



# CMF / CRF Details

CMF ID: 2945

**Replacement of traditional intersection with roundabout with a grade separated cycle path**

**Description:** Installation of a roundabout with a grade separated cycle path in place of a traditional (signalized or unsignalized) intersection.

**Prior Condition:** Traditional signalized or unsignalized intersection

**Category:** Bicyclists

**Study:** [\*Injury crashes with bicyclists at roundabouts: influence of some location characteristics and the design of cycle facilities, Daniels et al., 2009\*](#)

Star Quality Rating:	
<input type="checkbox"/> Stars	<a href="#">[View score details]</a>

Crash Modification Factor (CMF)	
Value:	1.31
Adjusted Standard Error:	
Unadjusted Standard Error:	1.865

Crash Reduction Factor (CRF)	
Value:	-31 (This value indicates an <b>increase</b> in crashes)
Adjusted Standard Error:	
Unadjusted Standard Error:	186.5

## Applicability

**Crash Type:** Vehicle/bicycle

**Crash Severity:** K (fatal),A (serious injury)

**Roadway Types:** Not Specified

**Number of Lanes:**

**Road Division Type:** All

**Speed Limit:**

**Area Type:** Urban

**Traffic Volume:**

**Time of Day:** All

### *If countermeasure is intersection-based*

**Intersection Type:** Roadway/roadway (not interchange related)

**Intersection Geometry:** Not specified

**Traffic Control:** Roundabout

**Major Road Traffic Volume:**

**Minor Road Traffic Volume:**

## Development Details

**Date Range of Data Used:** 1991 to 2001

**Municipality:**

**State:**

**Country:** Belgium

<b>Type of Methodology Used:</b>	2
<b>Sample Size Used:</b>	
<b>Before Sample Size Used:</b>	3
<b>After Sample Size Used:</b>	3

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Mar-21-2011
<b>Comments:</b>	The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a benefit of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggregate dataset used for CMF development.

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This 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

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