

Fatal Crash Infrastructure Reviews



Advocate Review and Opportunities

Presentation to Maryland Bicycle and Pedestrian Advisory Committee (MBPAC)

Henry Cook
October 27, 2023

Introduction

Henry Cook

Resident of Timonium, MD

Avid cyclist, occasional runner

Father of 3 children who I hope are one day able to live a less car-dependent lifestyle than their parents

Likely the only person outside MDOT SHA to have read every Pedestrian and Bicycle Fatality Infrastructure Report



Vision Zero Implementation Act of 2022

MBPAC supported this legislation during the 2022 General Assembly ([link](#))

Signed into law April 21, 2022 and in effect as of October 1, 2022

- Applies to every bike/ped fatality on or at intersection with a state hwy
- Requires that MDOT SHA
 - Identify deficiencies in engineering, control or operations
 - Identify appropriate corrective actions and crash reduction countermeasures
 - Consider highway context
 - Consider different modes of transportation using the hwy
 - Consider prior crashes in the area
- Reviews must be completed within 6 months of crash notification and be published publicly

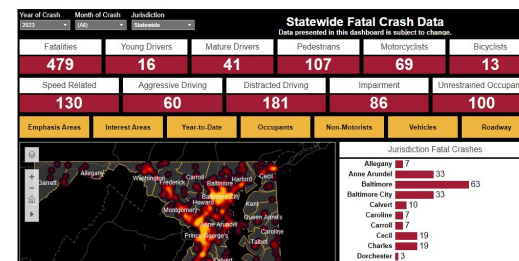
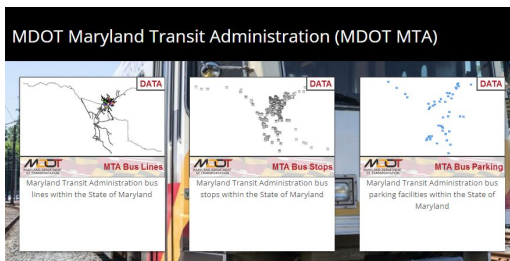
This Law is a Good Policy

- Requirements lead to the right questions
 - Identify deficiencies in engineering, control or operations
 - Identify appropriate corrective actions and crash reduction countermeasures

Is an existing design element broken?
What do we need to fix it?

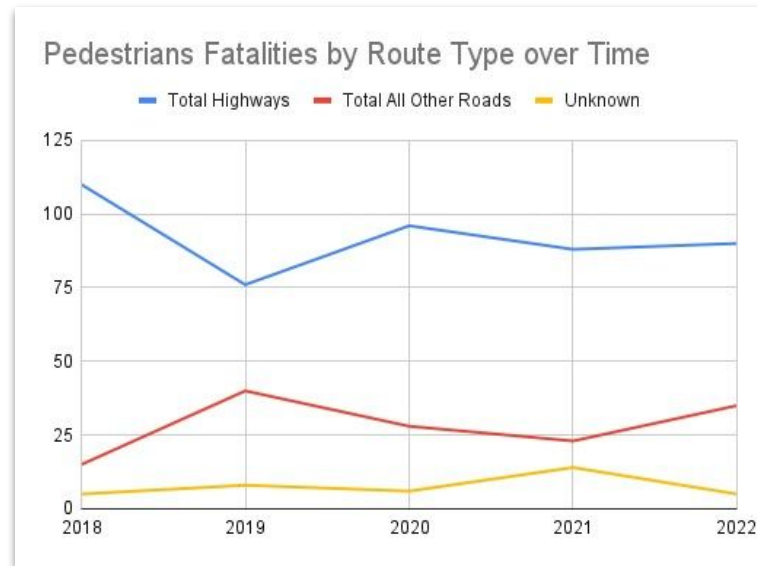
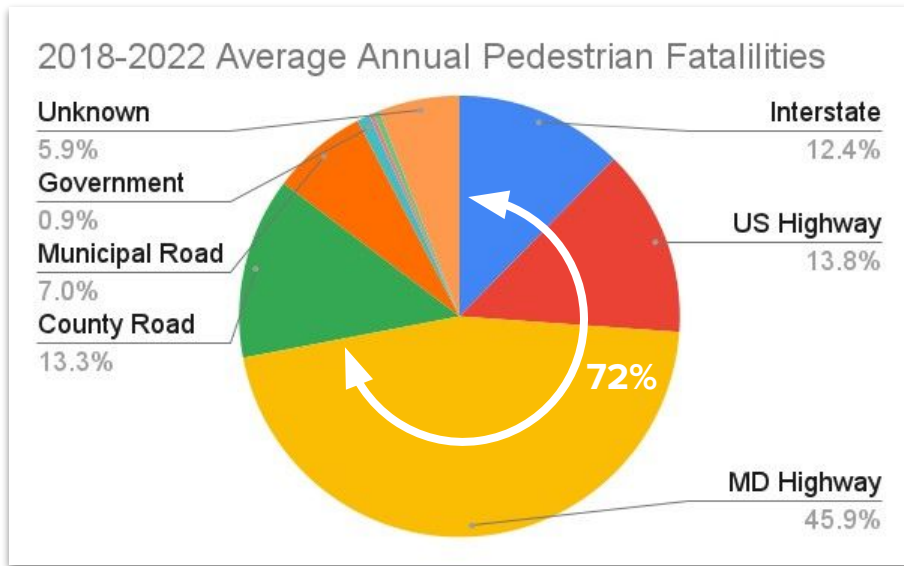
Should the design be supplemented
to make it safer?

- MDOT has built the relevant tools for
 - Highway context
 - Transportation mode usage
 - Prior crash history



The Policy is Well-Targeted

MDOT SHA roads represent the best opportunity to reduce Pedestrian deaths



The Implementation is Incomplete





- Reports to date only address the first question
 - Identify deficiencies in engineering, control or operations
 - Identify appropriate corrective actions and crash reduction countermeasures

Is an existing design element broken?
What do we need to fix it?



Should the design be supplemented
to make it safer?



- MDOT's tools have not been used to consider
 - Highway context 
 - Transportation mode usage 
 - Prior crash history 
- Publicly accessible reports are a great addition to open data and public engagement 
 - [Pedestrian and Bicyclist Fatalities Infrastructure Review - MDOT SHA](#)

Opportunities

Consider Context Driven Design Guidelines & Countermeasures

Example: [12/11/2022 – US 40 \(West Patrick St\), Frederick, Frederick County](#)

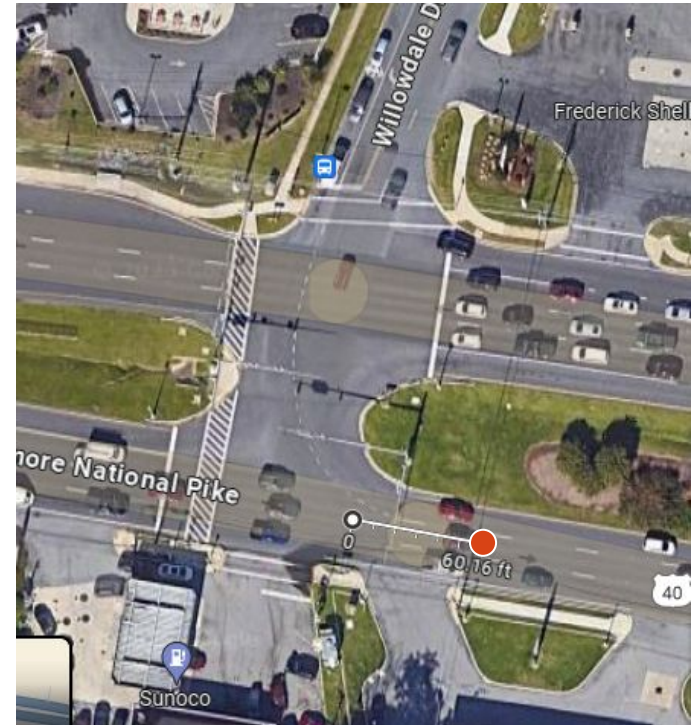
- Infrastructure review found no deficiencies

This crash occurred in a “Suburban Activity Center” context, using MDOT SHA’s Context Driven Guide:

- “At controlled intersections, mark all legs where possible to reduce crossing exposure for pedestrians.”¹
- The speed limit is 45 mph, the maximum speed limit should be no more than 35 mph²

¹ Reference [Continental Crosswalk Countermeasure Overview on MDOT SHA Context Driven Design Guide](#)

² Reference page 12 of the [Context Driven Design Guidelines](#)



Opportunities

Consider Other Modes of Transportation Using the Highway

Example: [12/28/2022 - MD 214 \(Central Ave\), Bowie, Prince George's County](#)

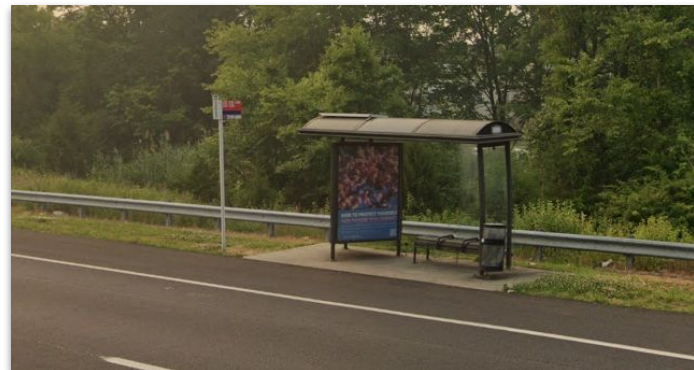
- Infrastructure review found no deficiencies at the intersection

However, the crash did not occur at the intersection

- Crash location is aligned with bus stops



- Eastbound stop is not connected to a sidewalk



Opportunities

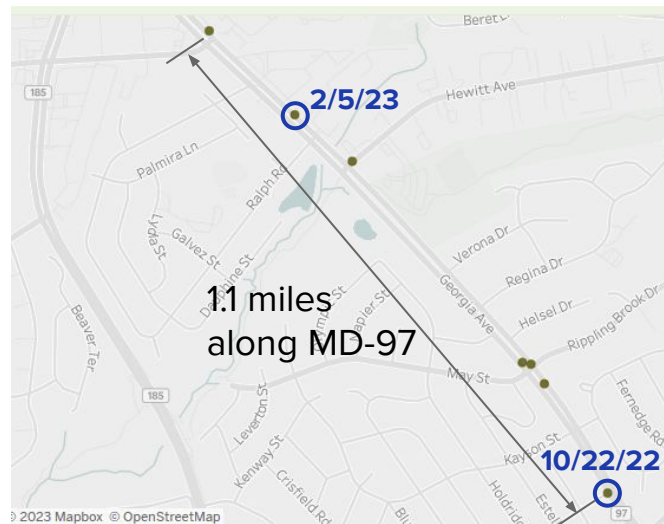
Consider Prior Crashes in the Area

Example: [2/5/2023 - MD 97 \(Georgia Ave\), Aspen Hill, Montgomery County](#)

- Infrastructure review recommended repair of a nearby streetlight
- Infrastructure review did not discuss crash history of this area

Crash history in this area is extensive:

- A fatal crash nearby on [10/22/2022](#)
- This stretch of Georgia Ave historically dangerous - **five** other fatal crashes since 2019
- The victim of this fatal crash had been struck and injured by a vehicle crossing this highway about a month earlier!



Source: Maryland State Police's [Maryland Crash Data Download](#), all fatal crashes for 1/1/2019 - 2/5/20233

Opportunities

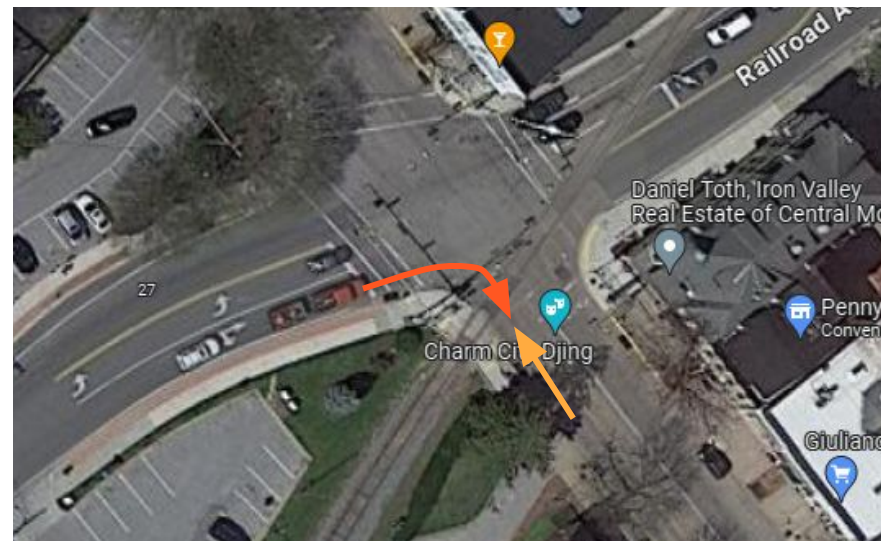
Apply a Safe System Approach

Example: [3/8/2023 - MD 27 \(Liberty St\), Westminster, Carroll County](#)

- Infrastructure review found no deficiencies
- Cited police report that bicycle was traveling against the flow of traffic and was hit by tractor trailer turning right on red

Even if the proximate cause was cyclist error, the review should continue.

- If “right on red” were prohibited at this intersection, this fatal crash may not have occurred



Opportunities

Apply a Safe System Approach

Maryland's [Draft 2050 Statewide Bicycle and Pedestrian Master Plan](#) calls for a Safe System approach

THE SAFE SYSTEM APPROACH VS. TRADITIONAL PRACTICES

Traditional

- Prevent crashes
- Improve human behavior
- Control speeding
- Individuals are responsible
- React based on crash history

Safe System

- Prevent deaths and serious injuries
- Design for human mistakes/limitations
- Reduce system kinetic energy
- Share responsibility
- Proactively identify and address risks

Even if pedestrian error is determined by the police report, the review should still ask **“Could infrastructure countermeasures reduce the frequency of these errors?”**

Opportunities

Use satellite imagery to illustrate context

MDOT SHA [Report](#) ↓ My [review](#) of this report →

Pedestrian and Bicyclist Fatalities Infrastructure Review

Summary Assessment

Deficiency Category : No Deficiency

Recommendations : No Deficiencies Found Recommendation Details : N/A

Inspection#: 20221229-3097

Date of Crash: 12/22/2022

Date of onsite inspection: 12/29/2022

SHA District: D3

County: Prince George's

Route: MD 458

Intersection: MILEPOINT: 1.210 (100.00 FEET N from SWANN RD)

Number of fatalities: 1

Number of injuries: 0

Does the crash involve a pedestrian(s)? Yes

Was there a pedestrian fatality? Yes


Is a crosswalk present? No

Is the crosswalk in need of maintenance? N/A

Is the crosswalk signalized? N/A

Is the signalized crosswalk operational? N/A

What is the approximate distance (ft) between the crash and the nearest crosswalk? N/A



The satellite image shows an intersection of Swann Rd and a road labeled MD 458. A white measurement box is overlaid on the map, showing a total distance of 100.32 ft (30.58 m). The box contains the text: 'Measure distance', 'Click on the map to add to your path', and 'Total distance: 100.32 ft (30.58 m)'. Other labels in the image include 'Suitland Federal Center visitor center' and 'Suitland Federal Center Gate 5'.

Deficiency found? No

Findings: Two streetlights (near bus stops) are not functioning properly and have been reported to the local utility company PEPCO (Potomac Electric Power Company) for repair.

My Opinion

Again the nearest crosswalk is listed as "N/A", but we can see one in the satellite picture. I'm measuring from the corner of the intersection because it

Beyond the Requirements

Implementing Infrastructure Review Findings

- The Vision Zero Implementation Act of 2022 is silent on how to implement the findings
- Maintenance findings are already dealt with effectively
- How are newly recommended countermeasures funded and tracked?
- Opportunity for SHA to publicize positive outcomes as result of review

Systemic Review

- Current infrastructure reviews occur at exactly one point in the state highway system
- Trends in review should be used to proactively update infrastructure rather than addressing by exception

Proactive, Independent Safety Review

- New designs and road maintenance should undergo a similar review prior to construction
- Proactive reviews should be performed by independent assessment

Summary

Public Fatal Crash Infrastructure Reviews have been very productive in their First Year

Opportunities Remain to Leverage this Program to its Full Potential

Additional Opportunities are Available to Maximize the Reviews' Impact