This report is the result of a needs evaluation performed by the Maryland Department of Transportation State Highway Administration (MDOT SHA) Office of Planning and Preliminary Engineering and the MDOT SHA District Three Office. The MDOT SHA project team gathered valuable insights about the corridor through participating in meetings conducted by the District 18 Delegation, Montgomery County DOT, the Town of Kensington, and local residents.

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Introduction

Project Background and Process

The Maryland Department of Transportation State Highway Administration (MDOT SHA) Office of Planning and Preliminary Engineering (OPPE), in consultation with MDOT SHA District 3, completed a comprehensive Needs Analysis for MD 185 (Connecticut Avenue) between Chevy Chase Circle/Western Avenue at the state boundary with Washington DC, and MD 193 (University Boulevard) in the Town of Kensington. This document outlines a long-term vision for the corridor by identifying strategies to address pedestrian and bicycle network deficiencies, improve multi-modal safety and enhance travel conditions along the corridor.

This Needs Analysis provides a road-map to deliver improvements based on MDOT SHA’s Context Driven – Access & Mobility for All Users 1.0, a planning and design resource centered on establishing safe and effective multi-modal transportation systems. Weighing the needs of pedestrians, bicyclists and drivers in the context of the surrounding environment and targeted strategies that overcome deficiencies and improve safety and mobility to be provided in the network.

Purpose

Balancing the needs of all MD 185 users is a complex proposal. A critical link between Washington DC, the I-495 Capital Beltway and inner suburbs of Montgomery County, MD 185 carries significant volumes of commercial and commuter traffic, leading to greater demand that there is currently no capacity to meet the existing need. The surrounding communities include a mix of established residential neighborhoods, so widening the road to add extra lanes is not feasible. The context of MD 185 is that it is a critical link between the Purple Line station that is expected to open around 2022-2023, and in the Town of Kensington. There are higher concentrations of pedestrian and bicycle activity, leading to greater demand for supporting sidewalks and bicycle facilities, coupled with demand for more frequent opportunities to cross the street. These expectations further limit opportunities to improve vehicular travel conditions along the corridor.

Approach

This Needs Analysis was completed to identify context driven transportation improvements that will improve mobility, accessibility, safety and experience for users of the MD 185 corridor. Acknowledging differences in how pedestrians, bicyclists, transit users and drivers experience travel, and their sensitivity to barriers, stress and vulnerability to conflicts, the corridor is divided into two corridors, approach. The resulting recommendations are based on two key variables, CONTEXT, which is identified by roadway use and intensity, and TOOLS, that are appropriate to address user demand along the corridor.
District of Columbia
Montgomery County, MD

MD 185 is a major highway for travel between the District of Columbia and communities in Maryland. It is an attractive route for travel, with access to the I-495 Capital Beltway and lower density development than other nearby radial corridors, like MD 355, MD 97 and US 29. Demand for vehicular travel will tend to increase along MD 185 as additional development occurs along other radial corridors.

Public transportation offers alternative travel options via the existing WMATA Metrorail Red Line and MARC Brunswick Line, which generally parallel the MD 185 corridor. The MDOT MTA Purple Line, currently under construction, will improve access between Bethesda Maryland, Silver Spring and communities east of the study area.

MDOT SHA Administrator Tim Smith, PE, in his November 13, 2020 introduction of Context Driven 1.0, stated “The Context Driven Guide has and is changing the way MDOT SHA delivers projects by identifying proactive treatments that support safe access and mobility for pedestrians, bicyclists, and motorists. This approach places the focus on people, ensuring that the system prioritizes all road users, regardless of mode, a philosophy that is central to the Needs Analysis approach.”

COVID-19 Pandemic
This study was conducted between the summer of 2020 and spring of 2021. During a significant portion of this time, emergency orders were in place that required businesses to operate at limited capacities, requiring school and non-essential work to be conducted remotely from residential homes. As a result, travel patterns and volumes were significantly influenced, either by reduced demand or changes in travel patterns, requiring the need for alternative travel options to be considered.

Context varies within any corridor. This is in part due to the existing conditions along the corridor, which influence the level of activity and demands to travel along its corridor. Over time, demand may also increase, or growth in new transportation facilities are provided. This requires a review of the existing conditions in the corridor to experience the character and travel conditions along a corridor, and a review of long-term plans to reveal potential future conditions. Displaying data and information using a complete picture of how the road functions, supporting recommendations that are related to the corridor.

With a more complete understanding of conditions on MD 185, the corridor was segmented into Context Zones based on MDOT SHA's Context Driven 1.0 tool. These segments offer detailed data to be used with tools to address the challenges that users encounter in the corridor and improve the user experience along MD 185.
MD 185 (Connecticut Avenue) is an urban principal arterial spanning from the D.C. line to Aspen Hill. The study limits are from the D.C. line (Chevy Chase Circle) to MD 193. This corridor consists of a six-lane divided roadway with signalized and unsignalized intersections, lane changes, and ramps. MD 185 consists of several marked pedestrian crossings, signalized and unsignalized, with WMATA Metrobus and Montgomery County Ride On bus stops. The posted speed limit changes from 30 mph to 35 mph at MD 410 traveling northbound, with speed cameras throughout the segment.

Starting at the southern end of the corridor, the land uses adjacent to MD 185 from the D.C. line to MD 410 consist mostly of driveways to residential areas, such as neighborhoods or single family homes. From MD 410 to Jones Bridge Road, driveways are generally to commercial locations, such as a library, country club, restaurants, and offices. The area transitions back to residential land use from Jones Bridge Road to MD 547. The land use between MD 547 to MD 193 provides access to a heavy commercial area.
EXISTING CONDITIONS & SAFETY

Overview

The experience of travel along the MD 185 corridor varies greatly, depending on factors like the road users' methods of travel, time of day, parking for their trip, and locations where they enter and exit the corridor (including stations). There are variations in travel experience levels with changes in road capacity, which are explained through metrics that describe traffic and the user experience.

To establish a baseline for this needs analysis, a variety of public data sources from Montgomery County and MDOT SHA were assembled and visualized to help explain existing travel conditions along the corridor. These data sources are described in order of vulnerability to traffic stress and safety, as an acknowledgment that pedestrians represent the most vulnerable road users. Data sources include the following:

- GSIS: A real-time traffic monitoring system that provides data on traffic volumes and speeds across the corridor.
- MDOT SHA Roadway Safety Information System (RSIS): Provides data on crashes occurring along the corridor.
- Montgomery County Department of Transportation (MCDOT): Offers data on transportation planning and facilities along the corridor.

These data sources shed initial light on the challenges that road users may encounter at specific areas along the corridor, including higher volume segments of the street, areas of concentrated activity where greater transit service is provided.

Safety is represented in the crash experience that occurs along the road and provides a basis for identifying potential needs to reduce the potential for similar collisions to occur in the future.
Pedestrian Level of Comfort

Pedestrian Level of Comfort (PLOC) was created by the Montgomery County Planning Department to identify locations in the existing walking network that are uncomfortable due to insufficient or incomplete sidewalks and crossings. As part of the 2018 Montgomery County Bicycle Master Plan, this approach was inspired by the Bicycle Level of Traffic Stress (BLTS).

Factors such as pathway width, buffer from traffic, number of lanes to cross, traffic speed, presence of crosswalk markings, and availability of median islands affect comfort levels. The four main scores are undesirable (level 4), uncomfortable (level 3), somewhat comfortable (level 2) and very comfortable (level 1). Several factors are considered while scoring the pathway, such as land use, roadway functional classification, pathway condition, and right-turn on red. Based on lack of available data at the time that M-NCCPC was conducting this analysis, there are some factors that are not considered, such as pedestrian and street lighting, or the presence of a Leading Pedestrian Interval (LPI) at crossings. These factors are to be scored separately.

It is important to note that “comfort” differs from “safety” in the pedestrian transportation systems, while comfort relates to paths that are enjoyable and comfortable for people of all ages. When a street receives a relatively poor score, it is a sign that change is needed to make people more comfortable and potentially attract more pedestrians.

The PLOC along MD 185 to the south of MD 410 is graded primarily at level 2 and level 3, somewhat comfortable to uncomfortable, primarily based on increased separation from the travel lanes. The segment of MD 185 from MD 410 to I-495 is graded primarily at level 3 and level 4, uncomfortable to undesirable, with many sidewalks provided immediately behind the curb. The segment of MD 185 north of I-495 to MD 193 is primarily graded at level 4, undesirable, with all sidewalks immediately behind the curb.
Bicycle Level of Traffic Stress

Bicycle Level of Traffic Stress (BLTS) is a methodology that was developed by the Mineta Transportation Institute in as a tool to quantify the amount of discomfort that people feel when they travel closely to vehicular and pedestrian traffic. The Montgomery County Planning Department revised this methodology to quantify stress levels on some of the roads in the county. The goal of this methodology was to provide a uniform method for prioritizing projects as part of the 2018 Montgomery County Bicycle Plan, which promotes a connected bikeway system that will appeal to a wider range of riders. The revised level of stress is categorized by the following categories:

- **1 - Very Low Stress**
- **2 - Low Stress**
- **2.5 - Moderate Low Stress**
- **3 - Moderate High Stress**
- **4 - High Stress**

Factors that contribute to the grading of stress includes number of traffic lanes, automobile speeds and volumes, frequency of intersection turning movements, presence of a bike facility, presence and length of right-turn lanes, intersection configurations, width and speed limit of the adjacent roadway, and presence of median refuge. 

Along MD 185, the BLTS is graded at a Stress Level 4, due to the number of lanes, high travel speeds and traffic volumes, lack of exclusive bicycle lanes, and several high-volume turning movements and intersections.
The MD 185 corridor is served by several transit agencies including the Washington Metropolitan Area Transit Authority (WMATA), the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA), and Montgomery County’s RideOn.

The WMATA L8 bus runs along MD 185 from the Friendship Heights Station to Grand Pre Road/Bel Pre Road, making about 30 stops along the corridor with six (6) scheduled timepoints. The bus runs along the entirety of the segment from the D.C. line to MD 193. This bus provides all-day weekday services with headways of approximately 30 minutes.

The WMATA J1 and J2 run across MD 185, connecting the Montgomery Mall to the Silver Spring Station. The J1 bus crosses MD 185 along Jones Bridge Road, with weekday peak period service in the peak direction in the D.C. line and in the AM with headways of approximately 20 minutes. The J2 bus crosses MD 185 along MD 410 with all-day every day service with headways of approximately 10 to 30 minutes.

RideOn Bus Route 1 runs between the Friendship Heights Metro Station and the Silver Spring Station, stopping at six (6) locations along MD 185 between the D.C. line and MD 410. Route 1 provides weekday peak period service in the peak direction only (southbound in the AM, northbound in the PM) with headways of approximately 20 to 40 minutes.

RideOn Bus Route 16 runs between the Friendship Heights Metro Station and the Silver Spring Station, stopping at six (6) locations along MD 185 between the D.C. line and MD 410. Route 16 provides weekday peak period service in the peak direction only (southbound in the AM, northbound in the PM) with headways of approximately 20 to 40 minutes.
Vehicular Travel Conditions

Annual Average Daily Traffic (AADT) is an estimate of the mean traffic volume across all days for a year for a given location along a roadway. AADT does not reflect traffic volumes during peak morning and evening periods, which may be higher during those times.

Estimated AADT was obtained from MDOT SHA for the year 2018. Along the segment of MD 185 from the D.C. line to MD 193, the AADT ranges from 35,000-75,000. The peak direction of traffic along the corridor is southbound in the AM and northbound in the PM.

Starting at the southern end of the corridor, from the D.C. line to MD 191 (Bradley Lane), the estimated AADT is nearly 38,000 vehicles. Further north, between MD 191 and MD 410 (East-West Highway), the AADT increases to approximately 44,000 vehicles. Between MD 410 and I-495, the AADT increases significantly to approximately 73,000 vehicles. Between I-495 and MD 192 (Plyers Mill Road), the AADT ranges from 38,000 to 45,000 vehicles. At the northern end of the corridor, between MD 192 and MD 193 (University Boulevard) in Kensington, the AADT increases to nearly 54,000 vehicles.

Throughout the study corridor, MD 185 is a six-lane roadway with three through lanes in each direction. From a general planning perspective according to the Highway Capacity Manual (HCM), a four-lane roadway with exclusive left-turn lanes may operate at LOS E with daily service volumes of 27,000 to 36,000. While a full operational analysis is required for specific improvements, the MD 185 AADT suggests that the southern end of the corridor may be a candidate for further study of lane reduction concepts.
Crash History

Crash data was reviewed for a five year period (2014 - 2018). Crash rates and trends were reviewed and assessed by the following subcategories: all crashes, injury crashes, bicycle and pedestrian crashes, and injury bicycle and pedestrian crashes.

A total of 566 crashes were reported during this period. Of these crashes, 90 were severe, disabling, or fatal; 11 of these crashes involved a person walking or biking, of which 7 individuals walking or biking were injured or disabled.

In total 2% of crashes along the study area involved a person walking or biking (11 crashes), and 64% of those crashes resulted in an injury for the pedestrian or bicyclist. Within the study area the highest bicycle and pedestrian crash rates occurred near high density destinations like Kensington, and the Purple Line station area.

Along the southern segment of the corridor, high concentrations of rear end and sideswipe crashes occurred, which represented the highest rate of crashes and resulting injuries.

Collision rates were also higher in proximity of the I-495 interchange, though records indicated less severity than the southern segment of the corridor.

Although the analysis was specific to 2014-2018 crash data, a 2019 severe crash that occurred at the I-495 interchange was also noted. The crash involved an individual walking the bicycle who was hit by a truck. A field crash in 2022 involving a public transit and an I-495 overpass discussed the I-495 corridor. The 2019 and 2021 crashes were not included in the crash statistics for this study, but they are noted due to the outcomes of the collisions.
SEGMENTATION & TOOLKIT DEVELOPMENT

Overview

Identifying needs in the MD 185 corridor that requires an assessment of context, which is where which tools will be appropriate to balance safety, accessibility and mobility needs of all road users. Context is revealed by layering existing conditions data and field observations. Absolute best practices offer a variety of context indicators with varying density and mean of use that tend to generate activity or demand for local access. To ensure proper design of the road may be an indicator of context, though existing facilities may be indicators built with local mobility rather than local access. Operational information may also influence context, including providing vehicle speeds, frequency of controlled intersections or presence of certain crash types that may indicate an imbalance in travel needs.

By considering and weighing these factors, the MD 185 corridor can be segmented into distinct contexts. This process identifies a wide range of local access, and associated priorities of local access or mobility. To remain in control of the corridor level, these details in context levels are removed to those observed at a regional level, requiring to more discrete variations in need and activity, significant regional transportation facilities, or other factors. Change tends to occur gradually, so recognizing areas of transition helps to identify the context, and then define the limits of each zone.

The final step before establishing specific corridor recommendations is to establish the toolkit of improvements that are appropriate in each context identified within a corridor. This process leverages local and industry best practices to prioritize access in contexts with higher pedestrian, transit and bicycle activity, and to balance mobility with safety in areas of lower activity. The toolkit primarily includes design and operational tools that may be introduced at MDOT's discretion, and policy recommendations that may require coordination with the agencies with oversight of those programs.

Field Review

Field reviews were conducted in the late summer and early fall of 2020 to review existing conditions in the MD 185 corridor. Observations were collected using the Geographic Information System (GIS) and photographs of existing conditions were recorded along the corridor for review and mapping. Initial assessments of possible context variations have been completed, and a variety of tool kits have been identified for consideration.
segments were developed from observed conditions as investigators traveled along the corridor. Key themes that were evaluated included:

- Sidewalks directly abutting high speed or heavily trafficked segments of MD 185.
- Few designated or controlled crosswalk locations.
- Intersections with grid controlled turning movements across crosswalks, some with poor visibility approaching the crosswalks.
- High speed freeway ramps with poor visibility approaching the crosswalk.
- Lack of bicycle facilities, resulting in sharing the sidewalk or riding in high speed and exclusive traffic.
- Recent vehicle lanes approaching the Washington DC border.
- Turn restrictions, or lack of left turn lanes to accommodate local neighborhood access.
- Perceived speeding behavior.

Context Evaluation and Segmentation

To refine and validate initial context segmentation identified in the field, additional data sources were reviewed to provide additional context. This included a scan of the field observations to assess local conditions, highlight unique features, and detail data around the themes identified. Additional data sources were scanned and reviewed for each of the segments, including Montgomery County’s franchise and transportation plans, bicycle master plan, M-NCPPC plans, Master Plan, and MDOT SHA’s Context Zones. Roadway data such as Annual Average Daily Traffic (AADT), Level of Traffic Stress (LTS), and functional classifications were also reviewed and recorded. Crashes that occurred along the corridor were also evaluated and recorded, as shown in the tables on page 28 (Injury Crashes and Bicycle & Pedestrian Crashes). A table was developed to summarize the data and characteristics for each of the context segments, which is provided on page 25 (MD 185 Context Segments).

<table>
<thead>
<tr>
<th>Segment</th>
<th>Length</th>
<th>From</th>
<th>To</th>
<th>Context Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<td>Chevy Chase Circle</td>
<td>MD 191 (Bradley Lane)</td>
<td>Suburban Activity Center Suburban residential</td>
</tr>
<tr>
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<td>MD 191 (Bradley Lane)</td>
<td>MD 410 (East-West Hwy)</td>
<td>Suburban Activity Center Suburban activity area</td>
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<tr>
<td>3</td>
<td>0.84</td>
<td>MD 410 (East-West Hwy)</td>
<td>Jones Bridge Road</td>
<td>Suburban Activity Center Purple Line station area</td>
</tr>
<tr>
<td>4</td>
<td>0.47</td>
<td>Jones Bridge Road</td>
<td>Beach Drive</td>
<td>I-495 Interchanges</td>
</tr>
<tr>
<td>5</td>
<td>1.51</td>
<td>Beach Drive</td>
<td>Kingsview Rd</td>
<td>Suburban Activity Center Kensington commercial area</td>
</tr>
<tr>
<td>6</td>
<td>0.31</td>
<td>Kingsview Ave</td>
<td>MD 193 (University Blvd)</td>
<td>Suburban Activity Center Kensington commercial area</td>
</tr>
</tbody>
</table>
This map presents the context segments identified for the MD 185 Needs Assessment study corridor. The locations of existing signal or beacon controlled intersections and marked crosswalks are included to contextualize frequency of opportunities to cross the corridor.

Street sections for each of the context segments and toolkit recommendations are presented in the following section. These sections represent a vision for the corridor that will address the needs of broader users upon implementation. In recognition that change will occur incrementally, near- and mid-term improvements that may advance this vision are presented in Chapter 4.
A detailed review of crash trends in the context segments was completed for comparison of overall crash trends within each of the context segments, and to identify where bicycle and pedestrian safety trends are observed in the collision data. The highest rates of injury crashes occurred in Segments 1 and 2, which have the lowest and third lowest traffic volumes, but the highest and third highest injury crashes, and Segment 4, which includes the I-495 interchange ramps and had the highest traffic volumes within the study area. Crash types in these southern segments were primarily rear end and sideswipe crash types.

The highest bicycle and pedestrian crash rates occurred near high-density destinations like Kensington in Segment 6, and the future Purple Line station area in Segment 3. In total only 2% of crashes along the study area involved a person walking or biking, but 64% of those crashes resulted in an injury or worse for the pedestrian or bicyclist, indicating a disproportional negative impact on pedestrians or bicyclists who do experience a crash within the MD 185 corridor.

### INJURY CRASHES (2014 - 2018)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Length</th>
<th>Injury Crashes (per Mile)</th>
<th>AADT</th>
<th>Per Mile</th>
<th>Per 1 Million Vehicles</th>
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</thead>
<tbody>
<tr>
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<tr>
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<tr>
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### BICYCLE & PEDESTRIAN CRASHES (2014 - 2018)

<table>
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<th>Segment</th>
<th>Length</th>
<th>Bicycle &amp; Pedestrian Crashes (per Mile)</th>
<th>AADT</th>
<th>Per Mile</th>
<th>Per 1 Million Vehicles</th>
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<tr>
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<td>220</td>
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</table>

### Toolkit Development

Best practice resources provide guidance on enhancing safety, particularly for non-motorized road users, and enhancing multi-modal accessibility. To establish a toolkit appropriate to address needs in the MD 185 corridor, the following best practices from national and local guidebooks were consulted:

- Montgomery County Complete Streets Guide
- Montgomery County Bicycle Facility Design Toolkit
- MDOT SHA Context Driven: Access & Mobility for All Users
- Global Street Design Guide from the Global Designing Cities Initiative
- ITE’s Implementing Context Sensitive Design on Multimodal Thoroughfares
- Fehr & Peers LA Bike/Bus Interaction Study
- Oregon Metro’s Designing Livable Streets and Transit Guide
- FHWA Intersection Safety Design Guide
- Signalized Intersections: An Informational Guide (link)

Context appropriate recommendations were drafted and intended for each context, with consideration of the unique demands in each segment along the corridor and each attribute within that segment. This included a detailed review of the various roadway elements, including traveled lanes and markings, lane widths and shoulders, curbsides, medians, sidewalks, pedestrian crosswalks, bike lanes, and overall corridor design.

### Context Segment Recommendations

In each of the context segments, the preferred master plan or “complete street” elements were compiled to develop an unconstrained roadway section to document the preferred corridor design under ideal conditions. In all cases, implementing such a design would be infeasible due to impacts to the surrounding community, so a context appropriate approach was used to identify a constrained roadway section that balances need and compatibility while also addressing all needs in the MD 185 corridor. This constrained roadway section and key recommendations for each context segment are summarized in the following pages. The recommended improvements are not intended to limit other potential future solutions.

The full details of these street sections would be achieved by implementing all of the Long-Term Improvements shown in Chapter 4.
MD 185

**Multimodal Needs on the Corridor**

**Segment 1**
- Connecting DC to the Chevy Chase Club
- Injury crashes within Segment 1 are primarily due to pedestrian and bicycle crashes within the study area. Injury crashes within Segment 1 have the highest rate of injury crashes along the corridor.
- The roadway is heavily trafficked, but has two lanes in the inbound direction and three lanes in the outbound direction.
- The area is a transition segment from Montgomery County, with four pairs of bus stops, pedestrian signal at Bradley Lane, and a pedestrian signal at Lennox Street.
- Through movements are restricted during AM peak hours.
- Vehicular turn movements are restricted during PM peak hours.
- The AADT for this segment was 37,612 at the Circle roundabout, with three lanes of traffic per direction.

**Recommendation**
- Stressful for people on bicycles due to the Chevy Chase Club area.
- “Somewhat comfortable” for pedestrians and “high stress” for people on bicycles due to the Chevy Chase Club area.
- Comfort and Bicycle Level of Stress rating maps provided space for people biking, additional buffer for pedestrian crossings, and left-turn pockets.
- Widening of existing travel lanes, and left-turn pockets can create a more suitable environment for people walking and biking.
- Providing space for people biking, additional buffer for pedestrian crossings, and left-turn pockets can create a more suitable environment for people walking and biking.

**Tools Applicable to Address Needs**

- Converting one travel lane to a bicycle lane to improve safety
- Hybrid Beacons
- Safe pedestrian crossings
- Bicycle ramps
- Pedestrian refuge island
- Automated red light enforcement
- Push buttons

**Circulars**

- CHEVY CHASE CLUB
- CHEVY CHASE

**Elements in the Cross-section**

- **TURNS**
  - Protected left turn
  - Protected right turn
  - Two-lane left turn
  - Two-lane right turn

- **CURB RISE**
  - 5'
  - 10'
  - 15'

- **SPEED**
  - 25 mph
  - 30 mph

- **ENFORCEMENT**
  - Automated red light enforcement
  - Push buttons

**Other**

- High curb
- Low curb
- High-tech speed
- Low-tech speed
- High-tech enforcement
- Low-tech enforcement
Bradley Ln – East-West Hwy

**SEGMENT 1**

In this report, the AADT was 43,702 for this segment. Compared with Segment 1, auto lanes are wider and have accesses to a major roadway in the area. Montgomery County's Vision Zero High Injury Network identifies this segment of MD 185 is “uncomfortable” for pedestrians, particularly near Woodbine Street. Despite seven pairs of bus stops, pedestrians have limited crossing opportunities within the area, with a traditional traffic signal at Raymond Street and MD 410 end and sideswipe crashes.

The buffered bike lane design includes “No Right Turn On Red” should be designed to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The study area includes elements such as continental striping, push-buttons, and curb extensions where possible. Recommend Island, Rapid Rectangular Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), pedestrian refuge islands, 5’ minimum sidepath volumes, and curb extensions in town center areas with high tree canopy coverage. yarned driveways and road reconfigurations are considered to potentially reduce pedestrian injuries and crashes at the intersections in the study area. 

**SEGMENT 2**

Segment 2 was the third highest rate of injury crashes along the entire corridor, and the fourth highest in the core area. A significant injury crash occurred here, and auto lanes are wider than Segment 1. Despite seven pairs of bus stops, pedestrians have limited crossing opportunities within the area, with a traditional traffic signal at Raymond Street and MD 410 end and sideswipe crashes.

The buffered bike lane design includes “No Right Turn On Red” should be designed to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes elements such as continental striping, push-buttons, and curb extensions where possible. Recommend Island, Rapid Rectangular Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), pedestrian refuge islands, 5’ minimum sidepath volumes, and curb extensions in town center areas with high tree canopy coverage. yarned driveways and road reconfigurations are considered to potentially reduce pedestrian injuries and crashes at the intersections in the study area. 

**SEGMENT 3**

To reduce travel speeds and increase the walking and biking environment at signalized intersections, a safety zone may be added to a crosswalk and signage at Taylor Street, to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes “No Right Turn On Red” should be designed to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes elements such as continental striping, push-buttons, and curb extensions where possible. Recommend Island, Rapid Rectangular Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), pedestrian refuge islands, 5’ minimum sidepath volumes, and curb extensions in town center areas with high tree canopy coverage. yarned driveways and road reconfigurations are considered to potentially reduce pedestrian injuries and crashes at the intersections in the study area. 

**SEGMENT 4**

To reduce travel speeds and increase the walking and biking environment at signalized intersections, a safety zone may be added to a crosswalk and signage at Taylor Street, to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes “No Right Turn On Red” should be designed to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes elements such as continental striping, push-buttons, and curb extensions where possible. Recommend Island, Rapid Rectangular Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), pedestrian refuge islands, 5’ minimum sidepath volumes, and curb extensions in town center areas with high tree canopy coverage. yarned driveways and road reconfigurations are considered to potentially reduce pedestrian injuries and crashes at the intersections in the study area. 

**SEGMENT 5**

To reduce travel speeds and increase the walking and biking environment at signalized intersections, a safety zone may be added to a crosswalk and signage at Taylor Street, to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

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**SEGMENT 6**

To reduce travel speeds and increase the walking and biking environment at signalized intersections, a safety zone may be added to a crosswalk and signage at Taylor Street, to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes “No Right Turn On Red” should be designed to allow bicyclists to transition from directional travel to slow vehicles to safe turning speeds. Target speed pockets can create a lower stress walking and biking environment as well as potentially reduce vehicular rear end and sideswipe crashes.

The buffered bike lane design includes elements such as continental striping, push-buttons, and curb extensions where possible. Recommend Island, Rapid Rectangular Flashing Beacon (RRFB), Pedestrian Hybrid Beacon (PHB), pedestrian refuge islands, 5’ minimum sidepath volumes, and curb extensions in town center areas with high tree canopy coverage. yarned driveways and road reconfigurations are considered to potentially reduce pedestrian injuries and crashes at the intersections in the study area.
MULTIMODAL NEEDS ON THE CORRIDOR

The AADT for this segment was 72,692 at the time of this report. The future Purple Line station along with surrounding transit connectivity. The cycle track could include safety rubber bumps, green paint, and on-street parking as an Urban Road Code and Bicycle and Pedestrian Priority Area (BiPPA) by Montgomery County. Within this Priority Area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place should be tightened to 25', and channelization islands removed to slow vehicles to safe turning speeds.

WHAT TOOLS ARE APPLICABLE TO ADDRESS THE NEEDS?

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

Purple Line station along with surrounding transit connectivity. The cycle track could include safety rubber bumps, green paint, and on-street parking as an Urban Road Code and Bicycle and Pedestrian Priority Area (BiPPA) by Montgomery County. Within this Priority Area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

SEGMENT 2

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

SEGMENT 3

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

SEGMENT 4

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

SEGMENT 5

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.

SEGMENT 6

A two-way cycle track is proposed along the entire corridor, and the second highest crossings are somewhat limited within the area, with a priority area the speed limit should be posted at 25 MPH and a new pedestrian signal at Laird Place. Buffered or right-turn bollards are recommended between Newdale Road and Laird Manor and Newdale Roads. A westside sidepath is encouraged in the area to maintain safe speeds and encourage biking destinations and volumes within this segment.
What tools are applicable to address the needs?

- **SEGMENT 1**: The current layout is difficult for people walking and biking to safely navigate the interchange ramps. Curb radii should be tightened at all legs of an intersection, pedestrian refuge island, elements such as continental striping of crosswalks are insufficient to reduce sidepath volumes allowed except left-turns. Maximum curb radius should be enforced to a maximum of 25’. Hazard Identification Beacons (HIBs) could be added at ramp crossing to increase driver awareness of individuals walking and biking crossing Maneuvers at Intersections.

- **SEGMENT 2**: Encourage single file in the core area to reduce unsafe speeds and encourage clear sight lines. Pedestrian-scale lighting at all legs of an intersection and HIBs. Push-buttons at intersection crosswalk per core area. One high-visibility TURNSTOOLKIT, encouraged in this area to reduce unsafe speeds and encouraged single file in the core area. Hazard Identification Beacons (HIBs) should be added at ramp crossing to increase driver awareness of individuals walking and biking crossing Maneuvers at Intersections.

- **SEGMENT 3**: Encourage single file in the core area to reduce unsafe speeds and 35’ sidepath volumes allowed except left-turns. Maximum curb radius should be enforced to a maximum of 25’. Hazard Identification Beacons (HIBs) should be added at ramp crossing to increase driver awareness of individuals walking and biking crossing Maneuvers at Intersections.

- **SEGMENT 4**: Reduce slip lanes and pedestrian crossing is limited, and interstate crossing is challenging due to fast slip lanes and limited visibility. Segment 4 has the second highest pedestrian volumes crossing at interchange ramps. Curb radii should be tightened to a maximum of 25’. Hazard Identification Beacons (HIBs) could be added at ramp crossing to increase driver awareness of individuals walking and biking crossing Maneuvers at Intersections.

- **SEGMENT 5**: Realignment of junction supports people walking and biking. The 5’ westside sidewalk should be retained. Realignment of junction supports people walking and biking. The 5’ westside sidewalk should be retained. Realignment of junction supports people walking and biking. The 5’ westside sidewalk should be retained. Realignment of junction supports people walking and biking. The 5’ westside sidewalk should be retained.

- **SEGMENT 6**: Sidewalks with landscaped buffer, and new curb cuts are recommended. Discourage new driveways and master planning. Protected crosswalks every 1,200’ should include enhancements. Minimum curb radii should be widened to 108’ to reduce unsafe speeds and to encourage single file in the core area. Pedestrians-scale lighting at all legs of an intersection and HIBs. Push-buttons at intersection crosswalk per core area.
**WHAT TOOLS ARE APPlicable TO ADDRESS THE NEEDS?**

- **Toolkit Elements in the Cross-Section**
  - 6’/S.I.D.E. sidewalk
  - Protected bike lane
  - High-visibility crosswalks
  - Pedestrian-scale lighting
  - High tree canopy coverage
  - Safe pedestrian crossings every 1,200’ should include Rapid Rectangular Flashing Beacon (RRFB), and curb signals, and current sharrows should be removed.
  - Hybrid Beacon (PHB), pedestrian refuge islands, signals, and current sharrows should be removed.
  - Bicycle signal phase could be considered at traffic signals, and current sharrows should be removed.
  - Pedestrian-side signal phase could be considered at traffic signals, and current sharrows should be removed.

**MULTIMODAL NEEDS ON THE CORRIDOR**

- **SEGMENT 1**
  - Beach Dr – Knowles Ave
  - Constrained right-of-way
  - Recommendation CREEK ROCK PARK
  - This segment of MD 185 is “uncomfortable” for neighborhood to I-495 south and Kensington north.

- **SEGMENT 2**
  - Adds to the stressful environment.
  - Landscape buffered sidewalks, wide vehicular lanes, no
  - Network from Saul Road to Knowles Avenue. Non-
  - Despite nine pairs of bus stops, pedestrians have
  - For this segment at the time of this report, AADT was
  - For this segment at the time of this report, AADT was

- **SEGMENT 3**
  - Recommendation
  - MD 185
  - Multimodal needs on the corridor. What tools are applicable to address the needs?

- **SEGMENT 4**
  - Adds to the stressful environment.
  - Landscape buffered sidewalks, wide vehicular lanes, no
  - Network from Saul Road to Knowles Avenue. Non-
  - Despite nine pairs of bus stops, pedestrians have
  - For this segment at the time of this report, AADT was
  - For this segment at the time of this report, AADT was

- **SEGMENT 5**
  - Adds to the stressful environment.
  - Landscape buffered sidewalks, wide vehicular lanes, no
  - Network from Saul Road to Knowles Avenue. Non-
  - Despite nine pairs of bus stops, pedestrians have
  - For this segment at the time of this report, AADT was
  - For this segment at the time of this report, AADT was

- **SEGMENT 6**
  - Adds to the stressful environment.
  - Landscape buffered sidewalks, wide vehicular lanes, no
  - Network from Saul Road to Knowles Avenue. Non-
  - Despite nine pairs of bus stops, pedestrians have
  - For this segment at the time of this report, AADT was
  - For this segment at the time of this report, AADT was
**Multimodal Needs on the Corridor**

This segment of MD 193, known as Knowles Avenue, is a core area and serves as a central part of the transportation network. It connects major employment centers, including Montgomery County Health and Human Services, Montgomery County Courthouse, and Metropolitan Washington Airports Authority. The Knowles Avenue core area is subject to significant congestion during the peak hours, and transportation efforts are required to address the needs of pedestrians, bicyclists, and drivers.

**Recommendations**

- **SEGMENT 1**: In addition to through lanes, a turn lane adds to the stress for people on bicycles. Non-landscape buffered area and connects with MD 193. This segment of Knowles Avenue, serves as an Urban Road Code (URC) area and a County Bicycle and Pedestrian Priority Area (BiPPA). In this area, all intersections must have pedestrian- and bicycle-friendly design elements such as continental striping at all crosswalks, and all crosswalks should be marked with signs and symbols. This segment of Knowles Avenue is regularly congested during the peak hours within Montgomery County.

- **SEGMENT 2**: Despite five bus stops, pedestrians have limited crossings at Howard Avenue and Dupont Avenue. As redevelopment occurs, non-landscape buffered crossings at Howard Avenue and Dupont Avenue should be considered where sidepath volumes are expected to be high. Recommendations include automatic red-light cameras are discouraged. Pedestrian-scale lighting and curb cuts are recommended to increase visibility at signalized intersections in this area.

- **SEGMENT 3**: Bicycle and pedestrian crashes within the study area. As redevelopment occurs, non-landscape buffered crossings at Howard Avenue and Dupont Avenue should be considered where sidepath volumes are expected to be high. Recommendations include automatic red-light cameras are discouraged. Pedestrian-scale lighting and curb cuts are recommended to increase visibility at signalized intersections in this area.

- **SEGMENT 4**: Add slip turn-arounds and areas with high pedestrian volumes. Recommend new left-turn and left-turn on red. Considered where sidepath volumes are expected to be high. Minimum curb radia should be a maximum of 15'. Maximum curb radia should be 25'. Maximum curb radia should be 30'. Considered where sidepath volumes are expected to be high.

- **SEGMENT 5**: As redevelopment occurs, non-landscape buffered crossings at Howard Avenue and Dupont Avenue should be considered where sidepath volumes are expected to be high. Recommendations include automatic red-light cameras are discouraged. Pedestrian-scale lighting and curb cuts are recommended to increase visibility at signalized intersections in this area.

- **SEGMENT 6**: For intersections with minor volume, existing left-turn movements should be considered where sidepath volumes are expected to be high. Existing left-turn movements should be considered where sidepath volumes are expected to be high. Recommendations include automatic red-light cameras are discouraged. Pedestrian-scale lighting and curb cuts are recommended to increase visibility at signalized intersections in this area.
Overview
Meeting the broad needs of MD 185 users will require thoughtful and intentional investments over time. Change in established highway corridors rarely occurs rapidly; often taking place incrementally to leverage opportunities for long-term improvements in safety and mobility. Strategic approaches are required to outline manageable projects, identify funding, and achieve meaningful change.

MDOT SHA has a variety of near- and mid-term opportunities to address needs in the MD 185 corridor, which plans are developed for a broader reorientation of the corridor to achieve the grander vision outlined in this study. Drawing from the observations of this process, the following section outlines some of the locations where changes can be implemented and advances partnerships with the local community. 

PRIORITIZATION & IMPLEMENTATION
Near-Term Strategies

The MD 185 corridor includes multiple opportunities for short-term improvements that will improve safety, access, and mobility for travelers in the corridor.

More immediate improvements can be made using tactical measures, such as raising and use of flexible materials with high visibility markings, leading pedestrian intervals, and improving visibility of pedestrian signs or signals at areas where vehicles and those areas may experience conflicts. Operational enhancements like implementing partial signal or unmarked crosswalks of MD 185. Implementing rectangular rapid flashing beacons (RRFB) at marked crosswalks can help improve safety, visibility of pedestrian traffic, and prioritize safety.

More immediate improvements can be made using tactical measures, such as implementing partial signal or unmarked crosswalks of MD 185. Implementing rectangular rapid flashing beacons (RRFB) at marked crosswalks can help improve safety, visibility of pedestrian traffic, and prioritize safety.
<table>
<thead>
<tr>
<th>ID</th>
<th>Street</th>
<th>Intersection Type</th>
<th>Improvement Type</th>
<th>Description</th>
<th>Potential Treatment</th>
<th>Cost Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Kirke Street</td>
<td></td>
<td>Geometric Improvement</td>
<td>Reduce crosswalk length with compact intersection geometry</td>
<td>Painted Curb Extensions, High-Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>3a</td>
<td>Lenox Street</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve driver yielding to pedestrians when turning</td>
<td>High visibility sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Pacing</td>
<td>$</td>
</tr>
<tr>
<td>4</td>
<td>Oxford Street</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Geometric Improvement</td>
<td>Reduce crosswalk length with compact intersection geometry</td>
<td>Painted Curb Extensions, High-Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>6</td>
<td>Raymond Street</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>9</td>
<td>Leland Street</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>10</td>
<td>ND-405</td>
<td>New or High Visibility Crosswalk</td>
<td>Improve visibility of conflicting crosswalk</td>
<td>High Visibility Crosswalk (east leg)</td>
<td>High Visibility Crosswalk (east leg)</td>
<td>$</td>
</tr>
<tr>
<td>11</td>
<td>Duplex Street</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>12</td>
<td>Naborow Road / Local Road</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Emphasize pedestrian priority</td>
<td>Advance Warning Sign (pedestrian emphasis area)</td>
<td>Advance Warning Sign (pedestrian emphasis area)</td>
<td>$</td>
</tr>
<tr>
<td>15</td>
<td>Merton Road</td>
<td>New or High Visibility Crosswalk</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>15g</td>
<td>Beach Drive</td>
<td>New or High Visibility Crosswalk</td>
<td>Emphasize pedestrian priority</td>
<td>High-Visibility Crosswalk</td>
<td>High-Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>19</td>
<td>Manor Road</td>
<td>New or High Visibility Crosswalk</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
<tr>
<td>27</td>
<td>E &amp; E Broadway</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Emphasize pedestrian priority</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign</td>
<td>Turning Traffic Yield to Peds, Pedestrian Sign, High Visibility Crosswalk</td>
<td>$</td>
</tr>
</tbody>
</table>

*Project is in implementation phase
Mid-Term Strategies

Projects that would take longer to design and implement are ideal opportunities for implementation in the mid-term. These include installation of new/modified measures such as right-turn signals, crosswalks, or pedestrian island improvements to raise the frequency of conflicts at intersections. Design-build projects or new construction that require right-of-way acquisition could also be considered in this timeframe.

Public involvement will be key to determining which projects are feasible and can be moved forward. To aid in this determination, the methodology is detailed in the legend as well. Color shading is described in a legend below the table, and the scoring level that corresponds to its score in the “Priority Score” column. The “Cost Range” column provides an estimated cost magnitude from lowest ($) to highest ($$$), All of the recommended mid-term improvements are estimated to be within the lowest cost range.

As described below the tables on pages 50 and 51, the scoring methodology is detailed in the legend as well. The “Priority Score” column provides an estimated cost magnitude from lowest ($) to highest ($$$). All of the recommended mid-term improvements are estimated to be within the lowest cost range. Recommended mid-term improvements are listed in the table on page 50.

For ease of interpretation, each of the recommended mid-term improvements is also shaded with a color that indicates a priority level that corresponds to its score in the Priority Score column. The methodology is detailed in the legend as well.
### Mid-Term Improvements

<table>
<thead>
<tr>
<th>ID</th>
<th>Segment</th>
<th>Intersection Type</th>
<th>Description</th>
<th>Potential Treatment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>4</td>
<td>I-495 EB &amp; exit ramp 21</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve driver yielding to pedestrians in crosswalk</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>18</td>
<td>5</td>
<td>Old Stone Road</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve driver yielding to pedestrians in crosswalk</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>19</td>
<td>6</td>
<td>Beach Drive</td>
<td>Signal Operations Improvement</td>
<td>Reduce turning conflicts with pedestrians in crosswalk</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
<td>College Park Station</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve driver yielding to pedestrians in crosswalk</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>21</td>
<td>6</td>
<td>Dunn Road</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve driver yielding to pedestrians in crosswalk</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>22</td>
<td>5</td>
<td>Florida Drive</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve visibility of conflict crossing</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>23</td>
<td>5</td>
<td>Friendship Dr</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve visibility of conflict crossing</td>
<td>$$$ 1</td>
</tr>
<tr>
<td>24</td>
<td>5</td>
<td>Skyline Road</td>
<td>Pedestrian Accommodation or Signing</td>
<td>Improve visibility of conflict crossing</td>
<td>$$$ 1</td>
</tr>
</tbody>
</table>

### Crash History

Within a high crash area, using the Crash History map from Chapter 2.

- Within 100 feet of a bus stop (1 point).
- Within 1,000 feet of a school (1 point).
- Mid-Term Improvements within 250 feet of a school (2 points).

### Priority

- Higher Priority (3 points)
- Medium Priority (2 points)
- Lower Priority (1 point)

### Score

- Higher Priority (3 points)
- Medium Priority (2 points)
- Lower Priority (1 point)
As with the list of proposed mid-term improvements, input from the community and stakeholders will be important in determining the long-term improvements that should be implemented along the MD 185 corridor. The tables on pages 54 through 56 describe the more extensive long-term projects recommended in this report, they also have the potential to yield the greatest safety benefits. The full build-out of these long-term improvements would result in the cross-sections that would be required to match the cross-sections shown in Chapter 3.

As with the list of proposed mid-term improvements, input from the community and stakeholders will be important in determining the long-term improvements that should be implemented along the MD 185 corridor. The tables on pages 54 through 56 describe the more extensive long-term projects recommended in this report, they also have the potential to yield the greatest safety benefits. The full build-out of these long-term improvements would result in the cross-sections that would be required to match the cross-sections shown in Chapter 3.
<table>
<thead>
<tr>
<th>ID</th>
<th>Segment</th>
<th>Improvement Type</th>
<th>Description</th>
<th>Potential Treatment</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2&amp;3 MD 410</td>
<td>Geometric Improvement</td>
<td>Control approaches to the intersections to manage pedestrian conflicts.</td>
<td>Reduce right turn channelization.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3 Chevy Chase - Lake Robins</td>
<td>Signal Operations Improvement</td>
<td>Phases separate left turning conflicts.</td>
<td>Reduce conflicts with pedestrians.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3 McCord Road</td>
<td>Geometric Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Locate bus stop closer to controlled intersection.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I-495 Exit Ramp</td>
<td>Geometric Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Relocate bus stop.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4 I-495 East</td>
<td>Geometric Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Complex intersection geometry, truck approaches.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4 I-495 Entrance Ramp (2)</td>
<td>Geometric Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Protected Left Turn Phasing and/or flashing red arrow phasing.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>5 Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Resize drive lanes as appropriate with outer lanes widest</td>
<td>Reduces median to 17' and convert outer drive lane to 6' bike lane with 2' buffer per side.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5 S. Woodrow</td>
<td>Signal Operations Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Increase median from 6' to 12' to allow left turn pockets.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>5 New Mexico</td>
<td>Signal Operations Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Convert outer drive lane to 6' bike lane with 2' buffer per side.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>6 Modify Corners</td>
<td>Modify corners concurrent with street reconstruction</td>
<td>Increase the median 9' to allow left turn pockets.</td>
<td>Convert outer drive lane to 5' bike lane with 1.5' buffer per side.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>6 Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Resize drive lanes to 10' per lane</td>
<td>Reduce eastern buffer from 5' to 3'.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>7 Amazing Avenue</td>
<td>Signal Operations Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Increase median 9' to allow left turn pockets.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>7 Myra Hill Road</td>
<td>Signal Operations Improvement</td>
<td>Reduce turning speeds across crosswalks.</td>
<td>Increase sidewalk from 5' to 6' per side.</td>
<td>FFOO</td>
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<tr>
<td>18</td>
<td>6 University Boulevard</td>
<td>Road Diet</td>
<td>Reduce pedestrian exposure and crossing distance by narrowing crosswalks.</td>
<td>Lane reduction to 2.5'</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>1 Chevy Chase Drive</td>
<td>Road Diet</td>
<td>Reduce for 4 travel lanes.</td>
<td>Repurpose travel lanes with temporary median, buffer &amp; signal modifications.</td>
<td>FFOO</td>
<td></td>
</tr>
<tr>
<td>Segment</td>
<td>Improvement Type</td>
<td>Description</td>
<td>Potential Treatment</td>
<td>Cost Range</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>Modify Corners</td>
<td>Modify corners concurrent with street reconstruction</td>
<td>Tighten curb radii along segment (Maximum curb radius between 15’ – 25’)</td>
<td>$$$$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Flexi-dowe lines; appropriate with sustainable arterial</td>
<td>$$$$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Reduce outer drive lanes to 11’</td>
<td>$$$$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Reduce lane bases to 10’</td>
<td>$$$$</td>
<td></td>
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<tr>
<td>6</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Add to Surface seal coat</td>
<td>$$$$</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>Expand sections southward to 12’ shared st/parking</td>
<td>$$$</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Modify Cross-Section</td>
<td>Reconstruct street with new cross-section</td>
<td>No Right Turn on Red signs at intersections with high sidepath volumes</td>
<td>$</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Modify Corners</td>
<td>Modify corners concurrent with street reconstruction</td>
<td>Tighten curb radii along segment (Maximum curb radius of 25’)</td>
<td>$$$$</td>
<td></td>
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<tr>
<td>6</td>
<td>Buffer Zone Improvement</td>
<td>Enhance visibility and safety with pedestrian-scale lighting</td>
<td>Pedestrian-scale lighting near transit center areas</td>
<td>$$$</td>
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<tr>
<td>1</td>
<td>Speed Management</td>
<td>Reduce posted speed limit</td>
<td>Aim for target speed of 25 mph</td>
<td>$</td>
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<tr>
<td>2</td>
<td>Speed Management</td>
<td>Reduce posted speed limit</td>
<td>Aim for target speed of 25 mph</td>
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<tr>
<td>3</td>
<td>Speed Management</td>
<td>Reduce posted speed limit</td>
<td>Aim for target speed of 25 mph</td>
<td>$</td>
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<tr>
<td>3</td>
<td>Speed Management</td>
<td>Seek opportunities to install red light cameras</td>
<td>Encourage automated speed and red light enforcement</td>
<td>$</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Speed Management</td>
<td>Seek opportunities to install red light cameras</td>
<td>Encourage automated speed and red light enforcement</td>
<td>$</td>
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<td>5</td>
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<tr>
<td>3</td>
<td>Access Management</td>
<td>Modify driveways for fronting properties developing/developed</td>
<td>Minimize, narrow, and consolidate driveways near Purple Line</td>
<td>NA</td>
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<tr>
<td>4</td>
<td>Access Management</td>
<td>Modify driveways for fronting properties developing/developed</td>
<td>Discourage new driveways</td>
<td>NA</td>
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<tr>
<td>5</td>
<td>Access Management</td>
<td>Modify driveways for fronting properties developing/developed</td>
<td>Discourage new curb cuts</td>
<td>NA</td>
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<tr>
<td>6</td>
<td>Access Management</td>
<td>Modify driveways for fronting properties developing/developed</td>
<td>Minimize, narrow, and consolidate driveways</td>
<td>NA</td>
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