

VISION ZERO

Thinking Outside the Manual for Design Solutions



Traffic Engineering Workshop

June 4, 2025

MC DOT

Montgomery County Department of Transportation

Traffic Engineering Safety

WHAT IS THE ISSUE?

Driver behavior is (or may be) poor, leading to higher travel speeds than appropriate for conditions.

Driver behavior that leads to or includes inattentive drivers.

Pedestrian inattention, inexperience or under awareness.

Bicyclist inattention, inexperience or under awareness.

(Shoulda asked, “What ARE the issues?”)

WHY ARE THESE (AND SIMILAR) ISSUES?

- Most roadways experience higher travel speeds than appropriate for conditions.
- Roadways are still being planned/designed for high vehicle speeds, even in residential areas.
- There are numerous traffic safety/calming tools, but each tool is limited in its effectiveness and application.
- Implementation of appropriate tools does not always ensure “total” speed reduction/limit compliance.



Four-lane, Median Divided
Pedestrian Facilities
Proximity of Homes to Road



- Does not qualify for speed humps
- Vehicle Parking Not Permitted ☺
- Proximity of Homes to Road



Does not qualify for speed humps
Bump outs infeasible
No parking changes (by Regulation)

LIMITS ON ENFORCEMENT

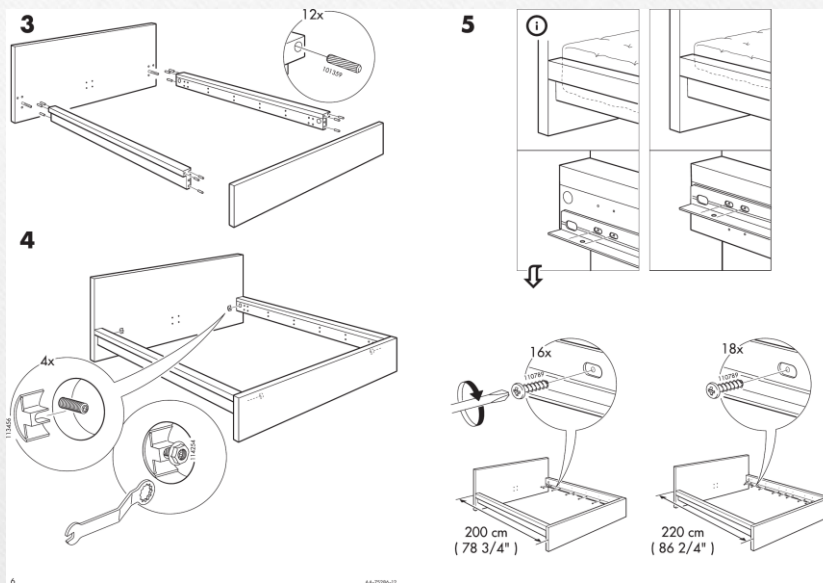


There is a dearth of
LEO's to perform
traffic enforcement.

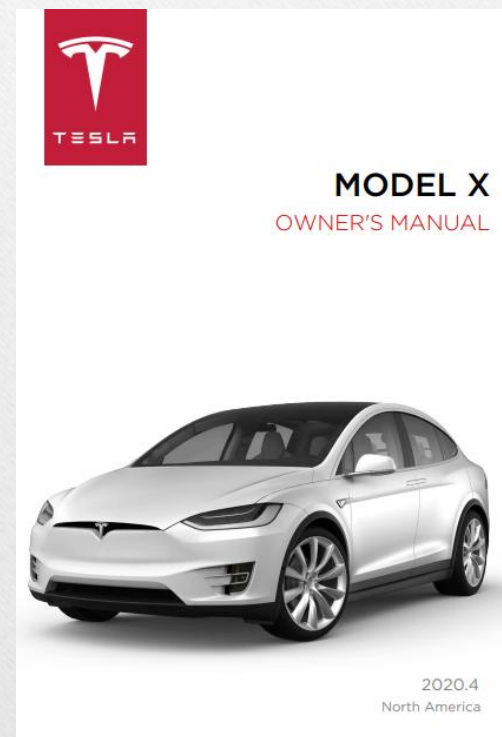
Scope of laws is limited
for automated
enforcement.

NOTHING'S* WRONG WITH THE PRODUCTS...

(or so they say)



(*Have you ever built a bed from IKEA??? Won't even talk about Tesla's ... wait.. 'S.Mine has been GREAT!!!!)



VISION ZERO TENETS

“Vision Zero is based on an underlying ethical principle that "it can **never be ethically acceptable that people are killed** or seriously injured when moving within the road transport system.“ In most road transport systems, road users bear complete responsibility for safety. Vision Zero changes this relationship by emphasizing that **responsibility is shared by transportation system designers and road users.**”

(From Wikipedia)

VISION ZERO – SAFE SYSTEMS APPROACH

- Recognize that crashes will happen – change the roadway system to minimize crash impacts/consequences
- Vehicles and system interact for safety benefit
- Adapt vehicles and roads to match mode user capabilities
- Promote autonomous technologies (as part of robust approach, but is lacking)

OUTSIDE THE MANUAL...

When thinking “outside the manual”, we should NOT abandon the calming/safety recommendations in the manual.

- Chicanes/Bump Outs
- Pedestrian Refuges
- Dynamic Speed Signs
- Speed Humps
- PHB's/Signals

High Injury Network Projects

Advancing study, design, and construction on County and State roadways based on crash risk

- Study
 - New Hampshire Ave (MD 650) in conjunction with Prince George's County between Piney Branch Rd and the Beltway.
 - Aspen Hill – Bel Pre Rd, Georgia Ave, & Connecticut Ave.
 - Snouffer School Rd
- Design
 - Crabbs Branch Way (underway)
 - Randolph Rd (underway)
 - Sam Eig Hwy (underway)
- Construction
 - Shady Grove Rd (signal modifications)



Signal changes at Shady Grove Rd & Briardale Rd with exclusive red turn phasing and backplates to address failure to yield crashes.

Speed Limit Reductions

Matching Posted Speeds to Surrounding Context

MCDOT and MDOT SHA have lowered posted speed limits across the county to better match the posted speed limit with the surrounding community. Most speed limits lowered by MDOT SHA are along the high injury network.

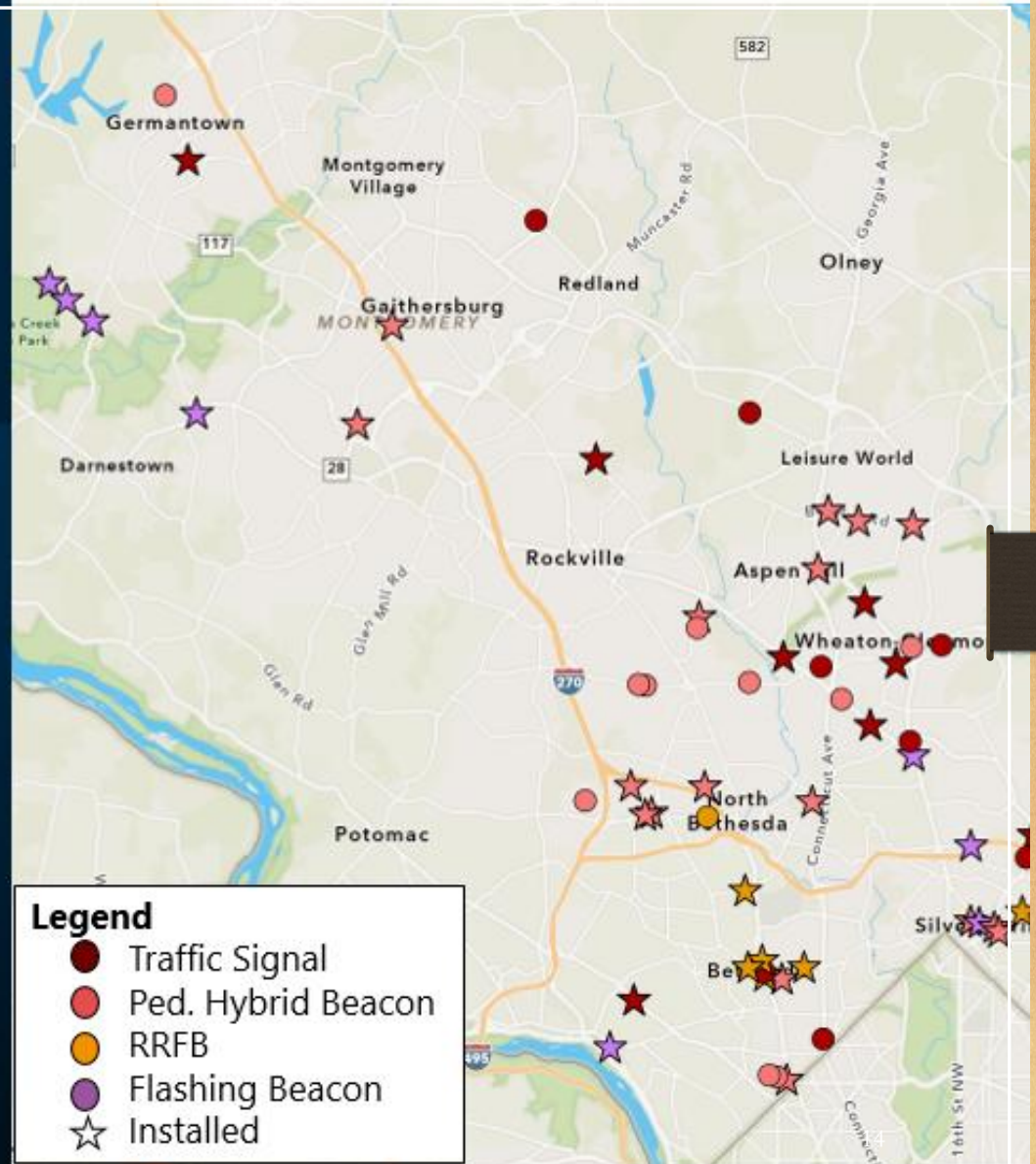
The speed limit reductions are supported by design changes and law enforcement. Portions of Georgia Ave were narrowed during a repaving project to slow driver speed. Automated speed enforcement has been added to sections of Georgia Ave and Norbeck Rd after travel speeds remained elevated a year after the speed limit change.



39 new installations
since onset of Vision
Zero Initiative

26 additional
devices scheduled

NEW SIGNAL AND BEACON INSTALLATIONS





(*and Planning)

Excessive Vehicle Speeds

- What do we do if vehicles continue to speed?
- Who is responsible for addressing this phenomenon?

Law Enforcement*

**Motorists/Drivers –
Education/Influence/Personal Responsibility**

Bel Pre Road Rectangular Rapid Flashing Beacons

- Four-lane crossing
- No “RED” indications
- Multi-threat Condition
- Improper Installation
- Pedestrian Injury Crash





BEL PRE ROAD PED HYBRID BEACON



TUCKERMAN LANE FLASHING YELLOW BEACON



TUCKERMAN LANE PED HYBRID BEACON

Traffic Engineering Safety

EXISTING CONDITIONS

- Massive roadway network – scale of improvements
- Capital funding dearth
- Lagging technology (full fleet autonomy*)
- Random incident occurrences
- Strained enforcement resources
- Stratification of goals and expectations within government, agency leadership, and road users

(*Not “driverless”, but ubiquitously equipped driver assist features – auto braking, for instance)

TRAFFIC ENGINEERING CHALLENGES TO SUCCESS

- Accomplishing VZ with few improvements
- Time/budget needed is impractical
- Limited LEO resources/legislation scope (cameras)
- Mode users are mistake prone (and reckless)



Traffic
Engineering Safety
~~CHALLENGES~~
~~TO~~ Success

WE TRAIN...

WE TEACH...

**WE CHANGE
THE CULTURE**

OUTSIDE THE MANUAL...

When thinking “outside the manual”, we should NOT abandon the calming recommendations in the manual.

- Chicanes/Bump Outs)
- Pedestrian Refuges
- Dynamic Speed Signs
- PHB's/Signals

BUT THE MANUAL ISN'T ENOUGH....



Don't install:
Traffic Signals
PHB's
Stop Signs

For Speed Reduction! (uhhh...)



Consider corridors with egregious speed violators

Change signal timing to reflect target speeds

Selectively install at intersections to break up long, uncontrolled segments

Create a “context of stop”

For Speed Reduction!

VISION ZERO TENETS

Montgomery County, MD

- Transportation-related deaths and serious injuries are preventable and unacceptable (Tenet 1).
- People will make mistakes. The transportation system should be designed so those make mistakes do not lead to serious injury or death (Tenet 4).
- All road users have a responsibility to respect one another and to behave in a safe manner (Tenet 5)*.

(*While the focus is on drivers, this tenet encompasses all road users and must include one's respect for their own life and health.)

<https://www.montgomerycountymd.gov/visionzero/Resources/Files/vz2030-plan.pdf>



Outreach for Ped. Hybrid Beacons

PHBs for People Walking

- PHB's function similarly for pedestrians and motor vehicles as a traffic signal functions with yellow and red lights.
- Pedestrians must activate the beacon by pressing the button, then waiting for the walk signal (less than 30 seconds).
- All PHBs have accessible pedestrian signals (APS) and countdown pedestrian signals (CPS).

PHBs for People Driving

- Same rules of the road – yellow means "Exercise Caution" and "Prepare to Stop" and red means "Stop".
- Nuance is the beacon goes dark, which allows drivers to proceed at speed.
- Continued media and on-street outreach is progressing to build awareness of these new devices.

OUTREACH AND CULTURE

Recognize that each mode (pedestrian, bicyclist and motorist) must be constantly and effectively encouraged to pursue roadway safety!

OUTREACH AND CULTURE

Pedestrian/Bicyclist Focus - least popular
action/mode...

Boy N'my Hood

Leighton – What's it Worth?

(Long) Draft Dodger

Blog Cabin – They Aren't Stopping!



Myth: “Infrastructure is the only important feature to Vision Zero”



Traffic
Engineering Safety
SUCCESS

WE TRAIN...

WE TEACH...

WE CHANGE
THE CULTURE



Commitment to Traffic Engineering Safety

Traffic Engineering Safety
Success



Develop or Expand the Traffic Engineering Safety Narrative

Traffic Engineering Safety Success



Traffic Engineering Safety Success

Engage Your
Circle Regarding
the Narrative



VISION ZERO SUCCESS

WE TRAIN...

WE TEACH...

WE CHANGE
THE CULTURE
OF SAFETY

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