



Safety
2023 CFL Annual A/E Meeting

Agenda

- CFL Safety Team Introductions
- New and Upcoming in Safety
- Safe System Approach

CFL Safety Team

- Christine Black
- Kelly Terrell Prose

New MUTCD

Draft edition of the updated MUTCD was published for public comment in December 2020.

As part of the Infrastructure Investments and Jobs Act, FHWA is required to update the MUTCD by May 2023.

In the future, updates will occur at least every 4 years.



Guardrail Standard Drawings

Approved FLH Standard drawings posted to [FLH > Standard Drawings \(dot.gov\)](#)

CFL Details for guardrail have been removed

View Std 617-10 to 39 (Acrobat, 7.34 MB); general guardrail standards		
617-10 M617-10	G4 W-Beam Guardrail, Wood Posts (DGN, 244 KB)	7/2022
617-11 M617-11	G4 W-Beam Guardrail, Steel Posts (DGN, 252 KB)	7/2022
617-13 M617-13	MGS and G4 W-Beam Guardrail, Installation in Rock (DGN, 184 KB)	7/2022
617-18 M617-18	MGS W-Beam Guardrail, Back Slope Anchor Terminal Type MGS-BAT (DGN, 312 KB) Note: 2 Sheets	7/2022
617-19 M617-19	MGS and G4 W-Beam Guardrail, Type Flared Terminal and Grading (DGN, 180 KB)	7/2022
617-20 M617-20	MGS and G4 W-Beam Guardrail, Type Tangent Terminal and Grading (DGN, 180 KB)	7/2022
617-21 M617-21	CRG W-Beam Guardrail, Wood Posts (DGN, 232 KB)	7/2022
617-22 M617-22	G4 W-Beam Guardrail, Cable Releasing Terminal Type CRT, Wood Posts (DGN, 236 KB)	7/2022
617-23 M617-23	G4 W-Beam Guardrail, CRT Anchorage Assembly Details (DGN, 180 KB)	7/2022

Barrier Length of Need Spreadsheet

Current spreadsheet available on FLH website [Barrier Length of Need | FHWA \(dot.gov\)](https://www.flh.com/BarrierLengthofNeed/FHWA%20dot.gov)

The screenshot shows an Excel spreadsheet with the following data:

Givens		LookUps		Shy Distance	
Design Speed (mph)	35	Ls	4.5	Runout Length	
ADT (<=)	1500	Lr	95	Clear Zone	
		Lc	12		

Approaching Traffic LON (measured from the right side of vehicle, or ETW)			Opposing Traffic LON (measured from the left side of vehicle, or centerline)				
Fill Slope	1V:5H to 1V:4H	Lh	12	Fill Slope	1V:5H to 1V:4H	Lh	12
La (ft)	22	Lh is the smaller of La or Lc		La (ft)	22	Lh is the smaller of La or Lc	
L2 (from ETW right, ft)	11			L2 (from ETW left, ft)	12		

System Flare?		On Outside Curve?	
No		No	

Working on an updated version of the spreadsheet used to calculate the length of need for guardrail installation

Midwest Guardrail System FAQ

Not posted yet to FLH website
– currently undergoing updates

Contact CFL if you would like an advance copy

Federal Lands Highway Division



Midwest Guardrail System FAQ

Design Guide

DRAFT January 2023



Low Speed W-Beam Terminal

FLH has been working with Texas Transportation Institute to develop a new design for a low-speed w-beam terminal

Final report anticipated end of February



Sources of NPS Data

NPS Navigator [NPS Navigator 2.2202](#)

Look at these reports for barrier recommendations

The screenshot displays the NPS Navigator application interface. At the top, there is a navigation bar with a logo, a menu icon, a search bar, and dropdown menus for 'Reports' and 'Info'. Below the navigation bar is a map showing a road network with several colored markers (blue, green, yellow) indicating specific locations. A 'Reports' dropdown menu is open, listing 'GIP/WIP Reports', 'RIP Reports', and 'National Transit Inventory'. To the right of the map is a settings panel with various data layers and their status (checked or unchecked). The bottom of the screen shows a footer with the text 'Road Inventory Program: EFLHD 22001 Loudoun County Pkwy. Ashburn, VA 20147 (703) 4...' and the Esri logo.

Layer Name	Status
All RIP Data	Checked
Bridge Inspection Program	Checked
Cycle6 Pavement Condition	Unchecked
Guardrail Wall Inventory Program	Checked
Traffic Count	Checked
Demographics	Checked
Crashes	Checked
Federal Boundaries	Unchecked
Political Boundaries	Unchecked
NPS Regions	Checked
States	Unchecked
Congressional Districts	Checked

Pull crash data from here

Look at these reports for sign and guardrail inventories (Cycle 4)

Sources of NPS Data

<https://pathweb.pathwayservices.com/rip/>

The screenshot displays the Pathweb application interface. At the top, the browser address bar shows the URL <https://pathweb.pathwayservices.com/rip/sections/7516/locations/1553>. The application header includes a navigation menu, a dropdown menu for "Cycle" (set to "Cycle 6"), and buttons for "Find Road Section" and "Share Location". The Pathweb logo is visible in the top right corner.

The main content area is titled "Forward View" and shows a wide-angle photograph of a paved road stretching into the distance through a desert landscape with mountains in the background. Below the image is a data table with the following information:

Park:	Route:	Mile Post:	FMSS#:	Date Collected:	Coordinate:
MOIA (2020 - Partial)	0011 - KELSEY CIMA RD	7.768	111377	02/21/2020	35.093324, -115.560920

A "Map" window is overlaid on the bottom left, showing a map of the same location with a blue dot indicating the specific location. The map includes a search bar with the text "Find address or place", a small inset map, and navigation controls.

Sources of NPS Data

Traffic data <https://geocounts.com/traffic/us/nps>

The screenshot displays the 'NPS Traffic Data' web application. The interface is divided into a left-hand navigation panel and a main map area. The navigation panel includes a blue header with the NPS logo and the title 'NPS Traffic Data'. Below the header are three circular icons for 'CCS', 'WIM', and 'ITN'. Further down are buttons for 'ROUTES', 'REGIONS', 'CITIES', and 'ADDRESS'. A search bar is present below these buttons. The main section of the panel shows the selected group 'CCS' with '194 Continuous Counters' and a share icon. A yellow box at the bottom of the panel contains contact information: 'For more information please contact Jay Vue or Nathan Sexton'. The main map area shows a topographic map of Big Bend National Park, with two green circular markers indicating traffic counter locations. The map includes labels for 'MEXICO', 'UNITED STATES', and 'Big Bend National Park'. A 'Saved Links' bar is at the top of the map, and the 'geocounts' logo is in the top right corner. Map navigation controls like zoom in (+) and zoom out (-) are visible in the bottom right corner.

Sources of Crash Data

National Highway Traffic Safety Administration Fatality and Injury Reporting System Tool (FIRST) <https://cdan.nhtsa.gov/query>

State DOT websites - example is CA [TIMS - Transportation Injury Mapping System \(berkeley.edu\)](https://www.tims-berkeley.edu/)

Find state contact info on Tribal Safety website <https://www.tribalsafety.org/state-contacts>

Ask partner agencies about their perspectives, ideally law enforcement



Proven Safety Countermeasures

New Search Tool <https://highways.dot.gov/safety/proven-safety-countermeasures/search>

Proven Safety Countermeasures Filter Tool and Keyword Search

All 28 PSCs are listed at the bottom of the page in alphabetical order. Answer one or more of the following questions to obtain a tailored listing of potential PSCs for the location of interest. Users may select multiple answers for each question. After checking the desired box(es), click "Apply", then the list of PSCs will update at the bottom of the page to match the query. Click "Reset" to remove all filters or keywords and return to the default display of all 28 PSCs. Select a countermeasure name to learn more including a description, safety effectiveness, context, application, cost, and considerations for implementation.

Roadway Area Type

Urban
Suburban
Rural

Roadway Classification

Freeway
Highway
Arterial
Collector
Local

Focus Area

Speed Management
Pedestrian/Bicyclist
Roadway Departure
Intersections
Crosscutting

Roadway Departure Safety

Countermeasures



Keep Vehicles on Roadway

- [Pavement Friction](#)
- [Rumble Strips](#)
- [Horizontal Curve Safety](#)
- [Nighttime Visibility](#)



Provide for Safe Recovery

- [SafetyEdgeSM](#)
- [Clear Zones](#)

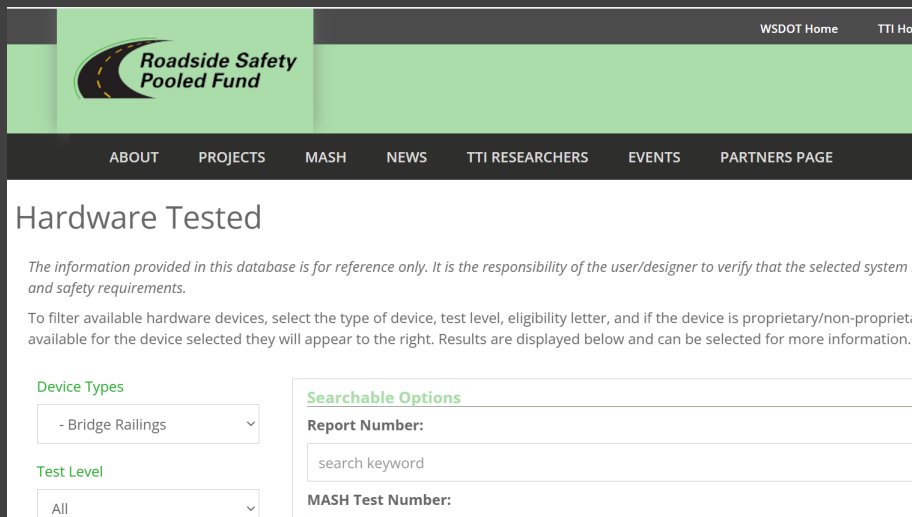


Reduce Crash Severity

- [Hardware Eligibility Letters](#)
- [Guidance & Policies](#)
- [Resources](#)

<https://highways.dot.gov/safety/RwD>

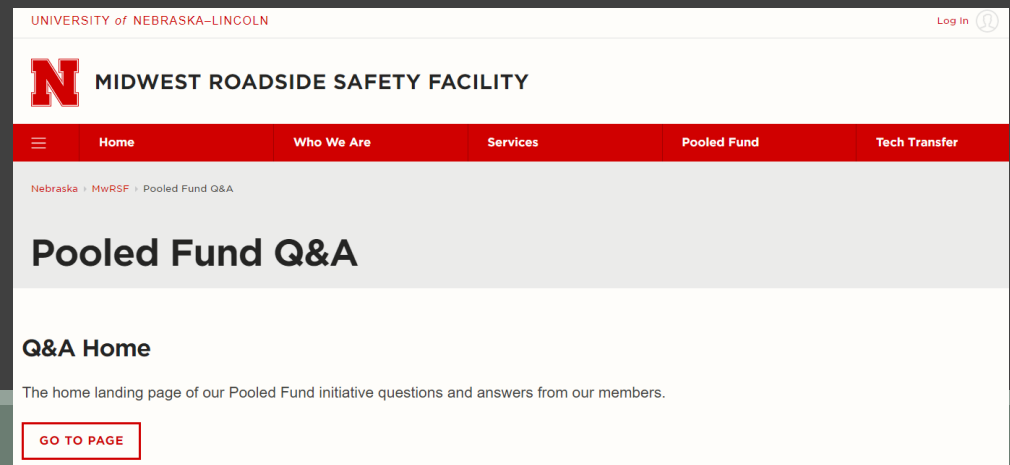
Roadway Departure Safety



The screenshot shows the 'Roadside Safety Pooled Fund' website. The header includes the logo and navigation links: WSDOT Home, TTI Home, ABOUT, PROJECTS, MASH, NEWS, TTI RESEARCHERS, EVENTS, and PARTNERS PAGE. The main content area is titled 'Hardware Tested' and includes a disclaimer: 'The information provided in this database is for reference only. It is the responsibility of the user/designer to verify that the selected system meets the performance and safety requirements.' Below this is a filter section with 'Device Types' (set to '- Bridge Railings') and 'Test Level' (set to 'All'). To the right is a 'Searchable Options' section with fields for 'Report Number:' (containing 'search keyword') and 'MASH Test Number:'.

<https://www.roadsidepooledfund.org/mash-implementation/search/>

<https://mwrsf.unl.edu/pooledfundq&ahome.php>



The screenshot shows the 'UNIVERSITY of NEBRASKA-LINCOLN' website. The header includes the logo and navigation links: Home, Who We Are, Services, Pooled Fund, and Tech Transfer. The main content area is titled 'Pooled Fund Q&A' and includes a 'Q&A Home' section with the text: 'The home landing page of our Pooled Fund initiative questions and answers from our members.' Below this is a red button labeled 'GO TO PAGE'.

Pedestrian & Bicyclist Safety

https://highways.dot.gov/safety/pedestrian-bicyclist/safety_info_search

Pedestrian and Bicyclist Safety Information Search Tool

Welcome to the FHWA Pedestrian & Bicyclist Safety Information Search Tool. By typing in keywords or selecting from the Popular Topics popup, you can search for information from more than 100 reports, guidebooks, and training documents, each of which meets FHWA's standards of quality. Every page of each resource has been cross-referenced to the search and filter options below. Once you've generated a list of resources about your chosen topic, click the "plus" button beside the title to see an overview of the reference and a link to the original source. A [quick reference of frequently used acronyms and synonyms](#) is available to help you hone in on the best keywords. [A list of all resources](#) in the database is also available. Questions or suggestions? Contact Tamara Redmon, tamara.redmon@dot.gov, (202) 366-4077.

Keywords

► Advanced Search

Apply

Pedestrian & Bicyclist Safety

<http://www.pedbikesafe.org/>

PEDSAFE

Pedestrian Safety Guide and Countermeasure Selection System



Guide: Background | Statistics | Analysis | Implementation | **Countermeasures:** List | Tool | Matrices | **Case Studies** | **Resources**

BIKESAFE

Bicycle Safety Guide and Countermeasure Selection System



Guide: Background | Statistics | Analysis | Implementation | **Countermeasures:** List | Tool | Matrices | **Case Studies** | **Resources**

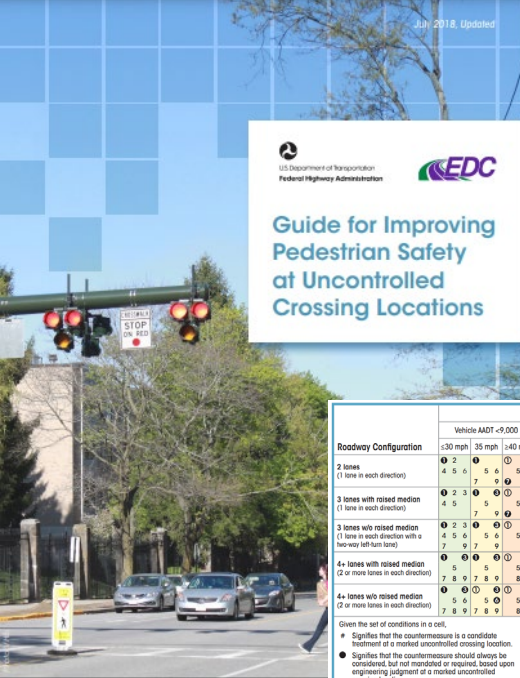
Pedestrian & Bicyclist Safety

July 2018, Updated

U.S. Department of Transportation
Federal Highway Administration

EDC

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations



Roadway Configuration	Posted Speed Limit and ADT								
	Vehicle ADT <=5,000			Vehicle ADT 9,000-15,000			Vehicle ADT >15,000		
	<=30 mph	35 mph	>40 mph	<=30 mph	35 mph	>40 mph	<=30 mph	35 mph	>40 mph
2 lanes (1 lane in each direction)	0 2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
3 lanes with raised median (1 lane in each direction)	4 5	5 5	5 5	4 5	5 5	5 5	4 5	5 5	5 5
3 lanes w/o raised median (1 lane in each direction)	0 2	0 0	0 0	0 3	0 0	0 0	0 0	0 0	0 0
3 lanes w/o raised median (1 lane in each direction with a narrow left-turn lane)	4 5	5 5	5 5	4 5	5 5	5 5	4 5	5 5	5 5
4+ lanes with raised median (2 or more lanes in each direction)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
4+ lanes w/o raised median (2 or more lanes in each direction)	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0


Given the set of conditions in a cell,

- Signifies that the countermeasure is a candidate treatment of a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based on engineering judgment of a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number indicates that the countermeasure:

- High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- Raised crosswalk
- Advance Yield Sign to (Stop Here For) Pedestrians sign and yield (stop) line
- 10-Sheet Pedestrian Crossing sign
- Curb extension
- Pedestrian refuge island
- Rectangular Rapid-Flashing Beacon (RRFB)**
- Road Diet

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf



STEP: IMPROVING VISIBILITY AT TRAIL CROSSINGS

U.S. Department of Transportation
Federal Highway Administration

STEP
The National System for Safe Pedestrians

ZERO IS OUR GOAL
SAFE PEOPLE. SAFE TRIPS. SAFE THINGS.

Source: FHWA

https://safety.fhwa.dot.gov/ped_bike/step/resources/docs/step_improving_visibility_at_trail_crossings.pdf

Speed Management

USLIMITS2

A Web-Based Tool for Setting Appropriate Speed Limits

[Speed Management | FHWA \(dot.gov\)](http://www.fhwa.dot.gov/speedmanagement/)



NEW FEATURES AND ENHANCEMENTS

- **New Look** – Pages have been updated to provide a simple, clean look.
- **Help** – A help link on each page points back to the User Guide, documentation on the decision rules, and other useful information.
- **Local Storage** – Users now have full control over where projects are saved.
- **No Account or Log-In Needed** – Project files can now easily be shared with co-workers and decisionmakers without having to reveal user names and passwords.
- **Crash Data** – USLIMITS2 can work with total crashes or only injury crashes.
- **Additional Choice for Route Type** – Users can select “one way” streets as an option for road sections in fully developed areas.
- **Updated Reports** – Reports now include start and end locations for speed zones and other project information.

Background

Speeding is a major factor in motor vehicle crashes on local roads, arterials, and freeways. Exceeding the posted speed limit or driving too fast for conditions contributes to more than 30 percent of all highway fatalities in the United States annually. Setting appropriate speed limits is an essential element of highway safety. A rationally determined speed limit is one that is safe, considered appropriate by most drivers, and enforceable. USLIMITS2 provides a fact-based set of decision rules to determine an appropriate speed limit for a specific roadway segment.

USLIMITS2 is a user-friendly and logical web-based tool designed to help practitioners set credible, consistent, and enforceable speed limits. USLIMITS2 is applicable to all types of roads ranging from local roads and residential streets to freeways. The tool’s accessibility and broad applicability make it an important resource in any transportation practitioner’s toolbox.

How Does USLIMITS2 Work?

Using the basic information entered by the user, USLIMITS2 runs proven algorithms to develop a recommended speed limit. Inputs include:

- Type of surrounding development (e.g., rural, fully developed);
- Access points (e.g., the number of driveways, intersections, and traffic signals);
- Road function/area type;
- Road characteristics (e.g., divided or undivided, number of lanes, annual average daily traffic (AADT), roadside hazards, and section length);
- Freeway characteristics (e.g., number of interchanges, section length, and AADT);
- Existing vehicle operating speeds (50th and 85th percentile);
- Pedestrian activity;
- Crash history; and
- Special conditions (e.g., adverse alignment, transition zones, and parking).

Crash Modification Factors

The screenshot shows the homepage of the Crash Modification Factors Clearinghouse. At the top, there is a browser address bar with the URL www.cmfclearinghouse.org/index.cfm. Below the browser bar is a dark blue header with the CMF logo and the text "CRASH MODIFICATION FACTORS CLEARINGHOUSE". A gold navigation bar contains links for "ABOUT THE CLEARINGHOUSE", "USING CMFs", "DEVELOPING CMFs", and "ADDITIONAL RESOURCES". The main content area features a central text block stating: "The **Crash Modification Factors Clearinghouse** provides a searchable database of CMFs along with guidance and resources on using CMFs in road safety practice." Below this is a search bar with the placeholder text "ENTER SEARCH TERMS...". To the right of the search bar is a dropdown menu labeled "Countermeasure Name" and a "SEARCH" button. Underneath the search bar, there is a row of "FREQUENT SEARCHES" with links for "ROUNDBOUT", "SIGNAL", "PEDESTRIAN", "COMPLETE STREETS", "TSMO", and "BROWSE ALL". The page is divided into three columns of featured content. The first column has a header image of a road with yellow double lines and a sub-header "WHAT ARE CMFs?". The second column has a header image of hands reading a document and a sub-header "WINTER 2022 NEWSLETTER". The third column has a header image of a car driving on a road and a sub-header "UPDATED RATINGS". Each sub-header is followed by a short introductory paragraph.

← ↻ 🏠 ⚠️ Not secure | www.cmfclearinghouse.org/index.cfm 🔍 🌟 🗄️ ⚙️ ☆ CB

CMF CRASH MODIFICATION FACTORS CLEARINGHOUSE

[ABOUT THE CLEARINGHOUSE](#) | [USING CMFs](#) | [DEVELOPING CMFs](#) | [ADDITIONAL RESOURCES](#)

The **Crash Modification Factors Clearinghouse** provides a searchable database of CMFs along with guidance and resources on using CMFs in road safety practice.

ENTER SEARCH TERMS... Countermeasure Name

FREQUENT SEARCHES: [ROUNDBOUT](#) | [SIGNAL](#) | [PEDESTRIAN](#) | [COMPLETE STREETS](#) | [TSMO](#) | [BROWSE ALL](#)

WHAT ARE CMFs?
A crash modification factor (CMF) is used to

WINTER 2022 NEWSLETTER
Read the Winter 2022 CMF Clearinghouse

UPDATED RATINGS
The CMF Clearinghouse transitioned to the CMF

Safe System Approach



Adopted by the US DOT in 2022 as part of the National Roadway Safety Strategy

[What Is a Safe System Approach? | US Department of Transportation](#)

Questions?

