

## CMF / CRF Details

**CMF ID: 10187**

**Change shoulder width from X to Y (meters)**

**Description:** Change shoulder width from X to Y (meters)

**Prior Condition:** Total shoulder width of X meters, where X is greater than or equal to 2.25 meters

**Category:** Shoulder treatments

**Study:** [The influence of shoulder characteristics on the safety level of two-lane roads: A case-study, Gitelman et al., 2019](#)



Star Quality Rating:



[\[View score details\]](#)

### Crash Modification Factor (CMF)

Value:	$CMF = e^{[-0.240*(Y-X)]}$ <p><b>Y = proposed average total shoulder width, in meters</b></p> <p><b>X = existing average total shoulder width, in meters</b></p>
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Adjusted Standard Error:	
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Unadjusted Standard Error:	
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### Crash Reduction Factor (CRF)

Value:	$CRF = 100 * (1 - e^{[-0.240*(Y-X)])}$ <p><b>Y = proposed average total shoulder width, in meters</b></p> <p><b>X = existing average total shoulder width, in meters</b></p>
Adjusted Standard Error:	
Unadjusted Standard Error:	

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Number of Lanes:	2
Road Division Type:	Undivided
Speed Limit:	
Area Type:	Rural
Traffic Volume:	
Time of Day:	All
<i>If countermeasure is intersection-based</i>	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

**Development Details**

<b>Date Range of Data Used:</b>	2008 to 2010
<b>Municipality:</b>	
<b>State:</b>	
<b>Country:</b>	Israel
<b>Type of Methodology Used:</b>	Case-control
<b>Sample Size Used:</b>	

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Dec-07-2019
<b>Comments:</b>	This CMFunction applies when both existing (X) and proposed (Y) total shoulder width are greater than or equal to 2.25 meters.

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