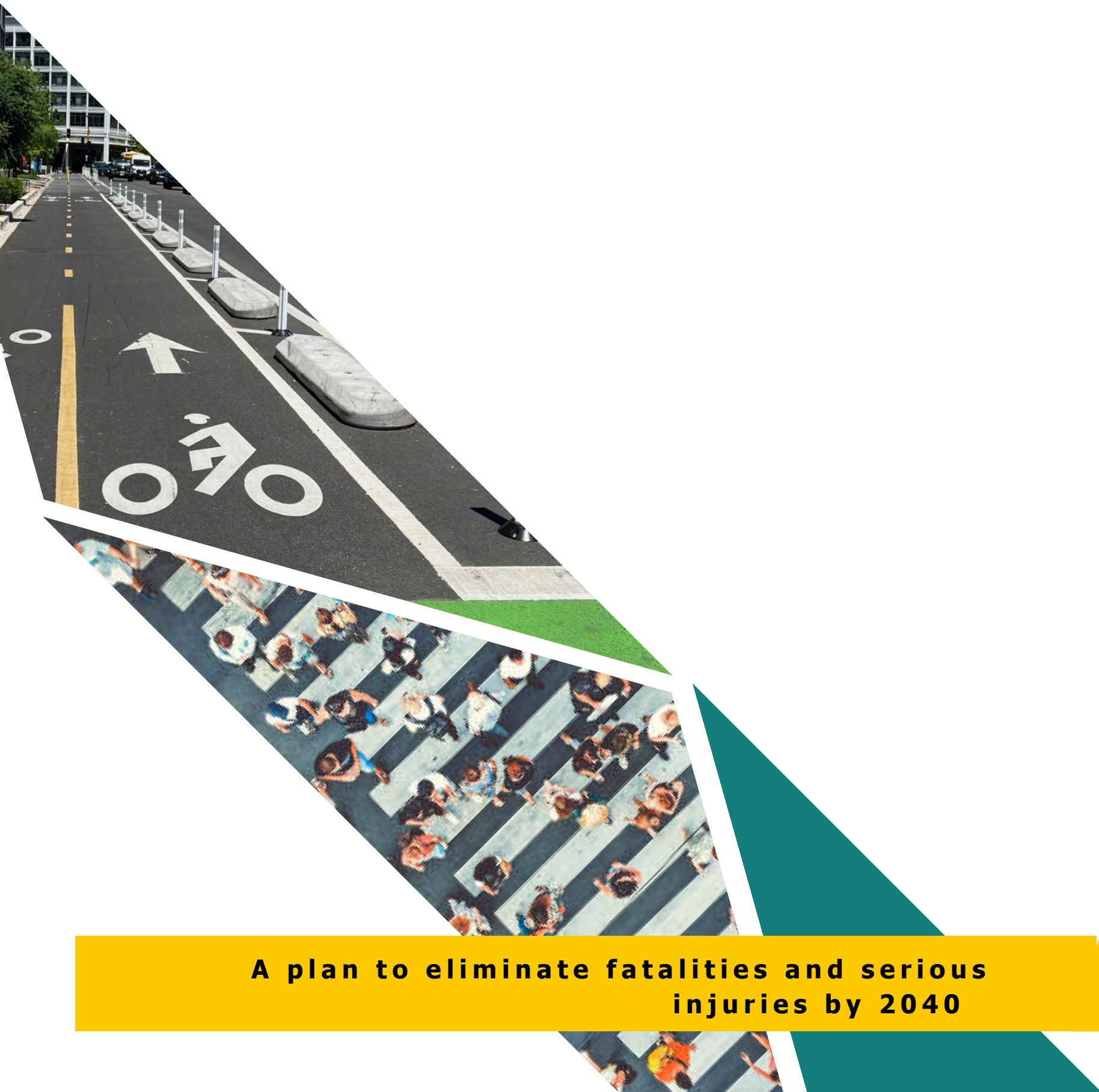


SAFE STREETS & ROADS FOR ALL ACTION PLAN

A VISION ZERO
IMPROVEMENT PLAN

City of Aberdeen
Town of Bel Air
City of Havre de Grace



A plan to eliminate fatalities and serious
injuries by 2040

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Commitment to Vision Zero

The municipalities of Aberdeen, Bel Air, and Havre de Grace pledge to incorporate the strategies, and recommendations in this Safe Streets and Roads for All Action Plan to reach zero traffic fatalities and severe injuries by 2040.



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SECTION 1 - OVERVIEW



Section 1 - Overview

In 2022, 42,514 lives were lost in crashes on US roadways, and an additional 7,500 people perished after being struck by vehicles while walking along or across US roadways¹. Among all modes of transportation, bicycling and walking are the most vulnerable, with any crash involving a motor vehicle often resulting in severe injury for the non-motorist. Reflecting on the profound impact a single preventable death can have on countless lives, it becomes clear that change is not just necessary but imperative.

Safe Streets and Roads for All and Vision Zero

Safe Streets and Roads for All (SS4A)

The Bipartisan Infrastructure Law (BIL) established the Safe Streets and Roads for All (SS4A) discretionary program with \$5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds, approximately \$1 billion per year, are allocated for Vision Zero Planning, Demonstration & Implementation of projects at the local, regional, and tribal levels to prevent roadway deaths and severe injuries. The Town of Bel Air has joined forces with the City of Aberdeen and City of Havre de Grace, as recipients of a Safe Streets and Roads for All (SS4A) grant to study how the three municipalities can make their streets safer for their most vulnerable users. These users are defined as non-motorists and include pedestrians, bicyclists, members of the community with disabilities who require mobility accommodations, and those using public transportation. Through this grant funding, twenty-three intersections were identified for further evaluation and analysis. A complete intersection list is depicted in Figure 1-1.

These evaluations and analyses, along with information obtained through the public outreach process are used to develop this SS4A Action Plan. This Plan will recommend short, mid, and long-term improvements for each selected intersection and provide the framework necessary for future multimodal transportation safety upgrades.

The SS4A Action Plan introduces proven safety countermeasures at each intersection, recommends updates to policies and standards

¹ The National Highway Traffic Safety Administration (NHTSA)

that are not aligned with current vision zero goals, and increases equity by prioritizing those in neighborhoods that are impacted by existing conditions or lack of safe and convenient transportation options.



Figure 1-1: Selected Intersections

Vision Zero

Vision Zero aims to eliminate all traffic fatalities and severe injuries while enhancing safety, health, and equitable mobility for all. First implemented in Sweden in the 1990s, its success in Europe, marked by substantial reductions in serious and fatal traffic incidents, has spurred its adoption in major U.S. cities².

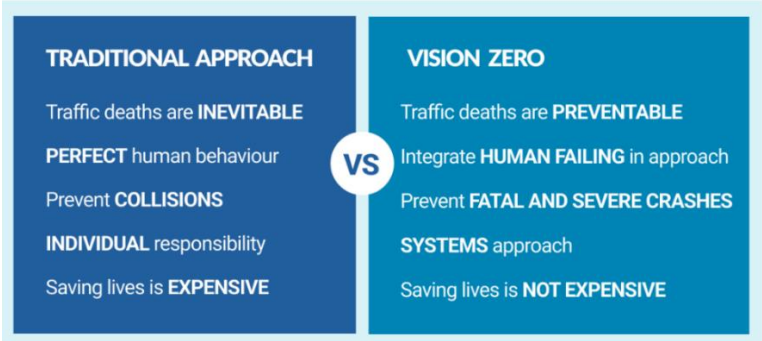


Figure 1-2: Safe System Approach

Central to Vision Zero is the integration of the safe systems approach (see Figure 1-2), which fundamentally alters the traditional paradigm in two key ways.

- 1. Vision Zero **acknowledges human fallibility** and emphasizes designing road systems and policies to mitigate the impact of inevitable errors, thereby reducing the likelihood of severe harm. This necessitates continuous improvement in roadway infrastructure, speed management protocols, and other related systems.
- 2. Vision Zero is a **multidisciplinary approach**, bringing together diverse and necessary stakeholders to address this critical problem: traffic fatalities and severe injuries. In the past, meaningful, cross-disciplinary collaboration among local traffic planners and engineers, policymakers, and public health professionals has not been present, but this needs to become the norm. Vision Zero acknowledges that many factors contribute to safe mobility -- roadway geometry, travel speeds, road user behaviors, technology, and policies -- and sets clear goals to achieve the shared goal of zero fatalities and severe injuries.

The SS4A Project Goals

- ◆ To take a proactive stance in designing roads that specifically address the needs of our most vulnerable users: pedestrians, bicyclists, people who use public transportation, and people with disabilities.

- ◆ To support Vision Zero by recommending safety improvements to eliminate all severe crashes that result in severe injury or fatality.
- ◆ To follow the Safe Systems Approach which recognizes that humans make mistakes that can lead to crashes, that death and severe injuries on our roadways are unacceptable and that all stakeholders have a shared responsibility to ensure fatal and severe crashes do not occur.
- ◆ To perform safety analyses of the identified intersections noting the location and severity of crashes, as well as the contributing factors and crash types by road users (motorists, pedestrians, transit users, etc.).
- ◆ To ensure equitable investment in the safety needs of underserved communities.

The Traffic Safety Committee

The SS4A Traffic Safety Committee was established by the three municipalities as a Steering Committee to oversee the development of the SS4A Action Plan. The Committee is comprised of representatives from the Town of Bel Air, the City of Aberdeen and the City of Havre de Grace Departments of Planning and Community Development, Public Works, and Police along with representatives from Harford County’s Department of Planning and Director’s Office, and the Maryland Department of Transportation, State Highway Administration, District 4. On December 18, 2023, an in-person kick-off meeting was held to review the scope of the safety analysis and set expectations, share information on existing plans and studies, develop a SharePoint site for project documents and discuss the project schedule. This Committee continued to meet bi-weekly through the end of March 2024 for a total of six times. The Committee’s role was key in providing input throughout the action plan development process for reviews of project milestones such as the Technical Memorandum and the draft Action Plan. The project schedule (Table 1-1) was developed to set deliverable dates for the major milestones: the Public Workshops in February 2024, the Technical Memorandum in March 2024 and the Action Plan in May 2024 with Final Public Presentations to the elected Boards and Commissions in June and July 2024.

These municipalities are closely located along the I-95 and US 40 corridor in Harford County. Each municipality has unique characteristics and visions for the growth, development, and safety of their neighborhoods. However, these municipalities have State Roads that carry higher volumes of traffic crossing their local roads and follow both State and County Road design standards. In addition, transit routes connect these municipalities providing transportation opportunities to and from where residents live and work, attend college, or access healthcare.

Each municipality identified intersection locations that either had a prior crash history that involved a pedestrian fatality or severe injury or roadway characteristics that created safety challenges within their communities. They partnered together to achieve the goal of developing an Action Plan that will help them to improve safety and reduce traffic related deaths in their Town and Cities to zero. This Action Plan builds upon existing local, County, and State Master Plans and Traffic Safety initiatives and policies and integrates a comprehensive, equitable, and data-driven approach to achieving the goals of eliminating traffic related severe injuries and fatalities in the Town of Bel Air, the City of Aberdeen, and the City of Havre de Grace.

The Purpose of this Action Plan

Within the State of Maryland, there were 566 traffic deaths on roadways, including 132 pedestrians and 11 bicyclists in 2022. There were also 2,595 pedestrians injured³.

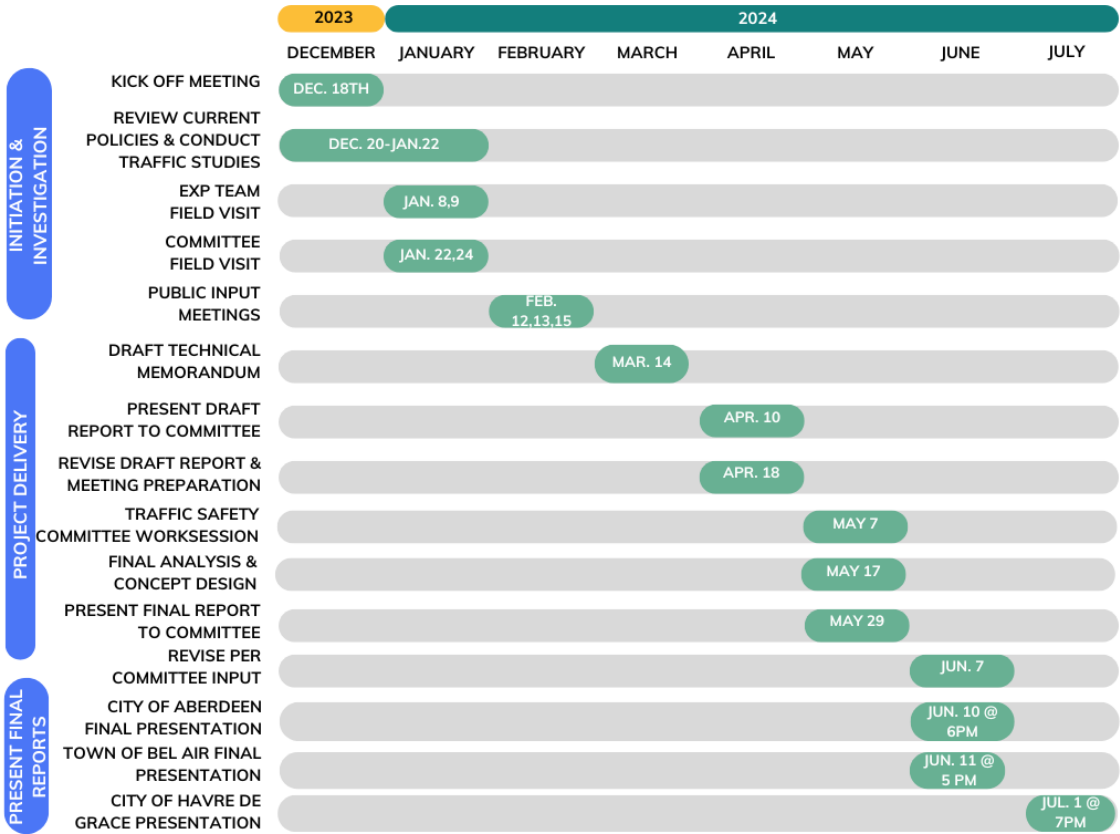


The State of Maryland enacted Vision Zero in 2019 and their goal for reaching zero fatalities and severe injuries is by 2030. Harford County’s Strategic Highway Safety Plan (2021-2025) aligns with reaching the State’s Vision Zero goals by 2030. Overall targets are:

1. Reduce fatalities from a five-year average of 19 in 2015-2019 to 18 or fewer in 2021-2025.
2. Reduce injuries from a five-year average of 1,429 in 2015-2019 to 1,087 or fewer in 2021-2025.
3. Reduce severe injuries from a five-year average of 107 in 2015-2019 to 51 or fewer in 2021-2025.

To achieve these goals the SS4A grant funding (F. Y. 2022-2026) supports local initiatives to prevent death and severe injury on roads and streets through a set of strategic action items developed as part of an SS4A Action Plan.

Table 1-1: SS4A Action Plan Schedule



³ MARYLAND DEPARTMENT OF TRANSPORTATION Highway Safety Office

Selected Intersection Locations

There are 23 intersections selected for improvement under this Safe Streets and Roads for All Action Plan. Figure 1-3 displays all intersections and their geographic orientation.

Each municipality had the opportunity to bring forward between 6 and 9 intersections using selection criteria based on:

- ◆ Crash History
 - ◆ Functional Road Classification and Traffic Volumes
 - ◆ Actual or Expected Speed
 - ◆ Long Crossing Distances for Pedestrians
 - ◆ Unsignalized Intersections
 - ◆ Transit Corridors with Bus Stops
 - ◆ Location of Nearby School Crossings
- ◆ A High Volume of Pedestrians or Cyclists
 - ◆ Proximity to a Trail Crossing
 - ◆ Lack of Pedestrian Infrastructure, including crosswalks or Pedestrian Refuge Islands
 - ◆ Existing Non-ADA Compliance
 - ◆ Lack Of Accessible Pedestrian Signals or Countdown Time Pedestrian Indicators
 - ◆ Location of Underserved Communities

These intersections have been prioritized for this grant to work towards reducing the number of fatalities and severe injuries from crashes involving pedestrians and cyclists to zero.

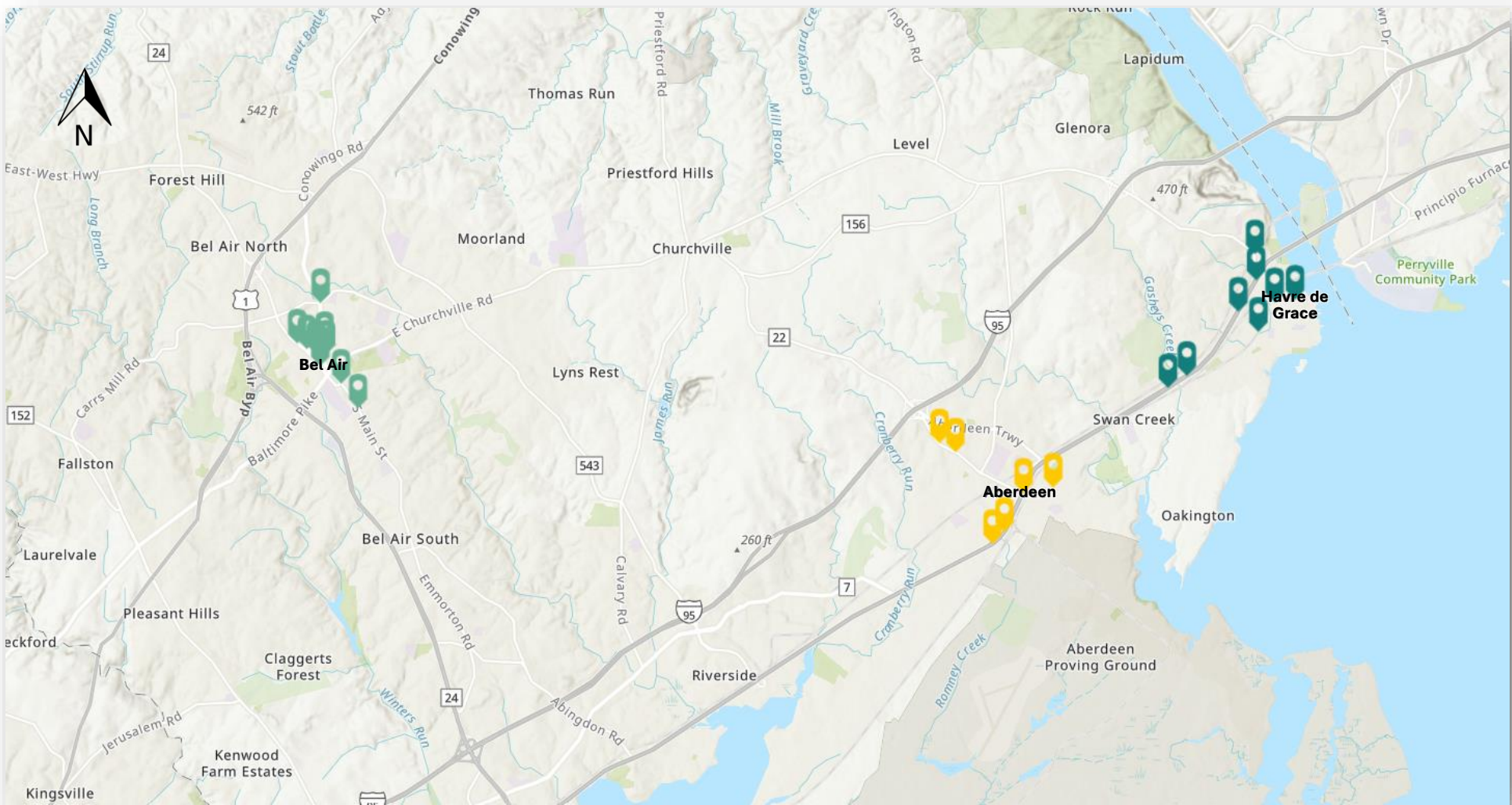


Figure 1-3: Map of Selected Intersections



SECTION 2 - SAFETY ANALYSIS



Section 2 - Safety Analysis

The safety analysis for the selected intersections was conducted via evaluation metrics including adherence to standards and guidelines, vehicle speeds both perceived and observed, intersection level of service (LOS), signal warrant standards, and historical crash analysis. For each selected intersection location, the project team investigated the existing conditions, including crash history, signal timing (if relevant), daily traffic volumes, posted speed limit, traffic patterns, pedestrian and bicyclist facilities presence and geometry, pavement markings, and signage.

Historical Crash Analysis

The crash data presented in this section was acquired from the MDOT SHA Crash Data Sheets. These reports can be found in Appendix C.

MDOT SHA maintains a database derived from reports submitted to, processed, and approved by the Maryland State Police Official Crash Reporting System. Data are regularly updated and subject to change.

A complete summary of the recorded crashes in each municipality between 2018 and 2022¹ can be found in Appendix A. Figure 2-1, Figure 2-2, and Table 2-1 provide a brief overview of this crash data collected sorted by municipality.

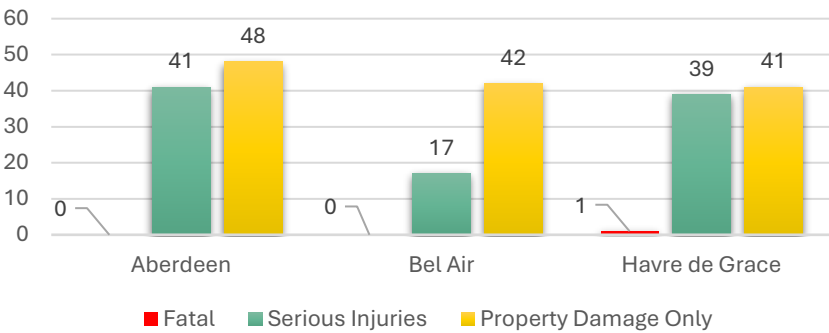


Figure 2-1: Total Crashes by Municipality

¹ Data for intersections A2.2, B9, H7 and H8 are from 2019-2023.

Table 2-1: Crash Types by Municipality

Crash Type	Municipality			Total
	Aberdeen	Bel Air	Havre de Grace	
Wrong-way Driving	1	0	1	2
Rear End	12	16	28	56
Sideswipe	1	4	4	9
Left Turn	33	8	14	55
Angle	22	13	17	52
Pedestrian	4	4	3	11
Parked Vehicle	0	1	0	1
Fixed Object	8	8	7	23
Other	7	0	3	10
Total	88	54	77	219

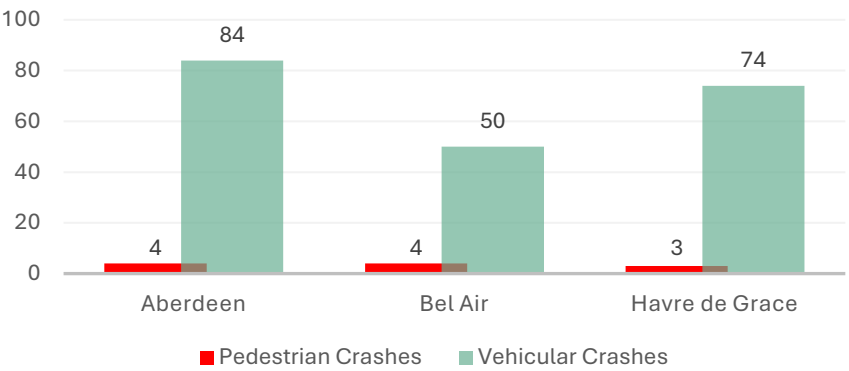


Figure 2-2: Pedestrian vs. Vehicular Crashes per Municipality

Further investigations into the crash data for each intersection can be found in the relevant municipal section in 6A, 6B, and 6C.

Data Limitations

The data presented does not capture near-misses or unreported crashes. Despite these limitations, it is the most complete data source available.

Crash Trends

The project team scrutinized crash records for every intersection, considering factors such as crash type, severity, lighting, road conditions, causes, day and time of occurrence, and yearly trends over five years. While each intersection possesses unique traits, some shared similarities allowed for joint analysis. Three such clusters were pinpointed among the selected intersections and are outlined in the following tables.

US Route 40 Corridor

Intersections A1&A4, A2.1, A2.2, H1, H2, H3, and H4 are along the US Route 40 corridor.

Table 2-2: Data Along US Route 40 Corridor

US 40 Corridor						Note
	2018	2019	2020	2021	2022	
Total Crashes	20	25	19	23	28	-
Fatalities	1	0	0	0	0	One fatality (pedestrian) in Jan 2024
Pedestrian-related	2	1	1	0	1	One fatality (pedestrian) in Jan 2024

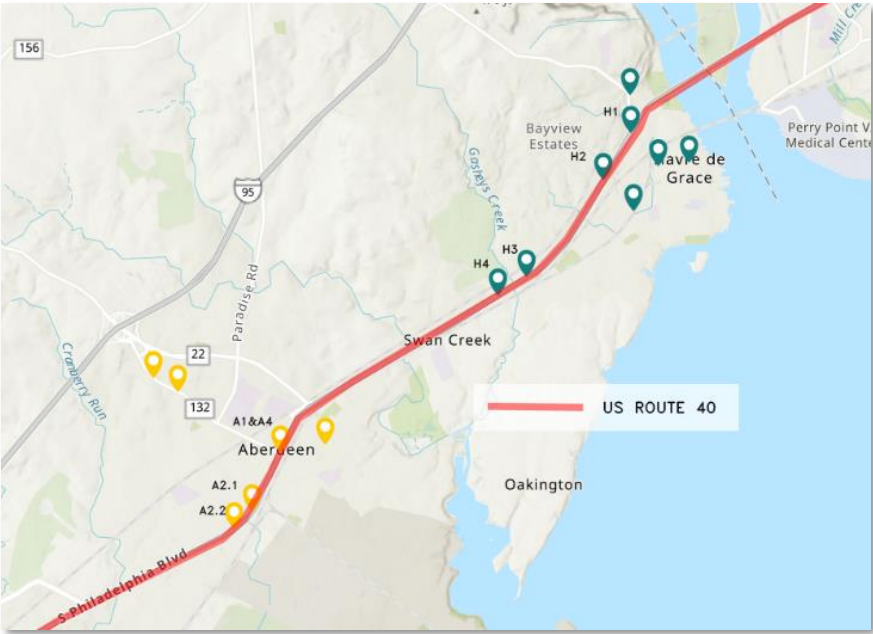


Figure 2-3: US Route 40 Corridor

Bel Air Downtown District

Bel Air’s downtown district includes intersections B1, B2, B3, B5, B6, B7 and B8. See Figure 2-4 for the extent of this area. Although Aberdeen and Havre de Grace have downtown areas as well, these intersections were selected for analysis due to their concentration within the downtown district.

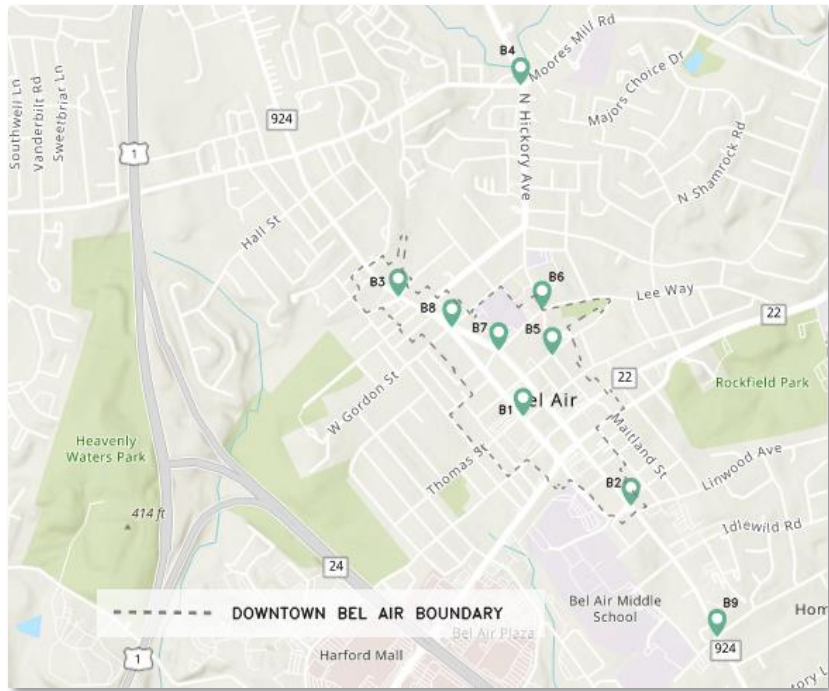


Figure 2-4: Map of Bel Air Downtown

Table 2-3: Bel Air Downtown District

Bel Air Downtown District						
	2018	2019	2020	2021	2022	Note
Total Crashes	10	10	5	4	10	-
Fatalities	0	0	0	0	0	One fatality (pedestrian) in Nov 2017
Pedestrian-related	1	2	0	0	1	One fatality (pedestrian) in Nov 2017

Signalized Intersections

There are signalized intersections at B1, B4, B5, B9, A1/A4, A3, A6, H1, H2, and H6.

Table 2-4: Summary of All Signalized Intersections in the Study Areas

Signalized Intersections						
	2018	2019	2020	2021	2022	Note
Total Crashes	30	20	22	23	34	-
Fatalities	1	0	0	0	0	One fatality (pedestrian) in Nov 2017
Pedestrian-related	2	1	1	0	2	One fatality (pedestrian) in Nov 2017

Other Evaluation Metrics & Criteria

Standards and Guidelines

The following reference manuals were used to develop the basis of design for this Action Plan:

- ◆ The Maryland Manual on Uniform Traffic Control Devices (MD-MUTCD)
- ◆ National Association of City Transportation Officials (NACTO) Urban Street Design Guide
- ◆ FHWA’s Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations
- ◆ FHWA’s Separated Bike Lane Planning and Design Guide (2015)
- ◆ AASHTO Guide for the Development of Bicycle Facilities
- ◆ Highway Capacity Manual (HCM) by the Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine
- ◆ Harford County Design Guidelines

Vehicle Speeds

The posted speed limit for each roadway at the selected intersections was identified and summarized in the Conclusion. Knowing the posted speed on the road is crucial for the following reasons:

- Safety* - Speed limits are set to ensure safe driving conditions. When drivers adhere to these limits, crashes are less likely to occur. Excessive speed can lead to loss of control, reduced reaction time, and more severe collisions.
- Traffic Flow* - Speed affects traffic flow. Consistent speeds help maintain a smooth flow, reduce congestion, and prevent sudden stops or slowdowns.
- Design of Infrastructure* - Road geometry and signage are influenced by speed limits. Properly designed roads will encourage safe speeds.
- Legal Compliance* - Speed limits are legally enforced. Violating them can result in fines, penalties, or even license suspension.

85th Percentile Speed - At intersections where speeding was previously identified as an item of concern and brought to the attention of the project, speed counts were taken to determine the roadway’s 85th percentile. The 85th percentile speed is the speed at or below which 85% of drivers travel on a road segment. It represents the speed that most drivers perceive as safe under open road conditions and favorable circumstances.

Annual Average Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) is a measure used primarily in transportation planning and engineering. It is the total volume of vehicle traffic of a segment of roadway for a year divided by the number of days (365). AADT is a measurement to describe how busy the roadway is daily. It is not relevant to Level of Service (LOS). All AADT data was collected using the MDOT SHA Annual Average Daily Traffic Online Web Tool².

² [Maryland annual average daily traffic \(SHA statewide AADT shapefiles\). Maryland’s GIS Data Catalog.](#)

Level of Service (LOS)

As defined in the Highway Capacity Manual, level of service (LOS) is “a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience”. In general, the following six levels are used to describe the traffic conditions:

A	Free flow, with low volumes and desirable speeds. For a signalized intersection, there is no congestion, and all queues clear in a single cycle.	D	Approaching unstable flow; drivers have little freedom to select their own speeds. For a signalized intersection, there is significant congestion on critical approaches, but the intersection is functional. Cars are required to wait through more than one cycle during short peaks. No long-standing queues formed.
B	Reasonably free flow, but speeds are beginning to be restricted by traffic conditions. For a signalized intersection, there is very light congestion, and an occasional approach phase is fully utilized.	E	Unstable flow: there may be short stoppages. For a signalized intersection, there is severe congestion with some long-standing queues on critical approaches. Queues may block nearby intersection(s) upstream of critical approach(es).
C	Stable flow, but most drivers are restricted in the freedom to select their own speeds. For a signalized intersection, there are light congestion and occasional backups on critical approaches.	F	Forced or breakdown flow; unacceptable congestion; stop-and-go. For a signalized intersection, there is total breakdown with stop-and-go on critical approaches.

Critical Lane Volumes analysis (CLV) and Highway Capacity Software (HCS) methods were used to calculate the LOS. CLV is a method commonly used by transportation planners and traffic engineers to calculate the volume/capacity ratio at an intersection and its level of service. The HCS is a software tool used for macroscopic traffic analysis based on the HCM methodologies.

SIGNALIZED VS. UNSIGNALIZED INTERSECTIONS- Although their calculation methods for LOS and quantitative values are different, both signalized and unsignalized intersections use the same LOS scale (A-F), which is universal for all roadways/intersections.

DETERMINING THE “ACCEPTABILITY” OF THE LOS – A level of service of D or better are acceptable for corridors and local streets. This means the congestion level is acceptable. In terms of safety improvements, this means there is room to reduce the capacity slightly to allow room for safety improvements. Complete level of service calculations for each intersection can be found in Appendix B.
Disclaimer on LOS: The FHWA does not mandate specific minimum LOS values.

MUTCD Signal Warrants
As required by the MD-MUTCD, “The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions”. The MD-MUTCD has nine “Signal Warrants” that list applicable factors including traffic volumes, pedestrian volumes, school crossing, coordinated traffic signal system, crash experiences, roadway network, and an intersection near a grade crossing. Meeting one or multiple warrants would support (although not require) the installation of a traffic signal.

Traffic Volumes
Traffic volumes have a pivotal role in traffic and safety improvement studies. From a traffic congestion perspective, collecting and analyzing traffic volumes helps design measures that reduce delays, improve travel times, and enhance overall transportation efficiency. Reviewing traffic volumes properly helps to manage traffic movements, minimize conflicts, and provide clear guidance for maneuvering and improving overall safety. By analyzing traffic volumes and the capacity of an intersection, deficiencies and areas of concern can be identified and countermeasures can be properly developed to address congestion and improve safety for all road users. Traffic volume data were collected from the following sources:

- ◆ MDOT INTERNET TRAFFIC MONITORING SYSTEM (I-TMS) - a web-based portal tool providing statewide traffic data was used to download available turning movements.

- These are generally 13-hour, from 6 AM to 7 PM turning movements counts at intersections on weekdays.
- ◆ TRAFFIC IMPACT STUDIES - for abutting properties or proposed site developments were provided by the municipalities. They generally provide AM and PM peak hour turning movement count data and LOS analysis results for pre-development conditions and anticipated post-development conditions considering the traffic volumes that would be generated by the development.
 - ◆ FIELD SPOT COUNTS - For locations where traffic data was not available, field spot counts were conducted during the peak hours.

The traffic volumes were used in CLV analyses and HCS analyses to calculate the level of service of the study locations during the peak hours.

Field Observations, Driver Behavior, and Vicinity Investigations

During the data collection and analysis phase, site visits and field observations were necessary to understand the intersections and roadways’ deficiencies and actual and perceived challenges. At each intersection, the project team documented the adjacent land uses, posted speed limits, adequacy of lighting available, and conditions of crosswalks, the type of intersection controls, lack of safe access routes, missing sidewalks and ADA-compliant ramps, and lack of bike lane networks. An existing conditions map illustrating challenges and deficiencies at each intersection has been developed with recommendations for short-, intermediate-, and long-term traffic safety improvements/countermeasures. Recommended countermeasures are shown on the intersection maps and in a matrix format to create an action plan prioritizing location, setting timelines, and providing planning level cost estimates.

Public Outreach

In addition to the field visits and site inventories, the project team conducted three public workshops and online surveys for each municipality and recorded concerns expressed by all participating stakeholders. An overview of these public outreach efforts is provided in Section 3, with further details presented in each municipality section.



SECTION 3 - PUBLIC OUTREACH



Section 3 - Public Outreach

In addition to technical analyses, a robust public outreach effort was initiated to hear from community representatives and residents of each municipality about improving safety, accessibility, and connectivity in their communities.

Safe Streets and Roads for all Action Plan Public Outreach Meetings

Three public workshops were held, one for each municipality, to gain insight into the safety concerns at each intersection. Public notices (Figure 3-1) were sent to the municipal representatives two weeks in advance to inform the stakeholders about the upcoming workshops.



Figure 3-1: Bel Air Public Workshop Flyer

These public notices contained a QR code to an online survey on safe streets and roadway improvements that were created for that specific municipality. Details on the contents of this survey are discussed later in this section.

Run of Show

The public workshops were interactive and allowed each participant to view an intersection location map on a table with one table for each intersection, or sometimes two intersections.

Each intersection map was accompanied by a series of stickers that represented countermeasures or solutions that could be implemented to enhance operations safety. These countermeasures were first presented to the participants in a booklet (see Figure 3-2) to inform them of the purpose the countermeasure may play in improving roadway safety. The countermeasures presented in the infographic are the same that are displayed at the beginning of Section 6.



Figure 3-2: Excerpt from Presented Countermeasure Booklet

Attendees were then asked to add a sticker if they preferred a certain countermeasure over another at various locations at and around the selected intersection.

If there were additional comments, those were made on sticky notes and placed on the map at the identified location. See Figure 3-3 for an example.



Town of Bel Air Public Workshop held on February 12, 2024



City of Aberdeen Public Workshop held on February 13, 2024



Havre de Grace Public Workshop held on February 15th, 2024.

Presented Material

In addition to the countermeasure booklet, a series of graphic display boards were also provided to explain the following key concepts:

- 1. The Safe System Approach
- 2. Vision Zero and the Safe Streets and Roads for All Action Plan
- 3. Complete Streets
- 4. Additional Guidance for Pedestrian and Bikeway Infrastructure

These display boards are available on the public workshop web application that is described in further detail below.



Figure 3-3: Example of Public Workshop Intersection Comments

Public Workshop Web Application

These infographics and the information obtained during the public workshop are available via an online Storymap. All the public comments that were made via stickers or sticky notes are recorded in this application. If individuals were unable to attend the public workshop, they had the opportunity to use this web app until the survey period closed on March 8th, 2024.

Links to:

- [ArcGIS Storymap](#)
- [Aberdeen Project Page](#)
- [Bel Air Project Page](#)
- [Havre de Grace Project Page](#)

Input and Outcome

Table 3-1 provides the total attendance by the municipality. Sections 6A, 6B, and 6C break out the responses provided during the public workshops by the municipality.

Table 3-1: Workshop Information

	Aberdeen	Bel Air	Havre de Grace
	February 13, 2024	February 12, 2024	February 15, 2024
	City Council Chambers	Bel Air Armory	Havre de Grace Community Center
	18 Attendees	33 Attendees	13 Attendees

SS4A Public Survey

A survey for public input was available that could be accessed via the QR code in the handout shown in Figure 3-1 and through a link on the SS4A Storymap online. The comment period on this

survey was open before the public workshops and for two weeks after they were held. Bel Air received 126 responses, Aberdeen 97, and Havre de Grace 33.

The following questions were asked via the survey:

1. Name
2. Address
3. Email Address
4. How often do you use each mode of transportation in a typical week?

Modes presented: Personal Vehicle, Public Transit, Walking, Biking, Rideshare
5. What are your concerns about traveling throughout the City of Havre de Grace (specific to each municipality)?
6. What would encourage you to walk more than you currently do?
7. What would encourage you to bike more than you currently do?
8. Is the pedestrian crossing time adequate to allow you to cross the streets safely?
9. Are there any other concerns you have regarding safe travel in Havre de Grace (specific to each municipality)? Explain.
10. Are there any other improvements or specific safety concerns you would like to see in the City of Havre de Grace (specific to each municipality) along certain corridors?
11. What characteristics about your community do you find unique that can be reflected in the proposed improvements?
12. Are there any transportation facilities in Havre de Grace (specific to each municipality) that you wish there were more of or that you really enjoy?

Three dashboards were created, one for each municipality, to summarize the survey results. The dashboards were made available to the public. Any personal information that was given in these surveys is not visible on these dashboards.

- [Safe Streets and Roads for All - City of Aberdeen \(Survey Results\)](#)
- [Safe Streets and Roads for All - Town of Bel Air \(Survey Results\)](#)
- [Safe Streets and Roads for All – City of Havre de Grace \(Survey Results\)](#)

These survey results are also presented in each of the municipality subsections 6A, 6B and 6C. The complete list of the responses to questions 9 through 12, that allowed for write-in responses, is presented in the Appendix.



SECTION 4 - EQUITY CONSIDERATIONS



Section 4 - Equity Considerations

“Our Department (USDOT) is mindful of the importance of fair access to transportation, a powerful force for opportunity as Americans of all backgrounds in all kinds of communities seek safe and affordable means to get to work, school, and everywhere else we need to be. Ensuring equity and accessibility for every member of the traveling public is one of the Department of Transportation’s highest priorities.” – Secretary Pete Buttigieg

One of the intentions of this Action Plan is to ensure connectivity for the most vulnerable users. The Federal Highway Administration (FHWA) defines a vulnerable user as a non-motorist with a fatality analysis reporting system (FARS) person attribute code for pedestrian, bicyclist, other cyclists, and person on personal conveyance or an injured person that is, or is equivalent to, a pedestrian or pedal cyclist as defined in the ANSI D16¹. Since community members who identify as vulnerable users due to their socioeconomic status do not have a way of traveling through the transportation network via a motorized vehicle, this plan focuses primarily on the impact the proposed improvements will have on these individuals. It is also necessary to evaluate general population dynamics to further understand the communities affected by the proposed work. Lack of affordable, safe, multimodal transportation options to employment and retail centers, schools, recreational and medical facilities, and places of worship can lead to social isolation, limited access to essential services, and reduced economic opportunities, exacerbating existing inequalities.

The data presented in the following section has been acquired using statistics from the United States Census Bureau and the US Census American Unity Community Survey.

Factors in Equity Considerations

This Action Plan places a strong emphasis on equity and will address any disproportionate burden of traffic fatalities and serious injuries on low-income households, older adults and youth, people with disabilities, and households with limited vehicle access. Those who cannot afford a car or are physically unable to drive due to age or disability rely on walking, biking, and public transportation to travel to their destinations.

One of the primary goals of this Action Plan is “to ensure equitable investment in the safety needs of underserved communities.”

¹ [Approved American National Standard – Manual on Classification of Motor Vehicle Traffic Crashes](#)

Area of Persistent Poverty

- The county consistently had greater than or equal to 20 percent of the population living in poverty in all three of the following datasets: (a) the 1990 decennial census; (b) the 2000 decennial census; and (c) the most recent (2021) Small Area Income Poverty Estimates; OR
- The Census Tract in which the project is located has a poverty rate of at least 20 percent as measured by the 2014-2018 5-year data series available from the American Community Survey of the Bureau of the Census; OR
- The project is in any territory or possession of the United States.

Historically Disadvantaged Community

1. any Census Tract identified as disadvantaged in the Climate & Economic Justice Screening Tool (CEJST), created by the Council on Environmental Quality (CEQ), which identifies such communities that have been marginalized by underinvestment and overburdened by pollution; or
2. any Federally Recognized Tribe or Tribal entity, whether they have land.

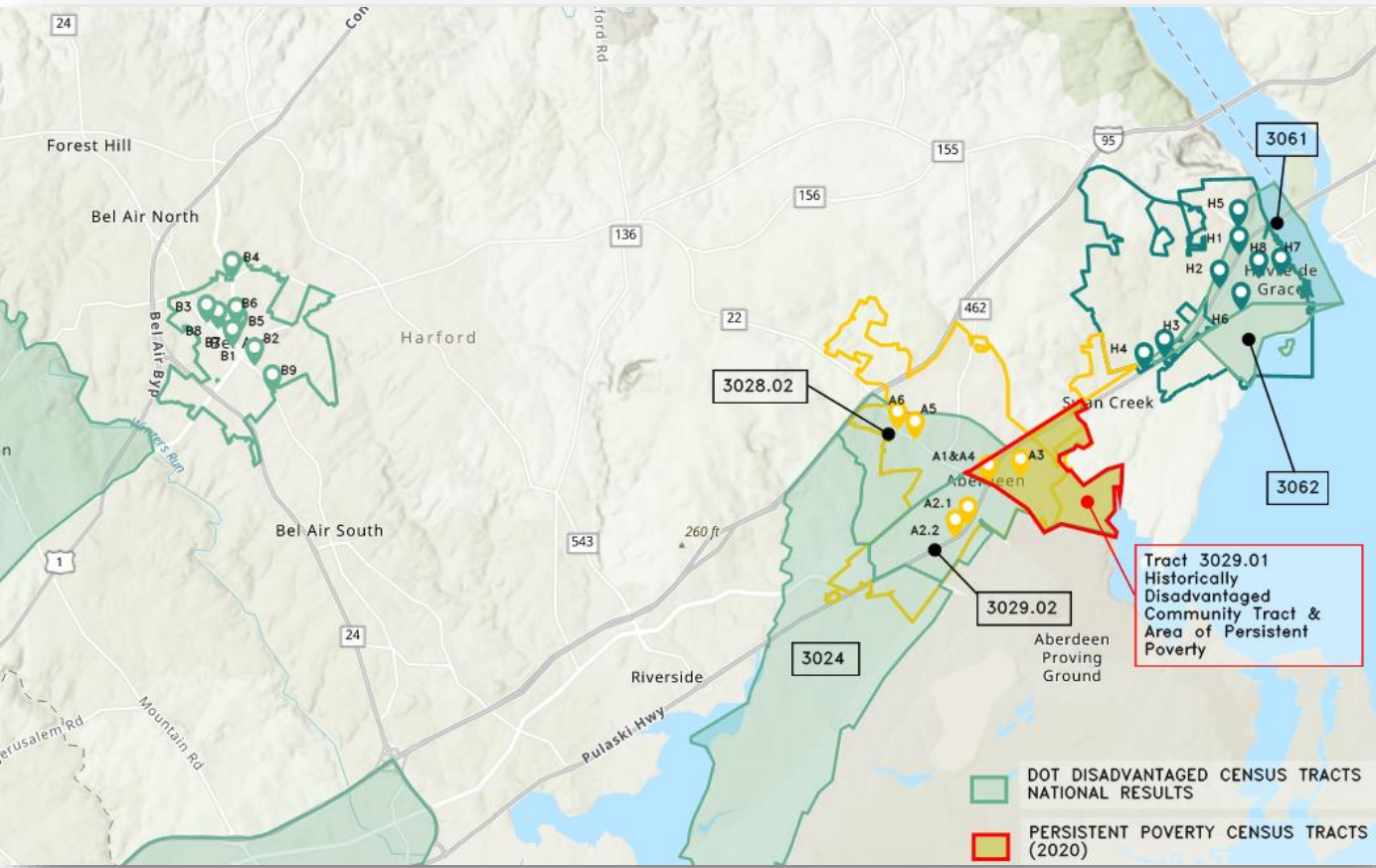


Figure 4-1: Disadvantaged Communities and Areas of Persistent Poverty

An investigation was conducted to address this goal and assessed which areas of each municipality would be the most greatly impacted by safety and design enhancements for pedestrians, cyclists, and transit users. Figure 4-1 summarizes the areas of persistent poverty and designated disadvantaged community census tracts, two factors that the FHWA uses to ensure equitable design considerations.

Historically Disadvantaged Communities (HDCs) and Areas of Persistent Poverty (AoPP) are disproportionately impacted by severe and fatal crashes. This is due to a historic lack of infrastructure investment in these communities, coupled with high rates of walking, bicycling, and transit use. This action plan identifies the extent to which HDCs suffer disproportionate impacts of severe and fatal crashes in the Town of Bel Air, The City of Aberdeen, and the City of Havre de Grace and recommends prioritizing improvements within those areas. See the tables presented in Section 7 for more details.

Initial crash data collected for this action plan indicates that there are more frequent crashes and more serious crashes in low-income communities (see Figure 4-2).

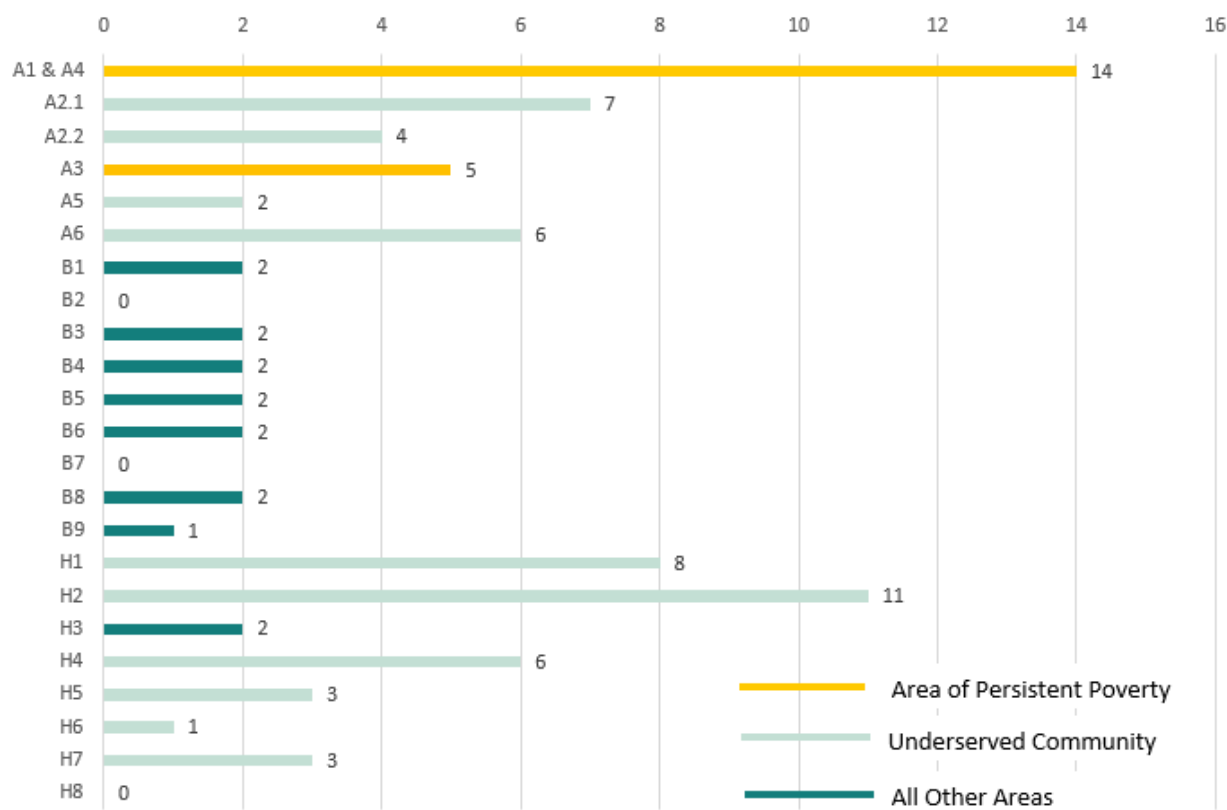


Figure 4-2: Total Crashes by Census Designation

It's crucial to understand that bicycle facilities are vital not just as a convenience for cyclists but also as a necessity for those with transportation challenges. This includes demographic groups often affected by such challenges, such as low-income households, households without vehicles, individuals who rely on transit, walking, or biking for commuting, as well as children and seniors.

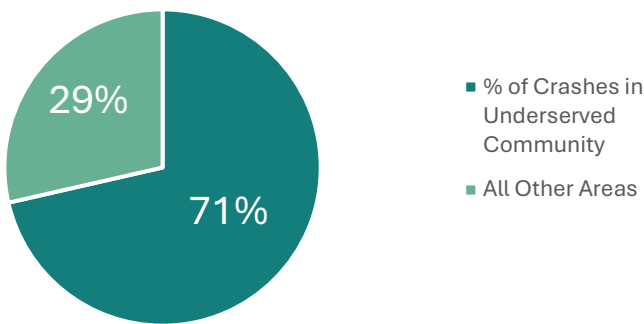


Figure 4-3: Crashes in Underserved Community

The city of Aberdeen is the only municipality that has a census tract within an area of persistent poverty. The intersections within this tract, A1& A4 and A3, account for a total of 39 crashes out of the 86 recorded in Aberdeen. Further research was conducted on these tracts and can be found in Section 6A.

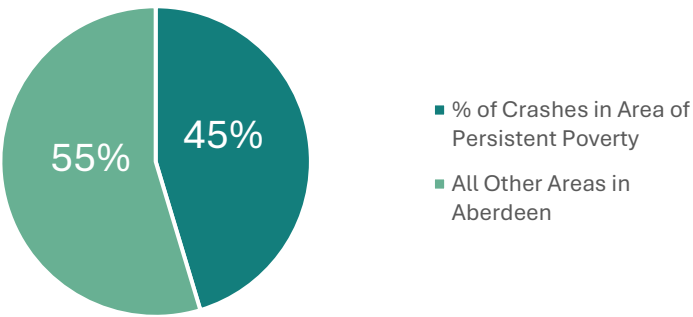


Figure 4-4: Persistent Poverty Statistics

Equitable Consideration and Municipal Demographics

It is not just income and poverty considerations that are necessary for ensuring an equitable design outcome but all other underserved populations including vulnerable road users, public transport transit users, senior citizens, people with disabilities, students, those without vehicles, and minority populations.

Demographic information provided by the American Community Survey is available in Sections 6A, 6B, and 6C on each specific municipality to ensure a holistic approach to equitable inclusion for the proposed improvements.



SECTION 5 - POLICY REVIEW & PROCESSES



Section 5 - Policy Review and Processes

Each municipality has previously developed plans and studies emphasizing multimodal transportation objectives. State and County plans have established Strategic Highway Safety Plans, which align with the vision of achieving zero fatalities in the state of Maryland and Harford County. This Action Plan supports the goals and plans of each municipality, the county and the state, ensuring that individuals of all ages and abilities can travel safely and conveniently using any mode of transportation to access employment, parks, schools, and retail destinations.

Existing Plans & Studies

HarfordNEXT (County Master Plan)¹



HarfordNEXT aims to strengthen communities and their connections by balancing land use, economic development, mobility, and environmental sustainability. It

emphasizes integrating transportation and land use planning, improving bicycle and pedestrian facilities, enhancing transit services, and managing congestion. The plan also focuses on enhancing community vitality, economic prosperity, and environmental stewardship. Specific initiatives include expanding the trail network, promoting transportation demand management (TDM), and improving road safety. Additionally, it aims to promote healthy communities by ensuring access to

¹ [HarfordNEXT](#)
² [Harford County Bike and Ped Plan](#)

services, developing recreational facilities, and encouraging active lifestyles.

Harford County Bike and Ped Plan²

The Bike and Ped plan for Harford County has many existing policies that can be implemented within the municipalities to accomplish the county’s bike and ped goal to:
“Create an environment where people will choose to make riding a bicycle or walking part of their everyday life.”
The following policies are highlighted in this plan and should be implemented at the municipal level as well.

- ◆ Improve bicycle and pedestrian mobility throughout the County by providing a system that is suitable for all users and offers access to major destination areas.
- ◆ Ensure that features and amenities that support bicycle and pedestrian activity are provided in a manner that sustains door-to-door travel.
- ◆ Assist bicyclists and pedestrians by offering signage and maps that clearly identify directions, destinations, and services while also promoting awareness of bicycle and pedestrian activity.
- ◆ Promote education and awareness about the value of bicycle and pedestrian travel and encourage safe bicycle, pedestrian, and motor vehicle interaction.

Harford County Highway Safety Plan (2021-2025)³

In 2013, the Harford County Council passed Bill 13-33 to establish the Traffic Safety Advisory Board (TSAB) and tasked that entity with developing and implementing a local Strategic Highway Safety Plan (SHSP). A plan, like the State SHSP, was developed to cover the years 2016-2020. A recent update to the Harford County SHSP is a five-year plan covering 2021-2025, covering the same timeframe as that of the State SHSP. The Board meets every other month to review the Harford County Highway Safety Plan and

³ [Harford County Highway Safety Plan \(2021-2025\)](#)

oversee the progress for advancing their vision zero goals by prioritizing programs and supporting strategies to decrease crash fatalities by 50% and a goal of zero deaths by 2030. The Harford County SHSP 2021-2025 states their goals and targets as follows:

- ◆ Reduce fatalities from a five-year average of 19 in 2015-2019 to 18 or fewer in 2021-2025.
- ◆ Reduce injuries from a five-year average of 1,429 in 2015-2019 to 1,087 or fewer in 2021-2025.
- ◆ Reduce severe injuries from a five-year average of 107 in 2015-2019 to 51 or fewer in 2021-2025.

2050 Maryland Statewide Bicycle and Pedestrian Master Plan⁴



The 2050 Maryland Statewide Bicycle and Pedestrian Master Plan provides trends in pedestrian and bicycle safety improvements and identifies strategies for improving active transportation access across the state, incorporating input from the public and setting specific goals. The development of this action plan followed the same procedures highlighted in this statewide master plan and aims to be in harmony with the goals established in Section 5 of the Maryland Statewide Bicycle and Pedestrian Master Plan.

⁴ [2050 Maryland Statewide Bicycle and Pedestrian Mater Plan](#)

Maryland Strategic Highway Safety Plan (SHSP) 2021-2025⁵

This Action Plan aligns with the goals and objectives of the Maryland Strategic Highway Safety Plan (SHSP) 2021-2025. Maryland has adopted a comprehensive approach to address highway safety in the State. According to the Maryland 2021-2025 SHSP, “The Zero Deaths Maryland strategy incorporates principles from Vision Zero and other proven safety programs to provide a broad systems perspective that considers the interaction of the road user with the road design as a necessary component to achieve zero deaths on our roads.” The goal is zero deaths in Maryland by 2030. The Maryland Pedestrian Safety Action Plan (2023) complements and expands the Maryland 2021-20225 SHSP.

Zero Deaths Maryland⁶

The Zero Deaths Maryland⁷ plan was used to estimate interim targets and used the following criteria:

- ◆ Number of Fatalities
- ◆ Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
- ◆ Number of Severe Injuries
- ◆ Rate of Severe Injuries per 100 million VMT
- ◆ Number of Non-motorized Fatalities and Nonmotorized Severe Injuries

Additional Policies Relating to Safe Travel

Reviews of policies that are currently implemented on the municipal level are available in Sections 6A, 6B, and 6C.

Policy Recommendations

Policies and resources at all levels of government must be aligned with Vision Zero goals. Safety is the number one priority for roadways, thus, after a comprehensive review of the existing plans, policies, and regulations, action items for policy implementation have been identified for each municipality and itemized in Table 5-1.

⁵ [Maryland Strategic Highway Safety Plan](#)

⁶ [Zero Deaths Maryland](#)

⁷ See Appendix E for further information in this plan

Table 5-1: Policy Recommendations

Action Item	Steps for Implementation
1. Create and Implement Vision Zero Policy and Action Plan	◆ Develop and Adopt a Vision Zero Policy and develop a Vision Zero Plan that is updated every five years. ◆ Aligning Vision Zero with the 2021-2025 Maryland Highway Safety Plan and the Harford County Strategic Highway Safety Plan. ◆ Establish a Vision Zero Strategy Committee to provide input on plan development, project implementation and public outreach. A plan monitoring process shall be developed once adopted. ◆ Establish a Vision Zero website for the safety campaign, utilizing social media and online tools to identify areas of concern, regularly updating crash data, and communicating progress through a report card to the community. ◆ Conduct before and after ped and bike counts at strategically selected locations. ◆ Encourage the School System to adopt a Safe Routes to School program.
2. Create and Implement Complete Streets Policy and Design Guidelines	◆ Develop and Adopt a Complete Streets Policy and Design Guidelines. ◆ Develop a development review checklist that aligns with complete street guidelines.
3. Pedestrian and Bicycle or Multimodal Master Plans	◆ Develop pedestrian and bicycle master plans or a multimodal master plan. ◆ Commit funding each year to new bike lane design and installation (ensure funds distributed within disadvantaged communities or areas where bikeway connectivity to destinations or public transit are needed) include costs for vertical post delineators and concrete bikeway median. ◆ Leverage town funds through the state’s Kim Lamphier bikeways grant- funding is 80 (state)/20 (town) match. ◆ Apply for the State Kim Lamphier Bikeways Grant each year to continue to advance bikeway projects. ◆ Collaborate with the town & cities, county, and state resurfacing efforts to create a list of fiscal year resurfacing projects and provide bike lane designs in advance along roads identified in the bicycle master plan. ◆ Adopt green pavement policy for conflict areas, separated bike lanes and protected intersections. ◆ Develop educational materials, printed and videos demonstrating how to navigate with new facility types such as floating bus stops.

These commitments to revising existing policies will help to improve roadway safety and contribute to the overall goals of Vision Zero. Shifting the focus from auto-centric design standards to a people-first approach with complete street guidelines and standards will change the level of comfort, safety, and access opportunities for the residents of each municipality. This holistic approach calls for changes such as reconfiguring lanes and using speed management plans to lower speeds, bolstering police enforcement and traffic safety education to make it safer for drivers, bicyclists, and pedestrians, and creating a multimodal transportation system to provide safe access for everyone regardless of where, when or by what mode they chose to travel, their demographic or economic background or their age and ability.

Specific guidelines to incorporate this frame of policy implementation are presented in Table 5-2.

Table 5-1: Policy Recommendations Cont.

Action Item	Steps for Implementation
3a. Update Existing Plans	◆ Aberdeen: Update Transportation Section of Plan Aberdeen Comprehensive Plan (April 10, 2023) to adhere to these recommended design improvements. ◆ Bel Air: update 2013 Town of Bel Air Bicycle and Pedestrian Plan per requirements stated in 2022 Town of Bel Air Comprehensive Plan. ◆ Havre de Grace: incorporate the presented material of this Action Plan into the ongoing Envision Havre de Grace Comprehensive Plan.
4. Adhere to the Most Recent National Design Standards	◆ Compare current municipal design standards with the latest applicable State and Federal guidelines and update as necessary. ◆ Adopt the 11th edition of the FHWA’s MUTCD – will be required after January 18, 2026. ◆ Incorporate these standards into those already used in the Harford County Road Code (2008). Further details available in Appendix E
5. Enforce Existing Policies	◆ Deploy speed reader feedback trailers to use as messaging device. ◆ Determine if automated speed cameras are an option. ◆ Explore applying school zone speed limits to street segments near schools. ◆ Consider piloting a Twenty is Plenty Program that establishes a municipal-wide speed limit on local roadways to 20 MPH. ◆ Work with MDOT SHA on reducing speed, where needed. ◆ Collaborate with Police Department to update crash data.

Table 5-2: Updates to Existing Policies

Relevant Municipality	Recommended Action	Agency Responsible	Timeframe -years
Improve the Municipality’s Internal Vision Zero Practices			
All	- Hire a Vision Zero Coordinator or assign staff to oversee that all Capital Projects comply with Vision Zero goals.	DPWT	1 to 2
	- Develop a Complete Streets Policy and Guidelines.	Planning & Community Development	3 to 5
	- Update roadway design standards to include Vision Zero elements including high visibility continental crosswalks, intersection daylighting, protected bike lanes, separated bike lanes, green pavement, intersection corner islands (protected intersections), adequate bicycle parking.	Traffic Safety Executive Committee	3 to 5
Bel Air	- Update to the 2013 Bicycle and Pedestrian Plan.	Planning & Community Development	3 to 5
Havre de Grace	- Continue to implement the recommendations from the HDG Bicycle Lane Project Feasibility Study and Design and the momentum of the Quick Build Project.	Planning	1 to 2
Aberdeen	- Develop a Pedestrian and Bicycle Master Plan within the City of Aberdeen as recommended in the April 10, 2023, plan Aberdeen (Ch. 7-Transportation).	Planning & Community Development	3 to 5
Coordinate Engineering Improvements with Education Campaigns			
All	- When new design treatments or signal upgrades (RRFB or HAWK) are installed develop on-site education campaigns or brochures and videos.	Planning, DPWT and Public Information	Ongoing
	- Coordinate countermeasure deployment with press releases, ribbon cuttings and social media announcements to bring awareness of Vision Zero efforts.	Planning, DPWT and Public Information	Ongoing
	- Partner with Parks and Recreation or Elementary Schools to develop Traffic Gardens where children begin to understand road safety in a safe environment such as a school site or park.	Planning, Parks and Recreation and Elementary School	Ongoing
	- Incorporate Vision Zero goals with Safe Routes to School Programs and funding opportunities.	Planning and School Board	Ongoing
Collaborate with Police Enforcement Strategies			
All	- Strategically deploy photo radar van along highspeed corridors where allowed by state law.	Planning and Police	1 to2 (Ongoing)
	- Coordinate with MDOT SHA speed reduction/management efforts on State Roads at high crash locations where speeding is a concern.	Planning and Police	Ongoing
	- Use of new technology safety cameras or videos to observe dangerous behaviors and collect data to support funding for new designs or programs.	Planning and Police	Ongoing
Equity Considerations			
All	- Establish a standing Executive Traffic Safety Committee or decide if the County's Existing Traffic Safety Advisory Board (TSAB) can be expanded to include a broader cross-section of the community.	Municipalities and Harford County Sheriff's Office	Ongoing
	- Ensure that a robust and equitable public engagement process is included in every project. Conduct in multiple languages (Spanish/English) if needed. Incorporate all users’ viewpoints, bicyclists, transit users and people with disabilities.	Planning and Public Information	Ongoing
	- Prioritize Vision Zero Investments in Disadvantaged Areas including low-income and/or low-mobility communities.	Planning and DPWT	Ongoing
Grant Funding			
Harford County and Bel Air	- Pursue TAP funding and Maryland Kim Lamphier Bikeways Network Program grant funding to implement recommendations or phases of the proposed improvements identified in the March 2023 Bel Air to Harford Community College Bikeways Connector.	Planning	Ongoing
Aberdeen & Havre de Grace	- Pursue TAP funding and Maryland Kim Lamphier Bikeways Network Program grant funding for the US 40 Shared Use Path from Aberdeen to Havre de Grace.	Planning	Ongoing
All	- Pursue FHWA SS4A Supplemental Planning and Demonstration grant funding to perform additional signal warrant studies, feasibility studies, and demonstration projects based on the recommendations in this Action Plan. - MDOT Bicycle and Pedestrian Accessibility Funds (Fund 88 (Bicycle retrofit) and Fund 79 (new Sidewalk Construction for Pedestrian Access) on State Roads (75% State funded and 25% local jurisdiction funded)	Planning	Ongoing



SECTION 6 - RECOMMENDATIONS



Section 6 - Recommendations

The recommendations presented in the following sections were selected after thorough consideration of crash statistics, public concern, and physical characteristics. These considerations are provided on the intersection “snapshot.”

Engineering Countermeasures

As mentioned in Section 3, a series of countermeasures were presented to the public to obtain their input on the type of improvements they might like to see installed within their communities. Descriptions and pictures for each of these countermeasures are provided in the Appendix.

Effectiveness of Countermeasures.

The countermeasures presented in the following sections have an associated crash modification factor (CMF). This CMF is provided via a range of variables from the Crash Modification Factor Clearinghouse used by the Federal Highway Administration to evaluate the effectiveness of an improvement. Per the CMF Clearinghouse, a Crash Modification Factor (CMF) is "a multiplicative factor that indicates the proportion of crashes that would be expected after implementing a countermeasure."

To determine the overall effectiveness of the countermeasure the following formula is used:

$$\begin{aligned} & \text{Expected \# of Crashes with Countermeasure} \\ &= CMF \times \text{Expected \# of Crashes without Countermeasure} \end{aligned}$$

For example: If the average number of crashes at an intersection is 10 per year, and a high visibility continental crosswalk is installed, which has a CMF of 0.63, the average crashes can be assumed to be reduced to 6.3 or approximately 6 crashes per year. A table of CMF’s provided for each of the countermeasures proposed can be found in the Appendix.

Any improvement's success should also be measured by getting feedback from stakeholders and principally from the daily users of the transportation infrastructure and facilities.

Cost of Countermeasures

The cost presented has been calculated given a variety of factors, which can be found in the Appendix.

Timeline and Prioritization

The presented countermeasures in section 6A, 6B, and 6C have an associated “term” based on the amount of time a countermeasure will take to implement. They are:

Short-term: 0-3 Years

Intermediate-term: 4-5 Years

Long-term: More than 5 Years

The timeline also depends on the funding availability and stakeholder collaboration, policy enhancements and education when implemented in parallel.

Non-Engineering Countermeasures

The 5 E’s are essential components in promoting safer walking and biking routes. These elements aim to create better conditions for vulnerable road users. “Engineering” has already been discussed and the remaining are described in further detail below:

Education: Teach students and community members about walking and biking safety. This can happen through in-school curriculum, bike/pedestrian safety assemblies, newsletters, and tips sheets. For example, a traffic garden is depicted in the photos to the right.

Encouragement: Get students and parents excited about walking and biking by hosting special events, walking school buses, bike trains, and schoolwide competitions.

Enforcement: Work with local law enforcement to reduce negative behaviors such as speeding, double parking, or disobeying traffic signals.



Traffic Gardens –
Educating
Children About
Traffic Safety



Evaluation: Regularly assess the effectiveness of the implemented strategies. Record walking and biking rates, parent concerns, and traffic data to evaluate program success.

Additional Considerations for Countermeasure Recommendations

Effective engagement requires meeting communities where they are and addressing their specific needs. The following should be considered prior to the installation of any of the recommendations provided in the subsequent sections.

Legislative Action

Legislation at multiple levels — including at municipal, countywide, or statewide scale — can help address human behaviors that result in crashes which cause fatal or serious injuries.

Public Input and Engagement

- ◆ Further ongoing public engagement to reach disadvantaged communities.
- ◆ Public engagement must reach all stakeholders, particularly the disadvantaged communities, thus promoting equity.

Understanding Marginalized Communities

- ◆ Marginalized communities include those historically excluded from civic participation due to factors like race, wealth, immigration status, and sexual orientation.
- ◆ Local leaders must understand the unique needs of their community and tailor assistance programs accordingly.
- ◆ Areas of Persistent Poverty should be considered at the forefront of all design implementation to ensure the communities here are provided the necessary resources,

Inclusive Infrastructure Investment

- ◆ Engaging communities is crucial for infrastructure investments.
- ◆ Partnering with trusted local organizations can facilitate meaningful engagement with marginalized communities.



Figure 6-1: Twenty is Plenty Pilot Program in Montgomery County

Speed limit setting is one example of legislation used to influence behaviors that result in speeding. Some municipalities in the United States have recently adopted 20 mph residential speed limits through “Twenty is Plenty” campaigns.



SECTION 6A - CITY OF ABERDEEN RECOMMENDATIONS



Section 6A - City of Aberdeen

Aberdeen, Maryland, is undergoing significant transformation as it strives to maintain its family-friendly atmosphere and close-knit community spirit. Understanding the city's demographics is crucial in navigating its evolving identity, with collaborative efforts from the City of Aberdeen, MDOT, Harford County Economic Development, and Aberdeen Proving Ground/Resident driving its growth and expansion. Zoning regulations and policies play a pivotal role in shaping Aberdeen's future, especially in terms of fostering safe and efficient travel. The initiatives in HarfordNEXT underscore the necessity of preserving infrastructure integrity, with MD 22, Aberdeen Proving Ground, and the Aberdeen Train Station identified as critical areas for Transportation Demand Management (TDM) improvements. Despite these advancements, challenges remain, particularly concerning the east side of Aberdeen's access to multi-modal transportation options. The appropriation of funding for Amtrak and the Aberdeen TOD Station Square improvements signifies a step towards addressing these barriers, highlighting the city's commitment to enhancing its transportation infrastructure and accessibility.

Existing Policies and Regulations

Aberdeen Comprehensive Plan 2023

The City's existing Comprehensive Plan aims to develop master plans for pedestrians, bikes, and other non-motorized modes of transportation, ensuring safe and convenient pathways that connect to Main Street and the TOD areas. It also seeks to connect residential, commercial, and recreational nodes for pedestrians and non-motorized transportation, with a sidewalk master plan to identify gaps in the existing network.

Big-ticket transportation improvements in Aberdeen include

1. Transforming US 40 into a green boulevard (see Figure 6-1) and
2. Creating an accessible underpass at the MARC/Amtrak station for pedestrians to safely cross the train tracks and connect the east and west side neighborhoods within the city.

Smaller improvements like bus shelters, wayfinding, new sidewalks and ADA ramps and general beautification efforts are also underway to promote alternative modes of transportation. The Aberdeen Transit Oriented Development Master Plan, adopted in May 2021, focuses on maximizing development potential within a half-mile of the Aberdeen MARC Commuter Rail and Amtrak Station. It emphasizes mixed-use development with commercial spaces at street level, pedestrian-friendly environments, and open spaces.



Figure 6-1: Excerpt from Aberdeen Comprehensive Plan Depicting the Proposed Conditions of the US 40 "Green Boulevard"

Transportation Oriented Development (TOD) Area

Key components of the TOD area plan include upgrading N Philadelphia Blvd. and S Philadelphia Blvd. to "true boulevards," incorporating TOD and pedestrian-friendly stormwater treatment facilities and widening Amtrak to four lanes in the future. Community feedback has highlighted several suggested improvements, such as relocating the station closer to civic center activities, creating an inviting underpass for pedestrians, and constructing a parking structure with mixed uses adjacent to the station. Additionally, plans for the proposed US 40 Shared Use Path aim to improve bike and pedestrian access in Harford County, integrating with potential future paths to enhance connectivity in the region.

Section 6A - City of Aberdeen

Adoption of Harford County Roadway Improvements

Per the Municipal Code of Aberdeen, under Chapter 470, Article 1, the city adopted the Harford County Rd Code for its standards by reference. Given this information the design considerations proposed adhere to Harford County's standards.

Ongoing Developments

US 40 Shared Use Path

Beginning at the Aberdeen MARC/Amtrak station and continuing for 5 miles along US 40 to Erie Street in Havre de Grace, the proposed US 40 Shared Use Path will provide pedestrians and cyclists with a new way to travel between the two cities.

The combined option depicted in Figure 6-2 is the preferred alternative that will likely be proposed to gain funding for the advancement of its preliminary design. It runs along the west side of US 40 and switches to the east side at Lewis Lane in Havre de Grace.



Figure 6-2: Design Options for US 40 Shared Use Path

The proposed path was chosen as an intersection improvement by the City of Aberdeen for this Action Plan indicated by the "A4" intersection ID. Due to the proximity of this proposed path

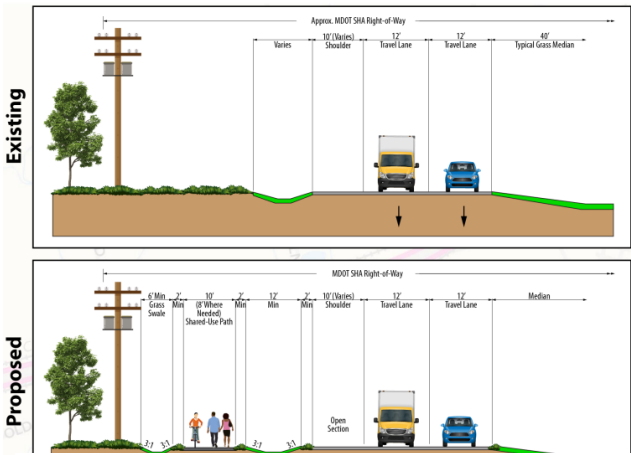


Figure 6-3: Section View of Proposed US 40 Shared Use Path

with the A1 intersection, the two are often indicated as one central location.

The data collected in the A1& A4 snapshot will help identify potential conflicts at intersection locations to inform future US 40 shared-use path design solutions. The investigation into this path will be more relevant to the Action Plan itself as the Project Team hopes to propose improvements that can be integrated easily when this path is installed.

Aberdeen Marc/Amtrak Train Station & Susquehanna River Rail Bridge Project

Since 2012, a multimodal facility in Aberdeen has been included in the County's priority letter since 2007. Harford County requested MDOT funding for the environmental and engineering analysis of underground conditions for the transition of the existing pedestrian overpass to be removed and a pedestrian underpass be constructed with ADA accessibility that will improve the safety, visibility, and accessibility for commuters and residents. The city was approved for a Fiscal Year 2023 Congressionally Directed Spending grant of \$4.0M for the Aberdeen Station Square, Phase I for preliminary engineering and design, geotechnical, and acquisition.

The City of Aberdeen will also soon receive \$800,000 from the U.S. Department of Transportation's Reconnecting Communities and Neighborhoods Grant Program to Complete Phase 1 of this project.

"The Aberdeen Marc/Amtrak Train Station and the Susquehanna River Rail Bridge Project will have positive economic and transportation impacts on the rail corridor. The Infrastructure Investment and Job Act has funded many bridge, tunnel, and rail projects throughout the northeast corridor including \$30-50 million dollars in funding to extend the Aberdeen Train Station platform approximately 1050' to the south with a new multi-level elevator building and significant upgrades to make the station ADA accessible. New plans will be under development in the future." - **ABERDEEN MARC TRAIN STATION TOD – STATION SQUARE IMPROVEMENTS (EXCERPT FROM APRIL 10, 2023 ABERDEEN COMPREHENSIVE MASTER PLAN, TRANSPORTATION, P. 7-33).**



Figure 6-4: Visualization of the Proposed Susquehanna River Rail Bridge Project

The Susquehanna River Rail Bridge (see Figure 6-4) is a critical link along the Northeast Corridor (NEC), which is the busiest rail line in the United States. The existing bridge creates a bottleneck in train capacity and restricts speed along the NEC. The Susquehanna River Rail Bridge Project will improve rail connectivity along the NEC by replacing the two-track bridge with four tracks over the Susquehanna River between the City of Havre de Grace in Harford County, Maryland, and the Town of Perryville in Cecil County, Maryland. Preliminary Engineering (30%) was completed in August 2022 and \$40 million in grant funding was awarded to the Maryland Department of Transportation (MDOT) and Federal Railroad Administration (FRA) for the final design through an additional cooperative agreement between FRA, MDOT/MTA, and Amtrak.

Aberdeen Activity Center and A5 Intersection

The City of Aberdeen acquired a 13.4-acre site for an Activity Center several years ago. \$9 million has been budgeted in FY2022 to design and construct the facility along West Bel Air Avenue at Middleton Road. This will impact on one of the intersections under review at West Bel Air Avenue and Middleton Road. MDOT SHA also has verbally stated there is an ongoing work order to update the existing pedestrian crossing this summer with a continental-style crosswalk marking. Also in this work order, minor improvements are suggested such as installing flex posts for traffic calming from the eastbound approach.

Selected Intersections in Aberdeen

The following intersections listed below were selected for areas of study in Aberdeen, each with an identification number used throughout this section. See Figure 6-5 for a map view.

- A1 & A4** – WEST BEL AIR AVENUE (MD 132) AT US 40 & US 40 SHARED USE PATH
- A2.1** – JAMES AVE & US 40
- A2.2** – CAROL AVE & US 40
- A3** – MD 22 AT OLD POST AND POST ROAD (MD132B)
- A5** – MIDDLETON RD & WEST BELAIR AVENUE (MD 132)
- A6** – MD 132 AT BUSH CHAPEL ROAD AND BEARDS HILL RD (MD 132A)

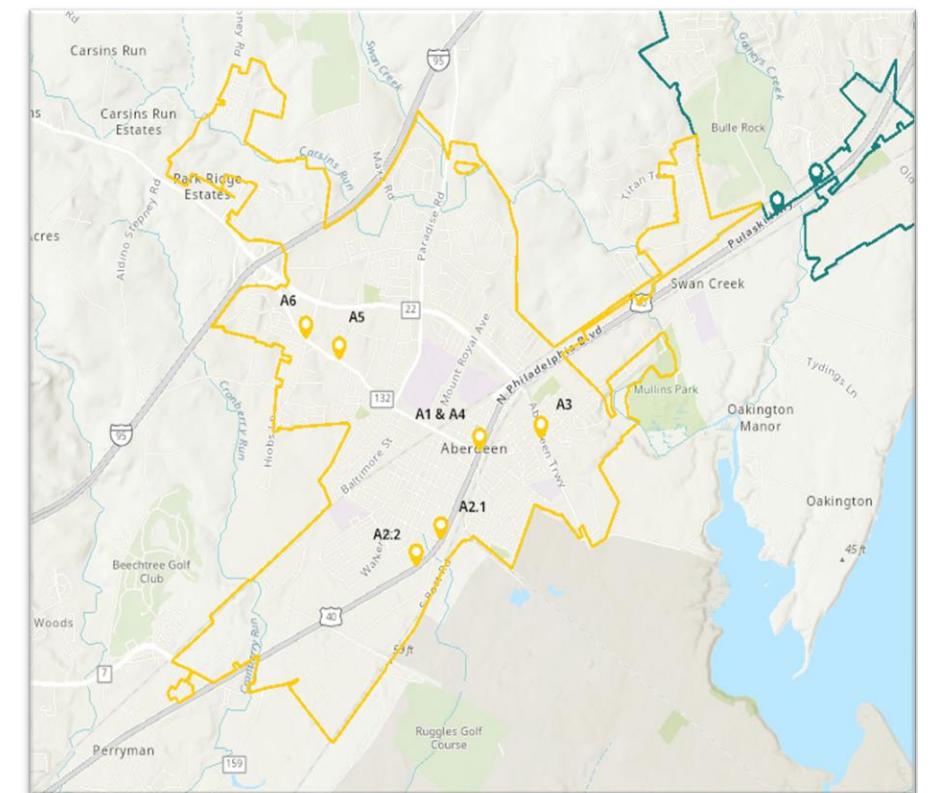


Figure 6-5: Aberdeen Selected Intersections

Historic Crash Analysis

Of the total 217 reported crashes in this study, 86 of them occurred in Aberdeen. The most common collision was a left turning movement crash which accounted for 38% of all crashes. Although no fatalities were recorded, 48% of the crashes involved a serious injury either to the driver of the vehicle or to a nearby pedestrian. 3 of the 86 crashes involved a pedestrian, with two of them occurring at the A1&A4 intersection. With most crashes occurring during dry conditions and on Fridays

Crashes Involving Impairment

Within the six selected intersection areas, about **6%** of crashes were due to the driver being under the influence of alcohol or a controlled substance.

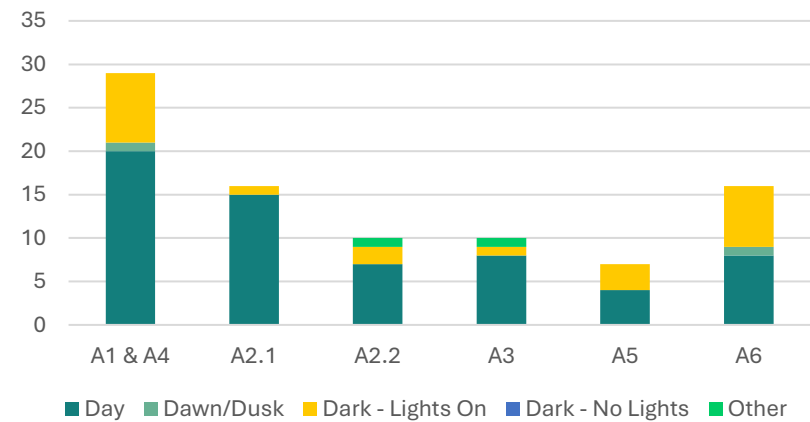


Figure 6-7: Crashes by Lighting Available

Top 3 Probable Causes of Crashes in Aberdeen

- ♦ Fail to Yield to Right-of-Way – **36%**
- ♦ Failure to Give Full Attention – **10%**
- ♦ Failure to Obey Traffic Signals – **5%**

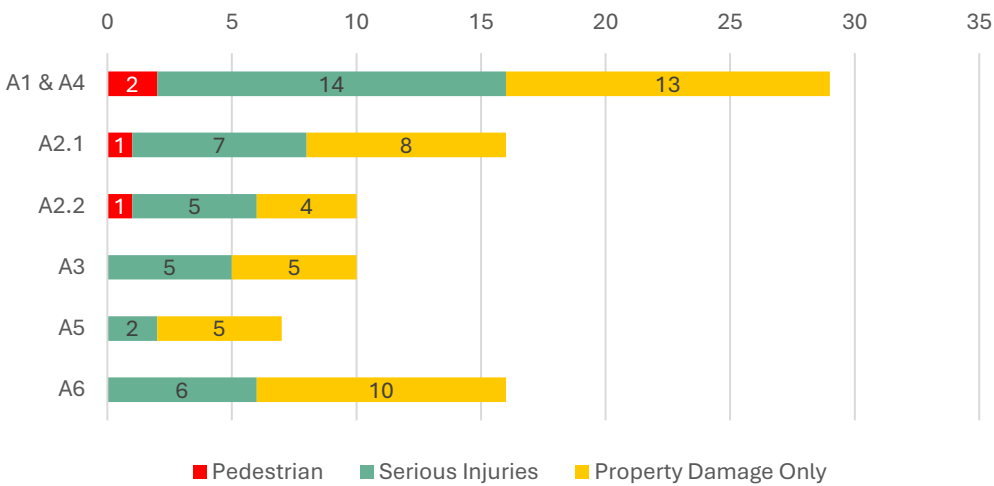


Figure 6-6: Aberdeen Crashes by Involvement

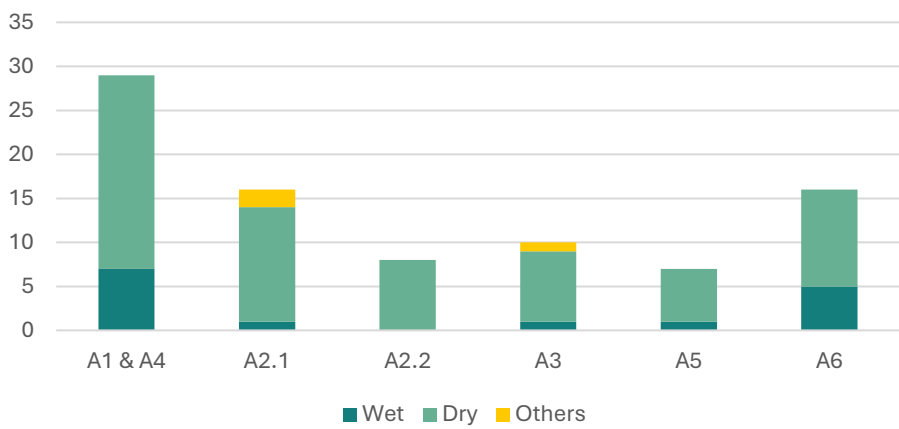


Figure 6-8: Crash by Surface Conditions

Table 6-3: Crashes by # of Vehicles Involved

# of Vehicles Involved	Intersection ID					
	A1 & A4	A2.1	A2.2	A3	A5	A6
Single	3	1	0	3	0	5
Two	26	15	8	7	7	10
3 +	0	0	0	0	0	1

Table 6-1: Crash Summary by Collision Type

Crash Type	Intersection ID						Total
	A1 & A4	A2.1	A2.2	A3	A5	A6	
Wrong-way Driving	0	0	0	1	0	0	1
Rear End	7	0	1	1	3	0	12
Sideswipe	0	0	0	1	0	0	1
Left Turn	14	7	0	1	1	10	33
Angle	4	6	5	2	3	1	21
Pedestrian	2	1	0	0	0	0	3
Parked Vehicle	0	0	0	0	0	0	0
Fixed Object	1	0	0	2	0	5	8
Other	1	2	2	2	0	0	7

Table 6-2: Crashes by Day of the Week

Day of the Week	Intersection ID						Total
	A1 & A4	A2.1	A2.2	A3	A5	A6	
SUN	0	0	0	0	1	3	4
MON	3	4	0	3	0	2	12
TUE	4	3	0	1	1	0	9
WED	4	4	1	3	0	4	16
THU	6	1	2	0	0	5	14
FRI	7	2	4	2	2	0	17
SAT	5	2	1	1	3	2	14

Table 6-4: Alcohol or Drug Involvement

Alcohol or Controlled Substance Involvement	Intersection ID						Total
	A1 & A4	A2.1	A2.2	A3	A5	A6	
Yes	2	0	2	0	0	1	5
No	27	16	6	10	7	15	81

Demographics

Aberdeen is located along the I-95 Corridor 26 miles northeast of Baltimore, in Harford County, Maryland. Home to well-known landmarks such as Aberdeen Proving Ground, the headquarters of the US Army Test and Evaluation Command, the Ripken Experience™, and Leidos Field at Ripken Stadium. The city possesses a variety of destinations and attractions for residents and visitors. The Aberdeen Train Station also puts the city on the map as a transportation hub, creating connections for nearly 119 million people within a 10-hour train ride to major metropolitan areas like Boston, Philadelphia, New York, and Washington D.C. along the northeast corridor. I-95 and US 40 provide two parallel routes through the city, while MD 22 (Churchville Road), connects directly to Aberdeen Proving Ground and the greater Churchville - Bel Air area. Other State highways serving Aberdeen include MD 7, MD 132, MD 159, MD 462, and MD 715. The Maryland Area Rail Commuter (MARC), Amtrak, and the Norfolk Southern/CSX railways provide other transportation choices within the city and region.

Table 6-5 summarizes the most recent US Census¹ data available for the City of Aberdeen and is presented to understand the road users that will be most affected by proposed design improvements for each intersection.

“The outdated pedestrian infrastructure at Aberdeen’s Train Station not only limits accessibility to public transportation services, it also hinders travel across the City. Through the Infrastructure Investment and Jobs Act, we secured funding to update the infrastructure of the past – like this – and lay the foundation for a future of connectivity and more economic prosperity,”

- SENATOR VAN HOLLEN.

Equity Considerations

As shown in Table 6-5 Aberdeen’s largest impoverished population is below the age of 18, which can be interpreted to mean more focus should be given to the youth and around school zones where they’re likely to be for most of the week. A variety of other factors can aid in identifying population areas that require additional considerations, including income, race, mobility concerns, and access to motor vehicles. Several charts and maps on the next sheet review these different demographic categories to get a better representation of the communities surrounding the selected intersections.

As was mentioned in Section 4: Equity Considerations, Figure 6-9 indicates that the A1, A3 & A4 intersections in Census Tract 24025302901 are within areas of persistent poverty and historically underserved communities. Because this is the only tract in this Action Plan within both a Historically Disadvantaged Census Tract and an Area of Persistent Poverty, further information on this area is provided on page 6A-6.

All other tracts within Aberdeen are considered historically disadvantaged or deemed “disadvantaged community tracts”, all intersections being within these bounds.

Table 6-5: Summary of Demographic Data

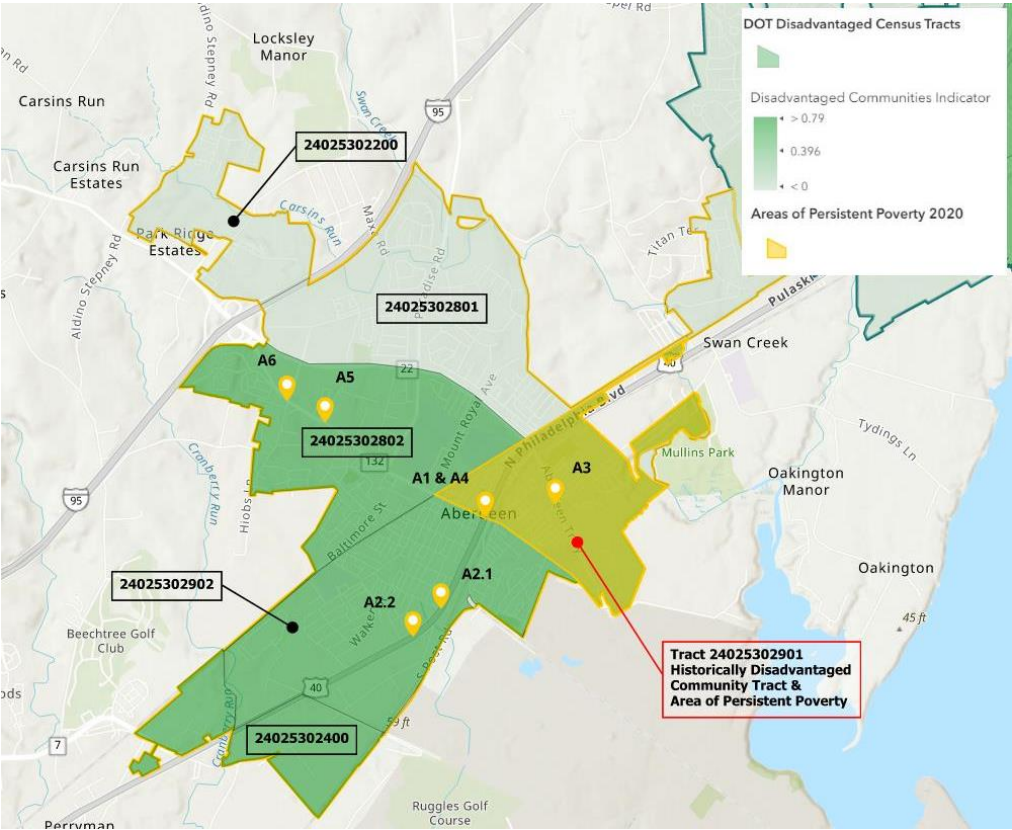
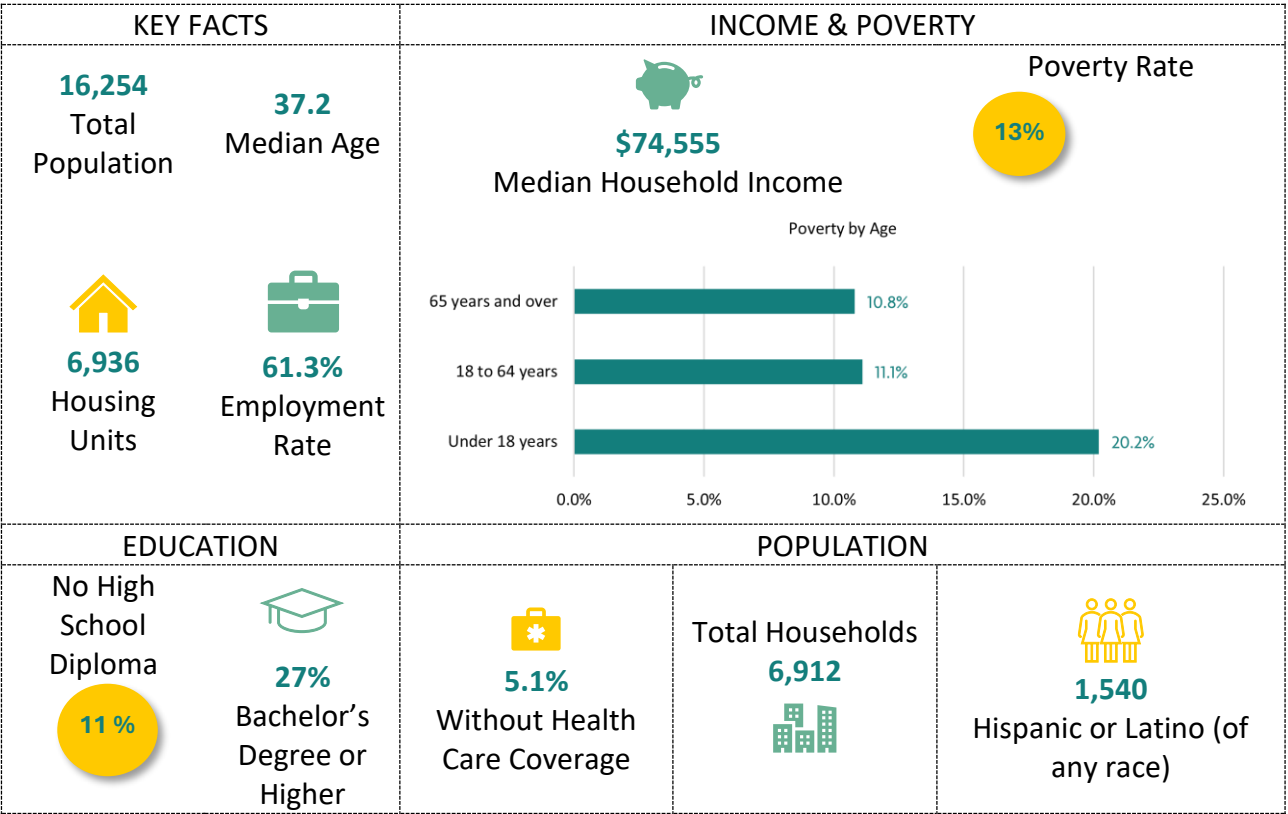


Figure 6-9: Aberdeen Disadvantaged Community Tracts

¹ US Census Data Aberdeen, MD

Table 6-6: % of Households that are Low to Moderate Income

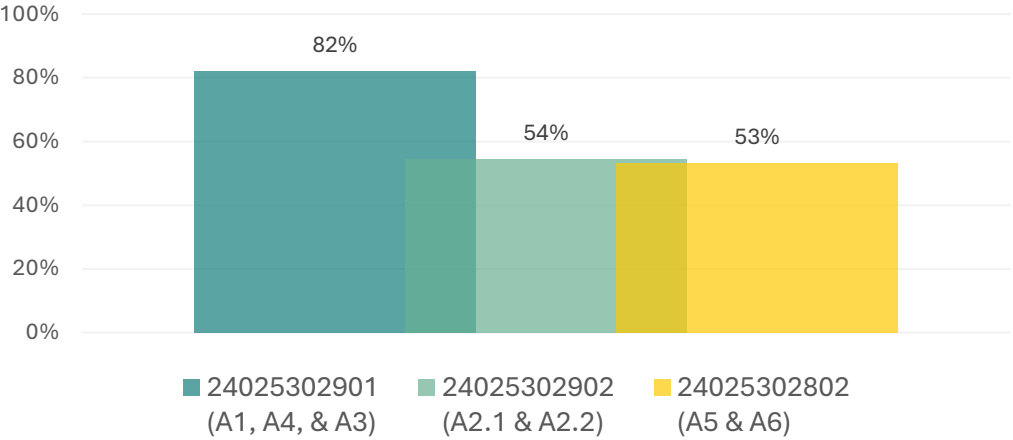


Table 6-6 indicates that all the selected intersections are within census tracts where at least 50% of residents are low to moderate-income.

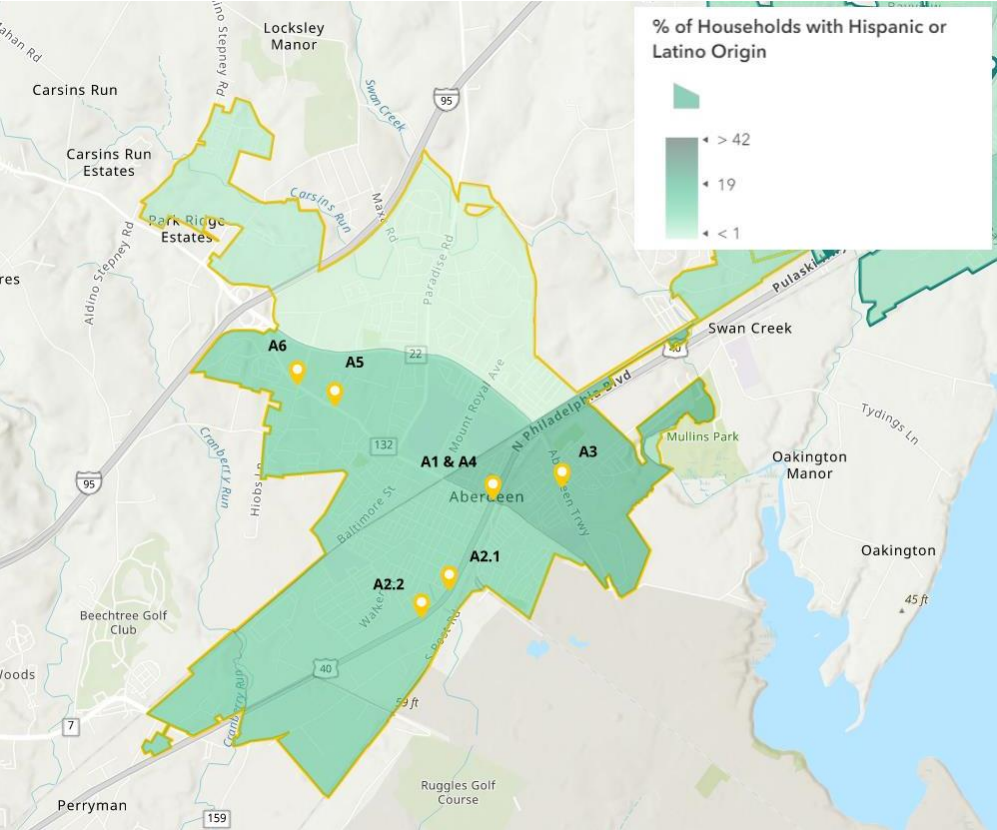


Figure 6-13: % of Households with Hispanic or Latino Origin

“I am so pleased to announce the \$800,000 to continue with this project. The project will bring quality jobs to the area and provide residents and visitors an improved and accessible commuting experience.

– Mayor Patrick L. McGrady

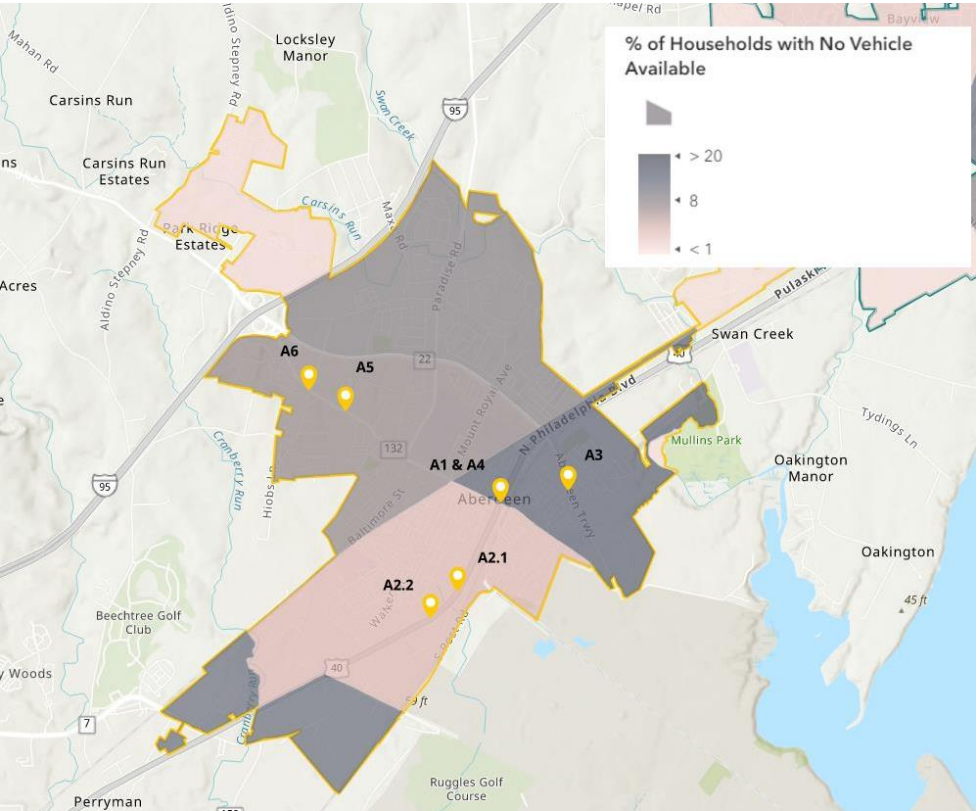


Figure 6-11: % of Households with No Vehicle

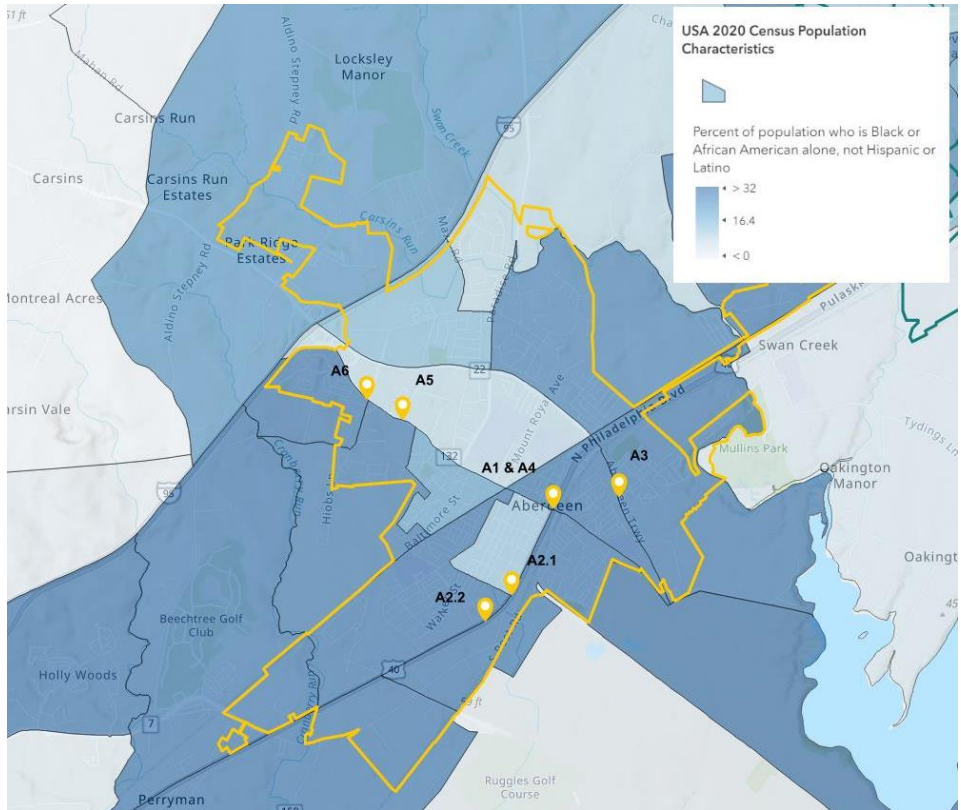


Figure 6-12: % of Population who is Black or African American

Figure 6-12 and Figure 6-13 indicate the highest percentages of Hispanic or Latino and African Americans in the same tract that is designated an Area of Persistent Poverty.

Figure 6-11 indicates the highest percentage of Aberdeen’s population that does not have access to a vehicle at home is also in this area of persistent poverty and have higher percentages north of US 40.

Existing Equity Considerations

The City of Aberdeen’s existing development initiative has previously considered this area of persistent poverty and seeks to maximize development in a designated Transit Oriented (TOD) Development Zone, which connects to the A1 & A4 intersections by the MARC/Amtrak train station.

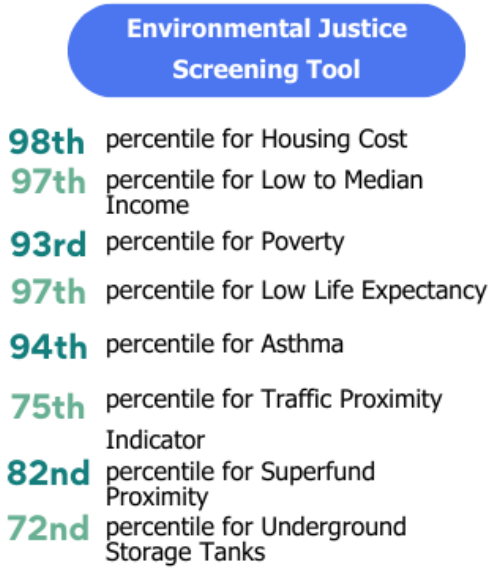


Figure 6-10: Aberdeen Amtrak/MARC Station

The Amtrak/MARC Station serves Maryland Area Regional Commuter (MARC), Amtrak, and regional bus services, but access between the east and west sides of the station is limited. The station is currently accessed via a non-ADA compliant tunnel and pedestrian bridge. In March 2024, the USDOT Reconnecting Communities and Neighborhood Grant program awarded funding to modernize and upgrade the station. Planned improvements include creating a safe and efficient intermodal transportation hub, constructing a new ADA-compliant pedestrian underpass to replace the outdated pedestrian overpass, and enhancing accessibility for all users. These upgrades will eliminate physical and economic barriers, connect East and West Bel Air Avenue, and support redevelopment around the station.

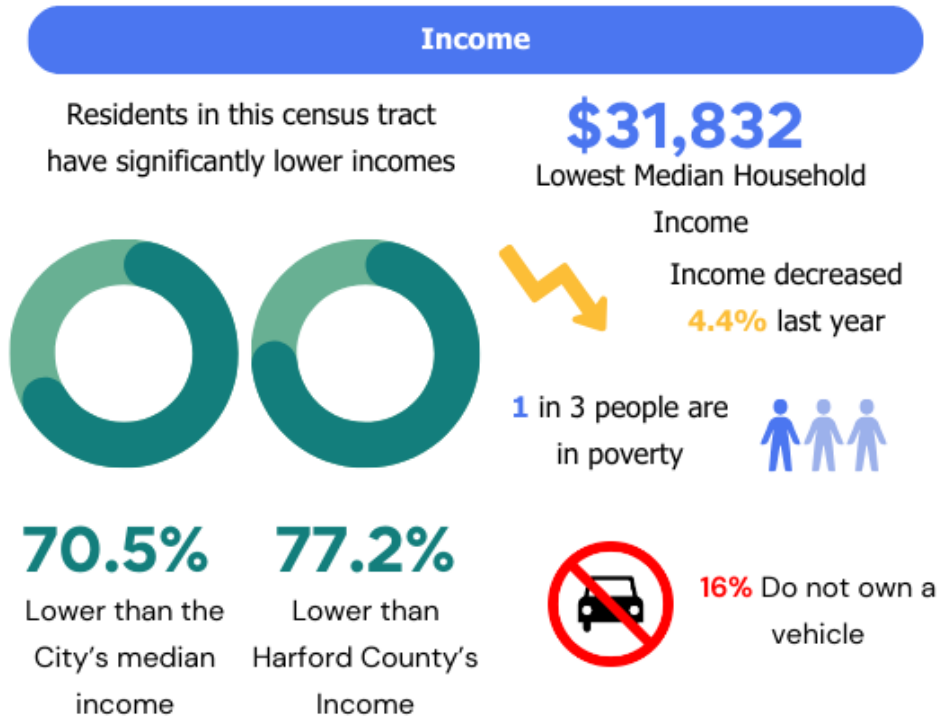
Census Tract 24025302901

According to the FHWA Grant Project Location Verification Tool, Census tract 24025302901 (from here on out referred to as “the tract”), is identified as a disadvantaged area.



The reasoning for this tract’s poor quality of life and economic strain are likely due to several factors:

- 1. **Isolation** – The east side of Aberdeen is bound by the Aberdeen Train Station and railroad tracks (west), Aberdeen Proving Ground (east and south), and a former landfill (north).
- 2. **Lack of Service** - No retail, healthcare, or vital services are located on the east side, deterring commuters due to poor connectivity, perceived illicit activities, and safety concerns.
- 3. **Historical Context and Low-Income Housing** – Between 1940 and 1965, 500 defense houses and 800 apartment units were built, many of which remain in deteriorating condition. The east side offers older, more affordable housing, with several low-income developments from the 1970s still standing after decades of neglect and mismanagement. Overall, 50% of Aberdeen’s residential housing structures, mostly on the east side, were built before 1970.



Those without vehicles wanting to try to access resources once they arrive to the station have quite the journey, and local public transportation can be irregular and hard to rely on.

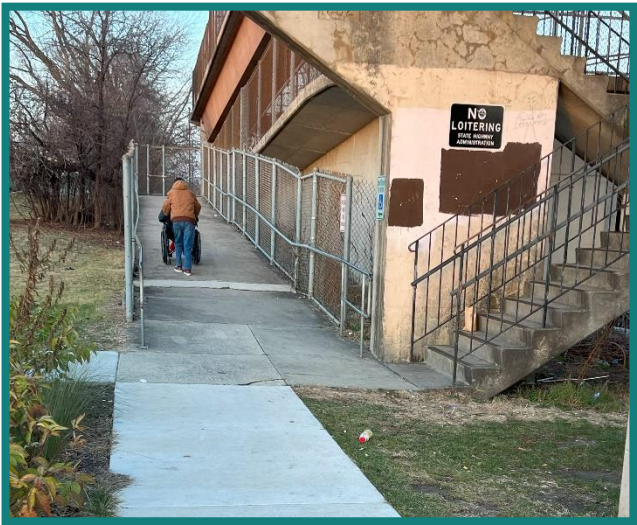
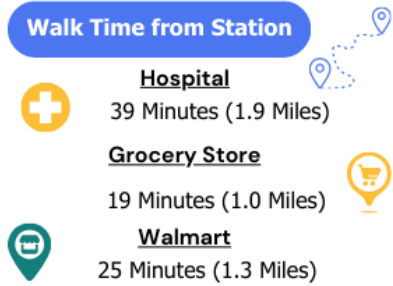


Figure 6-14: Wheelchair User on the Railway Overpass



A Message from the East Side of the Tracks

Several attendees of the Aberdeen Public Workshop were representatives of Halls Cross Road Elementary School. Given the location of the school and its proximity to both the A1 and A3 intersections, an additional meeting with them was held to better understand their concerns for students and community members in eastern Aberdeen. Their key concerns mirror those outlines on this page, and they requested the following specific initiatives and upgrades:

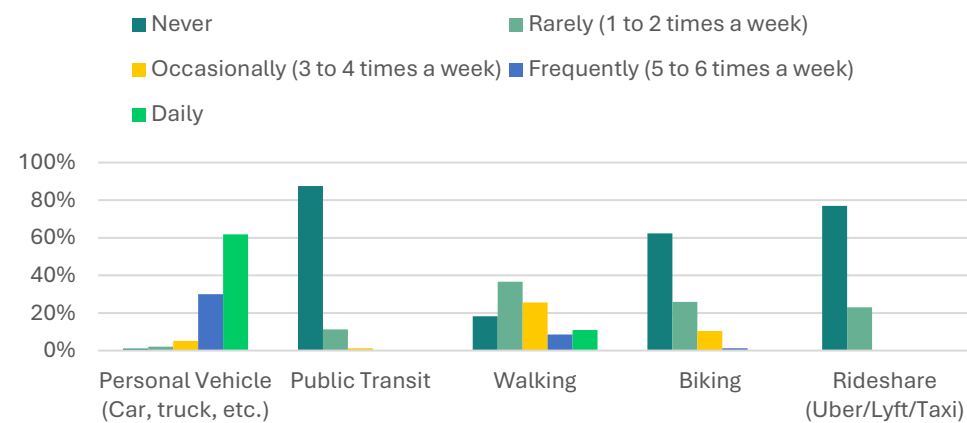
- 1. Install sidewalks in the Swan Meadows area of the City of Aberdeen. Streets such as Aberdeen Ave., Swan Street, Liberty St., Defense Dr. and Victory Street
- 2. Consider pedestrian and cyclist upgrades through the Safe Routes to School grant program
- 3. Continue to implement programs like
 - a. the bike helmet initiative led by Healthy Families and Healthy Harford,
 - b. Bike Rodeos with the Police Department, and
 - c. The MD Statewide Kids in Safe Seats (KISS) program.



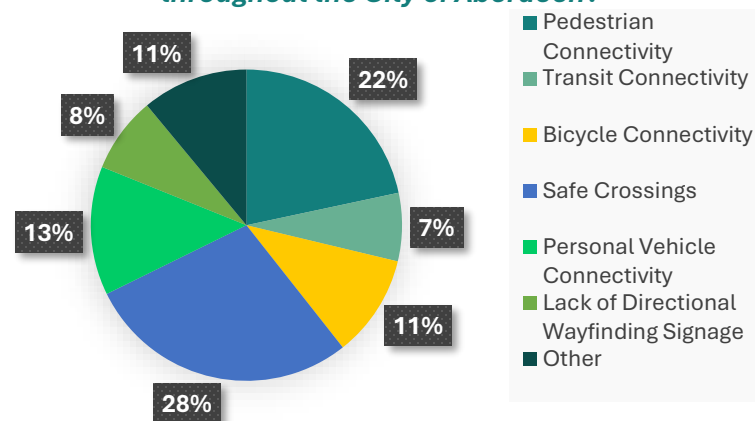
Public Input

The following information provides a summary of the survey results that are described in Section 3: Public Engagement. All 98 responses were provided by Aberdeen residents. For write-in questions, the results have been condensed based on the relevance of this project, but a complete list of the answers provided can be found in the Appendix. For input that was received in the public workshops, this information can be found in the individual analyses of each intersection in the following sections.

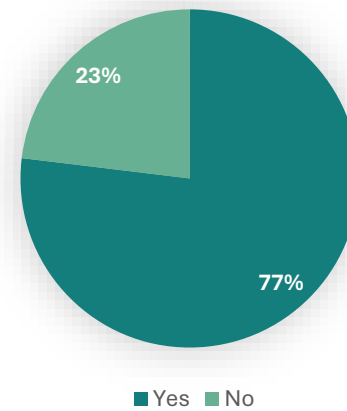
How often do you use each mode of transportation in a typical week?



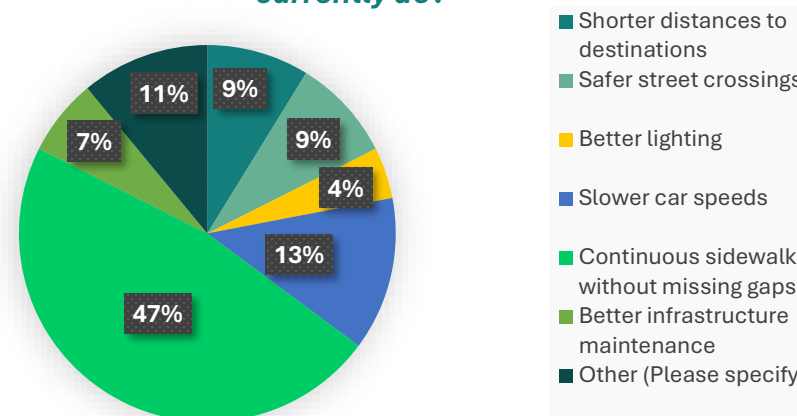
What are your concerns about traveling throughout the City of Aberdeen?



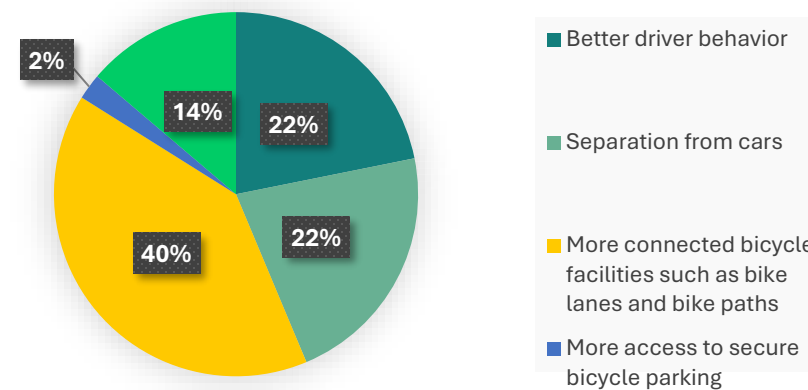
Is the pedestrian crossing time adequate to allow you to cross the streets safely?



What would encourage you to walk more than you currently do?



What would encourage you to bike more than you currently do?



Are there any other concerns you have regarding safe travel in the City of Aberdeen?

- ◆ Illegal Parking
- ◆ Speeding Vehicles → Request for more enforcement
- ◆ Lack of Sidewalks and Lighting
- ◆ Truck Traffic
 - > Concerns about new truck stop
 - > Large trucks parking along US 40 shoulder
 - > Semi-trucks in residential areas or on downtown streets
- ◆ Bicyclist and Pedestrian Safety
 - > Connected sidewalks
 - > Bike protection along US 40
 - > Upgrade downtown with ADA-accessible walkways
- ◆ Intersection Safety
 - > Visibility concerns
 - > Pedestrian and bicycle enhancements

Are there any other improvements or specific safety concerns you would like to see in the City of Aberdeen along certain corridors?

- ◆ Truck Traffic
 - > Specifically on Philadelphia Rd
 - > Create designated truck routes
 - > Improved road an lane painting on road surfaces
- ◆ Traffic Congestion
 - > at Chick-fil-A and Beards Hill Shopping Center
 - > plan for increase due to new housing complex on Beards Hill Rd.
- ◆ Sidewalk Connectivity
- ◆ Safety for Pedestrians at the Train Station
- ◆ Increased Public Transportation

Are there any transportation facilities in Aberdeen that you wish there were more of or that you really enjoy?

- ◆ There is a strong sense of community via the support of small businesses, and walkable downtown
- ◆ The historic train station
- ◆ Tree lined-sidewalks and a commitment to increasing green space in general
- ◆ Need more sidewalks, bike routes, alternative forms of transportation etc. for the lower-income populations



INTERSECTION ANALYSIS

A1& A4 – West Bel Air Avenue (MD 132) at US 40² & US 40 Shared Use Path

Existing Conditions & Site Visit Observations

The A1 intersection is characterized as a transportation hub and sits in the middle of the Transportation Oriented Development (TOD) area under the City of Aberdeen’s zoning initiative. The intersection serves access to the Aberdeen MARC/Amtrak Train Station and APG Road which takes vehicles to the nearby Aberdeen Proving Ground, a major employment area. Directly adjacent to the east leg of the intersection is the bus access for train users and the parking lot for the station.

Intersection Qualities

Speed Limit	AADT
• W Bel Air Ave – 30 mph (Posted)	• W Bel Air Ave – 13,140
• US 40 – 30 mph (Posted)	• US 40 – 39,283
• US 40 ~ 40 mph (85 th Percentile)	LOS
	• Level A for AM Peak
Roadway Classification	• Level C for PM Peak
• W Bel Air Ave – Minor Arterial	
• US 40 – Principal Arterial	

Recent and Planned Projects

Future improvements for this area include upgrades to the underground and aboveground rail crossing and the implementation of the US 40 Shared Use Path which begins on the NE quadrant. These improvements are described in detail in the Ongoing Developments section. This intersection is also part of the Transportation Oriented Development (TOD) Zone. The TOD proposes specific upgrades to the design of the US 40 thoroughway and includes the integration of bike lanes, increased connectivity to the train station, and the conversion of US 40 to a “true boulevard,” depicted in Figure 6-15.

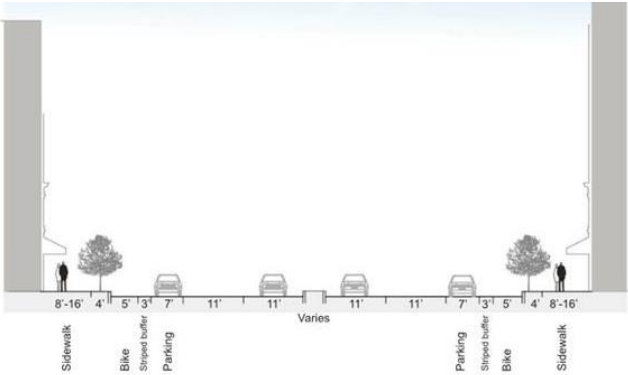


Figure 6-15: TOD Proposed Street Section

Identified Deficiencies

1. Buses having difficulties parking right in front of the bus shelter without encroaching into the APG Rd travel lane.
2. No ADA-compliant sidewalk connecting the underground tunnel to the bus shelters.
3. (Reported by train station worker) During peak hours, queued buses block the accessible parking spaces, causing long waiting time (10+ mins) for vehicles to move out.
4. Vehicles coming down from APG Rd may have difficulties slowing down and risk crashing into the bus shelters or curb. (Geometric factors: downhill slope + sharp turning radii.)
5. Existing crosswalk markings are outdated.
6. The push button in the NW quadrant is loose.
7. Vehicles needing to access the train station use APG Rd to make an illegal U-turn.

Observation: Pedestrians Cross APG Rd illegally



² US 40 is assumed to run in an east-west direction, per MDOT SHA

Crash Analysis

Key Findings of Reported Crashes

- 29 total reported crashes in 5 years.
- No fatal crashes.
- Two crashes involved pedestrians.
- **Observed Crash Pattern:** 12 crashes b/t eastbound left turn and westbound through traffic on US 40.
- 5 rear-ends on US 40.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment, lighting) are needed at the intersection.
- ◆ ADA improvements are needed at the station access.
- ◆ High number of crashes between eastbound left turn and westbound thru traffic on US 40 and need mitigation.
- ◆ Installation of bike facilities should be evaluated (underway in the US 40 SUP study).

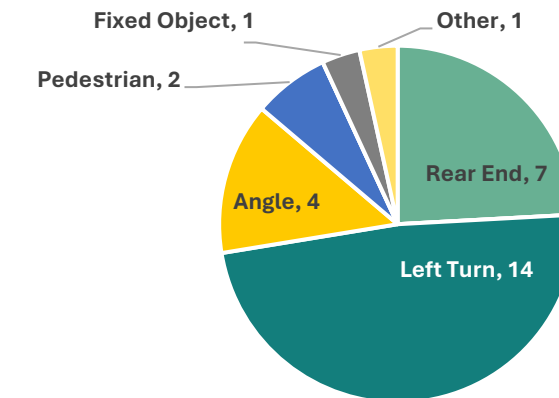


Figure 6-16: Crashes by Type

Public Input

Countermeasures Requested

- Cycle tracks on US 40
- Countdown Pedestrian Signal
- Pedestrian Refuge Island on North leg of US 40
- Leading Pedestrian Interval
- Curb extension on SW quadrant – to try and keep vehicles from entering the service road.
- Consider closing the channelized right turn from west bound US 40 to W Bel Air Ave

Concerns

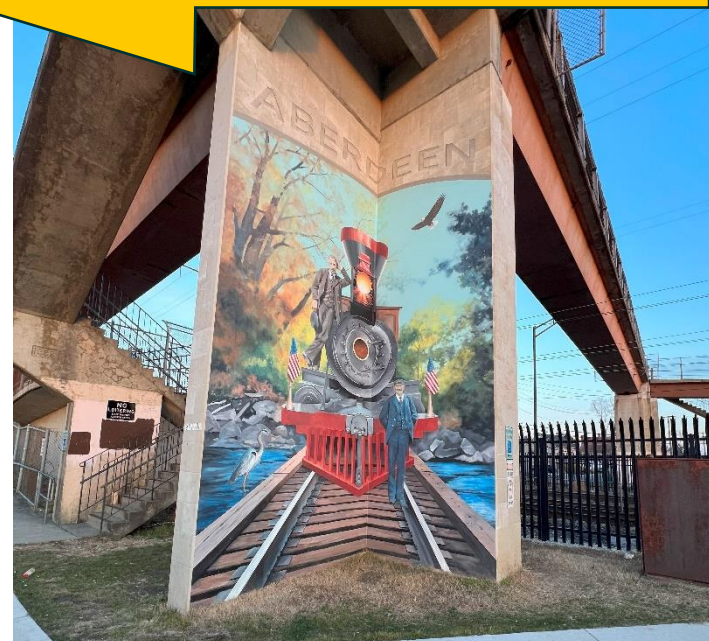
- Not enough time for pedestrians to cross.
- Train station does not feel safe for pedestrians or commuters.
- Access road is not always used safely – sometimes people speed on it to avoid traffic on US 40
- West Bel Air Ave should have truck restrictions on it.
- Connect businesses further south of the intersection with sidewalks.
- Speeding on US 40
- Existing crossing at W Bel Air and Howard St is inadequate and needs upgrades

“The train station is a huge unique factor of the town and should be more accessible.”

- ABERDEEN RESIDENT IN ONLINE SURVEY REGARDING CHARACTERISTICS THEY APPRECIATE ABOUT THE CITY

“Appreciate the beautification of the commuter train station area and the efforts to make it safer for travelers to access.”

- ABERDEEN RESIDENT IN ONLINE SURVEY



“Safety in and around the Aberdeen Train Station”

- ABERDEEN RESIDENT IN ONLINE SURVEY REGARDING REQUESTED IMPROVEMENTS

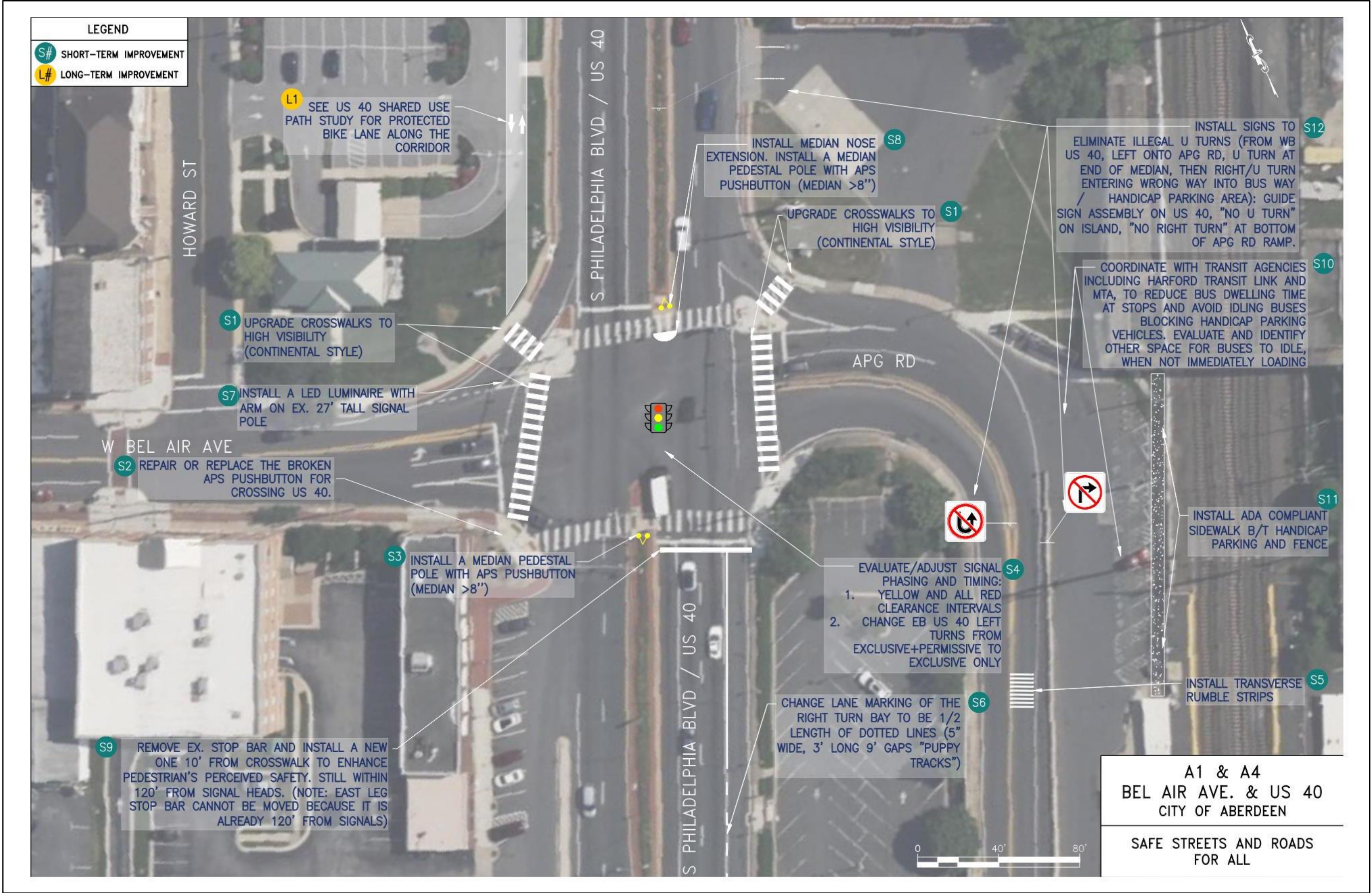


Figure 6-17: Mayor Patrick McGrady with Residents at the Aberdeen Public Workshop

Recommendations

Table 6-7: A1&A4 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Upgrade crosswalks to high visibility (continental style)	\$11,700	
	S2	Repair or replace the broken APS pushbutton for crossing US 40.	\$1,300	
	S3	Install a median pedestal pole with APS pushbutton (median >8")	\$19,500	
	S4	Evaluate/adjust signal phasing and timing. 1. Yellow and All Red clearance intervals 2. Change EB US 40 left turns from Exclusive + Permissive to Exclusive Only.	\$8,200	
	S5	Install transverse rumble strips	\$800	
	S6	Change lane marking of the right turn bay to be 1/2 length of dotted lines (5" wide, 3' long 9' gaps "puppy tracks").	\$2,400	
	S7	Install an LED luminaire with arm on ex. 27' tall signal pole.	\$6,500	
	S8	Install median nose extension. Install a median pedestal pole with an APS pushbutton (median >8")	\$25,600	
	S9	Remove ex. stop bar and install a new one 10' from the crosswalk to enhance pedestrian's perceived safety. Still within 120' from signal heads. (note: east leg stop bar cannot be moved because it is already 120' from signals)	\$1,100	
	S10	Coordinate with transit agencies including Harford Transit Link and MTA, to reduce bus dwelling time at stops and avoid idling buses blocking handicap parking vehicles. Evaluate and identify other space for buses to idle, when not immediately loading.	\$0	Coordination efforts. No construction.
	S11	Install ADA-compliant sidewalk between handicap parking and fence.	\$27,700	
	S12	Install signs to eliminate illegal U turns. Add a guide sign assembly on US 40, "no U turn" on island, "no Right turn" at bottom of APG Rd ramp.	\$1,600	Vehicles turning left onto APG Rd from WB US 40 illegally U-turn at the island, then take an illegal right turn into the train station's parking lot and bus pick up and drop off zone.
Long Term (5+)	L1	See US 40 SUP study for protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



A2.1 – James Avenue at US 40³

Existing Conditions & Site Visit Observations

A2.1 is characterized as an unsignalized intersection along a four-lane divided highway, US 40 (two travel lanes in each direction with a raised median). James Avenue is flanked by industrial and retail land uses at US 40 but provides access to an established residential neighborhood and two schools, George D. Lisby Elementary School, and St. Joan of Arc Catholic School, about ¼ mile away from the intersection. James Avenue is the service road merging point where there are numerous conflicting turning movements. Transit stops are located on both sides of US 40; however, speeds and long crossing distances make it difficult for pedestrians or cyclists to feel safe crossing. There are variable-width shoulders but no designated bike lanes, missing sidewalks with no ADA handicap access and an overall lack of pedestrian and bicycle connectivity. A proposed sidewalk along the EB side of US 40 is proposed in the Master Plan.



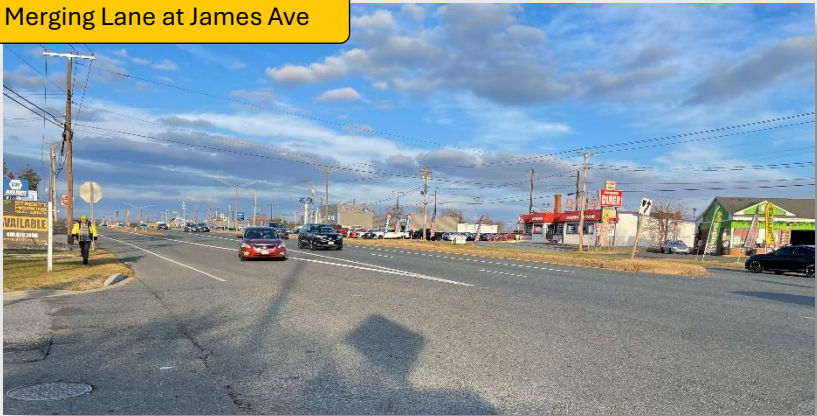
Identified Deficiencies

1. Westbound service road (STOP controlled) unsafely merges into the main road while crossing the intersection.
2. WB right-turning vehicles from US Route 40 attempting to access James Ave violate the pavement markings when they turn after the divisional island and conflict with merging traffic on the service road.
3. Disconnected sidewalk along WB US 40 between James Ave and Warren St. ADA ramp on the NW corner has no receiving ramp on the opposing side.
4. Stop signs at SB James Ave and the end of the service road are without accompanying stop bars.
5. The bus stop in front of the 7-11 has no ADA-compliant bus pad.
6. The existing bike lane is discontinued west of James Ave.
7. Left turns from James Ave to EB US 40 are unsafe and difficult.
8. Disconnected sidewalk along WB US 40 south of the 7-11.

Pedestrian Waiting for Bus



Merging Lane at James Ave



Intersection Qualities

Speed Limit

- James Avenue – **25** mph (Posted)
- US 40 – **40** mph (Posted)
- US 40 ~ **47** mph (85th Percentile)

Roadway Classification

- James Avenue – **Collector**
- US 40 – **Principal Arterial**

AADT

- US 40 - **39,283**
- James Avenue – **1,495**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

³ US 40 is assumed to run in a west-east direction, per MDOT SHA.

Public Input

Countermeasures Requested

- Remove the stop sign on James Ave and make a signalized intersection.
- Make James Ave a right turn only with no left turn onto eastbound US 40
- Walkways
- Cycle track along US 40

Concerns

- Disconnected walkways along US 40
- No pedestrian crossing.
- Biking feels dangerous along US 40

“Sidewalks along Rt 40 to allow for pedestrians to access the businesses without needing car”

- ABERDEEN RESIDENT IN ONLINE SURVEY

Crash Analysis

Key Findings of Reported Crashes

- 16 total reported crashes in 5 years.
- 5+ reported crashes occurred in 12-month periods (May 2019 to March 2020, Dec 2020 to Dec 2021).
- No fatal crashes.
- One crash involved a cyclist.
- **Observed Crash Pattern:** All crashes, except the cyclist crash, involved through vehicles on US 40.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, ADA-compliant facilities) are needed at/near the intersection and at the bus stop.
- ◆ Roadway access improvements are needed for the service road.
- ◆ Installation of bike facilities should be evaluated.
- ◆ High number of crashes between various turning movements due to complex geometry and need mitigation.

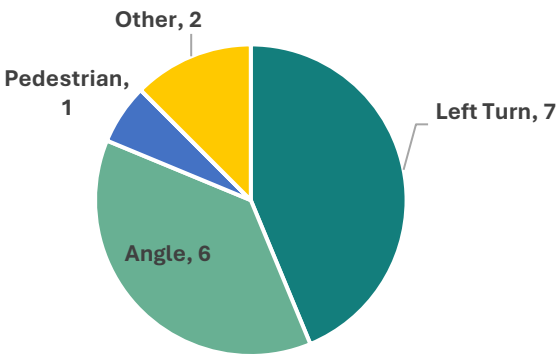


Figure -6-18: Crashes by Type

Recommendations

Table 6-8: A2.1 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install Stop line marking.	\$300	
	S2	Install ADA-compliant bus pad and bench.	\$3,900	
Intermediate Term (4-5 years)	M1	Install new sidewalks (~950') with ADA ramps to Warren St. Install a new crosswalk on James Ave.	\$432,500	
	M2	Close service road access to US 40 on the west end. Build curb/gutter to fix the drainage problem. Leave 12' shoulder space for future bike lane (see Long-term mitigation). Modify lane line marking at 7-Eleven to shorten	\$300,000	MDOT SHA Estimate
Long Term (5+)	L1	Evaluate feasibility of adding protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.

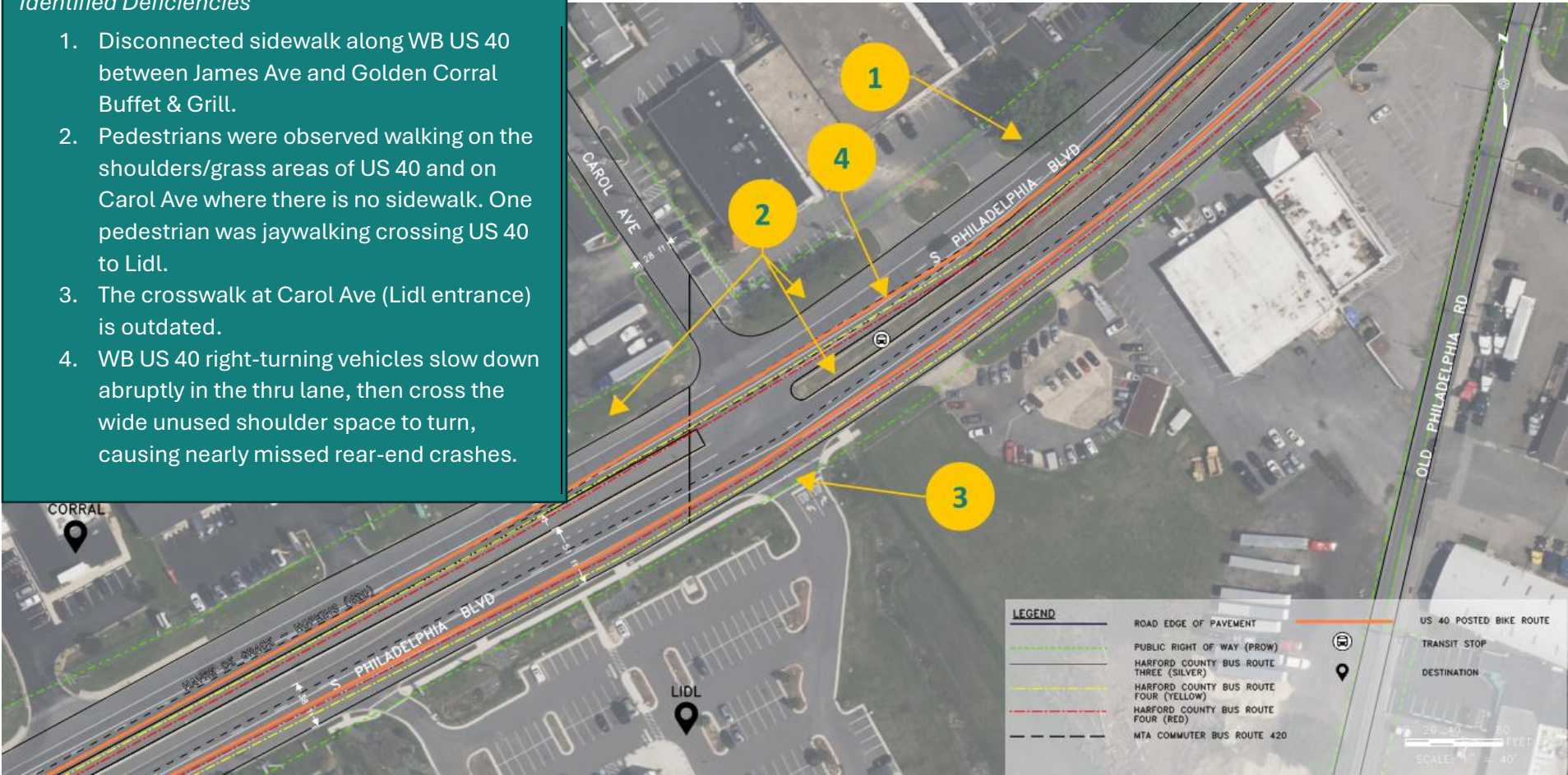


A2.2 – Carol Avenue at US 40⁴

Existing Conditions & Site Visit Observations

Carol Avenue at US 40 shares similar characteristics to James Avenue and US 40. Also located along the US 40 corridor, A2.2 is approximately 1270’ south of James Avenue. This is an unsignalized intersection along a four-lane divided highway- two travel lanes in each direction with a raised median. Carol Avenue is flanked by industrial and retail land uses at US 40 but provides access to an established residential neighborhood and the George D. Lisby Elementary School about a half mile away. The newly constructed Lidl grocery store at the southern side of the A2.2 intersection is a popular destination for pedestrians and transit users. The conducted traffic analysis for this grocery store determined that at the date of its construction in February 2017 the “road network is capable of supporting the development without the need for further improvements” However, this may have changed over the last 8 years. Field observations indicated that pedestrians often walk along US 40 to get here even though the sidewalk is not fully complete on either side. A bus stop on the northern side of US 40 also provides pedestrian traffic to the grocery store.

- Identified Deficiencies*
- 1. Disconnected sidewalk along WB US 40 between James Ave and Golden Corral Buffet & Grill.
 - 2. Pedestrians were observed walking on the shoulders/grass areas of US 40 and on Carol Ave where there is no sidewalk. One pedestrian was jaywalking crossing US 40 to Lidl.
 - 3. The crosswalk at Carol Ave (Lidl entrance) is outdated.
 - 4. WB US 40 right-turning vehicles slow down abruptly in the thru lane, then cross the wide unused shoulder space to turn, causing nearly missed rear-end crashes.



A2.2 – Carol Avenue at US 40

Intersection Qualities

Speed Limit

- Carol Avenue – 25 mph (Posted)
- US 40 – 40 mph (Posted)
- US 40 ~ 47 mph (85th %)

AADT

- Carol Avenue – <5000
- US 40 – 39,283

LOS

- Level A for AM Peak
- Level A for PM Peak

Roadway Classification

- Carol Avenue – Collector
- US 40 – Principal Arterial

Public Input

Countermeasures Requested

- Add a signal or other crossing device for pedestrians (APS or CPS)
- Walkways
- Speed cameras.
- Cycle track along US 40

Concerns

- Disconnected walkways along US 40.
- No pedestrian crossing.
- Biking feels dangerous along US 40.

“Traffic Light with better lighting is needed at Carol Ave & Pulaski Hwy. Can be extremely dangerous for cross traffic and at night pedestrian foot traffic is not visible to drivers.”

FROM ABERDEEN RESIDENT IN ONLINE SURVEY



Pedestrian walking along US 40

⁴ US 40 is assumed to run in a west-east direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- ◆ One recent fatality in 2024 that was not included in the reported preliminary data received from MDOT SHA
- ◆ 8 total reported crashes in 5 years.
- ◆ 5+ reported crashes occurred in a 12-month period (Oct 2021 to Sep 2022).
- ◆ 0 crashes involving pedestrians or cyclists.
- ◆ **Observed crash pattern:** All crashes, except 1, involved vehicles from Carol Ave.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, ADA-compliant facilities) are needed at/near the intersection and at the bus stop.
- ◆ A safe pedestrian crossing on US 40 is missing near this location.
- ◆ Installation of bike facilities should be evaluated.
- ◆ Most crashes were caused by different turning movements and need mitigation

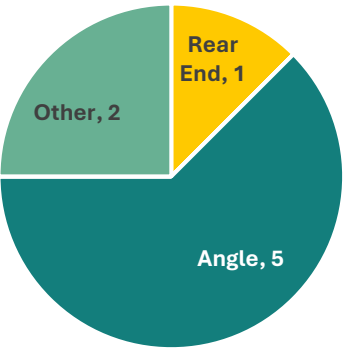


Figure 6-19: Crashes by Type

Recommendations

Table 6-9: A2.2 Recommendations

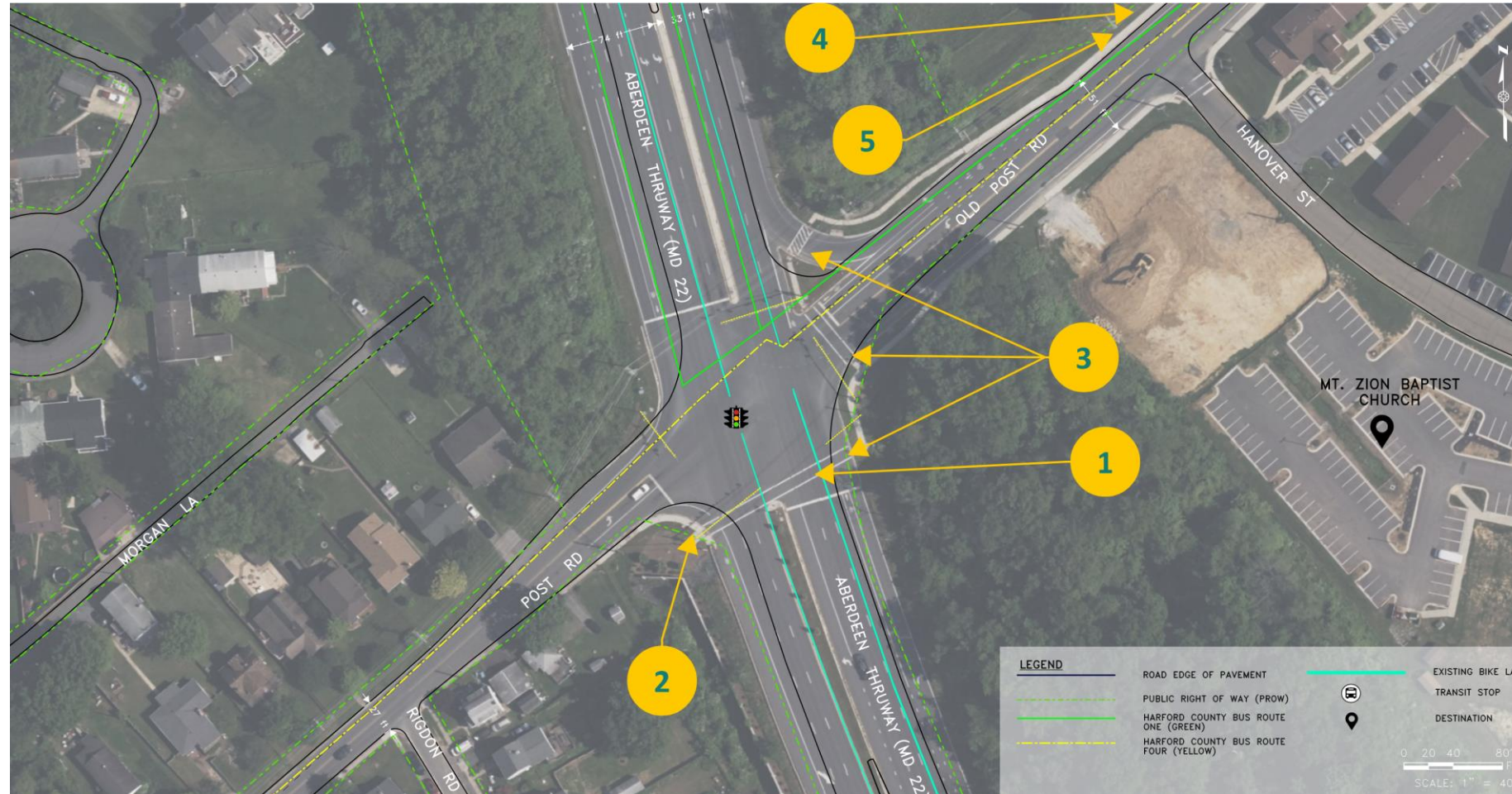
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install Stop line marking.	\$300	
	S2	Upgrade crosswalks to high visibility (continental style)	\$4,700	
Intermediate Term (4-5 years)	M1	Install new sidewalks (~500') with ADA ramps to Golden Corral, including new ADA ramps and crosswalk on Carol Ave	\$223,800	
	M2	Install new sidewalks (~1000') with ADA ramps to James Ave (7-Eleven)	\$438,800	
	M3	Install new sidewalk (~1100') with ADA ramps to Walmart intersection.	\$453,400	
	M4	Perform a Signal Warrant Study for a new full-color traffic signal here (mainly Warrant 7 Crash Experience). If warranted, can install two new crosswalks on US 40 on both sides, with APS/CPS ped signals on all 4 corners and the medians.	\$325,000	The new signal will provide safe and much-needed crossings on US 40 and address unsafe left turns from side streets.
Long Term (5+)	L1	Evaluate the feasibility of adding a protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



A3 – MD 22⁵ at Old Post and Post Road (MD132B)

Existing Conditions & Site Visit Observations

A signalized intersection, A3 serves both the regional traffic from MD 22 and the collector traffic from Old Post and Post Roads. MD 22 is a multilane divided highway with a raised median while Old Post/Post Road each has two lanes in each direction. There are bike lanes on MD 22, the southeast side of Old Post Road, and the northwest side of Old Post Road. Several Harford County transit routes use this intersection but do not have nearby stops.



Intersection Qualities

Speed Limit

- Old Post/Post Road – **30** mph (Posted)
- MD 22 – **40** mph (Posted)
- Old Post Road – **35** mph (85th Percentile)

Roadway Classification

- Old Post/Post Road – **Collector**
- MD 22 – **Principal Arterial**

AADT

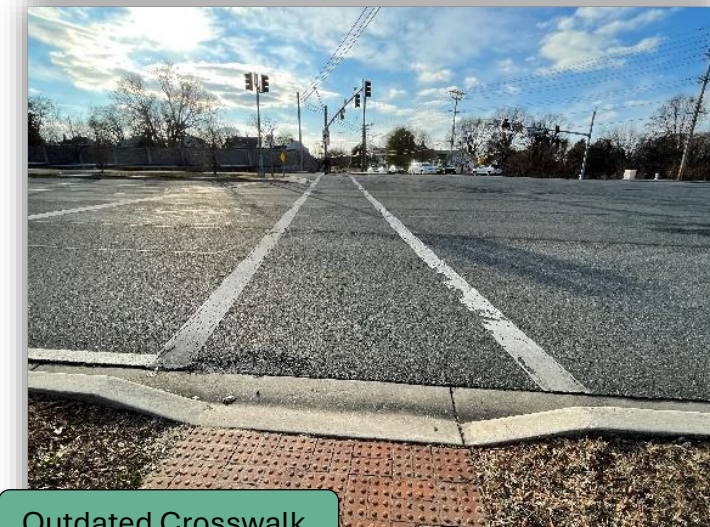
- Old Post/Post Road – **3,691**
- MD 22 – **28,440**

LOS

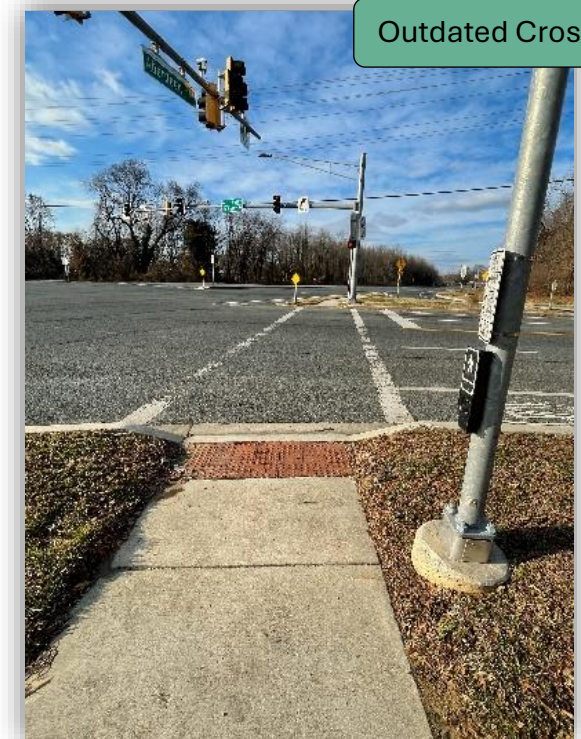
- Level **A** for AM Peak
- Level **B** for PM Peak

Identified Deficiencies

1. Long crossing distance of east leg crosswalk.
2. The pushbutton at the southeast corner is 13' from the curb (<=10' required)
3. Existing crosswalk markings are outdated.
4. The BIKE LANE sign near the south of Center Deen Ave should say BIKE LANE **BEGIN**.
5. Vegetation covered route name sign (JCT MD22) near north Center Deen Ave.



Outdated Crosswalk



Outdated Crosswalk

⁵ MD 22 is assumed to run in a west-east direction, per MDOT SHA.

Public Input

Countermeasures Requested

- Crosswalk visibility enhancements
- Walkways along Old Post Rd and MD 22
- APS, CPS, Wider crosswalks
- More Lighting
- Pedestrian Refuge Island on south leg of MD 22
- Road Diet
- Overpass for Pedestrians

Concerns

- Disconnected walkways.
- Safety of the bike lanes on MD 22
- Not enough time for pedestrians to cross MD 22
- The intersection feels too wide.
- Missing crosswalks on west leg of Old Post Rd

“We need better pedestrian safety from Hanover St to Old Post Rd. Many families cross 22 on foot to get to and from Hall’s Cross Roads Elementary School. Lighting is a huge safety issue as well. It is so dark & high traffic with walkers and cars. Speed bumps along Old Post Road!! 60% of our school population are walkers!! These are kids ages 4-10!!”

- REPRESENTATIVE FROM HALL’S CROSS AT ABERDEEN PUBLIC WORKSHOP

Crash Analysis

Key Findings of Reported Crashes

- 10 reported crashes in 5 years.
- No fatal crash.
- 0 crash involved pedestrian/cyclist.
- **Observed crash pattern:** None found.

Interpretation of Data

- ♦ Pedestrian safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- ♦ Speeding issue mitigation is needed on Post Road and MD 22.
- ♦ Installation of bike facilities should be evaluated.

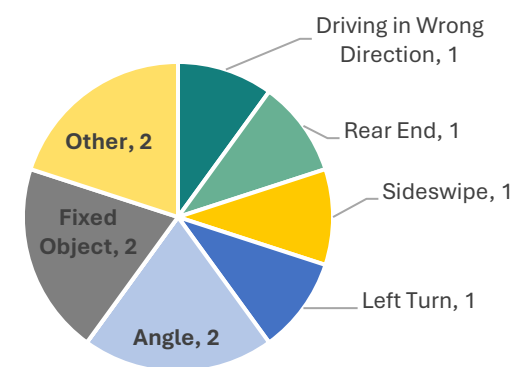


Figure 6-20: Crashes by Type

Recommendations

Table 6-10: A3 Recommendations

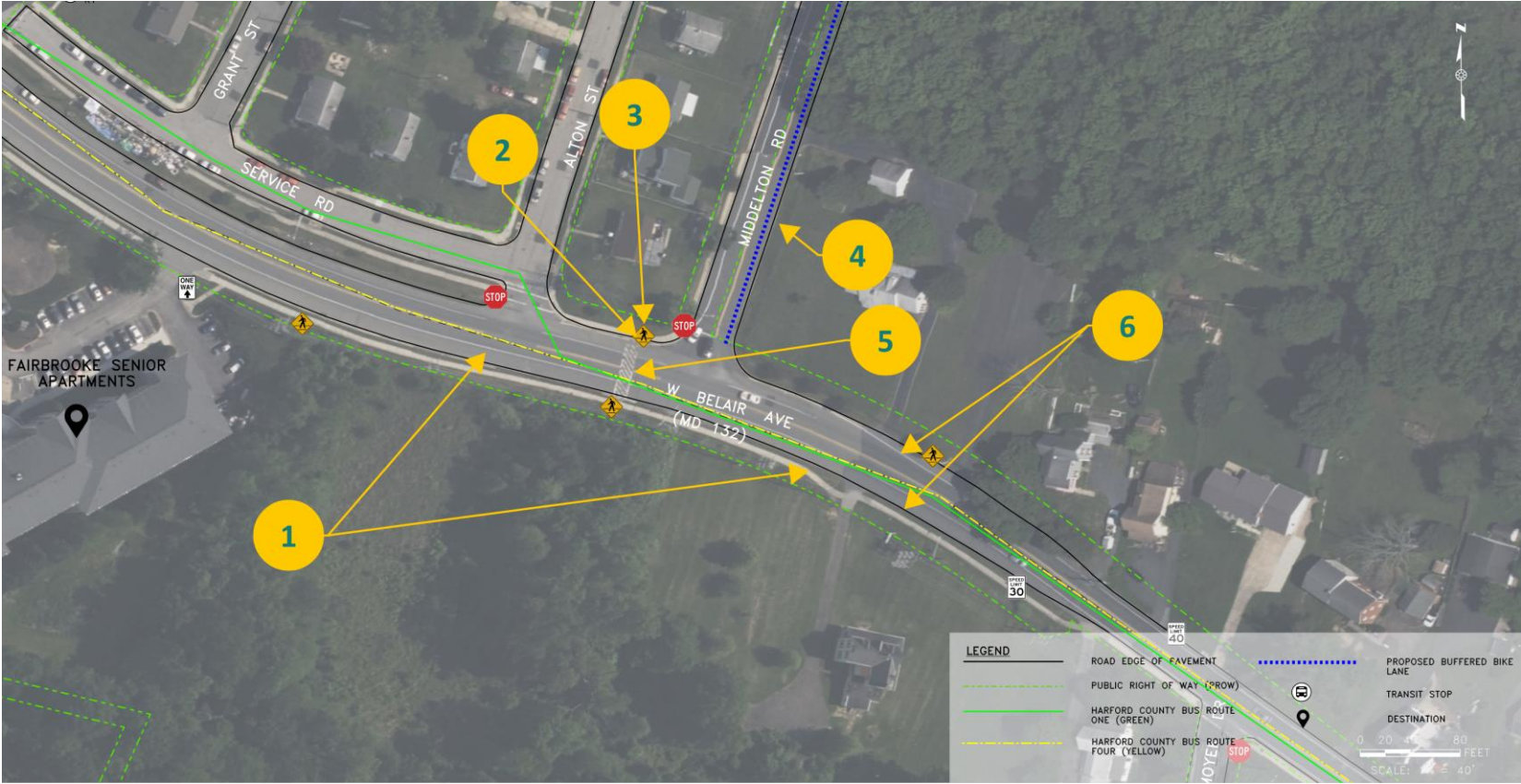
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Upgrade APS/CPS pedestrian signals (move to a new pedestal pole closer to ramp); add an APS pushbutton in median.	\$39,000	
	S2	Extend median for pedestrian refuge.	\$12,500	
	S3	Upgrade crosswalks to high visibility (continental style).	\$21,100	
	S4	Install raised median with landscape.	\$45,500	
	S5	Countermeasure removed	--	Speed hump removed per SHA comments, suggest speed cushion instead
	S6	Trim vegetation in front of MD-22 Sign	N/A	Standard Maintenance of Roadway
Intermediate Term (4-5 years)	M1	Perform a lighting study for Old Post Rd and Post Rd, and evaluate if lighting improvements are needed (existing continuous lighting is present, but citizens requested adding more lights)	TBD	Need a lighting improvement study. Cost pending on the results.
	M2	Upgrade intersection and traffic signal, install crosswalks on north and west legs, install ADA ramps, APS/CPS ped signals.	\$190,000	MDOT SHA Estimate
	M3	Install new sidewalk (~1400')	\$624,000	Constrained by utility poles, slopes, steps, and underground utilities.
	M4	Relocate crosswalk and ped signs ~30' east for better visibility from WB right-turn traffic. Adjust the sidewalk within the island.	\$14,700	
Long Term (5+)	L1	Evaluate the feasibility of adding a bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



A5 – Middleton Road at West Bel Air Avenue (MD 132⁶)

Existing Conditions & Site Visit Observations

An unsignalized intersection at Middleton Road and W. Bel Air Avenue (MD 132), A5 serves as a connection point for residential and commercial activity as well as the new University of Maryland Upper Chesapeake Medical Center. The UM-UCMC facility is located at the northern end of Middleton Road which is a two-way travel lane with a proposed buffered bike lane on either side. MD 132 is also a two-lane travel way but has a wide shoulder on either side. To the southwest of the intersection are the Fair Brooke Senior Apartments and further west is the A6 intersection which is discussed more below. Bus stops are directly adjacent to the senior living center on either side of MD 132.



Intersection Qualities

Speed Limit

- Middleton Road – **30** mph (Posted)
- MD 132 – **30** mph (Posted)
- MD 132~**36** mph (85th Percentile)

Roadway Classification

- Middleton Road – **Collector**
- MD 132 – **Minor Arterial**

AADT

- Middleton Road - **<5000**
- MD 132 – **13,140**

LOS

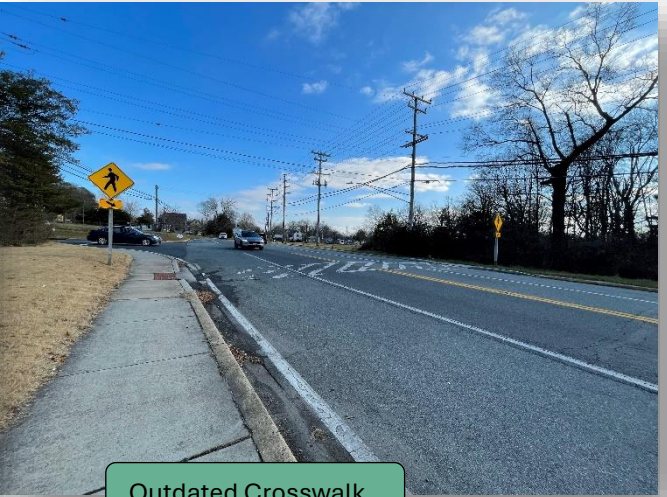
- Level **A** for AM Peak
- Level **A** for PM Peak

Identified Deficiencies

1. Dangerous crossing: several pedestrians were jaywalking across W Bel Air Ave near the intersection without using the pedestrian crosswalk.
2. Pedestrian crosswalk signs and pavement markings lack visibility to southbound right-turning vehicles from Middleton Rd.
3. Existing crosswalk markings are outdated.
4. Missing sidewalk on the east side of Middleton.
5. The crosswalk is unnecessarily long and hard to cross safely.
6. Wide shoulders on both sides of MD 132 – available space for bike infrastructure upgrades.



Vehicle in Crosswalk



Outdated Crosswalk

Recent and Planned Projects

Aberdeen Activity Center – An activity center is planned at this intersection to the south in the open lot. Further information about this center is provided in the Ongoing Developments Section.

⁶ MD 132 is assumed to run in a west-east direction, per MDOT SHA

Public Input

Countermeasures Requested

- Roundabout
- Walkways
- APS, CPS and RRFB
- Curb extension on northwest quadrant.

Concerns

- The pedestrian crossing is inadequate.
- Disconnected sidewalks on West Bel Air Ave
- Perceived speeding on W Bel Air Ave

Crash Analysis

Key Findings of Reported Crashes

- ◆ 7 reported crashes in 5 years.
- ◆ No 5 or more reported crashes in a 12-month period.
- ◆ No fatal crash.
- ◆ 0 crash involved pedestrian/cyclist.
- ◆ **Observed crash pattern:** 3 crashes between EB Thru and EB Left-turn.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, ADA-compliant facilities) are needed at/near the intersection.
- ◆ Installation of bike facilities should be evaluated.

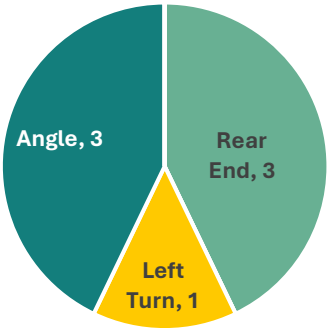


Figure 6-21: Crashes by Type

Recommendations

Table 6-11: A5 Recommendations

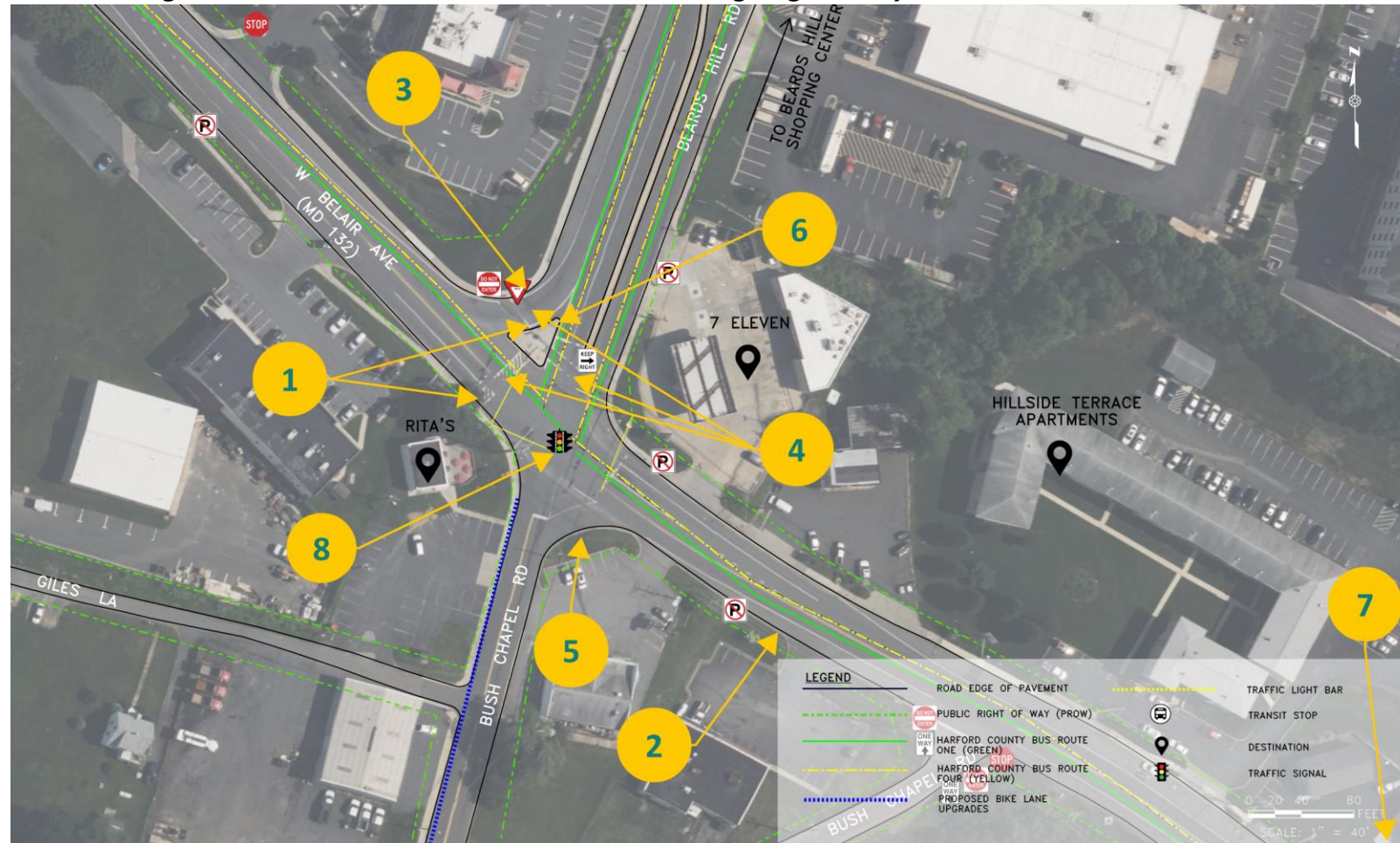
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Upgrade crosswalks to high visibility (continental style)	\$4,000	MDOT SHA Estimate
	S2	Install Rectangular Rapid Flashing Beacons (RRFB).	\$81,300	
	S3	Install curb extension with new ADA ramp.	\$80,000	MDOT SHA Estimate. Further coordination required for bike lane installation.
	S4	Install driver speed feedback sign at proper location.	\$7,800	
	S5	Install curb extension with new ADA ramp.	\$47,100	Further coordination required for bike lane installation.
Long Term (5+)	L1	Evaluate feasibility of adding protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.
	L2	Evaluate potential improvements considering planned Activity Center access.	\$0	To be completed by the Activity Center project.
	L3	Evaluate feasibility of a roundabout, which can accommodate the planned Community Center driveway on the south side.	\$731,300	Constrained by Right-Of-Way and above- and underground utilities.



A6 – MD 132⁷ at Bush Chapel Road and Beards Hill Rd (MD 132A)

Existing Conditions & Site Visit Observations

A6 is a signalized intersection that connects commercial developments to the north and residential neighborhoods to the south. W. Bel Air Avenue (MD 132) is a two-lane road with broad shoulders, offering access to suburban shopping centers, corner retail stores, and multifamily residential areas, such as Hillside Terrace Apartments and Fairbrooke Senior Housing. As it extends eastward, it transitions to serving single-family homes.



Intersection Qualities

Speed Limit

- Bush Chapel/Beards Hill Road – **30** mph (Posted)
- MD 132 – **40** mph (Posted)

Roadway Classification

- Bush Chapel/Beards Hill Road – **Collector**
- MD 132 – **Minor Arterial**

AADT

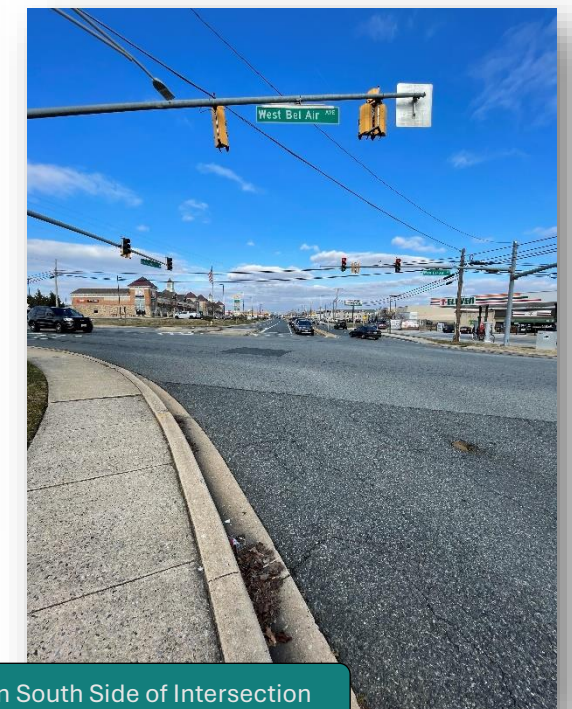
- Bush Chapel/Beards Hill Road – **4,550**
- MD 132 – **13,140**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Identified Deficiencies

1. Pedestrian ramps are installed at this intersection without pedestrian signals.
2. Disconnected sidewalk along EB MD132 between Beards Hill Rd and Fairbrooke Senior Apartments (~600' east of Beards Hill Rd).
3. No pedestrian crossing signs at the northwest corner channelizing the island. And the turn lane appears to be excessively wide.
4. Existing crosswalk markings are outdated.
5. Existing curb radii make it impractical to add necessary sidewalks/crosswalks.
6. Lacking object marker at the tip of the north channelizing island.
7. ADA ramps are present near the two bus stops but without a marked crosswalk. Vehicles are driving in the wide shoulder space.
8. Motorists were observed making prohibited SB U turns.



⁷ MD 132 is assumed to run in a west-east direction, per MDOT SHA.

Public Input

Countermeasures Requested

- Crosswalk Visibility Enhancements
- Walkways
- Speed reduction on W Belair Ave
- Roundabout
- LPI, CPS, and APS
- Road diet
- Cycle tracks
- Overpass for Pedestrians

Concerns

- There’s long queuing after people use the Chick Fil A and are trying to get back on the highway
- Trucks getting back on the highway take illegal U-turns at the intersection
- Speeding along W Bel Air Ave
- Disconnected sidewalks
- Needs to be another place to cross further north of the intersection closer to Beards Hill Shopping Center on Beards Hill Rd

“I’m concerned about the 132 & Beards Hill intersection. There should be better pedestrian crossings there and when turning left onto Beards Hill coming from downtown Aberdeen, the sightline is difficult to see if there are cars coming from the shopping plaza. That intersection is frustrating.”

Crash Analysis

Key Findings of Reported Crashes

- ◆ 16 reported crashes in 5 years.
- ◆ No fatal crash.
- ◆ 0 crash involved pedestrian/cyclist.
- ◆ Observed crash pattern:
 - > Left turn between EB left turns and WB thrus.
 - > Fixed object collision on the SE quadrant.

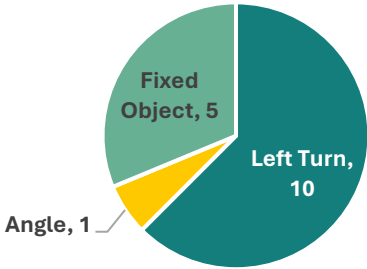


Figure 6-22: Crashes by Type

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- ◆ Illegal southbound U-turns on Bush Chapel Rd at the signal need mitigation.
- ◆ Installation of bike facilities should be evaluated.
- ◆ Roadway vertical profile and speeding could have caused sight line issue and high number of crashes between eastbound left turn and westbound thru traffic, need mitigation.

Recommendations

Table 6-12: A6 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Slightly extend island curb, reduce width of channelized right-turn, install new sidewalk, crosswalks, ADA ramps.	\$42,000	MDOT SHA Estimate
	S2	Upgrade crosswalks to high visibility (continental style)	\$9,400	
	S3	Install 2 object marker signs at nose of median	\$1,600	
	S4	Evaluate/adjust signal phasing and timing:	\$6,500	1. Yellow and All Red clearance intervals 2. Change EB left turns from Exclusive+Permissive to Exclusive Only.
Intermediate Term (4-5 years)	M1	Remove channelized right-turn, install new sidewalk, crosswalks, ADA ramps.	\$160,000	MDOT SHA Estimate
	M2	Option 1 (to continue to prohibit SB U turns): Remove these exits. All exiting traffic to use north exit (on Beards Hill Rd) or south exit (on W. Bel Air Ave)	TBD	Cost pending for future traffic study study results.
	M3	Option 2 (to allow SB U turns): Shift all lanes to the west to use the empty 12'-wide shoulder space, rebuild/shift island to the west, widen median, and allow southbound U-turns.	TBD	Cost pending for future traffic study study results.
	M4	Upgrade traffic signal. Including to add new crosswalks on east leg and south legs, add APS/CPS ped signals for all crosswalks.	\$650,000	MDOT SHA Estimate
	M5	Install curb extension with new crosswalks, sidewalks, and ADA ramps.	\$75,000	MDOT SHA Estimate
	M6	Install new sidewalks and ADA ramps to connect intersection with ex. sidewalk.	\$400,000	MDOT SHA Estimate
Long Term (5+)	L1	Evaluate feasibility of adding protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



**SECTION 6B - TOWN OF
BEL AIR
RECOMMENDATIONS**

Section 6B - Town of Bel Air

The Town of Bel Air is characterized by a rich downtown area with one-way boulevards running east and west. The surrounding suburbs have a variety of trails and parks that residents can explore.

Existing Policies and Regulations

Bel Air Comprehensive Plan (2022)

The Town of Bel Air’s Comprehensive Plan has been a valuable resource to extract the pre-established desires of the town to continue its efforts to create a pedestrian and bicycle-friendly environment for its residents. Many proposed improvements mentioned in this plan are called out in the individual intersections that are presented later in this section. The Transportation Chapter of the Comprehensive Plan contained insights into Bel Air’s intentions as they relate to this action plan and include a desire to follow the Complete Streets design model for upgrading its infrastructure as well as the following transportation goals:

- 1. Improve the existing road network to address safe and efficient vehicle movement.
- 2. Encourage the use of alternative modes of transportation.
- 3. Address the need for appropriate commercial and residential parking.
- 4. Improve the infrastructure for Town, County, and State roads and associated right-of-way improvements.

Vision - Provide a safe, efficient, and well-maintained travel network for all modes of transportation and enhance the transit, bicycle, and pedestrian-friendly assets of the community.

Town of Bel Air’s Bicycle and Pedestrian Plan (2013)

This plan borrows development from the Harford County Bike and Ped Plan that is reviewed in Section 5. The following goals from the plan align with the desired outcomes of this Action Plan:

- ◆ Establish a “Pedestrian Zone” in Downtown
- ◆ Infill gaps in the sidewalk system.
- ◆ Incorporate cycling improvements into infrastructure.
- ◆ Provide more opportunities for bike parking.

- ◆ Improve the overall pedestrian environment along US Route 1 and MD Route 22
- ◆ Improve amenities and access at existing transit stops.

Several of the improvements outlined in this plan are demarcated on the individual intersections presented in the section below.

2023 Annual Report

The Town of Bel Air Planning Commission and Department of Planning & Community Development created a report that outlines development and performance standards for the town. In the report, several relevant implementation programs were described that should be incorporated into any further measures proposed in this action plan.

Bel Air Downtown Pedestrian Safety Study

In October 2014 a pedestrian safety study was prepared for MD 924 (Main Street and Bond Street) from Baltimore Pike to Lee Street. Intersections B1 and B7 are within the study’s zone of influence and some information displayed in the following section are based on similar observations found here.

The following traffic observations were found regarding the downtown’s area of study:

- The peak pedestrian traffic occurred from 2:00 to 3:30 PM during school dismissal. The highest pedestrian activity along Main Street occurred between Churchville Road and Pennsylvania Avenue, with the highest number of pedestrians crossing Main Street along the north leg at Courtland Street
- The results of the analysis indicate that all the study intersections currently operate at an acceptable level of service.
- The results of the analysis indicate that all the study intersections would continue to operate at an acceptable level of service with the right-turns restricted to red.
- The analysis indicates that the 85th percentile speed as vehicles leave the signalized corridor was above the 25-mph posted speed limit at 30-mph.



Figure 6-1: Excerpt from Pedestrian Safety Study

Ongoing Developments

Bel Air to Harford Community College Connector

Recently published in March 2023, this study sought to identify a bike route that would connect Harford County Community College (HCC) to the Town of Bel Air. This report contains information on Level of Traffic Stress (LTS) analysis for measuring a corridor’s “bikeability.” This methodology for determining bikeway paths should be used in further explorations that intend to upgrade Bel Air’s bike network. As the intentions of this Action Plan are focused on intersections this analysis was not conducted. However, the improvements suggested in this report contain insights into the type of bike facilities that Bel Air is looking to implement, as well as recommendations for upgrading wayfinding and crosswalk visibility enhancements at intersections. The B5 intersection at N Hickory Ave and Pennsylvania Ave, specifically has proposed upgrades that are incorporated into the design improvements below.

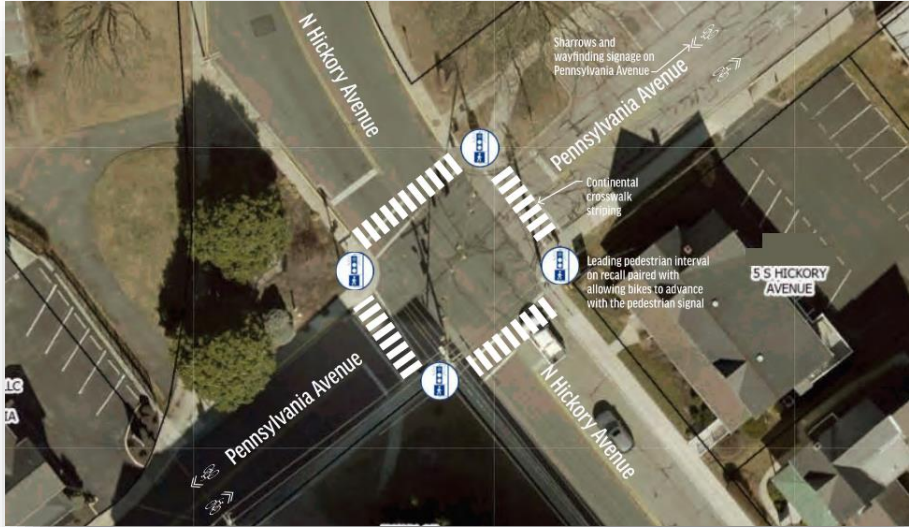


Figure 6-2: Excerpt from HCC

Ma & Pa Trail Extension

The Ma & Pa Heritage Trail is located on portions of the former Maryland & Pennsylvania Railroad Corridor in Bel Air and Forest Hill, Md. The trail currently consists of a 0.8±-mile section in Bel Air. The Ma & Pa Trail expansion, when completed, will provide an 8.3-mile link between Edgeley Grove Park and Friends Park in Forest Hill.



Figure 6-4: Ma & Pa Trail Extension

Thomas St Improvements

Design enhancements for Thomas St and George St improve the pedestrian experience with bulb outs and sidewalk improvements. The Thomas St improvements impact the B1 intersection and proposed bulb outs. See Figure 6-5.

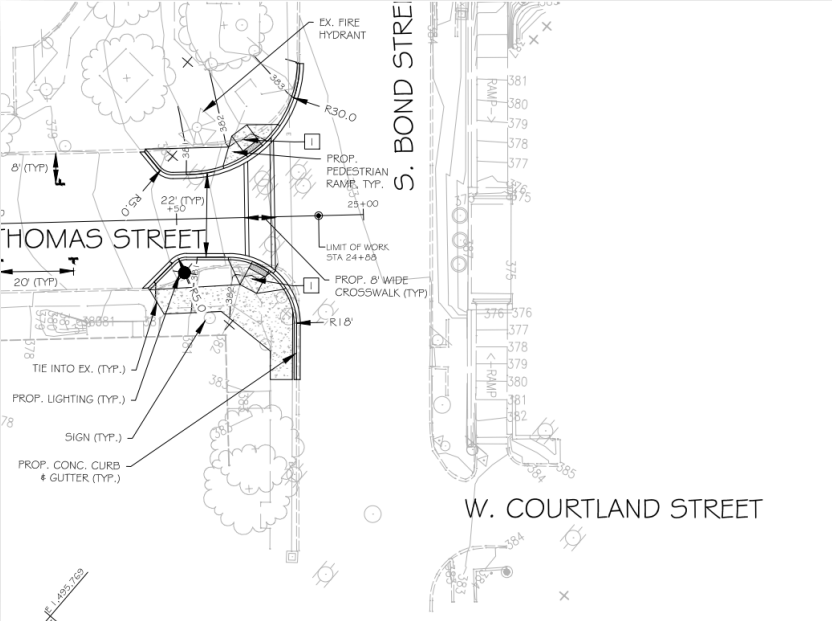


Figure 6-5: Excerpt from Thomas St Improvement Plans



Complete Streets Leadership Academy

MDOT and State Highway Administration (SHA) partnered with Smart Growth America (SGA) and selected intersection B8, Gordon Street at North Main & N. Bond Streets (MD 924) in the Town of Bel Air to deploy a temporary Complete Streets demonstration project. A Field Walk and Workshop were held on June 20 & 21, 2024 to evaluate intersection B8 and develop a quick build design to improve traffic safety.

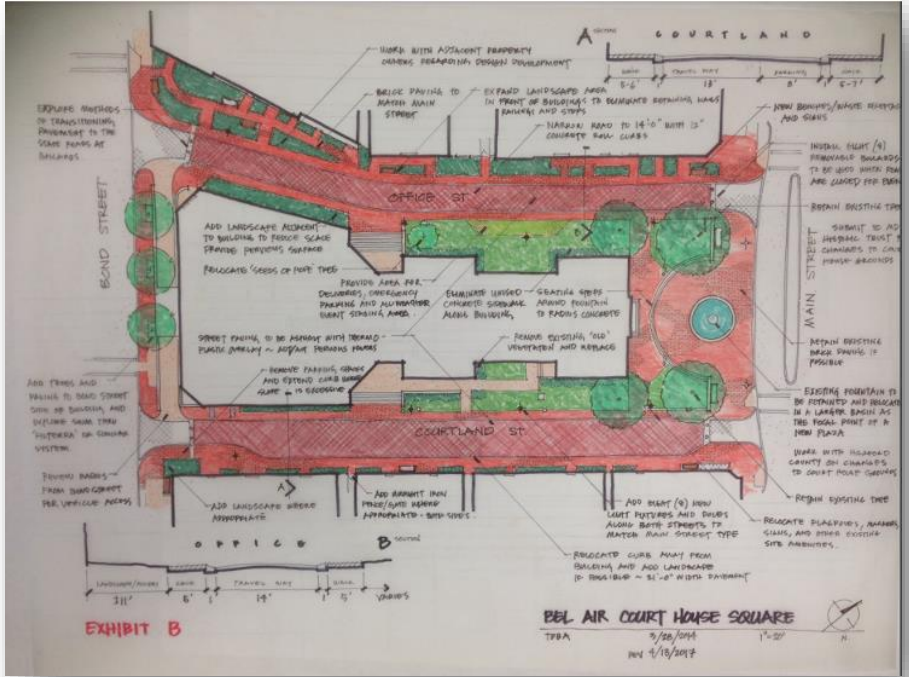


Figure 6-3: Courthouse Square

Selected Intersections in Bel Air

The intersections in Bel Air were selected based on the criteria identified in Section 1 and consist of the following:

- B1** - COURT HOUSE SQUARE (OFFICE/COURTLAND STREETS) AT SOUTH BOND STREET (MD 924)
- B2** - KENMORE ROAD AT SOUTH MAIN STREET (MD 924)
- B3** - ELLENDALE STREET (MA & PA TRAIL) AT N MAIN STREET (MD 924)
- B4** - MOORE’S MILL ROAD AT NORTH HICKORY AVENUE/ CONOWINGO RD (US 1 BUS)
- B5** - PENNSYLVANIA AVENUE AT HICKORY AVENUE
- B6** - LEE STREET AT HICKORY AVENUE
- B7** - LEE STREET AT N MAIN STREET (MD 924)
- B8** - GORDON STREET AT NORTH MAIN & NORTH BOND STREETS (MD 924)
- B9** - MACPHAIL ROAD AT SOUTH MAIN STREET (MD 824)

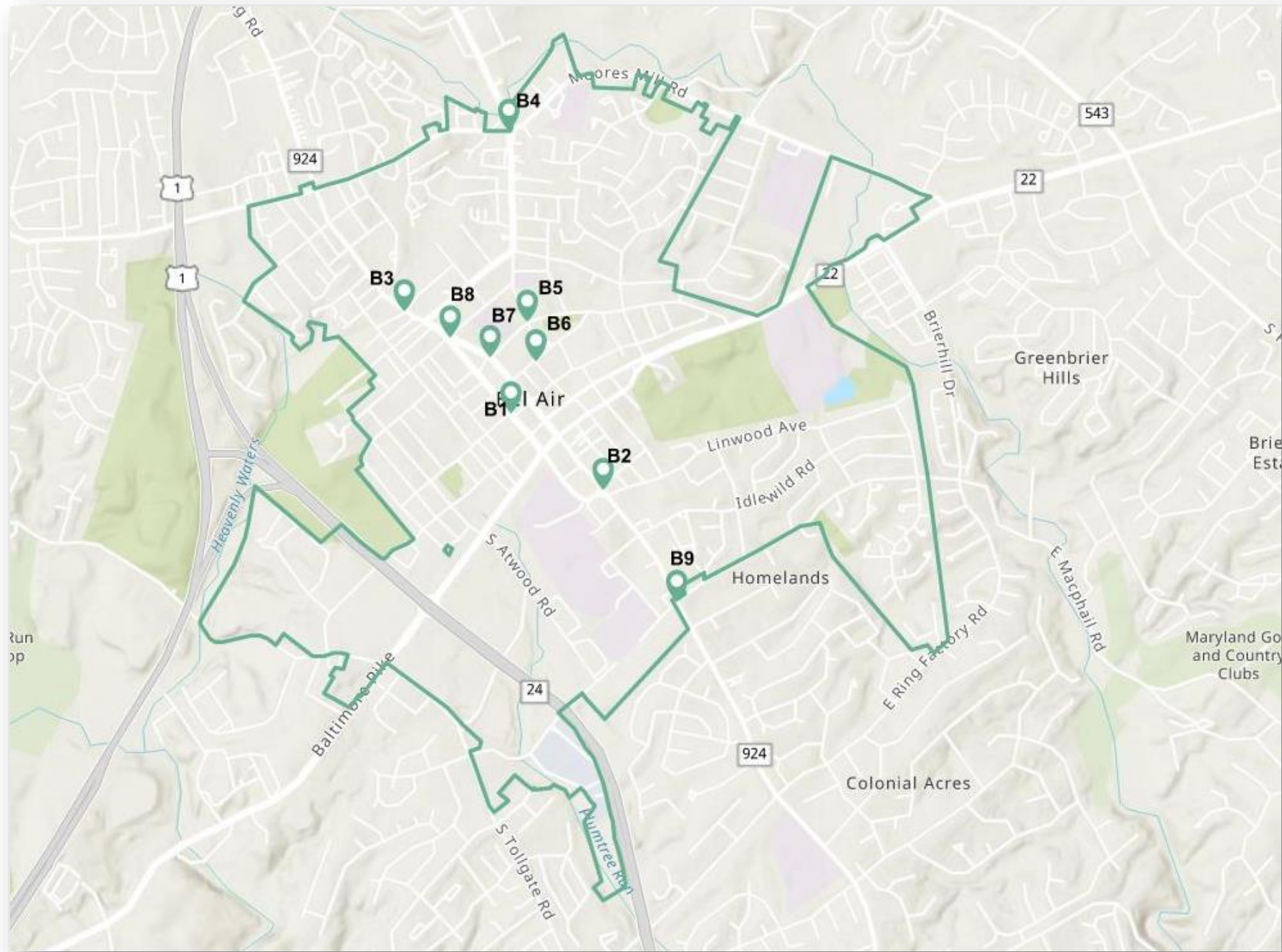


Figure 6-6: Selected Intersections in Bel Air

Historical Crash Analysis

Of the total 217 reported crashes in this study, 55 of them occurred in Bel Air. The most common collision was rear end crash which accounted for 29% of all crashes. Although no fatalities were recorded, 29% of the crashes involved a serious injury either to the driver of the vehicle or to a nearby pedestrian. 4 of the 55 crashes involved a pedestrian, with two of them occurring at the B5 intersection. With most crashes occurring during dry conditions and on Tuesdays.

Crashes Involving Impairment

Within the nine selected intersection areas, about 9% of crashes were due to the driver being under the influence of alcohol or a controlled substance.

Table 6-1: Crashes by Severity

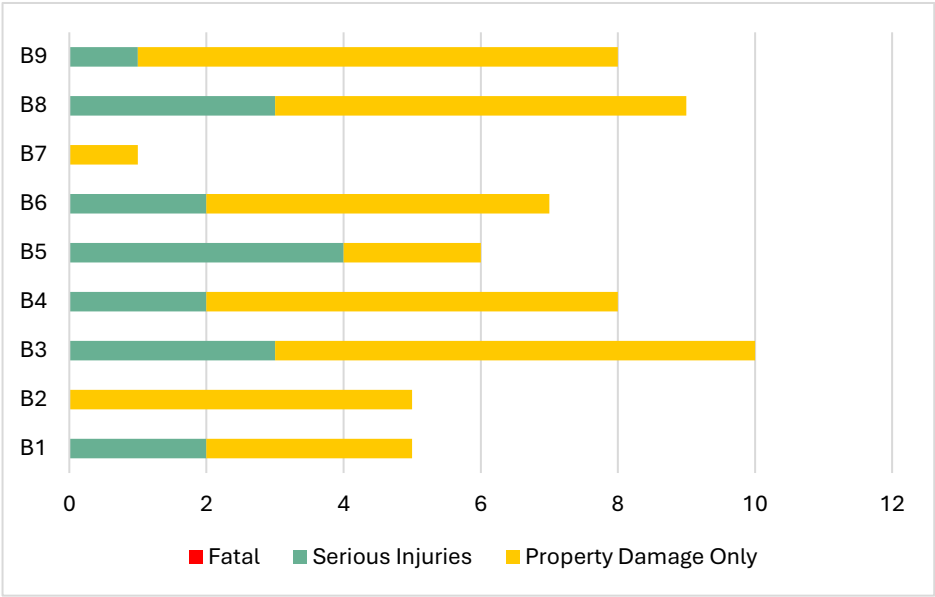


Table 6-2: Crash Summary by Collision Type

Intersection ID										
Crash Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	Total
Driving in Wrong Direction	0	0	0	0	0	0	0	0	0	0
Rear End	3	0	3	3	1	1	0	2	3	16
Sideswipe	2	1	0	0	0	0	0	0	1	4
Left Turn	0	1	0	4	1	0	0	1	1	8
Angle	0	0	3	0	0	6	1	1	3	14
Pedestrian	0	0	1	0	2	0	0	1	0	4
Parked Vehicle	0	0	0	0	0	0	0	1	0	1
Fixed Object	0	3	2	1	0	0	0	2	0	8
Other	0	0	0	0	0	0	0	0	0	0

Table 6-3: Crashes by Lighting Available

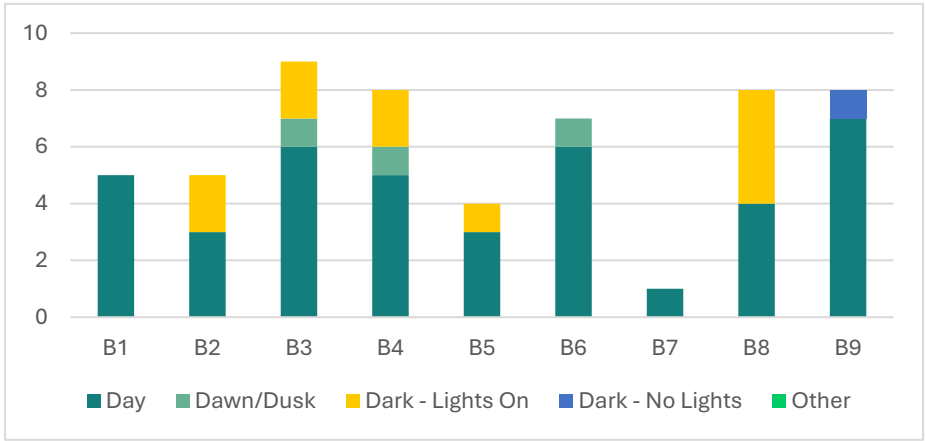


Table 6-4: Crashes by Surface Conditions

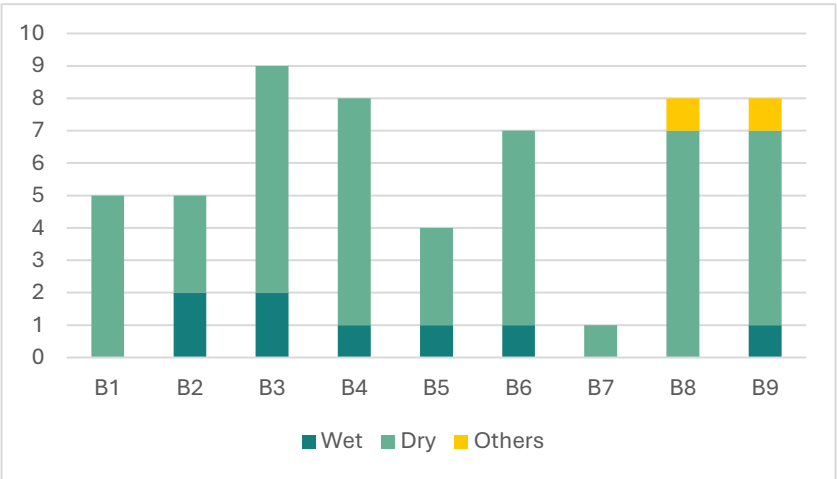


Table 6-5: Crashes by Day of the Week

Intersection ID										
Day of the Week	B1	B2	B3	B4	B5	B6	B7	B8	B9	Total
SUN	0	1	1	0	0	1	0	2	1	6
MON	1	0	0	1	1	1	0	0	0	4
TUE	2	2	4	1	0	2	0	2	2	15
WED	0	2	1	1	1	1	0	0	0	6
THU	0	0	1	0	0	0	0	1	3	5
FRI	1	0	2	2	2	1	0	2	0	10
SAT	1	0	0	3	0	1	1	1	2	9

Top 3 Probable Causes of Crashes in Bel Air

- Fail to Give Full Attention – 20%
- Failure to Yield to Right-of-Way - 13%
- Influence of Alcohol or Controlled Substances – 7%

Table 6-6: Crashes by # of Vehicles Involved

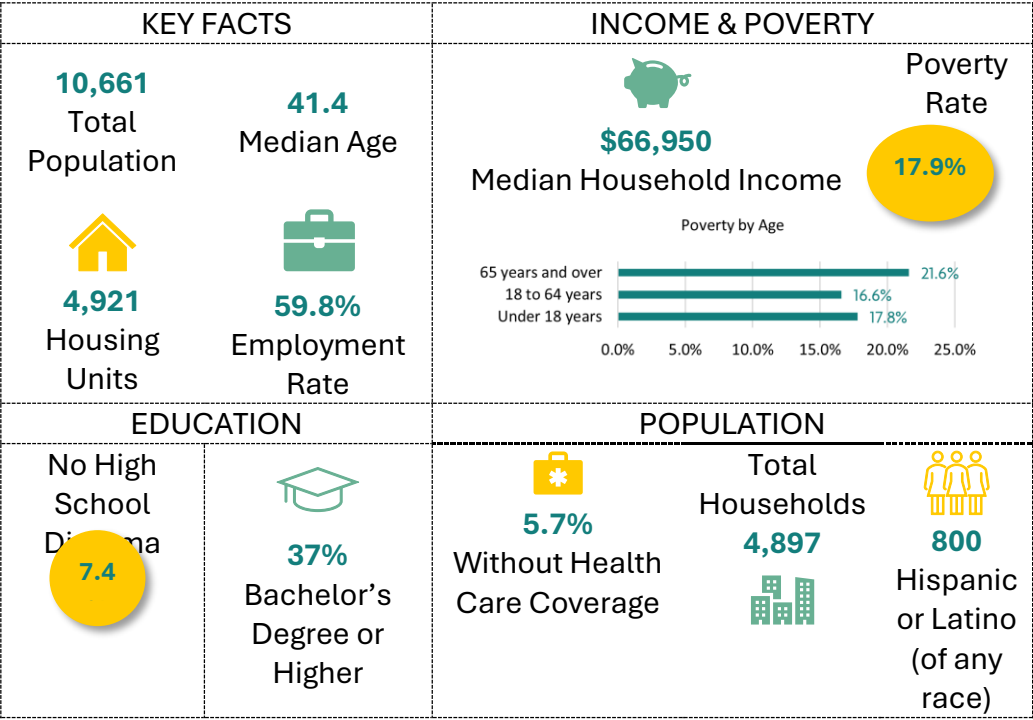
Intersection ID									
# of Vehicles Involved	B1	B2	B3	B4	B5	B6	B7	B8	B9
Single	0	3	3	1	2	0	0	4	0
Two	5	2	6	6	2	6	1	4	7
3 +	0	0	0	1	0	1	0	0	1

Table 6-7: Alcohol or Drug Involvement

Intersection ID										
Alcohol or Controlled Substance Involvement	B1	B2	B3	B4	B5	B6	B7	B8	B9	Total
Yes	0	0	1	1	0	0	0	2	1	5
No	5	5	8	7	4	7	1	6	7	50

Demographics

A 40-minute drive from Baltimore off US 1, Bel Air is characterized by a small-town aesthetic with a vibrant downtown area surrounded by residential communities. With popular outdoor destinations like the Ma & Pa trail and the Bel Air Farmer’s market, Bel Air attracts outsiders to its downtown area. The main thoroughfare is divided between two one-way roads with Main St heading northwest towards Route 1 and Bond St to the southeast. MD 22 splits the downtown into east and west sides, allowing townspeople to travel south to the Harford Mall.



Equitable Considerations

With a poverty rate of 17.9%, which is significantly larger than the State’s 9.1%, Bel Air’s low-income population must be more heavily considered in the intersection improvement upgrades. A focus on improving pedestrian, cyclist, and transit user infrastructure will ensure equitable consideration for those who cannot afford the luxury of a personal vehicle. The largest population of those experiencing poverty in Bel Air are those above the age of 65, which can be interpreted to mean a higher degree of care should be made when making improvements around senior living facilities and keeping to standards for ADA compliance. Figure 6-7 shows that no areas in the Town of Bel Air are in persistent poverty or historically underserved communities. The highlighted portions in this figure indicate the value attributed to each census tracts’ “Disadvantaged Communities Index Score” which are all below the threshold and ultimately mean the indicator of each is Zero.

Additional indicators of vulnerable communities are shown on the next page.

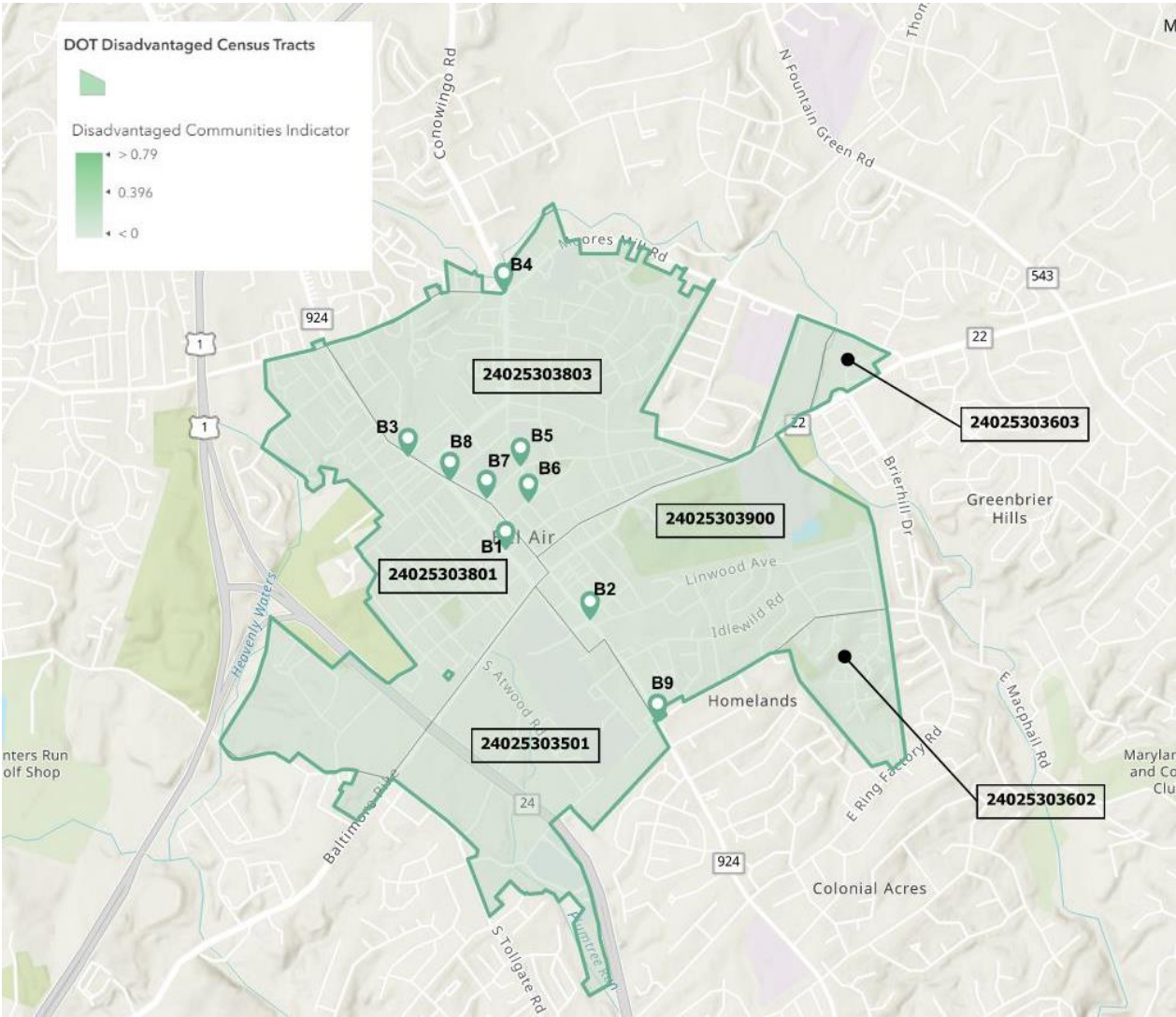


Figure 6-7: Census Tracts in Bel Air

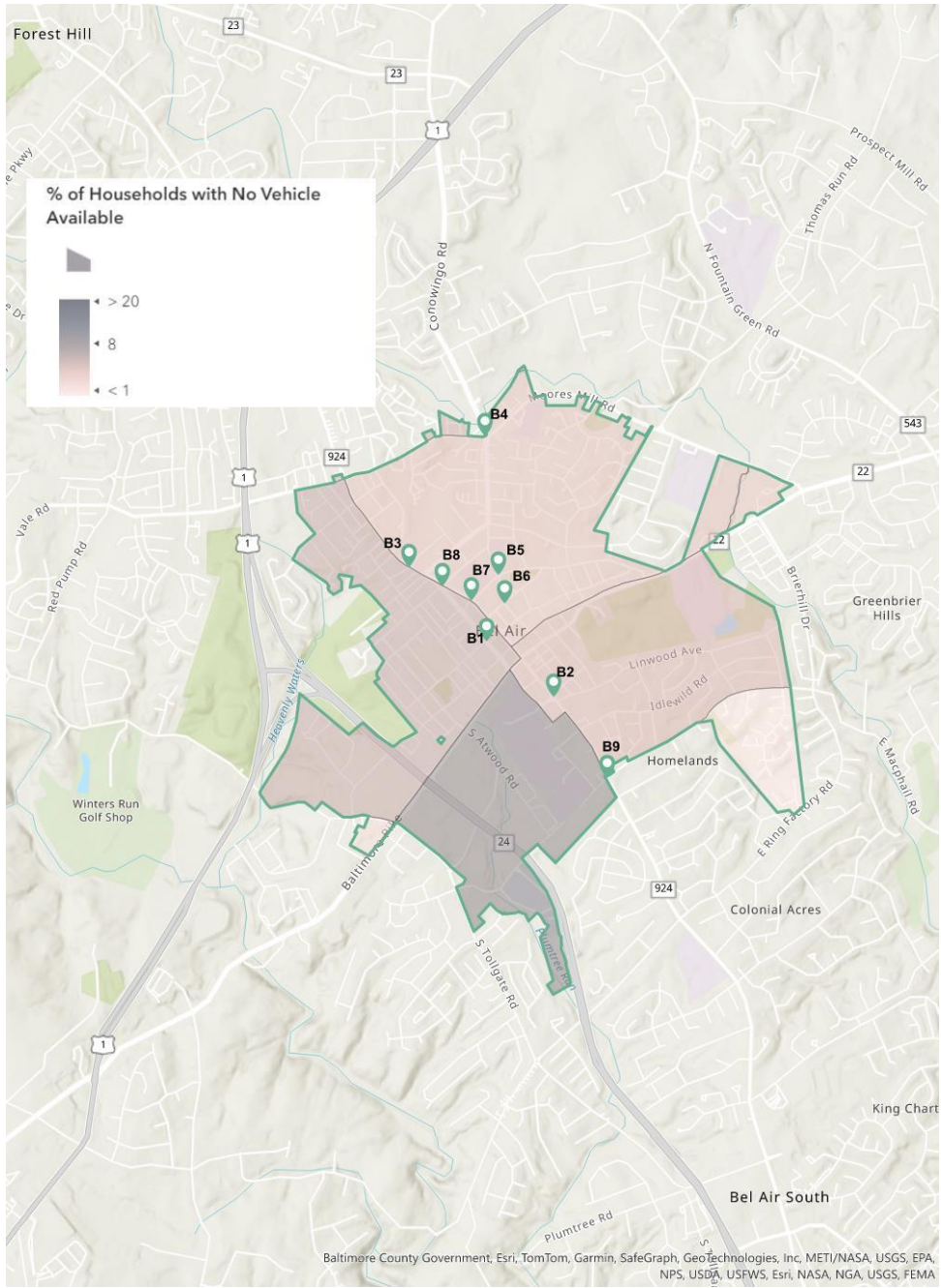


Figure 6-8: % of Households with No Vehicle

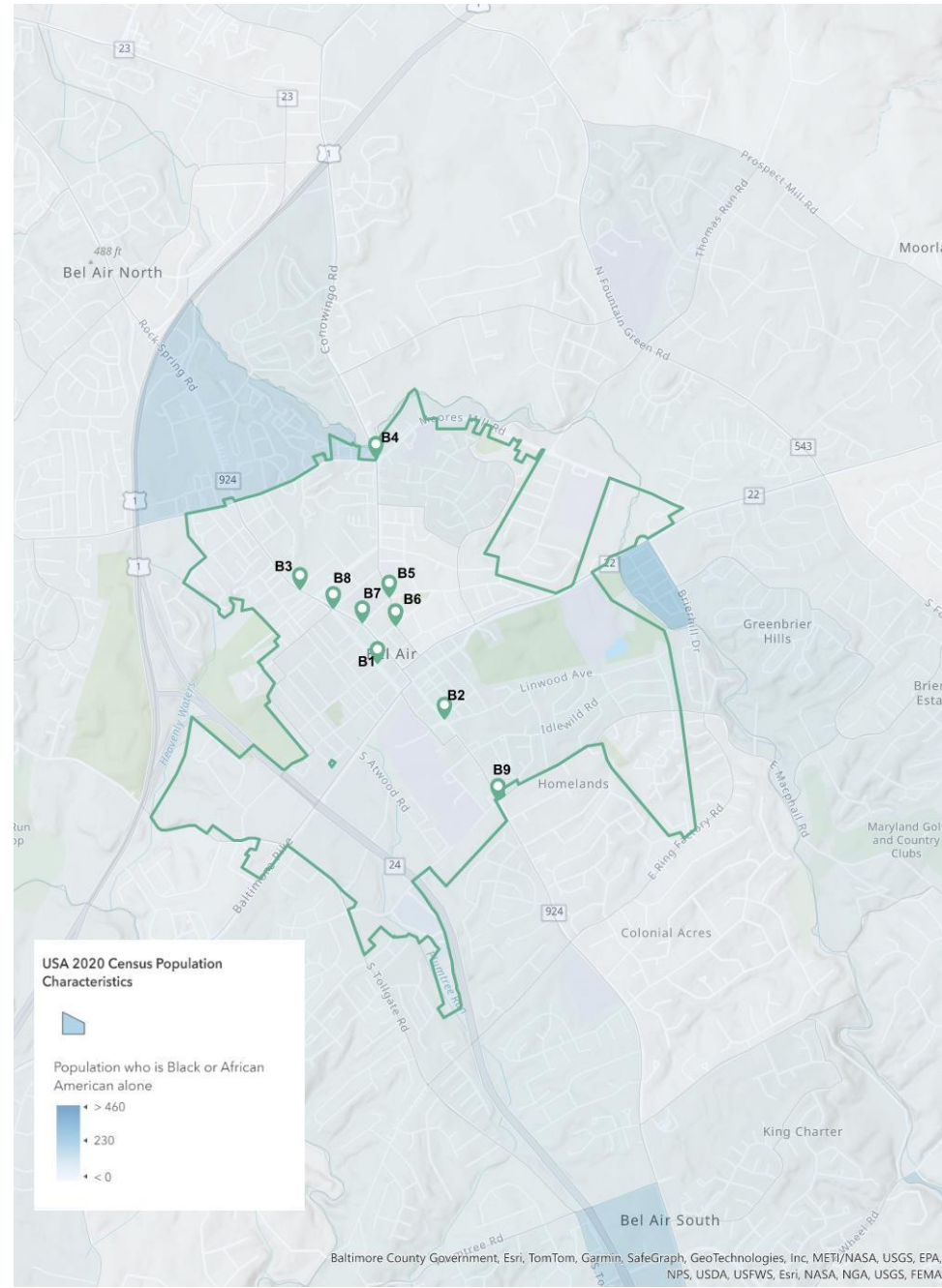


Figure 6-9 % of the Population who is Black or African American:

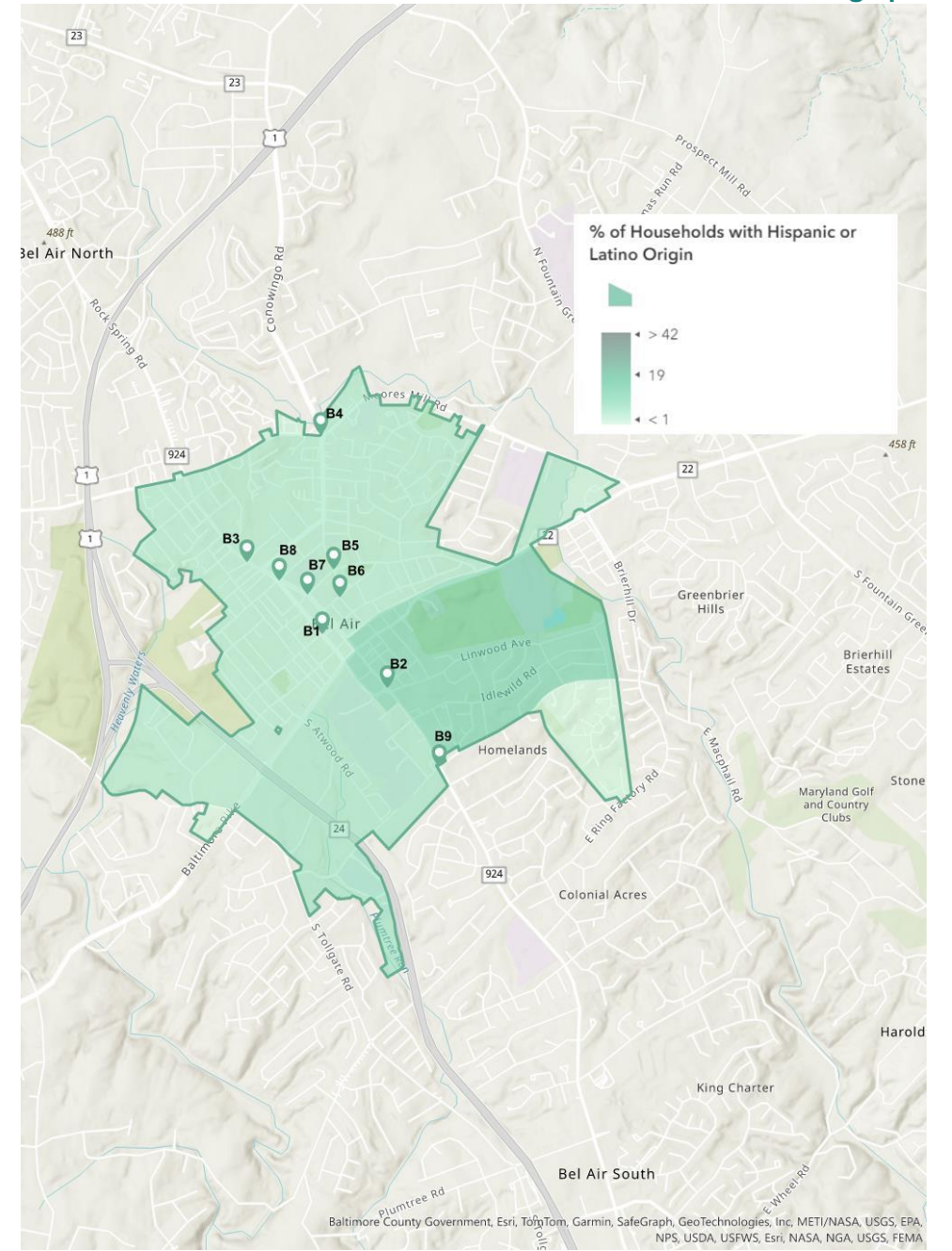
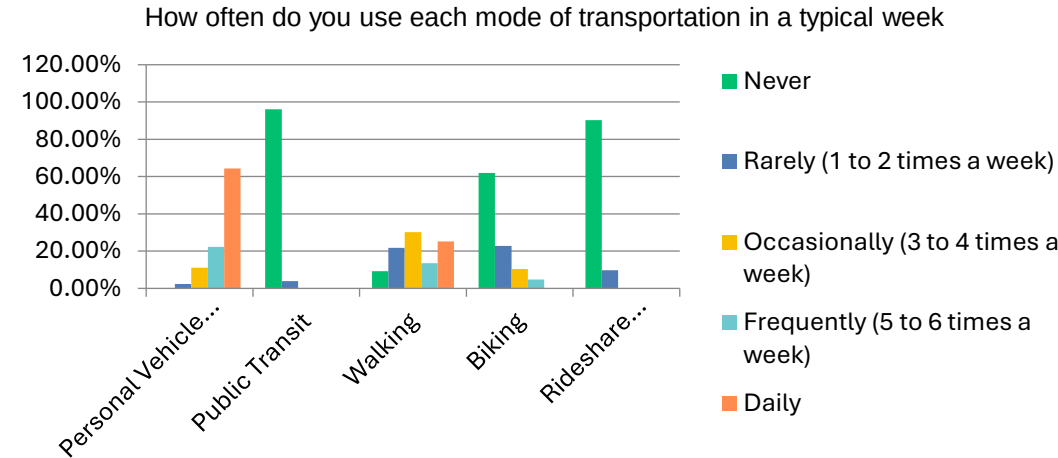


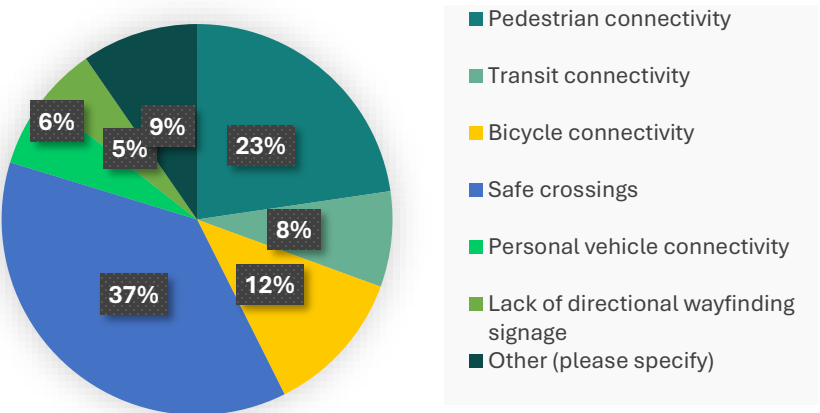
Figure 6-10: % of Households with Hispanic or Latino Origin

Public Input

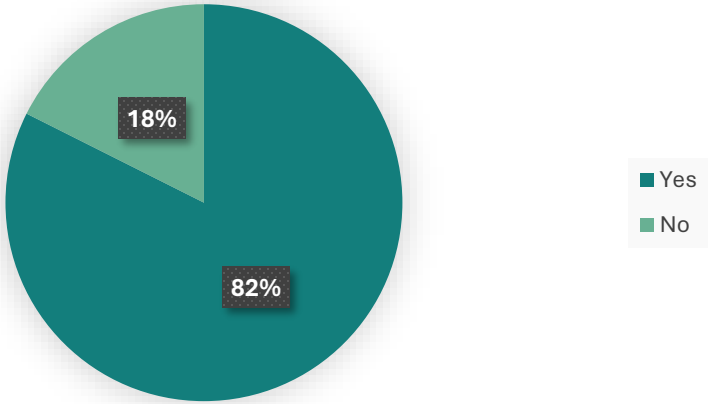
The following information provides a summary of the survey results that are described in Section 3: Public Engagement. All 126 responses were provided by Bel Air residents. For write-in questions, the results have been condensed based on the relevance of this project, but a complete list of the answers provided can be found in the Appendix. For input that was received in the public workshops, this information can be found in the individual analyses of each intersection in the following sections.



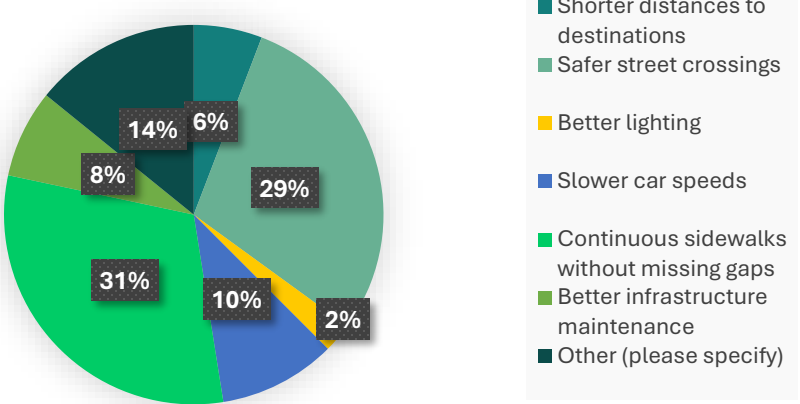
What are your concerns about traveling throughout the Town of Bel Air



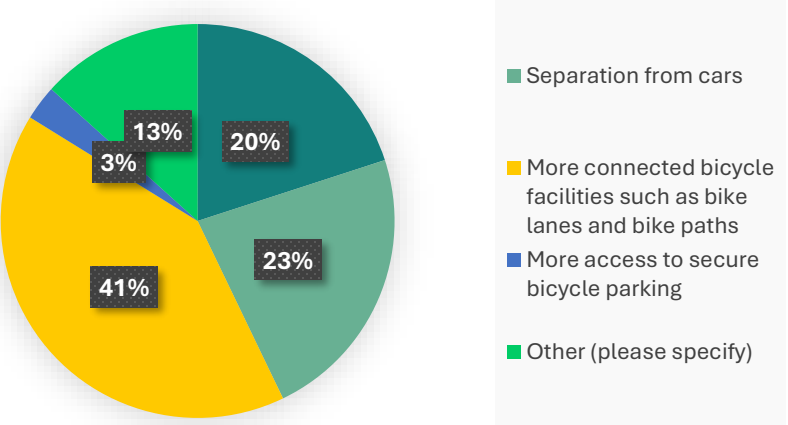
Is the pedestrian crossing time adequate to allow you to cross the street safely?



What would encourage you to walk more than you currently do



What would encourage you to bike more than you currently do



Are there any other concerns you have regarding safe travel in the Town of Bel Air?

- ◆ Lack of Sidewalks, Lighting, and Crosswalks (Particularly Bond & Main St.)
- ◆ Concerns about traffic speed near schools and libraries.
- ◆ Speeding cars and unsafe conditions for pedestrians.
- ◆ Intersection Safety
 - > Visibility of crosswalks concerns
 - > Pedestrian Right of Way enforcement at crosswalks such as Main & Gordon & Hickory and Pennsylvania

Are there any other improvements or specific safety concerns you would like to see in the Town of Bel Air along certain corridors?

- ◆ Improve bike safety with dedicated lanes
- ◆ Requests for enhanced crosswalks with flashing lights. Currently have narrow sidewalks and inadequate lighting.
- ◆ Add traffic cameras and emergency call boxes
- ◆ Hickory is difficult to cross
- ◆ Intersection at Rock Springs Rd and Red pump is too busy.
- ◆ No way to safely cross at Hickory/Business Rt1 and Moores Mill Rd

Are there any transportation facilities in Bel Air that you wish there were more of or that you really enjoy?

- ◆ More bus stops, better bus routes, enhanced connectivity like MARC.
- ◆ Safer bike lanes, dedicated pedestrian only streets, more trails.
- ◆ Hickory and Churchville Rd should be looked at.
- ◆ More Raised Crosswalks.
- ◆ Buffered Bike lanes on Main St.
- ◆ Ped Crossing enhancements at Main St and Courtland

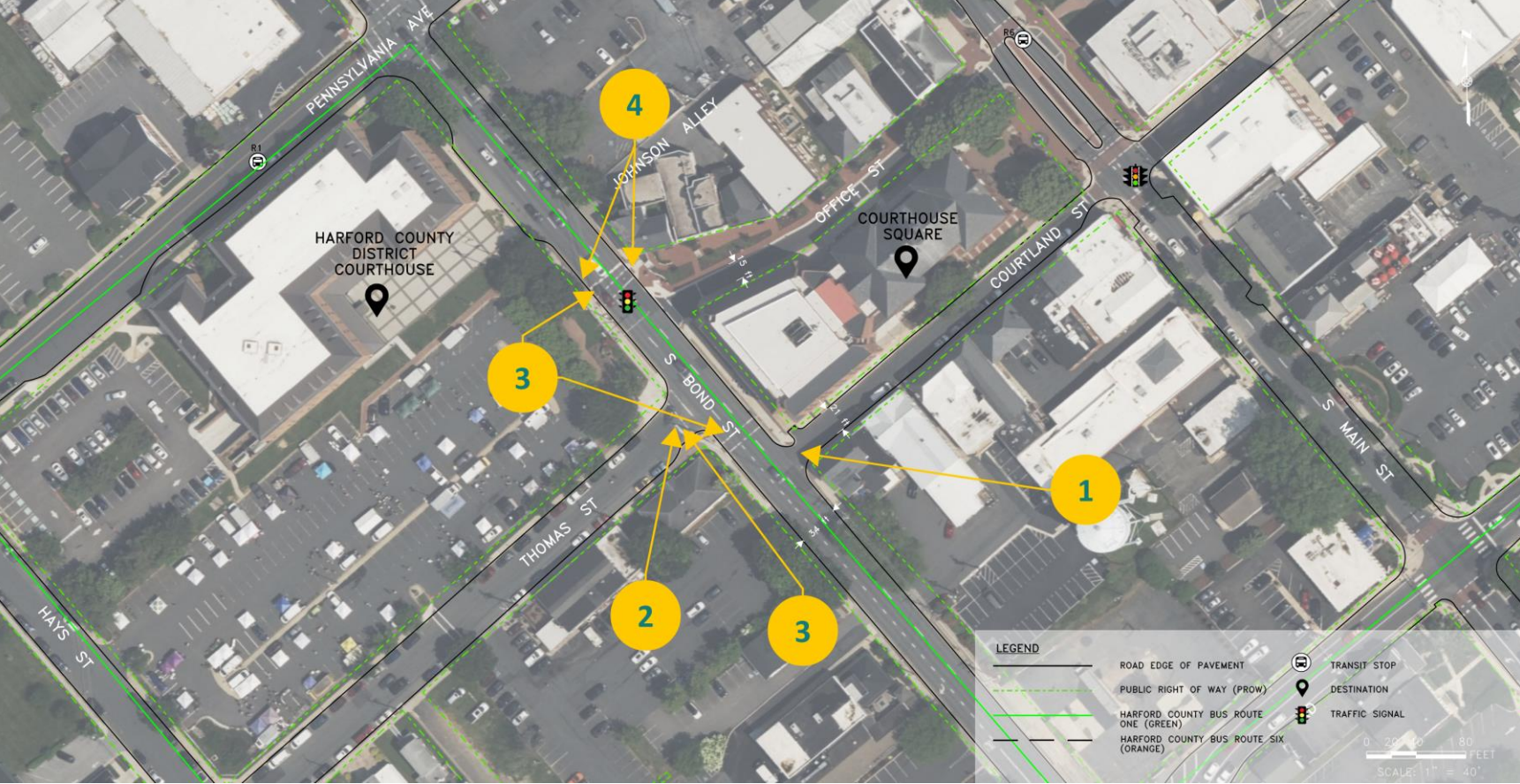


INTERSECTION ANALYSIS

B1 - Court House Square (Office/Courtland Streets) at South Bond Street (MD 924¹)

Existing Conditions & Site Visit Observations

B1 Court House Square is the center of Harford County District Courthouse in the downtown, pedestrian-designated zone. Bond Street (MD 924) is a one-way southbound urban arterial that transitions from a two-lane at Alice Ann Street to a three-lane road. Office and Courtland Streets are local roads that intersect S. Bond Street at the Harford County Circuit Court building. Many pedestrians walk within this Bel Air Courthouse Historic District between the courthouses, attorney and supporting offices, and parking lots. Concrete sidewalks with brick edging, ADA-compliant handicap ramps, streetscaping design elements such as benches, Historic Bel Air wayfinding signs and bike racks have been installed along S. Bond Street.



B1 - Court House Square (Office/Courtland Streets) at South Bond Street (MD 924)

Identified Deficiencies

- 1. Lack of visibility of the Courtland St pedestrian crossing for left turn vehicles.
- 2. The unsignalized crosswalk at Courtland St is only 150' downstream of the signalized crosswalk. This can be unexpected for drivers who are unfamiliar with the surroundings.
- 3. Pavement markings of existing pedestrian crosswalks are outdated. (See Photos below)
- 4. Existing pushbutton signs are faded and unreadable.
 - (Citizen complaint) Speeding is common at this location and creates unsafe crossings of three travel lanes.
 - Several jaywalkers were observed during the visit period crossing Bond St near the existing crosswalks. (See Photo below)
 - Kevin Small commented that the crosswalk location on the south is awkward, and people cross everywhere.
 - No speed limit signs on S Bond St near the intersection.



Intersection Qualities

Speed Limit

- Bond St – 25 mph (Posted)
- Office & Courtland St – 25 mph (Posted)
- Bond St ~30 mph (85th Percentile)

Roadway Classification

- Bond St (MD 924) – Urban Arterial
- Office & Courtland St – Local

AADT

- Bond St (MD 924) – 10,291
- Office & Courtland St - <5000 (Est.)

LOS

- Level A for AM Peak
- Level A for PM Peak

Public Input

Countermeasures Requested

- Rectangular Rapid Flashing Beacon
- Crosswalk Visibility Enhancements
- Road Diet
- Conventional bike lane
- Countdown Pedestrian Signal
- Raised crosswalks.

Concerns

- Either eliminate or make more visible to drivers on Thomas looking left (and not at pedestrians)
- Remove crosswalk. People turning right on Bond from Thomas don't look.
- Two crosswalks so close together aren't necessary.

¹ MD 924 is assumed to run in a north-south direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- 5 reported crashes in 5 years.
- No recorded fatal crash.
- 1 Pedestrian fatality in 2017 (report unavailable).
- 0 crash involved pedestrian/cyclist.
- **Observed Crash Pattern:** None found.

Interpretation of Data

- Pedestrian safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- Un-signalized crosswalk at Courtland St is unsafe and needs mitigation.
- Installation of bike facilities should be evaluated.

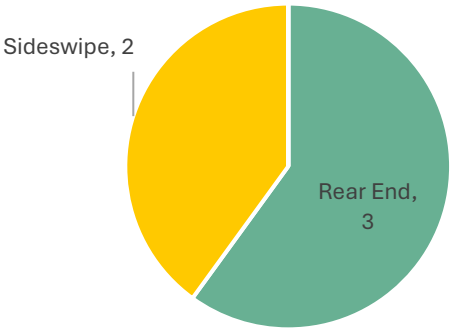


Figure 6-11: B1 Crashes by Type

Recommendations

Table 6-8: B1 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install bicycle racks at selected locations in downtown area, including here.	\$1,300	
	S2	Move two existing signal heads on the mast arm facing Office St to the left, for better alignment.	\$2,600	
	S3	Not used	--	
	S4	Upgrade crosswalks to high visibility (continental style)	\$12,900	
	S5	Not used	--	
	S6	Not used	--	
Intermediate Term (4-5 years)	M1	Update traffic signal at Office St, to add full signal control at Courtland St (including ped signals for crosswalks at Courtland St) and incorporate into the same controller.	\$325,000	This will not need a Signal Warrant Study.
	M2	Build curb extensions near intersections, reduce Bond St down to 2 thru lanes, up to just east of Courtland St.	\$231,600	
	M3	Build curb extensions further away between W Lee St and W Pennsylvania Ave to leave 2 thru lanes on Bond St. Use the shoulder space for bike facilities.	TBD	
Long Term (5+)	L1	Add a bike lane on Bond St corridor, may be a combination of sharrows (on two-lane-only sections) and dedicated bike lane (where space is available)	TBD	Cost pending for future bike lane study results.



B2 – Kenmore Road at South Main Street (MD 924^{2*})

Existing Conditions & Site Visit Observations

The B2 intersection sits at the entrance to the main street for downtown Bel Air and the egress point of Bel Air High School. Heavy pedestrian traffic utilizes this intersection for access to the school yet B2’s current orientation proves to be unfriendly for these walkers and cyclists as many were observed jaywalking or cutting through non-pedestrian zones to navigate their way to school. Since Kenmore Ave and the northern portion of S Main St past the intersection are both one-way, B2 also acts as a conversion point for traffic traveling through Bel Air. This intersection has been mentioned in the 2013 Bel Air Bike and Ped plan as requiring upgrades and several public comments (made before the initiation of this Action Plan) have been made regarding difficulties in navigating the intersection properly.



Identified Deficiencies

1. Students jaywalking across Kenmore Ave during the AM observation (around 7 AM), who parked at the office parking lot.
2. Lighting seems to be insufficient at the intersection of Main St and Linwood Ave.
3. Existing crosswalk markings north of raised median at Main St and Linwood Ave are outdated.
4. A pair of pedestrian ramps were installed without marked crosswalks.
5. Pedestrian warning signs are missing facing the southbound traffic.
6. Crosswalks at Eastern Ave are missing pavement markings.
7. Pedestrian crossing warning signs are hard to see by southbound turning traffic.
8. Existing parking signs block the Yield sign.
9. The large unhatched pavement can cause motorist confusion and the space can be used at pedestrian crossings or refuge areas – currently there is no crosswalk connecting the west side of the intersection to the rest.
10. With only two lanes coming in, the existing 3-lane section seems unnecessary and can be reduced to two lanes.

Students Jaywalking



Pedestrian Ramps with No Crosswalk



Large Unhatched Area



Outdated Crosswalk Markings



Intersection Qualities

Speed Limit

- Kenmore Ave – 30 mph (Posted)
- S Main St – 30 mph (Posted)

Roadway Classification

- Kenmore Ave – Principal Urban Arterial
- S Main St – Principal Urban Arterial

AADT

- Kenmore Ave – 10,291
- S Main St – 10,700

LOS

- Level A for AM Peak
- Level A for PM Peak

Public Input

Countermeasures Requested

- Road diet
- Pedestrian hybrid beacon at existing crosswalk on south leg of Main St
- Roundabout
- RRFB
- Speed Management

Concerns

- The roads are very “highway-like” and difficult for pedestrians and encourage cars to speed.
- The sidewalks on north side of Main St are uncomfortable because there’s no buffer.
- Left turn from Linwood onto S Main St is difficult because of right turning traffic from Heighe St that doesn’t stop.
- Cars leaving town are picking up speed and do not see crosswalk. Needs a signal (flashing). Affects students parking off site or walking

² MD 924 is assumed to run in a north-south direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- 5 reported crashes in 5 years.
- No fatal crashes.
- Less than 5 reported crashes in a 12-month period. Signal warrant 7 not met.
- 0 crashes involving pedestrians or cyclists.
- **Observed crash pattern:** All crashes occurred within the curved section between Heighe St and Main St and involved 3 fixed-objects.

Interpretation of Data

- ◆ Pedestrian (mostly high school students) safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ Confusing traffic movements including pedestrian crossing at the intersection need mitigation.
- ◆ Speed management near the school zone is needed.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The roadway horizontal curve may have caused all crashes and needs mitigation.

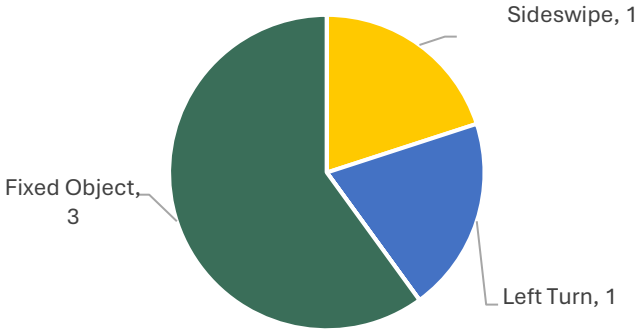


Figure 6-12: B2 Crash by Type

Recommendations

Table 6-9: B2 Recommendations

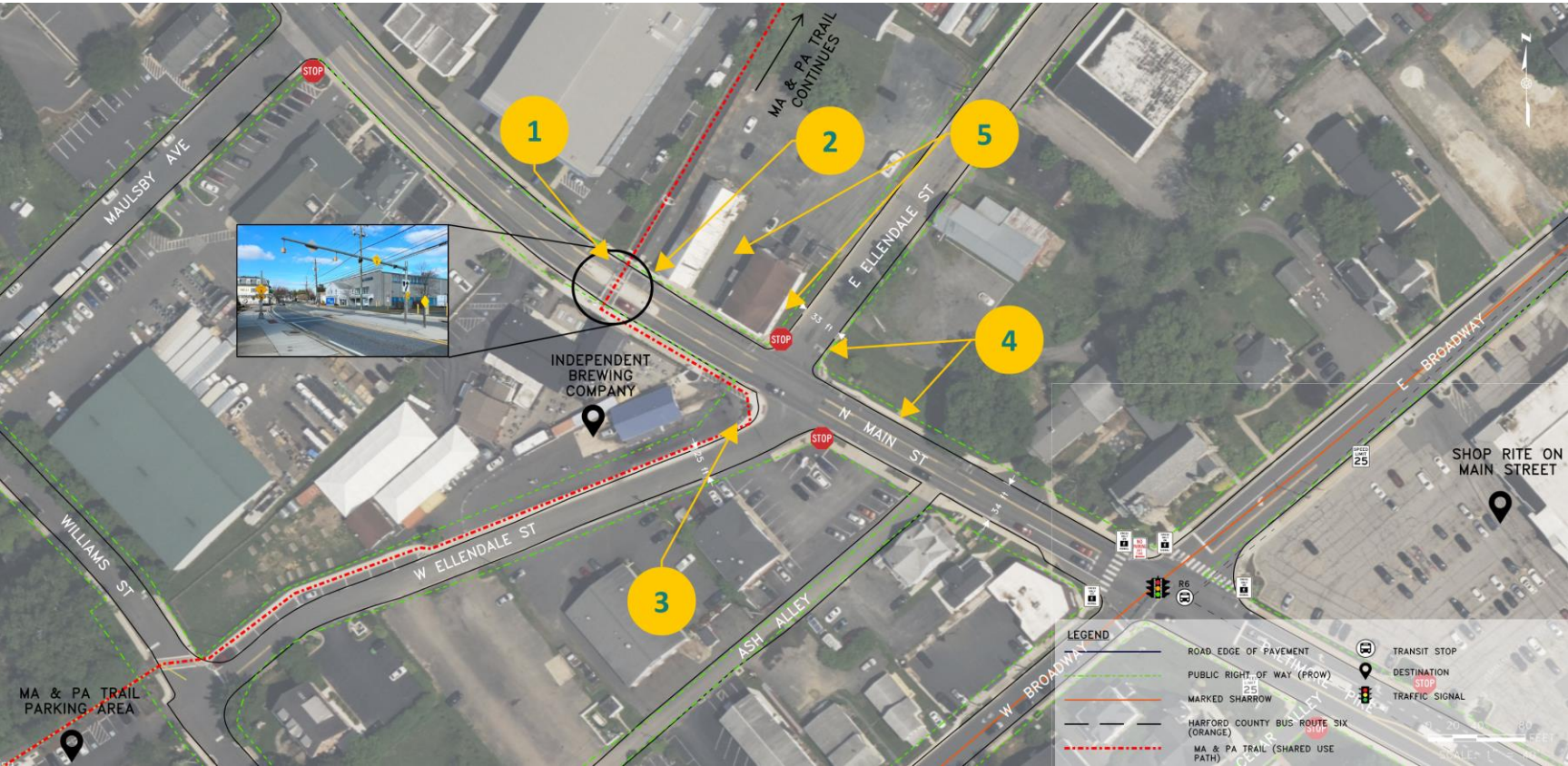
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install S5-1 & S4-4(1)"SCHOOL SPEED LIMIT 20 WHEN FLASHING, FINES DOUBLE" sign assembly, with flashing beacons. Install Speed camera with S5-1(1) sign	\$74,700	
	S2	Upgrade crosswalks to high visibility (continental style)	\$10,600	
	S3	Move the current sign assembly (School crossing S1-1 and W16-7p) from north curb to the median to enhance visibility for northbound vehicles.	\$800	
	S4	Remove unused ex. ADA ramps (without crosswalk) at unsafe locations	\$5,000	MDOT SHA Estimate
	S5	Install S5-2 "END SCHOOL ZONE" sign	\$800	
	S6	Install 1 object marker sign (OM3-C) on island and 3 chevron signs (W1-8L) along the curve.	\$3,200	
	S7	Install School crossing (S1-1 and W16-7p) sign assembly.	\$1,600	
	S8	Install driver speed feedback sign at proper location.	\$7,800	
Intermediate Term (4-5 years)	M1	Remove one thru lane, use the space to: > extend curbs on both sides to add grass buffers b/t crosswalks and traffic. > if needed, add short term parking spaces b/t bulbouts.	TBD	Need a traffic study. Cost pending on the results.
	M2	Convert Linwood Ave to Right-In-Right-Out only. Add curb/landscape. Add S1-1 School crossing sign assembly.	\$350,000	MDOT SHA Estimate Need a traffic study.
Long Term (5+)	L1	Evaluate the possibility of adding a bike lane on the corridor.	TBD	Cost pending for future bike lane study results.
	L2	Evaluate feasibility of a roundabout. Significantly constrained by Right-Of-Way.	\$2,000,000	MDOT SHA Estimate Need a traffic study.



B3 – Ellendale Street (Ma & Pa Trail) at North Main Street (MD 924³)

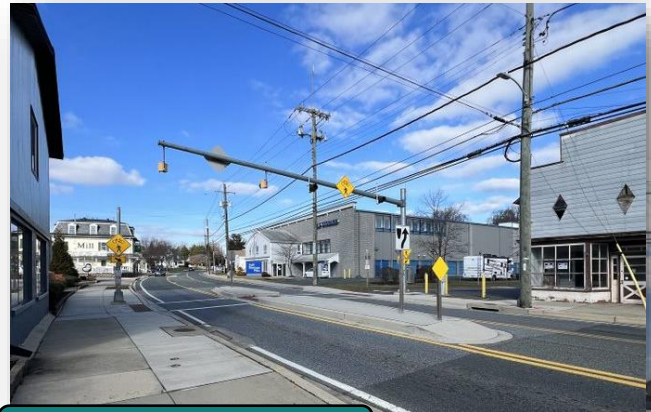
Existing Conditions & Site Visit Observations

The current trailhead for the southern section of the Ma & Pa is located at Williams Street near the intersection with Ellendale Street. Ellendale, a commercial collector, has two lanes, one in each direction, and has parking along half of the block on the north side adjacent to the car wash and brewery. West Ellendale Street has a continuation of the trail to N. Main Street via a 510-foot sidewalk. To continue onto the trail, people walk along the North Main Street sidewalk adjacent to the car wash and brewery and use the crosswalk with flashing yellow beacons. West and East Ellendale Streets are offset by approximately 30 feet. Since Ellendale Street has a mix of industrial and commercial uses, many trucks use North Main Street to turn onto Ellendale Street. The car wash driveway exits at the intersection, and the pizza and barber shop parking lot create challenges and conflicts with the trail users. The vacant two-story commercial building on the northeast corner will be demolished in summer 2024.



Identified Deficiencies

1. Existing crosswalk markings are outdated.
 2. Missing any yield-to-pedestrian signs. Sometimes even when the beacons are flashing, vehicles do not stop or slow down for pedestrians.
 3. The curb return in the northwest quadrant is too abrupt for bicyclists to turn safely, risking rolling over to the road. A trail wayfinding sign should be added at this location.
 4. Stop signs and curb ramps are present on Ellendale St (both approaches) with no accompanied stop bars and marked crosswalks.
 5. (According to the Independent Brewing Company staff) 411 and 421 N Main St, property of Independent Brewing Company, will be demolished and converted to a parking lot in the future. Pedestrian volume is expected to increase.
- (Citizen complaint) Current APS message (“Yellow lights are flashing”) is confusing to pedestrians. Modify the message to indicate the desired action (“to cross with caution”) for pedestrians.
- Kevin Small commented that vehicles do not slow down at the pedestrian crossing and the layout of the intersection feels awkward



Existing Flashing Beacon



Missing Crosswalk Markings at W Ellendale

Intersection Qualities

- Speed Limit
- Ellendale St – **25** mph (Posted)
 - N Main St – **30** mph (Posted)
- Roadway Classification
- Ellendale St – **Commercial Collector**
 - N Main St – **Principal Urban Arterial**

- AADT
- Ellendale St – **<5000** (Est.)
 - N Main St – **15,430**
- LOS
- Level **A** for AM Peak
 - Level **A** for PM Peak

Public Input

Countermeasures Requested

- RRFB at trail crossing
- Walkways on Ellendale St
- Bike lanes on Ellendale from the trail at Williams and Ellendale
- Lighting on Ma & Pa Trail
- Curb extension at intersection
- Crosswalk visibility enhancements
- Raised crosswalk.

Concerns

- No way to cross at the intersection (Ellendale at Main St)
- The crossing light at trail are too high
- Wayfinding from the trail is needed.
- No sidewalk on the south side of Ellendale St

³ MD 924 is assumed to run in a north-south direction, per MDOT SHA

Crash Analysis

Key Findings of Reported Crashes

- 9 reported crashes in 5 years.
- Less than 5 reported crashes in 12 months. Signal warrant 7 not met.
- No fatal crashes.
- 1 crash involved cyclist: SBT vehicle hit cyclist crossing the mid-block crossing.
- **Observed crash pattern:** 2 NB rear-ended crashes at the trail crossing.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ The existing flashing beacons at the pedestrian crossing are ineffective and need improvement.
- ◆ Safe pedestrian crossing and ADA-compliant facilities are needed at Ellendale St.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The flashing yellow beacons and signs do not provide clear direction for drivers and may have caused the crashes at the trail crossing and need mitigation.

B3 – Ellendale Street (Ma & Pa Trail) at North Main Street (MD 924)

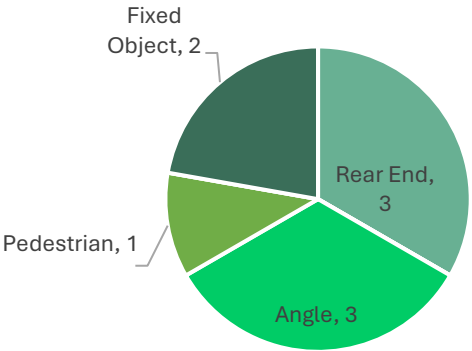


Figure 6-13: B3 Crashes by Type

Recommendations

Table 6-10: B3 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Revise the current APS message "Yellow lights are flashing" to be standard MDOT SHA APS messages - when pressed and waiting: "WAIT TO CROSS MAIN STREET, WAIT"; when yellow lights are flashing: rapid ticking.	\$0	
	S2	Remove existing Crosswalk signs and replace with R1-6a(2) / R1-9a signs. Install Stop lines. Install high visibility (continental style) crosswalks	\$3,200	
	S3	Modify ex. depressed curb to full-height curb.	\$20,000	MDOT SHA Estimate
	S4	Install high visibility (continental style) crosswalks	\$4,700	
	S5	Install new stop lines at the stop signs.	\$1,100	
	S6	Install pavement marking on asphalt within public ROW and correct the sharp turn of ped/bike trail.	\$400	
	S7	Remove street parking spaces and use for widening bike/ped trail.	\$6,900	
	S8	Install additional flashing lights (pole-mounted or in-pavement) to supplement those existing mast-arm mounted beacons.	\$13,000	
Intermediate Term (4-5 years)	M1	Upgrade ex. Flashing-Yellow beacons to full-color signals ("Maryland Pedestrian Signal")	\$243,800	
	M2	For the planned building demolition and new parking lot (by the Brewery): > Install new sidewalks along Main St and Ellendale St > Install curb extensions on Ellendale St	\$180,400	If part of it can be done by the developer, then the cost would reduce.
	M3	Convert Ellendale St to One-Way southbound. Narrow street to one-lane; use space for widening bike/ped trail with buffer (raised concrete or grass landscape)	TBD	Need a traffic study. Cost pending on the results.
Long Term (5+)	L1	Evaluate feasibility to incorporate bike lanes, including a potential bike lane on Main St b/t the Ma-Pa Trail to E/W Broadway	TBD	Cost pending for future bike lane study results.
	L2	Reconfigure the south side of Ellendale St to align with the north side.	TBD	



B4 – Moore’s Mill Road at North Hickory Avenue/Conowingo Rd (US 1 BUS⁴)

Existing Conditions & Site Visit Observations

B4 is a signalized intersection characterized by commercial land uses with numerous access driveways, limited street lighting and lack of pedestrian crosswalks and ADA-compliant handicap ramps. Moore’s Mill Road, a two-lane road with a center turning lane has sidewalks and ADA improvements in the eastbound direction on both sides of the road up to Heritage Woods Apartments then only along the south side. In the westbound direction of Moore’s Mill Road, sidewalks and ADA improvements also exist on the north side. Hickory Avenue, south of Moore’s Mill Road is a closed section two-lane road with a sidewalk on the west side. This section is residential with a lower posted speed. Once the road changes names from Hickory Avenue to Conowingo Road, the character of the roadway is an open section with variable-width shoulders and then a closed section just past Irwin Road. The posted speed is higher on Conowingo Road.



Identified Deficiencies

1. Pedestrian ramps are installed at this intersection without marked crosswalks or pedestrian signals.
2. Disconnected sidewalk along Moore’s Mill Rd between Hickory Ave to 120’ east of the intersection.
3. Signals are less visible with background glares.
4. An ECG (East Coast Greenway) bike route sign is located ~180’ east of the intersection. The arrow sign should be a forward right arrow instead of the right arrow.
5. Missing crosswalks to access NE quadrant.
6. Missing sidewalk on Moore’s Mill Rd.



Intersection Qualities

Speed Limit

- Moore’s Mill Rd – **30** mph (Posted)
- Hickory Ave – **30** mph (Posted)
- Conowingo Rd – **40** mph (Posted)

Roadway Classification

- Moore’s Mill Rd – **Urban Collector**
- Hickory Ave – **Principal Urban**

AADT

- Moore’s Mill Rd – **8,701**
- Hickory Ave – **11,002**

LOS

- Level **A** for AM Peak
- Level **B** for PM Peak

Recent and Planned Projects

MDOT SHA has recently completed enhancements to this intersection on the NW ramp.



⁴ US 1 BUS is assumed to run in a north-south direction, per MDOT SHA.

Public Input

Countermeasures Requested

- Crosswalk visibility enhancements
- Buffered Bike lanes
- CPS or APS
- Walkways

Concerns

- No sidewalks near Dunkin Plaza
- If a traffic circle is placed here please make sure it accommodates cyclists
- Crosswalks on all sides are needed and timed lights for pedestrians
- Disconnected sidewalks along Conowingo Rd

Crash Analysis

Key Findings of Reported Crashes

- 8 reported crashes in 5 years.
- No fatal crashes.
- 0 crashes involving pedestrians or cyclist.
- **Observed crash pattern:** 7 crashes were rear-ended (3) or left turning (4) at signal.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment, lighting) are needed at/near the intersection.
- ◆ Accesses to the stores on the northwest and northeast corners are excessive and too close to the intersection and need mitigation.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The observed crash pattern indicates a need to check yellow/all-red clearances

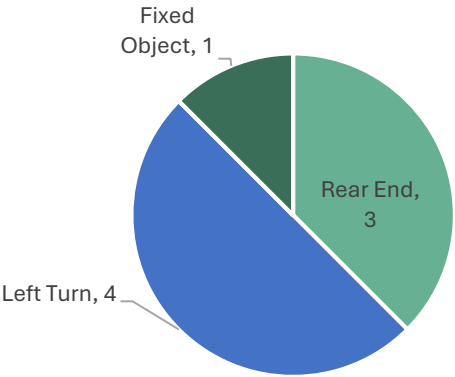


Figure 6-14: B4 Crashes by Type

Recommendations

Table 6-11: B4 Recommendations

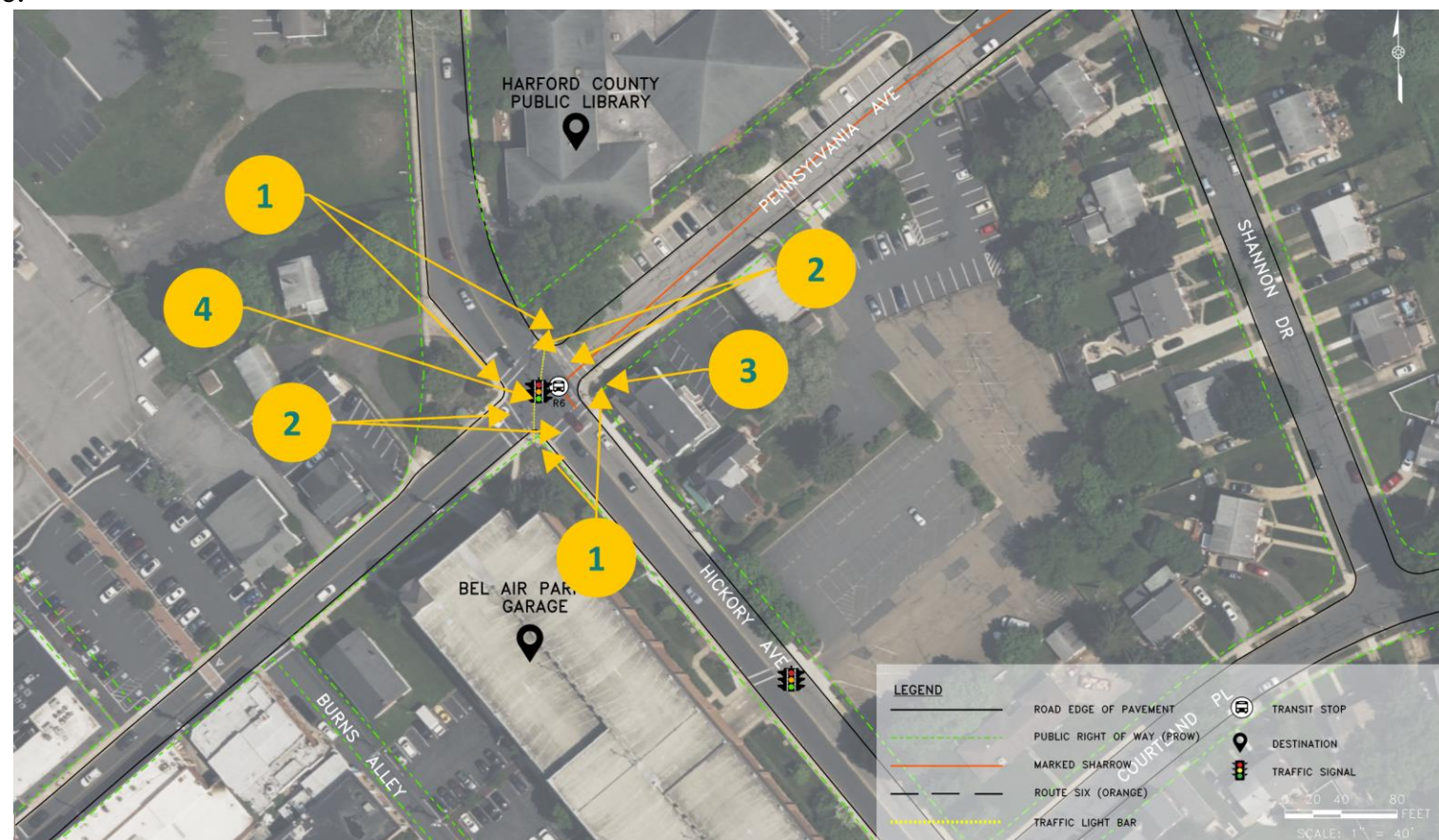
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install new sidewalks and ADA ramps to the intersection.	\$44,000	MDOT SHA Estimate
	S2	Install bike rack(s) within public ROW, for cyclists who use the convenience store. If private owner allows, may consider to install near shops.	\$1,300	
	S3	Not used	--	
	S4	Evaluate and update as needed signal yellow and all-red clearance intervals.	\$0	
Intermediate Term (4-5 years)	M1	Upgrade traffic signal to add APS/CPS pedestrian signals, and add four crosswalks (and necessary ADA ramps) for all legs.	\$325,000	
	M2	Install additional intersection lighting for intersection and crosswalks. [citizen observation: children often cross this intersection to reach the 7-11 during the night.]	\$10,400	
Long Term (5+)	L1	Close these excessive accesses. Remove street parking spaces and use for expanding bike/ped trail.	\$86,300	
	L2	Evaluate feasibility to incorporate planned bike lanes	TBD	Cost pending for future bike lane study results.



B5 – Pennsylvania Avenue at Hickory Avenue⁵

Existing Conditions & Site Visit Observations

The intersection at Pennsylvania and Hickory Avenue is a four-way signalized intersection that controls vehicular traffic traveling to various destinations in downtown Bel Air. Just adjacent to B5 is a large parking garage and the Harford County Public Library. A new entrance to the library that faces the intersection has been discussed where pedestrian bulb-outs were a possibility in the reconfiguration, but the design is currently on hold. A newly installed sharrow runs on the east side of the intersection along Pennsylvania Avenue while a bus stop at the intersection accommodates Route Six bus riders. Vehicular traffic through the intersection is expected to increase due to a proposed development on the western side of Hickory Avenue.



Identified Deficiencies

1. Existing pedestrian pushbuttons are not APS. Existing pedestrian signals appear to be CPS type but do not count down “flashing don’t walk” time.
2. Existing crosswalk markings are outdated.
3. The pushbutton on the southeast corner is damaged.
4. Signals are less visible with background glares.



Intersection Qualities

Speed Limit

- Pennsylvania Ave – **25** mph (Posted)
- Hickory Ave – **30** mph (Posted)
- Hickory Ave ~**27** mph (85th Percentile)

Roadway Classification

- Pennsylvania Ave - **Local**
- Hickory Ave – **Principal Urban Arterial**

AADT

- Pennsylvania Ave – **<5,000 (Est.)**
- Hickory Ave – **11,002**

LOS

- Level **B** for AM Peak
- Level **B** for PM Peak

Public Input

Countermeasures Requested

- Raised crosswalks.
- Conventional bike lanes
- Countdown Pedestrian Signal and Crosswalk Visibility Enhancements

Concerns

- Residents stated that they have not had concerns as pedestrians at this intersection and inquired why another location would not be better to do upgrades at.

⁵ Hickory Avenue is assumed to run in a north-south direction.

Crash Analysis

Key Findings of Reported Crashes

- 4 reported crashes in 5 years.
- 1 crash involved a pedestrian.
- 1 crash involved a cyclist.
- No fatal crashes.
- **Observed crash pattern:** None found.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment) are needed at/near the intersection.
- ◆ The exiting traffic from the parking garage needs management.
- ◆ Installation of bike facilities should be evaluated.

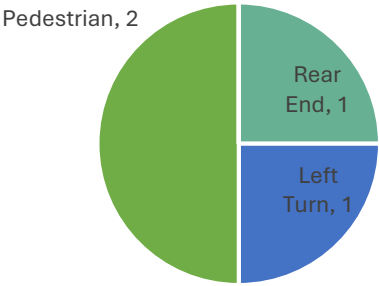
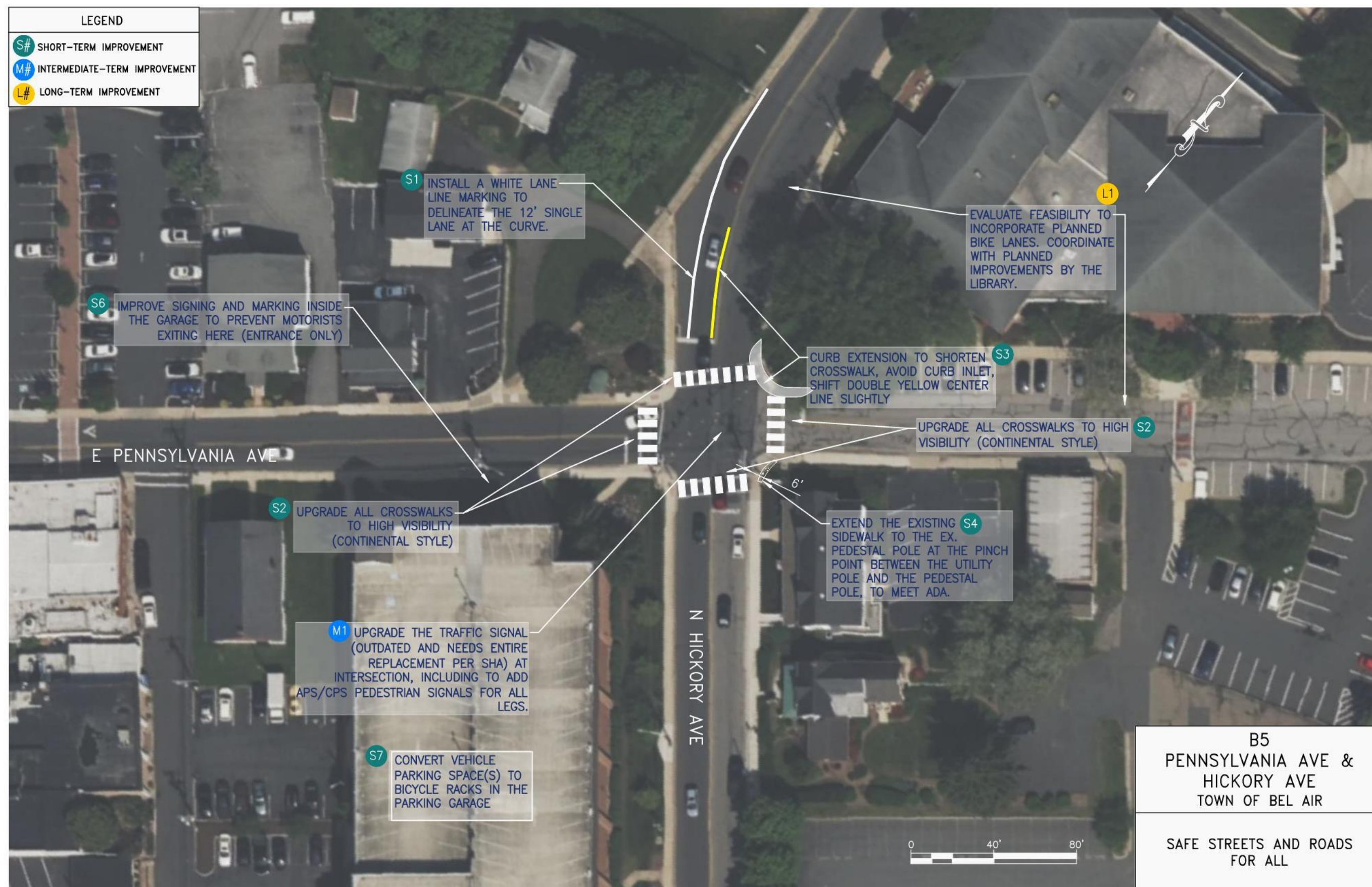


Figure 6-15: B5 Crashes by Type

Recommendations

Table 6-12: B5 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install a white lane line marking to delineate the 12' single lane at the curve.	\$900	
	S2	Upgrade all crosswalks to high visibility (continental style)	\$10,600	
	S3	Curb extension to shorten crosswalk, avoid curb inlet, shift double yellow center line slightly	\$8,900	
	S4	Extend the existing sidewalk to the ex. pedestal pole at the pinch point between the utility pole and the pedestal pole, to meet ADA.	\$1,300	
	S5	Not used	--	
	S6	Improve signing and marking inside the garage to prevent motorists exiting here (entrance only)	\$2,500	
	S7	Convert vehicle parking space(s) to bicycle racks in the parking garage	\$2,600	
Intermediate Term (4-5 years)	M1	Upgrade the traffic signal (outdated and needs entire replacement per SHA) at intersection, including to add APS/CPS pedestrian signals for all legs.	\$325,000	
Long Term (5+)	L1	Evaluate feasibility to incorporate planned bike lanes. Coordinate with planned improvements by the library.	TBD	Cost pending for future bike lane study results.



B6 – Lee Street at Hickory Avenue⁶

Existing Conditions & Site Visit Observations

This is an unsignalized, four-way intersection with stop signs on Lee St while the through movements on Hickory do not stop. Nearby destinations include the Bel Air Police Station, St. Margaret Church which hosts a day school, and Bel Air Elementary School which sees heavy pedestrian traffic during arrival and dismissal times. The intersection was upgraded with pedestrian bulb-outs on the eastern side less than 5 years ago. Bel Air Planning previously researched the installation of a traffic island on the north side but has tabled the design due to the queuing on Hickory Avenue by attendees of the Catholic school. B6 was identified in the 2016 Bel Air Comprehensive Plan for a desired connection to the Ma & Pa Trail along Hickory Avenue. Also mentioned in the plan was a potential large annexation nearby that will likely increase vehicular traffic.



Intersection Qualities

Speed Limit

- Lee St – **25** mph (Posted)
- Hickory Ave – **25** mph (Posted)
- Hickory Ave ~**35** mph (85th Percentile)

Roadway Classification

- Lee St – **Commercial Collector**
- Hickory Ave – **Principal Urban Arterial**

AADT

- Lee St – **<5,000** (Est.)
- Hickory Ave – **11,002**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Identified Deficiencies

1. Existing crosswalk markings are outdated.
2. There is a non-ADA-compliant pedestrian ramp on the SW corner with no receiving ramp.
3. ~21' wide space for one lane of traffic without lane marking.

- Kevin Small mentioned poor sight lines from the EB approach.



Missing ADA Ramps



Outdated Crosswalks

Public Input

Countermeasures Requested

- Accessible Pedestrian Signal
- Countdown Pedestrian Signal
- Crosswalk Visibility Enhancements
- Buffered bike lanes

Concerns

- Incomplete walkways
- The SW to NW crossing distance feels long.
- No crosswalks or curb ramps to cross LEE St and Hickory Ave on southern and western quadrants
- Speeding along Hickory Ave

⁶ Hickory Avenue is assumed to run in a north-south direction.

Crash Analysis

Key Findings of Reported Crashes

- 7 reported crashes in 5 years.
- Less than 5 reported crashes in 12 months → Signal warrant 7 not met.
- 0 crashes involving pedestrians or cyclists.
- No fatal crashes.
- No reported crashes in 2021 & 2022 – likely due to bulb-out improvements.
- **Observed crash pattern:** High number of right-angle crashes.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment) are needed at/near the intersection.
- ◆ The wide pavement on Hickory Ave needs better lane marking delineation.
- ◆ Installation of bike facilities should be evaluated.
- ◆ No crashes were reported in 2021 and 2022, maybe due to the bulb-out improvements.

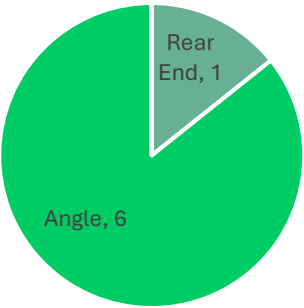


Figure 6-16: B6 Crashes by Type

Recommendations

Table 6-13: B6 Recommendations

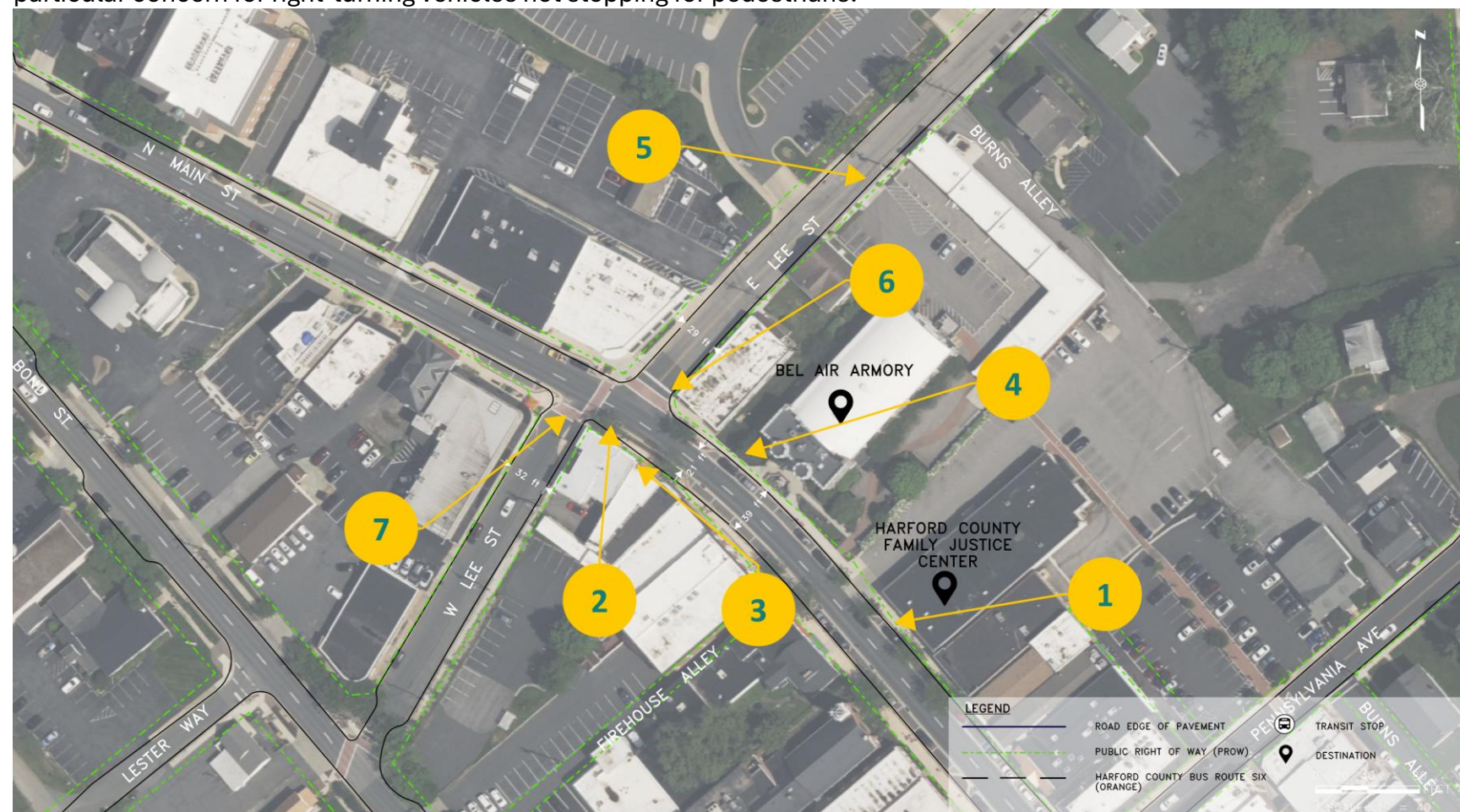
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install pavement marking to delineate only one 12' wide thru lane, up to ex. No Parking sign.	\$2,400	This shoulder space is used by school drop-off/pick-up traffic, difficult to add curb extension which could cause traffic queuing
	S2	Remove ex. school crossing sign assembly (yellow); install new school crossing sign assembly (fluorescent yellow-green) in the grass area to eliminate the sidewalk pinch point	\$800	
	S3	Upgrade all crosswalks to high visibility (continental style)	\$11,700	
	S4	Change ex. "T" parking space markings to continuous white line marking, to better delineate travel lane.	\$3,900	
	S5	Use pavement marking for curb extension.	\$800	
	S6	Coordinate with the Harford County Credit Union to relocate the sign which blocks motorist's sight line from E Lee St.	\$0	
Intermediate Term (4-5 years)	M1	Install curb extension. Install two new high visibility (continental style) crosswalks with school crossing sign assemblies (S1-1 and W16-7p) and ADA ramps. Will impact the existing curb inlet.	\$23,400	
Long Term (5+)	L1	Evaluate feasibility of adding bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



B7 – Lee Street at North Main Street (MD 924⁷)

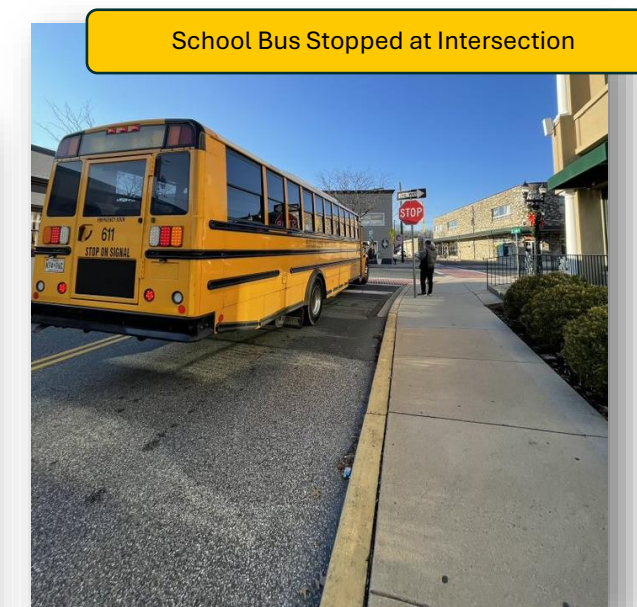
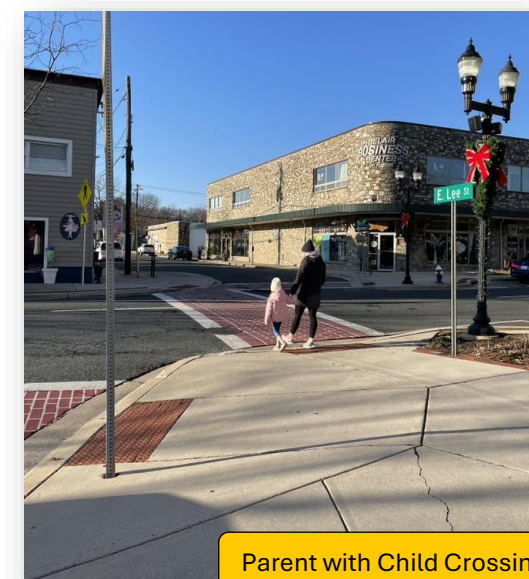
Existing Conditions & Site Visit Observations

Lee St. at N. Main Street is within Bel Air’s downtown business district. N. Main Street (MD 924) is a one-way street (northbound) with two travel lanes and on-street parking. The uncontrolled marked crossing at Lee Street is located on the north leg between East and West Lee Streets. Bel Air Elementary School entrance is approximately 200’ northeast of the intersection on East Lee Street. Parents and elementary school-age children were observed crossing N. Main Street during school arrival and afternoon dismissal. Children were also riding bikes on the sidewalk since there were no bike lanes. Intersection offset and sight distance concerns with parked cars south of the intersection along N. Main Street are of particular concern for right-turning vehicles not stopping for pedestrians.



Identified Deficiencies

1. NB vehicles tend to speed and not properly yield to pedestrians. The downhill profile may contribute to this.
2. Northbound left-turning vehicles may have difficulties to see pedestrians crossing W Lee St due to existing tree and signposts.
3. The pedestrian crossing sign on the southwest quadrant is blocked by vegetations and other signs.
4. The “45 The Streett Building” sign on the southeast quadrant and the first two parked vehicles block the WB vehicles sight of view when looking left, forcing them to encroach the crosswalk when checking traffic on Main Street.
5. During the AM peak, an extended queue was observed on WB E Lee St, blocking the exit of Bel Air Elementary School
6. Stop bar marking at E Lee Street incorrectly crosses both directions.
7. This zigzag WB thru movement of Lee St is difficult when a ped is crossing W Lee St - the vehicles either won't yield to ped or yield to ped but blocking Main St traffic.



Intersection Qualities

Speed Limit

- Lee Street – **25** mph (Posted)
- N Main St – **30** mph (Posted)
- N Main St ~**30** mph (85th Percentile)

Roadway Classification

- Lee Street – **Commercial Collector**
- N Main St – **Principal Urban Arterial**

AADT

- Lee Street – **<5,000** (Est.)
- N Main St – **10,700**

LOS

- Level **A** for AM Peak

Level **A** for PM Peak

Public Input

Countermeasures Requested

- Rectangular Rapid Flashing Beacon
- Pedestrian Hybrid Beacon

Concerns

- Cars seem to gain speed when they come down N Main St.
- Move the crosswalk to cross Main St as its confusing for both pedestrians and drivers.
- There should be a signal for pedestrians

⁷ MD 924 is assumed to run in a north-south direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- 1 reported crash in 5 years.
- No fatal crashes.
- 0 crashes involved pedestrians or cyclists.
- **Observed crash pattern:** None found.

Interpretation of Data

- ◆ Pedestrian (especially for elementary school children and parents) safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ Sightline blockage of traffic signs needs mitigation.
- ◆ Installation of bike facilities should be evaluated.
- ◆ Although only one 1 crash was reported in 5 years, safety concerns were identified and should be addressed.

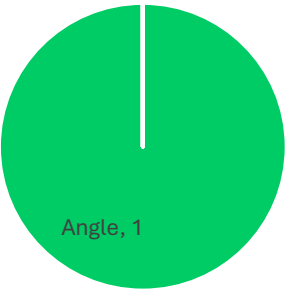


Figure 6-17: B7 Crashes by Type

Recommendations

Table 6-14: B7 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Remove the incorrect half of stop line marking.	\$350	MDOT SHA Estimate
	S2	Replace the 3-ex. yellow W11-2 ped cross signs (1 Ahead, 1 Left, and 1 Right) with new fluorescent yellow green S1-1 School crossing signs (1 Ahead, 1 Left, and 1 Right)	\$2,400	
	S3	Trim low branches of the tree that block the ped crossing warning sign.	\$700	
	S4	Install parking space/lane markings and delineate the single travel lane (southbound).	\$3,900	
	S5	Install crosshatch pavement marking to these three parking spaces (with blocking-sight-line issues) and install No Parking Anytime signs.	\$3,100	
	S6	Install driver speed feedback sign at proper location.		
	S7	Remove north crosswalk and install a new south crosswalk with better visibility and less conflict with vehicles.		
Intermediate Term (4-5 years)	M1	Perform a Signal Warrant Study (mainly Warrant 5, School Crossing) for a new full-color traffic signal here. If warranted, can install a new crosswalk on Main St on the east side.	\$325,000	Need a full signal warrant study



B8 – Gordon Street at North Main & North Bond Streets (MD 924⁸)

Existing Conditions & Site Visit Observations

The intersection at Gordon St and N Main / N Bond Street is a diverging point for drivers traveling south into the downtown area of Bel Air and a converging point for those coming out of downtown traveling to the north. Gordon St provides pedestrian access to Bel Air Elementary School and children and parents often use this intersection on the way to school. Nearby there is a marked sharrow to the west on Broadway as well as several bus stops. One of the town’s main grocery stores sits just to the north of the intersection. Any reconfigurations of the irregular geometric condition of B8 may be complicated due to the presence of aboveground utility connections.



Identified Deficiencies

- 1. Pedestrian crossing markings are outdated.
- 2. The pedestrian ramp on the southeast corner is not aligned with the crosswalks.
- 3. Pedestrian ramps of the SW crosswalk are not aligned and may be unsafe for pedestrians with visual impairment.
- 4. Parked vehicles (especially trucks) in front of the building on N Main St block sight line of WB left-turning vehicles.
- 5. The U-turn Lane seems wider than necessary.
- 6. The east corner of the channelizing island is damaged and is missing an object marker.
- 7. Vehicles do not stop or slow down for pedestrians.

- Awkward intersection – many motorists end up going into the wrong turning lane. (Kevin Small)
- Existing pedestrian crossing markings are not visible enough. (Citizen complaint)



Students Crossing with Bikes



Intersection Qualities

Speed Limit

- Gordon St – **25** mph (Posted)
- N Main & N Bond St – **30** mph (Posted)

Roadway Classification

- Gordon St – **Commercial Collector**
- N Main & N Bond St – **Principal Urban Arterial**

AADT

- Gordon St – **<5,000** (Est.)
- N Main – **15,430**
- N Bond St – **10,291**

LOS

- Level **B** for AM Peak

Level **A** for PM Peak

Public Input

Countermeasures Requested

- RRFB
- Bike lanes
- In-text paint on E Gordon St leading up to the intersection
- Speed reduction measures

Existing & Proposed Planning Effort

Complete Streets Leadership Academy Field Walk & Workshop were held on June 20 & 21, 2024 to evaluate this intersection for a quick build.

Concerns

- Congestion – can a roundabout be added here?
- Hispanic or Latino population coming from the NE part of the city will ride their bikes or walk through this intersection presumably to get down to the shopping centers and its currently unsafe for them to do so through the intersection.
- Unsafe for pedestrians to cross at this location.

Crash Analysis

Key Findings of Reported Crashes

- 8 reported crashes in 5 years.
- Less than 5 reported crashes in 12 months → Signal warrant 7 not met.
- 1 crash involved "other pedal cycle" and a NB thru vehicle.
- No fatal crashes.
- **Observed crash pattern:** NB thru vehicle involved in all types of crashes → speed reduction; sight line. 2 fixed-object on traffic island (DUI).

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ The confusing vehicular traffic involving five legs needs mitigation.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The complex multi-leg intersection geometry may have contributed to all reported crashes and needs mitigation.

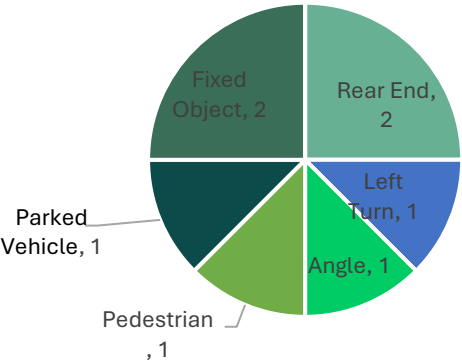


Figure 6-18: B8 Crashes by Type

Recommendations

Table 6-15 : B8 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install another new ADA ramp and align the crosswalk perpendicular to Main St.	\$7,000	MDOT SHA Estimate
	S2	Install curb extension (or flex posts), marking, and signs, make left lane to be left-turn-only. On the west leg, hatch center space, move EB left turn stop bar closer.	\$41,000	
	S3	Upgrade crosswalks to high visibility (continental style)	\$12,900	
Intermediate Term (4-5 years)	M1	Evaluate to remove the left turns in both directions and make necessary modifications to curb/gutter, signing, marking, and landscape. Will require traffic study and public outreach	TBD	Cost pending for traffic study results.
Long Term (5+)	L1	Evaluate feasibility of adding bike lane along the corridor.	TBD	Cost pending for future bike lane study results.
	L2	Evaluate feasibility of a roundabout. Significantly constrained by Right-Of-Way, above- and under-ground utilities, and existing buildings. Shown here is ~120' outside diameter footprint for a single lane full-size roundabout. W. Gordon St will need to be reconfigured.	\$2,400,000	MDOT SHA Estimate Need a traffic study.

⁸ MD 924 is assumed to run in a north-south direction, per MDOT SHA.



B9 – MacPhail Road at South Main Street (MD 924⁹)

Existing Conditions & Site Visit Observations

The intersection at MacPhail Road and S Main St serves as an entry point to the Homestead Wakefield Elementary and Bel Air Middle schools to the west. 350' east of the intersection, MacPhail has a wide shoulder with a sidewalk on the north that may be able to accommodate the proposed shared-use path in the Harford County Bike and Ped improvement plan. The Town of Bel Air has existing sidewalk improvements proposed down E MacPhail Road to tie this intersection to the eastern neighborhoods.



Identified Deficiencies

1. Existing crosswalks are outdated.
2. The lane drop is missing marking and signage.
3. Pedestrian ramps at the entrance 200' south of the intersection are not ADA-compliant.
4. The existing stop bar is faded.



Intersection Qualities

Speed Limit

- MacPhail St – **30** mph (Posted)
- S Main St – **30** mph (Posted)

Roadway Classification

- MacPhail St - **Urban Collector**
- S Main St – **Principal Urban Arterial**

AADT

- MacPhail St – **6,761**
- S Main St – **18,670**

LOS

- Level **D** for AM Peak
- Level **D** for PM Peak

Public Input

Countermeasures Requested

- Walkways
- Bike lanes on Macphail Rd
- Add a raised crosswalk for pedestrians

Concerns

- Students are unsafe crossing at this intersection
- There are no sidewalks on the south side of Macphail on west leg and no sidewalk on either side on east leg
- Sidewalks should be on both sides of Main St
- Students should be able to ride their bikes for those that live up Macphail

⁹ MD 924 is assumed to run in a north-south direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- 8 reported crashes in 5 years.
- No reported fatal crashes from 2018-2022.
- 0 crashes involved pedestrians or cyclists.
- **Observed crash pattern:** Left turn and rear-end crashes involving NBT vehicles.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment) are needed at/near the intersection.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The observed crash pattern indicates a need to check yellow/all-red clearances.

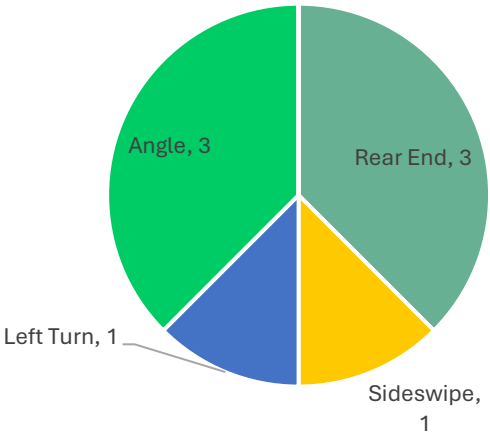
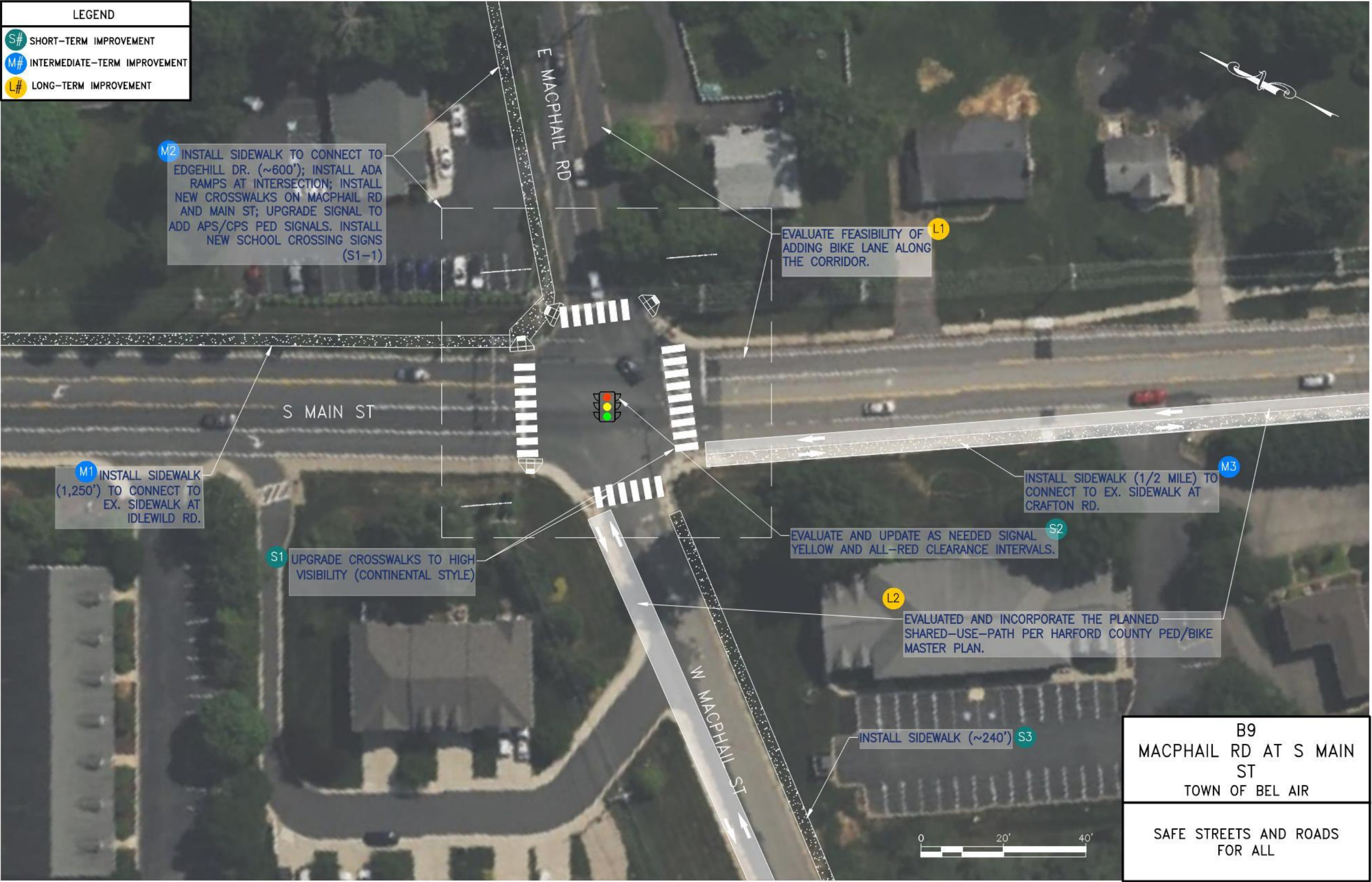


Figure 6-19: B9 Crashes by Type

Recommendations

Table 6-16: B9 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Upgrade crosswalks to high visibility (continental style)	\$18,800	
	S2	Evaluate and update as needed signal yellow and all-red clearance intervals.	\$0	
	S3	Install sidewalk (~240')	\$93,600	
Intermediate Term (4-5 years)	M1	Install sidewalk (1,250') to connect to ex. sidewalk at Idlewild Rd.	\$487,500	
	M2	Install sidewalk to connect to Edgehill Dr. (~600'); install ADA ramps at intersection; install new crosswalks on Macphail Rd and Main St; upgrade signal to add APS/CPS ped signals.	\$500,000	MDOT SHA Estimate
	M3	Install sidewalk (1/2 mile) to connect to ex. sidewalk at Crafton Rd.	\$2,600,000	MDOT SHA Estimate
Long Term (5+)	L1	Evaluate feasibility of adding bike lane along the corridor.	TBD	Cost pending for future bike lane study results.
	L2	Evaluate and incorporate the planned Shared-Use-Path per Harford County ped/bike master plan.	TBD	





SECTION 6C - CITY OF HAVRE DE GRACE RECOMMENDATIONS



Section 6C - City of Havre de Grace

Havre de Grace boasts a lively downtown with sprawling suburbs that line the edges of US 40 as it passes through the city. On the west side of the Susquehanna River, the city provides various biking, walking and other outdoor activities with its vast array of trails, parks, and water access. For this Action Plan the city was evaluated based on its existing policies and regulations in place, as well as its willingness to incorporate new pedestrian and bikeway improvements into its already substantial master planning documents.

Existing Policies and Regulations

Envision Havre de Grace – Transportation: A Focus on Multimodal Options (In Progress)

The transportation section of the city’s comprehensive master plan describes the various elements that currently exist in Havre de Grace relating to travel. The ending section of the plan outlines a few key visions that are in line with this Action Plan and are as follows:

- 1. To develop a true multimodal transportation system that serves the peoples’ needs and
- 2. Expand the accessible, walkable character of downtown throughout the city to improve pedestrian, bike, and mass transit transportation options, reduce reliance on automobiles, and enhance the user experience of Havre de Grace.

As this document is still in progress there is room to add considerations that are mentioned in Section 5 via policy recommendations that may contribute to the success of the city on its route to Vision Zero.

Transportation Storymap

The Comprehensive Plan Envision Havre de Grace also has an online presence via an ArcGIS Storymap. This Storymap provides

more visuals that help constituents understand the intentions of the comprehensive plan. As this feature is already available it may be useful to integrate the findings of this report into this application once the report is complete.

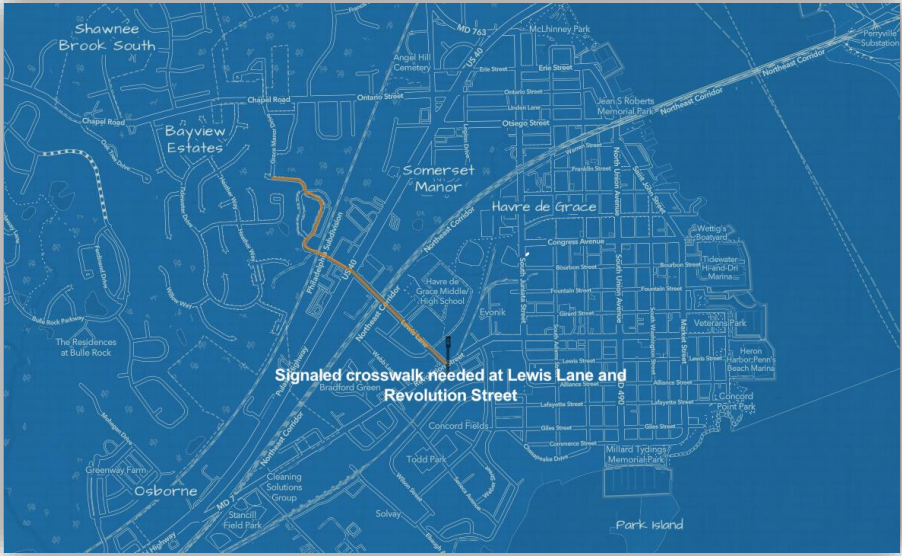


Figure 6-1: Envision Havre de Grace Storymap Feature

Havre de Grace Municipal Codes

Additional technical policies for Havre de Grace are available in Chapter 190 of their municipal codes¹ and include speed limit designations and a few bike policies such as the prohibition of riding bicycles on the sidewalk. More policies can be implemented into this section to ensure that.

Identified Bus Shelter Upgrades (August 25th, 2023)

Havre de Grace has identified several bus shelters within the municipality that have priority considerations for upgrades. The following bus shelters are within the improvement boundaries of this Action Plan and should be integrated into the requested improvements:

Bus Stop Name	Location
McDonald’s Havre de Grace (Legion Dr & Otsego St) – Departure Station	Legion Dr. & Otsego St
McDonald’s Havre de Grace on Pulaski Highway/US 40	802 Pulaski Hwy (US 40)
Greenway Farms	Martha Lewis Blvd & US 40
Lorien Bulle Rock	Blenheim Farm Ln & US 40
Stack & Store Self Storage	1746 Pulaski Hwy (US 40)

Sidewalk Master Plan

A master plan that takes note of all the missing sidewalk connections in Havre de Grace is already available. The areas where sidewalks were not available at the selected intersection locations are noted in the recommendation in the following section, but they do coincide with this existing document.

Ongoing Improvements

US 40 Shared Use Path

The shared use path that begins in Aberdeen as described in Section 6A, ends in Havre de Grace. As such the city has also held various open houses and contributed to the development of preliminary planning for this path. Planned to end (or begin depending on your starting point) at the intersection of Erie St, Ontario St, and Otsego St, the shared use path will function as an alternate travel way to reach Aberdeen.

Havre de Grace Traffic and Safety Analysis

A comprehensive traffic and safety analysis for the intersections was performed in 2020 by the Maryland Department of Transportation’s State Highway Administration (MDOT SHA) District 4 Traffic Division. Multiple alternatives were analyzed for capacity and safety at the US 40 and MD 155/MD 7A/Otsego Street intersection including geometric improvements within the intersection, access restrictions at Otsego Street, direction of

¹ <https://ecode360.com/8370189#8370189>

travel restrictions along MD 155, signal timing revisions, and capacity improvements along southwest bound MD 155.

The intersection study stated that “there are safety, capacity, and queueing concerns at the intersection of US 40 and MD 155/MD7A/Otsego Street. The significant southwest bound MD 155 left-turn volumes at the US 40 and MD 155/MD 7A/Otsego Street five-legged signalized intersection are causing operational failures that are creating safety concerns at the adjacent MD 155 and Ontario Street intersection”.

None of the alternatives have been selected at this time for further advancement. The State prefers Alternative 2 or 4, while the county prefers Alternative 4 as well. Alternative 5 is being studied now, which is like the recommendations that are provided in the following section. The City and State are continuing to work in partnership to find a solution to this challenging intersection.

To avoid the high toll on the nearby northbound I-95 bridge over the Susquehanna River, many vehicles, especially freight trucks elect to use the US 40 bridge as an alternative to cross the river. These vehicles leave I-95, use eastbound MD 155 then southbound Ohio Street, and make a sharp left turn here at the study location to continue northbound US 40. Due to the wide vehicle base and sharp turning angle, large freight trucks frequently run over the north median island nose and northeast island/corner based on the field observation.

Housing Developments

The population of Havre de Grace is expected to increase over the next couple of years due to the city’s investment in housing developments including:

- ◆ The Residences at Bulle Rock
- ◆ Greenway Farm
- ◆ Sion Hill Estates and
- ◆ Green-Ianniello Planned Residential Communities

During the public workshops and through the survey results the residents are worried the existing infrastructure of the city is not capable of handling this growth and upgrades should be identified that consider the population change.

Havre de Grace Street Restoration Plan

A revitalization plan for Downtown Havre de Grace, this 2022 infrastructure upgrade highlights wider sidewalks, with street lined boulevards and shared spaces to “enhance the existing sense of place, where residents and visitors want to come and spend time. This plan impacts the H7 intersection along Pennington Ave. Figure 6-2 shows the planned Street Section to transform the roadway.



Figure 6-2: Planned Street Section of Pennington Avenue

Selected Intersections

The intersections selected for upgrade by Havre de Grace were done with the consideration of this population growth and were oriented towards pedestrian movements and school zones.

- H1** - US 40, OTSEGO STREET (MD 7A), AND & OHIO STREET (MD 155)
- H2** - US 40 AT LEWIS LANE
- H3** - US 40 AT MARTHA LEWIS BLVD
- H4** - US 40 AT BLENHEIM LANE
- H5** - MD 155 / OHIO STREET AND SUPERIOR STREET (MD 763)
- H6** - REVOLUTION STREET (MD 7A) AT LEWIS LANE
- H7** - PENNINGTON AVE AND N. UNION AVE
- H8** - PENNINGTON AVE AND N. JUNIATA ST

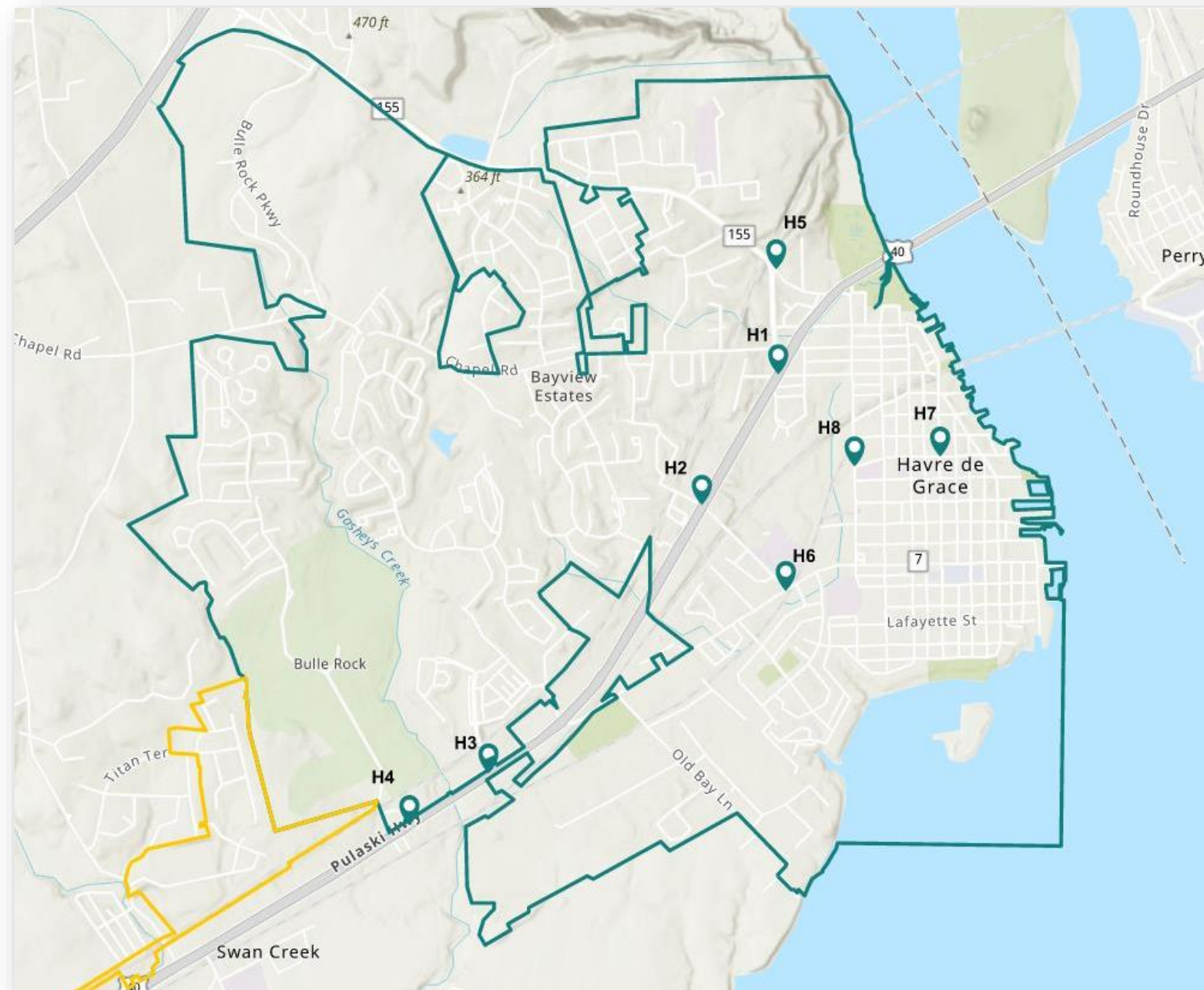


Figure 6-3: Selected Intersections in Havre de Grace

Historical Crash Analysis

Of the total 217 reported crashes in this study, 77 of them occurred in Havre de Grace. The most common collision was rear end crash which accounted for 36% of all crashes. A single crash resulted in a fatality and 49% of the crashes involved a serious injury either to the driver of the vehicle or to a nearby pedestrian. 3 of the 77 crashes involved a pedestrian. With most crashes occurring during dry conditions and on Fridays.

Crashes Involving Impairment

Within the nine selected intersection areas about 8% of crashes were due to the driver being under the influence of alcohol or a controlled substance.

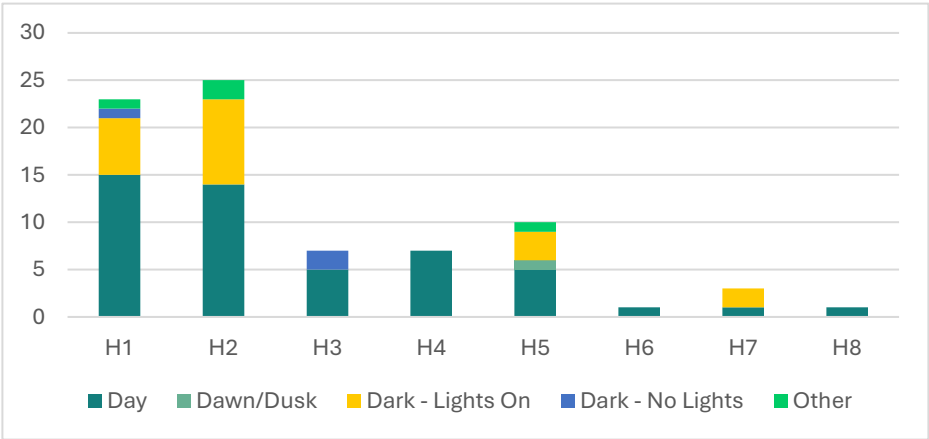


Figure 6-5: Crashes by Lighting Available

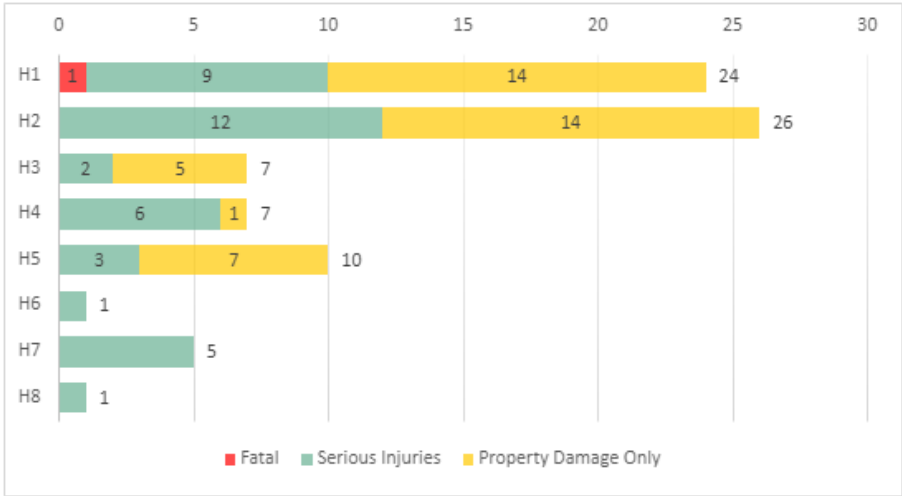


Figure 6-4: Havre de Grace Crashes by Severity

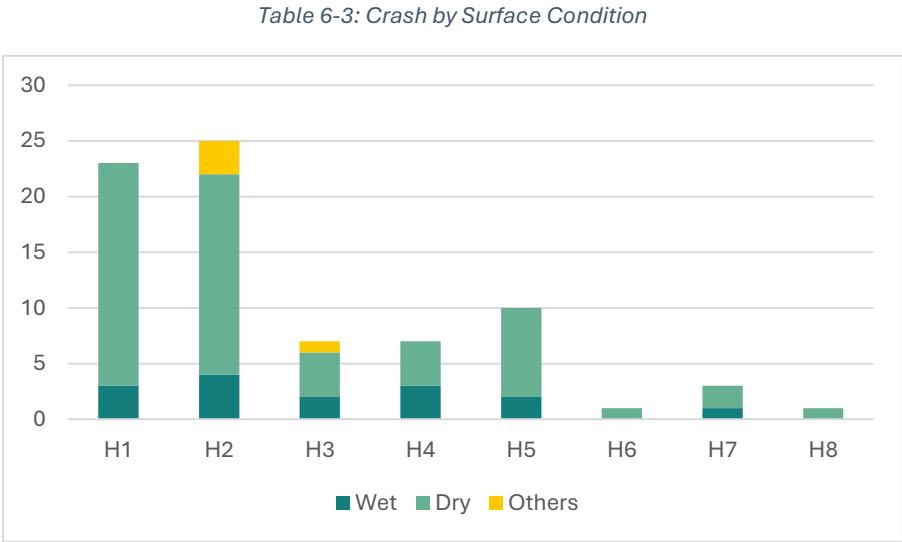


Table 6-3: Crash by Surface Condition

Table 6-2: Crash Summary by Collision Type

Intersection ID									
Crash Type	H1	H2	H3	H4	H5	H6	H7	H8	Total
Driving in Wrong Direction	0	0	0	0	1	0	0	0	1
Rear End	14	11	0	1	1	1	0	0	28
Sideswipe	2	2	0	0	0	0	0	0	4
Left Turn	1	6	2	4	0	0	0	1	14
Angle	1	4	4	2	4	0	2	0	17
Pedestrian	1	1	0	0	0	0	1	0	3
Parked Vehicle	0	0	0	0	0	0	0	0	0
Fixed Object	4	0	0	0	3	0	0	0	7
Other	0	1	1	0	1	0	0	0	3

Table 6-4: Crashes by Day of the Week

Intersection ID									
Day of the Week	H1	H2	H3	H4	H5	H6	H7	H8	Total
SUN	2	4	0	0	1	0	1	1	9
MON	6	3	1	3	0	1	0	0	14
TUE	1	2	0	2	0	0	0	0	5
WED	5	3	1	1	5	0	0	0	15
THU	3	5	1	0	0	0	0	0	9
FRI	4	4	3	1	2	0	2	0	16
SAT	2	4	1	0	2	0	0	0	9

Table 6-6: Alcohol or Drug Involvement

Intersection ID									
Alcohol or Controlled Substance Involvement	B1	B2	B3	B4	B5	B6	B7	B8	Total
Yes	3	3	0	0	0	0	0	0	6
No	20	22	7	7	10	1	3	1	71

Top 3 Probable Causes of Crashes in Havre de Grace

- Fail to Give Full Attention – 21%
- Failure to Yield to Right-of-Way - 13%
- Failure to Obey Traffic Signals – 6%

Table 6-5: Crashes by # of Vehicles Involved

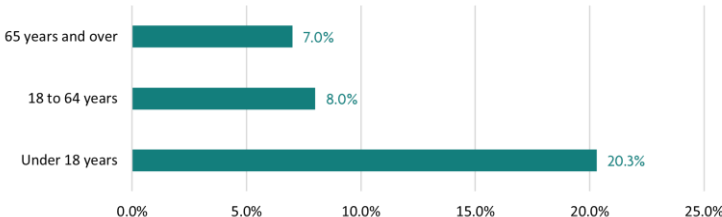
Intersection ID									
# of Vehicles Involved	H1	H2	H3	H4	H5	H6	H7	H8	
Single	5	1	0	0	4	0	1	0	
Two	15	19	7	6	6	0	2	1	
3 +	3	5	0	1	0	1	0	0	

Demographics

Located in northeast Maryland at the mouth of the Susquehanna River on the Chesapeake Bay, Havre de Grace sits between Wilmington, Delaware, and Baltimore, Maryland. US 40 serves as a conduit between the two cities while traversing through Havre de Grace. Interstate 95, John F. Kennedy Memorial Highway is northwest of the city and offers an alternative to US 40. In recent years, Havre de Grace has seen an increase in population growth, along with the construction of residential communities, such as Bulle Rock. These large neighborhood developments have given rise to concerns about increased traffic at intersections tying the neighborhoods to the main roads of Havre de Grace. US 40 is one of these roads which runs along the eastern side of Havre de Grace, tying much of the city together.

Table 6-7 provides a concise look into the population demographics of the city.

Table 6-7: Havre de Grace Demographic Summary

KEY FACTS		INCOME & POVERTY	
14,807 Total Population	41.4 Median Age	 \$95,025 Median Household Income	Poverty Rate 10.2%
 6,653 Housing Units	 60.2% Employment Rate	Poverty by Age 	
EDUCATION		POPULATION	
No High School Diploma 7.6%	 42.3% Bachelor's Degree or Higher	 3.2% Without Health Care Coverage	Total Households 6,093   879 Hispanic or Latino (of any race)

EQUITABLE CONSIDERATIONS – Havre de Grace is split between four census tracts, with the selected intersections inhabiting 240235306200 on the east side of US 40, and 24025306400 on the west side of US 40. The east side of the city has a higher disadvantaged community indicator value as shown in Figure 6-6. All intersections, except H4 are within the 24025306100 tract. The figures and tables on the next sheet review some key indicators that have been used in this Action Plan to determine the

vulnerable users within Havre de Grace and where, specifically, they might come from.

Table 6-8 indicates that the division across disadvantaged communities is the same as those who are low to moderate income, which is in line with the indicators used to establish a disadvantaged community. The same can be said about the availability of vehicles, which, as Figure 6-9 indicates, follows the

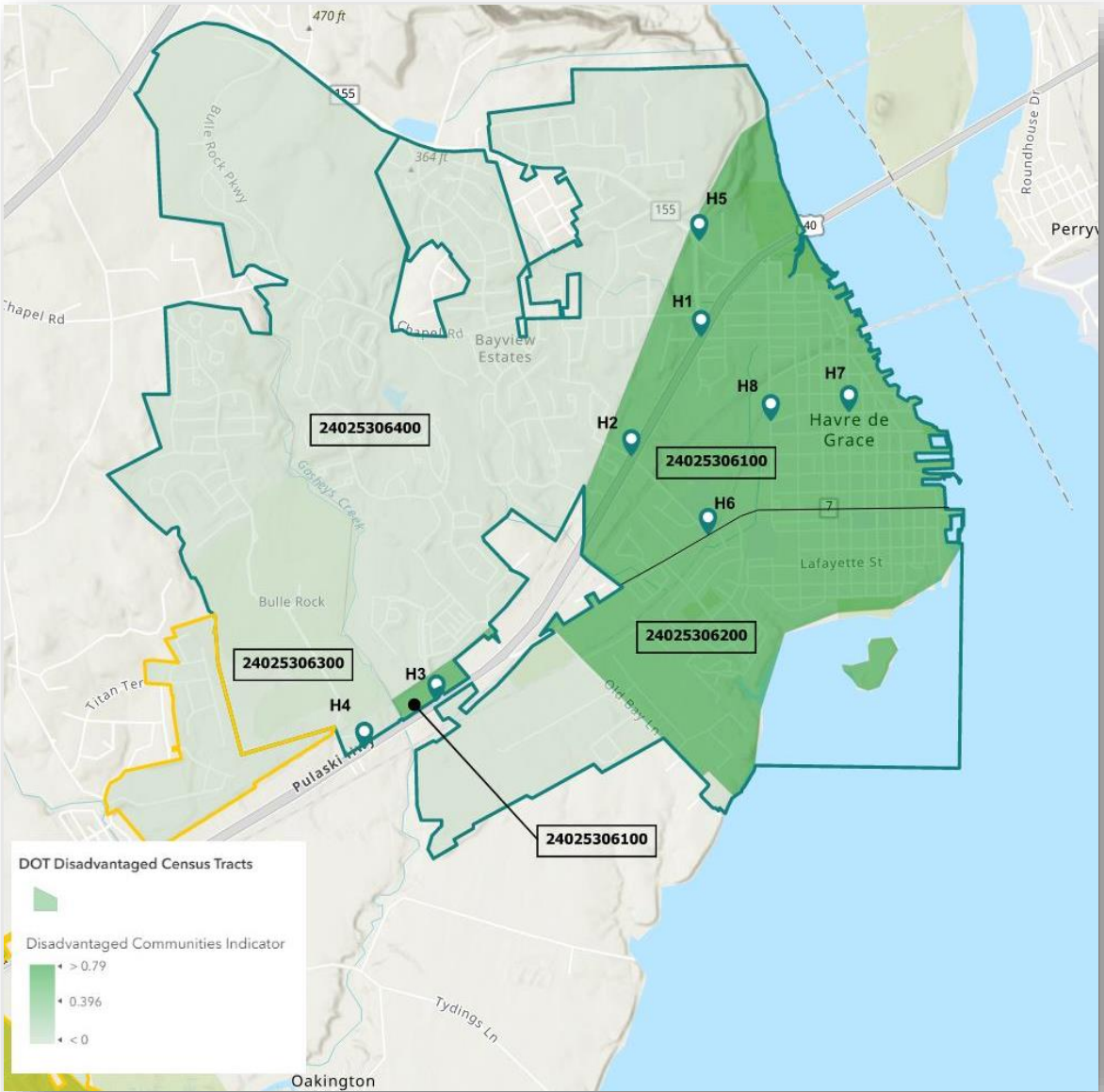


Figure 6-6: Disadvantaged Communities in Havre de Grace

same margins for the disadvantaged and income-dependent identifiers. Figure 6-7 and Figure 6-8, however, do not clearly align with these indicators and show that the racial diversity makeup in Havre de Grace is not highly centralized to any one area.

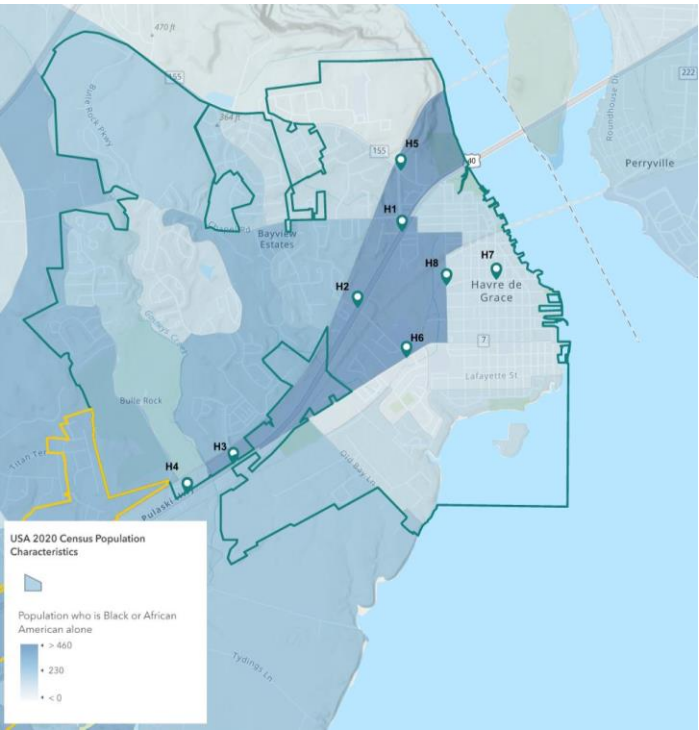
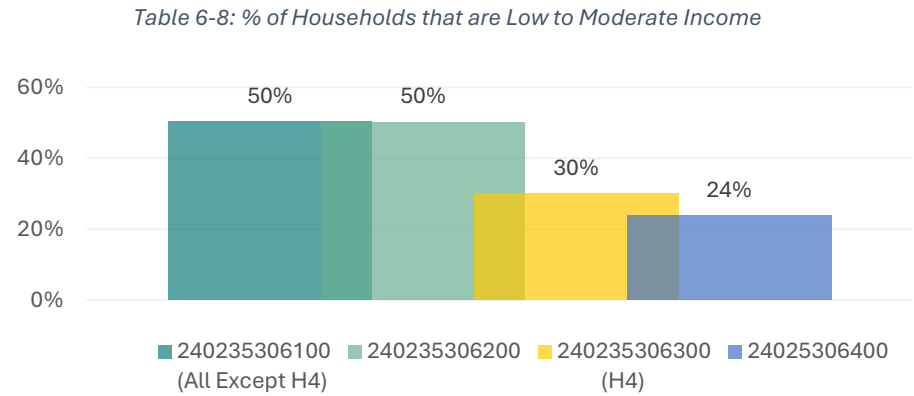


Figure 6-7: % of Residents who are African American or Black

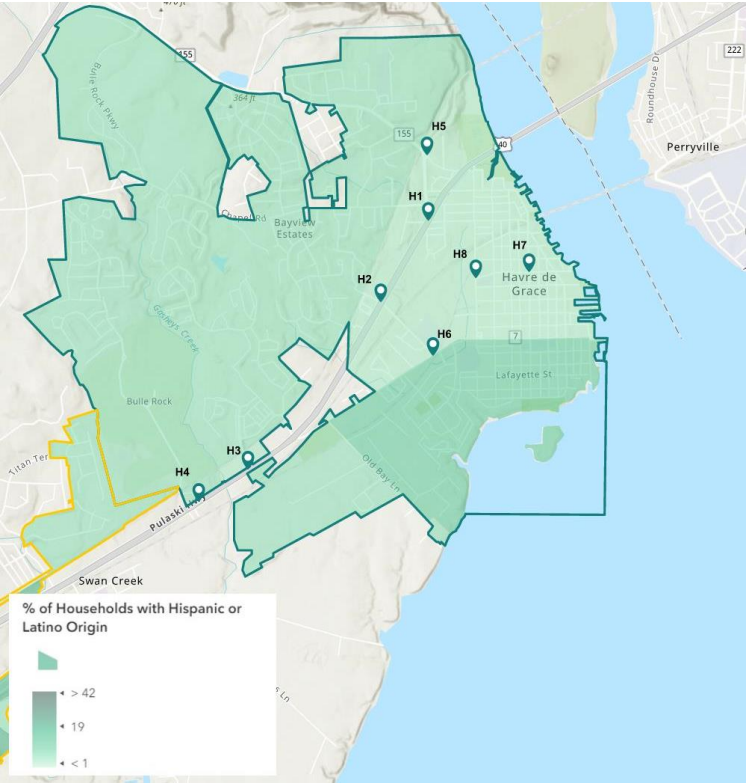


Figure 6-8: % of Residents who are Hispanic or Latino

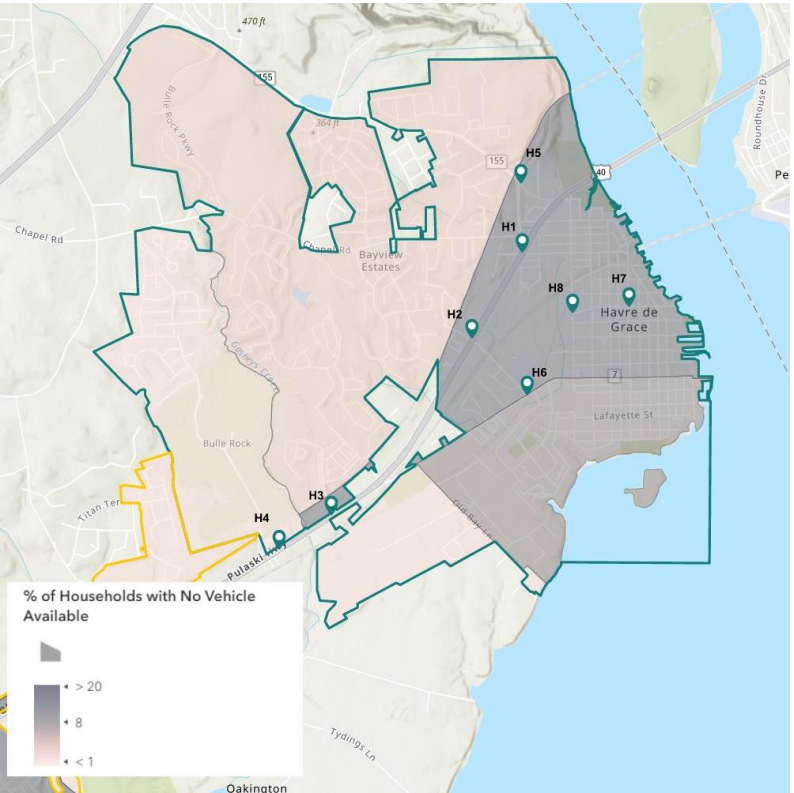


Figure 6-9: % of Residents with No Vehicle

Existing Equity Considerations

As evidenced in the goals of the 2024 Draft Comprehensive Plan Envision Havre de Grace, the city has been committed to establishing both walkable and bikeable communities. However, US 40 creates a challenge for families that would like to access local amenities such as grocery stores, parks, schools, and retail if these are east of US 40. This is likely due to the lack of pedestrian and bicycle facilities.

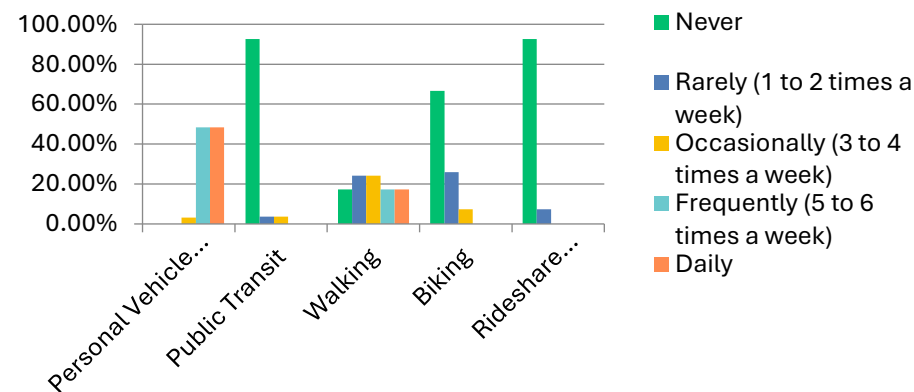
Also mentioned in the Comprehensive Plan is the city’s commitment to senior and affordable housing with its initiative to increase such facilities, including the Village at Blenheim Run, Ivy Hills, and Somerset Manor Public Housing. These developments are all adjacent to US 40, and the new residents of these facilities will likely be affected by any intersection upgrades suggested by the delivered Action Plan.

This suggests that the proposed countermeasure at the selected intersections could positively impact residents along the entire corridor, and if applicable, similar measures could be taken at other locations along the corridor.

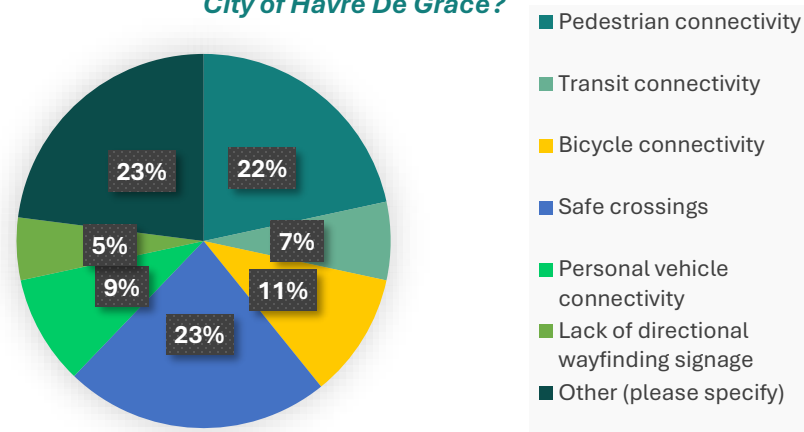
Public Input

The following information provides a summary of the survey results that are described in Section 3: Public Engagement. All 31 responses were provided by Havre De Grace residents. For write-in questions, the results have been condensed based on the relevance of this project, but a complete list of the answers provided can be found in the Appendix. For input that was received in the public workshops, this information can be found in the individual analyses of each intersection in the following sections.

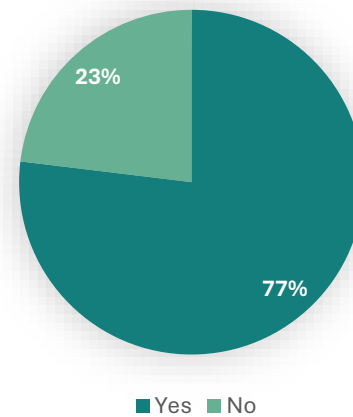
How often do you use each mode of transportation in a typical week?



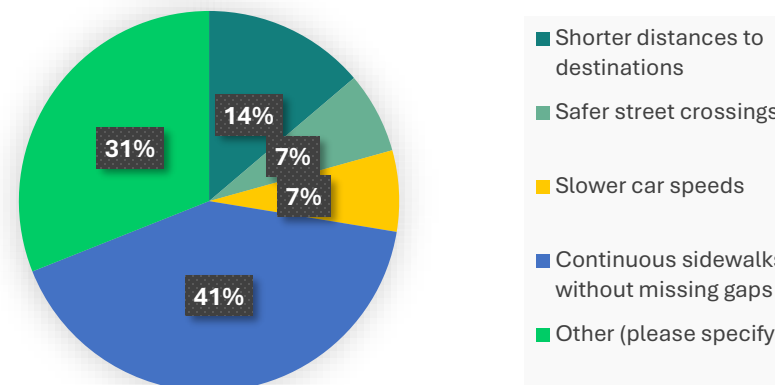
What are your concerns about traveling throughout the City of Havre De Grace?



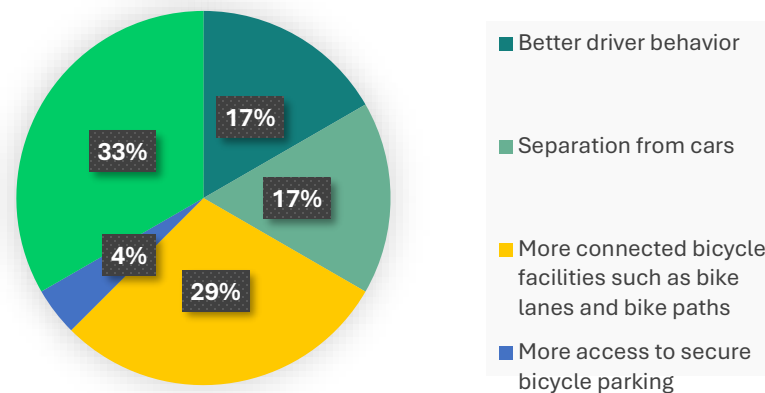
Is the pedestrian crossing time adequate to allow you to cross the streets safely?



What would encourage you to walk more than you currently do?



What would encourage you to bike more than you currently do?



Public Input

Are there any other concerns you have regarding safe travel in the City of Havre De Grace?

- ◆ Disregard of Traffic Laws By Cyclists and Motorists
- ◆ Lack of Sidewalks and Lighting
- ◆ Truck Traffic
 - > Concerns about speed and volume of semi trucks.
- ◆ Bicyclist and Pedestrian Safety
 - > Bike protection along US 40
 - > Lack of bike lanes and uneven sidewalks.
 - > Upgrade downtown with ADA-accessible walkways
- ◆ Intersection Safety
 - > Visibility concerns
 - > Need for safety improvements at Route 40 Intersections
 - > Drivers not stopping when turning on red.
 - > Pedestrian and bicycle enhancements

Public Input

Are there any other improvements or specific safety concerns you would like to see in the City of Havre De Grace along certain corridors?

- ◆ Lighting
 - > Improve lighting in residential and business areas
 - > Install traffic light at Blenheim Lane and Route 40
 - > Signal at Ontario St and Ohio St
- ◆ More Sidewalks
- ◆ Safety for Pedestrians on Route 155 with Overpass Walkways or Wider Shoulders
- ◆ Address Safety Concerns on Hatem Bridge
- ◆ Improved Safety Measures at Route 40 & Blenheim Rd Median Crossing and other intersections Such as Water St. and Union/Ostego

Public Input

Are there any transportation facilities in Havre De Grace that you wish there were more of or that you really enjoy?

- ◆ Improved Car Charging Stations
- ◆ Call for Uniform Crosswalks along Union and Juniata
- ◆ Expansion of Tide Trolley throughout Winter Months
- ◆ Need Bike Parking & Wheelchair Accessibility on Sidewalks
- ◆ Advocacy for dedicated bike lanes as opposed to lane sharing

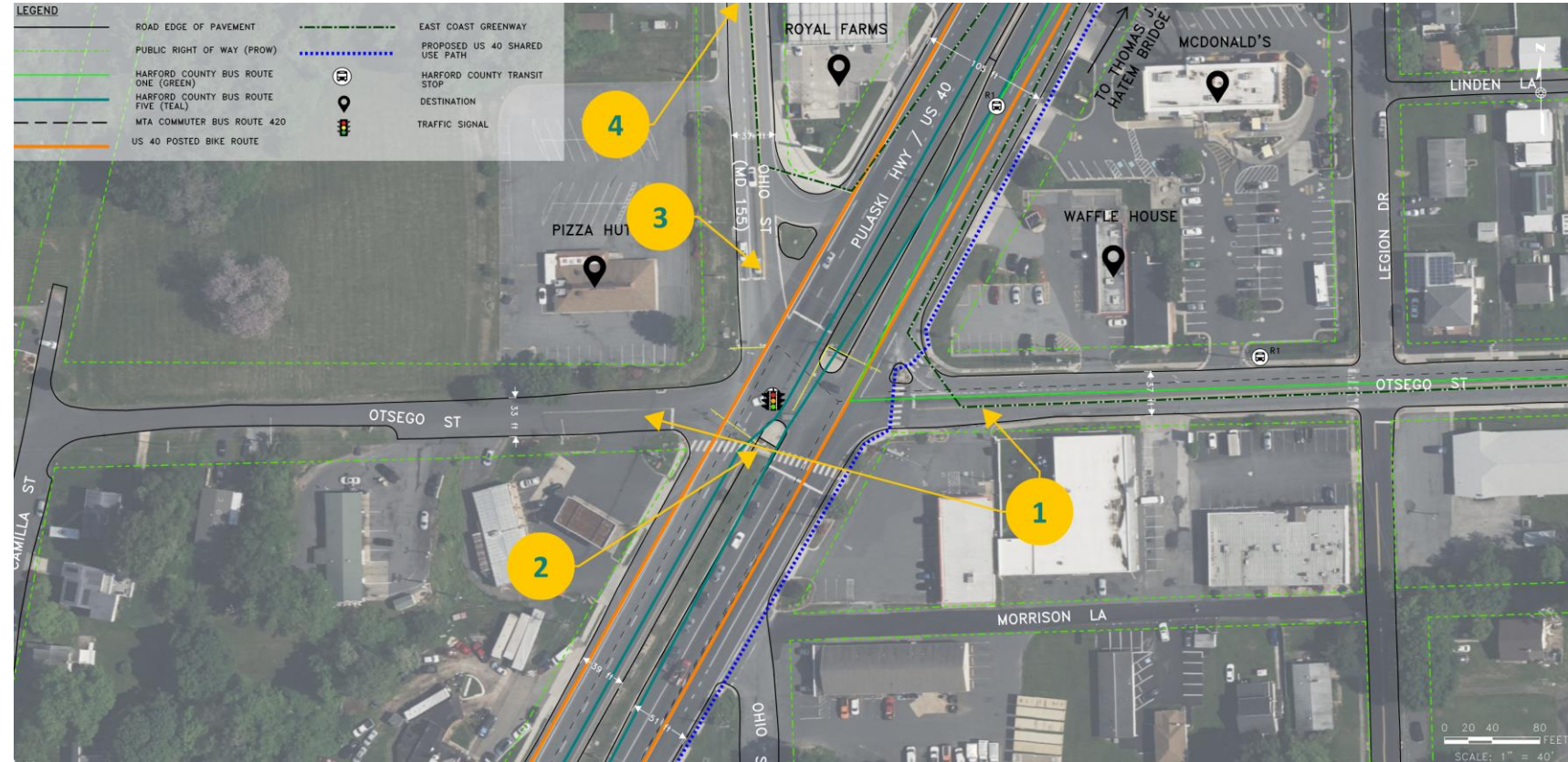


INTERSECTION ANALYSIS

H1 – US 40², Otsego Street (MD 7A), and Ohio Street (MD 155)

Existing Conditions & Site Visit Observations

Nicknamed “Malfunction Junction,” this complex 5-way intersection is signalized and has been an area of concern for many Havre de Grace residents. US 40 runs east-to-west and accesses Perryville to the east and Aberdeen to the west, acting as an alternate route to I-95 and alternate river crossing. MD 155 runs northeast-to-southwest between Ontario Street and US 40 and connects travelers between US 40 and I-95. Otsego Street/MD 7A and Ontario Street run north-to-south when intersecting MD 155 and US 40. This intersection was identified in Havre de Grace’s Chapter 30 Report as needing major improvements (\$5 million or more). This intersection has been studied previously for improvement, the details of which can be found in the Background Research Section.



Intersection Qualities

Speed Limit

- US 40 – **45** mph (Posted)
- Otsego St – **25** mph (Posted)
- Ohio St – **30** mph (Posted)

AADT

- US 40 – **27,371**
- Otsego St – **14,954**
- Ohio St – **9,801**

Roadway Classification

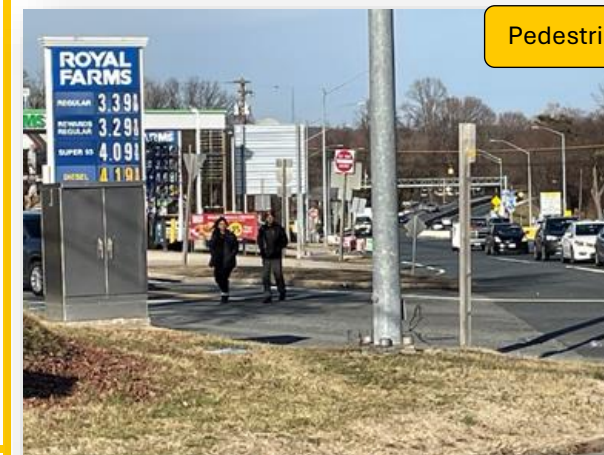
- US 40 – **Principal Urban Arterial**
- Otsego St – **Minor Urban Arterial**
- Ohio St – **Urban Collector**

LOS

- Level **D** for AM Peak
- Level **F** for PM Peak

Identified Deficiencies

- Traffic in both directions on Otsego St have too many conflicts when moving together. Citizens want side street split phasing.
 - Long crossing distance across US 40 with a short pedestrian signal time for slower pedestrians such as seniors and those with strollers.
 - Left-turn Lane on Ohio St can be fully occupied and overflow during peak hours.
 - Left-turn traffic on Ohio St may shift to the left lane early north of Ontario St, risking a head-on collision.
- People with strollers from the community SE to the intersection have difficulties crossing the intersection.
 - This intersection is heavily used by vehicles (especially trucks) for cheaper toll as opposed to US 40.
 - Locals don’t like this intersection.
 - Southeast bound traffic from MD 155 often passes through Grace Manor Dr and goes to the downstream intersection. Citizens who live along Grace Manor Dr complained about too much by passing vehicles in front of their door. This cut-through traffic could adversely impact downstream traffic at the Lewis Ln/US 40 intersection.
 - Vehicles that are turning north from Otsego towards the Hatem Bridge cause damage to the utility poles.



² US 40 is assumed to run in a west-east direction, per MDOT SHA.

Recent and Planned Projects

This intersection has been under investigation for improvements by other agencies. A study by Wallace Montgomery procured by SHA is described in more detail in the “Ongoing Improvements” Section on page 6C-1. The image to the right depicts “Alternative 4” from this previous study.



Figure 6-10: Alternative 4 from Wallace Montgomery Study

Public Input

Countermeasures Requested

- General pedestrian safety upgrades
- Directional signage for traffic and wayfinding
- Speed reduction measures.
- Stop vehicle traffic in all directions for peds to cross.
- Walkways

Concerns

- Semis avoiding weigh scales cut through this intersection.
- Trucks turning eastbound on US 40 from Ohio St need to use the outside turn lane to make the turn, but they can't, and their line of sight is disturbed.
- SBLT vehicles on Ohio St may shift to the left lane early north of Ontario St. risking a head on collision.
- EB and WB vehicles have too many conflicts when moving together.
- Citizens want side street split phasing.

Concerns Cont.

- Locals don't like this intersection, southeast bound traffic from MD 155 will pass through Grace Manor Dr and go to the downstream intersection. Citizens complained too much about passing vehicles in front of their door.
- Citizen's mention there was a traffic study showing a significant number (about 2k per day?) non-local vehicles
- SBLT lane can be fully occupied and overflow during peak hours.
- There's jaywalking close to Ohio because pedestrian crossing areas are awkward and disconnected.
- People with strollers from the community SE to the intersection have difficulties crossing the intersection.

Crash Analysis

Key Findings of Reported Crashes

- 23 reported crashes in 5 years.
- 1 fatal crash recorded.
 - 1 EB vehicle crashed on the east leg median signal pole.
 - 1 death & 3 injuries.
 - Occurred on 1/15/2018 @ 8 PM
- 1 crash involved a cyclist.
- **Observed crash pattern:**
 - EB rear-end on US 40
 - NB rear-end and fixed object on Otsego St

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- ◆ Safe pedestrian crossings to connect the Royal Farms gas station corner with the rest of the intersection are needed.
- ◆ The confusing vehicular traffic involving five legs needs mitigation.
- ◆ Installation of bike facilities should be evaluated (underway in the US 40 SUP study).
- ◆ The high number of rear-end crashes indicates a need to check yellow/all-red clearances.

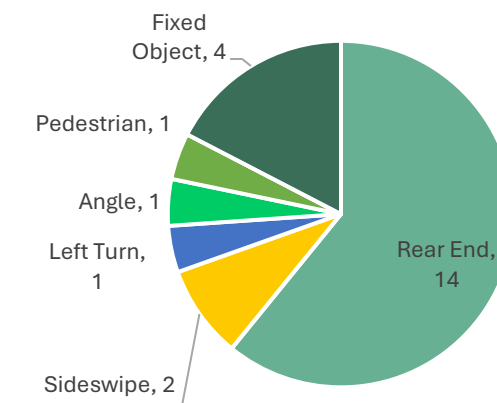


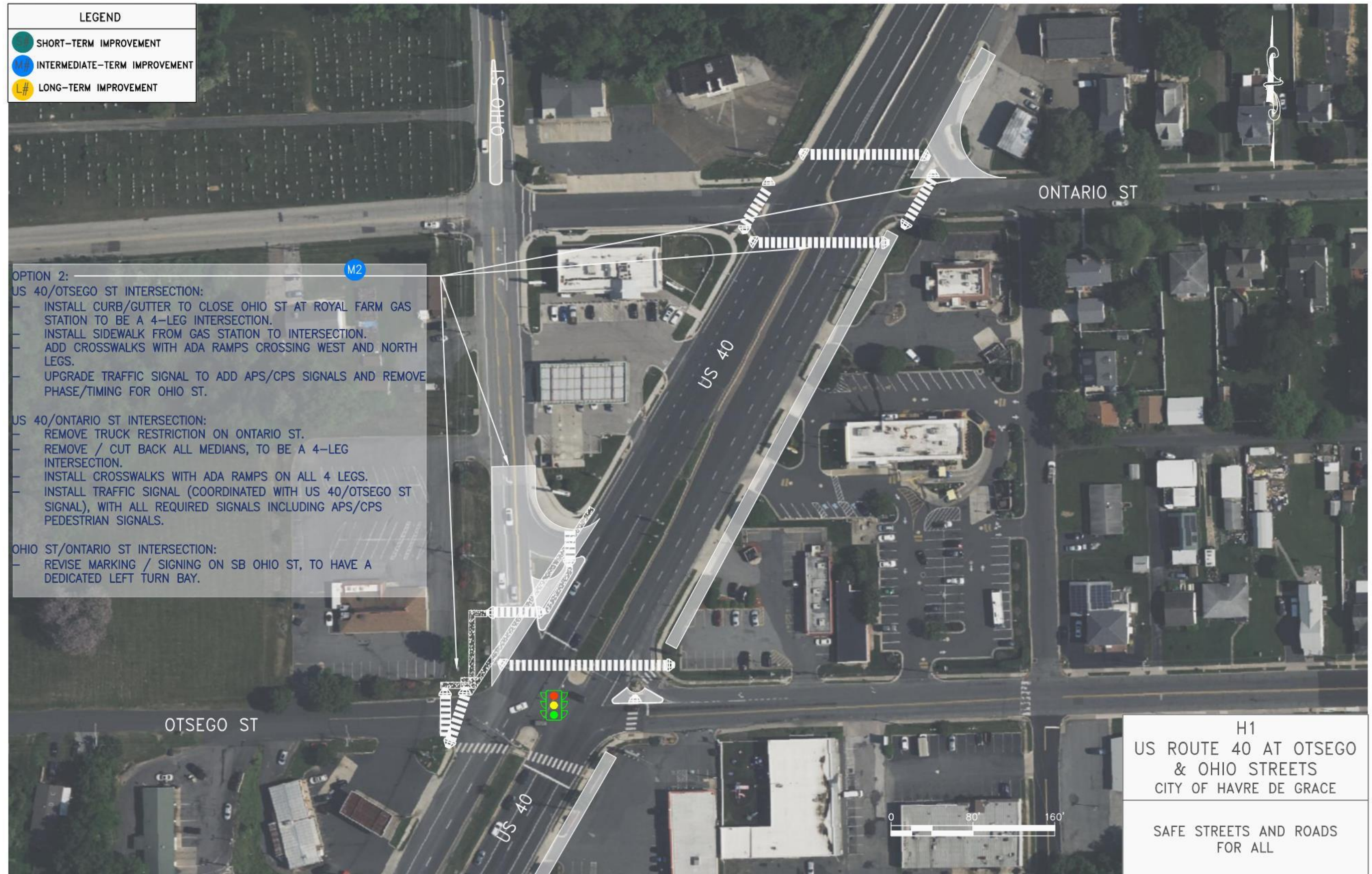
Figure 6-11: H1 Crashes by Type

Recommendations

Table 6-9: H1 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install a raised island.	\$49,800	Citizens have reported that SB vehicles may prematurely use this median space to go thru and turn left at Otsego, potentially leading to a head-on collision with NBLT vehicles.
	S2	Evaluate and update as needed signal timing: 1. yellow and all-red clearance intervals. 2. Flashing Don't Walk (FDW) intervals)	\$0	
	S3	Install new curb/gutter to enlarge the island, to shorten crosswalk. Install new ADA ramp. Relocate pedestal pole with APS/CPS ped signals. Evaluate and adjust channelized right turn lane width to accommodate WB-50 trucks.	\$65,000	MDOT SHA Estimate
Intermediate Term (4-5 years)	M1	Option 1: Install new curb/gutter to enlarge the island, add new crosswalks & sidewalks with new ADA ramps to connect from Royal Farm gas station to SW corner of US 40 / Otsego intersection. Update traffic signals to add APS/CPS for the crosswalks on Ohio St and Otsego St.	\$305,00	MDOT SHA Estimate
	M2	Option 2: US 40/Otsego St intersection: - Install curb/gutter to close Ohio St at Royal Farm gas station to be a 4-leg intersection. - Install sidewalk from gas station to intersection. - Add crosswalks with ADA ramps crossing west and north legs. - Upgrade traffic signal to add APS/CPS signals and remove phase/timing for Ohio St. US 40/Ontario St intersection: - Remove truck restriction on Ontario St. - Remove / cut back all medians, to be a 4-leg intersection. - Install crosswalks with ADA ramps on all 4 legs. - Install traffic signal (coordinated with US 40/Otsego St signal), with all required signals including APS/CPS pedestrian signals. Ohio St/Ontario St intersection: - Revise marking / signing on SB Ohio St, to have a dedicated left turn bay.	\$1,500,000	MDOT SHA Estimate Need a traffic study.
Long Term (5+)	L1	See US 40 SUP study for protected bike lane along the corridor.	TBD	Cost pending for future shared use path study results.





H2 – US 40³ at Lewis Lane

Existing Conditions & Site Visit Observations

The intersection of US Route 40 and Lewis Lane is a four-way signal that serves as one of the main access points to the Havre de Grace middle and high schools ¼ mile to the southeast. Lewis Lane is a two-way residential road that ties the neighborhood of Havre de Hills to US 40 and accompanies the East Coast Greenway. Both MTA and Harford County bus stops are located at this intersection. A grocery store, health facility, and several shopping centers surround H2 with multiple access points from each leg. Nearby proposed developments expect to increase the activity at this intersection.



Intersection Qualities

Speed Limit

- US 40 – **45** mph (Posted)
- Lewis Ln – **20** mph (Posted)

AADT

- US 40 – **27,371**
- Lewis Ln – **4,461**

Roadway Classification

- US 40 – **Principal Urban Arterial**
- Lewis Ln – **Major Collector**

LOS

- Level **C** for AM Peak
- Level **C** for PM Peak

Identified Deficiencies

- Missing west sidewalk on Lewis Lane.
- Sight distance issues at corners near bus stop.
- No crosswalk on Lewis Lane.
- Bus stops do not have ADA-compliant bus pads.
- Pedestrians walk along the north side of US 40 where there is no sidewalk.
- Queuing on Lewis Lane to turn on eastbound US 40 interferes with right turn movement.
- Queuing at signal and turning at driveways gridlock the entire Lewis Lane in both directions during peak hours.



³ US 40 is assumed to run in a west-east direction, per MDOT SHA.

Public Input

Countermeasures Requested

- Lighting

Concerns

- On the north leg of Lewis the left and thru lanes are too short and the queue blocks traffic or occupies the NB left turn spaces
- The funeral home north of Lewis may cause long backup issues north of Lewis
- Left turns into Burger King from Lewis
- The parking lots behind the Burger King are “drug areas” and require more lighting
- Drivers use the shoulder on eastbound US 40 to pass traffic and cut back before they get to Otsego
- Access to Burger King and CVS is very difficult when traffic backs up from the signal
- Drivers use the wide lane on/near the bridge heading east on Lewis Lane as 2 lanes, and pass unsafely
- EB US 40 right turn on red is dangerous
- Pedestrian death here 20+ years ago

Crash Analysis

Key Findings of Reported Crashes

- 25 reported crashes in 5 years.
- No fatal crashes.
- 1 crash involved a cyclist (EB on US 40 hit cyclist on north crosswalk).
- **Observed crash pattern:**
 - Rear-end on US 40 in both directions.
 - Left turn between EB/WB throughs and WB/EB left turns.
 - Right angle between NB and EB throughs.

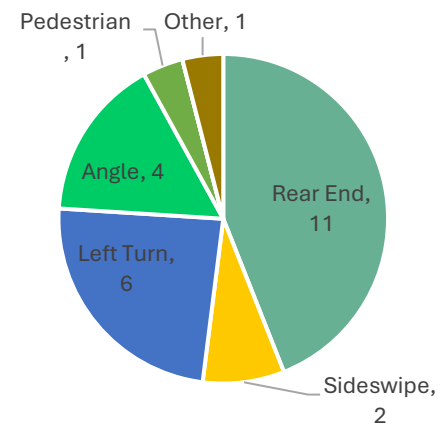


Figure 6-12: B2 Crashes by Type

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- ◆ Northbound Lewis Lane needs better lane marking delineation.
- ◆ The accesses on both sides of Lewis Lane (south leg of the intersection) need mitigation to eliminate traffic blockage.
- ◆ Installation of bike facilities should be evaluated (underway in the US 40 SUP study).
- ◆ The high number of rear-end, left turn, and right-angle crashes indicates a need to check yellow/all-red clearances.

Recommendations

Table 6-10: H2 Recommendations

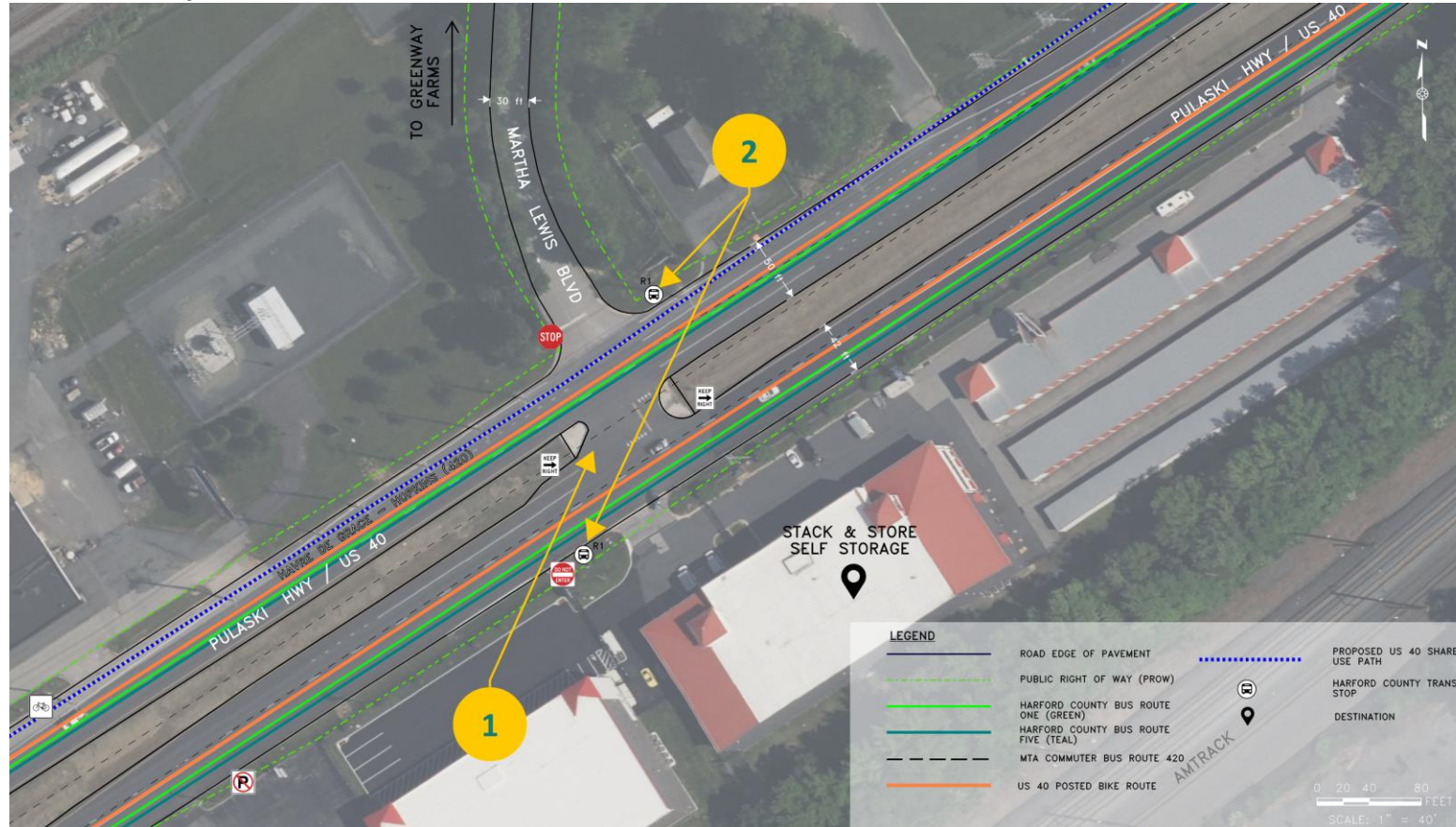
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Repair or replace this malfunctioning CPS pedestrian signal to provide proper countdown timer.	\$1,000	MDOT SHA Estimate
	S2	Install new sidewalks (~400') with ADA ramps to Harbor Shops	\$168,200	Will be done by the WAWA developer.
	S3	Install new sidewalk (~160') to intersection to provide access to ex. bus stop on US 40	\$62,400	
	S4	Evaluate / revise signal timing: 1. Add 3-5 seconds of LPI (lead pedestrian interval) for the crosswalk. 2. Yellow and all-red clearance intervals.	\$0	
	S5	Install pavement marking lane lines and hatching, to delineate the single thru lane in each direction, with turning bays as needed. For the entire length of Lewis Ln b/t US 40 and Revolution St add protected bike lanes as per planned by the town.	\$109,200	
	S6	Implement the recommended mitigations from the WAWA TIS study (by the developer): - Change lanes on Lewis Ln (both directions) from "left/thru +right only" to "left only + right/thru". - Extend left turn bays on US 40 (both directions) to 300' long with 100' taper. - Change signal phasing for Lewis Ln from split to concurrent with protected/permitted lefts. - Other pavement marking improvements on Lewis Ln as described in the TIS study.	\$0.00	To be done by the developer.
Intermediate Term (4-5 years)	M1	Upgrade traffic signal, including adding 3 new crosswalks with ADA ramps, and CPS/APS pedestrian signals.	\$275,000	MDOT SHA Estimate
	M2	This access will be removed per proposed WAWA site plan by the developer.	\$0	Will be done by the WAWA developer.
	M3	Evaluate to relocate the Lewis Ln access further away from US 40. Constrained by the severe elevation difference.	TBD	Cost pending for future driveway relocation study results.
	M4	Evaluate to close the Lewis Ln access and only use the right-in-right-out on US 40	TBD	Cost pending for future driveway relocation study results.
Long Term	L1	See US 40 SUP study for protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



H3 – US 40⁴ at Martha Lewis Boulevard

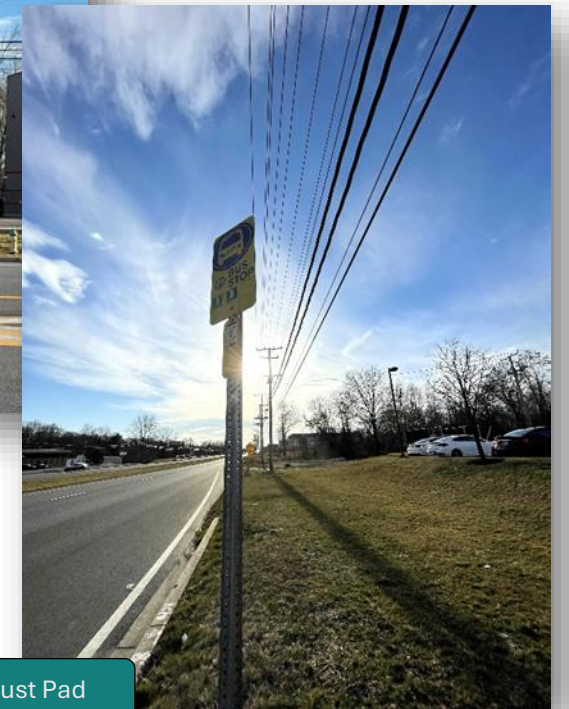
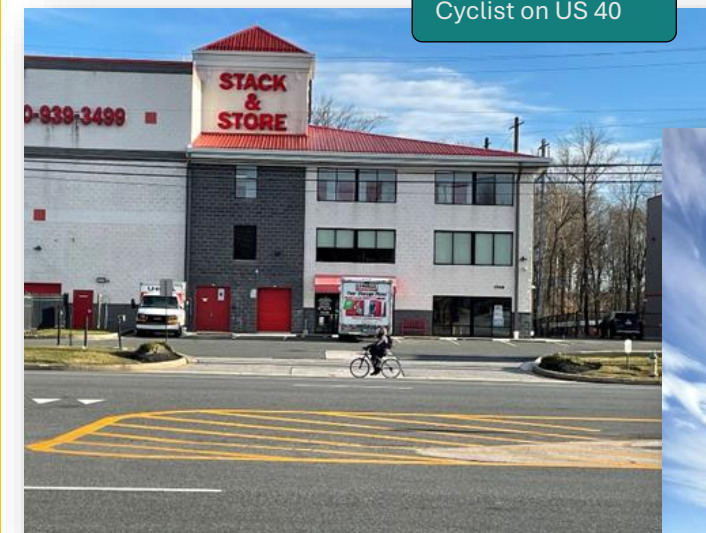
Existing Conditions & Site Visit Observations

A non-signalized intersection, H3 provides access to the Greenway Farms neighborhood. The T-junction was previously upgraded with shark-teeth pavement markings to indicate the correct positioning of vehicles. With bus stops on either side of US 40 serving the Green line bus route and a self-storage facility across the street, this intersection sees a range of traffic from pedestrians to heavy vehicles.



Identified Deficiencies

1. The queuing lane seems small and may be confusing for a vehicle making a left onto US 40.
 2. No existing sidewalk connecting the bus stops.
- No lighting



Intersection Qualities

Speed Limit

- US 40 – **55** mph (Posted)
- Martha Lewis Blvd – **25** mph (Posted)

Roadway Classification

- US 40 – **Principal Urban Arterial**
- Martha Lewis Blvd – **Local Collector**

AADT

- US 40 – **27,371**
- Martha Lewis Blvd – **<5,000** (Est.)

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Public Input

Countermeasures Requested

- Signal
- Speed safety cameras
- Cycle track on US 40
- Increase the queuing area to turn onto Martha Lewis Blvd from eastbound US 40

Concerns

- There are line of sight issues and queuing issues when you are trying to turn within the median space on US 40
- The neutral zone is scary for bikes because you're sharing the space with cars.
- The U-Haul and Stack and Store produce a lot of large vehicle traffic (like haulers and trucks) which occupy the neutral zone and block the line of sight for cars trying to turn onto US 40
- The shark teeth are confusing in the neutral zone

⁴US 40 is assumed to run in a west-east direction, per MDOT SHA

Crash Analysis

Key Findings of Reported Crashes

- 7 reported crashes in 5 years.
- Less than 5 reported crashes in 12 months, signal warrant 7 isn't met.
- No fatal crashes.
- 0 crashes involved a pedestrian or cyclist.
- **Observed crash pattern:** All crashes were between US 40 thru-vehicle and turning vehicle.

Interpretation of Data

- ◆ The left and U turns at the intersection are in conflict and unsafe, needing mitigation.
- ◆ Installation of bike facilities should be evaluated (underway in the US 40 SUP study).
- ◆ All reported crashes involve thru traffic on US 40 and turning vehicles and need mitigation.

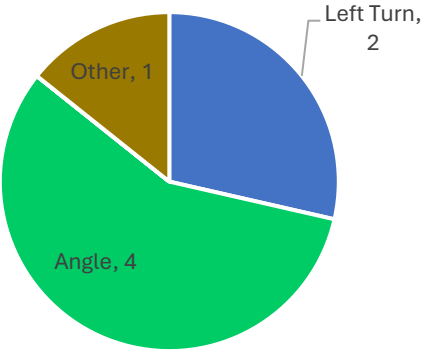


Figure 6-13: H3 Crashes by Type

Recommendations

Table 6-11: H3 Recommendations

Countermeasure			Cost	Notes
Intermediate Term (4-5 years)	M1	Option 1: A "Restricted Crossing U-Turn", or "R*CUT", intersection. Left turns from side streets will make "Right + U" turns instead.	\$600,000	MDOT SHA Estimate Need a traffic study.
	M2	Option 2: "Protected T" ("Maryland T") intersection. Storage facility traffic to use Post Rd (MD 7A) signal to make U turn.	\$600,000	MDOT SHA Estimate Need a traffic study.
Long Term (5+)	L1	See US 40 SUP study for protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



H4 – US 40 at Blenheim Lane⁵

Existing Conditions & Site Visit Observations

The H4 intersection is like the above H3 configuration. This non-signalized, T-Junction ties the Bulle Rock neighborhood to US 40 while providing a through way for those traveling north of Havre de Grace. Similarly to H3, shark teeth and a short queuing lane were recently added to this intersection. Bus stops on either side of US 40 serve the green and teal routes but no sidewalk or bus pads currently exist to connect these transit stops to the surrounding community.



Identified Deficiencies

1. The queuing lane seems small and may be confusing for a vehicle making a left onto US 40.
2. No existing sidewalk connecting the bus stops.
 - No lighting

Intersection Qualities

Speed Limit

- US 40 – 55 mph (Posted)
- Blenheim Ln – 25 mph (Posted)

Roadway Classification

- US 40 – Principal Urban Arterial
- Blenheim Ln – Local

AADT

- US 40 – 27,371
- Blenheim Ln – <5,000 (est.)

LOS

- Level A for AM Peak
- Level B for PM Peak

Public Input

Countermeasures Requested

- Widen the neutral zone area.
- Signal (but needs to be timed with the one at Lewis and if they’re going to add one at Martha Lewis so that people don’t have to stop constantly along US 40)
- Sidewalks on westbound US 40

Concerns

- New housing down Blenheim will increase traffic volumes.
- Shark teeth in neutral zone are confusing.

Crash Analysis

Key Findings of Reported Crashes

- 7 reported crashes in 5 years
- 5 reported crashes occurred in a 12-month period (Sep 2020 to Jul 2021) → crash criteria met for Signal Warrant 7
- No fatal crashes.
- 0 crashes involving a pedestrian or cyclist.
- **Observed crash pattern:** Left run crash between EB left turns and WB thru on US 40

Interpretation of Data

- ◆ Pedestrian facilities (crossing on US 40 and ADA-compliant facilities) are needed at/near the intersection and the nearby bus stops.
- ◆ The left and U-turns at the intersection are in conflict and unsafe, needing mitigation.
- ◆ Installation of bike facilities should be evaluated (underway in the US 40 SUP study).
- ◆ All reported crashes involve thru traffic on US 40 and turning vehicles and need mitigation.

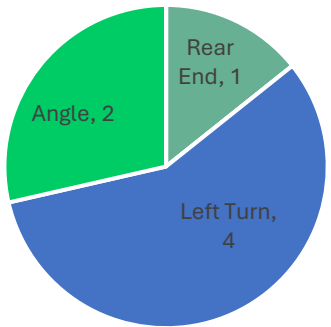


Figure 6-14: H4 Crashes by Type

⁵ US 40 is assumed to run in a west-east direction, per MDOT SHA

Recommendations

Table 6-12: H4 Recommendations

Countermeasure			Cost	Notes
Intermediate Term (4-5 years)	M1	Option 1: Perform a Signal Warrant Study for a new full-color traffic signal here. If warranted, can install two new crosswalks on US 40 on both sides (for much-needed safe crossing to access bus stops). Also, can consider reconfigure shopping plaza access to be part of intersection.	\$325,000	Need a full signal warrant study.
	M2	Option 2: "Protected T" ("Maryland T") intersection. Storage facility traffic to use Post Rd (MD 7A) signal to make U turn.	\$365,700	Need a traffic study.
	M3	A "Restricted Crossing U-Turn", or "R*CUT", intersection. Left turns from side streets will make "Right + U" turns instead.	\$600,000	MDOT SHA Estimate Need a traffic study.
Long Term (5+)	L1	See US 40 SUP study for protected bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



H5 – MD 155⁵ / Ohio Street and Superior Street (MD 763)

Existing Conditions & Site Visit Observations

This intersection is three-way and non-signalized used heavily by large vehicles trying to access US 40. A pedestrian sidewalk abruptly ends before the intersection on Superior Street.



Intersection Qualities

Speed Limit

- MD 155 – **35/30** (for Trucks) mph (Posted)
- Ohio St – **30** mph (Posted)

Roadway Classification

- MD 155 - **Principal Urban Arterial**
- Ohio St – **Urban Collector**

AADT

- Superior St. – **7,091**
- MD 155 to Ohio St – **14,954**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Identified Deficiencies

1. Sidewalk stops at Gospel Tabernacle.
 2. Vehicles from NB Ohio Street can have difficulties turning left.
 3. EB vehicles on MD 155 from the underpass have sight distance issues.
- *Combination of downslope and horizontal curve for EB MD 155.*
 - *Sidewalk serves the church; vehicles that overflow the parking lot park along the street and patrons use the sidewalk to get to the church.*
 - *Vehicles on N/S MD 155 travel at high speeds making any pedestrian and bike travel less safe.*



⁶ US 155 is assumed to run in a west-east direction, per MDOT SHA.

Crash Analysis

Key Findings of Reported Crashes

- 10 reported crashes in 5 years.
- 5 reported crashes occurred in a 12-month period (March 2021 to March 2022). Warrant 7 Crash Criteria for signal installation is met.
- No fatal crashes.
- No crashes involving a pedestrian or cyclist.
- **Observed crash pattern:** All crashes, mainly angles (4) and fixed-objects (3), involved EB vehicles on MD 155.

Interpretation of Data

- ◆ Speeding on eastbound downhill MD 155 needs mitigation.
- ◆ Wide pavement on Superior St needs lane marking delineation improvement.
- ◆ Signing and marking for the turning movements and the center island need improvements.
- ◆ Installation of bike facilities should be evaluated.
- ◆ All reported crashes involve eastbound MD 155 traffic and need mitigation.
- ◆ Anecdotal evidence about injuries and crashes at this intersection is higher than the reported crash data available.

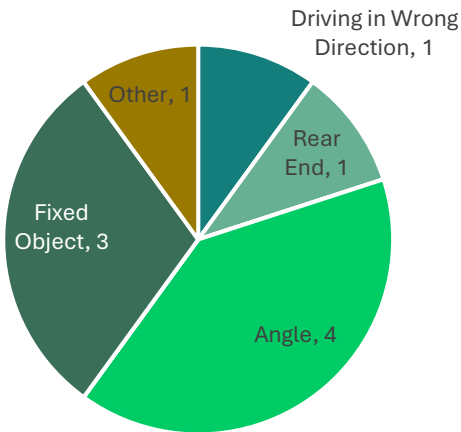


Figure 6-15: H5 Crashes by Type

Public Input

Countermeasures Requested

- Consider a traffic light.
- Speed enforcement on EB MD 1

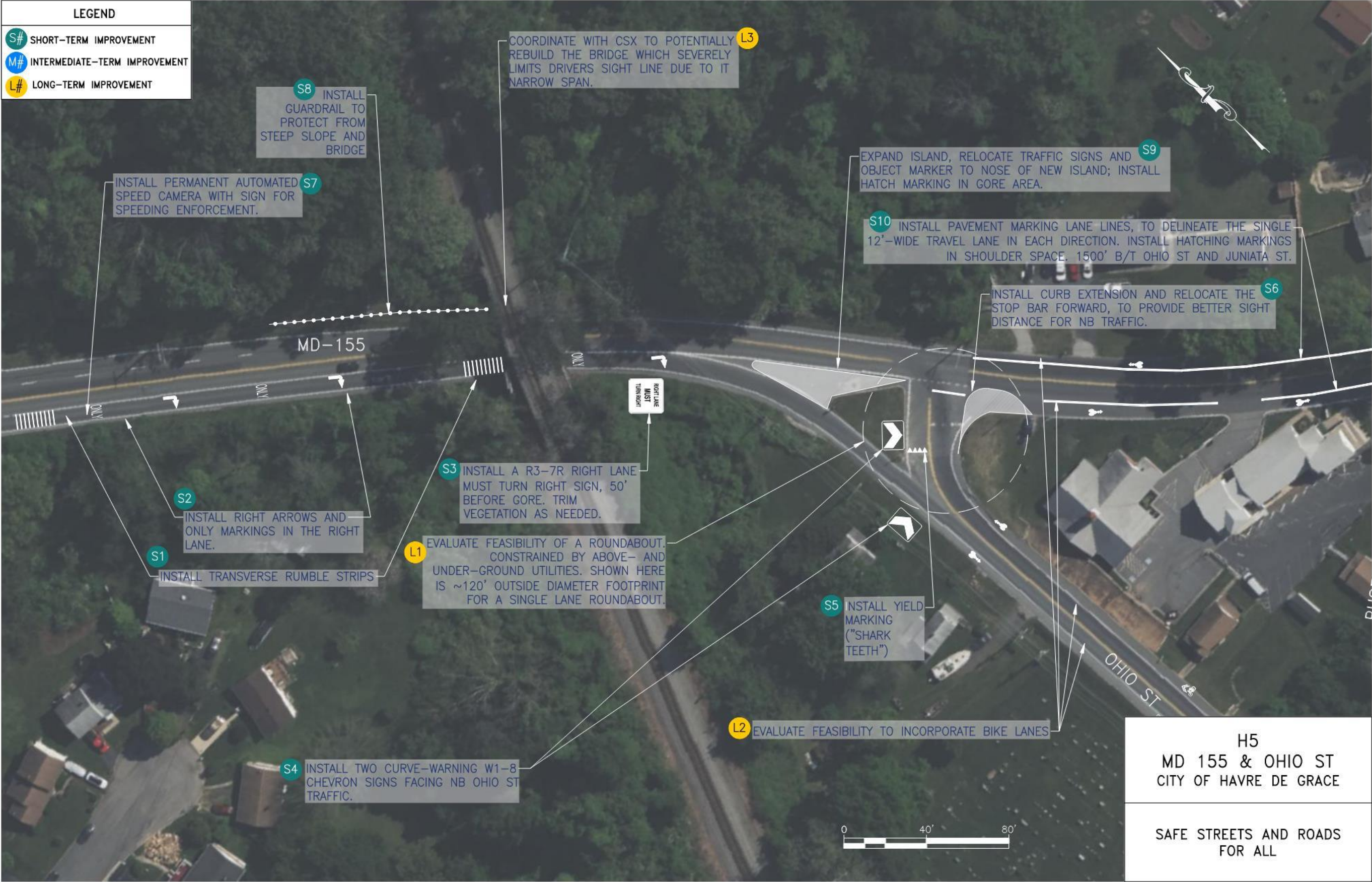
Concerns

- Vehicles Speeding (There was an eastbound right turn truck flip off due to high-speed turning.)
- To bypass the weight station on I-95 many trucks from NB 95 to this intersection, then U-turn at H1 (US Route 40 at Otsego/Ohio Streets) and get back to 95 through US 40.
- Citizens want speed enforcement such as a speed trap on EB MD155. Police seem not to have enough resources to enforce speed 24/7.
- Based on the description of citizens, the crash reports for H1 and H5 don't seem to tell the full story. The number of severe injuries and casualties seems much higher.
- Northbound left turn is difficult during the PM peak (4-6pm) due to lack of gap. NB queue is very long.
- Traffic backup and rear end collisions are normal.
- An accident involving EB motorcycle hit utility poles and trees at this intersection.
- There was a crash on a pole or tree on the northern side of the intersection.

Recommendations

Table 6-13: H5 Recommendations

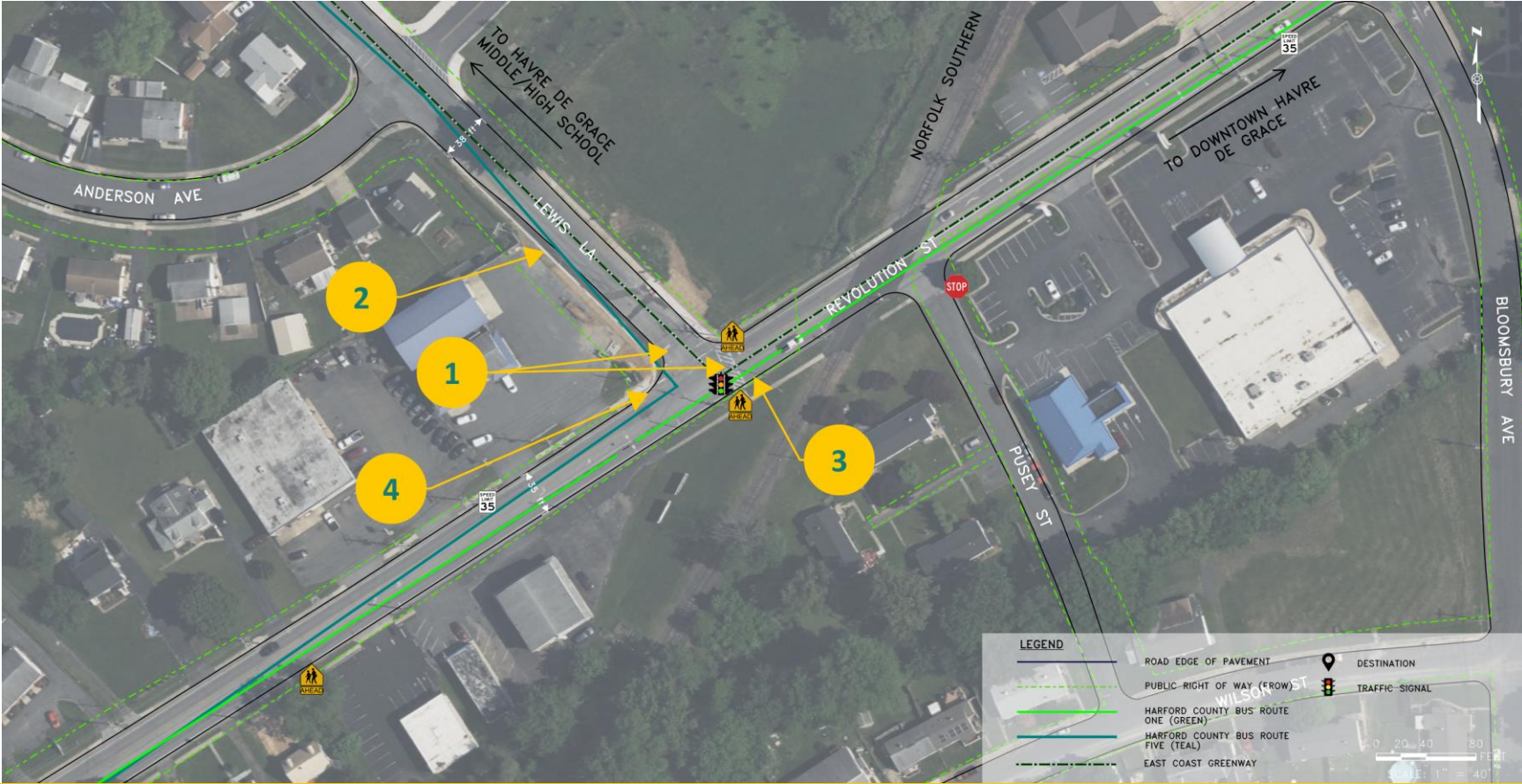
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install transverse rumble strips	\$1,000	MDOT SHA Estimate
	S2	Install Right Arrows and ONLY markings in the right lane.	\$1,200	
	S3	Install an R3-7R RIGHT LANE MUST TURN RIGHT sign, 50' before gore. Trim vegetation as needed.	\$800	
	S4	Install two curve-warning W1-8 chevron signs facing NB Ohio St traffic.	\$1,600	
	S5	Install yield marking ("shark teeth")	\$400	
	S6	Install curb extension and relocate the stop bar forward, to provide better sight distance for NB traffic.	\$50,000	MDOT SHA Estimate
	S7	Install permanent automated speed camera with sign for speeding enforcement.	\$65,000	Legislative support is needed
	S8	Install guardrail to protect from steep slope and bridge	\$23,800	Need a guardrail study to verify slope/topo and length of need.
	S9	Expand island, relocate traffic signs, and object marker to nose of new island; install hatch marking in gore area.	\$85,000	MDOT SHA Estimate
	S10	Install pavement marking lane lines, to delineate the single 12'-wide travel lane in each direction. Install hatching markings in shoulder space. 1500' b/t Ohio St and Juniata St.	\$32,200	
Long Term (5+)	L1	Evaluate feasibility of a roundabout. Constrained by above- and under-ground utilities. Shown here is ~120' outside diameter footprint for a single lane roundabout.	\$1,600,000	MDOT SHA Estimate Need a traffic study.
	L2	Evaluate feasibility to incorporate bike lanes	TBD	Cost pending for future bike lane study results.
	L3	Coordinate with CSX to potentially rebuild the bridge which severely limits drivers sight line due to its narrow span.	TBD	Cost pending for future CSX coordination results.



H6 – Revolution Street (MD 7A)⁶ at Lewis Lane

Existing Conditions & Site Visit Observations

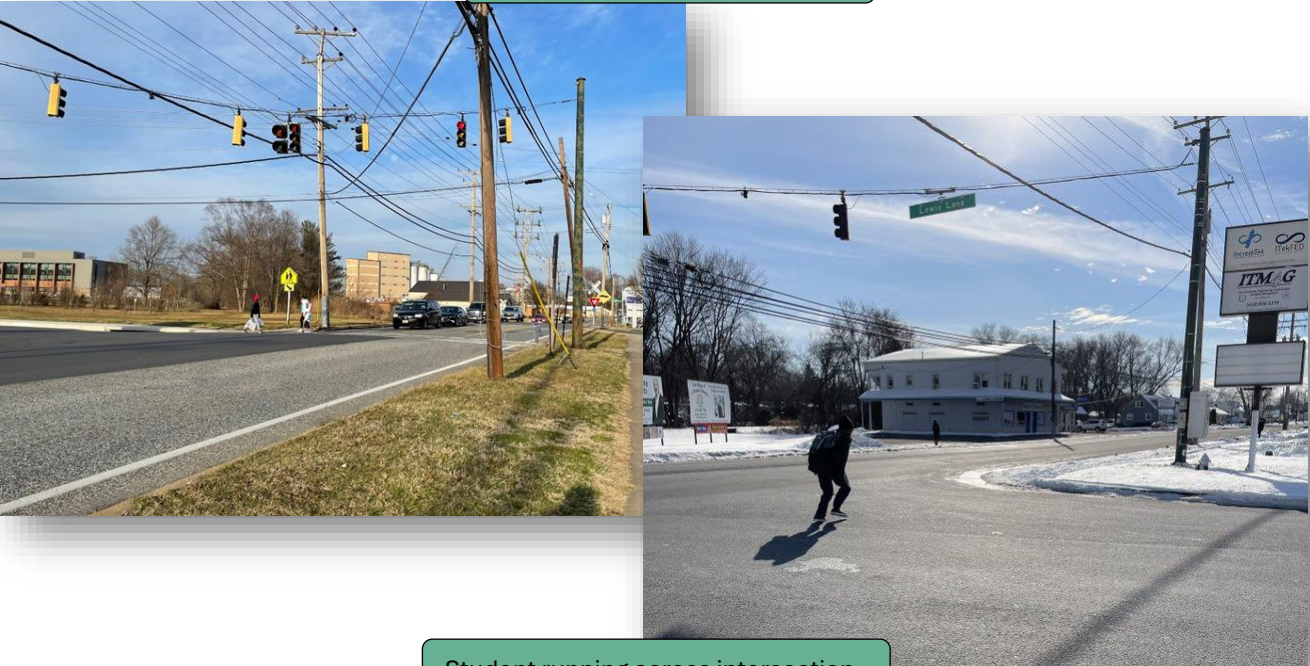
This intersection is one of the main entry points to Havre de Grace Middle and High School and a turn along two major bikeways. As such pedestrians and cyclists frequently use the existing pedestrian infrastructure. The Harford County teal and green lines pass through the intersection, but no surrounding stops are nearby. This intersection was identified for an upgrade in Havre de Grace’s Multimodal Transportation Storymap as needing a signalized crosswalk. There are equity considerations necessary at this intersection as it connects a Low to Moderate Income neighborhood⁷ that lies to the east of Revolution St.



Identified Deficiencies

1. Outdated pavement markings.
 2. Disconnected sidewalk along the west side of Lewis Lane.
 3. No pedestrian pushbutton or signal.
 4. The ADA ramp on NW corner is askew and may present difficulties.
- Students jaywalking crossing Lewis Lane.
 - Students walking mid-field in the grass space from school directly to Revolution Street without using sidewalk and intersection.

Pedestrians Crossing the Street



Student running across intersection

Intersection Qualities

Speed Limit

- Revolution St – **35** mph (Posted)
- Lewis Ln – **25** mph (Posted)

Roadway Classification

- Revolution St – **Minor Urban Arterial**
- Lewis Ln – **Major Collector**

AADT

- Revolution St – **9,801**
- Lewis Ln – **4,461**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Existing and proposed Plans

In 2023 a bike lane feasibility study in the HDG Old Town was initiated through the MDOT Kim Lamphier Bikeways Network Grant to develop recommendations for bicycle facilities in this area including a quick build project.

Public Input

Countermeasures Requested

- Walkways
- Signal
- Pedestrian crossing enhancements

Concerns

- Kids cross the parking lot on Lewis Lane and jaywalk.
- 18 wheelers are sometimes directed towards this intersection because the turn off on US 40 is confusing.
- Disconnected sidewalks

⁶ Revolution Street (MD 7A) is assumed to run in a west-east direction, per MDOT SHA

⁷ Information provided from [NCRC](#)

Crash Analysis

Key Findings of Reported Crashes

- 1 reported crash in 5 years. Only 1 rear-end crash on WB Revolution St but caused 4 injuries.
- No fatal crashes.
- 0 crashes involved a pedestrian or cyclist.
- **Observed crash pattern:** None found

Interpretation of Data

- ◆ Pedestrian (mostly students of the middle/high school) safety improvements (pavement marking, signing, signal equipment, ADA-compliant facilities) are needed at/near the intersection.
- ◆ Sidewalk connectivity, especially on Lewis Lane near the school entrance, needs improvement.
- ◆ Installation of bike facilities should be evaluated and coordinated with existing bikeway facility upgrades.

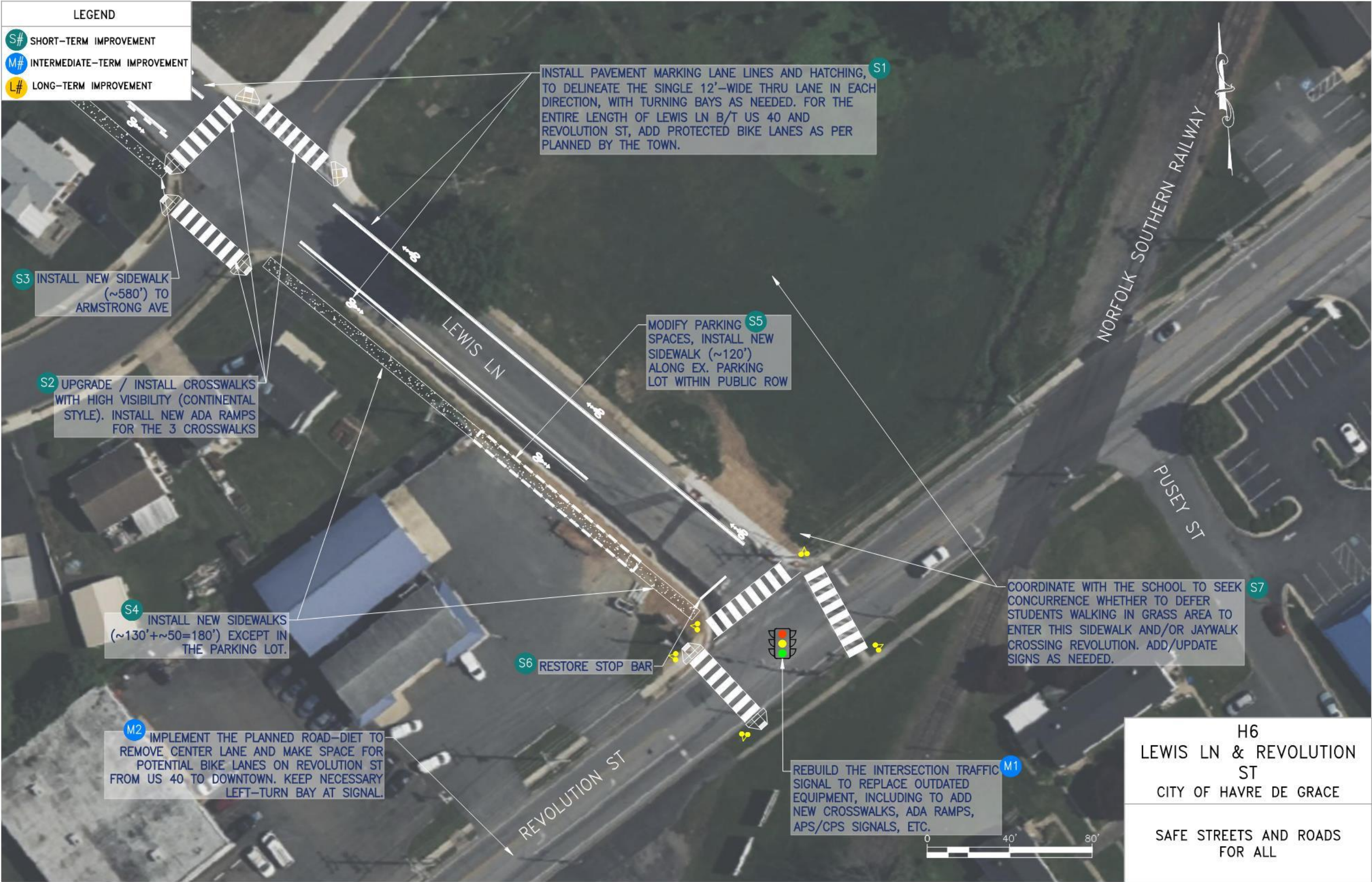


Figure 6-16: H6 Crashes by Type

Recommendations

Table 6-14: H6 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install pavement marking lane lines and hatching, to delineate the single 12'-wide thru lane in each direction, with turning bays as needed. For the entire length of Lewis Ln b/t US 40 and Revolution St. add protection bike lanes per the city plan.	\$101,400	
	S2	Upgrade / install crosswalks with high visibility (continental style). Install new ADA ramps for the 3 crosswalks	\$17,200	
	S3	Install new sidewalk (~580') to Armstrong Ave	\$311,600	
	S4	Install new sidewalks (~130'+~50=180') except in the parking lot.	\$70,200	
	S5	Modify parking spaces, install new sidewalk (~120') along ex. parking lot within public ROW	\$46,800	
	S6	Restore stop bar.	\$300	
	S7	Coordinate with the school to seek concurrence whether to defer students walking in grass area to enter this sidewalk and/or jaywalk crossing Revolution. Add/update signs as needed.	\$0	Coordination efforts. No construction.
Intermediate Term (4-5 years)	M1	Rebuild the intersection traffic signal to replace outdated equipment, including adding new crosswalks, ADA ramps, APS/CPS signals, etc.	\$325,000	
	M2	Implement the planned road-diet to remove center lane and make space for potential bike lanes on Revolution St from US 40 to downtown. Keep necessary left-turn bay at signal.	TBD	Cost pending for future detailed design project results.



H7 – Pennington Ave at N Union Ave⁸

Existing Conditions & Site Visit Observations

H7 is a four-way intersection that is surrounded by the Havre de Grace library and visitor center, fire station and residential housing. N Union Avenue is stop-controlled, and Pennington Avenue is free flow. Diagonal parking on either side of Pennington Avenue accommodates users of these facilities as well as those wishing to travel downtown, the main street of which is just east of the intersection. Route 1 bus line runs on the northern leg of N Union Avenue, a residential road with parallel parking lanes on either side. The Route 1 (Green line) bus stops at this intersection in the northern and eastern directions.



Identified Deficiencies

1. Outdated Pavement markings.
(Update: Recently upgraded to high Visibility Markings by SHA)
 2. Parked vehicles on Pennington Ave may block the driver’s view towards pedestrians crossing the street.
 3. Vehicles on Pennington Ave may mistakenly see this intersection as an all-way stop control.
- No speed limit signs posted on Pennington Ave.
 - Lack of visibility of the stop signs: the stop sign is located far away from the stop bar with a large offset driver’s view can be easily blocked by roadside parking cars.
 - The number and spacing of streetlights appear to be insufficient for the surrounding environment.

Intersection Qualities

Speed Limit

- Pennington Ave – 25 mph (Posted)
- N Union Ave – 25 mph (Posted)

Roadway Classification

- Pennington Ave – Major Collector
- N Union Ave – Minor Arterial

AADT

- Pennington Ave – 1,072
- N Union Ave – 9,801

LOS

- Level A for AM Peak
- Level A for PM Peak

Public Input

This intersection was selected after the public workshop for this Action Plan was held and therefore does not have any information from the city’s constituents. However, several charrettes for the downtown redevelopment project were held that allowed for public comment prior to this report.

Crash Analysis

Key Findings of Reported Crashes

- 3 reported crashes in 5 years (2019 - 2023).
- No fatal crash.
- 1 crash involved 2 pedestrians: A WB left-turn vehicle struck two pedestrians on the south leg crosswalk.
- **Observed crash pattern:** All crashes involved WB vehicles, due to failure to obey the stop sign or failure to pay full attention.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ The fire station on the southeast corner would require all proposed geometry changes or curbs to be compatible with fire engines.
- ◆ Installation of bike facilities should be evaluated.
- ◆ The crash involving two pedestrians may have been caused by inadequate lighting or sight distance issues. See the Intersection Deficiencies Section.

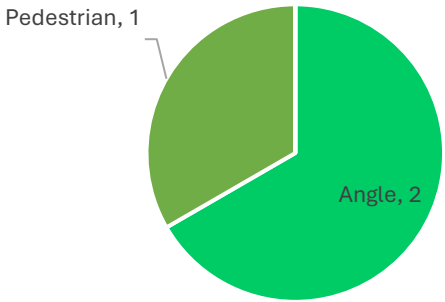


Figure 6-17: H7 Crashes by Type

Existing and Proposed Plans

The April 2022 Havre de Grace Restoration Plan includes this intersection as part of the planned "Civic Spine" corridor. It is listed as a Priority 1 location of the highest importance. The Plan recommends a separated bike route along Union Street.

In 2023 a bike lane feasibility study in the HDG Old Town was initiated through the MDOT Kim Lamphier Bikeways Network Grant. The study will develop recommendations for bicycle facilities in this area.

Recommendations

Table 6-15: H7 Recommendations

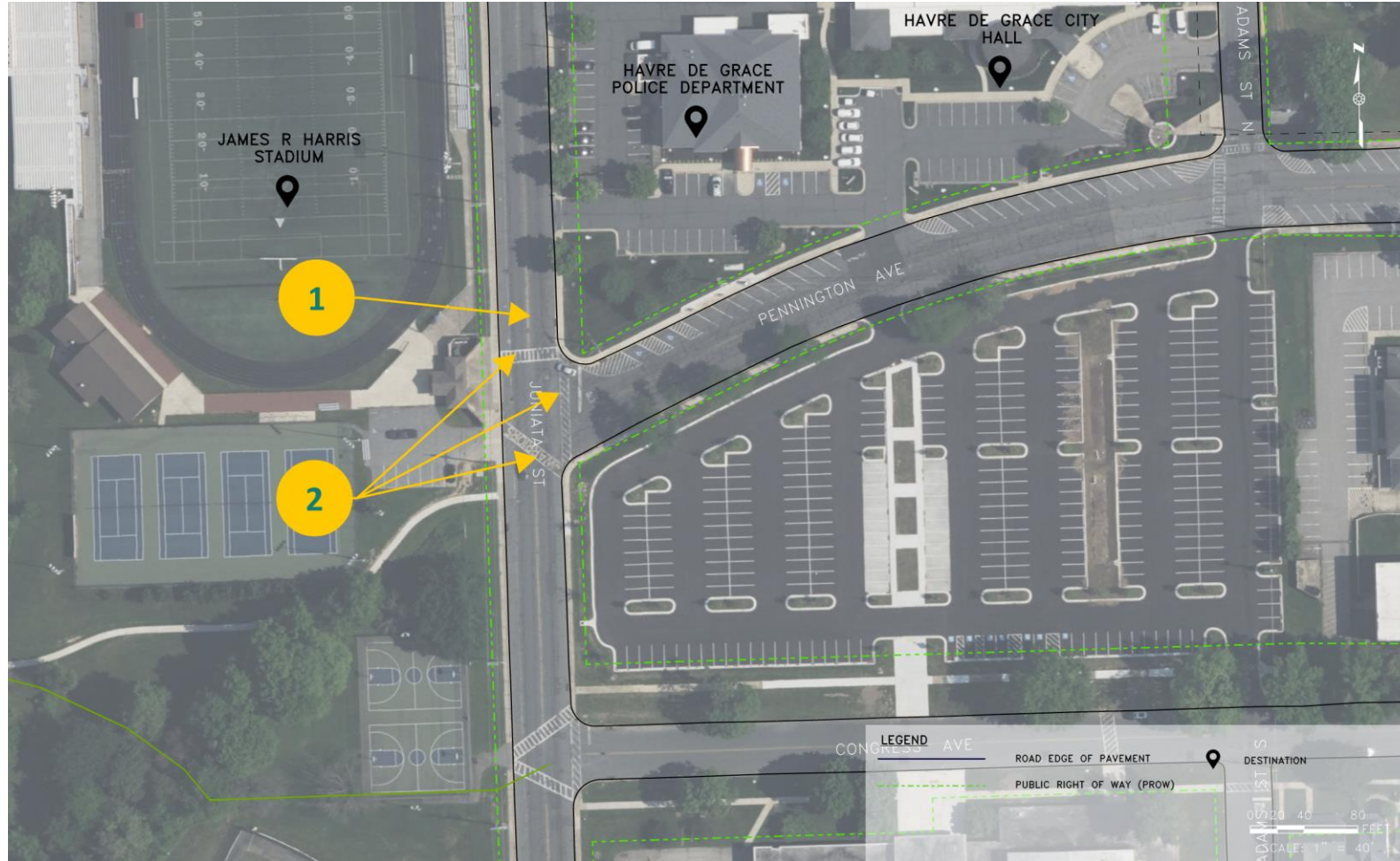
Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install Curb extension (low and mountable curbs as needed, especially in SE corner (Firehouse)) with new ADA ramps, accommodating fire engines. Update signs as needed.	\$200,000	MDOT SHA Estimate
	S2	Install CROSS TRAFFIC DOES NOT STOP Plaque (W4-4P) under ex. STOP signs	\$200	
	S3	Not Used	--	Removed Per SHA comment – Markings Updated by SHA
	S4	Perform a lighting study to evaluate street lighting deficiency.	TBD	Need a lighting improvement study. Cost pending on the results.
	S5	Perform a traffic study to evaluate if a 4-way Stop is warranted.	\$15,600	Need a traffic study.
Long Term (5+)	L1	Evaluate possibility of adding a bike lane along the corridor.	TBD	Cost pending for future bike lane study results.



H8 – Pennington⁹ Ave at N Juniata St

Existing Conditions & Site Visit Observations

H8 is a T intersection with stop control on Pennington Avenue, a two-lane street with diagonal parking on the north side. The Havre de Grace Police Department and City Hall are located on Pennington Avenue and directly ahead is the James R. Harris Stadium. A large parking area that serves the stadium sits on the southeast quadrant of the intersection. There is no existing bike infrastructure on either of the connecting roadways.



Identified Deficiencies

1. Vehicles likely to speed on Juniata St, due to the flat and wide pavement (44' wide with only one thru lane in each direction) with faded lane markings.
2. All crosswalk pavement markings are outdated.
 - No speed limit signs posted on Pennington Ave

Intersection Qualities

Speed Limit

- Pennington Ave – **25** mph (Posted)
- N Juniata St – **25** mph (Posted)

Roadway Classification

- Pennington Ave – **Major Collector**
- N Juniata St – **Minor Arterial**

AADT

- Pennington Ave – **1,072**
- N Juniata St – **5,051**

LOS

- Level **A** for AM Peak
- Level **A** for PM Peak

Public Input

This intersection was selected after the public workshop was held and therefore does not have any information at this time from the city's constituents.

However, similarly to H7, improvements for this intersection were discussed during the downtown improvement studies conducted by Havre de Grace.

Existing and Proposed Plans

The April 2022 Havre de Grace Restoration Plan includes this intersection as part of the planned "Civic Spine" corridor. It is listed as a Priority 3 location as the west end of the corridor. The Plan recommends a separate bike route along Juniata Street.

In 2023 a bike lane feasibility study in the HDG Old Town was initiated through the MDOT Kim Lamphier Bikeways Network Grant. The study will develop recommendations for bicycle facilities in this area.

Crash Analysis

Key Findings of Reported Crashes

- 1 reported crash in 5 years (2019 - 2023).
- No fatal crash.
- 0 crashes involved a pedestrian or cyclist.

Interpretation of Data

- ◆ Pedestrian safety improvements (pavement marking, signing) are needed at/near the intersection.
- ◆ The crossings on Juniata St can have high pedestrian volumes during school and special events and may need signal control (RRFB for instance).
- ◆ Installation of bike facilities should be evaluated.



Figure 6-18: H8 Crashes by Type

Recommendations

Table 6-16: H8 Recommendations

Countermeasure			Cost	Notes
Short Term (0-3 Years)	S1	Install Curb extension with new ADA ramps. Update signs as needed.	\$200,000	MDOT SHA Estimate
	S2	Install high-visibility crosswalk and ADA ramps	\$15,000	MDOT SHA Estimate
	S3	Upgrade crosswalks to high visibility (continental style); install new ADA-compliant curb ramps.	\$40,000	MDOT SHA Estimate
	S4	Install new thermoplastic lane markings to delineate single travel lane.	\$15,600	
	S5	Install new fluorescent yellow-green S1-1 SCHOOL CROSSING sign	\$800	
	S6	Install RRFB flashing beacons.	\$81,300	Need a traffic study to check RRFB warrants.
	S7	Install median islands and curb extensions with new ADA ramps. Install pedestrian crosswalk with ADA ramps on the south leg. Update signs as needed.	\$130,000	MDOT SHA Estimate
Long Term (5+)	L1	Evaluate possibility of adding a bike lane along the corridor.	TBD	Cost pending for future bike lane study results.

⁹ N Juniata St is assumed to run in a north-south direction.







SECTION 7 - PROJECT PRIORITIZATION AND PROGRESS



Section 7 - Project Prioritization and Progress

The Action Plan serves as a living document that provides a variety of crash countermeasure projects and strategies that can be implemented to reduce fatal and serious injury crashes within the Town of Bel Air, the City of Aberdeen, and the City of Havre de Grace. The plan can be used in coordination with partner agencies and long-range planning efforts, such as those conducted by Harford County and Maryland Department of Transportation (MDOT), State Highway Administration (SHA) to identify priority projects. Clear, measurable short-term, intermediate-term goals, and long-term goals combined with timelines and accountability by agencies responsible for implementation will create a framework that is transparent so progress can be measured year to year.

Assessing the Recommendations' Effectiveness

This Action Plan provides the necessary countermeasures to the identified issues at the selected intersections. A significant amount of data was collected, analyzed and results incorporated in the proposed countermeasures categorized based on estimated cost and implementation duration.

The short-term measures can be implemented within one to three years and estimated costs vary between \$0 for interagency coordination and \$170,000 for more complex measures including sidewalks and raised concrete medians.

The intermediate-term measures can be implemented within four to five years, may require various levels of design and costs can vary between \$15,000 for short sections of sidewalk and pavement markings to \$1,000,000 and over for more complex countermeasures.

The long-term measures require further studies and county-wide and even statewide coordination to interlace the envisioned countermeasures into the larger vision of each municipality, the county, and the state. These measures may take five years and longer to be implemented and the estimated costs will vary widely.

Assessment of the effectiveness of the implemented countermeasures provides information that will help the municipalities decide if the investment reduced crash frequency or severity. Such assessment can be performed one to three years after the implementation for enough data to be collected at each location. The new data will then be compared with the data before implementation.

There are several methods at different effort levels to conduct the evaluation that can be implemented:

1. Collect public data.
2. Conduct a comparative assessment of before and after crash data and traffic volumes.
3. Conduct a before/after study.
4. Conduct a rigorous before/after analysis.

The municipalities can use the baseline data collected with this Project when developing the evaluation. The FHWA Highway Safety Manual, Chapter 6, Table 6.1 provides a comparison of data inputs required for the possible analysis methods.

Roadway Infrastructure Upgrades

- ◆ Upgrades with responsibility, and cost, are provided in Section VI and the Appendices.
- ◆ Equity considerations in the upgrade process are discussed in detail in Section IV.
- ◆ Documenting recommendations for each jurisdiction are covered in detail in Section VI.

- ◆ Strategies to address common challenges and opportunities are also covered in detail in Section VI.

By implementing the proposed countermeasures alone may result in reduction of roadway crashes and fatalities, especially those involving pedestrians, bicyclists and citizens with disabilities and could result in elimination when combined with other strategies. Such strategies include stakeholder collaboration, policy enhancements and education and when implemented in parallel will enhance the efficiency of proposed countermeasures and contribute to reaching the objectives of Vision Zero.

Guidance by the Vision Zero Network¹ indicates that many cities use a 10-year time frame as their baseline to achieve zero deaths. This Action Plan follows that approach by identifying short, intermediate, and long-term goals to track progress and meet a target date of zero deaths by 2034. Adjustments to this goal will need to be made once progress reports are reviewed.

Project Prioritization

To prioritize the suggested recommendations, a series of factors have been considered, including crash analysis findings, equity considerations, the built environment and public engagement. Based on these factors, scoring criteria were developed to rank the prioritization of each selected intersection improvement while ensuring equitable consideration to each factor. This criterion is in Table 7-1.

¹ [Vision Zero Action Plan](#)

Table 7-1: Prioritization Considerations for Improvements

Criteria	Requirements
Equity	1. The intersection is within: a) An area of persistent poverty and/or b) A disadvantaged community tract
	2. The population around the intersection: a) Is largely non-white (at least 20%) b) Is largely without access to vehicles
Safety	1. Serious injuries or fatalities have occurred to pedestrians at or around the intersections
	2. The intersection study area: a) Lacks safe bicycle facilities. b) Lacks safe pedestrian facilities.
Complete Streets	The intersection requires the implementation of Complete Streets principles and safe bicycle and pedestrian access to transit, schools, health care facilities, retail & other destinations
Public Outreach	The intersection was identified as needing improvement by the community during the public workshops or in the survey responses.

Table 7-2: Prioritization by Intersection

ID	Intersection	Equity 1a	Equity 1b	Equity 2a	Equity 2b	Safety 1	Safety 2a	Safety 2b	Complete Streets	Public Outreach	Total
A1 & A4	US 40 & W. Bel Air Ave. and US 40 Shared Use Path from Aberdeen Train Station to Havre de Grace	★		★	★	★	★	★	★	★	8
A2.1	James Ave. & US 40		★	★		★	★	★	★	★	8
A2.2	Carol Avenue & US 40		★	★			★	★	★	★	6
A3	MD 22 @ Old Post and Post Road	★		★	★		★	★	★	★	7
A5	Middelton Road @ West Bel Air Avenue (MD-132)		★	★	★		★	★	★	★	7
A6	MD 132 @ Bush Chapel Road		★	★	★		★	★	★		6
B1	Court House Square (Office/Courtland Streets) at S Bond Street (MD 924)					★	★	★	★	★	5
B2	Kenmore Avenue at S Main Street (MD 924)			★			★	★	★	★	5
B3	Ellendale Street (Ma & Pa Trail) at N Main Street (MD 924)					★	★	★	★	★	5
B4	Moore’s Mill Road at Hickory Avenue						★	★	★	★	4
B5	Pennsylvania Avenue at Hickory Avenue					★	★	★	★	★	5
B6	Lee Street at Hickory Avenue						★	★	★	★	4
B7	Lee Street at N Main Street						★	★	★	★	4
B8	Gordon Street at N Main/N Bond Streets					★	★	★	★	★	5
B9	MacPhail Road at S Main Street			★			★	★	★	★	5
H1	US 40 at Otsego/Ohio Streets		★	★	★	★	★	★	★	★	8
H2	US 40 at Lewis Lane		★	★	★	★	★	★	★	★	8
H3	US 40 at Martha Lewis Blvd		★	★	★		★	★	★	★	7
H4	US 40 at Blenheim Lane						★	★	★	★	4
H5	MD Route 155 at Ohio Street		★	★	★		★	★	★	★	7
H6	Revolution Street at Lewis Lane		★	★	★		★	★	★	★	7
H7	Pennington Avenue at N. Union Avenue		★	★	★	★	★	★	★		7
H8	Pennington Avenue at N. Juniata Street		★	★	★		★	★	★		6

Tracking Progress

To track progress toward achieving plan goals an Executive Traffic Safety Committee can consider tracking annual performance measures such as:

1. Continuously update data and assess fatal and severe injury crashes involving vulnerable users (bicycles and pedestrians).
2. Create a progress schedule for short-term and intermediate-term projects implemented and evaluate several long-term projects initiated.
3. Inventory of supplemental studies or new designs begun.
4. Document miles of sidewalks constructed or repaired.
5. Document miles of new bicycle infrastructure installed.
6. Document number of speed management programs initiated.
7. Document new intersection ADA accessibility upgrades and high visibility crosswalks were installed.
8. Document new, upgraded, and modified signals.

Prioritizing and growing a robust Vision Zero program requires ongoing monitoring and continuous refinement to city processes, strategic partnerships, community engagement, and resources. Strengthening existing relationships with County and State agencies and working strategically towards meeting the same goals will create a successful cultural shift.



APPENDICES



Appendix A - Crash Data Summary

Table A-1: Crash Data Summary

Intersection ID	2018	2019	2020	2021	2022	5-Yr Total	Note
A1&A4	5 / 0 / 3 / 0	3 / 0 / 2 / 0	7 / 0 / 4 / 1	2 / 0 / 0 / 0	12 / 0 / 5 / 1	29 / 0 / 14 / 2	
A2.1	2 / 0 / 2 / 1	5 / 0 / 3 / 0	3 / 0 / 0 / 0	4 / 0 / 2 / 0	2 / 0 / 0 / 0	16 / 0 / 7 / 1	
A2.2	2 / 0 / 2 / 0	1 / 0 / 0 / 0	2 / 0 / 1 / 0	3 / 0 / 1 / 0	2 / 0 / 1 / 1	10 / 0 / 5 / 1	One Pedestrian Fatality in Jan 2024
A3	0 / 0 / 0 / 0	1 / 0 / 1 / 0	4 / 0 / 3 / 0	5 / 0 / 1 / 0	0 / 0 / 0 / 0	10 / 0 / 5 / 0	
A5	3 / 0 / 2 / 0	2 / 0 / 0 / 0	1 / 0 / 0 / 0	1 / 0 / 0 / 0	0 / 0 / 0 / 0	7 / 0 / 2 / 0	
A6	3 / 0 / 1 / 0	4 / 0 / 2 / 0	2 / 0 / 0 / 0	2 / 0 / 0 / 0	5 / 0 / 3 / 0	16 / 0 / 6 / 0	
B1	2 / 0 / 2 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	2 / 0 / 0 / 0	1 / 0 / 0 / 0	5 / 0 / 2 / 0	One Pedestrian Fatality in Nov 2017
B2	2 / 0 / 0 / 0	2 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	1 / 0 / 0 / 0	5 / 0 / 0 / 0	
B3	0 / 0 / 0 / 0	3 / 0 / 1 / 1	1 / 0 / 0 / 0	1 / 0 / 0 / 0	4 / 0 / 1 / 0	9 / 0 / 2 / 1	
B4	4 / 0 / 1 / 0	0 / 0 / 0 / 0	2 / 0 / 0 / 0	2 / 0 / 1 / 0	0 / 0 / 0 / 0	8 / 0 / 2 / 0	
B5	1 / 0 / 1 / 1	1 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	2 / 0 / 1 / 1	4 / 0 / 2 / 2	
B6	3 / 0 / 1 / 0	1 / 0 / 0 / 0	3 / 0 / 1 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	7 / 0 / 2 / 0	
B7	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	1 / 0 / 0 / 0	1 / 0 / 0 / 0	
B8	2 / 0 / 0 / 0	3 / 0 / 2 / 1	1 / 0 / 0 / 0	1 / 0 / 0 / 0	1 / 0 / 0 / 0	8 / 0 / 2 / 1	
B9	1 / 0 / 0 / 0	1 / 0 / 1 / 0	0 / 0 / 0 / 0	4 / 0 / 0 / 0	1 / 0 / 1 / 0	7 / 0 / 2 / 0	
H1	5 / 1 / 1 / 0	6 / 0 / 4 / 1	1 / 0 / 0 / 0	5 / 0 / 2 / 0	6 / 0 / 1 / 0	23 / 1 / 8 / 1	
H2	7 / 0 / 4 / 1	4 / 0 / 3 / 0	5 / 0 / 1 / 0	5 / 0 / 1 / 0	4 / 0 / 2 / 0	25 / 0 / 11 / 1	
H3	1 / 0 / 1 / 0	3 / 0 / 0 / 0	0 / 0 / 0 / 0	2 / 0 / 0 / 0	1 / 0 / 1 / 0	7 / 0 / 2 / 0	
H4	0 / 0 / 0 / 0	2 / 0 / 2 / 0	2 / 0 / 2 / 0	3 / 0 / 2 / 0	0 / 0 / 0 / 0	7 / 0 / 6 / 0	
H5	2 / 0 / 0 / 0	0 / 0 / 0 / 0	2 / 0 / 2 / 0	3 / 0 / 0 / 0	3 / 0 / 1 / 0	10 / 0 / 3 / 0	
H6	1 / 0 / 1 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	1 / 0 / 1 / 0	
H7	0 / 0 / 0 / 0	2 / 0 / 2 / 2	0 / 0 / 0 / 0	0 / 0 / 1 / 0	1 / 0 / 0 / 0	3 / 0 / 3 / 2	
H8	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	0 / 0 / 0 / 0	Data at this intersection was from 2019-2023
Total	46 / 1 / 22 / 3	44 / 0 / 23 / 5	36 / 0 / 14 / 1	45 / 0 / 11 / 0	47 / 0 / 17 / 3	218 / 1 / 87 / 12	

The table to the right is set up in the following format:

YEAR CRASH OCCURRED
TOTAL CRASHES / FATALITIES / INJURIES/ PEDESTRIANS INVOLVED

Appendix B Traffic Volumes and Intersection Level of Service (LOS)

Table B-1: Level of Service Summary

Intersection		Posted Speed (mph)	AADT (Veh/Day)	Functional Classification	Traffic Control	Intersection LOS		
						AM Peak	PM Peak	Acceptability
A1 & A4	W Bel Air Avenue	30	13,140	Minor Arterial	Signal	A	C	Acceptable
	US 40	30	39,283	Principal Arterial				
A2.1	US 40	40	39,283	Principal Arterial	Stop (side street only)	A	A	Acceptable
	James Avenue	25	1,495	Collector				
A2.2	Carol Avenue	25	<5,000	Collector	Stop (side street only)	A	A	Acceptable
	US 40	40	39,283	Principal Arterial				
A3	MD 22	40	28,440	Principal Arterial	Traffic Signal	A	B	Acceptable
	Old Post Road	30	3,691	Collector				
A5	W Bel Air Ave (MD-132)	30	13,140	Minor Arterial	Stop (side street only)	A	A	Acceptable
	Middleton Rd	25	<5,000	Collector				
A6	W Bel Air Ave (MD-132)	40	13,140	Minor Arterial	Traffic Signal	A	A	Acceptable
	Bush Chapel Road	30	4,550	Collector				
B1	Bond St.	25	10,291	Urban Arterial	Traffic Signal	A	A	Acceptable
	Office & Courtland Streets	25		Local				
B2	Kenmore Ave/Heighe St	30	10,291	Principal Urban Arterial	Stop (side street only)	A	A	Acceptable
	S Main St (MD-924)	30	10,700	Principal Urban Arterial				
B3	Ellendale St (Ma& Pa Trail)	25	<5,000	Commercial Collector	Yellow flashing beacons for trail; Stop (side street only)	N/A	N/A	Acceptable
	N Main St (MD-924)	30	15,430	Principal Urban Arterial				
B4	Moore’s Mill Rd	30	8,701	Principal Urban Arterial	Traffic Signal	A	B	Acceptable
	Hickory Ave	30	11,002	Urban Collector				
	Conowingo	40	<5,000	Urban Collector				
B5	Pennsylvania Ave	25	~7000	Local	Traffic Signal	B	B	Acceptable
	Hickory Ave	30	11,002	Principal Urban Arterial				
B6	Lee St	25	<5,000	Commercial Collector	Stop (side street only)	A	A	Acceptable
	Hickory Ave	25	11,002	Principal Urban Arterial				

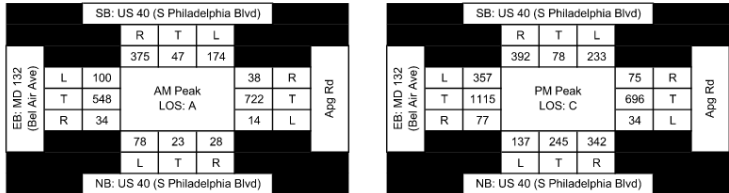
Traffic Volumes and Intersection Level of Service (LOS)

Intersection		Posted Speed (mph)	AADT (Veh/Day)	Functional Classification	Traffic Control	Intersection LOS		
						AM Peak	PM Peak	Acceptability
B7	Lee St	25	<5,000	Commercial Collector	Stop (side street only)	A	A	Acceptable
	N Main St	30	10,700	Principal Urban Arterial				
B8	Gordon St	25	<5,000	Commercial Collector	Stop (side street only)	B	A	Acceptable
	N Main St (MD-924)	30	15,430	Principal Urban Arterial				
	N Bond St	30	10,291	Principal Urban Arterial				
B9	MacPhail Rd	30	6,761	Urban Collector	Traffic Signal	D	D	Acceptable
	S Main St (MD-924)	30	18,670	Principal Urban Arterial				
H1	US Route 40	45	27,371	Principal Urban Arterial	Traffic Signal	D*	F*	AM Acceptable PM Unacceptable
	Otsego St	25	14,954	Minor Urban Arterial				
	Ohio St	30	9,801	Urban Collector				
H2	US Route 40	45	27,371	Principal Urban Arterial /	Traffic Signal	C	C	Acceptable
	Lewis Lane	20	5,150	Major Collector				
H3	US Route 40	55	27,371	Principal Urban Arterial / Local Collector	Stop (side street only)	A	A	Acceptable
	Martha Lewis Blvd	25	<5,000	Local Collector				
H4	US Route 40	55	27,371	Principal Urban Arterial	Stop (side street only)	A	B	Acceptable
	Blenheim Ln	25	<5,000	Local				
H5	MD Route 155	35/30 (Truck)	7,091	Principal Urban Arterial	Stop (side street only)	A	A	Acceptable
	Ohio St	30	14,954	Urban Collector				
H6	Revolution St	35	9,801	Minor Urban Arterial	Traffic Signal	A	A	Acceptable
	Lewis Ln	25	4,461	Major Collector				
H7	Pennington Ave	25	1,072	Major Collector	Stop (side street only)	A	A	Acceptable
	N. Union Ave	25	9,801	Minor Arterial				
H8	Pennington Ave	25	1,072	Major Collector	Stop (side street only)	A	A	Acceptable
	N. Juniata St	25	5,051	Minor Arterial				

*For H1
- The SHA US 40 and MD 155 From Otsego St/MD 7A to Ontario St intersection study (05/2020) reported LOS of D/F for AM/PM peaks using Synchro method.
- The MDTA toll diversion study (11/2023) reported LOS of A/C using CLV method.
- The Go Car Wash TIS (09/2023) reported LOS of A/B using CLV method.
Because Synchro is more applicable and accurate for this complex 5-leg intersection, the 2020 SHA study results are shown in the table.

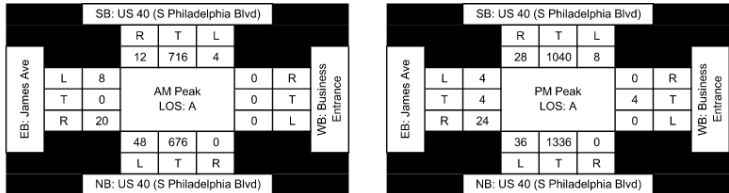
Volume and LOS Summary Sheets

A1&A4 - West Bel Air Avenue (MD 132) at US 40 & US 40 Shared Use Path



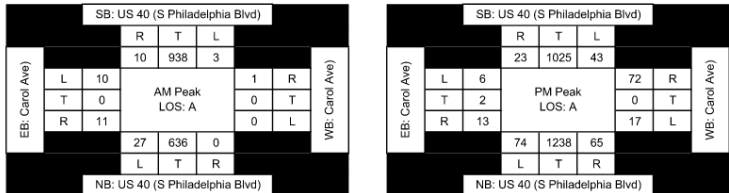
Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 03.05.2013
Notes: None.
Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 03.05.2013 data. CLV method.

A2.1 - James Avenue at US 40



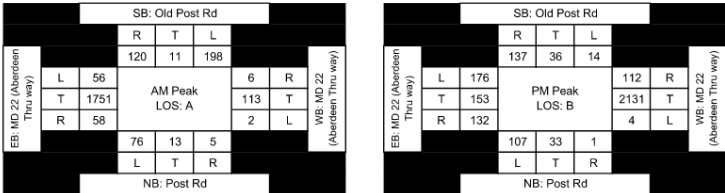
Source: Field count
Date of Source: 03.20.2024
Notes: None.
Intersection LOS Source: CLV Calculation.

A2.2 - Carol Avenue at US 40



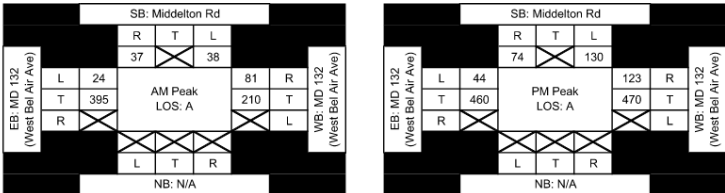
Source: Lidl Traffic Impact Study
Date of Source: 04.26.2015
Notes: None.
Intersection LOS Source: Lidl Traffic Impact Study (Page 59 / Appendix B page 9). CLV method.

A3 - MD 22 at Old Post and Post Road (MD132B)



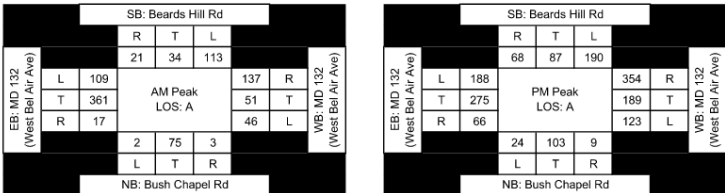
Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 05.16.2017
Notes: None.
Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 05.16.2017 data. CLV method.

A5 - Middleton Road at West Bel Air Avenue (MD 132)



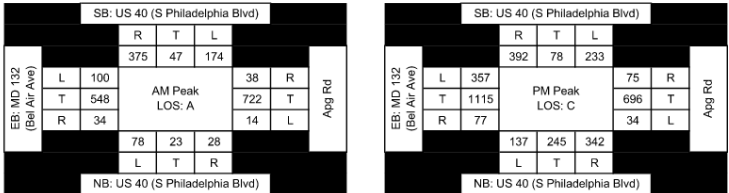
Source: Aberdeen Corporate Park Traffic Impact Study
Date of Source: 02.24.2009
Notes: None.
Intersection LOS Source: Aberdeen Corporate Park Traffic Impact Study (Page 24). CLV method.

A6 - MD 132 at Bush Chapel Road and Beards Hill Rd (MD 132A)



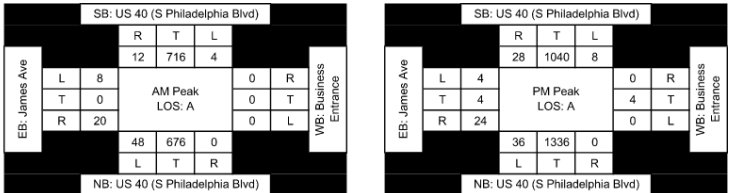
Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 01.18.2018
Notes: None.
Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 01.18.2018 data. CLV method.

A1&A4 - West Bel Air Avenue (MD 132) at US 40 & US 40 Shared Use Path



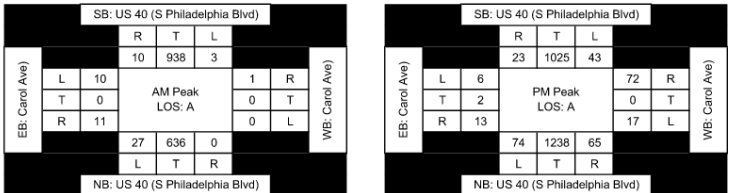
Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 03.05.2013
Notes: None.
Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 03.05.2013 data. CLV method.

A2.1 - James Avenue at US 40



Source: Field count
Date of Source: 03.20.2024
Notes: None.
Intersection LOS Source: CLV Calculation.

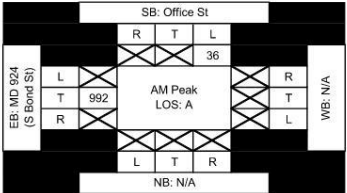
A2.2 - Carol Avenue at US 40



Source: Lidl Traffic Impact Study
Date of Source: 04.26.2015
Notes: None.
Intersection LOS Source: Lidl Traffic Impact Study (Page 59 / Appendix B page 9). CLV method.

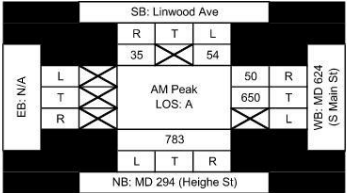
Traffic Volumes and Intersection Level of Service (LOS)

B1 - Court House Square (Office/Courtland Streets) at South Bond Street (MD 924)



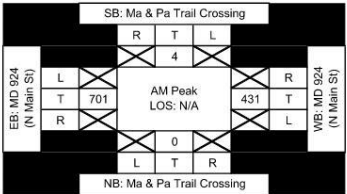
Source: Homestead Wakefield Elementary School Traffic Impact Study
Date of Source: 10.21.2021
Notes: Office St volumes were field-verified on 3.20.2023.
Intersection LOS Source: CLV Calculation.

B2 – Kenmore Road at South Main Street (MD 924)



Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 08.30.2023; 05.12.2021; 05.04.2022
Notes: None.
Intersection LOS Source: CLV Calculation.

B3 - Ellendale Street and Ma & Pa Trail at North Main Street (MD 924)



Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 10.06.2022
Notes: None.
Intersection LOS Source: N/A (Pedestrian crossing)

B4 – Moore's Mill Road at North Hickory Avenue / Conowingo Rd (US 1 BUS)



Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 05.21.2014
Notes: None.
Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 05.21.2014 data. CLV method..

B5 – Pennsylvania Avenue at Hickory Avenue



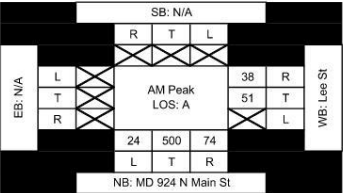
Source: Hickory Flats Traffic Impact Study
Date of Source: 04.21.2021
Notes: None.
Intersection LOS Source: Hickory Flats Traffic Impact Study (Page 71 and Page 73). HCS method.

B6 – Lee Street at Hickory Avenue



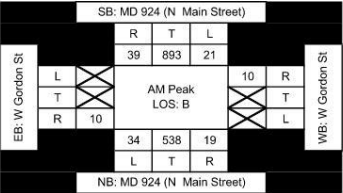
Source: Hickory Flats Traffic Impact Study
Date of Source: 04.21.2021
Notes: None.
Intersection LOS Source: Hickory Flats Traffic Impact Study (Page 52). CLV method.

B7 – Lee Street at North Main Street (MD 924)



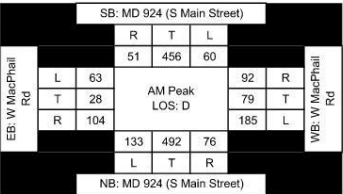
Source: Hickory Flats Traffic Impact Study
Date of Source: 04.21.2021
Notes: None.
Intersection LOS Source: Hickory Flats Traffic Impact Study (Page 43). CLV method.

B8 – Gordon Street at North Main & North Bond Streets (MD 924)



Source: Standard On Bond Mixed-Use Development Traffic Impact Study
Date of Source: 05.15.2023
Notes: None.
Intersection LOS Source: Standard On Bond Mixed-Use Development Traffic Impact Study (Page 40). CLV method.

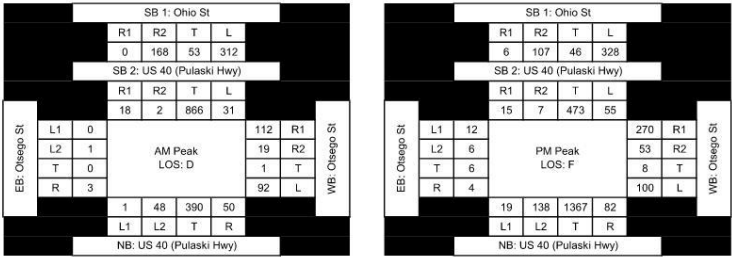
B9 – MacPhail Road at South Main Street (MD 924)



Source: Homestead Wakefield Elementary School Traffic Impact Study
Date of Source: 10.21.2021
Notes: None.
Intersection LOS Source: Homestead Wakefield Elementary School TIS (Page 152 and Page 153). HCS method.

Traffic Volumes and Intersection Level of Service (LOS)

H1 – US 40, Otsego Street (MD 7A), and Ohio Street (MD 155)



Source: The SHA US 40 and MD 155 From Otsego St/MD 7A to Ontario St intersection study (05/2020)
Date of Source: 10.31.2018

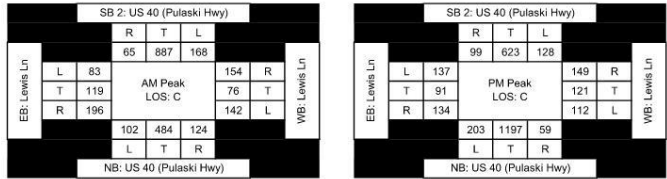
Notes:

- The SHA US 40 and MD 155 From Otsego St/MD 7A to Ontario St intersection study (05/2020, page 12) reported LOS of D/F for AM/PM peaks using SynchroHCM method;
- The MDTA toll diversion study (11/2023 using 2022 volumes) reported LOS of A/C using CLV method;
- The Go Car Wash TIS (09/2023, page 7) reported LOS of A/B using CLV method.

Because Synchro is more applicable and accurate for this complex 5-leg intersection, the SHA study results are shown in the table.

Intersection LOS Source: SHA US 40 and MD 155 From Otsego St/MD 7A to Ontario St study (05/2020, page 12). SynchroHCM method.

H2 – US 40 at Lewis Lane

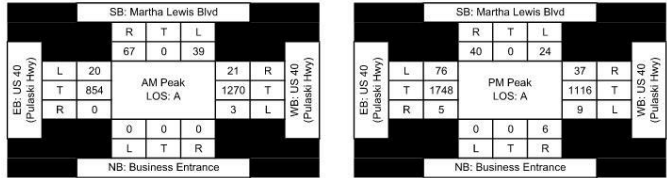


Source: Go Car Wash Traffic Impact Study
Date of Source: 09.07.2023

Notes: This TIS reported LOS of C/C in the Executive Summary (page 7) using CLV method, but D/C in Appendix (pages 411 and 427) using HCM method in Synchro.

Intersection LOS Source: Go Car Wash TIS (page 7). CLV method.

H3 – US 40 at Martha Lewis Boulevard

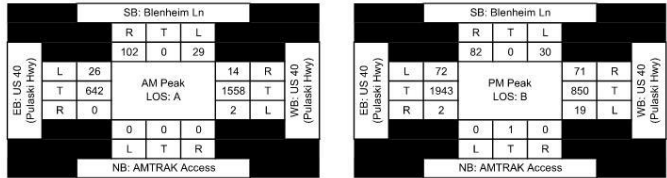


Source: Lampson Property TIA
Date of Source: 01.24.2024

Notes: None.

Intersection LOS Source: Lampson Property TIA, page 17. CLV method.

H4 – US 40 at Blenheim Lane

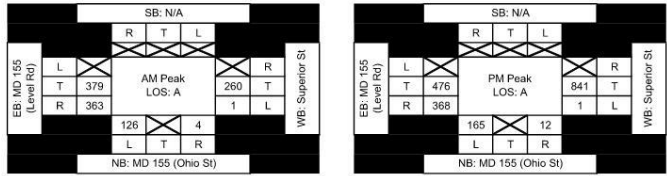


Source: Maryland Internet Traffic Monitoring System (ITMS)
Date of Source: 10.22.2013

Notes: None.

Intersection LOS Source: Maryland Internet Traffic Monitoring System (ITMS) 10.22.2013 data. CLV method.

H5 – MD 155 / Ohio Street and Superior Street (MD 763)

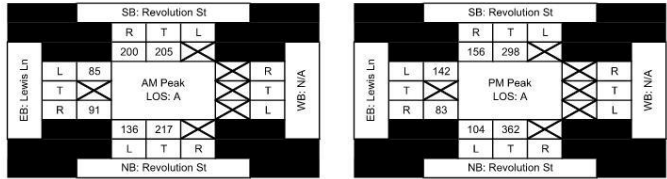


Source: The Legacies Residential Development Traffic Impact Study
Date of Source: 05.10.2023

Notes: None.

Intersection LOS Source: The Legacies Residential Development Traffic Impact Study (Page 25). CLV method.

H6 – Revolution Street (MD 7A) at Lewis Lane

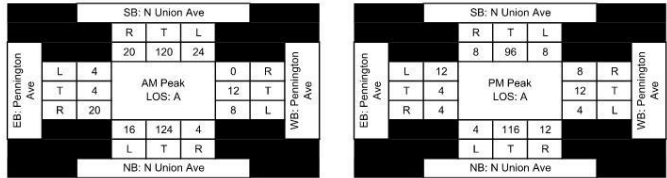


Source: Go Car Wash Traffic Impact Study
Date of Source: 09.07.2023

Notes: None.

Intersection LOS Source: Go Car Wash Traffic Impact Study (Page III or 7 of 543). CLV method.

H7 – Pennington Ave at N Union St

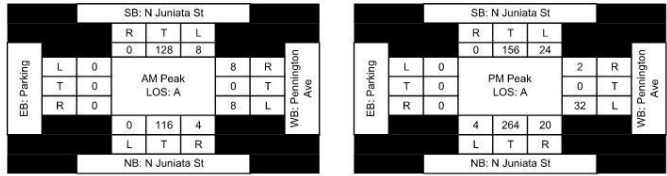


Source: Field count
Date of Source: 03.20.2024

Notes: Pedestrian volume → AM: north leg 4, south leg 8, east leg 16, west leg 16; PM: north leg 0, south leg 0, east leg 0, west leg 12.

Intersection LOS Source: CLV Calculation.

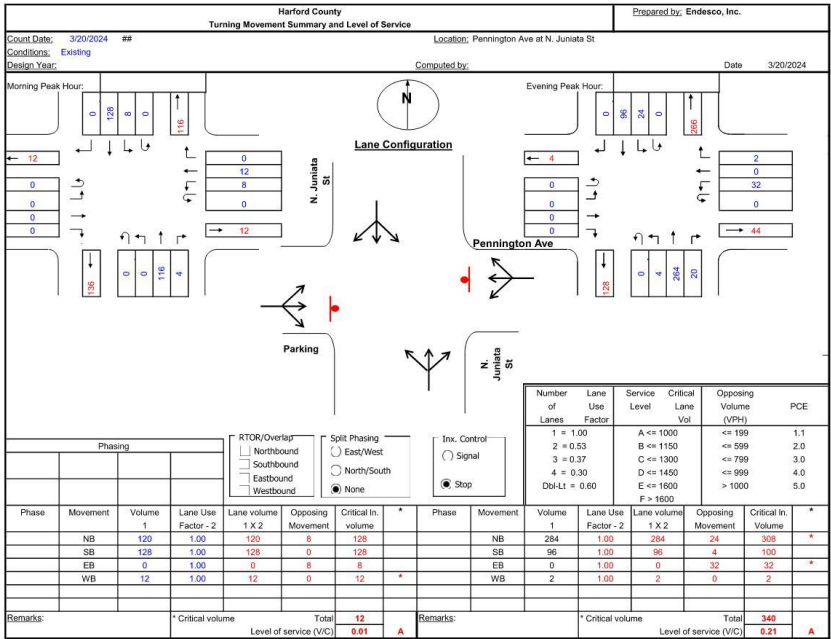
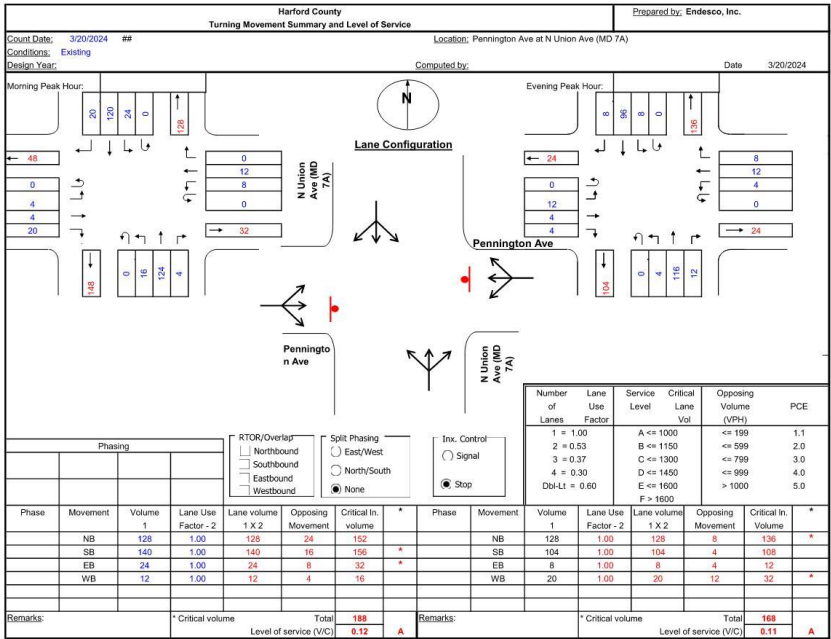
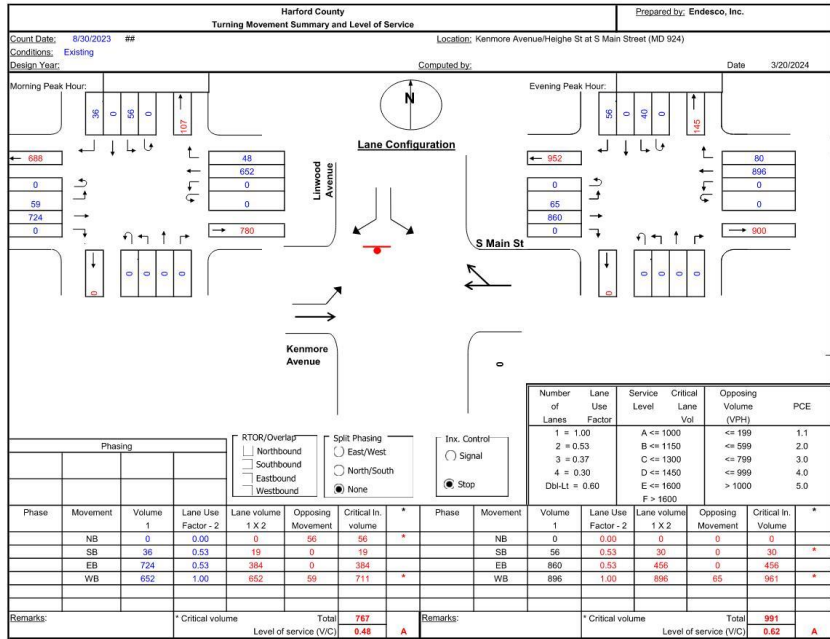
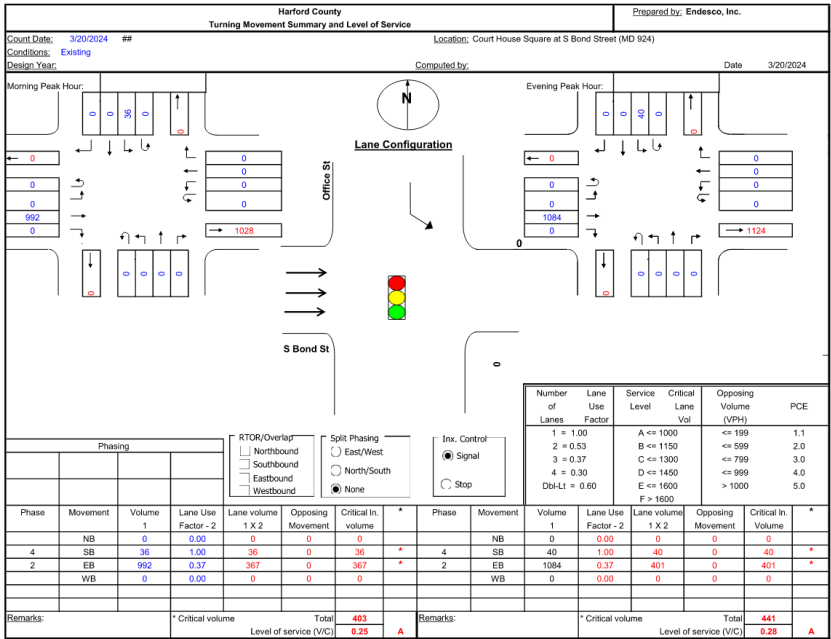
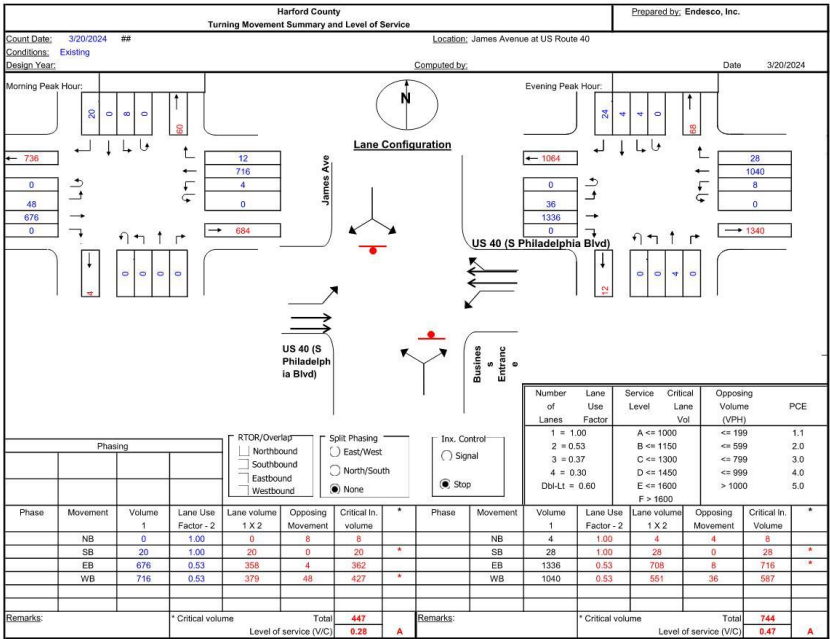
H8 – Pennington Ave at N Juniata St



Source: Field count
Date of Source: 03.20.2024

Notes: Pedestrian volume → AM: north leg 0, south leg 0, east leg 0, west leg 0; PM: north leg 44, south leg 4, east leg 8, west leg 28.

Intersection LOS Source: CLV Calculation.



Appendix C MDOT SHA Crash Data Sheets

A1& A4

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/19/2024

Location: US 40 (N. Philadelphia Blvd) @ MD 132 (W. Belair Ave & APG Rd)
County: Harford, D4
Logmiles: 13.1 At 1.82 Radius: 250 ft.
Period: January 01, 2018 To December 31, 2022
Note:

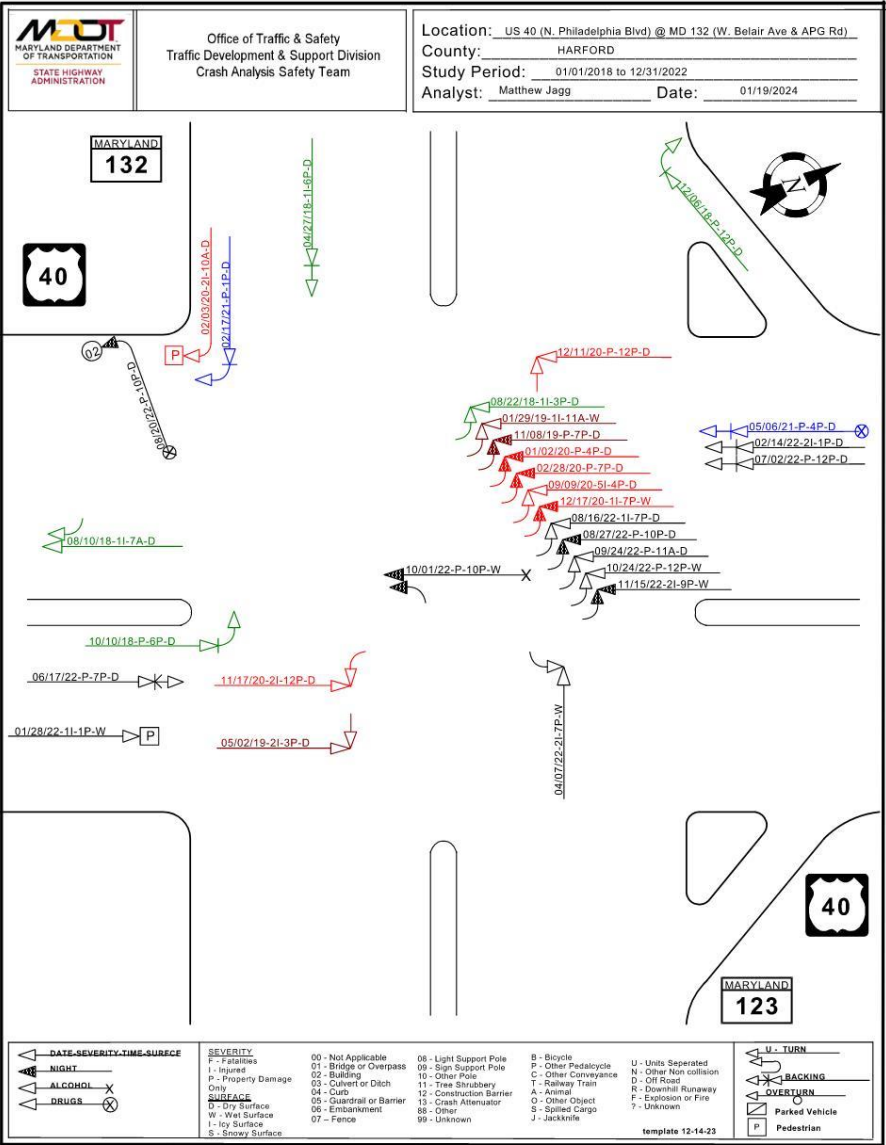
YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	3	2	4	0	5	14
No. Injured	3	3	10	0	8	24
Prop. Damage	2	1	3	2	7	15
Total Crashes	5	3	7	2	12	29
Severity Index	12	5	11	2	26	Avg 11
Opposite Dir.	0	0	0	0	0	0
Rear End	3	0	0	2	2	7
Sideswipe	0	0	0	0	0	0
Left Turn	1	2	5	0	6	14
Angle	1	1	1	0	1	4
Pedestrian	0	0	1	0	1	2
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	1	1
Other	0	0	0	0	1	1
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	1	1
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	1	1
Night Time	0	1	3	0	4	8
Wet Surface	0	1	1	0	5	7
Alcohol	0	0	0	0	1	1
Intersection	5	3	7	2	12	29
Total Vehicles	10	6	13	4	22	55
Total Trucks	0	0	0	0	1	1
Truck %	0.0	0.0	0.0	0.0	4.5	1.8
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/19/2024

Location: US 40 (N. Philadelphia Blvd) @ MD 132 (W. Belair Ave & APG Rd)
County: Harford, D4
Logmiles: 13.1 At 1.82 Radius: 250 ft.
Period: January 1, 2018 To December 31, 2022
Note:

SEVERITY					FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																	
Accidents					14		15		29		SUN					MON		TUE		WED		THU		FRI		SAT		UNK		
Veh Occ					22											3				4		6		7		5				
Pedestrian					2				AVG Severity Index: 11																					
MONTH OF THE YEAR																														
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	CONDITION				DRIVER				PED									
3	4			2	2	1	1	5	2	3	3		Normal:				45				2									
													Alcohol:				1													
													Other:				7													
TIME													VEHICLES INVOLVED PER ACCIDENT																	
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK																	
PM:		5	3		2	3		2	6	1	3			1	2	3	4	5	6+	UNK	TOTAL									
													3 26																	
VEHICLE TYPE					SURFACE			MOVEMENTS																						
1 Motorcycle/Moped					1 Tractor Trailer			7 Wet			NORTH				SOUTH				EAST				WEST							
40 Passenger Vehicle					Passenger Bus			22 Dry			LF	ST	RT		LF	ST	RT		LF	ST	RT		LF	ST	RT					
9 Sport Utility Veh					School Bus			Sno/Ice			2	2			1	4	3		12	6			1	23						
2 Pick-Up Truck					2 Emergency Veh			Mud																						
Trucks (2+3 axes)					3 Other Types			Other			OTHER MOVEMENTS 1																			
PROBABLE CAUSES													COLLISION TYPES																	
Influence of Drugs													FATAL INJURY PROP TOTAL																	
Improper Lane Change													Opposite Dir Related: UnRelated:																	
1 Influence of Alcohol													Rear End Related: 2 5 7																	
Influence of Medication													UnRelated:																	
1 Influence of Combined Subst.													Sideswipe Related: UnRelated:																	
1 Physical/Mental Difficulty													Left Turn Related: 8 6 14																	
Fell Asleep/Fainted, etc.													UnRelated:																	
4 Fail to give full Attention													Angle Related: 2 2 4																	
Lic. Restr. Non-compliance													UnRelated:																	
Fail to Drive in Single Lane													Pedestrian Related: 2 2																	
1 Improper Right Turn on Red													UnRelated:																	
12 Fail to Yield Right-of-way													Parked Vehicle Related: UnRelated:																	
Fail to Obey Stop Sign													Other Collision Related: 1 1																	
3 Fail to Obey Traffic Signal													UnRelated:																	
2 Fail to Obey Other Control													F Bridge 01																	
Fail to Keep Right of Center													I Building 02 1 1																	
Fail to Stop for School Bus													X Culvert/Ditch 03																	
Wrong Way on One Way													E Curb 04																	
Exceeded Speed Limit													D Guardrail/Barrier 05																	
Operator Using Cell Phone													Embankment 06																	
Stopping in Lane Roadway													O Fence 07																	
Too Fast for Conditions													B Light Pole 08																	
Followed too Closely													J Sign Pole 09																	
Improper Turn													E Other Pole 10																	
													C Tree/Shrubbery 11																	
													T Contr. Barrier 12																	
													S Crash Attenuator 13																	
													Other Fixed Object																	
WEATHER				ILLUMINATION				TOTALS																						
23 Clear / Cloudy				20 Day				18-22	29																					
Foggy				1 Dawn/Dusk																										
3 Raining				8 Dark - Lights On																										
1 Snow / Sleet				Dark - No Lights																										
2 Other				Other																										



A2.1

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/18/2024

Location:	US 40 @ JAMES AVE		Logmiles:	12.49 At 0.47	Radius: 250 ft.
County:	Harford, D4	Period:	January 01, 2018 To December 31, 2022		Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	2	3	0	2	0	7
No. Injured	5	5	0	3	0	13
Prop. Damage	0	2	3	2	2	9
Total Crashes	2	5	3	4	2	16
Severity Index	8	15	3	8	2	Avg 7
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	0	0	0	0	0	0
Left Turn	0	2	2	2	1	7
Angle	1	2	1	1	1	6
Pedestrian	1	0	0	0	0	1
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	1	0	1	0	2
U-Turn	0	1	0	1	0	2
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	1	0	1
Wet Surface	1	0	0	0	0	1
Alcohol	0	0	0	0	0	0
Intersection	2	5	3	4	2	16
Total Vehicles	3	10	6	8	4	31
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Boone
Date: 01/18/2024

Location:	US 40 @ JAMES AVE	Logmiles:	12.49 At 0.47	Radius: 250 ft.
County:	Harford, D4	Period:	January 1, 2018 To December 31, 2022	Note:

SEVERITY		FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK													
Accidents		7		9		16				SUN	MON	TUE	WED	THU	FRI	SAT	UNK						
Veh Occ		12									4	3	4	1	2	2							
Pedestrian		1				AVG Severity Index: 7																	
MONTH OF THE YEAR																							
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	CONDITION				DRIVER	PED					
1	1	1		1	1	2		3	1	2	3		Normal:				27	1					
												Alcohol:											
												Other:				3							
TIME												VEHICLES INVOLVED PER ACCIDENT											
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL		
PM:	1	1	1	1	4	1	1		1	1	2	2		1	15						31		
VEHICLE TYPE							SURFACE		MOVEMENTS														
1 Motorcycle/Moped							Tractor Trailer		1 Wet		NORTH			SOUTH			EAST			WEST			
26 Passenger Vehicle							Passenger Bus		13 Dry		LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	
1 Sport Utility Veh							School Bus		Sno/Ice					4		2	5	5		4	9		
3 Pick-Up Truck							Emergency Veh		Mud														
Trucks (2+3 axes)							1 Other Types		2 Other		OTHER MOVEMENTS 2												
PROBABLE CAUSES										COLLISION TYPES													
Influence of Drugs										Opposite Dir													
Influence of Alcohol										Related:													
Influence of Medication										UnRelated:													
Influence of Combined Subst.										Rear End													
Physical/Mental Difficulty										Related:													
Fell Asleep/Fainted, etc.										UnRelated:													
1 Fail to give full Attention										Sideswipe													
Lic. Restr. Non-compliance										Related:													
Fail to Drive in Single Lane										UnRelated:													
Improper Right Turn on Red										Left Turn													
7 Fail to Yield Right-of-way										Related:													
1 Fail to Obey Stop Sign										UnRelated:													
Fail to Obey Traffic Signal										Angle													
Fail to Obey Other Control										Related:													
Fail to Keep Right of Center										UnRelated:													
Fail to Stop for School Bus										Pedestrian													
Wrong Way on One Way										Related:													
Exceeded Speed Limit										UnRelated:													
Operator Using Cell Phone										Parked Vehicle													
Stopping in Lane Roadway										Related:													
Too Fast for Conditions										UnRelated:													
Followed too Closely										Other Collision													
Improper Turn										Related:													
										UnRelated:													
										F Bridge 01													
										I Building 02													
										X Culvert/Ditch 03													
										E Curb 04													
										D Guardrail/Barrier 05													
										Embankment 06													
										O Fence 07													
										B Light Pole 08													
										J Sign Pole 09													
										E Other Pole 10													
										C Tree/Shrubbery 11													
										T Contr. Barrier 12													
										S Crash Attenuator 13													
										Other Fixed Object													
WEATHER				ILLUMINATION				TOTALS															
14 Clear / Cloudy				15 Day				18-22				16											
Foggy				Dawn/Dusk																			
1 Raining				1 Dark - Lights On																			
Snow / Sleet				Dark - No Lights																			
1 Other				Other																			

 MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION	Office of Traffic & Safety Traffic Development & Support Division Crash Analysis Safety Team	Location: <u>US 40 @ James Ave</u> County: <u>HARFORD</u> Study Period: <u>01/01/2018 to 12/31/2022</u> Analyst: <u>Robert L. Booker, Jr.</u> Date: <u>01/18/2024</u>
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JAMES AVE



09/18/19-SI-4P-D

11/11/21-1I-8A-NA

09/27/22-P-4P-D

06/07/19-1I-10A-D

11/16/21-P-3P-D

10/07/19-1I-5P-D

07/27/20-P-11A-D

12/23/20-P-4P-D

12/04/21-P-2P-D

05/20/19-P-9A-D

02/11/22-P-4P-D

03/16/20-P-12P-D

09/08/18-4I-1P-W

01/27/21-2I-6P-D

07/18/18-1I-11A-D

12/24/19-P-10A-NA

Entrance to
Fisher Auto Parts



DATE-SEVERITY-TIME-SURFACE NIGHT ALCOHOL DRUGS	SEVERITY F - Fatalities I - Injured P - Property Damage Only SURFACE D - Dry Surface W - Wet Surface I - icy Surface S - Snowy Surface	00 - Not Applicable 01 - Bridge or Overpass 02 - Building 03 - Culvert or Ditch 04 - Curb 05 - Guardrail or Barrier 06 - Embankment 07 - Fence 08 - Light Support Pole 09 - Sign Support Pole 10 - Other Pole 11 - Tree Shrubbery 12 - Construction Barrier 13 - Crash Attenuator 88 - Other 99 - Unknown	B - Bicycle P - Other Pedalcycle C - Other Conveyance T - Railway Train A - Animal O - Other Object S - Spilled Cargo J - Jackknife	U - Units Separated N - Other Non collision D - Off Road R - Downhill Runaway F - Explosion or Fire T - Unknown
U - TURN BACKING OVERTURN Parked Vehicle Pedestrian				

template 12-14-23

A2.2

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 05/17/2024

Location: US 40 @ CAROL AVE
County: Harford, D4
Period: January 01, 2018 To December 31, 2023
Logmiles: 12.24 At 0 Radius: 250 ft.
Note: Year 2023 data may be incomplete and unedited

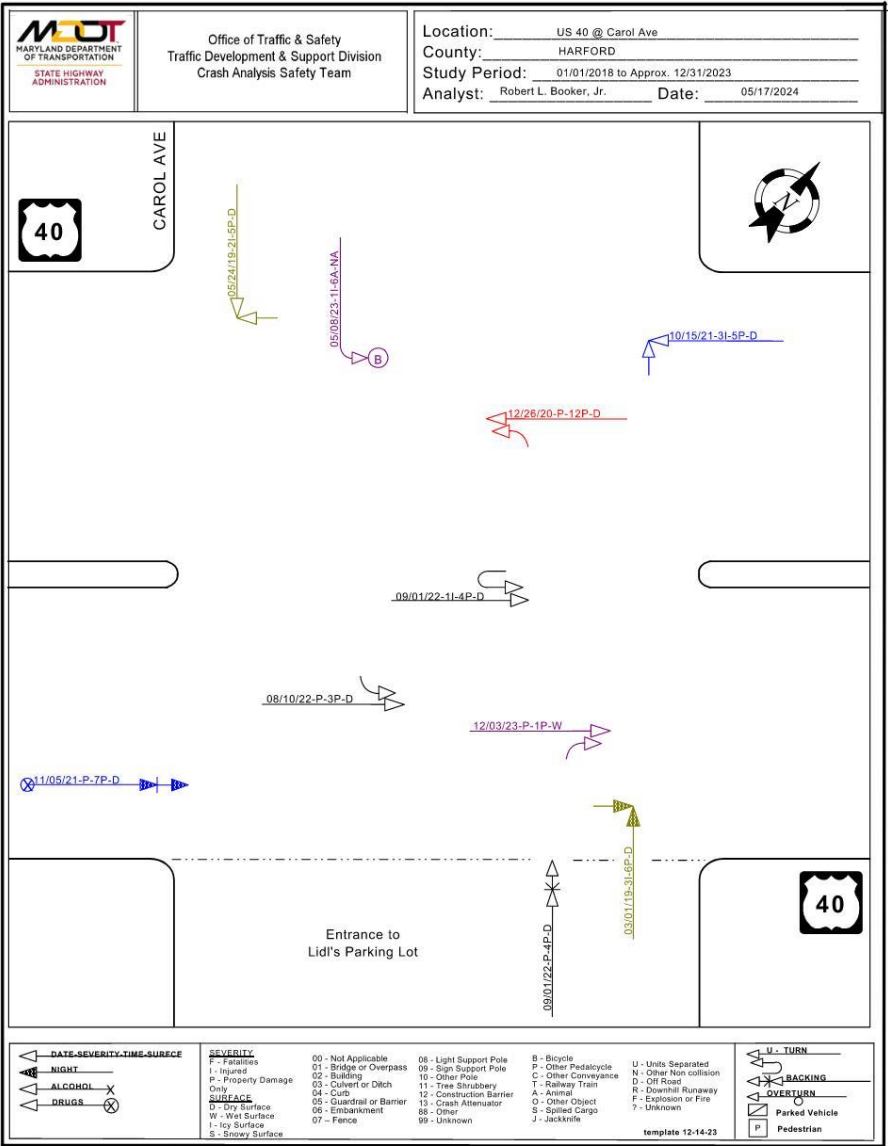
YEAR >>	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0	0
Injury	0	2	0	1	1	1	5
No. Injured	0	5	0	3	1	1	10
Prop. Damage	0	0	1	1	2	1	5
Total Crashes	0	2	1	2	3	2	10
Severity Index	0	9	1	5	6	3	Avg 4
Opposite Dir.	0	0	0	0	0	0	0
Rear End	0	0	0	1	0	0	1
Sideswipe	0	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0	0
Angle	0	2	1	1	1	1	6
Pedestrian	0	0	0	0	0	1	1
Parked Veh.	0	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0	0
Other	0	0	0	0	2	0	2
U-Turn	0	0	0	0	1	0	1
Backing	0	0	0	0	1	0	1
Animal	0	0	0	0	0	0	0
Railroad	0	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0	0
Overturn	0	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0	0
Night Time	0	1	0	1	0	0	2
Wet Surface	0	0	0	0	0	1	1
Alcohol	0	0	0	0	0	0	0
Intersection	0	1	1	2	2	1	7
Total Vehicles	0	4	2	4	6	3	19
Total Trucks	0	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comments:							

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 05/17/2024

Location: US 40 @ CAROL AVE
County: Harford, D4
Period: January 1, 2018 To December 31, 2023
Logmiles: 12.24 At 0 Radius: 250 ft.
Note: Year 2023 data may be incomplete and unedited

SEVERITY				FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																									
Accidents				5		5		10				SUN		MON		TUE		WED		THU		FRI		SAT		UNK											
Veh Occ				9								1		1				1		2		4		1													
Pedestrian				1																																	
AVG Severity Index: 4																																					
MONTH OF THE YEAR														CONDITION								DRIVER				PED											
JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		UNK		Normal: 16 1											
				1				2						1		2		1		1		2				Alcohol:											
																										Other: 2											
TIME		12		01		02		03		04		05		06		07		08		09		10		11		UNK		VEHICLES INVOLVED PER ACCIDENT									
AM:														1								1		2		3		4		5		6+		UNK		TOTAL	
PM:		1		1				1		2		2		1		1						1		9										19			
VEHICLE TYPE														SURFACE		MOVEMENTS																					
Motorcycle/Moped				Tractor Trailer				1 Wet		NORTH						SOUTH						EAST						WEST									
15 Passenger Vehicle				Passenger Bus				8 Dry		LF		ST		RT		LF		ST		RT		LF		ST		RT		LF		ST		RT					
Sport Utility Veh				School Bus				Sno/Ice		2		2		1		2		1				6				3											
2 Pick-Up Truck				2 Emergency Veh				Mud																													
Trucks (2+3 axes)				1 Other Types				1 Other		OTHER MOVEMENTS 2																											
PROBABLE CAUSES														COLLISION TYPES				FATAL				INJURY				PROP				TOTAL							
1 Influence of Drugs				Improper Lane Change				Opposite Dir				Related:																									
Influence of Alcohol				Improper Backing				UnRelated:																													
Influence of Medication				Improper Passing				Rear End				Related:								1				1													
Influence of Combined Subst.				Improper Signal				UnRelated:																													
Physical/Mental Difficulty				Improper Parking				Sideswipe				Related:																									
Fell Asleep/Fainted, etc.				Passenger Interfere/Obstruct.				UnRelated:																													
1 Fail to give full Attention				Illegally in Roadway				Left Turn				Related:																									
Lic. Restr. Non-compliance				Bicycle Violation				UnRelated:																													
Fail to Drive in Single Lane				Clothing Not Visible				Angle				Related:								2				2 4													
Improper Right Turn on Red				Sleet, Hail, Freezing Rain				UnRelated:												1				1 2													
3 Fail to Yield Right-of-way				Severe Crosswinds				Pedestrian				Related:								1				1													
Fail to Obey Stop Sign				Rain, Snow				UnRelated:																													
Fail to Obey Traffic Signal				Animal				Parked Vehicle				Related:																									
Fail to Obey Other Control				Vision Obstruction				UnRelated:																													
Fail to Keep Right of Center				Vehicle Defect				Other Collision				Related:								1				1													
Fail to Stop for School Bus				Wet				UnRelated:												1				1													
Wrong Way on One Way				Icy or Snow Covered				F Bridge				01																									
Exceeded Speed Limit				Debris or Obstruction				I Building				02																									
Operator Using Cell Phone				Ruts, Holes or Bumps				X Culvert/Ditch				03																									
Stopping in Lane Roadway				Road Under Construction				E Curb				04																									
Too Fast for Conditions				Traffic Control Device Inop.				D Guardrail/Barrier				05																									
Followed too Closely				Shoulders Low, Soft or High				Embankment				06																									
1 Improper Turn				4 Other or Unknown				O Fence				07																									
								B Light Pole				08																									
								J Sign Pole				09																									
								E Other Pole				10																									
								C Tree/Shrubbery				11																									
								T Contr. Barrier				12																									
								S Crash Attenuator				13																									
																								Other Fixed Object													
WEATHER				ILLUMINATION				TOTALS																													
9 Clear / Cloudy				7 Day				18-23				10																									
Foggy				Dawn/Dusk																																	
Raining				2 Dark - Lights On																																	
Snow / Sleet				Dark - No Lights																																	
1 Other				1 Other																																	



A3

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/18/2024

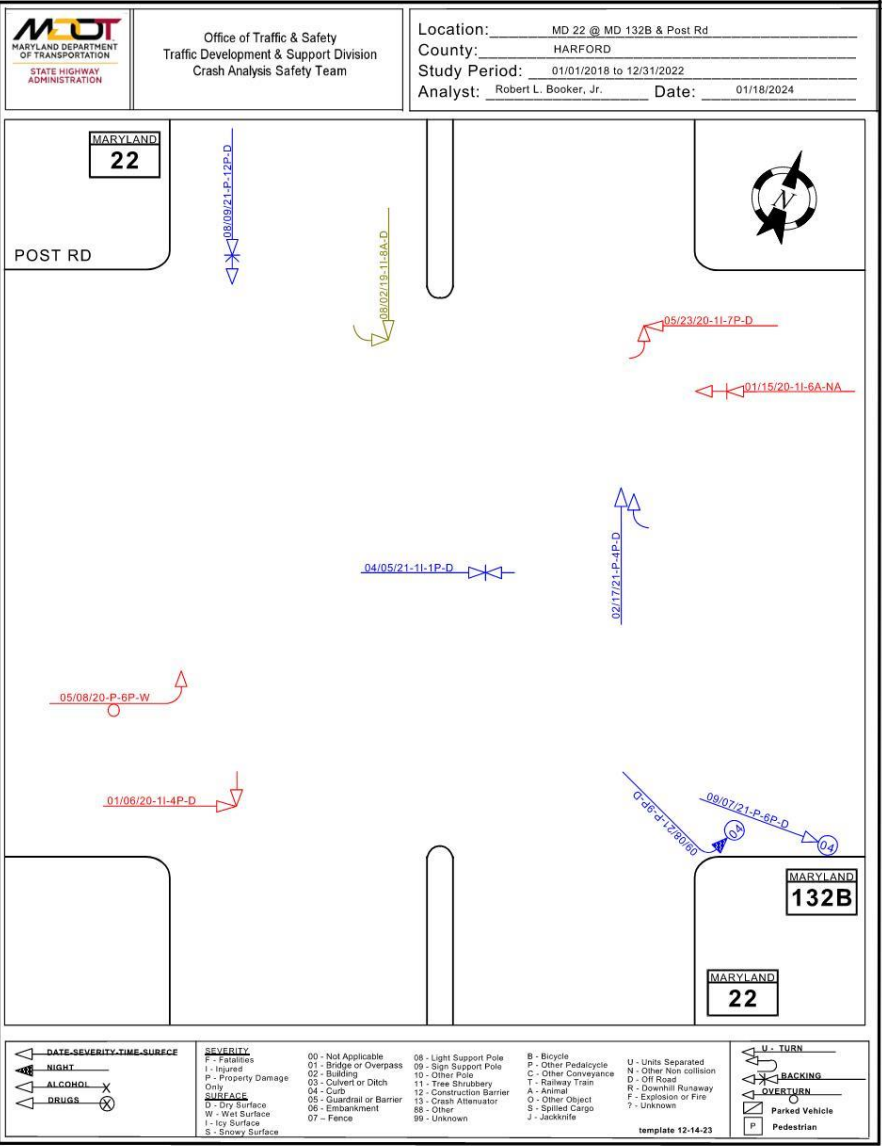
Location: MD 22 @ MD 132B & POST RD
County: Harford, D4
Period: January 01, 2018 To December 31, 2022
Logmiles: 12.23 At 0
Radius: 250 ft.
Note:

Comments:

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/18/2024

Location: MD 22 @ MD 132B & POST RD
County: Harford, D4
Period: January 1, 2018 To December 31, 2022
Logmiles: 12.23 At 0
Radius: 250 ft.
Note:



A5

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker

Date: 01/18/2024

Location: MD 132 @ MIDDLETON RD

County: Harford, D4

Period: January 01, 2018 To December 31, 2022

Logmiles: 0.68 At 0 Radius: 250 ft.

Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	2	0	0	0	0	2
No. Injured	4	0	0	0	0	4
Prop. Damage	1	2	1	1	0	5
Total Crashes	3	2	1	1	0	7
Severity Index	9	2	1	1	0	Avg 3
Opposite Dir.	0	0	0	0	0	0
Rear End	1	1	1	0	0	3
Sideswipe	0	0	0	0	0	0
Left Turn	1	0	0	0	0	1
Angle	1	1	0	1	0	3
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	2	1	0	0	3
Wet Surface	0	0	0	1	0	1
Alcohol	0	0	0	0	0	0
Intersection	3	2	1	1	0	7
Total Vehicles	6	4	2	2	0	14
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker

Date: 01/18/2024

Location: MD 132 @ MIDDLETON RD

County: Harford, D4

Period: January 1, 2018 To December 31, 2022

Logmiles: 0.68 At 0 Radius: 250 ft.

Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK																
Accidents		2	5	7	SUN	MON	TUE	WED	THU	FRI	SAT	UNK									
Veh Occ		4			1		1				2	3									
Pedestrian			AVG Severity Index: 3																		
MONTH OF THE YEAR					CONDITION							DRIVER	PED								
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	13							
	1			1	3				2				Alcohol:								
													Other:	1							
TIME					VEHICLES INVOLVED PER ACCIDENT																
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL
PM:				1	1	1	2			1				7							14
VEHICLE TYPE		SURFACE		MOVEMENTS																	
Motorcycle/Moped	Tractor Trailer	1 Wet	NORTH SOUTH EAST WEST																		
9 Passenger Vehicle	Passenger Bus	6 Dry	LF ST RT	LF ST RT	LF ST RT	LF ST RT															
3 Sport Utility Veh	School Bus	Sno/Ice			2	1		4	3			LF ST RT	LF ST RT								
1 Pick-Up Truck	1 Emergency Veh	Mud																			
Trucks (2+3 axes)	Other Types	Other																			
PROBABLE CAUSES		COLLISION TYPES		FATAL INJURY PROP TOTAL																	
Influence of Drugs	Improper Lane Change	Opposite Dir		Related: UnRelated:																	
Influence of Alcohol	Improper Backing	Rear End		Related: 3 3																	
Influence of Medication	Improper Passing	Sideswipe		Related: UnRelated:																	
Influence of Combined Subst.	Improper Signal	Left Turn		Related: 1 1																	
Physical/Mental Difficulty	Improper Parking	Angle		Related: 1 2 3																	
Fell Asleep/Fainted, etc.	Passenger Interfere/Obstruct.	Pedestrian		Related: UnRelated:																	
2 Fail to give full Attention	Illegally in Roadway	Parked Vehicle		Related: UnRelated:																	
Lic. Restr. Non-compliance	Bicycle Violation	Other Collision		Related: UnRelated:																	
Fail to Drive in Single Lane	Clothing Not Visible	F Bridge		01																	
Improper Right Turn on Red	Sleet, Hail, Freezing Rain	I Building		02																	
2 Fail to Yield Right-of-way	Severe Crosswinds	X Culvert/Ditch		03																	
1 Fail to Obey Stop Sign	Rain, Snow	E Curb		04																	
Fail to Obey Traffic Signal	Animal	D Guardrail/Barrier		05																	
Fail to Obey Other Control	Vision Obstruction	B Embankment		06																	
Fail to Keep Right of Center	Vehicle Defect	O Fence		07																	
Fail to Stop for School Bus	Wet	B Light Pole		08																	
Wrong Way on One Way	Icy or Snow Covered	J Sign Pole		09																	
Exceeded Speed Limit	Debris or Obstruction	E Other Pole		10																	
Operator Using Cell Phone	Ruts, Holes or Bumps	C Tree/Shrubbery		11																	
Stopping in Lane Roadway	Road Under Construction	T Contr. Barrier		12																	
Too Fast for Conditions	Traffic Control Device Inop.	S Crash Attenuator		13																	
Followed too Closely	Shoulders Low, Soft or High	Other Fixed Object																			
Improper Turn	2 Other or Unknown																				
WEATHER		ILLUMINATION		TOTALS																	
6 Clear / Cloudy	4 Day			18-22 7																	
Foggy	Dawn/Dusk																				
1 Raining	3 Dark - Lights On																				
Snow / Sleet	Dark - No Lights																				
Other	Other																				

MARYLAND
STATE HIGHWAY
ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: MD 132 @ Middleton Rd
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 01/18/2024

MIDDLETON RD

MARYLAND
132

06/12/18-P-3P-D
06/01/19-P-9P-D
02/02/20-P-5P-D

05/04/18-2L-4P-D
06/29/18-2L-2P-D
10/23/21-P-5P-W

MARYLAND
132

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL X

DRUGS X

SEVERITY
F - Fatalities
I - Injured
P - Property Damage
Only
SURFACE
D - Dry Surface
W - Wet Surface
I - Icy Surface
S - Snowy Surface

00 - Not Applicable
01 - Bridge or Overpass
02 - Building
03 - Culvert or Ditch
04 - Curb
05 - Guardrail or Barrier
06 - Embankment
07 - Fence
08 - Light Support Pole
09 - Sign Support Pole
10 - Other Pole
11 - Tree/Shrubbery
12 - Construction Barrier
13 - Crash Attenuator
88 - Other
89 - Unknown

B - Bicycle
P - Other Pedalcycle
C - Other Conveyance
T - Railway Train
A - Animal
O - Other Object
S - Spilled Cargo
J - Jackknife

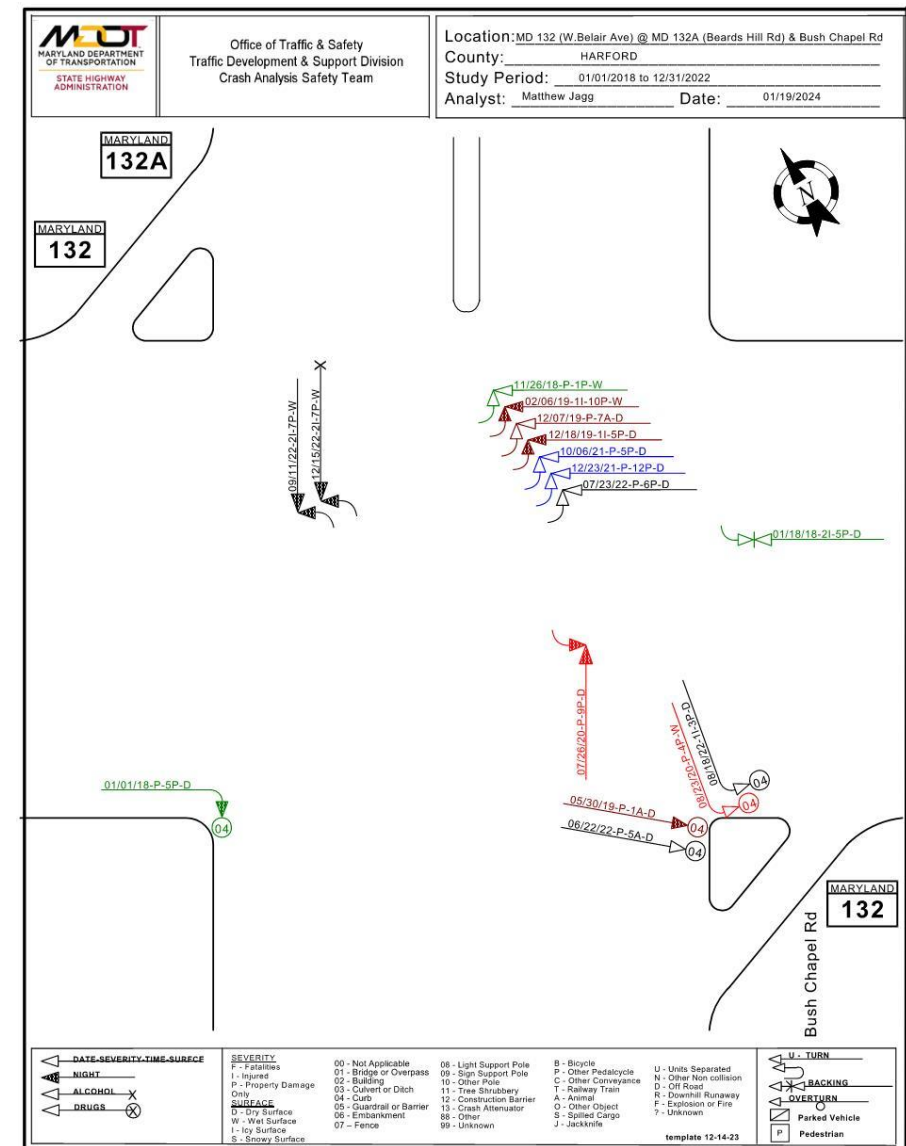
U - Units Separated
N - Other Non collision
D - Off Road
R - Downhill Runaway
F - Explosion or Fire
7 - Unknown

U - TURN
BACKING
OVERTURN
Parked Vehicle
Pedestrian

template 12-14-23

Logmiles: 0.42 At 0 Radius: 150 ft.
Note:

SEVERITY		FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																					
Accidents				6		10		16		SUN		MON		TUE		WED		THU		FRI		SAT		UNK							
Veh Occ				9						3		2				4		5				2									
Pedestrian						AVG Severity Index: 6																									
MONTH OF THE YEAR														CONDITION				DRIVER		PED											
JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		UNK							
2		1						1		1		2		2		1		1		1		4									
														Normal:				23													
														Alcohol:				1													
														Other:				3													
TIME														VEHICLES INVOLVED PER ACCIDENT																	
AM:		12		01		02		03		04		05		06		07		08		09		10		11 UNK							
				1						1				1						1		2		3							
PM:		1		1		1		1		4		1		2		1		1				5		10							
														1				2		3		4		5		6+		UNK			
														5				10		1								28			
VEHICLE TYPE														SURFACE				MOVEMENTS													
1 Motorcycle/Moped		1		Tractor Trailer		5		Wet																							
22 Passenger Vehicle				Passenger Bus		11		Dry																							
3 Sport Utility Veh				School Bus		Sno/Ice																									
Pick-Up Truck				Emergency Veh		Mud																									
Trucks (2+3 axes)		6		Other Types		Other																									
														OTHER MOVEMENTS																	
														1																	
PROBABLE CAUSES														COLLISION TYPES																	
1 Influence of Drugs				Improper Lane Change																											
Influence of Alcohol				Improper Backing																											
Influence of Medication				Improper Passing																											
Influence of Combined Subst.				Improper Signal																											
Physical/Mental Difficulty				Improper Parking																											
3 Fell Asleep/Fainted, etc.				Passenger Interfere/Obstruct.																											
1 Fail to give full Attention				Illegally in Roadway																											
Lic. Restr. Non-compliance				Bicycle Violation																											
Fail to Drive in Single Lane				Clothing Not Visible																											
Improper Right Turn on Red				Sleet, Hail, Freezing Rain																											
7 Fail to Yield Right-of-way				Severe Crosswinds																											
Fail to Obey Stop Sign				Rain, Snow																											
Fail to Obey Traffic Signal				Animal																											
Fail to Obey Other Control				Vision Obstruction																											
Fail to Keep Right of Center				Vehicle Defect																											
Fail to Stop for School Bus				Wet																											
Wrong Way on One Way				Icy or Snow Covered																											
Exceeded Speed Limit				Debris or Obstruction																											
Operator Using Cell Phone				Ruts, Holes or Bumps																											
Stopping in Lane Roadway				Road Under Construction																											
1 Too Fast for Conditions				Traffic Control Device Inop.																											
Followed too Closely				Shoulders Low, Soft or High																											
Improper Turn				3 Other or Unknown																											
WEATHER				ILLUMINATION				TOTALS																							
10 Clear / Cloudy				8 Day				18-22		16																					
Foggy				1 Dawn/Dusk																											
5 Raining				7 Dark - Lights On																											
Snow / Sleet				Dark - No Lights																											
1 Other				Other																											
COLLISION TYPES														FATAL INJURY PROP TOTAL																	
Opposite Dir				Related:																											
				UnRelated:																											
Rear End				Related:																											
				UnRelated:																											
Sideswipe				Related:																											
				UnRelated:																											
Left Turn				Related:												4		6		10											
				UnRelated:																											
Angle				Related:												1				1											
				UnRelated:																											
Pedestrian				Related:																											
				UnRelated:																											
Parked Vehicle				Related:																											
				UnRelated:																											
Other Collision				Related:																											
				UnRelated:																											
F Bridge				01																											
I Building				02																											
X Culvert/Ditch				03																											
E Curb				04												1		4		5											
D Guardrail/Barrier				05																											
				Embankment																											
O Fence				07																											
B Light Pole				08																											
J Sign Pole				09																											
E Other Pole				10																											
C Tree/Shrubbery				11																											
T Contr. Barrier				12																											
S Crash Attenuator				13																											
				Other Fixed Object																											



B1

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/23/2024

Location: MD 924 Southbound (S. Bond St) From: Office St Crosswalk To: Courtland St
County: Harford, D4 Period: January 01, 2018 To December 31, 2022 Logmiles: From 1.68 To 1.74 Length: 0.06
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	2	0	0	0	0	2
No. Injured	4	0	0	0	0	4
Prop. Damage	0	0	0	2	1	3
Total Crashes	2	0	0	2	1	5
Severity Index	6	0	0	2	1	Avg 2
Opposite Dir.	0	0	0	0	0	0
Rear End	2	0	0	1	0	3
Sideswipe	0	0	0	1	1	2
Left Turn	0	0	0	0	0	0
Angle	0	0	0	0	0	0
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	0	0	0
Wet Surface	0	0	0	0	0	0
Alcohol	0	0	0	0	0	0
Intersection	1	0	0	1	0	2
Total Vehicles	4	0	0	4	2	10
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/23/2024

Location: MD 924 Southbound (S. Bond St) From: Office St Crosswalk To: Courtland St
County: Harford, D4 Period: January 1, 2018 To December 31, 2022 Logmiles: From 1.68 To 1.74 Length: 0.06
Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK																
Accidents		2	3	5	SUN	MON	TUE	WED	THU	FRI	SAT	UNK									
Veh Occ		4				1	2			1	1										
Pedestrian			AVG Severity Index: 2																		
MONTH OF THE YEAR					CONDITION				DRIVER		PED										
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	10							
		1		1					1		2		Alcohol:								
					Other:																
TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT							
AM:									1	1				1	2	3	4	5	6+	UNK	TOTAL
PM:	1	1			1									5							10
VEHICLE TYPE		SURFACE		MOVEMENTS																	
Motorcycle/Moped	Tractor Trailer	Wet	NORTH SOUTH EAST WEST																		
7 Passenger Vehicle	Passenger Bus	5 Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	
2 Sport Utility Veh	School Bus	Sno/Ice	1 9																		
Pick-Up Truck	Emergency Veh	Mud																			
Trucks (2+3 axles)	Other Types	Other																			
PROBABLE CAUSES		COLLISION TYPES		FATAL INJURY PROP TOTAL																	
Influence of Drugs		Improper Lane Change		Opposite Dir Related: UnRelated:																	
Influence of Alcohol		Improper Backing		Rear End Related: 1 1 UnRelated: 1 2																	
Influence of Medication		Improper Passing		Sideswipe Related: 1 1 UnRelated: 1 1																	
Influence of Combined Subst.		Improper Signal		Left Turn Related: UnRelated:																	
Physical/Mental Difficulty		Improper Parking		Angle Related: UnRelated:																	
Fell Asleep/Fainted, etc.		Passenger Interfere/Obstruct.		Pedestrian Related: UnRelated:																	
2 Fail to give full Attention		Illegally in Roadway		Parked Vehicle Related: UnRelated:																	
Lic. Restr. Non-compliance		Bicycle Violation		Other Collision Related: UnRelated:																	
Fail to Drive in Single Lane		Clothing Not Visible		F Bridge 01																	
Improper Right Turn on Red		Sleet, Hail, Freezing Rain		I Building 02																	
Fail to Yield Right-of-way		Severe Crosswinds		X Culvert/Ditch 03																	
Fail to Obey Stop Sign		Rain, Snow		E Curb 04																	
Fail to Obey Traffic Signal		Animal		D Guardrail/Barrier 05																	
Fail to Obey Other Control		Vision Obstruction		Embankment 06																	
Fail to Keep Right of Center		Vehicle Defect		O Fence 07																	
Fail to Stop for School Bus		Wet		B Light Pole 08																	
Wrong Way on One Way		Icy or Snow Covered		J Sign Pole 09																	
Exceeded Speed Limit		Debris or Obstruction		E Other Pole 10																	
Operator Using Cell Phone		Ruts, Holes or Bumps		C Tree/Shrubbery 11																	
Stopping in Lane Roadway		Road Under Construction		T Contr. Barrier 12																	
Too Fast for Conditions		Traffic Control Device Inop.		S Crash Attenuator 13																	
Followed too Closely		Shoulders Low, Soft or High		Other Fixed Object																	
1 Improper Turn		2 Other or Unknown																			
WEATHER		ILLUMINATION		TOTALS																	
5 Clear / Cloudy		5 Day		18-22 5																	
Foggy		Dawn/Dusk																			
Raining		Dark - Lights On																			
Snow / Sleet		Dark - No Lights																			
Other		Other																			

Maryland State Highway Administration
Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

MD 924 Southbound (S. Bond St)
Location: From: Office St Crosswalk To: Courtland St
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Matthew Jagg Date: 01/23/2024

LM 1.74 MU 140 COURTLAND ST

LM 1.74-SS-12/13/2021-P-12P-D

LM 1.73-RE-03/06/2018-3I-8A-D

LM 1.72-RE-05/12/2018-1I-10A-D

LM 1.70 MU 605 OFFICE ST

LM 1.69 MU 9080 JOHNSON ALLEY

LM 1.69-RE-10/12/2021-P-5P-D

LM 1.69-SS-12/23/2022-P-1P-D

LM 1.65 MU 630 PENNSYLVANIA AVE

MARYLAND

924

KEY LogMile-CollisionType (FixedObjectStruck) -Date-Severity-Time-Surface-Illumination-Alcohol

F - Fatalities

I - Injury

P - Property Damage

OD - Opposite Direction

LT - Left Turn

RE - Rear End

ANG - Angle

SS - Sideswipe

PARKD - Parked Vehicle

PED - Pedestrian

BIKE - Bicycle

PEDAL - Other Pedalcycle

CONVY - Other Conveyance

ANML - Animal

FO - Fixed Object

COBJ - Other Object

OT - Overtum

SPILL - Spilled Cargo

JCKNIF - Jackknife

SPRTD - Units Separated

NCOLL - Other Non Collision

OFFRD - Off Road

RUNWY - Downhill Runaway

FIRE - Explosion Fire

BKNG - Backing

UTURN - U-Turn

OTHR - Other

UNK - Unknown

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

88 - Other

99 - Unknown

N - Night

X - Alcohol

D - Dry Surface

W - Wet Surface

I - Icy Surface

S - Snowy Surface

template 12-14-23

B2

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/23/2024

Location: MD 924 Southbound(Kenmore Ave) From:Bel Air High School Entrance To:Linwood Ave
County: Harford, D4
Period: January 01, 2018 To December 31, 2022
Logmiles: From 1.98 To 2.17
Length: 0.19
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	0	0	0	0	0
No. Injured	0	0	0	0	0	0
Prop. Damage	2	2	0	0	1	5
Total Crashes	2	2	0	0	1	5
Severity Index	2	2	0	0	1	Avg 1
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	1	0	0	0	0	1
Left Turn	1	0	0	0	0	1
Angle	0	0	0	0	0	0
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	2	0	0	1	3
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	1	0	0	0	1	2
Wet Surface	1	1	0	0	0	2
Alcohol	0	0	0	0	0	0
Intersection	1	1	0	0	0	2
Total Vehicles	4	2	0	0	1	7
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/23/2024

Location: MD 924 Southbound(Kenmore Ave) From:Bel Air High School Entrance To:Linwood Ave
County: Harford, D4
Period: January 1, 2018 To December 31, 2022
Logmiles: From 1.98 To 2.17
Length: 0.19
Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK															
Accidents		0	5	5	SUN	MON	TUE	WED	THU	FRI	SAT	UNK								
Veh Occ					1			2												
Pedestrian			AVG Severity Index: 1																	
MONTH OF THE YEAR					CONDITION DRIVER PED															
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	7						
2	1						1		1				Alcohol:							
					Other:															
TIME					VEHICLES INVOLVED PER ACCIDENT															
12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL
AM:						1				1			3	2						7
PM:		1	1					1												
VEHICLE TYPE		SURFACE		MOVEMENTS																
Motorcycle/Moped	Tractor Trailer	2 Wet	NORTH SOUTH EAST WEST																	
6 Passenger Vehicle	Passenger Bus	3 Dry	LF ST RT	LF ST RT	LF ST RT	LF ST RT														
Sport Utility Veh	1 School Bus	Sno/Ice	1	1	5															
Pick-Up Truck	Emergency Veh	Mud																		
Trucks (2+3 axes)	3 Other Types	Other	OTHER MOVEMENTS																	
PROBABLE CAUSES				COLLISION TYPES				FATAL INJURY PROP TOTAL												
Influence of Drugs				Opposite Dir.				Related:												
Influence of Alcohol				UnRelated:																
Influence of Medication				Rear End				Related:												
Influence of Combined Subst.				UnRelated:																
Physical/Mental Difficulty				Sideswipe				Related:												
Fell Asleep/Fainted, etc.				UnRelated:								1 1								
1 Fail to give full Attention				Left Turn				Related:												
Lic. Restr. Non-compliance				UnRelated:								1 1								
Fail to Drive in Single Lane				Angle				Related:												
Improper Right Turn on Red				UnRelated:																
Fail to Yield Right-of-way				Pedestrian				Related:												
Fail to Obey Stop Sign				UnRelated:																
Fail to Obey Traffic Signal				Parked Vehicle				Related:												
Fail to Obey Other Control				UnRelated:																
Fail to Keep Right of Center				Other Collision				Related:												
Fail to Stop for School Bus				UnRelated:																
Wrong Way on One Way				F Bridge				01												
Exceeded Speed Limit				I Building				02												
Operator Using Cell Phone				X Culvert/Ditch				03												
Stopping in Lane Roadway				E Curb				04				3 3								
Too Fast for Conditions				D Guardrail/Barrier				05												
Followed too Closely				Embankment				06												
Improper Turn				O Fence				07												
				B Light Pole				08												
				J Sign Pole				09												
				E Other Pole				10												
				C Tree/Shrubbery				11												
				T Contr. Barrier				12												
				S Crash Attenuator				13												
				Other Fixed Object																
WEATHER		ILLUMINATION		TOTALS																
3 Clear / Cloudy	3 Day	18-22	5																	
Foggy	Dawn/Dusk																			
2 Raining	2 Dark - Lights On																			
Snow / Sleet	Dark - No Lights																			
Other	Other																			



Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: MD 924 Southbound (Kenmore Ave)
From: Bel Air High School Entrance To: Linwood Ave
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Matthew Jagg
Date: 01/23/2024

LM 2.17 MU 520 LINWOOD AVE

LM 2.17 MD 924 S MAIN ST

LM 2.16-FO(04)-01/27/2019-P-2P-D

LM 2.17-LT-08/21/2018-P-8P-W-N

LM 2.15-FO(04)-10/16/2019-P-10A-W

LM 2.13-SS-02/20/2018-P-3P-D

LM 2.11-FO(04)-01/12/2022-P-6A-D-N

LM 2.00 MU 40 BAILEY LA

LM 1.89 US 1 BU BALTIMORE PIKE



MARYLAND
924

KEY: Log/Mile-Collision Type (Fixed Object/Struck) - Date-Severity-Time-Surface-Illumination-Alcohol

template 12-14-23

F - Fatalities
I - Injury
P - Property Damage
OD - Opposite Direction
LT - Left Turn
RE - Rear End
ANG - Angle
SS - Sideswipe
PARKD - Parked Vehicle
PED - Pedestrian
BKE - Bicycle
PEDAL - Other Pedalcycle
CONVY - Other Conveyance
ANML - Animal
FO - Fixed Object
OOBJ - Other Object
OT - Overturn
SPILL - Spilled Cargo
JCKNF - Jackknife
SPRTD - Units Separated
NCOLL - Other Non Collision
OFFRD - Off Road
RUNWY - Downhill Runaway
FIRE - Explosion Fire
BCKNG - Backing
UTURN - U-Turn
OTHR - Other
UNK - Unknown
00 - Not Applicable
01 - Bridge or Overpass
02 - Building
03 - Culvert or Ditch
04 - Curb
05 - Guardrail or Barrier
06 - Embankment
07 - Fence
08 - Light Support Pole
09 - Sign Support Pole
10 - Other Pole
11 - Tree Shrubbery
12 - Construction Barrier
13 - Crash Attenuator
88 - Other
99 - Unknown
N - Night
X - Alcohol
D - Dry Surface
W - Wet Surface
I - Icy Surface
S - Snowy Surface

B3

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker

Date: 01/23/2024

Location: MD 924 @ ELLENDALE ST

County: Harford, D4

Period: January 01, 2018 To December 31, 2022

Logmiles: 6.13 At 0 Radius: 500 ft.

Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	1	0	0	1	2
No. Injured	0	1	0	0	3	4
Prop. Damage	0	2	1	1	3	7
Total Crashes	0	3	1	1	4	9
Severity Index	0	4	1	1	5	Avg 2
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	1	2	3
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0
Angle	0	2	0	0	1	3
Pedestrian	0	1	0	0	0	1
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	1	0	1	2
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	1	0	0	1	2
Wet Surface	0	1	0	0	1	2
Alcohol	0	0	0	0	1	1
Intersection	0	2	1	1	1	5
Total Vehicles	0	5	1	2	7	15
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0

Comments:

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker

Date: 01/23/2024

Location: MD 924 @ ELLENDALE ST

County: Harford, D4

Period: January 1, 2018 To December 31, 2022

Logmiles: 6.13 At 0 Radius: 500 ft.

Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	SUN	MON	TUE	WED	THU	FRI	SAT	UNK
Accidents		2	7	9								
Veh Occ		3										
Pedestrian		1										
AVG Severity Index: 2												

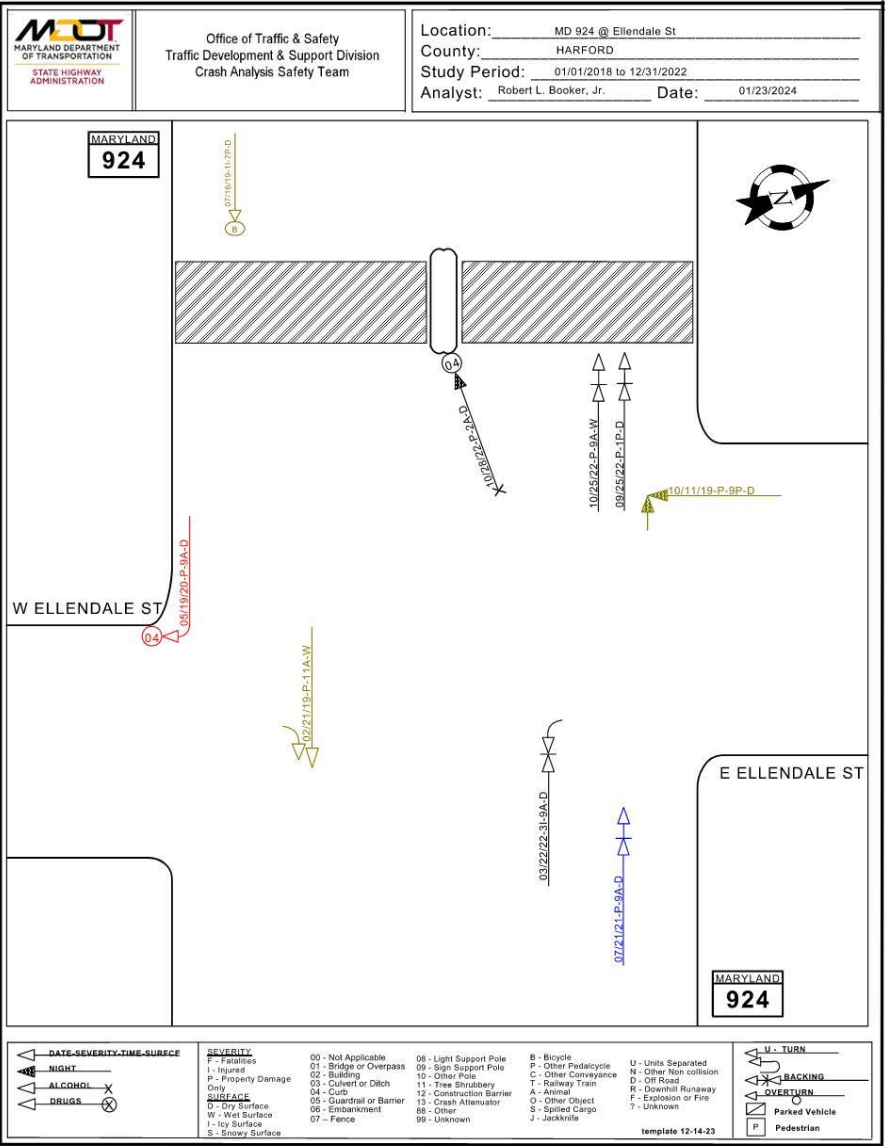
MONTH OF THE YEAR												CONDITION		DRIVER	PED		
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	Alcohol:	Other:	14	1
	1	1		1		2		1	3								

TIME												VEHICLES INVOLVED PER ACCIDENT									
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL
PM:		1					1			1				3	6						15

VEHICLE TYPE		SURFACE	MOVEMENTS															
1 Motorcycle/Moped	Tractor Trailer	2 Wet	NORTH				SOUTH				EAST				WEST			
10 Passenger Vehicle	Passenger Bus	7 Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	
3 Sport Utility Veh <th>School Bus</th> <th>Sno/Ice</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	School Bus	Sno/Ice																
Pick-Up Truck <th>Emergency Veh</th> <th>Mud</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Emergency Veh	Mud																
Trucks (2+3 axes) <th>3 Other Types</th> <th>Other</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	3 Other Types	Other																

PROBABLE CAUSES		COLLISION TYPES		FATAL	INJURY	PROP	TOTAL
Influence of Drugs	Improper Lane Change	Opposite Dir	Related:				
1 Influence of Alcohol	Improper Backing	UnRelated:					
Influence of Medication	Improper Passing	Rear End	Related:		1		1
Influence of Combined Subst.	Improper Signal	UnRelated:			2		2
Physical/Mental Difficulty	Improper Parking	Sideswipe	Related:				
Fell Asleep/Fainted, etc.	Passenger Interfere/Obstruct.	UnRelated:					
2 Fail to give full Attention	Illegally in Roadway	Left Turn	Related:				
Lic. Restr. Non-compliance	Bicycle Violation	UnRelated:					
Fail to Drive in Single Lane	Clothing Not Visible	Angle	Related:		1	2	3
Improper Right Turn on Red	Sleet, Hail, Freezing Rain	UnRelated:					
2 Fail to Yield Right-of-way	Severe Crosswinds	Pedestrian	Related:				
Fail to Obey Stop Sign	Rain, Snow	UnRelated:			1		1
Fail to Obey Traffic Signal	Animal	Parked Vehicle	Related:				
Fail to Obey Other Control	Vision Obstruction	UnRelated:					
Fail to Keep Right of Center	Vehicle Defect	Other Collision	Related:				
Fail to Stop for School Bus	Wet	UnRelated:					
Wrong Way on One Way	Icy or Snow Covered	F Bridge	01				
Exceeded Speed Limit	Debris or Obstruction	I Building	02				
Operator Using Cell Phone	Ruts, Holes or Bumps	X Culvert/Ditch	03				
Stopping in Lane Roadway	Road Under Construction	E Curb	04			2	2
Too Fast for Conditions	Traffic Control Device Inop.	D Guardrail/Barrier	05				
Followed too Closely	Shoulders Low, Soft or High	Embankment	06				
Improper Turn	4 Other or Unknown	O Fence	07				
		B Light Pole	08				
		J Sign Pole	09				
		E Other Pole	10				
		C Tree/Shrubbery	11				
		T Contr. Barrier	12				
		S Crash Attenuator	13				
		Other Fixed Object					

WEATHER	ILLUMINATION	TOTALS
8 Clear / Cloudy	6 Day	18-22 9
Foggy	1 Dawn/Dusk	
1 Raining	2 Dark - Lights On	
Snow / Sleet	Dark - No Lights	
Other	Other	



B5

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/23/2024

Location: N HICKORY AVE @ E PENNSYLVANIA AVE
County: Harford, D4
Logmiles: 0.17 At 0.23
Period: January 01, 2018 To December 31, 2022
Radius: 250 ft.
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	1	0	0	0	1	2
No. Injured	1	0	0	0	1	2
Prop. Damage	0	1	0	0	1	2
Total Crashes	1	1	0	0	2	4
Severity Index	4	1	0	0	5	Avg 2
Opposite Dir.	0	0	0	0	0	0
Rear End	0	1	0	0	0	1
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	1	1
Angle	0	0	0	0	0	0
Pedestrian	1	0	0	0	1	2
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	1	0	0	0	1
Wet Surface	0	0	0	0	1	1
Alcohol	0	0	0	0	0	0
Intersection	1	1	0	0	2	4
Total Vehicles	1	2	0	0	3	6
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/23/2024

Location: N HICKORY AVE @ E PENNSYLVANIA AVE
County: Harford, D4
Logmiles: 0.17 At 0.23
Period: January 1, 2018 To December 31, 2022
Radius: 250 ft.
Note:

SEVERITY	FATAL				INJURY				P-DAMAGE				TOTAL				DAY OF THE WEEK																		
Accidents	2				2				4				SUN		MON		TUE		WED		THU		FRI		SAT		UNK								
Veh Occ															1				1				2												
Pedestrian	2				AVG Severity Index: 2																														
MONTH OF THE YEAR														CONDITION				DRIVER				PED													
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK		Normal:				4				1													
														Alcohol:																					
														Other:								1													
TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT																					
AM:														1	2	3	4	5	6+	UNK		TOTAL													
PM:	1													1	2	2																			
VEHICLE TYPE					SURFACE					MOVEMENTS																									
Motorcycle/Moped					Tractor Trailer					1 Wet					NORTH			SOUTH			EAST			WEST											
4 Passenger Vehicle					Passenger Bus					3 Dry					LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT									
1 Sport Utility Veh					School Bus					Sno/Ice								3			1			1 1											
1 Pick-Up Truck					Emergency Veh					Mud																									
Trucks (2+3 axes)					2 Other Types					Other					OTHER MOVEMENTS																				
PROBABLE CAUSES										COLLISION TYPES										FATAL				INJURY				PROP				TOTAL			
Influence of Drugs										Improper Lane Change										Opposite Dir		Related:													
Influence of Alcohol										Improper Backing												UnRelated:													
Influence of Medication										Improper Passing										Rear End		Related:				1		1							
Influence of Combined Subst.										Improper Signal												UnRelated:													
Physical/Mental Difficulty										Improper Parking										Sideswipe		Related:													
Fell Asleep/Fainted, etc.										Passenger Interfere/Obstruct.												UnRelated:													
Fail to give full Attention										Illegally in Roadway										Left Turn		Related:				1		1							
Lic. Restr. Non-compliance										Bicycle Violation												UnRelated:													
Fail to Drive in Single Lane										Clothing Not Visible										Angle		Related:													
Improper Right Turn on Red										Sleet, Hail, Freezing Rain												UnRelated:													
2 Fail to Yield Right-of-way										Severe Crosswinds										Pedestrian		Related:				2		2							
Fail to Obey Stop Sign										Rain, Snow										Parked Vehicle		Related:													
Fail to Obey Traffic Signal										Animal												UnRelated:													
Fail to Obey Other Control										Vision Obstruction										Other Collision		Related:													
Fail to Keep Right of Center										Vehicle Defect												UnRelated:													
Fail to Stop for School Bus										Wet										F Bridge		01													
Wrong Way on One Way										Icy or Snow Covered										I Building		02													
Exceeded Speed Limit										Debris or Obstruction										X Culvert/Ditch		03													
Operator Using Cell Phone										Ruts, Holes or Bumps										E Curb		04													
Stopping in Lane Roadway										Road Under Construction										D Guardrail/Barrier		05													
Too Fast for Conditions										Traffic Control Device Inop.												Embankment		06											
Followed too Closely										Shoulders Low, Soft or High										O Fence		07													
Improper Turn										2 Other or Unknown										B Light Pole		08													
																				J Sign Pole		09													
																				E Other Pole		10													
																				C Tree/Shrubbery		11													
																				T Contr. Barrier		12													
																				S Crash Attenuator		13													
																				Other Fixed Object															
WEATHER				ILLUMINATION				TOTALS																											
2 Clear / Cloudy				3 Day				18-22				4																							
				Foggy				Dawn/Dusk																											
1 Raining				1 Dark - Lights On																															
Snow / Sleet				Dark - No Lights																															
1 Other				Other																															

MDOT

MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: N Hickory Ave @ E Pennsylvania Ave
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 01/23/2024

N HICKORY AVE

E PENNSYLVANIA AVE

12/09/22-11:3P-D

10/02/18-8:4P-D

B

05/08/22-P-11A-W

12/10/18-11:5A-D

P

E PENNSYLVANIA AVE

N HICKORY AVE

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL

DRUGS

SEVERITY

F - Fatalities

I - Injured

P - Property Damage

Only

SURFACE

D - Dry Surface

W - Wet Surface

I - Icy Surface

S - Snowy Surface

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

88 - Other

99 - Unknown

B - Bicycle

P - Other Pedalcycle

C - Other Conveyance

T - Railway Train

A - Animal

O - Other Object

S - Spilled Cargo

J - Jackknife

U - Units Separated

N - Other Non collision

D - Off Road

R - Downhill Runaway

F - Explosion or Fire

7 - Unknown

W - TURN

BACKING

OVERTURN

Parked Vehicle

P Pedestrian

template 12-14-23

Maryland State Highway Administration				Name:	Robert Booker
Office of Traffic and Safety - Traffic Development and Support				Date:	01/23/2024
SHA ADC Summary Output rev. 10/2017-1					
Location:	N HICKORY AVE @ E LEE ST & LEE WAY			Logmiles:	0.3 At 0.17
County:	Harford, D4	Period:	January 1, 2018 To December 31, 2022	Note:	Radius: 250 ft.

SEVERITY	FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																
Accidents			2		5		7		SUN		MON		TUE		WED		THU		FRI		SAT		UNK		
Veh Occ			2						1		1		2		1				1		1				
Pedestrian					AVG Severity Index: 2																				
MONTH OF THE YEAR																									
JAN	FEB	MAR	APR		MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK		CONDITION				DRIVER				PED		
1	1		2						1	1	1				Normal:				14						
														Alcohol:											
														Other:								1			
TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT											
AM:							1				3				1	2	3	4	5	6+	UNK	TOTAL			
PM:			1				1		1								6		1		15				
VEHICLE TYPE							SURFACE		MOVEMENTS																
Motorcycle/Moped							1 Wet		NORTH			SOUTH			EAST			WEST							
11 Passenger Vehicle							6 Dry		LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT					
2 Sport Utility Veh							Sno/Ice		2			6			3			3							
1 Pick-Up Truck							Mud																		
Trucks (2+3 axes)							Other		OTHER MOVEMENTS 1																
PROBABLE CAUSES													COLLISION TYPES												
Influence of Drugs							Improper Lane Change						FATAL INJURY PROP TOTAL												
Influence of Alcohol							Improper Backing						Opposite Dir												
Influence of Medication							Improper Passing						Related:												
Influence of Combined Subst.							Improper Signal						UnRelated:												
Physical/Mental Difficulty							Improper Parking						Rear End												
Fell Asleep/Fainted, etc.							Passenger Interfere/Obstruct.						Related:												
Fail to give full Attention							Illegally in Roadway						UnRelated:												
Lic. Restr. Non-compliance							Bicycle Violation						Sideswipe												
Fail to Drive in Single Lane							Clothing Not Visible						Related:												
Improper Right Turn on Red							Sleet, Hail, Freezing Rain						UnRelated:												
2 Fail to Yield Right-of-way							Severe Crosswinds						Left Turn												
Fail to Obey Stop Sign							Rain, Snow						Related:												
Fail to Obey Traffic Signal							Animal						UnRelated:												
Fail to Obey Other Control							Vision Obstruction						Angle												
Fail to Keep Right of Center							Vehicle Defect						Related:												
Fail to Stop for School Bus							Wet						UnRelated:												
Wrong Way on One Way							Icy or Snow Covered						Pedestrian												
Exceeded Speed Limit							Debris or Obstruction						Related:												
Operator Using Cell Phone							Ruts, Holes or Bumps						UnRelated:												
Stopping in Lane Roadway							Road Under Construction						Parked Vehicle												
Too Fast for Conditions							Traffic Control Device Inop.						Related:												
Followed too Closely							Shoulders Low, Soft or High						UnRelated:												
Improper Turn							5 Other or Unknown						Other Collision												
													Related:												
													UnRelated:												
WEATHER							ILLUMINATION					TOTALS													
3 Clear / Cloudy			6 Day			18-22					7														
Foggy			1 Dawn/Dusk																						
1 Raining			Dark - Lights On																						
Snow / Sleet			Dark - No Lights																						
3 Other			Other																						
COLLISION TYPES																									
Opposite Dir																									
Related:																									
UnRelated:																									
Rear End																									
Related:																									
1																									
UnRelated:																									
Sideswipe																									
Related:																									
UnRelated:																									
Left Turn																									
Related:																									
UnRelated:																									
Angle																									
Related:																									
1																									
5																									
6																									
UnRelated:																									
Pedestrian																									
Related:																									
UnRelated:																									
Parked Vehicle																									
Related:																									
UnRelated:																									
Other Collision																									
Related:																									
UnRelated:																									
F	Bridge		01																						
I	Building		02																						
X	Culvert/Ditch		03																						
E	Curb		04																						
D	Guardrail/Barrier		05																						
Embankment				06																					
O	Fence		07																						
B	Light Pole		08																						
J	Sign Pole		09																						
E	Other Pole		10																						
C	Tree/Shrubbery		11																						
T	Contr. Barrier		12																						
S	Crash Attenuator		13																						
Other Fixed Object																									



MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION
STATE HIGHWAY
ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: N Hickory Ave @ E Lee St & Lee Way
 County: HARFORD
 Study Period: 01/01/2018 to 12/31/2022
 Analyst: Robert L. Booker, Jr. Date: 01/23/2024

E LEE ST

N HICKORY AVE



10/13/20-11-5P-D

04/25/18-P-8P-D
02/18/22-P-10A-D
04/20/20-P-10A-D

11/06/18-11-2P-W

01/19/18-P-10A-D
09/21/19-P-5A-D

LEE WAY

N HICKORY AVE

DATE-SEVERITY-TIME-SURFACE

NIGHT

ALCOHOL ☒

DRUGS ☒

SEVERITY

F - Fatalities
 I - Injured
 P - Property Damage Only
SURFACE
 D - Dry Surface
 W - Wet Surface
 I - icy Surface
 S - Snowy Surface

00 - Not Applicable
 01 - Bridge or Overpass
 02 - Building
 03 - Culvert or Ditch
 04 - Curve
 05 - Guardrail or Barrier
 06 - Embankment
 07 - Fence
 08 - Light Support Pole
 09 - Sign Support Pole
 10 - Other Pole
 11 - Tree Shrubbery
 12 - Construction Barrier
 13 - Crash Attenuator
 14 - Other
 15 - Unknown

B - Bicycle
 P - Other Pedalcycle
 C - Other Conveyance
 T - Railway Train
 A - Animal
 O - Other Object
 S - Spilled Cargo
 J - Jackknife

U - Units Separated
 N - Other Non-collision
 D - Off Road
 R - Downhill Runaway
 F - Explosion or Fire
 ? - Unknown

U - TURN

BACKING

OVERTURN

Parked Vehicle

Pedestrian

template 12-14-23

B7

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker

Date: 01/23/2024

Location: MD 924 @ E LEE ST & W LEE ST

County: Harford, D4

Period: January 01, 2018 To December 31, 2022

Logmiles: 5.83 At 0 Radius: 300 ft.

Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	0	0	0	0	0
No. Injured	0	0	0	0	0	0
Prop. Damage	0	0	0	0	1	1
Total Crashes	0	0	0	0	1	1
Severity Index	0	0	0	0	1	Avg 0
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0
Angle	0	0	0	0	1	1
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	0	0	0
Wet Surface	0	0	0	0	0	0
Alcohol	0	0	0	0	0	0
Intersection	0	0	0	0	1	1
Total Vehicles	0	0	0	0	2	2
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker

Date: 01/23/2024

Location: MD 924 @ E LEE ST & W LEE ST

County: Harford, D4

Period: January 1, 2018 To December 31, 2022

Logmiles: 5.83 At 0 Radius: 300 ft.

Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK										
Accidents		0	1	1	SUN	MON	TUE	WED	THU	FRI	SAT	UNK			
Veh Occ											1				
Pedestrian															
				AVG Severity Index: 0											
MONTH OF THE YEAR												CONDITION	DRIVER	PED	
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	2	
			1										Alcohol:		
													Other:		
TIME												VEHICLES INVOLVED PER ACCIDENT			
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2
PM:														1	2
VEHICLE TYPE				SURFACE		MOVEMENTS									
Motorcycle/Moped				Tractor Trailer	Wet	NORTH		SOUTH		EAST		WEST			
2 Passenger Vehicle				Passenger Bus	1 Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT	
Sport Utility Veh				School Bus	Sno/Ice									1	
Pick-Up Truck				Emergency Veh	Mud	1									
Trucks (2+3 axles)				Other Types	Other										
OTHER MOVEMENTS															
PROBABLE CAUSES								COLLISION TYPES				FATAL INJURY PROP TOTAL			
Influence of Drugs				Improper Lane Change				Opposite Dir		Related:					
Influence of Alcohol				Improper Backing						UnRelated:					
Influence of Medication				Improper Passing				Rear End		Related:					
Influence of Combined Subst.				Improper Signal						UnRelated:					
Physical/Mental Difficulty				Improper Parking				Sideswipe		Related:					
Fell Asleep/Fainted, etc.				Passenger Interfere/Obstruct.						UnRelated:					
Fail to give full Attention				Illegally in Roadway				Left Turn		Related:					
Lic. Restr. Non-compliance				Bicycle Violation						UnRelated:					
Fail to Drive in Single Lane				Clothing Not Visible				Angle		Related:		1		1	
Improper Right Turn on Red				Sleet, Hail, Freezing Rain						UnRelated:					
Fail to Yield Right-of-way				Severe Crosswinds				Pedestrian		Related:					
Fail to Obey Stop Sign				Rain, Snow						UnRelated:					
1 Fail to Obey Traffic Signal				Animal				Parked Vehicle		Related:					
Fail to Obey Other Control				Vision Obstruction						UnRelated:					
Fail to Keep Right of Center				Vehicle Defect				Other Collision		Related:					
Fail to Stop for School Bus				Wet						UnRelated:					
Wrong Way on One Way				Icy or Snow Covered				F Bridge	01						
Exceeded Speed Limit				Debris or Obstruction				I Building	02						
Operator Using Cell Phone				Ruts, Holes or Bumps				X Culvert/Ditch	03						
Stopping in Lane Roadway				Road Under Construction				E Curb	04						
Too Fast for Conditions				Traffic Control Device Inop.				D Guardrail/Barrier	05						
Followed too Closely				Shoulders Low, Soft or High				Embankment	06						
Improper Turn				Other or Unknown				O Fence	07						
								B Light Pole	08						
								J Sign Pole	09						
								E Other Pole	10						
								C Tree/Shrubbery	11						
								T Contr. Barrier	12						
								S Crash Attenuator	13						
								Other Fixed Object							
WEATHER				ILLUMINATION				TOTALS							
1 Clear / Cloudy				1 Day				18-22		1					
Foggy				Dawn/Dusk											
Raining				Dark - Lights On											
Snow / Sleet				Dark - No Lights											
Other				Other											

MDOT

MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: MD 924 @ E Lee St & W Lee St
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 01/23/2024

MARYLAND 924

W LEE ST

E LEE ST

MARYLAND 924

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL

DRUGS

SEVERITY

F - Fatalities

I - Injured

C - Property Damage Only

SURFACE

D - Dry Surface

W - Wet Surface

I - Icy Surface

S - Snowy Surface

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

88 - Other

99 - Unknown

B - Bicycle

P - Other Pedalcycle

C - Other Conveyance

T - Railway Train

A - Animal

O - Other Object

S - Spilled Cargo

J - Jackknife

U - Units Separated

N - Other Non-collision

D - Off Road

R - Downhill Runaway

F - Explosion or Fire

7 - Unknown

U - TURN

BACKING

OVERTURN

Parked Vehicle

Pedestrian

template 12-14-23

B8

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/23/2024

Location: MD 924 @ GORDON ST
County: Harford, D4
Period: January 01, 2018 To December 31, 2022
Logmiles: 5.25 At 0
Radius: 300 ft.
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	2	0	0	0	2
No. Injured	0	2	0	0	0	2
Prop. Damage	2	1	1	1	1	6
Total Crashes	2	3	1	1	1	8
Severity Index	2	7	1	1	1	Avg 2

Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	1	0	1	2
Sideswipe	0	0	0	0	0	0
Left Turn	1	0	0	0	0	1
Angle	0	1	0	0	0	1
Pedestrian	0	1	0	0	0	1
Parked Veh.	1	0	0	0	0	1
Fixed Object	0	1	0	1	0	2
Other	0	0	0	0	0	0

U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	1	0	0	0	0	1

Night Time	1	1	0	1	1	4
Wet Surface	0	0	0	0	0	0
Alcohol	0	1	0	1	0	2
Intersection	2	3	1	1	1	8

Total Vehicles	3	4	2	1	2	12
Total Trucks	1	0	0	0	0	1
Truck %	33.3	0.0	0.0	0.0	0.0	8.3

Comments:

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/23/2024

Location: MD 924 @ GORDON ST
County: Harford, D4
Period: January 1, 2018 To December 31, 2022
Logmiles: 5.25 At 0
Radius: 300 ft.
Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL
Accidents	2	6	8	
Veh Occ	1			
Pedestrian	1			
AVG Severity Index: 2				

MONTH OF THE YEAR												CONDITION			DRIVER	PED	
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	Alcohol:	Other:	10	1
3					1				1	2	1			2	1		

TIME												VEHICLES INVOLVED PER ACCIDENT															
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL						
PM:														4	4						12						
VEHICLE TYPE												SURFACE		MOVEMENTS													
Motorcycle/Moped				Tractor Trailer				Wet				NORTH				SOUTH				EAST				WEST			
10 Passenger Vehicle				Passenger Bus				7 Dry				LF ST RT				LF ST RT				LF ST RT				LF ST RT			
1 Sport Utility Veh				School Bus				1 Sno/Ice				7				1 3								1			
1 Pick-Up Truck				Emergency Veh				Mud																			
1 Trucks (2+3 axes)				3 Other Types				Other																			

PROBABLE CAUSES		COLLISION TYPES		FATAL INJURY PROP TOTAL			
Influence of Drugs		Improper Lane Change					
2 Influence of Alcohol		Improper Backing					
Influence of Medication		Improper Passing					
Influence of Combined Subst.		Improper Signal					
Physical/Mental Difficulty		Improper Parking					
Fell Asleep/Fainted, etc.		Passenger Interfere/Obstruct.					
2 Fail to give full Attention		Illegally in Roadway					
Lic. Restr. Non-compliance		Bicycle Violation					
Fail to Drive in Single Lane		Clothing Not Visible					
Improper Right Turn on Red		Sleet, Hail, Freezing Rain					
Fail to Yield Right-of-way		Severe Crosswinds					
Fail to Obey Stop Sign		Rain, Snow					
Fail to Obey Traffic Signal		Animal					
Fail to Obey Other Control		Vision Obstruction					
Fail to Keep Right of Center		Vehicle Defect					
Fail to Stop for School Bus		Wet					
Wrong Way on One Way		Icy or Snow Covered					
Exceeded Speed Limit		Debris or Obstruction					
Operator Using Cell Phone		Ruts, Holes or Bumps					
Stopping in Lane Roadway		Road Under Construction					
Too Fast for Conditions		Traffic Control Device Inop.					
Followed too Closely		Shoulders Low, Soft or High					
Improper Turn		4 Other or Unknown					

WEATHER	ILLUMINATION	TOTALS
7 Clear / Cloudy	4 Day	18-22
Foggy	Dawn/Dusk	8
Raining	4 Dark - Lights On	
1 Snow / Sleet	Dark - No Lights	
Other	Other	

F	Bridge	01
I	Building	02
X	Culvert/Ditch	03
E	Curb	04
D	Guardrail/Barrier	05
	Embankment	06
O	Fence	07
B	Light Pole	08
J	Sign Pole	09
E	Other Pole	10
C	Tree/Shrubbery	11
T	Contr. Barrier	12
S	Crash Attenuator	13
Other Fixed Object		

MARYLAND
924
Southbound

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: MD 924 @ Gordon St
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 01/23/2024

W GORDON ST

E GORDON ST

MARYLAND
924
Northbound

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL

DRUGS

SEVERITY

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree/Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

99 - Unknown

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree/Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

99 - Unknown

B - Bicycle

P - Other Pedalcycle

C - Other Conveyance

T - Railway Train

A - Animal

O - Other Object

S - Spilled Cargo

J - Jackknife

U - Units Separated

N - Other Non-collision

R - Downhill Runaway

F - Explosion or Fire

T - Unknown

M - TURN

BACKING

OVERTURN

Parked Vehicle

Pedestrian

template 13-14-23

B9

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 04/25/2024

Location: MD 924 @ MacPHAIL RD
County: Harford, D4

Logmiles: 4.86 At 0 Radius: 250 ft.
Note: Year 2023 data may be incomplete and unedited

YEAR >>	2018	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0	0
Injury	0	0	1	0	0	1	2
No. Injured	0	0	1	0	0	1	2
Prop. Damage	2	1	0	0	4	0	7
Total Crashes	2	1	1	0	4	1	9
Severity Index	2	1	2	0	4	2	Avg 2
Opposite Dir.	0	0	0	0	0	0	0
Rear End	1	0	0	0	2	1	4
Sideswipe	0	0	0	0	1	0	1
Left Turn	0	0	0	0	1	0	1
Angle	1	1	1	0	0	0	3
Pedestrian	0	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0	0
Backing	0	0	0	0	0	0	0
Animal	0	0	0	0	0	0	0
Railroad	0	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0	0
Overturn	0	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0	0
Night Time	0	0	0	0	1	0	1
Wet Surface	0	0	1	0	0	0	1
Alcohol	0	0	0	0	1	0	1
Intersection	2	1	1	0	4	1	9
Total Vehicles	4	2	2	0	9	2	19
Total Trucks	0	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comments:							

Maryland State Highway Administration Office of Traffic and Safety - Traffic Development and Support SHA ADC Summary Output rev. 10/2017-1														Name: Robert Booker Date: 04/25/2024																																																																										
Location: MD 924 @ MacPHAIL RD County: Harford, D4 Period: January 1, 2018 To December 31, 2023														Logmiles: 4.86 At 0 Radius: 250 ft. Note: Year 2023 data may be incomplete and unedited																																																																										
<table><tr><td>SEVERITY</td><td>FATAL</td><td>INJURY</td><td>P-DAMAGE</td><td>TOTAL</td></tr><tr><td>Accidents</td><td></td><td>2</td><td>7</td><td>9</td></tr><tr><td>Veh Occ</td><td></td><td>2</td><td></td><td></td></tr><tr><td>Pedestrian</td><td></td><td></td><td colspan="2">AVG Severity Index: 2</td></tr></table>														SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	Accidents		2	7	9	Veh Occ		2			Pedestrian			AVG Severity Index: 2		<table><tr><th colspan="12">DAY OF THE WEEK</th><th></th></tr><tr><td>SUN</td><td>MON</td><td>TUE</td><td>WED</td><td>THU</td><td>FRI</td><td>SAT</td><td>UNK</td><td colspan="5"></td><td></td></tr><tr><td>1</td><td></td><td>2</td><td></td><td>3</td><td>1</td><td>2</td><td></td><td colspan="5"></td><td></td></tr></table>														DAY OF THE WEEK													SUN	MON	TUE	WED	THU	FRI	SAT	UNK							1		2		3	1	2							
SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL																																																																																				
Accidents		2	7	9																																																																																				
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SUN	MON	TUE	WED	THU	FRI	SAT	UNK																																																																																	
1		2		3	1	2																																																																																		
MONTH OF THE YEAR														CONDITION DRIVER PED																																																																										
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal: 16																																																																											
1		1	1	1		1	1	1	1	1			Alcohol: 1																																																																											
												Other: 2																																																																												
TIME														VEHICLES INVOLVED PER ACCIDENT																																																																										
12	01	02	03	04	05	06	07	08	09	10	11	UNK	1 2 3 4 5 6+ UNK TOTAL																																																																											
AM:	1								2	1			8 1																																																																											
PM:	1	1	1	1		1																																																																																		
VEHICLE TYPE														SURFACE																																																																										
Motorcycle/Moped				Tractor/Trailer				1 Wet						MOVEMENTS																																																																										
15 Passenger Vehicle				Passenger Bus				7 Dry						NORTH				SOUTH				EAST				WEST																																																														
2 Sport Utility Veh				1 School Bus				Sno/Ice						LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT																																																															
Pick-Up Truck				Emergency Veh				Mud						8				2 1				2				3 2																																																														
Trucks (2+3 axles)				1 Other Types				1 Other						OTHER MOVEMENTS 1																																																																										
PROBABLE CAUSES														COLLISION TYPES																																																																										
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Fail to Keep Right of Center														Vehicle Defect																																																																										
Fail to Stop for School Bus														Wet																																																																										
Wrong Way on One Way														Icy or Snow Covered																																																																										
Exceeded Speed Limit														Debris or Obstruction																																																																										
Operator Using Cell Phone														Ruts, Holes or Bumps																																																																										
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1 Raining														Dark - Lights On																																																																										
Snow / Sleet														1 Dark - No Lights																																																																										
Other														Other																																																																										
TOTALS														18-23 9																																																																										
E														Other Pole 10																																																																										
C														Tree/Shrubbery 11																																																																										
T														Contr. Barrier 12																																																																										
S														Crash Attenuator 13																																																																										
														Other Fixed Object																																																																										

H1

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: US 40 @ MD 7A & MD 155 & OTSEGO ST
County: Harford, D4
Logmiles: 17.68 At 2.66
Radius: 300 ft.
Period: January 01, 2018 To December 31, 2022
Note:

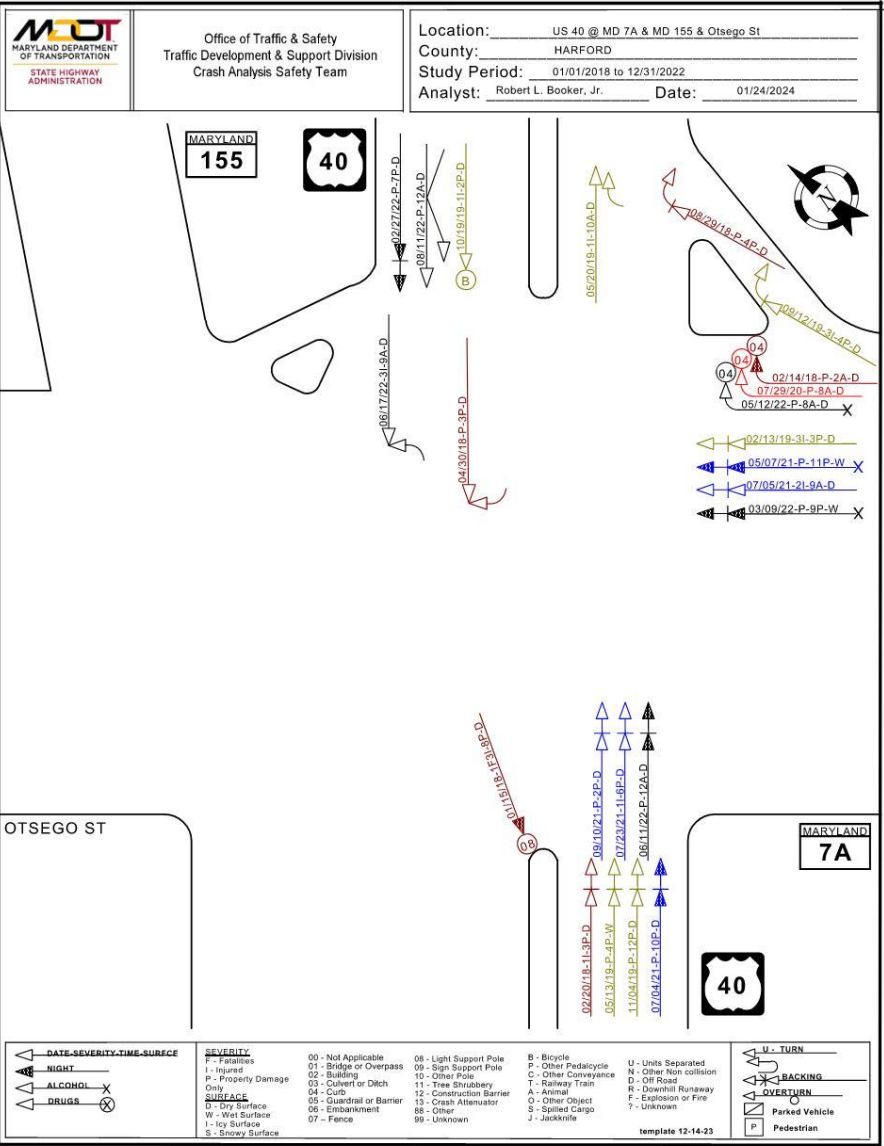
YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	1	0	0	0	0	1
No. Killed	1	0	0	0	0	1
Injury	1	4	0	2	1	8
No. Injured	4	8	0	3	3	18
Prop. Damage	3	2	1	3	5	14
Total Crashes	5	6	1	5	6	23
Severity Index	20	20	1	9	12	Avg 12
Opposite Dir.	0	0	0	0	0	0
Rear End	2	4	0	5	3	14
Sideswipe	1	0	0	0	1	2
Left Turn	0	0	0	0	1	1
Angle	0	1	0	0	0	1
Pedestrian	0	1	0	0	0	1
Parked Veh.	0	0	0	0	0	0
Fixed Object	2	0	1	0	1	4
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	2	0	0	0	2
Night Time	2	0	0	2	3	7
Wet Surface	0	1	0	1	1	3
Alcohol	0	0	0	1	2	3
Intersection	5	6	1	5	6	23
Total Vehicles	8	12	1	12	12	45
Total Trucks	0	2	0	0	0	2
Truck %	0.0	16.7	0.0	0.0	0.0	4.4
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: US 40 @ MD 7A & MD 155 & OTSEGO ST
County: Harford, D4
Logmiles: 17.68 At 2.66
Radius: 300 ft.
Period: January 1, 2018 To December 31, 2022
Note:

SEVERITY				FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																
Accidents		1		8		14		23				SUN	MON	TUE	WED	THU	FRI	SAT	UNK									
Veh Occ		1		17								2	6	1	5	3	4	2										
Pedestrian				1				AVG Severity Index: 12																				
MONTH OF THE YEAR													CONDITION		DRIVER		PED											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	34														
1	4	1	1	4	2	4	2	2	1	1			Alcohol:	3														
													Other:	8	1													
TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT														
AM:	2		1						2	2	1			1	2	3	4	5	6+	UNK	TOTAL							
PM:	1		2	3	3		1	1	1	1	1	1		5	15	2	1				45							
VEHICLE TYPE						SURFACE		MOVEMENTS																				
Motorcycle/Moped						1 Tractor Trailer		3 Wet		NORTH				SOUTH				EAST				WEST						
28 Passenger Vehicle						Passenger Bus		20 Dry		LF	ST	RT		LF	ST	RT		LF	ST	RT		LF	ST	RT				
5 Sport Utility Veh						School Bus		Sno/Ice		1	15			8	1							10	6					
2 Pick-Up Truck						3 Emergency Veh		Mud		OTHER MOVEMENTS														4				
1 Trucks (2+3 axes)						10 Other Types		Other																				
PROBABLE CAUSES													COLLISION TYPES		FATAL		INJURY		PROP		TOTAL							
Influence of Drugs													Improper Lane Change		Opposite Dir		Related:											
3 Influence of Alcohol													Improper Backing				UnRelated:											
Influence of Medication													Improper Passing		Rear End		Related:		5		9	14						
Influence of Combined Subst.													Improper Signal				UnRelated:											
Physical/Mental Difficulty													Improper Parking		Sideswipe		Related:				2	2						
Fell Asleep/Fainted, etc.													Passenger Interfere/Obstruct.				UnRelated:											
4 Fail to give full Attention													Illegally in Roadway		Left Turn		Related:		1			1						
1 Lic. Restr. Non-compliance													Bicycle Violation				UnRelated:											
Fail to Drive in Single Lane													Clothing Not Visible		Angle		Related:		1			1						
Improper Right Turn on Red													Sleet, Hail, Freezing Rain				UnRelated:											
Fail to Yield Right-of-way													Severe Crosswinds		Pedestrian		Related:		1			1						
Fail to Obey Stop Sign													Rain, Snow				UnRelated:											
Fail to Obey Traffic Signal													Animal		Parked Vehicle		Related:											
1 Fail to Obey Other Control													Vision Obstruction				UnRelated:											
Fail to Keep Right of Center													Vehicle Defect		Other Collision		Related:											
Fail to Stop for School Bus													Wet				UnRelated:											
Wrong Way on One Way													Icy or Snow Covered		F Bridge		01											
Exceeded Speed Limit													Debris or Obstruction		I Building		02											
Operator Using Cell Phone													Ruts, Holes or Bumps		X Culvert/Ditch		03											
Stopping in Lane Roadway													Road Under Construction		E Curb		04		3			3						
Too Fast for Conditions													Traffic Control Device Inop.		D Guardrail/Barrier		05											
Followed too Closely													Shoulders Low, Soft or High		Embankment		06											
Improper Turn													14 Other or Unknown		O Fence		07											
															B Light Pole		08		1			1						
															J Sign Pole		09											
															E Other Pole		10											
															C Tree/Shrubbery		11											
															T Contr. Barrier		12											
															S Crash Attenuator		13											
															Other Fixed Object													
WEATHER				ILLUMINATION				TOTALS																				
20 Clear / Cloudy				15 Day				18-22		23																		
				Foggy				Dawn/Dusk																				
1 Raining				6 Dark - Lights On																								
Snow / Sleet				1 Dark - No Lights																								
2 Other				1 Other																								



H2

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/19/2024

Location: US 40 (Pulaski Hwy) @ Lewis Ln
County: Harford, D4
Period: January 01, 2018 To December 31, 2022

Logmiles: 17.17 At 0.4
Radius: 250 ft.
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	4	3	1	1	2	11
No. Injured	8	3	1	3	2	17
Prop. Damage	3	1	4	4	2	14
Total Crashes	7	4	5	5	4	25
Severity Index	18	9	11	8	8	Avg 11
Opposite Dir.	0	0	0	0	0	0
Rear End	3	4	2	1	1	11
Sideswipe	0	0	0	1	1	2
Left Turn	3	0	0	2	1	6
Angle	0	0	3	0	1	4
Pedestrian	1	0	0	0	0	1
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	1	0	1
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	1	0	1	2
Night Time	3	2	0	2	2	9
Wet Surface	2	1	0	0	1	4
Alcohol	1	0	0	0	1	2
Intersection	7	4	5	5	4	25
Total Vehicles	15	9	11	10	9	54
Total Trucks	0	0	1	0	1	2
Truck %	0.0	0.0	9.1	0.0	11.1	3.7
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Matthew Jagg
Date: 01/19/2024

Location: US 40 (Pulaski Hwy) @ Lewis Ln
County: Harford, D4
Period: January 1, 2018 To December 31, 2022

Logmiles: 17.17 At 0.4
Radius: 250 ft.
Note:

SEVERITY					FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK												
Accidents					11		14		25				SUN	MON	TUE	WED	THU	FRI	SAT	UNK					
Veh Occ					16								4	3	2	3	5	4	4						
Pedestrian					1				AVG Severity Index: 11																
MONTH OF THE YEAR													CONDITION				DRIVER		PED						
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:				36		2						
													Alcohol:				2								
													Other:				11								
TIME													VEHICLES INVOLVED PER ACCIDENT												
AM:		12	01	02	03	04	05	06	07	08	09	10	11	UNK	1		2	3	4	5	6+	UNK	TOTAL		
PM:		2	3		1	2	2	3		2	4				1		19	5					54		
VEHICLE TYPE							SURFACE		MOVEMENTS																
1 Motorcycle/Moped		1 Tractor Trailer			4 Wet		NORTH			SOUTH			EAST			WEST									
32 Passenger Vehicle		Passenger Bus			18 Dry		LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT							
3 Sport Utility Veh		School Bus			Sno/Ice		1	1		3			3	21		5	15								
6 Pick-Up Truck		2 Emergency Veh			Mud																				
1 Trucks (2+3 axes)		9 Other Types			3 Other		OTHER MOVEMENTS 5																		
PROBABLE CAUSES													COLLISION TYPES												
1 Influence of Drugs		Improper Lane Change					Opposite Dir		Related:		FATAL		INJURY		PROP		TOTAL								
2 Influence of Alcohol		Improper Backing							UnRelated:																
Influence of Medication		Improper Passing					Rear End		Related:		5		6		11										
Influence of Combined Subst.		Improper Signal							UnRelated:																
Physical/Mental Difficulty		Improper Parking					Sideswipe		Related:		1		1		2										
1 Fell Asleep/Fainted, etc.		Passenger Interfere/Obstruct.							UnRelated:																
3 Fail to give full Attention		Illegally in Roadway					Left Turn		Related:		4		2		6										
Lic. Restr. Non-compliance		Bicycle Violation							UnRelated:																
Fail to Drive in Single Lane		Clothing Not Visible					Angle		Related:		4		4												
Improper Right Turn on Red		Sleet, Hail, Freezing Rain							UnRelated:																
1 Fail to Yield Right-of-way		Severe Crosswinds					Pedestrian		Related:		1				1										
Fail to Obey Stop Sign		Rain, Snow							UnRelated:																
5 Fail to Obey Traffic Signal		Animal					Parked Vehicle		Related:																
1 Fail to Obey Other Control		Vision Obstruction							UnRelated:																
1 Fail to Keep Right of Center		Vehicle Defect					Other Collision		Related:		1				1										
Fail to Stop for School Bus		Wet							UnRelated:																
Wrong Way on One Way		Icy or Snow Covered					F	Bridge	01																
Exceeded Speed Limit		Debris or Obstruction					I	Building	02																
Operator Using Cell Phone		Ruts, Holes or Bumps					X	Culvert/Ditch	03																
Stopping in Lane Roadway		Road Under Construction					E	Curb	04																
Too Fast for Conditions		Traffic Control Device Inop.					D	Guardrail/Barrier	05																
Followed too Closely		Shoulders Low, Soft or High					O	Embankment	06																
Improper Turn		10 Other or Unknown					B	Fence	07																
							J	Light Pole	08																
								Sign Pole	09																
							E	Other Pole	10																
							C	Tree/Shrubbery	11																
							T	Contr. Barrier	12																
							S	Crash Attenuator	13																
							Other Fixed Object																		
WEATHER				ILLUMINATION				TOTALS																	
19 Clear / Cloudy		14 Day		18-22		25																			
Foggy		Dawn/Dusk																							
3 Raining		9 Dark - Lights On																							
Snow / Sleet		Dark - No Lights																							
3 Other		2 Other																							

H3

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker

Date: 01/24/2024

Location: US 40 @ MARTHA LEWIS BLVD

Logmiles: 15.985 At 0 Radius: 250 ft.

County: Harford, D4

Period: January 01, 2018 To December 31, 2022

Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	1	0	0	0	1	2
No. Injured	1	0	0	0	3	4
Prop. Damage	0	3	0	2	0	5
Total Crashes	1	3	0	2	1	7
Severity Index	2	3	0	2	4	Avg 2
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	0	0	0	0	0	0
Left Turn	0	1	0	1	0	2
Angle	0	2	0	1	1	4
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	1	0	0	0	0	1
U-Turn	1	0	0	0	0	1
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	1	0	0	0	1
Night Time	0	1	0	0	1	2
Wet Surface	0	2	0	0	0	2
Alcohol	0	0	0	0	0	0
Intersection	1	3	0	2	0	6
Total Vehicles	2	6	0	4	2	14
Total Trucks	0	1	0	0	0	1
Truck %	0.0	16.7	0.0	0.0	0.0	7.1
Comments:						

Maryland State Highway Administration

Office of Traffic and Safety - Traffic Development and Support

SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker

Date: 01/24/2024

Location: US 40 @ MARTHA LEWIS BLVD

Logmiles: 15.985 At 0 Radius: 250 ft.

County: Harford, D4

Period: January 1, 2018 To December 31, 2022

Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK													
Accidents		2	5	7	SUN	MON	TUE	WED	THU	FRI	SAT	UNK						
Veh Occ		4																
Pedestrian																		
				AVG Severity Index: 2														
MONTH OF THE YEAR												CONDITION	DRIVER	PED				
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	14				
	1			1	2			1	1	1			Alcohol:					
												Other:						
TIME												VEHICLES INVOLVED PER ACCIDENT						
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	TOTAL				
PM:				2		1	1		3		1	2	3	4	5	6+	UNK	14
VEHICLE TYPE				SURFACE		MOVEMENTS												
Motorcycle/Moped	1 Tractor Trailer			2 Wet		NORTH		SOUTH		EAST		WEST						
12 Passenger Vehicle	Passenger Bus			4 Dry		LF	ST	RT	LF	ST	RT	LF	ST	RT	LF			
Sport Utility Veh	School Bus			Sno/Ice					2	2		2	3		4			
1 Pick-Up Truck	Emergency Veh			1 Mud														
Trucks (2+3 axles)	Other Types			Other		OTHER MOVEMENTS												
PROBABLE CAUSES								COLLISION TYPES										
Influence of Drugs	Improper Lane Change							Opposite Dir										
Influence of Alcohol	Improper Backing							Related:										
Influence of Medication	Improper Passing							UnRelated:										
Influence of Combined Subst.	Improper Signal							Rear End										
Physical/Mental Difficulty	Improper Parking							Related:										
Fell Asleep/Fainted, etc.	Passenger Interfere/Obstruct.							UnRelated:										
2 Fail to give full Attention	Illegally in Roadway							Left Turn						2	2			
Lic. Restr. Non-compliance	Bicycle Violation							Related:										
Fail to Drive in Single Lane	Clothing Not Visible							UnRelated:										
Improper Right Turn on Red	Sleet, Hail, Freezing Rain							Angle						3	3			
4 Fail to Yield Right-of-way	Severe Crosswinds							Related:						1	1			
Fail to Obey Stop Sign	Rain, Snow							UnRelated:										
Fail to Obey Traffic Signal	Animal							Pedestrian										
Fail to Obey Other Control	Vision Obstruction							Related:										
Fail to Keep Right of Center	Vehicle Defect							UnRelated:										
Fail to Stop for School Bus	Wet							Other Collision						1	1			
Wrong Way on One Way	Icy or Snow Covered							F Bridge						01				
Exceeded Speed Limit	Debris or Obstruction							I Building						02				
Operator Using Cell Phone	Ruts, Holes or Bumps							X Culvert/Ditch						03				
Stopping in Lane Roadway	Road Under Construction							E Curb						04				
Too Fast for Conditions	Traffic Control Device Inop.							D Guardrail/Barrier						05				
Followed too Closely	Shoulders Low, Soft or High							Embankment						06				
Improper Turn	1 Other or Unknown							O Fence						07				
								B Light Pole						08				
								J Sign Pole						09				
								E Other Pole						10				
								C Tree/Shrubbery						11				
								T Contr. Barrier						12				
								S Crash Attenuator						13				
								Other Fixed Object										
WEATHER				ILLUMINATION				TOTALS										
5 Clear / Cloudy				5 Day				18-22										
1 Raining				Dawn/Dusk				7										
Snow / Sleet				Dark - Lights On														
1 Other				2 Dark - No Lights														
				Other														

MDOT

MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety

Traffic Development & Support Division

Crash Analysis Safety Team

Location: US 40 @ Martha Lewis Blvd

County: HARFORD

Study Period: 01/01/2018 to 12/31/2022

Analyst: Robert L. Booker, Jr. Date: 01/24/2024

40

MARTHA LEWIS BLVD

05/24/19-P-8A-D

06/05/21-P-3P-D

09/15/21-P-3P-M

10/25/18-11-8A-D

02/15/19-P-6P-W

12/30/22-31-5P-D

Private Parking Lot

40

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL

DRUGS

SEVERITY

P - Fatalities

I - Injured

C - Property Damage Only

SURFACE

D - Dry Surface

W - Wet Surface

I - Icy Surface

S - Snowy Surface

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

88 - Other

99 - Unknown

B - Bicycle

P - Other Pedalcycle

C - Other Conveyance

T - Railway Train

A - Animal

O - Other Object

S - Spilled Cargo

J - Jackknife

U - Units Separated

N - Other Non collision

D - Off Road

R - Downhill Runaway

F - Explosion or Fire

7 - Unknown

U - TURN

BACKING

OVERTURN

Parked Vehicle

Pedestrian

template 12-14-23

H4

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: US 40 @ BLENHEIM LN
County: Harford, D4

Logmiles: 15.67 At 0.2
Radius: 250 ft.

Period: January 01, 2018 To December 31, 2022
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	2	2	2	0	6
No. Injured	0	4	6	3	0	13
Prop. Damage	0	0	0	1	0	1
Total Crashes	0	2	2	3	0	7
Severity Index	0	6	6	7	0	Avg 4
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	1	0	0	1
Sideswipe	0	0	0	0	0	0
Left Turn	0	2	1	1	0	4
Angle	0	0	0	2	0	2
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	0	0	0
Wet Surface	0	2	1	0	0	3
Alcohol	0	0	0	0	0	0
Intersection	0	2	2	3	0	7
Total Vehicles	0	5	4	6	0	15
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: US 40 @ BLENHEIM LN
County: Harford, D4

Logmiles: 15.67 At 0.2
Radius: 250 ft.

Period: January 1, 2018 To December 31, 2022
Note:

SEVERITY					FATAL			INJURY			P-DAMAGE			TOTAL			DAY OF THE WEEK																						
Accidents					6			1			7						SUN		MON		TUE		WED		THU		FRI		SAT		UNK								
Veh Occ					13														3		2		1				1												
Pedestrian																				AVG Severity Index: 4																			
MONTH OF THE YEAR																CONDITION				DRIVER				PED															
JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		UNK		Normal: 14													
										2		1				1		1		1		1				Alcohol: 1													
																												Other: 1											
TIME		12		01		02		03		04		05		06		07		08		09		10		11		UNK		VEHICLES INVOLVED PER ACCIDENT											
AM:																								1		2		3		4		5		6+		UNK		TOTAL	
PM:		1		3		1				1																		6		1						15			
VEHICLE TYPE										SURFACE			MOVEMENTS																										
Motorcycle/Moped					Tractor Trailer					3 Wet			NORTH				SOUTH				EAST				WEST														
9 Passenger Vehicle					Passenger Bus					4 Dry			LF		ST		RT		LF		ST		RT		LF		ST		RT		LF		ST		RT				
2 Sport Utility Veh					School Bus					Sno/Ice							2				5		2						5										
3 Pick-Up Truck					Emergency Veh					Mud																													
Trucks (2+3 axes)					1 Other Types					Other			OTHER MOVEMENTS 1																										
PROBABLE CAUSES										COLLISION TYPES										FATAL INJURY PROP TOTAL																			
Influence of Drugs										Improper Lane Change										Opposite Dir		Related: 1 1																	
Influence of Alcohol										Improper Backing												UnRelated: 1 1																	
Influence of Medication										Improper Passing										Rear End		Related: 1 1																	
Influence of Combined Subst.										Improper Signal												UnRelated: 1 1																	
Physical/Mental Difficulty										Improper Parking										Sideswipe		Related: 1 1																	
Fell Asleep/Fainted, etc.										Passenger Interfere/Obstruct.												UnRelated: 1 1																	
3 Fail to give full Attention										Illegally in Roadway										Left Turn		Related: 4 4																	
Lic. Restr. Non-compliance										Bicycle Violation												UnRelated: 1 1 2																	
Fail to Drive in Single Lane										Clothing Not Visible										Angle		Related: 1 1 2																	
Improper Right Turn on Red										Sleet, Hail, Freezing Rain												UnRelated: 1 1 2																	
3 Fail to Yield Right-of-way										Severe Crosswinds										Pedestrian		Related: 1 1 2																	
Fail to Obey Stop Sign										Rain, Snow												UnRelated: 1 1 2																	
Fail to Obey Traffic Signal										Animal										Parked Vehicle		Related: 1 1 2																	
Fail to Obey Other Control										Vision Obstruction												UnRelated: 1 1 2																	
Fail to Keep Right of Center										Vehicle Defect										Other Collision		Related: 1 1 2																	
Fail to Stop for School Bus										Wet												UnRelated: 1 1 2																	
Wrong Way on One Way										Icy or Snow Covered										F Bridge		01																	
Exceeded Speed Limit										Debris or Obstruction										I Building		02																	
Operator Using Cell Phone										Ruts, Holes or Bumps										X Culvert/Ditch		03																	
Stopping in Lane Roadway										Road Under Construction										E Curb		04																	
Too Fast for Conditions										Traffic Control Device Inop.										D Guardrail/Barrier		05																	
Followed too Closely										Shoulders Low, Soft or High												Embankment 06																	
Improper Turn										1 Other or Unknown										O Fence		07																	
																				B Light Pole		08																	
																				J Sign Pole		09																	
																				E Other Pole		10																	
																				C Tree/Shrubbery		11																	
																				T Contr. Barrier		12																	
																				S Crash Attenuator		13																	
																						Other Fixed Object																	
WEATHER					ILLUMINATION					TOTALS																													
4 Clear / Cloudy					7 Day					18-22					7																								
Foggy					Dawn/Dusk																																		
3 Raining					Dark - Lights On																																		
Snow / Sleet					Dark - No Lights																																		
Other					Other																																		

MDOT

MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: US 40 @ Blenheim Ln
County: HARFORD
Study Period: 01/01/2018 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 01/24/2024

40

BLENHEIM LN

12/09/19-21-11A-W

10/22/19-21-1P-W

11/30/20-51-2P-W

06/16/21-11-1P-D

06/29/21-P-1P-D

09/14/20-11-12P-D

07/09/21-21-4P-D

Gravel Entrance to Traylor Park

40

DATE SEVERITY TIME SURFACE

NIGHT

ALCOHOL

DRUGS

SEVERITY

F - Fatalities

I - Injured

P - Property Damage Only

SURFACE

0 - Dry Surface

1 - Wet Surface

2 - Icy Surface

3 - Snowy Surface

00 - Not Applicable

01 - Bridge or Overpass

02 - Building

03 - Culvert or Ditch

04 - Curb

05 - Guardrail or Barrier

06 - Embankment

07 - Fence

08 - Light Support Pole

09 - Sign Support Pole

10 - Other Pole

11 - Tree Shrubbery

12 - Construction Barrier

13 - Crash Attenuator

88 - Other

99 - Unknown

B - Bicycle

P - Other Pedalcycle

C - Other Conveyance

T - Railway Train

A - Animal

O - Other Object

S - Spilled Cargo

J - Jackknife

U - Units Separated

N - Other Non-collision

D - Off Road

R - Downhill Runaway

F - Explosion or Fire

7 - Unknown

U - TURN

BACKING

OVERTURN

Parked Vehicle

Pedestrian

template 12-14-23

H5

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: MD 155 @ MD 763
County: Harford, D4

Logmiles: 8,709 At 0 Radius: 250 ft.
Period: January 01, 2018 To December 31, 2022
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	0	2	0	1	3
No. Injured	0	0	4	0	1	5
Prop. Damage	2	0	0	3	2	7
Total Crashes	2	0	2	3	3	10
Severity Index	2	0	6	3	9	Avg 4
Opposite Dir.	0	0	1	0	0	1
Rear End	0	0	0	1	0	1
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0
Angle	2	0	1	0	1	4
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	2	1	3
Other	0	0	0	0	1	1
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	1	1
Truck Related	0	0	0	1	1	2
Night Time	0	0	0	2	1	3
Wet Surface	1	0	0	1	0	2
Alcohol	0	0	0	0	0	0
Intersection	2	0	2	3	3	10
Total Vehicles	4	0	4	4	4	16
Total Trucks	0	0	0	2	1	3
Truck %	0.0	0.0	0.0	50.0	25.0	18.8
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: MD 155 @ MD 763
County: Harford, D4

Logmiles: 8,709 At 0 Radius: 250 ft.
Period: January 1, 2018 To December 31, 2022
Note:

SEVERITY					FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK																												
Accidents							3		7		10		SUN		MON		TUE		WED		THU		FRI		SAT		UNK														
Veh Occ							5						1						5				2		2																
Pedestrian									AVG Severity Index: 4																																
MONTH OF THE YEAR													CONDITION				DRIVER				PED																				
JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		UNK		Normal:		12													
1				3		1		1				1		1								2				Alcohol:															
																										Other:		2													
TIME		12		01		02		03		04		05		06		07		08		09		10		11		UNK		VEHICLES INVOLVED PER ACCIDENT													
AM:								1						1				1		1		1				1		2		3		4		5		6+		UNK		TOTAL	
PM:								1		1				1				2								4		6										16			
VEHICLE TYPE					SURFACE					MOVEMENTS																															
Motorcycle/Moped					1 Tractor Trailer					2 Wet					NORTH				SOUTH				EAST				WEST														
13 Passenger Vehicle					Passenger Bus					8 Dry					LF		ST		RT		LF		ST		RT		LF		ST		RT		LF		ST		RT				
Sport Utility Veh					School Bus					Sno/Ice					2		1		1						7		4				1										
Pick-Up Truck					Emergency Veh					Mud																															
2 Trucks (2+3 axles)					4 Other Types					Other																															
PROBABLE CAUSES										COLLISION TYPES										FATAL		INJURY		PROP		TOTAL															
Influence of Drugs										Improper Lane Change										Opposite Dir		Related:		1		1															
Influence of Alcohol										Improper Backing												UnRelated:																			
Influence of Medication										Improper Passing										Rear End		Related:		1		1															
Influence of Combined Subst.										Improper Signal												UnRelated:																			
Physical/Mental Difficulty										Improper Parking										Sideswipe		Related:																			
Fell Asleep/Fainted, etc.										Passenger Interfere/Obstruct.												UnRelated:																			
3 Fail to give full Attention										Illegally in Roadway										Left Turn		Related:																			
Lic. Restr. Non-compliance										Bicycle Violation												UnRelated:																			
Fail to Drive in Single Lane										Clothing Not Visible										Angle		Related:		1		3		4													
Improper Right Turn on Red										Sleet, Hail, Freezing Rain												UnRelated:																			
2 Fail to Yield Right-of-way										Severe Crosswinds										Pedestrian		Related:																			
Fail to Obey Stop Sign										Rain, Snow												UnRelated:																			
Fail to Obey Traffic Signal										Animal										Parked Vehicle		Related:																			
Fail to Obey Other Control										Vision Obstruction												UnRelated:																			
Fail to Keep Right of Center										Vehicle Defect										Other Collision		Related:		1		1															
Fail to Stop for School Bus										Wet												UnRelated:																			
Wrong Way on One Way										Icy or Snow Covered										F Bridge		01																			
Exceeded Speed Limit										Debris or Obstruction										I Building		02																			
Operator Using Cell Phone										Ruts, Holes or Bumps										X Culvert/Ditch		03																			
Stopping in Lane Roadway										Road Under Construction										E Curb		04		1		1															
1 Too Fast for Conditions										Traffic Control Device Inop.										D Guardrail/Barrier		05																			
Followed too Closely										Shoulders Low, Soft or High										O Embankment		06																			
Improper Turn										4 Other or Unknown										B Light Pole		08																			
																				J Sign Pole		09		1		1															
WEATHER										ILLUMINATION										TOTALS																					
8 Clear / Cloudy					5 Day					18-22					10																										
Foggy					1 Dawn/Dusk																																				
Raining					3 Dark - Lights On																																				
Snow / Sleet					Dark - No Lights																																				
2 Other					1 Other																																				

MDOT SHA Crash Data Sheets

H6

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: MD 7A @ LEWIS LN
County: Harford, D4 Period: January 01, 2018 To December 31, 2022

Logmiles: 0.9 At 0 Radius: 250 ft.
Note:

YEAR >>	2018	2019	2020	2021	2022	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	1	0	0	0	0	1
No. Injured	4	0	0	0	0	4
Prop. Damage	0	0	0	0	0	0
Total Crashes	1	0	0	0	0	1
Severity Index	2	0	0	0	0	Avg 0
Opposite Dir.	0	0	0	0	0	0
Rear End	1	0	0	0	0	1
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0
Angle	0	0	0	0	0	0
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	0	0	0
Wet Surface	0	0	0	0	0	0
Alcohol	0	0	0	0	0	0
Intersection	1	0	0	0	0	1
Total Vehicles	3	0	0	0	0	3
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0
Comments:						

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Robert Booker
Date: 01/24/2024

Location: MD 7A @ LEWIS LN
County: Harford, D4 Period: January 1, 2018 To December 31, 2022

Logmiles: 0.9 At 0 Radius: 250 ft.
Note:

SEVERITY		FATAL		INJURY		P-DAMAGE		TOTAL		DAY OF THE WEEK													
Accidents		1		4		1		1		SUN	MON	TUE	WED	THU	FRI	SAT	UNK						
Veh Occ																							
Pedestrian								AVG Severity Index: 0															
MONTH OF THE YEAR													CONDITION		DRIVER		PED						
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal: 2										
													Alcohol:										
													Other:		1								
TIME													VEHICLES INVOLVED PER ACCIDENT										
AM:		12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL	
PM:																							3
VEHICLE TYPE						SURFACE		MOVEMENTS															
Motorcycle/Moped		Tractor Trailer				Wet		NORTH				SOUTH				EAST				WEST			
2	Passenger Vehicle	Passenger Bus				1	Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	2			
	Sport Utility Veh	School Bus				Sno/Ice																	
	Pick-Up Truck	Emergency Veh				Mud																	
	Trucks (2+3 axles)	1 Other Types				Other		OTHER MOVEMENTS 1															
PROBABLE CAUSES								COLLISION TYPES								FATAL INJURY PROP TOTAL							
Influence of Drugs								Improper Lane Change								Opposite Dir Related: 1 1							
Influence of Alcohol								Improper Backing								UnRelated:							
Influence of Medication								Improper Passing								Rear End Related: 1 1							
Influence of Combined Subst.								Improper Signal								UnRelated:							
Physical/Mental Difficulty								Improper Parking								Sideswipe Related: 1 1							
Fell Asleep/Fainted, etc.								Passenger Interefe/Obstruct.								UnRelated:							
Fail to give full Attention								Illegally in Roadway								Left Turn Related: 1 1							
Lic. Restr. Non-compliance								Bicycle Violation								UnRelated:							
Fail to Drive in Single Lane								Clothing Not Visible								Angle Related: 1 1							
Improper Right Turn on Red								Sleet, Hail, Freezing Rain								UnRelated:							
Fail to Yield Right-of-way								Severe Crosswinds								Pedestrian Related: 1 1							
Fail to Obey Stop Sign								Rain, Snow								UnRelated:							
Fail to Obey Traffic Signal								Animal								Parked Vehicle Related: 1 1							
Fail to Obey Other Control								Vision Obstruction								UnRelated:							
Fail to Keep Right of Center								Vehicle Defect								Other Collision Related: 1 1							
Fail to Stop for School Bus								Wet								UnRelated:							
Wrong Way on One Way								Icy or Snow Covered								F	Bridge	01					
Exceeded Speed Limit								Debris or Obstruction								I	Building	02					
Operator Using Cell Phone								Ruts, Holes or Bumps								X	Culvert/Ditch	03					
Stopping in Lane Roadway								Road Under Construction								E	Curb	04					
Too Fast for Conditions								Traffic Control Device Inop.								D	Guardrail/Barrier	05					
Followed too Closely								Shoulders Low, Soft or High								O	Embankment	06					
Improper Turn								1 Other or Unknown								B	Light Pole	08					
																J	Sign Pole	09					
																E	Other Pole	10					
																C	Tree/Shrubby	11					
																T	Contr. Barrier	12					
																S	Crash Attenuator	13					
																Other Fixed Object							
WEATHER				ILLUMINATION				TOTALS															
1 Clear / Cloudy				1 Day				18-22				1											
Foggy				Dawn/Dusk																			
Raining				Dark - Lights On																			
Snow / Sleet				Dark - No Lights																			
Other				Other																			

 MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION	Office of Traffic & Safety Traffic Development & Support Division Crash Analysis Safety Team	Location: <u>MD 7A @ Lewis Ln</u> County: <u>HARFORD</u> Study Period: <u>01/01/2018 to 12/31/2022</u> Analyst: <u>Robert L. Booker, Jr.</u> Date: <u>01/24/2024</u>
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LEWIS LN

MARYLAND
7A





08/20/18-41-3P-D

LEWIS LN

MARYLAND
7A





08/20/18-41-3P-D

LEWIS LN

MARYLAND
7A





08/20/18-41-3P-D

LEWIS LN

MARYLAND
7A





08/20/18-41-3P-D

LEWIS LN

MARYLAND
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08/20/18-41-3P-D

LEWIS LN

MARYLAND
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08/20/18-41-3P-D

LEWIS LN

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08/20/18-41-3P-D

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08/20/18-41-3P-D

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08/20/18-41-3P-D

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08/20/18-41-3P-D

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08/20/18-41-3P-D

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08/20/18-41-3P-D

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08/20/18-41-3P-D

LEWIS LN

MARYLAND
7A



H7

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Arcade Bandeke
Date: 03/13/2024

Location: MD7A @ PENNINGTON AVE. Logmiles: 1.83 At 0.24 Radius: 250 ft.
County: Harford, D4 Period: January 01, 2019 To Approx. December 31, 2023 Note: Year 2023 data is preliminary!

YEAR >>	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	2	0	1	0	0	3
No. Injured	4	0	1	0	0	5
Prop. Damage	0	0	0	0	0	0
Total Crashes	2	0	1	0	0	3
Severity Index	6	0	4	0	0	Avg 2
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	0	0
Angle	1	0	1	0	0	2
Pedestrian	1	0	0	0	0	1
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	2	0	0	0	0	2
Wet Surface	1	0	0	0	0	1
Alcohol	0	0	0	0	0	0
Intersection	2	0	1	0	0	3
Total Vehicles	3	0	2	0	0	5
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0.0	0.0	0.0

Comments:

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Arcade Bandeke
Date: 03/13/2024

Location: MD7A @ PENNINGTON AVE. Logmiles: 1.83 At 0.24 Radius: 250 ft.
County: Harford, D4 Period: January 1, 2019 To Approx. December 31, 2023Note: Year 2023 data is preliminary!

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	SUN	MON	TUE	WED	THU	FRI	SAT	UNK
Accidents		3		3								
Veh Occ		3			1							
Pedestrian		2								2		
AVG Severity Index: 2												

MONTH OF THE YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	CONDITION	DRIVER	PED
									1			2		Normal:	5	
														Alcohol:		
														Other:		

TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT												
AM:														1	2	3	4	5	6+	UNK	TOTAL					
PM:	1						1	1						1	2						5					

VEHICLE TYPE	SURFACE	MOVEMENTS															
Motorcycle/Moped	1 Wet	NORTH				SOUTH				EAST				WEST			
4 Passenger Vehicle	2 Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT	
1 Sport Utility Veh	Sno/Ice	1				1								1 2			
Pick-Up Truck	Mud																
Trucks (2+3 axles)	Other																

PROBABLE CAUSES	COLLISION TYPES	FATAL	INJURY	PROP	TOTAL
Influence of Drugs	Opposite Dir	Related:			
Influence of Alcohol		UnRelated:			
Influence of Medication	Rear End	Related:			
Influence of Combined Subst.		UnRelated:			
Physical/Mental Difficulty	Sideswipe	Related:			
Fell Asleep/Fainted, etc.		UnRelated:			
1 Fail to give full Attention	Left Turn	Related:			
Lic. Restr. Non-compliance		UnRelated:			
Fail to Drive in Single Lane	Angle	Related:	2		2
Fail to Yield Right-of-way		UnRelated:			
Improper Right Turn on Red	Pedestrian	Related:	1		1
Fail to Yield Right-of-way		UnRelated:			
1 Fail to Obey Stop Sign	Parked Vehicle	Related:			
Fail to Obey Traffic Signal		UnRelated:			
Fail to Obey Other Control	Other Collision	Related:			
Fail to Keep Right of Center		UnRelated:			
Fail to Stop for School Bus	F Bridge	01			
Wrong Way on One Way	I Building	02			
Exceeded Speed Limit	X Culvert/Ditch	03			
Operator Using Cell Phone	E Curb	04			
Stopping in Lane Roadway	D Guardrail/Barrier	05			
Too Fast for Conditions	O Embankment	06			
Followed too Closely	B Fence	07			
Improper Turn	B Light Pole	08			
	J Sign Pole	09			
	E Other Pole	10			
	C Tree/Shrubbery	11			
	T Contr. Barrier	12			
	S Crash Attenuator	13			
	Other Fixed Object				

WEATHER	ILLUMINATION	TOTALS
2 Clear / Cloudy	1 Day	19-23 3
Foggy	Dawn/Dusk	
1 Raining	2 Dark - Lights On	
Snow / Sleet	Dark - No Lights	
Other	Other	

MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION
STATE HIGHWAY
ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: MD7A @ PENNINGTON AVE.
County: HARFORD
Study Period: 01/01/2019 to Approx. 12/31/2023
Analyst: ARCADE BANDEKE, EIT Date: 03/13/2024

MARYLAND
7A

PENNINGTON AVE.

12/29/19-11-12P-D

12/27/19-31-6P-D

P

PENNINGTON AVE.

MARYLAND
7A

DATE-SEVERITY-TIME-SURFACE
MIGHT
ALCOHOL
DRUGS

SEVERITY
F - Fatalities
I - Injured
P - Property Damage
Only
SUBSURFACE
D - Dry Surface
W - Wet Surface
I - Icy Surface
S - Slippery Surface

00 - Not Applicable
01 - Bridge or Overpass
02 - Building
03 - Culvert or Ditch
04 - Curb
05 - Guardrail or Barrier
06 - Embankment
07 - Fence
08 - Light Support Pole
09 - Sign Support Pole
10 - Other Pole
11 - Tree Shrubbery
12 - Construction Barrier
13 - Crash Attenuator
99 - Other
99 - Unknown

B - Bicycle
P - Other Pedalcycle
C - Other Conveyance
T - Railway Train
A - Animal
O - Other Object
S - Spilled Cargo
J - Jackknife

U - Units Separated
N - Other Non collision
D - Off Road
R - Downhill Runaway
F - Explosion or Fire
7 - Unknown

U - TURN
BACKING
OVERTURN
Parked Vehicle
Pedestrian

Template 12-14-23

H8

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Study Worksheet Output rev. 10/2017-1

Name: Arcade Bandeke
Date: 03/13/2024

Location: PENNINGTON AVE. @ N. JUNIATA ST.
County: Harford, D4
Period: January 01, 2019 To Approx. December 31, 2023
Logmiles: 0.54 At 0.47 Radius: 250 ft.
Note: Year 2023 data is preliminary !

YEAR >>	2019	2020	2021	2022	2023	Total
Fatal	0	0	0	0	0	0
No. Killed	0	0	0	0	0	0
Injury	0	0	0	0	1	1
No. Injured	0	0	0	0	1	1
Prop. Damage	0	0	0	0	0	0
Total Crashes	0	0	0	0	1	1
Severity Index	0	0	0	0	2	Avg 0
Opposite Dir.	0	0	0	0	0	0
Rear End	0	0	0	0	0	0
Sideswipe	0	0	0	0	0	0
Left Turn	0	0	0	0	1	1
Angle	0	0	0	0	0	0
Pedestrian	0	0	0	0	0	0
Parked Veh.	0	0	0	0	0	0
Fixed Object	0	0	0	0	0	0
Other	0	0	0	0	0	0
U-Turn	0	0	0	0	0	0
Backing	0	0	0	0	0	0
Animal	0	0	0	0	0	0
Railroad	0	0	0	0	0	0
Fire / Expl.	0	0	0	0	0	0
Overturn	0	0	0	0	0	0
Truck Related	0	0	0	0	0	0
Night Time	0	0	0	0	0	0
Wet Surface	0	0	0	0	0	0
Alcohol	0	0	0	0	0	0
Intersection	0	0	0	0	1	1
Total Vehicles	0	0	0	0	2	2
Total Trucks	0	0	0	0	0	0
Truck %	0.0	0.0	0.0	0	0.0	0.0

Comments:

Maryland State Highway Administration
Office of Traffic and Safety - Traffic Development and Support
SHA ADC Summary Output rev. 10/2017-1

Name: Arcade Bandeke
Date: 03/13/2024

Location: PENNINGTON AVE. @ N. JUNIATA ST.
County: Harford, D4
Period: January 1, 2019 To Approx. December 31, 2023
Logmiles: 0.54 At 0.47 Radius: 250 ft.
Note: Year 2023 data is preliminary !

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL
Accidents		1		1
Veh Occ		1		
Pedestrian			AVG Severity Index: 0	

MONTH OF THE YEAR												CONDITION		DRIVER	PED		
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	Normal:	Alcohol:	Other:		
									1							2	

TIME												VEHICLES INVOLVED PER ACCIDENT									
AM:	12	01	02	03	04	05	06	07	08	09	10	11	UNK	1	2	3	4	5	6+	UNK	TOTAL
PM:					1											1					2

VEHICLE TYPE		SURFACE		MOVEMENTS											
Motorcycle/Moped	Tractor Trailer	Wet		NORTH			SOUTH			EAST			WEST		
2 Passenger Vehicle	Passenger Bus	1 Dry		LF	ST	RT	LF	ST	RT	LF	ST	RT	LF	ST	RT
Sport Utility Veh	School Bus	Sno/Ice		1			1								
Pick-Up Truck	Emergency Veh	Mud													
Trucks (2+3 axes)	Other Types	Other													

PROBABLE CAUSES		COLLISION TYPES		FATAL INJURY PROP TOTAL			
Influence of Drugs	Improper Lane Change	Opposite Dir	Related:				
Influence of Alcohol	Improper Backing		UnRelated:				
Influence of Medication	Improper Passing	Rear End	Related:				
Influence of Combined Subst.	Improper Signal		UnRelated:				
Physical/Mental Difficulty	Improper Parking	Sideswipe	Related:				
Fell Asleep/Fainted, etc.	Passenger Interfere/Obstruct.		UnRelated:				
Fail to give full Attention	Illegally in Roadway	Left Turn	Related:		1		1
Lic. Restr. Non-compliance	Bicycle Violation		UnRelated:				
Fail to Drive in Single Lane	Clothing Not Visible	Angle	Related:				
Improper Right Turn on Red	Sleet, Hail, Freezing Rain		UnRelated:				
Fail to Yield Right-of-way	Severe Crosswinds	Pedestrian	Related:				
Fail to Obey Stop Sign	Rain, Snow		UnRelated:				
Fail to Obey Traffic Signal	Animal	Parked Vehicle	Related:				
Fail to Obey Other Control	Vision Obstruction		UnRelated:				
Fail to Keep Right of Center	Vehicle Defect	Other Collision	Related:				
Fail to Stop for School Bus	Wet		UnRelated:				
Wrong Way on One Way	Icy or Snow Covered	F Bridge	01				
Exceeded Speed Limit	Debris or Obstruction	I Building	02				
Operator Using Cell Phone	Ruts, Holes or Bumps	X Culvert/Ditch	03				
Stopping in Lane Roadway	Road Under Construction	E Curb	04				
Too Fast for Conditions	Traffic Control Device Inop.	D Guardrail/Barrier	05				
Followed too Closely	Shoulders Low, Soft or High	Embankment	06				
Improper Turn	1 Other or Unknown	O Fence	07				
		B Light Pole	08				
		J Sign Pole	09				
		E Other Pole	10				
		C Tree/Shrubbery	11				
		T Contr. Barrier	12				
		S Crash Attenuator	13				
		Other Fixed Object					

WEATHER	ILLUMINATION	TOTALS
1 Clear / Cloudy	1 Day	19-23 1
Foggy	Dawn/Dusk	
Raining	Dark - Lights On	
Snow / Sleet	Dark - No Lights	
Other	Other	

DATE-SEVERITY-TIME-SURFACE	SEVERITY	00 - Not Applicable	08 - Light Support Pole	B - Bicycle
NIGHT	F - Fatalities	01 - Bridge or Overpass	09 - Sign Support Pole	P - Other Pedalcycle
ALCOHOL	I - Injured	02 - Building	10 - Other Pole	N - Other Non collision
DRUGS	C - Property Damage	03 - Culvert or Ditch	11 - Tree Shrubbery	T - Railway Train
	O - Only	04 - Curb	12 - Construction Barrier	A - Animal
	SURFACE	05 - Guardrail or Barrier	13 - Crash Attenuator	O - Other Object
	D - Dry Surface	06 - Embankment	88 - Other	S - Spilled Cargo
	W - Wet Surface	07 - Fence	99 - Unknown	J - Jackknife
	I - Icy Surface			
	S - Snowy Surface			

template 12-14-23

W - TURN
BACKING
OVERTURN
Parked Vehicle
Pedestrian

MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION
STATE HIGHWAY
ADMINISTRATION

Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: PENNINGTON AVE. @ N. JUNIATA ST.
County: HARFORD
Study Period: 01/01/2019 to Approx. 12/31/2023
Analyst: ARCADE BANDEKE, EIT Date: 03/13/2024

N. JUNIATA ST.

PENNINGTON AVE.

1001/23-11-AP-D

template 12-14-23

Appendix D Public Input Responses

Aberdeen Survey Responses

Question 9: Are there any other concerns you have regarding safe travel in the City of Aberdeen? Explain.

- I bike from Joppa to Aberdeen along route 40 and take the 715 gate to and from APG. I only do it once a week since it's a far trip and fairly dangerous especially cross the amtrak line with no shoulder present.
 - Again the haphazard way people park and lack of enforcment of parking laws ! Even on shorter streets and on the many courts people are terrible with parking. I mean the crime is not so bad that these quality of life cant be addressed. Its just laziness on the part of all our citizens and officials.
 - Extend walking and biking paths out past Beards Hill to the outlying neighborhoods
 - Trucks parked on single lane roads waiting to get into warehouses causing cars to cross double yellow line to pass them to get through. This creates a high risk of accidents and head on collisions.
- Trucks constantly parked along Rt40, creates hazards for those who need to pull off onto the shoulder.
- Must minimize semi presence as much as possible.
 - Biggest concern is the frequency of illegal parking by tractor trailers on Old Philadelphia road. Now that a truck stop is planned at the roundabout and there's a possibility of more warehouses on that road, development should pause until the infrastructure can be studied and properly brought up to requirements.
 - Tractor trailers on main street
 - Limited sidewalks, unsafe to walk
 - Old Philadelphia Rd needs a traffic solution fast. The truck backups are dangerous. I ride my bike through there for exercise several times a week when weather is warm.
 - The intersection of RT 22 and beards hill at chick filet
 - The amount of speeding back in Perryman especially those going towards the warehouses is bad.
 - Lack of sidewalks and lighting are very real issues along with speeding vehicles.
 - Too many big semi trucks traveling in residential areas
 - The number of tractor trailers and their difficulty with using appropriate truck routes. Also lack of parking for them before getting into their warehouse. It's so unsafe with the high numbers of them just sitting
 - Too many diesel trucks in the city. You have made Aberdeen into a trashy truck stop. They are also parked everywhere. Stop!
 - Tripping & handicap hazzards in town. Tractor trailer traffic in residential areas.
 - Tractor trailers blocking the road, then on rods they don't belong
 - I'M TIRED OF THE DANGEROUS SITUATION ALONG RT 7 IN FROM OF WAREHOUSES WHERE TRUCKS ARE SITTING ALONG THE ROAD, BOTH WAYS TO PULL IN. YOU TAKE YOUR LIFE INTO YOUR OWN HANDS ATTEPTING TO GET AROUND THEM.
 - Too many pedestrians and bicyclists wearing dark clothing and walking in middle of streets at night

- Too many tractor trailers
- West Bel Air Avenue needs lights once you've crossed the Tracks going towards Baltimore street
- Too many trucks and commercial vehicles.
- Connected sidewalks
- Pedestrian travel in my immediate vicinity is atrocious. No sidewalks, illegal 18-wheeler traffic, the threat of far more traffic looming. It's absolutely disgraceful.
- The warehouse traffic on old Philadelphia is horrible. Aberdeen does not carry through. Warehouse should be made to have a staging area for their deliveries. These roads are not made for it. No concern for safety!!!
- 18 wheelers using side roads and going through town
- The amount of trucks and drivers speeding and passing illegally
- I'm concerned about the 132 & Beards Hill intersection. There should be better pedestrian crossing there and when turning left onto beards hill coming from downtown Aberdeen, the sightline is difficult to see if there are cars coming from the shopping plaza. That intersection is frustrating.
- Tractor trailers on W. Bel Air Avenue - can they be routed to Rt. 22?
Speed limit - can it be actively enforced on W. Bel Air Ave?
Unsafe for pedestrians vs vehicles at CSX RR X and at Beards Hill/W. Bel Air Ave.
- There's a new store that opened on Route 40 and Market St next to Immanuel's Beauty Supply. They have signage in the median strip that makes it hard to see oncoming traffic when turning onto 40 from Market St.
- I wish bicyclists would obey all the laws motor vehicles must obey. If they want to share the roads, obey the rules.
- Too many accidents on W Bel Air Ave
- Aberdeen - lisby school Elementary- needs a wider road in front of the school - seems to be very dangerous with cars picking up students and kids walking home.
- Sidewalks inexplicably start and stop at certain blocks. Some blocks inexplicably only have sidewalks on one side of the street.
- Speed is a factor. Also running red lights.
- Aberdeen people drive way to fast on rt 22 by mt Royal Ave
- The speeding of all types of vehicles and large truck blocking intersection site distance
- Aberdeen - rt 40 is a disaster and now you're putting a truck stop there with no direction help for any vehicles. Why would you increase tractor trailer traffic on an already unsafe roadway? Why are tractor trailers CONSTANTLY going through downtown Aberdeen in West Bel Air Avenue? Aberdeen is supposed to be a rural town, NOT a truck dump!
- Long Drive has had an apartment, luxury housing to rent, and a very large new deveopment. Currently there is only 1 speed limit sign closet to Gilbert Road. and the lighting is very poor until you get past Gilbert Road. Walking on Long Drive would not be safe at all.
- SLOW people down! I remember growing up I would not dare go .5 miles over the limit in Aberdeen- now, Tractor Trailers go flying past me at 50 and 60 MPH down Rt.40- however, in the past couple of weeks I have seen people pulled over. THANK YOU Aberdeen Police!!!

- Concerned about the speed of vehicles in residential areas. I have seen them flying through my neighborhood (Aberdeen Avenue) going at least 80 mph at times.
- Traffic Light with better lighting is needed at Carol Ave & Pulaski Hwy. Can be extremely dangerous for cross traffic and at night pedestrian foot traffic is not visible to drivers
- Mainly speeding cars. I try to walk my dog across the street and it seems like they won't stop unless they have too.
- Lane turn offs on Middleton between BelAir Ave. and 22.
- Aberdeen
- There is a lot of foot traffic walking down and crossing 40. There limited lighting to see pedestrians and no sidewalk or barrier. There's also no traffic light at Lidl where lots of cars and people cross and it's a safety issue. I avoid making left hand turns out of my neighborhood because it's so difficult to get out safely especially at the busiest times of day.
- People in Aberdeen seem to drive down the middle of the road rather in their own lane in town. More police on traffic patrol.
- corner of rt40 and carol cars backing out of the stores unsafe for cars coming off of 40
- 22 is a racetrack
- Bike lanes are not safe. I rarely see people using them. I see people walking I. The street when there is a sidewalk.
- Too much policing. I have been personally harassed depending on which car I drive in my own cul de sac.
- People run stop signs in the area between Bel Air Ave and Carol Ave at every cross street
- The intersection at W Bel Air Rita's and Poppa John's. There needs to be a turning signal. There is a blind spot when cars come up the hill. There have been accidents it would be nice to be proactive instead of reactive not waiting for someone to get seriously hurt.
- The light at Beards hill road and W. Bel Air Ave (Rita intersection) Is very dangerous and needs a turning single to turn from W. Bel Air onto Beards hill. No visibility cars coming over the hill. I have witness accidents and complained. I guess they will wait until someone dies or gets seriously hurt. Being proactive and not reactive is a better strategy.
- My teenage son wants to be able to bike to work, but I don't think it's safe on most roads in Aberdeen.
- Lack of sidewalks in the Swan Meadows neighborhood. No space for children to walk to school. They have to walk in the street.
- Chic-Fil-a traffic blocking turn at Rt. 22
- More street lights to see pedestrians at night. Shorter wait times for pedestrians street crossings
- speeding through the neighborhood
- High speeds, lack of adequate lighting for pedestrians in dark, lack of connected or existing sidewalks for students.
- People need to understand yield signs and speed limits
- Safety in and around the Aberdeen Train Station
- Speeds on Hillcrest Ave. speeders taking shortcuts from Mount Royal to Paradise Road Three way stops would help slow drivers down.

Note: I am sure there are other streets with the same issues

- Aberdeen would like to suggest sidewalk from Walmart, all the way to downtown Aberdeen so that people can walk safely a lot of people walk on the road and it is very dangerous
- Rt 40 and pedestrians - there are not enough sidewalks or places to cross safely
- No
- Excessive vehicle speed on Baltimore St between Market St and W Bel Air Ave.
- Too many pedestrians walking and crossing major roads especially Route 40. Also a lot of ones rated people in road ways.

Question 10: Are there any other improvements or specific safety concerns you would like to see in the City of Aberdeen along certain corridors?

- Access to Woodley Rd from 715 has been proposed but delayed numerous times. Perhaps a bike path would be easy to install to connect route 40 to APG without needing to cross the dangerous Amtrak bridge on 715.
- The illegal parking is a major problem that needs to be addressed to make people safer!
- Intersection of 715 where trucks sit is dangerous. Circle at Perryman road going up to Rt40 and to 715 is inadequate infrastructure.
- It would be great to have bike paths that connected continuously, and went to places people frequent, and had pretty scenery throughout. This could accommodate walking too, of course.
- Signage tractor trailers making left onto old philadelphia road and the turning radius has them impacting another lane
- Limit tractor trailers on Perryman peninsula
- Old Philadelphia Rd. Wider or make one way to allow for truck turning lanes without blocking the road. Do not allow anymore warehouses built with intersections into Old Philadelphia Rd. Do not allow access to traffic circle from the illegal truck stop.
- Traffic patterns
- Better lighting at night
- Lighting and sidewalks along Spesutia Road near the grocery store and Perryman Post Office.
- Don't allow the Rutter's to be done. It will cause entirely too many additional Large trucks at an already bad circle.
- Old Post at Rt 22 the 2 turn lanes. I know it is for buses and trucks but cars turn from the far right lane and speed up to cut off other drivers before the lane ends. There is going to be a major accident eventually.
- Too many big trucks on Philadelphia road
- The road behind walmart needs significant attention. There's no sidewalks but many walk/bike along with the tractor trailers &

regular traffic its a nightmare. And now with the new rutters going in, traffic will be even higher & unsafe

- Old Philadelphia Rd. was once restricted for truck traffic but once Aberdeen approved a new warehouse the signs were removed. Now people walk along the same road that diesels speed down. SIDEWALKS!!!!!!
- Improved road and lane painting on road surfaces- hard to see, confusion leads to accidents. shade tree plantings to reduce the heat reflected/retained by the roadways.
- Need height restriction monitoring on roads that tractor trailers don't belong. Speed monitoring in rt 40 and nighttime lighting of businesses along rt 40 need to be reduced
- FIX THE PROBLEM OF TRUCKS ON RT7 BY AMAZON AND CSC AND THIS IS GOING TO GET WORSE WHEN FANATICS FULLY OPEN .
- Safer crosswalks along route 40. And or skywalks
Better lighting along route 40 corridor.
- Train station
- Fix your roads
- More connected green public spaces. Not pocket parks but parks with connecting trails.
- Just care about all citizens for a change.
- Old Philadelphia. It's on the city limits and no one has showed any concern. Cops have been out, how many tickets were issued. I asked the mayor, no response!!
- Old Philadelphia Road needs major improvements and better enforcement of trucks blocking roads
- Safety
- Better lighting on RT 22 between Post Road and RT40 overpass.
- Traffic congestion at Chic-fil-A
Entering all businesses on Beards Hill Road for north bound traffic. Challenge to enter McDonalds/Walgreens, Olive Garden, Saxon Jewelers areas
- Please Blacktop Shirley Dr. Its been a long, long time.
- I believe more sidewalks throughout the neighborhoods are needed for pedestrians and drivers.
- Put a traffic circle at West Bel Air and Beard's Hill Rd at Rita's and 7-11 that intersection is dangerous. I also suggest a traffic circle at Middleton Rd and West Bel Air.
- Aberdeen. See 9
- Roundabouts in certain intersections such as the entrance of Beards Hill Plaza and Beards Hill Rd would prevent a lot of issues.
- More sidewalks
- Aberdeen. The intersection of Paradise & Beards Hill Rd is dangerous & needs a light, round about our three way stop.
- Aberdeen

- Designate truck routes and add overheight detectors to West Bel Air Ave to keep tracktor trailers off this road
- Aberdeen rt 40 is a mess, the intersection at old Philadelphia and 40 near TB3 is a death trap, Old Philadelphia Rd bears repaired and policed for illegal truck parking. NOTHING has been done to address this in years
- listen to what Stacy Stone of 3P says. She has got the best interest of the community at heart and the knowledge to see the big picture!
- See answer to previous question.
- Traffic Light with better lighting is needed at Carol Ave & Pulaski Hwy. Can be extremely dangerous for cross traffic and at night pedestrian foot traffic is not visible to drivers
- Better lightning
- Monitor pending congestion from new housing complex on Beards Hill Rd. to the intersections along 22.
- Aberdeen
- Route 40 between the train station and Walmart needs to be addressed. There have been so many accidents and people who have been seriously injured or killed in that stretch of road. We need more stop lights and separation of the road for pedestrians to walk safely to the grocery stores and other businesses.
- At the intersection of Farm Rd & Mt. Royal Ave drivers DO NOT Stop at the stop sign! My wife & I have been almost hit several times. Maybe a speed bump might help.
- neighborhoods with no sidewalks (Hillsdale)should have sidewalks put in to not have to walk in the street.
- People on bikes do not follow traffic laws. They blow through stop signs nearly causing them to get hit. Many times have I stopped at a stop sign and watched this happen from traffic coming the other way.
- Too many potholes and poorly repaired opening in the streets. Also, the streets are too poorly lit. This creates very unsafe walking and driving conditions.
- Drivers speed along Edmund Street including in front of the school.
- Parking on the street in my cul de sac. Everyone has a driveway but park cars on the road this limits cars from coming and going because the road isn't that big.
- Parking in my cul de sac William Powell Ct. Cars park on the road which narrows the road and creates havoc. All homes have driveways there is no reason to park on the street.
- More dedicated bike lanes.
- Sidewalks along Rt 40 to allow for pedestrians to access the businesses without needing car
- Sidewalks in Swan Meadows for the children who attend school.
- More police presence in neighborhoods l.e. drive through

- Lower speed limit on Bush Chapel and Stepney before the stop sign
- Along Rt 40 better lighting and control traffic light for pedestrians to cross
- stoplight needed at belair ave and middleton road
- Many of our community members don't have cars and have limited access to jobs, groceries, laundry, public buildings because are is not well served by public transit and not safe for walking..especially on the route 40 corridor Pedestrian crosswalks on west

Bel air ave especially near future activity center

- Clearer road markings for pedestrians
- Safety in and around the Aberdeen Train Station
- Ice covering intersection on the streets of Hillcrest, such as both ends of Wye Dr, Holiday Dr etc.
- Aberdeen would like to suggest more streetlight all the way up to Walmart. That way the whole city of Aberdeen has lights that way pick up people can walk safely at night.
- Maybe better lighting in certain neighborhoods
- Excessive vehicle speed on Baltimore St between Market St and W Bel Air Ave could be mitigated with a speed control hump between Market St and Custis St
- Yes Route 40 needs safer areas to cross. Slower traffic through the town. The intersection at beards hill road and KFC/super 8 is so dangerous. You can not see around cars in the turn lane.

Question 11: What characteristics about your community do you find unique that can be reflected in the proposed improvements?

- Low crime which should mean more police on the streets for all quality of life issues.
- Tree lined sidewalks, walkway skybridges over roads
- Characteristics of our community are being destroyed by all the development
- Aberdeen has a lot of community and social service facilities. I wonder if improvements can help boost public awareness of-or ease access to- these services. That is, can improvements be shaped by how the community will use the space, making life just a little more pleasant, and more safe and navigable, for people who go into town to engage with the community services? And in return, could improvements include structures to inform the community about available services and resources?
- Walkable downtown support local business
- Quiet, safe neighborhood where neighbors interact often

- Make more community friendly for retail business and neighborhoods and pedestrians and less Industrial businesses oriented.
- A short complete walk through the entire town.
- The “community” feeling that already exists in the Aberdeen/ Perryman Peninsula and would be a great improvement to encourage even more community interactions with the addition of more lighting and sidewalks along the roads.
- I live on the peninsula and if Aberdeen would stop attracting only truck dependent development then our access to our homes would be safer.
- We are a small town, rural county, hometown — but our actual town feels/ looks like one big truck stop plaza. Some trees and respect for land not already paved over would be nice.
- Peaceful, dark, good people
- Historical preservationno
- My sun development has sidewalks. It makes a big difference for families with small children, older residents and our Pets.
- I love the small businesses and how the community supports them. Would love to see more small local owned businesses
- We are an isolated peninsula, but we should still be treated the same as larger cities.
- No more warehouses and trucks in Perryman
- The school zone area connected to the historic area - from CSX RR tracks to the 700 block of W. Bel Air Ave - lends itself to slowing down the traffic and limiting large vehicles. Detour the tractor trailers, large commercial trucks, etc away from this area for safety of school traffic and to promote historic area.
- All things are close by
- Aberdeen is has a train station. it is unique and an upgrade is needed
- slower speed, and better lighting for everyone.
- The beautiful historic train stop! Beautify that and put some love into it! Unique venue for so much - if nothing else it will be a draw to others if done right!
Another unique characteristic is the horrible traffic on Old Philadelphia Road- It MUST be controlled and improved BEFORE the Rutters goes in!
- None
- The train station is a huge unique factor of the town and should be more accessible. The park is also a great attraction that could bring people in more. With the new hospital that was built we need to make sure travelers taking the train to work or bus can walk or bike safely. Main Street is also unique and should be highlighted however there are lots of businesses on 40 that have been neglected for town improvement.

- There are no sidewalks and we need some to prevent pedestrian accidents by walking in the street.
- elder & disabled population
- I don't. Bike lanes are wasted use of limited road space.
- Aberdeen is fairly quiet and can be very relaxing. This is a plus. Keep it that way.
- Hall's Cross Roads neighborhood is a walking community. However, we lack sidewalks and safe crossing paths. It is dangerous for our students who are 60% walkers.
- The circle in the the round to help control and slow down the flow of traffic
- glad we do not have HOA to deal with
- More thought into what families living in section 8 housing or homeless shelter need to access basic needs: food, employment, Health care. Many residents don't have cars but community does not have infrastructure to support walking and biking and public transport runs limited hours/days.
- Provide additional walkable area even to focus on different areas to encourage pedestrian access
- A sidewalk on Route 22, south side of road from Paradise Road to Route 40, or at least to Mount Royal.
- A lot of community members like walking in the evening it would be very nice to see a safe sidewalk. That way people can walk in the evening.
- Good lighting and sidewalks
- Keep character/feel of existing improvements and carry them throughout

Question 12: Are there any transportation facilities in Aberdeen that you wish there were more of or that you really enjoy?

- I've biked on route 22 a few times and it's considerably more pleasant due to more separation from cars and proper shoulders when crossing bridges.
- Parking, Parking, Parking.
- Sidewalks designed for bikes with a minimum of bumps and sharp turns
- Needs to be less
- A cosmetic idea: the old train station is a beautiful feature of the town. As renovations do/don't proceed, could any other improvements in Aberdeen incorporate any artistic design elements from that train station to showcase the "coolness" of that part of Aberdeen? For example, could a bus stop mimic any stylistic features of the train station? It would add so much charm and bring out more pride of place.
- I wish that the trains would stop in Aberdeen more often on weekends.

- Bus shelters in Perryman.
- Better bus stops. i.e. not directly at intersections or provide a pull off area for the bus to avoid traffic back ups
- Less truck stops and less truck parking. More sidewalks. You have a lot of pedestrians in your city and you need to protect them.
- Bike awareness and safety would help improve walkability at areas if interest. Bike to area, lock up bike- hang out at library coffee, etc. then bike home.
- NO DON'T ADD ANY MORE TRANSPORTATION FACILITIES THE ROADS ARE ALREADY TOO CLOGGED WITH TRACTOR TRAILOR TRAFFIC, IT IS UNSAFE AND COMPLETELY UNACCEPTABLE FOR CITIZENS THAT HAVE TO DRIVE THESE ROADS,
- Bus shelters, more transit connectivity
- Biking trails that are safe
- Covered bus stops in Perryman for those that need them.
- More bike paths and recreation areas
- I think it would be cool to have some bike rental options maybe through the library.
- Appreciate the beautification of the commuter train station area and the efforts to make it safer for travelers to access. Happy to see the freight train station getting a makeover.
- I'm interested in the Aberdeen to Havre de Grace connection if it is physically separated from Rte 40.
- I use the train station a lot. I would like to see it updated and more accessible to those who can't take the stairs. That old ramp that's three stories tall is not efficient and is a barrier to accessing the service. There also could be better facilities for our buses particularly for those who have to wait. Not every stop has a place to sit and protect people from the weather. Some are very close to the road increasing the risk to be hit. We can do better for those who take the bus regularly. There should also be side walks to get to the bus stop. If you expect people to walk there then it needs to be safe.
- subway station should be renovated, the scooters around town
- weekend service
- Increased times of operation and greater frequency for public transportation.
- The county bus needs to run later. Families who work second shift cannot get home from their jobs and they cannot get home from Harford Community College after taking high education courses.
- Extend bus routes and install covering at the stops for pedestrians. Lots of senior citizens use this service and are exposed to the elements while waiting for the buses.
- Yes the train but with adequate lighting.
- Make more rides available to seniors for free
- Safe bike lanes between Abingdon and havre de grace using route 40.
- Shuttle between downtown, Ripken stadium, hotels and restaurants to take advantage of visitors to the City and reduce perception of parking shortages
- Bus shelters
- more MARC trains throughout the day to get into Baltimore and DC
- The train station / food truck park (never used for activites!!!)

Bel Air Survey Responses

Question 9: Are there any other concerns you have regarding safe travel in Bel Air? Explain.

- There are missing gaps in sideways. In some areas the sidewalks are just not there.
- On the north side of George Street the sidewalk ends after Western Alley. Why is there no sidewalk.
- Also street lighting needs to be added on William Street between Alice Ann and Thomas.
- I saw new graffiti on Spartan Flooring. I bet that happened at night and was facilitated by the lack of lighting.
- I am a frequent runner/walker in the Southampton neighborhood of 543 and there arent consistent sidewalks, or walkway crossings. It creates a dangerous environment for those who live in the neighborhood an are looking for excersize, many elderly walkers are forced to walk along 543 because they cannot cross. Neighborhoods are sidewalk isolated.
- B4 Moore's Mill at Hickoy Ave needs to be improved
- I'm pretty sure the law is you must yield to pedestrians but no one EVER stops at the crosswalks on Bond and Main streets. It is extremely unsafe.
- One thing which has been a great concern of mine since buying a house here in 2021 is the overall lack and enforcement of pedestrian safety in the town of Bel Air. The number one reason I bought my house in Bel Air is because I can walk to stores and restaurants on Main Street, it was one of the biggest things I miss about the town I grew up in. However, I am finding it increasingly dangerous to simply cross the street due to motor vehicles not stopping for pedestrians in designated crosswalks. Drivers in this town constantly violate Maryland Code Transportation Title 21 - Vehicle Laws -- Rules of the Road Subtitle 5 - Pedestrians' Rights and Rules § 21-502: Pedestrians' right-of-way in crosswalks. This occurs all around town constantly, but I find it most prominent when I walk to ShopRite from my house. This route causes me to cross Main Street at Gordon Street. There is a clear crosswalk here across Main Street in both directions, however drivers never seem to adhere to pedestrians. Even worse when one lane finally stops and cars continue to pass in the other drivers appear to be confused why traffic is stopped in the one lane. On several occasions vehicles have moved around the stopped cars on Main Street and my wife and I have almost been hit because they do not follow the law of stopping for pedestrians.
- Cars can sometimes go fast on Broadway
- Too many apartments are being built in this area and we already have a traffic problem, what is going to happen once all these buildings are done, the streets can't be expanded. The Town and County are ruining this community, stop the developers from building and we won't have a need for a traffic/pedestrian study that will just waste tax payer grant money! So far, the stupidest road improvement you have made is W Gordon & Bond at the gas station. Let's narrow the road and make it difficult for cars turning right onto Bond to manipulate that turn while cars are flying over the hill in front of Harford Mutual, NOT YOUR BEST IDEA!!! Also, the traffic light at Bond and Pennsylvania Ave needs upgrading, it's NOT as bright as other traffic lights near by and it blends in with the scenery. People are running that light daily and a simple upgrade to the brightness of that light, along with tree trimming will fix the problem. We don't need a wasteful study to figure this out, get off your office chair and look around, maybe drive down the roads between 4-6pm. Watch the traffic continuously flow on Rock Spring Rd, it's NEVER ENDING, and you want more apartments?!!!! People who have chosen to live her

- ALL their lives are fed up with the BS. You are going to drive out those community members; oh wait, perhaps that is what you intended all along! WE DON'T WANT THIS UNNECESSARY GROWTH THAT SPARKS A NEED FOR A PEDESTRIAN/BIKER/TRANSPORTATION STUDY. FIX THE INTERSECTIONS, BRIGHTEN THE TRAFFIC LIGHTS, SLOW DOWN THE TRAFFIC ON ROCK SPRING AND DON'T EXPAND THE COMMUNITY BY BUILDING MORE APARTMENTS THAT ARE GOING TO MAKE IT ALL WORSE!
- "Speed of vehicles Increased numbers of vehicles"
 - Drivers are unaware of pedestrian crossing spots. Specifically on Main Street coming from Lee street. A flashing crosswalk light should be there. Overall there are way too many cars driving through Main Street as a cut through.
 - None
 - "The crossing near the surf shop/ elementary school at E Lee and Main is extremely bad due to lack of visibility and driver speed. The W Lee and N Bond intersection is not on the list of intersections to be studied, but it is a difficult place to cross despite there being a cross walk. This is due to driver speed / unwillingness to stop for pedestrians.
 - Question #6 only allows one response but safer crossings and slower car speeds go hand in hand for all non controlled crossings.
 - "
 - I walk my kids to and from school everyday and almost no cars stop for us, despite us being in clearly marked crosswalks. Cars are often speeding and unaware of pedestrians.
 - "Driver attention to pedestrians More cell phone tickets or maybe cell phone free designations "
 - The crosswalk crossing Bond at Courtland St. needs to be removed. There is a crosswalk on the other side of Thomas, that has a traffic light as well as a pedestrian crossing light. The crosswalk at Courtland street has neither, and is a daily issue. A woman was struck and killed a few years back, and I see close calls on a daily basis. There are 3 lanes of traffic. Often one car will stop to let someone on the sidewalk enter the crosswalk (which they should not do in the first place), but the pedestrian is hidden by the stopped car. Cars travelling in the other 2 lanes do not see the pedestrian, mistake the stopped car for a car turning into the Bond Thomas lot, and end up hitting the person as they step into the second lane of traffic. No bueno...
 - Yes, when there is a rain storm the water that crosses hickory Ave is ankle high and you get the spray from cars at the crosswalk area. Also, could you please have the side walks clear on the Pennsylvania side better.
 - Have the police enforce the laws. People will see others being stopped and modify their behavior.
- Sidewalks along W Gordon st need repair and also need to be extended to the Lirio entrance to get people out of the middle of W Gordon street where cars are parked on either side of the road and vehicles therefore have to weave in between.
- Only signal timing to improve flow of traffic
 - Drivers don't understand what the rules are about crosswalks that are not at traffic lights.
 - safety for our elementary school students and families - back and forth to school. Especially at Gordon and Main St
 - Ma & Pa Crossing

- "Yes. Even though I cycle regularly on rail trails as a form of exercise, I do not ride my bike on the roads of Harford County because I do not feel safe. Note that it takes about one hour to drive to a rail trail, which is kind of silly if you think about it - drive one hour to use a bike. I would prefer to have a cycling

- Traffic speed on both Main and Bond are too fast for pedestrians.
- Drivers do not look or wait for pedestrians crossing when making left-hand turns. Many people in our Bel Air Library Branch have been hit or almost hit trying to cross Hickory Avenue to get to the parking garage.
- Cars taking pedestrian right of way.
- Narrow streets in town, very nervous driving down the road with pedestrians and parked/parking cars on Main Street.
- We need more lighting in lots.
- There's just too many people/cars to make walking or biking safe in Bel Air. The roads aren't set up for safe bike travel, and drivers are not aware enough to make any sort of travel without a vehicle safe.
- Traffic does not stop for pedestrians in crosswalks that are not at signals. Several crosswalks are by one-way streets, and turning cars don't look for pedestrians.
- People completely ignore existing traffic laws. The PD does not enforce those laws (not to mention not stopping THEMSELVES). You cannot solve this by putting up lights. We need enforcement on Lee Way and throughout Majors Choice. People are regularly traveling in excess of 40mph in 25mph zones with kids around. It's ignorant, and they deserve tickets.
- Crosswalk Lee St & Main St need crosswalk light.
- Thank you for looking into the safety of walkers, bike riders, and car drivers.
- Drivers don't stop for pedestrians in the crosswalks, especially by the Bel Air Library.
- Constantly almost getting hit when crossing the road. I work at the library and worry about crossing the road to get to the garage because of how people drive.
- In addition to the short crossing time at the Hickory/Pennsylvania Ave. intersection, visibility is poor at the Hickory/Lee intersection due to the placement of the HarCo FCU sign. Drivers also take this road far too fast.
- The intersection of East Gordon Street and Main Street needs to be redone. Many people on Gordon Street still try to cross Main Street to make a left turn or to get onto West Gordon Street. This makes it very hazardous when you're on Main Street, especially if you're trying to turn on East Gordon Street.
- There needs to be more prominent (noticeable) signage for motor vehicle drivers to slow down and share the roads in town with pedestrians and bicyclists. This will also benefit handicapped travelers.
- Overcrowding, too many vehicles.
- Speeding through neighborhoods.
- Not enough police presence to prevent people speeding and running stop signs. My daughter was almost hit yesterday in a crosswalk.
- Lack of regular public transit to help those without personal vehicles and reduce vehicles on the roads.
- I have almost been hit while a car stopped at the crosswalk and car2 went around them on the left side and could have hit me.

- Traffic calming measures.
- Parking on Main Street should be removed or completely revamped as it could lead to serious impacts. Remove pedestrian interactions with vehicles. Emergency vehicles struggle to get through town with excess traffic buildup.
- Enforcing laws for pedestrian crosswalks.
- Very poor driver behavior. Not stopping for stop signs, not stopping for marked crosswalks, very excessive speeds, running red lights.
- We do not want bike lanes. They are horrible.
- I use the intersection at the corner of Pennsylvania and Hickory daily as I work at the library and park in the parking garage. This intersection is extremely dangerous as cars turn without waiting for pedestrians in the crosswalk. I personally have almost been hit several times over the years. The light needs a turn light, or the walk signal needs to be lengthened. It is especially dangerous at dusk. With the impending apartment complex to be built this year, I fear there will be more "almost misses."
- I would love to bicycle more but need space from cars and dedicated bicycle lanes. I was hit by a car while bicycling years ago and believe that Harford County drivers are generally not considerate of anyone who is not in a vehicle in the road.
- Cars running red lights.
- Speeding is a big problem, and not just in the regular speed-trap locations. There seems to be a distinct lack of enforcement, and there are a lot of folks who have become accustomed to aggressive driving and following too closely. But aside from that, it is pretty tough to get to Bel Air from even a half mile away without going on some really busy roads. Kids should be able to get around on bikes, but that's generally unsafe. There are no sort of back roads for bikes. Traffic is too fast.
- Heavy traffic is routed through areas that should be pedestrian-focused, such as downtown. This discourages walking and is dangerous.
- Sidewalks are terrible.
- People don't pay attention when everything is painted white. Bike lanes and crosswalks need to be marked a different color, especially when they cross intersections.
- As a family of four who all live, work, and go to school within the town limits, pedestrian safety is paramount. I personally almost get hit in my vehicle and/or while walking weekly, especially at the end of our street (Gordon & Bond/Main, by the Gas & Go). We have chosen to live in town all of our adult lives to ensure we can walk to school/work/recreational activities. There has been a significant negative change over the last 15 years when it comes to pedestrian safety.
- The Ma and Pa trail crossings on 924 and Moores Mill Rd are dangerous. Drivers speed and don't stop for pedestrians.
- Biking is a hazard everywhere. It would be nice to bike from Bel Air to Rocks State Park or from any park like Emily Bayless Park and go along Churchville Rd, but you rarely see bikes (except for the 1 big biking group from Bel Air Athletic Club) because it's too dangerous. Route 23 is a nice 6-mile stretch for biking to go back & forth from Jarrettsville to Forest Hill but I would never do it because the speed limit is 50, cars go 70, and I'm fearful I'll get hit. It's a commuter road to get to Hunt Valley and northern Baltimore County.

- Drivers not stopping for pedestrians in crosswalks. Also, pedestrians not using sidewalks when available.
- There is no sidewalk or sufficient shoulder from Vale Rd to downtown Bel Air on Rockspring Ave, which is extremely dangerous. The shoulder is not even wide enough to walk down. Pedestrians shouldn't be robbed of efficient access to downtown. Getting clipped while walking to downtown by cars should not be what pedestrians need to deal with.
- Traffic has increased, and there is a large influx of apartments and townhouse builds that the infrastructure is not built to handle on 2-lane roads.
- Driving around the Library is horrible and unsafe. Also, Hickory Ave/Courtland Street intersection.
- The speed and amount of traffic using the Howard Park neighborhood as a cut-through to avoid downtown. The traffic studies done here in the last few years were horribly skewed by placement of the speed detectors.
- The intersection at Hickory and Pennsylvania is very unsafe for pedestrians. I was hit by a truck and shattered my wrist and have almost been hit several times by people who were turning. I would love a four-way stop (all directions red) for safe crossing. Many families use this intersection to access the library.
- Excessive volume of traffic around Harford Mall prior to expected apartments being planned.
- Driving north through downtown and having parked cars very close to the travel lanes, especially when people are trying to get into and out of their parked on the roadside.
- Lack of safe turning lanes for left-hand turns on major thruways.
- More crosswalks.
- Speeds of cars on side streets.
- Cars rarely yield for pedestrians, including police vehicles. I have witnessed accidents where a car has stopped but those behind do not.
- With the parking and pedestrian business traffic along the shopping area of Main and Bond streets, I don't think we should be encouraging biking down these areas. When walking in town, we are often getting run off the sidewalk because people are riding their bikes or skateboards down the sidewalk. That along with restaurants trying to have outdoor seating, etc., it becomes a challenge to navigate sometimes.
- Crime has increased due to poor planning decisions.
- Fast car speeds.
- Many sidewalks in Bel Air, especially those on state-maintained roads (with the exception of Main Street), hug the curb directly, with no buffer between pedestrians and vehicular traffic. This can lead to a feeling of vulnerability for other users. This is especially noticeable in winter when snow plowed from the roads often blocks these sidewalks. The design of many roads in Bel Air appears to prioritize the quick movement of vehicles through the area over the needs of other users.
- People don't stop when kids going to school are in the crosswalk. Cars will go around parked cars.
- Speed of traffic.
- SHA roads through town require SHA action when problems are identified. It is a slow cumbersome process to effect change.

- Residents park on narrow streets effectively making them one lane.
- Too many cars use Main Street as their commute and are rushing home. Pedestrian safety not considered. Harford County has always been a driving county. Hard to get into the pedestrian mindset.
- Driver behavior has become more aggressive (running red lights, speeding, not stopping for right turn on red light, no use of turn signals, etc.).
- I walk more often than I drive. Walking in Bel Air is scary. The nearest crosswalk to my house is the place I most often feel unsafe. It's at a light and drivers turning left and right don't look and I've nearly gotten hit so often that now I jaywalk further up the street.
- Check the pedestrian walk signs on each corner. Some have not been working for over 6 months.
- Double-parked vehicles blocking the street.
- All crosswalks on Main and Bond Streets need the flashing crosswalk signs like on the trail crossings. In the dark, you can't always see the people by the courthouse crosswalks. Also, the light by the fire station is a real problem for those going across Churchville road towards Maitland. The fire station side has a straight and right turn lane while the other side has a straight and left turn lane. The left turners consistently pull out in front of the straight and right turn people believing they have the right of way. Every day it's a near miss here.
- I would like a sidewalk from the intersection of Rock Spring Rd and Vale/Moores Mill Rd into Bel Air. And a crosswalk across Rock Spring road to connect the sidewalks to the Ma & Pa trail.
- Pedestrians have to rely on drivers to stop at crosswalks. While driving through downtown, it's difficult to see pedestrians. There should be a flashing light, similar to what colleges use, to alert drivers to stop for pedestrians.
- I live near the corner of Henderson and Conowingo. The traffic there is bad I have stopped driving through that intersection. There have been numerous accidents there. Cars often do not signal their intention. It is dangerous. A few years ago I requested a traffic study. I was told a light is not needed.
- At crosswalks, snow is not removed from the road pedestrian crossing interface with the sidewalk.
- Traffic moves well in excess of speed limits. Drivers do not honor pedestrians in crosswalks.

Question 10: Are there any other improvements or specific safety concerns you would like to see Bel Air along certain corridors?

- Dedicated bike lanes along main roads, such as Main Street, Bond Street, and Hickory Avenue, would be extremely helpful, so cyclists and pedestrians do not have to share the sidewalks.
- Kids riding their bikes, both motorized and pedal.
- I think red light cameras should be on every light. I wish the technology could support putting STOP sign cameras on every STOP sign.
- Sidewalks and street crossings.
- Yes. There should be flashing lights installed in the crosswalks on Main and Bond streets.
- Flashing crosswalk lights are an absolute must on Main Street where there isn't a stoplight. Especially when there are two lanes headed towards Broadway street. These were employed in the town where I went to college and the dramatic increase in car stoppages and pedestrians not being hit was astounding, especially

at night. Better bike safety, as there isn't enough dedicated bike lanes in the town. Usually end up on the sidewalk in most areas because cars do not share the road.

- The intersection at Shamrock and Churchville can feel unsafe. It would be great to incorporate some pedestrian crossing to provide access to the park.
- As stated in the previous answer, as well as DO NOT ADD BIKE LANES LIKE BALTO CITY IS DOING!
- Rt. 22 at Lee and Shamrock and left turns. It's very dangerous.
- Set up emergency call boxes at the playgrounds that would alert police immediately in case of emergency.
- Parked cars along Williams Street across the street from Catherine Street make the road very narrow for turning and passing cars. There is also a school bus stop there where kids can't cross because of the parked cars on Williams Street.
- Macphail Road needs to connect all the way to Main St and the walk don't walk sign should be there at that intersection. It currently goes to Edgehill Road and stops. Make it safe for people in Homestead Village and nearby neighborhoods to walk to school or to the stores that require crossing Main St.
- The worst crossings in town are the non-light controlled crossings on Main and Bond, particularly north of Pennsylvania due higher speeds drivers reach due to no lights Broadway and Pennsylvania.
- In general high-speed through traffic should be discouraged from Main/Broad between Broadway and Rt 1 by lowering the possible speeds with things like lights, bulb-outs, lane narrowing, etc. The downtown core should be a destination not a place people drive through w/o stopping.
- Walking kids to/from Bel Air Elementary, specifically from the area that is west of Bond Street is really difficult due to cars not stopping for pedestrians in the crosswalk.
- Need to get rid of the ugly concrete barriers at Bond Street and Churchville Rd.
- Designated free parking spots.
- In the parking garage please stop allowing people to park in reserved spots that do not work for the company. You have everyone's tag number that works for the library.
- Enforce the speed limit through town and on the side streets.
- Better lighting on cross streets.
- Public safety all around. Traffic safety- speed. Gordon/Bond & Main St is my main concern. Student crossing for schools. Hispanic community on bikes at intersection. General public crossing.
- This is outside of Bel Air, but the I-95 corridor in Harford County has become very dangerous, with ongoing construction, tight lanes, and high speeds. I try to avoid it if I can, and I am the type of person who is usually comfortable on highways.
- Also, overdevelopment is causing a lot of congestion on roadways, making them less safe. Preservation of farmland and woodlands would prevent the congestion issues. The zoning board should act accordingly.
- The intersection of Hickory and Pennsylvania is woefully dangerous for pedestrians. The amount of time allowed for a pedestrian to cross is too short and vehicle speed is too high.

- I would like to see bikes discouraged on Route 543. The bikes create traffic chaos in places where there is no shoulder.

- Better surfacing of roads.
- Signs for pedestrians. Some people don't stop before crossing at a crosswalk because they believe they have the right of way. Maybe a warning sign at crosswalks, or the proper etiquette for using a crosswalk.
- Directionality signs to different establishments on and off Main Street.
- All of Route 1 through Bel Air is difficult to navigate, even with a car.
- Slowing traffic downtown. Traffic at lights on Baltimore Pike from 24 intersections to Atwood. Left turn lanes don't seem adequate at lights that are close together and traffic gets congested.
- The crosswalk guards at BAES should stay later than they do in the afternoon. They are lovely, but they are regularly gone before we make it to the walk after pickup and we do not dillydally.
- Added street light on west Pa Ave by Wells Fargo.
- Storm drainage at all four corners of Hickory and Pennsylvania Avenues. In bad weather it is impossible to cross from the parking garage to the library or back without going through inches of water that isn't draining efficiently.
- FIX THE POTHOLES.
- Not unless we can keep people from driving like idiots.
- The crosswalk needs to be repainted by the Hickory parking garage. Repaving removed half, and the work vehicle traffic faded the paint on the other side of the road.
- The crossing light for the MA & PA trail in front of the Brewery on Main Street needs to be redesigned. Pedestrians don't always push the button. Drivers, many times, don't see the warning lights, or see them too late. Drivers don't slow down. It is one of the most dangerous crosswalks in Bel Air, in my opinion.
- The crossing at the end of Bond Street crossing over RT. 1 - there should be a red right turn arrow for cars turning right onto Rt. 1 when the pedestrian light is on to cross Rt. 1. Also, the timing of the traffic light when turning left on Rt. 1 to 24 is too long because the green light to traffic going straight towards downtown Bel Air on Rt. 1 turns green when cars are still turning in the middle of the intersection.
- CROSSING BALTIMORE PIKE FROM THE HIGH SCHOOL TO THE S KELLY AVE AREA IS VERY DANGEROUS FOR STUDENTS THAT MAY CROSS OVER TO CFA OR THAT SIDE OF THE SHOPPING PLAZA.
- There are no police officers behind Bel Air Elementary or at the crosswalk at Broadway coming from the school. There should at least be lights there to warn drivers. Little kids have to walk a mile home and it's dangerous!
- Better crossing for walking students to HWES, BAMS, and BAHS across 924 and proposed MacPhail road. Better parking methods?
- Install a pedestrian crossing over both directions of E Churchville Rd, to be located between S Shamrock Rd and the parking lot entrance/exit to/from Rockfield Park. This will allow safe pedestrian access to Rockfield Manor and Rockfield Park for persons coming from the north side of Bel Air. Currently the only pedestrian crossings over E. Churchville Rd to Rockfield Manor/Park are located at Main St. and Fulford Avenue and at John Carroll High School (a distance of over 0.75 miles).

- Install additional vehicle speed reduction devices on E Broadway between N. Hickory Avenue and Ardmore Way.
- Main street Saturday nights speeding vehicles (people leaving bars) they have contests who can drive the fastest down main street. Also, Crosswalk at Hickory and Courtland...unsafe.
- I think we would benefit from more flashing crosswalks similar to what is in place in front of Independent brewery for the Ma and Pa trail. I would love to see that at Gordon St and BondSt./Main St. It is rare for people to stop even when you are standing there waiting. Signage about stopping for pedestrians in the crosswalk would be helpful as well. These can be done attractively. They could be placed near each of the proposed intersections.
- Visible police presence at Main and Office Street Ped X Crossing lunch hours and evening rush hour.
- Have a Bel Air loop for the through traffic as most of the traffic is just trying to get through or around the main street area.
- More separation between sidewalks and the streets.
- Speed limits along Bond Street and Main Street need to be enforced.
- Close sidewalk gaps. Enforce traffic signals and signage (I was hit by someone who ran a stop sign). Raise awareness and improve culture for bicycling.
- 924 between Ring Factory and the town is way too fast, especially where it drops down to 30. Both directions. I live on Idlewild Street. It is not uncommon for people to speed there. And there are homes with small children in them on that street. And walkers to school. Churchville road past Greenbrier can be really dangerous in parts. Some of the cross-roads ought to be right turn only. The on-ramp from 24 to 95S was designed by a Grand Prix driver. Honestly? Why is that turn so sharp? There's always a busted-up guardrail there (not really in n topic, sorry). I'm a bit surprised that there exists no visual record of where the traffic accident hot-spots are in the area... Like a Google maps mashup. Aggressive driving, following too closely, generally impatience with other drivers. It would be great if there were paved cut-throughs for bikes on town easements so that the neighborhoods could be navigated more quickly, so that folks wouldn't have to go out on the main roads as a pedestrian or a biker to get to downtown. There is one like what I'm describing, or used to be before the new construction, between Wakefield meadows and Wakefield elementary. Kids from that neighborhood had a nice walk to school. Kids on the other side of 924? Not so much. How about a pedestrian bridge to the school properties?
- I would love to see bike lanes, bike racks, and more community areas downtown. These spaces should be close to the main strip, and traffic should be routed around the downtown area. This would encourage people to spend time (and money) in the community, as well as bring our community together.
- Sidewalks around neighborhoods.
- High visibility signage and bike racks.
- The area mentioned previously (the island at the end of Gordon at Main/Bond) is a big issue. Not only do people not stop there, oftentimes people cut across Bond via E. Gordon and use the left turn lane to make a U-turn, which is very unsafe for pedestrians and drivers alike. Stopping that U-turn and adding pedestrian crossing lights, like the ones by Independent, would be a huge improvement.

- Too much traffic is causing people to become impatient and frustrated. The lights don't change at the right intervals down RT24.
- Better enforcement of traffic laws. Speeding, aggressive driving, cell phone usage.
- Yes! Please fix the intersection of Rockspring Road and Red Pump Rd so bikes going south can get through it to jump on the slower fork of 924 on the left and not go down the bypass fork on the right. It needs a circle, please. The shopping and restaurants there have become a very popular spot for the north Bel Air & Forest Hill folks. And cars speed down Rockspring Road from Forest Hill going south to Bel Air at 50 mph or more. I sometimes have to walk my e-bike to go south at that intersection to go to the left fork to head onto 924. VERY VERY DANGEROUS intersection. Please fix it. Thanks, Lisa.
- Better road in Bernes alley.
- Continuous sidewalks should be a priority. No sidewalks on Roland Ave or Robinson St prevent safe pedestrian access to downtown. No crossing at Howard St over Rockspring Ave is also an issue.
- It would be helpful to have a sidewalk extending down Main/24 past the bypass with a crosswalk. Also, I would like to see more roundabouts instead of 4-way stops.
- Need improvements to the Bond, Thomas, Courtland, and Office Streets pedestrian walkways and improvements that will calm traffic on Bond Street.
- Police monitor Main Street traffic on Saturday nights.
- Would love to see Bond St. developed more in line with Main St.
- Cars do not yield to pedestrians in crosswalks when turning.
- Less lighting. You can't see the sky at night, just a glow.
- Boulton St and N Tollgate Road.
- Better traffic planning overall. Congestion and lack of traffic law enforcement create many travel hazards in Bel Air.
- MacPhail Road at 924 is a disaster waiting to happen.
- Flashing yellow light at crosswalk areas. Drivers using hazard lights when stopping for pedestrians.
- Cars are too fast on Broadway and do not stop for pedestrians. Bond & Gordon St intersection—poor visibility for cars to see pedestrians.
- Route 1 business and intersections of 24 and 1 also intersection of Boulton and 24.
- Driving through the retail section of Main Street is difficult enough trying to be alert to pedestrian traffic and people parking, but the addition of delivery trucks stopping in the road for deliveries causes additional safety and traffic issues. It seems like a number of these deliveries could be done in the rear of the businesses.
- Some sidewalks are too narrow to be safe while walking. There should be space between sidewalk and road for lights or landscaping like small trees and bushes.
- I am specifically concerned about the intersection of Hickory Avenue/Maitland Street and Churchville Road (MD 22). When the intersection was rehabilitated, pedestrian crossings were added to only three sides. I frequently witness people crossing Churchville Road outside of the crosswalks (especially to access the shops at Terlyn Square) rather than cross Hickory, Churchville, and then Maitland to get to the same place.

- I am also concerned about Baltimore Pike (Business Route 1). The non-buffered sidewalks next to four lanes of traffic, frequent curb cuts for driveways, and limited crossing opportunities make the area hostile to those not in an automobile. The area meets Strong Towns' definition of a "stroad" - "a street (a place where people interact with businesses and residences, and where wealth is produced) combined with a road (a high-speed route between productive places)".

- Lights on Lee Way towards 22.
- The intersection of Main St and Lee St and the section of Main St before and after that intersection I believe is the most dangerous area of travel in Bel Air. The narrowness and the speed limit not being enforced on all of Main St play a significant factor in Main St not being safe.

- Right-hand turn lanes.
- Would like to see the sidewalk on E Macphail Rd extended to allow safe pedestrian access to Homestead Wakefield Elementary and Bel Air Middle.

- Speed enforcement and monitoring of intersections for traffic violations.
- Alleys exit onto streets without stop signs.
- Yes. East Broadway, between Hickory Ave and Main Street is a speedway. Many studies have shown this (including Bel Air police study from last year). I have that data. That stretch of road is state controlled, but it's in town limits, which has made changes feel like going in circles. We are desperate on this street for help. It's the main route for children walking to Bel Air Elementary from this side of town.

- A traffic light is desperately needed at the intersection of Bel Air South Parkway and Blue Spruce Dr.
- Not really.
- Hickory is a nightmare to cross. Between St. Margaret parents trying to run you down and commuters flying, it's awful. Route 24 is so dangerous to cross that a friend's son was recently killed.

- Boulton St., N Tollgate, and Rt 1 will need to be widened to accommodate the increased number of vehicles in the mall area. Also, Rt 24.

- We need a better solution for traffic when BAHS lets out each day. The traffic cop letting school traffic out is awesome but the backup at the lights gets problematic.

- The intersection at Rocks Spring Rd and Red Pump is too busy; we need an elevated pedestrian crosswalk.

- Pedestrian crosswalk at Independent Brewing should be improved.
- There is no way to safely cross at Hickory/Business Rt 1 and Moores Mill Rd.

Question 11: What characteristics about your community do you find unique that can be reflected in the proposed improvements?

- The downtown area is very walkable and well connected to residential parts of town. Timed crossings at intersections, and being able to push a button so the time favors the walker, is very helpful.

- Bel Air is a great walking town. It just has some issues that need to be addressed.
- No sidewalks or crossings connecting to new neighborhoods or other neighborhoods that are interconnected. It would make Main and Bond streets MUCH safer and more people would feel comfortable walking around town.

- Walkability is what makes Bel Air amazing. As I mentioned above it was the number 1 reason I bought my house in the town limits. I drive to and from work every day, after work and on the weekends I want to be able to walk around my community, go to restaurants, and the grocery store while still being safe. You really don't get this level of convenience with so many things in walking distance outside of a large city. We should be doing everything we can to protect this aspect of the town. Is not only one of the few that has both great access to major roads and easily walkable streets in the county, but in the state.

- This is a great walkable community. It would be cool to close Main Street on a summer night for full pedestrian access.

- We are a community with families that have been here for generations, we like minimal change and small town feel, where you can recognize people you see at the grocery store. There is a reason generations have stayed here, it used to be safe for you to raise a family, let your kids outside to play in the neighborhood, but the proposed apartments are going to cause an influx of people, traffic, overcrowded schools and crime, CAN'T YOU SEE THAT!

- None
- It is great that in Bel Air we have so many amenities and facilities within walking distance, if only it was safer to walk.

- Improve walkers crossings at non-red-light crossings areas. We could install crosswalks similar to the one at Independent brewery by the farmers markets.

- Aside from physical changes, I believe there needs to be a multi-year campaign to re-educate people on the traffic laws. Rules exist, for example, you stop for pedestrians IN the crosswalk, not on the sidewalk. However, we're in an era where people are giving up right of ways, and trying to be "kind". However giving up right of ways creates confusion, ending up with people not being on the same page. Confusion = accidents.

- Stop letting builders take down the pretty houses only to put in ugly buildings.
- Historic architecture. Our town needs to stay small!

- Bel Air is a quaint small town. This is ideal as a tourist stop for cyclists passing through on the East Coast Greenway. Perhaps a sign or two for cyclists, to point out where restaurants and other points of interests are would help. Also, outdoor drinking fountains would help for cyclists passing through on a hot summer day. (This can actually be a safety issue related to dehydration.)

- It's great to be able to walk through town and to the Farmer's Market or to town events. Our police do their best to keep people safe during parades and other events.

- Good signage for places to go. Speakers on Main St give good atmosphere.
- It's a destination community so frequently there are people from out of town who visit and walk around. Improvements would encourage more of that.

- Bel Air seems to want to reflect a small-town feel, but the only place that's accurate is Main Street. The rest of Bel Air is over commercialized, over populated (apartments are WAY too expensive), and the infrastructure is not set up to support the businesses and number of people that now live in Bel Air. Additionally, there should be cheaper housing options in Bel Air. A single person should be able to afford housing.

- We love it here and walk everywhere. I'd love to see some traffic enforcement.

- I would like a continuous sidewalk on West Gordon St. a lot of children live on that street and it is not safe to walk on the street without sidewalks.
- I would think encouraging safe walking would be key to town.
- With better designed intersections, we can have safer roads and better flowing traffic. With better design and lighting, pedestrian traffic is better protected. It will encourage more foot traffic along the MA & PA trail through town and more foot traffic through downtown Bel Air, in general.
- It is a great place to walk/bike and should draw people to the area.
- I PERSONALLY LOVE THE SMALL TOWN FEEL. I LOVE TREES, PARKS AND GREEN SPACES. WE NEED LESS PAVEMENT AND BARS. I'D LOVE TO SEE MORE COMMUNITY GARDENS.
- Town employees are responsive to citizen's needs.
- I love it here, but peds are hard to see and there needs to be more amber lights (like on Moore's mill).
- Connecting and prioritizing small businesses. Boosting public parks and rec - lots of nice land to develop into good family areas.
- Safer pedestrian access to the unique facilities and events at Rockfield Manor/Park.
- How can you enforce speeding on Main Street? Also, allow pedestrians more time to cross the street so they don't cut off drivers' time.
- Bel Air is a charming small town where you can walk or ride your bike to shops, restaurants and entertainment. Highlighting that would be great!
- Address Excessive speed on Main and Bond Streets.
- Infrastructure is already in place to make the Bel Air loop and make Main Street a safe place for pedestrians, shoppers, events/parades, open-air shopping, and open-air seating, and bike paths. Could increase parking in locations that are busiest - Looney's, Armory, and Das Bierhalle lots.
- It's a very walkable town. Residents can walk to the library, grocery stores, downtown restaurants and shopping, the farmers market, etc. But driver behavior overall is extremely poor and I haven't seen any traffic enforcement activities on neighborhood streets for a few years now.
- Improving the small-town atmosphere.
- There are a lot of neighborhoods that are divided by very busy main roads. Joining them so that pedestrians and bikers could travel in the neighborhoods would increase the sense of community and place.
- Walkable infrastructure with plenty of areas to stop and rest would help tremendously. The MA & PA trail and our downtown district are far and away the best parts of our infrastructure, and we should put effort into supporting and developing them into something we can be proud of.
- Lots of shops to visit, places to eat. Old town charm needs to be expanded on with safe places to pause and sit.
- We love being able to walk everywhere and love the amenities in the town! Going out to eat, walking to the grocery store, visiting our parks and playgrounds are all big perks of living in town. Much of the problem lies in the fact that, if you don't live in town and need to get from one place to another in the county, you often have to cut through town on our state road. While we cannot ensure every driver is paying attention to crosswalks

and pedestrians, perhaps a lower speed limit or alternative routes could improve the town and its constituents.

- People seem to be very self-centered when behind the wheel.
- Our community loves our nature farmland and wide-open spaces as well as the quaint historic vibe and look of Bel Air which reflects all of Harford County. We have the most beautiful trails and parks and people come from neighboring communities to enjoy our natural resources. Several MeetUp groups that do hiking and biking come to our trails and parks in Harford County then stay to eat at restaurants. Adding more quaint shops/eateries in historic Bel Air makes it for a town to day trip to, much like the storied town of Berlin that has gotten national recognition. Make it safer for bikers 🚲 and hikers to navigate around our town of Bel Air and adjacent communities like Forest Hill and Jarrettsville and Baldwin Mill area. Bel Air is nice but in some parts, there's no good way to get to it.
- Nice use of brick paths.
- Bel Air being walkable is one of its charms and the fact that there are such unsafe areas for pedestrians and cyclists is a problem that should be remedied.
- Traffic calming islands such as what is on Main Street would probably help in making it easier to cross in these walkways. For non-traffic signal crossings, add pedestrian signals.
- How do you make people slow down & pay attention?
- Hard to say...don't know what the proposed improvements are yet.
- I'm not sure what improvements this refers to.
- A walkable community.
- Bel Air should be a walker-friendly town & it is laid out like one. Traffic patterns along Main St & Bond St, in particular, have prevented the town from realizing this potential.
- People enjoy having a walkable small-town environment for shopping and dining, but the congestion takes away from enjoyment. It would be nice if we could do away with the on-street parking to allow for wider sidewalks for the dining, signage etc. for the businesses and still have an area to walk. There are businesses that are not open past 5 pm or weekends that could allow for their parking lots to be used along with the existing parking garage.
- Outdoor seating and pavilions.
- I would appreciate more reflection of the history of Bel Air and Harford County. The "historic Bel Air" kiosks, "Ma & Pa RR" crosswalk, and "Hearts of Harford" are great programs that could be expanded upon. Perhaps a collaboration with the Historical Society and the Town's Historic Preservation Commission could bring about ideas of ways to honor the past as part of new infrastructure improvements?
- We are very pedestrian-friendly and I believe more people would walk if they felt safe from traffic violators.
- Narrow street parking. Off-site parking at Independent Brewery.
- Our road has TONS of pedestrians. Our road is the gateway to Bel Air. Safety should be a priority. Many active citizens of the town live on Broadway and want to protect our kids from speeding cars! We need help!
- What are the proposed improvements?

- I think we could have a great walking/biking community with some adjustments. We have such a wonderful downtown area.

Question 12: Are there any transportation facilities in Bel Air that you wish there were more of or that you really enjoy?

- More parking areas are always welcome.
- I wish the bus system made more stops around town instead of mainly just going to Aberdeen.
- Better access to MARC stations. The Harford Transit LINK really only connects down to Aberdeen, and even then the duration is too long (~60 minutes to Aberdeen train station from downtown). Would like to see improved transit connections to Edgewood / Aberdeen or even Martin State MARC stations. The rail network we have access to in Harford County is some of the best in the nation and we should take advantage of it as much as we can; especially with such a rich history of the railroad that Bel Air has.
- No
- More bus stations
- Sidewalks
- Walk / don't walk signs at the intersections or better driver behavior for the pedestrian crossing signs
- Bike lanes would certainly help.
- Bus stops: I am in Homestead Village if I have to take the bus I walk down to State Office Building if I have to go to Aberdeen / HdG or to Ring Factory Elementary if I want to go to Abingdon / Constant Friendship. Either way is about 20 minutes. If there was a stop closer to me I would take it more often. I think there used to be a stop at Richardson's florist but I remember once I went there to wait and the bus did not notice me and went right by. I don't even know if that stop is still there, last time I checked it was not. That would be very convenient.
- It's like there are two Bel Airs, one that is quaint and has a highway run through the middle of it and one that is a giant strip mall that a highway runs through with lots of traffic lights.
- As described above, more cycling infrastructure would be much appreciated.
- Bus routes
- I am not aware of any public transportation in Belair.
- Maybe a trolley??
- I wish there was more public transportation, period. But, again, I don't think the infrastructure of Bel Air can handle a bus line.
- I heard a nasty nasty rumor about a traffic circle near BAES and just want to put it out there that it would be an unmitigated disaster. People are bad enough drivers and I'm yet to experience many that can properly navigate one of these.
- Connected sidewalks and bike lanes

- I wish public transit was better for folks who cannot drive.
- Public transport
- I wish there were more bus stops. I'd ride the bus if I knew where they were.
- Overlapping bus routes so there is no downtime. I could get the bus to the dr but had to wait 3 hours to get a return trip. I know the drivers need lunch breaks, but can't there be part time drivers to fill the void while the bus drivers are on break?
 - Traffic circles replace excessive street lights. Street lights that are programmed to reduce traffic buildup.
 - More walking / biking paths like the Ma & Pa Trail that are physically separated from vehicle traffic
 - I enjoy the walkability of Main Street
 - Absolutely need more bicycle routes. My children and I ride bikes to and from their school and we have to use sidewalks and parking lots to avoid busy streets with limited space and inconsiderate drivers.
 - Maybe some ziplines? Between the Target cell-phone tower and the Home Depot?
 - The shopping areas by the mall are completely car dependent, meaning that pedestrians simply cannot use them. Those that do use them do not spend time in the area. Lack of safe sidewalks, huge parking lots, and lack of greenery make it unpleasant and uncomfortable.
 - Transportation facilities? What happened to phase 3 of the MA & PA trail? I was anticipating riding my bike from Forest Hill to Bel Air safely. It appears construction has stopped at North Ave & Running Creek Way.
 - Streets that are pedestrian-only.
 - Better walking.
 - Wish there were more true biking lanes. I do not use public transportation bc there are not enough routes or times it is available to make it reliable. I'm afraid I'd get somewhere and not be able to get back home. Don't put \$ and efforts in public transportation to get around Bel Air. It would cost too much, no one needs it, & everyone wants to drive a car, bike, or use Uber. Maybe concentrate on commuter transportation like the Academy buses that go from Bel Air to Baltimore City & back. I loved that when I worked at Hopkins. Biking and hiking and walking and outside beauty sets Bel Air apart as a desirable destination.
 - Perhaps more parking on Bond Street
 - More trails. More bike access. Safer streets for pedestrians.
 - Drop off/pick up spaces in downtown.
 - More Bel Air Bus Stops
 - I don't think we have reliable public transportation that is close to homes, convenient, connects to where you need to go, or frequent. What transportation facility?
 - Better buses

- I wish there were more areas like Main Street. The wide, flat sidewalks, frequent crossing opportunities, pedestrian-scale lighting and parking/plantings buffer make it comfortable and enjoyable to use as a pedestrian.
- I wish there was a bus into downtown Bel Air and surrounding shopping areas that was easy to use and safe for young adults.
- Safer bike lanes. Dedicated bike lanes, not just a path painted in the car lanes.
- Bike paths

Havre De Grace Responses

Question 9: Are there any other concerns you have regarding safe travel in the City of Havre de Grace? Explain.

- Speed and volume of cars and semi-trucks
- Drivers not stopping when making a right turn on red.
- Lewis Lane, North of Route 40 (by BP Station) - going south there is not enough stack lane to go straight there - it is a combination left turn - straight thru lane- which only holds 2-3 cars.
 - Lewis Lane North of Route 40, the lane mark to proceed across 40 is too short. Only 2 cars can be stacked; Frequently there are 6-8 cars; these cars end up stacking on the wrong side of the road. South of Route 40 on Lewis Lane has issues with back up as well. There are too many exits from businesses onto Lewis Lane that have difficulty getting out.
 - Union Ave Sight distance. Route 40 turning from residential area (near stack & store)
 - Lack of bike lanes and uneven sidewalks
 - Unsafe intersections!
 - Too many cars cutting through residential neighborhoods - need to expand connecting major roads to avoid this. Would also like expanded pedestrian access surrounding and crossing Route 40.
 - Concern about pedestrians feeling they have the right of way at crosswalks and walking out in front of moving traffic is OK and expecting 5000 lbs. cars to stop in too short a distance is dangerous. Nearly rear-ended several cars that stopped for no apparent reason, only to see a pedestrian that I could not see, walk out into a crosswalk.
 - Disregard of traffic laws by cyclists and right turn on red by motorists and cyclists on sidewalks
 - Crossing the Hatem Bridge is not very safe on Bicycle.
 - Bike lanes AND bike parking are both highly important. Separation of pedestrian and bicycle lanes are important for safety, I should not be forced to bike on the sidewalk on narrow roads.
 - Think European pedestrian and bicycle infrastructure. Netherlands for example. Our people would also be healthier for it too.
 - Getting from Bulle Rock to HDG
 - Unchecked rampant speeding. Unchecked rampant disregard for stop signs. The I-95 / 155 interchange mess. Parking on sidewalks. Street parking on narrow streets.
 - There are always large trucks parked on the street by the firehouse on Union and Pennington which makes it impossible to see if there is any oncoming traffic when pulling out of the OH parking lot or driving across Union Ave. This is actually a concern at several HdG intersections, but that is one I frequent, so it's the one that sticks in my mind.
 - Route 40 at Blenheim intersection. Trying to turn left is very dangerous.
 - Route 40 & Blenheim Farm road (near Lorien) is a major accident waiting to happen. The crumbling underpass behind that intersection is a disaster. Should look for a better solution for ingress/outgress to Bulle Rock, especially with another 800 homes soon to be built.
 - Need a light at 40 and Blenheim. The intersection by the Royal Farms on 40 is a horrible traffic disaster.
 - Safety should always be regularly encouraged at home, school, and work.

- People and children getting out of their cars on commerce and market streets
- The section of 155 which is actually at the bottom after 155 turns right to go merge with 40. From that point, to where you have to turn right onto Juniata should be addressed. It makes no sense and is dangerous for pedestrians, etc.
 - There is too much development and car traffic on Chapel Road, Bulle Rock Parkway without pedestrian and bike infrastructure. Crossing Route 40 is unsafe everywhere.
 - People walk and bike into Havre de Grace from “up the hill” on 155 when it’s impossible to do safely. Kids from the high school and middle school cannot walk to school safely if they miss the bus.

Question 10: Are there any other improvements or specific safety concerns you would like to see in the City of Havre de Grace along certain corridors?

- City could encourage PD to write speeding tickets and not written warnings. Traffic speed cameras
- Parking on both sides of some narrow streets creates safety issues
- Dedicated bike lane from Havre De Grace to APG
- Increased lighting in residential and business districts.
- Better access between major roads to reduce the need to cut through residential areas.
- Requesting enhanced safety features at the median crossing of Rt. 40 at Blenheim Road, including better striping and signage plan, and installation of stop signs on each left turn lane.
- Advocating for individual responsibility for one's own safety to be taught to the public.
- Safety improvements desired for crossing the Hatem Bridge.
- Urging for burying power lines and removing telephone poles to enhance street safety.
- Traffic light needed at Blenheim Lane and Route 40.
- Concerns about speeding on Chapel Road, Grace Manor, and Havre de Hills, making biking dangerous.
- Proposal for certain street parking spots to be designated for compact cars only.
- Safety upgrades needed for the crosswalk at Opera House.
- Addressing trouble spots like the Revolution corridor and Otsego Street with better maintenance, police presence, and enforcement.
- Identifying Water Street at Union and Otsego as a dangerous intersection requiring grading and traffic control mechanisms.
- Request for a sidewalk connecting Bayview Estates to Grace Harbor from Tidewater Drive.
- Advocating for clear and safe pedestrian and bike connections from old town to new developments and onto Lapidum Road down to Susquehanna State Park.
- Need for sidewalks on Route 155 from Canvasback down to Juniata Street.
- Requesting sidewalks and pedestrian crossings (overpass walkway) or at least a larger shoulder on Route 155.

Question 11: What characteristics about your community do you find unique that can be reflected in the proposed improvements?

- Small town

- The shoreline improvements are very good
 - Brick paving - slows traffic & enables same crossing with historic feels
 - We live in a walkable community and need equal access for all people.
 - Unsure
 - While I understand courtesy, stopping and restarting a 5000 lbs. vehicle to save a pedestrian a few seconds wait is absurd.
 - Water views
 - I enjoy travelling down the small alleyways in Havre de Grace.
 - More walking and biking increases both physical and mental health.
 - No
 - None
 - Entering Route 40 is difficult.
 - I don't know the proposed improvements but I do believe this city has a high density of good people.
- We can't let apathy win the day or we will witness our own demise.
- Havre de Grace is experiencing more visitor presence. The streets and intersections all need to be pedestrian-friendly.
 - The beauty of the Susquehanna River and the Chesapeake Bay. A scenic overlook at the top of 155 where it comes into view would be fabulous!
 - Multimodal travel options are pretty good in the old town due to the grid street pattern and fairly low traffic volumes. Biking north of 155 is also pretty good due to low volume country roads. Everything in between is a hazard.
 - The beauty of the Mason Dixon Trail but even while walking that you're on 155 without any sidewalk or shoulder so most people can't follow the actual trail.

Question 12: Are there any transportation facilities in Havre de Grace that you wish there were more of or that you really enjoy?

- No comment
- Parking for large-scale events is an issue.
- Crosswalks along Union and Juniata for uniform style throughout the city.
- Having a bus system that extends up Chapel Road and loops down Superior Highway in order to connect citizens to the downtown area and Harford County Transportation.
- Though I've never used it, I love the idea of The Tide trolley. I would like HdG to be more walkable outside of neighborhoods - a way to better connect "on the hill" with downtown would be great.
- The Tide Trolley is wonderful, would like to see it run through winter months.
- Local boat cruises.
- Bicycle parking.
- More frequent bike parking! And please keep wheelchair accessibility in mind for the sidewalk!
- "Dedicated" bike and pedestrian paths. Think Europe.
- Lane share is not the answer-too dangerous.
- The trolley.

- Not sure.
- The Trolley.
- The Tide shuttle/trolley service is wonderful. It would be great to add a daily trolley to the top of Chapel Road so that those who live in the communities along that Road can get into town without having to use their cars.
- Though I have not used it, the trolley or other free bus route connecting old town up the hill and to Route 40 shopping could help many people.
- Better car charging stations. The ones available are outdated.

Appendix E Policy Considerations

Based on Harford County Design Standards

1. Install continental style high visibility crosswalks at all pedestrian crossing locations where there have been fatal or serious injury pedestrian crashes, where there are missing pavement markings that have been identified, and when a refresh is planned – within 7 years.
2. Intersection daylighting- ensure parking near intersections are daylighted to allow better visibility of pedestrians at corners. Parking restrictions or bulb outs are used to prohibit parking.
3. Pedestrian refuge island should be considered when investigating large crossing distances for pedestrians at intersections.
4. Pe Section 12, pg. 36 - median opening should be 60” min 5’-0”
5. Cross sections should include bike lanes (5’ minimum)
6. Buffered bike lanes
7. Separated bike lanes.
8. Bike compatible grates.
9. Bike parking.
10. Bus stop locations--- Locate transit stops at the curb line, on a bus bulb, or on a floating bus island. It is preferable to place stops far-side (after an intersection), and if that is not feasible, near-side (before an intersection). Mid-block stops (between intersections) are strongly discouraged where a mid-block crossing is not present. Stops should be located at least 10 feet back from the crosswalk, though 5 feet is permitted in constrained contexts. For mid-block stops, place pedestrian crossings behind the departing transit.

Zero Deaths Maryland

This report highlights US 40, Pulaski Highway, as a high-risk area (see excerpts below).

High-Risk Area Recommendations

Summary

Sixty-three high-risk areas were identified on state roads. While several of these overlap with PSAP priority corridors, there are additional high-risk areas in all seven SHA Districts. However, it is important to note that the PSAP corridors reflect the risk category from a statewide perspective, where some District high-risk areas may be lower risk relative to high-risk areas in other Districts. All of the high-risk areas on state roads are listed below.

District 1

- MD 528, Philadelphia Avenue/Coastal Highway from Division Street to 112th Street, Worcester County
- US 13 business, Salisbury Boulevard from East Cedar Lane to Bridgeview Street, Wicomico County
- MD 12, Snow Hill Road from Washington Street to Sandy Acres Drive, Wicomico County
- US 50 business, Salisbury Parkway/Ocean Gateway from West Isabella Street to Tilghman Road

District 2

- MD 322, Easton Parkway from Ocean Gateway to Bay Street, Talbot County
- MD 213, Washington Avenue from North Cross Street to Morgnec Road, Kent County
- US 40, Pulaski Highway from Marley Road to Charlestown Crossing Boulevard, Cecil County
- MD 272, North East Road from I-95 to Pulaski Highway, Cecil County
- US 40, Pulaski Highway from Thiokol Road to the Delaware state line, Cecil County
- MD 213, Bridge Street/Augustine Herman Highway from Elkton Boulevard to Lewis Shore Road, Cecil County

Figure E-1: Excerpt from Zero Deaths Maryland pg. 39

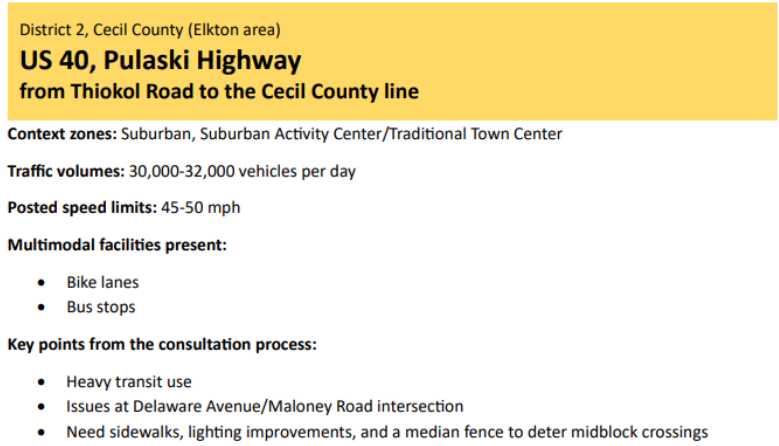


Figure E-2: Maryland SHW - Vulnerable Road User Safety Assessment

Appendix F Descriptions of Countermeasures

Speed Management

Speed Safety Camera with Signs

Speed safety cameras use speed measurement devices to detect speeding and capture photo/video evidence of vehicles in violation of the set speed threshold.



Figure F-1: Speed Camera



Figure F-2: Driver Speed Feedback Sign

Driver Speed Feedback Sign:

Enhances roadway safety by alerting vehicle drivers that they are exceeding the posted speed limit.

Intersection Upgrades

Roundabout

The roundabout is an intersection with a circular configuration that safely and efficiently moves traffic, reducing all conflict points for drivers. When implemented, roundabouts reduce the severity and number of crashes due to speed reduction, elimination of angle collisions, and reduced crossing distances for vulnerable road users.



Figure F-3: Mini Roundabout

Traffic Signal Upgrades

Relocation of Signal Head with arm

In some instances, the signal head might be hard for drivers to notice. Moving it to a more visible location may alert drivers sooner to the upcoming signal conditions.

Traffic Signal Timing Modifications

Altering the signal timing could aid pedestrian crossing over longer distances.

Signal Back Plate

Backplates with retroreflective borders can be added to a signal head to improve visibility in both daytime and nighttime conditions.

Note: SHA does not allow installation of backplates on signal structures older than 15 years

Reduced Left-Turn Conflict Intersection

These intersections simplify decision making for drivers and minimize the potential for higher severity crash types, such as head-on and angle.



Figure F-4: Reduced Left-Turn Conflict Intersection Plan

Dedicated Left and Right Turn Intersection

Auxiliary turn lanes – either for left turns or right turns – provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections.



Figure F-5: Dedicated Left and Right Turn Intersection

Restricted Crossing U-Turn (R-CUT) Intersection

An R-CUT, sometimes referred to as a superstreet intersection, is an intersection design where all side street movements begin with

a right turn ide street left-turn and through vehicles turn right and make a U-turn at a dedicated downstream median opening to complete the desired movement. This type of intersection reduces conflict points from 32 to 18.

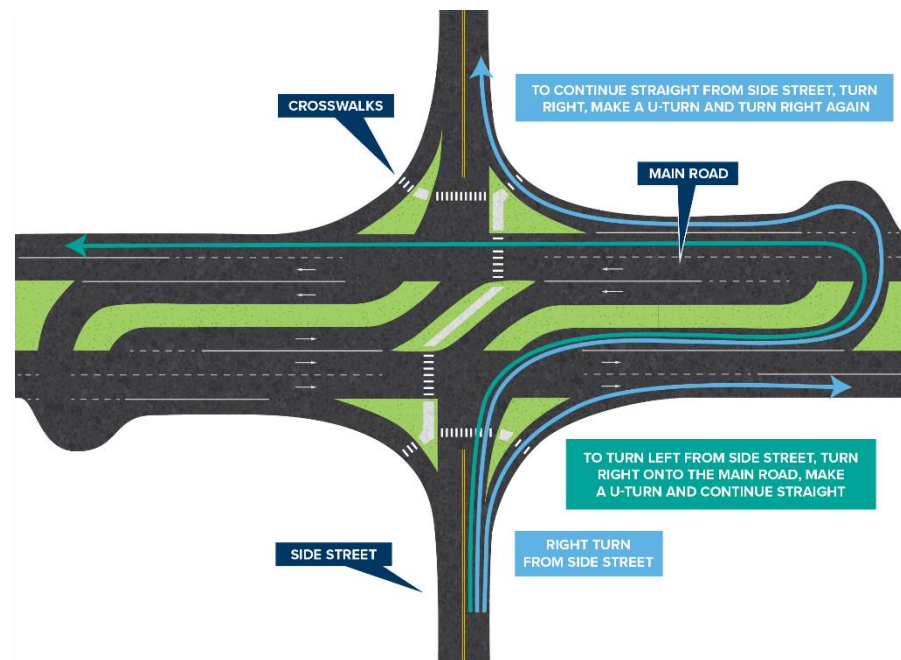


Figure F-6: R-CUT Intersection Plan

Maryland T Intersection

Allows left turn movement to channelized from the stem of the minor street to the mainline which enables the mainline through movement to be executed at the same time.



Figure F-7: Maryland T Intersection Plan – 1

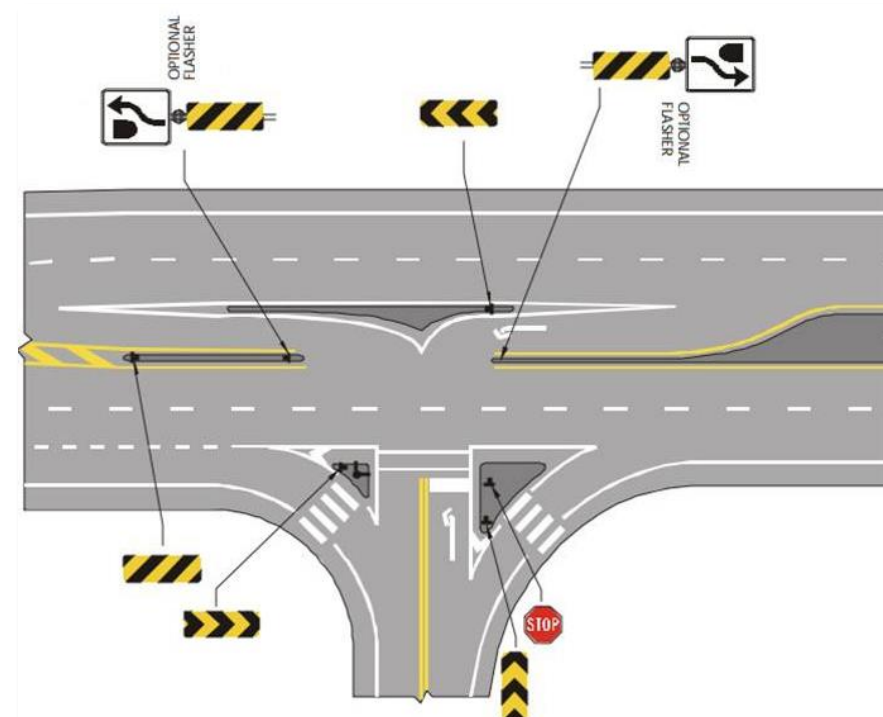


Figure F-8: Maryland T Intersection Plan - 2

Pedestrian Safety Enhancements

Accessible Pedestrian Signal with Signage

Accessible Pedestrian Signals can help visually impaired pedestrians cross the street by playing a low locator tone.



Figure F-9: Pedestrian APS

Countdown Pedestrian Signal (CPS)

Consist of a standard pedestrian signal head, with an added display showing a countdown of the remaining crossing time.



Figure F-10: Countdown Pedestrian Signal



Figure F-11: RRFB

Rectangular Rapid Flashing Beacon (RRFB)

RRFBs flash at high frequency to alert drivers of pedestrian crossings.

Leading Pedestrian Interval (LPI)

LPIs give pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication.



Figure F-12: Leading Pedestrian Interval

HAWK Signal/Pedestrian Hybrid Beacon

Recommended at midblock locations or non-signalized intersections with designated pedestrian crossings that could be improved. High-Intensity Activated Crosswalk (HAWK) Signals allow pedestrians to cross the road safely operating in a Yellow-Red-Flashing Red sequence to alert motorists that pedestrians need to cross the road.



Figure F-13: HAWK Signal

Curb Extension (Island or Bulb-out)

Extending the curb line or sidewalk zone into the roadway can slow down traffic and create more space for pedestrians. They

can increase the distance between turning traffic and pedestrians, reduce the crossing distance of pedestrians, and improve visibility between drivers and pedestrians.



Figure F-14: Curb Extension

Crosswalk Visibility Enhancements

Continental/High Visibility Crosswalk

High Visibility Crosswalks can improve the safety of pedestrians by making the crossing location more visible to vehicular traffic. The increased visibility also helps pedestrians locate the preferred crossing locations.



Figure

F-15: High Visibility Crosswalk

Wider Crosswalk

Crosswalks should be at least 10' wide but can be increased to wider widths to accommodate more space for pedestrian crossing.

Raised Crosswalk

Raised crosswalks can improve pedestrian safety by slowing approaching vehicles. They also function as a higher visibility crosswalk.



Figure F-16: Raised Crosswalk

Pedestrian Refuge Island

A median with an area of refuge to help protect pedestrians crossing multi-lane roads. Can reduce pedestrian crossing distances by allowing for multi-stage crossing.



Figure F-17: Pedestrian Refuge Island

Roadway Modifications

Road Diet

A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through-lanes and a center two-way left-turn lane (TWLTL)

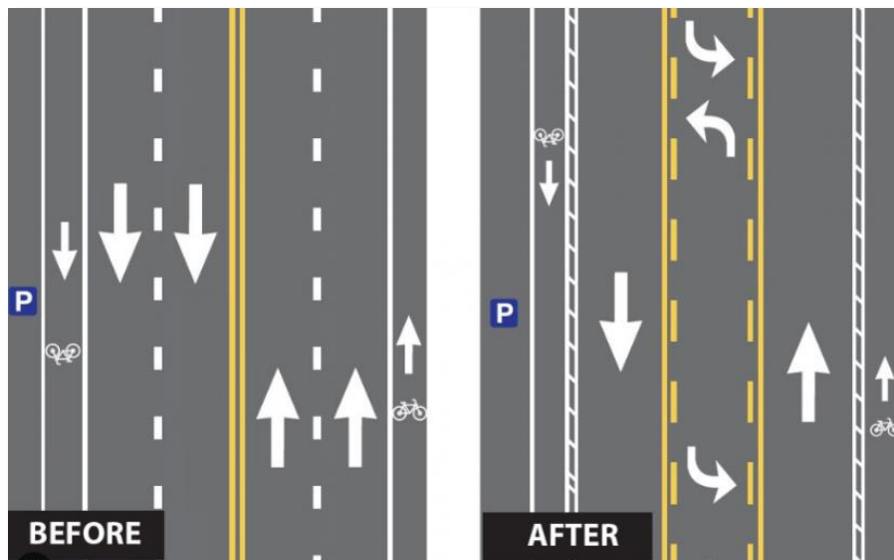


Figure F-18: Road Diet Plan

Miscellaneous Upgrades

The following upgrades are identified in this section because they are required for the proposed improvements indicated for each intersection in Sections 6A, 6B, and 6C.

Concrete Island/Median

Medians separate opposing streams of traffic, reducing the number of head-on, cross-median crashes that can be especially dangerous. Raised medians, medians built higher than the road level, offer vulnerable road users refuge mid-crossing, limit motor vehicle turns and mitigate head-on collisions.



Figure F-19: Concrete Island

Sidewalk/Walkway Installation

Created designated pathways for pedestrians and bicyclists' movements guarantee equitable access and promote inclusivity in a safer and more accommodating environment.

24" Stop Line Marking:

Allows vehicles to stop with adequate space to keep pedestrians on crosswalks safe.

Lighting

Lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings to reduce the chances of a crash.

In Pavement Text Markings

Pavement markings are used to convey messages to roadway users. They indicate which part of the road to use and what conditions lay ahead.



Figure F-20: In Pavement Text Markings

Speed Hump

A raised section of the roadway intended to slow down vehicles that may be approaching too fast.

Rumble Strips

Rumble strips use noise and vibration to alert a driver that they are leaving the roadway travel path.



Figure F-21: Rumble Strips

Guardrail (W beam)

Guardrails can reduce the severity of crashes by slowing a vehicle down and/or deflecting the vehicle back to the roadway.

Bikeway Infrastructure

Protected Intersections

Reduce conflict points between drivers and bicyclists by separating the two modes. The separation is achieved through corner islands that reduce vehicle turning speeds and provide an area for vehicles to wait while yielding to bicyclists and pedestrians in the crosswalk.



Figure F-22: Protected Intersection Plan

Bike Boxes

Bike boxes are designated areas at the front of a traffic lane that provides cyclists a safe and visible place to wait at a red light.



Figure F-23: Bike Box Marking

Intersection Crossing Markings

Intersection Crossing Markings indicate the intended path of bicyclists. They guide bicyclists on a safe and direct path through intersections, including driveways and ramps.



Figure F-24: Intersection Crossing Marking

Two-Stage Turn Queue Boxes

Offers bicyclists a safe way to make left turns at multi-lane signalized intersections from a right side cycle track or bike lane, or right turns from a left side cycle track or bike lane.



Figure F-25: Two-Stage Turn Queue Box Marking

Sharrows

Shared Lane Markings (Sharrows) indicate where cyclists should be positioned on the roadway to avoid passing vehicles and opening car doors.



Figure F-26: Sharrows

Conventional Bike Lanes

Bicycle lanes make bicycling safer and more comfortable; they can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles.



Figure F-27: Conventional Bike Lanes

Buffered Bike Lanes

Conventional bike lanes paired with a buffer space to increase the distance between moving vehicle traffic and bike traffic.

Separated Bike Lanes



Figure F-28: Separated Bike Lane Without Parking

Physically separated spaces for pedal cyclists, on roadways that reduce cyclist-vehicle collisions. With a physical barrier, these bike lanes enhance safety by preventing potential conflicts between road users.



Figure F-29: Separated Bike Lanes with Car Parked

Appendix G Countermeasure Prices and Crash Modification Factors

Table G-1: Estimated Cost and CMF of Countermeasures

Item Description	Estimated Cost	Unit Measure	CMF
Sign assembly	\$600.00	each (base, post, sign; regardless sign size)	0.85-0.93
Sign (panel only)	\$300.00	each (regardless sign size)	0.85-0.93
Sidewalk	\$100.00	per linear foot (5' standard width, including excavation, base, and concrete panel)	0.11-0.35
RRFB	\$50,000.00	each intersection	0.43-0.88
Signal timing mod (done by SHA force)	\$0.00	each	0.66-0.95
Full color signal (4-leg)	\$200,000.00	each intersection	0.78-0.90
Full color signal (half of 4-leg, or a ped crossing)	\$100,000.00	each intersection	0.78-0.90
APS with sign	\$1,000.00	each	0.93-0.91
Continental Xwalk Marking	\$900.00	crossing each 12' lane (assume 10' wide crosswalk, 24" marking 36" spacing)	0.63
ADA ramp with DWS	\$1,000.00	each (5'x5' landing including 2'x5' DWS, including excavation, base, concrete panel)	0.4-0.75
ADA bus stop pad and bench	\$3,000.00	each	N/A
Concrete Island/Median	\$20.00	per SQFT (excavation, base, concrete panel)	0.54-0.78
Curb/Gutter	\$60.00	per linear foot (regardless height, including excavation, base, and curb/gutter)	0.89
Bike rack	\$1,000.00	each (foundations and rack)	0.47-1.57
Raised Crosswalk	\$7,500.00	each	0.64-0.7
Signal heads relocation with arm	\$2,000.00	each arm	0.91-0.97
Speed Camera with signs	\$50,000.00	each location (equipment, service contract, etc.)	0.12-0.85
Signs with flashing beacons	\$5,000.00	each location	0.21-0.75
Remove unused ramp	\$300.00	each	N/A
Driver speed feedback sign	\$6,000.00	each	0.93-0.95
Roundabout (120' Diameter)	\$300,000.00	each	0.19-0.88
24" Stop line marking	\$200.00	each 12' lane	0.62-0.96
5" marking	\$6.00	per linear foot	0.62-0.96
Marking (legend/texts)	\$300.00	each (averagely converted from unit price for SQFT)	0.62-0.96
Driveway entrance	\$5,000.00	each	N/A
Signal back plate	\$300.00	each	0.85
Lighting with arm on ex. pole	\$4,000.00	each	0.58-0.68
Speed hump	\$1,500.00	each	0.6
APS/CPS Upgrade	\$30,000.00	each crossing	0.84-1.0
APS/CPS with a pedestal pole	\$12,000.00	each (10' pole, foundation, APS, CPS, handhole, conduits, wiring)	0.84-1.0
Left phasing change from E/P to E	\$5,000.00	each direction	0.01-0.99

Item Description		Estimated Cost	Unit Measure	CMF
Full depth roadway (asphalt)		\$20.00	SQFT	N/A
Rumble strips		\$10.00	each strip per lane	0.64-0.73
Guardrail (W beam)		\$45.00	per linear foot	0.85-1.1
Guardrail terminal		\$3,500.00	each	0.85-1.1
R-Cut intersection		\$600,000.00	each	0.73-1.39
Maryland T intersection (Continuous Green T)		\$400,000.00	each	0.85-0.96
Additional Costs				
65%	For Significant Excavation, Other Items by Percentage, including:			
	15%	For CLEARING & GRUBBING, DEMOLITION, MOBILIZATION, CONSTRUCTION STAKEOUT, GRADING;		
	10%	MAINTENANCE OF TRAFFIC		
	10%	EROSION AND SEDIMENT CONTROL		
	20%	DRAINAGE AND STORMWATER MANAGEMENT		
	5%	LANDSCAPING		
	5%	Misc.		
30%	CONTINGENCY			
25%	DESIGN AND PERMITTING			
120%	TOTAL ADDITIONAL COST			

* Prices are for major construction items only, for actual rough order of magnitude prices see table G2

The rough order of magnitude cost estimate is defined as a sum of four separate components. This is designed to provide a great level of detail to each municipality and insight into the estimation process. This will also allow the municipalities to compare the estimates for the separate components and adjust with data available at the time these countermeasures will be implemented. The cost estimate components are as follows:

- (A) Major Items - this component includes the major elements for each proposed countermeasure
- (B) Other items for significant excavation - This is an estimate in percentage form for the countermeasures that involve significant amount of excavation, to include work items such as demolition, MOT, mobilization, erosion and sediment control, drainage, stormwater management, landscaping, etc.
- (C) Contingency - this is a high-level planning cost estimate, and a contingency is required due to yet unknown design elements
- (D) Design/Permitting - extensive design and permitting tasks may be required for some of the countermeasures that are covered by this contingency.

Table G-2: Countermeasure Cost Breakdown

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
A1 & A4	S1	\$11,700.00	\$9,000.00	\$0.00	\$2,700.00	\$11,700.00	\$0.00		Crosswalks
	S2	\$1,300.00	\$1,000.00	\$0.00	\$300.00	\$1,300.00	\$0.00		Repair Pedestrian Pushbutton
	S3	\$19,500.00	\$12,000.00	\$0.00	\$3,600.00	\$15,600.00	\$3,900.00		Pedestrian signal pole and push button
	S4	\$8,200.00	\$5,000.00	\$0.00	\$1,500.00	\$6,500.00	\$1,625.00		Signal timing update
	S5	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Rumble strips
	S6	\$2,400.00	\$1,800.00	\$0.00	\$540.00	\$2,340.00	\$0.00		Pavement markings
	S7	\$6,500.00	\$4,000.00	\$0.00	\$1,200.00	\$5,200.00	\$1,300.00		LED Luminaire
	S8	\$25,600.00	\$15,700.00	\$0.00	\$4,710.00	\$20,410.00	\$5,102.50		Median nose extension and pole with APS ped button
	S9	\$1,100.00	\$800.00	\$0.00	\$240.00	\$1,040.00	\$0.00		Pavement markings
	S10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Coordination efforts. No construction.	Coordination
	S11	\$27,700.00	\$17,000.00	\$0.00	\$5,100.00	\$22,100.00	\$5,525.00		ADA sidewalk
	S12	\$1,600.00	\$1,200.00	\$0.00	\$360.00	\$1,560.00	\$0.00		
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	SUP Study
A2.1	S1	\$300.00	\$200.00	\$0.00	\$60.00	\$260.00	\$0.00		Pavement markings
	S2	\$3,900.00	\$3,000.00	\$0.00	\$900.00	\$3,900.00	\$0.00		Bus pad and bench
	M1	\$432,500.00	\$177,400.00	\$115,310.00	\$53,220.00	\$345,930.00	\$86,482.50		Sidewalks and ADA ramps
	M2	\$300,00.00	--	--	--	--	--	MDOT SHA Estimate	Curb & gutter and drainage improvements
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
A2.2	S1	\$300.00	\$200.00	\$0.00	\$60.00	\$260.00	\$0.00		Pavement markings
	S2	\$4,700.00	\$3,600.00	\$0.00	\$1,080.00	\$4,680.00	\$0.00		Crosswalks

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	M1	\$223,800.00	\$91,800.00	\$59,670.00	\$27,540.00	\$179,010.00	\$44,752.50		Sidewalks, crosswalks and ADA ramps
	M2	\$438,800.00	\$180,000.00	\$117,000.00	\$54,000.00	\$351,000.00	\$87,750.00		Sidewalks and ADA ramps
	M3	\$453,400.00	\$186,000.00	\$120,900.00	\$55,800.00	\$362,700.00	\$90,675.00		Sidewalks and ADA ramps
	M4	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00	Need a full signal warrant study	New signal
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
A3	S1	\$39,000.00	\$24,000.00	\$0.00	\$7,200.00	\$31,200.00	\$7,800.00		Add pole with APS ped button
	S2	\$12,500.00	\$9,600.00	\$0.00	\$2,880.00	\$12,480.00	\$0.00		Median nose extension
	S3	\$21,100.00	\$16,200.00	\$0.00	\$4,860.00	\$21,060.00	\$0.00		Crosswalks
	S4	\$45,500.00	\$28,000.00	\$0.00	\$8,400.00	\$36,400.00	\$9,100.00		Landscaped raised median
	S5	--	--	--	--	--	--	Not Used	
	M1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Need a lighting study. Cost pending on results.	Lighting study
	M2	\$190,000.00	--	--	--	--	--	MDOT SHA Estimate	Upgrade signal, add APS/CPS ped signals, add crosswalks and ADA ramps
	M3	\$624,000.00	\$256,000.00	\$166,400.00	\$76,800.00	\$499,200.00	\$124,800.00		New sidewalk
	M4	\$14,700.00	\$9,000.00	\$0.00	\$2,700.00	\$11,700.00	\$2,925.00		Pavement marking and sidewalk
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
A5	S1	\$4,000.00	--	--	--	--	--	MDOT SHA Estimate	Crosswalks
	S2	\$81,300.00	\$50,000.00	\$0.00	\$15,000.00	\$65,000.00	\$16,250.00	Need a traffic study to check RRFB warrants.	RRFB
	S3	\$80,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb extension and ADA ramp
	S4	\$7,800.00	\$6,000.00	\$0.00	\$1,800.00	\$7,800.00	\$0.00		Speed Feedback Sign
	S5	\$47,100.00	\$36,200.00	\$0.00	\$10,860.00	\$47,060.00	\$0.00	Coordinate with bike lanes	Curb extension and ADA ramp
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
	L2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	To be done by the Community Center project.	Coordination with future development
	L3	\$731,300.00	\$300,000.00	\$195,000.00	\$90,000.00	\$585,000.00	\$146,250.00		Roundabout
A6	S1	\$42,000.00	--	--	--	--	--	MDOT SHA Estimate	Extend island, sidewalk, crosswalk, ADA ramps

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	S2	\$9,400.00	\$7,200.00	\$0.00	\$2,160.00	\$9,360.00	\$0.00		Crosswalks
	S3	\$1,600.00	\$1,200.00	\$0.00	\$360.00	\$1,560.00	\$0.00		Signage
	S4	\$6,500.00	\$5,000.00	\$0.00	\$1,500.00	\$6,500.00	\$0.00		Signal timing update
	M1	\$160,000.00	--	--	--	--	--	MDOT SHA Estimate	New sidewalk, crosswalks, ADA ramps
	M2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future traffic study results.	Proposed study
	M3	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future traffic study results.	Proposed study
	M4	\$650,000.00	--	--	--	--	--	MDOT SHA Estimate	Upgrade signal, add APS/CPS ped signals, add crosswalks
	M5	\$75,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb extension, crosswalk, sidewalk, ADA ramp.
	M6	\$400,000.00	--	--	--	--	--	MDOT SHA Estimate	Sidewalks and ADA ramps
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
B1	S1	\$1,300.00	\$1,000.00	\$0.00	\$300.00	\$1,300.00	\$0.00		Bike racks
	S2	\$2,600.00	\$2,000.00	\$0.00	\$600.00	\$2,600.00	\$0.00		Moving signal heads
	S3	--	--	--	--	--	--	Not Used	
	S4	\$12,900.00	\$9,900.00	\$0.00	\$2,970.00	\$12,870.00	\$0.00		Crosswalks
	S5	--	--	--	--	--	--	Not Used	
	S6	--	--	--	--	--	--	Not Used	
	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00		Update traffic signal
	M2	\$231,600.00	\$95,000.00	\$61,750.00	\$28,500.00	\$185,250.00	\$46,312.50		Curb extensions
	M3	TBD		\$0.00	\$0.00	\$0.00	\$0.00		Cost pending for future study on exact limits and design.
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
B2	S1	\$74,700.00	\$57,400.00	\$0.00	\$17,220.00	\$74,620.00	\$0.00		Signage, RRFB, Speed cameras
	S2	\$10,600.00	\$8,100.00	\$0.00	\$2,430.00	\$10,530.00	\$0.00		Crosswalks
	S3	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Signage
	S4	\$5,000.00	--	--	--	--	--	MDOT SHA Estimate	ADA ramp and signage
	S5	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Signage

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	S6	\$3,200.00	\$2,400.00	\$0.00	\$720.00	\$3,120.00	\$0.00		Signage
	S7	\$1,600.00	\$1,200.00	\$0.00	\$360.00	\$1,560.00	\$0.00		Signage
	S8	\$7,800.00	\$6,000.00	\$0.00	\$1,800.00	\$7,800.00	\$0.00		Speed Feedback Sign
	M1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Need a traffic study. Cost pending on the results.	Remove lane, extend curb
	M2	\$350,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Curb extension, landscape, signage
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
	L2	\$2,000,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Roundabout
B3	S1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		Signage
	S2	\$3,200.00	\$2,400.00	\$0.00	\$720.00	\$3,120.00	\$0.00		Signage
	S3	\$20,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb modifications
	S4	\$4,700.00	\$3,600.00	\$0.00	\$1,080.00	\$4,680.00	\$0.00		Crosswalks
	S5	\$1,100.00	\$800.00	\$0.00	\$240.00	\$1,040.00	\$0.00		Pavement marking
	S6	\$400.00	\$240.00	\$0.00	\$72.00	\$312.00	\$0.00		Pavement marking
	S7	\$6,900.00	\$4,200.00	\$0.00	\$1,260.00	\$5,460.00	\$1,365.00		Pavement marking
	S8	\$13,000.00	\$10,000.00	\$0.00	\$3,000.00	\$13,000.00	\$0.00		
	M1	\$243,800.00	\$100,000.00	\$65,000.00	\$30,000.00	\$195,000.00	\$48,750.00		Signal
	M2	\$180,400.00	\$74,000.00	\$48,100.00	\$22,200.00	\$144,300.00	\$36,075.00	If part can be done by developer, lower cost	Sidewalk and curb extension
	M3	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Need a traffic study. Cost pending on the results.	Lane conversion to bike lane
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
	L2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future design.	
B4	S1	\$44,000.00	--	--	--	--	--	MDOT SHA Estimate	Sidewalks and ADA ramps
	S2	\$1,300.00	\$1,000.00	\$0.00	\$300.00	\$1,300.00	\$0.00		Bike racks
	S3	--	--	--	--	--	--	Not Used	
	S4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		Signal timing update
	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00		ADA ramp and signal
	M2	\$10,400.00	\$8,000.00	\$0.00	\$2,400.00	\$10,400.00	\$0.00		Lighting
	L1	\$86,300.00	\$35,400.00	\$23,010.00	\$10,620.00	\$69,030.00	\$17,257.50		Close access points

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	L2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Temporary bike lanes
B5	S1	\$1,000.00	\$600.00	\$0.00	\$180.00	\$780.00	\$195.00		Pavement marking
	S2	\$10,600.00	\$8,100.00	\$0.00	\$2,430.00	\$780.00	\$0.00		Crosswalks
	S3	\$8,900.00	\$5,420.00	\$0.00	\$1,626.00	\$11,700.00	\$1,761.50		Curb extension and pavement marking
	S4	\$1,300.00	\$1,000.00	\$0.00	\$300.00	\$3,120.00	\$0.00		Sidewalk extension and ADA ramps
	S5	--	--	--	--	--	--	Not Used	
	S6	\$2,500.00	\$1,920.00	\$0.00	\$576.00	\$2,496.00	\$0.00		Speed hump
	S7	\$2,600.00	\$2,000.00	\$0.00	\$600.00	\$18,720.00	\$0.00		Bike racks
	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$0.00	\$65,000.00		Signal update with pedestrian signals
	L1	TBD		\$0.00	\$0.00	\$780.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
B6	S1	\$2,400.00	\$1,440.00	\$0.00	\$432.00	\$780.00	\$468.00		Pavement marking and signage
	S2	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Signage
	S3	\$11,700.00	\$9,000.00	\$0.00	\$2,700.00	\$11,700.00	\$0.00		Crosswalks
	S4	\$3,900.00	\$2,400.00	\$0.00	\$720.00	\$3,120.00	\$780.00		Pavement marking
	S5	\$800.00	\$540.00	\$0.00	\$162.00	\$702.00	\$0.00		Pavement marking
	S6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Assuming the property owner will relocate the sign.	Sign relocation
	M1	\$23,400.00	\$9,600.00	\$6,240.00	\$2,880.00	\$18,720.00	\$4,680.00		Curb extension, crosswalk, signage
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
B7	S1	\$350.00	--	--	--	--	--	MDOT SHA Estimate	Pavement marking
	S2	\$2,400.00	\$1,800.00	\$0.00	\$540.00	\$2,340.00	\$0.00		Signage
	S3	\$700.00	\$500.00	\$0.00	\$150.00	\$650.00	\$0.00		Tree and bush trimming
	S4	\$3,900.00	\$3,000.00	\$0.00	\$900.00	\$3,900.00	\$0.00		Pavement marking
	S5	\$3,100.00	\$2,340.00	\$0.00	\$702.00	\$3,042.00	\$0.00		Pavement marking and signage
	S6	\$7,800.00	\$6,000.00	\$0.00	\$1,800.00	\$7,800.00	\$0.00		
	S7	\$8,500.00	\$6,500.00	\$0.00	\$1,950.00	\$8,450.00	\$0.00		

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00	Need a full signal warrant study	New Signal
B8	S1	\$7,000.00	--	--	--	--	--	MDOT SHA Estimate	Crosswalk and ADA ramp
	S2	\$41,000.00	\$16,820.00	\$10,933.00	\$5,046.00	\$32,799.00	\$8,199.75		Curb extension, pavement marking, signage
	S3	\$12,900.00	\$9,900.00	\$0.00	\$2,970.00	\$12,870.00	\$0.00		Crosswalks
	M1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for traffic study results.	
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
	L2	\$2,400,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Roundabout
B9	S1	\$18,800.00	\$14,400.00	\$0.00	\$4,320.00	\$18,720.00	\$0.00		Crosswalks
	S2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		Signal timing update
	S3	\$93,600.00	\$38,400.00	\$24,960.00	\$11,520.00	\$74,880.00	\$18,720.00		Sidewalk
	M1	\$487,500.00	\$200,000.00	\$130,000.00	\$60,000.00	\$390,000.00	\$97,500.00		Sidewalk extension
	M2	\$500,000.00	--	--	--	--	--	MDOT SHA Estimate	Sidewalk extension, ADA ramps, crosswalk and updates signal to include ped signal
	M3	\$2,600,000.00	--	--	--	--	--	MDOT SHA Estimate	Sidewalk extension
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
H1	S1	\$49,800.00	\$30,600.00	\$0.00	\$9,180.00	\$39,780.00	\$9,945.00		Raised island
	S2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		Update traffic signal timing
	S3	\$65,000.00	--	--	--	--	--	MDOT SHA Estimate	New median, ADA ramp and relocate pole with APS/CPS ped signals
	M1	\$305,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb& gutter, crosswalks, and sidewalk options
	M2	\$1,1500,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Complex changes as shown in the schematic
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor - US 40 SUP
	L2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future shared use path study results.	

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H2	S1	\$1,000.00	--	--	--	--	--	MDOT SHA Estimate	Repair or replace CPS ped signal
	S2	\$168,200.00	\$69,000.00	\$44,850.00	\$20,700.00	\$134,550.00	\$33,637.50	Done by WAWA Developer	New sidewalk with ADA ramp
	S3	\$62,400.00	\$25,600.00	\$16,640.00	\$7,680.00	\$49,920.00	\$12,480.00		New sidewalk
	S4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		Evaluate signal timing
	S5	\$109,200.00	\$67,200.00	\$0.00	\$20,160.00	\$87,360.00	\$8,190.00		Pavement marking
	S6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00			
	M1	\$275,000.00	--	--	--	--	--	MDOT SHA Estimate	Upgrade traffic signal, crosswalks, ADA ramps, APS/CPS ped signals
	M2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Will be done by the WAWA developer.	Access points removal
	M3	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future driveway relocation study results.	Access point relocation
	M4	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future driveway relocation study results.	Access points removal
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor - US 40 SUP
H3	M1	\$600,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	R Cut
	M2	\$600,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Protected T
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor - US 40 SUP
H4	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00	Need a full signal warrant study.	New traffic signal
	M2	\$600,000.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Protected T
	M3	\$487,500.00	\$200,000.00	\$130,000.00	\$60,000.00	\$390,000.00	\$97,500.00	Need a traffic study.	R Cut
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor - US 40 SUP
H5	S1	\$1,000.00	--	--	--	--	--	MDOT SHA Estimate	Rumble strips
	S2	\$1,200.00	\$900.00	\$0.00	\$270.00	\$1,170.00	\$0.00		Pavement markings
	S3	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Signage
	S4	\$1,600.00	\$1,200.00	\$0.00	\$360.00	\$1,560.00	\$0.00		Signage

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	S5	\$400.00	\$300.00	\$0.00	\$90.00	\$390.00	\$0.00		Pavement markings
	S6	\$50,000	--	--	--	--	--	MDOT SHA Estimate	Curb extension and pavement markings
	S7	\$65,000.00	\$50,000.00	\$0.00	\$15,000.00	\$65,000.00	\$0.00	Legislative support is needed.	Speed camera with sign for speeding
	S8	\$23,800.00	\$18,250.00	\$0.00	\$5,475.00	\$23,725.00	\$0.00	Need a guardrail study to verify slope/topo and length of need.	Guardrail
	S9	\$85,000.00	--	--	--	--	--	MDOT SHA Estimate	Expand island, relocate signs, pavement markings
	S10	\$32,200.00	\$19,800.00	\$0.00	\$5,940.00	\$25,740.00	\$6,435.00		Pavement markings
	L1	\$1,600,00.00	--	--	--	--	--	MDOT SHA Estimate Need a traffic study.	Roundabout
	L2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Bike Lane Feasibility Study
	L3	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	
H6	S1	\$41,000.00	\$25,200.00	\$0.00	\$7,560.00	\$81,120.00	\$8,190.00		Pavement markings
	S2	\$17,200.00	\$13,200.00	\$0.00	\$3,960.00	\$17,160.00	\$0.00		Crosswalks and ADA ramps
	S3	\$311,600.00	\$127,800.00	\$83,070.00	\$38,340.00	\$249,210.00	\$62,302.50		Sidewalk
	S4	\$70,200.00	\$28,800.00	\$18,720.00	\$8,640.00	\$56,160.00	\$14,040.00		Sidewalk
	S5	\$46,800.00	\$19,200.00	\$12,480.00	\$5,760.00	\$37,440.00	\$9,360.00		Sidewalk
	S6	\$300.00	\$200.00	\$0.00	\$60.00	\$260.00	\$0.00		Pavement markings
	S7	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Coordination efforts. No construction.	Signage
	M1	\$325,000.00	\$200,000.00	\$0.00	\$60,000.00	\$260,000.00	\$65,000.00		Upgrade traffic signal, crosswalks, ADA ramps, APS/CPS ped signals
	M2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future detailed design project results.	
H7	S1	\$200,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb extension, ADA ramps, signage
	S2	\$200.00	\$90.00	\$0.00	\$27.00	\$117.00	\$0.00		Signage
	S3	--	--	--	--	--	--	Not Used	--

Intersection ID	Countermeasure	TOTAL Rough Order of Magnitude (ROM) Estimate (A+B+C+D)	Major Items Price (A)	Other Items for Significant Excavation: 65% (B)	Contingency: 30% (C)	Construction Total: (A+B+C)	Design/Permitting: 25% (D)	Remarks	Measures/Items
	S4	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Need a lighting improvement study. Cost pending on the results.	Lighting study
	S5	\$15,600.00	\$12,000.00	\$0.00	\$3,600.00	\$15,600.00	\$0.00	Need a traffic study.	
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor
	L2	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future detailed study and design results.	
H8	S1	\$200,000.00	--	--	--	--	--	MDOT SHA Estimate	Curb extension, ADA ramps, signage
	S2	\$15,000.00	--	--	--	--	--	MDOT SHA Estimate	Crosswalk, and ADA ramps
	S3	\$40,000.00	--	--	--	--	--	MDOT SHA Estimate	Crosswalk, and ADA ramps
	S4	\$15,600.00	\$12,000.00	\$0.00	\$3,600.00	\$15,600.00	\$0.00		Pavement markings
	S5	\$800.00	\$600.00	\$0.00	\$180.00	\$780.00	\$0.00		Signage
	S6	\$81,300.00	\$50,000.00	\$0.00	\$15,000.00	\$65,000.00	\$16,250.00	Need a traffic study to check RRFB warrants.	RRFB
	S7	\$130,000.00	--	--	--	--	--	MDOT SHA Estimate	
	L1	TBD		\$0.00	\$0.00	\$0.00	\$0.00	Cost pending for future bike lane study results.	Add bike lane on corridor

Notes

- These Rough Order of Magnitude (ROM) estimates are for project-planning purposes only. More detailed construction cost estimates can be developed when more information (topo, above- and under-ground utilities, metes-and-bounds property boundary survey, etc.) becomes available.
- Sources of the cost information include:
 - For the items remarked as “MDOT SHA Estimate” the estimated value was directly from MDOT, based on their recent actual project experiences.
 - Montgomery County Planning LATR-Cost Estimate Tool Ver 1.2.1., which is based on the latest MDOT SHA Price Index data.
 - Price information from the Internet for uncommon items, including FHWA, other state DOT agencies, and/or vendors.
- The ROM estimates for each countermeasure include:
 - Costs of the major pay items.
 - For countermeasures involving significant excavation: 65% for other percentage-base items including CLEARING & GRUBBING, DEMOLITION, MOBILIZATION, CONSTRUCTION STAKEOUT, GRADING, MOT, E&SC, DRAINAGE AND STORMWATER MANAGEMENT.
 - For all items: 30% planning-level contingency,
 - For countermeasures requiring design and permitting: 25% DESIGN AND PERMITTING.
- The need and price for potential right of way acquisition is NOT included.
- The Crash Modification Factor (CMF) data are based on information from the USDOT FHWA CMF Clearinghouse website (<https://www.cmfclearinghouse.org>).