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THE BENEFITS OF EDGELINES AND ENHANCED EDGELINES



DESIGNING ABOVE THE MINIMUM



<http://www.cmfclearinghouse.org>

ONLINE RESOURCE

ONLINE RESOURCE

<http://www.cmfclearinghouse.org>

The screenshot shows the CMF Clearinghouse website. At the top left is the logo for the Crash Modification Factors Clearinghouse (CMF). To the right of the logo are navigation links: "Skip to main content", "Site Map", "Notice", "Sign Up for our e-Newsletter", and "Home". Below the logo is a search bar with the text "install edgeline" entered. Below the search bar is a dropdown menu labeled "in" with "Countermeasure Name" selected. To the right of the dropdown is a blue button labeled "Search CMFs" with a red arrow pointing to it. Below the search bar is a link "Need Help?". To the right of the search bar is a banner for a "CMF Webinar" titled "The Right Fit: Finding and Applying the Right CMF for the Job". The banner text says "Missed the webinar? Click here to view a recording and download the presentation slides." Below the banner is a navigation bar with five numbered tabs (1-5). Below the search bar is a text block explaining that a crash modification factor (CMF) is used to compute the expected number of crashes after implementing a countermeasure on a road or intersection. The text mentions that the Clearinghouse provides a searchable online database of CMFs along with guidance and resources on using CMFs in road safety practice. It also provides guidance to researchers on best practices for developing high quality CMFs. To the right of this text is a section titled "Recently Added CMFs" with three columns of information. The first column lists "Install pedestrian countdown timer" with a CMF of 0.85 and a CRF of 15. The second column lists "Install separated bicycle lane" with a CMF of 0.963 and a CRF of 3.7. The third column lists "Install w-beam guardrail and concrete barrier" with a CMF of 0.92 and a CRF of 8. The third column also lists "Crash severity: Fatal, Serious injury, Minor injury". At the bottom of the page is the logo for the U.S. Department of Transportation Federal Highway Administration and text stating that the site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center.

CRASH MODIFICATION FACTORS CLEARINGHOUSE

Skip to main content | Site Map | Notice | Sign Up for our e-Newsletter | Home

About the CMF Clearinghouse | Using CMFs | Developing CMFs | Additional Resources

Search for:
install edgeline

in
Countermeasure Name

Need Help? Search CMFs

CMF Webinar
The Right Fit: Finding and Applying the Right CMF for the Job
Missed the webinar? Click here to view a recording and download the presentation slides.

1 2 3 4 5

A crash modification factor (CMF) is used to compute the expected number of crashes after implementing a [countermeasure](#) on a road or intersection. The Crash Modification Factors Clearinghouse provides a searchable online database of CMFs along with guidance and resources on [using CMFs](#) in road safety practice. It also provides guidance to researchers on best practices for [developing](#) high quality CMFs.

Recently Added CMFs

Install pedestrian countdown timer	Install separated bicycle lane	Install w-beam guardrail and concrete barrier
CMF: 0.85	CMF: 0.963	CMF: 0.92
CRF: 15	CRF: 3.7	CRF: 8
Crash type: Other	Crash type: All	Crash type: Run off road, Other
Crash severity: All	Crash severity: All	Crash severity: Fatal, Serious injury, Minor injury

U.S. Department of Transportation
Federal Highway Administration

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[About the CMF Clearinghouse](#) | [Using CMFs](#) | [Developing CMFs](#) | [Additional Resources](#)

[Home](#) » [Search Results](#)

Search Results

There were 120 CMFs returned for your search on "**install edgeline**". [\[modify your search\]](#).

Having trouble deciding between similar CMFs? Use our [comparison tool](#) or [Check out our FAQs](#).

Overwhelmed by too many results? See our [Search Tips](#).

► Star Quality Rating

- 1 (0)
- 2 (17)
- 3 (75)
- 4 (28)
- 5 (0)

► Country

- U.S. & Canada (120)
- International (0)

► Crash Type

► Crash Severity

► Roadway Type

► Area Type

► Intersection Type

► Intersection Geometry

► Traffic Control

► In HSM

Results Control: [Collapse All](#) | [Expand All](#)

Click on the links below to expand individual categories.

▼ **Category: Delineation (76)**

► Subcategory: Visibility of existing markings (51)

► Subcategory: Supplemental delineation (6)

▼ Subcategory: On-pavement markings (19)

► Countermeasure: Install edgeline pavement markings on narrow, rural, two-lane roads

► Countermeasure: Install edgelines (curves)

► Countermeasure: Install edgelines (tangent)

► Countermeasure: Install edgelines (tangents and curves)

► Countermeasure: Install edgelines and centerlines at sites with higher incidences of crashes

► Countermeasure: Install edgelines, centerlines, and post-mounted delineators

► **Category: Roadway (23)**

► **Category: Shoulder treatments (21)**



INSTALL
EDGELINES -
NARROW, RURAL,
TWO-LANE
ROADS

Reduces crashes by up to 22%

A photograph of a winding asphalt road through a dense forest. The road has a double yellow line in the center and a white edge line. The scene is overlaid with colorful, semi-transparent abstract shapes in shades of red, orange, yellow, green, and blue. The text is centered on the left side of the road.

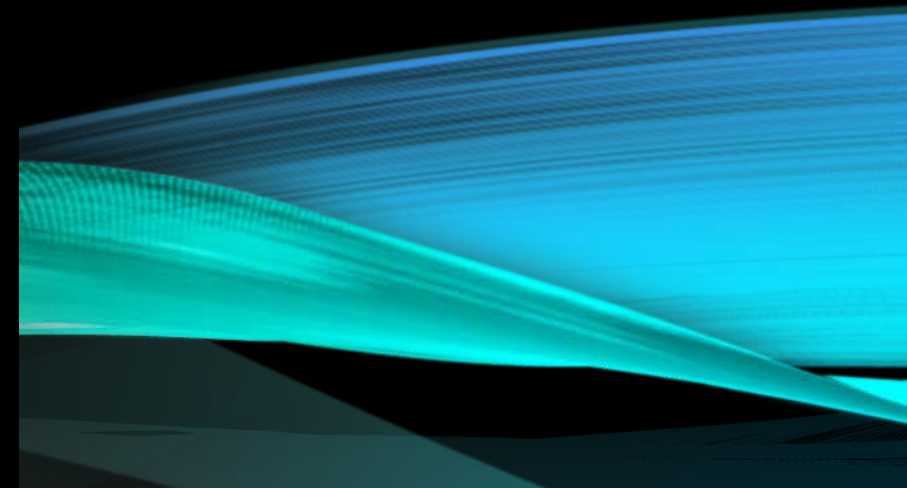
INSTALL EDGELINES - CURVES

Reduces crashes by up to 33%



INSTALL EDGELINES - TANGENTS

Reduces crashes by up to 14%



A photograph of a road winding through a forest with autumn foliage. The road has a yellow double line in the center and white edge lines. The image is overlaid with colorful, wavy, semi-transparent shapes in shades of orange, red, and teal. The text is centered over the road.

INSTALL EDGELINES – CURVES & TANGENTS

Reduces crashes by up to 13%



INSTALL EDGELINES & CENTERLINES – HIGHER CRASH LOCATIONS

Reduces crashes by up to 14%

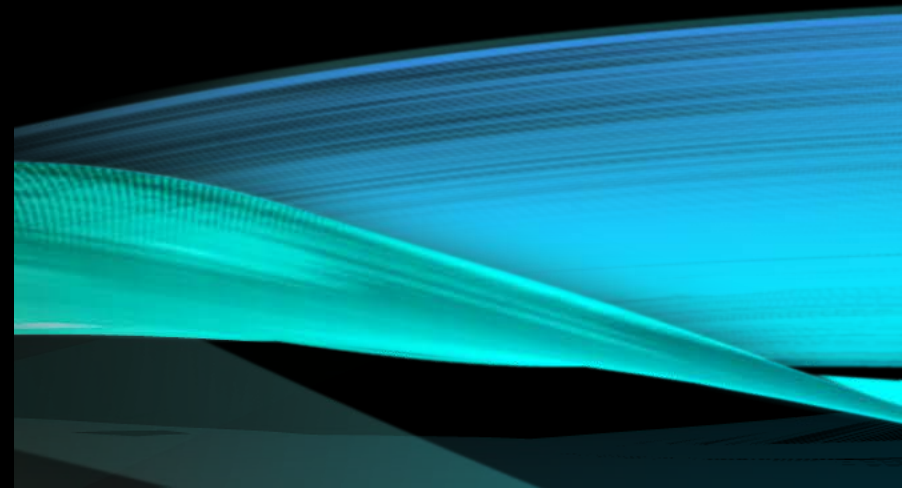
A road at sunset with abstract colorful overlays. The background shows a road stretching into the distance under a sunset sky. The road is flanked by trees. Overlaid on the image are several translucent, wavy bands of color: a red band in the bottom left, a teal band in the bottom right, and a yellow/orange band at the top. The text is centered in white.

INSTALL EDGELINES & CENTERLINES & POST- MOUNTED DELINEATORS

Reduces crashes by up to 45%



WITH
ONCOMING
TRAFFIC, THE
EDGE LINE
BECOMES
YOUR GUIDE!



Performance measure: Install wider edgelines (4 in to 6 in)

Area	CMF	CRF (%)	Quality	Crash Type	Crash Severity	Area Type	
	0.825	17.5	★★★★☆	All	All	Rural	
	0.635	36.5	★★★★☆	All	K,A,B,C		
	0.877	12.3	★★★★☆	All	O		
	0.714	28.6	★★★★☆	Day time	All	R	
	0.962	3.8	★★★★☆	Nighttime	All	Rural	
	0.585	41.5	★★★★☆	Day time	K,A,B,C	Rural	Park et al., 2012
	0.873	12.7	★★★★☆	Nighttime	K,A,B,C	Rural	Park et al., 2012 intersec ... [re
	0.771	22.9	★★★★☆	Wet road	All	Rural	Park et al., 2012 Crash type excludes intersection/int ... [read more]
	0.757	24.3	★★★★☆	Nighttime, Wet road	All	Rural	Park et al., Crash type also excludes intersection/interchange

INSTALL WIDER EDGELINES – INCREASE 4" TO 6"

Crash Reductions:

- All Crashes – up to 36%
- Daytime Crashes – up to 41%
- Nighttime Crashes – up to 19%
- Wet Crashes – up to 63%
- Wet Night Crashes – up to 79%
- Single Vehicle – up to 37%

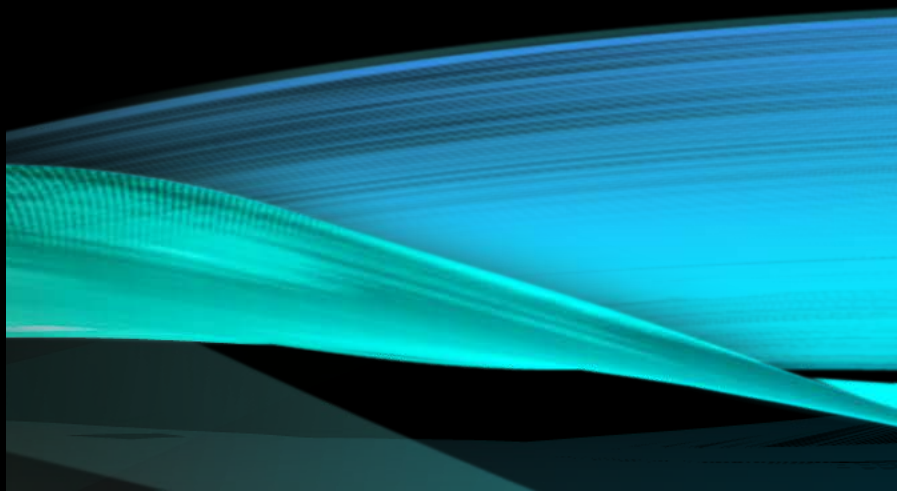
<input type="checkbox"/>	18.7	19	★★★★☆	Nighttime, Single vehicle	K,A,B,C	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.81	19	★★★★☆	Fixed object	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.806	19.4	★★★★☆	All	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.804	19.6	★★★★☆	All	O	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.812	18.8	★★★★☆	Nighttime	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.77	23	★★★★☆	Day time	K,A,B,C	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.374	62.6	★★★★☆	Wet road	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.208	79.2	★★★★☆	Nighttime, Wet road	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.813	18.7	★★★★☆	Single vehicle	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.813	18.7	★★★★☆	Single vehicle, Wet road	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]
<input type="checkbox"/>	0.813	18.7	★★★★☆	Nighttime, Single vehicle	All	Rural	Park et al., 2012	Crash type also excludes intersection/interchange ... [read more]

- Crash frequency analyses for two-lane rural highways: Because of different nature of data from each State, a different statistical analysis approach was employed for each State: an empirical Bayes, before-after analysis of Kansas data, an interrupted time series analysis of Michigan data, and a cross sectional analysis of Illinois data. Although it is well-known that causation is hard to establish based on observational studies, the results from three extensive statistical analyses all point to the same findings. The consistent findings lend support that wider edge line pavement markings on two-lane rural highways lead to lower crash frequencies.

INSTALL
WIDER
EDGELINES
– INCREASE
4" TO 6"

- Crash severity on two-lane rural highways: This innovative analysis approach found positive safety effects for wider edge line pavement markings for two-lane rural highways, supporting the findings from the crash frequency analyses. More specifically, the findings demonstrate a shift from more to less severe crashes for two-lane rural highways with wider edge line pavement markings.

INSTALL
WIDER
EDGELINES
– INCREASE
4" TO 6"



OTHER ENHANCEMENTS

Upgrade Materials

- Replacing Waterborne with Polyurea showed a 36% reduction in nighttime crashes

Go Wet-Reflective

- May reduce wet crashes by up to 32% and provides brighter lines in all conditions

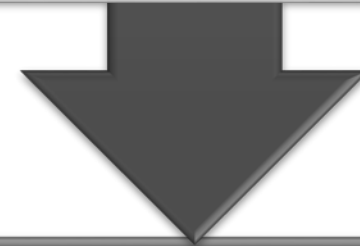
Add Recessing

- Provides the markings with protection from snowplows to increase longevity

COST DATA

4" Waterborne: approximately
\$0.10 per foot

May increase or decrease with quantity



Enhancements:

Upgrade to 6"
Waterborne:
additional
\$0.05 per foot

Upgrade to
4" Polyurea:
additional
\$0.55 per foot

Upgrade to
6" Polyurea:
additional
\$0.75 per foot

Upgrade to
Wet-Reflective:
additional
\$0.15 per foot

Upgrade to
Recessed:
additional
\$0.40 per foot

QUESTIONS?

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