

# Nebraska Crash Modification Factors (CMFs)

NDOT REFERENCE NUMBER	COUNTERMEASURE	AREA TYPE	EXISTING CONTROL TYPE	PRIOR CONDITION	CRASH TYPE	KABCO CRASH SEVERITY	SERVICE LIFE (Years)	CMF ID	CMF
<b>INTERSECTION - Geometric</b>									
<b>1.1 Roundabout - Single Lane</b>									
1.1.1	Two-Way Stop-Control (TWSC) to Single Lane Roundabout	Rural	Minor Road Stop-Control		All	All	20	<a href="#">229</a>	0.290
1.1.2	Two-Way Stop-Control (TWSC) to Single Lane Roundabout	Urban	Minor Road Stop-Control		All	All	20	<a href="#">233</a>	0.612
1.1.3	Signal Control to Single Lane Roundabout	Rural	Signal	CMF Area type = All, but NDOT uses for rural area	All	All	20	<a href="#">225</a>	0.522
1.1.4	Signal Control to Single Lane Roundabout	Urban, Suburban	Signal	3-leg, 4-leg intxs	All	All	20	<a href="#">4256</a>	0.735
1.1.5	Signal Control to Single Lane Mini-Roundabout	Urban, Suburban	Signal		All	All	20	<a href="#">4184</a>	0.790
1.1.6	All-Way Stop-Control to Single Lane Roundabout	Rural	All-Way Stop-Control		All	All	20	N/A	0.558
<b>1.2 Roundabout - Multilane</b>									
1.2.1	Two-Way Stop-Control (TWSC) to Multilane Roundabout	Rural	Minor Road Stop-Control	4-leg intsx, CMF Area type = All, but NDOT uses for rural area	All	All	20	<a href="#">227</a>	0.560
1.2.2	Two-Way Stop-Control (TWSC) to Multilane Roundabout	Urban	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">231</a>	0.710
1.2.3	Signal Control to Multilane Roundabout	Urban, Suburban	Signal	3-leg, 4-leg intxs	All	All	20	<a href="#">4254</a>	0.809
1.2.4	Signal Control to Multilane Roundabout	All	Signal	NDOT use for rural area	All	All	20	<a href="#">225</a>	0.522
<b>1.3 Restricted Crossing U-Turn (RCUT)</b>									
1.3.1	Two-Way Stop-Control (TWSC) to Restricted Crossing U-Turn	Rural	Minor Road Stop-Control	3 leg, 4-leg intxs	All	All	20	<a href="#">5555</a>	0.652
1.3.2	Signal to Restricted Crossing U-Turn	Rural	Signal	3-leg, 4-leg intxs	All	All	20	N/A	0.716
1.3.3	Signal to Restricted Crossing U-Turn	Urban	Signal or Minor Road Stop-Control	CMF Area type = All, but NDOT uses for urban area	All	All	20	<a href="#">10377</a>	0.860
<b>1.4 Median U-Turn (MUT)</b>									
1.4.1	Two-Way Stop-Control (TWSC) to Median U-Turn	All	Minor Road Stop-Control	4-leg intxs, divided by median. CMF Control Type = Signal, and Area Type = Urban/Suburban, but NDOT use for rural & urban TWSC intxs.	All	All	20	<a href="#">10851</a>	0.633
<b>1.5 Right-Turn Lane</b>									
1.5.1	Add Right-Turn Lane on One Major Road Approach	All	Minor Road Stop-Control	3-leg, 4-leg intxs	All	All	20	<a href="#">285</a>	0.860
1.5.2	Add Right-Turn Lane on One Major Road Approach	All	Signal	3-leg, 4-leg intxs	All	All	20	<a href="#">286</a>	0.960
1.5.3	Add Right-Turn Lane on Both Major Road Approaches	All	Minor Road Stop-Control	3-leg, 4-leg intxs	All	All	20	<a href="#">289</a>	0.740
1.5.4	Add Right-Turn Lane on Both Major Road Approaches	All	Signal	3-leg, 4-leg intxs	All	All	20	<a href="#">290</a>	0.920
1.5.5	Convert Right-Turn Lane to Offset Right-Turn Lane (ORTL)	Rural	Minor Road Stop-Control	4-leg intsx, divided by median	All	All	20	<a href="#">2774</a>	0.940
1.5.6	Convert Free Right-Turn Lane to Right-Turn Lane(s)	Urban	Signal	Exit Ramp Terminal, Free RTL with receiving lane onto major road	All (intsx + exit ramp crashes)	All	20	N/A	0.440
1.5.7	Convert Free Right-Turn Lane to Right-Turn Lane(s)	Urban	Signal	Exit Ramp Terminal, Free RTL w/o receiving lane onto major road	All (intsx + exit ramp crashes)	All	20	N/A	0.737
<b>1.6 Left-Turn Lane</b>									
1.6.1	Add Left-Turn Lane on One Major Road Approach	Rural	Minor Road Stop-Control	3-leg intsx	All	All	20	<a href="#">253</a>	0.560
1.6.2	Add Left-Turn Lane on One Major Road Approach	Urban	Minor Road Stop-Control	3-leg intsx	All	All	20	<a href="#">254</a>	0.670
1.6.3	Add Left-Turn Lane on One Major Road Approach	Rural	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">260</a>	0.720
1.6.4	Add Left-Turn Lane on One Major Road Approach	Urban	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">261</a>	0.730
1.6.5	Add Left-Turn Lane on One Major Road Approach	Rural	Signal	3-leg intsx	All	All	20	<a href="#">4643</a>	0.850
1.6.6	Add Left-Turn Lane on One Major Road Approach	Urban	Signal	3-leg intsx	All	All	20	<a href="#">4644</a>	0.930
1.6.7	Add Left-Turn Lane on One Major Road Approach	Rural	Signal	4-leg intsx	All	All	20	<a href="#">4647</a>	0.820
1.6.8	Add Left-Turn Lane on One Major Road Approach	Urban	Signal	4-leg intsx	All	All	20	<a href="#">262</a>	0.900
1.6.9	Add Left-Turn Lane on Both Major Road Approaches	Rural	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">268</a>	0.520
1.6.10	Add Left-Turn Lane on Both Major Road Approaches	Urban	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">269</a>	0.530
1.6.11	Add Left-Turn Lane on Both Major Road Approaches	Rural	Signal	4-leg intsx, CMF Area Type = All, but NDOT only uses for Rural	All	All	20	<a href="#">4648</a>	0.670
1.6.12	Add Left-Turn Lane on Both Major Road Approaches	Urban	Signal	4-leg intsx	All	All	20	<a href="#">270</a>	0.810
<b>1.7 Diverging Diamond Interchange (DDI)</b>									
1.7.1	Convert Diamond Interchange to Diverging Diamond Interchange	All	Signal	Diamond Interchange	All	All	20	<a href="#">10135</a>	0.633
<b>1.8 Intersection Skew Angle</b>									
1.8.1	Change Minimum Intersection Angle	Rural	Minor Road Stop-Control	3-leg intsx of 2-lane roadways	All	All	20	<a href="#">10069</a>	F(x)
1.8.2	Change Minimum Intersection Angle	Rural	Minor Road Stop-Control	4-leg intsx of 2-lane roadways	All	All	20	<a href="#">10066</a>	F(x)
<b>1.9 Access Management</b>									
1.9.1	Convert Full-Access Intsx into 3/4-Access (right-in, right-out, left-in) Intsx	All	Minor Road Stop-Control	4-leg intsx	All	All	20	<a href="#">351</a>	0.800
<b>INTERSECTION - Lighting</b>									
<b>2.1 Intersection Overhead Lighting</b>									
2.1.1	Install Intersection Lighting	All	Not Specified	3-leg, 4-leg intxs, no existing overhead lighting	All-Nighttime	All	20	<a href="#">4462</a>	0.881

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<b>INTERSECTION - Signal Control</b>									
<b>3.1</b>	<b>Flashing Yellow Arrow - FYA</b>								
3.1.1	3-Section with Green Permissive Only converted to 3-Section Permissive Only FYA	All	Signal	3-leg, 4-leg intxs	All	All	10	7698	0.892
3.1.2	5-Section "Doghouse" Green Protected/Permissive converted to 4-Section Protected/Permissive FYA	All	Signal	3-leg, 4-leg intxs	All	All	10	7694	0.934
<b>3.2</b>	<b>Pole Mounted Signal Head Added</b>								
3.2.1	Add Pole Mounted Signal Head to Improve Signal Visibility	Urban	Signal	4-leg intsx	All	All	10	1430	0.930
<b>INTERSECTION - Stop Control</b>									
<b>4.1</b>	<b>All-Way Stop-Control (AWSC)</b>								
4.1.1	Convert Minor Road Stop-Control to All-Way Stop-Control	Rural	Minor Road Stop-Control		All	All	20	315	0.520
<b>SEGMENT</b>									
<b>5.1</b>	<b>Two-Way Left-Turn Lane (TWLTL)</b>								
5.1.1	Install Center Two-Way Left-Turn Lane on Two-Lane Road	All	N/A	2-lane roadway	All	All	5	2341	0.797
5.1.2	Convert Four-Lane Undivided Road into Two-Lane Road w/Center Two-Way Left-Turn Lane	Urban	N/A	4-lane roadway	All	All	5	199	0.710
<b>5.2</b>	<b>Fixed Object Removal (Trees)</b>								
5.2.1	Remove Fixed Objects from Roadside Clear Zone	All	N/A	Objects include: trees, utility poles, guardrails, sign supports, and fire hydrants	All	All	20	1024	0.620
<b>5.3</b>	<b>High Friction Surface Treatment (HFST)</b>								
5.3.1	Install High Friction Surface Treatment on Tangent	All	N/A	Roadway without existing HFST	All	All	8	8748	0.197
5.3.2	Install High Friction Surface Treatment on Curve	All	N/A	Curve without existing HFST	All	All	8	10332	0.430
<b>5.4</b>	<b>Rumble Strips - Centerline</b>								
5.4.1	Install Centerline Rumble Strips	Rural	N/A	Undivided two-lane roadway	All	All	20	124	0.860
<b>5.5</b>	<b>Add Paved Shoulder</b>								
5.5.1	Add Paved Shoulder - 0-feet to 2-feet, Low AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT < 400 vehicles	All - ROR, Lane Departure	All	20	N/A	0.973
5.5.2	Add Paved Shoulder - 0-feet to 2-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.915
5.5.3	Add Paved Shoulder - 0-feet to 2-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.867
5.5.4	Add Paved Shoulder - 0-feet to 4-feet, Low AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT < 400 vehicles	All - ROR, Lane Departure	All	20	N/A	0.927
5.5.5	Add Paved Shoulder - 0-feet to 4-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.838
5.5.6	Add Paved Shoulder - 0-feet to 4-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.767
<b>5.6</b>	<b>Widen Paved Shoulder</b>								
5.6.1	Widen Paved Shoulder - 2-feet to 4-feet, Low AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT < 400 vehicles	All - ROR, Lane Departure	All	20	N/A	0.953
5.6.2	Widen Paved Shoulder - 2-feet to 4-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.916
5.6.3	Widen Paved Shoulder - 2-feet to 4-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.885
5.6.4	Widen Paved Shoulder - 2-feet to 8-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.782
5.6.5	Widen Paved Shoulder - 2-feet to 8-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.669
5.6.6	Widen Paved Shoulder - 4-feet to 8-feet, Low AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT < 400 vehicles	All - ROR, Lane Departure	All	20	N/A	0.961
5.6.7	Widen Paved Shoulder - 4-feet to 8-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.853
5.6.8	Widen Paved Shoulder - 4-feet to 8-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.757
<b>5.7</b>	<b>Widen Lane Width</b>								
5.7.1	Widen Paved Shoulder - 11-feet to 12-feet, Low AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT < 400 vehicles	All - ROR, Lane Departure	All	20	N/A	0.990
5.7.2	Widen Paved Shoulder - 11-feet to 12-feet, Medium AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT = 400 to 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.971
5.7.3	Widen Paved Shoulder - 11-feet to 12-feet, High AADT	Rural	N/A	Undivided two-lane roadway, minimum AADT > 2,000 vehicles	All - ROR, Lane Departure	All	20	N/A	0.952
<b>5.8</b>	<b>Roadway Overhead Lighting (Segment)</b>								
5.8.1	Install Roadway Lighting	All	N/A	No existing overhead lighting	All-Nighttime	All	20	5160	0.800
<b>5.9</b>	<b>One-Way Street</b>								
5.9.1	Convert Corridor from Two-Way to One-Way Traffic	Urban	N/A	Existing two-way traffic on corridor	All	All	20	5234	0.530

**NOTE:** The Nebraska CMF list represents the best available fit for a CMF based on the available research at the time. As a result, the "AREA TYPE", "EXISTING CONTROL TYPE", and "SERVICE LIFE" shown within this list may differ from the CMF Clearinghouse. When referencing this list, engineering judgement should be used.

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