American Council of Engineering Companies of Massachusetts:

Vulnerable User Legislation

MassDOT Chief Safety Officer, Pat Lavin – February 1, 2024



Acts (2022) Chapter 358 - An Act to Reduce Traffic Fatalities

Massachusetts law defines a "vulnerable user" as:

A pedestrian, including a person engaged in work upon a way or upon utility facilities along a way or engaged in the provision of emergency services within the way; (ii) a person operating a bicycle, handcycle, tricycle, skateboard, roller skates, in-line skates, non-motorized scooter, wheelchair, electric personal assistive mobility device, horse, horsedrawn carriage, motorized bicycle, motorized scooter, or other micromobility device, or a farm tractor or similar vehicle designed primarily for farm use; or (iii) other such categories that the register may designate by regulation.



Why this matters - two residents, ten years apart



- Christopher, 23 was a photography graduate student at BU
- Riding in bike lane with the green light, truck turned right across the bike lane and slid under the truck
- This death launched City of Boston's side guard program







Girl, 5, dies after being hit by tractor-trailer in Andover

By Teddy Tauscher | ttauscher@eagletribune.com May 10, 2023



"Simple safety features, like cross-view mirrors that are now required on state-owned trucks in Massachusetts...could have saved Sidney's life," the family said. "The solutions to these problems exist. We just

Sidney was 5-years old

With family crossing street in

the crosswalk when truck

signals, unaware of child

crossing in-front of truck

driver over-ran her

Driver was following

problems exist. We just need to implement them."

Overview of Legislative Requirements



Overview of Truck Safety Device requirements in Chapter 358 of the Acts of 2022

- A motor vehicle, trailer, semi-trailer or semi-trailer unit classified as a class 3 or above by the Federal Highway Administration, with a gross vehicle weight rating of 10,001 pounds or more, that is leased or purchased by the commonwealth on or after January 1, 2023, shall be equipped with a lateral protective device, convex mirrors, cross-over mirrors and backup cameras.
- A motor vehicle, trailer, semi-trailer or semi-trailer unit classified as a class 3 or above by the Federal Highway Administration, with a gross vehicle weight rating of 10,001 pounds or more, that is leased or purchased by the commonwealth on or after January 1, 2025, or operated under a contract with the commonwealth on or after January 1, 2025, shall be equipped with a lateral protective device, convex mirrors, crossover mirrors and backup cameras.
- The registrar shall adopt regulations establishing standards, consistent with the United States Department of Transportation John A. Volpe National Transportation Systems Center's side guard standard DOT-VNTSC-OSTR-16-05, and specifications for the size, design and mounting of lateral protective devices, convex mirrors and cross-over mirrors. The registrar may provide alternative means of compliance with the convex mirror, crossover mirror and lateral protective device requirements.... A contractor's failure to comply with this paragraph may be grounds for termination of the contract and may be punishable by a fine of not more than \$500 for the first offense and not more than \$1,000 for a second or subsequent offense



- Transparent & Public Facing Data
- Has 60,00 users
- Changes to the crash form will allow for better analysis of Vulnerable Road User (VRU) Crashes

Мараст	IMPACT Home		Welco	ome, Guest User 🏓 🖉 Log In				
IMPACT is designed to encourage public safety initiatives and awareness specific to crash information. Within IMPACT you can engage with crash related data through easy to understand pre-built reports or conduct your own self-driven analysis. Please take the time to explore the various options and find what is right for you.								
	Interactive Data Dashboards IMPACT dashboards tell powerful data stories using maps, charts and tables based on complex analyses. These pre-built dashboards allow for interactive analysis and data exploration specific to a given data theme in a range of categories.	INTERACT	Reported Crashes YTD 80,563	Reported Fatalities YTD (FARS)				
	Data Query and Visualization Using the Data Query and Visualization tool you can conduct simple to sophisticated data queries to generate subsets of the crash data. This may be done at the crash level, the vehicle level or the person level. Once generated you can then visualize the data in three core ways: on charts, on tables, or spatially on a map. Though noted separately, these elements all work in tandem providing the ability to switch between the visualization methods seamlessly.	EXPLORE		As of: Tue Sep 12 2023 Reported Bicyclist Crashes YTD 7999				
. <u></u>	Data Extraction Using the data extraction service, you can request publicly available data by municipality and date range in several formats. The standard data report request form should be used when trying to obtain datasets of town-wide crash data for specific years. In addition, a link is provided to MassDDT's Open Data Portal for more large-scale data download capabilities where the entire crash data file may be downloaded for each year.	EXTRACT		As of: Tue Sep 12 2023 Reported Ages of Drivers in Crashes YTD <10				
<u>وات</u> الالمار	Reports IMPACT provides a suite of pre-built reports for rapid access to cleanly organized information across a spectrum of categories. Some reports are configurable given desired date ranges and all are downloadable in several formats.	REPORTS						
	Crash Tabulation and Charting IMPACT provides this tool to aggregate selected data in a matrix to display two or more variables. The crosstab provides summary data and can be used to summarize the full crash database as well as subsets of the data, based on the user selected variables.	EXPLORE		55-64 65-74 75-84				
Đ	Safety Analysis Tools IMPACT provides several safety analysis tools focused on network screening and diagnosis. Network screening includes both Spot and Systemic mapping. Diagnosis tools include a Crash Tree Maker and a Site Proportions tool.	EXPLORE	Property Damage Only Other As of: Tue Sep 12 2023	ి ఫ్రాహ్ చైల్లో చైల్లో చైల్లో చైల్లో చైల్లో వైల్లో వైల్లో 18,651 drivers with ages unknown As of: Tue Sep 12 2023				



Screenshots of the IMPACT crash portal, accessed at https://apps.impact.dot.state.ma.us/cdp/home

Adding new fields to the crash form and IMPACT (crash data portal)

Please complete a section for each vulnerable user involved in the crash.					
Vulnerable User			Action VU2	Location VU3	
VU: Last Fi	nt Middle	Prir	nary Injury Area: VU7		
City License # Traffic Control Device VU4 Origin/Destination VU5 Contact Point: VU6		Event Seque Contributing Distracted by	Code VU9 VU9	Test Status: VUII Type of Test: VUI2 BAC Test Result: VUI3 Susp. Alcohol: VUI4 Susp. Drug: VUI5	
VU16 Sex Seat Pos	VU17 VU18 VU1 Safety Equipment Eject Code Trap C		VU21 sp. Code Medi	cal Facility	
Vulnerable User					



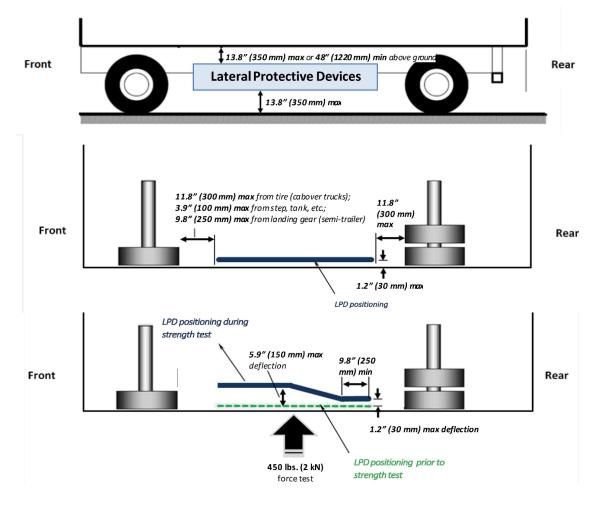
1. Side Guards (Lateral Protective Devices)

2. Cross Over Mirrors [for front blind zones]

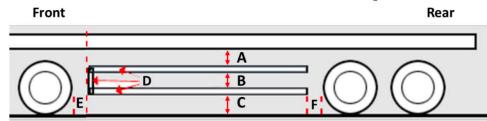
3. Convex Mirrors [for side blind zones]

4. Back-up Cameras





Additional dimensional criteria for rail-style LPDs



Α	13.8 inches (350 mm) max
В	11.8 inches (300 mm) max
С	13.8 inches (350 mm) max
D	3.9 inches (100 mm) min
E	11.8/3.9 inches (300/100 mm) max*
F	11.8 inches (300 mm) max

TRUCK SIDE GUARD MODELS







Airflow Deflector Side Guard

Steel or Aluminum Rail Side Guard

Steel Mesh Side Guard



Cross-Over & Convex Mirrors

Currently has no standard for which vehicles need cross over mirrors at the federal level, but New York State has had a law since 2013 on large trucks. The standard set in New York City is for a 3ft person to be visible.





Cross Over Mirrors enable the driver to see:

- Anything at least 3 feet tall.
- Anything passing one foot in front of the vehicle
- The entire width of the front of the truck.

Convex mirrors are used for side blind spots.



Back-up Cameras

Federal Motor Vehicle Safety Standards (FMVSS) No. 111 - as a blueprint

- Applies to all new vehicles **under** 10,000lbs as of May 1, 2018
- Requires a rearview camera system
- Must have a field of view that includes 10-foot by 20-foot zone directly behind the vehicle
- There are specified minimum dimensions for the in-cabin screen
- Must activate when the vehicle is put in reverse

There is no current federal regulation requiring back-up cameras for Class 3+ vehicles

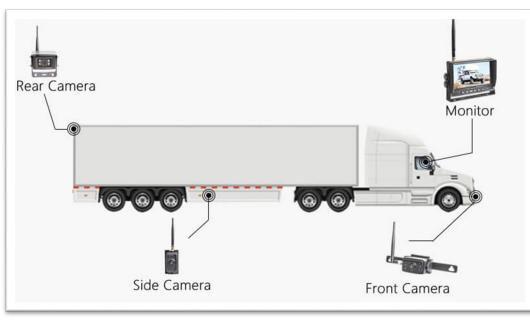




Image Source: Haloview, an aftermarket camera

MassDOT Objectives



Minimize our risk of harming people in this way. We want to minimize the potential for any of our vehicles, or those we are contracting with, to cause serious injury or death to anyone on our roadways. Given the evidence base and the availability of safety countermeasures for vehicles, it is imperative that we act.



Achieve compliance with a legislative requirement. We want to ensure that we are responsive in delivering to a high standard the requirements as outlined in Sections 9 and 10 of Chapter 358 of the Acts of 2022, sometimes referred to as the Act to Reduce Traffic Fatalities or the Vulnerable Road User law.



Show national leadership. We know Massachusetts has a long and proud history of setting "firsts". Through this work, we want to set an example for other state DOTs, as well as encourage industry players (like large fleet managers and original equipment manufacturers) to critically consider their roles in safer roads via safer vehicles.



Demonstrate high capacity for cross-Secretariat, complicated implementation of a safety initiative. With MassDOT in the Project Management lead, we will show competence in setting sound implementation standards that are replicable across state agencies. We will demonstrate an ability to be collaborative, creative, proactive, and forward-thinking.

Questions

