

4. Selection Criteria

4.1. Safety

The current automobile-centric transportation system in the MD 5/US 301 corridor contributes to a substantially higher-than-average rate of personal injuries in the corridor and to unhealthy outcomes. Automobile-dependent land uses, increasing volumes of traffic, and lack of facilities for non-motorized travel all play roles in the health levels of the corridor's residents. The health outcomes stem from three areas: vehicle crashes, limited opportunities for incidental exercise associated with walking or biking rather than driving to a destination, and health problems associated with degraded air quality. Both the State of Maryland and Prince George's County are Vision Zero jurisdictions, a strong indication of the commitment on behalf of the State and its counties to address vehicle related deaths and serious injury. The SMRT project will help in addressing this commitment to creating a safer environment for all users of the transportation network. Making improvements at key intersections; increasing transit travel opportunities through SMRT and other projects; and implementing bicycle, pedestrian, and healthy community plans prepared by Prince George's and Charles counties and enabled by the SMRT Project can help improve air quality and health outcomes along the corridor.

Example of lane markings, signal priority, and dedicated travel space that improve safety

Reduction in Vehicle Crashes

The MD 5/US 301 corridor contains some of the highest traffic volume arterial sections within the State of Maryland, and traffic volumes generally increase moving from south to north. The corridor is home to the arterial roadway segment with the highest average daily traffic in the state.

- MD 5, MD 223 to US 301. Traffic volumes (2017) range from 65,000 to 99,000 vehicles per day (vpd). Also identified as the state's most congested arterial segment in the afternoon peak.

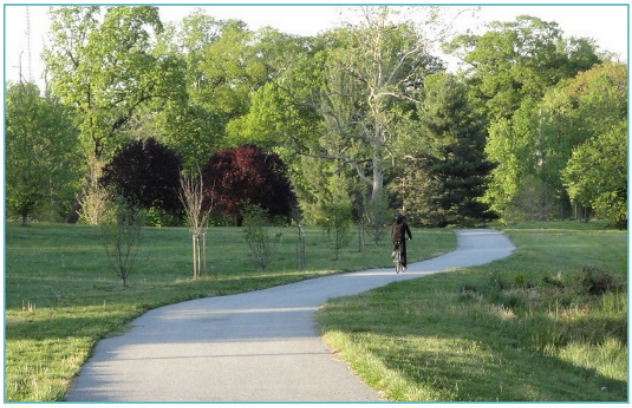
Many crashes are clustered around signalized intersections, with especially high crash concentrations at MD 5 at Surratts Road, US 301 at Cedarville Road/McKendree Road, US 301 at Mattawoman-Beantown Road, and US 301 at MD 228.

In 2016 there were approximately 865 police reported crashes along the MD 5/US 301 corridor between I-495/I-95 and MD 227. There were 13 crashes resulting in fatalities and 315 crashes resulting in injuries. Table 4-1 provides more detail on the locations and outcomes of those crashes.

Table 4-1: Crashes Along the SMRT Corridor			
Crash Type	**MD 5 (I-495 to US 301/ MD 5 int. at TB)**	**US 301 (US 301/MD 5 int. at TB to MD 227)**	**Total**
Fatal	5	8	**13**
Personal Injury	117	198	**315**
Property Damage Only	209	328	**537**
Total Crashes	331	534	**865**

By moving trips from highway to transit and helping to slow the increase in traffic congestion, SMRT will reduce the number of crashes that might otherwise have occurred along the roadway. The DEIS analysis will work to quantify this benefit.

Bicycle and Pedestrian Improvements



Dedicated facilities can help users feel comfortable taking them

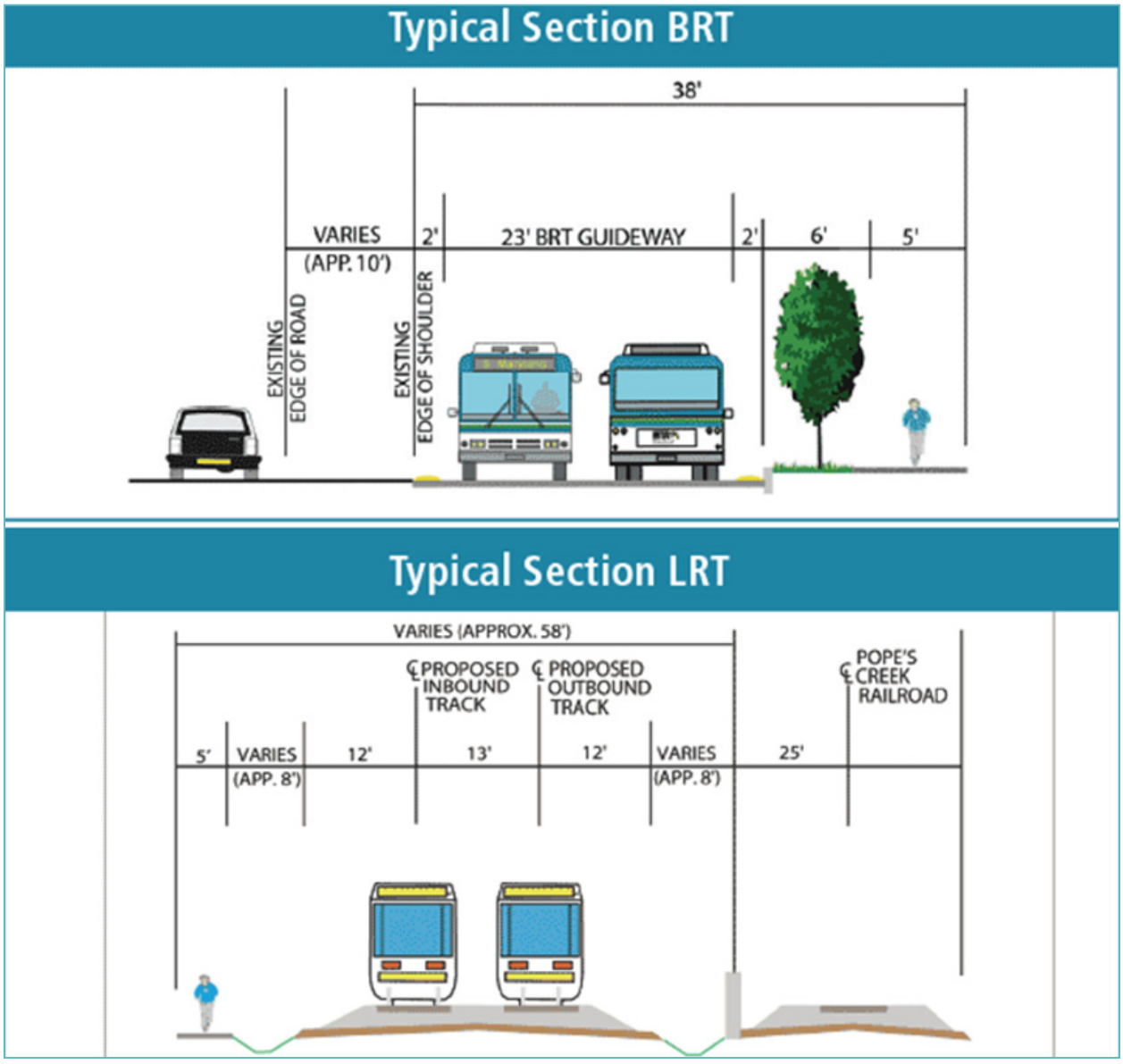
Making improvements at key intersections and increasing transit travel opportunities through SMRT and other projects, helps implement the bicycle, pedestrian and healthy community plans prepared by the counties, leading to improved health outcomes along the corridor. These improvements would include upgrading sidewalks to American Disability Act (ADA) standards, creating a new pedestrian and bike path adjacent to the portions of the alignment, painting crosswalks and installing pedestrian signals at multiple locations, installing pedestrian curb bump- outs, and applying Leading Pedestrian Interval (LPI) signal timing at intersections near stations to help separate pedestrians from turning vehicles. Pedestrian-scale lighting and installation of Closed Caption Television (CCTV) cameras at station locations combined with other identified best practices in bicycle and pedestrian safety will make the corridor safer.

Appendix G of the 2017 Final Alternatives Report[8] provides an overview of the policy framework for pedestrian and intersection safety along the entire alignment. The proposed SMRT alignment alternatives cross a variety of existing vehicle, pedestrian, and bicycle facilities at-grade. Enabling safe interaction between existing transportation modes and the proposed SMRT at-grade crossings require careful treatment. In addition to the appropriate selection of passive and active control devices, different types of prioritization strategies can be implemented to improve SMRT safety, travel time, and reliability. A policy for addressing the various conditions of crossing is included in the report in the form of guidelines and flow charts. The proposed policy was used to analyze the at-grade crossings in the corridor to see the effect the SMRT would have on existing operations. Recommendations were made for each crossing and planning-level costs are projected. The at-grade crossings at uncontrolled locations on the segments with the highest ADT were also analyzed, because they would be most likely to require signalization.

8 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20G.pdf

Particular attention is paid to pedestrian and rapid transit rider safety in the vicinity of the existing Popes Creek (CSX) freight rail. Figure 4-1, from the 2017 Final Alternative Report, shows the protective crash wall along the alignment of the railroad as well as the typical section along US 301 in Charles County.

Figure 4-1: BRT and LRT Typical Sections Considered - Charles County



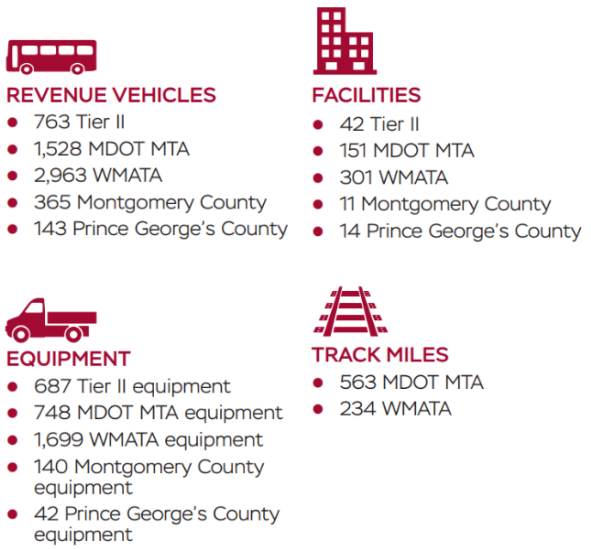
Air Quality Improvements

The Washington Metropolitan Region operates under a maintenance plan for the 2008 ozone standard and is an area of marginal non-attainment for the 2015 ozone standard. The region is developing a plan to achieve and maintain the 2015 standard. The region is conforming for all other criteria pollutants un NAAQS (National Ambient Air Quality Standards) including PM 2.5. The Region's long range transportation plan and air quality conformity determination was approved by USDOT and EPA on December 13, 2018. Approval of a new plan and conformity determination is expected by the end of May 2020.

The air quality improvements and the resultant health improvements associated with the SMRT Project have not yet been quantified and would be addressed during the NEPA analysis. However, replacing automobile trips with transit trips will improve air quality in this non-conforming region[9].

4.2. State of Good Repair

MDOT MTA places a high priority on ensuring transit infrastructure that it owns, operates, or finances is in a state of good repair (SGR)[10]. MDOT MTA recently updated its Transit Asset Management Plan (TAMP), which incorporates updates to its statewide asset inventory as well as the FTA's Transit Economic Requirements Model (TERM) Lite analytical tool to inform investment decisions. MDOT MTA sets similar transit asset management requirements for agencies receiving financial support through state or federal funds. These requirements would apply to the agency operating the SMRT.



Maryland's current transit assets

The analysis completed as part of the 2017 Final Alternatives Report included detailed projections for the ongoing operations and maintenance of SMRT. (The information is contained in Appendix I of the Final Alternatives Report[11].) The general assumptions and approach for the SMRT Life Cycle Costing were consistent with the Federal Transit Administration's New Starts and Small Starts Guidance on costing, including 2040 Horizon Year travel forecasts and service and a 20-year project life for life-cycle costing.

The SMRT Operations and Maintenance (O&M) cost model was based on the fully allocated O&M cost model developed for the following projects and updated with local parameters:

- 2008 MDOT MTA Corridor Cities Transitway (CCT): a 15-mile BRT project in Montgomery County, Maryland.
- The Purple Line: a 16-mile circumferential BRT project connecting two legs of the Washington, D.C.'s Metro system.

Different unit costs were generated for BRT and LRT service and the total annual O&M costs for each Ridership Scenario were developed. These results generally concluded that O&M costs for BRT overall are higher than the costs for LRT.

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9 https://www3.epa.gov/airquality/greenbook/jbtc.html

10 http://www.mdot.maryland.gov/newMDOT/Planning/Maryland_Transportation_Plan/Documents/2040_MTP_Document_2019-01-31_WebSinglePages.pdf

11 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20I.pdf

4.3. Economic Competitiveness

The MD 5/US 301 corridor is the only remaining corridor leading to the Washington, D.C. Capital Beltway with a large number of undeveloped parcels. Prince George's and Charles counties have developed visions for the corridor that emphasize integrating land uses and transportation alternatives to attract additional employment through improved mobility.

Waldorf Station proposed mixed use development along MD 5 / US 301

Many of private development projects along the corridor have been proposed, studied, and thoroughly vetted but have yet to be fully implemented. The SMRT Project could serve as the impetus to give many projects a greater incentive to develop to the highest and best use, by encouraging higher density, transit-oriented development (TOD) in the urban activity centers.

At present, the SMRT Corridor has a typically suburban character with a focus on low to medium density development. The impact of the new transit options will be to intensify development at key locations along the corridor and to create (with effective master planning) a series of locations that reflect more "livable communities" along the corridor as has happened elsewhere in the Washington region with the development of transit corridors. Previous experience suggests that locations like Branch Avenue Metro, Camp Springs, Woodyard, Mattawoman, Waldorf, and White Plains could be key development centers. Addressing the jobs to housing imbalance is a regional problem as highlighted as one of the key goals of the MWCOG TPB new long-range plan, Visualize 2045[12]. This project will go a long way in helping to address the "Region Divided" as named in several Brookings Reports. Development of these centers will help even out the lopsided commuting patterns, which means less congestion, ideally shorter travel distances, and therefore, greater sustainability. In addition, if commute times are reduced, there will be economic benefits to the users, both in their own pocket books and in their quality of life. SMRT will be a vital access and mobility mechanism for the underserved and transit dependent populations in the corridor as there are several equity emphasis areas (as defined by TPB) along the alignment and in near proximity.

The 2017 Final Alternatives Report quantified how responsive the economy in the corridor would be to the quality of transportation in the corridor. TEMS, a transportation economics consultant, made an assessment of the sensitivity of economic factors (employment, income, and property values) to transportation accessibility as measured by the behavioral generalized cost values. As accessibility improves so does the productivity and character of the economy. As accessibility improves, employment increases. Similar relationships exist for income and property values. Appendix K[13] of the SMRT Final Report summarizes the findings.

12 https://www.mwcog.org/visualize2045/

13 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20K.pdf

The SMRT 2017 statistical analysis showed that employment, income, and property values were very responsive to the presence of SMRT; each case was very significant and showed a responsiveness or elasticity of 1.5 to 2.0 with accessibility. This showed that as the accessibility improved the economy improved with a ratio of each 1.0% improvement, creating a 1.5% to 2.0% improvement in the economy.

If new transport infrastructure causes the accessibility of the region to improve by 1.0% then the economy will increase by 1.5% to 2.0% based on the elasticity. Previous studies have shown that this is a relatively moderate response that is typical of suburban corridors. Overall increased accessibility in the MD 5 corridor significantly increases economic wellbeing and wealth creation in the corridor. Table 4-1 and Table 4-2 show the supply-side and tax benefits of the SMRT Project, as well as a comparison of benefits between LRT and BRT.

Table 4-2: LRT and BRT Supply-side Benefits

Supply-side Benefits	LRT	BRT	Difference Percentage
Employment (person years of work)	305,885	251,030	**21.8%**
Income in $2015 Million (3% discount rate)	$22,394	$19,182	**16.7%**
Property Values in $2015 Million (3% discount rate)	$31,558	$27,363	**15.3%**

Table 4-3: Tax Benefits of LRT and BRT

Transfer Payment in $2015 Million (3% discount rate)	LRT	BRT	Difference Percentage
Federal Income Tax	$4,458	$3,826	**16.5%**
State and Local Income Tax	$1,694	$1,450	**16.8%**
Residential Property Tax	$273	$236	**15.7%**
Total Tax Values	$6,425	$5,512	**16.6%**

Tax Base expansion in 2015 dollars generated by the SMRT was in the range of $5 to $6 billion. This level of tax base expansion would pay back in taxes a large proportion of the project cost. This showed a strong Cost Benefit ratio of between 1.5 and 2.0 at a 3.0% discount rate[14].

14 Southern Maryland Rapid Transit Economic Impact Study, Supply-side Analysis of LRT and BRT, July 2016, TEMS Inc.

4.4. Environmental Sustainability

Congestion Mitigation, Reduction in Energy Use and in Air and Water Pollution

One of the SMRT Project's largest contributions to environmental sustainability is improvement of air quality. The level of impacts would vary between LRT and BRT technologies and depend upon the propulsion system selected for the vehicles. LRT vehicles use electricity. No determination has been made for the BRT vehicles. The impacts of the transit vehicles would offset a portion of the reduced emissions from trips otherwise made in automobiles. The SMRT project would provide a sustainable transportation option for the corridor and may further reduce vehicle emissions through changes in regional travel patterns brought about by economic development. The air quality effects of these changes are not yet quantified and would be addressed during the NEPA analysis.

Water pollution impacts from the project is expected to come primarily in the form of increases in stormwater runoff. Maryland stormwater management and total maximum daily load (TMDL) requirements will address appropriate mitigation of these impacts. Some preliminary concepts for stormwater management are included in the early engineering of alternatives.

Avoidance of Adverse Environmental Impacts

The SMRT Environmental Inventory (2016)[15] identified natural, socioeconomic, and cultural resources potentially affected by the SMRT alternatives and options under consideration, which have been discussed with local, state and federal resource regulatory agencies. By identifying potential environmental concerns early in the planning process, avoidance, minimization, and protection measures can be incorporated into the continuing design efforts. The overall range of potential impact of SMRT Project on socioeconomic and natural resources are summarized in Table 4-4.

Table 4-4: Range of Potential Impacts of SMRT on Natural and Socioeconomic Resources

Resource	Potential Impact, Depending on Alternative
Residential Properties	Between 41 and 55 properties could be affected
Business/Commercial Properties	Between 72 and 94 properties could be affected
Churches	Up to seven religious facilities could be affected
Schools	One school, Prince George's Community College, could be affected
Cemeteries	No cemeteries would be impacted
County Parks (Acres)	Under one alternative, 0.13 acres of parkland would be impacted; no other impacts anticipated
Environmental Justice Areas	Two or three Environmental Justice areas could be affected
National Register of Historic Places	Nine sites that are eligible for listing on the National Register of Historic Places (NRHP) resources were identified and were National Register Eligible (NRE)
Archaeological Sites	Seven archaeological sites were identified, but none are on the NRHP or listed as NRE

15 https://www.smrtmaryland.com/ei

Table 4-4: Range of Potential Impacts of SMRT on Natural and Socioeconomic Resources	
Resource	**Potential Impact, Depending on Alternative**
Historic and Potentially Historic Sites	Between 7 and 17 sites could be affected
Hazardous Material Sites	10 to 14 sites could be affected and potentially require clean up
Total Maximum Daily Load (TMDLs)	Specific pollutant thresholds are required for 1st-through 4th-order streams in all study area sub-watersheds except Zekiah Swamp. Project team will work with Maryland Department of the Environment (MDE) to determine Best Management Practices (BMP) appropriate for meeting TMDL requirements.
Streams	Corridor contains approximately 12 miles of Use Class I streams within four sub-watersheds; impaired stream segments were identified throughout the corridor, except for streams within the Zekiah Swamp sub-watershed, which meet MDE water quality criteria.
Stream Crossings	11 to 12 crossings could be needed, some of which already exist because of current infrastructure
Wetlands	Between 10.4 to 14.1 acres of wetland could be affected; no direct impacts are anticipated to Wetland of Special State Concern
100 -Year Floodplain	Between 7.3 to 10.1 acres of floodplain could be impacted
Woodlands	Between 104.7 to 132.9 acres of woodland, of which 63 to 78.5 acres is classified as Forest Interior Dwelling Species (FIDS) habitat, could be affected
Rare, Threatened and Endangered species (RTE)	Impacts to rare, threatened and endangered species (RTE) are not anticipated

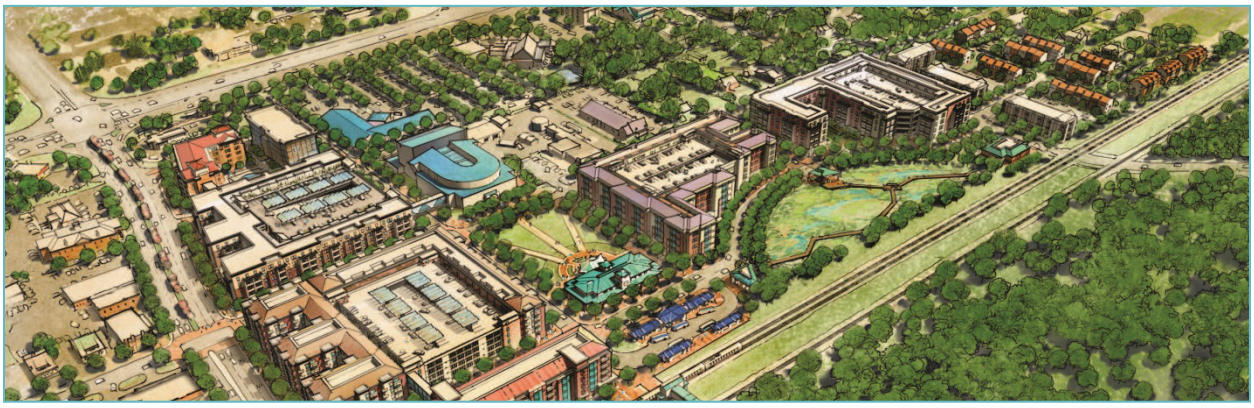
Provide Environmental Benefits

Compensatory mitigation for unavoidable impacts to natural environmental resources would be investigated in during the DEIS. Stringent compliance with appropriate best management practices for sediment and erosion control during all work near the Cheltenham area, Mattawoman Creek, and Zekiah Swamp will protect water quality and hydrology in identified habitat areas and protect the integrity of stream systems.

4.5. Quality of Life

The MD 5/US 301 corridor's future is anchored by the SMRT vision and in the importance of mobility options, linkages between the activity centers, and of all-day transit accessibility throughout the corridor. The SMRT Project corridor would be the spine from which future growth would occur. Planning for focused growth within existing or planned activity centers is central to achieving sustainable growth while promoting accessibility for a greater segment of the population and achieving county health and environmental quality goals. Planning for growth in the Waldorf Urban Redevelopment Corridor (WURC) is key to managing growth and increasing employment opportunities in Charles County. (See Figure 4-2.)

Figure 4-2: Downtown as Envisioned by the Waldorf Urban Redevelopment Corridor Plan



Regional leaders expect that SMRT, combined with local master planned land use changes will reduce the current imbalance between jobs and housing by providing attractions and employment centers in the southern portion of the corridor. Employment growth in the southern portion of the SMRT Project corridor and efficient rapid transit to serve it, would working together to achieve success. The SMRT Project can lead to employment growth in the southern portion of the SMRT Project corridor, and that employment growth can lead to the higher ridership on the SMRT transit system.

Lower income households generally have lower car ownership and typically depend on local transit service. Existing service for transit-dependent populations is poor. Providing high-quality, direct transit service along the MD 5/US 301 corridor could improve economic opportunities by providing increased access to healthcare, education, and employment opportunities, by reducing travel times and commuting costs, and by expanding reverse-commute options. There are low-income populations in the northern and southern ends of the corridor that would benefit from improved accessibility.

Regional travel demand models (that do not include SMRT) indicate that by 2040, the total number of commute trips from along the MD 5/US 301 corridor to the Washington, D.C. urban core (generally Washington, D.C. and adjacent northern VA counties) will increase by 40 percent – from 115,540 to 161,660 trips. It is necessary to expand travel capacity within the MD 5/US 301 corridor.

However, there is limited availability to expand the transportation footprint because the existing MD 5/US 301 corridor right-of-way is constrained particularly in the vicinity of Joint Base Andrews (JBA) and at the crossing of Mattawoman Creek. These conditions make it difficult to increase capacity by providing more highway lanes.

Without a new rapid transit option, the number of transit riders is forecast to increase, but the percentage of travelers using transit is forecast to decrease. SMRT will substantially increase the corridor's people-moving capacity without widening the highway right-of way. The transit will be in a dedicated right-of-way.

4.6. Innovation

The SMRT Project will feature innovations in technology, project delivery, and financing. Utilizing high-capacity transit vehicles, SMRT will run between 4:30AM and 12:00AM during a typical

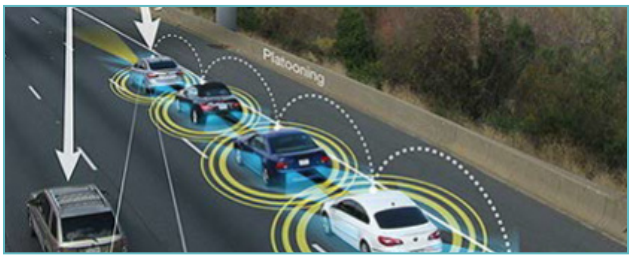
weekday. Should a Bus Rapid Transit (BRT) system be implemented, potential for innovative platooning techniques could drastically improve system capacity during peak periods. Other technology components for the SMRT Project corridor (whether BRT or LRT is the selected mode) include specifically designed and branded vehicles, cross platform and multiple door access, off-vehicle fare collection, low floor vehicles with level boarding, and transit signal priority or grade separated crossings to maintain travel time and reliability through congested intersections. These technologies paired with the dedicated guideway and high frequency service will significantly improve upon current transportation options available in Southern Maryland.

Innovative Technology

If LRT is the selected technology, the SMRT Project would seek to deploy innovative approaches to improve system reliability and lower capital and operational costs. A potential approach includes advancing a system with limited or no catenary wiring. This approach can significantly lower the capital and operational costs associated with constructing and maintaining overhead wires by using a ground-based power source that powers the train through each track segment from below the light rail vehicle (LRV) using a contact or third rail. In addition, battery powered LRVs also present a unique opportunity to create a more economical and environmentally friendly high capacity system. LRVs with an on-board energy storage system could draw energy from an overhead contact system to remain a consistent charge but the opportunity exists to only place those at specific locations, such as stations where vehicles would be stopped. A catenary free system could not only lower costs, but significantly improve the visual aesthetic of the corridor and enhance placemaking in mixed-use and urban centers.

If BRT is the selected technology, the SMRT Project would rely upon innovative technology involving bus platooning, especially as ridership reaches projected levels. Platoons decrease the distances between cars, truck or buses using electronic coupling (see Figure 4-3), and grouping vehicles into platoons is a method of increasing the capacity of the transitway.

Figure 4-3: Example of Platooning



A platoon can consist of two vehicles, or as many as five vehicles. A bus platoon would function as follows: as the vehicles "connect" into their platoon, their on-board computers would designate one vehicle as a lead and the others as followers. The key is that the lead bus would set the pace, the following buses would match their pace with smaller distance between buses, and through lane-keeping and adaptive cruise controls (ACC) the platoon would maintain a steady trek down the corridor with consistent headway and speed. In the event the lead vehicle must slow down, automatic braking technology in the follower vehicles would react quickly and efficiently to ensure headways remain steady. Cooperative ACC adds a Connected Vehicle (CV) component in which vehicles communicate with each other for functionality, such as nearly simultaneous braking, which makes very short headways safe.

A paper by Dr. Jerome Lutin (retired NJ TRANSIT Senior Director of Statewide and Regional Planning) and Dr. Alain Kornhauser (Chair of Princeton Autonomous Vehicle Engineering) examined the theoretical capacity increases of Exclusive Bus Lane service available by reducing

the space between buses, assuming all buses use connected technology. The results are shown in Table 4-5. The base condition is five seconds between buses, which yields a theoretical maximum flow of 720 buses per hour. Similar bus platooning may provide the ridership capacity needed for the SMRT.

Table 4-5: Potential Increased Capacity Decreased Spacing Between Buses		
Average Interval Between Buses (seconds)	**Average Distance Between Buses (feet)**	**Buses Per Hour**
5 (base)	212	720
4	150	900
3	109	1,200
2	47	1,800
1	6	3,600

Source: Lutin, Jerome M. and Kornhauser, Alain L., "Applications of Autonomous Driving to Transit – Functional Capabilities for Safety and Capacity", July 22, 2013, presented at the 2014 Annual Meeting of the Transportation Research Board

Innovative Project Delivery

The SMRT Project may utilize a public-private partnership (P3) as an innovative project delivery model. A P3 involves an agreement between a public owner and a private sector partner for the design, construction, financing, and often long-term operations and maintenance of an infrastructure asset. Under the P3 delivery model, the public owner transfers to the private sector partner risks that are typically retained by the public owner under a traditional delivery model. Where long-term operations and maintenance obligations are included, the degree of risk transfer exceeds that assumed under a design-build delivery model. P3s also typically use a performance-based approach to technical requirements and specifications, thereby creating an opportunity for the public owner to harness the private sector's expertise and innovation. MDOT has used this innovative approach for transit, highway, and bridge projects and could use it for the SMRT Project to speed the development and assist with financing.

In May of 2018, FTA issued a Private Investment Project Procedures (PIPP) Final Rule allowing FTA grantees considering capital projects to seek a waiver or modification of a FTA regulation, policy, procedure, or guidance that may impede the use of a public-private partnership (P3) or private investment in projects. PIPP encourages project sponsors to seek modifications of federal requirements to spur private participation and accelerate the project development.

Innovative Financing

The SMRT Project may utilize Innovative financing options such as a Transit Tax Increment Financing (TIF), privatizing station shelters through advertising, and development of a mobility app.

Transit Tax Increment Financing

The SMRT Corridor passes through some of the few remaining properties planned for development in the region and could be candidates for tax increment financing (TIF). TIF is a public financing tool utilized by public agencies to foster large-scale redevelopment that may not otherwise be feasible. Public infrastructure, such as streets, bridges, transit, or parks, can be partially financed

through the issuance of revenue bonds or bank loans and are repaid by future increases in tax revenue resulting from the new development (tax increment). A TIF could be expressly utilized for transit improvements in the SMRT Corridor, like what is planned in Chicago for the Red Purple Modernization projects or the Downtown-Uptown-Oakland-East End BRT in Pittsburgh.

Privatize Stations

Privatizing station shelters through advertising is a way to finance station amenities. In cities such as Chicago and Pittsburgh, bus stops and BRT stations are fabricated, installed, and maintained by a marketing firm through a city-wide contract. In Chicago, many of the stations have attractive digital displays that contribute positively to the urban streetscape. For the Downtown-Uptown-Oakland-East End BRT in Pittsburgh, the citywide shelter contract provided the BRT stations for the project and FTA allowed this as a $20 million for in-kind match for the Capital Investment Grant (CIG) funding.

Mobility App

Another means of innovative financing is through an agency supported mobile app. Mobile apps are quickly becoming the way passengers plan and pay for all segments of their trips. As a new service, it is feasible that an SMRT app can be developed that not only provides transit tickets but, for a fee, links to third-party mobility providers (Uber, Lyft, etc.) in the corridor that would use the platform to identify and schedule customers. This could create a funding stream from all mobility transactions along the route.

4.7. Partnership

MDOT, MDOT MTA, Prince George's County, and Charles County have a long history of collaborating with key stakeholders to develop a shared vision for improved transit in the SMRT Project corridor. Studies to evaluate transit serving southern Maryland began in the 1980s.

MAJOR STAKEHOLDERS

- Brandywine Crossing Shopping Center
- Charles County Government
- Elected Officials
- Joint Base Andrews (JBA)
- Maryland Department of Transportation's (MDOT) Maryland State Highway Administration (SHA)
- Maryland-National Capital Park and Planning Commission (M-NCPPC)
- MedStar Southern Maryland Hospital Center (MSMHC)
- Prince George's County Government
- WMATA

The 2017 Final Alternatives Report furthered the evaluation of transit in the SMRT Project corridor and included the following public outreach and agency coordination efforts:

- A SMRT Project website,
- A Steering Committee and Technical Advisory Working Group (TAWG),
- Early and ongoing coordination with regulatory resource agencies,
- One-on-one meetings with key stakeholders,
- Two rounds of Public Open Houses in 2014-2015, and
- An online Public Meeting held in January 2017.

The SMRT Steering Committee guided the overall project and included two high-level staff representatives each from MDOT MTA, Prince George's County, and Charles County. Members of the Steering Committee met with the elected and senior officials in each county and at MDOT to keep decisionmakers apprised of the progress of the project and to seek direction on significant issues.

The SMRT TAWG was composed of local government, state agencies, and consultants and met monthly to recommend next steps and alternatives to be removed from consideration based on technical information. Agencies participating the TAWG included:

- MDOT The Secretary's Office
- MDOT MTA
- MDOT State Highway Administration
- Charles County Department of Planning and Growth Management
- Prince George's County Department of Public Works & Transportation
- M-NCPPC, Prince George's County Planning
- WMATA
- Metropolitan Washington Council of Governments
- Maryland Department of Planning

An important component of any major transit project is a significant level of public support and appropriate outreach to disadvantaged communities. The 2017 Final Alternatives Report is the culmination of a three-year process that included multiple opportunities for residents and workers along the corridor to review the proposed alignments and potential impacts. Doorhangers were placed throughout disadvantaged areas. There were interpreters for the deaf and for Spanish-language speakers at each public meeting. Overall, public comments were in support of the rapid transit project, with considerable support for LRT, especially in Charles County. Appendix L[16] details the public outreach and agency coordination that occurred during development of the 2017 Final Alternatives Report[17].

This BUILD planning grant application is the product of the ongoing collaboration among the two counties and the State of Maryland. Upon award of the planning grant, the three partners intend to manage the DEIS process using the model established in the 2017 study: a steering committee assisted by a technical advisory committee.

Looking toward to the construction and operation of the bi-county facility there are several options for ownership, operation, and governance of the SMRT Project including:

- Ownership and operation by MDOT MTA
- Ownership of the right-of-way by MDOT with operation by a county, a transit agency, or a private sector entity
- Creation of a new regional transit agency with financing authority, the ability to purchase real estate, and financial support from the participating counties and the State of Maryland (like WMATA model)
- Operation by one county with the right to operate in and financial support from the other county and the State
- Extension of the WMATA pact to include all or parts of Charles County

Concurrent, or as part of the NEPA process, would be an exploration of these and other options for governance of the SMRT Project including the development of appropriate legislative proposals for consideration by the county and state governments.

16 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20L.pdf

17 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report.pdf

5. Environmental Risk Review

5.1. Project Schedule

The anticipated project schedule for the SMRT DEIS is shown in Table 5-1. It assumes the grant will be awarded in Fall 2020 with work starting at the beginning of 2021. Federal Executive Order 13807: Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects, which was issued on August 15, 2017, sets a government-wide goal of reducing the average time to complete the required environmental reviews and authorization decisions for major infrastructure projects to two years as measured from the date of publication of a Notice of Intent (NOI) to prepare an environmental impact statement.

Because of the pre-NEPA work completed in 2017 in the Final Alternatives Report, the project team is confident that it will be able to complete the DEIS in 20 months and address DEIS comments and prepare the FEIS/Record of Decision (ROD) in four months. The Planning and Environmental Linkages Questionnaire (Appendix M[18], 2017 Final Alternatives Report) provides a list of the unresolved issues to be addressed in the DEIS developed under this BUILD grant Addressing the DEIS comments and preparing the FEIS/ROD are not part of this grant application

Table 5-1: Project Schedule

Activity	Date
Project Initiation	January 2021
Notice of Intent and Scoping	January 2021 - March 2021
Purpose and Need	February 2021 – March 2021
Alternatives Development and Screening	March 2021 – August 2021
Environmental Inventory	January 2021 – August 2021
Environmental Analysis	August 2021 – February 2022
Preparation of DEIS	February 2022 – June 2022
Comment Period/Public Hearing	June 2022 – August 2022

Continuing and building upon the strong partnerships that have been created along this corridor during earlier study phases will be critical to keeping the project on schedule.

5.2. Required Approvals

No approvals are required for the completion of the DEIS. Finalizing the EIS and including the project in the regions Constrained Long-Range Transportation Plan (CLRP) are important milestones to move the project moves to engineering and construction.

18 https://smrtmaryland.com/images/library/SMRT_Final_Alternatives_Report/SMRT%20Final%20Report%20-%20Appendix%20M.pdf

5.3. Assessment of Project Risks and Mitigation Strategies

Major transportation capital projects are inherently risky – even in the planning stage. If selected to receive a BUILD planning grant, the SMRT team understands that it must not only be a good steward of federal dollars, but also of the significant local and State capital match. The SMRT team has developed a cost estimate and schedule for competing the DEIS that it has a great deal of confidence in. The team does not expect costs to increase, but in the unlikely event they do, Charles County, Prince George's County, and MDOT MTA are committed to completing the DEIS within the timeframe described in this application and to cover any overruns with local and state funding.

The project partners have a long history of working together on complex projects and are confident that they can deliver the DEIS for the budget requested. The numerous letters of support from political, civic, and business leaders demonstrate the high level of support the SMRT project enjoys.

6. Benefit – Cost Analysis

BUILD Planning Grants do not require a Benefit Cost Analysis. While some data needed to measure benefits and costs on the SMRT Project is available, an alternative must be finalized and more data must be gathered and confirmed prior to development of a complete comprehensive BCA. The Benefit-Cost Analysis Technical Memorandum (Appendix B) outlines the expected analysis framework, methodology, assumptions, and other inputs that would be used for a BCA conducted after the DEIS is complete and the findings are summarized below.

The SMRT Project as described in the Project Narrative is expected to have the following quantifiable benefits once complete:

- Travel time savings for new transit riders shifting from congested automobile travel.
- Safety improvements from reduced automobile traffic and roadway enhancements.
- Emissions reductions from reduced automobile mileage as drivers shift to transit.
- Vehicle operating cost savings for automobile drivers shifting to transit.
- Enhanced health and recreation from improved bicycle and pedestrian facilities.
- Transit-oriented development and property value increases spurred by the SMRT Project.

	Preliminary Projected Build vs. No-Build 2040	Benefit Category
Increased Transit Ridership	18,000 additional riders	Vehicle operating cost savings; reduced vehicle emissions
Travel Time Savings	11-17 minutes faster than highway travel	412,500 hours of travel time savings; enhanced economic development and land values in the corridor
Safety Improvements at Intersections	Qualitative improvement	Reduction in future vehicle crashes
Bikeway and Pedestrian Improvements	Qualitative improvement	Enhanced health and safety; improved health outcomes, savings in health care costs; commuter mobility improvements
New Recreational Bicyclists	Qualitative improvement	Increase in recreational time
Increased Development and Property Values	Qualitative improvement	Increase in economic development, as represented by change in property values

7. Appendices

Appendix A: Existing and Planned Land Use

Appendix B: Benefit-Cost Analysis Technical Memorandum

Appendix C: Letters of Commitment

Appendix D: Letters of Support

The application narrative and appendices can be found at mdot.maryland.gov/BUILD.