ELKRIDGE

BICYCLE & PEDESTRIAN PRIORITY AREA PLAN

JANUARY 2026

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Howard County MARYLAND

Thank you to everyone who helped with this plan!

MDOT STATE HIGHWAY ADMINISTRATION

Shane Sarver

Molly Porter

Tony Verdicchio

Damon Kreiner

HOWARD COUNTY

Chris Eatough

David Cookson

Patrick Smith

Trey Dickerson

Felix Facchine

FEHR & PEERS

Nicole Waldheim

Sid Rayaprolu

Caroline Delcroix

RK&K

Dave Roberts

Tony Chan

Owen Hitchcock

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Prepared For:

Howard County MARYLAND

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION

Prepared By:

RK&K Fehr & Peers

Executive Summary

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Executive Summary

The Elkridge Bicycle and Pedestrian Priority Area Plan (BPPAP) identifies a coordinated set of projects and strategies to improve walking and bicycling safety, comfort, and connectivity in the Elkridge community. The plan is part of the Maryland Department of Transportation State Highway Administration (SHA) BPPA Program and was developed in partnership with the Howard County Office of Transportation, with technical support from RK&K and Fehr & Peers. The study focuses on U.S. Route 1, Montgomery Road, Old Washington Road, and connecting neighborhood streets that serve schools, transit, shopping, employment, and civic destinations.

Why the Elkridge BPPAP?

The BPPA Program targets locations with high walking and bicycling activity where state highways run through developed community corridors and activity centers. Elkridge meets these criteria and presents several conditions that warrant focused planning attention.

Within the study area, commercial frontages, motels, schools, shopping centers, churches, and the Elkridge Branch Library line US Route 1 and Montgomery Road. Nearby destinations such as Rockburn Branch Park, the future Elkridge Community Center, and the 50+ Center will increase local walking, bicycling, and transit use. Many homes are within a short distance of these generators, yet current conditions do not consistently support safe or comfortable trips by foot or bicycle. Key mobility needs in the BPPA include the following:

Severe Crash Risk Concentrated on US Route 1: Between 2019 and 2025, 28 police-reported crashes occurred within the BPPA, 24 of them on US Route 1. Of these, 3 were fatal and 17 resulted in serious injury. Approximately half of the 28 crashes involved a pedestrian or bicyclist, often at midblock locations and in dark or low-light conditions.

Gaps in Sidewalks, Crossings, and Low-Stress Connections: Sidewalks are missing along portions of US Route 1, Montgomery Road, Old Washington Road, Bauman Drive, and Hunt Club Road. Marked crossings are widely spaced in some segments, and several intersections lack crosswalks. Major corridors often function as high-stress links for bicyclists, limiting comfortable connections between neighborhoods and key destinations.

Corridor Form and Land Use Patterns that Create Conflict: Dense commercial driveways and frequent turning movements along US Route 1 increase angle and left-turn conflicts. At the same time, transit stops, motels, restaurants, and future community facilities generate pedestrian activity and midblock crossing demand that is not always aligned with existing crosswalks. On Montgomery Road, constrained cross sections near the I-95 bridge, narrow or intermittent bicycle facilities, and limited separation from traffic reduce comfort for people walking and bicycling.

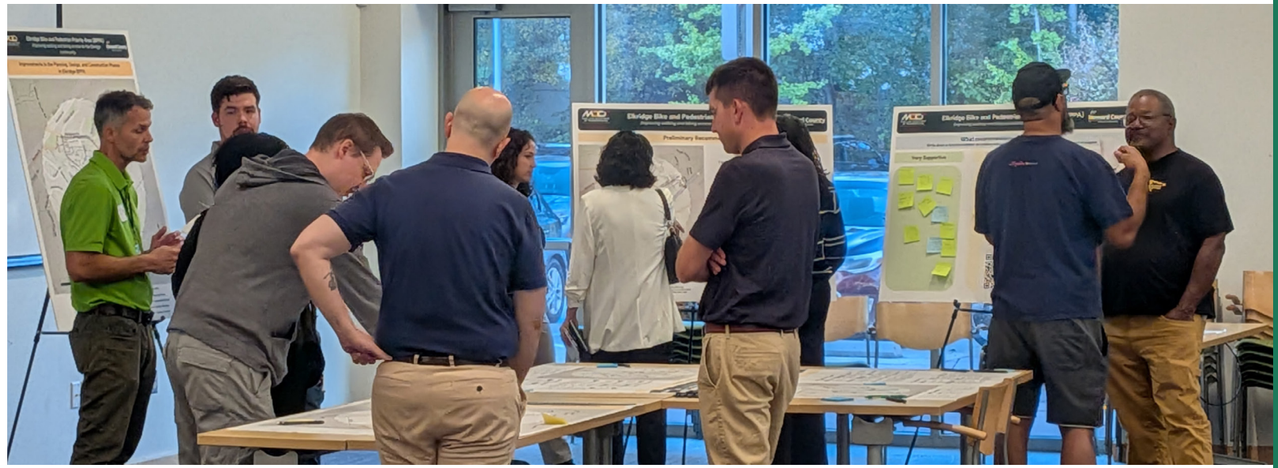
Anticipated Growth and Changing Travel Patterns: The Route 1 Corridor Plan, WalkHoward, BikeHoward, and HoCo By Design all anticipate continued reinvestment along US Route 1 and Montgomery Road. Without targeted improvements, additional activity could intensify existing conflicts and reinforce the corridor as a barrier between neighborhoods and key destinations.

Actions to Address Mobility Need

The Elkridge BPPAP responds to these needs by identifying bicycle, pedestrian, and safety projects along state and county facilities that can be advanced through capital programs, redevelopment, operations and maintenance projects. Key priorities include the following:

Safer and more direct crossings

- Add or upgrade crosswalks at key intersections and selected midblock locations on US Route 1 and Montgomery Road, particularly near Greenfield Road, Montgomery Road, Rowanberry Drive, and other high demand points.
- Shorten crossing distances where feasible using refuge islands, curb extensions, and tighter curb radii, and improve accessibility through ADA-compliant curb ramps and detectable warnings.
- Coordinate crossing locations with transit stops, schools, and the future community center so that people can cross where they need to reach their destinations.



Project team and attendees review draft Elkridge BPPAP materials during the public open house at the Elkridge Branch Library

Continuous sidewalks and walking routes

- Complete sidewalk gaps along US Route 1, Montgomery Road, Old Washington Road, Bauman Drive, Hunt Club Road, and selected local streets to provide continuous routes between neighborhoods and key generators.
- Widen narrow sidewalks and introduce buffers from traffic where space allows, particularly along US Route 1 and near the I-95 bridge on Montgomery Road.
- Address localized constraints such as steep side slopes, drainage, and bridge cross sections using context sensitive design so that critical links can be provided or upgraded.

Connected bicycling network

- Improve bicycling conditions on Montgomery Road and Old Washington Road through extension and refinement of bikeways, safer intersections, and stronger connections to neighborhood streets.
- Pursue long term shared use paths or comparable separated facilities on higher speed segments and use local streets and parallel routes to create lower stress alternatives where direct travel on US Route 1 is not comfortable.
- Integrate bicycle connections into planned projects and redevelopment along the corridor so that the network can be built incrementally.

Corridor operations, lighting, and transit access

- Manage left turn and driveway conflicts by consolidating or reconfiguring access points through redevelopment, using protected left turn phases where appropriate, and improving signing and markings.
- Improve lighting along US Route 1 and key walking routes so that sidewalks, crossings, and bus stops are more visible during evening and nighttime periods when many crashes occur.
- Upgrade transit stops with accessible boarding areas, appropriate spacing, and direct walking connections, and align stop locations with new crossings and major destinations.
- Use maintenance and near-term operations actions such as vegetation management, resurfacing, and restriping to preserve available pedestrian space and enhance visibility.

This plan provides a practical roadmap for advancing BPPA improvements over time.

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Project Background and Context

Project Background and Context

BPPA Program Context and Roles

The Elkridge Bicycle and Pedestrian Priority Area (BPPA) Plan is part of the Maryland Department of Transportation State Highway Administration's (SHA) Bicycle and Pedestrian Priority Area Program. The BPPA Program identifies and advances locations across Maryland where the potential for pedestrian and bicycle activity is high, where multimodal demand is expected to grow, and where targeted safety and connectivity investments can yield measurable benefits. Each BPPA study produces a coordinated, data-driven plan that aligns state and local priorities to support near-term implementation and long-term programming.

The Elkridge BPPA Plan was developed through a partnership between SHA and the Howard County Office of Transportation (OOT), with technical support from RK&K and Fehr & Peers.

- **SHA** served as the program lead, responsible for program direction, inter-office coordination, and technical guidance. The Office of Planning and Preliminary Engineering (OPPE), the Office of Highway Development (OHD), the Office of Traffic and Safety (OOTS), and District 7 provided continued oversight, data, and technical review to ensure consistency with statewide safety and mobility objectives.
- **Howard County OOT** served as the local partner, providing roadway and transit data, land-use and development context, and alignment with county transportation and capital improvement programs.

The partnership ensured that all recommendations are feasible within the regulatory, design, and funding frameworks of both SHA and Howard County, and that they advance shared multimodal safety and accessibility goals.

Project Goals

The Elkridge BPPA Plan is guided by four program goals established through the BPPA framework and confirmed by SHA and Howard County partners. These goals formed the foundation for evaluating needs, developing improvement concepts, and prioritizing recommendations.

Safety and Comfort: Enhance safety for pedestrians and bicyclists by addressing documented crash trends, improving crossings, lighting, and visibility, and managing vehicular speeds in mixed-use corridors.

Connectivity: Establish a cohesive multimodal network that links neighborhoods with schools, employment areas, shopping centers, and transit stops, reducing gaps between facilities.

Balanced Access: Integrate pedestrian and bicycle improvements with vehicular operations to support safe, efficient, and context-appropriate travel for all users.

Support for Future Growth: Anticipate new community and economic development, such as the future Elkridge Community Center, and ensure that future transportation investments accommodate expected growth and activity along key corridors.

Planning Process

The Elkridge BPPA Plan was developed in three phases: existing conditions and needs assessment, stakeholder and public engagement, and recommendations and implementation strategy.

First, the study built upon previous planning efforts and available data. Relevant State, County, and local plans were reviewed to identify previous recommendations and guiding policies. Existing geospatial datasets were compiled to document land use, roadway characteristics, pedestrian and bicycle facilities, and transit service. Pedestrian Level of Comfort (PLOC) and Bicycle Level of Traffic Stress (BLTS) analyses were completed, and reported crashes within the BPPA were analyzed to understand patterns of severe and vulnerable road user crashes. This work, together with the kickoff walking tour, produced an initial list of challenges and opportunities.

Second, a stakeholder workshop and public meeting were held. The workshop brought together SHA and Howard County staff to review existing conditions, validate the challenges and opportunities, and discuss potential strategies at key locations. The public meeting presented the study context, existing conditions, and preliminary recommendations, and used a survey to capture community priorities and location-specific feedback. These engagement activities refined the understanding of needs and helped frame which strategies were most supported by agencies and the community.

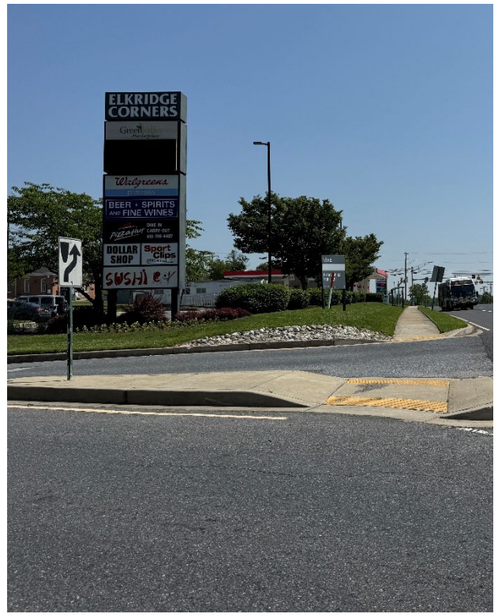
Finally, draft recommendations were developed and refined based on technical analysis, stakeholder input, and public feedback. A screening and fatal flaw review was conducted to confirm that concepts are feasible at a planning level and coordinated with programmed projects. The resulting projects were organized into a priority matrix that identifies short-term and long-term improvements and provides a basis for future implementation by SHA and Howard County.

Study Area and Key Generators

The Elkridge BPPA, shown in Figure 1, encompasses the core of the Elkridge community along US 1, Montgomery Road, and Old Washington Road, including adjacent neighborhoods and commercial corridors that form the community's primary travel spine. The study area spans both sides of I-95, which creates an east–west connectivity barrier for pedestrians and bicyclists. The general BPPA boundaries are Elibank Drive/Lawyers Hill Road and I-95 to the north, Bauman Drive and Hunt Club Road to the west, Doctor Patel Drive and Elkridge Crossing Way to the east, and Pine Avenue and South Hanover Road to the south. Within these boundaries, the area includes a mix of residential neighborhoods, institutional uses, industrial and retail frontages, and emerging community destinations.

Key generators within the BPPA include:

- Elkridge Branch Library on US 1, which serves as a major civic destination and transit access point.
- Elkridge Elementary School and Elkridge Landing Middle School on Montgomery Road, which generate concentrated school-day walking, biking, and drop-off activity.
- The existing Elkridge 50+ Center and the future Elkridge Community and 50+ Center near Old Washington Road and Greenfield Road, which together will function as a major community hub and trip generator.
- The Elkridge Corners Shopping Center at US 1 and Montgomery Road, along with other commercial frontages on US 1 that attract daily shopping and service trips.
- Existing and planned transit stops, including Regional Transportation Agency (RTA) Route 409 bus stops and nearby microtransit service areas, which rely on safe, comfortable first- and last-mile connections.



Elkridge Corners Shopping Center

Adjacent generators that influence travel within the BPPA include:

- Rockburn Branch Park and nearby recreational facilities west of Bauman Drive, which draw visitors through the study area by all modes.
- Industrial and employment areas just south and east of the BPPA along US Route 1 and South Hanover Road, which contribute to truck activity and commuter traffic on the study corridors.

FIGURE 1
Contextual Map

Fehr & Peers

Building on Previous Work

At the outset of the project, the team reviewed a range of State and County plans and policies to ensure that the study's goals, methods, and recommendations align with the broader transportation and land-use vision for Howard County and the state of Maryland. These documents establish the regulatory and strategic framework that guides investment in walking, biking, transit, and roadway infrastructure. They also outline the priorities that shape how transportation projects are planned and implemented, with safety, connectivity, equity, multimodal access, support for economic and community development, and sustainability emerging as the most important.

State

Maryland Statewide Bicycle & Pedestrian Master Plan

Published in 2024, the *Maryland Bicycle & Pedestrian Master Plan* (BPMP) provides a 20-year framework to improve walking and biking access statewide. It emphasizes safety, equity, and affordability while promoting a shift from single-occupancy vehicles to active transportation. Using tools like Level of Traffic Stress and infrastructure inventories, the plan assesses current conditions and guides improvements. Key priorities include expanding trail and bikeway networks, integrating transit and Complete Streets policies, and supporting local efforts aligned with climate resilience and equity goals.

Relevance to BPPA: The BPMP presents specific locational data that supported the development of the Elkridge BPPA. The *Maryland BPMP* aggregated the Bicycle Level of Traffic Stress (BLTS) results originally conducted by SHA in 2022 and documented ADA-compliant sidewalks. See page 31 for more information about BLTS.

County

WalkHoward – Howard County Pedestrian Master Plan

Enacted in 2019, *WalkHoward* was developed to address pedestrian network improvements not covered by the 2007 plan. It outlines a range of network and facility recommendations based on identified deficiencies, including inadequate sidewalks and buffers, substandard bus stop infrastructure, gaps in the sidewalk network, and missing or non-compliant curb ramps. The plan also includes structured project recommendations, focusing on new sidewalk installations and intersection improvements to enhance pedestrian safety and connectivity.

Relevance to BPPA: WalkHoward recommends numerous infrastructure improvements within the study area, including both sidewalk and crossing improvements. The Plan specifically recommends new sidewalks along Route 1, Old Washington Road, and Montgomery Road; and proposes sidewalk improvements along some segments of Rowanberry Drive. Improvements are also proposed at 15 intersections within the study area, at both signalized and unsignalized locations.

BikeHoward – Howard County Bicycle Master Plan

BikeHoward, formally adopted in April 2016, is designed to create a connected, safe, and accessible bicycle network for all ages and abilities. Inspired by the 2012 PlanHoward2030, it emphasizes on- and off-street infrastructure, policy reforms, programs, and funding strategies to increase cycling safety and participation. The plan assesses existing facilities and offers phased recommendations—short-, mid-, and long-term—for high-quality bikeways such as protected lanes and shared paths. It also calls for policy initiatives (like Complete Streets, pedestrian/bicycle coordinator roles), educational efforts (safe routes to school, bike parking, safety campaigns), and coordinated funding approaches with state and regional agencies.

Relevance to BPPA: *BikeHoward* identifies specific mid- and long-term corridor upgrades, including on Montgomery Road, Route 1, and Old Washington Road, some of which have already been implemented.

HoCo By Design – Howard County General Plan

HoCo By Design was adopted in October 2023 as a 20-year roadmap for land use, growth, conservation, infrastructure, and public services. Its guiding principles are equity, predictability, sustainability, achievability, and balance. The plan outlines a transportation system designed to ensure safety, accessibility, and reliability for all users through investments that close mobility gaps, promote active transportation and expand transit options.

Relevance to BPPA: The *Howard County General Plan* aims to guide commercial, industrial, and residential redevelopment at activity centers while preserving the area's employment-rich industrial and manufacturing base along Route 1. It also places emphasis on enhancing local street infrastructure, including new sidewalks, bike lanes, and safer pedestrian and transit access.

Transit Development Plan

The *2023 Transit Development Plan* (TDP) is a five-year roadmap for expanding and improving Howard County's transit network. It evaluates existing services, identifies unmet needs, and recommends targeted improvements. The larger goals it serves include equity, safety, connectivity, ridership growth, job access, and greenhouse gas reduction (GHG) reduction.

Relevance to BPPA: The *Transit Development Plan* includes the extension of RTA Route 409 to Elkridge and the implementation of a Microtransit pilot along Route 1, both of which have since been implemented. It also includes a new route between Columbia and Elkridge, set to launch in 2026.

Route 1 Corridor: A Plan for Washington Boulevard

Adopted by Howard County in 2023, the *Route 1 Corridor Plan* covers the 12-mile stretch of Route 1 through Howard County and focuses on preserving industrial uses while encouraging safety-focused redevelopment.

Relevance to BPPA: In Elkridge, the *Route 1 Corridor Plan* envisions a vibrant mixed-use activity center, complete with public spaces that foster community gathering. This transformation emphasizes walkability and enhanced streetscapes—designed to be attractive, accessible, and safe—while accommodating ongoing semi-truck activity.

The US 1 Safety Evaluation

The *US 1 Safety Evaluation* was published by the Howard County Office of Transportation in 2019 to identify short-term strategies to improve pedestrian and bicyclist safety along the corridor. Four focus segments were prioritized based on crash data and pedestrian activity.

Relevance to BPPA: One of the four focus segments included the stretch from Greenfield Road, within the study area, to Levering Avenue, north of the study area. Deficiencies identified within this area include inadequate pedestrian crossings near activity centers and insufficient roadway lighting. Recommended improvements include new sidewalk segments, pedestrian-activated signals, marked crosswalks, ADA-compliant curb ramps, and additional lighting infrastructure.

Priority Letters to MDOT

The *FY 2025–2026 Howard County Priority Letter,* submitted by the Howard County Executive to the Secretary of the Maryland Department of Transportation, outlines the County's top transportation funding requests. It identifies safety and public transit on US 1 and US 29 as the highest priorities. Key recommendations include pedestrian, ADA, and safety upgrades; support for RTA system maintenance; and implementation of *BikeHoward* initiatives.

Relevance to BPPA: Among the projects listed in the Priority Letter, the intersection of US 1 and Doctor Patel Drive is specifically highlighted as a priority for safety improvements. Construction is currently underway at this intersection consistent with this recommendation.

RTA Route 409 bus stop on US 1 near Elkridge Corners

Existing Conditions

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Existing Conditions

This chapter describes the conditions that shape how people travel within the Elkridge BPPA today. It begins with an overview of the community's context, population, and demographic characteristics, followed by a summary of challenges that limit safe and comfortable travel for people walking and bicycling. The chapter then examines each travel mode, starting with the roadway network and its associated land use patterns, before assessing pedestrian conditions using the Pedestrian Level of Comfort (PLOC) methodology and bicycle conditions using the Bicycle Level of Traffic Stress (BLTS) framework. It concludes with a crash analysis that highlights the most common characteristics and contributing factors of crashes over the past five years.

Elkridge Community and Travel Characteristics

Elkridge Overview

Elkridge is an unincorporated community and Census-designated place in Howard County, Maryland. Covering roughly 8.7 square miles, it is located approximately 10 miles southwest of downtown Baltimore and functions as a suburban community within the Baltimore metropolitan region. The community is bordered by Jessup to the south, Ilchester to the west, Ellicott City to the northwest, and Baltimore County to the east. Its location provides access to major regional corridors, including US Route 1 and Interstate 95 (U.S. Census Bureau, 2020 Census Gazetteer Files).

Demographics and Travel Patterns

According to the U.S. Census Bureau's American Community Survey (ACS) 2019–2023 5-Year Estimates, Elkridge has a total population of approximately 26,200 residents. The community is racially diverse, with about 36 percent of residents identifying as White, 33 percent as Black, 21 percent as Asian, 3 percent as another race, and 6 percent as biracial. Approximately 6 percent of residents identify as Hispanic or Latino. Elkridge has a relatively young population, with approximately 27 percent of residents under the age of 18 and about 8 percent age 65 or older (ACS DP05). Median household income in Elkridge is approximately $132,000 (ACS K201902).

Travel patterns indicate a strong reliance on private vehicles. Based on the ACS 5-Year Estimates, approximately 3 percent of households in Elkridge have no vehicles available, compared to 9 percent statewide (ACS 2024 1-Year Supplemental Estimates, Table S2504), while 34 percent have one vehicle, 44 percent have two vehicles, and 20 percent have three or more vehicles (ACS S2504). Among renter-occupied households, many of which are concentrated within the BPPA, vehicle ownership is lower, with approximately 6 percent having no vehicles available and 58 percent having one vehicle (ACS S2504).

Commute data indicate that approximately 70 percent of workers drive alone, 4 percent carpool, 6 percent use public transit, and 20 percent work from home (ACS 2024 1-Year Supplemental Estimates, Table K200801). Statewide, 66 percent of workers drive alone, 9 percent carpool, 5 percent use public transit, 2 percent walk, 2 percent use another means, and 16 percent work from home (ACS 2024 1-Year Supplemental Estimates, Table B08006). Countywide transit usage is increasing. In Fiscal Year 2025, the Regional Transportation Agency of Central Maryland reported more than one million passenger trips, representing a 6.4 percent increase over FY2024 and an 11 percent increase over FY2019 (Howard County Government, 2025).

US 1 and BPPA-Wide Challenges

Figures 2 and 3 illustrate the visible challenges that people walking and bicycling encounter throughout the BPPA. These challenges include incomplete sidewalk networks, limited or missing crosswalk markings, maintenance needs, geometric constraints, and other contextual factors. Figure 2 presents challenges in the BPPA outside of US 1, while Figure 3 identifies challenges along US Route 1. Challenges along US 1 are presented in a standalone figure because the majority of pedestrian and bicyclist risk within the BPPA occurs along that corridor. Together, these summaries provide important context for the more detailed analyses that follow.

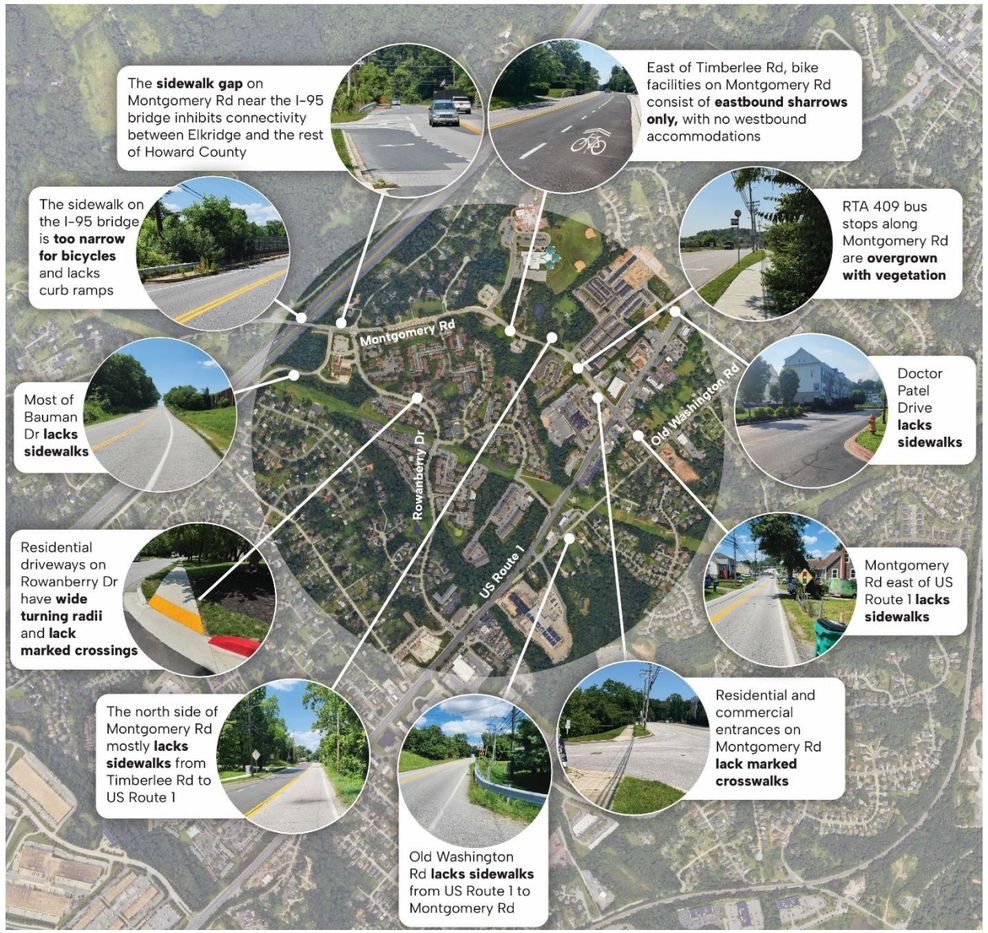
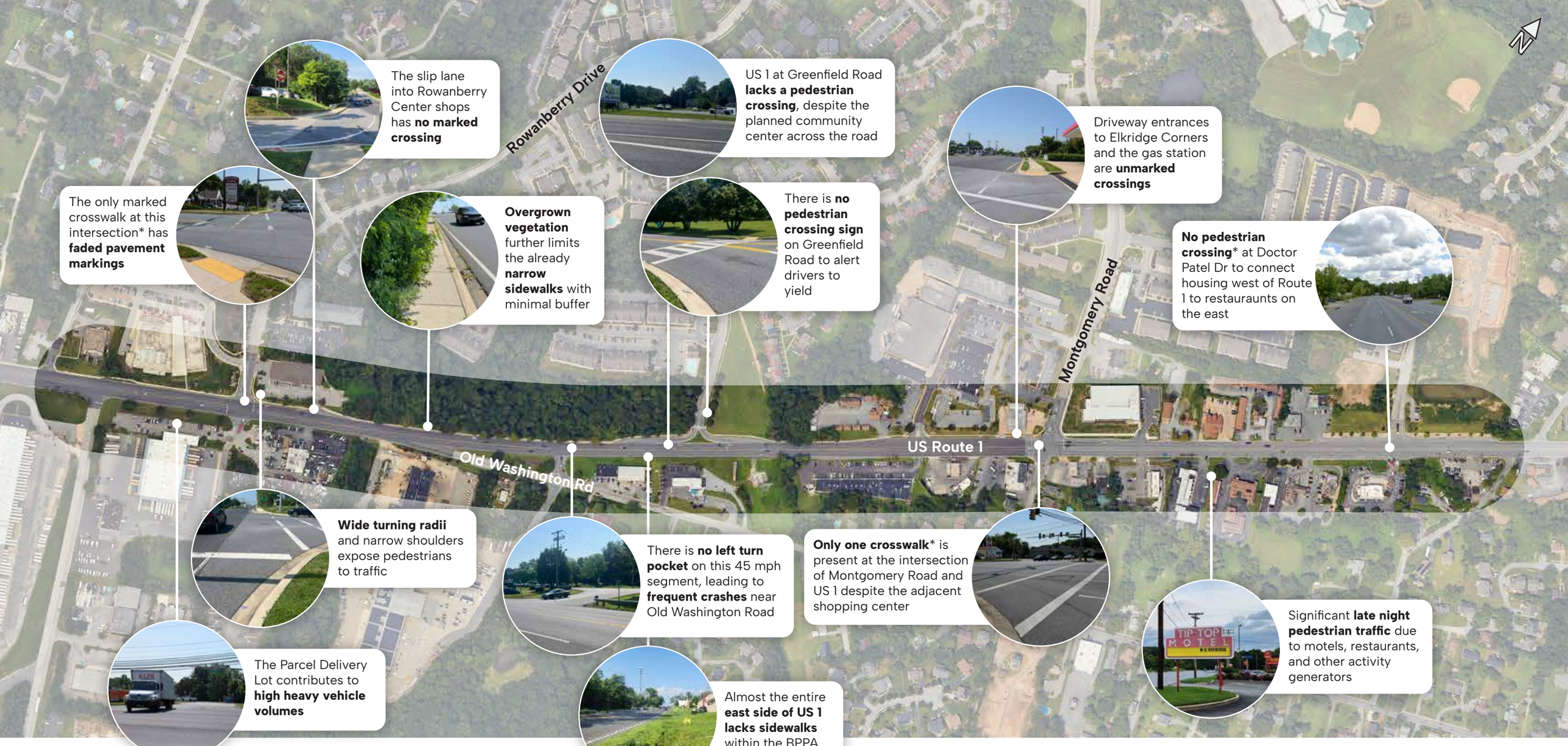


Figure 2: Infrastructure and Safety Challenges in the BPPA Outside the US 1 Corridor



*Crosswalks are in the construction phase at these intersections

Corridor-wide Challenges

- High Speeds
- Heavy Truck Presence
- Lack of Streetlights
- Steep Vertical Grades
- Long Distances Between Crossings
- No Bicycle Facilities

FIGURE 3

Infrastructure and Safety Challenges on US Route 1

Fehr & Peers

Existing Roadway Network and Land Use Context

Roadway Network Overview

The BPPA area is primarily residential, supported by active commercial and community centers along its main corridors. However, the area's connectivity is limited. It is fractured by US Route 1, which has discontinuous sidewalks and few crossing opportunities, creating a barrier between neighborhoods and nearby destinations. To the west, the community is further segmented from the rest of Howard County by limited connectivity across the I-95 bridge. While spot improvements have been made in recent years, these have not established a continuous network of bicycle and pedestrian facilities sufficient to provide safe, convenient access to existing and planned community and commercial centers within the BPPA.

Main Corridors

The main corridors in the BPPA are those that carry the highest volumes of vehicular, pedestrian, and bicycle activity and provide essential access to key destinations, transit stops, commercial areas, and surrounding neighborhoods.

Interstate 95 (I-95)

I-95 serves as the primary regional and interstate corridor, providing vital north–south connectivity along the East Coast. Access to the BPPA area from I-95 is available south of the study area via Maryland Route 100 (MD 100). The interstate also borders the northern edge of the BPPA, where Montgomery Road crosses I-95 via an overpass. While the bridge maintains vehicular connectivity, it presents challenges for safe and comfortable bicycle and pedestrian access.

US Route 1 (US 1)

US 1, classified by Howard County as an Intermediate Arterial, and as a Principal Arterial by SHA and FHWA, functions as the main commercial corridor through the BPPA. The corridor is owned and maintained by SHA. It carries significant traffic volumes—approximately 23,000 vehicles per day (VPD) in 2022, according to SHA data, as shown in Figure 4. Land uses along US 1 are primarily commercial, with some industrial uses concentrated near the southern end of the BPPA. The corridor carries both local and through-traffic, creating high demand for mobility and access that, combined with limited bicycle and pedestrian infrastructure, raises safety concerns for non-motorized users.

Montgomery Road

Montgomery Road is classified as a Minor Arterial west of US 1, where it is maintained by Howard County. East of US 1, SHA classifies the roadway as a Local road, while Howard County classifies it as a Collector based on its functional role. This portion east of US 1 is maintained by SHA. Traffic volumes reach approximately 9,400 VPD (SHA 2022). It provides east–west connectivity within the BPPA, linking residential areas to US 1 and community destinations. The corridor also provides access to two schools located along Timberlee Road. Recent infrastructure improvements have improved bicycle and pedestrian access along segments of Montgomery Road.

Old Washington Road

Old Washington Road is classified as a Local roadway by SHA and as a Collector by Howard County. It serves medium-density residential neighborhoods. The forthcoming construction of a community center along Old Washington Road will likely increase traffic volumes and activity.

Rowanberry Drive

Rowanberry Drive is classified as a Local roadway by SHA and as a Collector by Howard County. It serves high-density residential neighborhoods near the center of the BPPA. Rowanberry Drive provides access to community facilities, including the Elkridge Branch Library and the Elkridge Fire Station.

FIGURE 4
Traffic Volumes

Fehr & Peers

Land Use and Development Patterns

The SHA Context Driven Guide, published in 2019, emphasizes designing roadways to function safely and effectively within their surrounding land use context. The Elkridge BPPA is primarily classified as a Suburban Activity Center, characterized by a moderate mix of residential, commercial, and community uses and a range of travel modes. This context reinforces the need for a balanced approach that supports access to destinations while maintaining mobility and safety for all users.

The most intense land use in the Elkridge BPPA is concentrated along US 1, with residential neighborhoods stepping down in density to the west and north and light industrial activity concentrated in the southern and eastern segments. These patterns shape where people walk and bike and where conflicts with turning traffic and driveway access are most likely to occur. This subsection provides additional context on safety and mobility in the BPPA.

Commercial Frontages along US 1

A continuous band of retail and services lines US 1, supported by closely spaced driveways and high turnover traffic.

Why This Matters

Frequent left-turn and angle movements at intersections and access points, combined with people crossing to reach bus stops and storefronts, contribute to the concentration of turning and angle crashes documented along the corridor and highlight the need for access management, safer crossings, and improved lighting.

Mixed-Use and Redevelopment Nodes Near Elkridge Crossing Way, Doctor Patel Drive, and the US 1–Montgomery Road Hub

Residential–commercial complexes and shopping centers in these areas function as daily anchors and are likely to intensify with corridor reinvestment.

Why This Matters

High pedestrian activity, transit use, and driveway activity overlap at these nodes, reinforcing the need for frequent, well-placed crossings, ADA-compliant transit access, and low-stress bicycle connections to Montgomery Road and surrounding neighborhoods.

Higher Density Residential Near Rowanberry Drive and Greenfield Road

Apartments and townhomes around Rowanberry Drive and Greenfield Road generate steady local walking activity and higher transit use, with many trips oriented to the library, schools, shopping, and the future community center.

Why This Matters

Continuous sidewalks, accessible bus stops, and direct connections to US 1 crossings and Montgomery Road bikeways are critical to serving these everyday trips safely and comfortably.

Townhouses along Rowanberry Drive

Medium-Density Residential Near Old Washington Road, Hanover Road, Hunt Club Drive, and Bauman Drive

Single-family neighborhoods in these locations connect to the larger network through a limited set of outlets to US 1 and Montgomery Road, often at intersections with large curb radii or multiple driveways.

Why This Matters

These conditions increase turning speeds and crossing distances, so filling sidewalk gaps and improving crossings at these approaches can reduce exposure for people walking and biking while maintaining access for local traffic.

Lower-Density Residential North of Lawyers Hill Road and Elibank Drive

Curvilinear local streets and the I-95 barrier lengthen walking and biking routes between neighborhoods, schools, parks, and the library.

Why This Matters

Residents often rely on indirect paths to reach Montgomery Road and US 1, so wayfinding and lower-stress connector routes that avoid the most challenging segments of US 1, where feasible, can improve access to key generators without requiring every trip to use the state highway frontage.

Industrial and Freight-Supporting Uses Along and South of US 1 Near Pine Avenue and South Hanover Road

Light industrial and service yards along and south of US 1 contribute to truck presence and higher turning volumes at driveways and intersections.

Why This Matters

Higher truck activity increases conflicts with people walking and biking, especially where sidewalks are narrow or missing and crossings are long, pointing to the need for treatments that organize turning movements, manage access, and provide pedestrian-scale lighting.

Existing Pedestrian Network

Pedestrian Level of Comfort Methodology

To understand how walkable and comfortable the study area is for pedestrians, an analysis was conducted to quantify pedestrian comfort based on roadway, sidewalk, and crossing characteristics. Specifically, the study applies the Montgomery County Pedestrian Level of Comfort (PLOC) Methodology (Montgomery County Planning Department, 2020).

Montgomery County's PLOC is one of the most established local methodologies in the region, with clear criteria and tested scoring procedures. In the absence of documented PLOC methodologies from Howard County and SHA, the project team agreed that the Montgomery County methodology provides a consistent and locally relevant way to assess pedestrian comfort until county or state methodologies are finalized.

For streets with sidewalks, PLOC scoring considers pathway width, posted speed limit, buffer width, and buffer type (parking lane, bike lane, or two-way separated bike lane). For streets without sidewalks, PLOC scoring considers roadway functional classification, the presence or absence of on-street parking, and the posted speed limit. For controlled crossings, the scoring evaluates the number of lanes, median type, crosswalk type, and posted speed limit.

Based on these factors, a pedestrian facility receives one of four scores:

- Very Comfortable (1)
- Somewhat Comfortable (2)
- Uncomfortable (3)
- Undesirable (4)

The methodology was applied throughout the BPPA using available roadway, speed, and infrastructure data. Appendix A provides the materials supporting this analysis, including the detailed PLOC scoring tables, the data sources used in the assessment, and the assumptions developed in coordination with Howard County staff to align local inputs with Montgomery County's guidelines.

Figure 5 shows the results of the Pedestrian Level of Comfort analysis. The solid-colored lines represent existing crossing locations and sidewalks, and their assigned PLOC score ranges from 1 (Very Comfortable) to 4 (Undesirable). The dashed lines represent roadways with no sidewalks, which receive scores ranging from 3 (Uncomfortable) to 4 (Undesirable) because no pathway or buffer is present.

Key Findings

- Widespread sidewalk gaps significantly limit pedestrian connectivity.
- Pedestrian comfort is low along most major corridors within the BPPA.
- Marked crossings are often inadequate or missing at key locations.

FIGURE 5

Pedestrian Level of Comfort (PLOC)

Fehr & Peers

Sidewalk Gaps

Significant sidewalk gaps exist throughout the BPPA, particularly along the area's primary corridors. Figure 5 illustrates these gaps, using dotted lines to denote roadway segments where sidewalks are missing; the color of each dotted line reflects the corresponding PLOC score shown in the legend. Segments without sidewalks can receive at best an Uncomfortable rating and are rated Undesirable on roads with posted speeds of 30 mph or higher or on roads with high traffic volumes. Table 1 provides a summary of these sidewalk gaps by roadway, highlighting where missing facilities most affect access, comfort, and safety for people walking within the BPPA.

TABLE 1: INVENTORY OF SIDEWALK GAPS ACROSS BPPA ROADWAYS

Road	Sidewalk Gaps
US Route 1	Nearly the entire east side lacks sidewalks, except for a short segment north of Montgomery Road constructed with an adjacent development; several sidewalk gaps also exist on the west side north of Montgomery Road.
Montgomery Road	Sidewalk gaps between Old Washington Road and US 1 limit access between residential areas and the shopping center and future community center.
	An additional gap extends from Bauman Drive to the west for approximately one mile, restricting access between neighborhoods and BPPA destinations and limiting pedestrian access to Rockburn Park.
Old Washington Road	Lacks sidewalks west of Montgomery Road, creating a barrier to accessing the future community center, and only has sidewalks on one side of the road to the east of Montgomery Road.
Doctor Patel Drive	Lacks sidewalks despite serving high-density residential development.
Hanover Road	Has no sidewalks within the BPPA, with the gap continuing more than a quarter mile south of Old Washington Road.
Bauman Drive	Sidewalks exist only near the fire station; the remainder of the roadway lacks pedestrian facilities.
Hunt Club Road	Lacks sidewalks along the entire west side and along both sides north of Pheasant Drive.
Smaller Streets	Several neighborhood streets—including Grouse Road, Pheasant Drive, and Setter Drive—lack sidewalks, creating uncomfortable conditions.

These sidewalk gaps inhibit access to residential and commercial areas within the BPPA. Figures 6 and 7 illustrate two typical examples along US Route 1 and Doctor Patel Drive, where missing sidewalks limit safe and direct access for people walking.

Figure 6: Lack of Sidewalks on the East Side of US 1 at Old Washington Road

Figure 7: Lack of Sidewalks Along Doctor Patel Drive

Low-Comfort Sidewalk Segments

Several key corridors score poorly in the PLOC assessment. As shown in Figure 5, segments rated Undesirable are displayed in orange and those rated Uncomfortable are shown in yellow. Table 2 highlights these roadway segments within the BPPA study area that exhibit the lowest comfort levels.

TABLE 2: INVENTORY OF LOW COMFORT SIDEWALK SEGMENTS ACROSS BPPA ROADWAYS

Road	Undesirable or Uncomfortable Sidewalk Attributes
US Route 1	Sidewalks along US Route 1 are identified as Undesirable in nearly all locations due to narrow widths, high adjacent vehicle speeds, and minimal or nonexistent buffers separating pedestrians from traffic.
Montgomery Road	While the newer sidewalk segments on Montgomery Road farther from US 1 score Very Comfortable, the segments closer to US 1 are rated Undesirable due to very narrow or absent buffers.
Old Washington Road	Along Old Washington Road, sidewalk facilities are present only west of Montgomery Road, almost exclusively on the north side of the road, and consist of narrow segments less than five feet wide with no buffer.
Hunt Club Road	Hunt Club Road has narrow sidewalks with no buffer north of the library entrance.

While the PLOC scores capture many key factors affecting pedestrian comfort, on-the-ground conditions can further shape the walking experience in ways not fully reflected in the scoring. Figure 8 illustrates how elements such as overgrown vegetation limiting the effective sidewalk width, no shoulder, and high vehicle speeds along US Route 1 contribute to an uncomfortable and constrained environment for people walking.

Figure 8: Overgrown Vegetation Limits the Width of US 1 Sidewalk Near Greenfield Road

Inadequate Crossings

All existing marked pedestrian crossings in the BPPA are shown in Figure 5, as are the crossings currently in the construction phase at the US 1 intersections with Doctor Patel Drive, Rowanberry Drive, and Montgomery Road. PLOC ratings shown in the figure reflect existing conditions, so crossings under construction are scored based on their current unmarked state. These locations are expected to improve moderately once high-visibility markings are installed.

In general, marked pedestrian crossings are limited within the BPPA, and several of the existing crossings perform poorly in the PLOC assessment due to high vehicle speeds, wide roadway widths, and limited pedestrian protection. Table 3 highlights crossing opportunities within the BPPA study area, and characteristics that make a majority of them uncomfortable or undesirable for pedestrians.

TABLE 3: PEDESTRIAN CROSSING AVAILABILITY AND COMFORT AT KEY LOCATIONS

Intersection or Corridor	Crossing Opportunity
US 1 / Montgomery Road	The intersection of US 1 and Montgomery Road has the only existing marked crossing over US 1 within the BPPA, located on the south leg of US Route 1. This crossing is rated Undesirable by the PLOC methodology and uses transverse markings rather than the preferred high-visibility continental crosswalk pattern. It is the only marked crossing at the intersection; the east and west legs remain unmarked.
US 1 / Doctor Patel Drive	Currently under construction, the crossing at Doctor Patel Drive will span six lanes with a posted speed of 40 mph and no median refuge, resulting in an Undesirable rating. Only the US 1 southbound crossing and the west leg of the intersection will be marked, leaving two legs unmarked.
US 1 / Rowanberry Drive	Currently under construction, the crossing at Rowanberry Drive will cross five lanes with a posted speed of 45 mph and no pedestrian refuge, resulting in an Undesirable rating. Two marked crossings are being added here, leaving the north leg of US 1 unmarked. Even with these upgrades, the future community center will remain approximately a quarter mile from the nearest crossing over US 1, limiting safe and direct pedestrian access.
Montgomery Road	Crossings on Montgomery Road near Timberlee Road, where pedestrian refuges, high-visibility markings, and multiple warning signs have been installed, are rated Somewhat Comfortable, with the posted speed limit of 35 mph being the only factor preventing them from receiving the highest score.
Rowanberry Drive	Along Rowanberry Drive, the only marked crossing is located near the library at the southern end of the corridor. This crossing is rated Very Comfortable, supported by a narrowed roadway and a median island that together provide horizontal deflection and effective traffic calming. However, no other marked crossings exist on Rowanberry Drive.

As shown in Figure 9, the west leg of Montgomery Road and US Route 1 is currently rated Undesirable because it spans four travel lanes at a posted speed of 35 mph. Although a marked crossing is now in the construction phase, its PLOC rating will improve only marginally to Uncomfortable once the markings are installed.

Several stop-controlled intersections altogether lack marked pedestrian crossings, including Rowanberry Drive and Greenfield Road; Bauman Drive and Montgomery Road; Old Washington Road and Montgomery Road; and Hunt Club Road and US 1. Several locations along US 1 and Montgomery Road, such as Timberlee Road, Lawyers Hill Court, the entrances to the Elkridge Corners shopping center, and the entrance to the Rowanberry Center shops, also lack marked pedestrian crossings on the minor approach despite serving important residential and commercial destinations.

Figure 9: The West Leg of Montgomery Road at US Route 1 Lacks a Marked Pedestrian Crossing

Existing Bicycle Conditions

Bicycle Level of Traffic Stress Methodology

A Bicycle Level of Traffic Stress (BLTS) analysis was originally conducted by SHA in 2022. The project team reanalyzed several roadway segments and updated the BLTS scores to reflect current conditions, including recent speed limit changes, updated traffic volumes, and new bicycle facilities. All assessments follow the same BLTS methodology developed by Dr. Peter G. Furth, which is the standard for both SHA and Howard County. BLTS scoring considers the presence and type of bicycle facility, speed limit, the number of through lanes, and traffic volume. Based on these factors, a roadway facility receives a BLTS score of 1 through 4. For roadways where bicycles are prohibited by the managing roadway agency, the BLTS score is assigned a 5. The lower the BLTS score, the more inviting the bicycle facility is for more audiences, ranging from "all ages and abilities" to "strong and fearless" riders.

A detailed explanation of this methodology is provided in Appendix A, including detailed tables excerpted from the Howard County Design Manual.

Key Findings

- Local neighborhood streets provide generally low-stress biking conditions.
- Overall bicycle connectivity is limited by high-stress conditions on key connecting roads.
- US 1 has the most stressful conditions, inhibiting connectivity and access to destinations along its frontage.

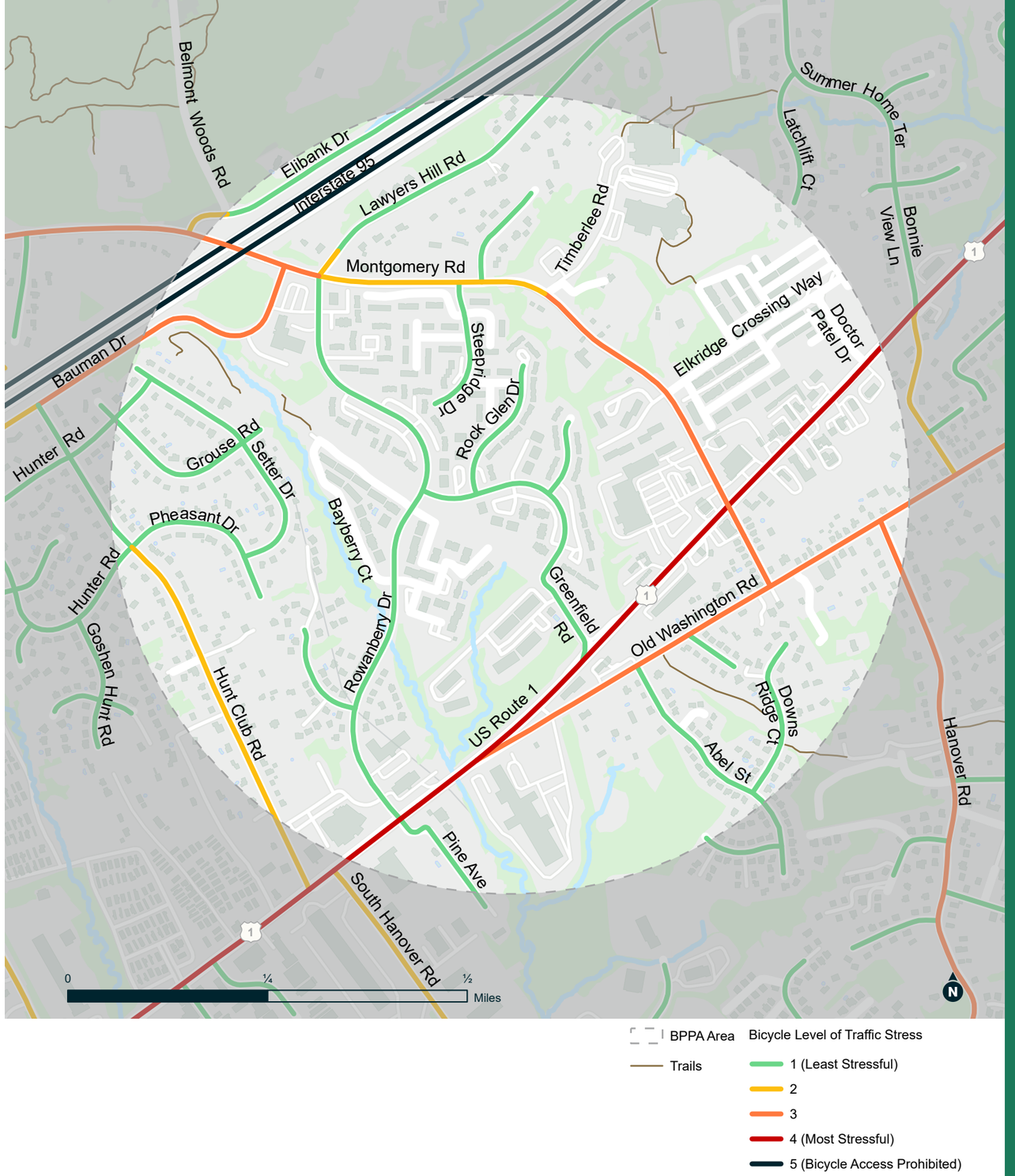


FIGURE 10

Bicycle Level of Traffic Stress

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Limited Bicycle Connectivity

Bicycle comfort within the BPPA varies widely, with low-stress conditions concentrated on residential streets that offer limited connectivity, while the major corridors that link key destinations remain high-stress and form significant gaps in safe, comfortable access. A newly added half-mile of bicycle lanes on Montgomery Road marks the only dedicated facility in the area, on which bike lanes are provided in both directions for only part of its length. Beyond this short improvement, bicyclists encounter high-stress conditions driven by high speeds, limited shoulders, and the absence of dedicated facilities—particularly along connections to key destinations such as Rockburn Park, Troy Park, the BWI Trail, and the future community center. Constrained infrastructure, including the narrow I-95 bridge crossing, further limits safe and comfortable travel.

Table 4 summarizes bicycle comfort across key roadway segments in the BPPA, highlighting where high-stress conditions limit access to major destinations. Figure 11 illustrates this challenge at the Montgomery Road bridge over I-95, where a narrow, ramp-less sidewalk on the south side and a narrow shoulder with no sidewalk on the north side create a high-stress environment for cyclists. This crossing significantly limits connectivity to the rest of Howard County and contributes to the broader segmentation issues created by major barriers such as I-95.

Figure 11: Montgomery Road Bridge Over I-95 Lacks Bicycle Facilities

TABLE 4: BICYCLE COMFORT ON BPPA ROADWAYS

Roadway Segment	BLTS Score	Primary Bicycle Stressors	Impacts on Access
US 1	Most Stressful (BLTS 4)	High traffic speeds and volumes; no bicycle facilities	Severely limits comfortable bicycle access to Troy Park and other destinations along or near US 1; usable only by a small subset of highly confident riders.
Montgomery Road – newly constructed bike lane segment (~0.5 miles)	Lower Stress (BLTS 2)	Segment length limited; bike lanes provided in both directions only on part of the corridor	Creates a short stretch of improved access but does not meaningfully connect to the broader network.
Montgomery Road – north of Lawyers Hill Road	High Stress (BLTS 3)	High speeds; no bicycle facilities	Limits access to Rockburn Park and destinations north/west of the BPPA; challenging and uncomfortable for most bicyclists.
Montgomery Road Bridge (I-95 crossing)	High Stress (BLTS 3)	Narrow sidewalk lacking curb ramps (south side); narrow shoulder and no sidewalk (north side)	Creates a major barrier, restricting safe crossing between the BPPA and destinations across I-95.
Hanover Road	High Stress (BLTS 3)	High traffic volumes; significant heavy vehicle presence; little to no shoulder	Restricts access to the BWI Trail and destinations south/east of the BPPA.
Old Washington Road	High Stress (BLTS 3)	Little to no shoulder; no bicycle facilities	Creates challenges for accessing Hanover Road and the future community center.
Bauman Drive	Moderate to High Stress (BLTS 2–3)	No bicycle facilities; shoulder width varies	Less stressful than other major corridors, but still limits comfortable access due to inconsistent shoulder width.
Residential neighborhood streets within the BPPA	Least Stressful (BLTS 1–2)	Low speeds and low volumes; generally calm traffic environments	Provide localized low-stress circulation, but do not connect comfortably to major destinations.

Crash Analysis

Study Scope and Overview

Study Period and Focus

This analysis summarizes police-reported crashes within the Elkridge BPPA from January 2019 through May 2025. It includes fatalities, suspected serious injuries, and all crashes involving a pedestrian or bicyclist on State and County roads. Broader scans of minor, vehicle-only crashes were reviewed during scoping but are not presented, so the narrative remains centered on severe outcomes and vulnerable users. Figure 12 shows the locations of bicycle and pedestrian crashes and severe vehicle-only crashes within the BPPA, and detailed summary tables from the crash analysis are included in Appendix A.

Network Overview and Locations

There were 28 crashes across the BPPA during the study period. Twenty-four occurred on US Route 1 and four on County facilities, primarily along Montgomery Road. All three fatal crashes were pedestrian crashes on US Route 1. Along US Route 1, crashes cluster between Doctor Patel Drive and the commercial frontages south of Montgomery Road, with additional crashes near Old Washington Road. Off-corridor crashes occurred near Elkridge Crossing Way and Bauman Drive on Montgomery Road. Figure 13 summarizes the distribution of these crashes by severity and year.

Severity Profile

High-severity outcomes dominate the dataset, with fatal or serious injury crashes representing about 71 percent of crashes. Three crashes were fatal (11 percent), all pedestrians on US Route 1. Seventeen crashes resulted in suspected serious injury (61 percent). Six resulted in suspected minor injury (21 percent). One crash each resulted in possible injury and no apparent injury. This pattern is consistent with the area's designation as a BPPA, which considers concentrations of serious pedestrian and bicyclist crashes along US Route 1.

Key Findings

- Severe crash risk is concentrated on US Route 1.
- All pedestrian fatalities in the study area occurred on US Route 1.
- Most crashes occurred during evening or overnight conditions.
- Pedestrian/bicyclist crashes and turning conflicts are prevalent.

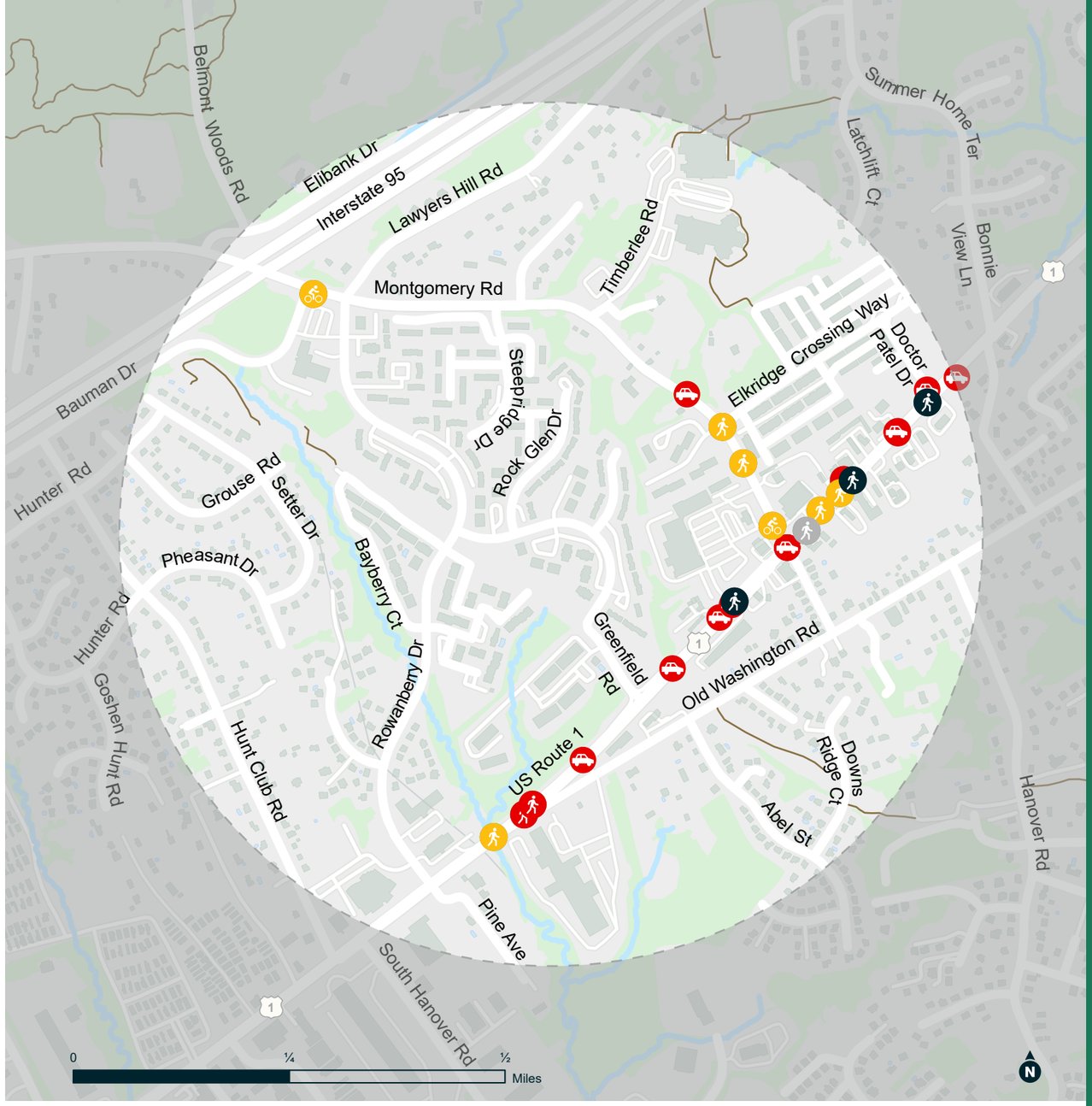

FIGURE 12

Bicycle and Pedestrian Crashes and Severe Vehicle Crashes

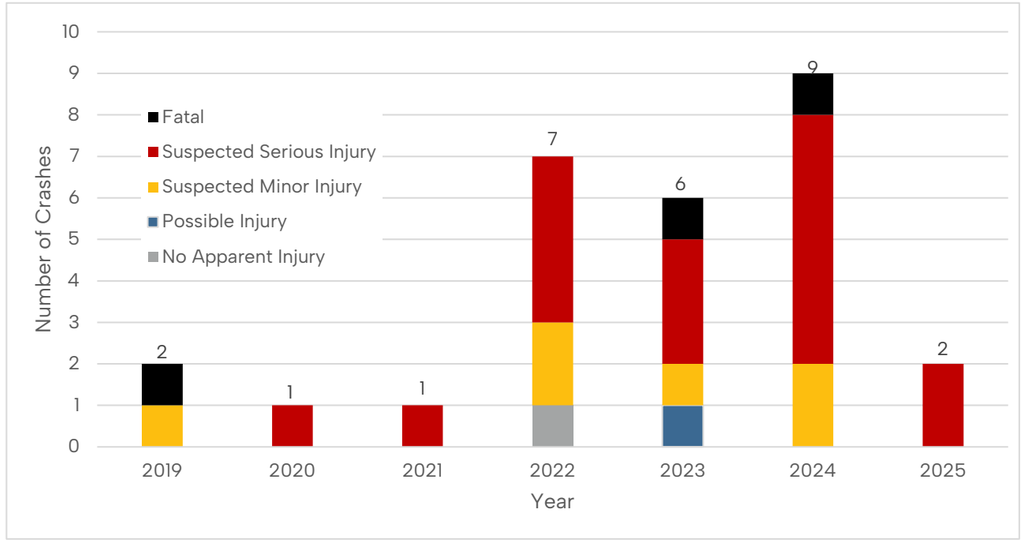

Figure 13: All Crashes by Severity and Year, 2019–2025

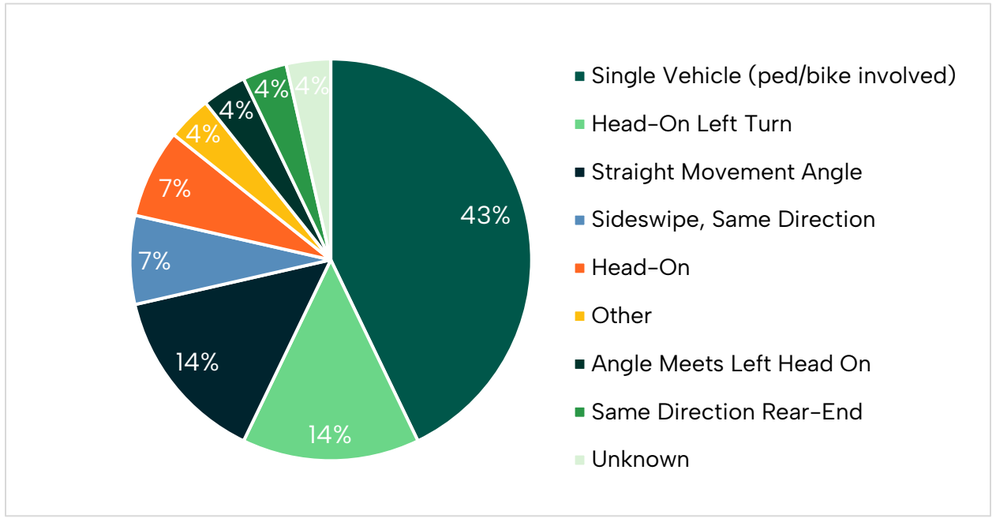

Figure 14: All Crashes by Collision Type, 2019–2025

Corridor Findings

US Route 1 Corridor

US Route 1 accounts for most of the severe risk in the BPPA. Pedestrian fatalities and many serious-injury events are concentrated where long crossing distances, frequent left turns, and closely spaced commercial access points coincide with dark or low-light conditions and heavy pedestrian activity. These location patterns are consistent with the stakeholder workshop materials and the compiled crash database.

BPPA Network off US Route 1

Four crashes occurred off US Route 1, three near Elkridge Crossing Way and one at Bauman Drive on Montgomery Road. These cases show similar themes at a smaller scale: driveway and turning conflicts, dark or low-light conditions, and midblock exposure near activity nodes. No fatal events occurred off US Route 1.

Crash Characteristics

Collision Types and Movement Patterns

Crashes involving pedestrians and bicyclists dominate the crash profile within the BPPA. Single-vehicle crashes are the most common collision type, accounting for 12 of 28 crashes (43 percent). While single-vehicle crashes do not inherently involve non-motorists, all such crashes in this dataset involved a pedestrian or bicyclist struck by a motor vehicle. Turning and crossing conflicts are the next most common patterns. Head-on left-turn and straight-movement angle each account for four crashes (14 percent each). Sideswipe same direction and head-on account for two crashes each. Figure 14 summarizes the distribution of crash types. The distribution points to conflicts at signals and driveways, especially where people cross between transit stops and storefronts outside intersection control.

Road Users and Pre-Crash Movements

About half of the crashes involved a person walking or bicycling. Where movements were reported for non-motorists, most occurred during crossing or entry at midblock rather than at an intersection, and the striking vehicle was frequently traveling at a constant speed before impact. Where ages were known, most people walking or bicycling were adults, with youth and an older adult also present. These observations are consistent with long block faces, offset destinations, and desire-line crossings between bus stops and commercial driveways.

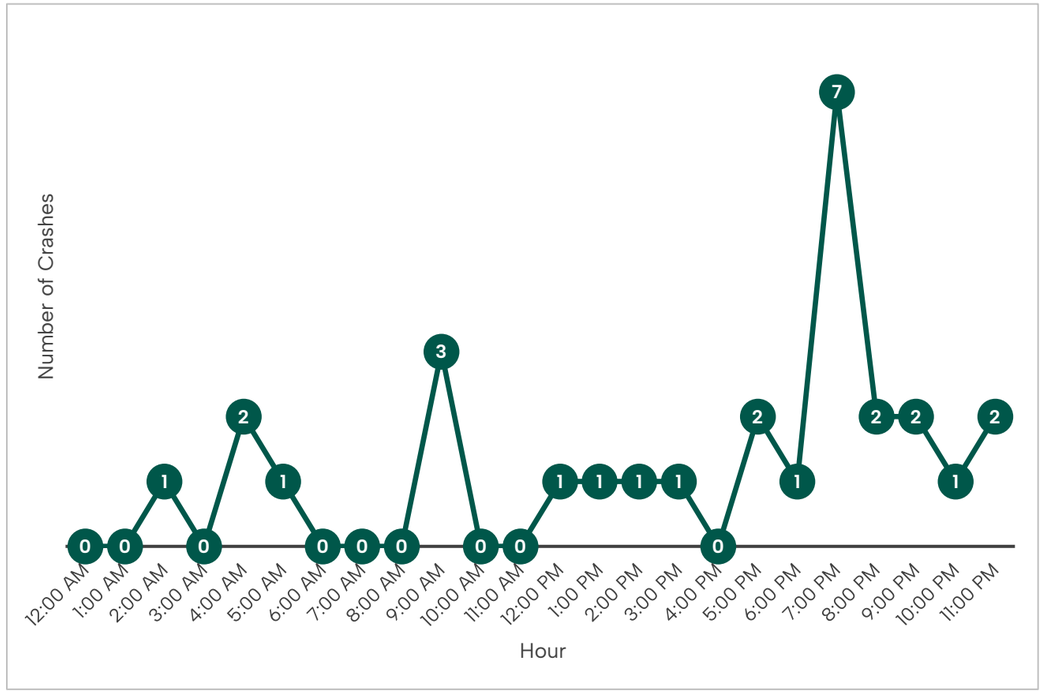

Figure 15: All Crashes by Time of Day, 2019–2025

Time of Day and Lighting

Risk is concentrated during evening and overnight hours. As shown in Figure 15, crashes were clustered between 5 PM and 5 AM, with 21 of 28 crashes (or 75 percent) occurring during this period, and with the single-hour peak at 7 PM. Fifteen of 28 crashes (about 54 percent) occurred in dark or low-light conditions. Within the pedestrian and bicyclist subset, 9 of 14 crashes (about 64 percent) occurred in dark conditions. These patterns indicate the need for conspicuous crossings and targeted lighting improvement.

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Engagement Activities

Engagement Activities

The engagement program for the Elkridge BPPA included a kickoff walking tour, an interagency stakeholder workshop, and a public open house with an accompanying survey. These activities directly informed the recommendations and the evaluation criteria used later in the plan.

Walking Tour

A two-hour field review launched the study on June 4, 2025. Participants from SHA offices, Howard County Office of Transportation, and the consultant team convened at the Elkridge Branch Library, then walked priority segments on US 1 and Montgomery Road before regrouping to debrief. The route emphasized Rowanberry Drive and US 1, US 1 between Rowanberry Drive and Montgomery Road, Montgomery Road west to the I-95 bridge, and local connections to schools and transit. The tour focused on observing current walking, bicycling, transit, and traffic conditions, identifying enhancement opportunities, and documenting specific locations for potential improvements. The issues documented during the tour, including crossing challenges, sidewalk gaps, transit access concerns, and lighting needs, are summarized in the US 1 and BPPA-wide challenges figures at the beginning of the Existing Conditions chapter.

Key Findings:

- US 1 speeds and long crossings are major concerns.
- Sidewalk gaps and narrow segments limit safe connections.
- Bus stop access and lighting need targeted improvements.

Stakeholder Workshop

The first stakeholder workshop was held on July 21, 2025, with representatives from SHA, Howard County, community representatives, and the consultant team. The session reviewed existing conditions, including BLTS and PLOC mapping, pedestrian facility gaps, and crash patterns, and then moved into a collaborative discussion of opportunities.

Dialogue focused on closing key sidewalk gaps, improving lighting and crossings on US 1, and addressing left-turn and driveway conflicts near Greenfield Road and Old Washington Road. Participants supported consolidating and controlling turning movements at Greenfield Road, adding high-visibility crossings and refuges where warranted, and coordinating signal operations to reduce pedestrian delay. Stakeholders also highlighted transit access actions, including an additional RTA stop on US 1 and the importance of ADA-compliant boarding areas, along with exploration of extended microtransit service hours and outreach. These outcomes and constraints were summarized in a follow-up memorandum and carried forward into the challenges and opportunities matrix used to shape preliminary recommendations.

Key Findings:

- US 1 crossings and lighting are top needs.
- Left turns and driveway conflicts require targeted treatments.
- Completing sidewalk gaps on the east side of US 1 and along Montgomery Road is a priority.
- Transit stops and crossings should align with key destinations.

Workshop themes reinforced technical findings that major sidewalks are missing on portions of Montgomery Road, Bauman Drive, and Old Washington Road, that pedestrian comfort is low along US 1 and at its crossings, and that bicycle connectivity outside Montgomery Road remains limited.

Stakeholders and project team members discussed BPPA challenges in small group breakout sessions

Public Meeting and Survey

A public open house was held in October 2025, paired with an on-site and online survey. The purpose of the meeting was to orient the public to the purpose of the project and collect feedback on challenges and draft recommendations. The survey instrument asked participants to react to the problem statement and propose refinements to the draft recommendations, and it included questions that established the factors to be used when prioritizing improvements.

Comments and survey responses emphasized a desire for safer and more direct crossings of US 1, particularly to reach the future Elkridge Community Center and nearby commercial destinations. Respondents highlighted the need for continuous sidewalks along key corridors such as Montgomery Road and Old Washington Road, lower traffic speeds and improved lighting on US 1, and extension of improvements to nearby neighborhoods and connecting streets. Participants also noted bus stop access and placement as important elements of a safer walking and transit environment.

Key Findings:

- Safer US 1 crossings to key destinations are a priority.
- Continuous sidewalks are needed on Montgomery and Old Washington.
- Lower speeds and better lighting are desired along US 1.
- Improvements should extend into nearby neighborhoods and connectors.

Community members engaged with project staff to learn about the recommendations and express their support and concerns

The survey included questions about how important different factors are when prioritizing improvements, such as support for community priorities, addressing locations with bicycle and pedestrian crashes, and closing or upgrading critical connections. A summary of survey responses is presented in Appendix B.

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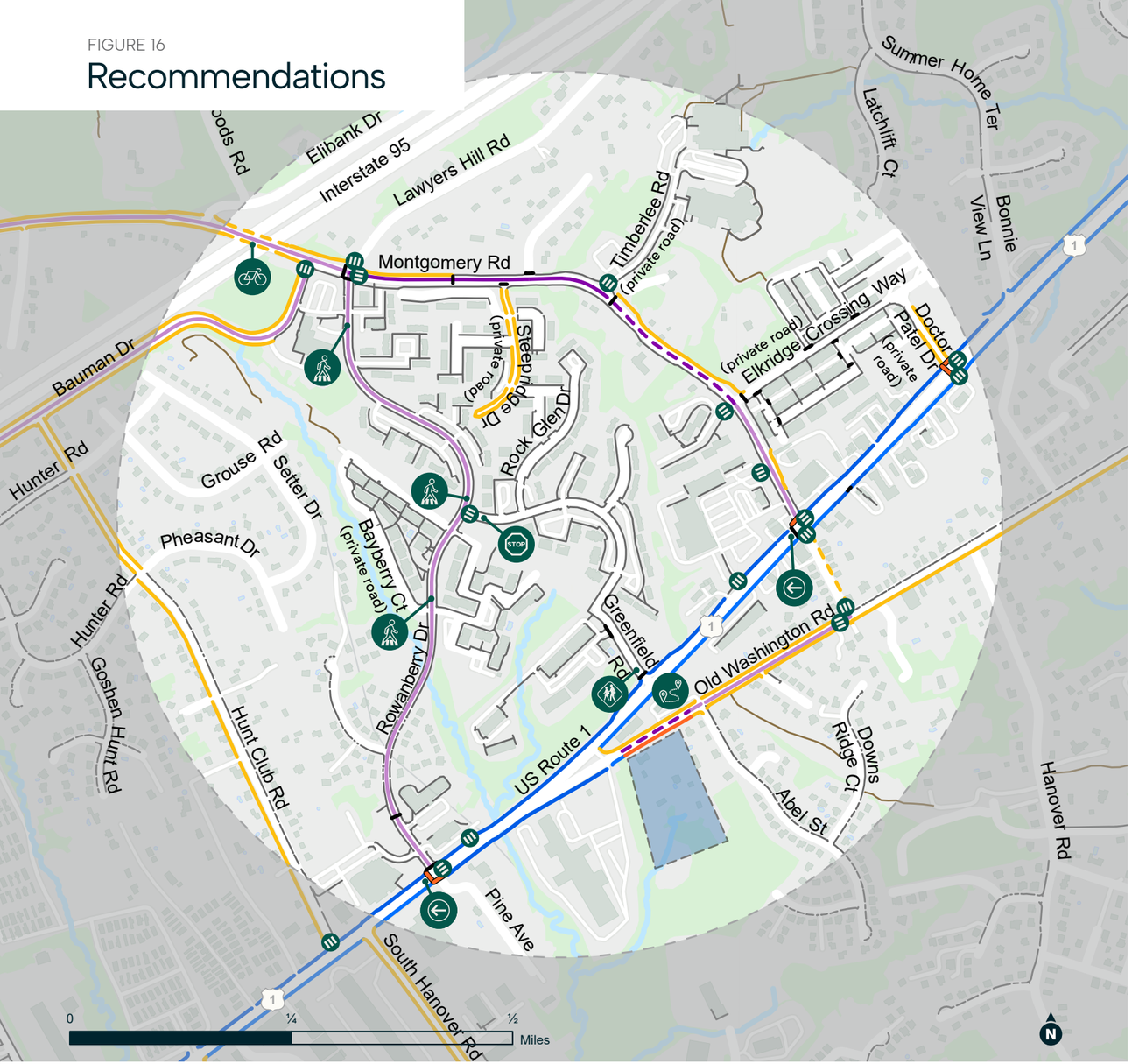
Recommendations & Planned Improvements

FIGURE 16

Recommendations



- Existing Crosswalk
- Crosswalk in Construction
- Existing Sidewalk
- Sidewalk in Construction
- Existing Two-Way Bike Lanes
- Future Community Center

Network Recommendations

PEDESTRIAN

- Wide Buffered Sidewalk
- Sidewalk
- Shared-Use Path

BICYCLE

- New Bike Lanes
- One-Way Bike Lane (existing or in construction) to Two-Way Bike Lanes

All network recommendations are long-term, except for the sidewalk on Montgomery Road between US 1 and Old Washington Road; the bike lanes on Montgomery Road from US 1 to Timberlee Road and from Lawyers Hill Road to Elibank Drive; and the bike lanes on Bauman Drive.

Short-Term Recommendations

SAFETY AND CONNECTIVITY FEASIBILITY STUDY: US 1 AND GREENFIELD RD*

Feasibility study to reduce crashes and improve pedestrian and bicyclist connectivity from Greenfield Rd to the new community center, studying the feasibility of:

- Full traffic signal or pedestrian hybrid beacon at US 1 and Greenfield Rd
- Safety improvements along Greenfield Rd, including new crossings, narrowed lanes, and bike facilities
- Dedicated left-turn lane from southbound US 1 to Old Washington Rd
- Closure of the spur from northbound US 1 to Old Washington Rd

RAISED CROSSWALKS

Raised crosswalks across Rowanberry Dr near bus stop locations

WARNING SIGNS AND MARKINGS

Warning signs and pavement markings ahead of the crosswalk at Greenfield Rd and US 1

STOP BAR

Stop bar pavement marking at the intersection of Greenfield Rd and Rowanberry Dr

CROSSWALK MARKINGS (1/2)

Continental crosswalk markings and ADA-compliant curb ramps at unmarked stop-controlled locations with existing sidewalks

I-95 CONNECTIVITY

Bike-compatible sidewalk on the south side of the I-95 bridge (in addition to westbound bike lane) for bidirectional bike connectivity

STREET LIGHTS

- Increased lighting, including pedestrian scale lighting, especially along US 1
- Lighting on the I-95 bridge

SPEED MANAGEMENT STRATEGIES

- Reduced speed limit of 35 MPH in dense areas of US 1, with transition zones to support compliance
- Speed cameras where allowed by law†

MAINTENANCE

- Regular maintenance of vegetation, especially on US 1 and Montgomery Rd
- Crosswalk marking maintenance and upgrades to continental striping with edge lines

TRANSIT IMPROVEMENTS

- Rerouted RTA route that serves the community center
- Expanded HoCo Rapid Ride hours that include weekends and nights
- Restricted parking at RTA bus stops along Rowanberry Dr
- Install bike racks at community destinations and transit stops

Long-Term Recommendations

LEFT TURN PHASING‡

Evaluation of exclusive left turn phasing on the northbound approaches of:

- US 1 at Rowanberry Dr
- US 1 at Montgomery Rd

SIGNAL IMPROVEMENTS

- Leading Pedestrian Intervals (LPIs) at all traffic signals
- Backplates with retroflective borders at all traffic signals

CROSSWALK MARKINGS (2/2)

Continental crosswalk markings and ADA-compliant curb ramps at:

- Signalized locations, along with new pedestrian signals
- Stop-controlled locations that currently lack sidewalks, once new sidewalks are constructed

TRAFFIC CALMING MEASURES

- Curb extensions at intersections with on-street parking
- Reduced curb radii where evaluations support
- Installation of shrubs in the sidewalk buffer area on US 1

LEGEND

Location-specific treatments, shown on the map

Applied to the entire BPPA or all of US 1

**The feasibility study is short-term, while the potential treatments listed are long-term.*
†As of January 2026, automated enforcement is approved on the 7000–7100 blocks of Montgomery Road near Elkridge Elementary School and Elkridge Landing Middle School.
‡ Preliminary recommendation without evaluation of driver behavior, sight distance, or hourly variation.

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Recommendations

Figure 16 illustrates all pedestrian, bicycle, transit, and safety recommendations identified for the BPPA. This includes treatments planned by Howard County, shown in Figure 17, and new recommendations developed through this project, summarized in Table 5. Each recommendation has been evaluated through a fatal flaw analysis to identify potential constraints and barriers to implementation, with results provided in Table 6. Planning-level cost estimates for all short-term recommendations are provided in Table 7.

The map in Figure 16 shows proposed sidewalk and bicycle facilities alongside existing and in-construction infrastructure. Facilities labeled as "in construction" indicate projects that have advanced to the construction phase and are fully funded and designed, but may not yet be under active construction. This consolidated view highlights how planned projects, new treatments, and existing facilities complement one another to create a more connected and safer network for people walking, bicycling, and accessing transit.

The figure also distinguishes between short- and long-term recommendations to clarify phasing and anticipated implementation timelines. It further differentiates location-specific treatments, shown in light green, from area-wide treatments, shown in dark green, which apply more broadly across the BPPA, the full US 1 corridor, all traffic signals, or other defined areas. Additional details for each recommendation, including location, level of public support, planning-level cost estimates for all treatments, and anticipated implementation timeframes, are provided in Appendix C.

Planned and Programmed Improvements

Figure 17 illustrates the pedestrian and bicycle improvements that are planned or already in the construction phase within and around the BPPA. Existing sidewalks (black) and bicycle lanes (dark purple) provide context, while planned sidewalk segments from WalkHoward appear as yellow dashed lines. Sidewalks and crosswalks that have advanced into the construction phase are shown in orange. These include County-led improvements near the community center and SHA-led projects along US Route 1.

Planned bicycle facilities, including those proposed in BikeHoward and those identified through stakeholder input, appear as light purple dashed lines. A solid light purple segment shows the bicycle facility currently being built as part of the community center project.

The planned facilities shown in yellow and dashed light purple in Figure 17 represent a range of project stages. Some have completed design and are awaiting funding, while others remain early in concept development and are subject to refinement through public engagement and engineering review. Projects shown in orange or solid light purple have secured full funding, completed design, and will be constructed in the near term.

These planned and programmed improvements strengthen connections between key destinations, transit stops, neighborhoods, and commercial areas, and they form the foundation for the recommendations presented in this report. All of these improvements are carried forward and reflected in the comprehensive recommendations shown in Figure 16.

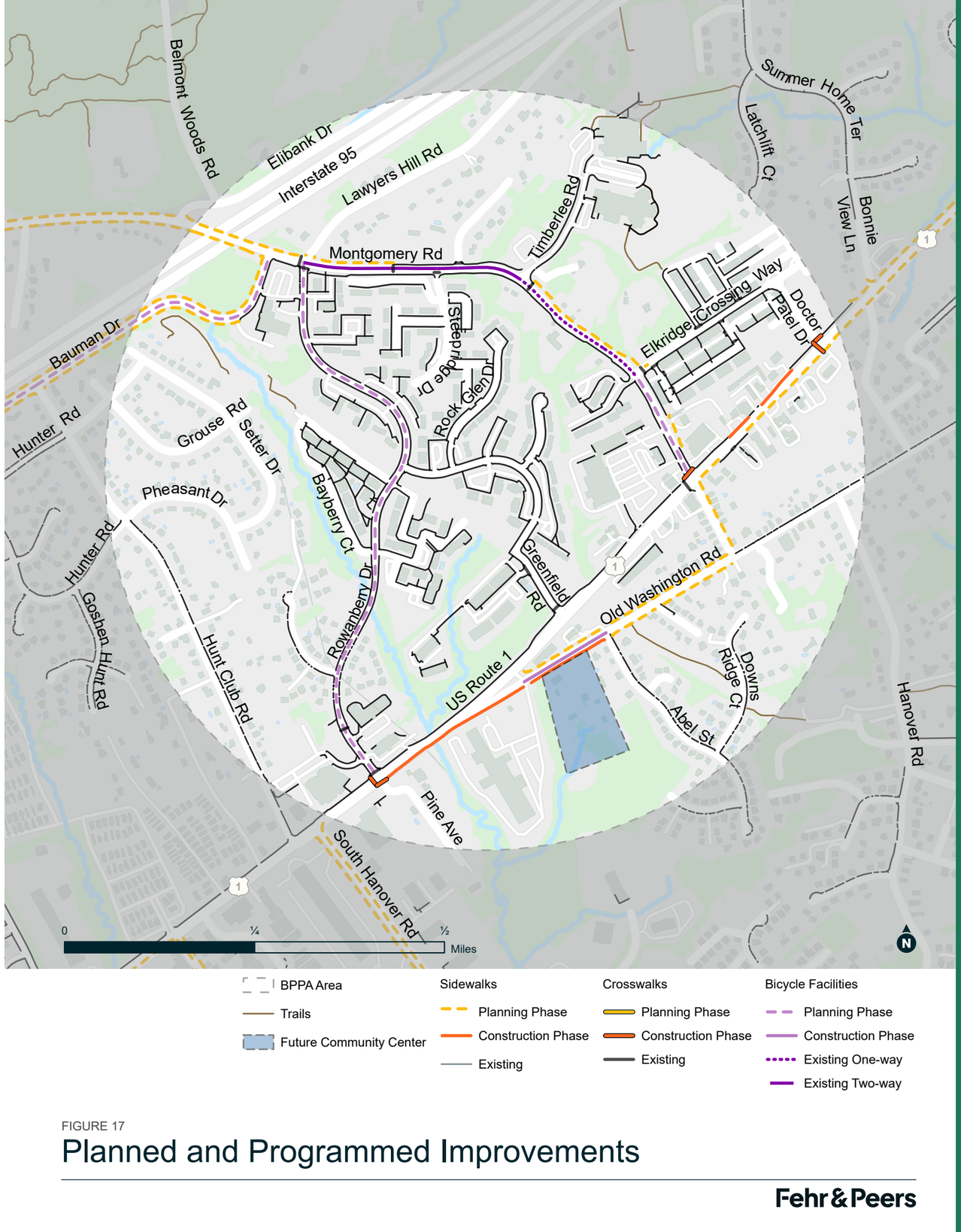

FIGURE 17
Planned and Programmed Improvements

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New Recommendations

The recommendations produced by this plan carry forward all planned improvements described in the previous section and displayed in Figure 17, and they add new treatments identified through this study to address remaining gaps in safety and connectivity identified in the County's bicycle and pedestrian master plans and introduce additional measures to improve safety and connectivity. The summaries in Table 5 below present the new recommendations advanced by this plan and the justification for each.

The responsibility for implementing these improvements generally falls to SHA and Howard County, depending on ownership and jurisdiction, with a few exceptions. Sidewalk segments on Steepridge Road and Doctor Patel Drive are located on privately owned roads, so installation would be the responsibility of the respective property owners. In addition, the long-term vision for a shared-use path along US 1 would likely be implemented incrementally as redevelopment occurs, with developers constructing the path along their frontage and SHA potentially supporting or completing segments in the future as opportunities arise.

TABLE 5: NEW BPPA RECOMMENDATIONS TO SUPPORT EXISTING PLANNED AND PROGRAMMED IMPROVEMENTS

Category	Improvement	Justification
Pedestrian Network Enhancements	Additional wide and buffered sidewalk segments	Reduces exposure to vehicular traffic, improves access to destinations, and closes gaps in the walking network.
	Marked crosswalks at stop-controlled locations	Increases pedestrian visibility and reduces the distance between marked crossings.
	Four-leg crosswalk markings at signalized intersections	Improves crossing options and reduces midblock crossings.
	Crosswalk marking maintenance and upgrades	Improves visibility of pedestrian crossings.
Bicycle Network Improvements	Bike racks at community destinations and transit stops	Supports multimodal travel and improves access to transit and commercial destinations.
	Bicycle facilities across the I-95 bridge	Provides a continuous east–west bicycle connection where a major barrier currently limits access.
	Extended bicycle facilities on Montgomery Road and Old Washington Road	Increases bicycle connectivity to surrounding areas and key destinations.
	Buffered shared-use path along US 1	Provides a separated facility along a high-stress corridor, supporting safer and more comfortable walking and bicycling.
Speed Management and Traffic Calming	Raised crosswalks on Rowanberry Drive	Slows vehicle speeds and creates more visible crossing opportunities for pedestrians.
	Reduced speed limits on US 1	Lowers crash risk and severity, especially in locations with high pedestrian activity.
	Speed cameras (where permitted)	Supports compliance with reduced speed limits.
	Curb extensions and reduced curb radii	Shortens pedestrian crossing distances, slows turning vehicles, and improves driver yielding behavior.
Feasibility Study	Feasibility study at US 1 and Greenfield Road	Addresses a high-crash location with an acute need for pedestrian crossing facilities.
Lighting and Maintenance Enhancements	Increased streetlights	Improves visibility for all road users, reduces nighttime crash risk, and enhances personal security for pedestrians and transit riders.
	Vegetation maintenance	Reduces vegetation obstructions in sidewalks and at bus stops.
Signing and Marking Improvements	Pedestrian warning signs where missing	Increases driver awareness in advance of crossings.
	Stop bars where missing	Provides clear stopping guidance for drivers.
Traffic Signal Improvements	Left-turn signal phasing	Reduces vehicle-pedestrian conflicts and lowers the risk of angle and turning-movement crashes.
	Leading Pedestrian Intervals (LPIs)	Gives pedestrians a head start, increases visibility, and reduces conflicts with turning vehicles.
	Signal backplates	Improves signal visibility and reduces red-light violations.
Transit Access Improvements	Expanded microtransit service hours	Expands access to transit and reduces reliance on walking in high-stress environments.
	Residential parking restrictions at RTA bus stops	Ensures buses can pull to the curb safely and boarding areas remain accessible to riders.
	RTA route modification to serve the future community center	Provides direct transit access to a major community destination.

Feasibility and Cost Assessment of Recommended Improvements

This section evaluates the feasibility and conceptual costs of all improvements carried forward in this plan, including both the planned projects previously identified by Howard County and SHA and the new recommendations developed through this study. The feasibility review screens each recommendation for anticipated constraints or implementation challenges, while the planning-level cost estimates provide a high-level understanding of potential construction costs. Together, these analyses offer an early assessment of practicality, constructability, and relative scale for the full set of recommendations.

Planning-Level Feasibility Review ("Fatal Flaw")

To assess the general practicality of the proposed recommendations, a planning-level feasibility review, or "fatal flaw" analysis, was performed on each recommendation. The purpose of this analysis was to identify any anticipated barriers, complications, site-specific constraints, or engineering and construction challenges that would make a recommendation infeasible or so expensive that it would not be cost-effective. The fatal flaw analysis was high-level in nature because the recommendations at this stage of study are conceptual and have not been designed to a preliminary engineering level.

The methodology for the fatal flaw analysis included a desktop review of existing conditions and review of photographs taken during the project kick-off walking tour. The desktop data used in the review included Google Maps and readily available Geographic Information Systems (GIS) data published online by Howard County. The relevant GIS data that was referenced includes: property boundaries, contours, parks, open space, easements, historic sites, floodplains, streams, and wetlands. The existing conditions data was compared against the perceived footprint for each recommendation to determine if there would be any expected challenges.

The results of the fatal flaw analysis are summarized in Table 6. Recommendations that are not listed did not have any fatal flaws identified. It should be noted that none of the fatal flaws listed were deemed to be significant enough to remove any improvements from the list of recommendations.

TABLE 6: IMPLEMENTATION TIMELINES AND FEASIBILITY CONSIDERATIONS FOR RECOMMENDED IMPROVEMENTS

Recommendation	Implementation Timeline	Challenges
Install crosswalks with pedestrian signals and curb ramps at the US 1 & Montgomery Road intersection (north and east legs)	Long term	A crosswalk across the north leg would need to be skewed to avoid the entrance to the existing gas station. There is limited space for a curb ramp on the northeast corner, so repositioning of the driveway entrance may be needed.
Install exclusive left-turn phasing for the northbound lefts along US 1 at the Rowanberry Drive and Montgomery Road intersections	Long term	Changing signal heads would be required from the existing doghouse/5-section configuration to either 4-section Flashing Yellow Arrow or 3-section arrows. If the masts are at their load limits, this could trigger full signal reconstruction.
Install backplates with retroreflective borders at the US 1 intersections with Rowanberry Drive and Montgomery Road	Long term	Full signal reconstruction may be needed to meet current SHA standards for mast arms for backplates to be implemented. The SHA Office of Traffic & Safety (OOTS) Traffic Engineering Design Division (TEDD) Structural Team has stated that they will not approve the addition of backplates on mast arms with a four-anchor bolt pattern.
Add curb extensions at intersections with on-street parking	Long term	Adding curb extensions may require additional inlets and storm drain connections to provide positive drainage and to prevent water from being trapped at the start of the curb extension taper.
New wide and buffered sidewalks on Old Washington Road	Long term	The east side of Old Washington Road is an open section with a graded ditch, so curbing and drainage would need to be evaluated. There are also utility poles, retaining walls, and fire hydrants along the east side that would be impacted, and numerous driveways along both sides that would need to be reconstructed. There also could be right-of-way impacts. Several properties along Old Washington Road are marked as "historic sites" in the Howard County GIS data and would need to be evaluated for Section 106 impacts.
New wide and buffered sidewalks on Bauman Drive (Ducketts Lane to Montgomery Road)	Long term	For most of this section, Bauman Drive is an open section, so curbing and drainage would need to be evaluated. Several driveways would need to be reconstructed. There is limited space along the north side of Bauman Drive adjacent to the I-95 noise wall. If sidewalks on both sides are not feasible, sidewalks on one side would still be a valued improvement.
New sidewalk on the north side of Montgomery Road (US 1 to Old Washington Road)	Short term	Mailboxes, parking, utility poles, driveways, small retaining walls, and steps would all be impacted by sidewalks. There would likely be right-of-way impacts. Several driveways are short and introducing a new sidewalk may make them too short to be usable. Several properties along Montgomery Road are marked as "historic sites" in the Howard County GIS data and would need to be evaluated for Section 106 impacts.
New wide and buffered sidewalk on Montgomery Road (US 1 to Timberlee Road on the north side)	Long term	Portions of the north side are open section, so curbing and drainage would need to be evaluated. A few driveways would need to be reconstructed. There is an existing residential retaining wall immediately adjacent to the road that leaves no space for sidewalk. The right-of-way is constrained, so Howard County is prioritizing bike lanes over the sidewalks within these limits.
New wide and buffered sidewalks on Montgomery Road (west of Lawyers Hill Road, excluding the bridge over I-95)	Long term	The north side of Montgomery Road is open section, so curbing and drainage would need to be evaluated.

Recommendation	Implementation Timeline	Challenges
New wide and buffered sidewalks on Doctor Patel Drive	Long term	This roadway is privately owned, so it would be up to the property owner to implement new sidewalks.
New wide and buffered sidewalks on Steepridge Drive	Long term	This roadway is privately owned, so it would be up to the property owner to implement new sidewalks.
New wide and buffered sidewalks on Hunt Club Road	Long term	The south side is open section, so curbing and drainage would need to be evaluated. Numerous driveways, fire hydrants, utility poles, fences, and mailboxes would be impacted on both sides. There could be right-of-way impacts. One property along Hunt Club Road is marked as a "historic site" in the Howard County GIS data and would need to be evaluated for Section 106 impacts. Due to these constraints, Howard County is prioritizing sidewalks on one side instead of both sides.
Shared-use paths on US 1	Long term	There would be numerous property and utility impacts. Driveways would need to be reconstructed, and right-of-way or easements would need to be purchased. There are some properties where a shared-use path cannot be implemented without significant loss of parking or site circulation. Utility poles, signal poles, fire hydrants could all be impacted. The existing culvert at the stream crossing would need to be extended, which could result in floodplain impacts. There could also be impacts to the existing forest conservation easement along the west side of US 1 between Rowanberry Drive and Greenfield Road.
Bike-compatible sidewalk and bike lanes across the I-95 bridge	Short term	The existing bridge width is about 35' between the parapets. To fit the proposed improvements without widening the bridge would require two 10-foot lanes, a five-foot bike lane, and an eight-foot shared use path. There would be minimal to no offsets from the parapet and fencing and no shoulder along the roadway lanes.

Recommendation	Implementation Timeline	Challenges
Bike lanes on Montgomery Road from Timberlee Road to US 1	Short term	The segment near the US 1 intersection is constrained and would require roadway widening or repurposing. With widening, several utility poles would need to be relocated, and the drainage system may need to be modified. There is also an existing building very close to the north side of the road that would prohibit any widening to that side.
Bike lanes on Old Washington Road from US 1 to Montgomery Road	Long term	The roadway would need to be widened to accommodate two five-foot bike lanes. There are also utility poles, retaining walls, and fire hydrants along the east side that would be impacted, and numerous driveways along both sides that would need to be reconstructed. There also could be right-of-way impacts. Several properties along Old Washington Road are marked as "historic sites" in the Howard County GIS data and would need to be evaluated for Section 106 impacts.
Bike lanes on Rowanberry Drive	Long term	Existing parking would likely need to be removed to create space for bike lanes.

Cost Estimates

Preliminary, planning-level cost estimates were developed for all short-term recommendations, as presented in Table 7. The estimates provide an order-of-magnitude approximation of the construction costs associated with each improvement. The estimates do not account for utility relocations, right-of-way acquisition, and engineering or design services.

The cost estimates were prepared by estimating quantities of the expected materials required for each recommendation. Examples of the most common materials include pavement markings, concrete sidewalk, curb and gutter, detectable warning surfaces, signing, asphalt, retaining walls, and bike racks. Quantities were estimated by approximating the construction limits on an aerial-based web map and measuring assumed lengths and areas for each item. Unit prices for these items were determined from the SHA *Price Index*, the SHA *Cost Estimating Manual*, and past experience on Howard County bicycle and pedestrian projects.

Percentages were used for items such as drainage, landscaping, mobilization, and clearing and grubbing, as those items cannot be accurately quantified at this early conceptual stage. A 40 percent contingency is included in each estimate.

Separate, conceptual order-of-magnitude cost ranges are also provided in Appendix C for all recommendations, including long-term treatments. These appendix values are intended for high-level planning and comparison and differ from the planning-level estimates in the main report, which are developed only for short-term recommendations and are based on itemized material quantities.

TABLE 7: COST ESTIMATES FOR RECOMMENDED IMPROVEMENTS (2025 DOLLARS)

Recommendation	Approximate Construction Cost Estimate (2025 dollars)
New crosswalk markings at Greenfield Road and Rowanberry Drive	$7,000
New crosswalk markings and ADA-compliant curb ramps at Hunt Club Road and US 1	$30,000
New crosswalk markings and ADA-compliant curb ramps at the entrance to Rowanberry Center	$28,000
New crosswalk markings and ADA-compliant curb ramps at the Elkridge Corner entrances	$31,000
New crosswalk markings and ADA-compliant curb ramps at Montgomery Road and Timberlee Road	$37,000
Stop bar at Greenfield Road and Rowanberry Drive	$1,000
Warning signs and advance pavement markings ahead of crosswalk at Greenfield Road and US 1	$5,000
Raised crosswalk at Rowanberry Drive and Greenfield Road	$27,000
Raised crosswalk at Rowanberry Drive and Orchard Club Road	$24,000
Raised crosswalk on Rowanberry Drive near the Fire Station entrance	$24,000
New sidewalks on the north side of Montgomery Road (US 1 to Old Washington Road)	$895,000
Bike racks at community destinations and transit stops	$11,000
Bike-compatible sidewalk and bike lanes across the I-95 bridge	$277,000
Bike lanes on Montgomery Road from Lawyers Hill Road to Elibank Drive	$116,000
Bike lanes on Montgomery Road from Timberlee Road to US 1	$505,000
Bike lanes on Bauman Drive	$195,000
Additional lighting along US 1	$1,460,000

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Appendices

Appendix A: Existing Conditions

Pedestrian Level of Comfort Methodology

This appendix provides detailed materials supporting the Pedestrian Level of Comfort (PLOC) analysis used in the Elkridge BPPA. It includes an overview of the Montgomery County PLOC methodology, the scoring tables applied in the assessment, the data sources used, and the assumptions developed in coordination with Howard County to adapt the methodology to local conditions.

Overview of Montgomery County PLOC Methodology

The BPPA analysis applies the *Montgomery County Planning Department, Pedestrian Level of Comfort Methodology (2020)* to evaluate pedestrian comfort along sidewalks and at controlled crossings. The methodology assigns each segment or crossing a score from 1 (Very Comfortable) to 4 (Undesirable) based on roadway environment and pedestrian facility characteristics.

The methodology includes two major components:

- Segment PLOC Scoring:
  Evaluates sidewalks and roadway edges based on posted speed, buffer presence and width, sidewalk width, and roadway classification.
- Crossing PLOC Scoring:
  Evaluates controlled crossings based on the number of lanes, median type, crossing type, and posted speed.

PLOC Scoring Tables

The following tables are reproduced directly from *Montgomery County Planning Department, PLOC Methodology (2020), pp. 11–14.* Each table includes the original explanatory text describing how the scoring system is applied.

Table A-1. Sidewalk PLOC Scoring for Non-Urban Land Uses

Pedestrian Pathway Table

This table is categorized along the vertical axis by land use (urban, non-urban) and compares pathway width (broken down into speed categories) to total buffer width, further classified by on-street buffer type. On-street buffers are abbreviated as DPL (designated parking lane), SBL (separated bike lane) and 2SBL (two-way separated bike lane). These variables were considered because a pathway's relative distance from a roadway (i.e. the buffer plus on-street separation), its width, and the speed of that roadway have interrelated effects on pedestrian comfort. *The scores in this table assume the pathway is in good condition. If the pathway is in fair condition, 0.5 will be added to the score. For poor condition, 1 will be added to the score (with a maximum score of 4).*

	PATHWAY WIDTH	POSTED SPEED LIMIT	PATHWAY BUFFER WIDTH / ON-STREET SEPARATION											
			0 ft to <2 ft			2 to <5 ft			5 to <8 ft			≥8 ft		
			No DPL or SBL	DPL or 1SBL	2SBL or DPL & SBL	No DPL or SBL	DPL or 1SBL	2SBL or DPL & SBL	No DPL or SBL	DPL or 1SBL	2SBL or DPL & SBL	No DPL or SBL	DPL or 1SBL	2SBL or DPL & SBL
NON-URBAN	No walkway		Use "No Pathway" Table											
	Less than 5ft	< 25 mph	2	2	1	2	1	1	2	1	1	1	1	1
		25 mph	2/3*	2	1	2	1	1	2	1	1	1	1	1
		30 mph	4	3	1	3	2	1	2	1	1	1	1	1
		35 mph	4	3	2	3	2	2	3	2	1	2	1	1
		>= 40 mph	4	4	3	4	3	2	3	2	2	2	1	1
	≥5 to 8 ft	< 25 mph	2	2	1	2	1	1	2	1	1	1	1	1
		25 mph	2/3*	2	1	2	1	1	2	1	1	1	1	1
		30 mph	4	3	1	3	2	1	2	1	1	1	1	1
		35 mph	4	3	2	3	2	2	3	2	1	2	1	1
		>= 40 mph	4	4	3	4	3	2	3	2	2	2	1	1
	≥8 ft	< 25 mph	2	1	1	2	1	1	1	1	1	1	1	1
		25 mph	2	2	1	2	1	1	1	1	1	1	1	1
		30 mph	4	3	1	3	2	1	2	1	1	1	1	1
		35 mph	4	3	2	3	2	2	3	2	1	1/2^	1	1
		>= 40 mph	4	4	3	4	3	2	3	2	2	1/2^	1	1

* If the road category is less than Primary Residential in the Master Plan of Highways and Transitway, it will score as a 2, otherwise it will score a 3.

^If the pathway buffer width is 15' or greater, it will score as a 1, otherwise it will score as a 2.

Table A-2. Roadway-Edge PLOC Scoring Where Sidewalks Are Absent

No Pedestrian Pathway Table

Streets with no pathway receive special consideration because they cannot be scored based on path width or buffer. The most important considerations on these streets are posted speed, amount of vehicle traffic, land use and parking presence. In this table, functional class is used as a substitute for vehicle traffic volumes, since traffic volume data are not available on all roads. No road without a pathway can receive a perfect score of 1 using the available variables.[26] Parking on Less than Primary Residential streets may decrease pedestrian comfort by forcing pedestrians to share a narrower right of way with vehicular traffic, thereby contributing to potential conflicts.

CONTEXT	MASTER PLAN OF HIGHWAYS AND TRANSITWAYS (MPOHT) FUNCTIONAL CLASSIFICATION	PARKING ALLOWED	POSTED SPEED LIMIT				
			< 25 mph	25 mph	30 mph	35 mph	≥ 40 mph
URBAN	Any	No / Yes	4	4	4	4	4
NON-URBAN	Less than Primary Residential	No	2	3	4	4	4
		Yes	2	3	4	4	4
	Primary Residential or Greater	No	2	4	4	4	4
		Yes	3	4	4	4	4

Table A-3. Controlled Crossing PLOC Scoring

Controlled Crossings (Signalized or Stop-Controlled) Table

The following variables are considered for signalized crossings or stop-controlled crossings: number of lanes, median type, crosswalk type and posted speed limit. The highest posted speed limit of the segments that comprise the crossing is the speed limit used for scoring. These variables interact to produce the scores below.

# OF LANES	MEDIAN TYPE	CROSSWALK TYPE	POSTED SPEED LIMIT				
			< 25 mph	25 mph	30 mph	35 mph	>= 40
1 to 3	Raised Refuge Island	High Visibility	1	1	1	2	2
		Marked	1	1	2	2	2
		Unmarked	1	1	3	3	4
	Raised/Hardened Centerline	High Visibility	1	1	2	2	3
		Marked	1	1	2	2	3
		Unmarked	1	2	3	4	4
	Painted/None	High Visibility	1	1	2	3	3
		Marked	1	1	2	3	3
		Unmarked	1	2	3	4	4
4 to 5	Raised Refuge Island	High Visibility	1	1	2	3	3
		Marked	1	1	2	3	3
		Unmarked	1	3	3	4	4
	Raised/Hardened Centerline	High Visibility	2	2	2	3	3
		Marked	2	2	3	3	4
		Unmarked	2	3	4	4	4
	Painted/None	High Visibility	2	2	2	3	3
		Marked	3	3	3	3	4
		Unmarked	4	4	4	4	4
6+	Raised Refuge Island	High Visibility	2	2	2	3	3
		Marked	3	3	3	3	3
		Unmarked	4	4	4	4	4
	Raised/Hardened Centerline	High Visibility	2	2	2	3	4
		Marked	3	3	3	4	4
		Unmarked	4	4	4	4	4
	Painted/None	High Visibility	2	3	3	3	4
		Marked	3	3	3	4	4
		Unmarked	4	4	4	4	4

Data Sources Used in the BPPA Assessment

The PLOC analysis incorporated the following data sources:

- Posted speed limits (SHA, Howard County)
- Sidewalk width and condition (aerial imagery)
- Buffer width and buffer type (aerial imagery)
- Crossing type, markings, and lane configuration (aerial imagery, field assessments)
- Traffic volumes (AADT from SHA)

Assumptions Developed with Howard County and SHA

The following assumptions were established in coordination with Howard County and SHA staff to ensure consistency with the Montgomery County methodology while reflecting local context:

Context Classification

Montgomery County's methodology distinguishes urban vs. non-urban contexts. For this BPPA, the "non-urban" scoring is applied based on the MDOT *Context Driven* guide identifying the area as Suburban.

Roadway Functional Classifications

The following roadways are treated as **"**Primary Residential or greater." This indicates that they provide access to more than 200 residences or are used for circulation.
This applies to:

- US 1
- Montgomery Road
- Old Washington Road
- Rowanberry Drive
- Greenfield Road
- Hunt Club Road
- S. Hanover Road
- Hanover Road
- Bauman Drive
- Doctor Patel Drive

Application and Measurement Approach

Midblock Segment Measurements

- Measurements reflect midblock conditions, consistent with the PLOC methodology.
- Where the majority of a segment maintains the same width, that width is used for scoring.

Treatment of Inconsistent Conditions

- Short-term sidewalk widenings at intersections or driveways were not used to represent typical conditions.
- If short pinch points or brief sidewalk expansions were present, the predominant condition controlled the score.
- For segments without sidewalks, roadway-edge scoring was applied; these segments cannot score better than 3 (Uncomfortable).

Bicycle Level of Traffic Stress Methodology

This section documents the methodology used to evaluate Bicycle Level of Traffic Stress (BLTS) within the Elkridge BPPA. It summarizes the standard BLTS approach used by SHA and Howard County, identifies all data inputs used in the assessment, and lists roadway segments that were reanalyzed as part of this project. It also includes the BLTS scoring tables reproduced directly from the *Howard County Design Manual, Volume III* (pp. 5-11–5-12).

Overview of BLTS Methodology

The BLTS analysis conducted for the Elkridge BPPA follows the methodology originally developed by Dr. Peter G. Furth, which is the standard used by both SHA and Howard County. The methodology evaluates bicycling comfort based on roadway and traffic conditions that influence stress and perceived safety for people bicycling.

Each roadway segment receives a BLTS score from 1 through 5, defined as:

- BLTS 1 – Comfortable for all ages and abilities
- BLTS 2 – Comfortable for most casual adult riders
- BLTS 3 – Comfortable primarily for experienced riders
- BLTS 4 – Comfortable only for confident, “strong and fearless” riders
- BLTS 5 – Bicycles prohibited by the managing roadway agency

The lower the BLTS score, the more inviting and accessible the corridor is to a wider range of bicyclists.

Application in the Elkridge BPPA Study

SHA completed a BLTS assessment for the area in 2022. As part of the BPPA process, the project team reanalyzed several roadway segments to reflect updated conditions, including changes in speed limits, traffic volumes, and infrastructure improvements, such as newly constructed bicycle lanes.

All reanalysis used the same Furth BLTS methodology to ensure consistency with the 2022 assessment and with county-wide practices. The following corridors were re-scored based on updated field conditions or revised traffic data:

- US 1 – Updated to reflect a lowered posted speed limit and updated ADT
- Bauman Drive – Updated ADT
- Hanover Road – Updated ADT
- South Hanover Road – Updated ADT
- Montgomery Road – New bike lanes and updated ADT

BLTS Scoring Tables

The BLTS scoring tables used in this analysis are reproduced from the *Howard County Design Manual, Volume III* (pp. 5-11–5-12). They are the official scoring references for Howard County bicycle facility evaluation.

Table A–4. BLTS for Mixed Traffic

a. Mixed traffic

Number of Lanes	Effective ADT**	Prevailing Speed*						
		≤ 20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
Unmarked 2-way street (no centerline)	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	751-1,500	LTS 1	LTS 1	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4
	1,501-3,000	LTS 2	LTS 2	LTS 2	LTS 3	LTS 4	LTS 4	LTS 4
	3,000+	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
1 through lane per direction • 1-way, 1-lane street; or • 2-way street with centerline	0-750	LTS 1	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	751-1,500	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4
	1,501-3,000	LTS 2	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	3,000+	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
2 through lanes per direction	0-8,000	LTS 3	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4
	8,001+	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4
3+ through lanes per direction	any ADT	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4	LTS 4	LTS 4

* Prevailing speed is defined as the target speed of a proposed roadway or 85th percentile speed of an existing roadway. If a speed study is not available, the posted speed of the roadway can be used.
** Effective ADT = ADT for 2-way roads; Effective ADT = 1.5*ADT for 1-way roads

Source: Level of Traffic Stress Criteria for Road Segments, version 2.0, June 2017, Dr. Peter G. Furth’s Northeastern University webpage (Ref 11).

Table A-5. BLTS for Bike Lanes Adjacent to Parking Lanes

b. Bike lanes adjacent to a parking lane

Number of Lanes	Bike Lane Reach**	Prevailing Speed* ≤ 25 mph	30 mph	35 mph
1 lane per direction	15+ feet	LTS 1	LTS 2	LTS 3
	12-14 feet	LTS 2	LTS 2	LTS 3
2 lanes per direction (2-way) 2-3 lanes per direction (1-way)	15+ feet	LTS 2	LTS 3	LTS 3
		LTS 2	LTS 3	LTS 3
Other multilane		LTS 3	LTS 3	LTS 3

* Prevailing speed is defined as the target speed of a proposed roadway or 85th percentile speed of an existing roadway. If a speed study is not available, the posted speed of the roadway can be used.
** Bike lane reach = bike + parking lane width
Notes: 1. If bike lane is frequently blocked, use mixed traffic criteria
2. Qualifying bike lane must have reach ≥ 12 feet
3. Bike lane width includes any marked buffer next to the bike lane.

Source: Level of Traffic Stress Criteria for Road Segments, version 2.0, June 2017, Dr. Peter G. Furth's Northeastern University webpage.

Table A-6. BLTS for Bike Lanes and Shoulders Not Adjacent to Parking Lanes

c. Bike lanes and shoulders not adjacent to a parking lane

Number of Lanes	Bike Lane Width	Prevailing Speed* ≤ 25 mph	30 mph	35 mph	40 mph	45 mph	50+ mph
1 through lane per direction, or unlaned	6+ feet	LTS 1	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	4 or 5 feet	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
2 through lanes per direction	6+ feet	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 3
	4 or 5 feet	LTS 2	LTS 2	LTS 2	LTS 3	LTS 3	LTS 4
3+ lanes per direction	any width	LTS 3	LTS 3	LTS 3	LTS 4	LTS 4	LTS 4

* Prevailing speed is defined as the target speed of a proposed roadway or 85th percentile speed of an existing roadway. If a speed study is not available, the posted speed of the roadway can be used.
Notes: 1. If bike lane / shoulder is frequently blocked, use mixed traffic criteria
2. Qualifying bike lane / shoulder should extend at least 4 feet from a curb and at least 3.5 feet from a pavement edge or discontinuous gutter pan seam.
3. Bike lane width includes any marked buffer next to the bike lane.

Source: Level of Traffic Stress Criteria for Road Segments, version 2.0, June 2017, Dr. Peter G. Furth's Northeastern University webpage.

Table A-7. BLTS for Bike Lanes and Mixed Traffic on Intersection Approaches in the Presence of a Right-Turn Lane

d. Bike lanes and mixed traffic on intersection approaches in the presence of a right turn lane

Configuration	Level of Traffic Stress
Single right run lane up to 150 feet long, starting abruptly while the bike lane continues straight; intersection angle such that turning speed is ≤ 15 mph.	LTS ≥ 2
Single right turn lane longer than 150 feet long, starting abruptly while the bike lane continues straight; intersection angle such that turning speed is ≤ 20 mph.	LTS ≥ 3
Single right turn lane in which the bike lane shifts to the left, but intersection angle and curb radius are such that turning speed is ≤ 15 mph.	LTS ≥ 3
Single right turn lane with any other configuration; dual right turn lanes; or right turn lane plus through-right lane.	LTS = 4

Note: "Bike lane" here means either a pocket bike lane (between the right turn lane and a through lane), or a bike lane marked within the right turn lane. These criteria do not apply if a segregated bike lane is kept to the right of a right turn lane and provided a safe means of crossing.

Source: Level of Traffic Stress Criteria for Road Segments, version 1.0, 2012, Dr. Peter G. Furth's Northeastern University webpage.

Data Inputs Used in the BLTS Assessment

The BLTS methodology relies on roadway and traffic characteristics that influence rider comfort and exposure. The following inputs were used for every analyzed segment.

Prevailing Speed

- BLTS ideally uses 85th percentile speed, but posted speed can be used if this is unavailable.
- Posted speed limit was used in this study, as determined using Howard County and SHA data.

Effective Average Daily Traffic (Effective ADT)

- Effective ADT = ADT for two-way roads (all BPPA roadways fall in this category)
- All available ADT values were taken from SHA datasets.
- Where ADT was unavailable, the project team developed shared assumptions with SHA and Howard County based on recent traffic count data.

Number of Travel Lanes

- Determined using aerial imagery and field observations.

Bicycle Facility Presence and Dimensions

- Identified using February 2025 aerial imagery and field observations.
- Only Montgomery Road includes existing bicycle lanes.

Parking Lane Presence and Width

- Identified using aerial imagery.

Right-Turn Lane Presence

- Identified using aerial imagery, consistent with the BLTS intersection approach scoring methodology.

Assessment Approach and Data Consistency

To maintain consistency with SHA and Howard County practice:

- All BLTS scoring followed the Furth methodology and Howard County Design Manual tables.
- Reanalyzed segments used updated ADT, posted speeds, and bicycle facility data to reflect 2025 conditions.
- All assumptions were reviewed collaboratively with Howard County and SHA.

Detailed Crash Summary Tables

The following tables provide the complete crash dataset that supports the figures and findings presented in the crash analysis section of this report. These tables include all police-reported fatal, suspected serious injury, suspected minor injury, and pedestrian/bicyclist crashes that occurred within the Elkridge BPPA from 2019 through 2025. While the main report summarizes key patterns—such as the concentration of severe crashes on US Route 1, the prominence of evening and low-light collisions, and the prevalence of single-vehicle pedestrian and bicyclist crashes—these tables present the full year-by-year counts behind each graphic.

The tables are organized to correspond directly with the crash characteristics discussed in the report:

Table A-8. Crashes by Collision Type (2019–2025)

Crashes by Collision Types	2019	2020	2021	2022	2023	2024	2025	Total	Percentage of Crashes
Single Vehicle	1	0	0	3	3	5	0	12	43%
Head-on Left Turn	1	0	1	2	0	0	0	4	14%
Straight Movement Angle	0	1	0	0	1	1	1	4	14%
Sideswipe, Same Direction	0	0	0	0	0	1	1	2	7%
Head-On	0	0	0	1	0	1	0	2	7%
Other	0	0	0	0	0	1	0	1	4%
Angle Meets Head-On Left Turn	0	0	0	1	0	0	0	1	4%
Same Direction Rear End	0	0	0	0	1	0	0	1	4%
Unknown	0	0	0	0	1	0	0	1	4%
Total	2	1	1	7	6	9	2	28	100%

Table A-9. Crashes by Severity (2019–2025)

Crashes by Severity	2019	2020	2021	2022	2023	2024	2025	Total	Percentage of Crashes
No Apparent Injury	0	0	0	1	0	0	0	1	4%
Possible Injury	0	0	0	0	1	0	0	1	4%
Suspected Minor Injury	1	0	0	2	1	2	0	6	21%
Suspected Serious Injury	0	1	1	4	3	6	2	17	61%
Fatal	1	0	0	0	1	1	0	3	11%
Total	2	1	1	7	6	9	2	28	100%

Table A-10. Crashes by Time of Day (2019–2025)

Crash Time of Day	2019	2020	2021	2022	2023	2024	2025	Total	Percentage of Crashes
12:00 AM	0	0	0	0	0	0	0	0	0%
1:00 AM	0	0	0	0	0	0	0	0	0%
2:00 AM	0	0	0	0	1	0	0	1	4%
3:00 AM	0	0	0	0	0	0	0	0	0%
4:00 AM	0	0	0	2	0	0	0	2	7%
5:00 AM	0	0	0	0	1	0	0	1	4%
6:00 AM	0	0	0	0	0	0	0	0	0%
7:00 AM	0	0	0	0	0	0	0	0	0%
8:00 AM	0	0	0	0	0	0	0	0	0%
9:00 AM	0	0	1	1	0	0	1	3	11%
10:00 AM	0	0	0	0	0	0	0	0	0%
11:00 AM	0	0	0	0	0	0	0	0	0%
12:00 PM	0	0	0	0	0	1	0	1	4%
1:00 PM	0	0	0	0	1	0	0	1	4%
2:00 PM	0	0	0	0	0	1	0	1	4%
3:00 PM	0	0	0	0	1	0	0	1	4%
4:00 PM	0	0	0	0	0	0	0	0	0%
5:00 PM	1	0	0	0	0	1	0	2	7%
6:00 PM	0	0	0	1	0	0	0	1	4%
7:00 PM	1	0	0	1	1	3	1	7	25%
8:00 PM	0	1	0	1	0	0	0	2	7%
9:00 PM	0	0	0	0	0	2	0	2	7%
10:00 PM	0	0	0	1	0	0	0	1	4%
11:00 PM	0	0	0	0	1	1	0	2	7%
Total	2	1	1	7	6	9	2	28	100%

Table A-11. Crashes by Lighting Condition (2019–2025)

Crashes by Lighting Condition	2019	2020	2021	2022	2023	2024	2025	Total	Percentage of Crashes
Daylight	1	0	1	1	2	4	2	11	39%
Dark	1	0	0	5	3	4	0	13	46%
Dawn/Dusk	0	1	0	1	0	0	0	2	7%
N/A	0	0	0	0	1	0	0	1	4%
Other	0	0	0	0	0	1	0	1	4%
Total	2	1	1	7	6	9	2	28	100%

Table A-12. Grouped Summary of Crashes by Lighting Condition (2019–2025)

Crashes by Lighting Condition	2019	2020	2021	2022	2023	2024	2025	Total	Percentage of Crashes
Dark/Dawn/Dusk	1	1	0	6	3	4	0	15	58%
Daylight	1	0	1	1	2	4	2	11	42%

Table A-13. Pedestrian and Bicycle Crashes by Lighting Condition (2019–2025)

Ped/Bike Crashes by Lighting	Number of Crashes	Percentage of Crashes
Daylight	4	29%
Dark	9	64%
Other	1	7%

Appendix B: Engagement Documentation

BPPA Survey Response Summary

This appendix presents the results of the public feedback survey conducted as part of the Elkridge Bicycle and Pedestrian Priority Area (BPPA) Study. The survey was designed to gather community perspectives on existing walking and bicycling conditions, validate the challenges identified through the technical analysis, and assess public support for the study's preliminary recommendations. Respondents were asked about their travel habits, the importance of various improvement factors, and their level of support for proposed treatments. Open-ended questions also invited participants to share location-specific concerns, desired improvements, and additional ideas for enhancing safety and connectivity within the BPPA.

Responses to Questions 3 (challenges experienced walking or bicycling) and Question 6 (feedback on the preliminary recommendations) are included verbatim, with all identifying information removed. Test entries and skipped responses are excluded. A summary of all non–open-ended (multiple-choice) results is included in the SurveyMonkey report in the following pages.

Open Ended Response Summary

Question 3: Challenges Experienced Walking or Biking in Elkridge

Question text: Tell us what challenges you've experienced walking or biking in Elkridge. (Example: "Near Greenfield Rd. – missing sidewalk" or "US-1 &Montgomery Rd – unsafe crossing")

1. MISSING OR INCOMPLETE SIDEWALKS

- "Walking along Old Washington between Montgomery and Rt 1 is dangerous. Speeding cars and no sidewalk."
- "Montgomery also needs sidewalks between Rt 1 and Old Washington."
- "Old Washington needs sidewalks; Montgomery south of 1 needs sidewalks."
- "Every new neighborhood puts in ten feet of sidewalk then stops, and none of them connect."
- "Both walking and biking is very dangerous on Montgomery Rd between the I-95 bridge and Deborah Jean Drive. There are no sidewalks or bike lanes."
- "There's no way to walk safely between north and south Main Street. Sidewalks are inconsistent and in bad shape."
- "To walk in Elkridge on Route 1, you have to walk in the street."

2. UNSAFE CROSSINGS AND INTERSECTION CONDITIONS

- "US 1 is intimidating to cross."
- "Unsafe crossing at Bonnie View Lane."
- "We badly need a sidewalk on Montgomery and a large 4-way crosswalk at Montgomery & Route 1."
- "People constantly cross near the fast-food shops on Route 1 because there is no safe crossing."

3. HIGH SPEEDS, DRIVER BEHAVIOR, AND TRAFFIC VOLUMES

- "Bauman Road will continue to be unsafe… speeding vehicles and distracted drivers veer into the shoulder."
- "Cars do not follow the 30 MPH speed limit on Landing Road."
- "Bicycles on Montgomery Road are dangerous for cyclists and drivers."
- "Fast traffic and lack of bike lanes create safety concerns."

4. LACK OF SAFE BICYCLE ROUTES AND HIGH-STRESS CONDITIONS

- “Landing Road is problematic because cars go too fast and there are no shoulders.”
- “Montgomery from Rowanberry to Marshalee is treacherous.”
- “I would like to go from Lawyers Hill to Troy Park on bike, but it feels unsafe crossing Montgomery and Rowanberry.”
- “Bike lanes and shoulders on Montgomery Road leading to Rockburn Park need to be expanded.”
- “Residents cannot safely bike to Ledos, the post office, or Troy Hill.”

5. RAILROAD BARRIERS AND LIMITED CROSSINGS

- “The railroad underpass on Route 1 is a major hindrance.”
- “To get to Daniels or McDonalds you need to go through the railroad bridge on Route 1.”
- “We need a tunnel or way across the tracks, preferably at Main Street.”

6. MAJOR CONNECTIVITY GAPS AND SEGMENTATION

- “It’s impossible to get to Rockburn Park, Rockburn Elementary, or the Giant shopping center without walking on a road.”
- “There is no safe way to walk or bike from Mayfield to stores on 108 or Old Waterloo.”
- “We need a connection from Green Field to Abel with a traffic signal on US 1.”
- “Hundreds of families around Mayfield have been forgotten.”
- “There is no way to ride to Troy Hill or the post office.”

7. VEGETATION AND MAINTENANCE ISSUES

- “Overgrown vegetation near the sidewalk along Route 1.”
- “Limited visibility in some areas with hills.”

Question 6: Feedback on Preliminary Recommendations

Question text: Please share any feedback on the recommendations, e.g., what you like, concerns, or ideas we should consider.

1. STRONG SUPPORT FOR KEY RECOMMENDATIONS

- “I like the proposed wide sidewalks along south Old Washington.”
- “Old Washington sidewalk should be a priority; it has the most foot and bike traffic.”
- “This is the first plan that looks like someone actually spent time in our community.”
- “You did your homework… please follow through and don’t let us down like everyone else has.”

2. DESIRE FOR MORE AGGRESSIVE OR COMPREHENSIVE IMPROVEMENTS

- “A crosswalk or raised bridge should connect people directly across Route 1 to the community center.”
- “Crosswalks at all lights on Route 1.”
- “Traffic calming on Route 1 is needed—consider rumble strips and pedestrian islands.”
- “Mitigations near the new community center could be more aggressive; consider a signalized intersection.”
- “Montgomery Road from Marshalee to Marshalee is a disaster.”

- “Old Washington entire length needs to be redone.”

3. CONCERNS ABOUT COORDINATION, PHASING, AND FOLLOW-THROUGH

- “Projects are not appropriately synced with other safety improvements.”
- “Study should acknowledge when projects are planned but remain unbuilt.”
- “I expect more than this BPPA ‘discovering’ projects we were already promised.”

4. REQUESTS FOR ADDITIONAL CONNECTIONS OR FACILITIES

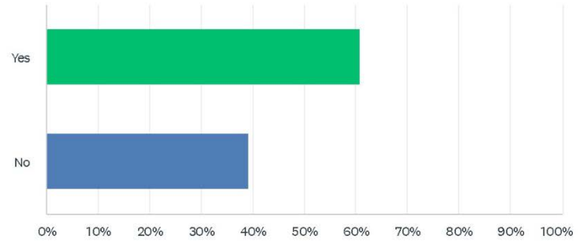
- “A raised crosswalk at Hanover Rd & Fairbourne is needed for community center access.”
- “A pathway from Ducketts Lane to Troy Hill would open more opportunities.”
- “Work with the HOA to develop a foot/bike path between Taylor Acres and Abel Street.”
- “Connect Hardwood Park to Santa Barbara or provide safe passage from Troy Hill to the post office.”
- “A way across the railroad tracks at Main Street should be pursued.”

Open Ended Response Summary

The following pages present the results of the closed-ended questions from the Elkridge Bicycle and Pedestrian Priority Area (BPPA) public survey, as exported directly from SurveyMonkey. These questions asked participants about their travel habits, perceptions of identified challenges, priorities for improvement, and overall support for the study’s preliminary recommendations. The tables and charts that follow reflect all quantitative responses received and provide a snapshot of community perspectives on safety, comfort, connectivity, and needed investment across the BPPA.

Q1 Did you attend the Elkridge BPPA public meeting in person?

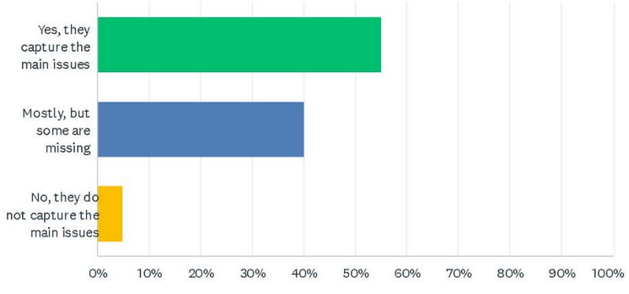
Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	60.87%	14
No	39.13%	9
TOTAL		23

Q2 Do you feel the challenges we identified reflect your experience in Elkridge?

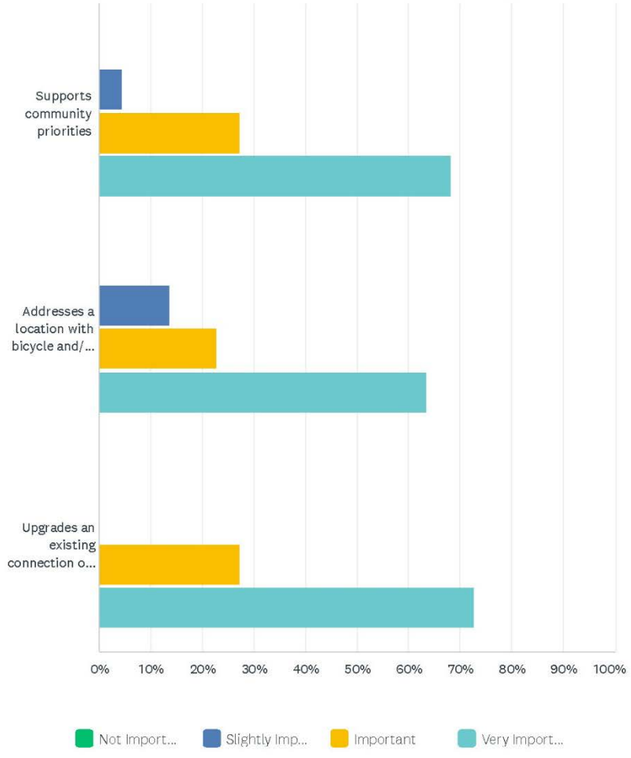
Answered: 20 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes, they capture the main issues	55.00%	11
Mostly, but some are missing	40.00%	8
No, they do not capture the main issues	5.00%	1
TOTAL		20

Q4 When making choices about improvements, how important are each of the following factors? (Circle one for each row)

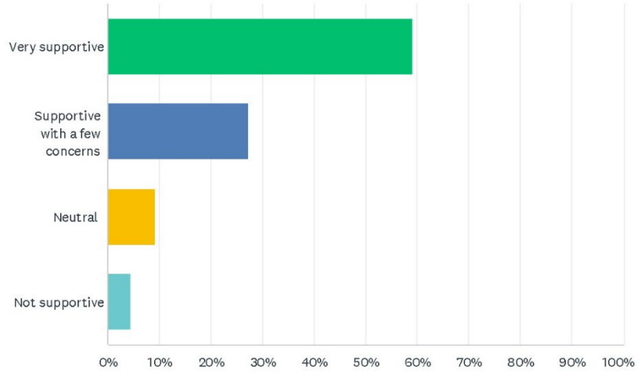
Answered: 22 Skipped: 1



	NOT IMPORTANT	SLIGHTLY IMPORTANT	IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Supports community priorities	0.00% 0	4.55% 1	27.27% 6	68.18% 15	22	3.64
Addresses a location with bicycle and/or pedestrian crashes	0.00% 0	13.64% 3	22.73% 5	63.64% 14	22	3.50
Upgrades an existing connection or makes a connection that does not exist today	0.00% 0	0.00% 0	27.27% 6	72.73% 16	22	3.73

Q5 Overall, how supportive are you of the preliminary recommendations?

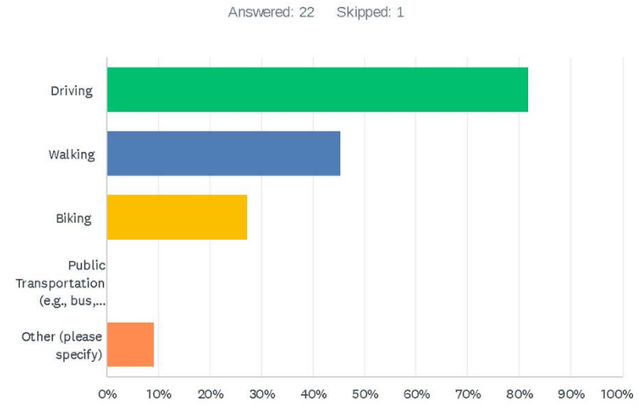
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Very supportive	59.09%	13
Supportive with a few concerns	27.27%	6
Neutral	9.09%	2
Not supportive	4.55%	1
TOTAL		22

Q7 How do you usually get around in the Elkridge BPPA?(Check all that apply)

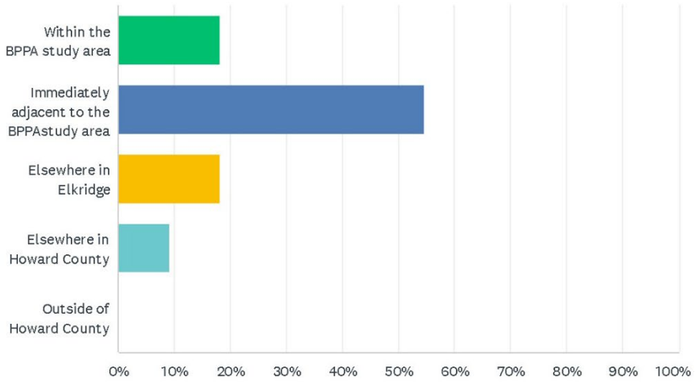
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Driving	81.82%	18
Walking	45.45%	10
Biking	27.27%	6
Public Transportation (e.g., bus, shuttle, microtransit)	0.00%	0
Other (please specify)	9.09%	2
Total Respondents: 22		

Q8 Where do you live?

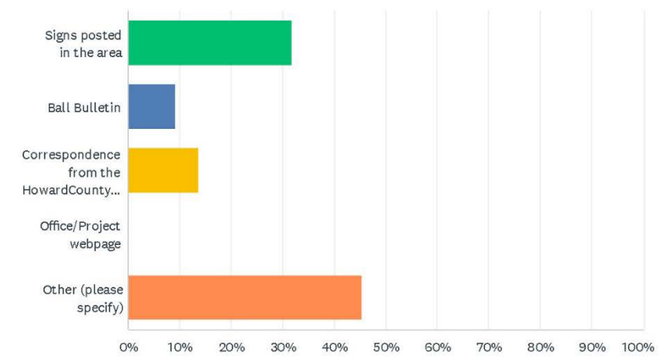
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Within the BPPA study area	18.18%	4
Immediately adjacent to the BPPAstudy area	54.55%	12
Elsewhere in Elkridge	18.18%	4
Elsewhere in Howard County	9.09%	2
Outside of Howard County	0.00%	0
TOTAL		22

Q9 How did you first hear about the public meeting/Elkridge BPPA Project?

Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Signs posted in the area	31.82%	7
Ball Bulletin	9.09%	2
Correspondence from the HowardCounty Office of Transportation	13.64%	3
Office/Project webpage	0.00%	0
Other (please specify)	45.45%	10
TOTAL		22

Appendix C: Recommendation Details

Recommendation Summary Table

Table C-1 summarizes each recommendation evaluated through the Elkridge BPPA planning process, along with three key pieces of supplemental information: community feedback, the anticipated implementation timeline, and an order-of-magnitude cost estimate.

Community Feedback reflects input gathered through the project's public engagement activities. Feedback is categorized as neutral when no comments were received; positive when one to five supportive comments were submitted; and overwhelmingly positive when more than five supportive comments were received. Negative comments were also documented and were subtracted from supportive comments when calculating the net feedback score used to characterize each recommendation. No recommendation received more negative than positive feedback; therefore, none are classified as "concerned" or "opposed."

Implementation Timeline identifies whether a recommendation is expected to be achievable in the *short term* (within zero to five years) or in the *long term* (more than five years). Timelines were developed collaboratively by Howard County, SHA, and the consultant team, considering factors such as whether a project is already underway, the scale of work required, and likely impacts on adjacent utilities, right-of-way, and property.

Cost Estimates are presented as *order-of-magnitude estimates* intended to convey general cost ranges rather than precise values. They are grouped into four broad categories:

- Less than $200,000
- $200,000 to $500,000
- $500,000 to $1 million
- Greater than $1 million

Short-term recommendations were selected for more detailed analysis, and those recommendations have more refined cost estimates presented in the body of the report.

Table C-1: Community Feedback, Implementation Timeline, and Order-of-Magnitude Cost Estimates

Recommendation	Community Feedback	Implementation Timeline	Order-of-Magnitude Cost Estimate
Crosswalks			
Keep all crosswalks in a state of good repair, and update markings to continental striping as maintenance occurs	Neutral	Short term	Less than $200,000
New crosswalk markings and ADA-compliant curb ramps at stop-controlled approaches: Greenfield Rd & Rowanberry Dr Hunt Club Rd & US Route 1 Entrance to Rowanberry Center Elkridge Corners Entrances Montgomery Rd & Timberlee Rd	Positive	Short term	Less than $200,000 to do all

Recommendation	Community Feedback	Implementation Timeline	Order-of-Magnitude Cost Estimate
New crosswalk markings and ADA-compliant curb ramps at stop-controlled approaches, to follow construction of new sidewalks: Montgomery Rd & Bauman Dr Old Washington Rd & Montgomery Rd Montgomery Rd & Lawyers Hill Ct	Positive	Long term	Less than $200,000 to do all
Additional crosswalks with pedestrian signals and curb cuts at signalized locations: US 1 & Montgomery Rd (north and east legs) US 1 & Rowanberry Dr (north leg) US 1 & Doctor Patel Dr (north and east legs) Rowanberry Dr & Montgomery Rd (north and east legs)	Overwhelmingly Positive	Long term	$200,000 to $500,000 to do all
New Signs and Markings			
Stop bar at Greenfield Rd (intersection with Rowanberry Dr)	Neutral	Short term	Less than $200,000
Warning signs and advance stop pavement markings ahead of the existing crosswalk at Greenfield Rd & US Route 1	Neutral	Short term	Less than $200,000
Signal Operations & Infrastructure			
Signal timing with Leading Pedestrian Interval (LPI) at all ped signals for all signalized intersections: US 1 & Montgomery Rd US 1 & Rowanberry Dr US 1 & Doctor Patel Dr Montgomery Rd & Rowanberry Dr	Neutral	Long term	Less than $200,000 to do all
Consider exclusive left turn phasing: Northbound left at US 1 & Rowanberry Dr Northbound left at US 1 & Montgomery Rd	Neutral	Long term	$200,000 to $500,000 each
Backplates with retroreflective borders at all signalized intersections: US 1 & Montgomery Rd US 1 & Rowanberry Dr US 1 & Doctor Patel Dr Montgomery Rd & Rowanberry Dr	Neutral	Long term**	$200,000 to $500,000 each
Traffic Calming			
Raised Crosswalks: Rowanberry Dr (at Greenfield Rd) Rowanberry Dr (at Orchard Club Dr) Rowanberry Dr (at Fire Station entrance)	Positive	Short term	Less than $200,000 to do all

Recommendation	Community Feedback	Implementation Timeline	Order-of-Magnitude Cost Estimate
Add curb extensions at intersections with on-street parking	Neutral	Long term	Depends on how many locations and extent of drainage impacts. Could probably do several locations with $200,000.
Evaluate and reduce turning/curb radii throughout the BPPA	Neutral	Long term	Depends on how many locations and extent of drainage impacts. Could probably do several locations with $200,000.
Lower the speed limit on US 1 to 35 mph	Positive	Short term	Less than $200,000
Establish speed transition zones (45 → 40 → 35 mph)	Positive	Short term	Less than $200,000
Speed cameras where allowed by law	Positive	Short term	Less than $200,000
New Sidewalks and Shared-Use Paths			
New wide and buffered sidewalks on Old Washington Rd	Overwhelmingly Positive	Long term	Greater than $1 Million
New wide and buffered sidewalks on Bauman Dr (Ducketts Ln to Montgomery Rd)	Positive	Long term	Greater than $1 Million
New sidewalks on the north side of Montgomery Rd (from US 1 to Old Washington Rd)	Overwhelmingly Positive	Short term	$500,000 to $1 Million
New wide and buffered sidewalks on Montgomery Rd (between US 1 and Timberlee Rd on the north side)	Positive but concerned	Long term	$500,000 to $1 Million
New wide and buffered sidewalks on Montgomery Rd (west of Lawyers Hill Rd, excluding I-95 bridge)	Positive	Long term	Less than $200,000
New wide and buffered sidewalks on Doctor Patel Drive	Neutral	Long term	Less than $200,000
New wide and buffered sidewalks on Steepridge Dr	Neutral	Long term	Less than $200,000
New wide and buffered sidewalks on Hunt Club Rd	Neutral	Long term	$500,000 to $1 Million
Shared-use paths on US 1	Overwhelmingly Positive	Long term	Greater than $1 Million

Recommendation	Community Feedback	Implementation Timeline	Order-of-Magnitude Cost Estimate
Bike Facilities			
Bike racks along US 1	Positive	Short term	Less than $200,000
Bike-compatible sidewalk and bike lanes across the I-95 bridge	Positive	Short term	$200,000 to $500,000
Bike lanes on Montgomery Rd from Lawyers Hill Rd to Elibank Dr	Positive	Short term	$200,000 to $500,000
Bike lanes on Montgomery Rd west of Elibank Dr	Positive	Long term	$200,000 to $500,000
Bike lanes on Montgomery Rd from Timberlee Rd to US 1	Neutral	Short Term	$200,000 to $500,000
Bike lanes on Old Washington Rd from US 1 to Montgomery Rd	Positive	Long term	Greater than $1 Million
Bike lanes on Bauman Dr	Neutral	Short term	$200,000 to $500,000
Bike lanes on Rowanberry Dr	Neutral	Long term	$500,000 to $1 Million
Transit			
Restrict residential parking at RTA bus stops	Neutral	Short term	Less than $200,000
Reroute RTA transit to serve future Community Center	Positive	Short term	N/A
Expand Microtransit Hours to include weekends and nights	Positive	Short term	N/A
Lighting & Visibility			
Install more streetlights, especially along US 1	Positive	Short term	$200,000 to $500,000
Vegetation & Maintenance			
Regular maintenance to address overgrown vegetation, especially on US 1 and Montgomery Rd.	Positive	Short term	N/A
Plant vegetation (maintaining sight lines) in buffer areas	Neutral	Long term	Less than $200,000
Feasibility Studies			
Pedestrian Crossing Feasibility Study at Greenfield Road and US 1: Full traffic signal, Pedestrian hybrid beacon (HAWK), Dedicated left turn from US 1 to Old Washington, Closing the spur from NB US1 to Old Washington Rd	Overwhelmingly Positive	Short term	$200,000 to $500,000 to do a study