

Appendix B

Crash Modification Factors

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CMF ID	Countermeasure Category	Countermeasure	CMF	Crash Type	Crash Severity	Roadway Type	Area Type	Star Quality Rating	Prior Condition	Intersection Related	Traffic Volume Unit	Minimum Traffic Volume (non-intersection)	Maximum Traffic Volume (non-intersection)	Minimum Major Road Traffic Volume (intersection)	Maximum Major Road Traffic Volume (intersection)	Minimum Minor Road Traffic Volume (intersection)	Maximum Minor Road Traffic Volume (intersection)	Number of Lanes	Intersection Type	Intersection Geometry	Traffic Control Type	Speed Limit (mph)	Crash Time of Day	Roadway Division Type
5452	Access management	Convert an open median to a directional median	0.76	All	Fatal,Serious injury	Principal Arterial Other	Urban and suburban	4	Roadway with full median openings	no	Annual Average Daily Traffic (AADT)	27000	96000					4,6,8				40mph to 55 mph	Not specified	Divided by Median
5453	Access management	Convert an open median to a directional median	0.77	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Urban and suburban	4	Roadway with full median openings	no	Annual Average Daily Traffic (AADT)	27000	96000					4,6,8				40mph to 55 mph	Not specified	Divided by Median
5454	Access management	Convert an open median to a directional median	0.82	All	Serious injury	Principal Arterial Other	Urban and suburban	4	Roadway with full median openings	no	Annual Average Daily Traffic (AADT)	27000	96000					4,6,8				40mph to 55 mph	Not specified	Divided by Median
4675	Access management	Decrease freeway ramp spacing from infinity to 5 (ft) with/without auxiliary lane		Not specified	Fatal,Serious injury,Minor injury	Principal Arterial Interstate	Not specified	4	Ramp spacing approaching infinity, which represents a basic freeway segment with no ramps.	no	Average Daily Traffic (ADT)	5,134	153,500					Var.				Var.	Not specified	Divided by Median
302	Access management	Increase intersection median width by 3 ft increments	0.96	Multiple vehicle	Fatal,Serious Injury,Minor Injury	Not Specified	Rural	5		yes	Not Specified			Not Specified	Not Specified				Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
3035	Access management	Install raised median	0.56	All	Fatal,Serious injury	Not Specified		4	no raised median	no	Average Daily Traffic (ADT)	10000	55000										All	Divided by Median
21	Access management	Provide a raised median	0.61	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	4		no								2						
4583	Advanced technology and ITS	Implement automated speed enforcement cameras	0.83	All	Fatal,Serious injury,Minor injury	All	All	5	No automated speed enforcement	no	Annual Average Daily Traffic (AADT)													
4142	Advanced technology and ITS	Install automated section speed enforcement system	0.44	All	Fatal,Serious injury	Principal Arterial Other Freeways and Expressways	Not specified	4	No automated section speed enforcement system	no	Annual Average Daily Traffic (AADT)	23000	42000					6				130 km/h	All	Divided by Median
4673	Advanced technology and ITS	Install automated speed camera at signalized intersection	0.76	Speed related	Serious injury,Minor injury	Not specified	Not specified	4	Signalized intersection with no automated speed enforcement camera.	yes									Roadway/roadway (not interchange related)	No values chosen.	Signalized		All	
3860	Advanced technology and ITS	Install red-light camera (red light running crashes)	0.76	All	Fatal	Not Specified	Urban	4	Absence of red-light cameras	yes									Not specified	Not specified	Signalized		All	

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3861	Advanced technology and ITS	Install red-light cameras at intersections	0.83	All	Fatal	Not Specified	Urban	4	Absence of red-light camera	yes									Not specified	Not specified	Signalized		All	
4742	Delineation	Install wider edgelines (4 in to 6 in)	0.873	Nighttime	Fatal,Serious injury,Minor injury	Not specified	Rural	4	4 in wide edgelines	no								2					Night	
4748	Delineation	Install wider edgelines (4 in to 6 in)	0.813	Nighttime,Single vehicle	Fatal,Serious injury,Minor injury	Not specified	Rural	4	4 in wide edgelines	no								2					Night	
4737	Delineation	Install wider edgelines (4 in to 6 in)	0.635	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4	4 in wide edgelines	no								2					All	
4746	Delineation	Install wider edgelines (4 in to 6 in)	0.632	Single vehicle	Fatal,Serious injury,Minor injury	Not specified	Rural	4	4 in wide edgelines	no								2					All	
4741	Delineation	Install wider edgelines (4 in to 6 in)	0.585	Day time	Fatal,Serious injury,Minor injury	Not specified	Rural	4	4 in wide edgelines	no								2					Day	
4790	Delineation	Install wider markings and both edgeline and centerline rumble strips with resurfacing	0.62	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							2					All	Undivided
4780	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.76	All	Fatal,Serious injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4781	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.74	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4782	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.86	All	Fatal,Serious injury,Minor injury	Not specified	Urban	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4777	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.75	All	Fatal,Serious injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4778	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.76	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median

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4779	Delineation	Install wider markings and edgeline rumble strips with resurfacing	0.9	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Urban	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4787	Delineation	Install wider markings and shoulder rumble strips with resurfacing	0.75	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4783	Delineation	Install wider markings and shoulder rumble strips with resurfacing	0.74	All	Fatal,Serious injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4784	Delineation	Install wider markings and shoulder rumble strips with resurfacing	0.77	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4785	Delineation	Install wider markings and shoulder rumble strips with resurfacing	0.8	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Urban	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4770	Delineation	Install wider markings with resurfacing	0.66	All	Fatal,Serious injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4771	Delineation	Install wider markings with resurfacing	0.75	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4776	Delineation	Install wider markings with resurfacing	0.62	All	Fatal,Serious injury	Not specified	Urban	4		no	Average Daily Traffic (ADT)							2					All	Undivided
4775	Delineation	Install wider markings with resurfacing	0.92	All	Fatal,Serious injury,Minor injury	Not specified	Urban	4		no	Average Daily Traffic (ADT)							multi					All	Undivided
4767	Delineation	Install wider markings with resurfacing	0.79	All	Fatal,Serious injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median
4768	Delineation	Install wider markings with resurfacing	0.91	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median

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4769	Delineation	Install wider markings with resurfacing	0.96	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Urban	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median	
4792	Delineation	Install wider markings WITHOUT resurfacing	0.78	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)							multi					All	Divided by Median	
2361	Highway lighting	Full to partial interchange lighting	0.913	All	Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Suburban	4	Full interchange lighting.	yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (interchange ramp terminal)		Uncontrolled		Day		
578	Highway lighting	Illumination	0.69	All	Serious injury,Minor injury	All	Urban	4		no	Not specified	Not specified													
581	Highway lighting	Illumination	0.73	All	Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	All	4		no	Not specified	Not specified													
441	Highway lighting	Provide intersection illumination	0.41	Vehicle/pedestrian	Serious injury,Minor injury	Not specified	Not specified	4		yes	Not specified			Not specified	Not specified				Roadway/roadway (not interchange related)		Not specified	Not specified			
5228	Intersection geometry	Conversion of intersection into low-speed roundabout	0.473	All	Fatal,Serious injury,Minor injury	Not specified	All	4	The intersection was operating under no control, yield, TWSC, AWSC, or signal control.	yes	Annual Average Daily Traffic (AADT)			4100 (total entering)	48100 (total entering)			2,4	Roadway/roadway (not interchange related)		3-leg,4-leg	Other		All	All
4927	Intersection geometry	Conversion of intersection into multi-lane roundabout	0.367	All	Fatal,Serious injury,Minor injury	Not specified	All	4	The intersection was operating under no control, yield, TWSC, AWSC, or signal control.	yes	Annual Average Daily Traffic (AADT)			4100 (Total)	48100 (Total)			4	Roadway/roadway (not interchange related)		3-leg,4-leg	Other		All	All
4195	Intersection geometry	Conversion of signalized intersection into single- or multi-lane roundabout	0.29	All	Serious injury,Minor injury	Not Specified	Urban and suburban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5300	52500			2	Roadway/roadway (not interchange related)		3-leg,4-leg	Roundabout	15-35 mph	All	
211	Intersection geometry	Conversion of stop-controlled intersection into single-lane roundabout	0.18	All	Serious injury,Minor injury	Not specified	Rural	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)		Not specified	Stop-controlled			

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210	Intersection geometry	Conversion of stop-controlled intersection into single-lane roundabout	0.12	All	Serious injury, Minor injury	Not specified	Urban	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)	Not specified	Stop-controlled			
4931	Intersection geometry	Conversion of two-way stop-controlled intersection into single- or multi-lane roundabout	0.65	All	Fatal, Serious injury, Minor injury	Not specified	All	4	The intersection was operating under TWSC control.	yes	Annual Average Daily Traffic (AADT)			4100 (total entering)	48100 (total entering)			2,4	Roadway/roadway (not interchange related)	3-leg, 4-leg	Stop-controlled		All	All
4698	Intersection geometry	Convert high-speed rural intersection (4 leg) to roundabout	0.12	All	Serious injury, Minor injury	Not specified	Rural	4	4 leg intersection	yes	Annual Average Daily Traffic (AADT)							2-Jan	Roadway/roadway (not interchange related)	4-leg	Roundabout	40-65 mph		
4700	Intersection geometry	Convert high-speed rural intersection (4 leg) to roundabout	0.11	All	Serious injury, Minor injury	Not specified	Rural	4	4 leg intersection	yes	Annual Average Daily Traffic (AADT)							1	Roadway/roadway (not interchange related)	4-leg	Roundabout	40-65 mph		
4696	Intersection geometry	Convert high-speed rural intersection to roundabout	0.13	All	Serious injury, Minor injury	Not specified	Rural	4	Stop controlled intersection (3 or 4 leg)	yes	Annual Average Daily Traffic (AADT)							2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout	40-65 mph		
214	Intersection geometry	Convert signalized intersection to modern roundabout	0.68	All	Serious injury, Minor injury	Not specified	Not specified	4		yes	Not specified			Not specified	Not specified				Roadway/roadway (not interchange related)	Not specified	Signalized			
4259	Intersection geometry	Convert signalized intersection to modern roundabout	0.259	All	Fatal, Serious injury, Minor injury	Not specified	Suburban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5322	43123			2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout		Not specified	
4187	Intersection geometry	Convert signalized intersection to modern roundabout	0.26	All	Serious injury, Minor injury	Not Specified	Suburban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5300	52500			2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout	15-35 mph	All	
4261	Intersection geometry	Convert signalized intersection to modern roundabout	0.445	All	Fatal, Serious injury, Minor injury	Not specified	Urban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5322	43123			2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout		Not specified	
4189	Intersection geometry	Convert signalized intersection to modern roundabout	0.45	All	Serious injury, Minor injury	Not Specified	Urban	4	Signalized intersection	yes	Average Daily Traffic (ADT)			5300	52500			2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout	15-35 mph	All	
4253	Intersection geometry	Convert signalized intersection to modern roundabout	0.342	All	Fatal, Serious injury, Minor injury	Not specified	Urban and suburban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5322	43123			2-Jan	Roadway/roadway (not interchange related)	3-leg, 4-leg	Roundabout		Not specified	

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4255	Intersection geometry	Convert signalized intersection to modern roundabout	0.288	All	Fatal,Serious injury,Minor injury	Not specified	Urban and suburban	4	Signalized intersection	yes	Annual Average Daily Traffic (AADT)			5322	43123			2	Roadway/roadway (not interchange related)	3-leg,4-leg	Roundabout		Not specified	
4185	Intersection geometry	Convert signalized intersection to modern roundabout	0.34	All	Serious injury,Minor injury	Not Specified	Urban and suburban	4	Signalized intersection	yes	Average Daily Traffic (ADT)			5300	52500			2-Jan	Roadway/roadway (not interchange related)	3-leg,4-leg	Roundabout	15-35 mph	All	
4193	Intersection geometry	Convert signalized intersection to modern roundabout	0.34	All	Serious injury,Minor injury	Not Specified	Urban and suburban	4	Signalize intersection (4 leg)	yes	Annual Average Daily Traffic (AADT)			5300	52500			2-Jan	Roadway/roadway (not interchange related)	4-leg	Roundabout	15-35 mph	All	
213	Intersection geometry	Convert to roundabout	0.61	All	Serious injury,Minor injury	Not specified	Not specified	4		yes	Not specified			Not specified	Not specified				Roadway/roadway (not interchange related)	Not specified	Not specified			
215	Intersection geometry	Convert unsignalized intersection to roundabout	0.56	All	Serious injury,Minor injury	Not specified	Not specified	4		yes	Not specified			Not specified	Not specified				Roadway/roadway (not interchange related)	Not specified	Signalized			
294	Intersection geometry	Painted channelization of both major and minor roads	0.43	All	Serious injury,Minor injury	Not specified	Rural	4		yes	Average Daily Traffic (ADT)								Roadway/roadway (not interchange related)	4-leg	Not specified			
292	Intersection geometry	Physical channelization of both major and minor roads	0.73	All	Fatal,Serious injury,Minor injury	Not specified	Rural	4		yes	Average Daily Traffic (ADT)								Roadway/roadway (not interchange related)	4-leg	Not specified			
272	Intersection geometry	Provide a left-turn lane on both major-road approaches	0.42	All	Fatal,Serious Injury,Minor Injury	Not Specified	Rural	5		yes	Average Daily Traffic (ADT)			1500	32400	50	11800		Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
274	Intersection geometry	Provide a left-turn lane on both major-road approaches	0.83	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	5		yes	Average Daily Traffic (ADT)			7200	55100	550	2600		Roadway/roadway (not interchange related)	4-leg	Signalized			
275	Intersection geometry	Provide a left-turn lane on both major-road approaches	0.52	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	4		yes	Average Daily Traffic (ADT)			4600	40300	100	13700		Roadway/roadway (not interchange related)	4-leg	Signalized			
273	Intersection geometry	Provide a left-turn lane on both major-road approaches	0.5	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	4		yes	Average Daily Traffic (ADT)			1500	40600	200	8000		Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
264	Intersection geometry	Provide a left-turn lane on one major-road approach	0.65	All	Fatal,Serious Injury,Minor Injury	Not Specified	Rural	5		yes	Average Daily Traffic (ADT)			1600	32400	50	11800		Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
255	Intersection geometry	Provide a left-turn lane on one major-road approach	0.45	All	Fatal,Serious Injury,Minor Injury	Not Specified	Rural	4		yes	Average Daily Traffic (ADT)			1600	32400	50	11800		Roadway/roadway (not interchange related)	3-leg	Stop-controlled			

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266	Intersection geometry	Provide a left-turn lane on one major-road approach	0.91	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	5		yes	Average Daily Traffic (ADT)			7200	55100	550	2600		Roadway/roadway (not interchange related)	4-leg	Signalized			
267	Intersection geometry	Provide a left-turn lane on one major-road approach	0.72	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	4		yes	Average Daily Traffic (ADT)			4600	40300	100	13700		Roadway/roadway (not interchange related)	4-leg	Signalized			
265	Intersection geometry	Provide a left-turn lane on one major-road approach	0.71	All	Fatal,Serious Injury,Minor Injury	Not Specified	Urban	5		yes	Average Daily Traffic (ADT)			1500	40600	200	8000		Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
288	Intersection geometry	Provide a right-turn lane on one major-road approach	0.91	All	Fatal,Serious Injury,Minor Injury	Not Specified	All	5		yes	Average Daily Traffic (ADT)			7200	55100	550	8400		Roadway/roadway (not interchange related)	3-leg,4-leg	Signalized			
287	Intersection geometry	Provide a right-turn lane on one major-road approach	0.77	All	Fatal,Serious Injury,Minor Injury	Not Specified	All	4		yes	Average Daily Traffic (ADT)			1500	40600	25	26000		Roadway/roadway (not interchange related)	3-leg,4-leg	Stop-controlled			
4578	Intersection traffic control	Change left-turn phase from permissive to protected/permissive or permissive/protected phasing on one or more approaches	0.84	Left turn	Fatal,Serious injury,Minor injury	Not specified	Urban	5	Permitted phasing	yes	Annual Average Daily Traffic (AADT)			3000	77000	1	45500		Roadway/roadway (not interchange related)	4-leg	Signalized			
4269	Intersection traffic control	Change permissive left-turn phasing to protected/permissive	0.962	All	Fatal,Serious injury,Minor injury	Not specified	Urban	4	Permissive phasing	yes	Annual Average Daily Traffic (AADT)			4857	74990	1466	42723		Roadway/roadway (not interchange related)	4-leg	Signalized		Not specified	
4169	Intersection traffic control	Changing left turn phasing on more than one approach from permissive to protected-permissive	0.914	All	Fatal,Serious injury,Minor injury	Not Specified	Urban	4	Permissive only left turn phasing on all treated approaches	yes	Annual Average Daily Traffic (AADT)			4857	74990	1466	42723		Roadway/roadway (not interchange related)	4-leg	Signalized		Not specified	
4165	Intersection traffic control	Changing left turn phasing on one approach from permissive to protected-permissive	0.995	All	Fatal,Serious injury,Minor injury	Not Specified	Urban	4	Permissive only left turn phasing on the treated approach	yes	Annual Average Daily Traffic (AADT)			4857	74990	1466	42723		Roadway/roadway (not interchange related)	4-leg	Signalized		Not specified	
3128	Intersection traffic control	Convert minor-road stop control to all-way stop control	0.23	All	Fatal,Serious injury,Minor injury	All	All	4	Two-way stop sign control with and without flashing beacons.	yes				680	15400	680	15400	1		4-leg	Stop-controlled	25-55	Not specified	All

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3131	Intersection traffic control	Convert two-way (without flashing beacons) to all-way stop control (without flashing beacons)	0.276	All	Fatal,Serious injury,Minor injury	All	All	4	Two-way stop sign control without flashing beacons.	yes				680	15100	680	15100	1		4-leg	Stop-controlled	25-55	Not specified	Undivided
4111	Intersection traffic control	Improve signal visibility, including signal lens size upgrade, installation of new back-plates, addition of reflective tapes to existing back-plates, and installation of additional signal heads	0.902	Nighttime	Fatal,Serious injury,Minor injury	Not Specified	Urban	4	Smaller signal lens size, old back-plates, no reflective tapes on existing back-plates, and less number of signal heads	yes	Average Daily Traffic (ADT)			4637	51743	134	48906	4-Mar	Roadway/roadway (not interchange related)	4-leg	Signalized	50 km/h	Night	
1431	Intersection traffic control	Improve visibility of signal heads	0.97	All	Fatal,Serious injury,Minor injury	Not specified	Urban	4	Improvements included one or more of the following: signal lens size upgrade, installing new backboards, adding reflective tapes to existing backboards, and installing additional signal heads.	yes									Roadway/roadway (not interchange related)	4-leg	Signalized	50 km/h (30 mph)	All	
5534	Intersection traffic control	Install a traffic signal	0.684	All	Fatal,Serious injury,Minor injury	Not specified	Not specified	4	Stop controlled intersection	yes	Annual Average Daily Traffic (AADT)			35000				4-Feb	Roadway/roadway (not interchange related)	3-leg,4-leg	Stop-controlled		Not specified	
320	Intersection traffic control	Install a traffic signal	0.33	Angle	Fatal,Serious Injury,Minor Injury	Not specified	Urban	4		yes	Average Daily Traffic (ADT)								Roadway/roadway (not interchange related)	4-leg	Stop-controlled			
4201	Intersection traffic control	Install dynamic signal warning flashers	0.82	All	Fatal,Serious injury,Minor injury	Not Specified	All	4	Signalized intersection without advance warning flashers.	yes	Annual Average Daily Traffic (AADT)			7500	99000	40	20100		Roadway/roadway (not interchange related)	3-leg,4-leg	Signalized		All	

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4855	Intersection traffic control	Installation of an actuated advance warning dilemma zone protection system at high-speed signalized intersections	0.887	All	Serious injury,Minor injury	Not specified	Not specified	4	Untreated signalized intersection	yes	Annual Average Daily Traffic (AADT)			2420	21477	995	8948		Roadway/roadway (not interchange related)	4-leg	Signalized		All	
4888	Intersection traffic control	Replace Night-Time Flash with Steady Operation	0.47	All	Fatal,Serious injury,Minor injury	All	All	4	Traffic signals were operating in the late night flash (LNF) mode from late night to early morning hours.	yes	Annual Average Daily Traffic (AADT)			2550	59000	1000	23333		Not specified	3-leg,4-leg	Signalized		Night	All
153	On-street parking	Prohibit on-street parking	0.8	All	Serious injury,Minor injury	Minor Arterial	Urban	5		no		Not specified	Not specified											
4574	On-street parking	Prohibit on-street parking	0.78	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Urban	5	Provision of on-street parking	no	Annual Average Daily Traffic (AADT)	30000	40000											
156	On-street parking	Prohibit on-street parking	0.65	All	Serious injury,Minor injury	Principal Arterial Other	Urban	4		no	Annual Average Daily Traffic (AADT)													
41	Roadside	Change barrier along embankment to less rigid type	0.68	Run off road	Serious injury,Minor injury	Not specified	Not specified	4		no		Not specified	Not specified											
26	Roadside	Flatten sideslope from 1V:3H to 1V:4H	0.58	All	Serious injury,Minor injury	Not specified	Rural	5		no		Not specified	Not specified					2						
29	Roadside	Flatten sideslope from 1V:4H to 1V:6H	0.78	All	Serious injury,Minor injury	Not specified	Rural	5		no		Not specified	Not specified					2						
42	Roadside	Install any type of median barrier	0.57	All	Fatal	Principal Arterial Other	Rural	4		no		20000	60000					Multilane						Divided
37	Roadside	New guardrail along embankment	0.56	Run off road	Fatal	Not specified	Not specified	4		no		Not specified	Not specified											
38	Roadside	New guardrail along embankment	0.53	Run off road	Serious injury,Minor injury	Not specified	Not specified	5		no		Not specified	Not specified											
5639	Roadway	Convert traditional mainline toll plazas to hybrid mainline toll plazas	0.54	All	Fatal,Serious injury	Principal Arterial Other	All	4	Traditional mainline toll plazas	no													All	

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1928	Roadway	Implement truck lane restrictions on multilane freeways	0.99	Truck related	Fatal,Serious injury,Minor injury	Principal Arterial Interstate		4	No truck restrictions	no		17049	74079					2					All	
1931	Roadway	Implement truck lane restrictions on multilane freeways (0.6	Truck related	Fatal,Serious injury,Minor injury	Principal Arterial Interstate		4	No truck restrictions	no		17049	74079					2					All	
1929	Roadway	Implement truck lane restrictions on multilane freeways (0.68	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways		4	No truck restrictions	no		17049	74079					2					All	
2420	Roadway	Install centerline and shoulder rumble strips	0.82	All	Fatal,Serious injury	Principal Arterial Other	Rural	4		no								4-Feb					All	All
5401	Roadway	Install centerline rumble strips	0.66	All	Fatal,Serious injury,Minor injury	All	Rural	4	No centerline rumble strips	no	Annual Average Daily Traffic (AADT)	200	8000					2					All	Undivided
3348	Roadway	Install centerline rumble strips	0.94	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	17591					2					All	Undivided
3350	Roadway	Install centerline rumble strips	0.91	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	5	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	20784					2					All	Undivided
3362	Roadway	Install centerline rumble strips	0.88	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	5	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	20784					2					All	Undivided
3347	Roadway	Install centerline rumble strips	0.78	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	1336	13240					2					All	Undivided
3358	Roadway	Install centerline rumble strips	0.56	Head on,Sideswipe	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	17591					2					All	Undivided
3357	Roadway	Install centerline rumble strips	0.55	Head on,Sideswipe	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	1336	13240					2					All	Undivided
3360	Roadway	Install centerline rumble strips	0.55	Head on,Sideswipe	Fatal,Serious injury,Minor injury	Not Specified	Rural	5	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	20784					2					All	Undivided
3346	Roadway	Install centerline rumble strips	0.91	All	Fatal,Serious injury,Minor injury	Not Specified	Urban	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	2338	22076					2					All	Undivided

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3371	Roadway	Install centerline rumble strips on horizontal curves	0.94	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	20784					2					All	Undivided
3368	Roadway	Install centerline rumble strips on horizontal curves	0.63	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	1336	13240					2					All	Undivided
3383	Roadway	Install centerline rumble strips on tangent sections	0.85	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	5	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	20784					2					All	Undivided
3380	Roadway	Install centerline rumble strips on tangent sections	0.82	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	1336	13240					2					All	Undivided
3381	Roadway	Install centerline rumble strips on tangent sections	0.78	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	No centerline rumble strips	no	Average Daily Traffic (ADT)	574	17591					2					All	Undivided
3394	Roadway	Install edgeline rumble strips	0.67	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3396	Roadway	Install edgeline rumble strips	0.61	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3408	Roadway	Install edgeline rumble strips on roadways with a shoulder width of 5 feet or greater	0.57	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	Roadway with no rumble strips and a shoulder width less than 5 feet	no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3404	Roadway	Install edgeline rumble strips on roadways with a shoulder width of 5 feet or greater	0.34	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	Roadway with no rumble strips and a shoulder width less than 5 feet	no	Average Daily Traffic (ADT)	4956	31692										All	Divided by Median
4082	Roadway	Install periodic passing lanes on rural two-lane highways	0.65	Non-intersection	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Two-lane rural highway with no passing lane	no	Annual Average Daily Traffic (AADT)	1655	7031					2					All	Undivided
4083	Roadway	Install periodic passing lanes on rural two-lane highways	0.58	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Two-lane rural highway with no passing lane	no	Annual Average Daily Traffic (AADT)	1655	7031					2					All	Undivided
5397	Roadway	Install rectangular shaped centerline rumble strips	0.689	All	Fatal,Serious injury,Minor injury	All	Rural	4	No centerline rumble strips	no	Annual Average Daily Traffic (AADT)	200	8000					2					All	Undivided

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2705	Roadway	Install transverse rumble strips on stop controlled approaches in rural areas	0.745	All	Fatal,Serious injury	Major Collector	All	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)	4-leg	Stop-controlled		All	Undivided
2709	Roadway	Install transverse rumble strips on stop controlled approaches in rural areas	0.785	All	Fatal,Serious injury	Major Collector	Rural	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)	3-leg,4-leg	Stop-controlled		All	Undivided
2708	Roadway	Install transverse rumble strips on stop controlled approaches in rural areas	0.987	All	Fatal,Serious injury,Minor injury	Major Collector	Rural	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)	3-leg,4-leg	Stop-controlled		All	Undivided
2704	Roadway	Install transverse rumble strips on stop controlled approaches in rural areas	0.913	All	Fatal,Serious injury,Minor injury	Major Collector	Rural	4		yes	Annual Average Daily Traffic (AADT)								Roadway/roadway (not interchange related)	4-leg	Stop-controlled		All	Undivided
2346	Roadway	Install TWLTL (two way left turn lane) on two lane road	0.739	All	Fatal,Serious injury,Minor injury	Not Specified	All	5		no								2					All	Divided by TWLTL
2343	Roadway	Install TWLTL (two way left turn lane) on two lane road	0.725	All	Fatal,Serious injury,Minor injury	Not Specified	All	4		no								2					All	Divided by TWLTL
2342	Roadway	Install TWLTL (two way left turn lane) on two lane road	0.629	All	Fatal,Serious injury,Minor injury	Not Specified	All	4		no	Annual Average Daily Traffic (AADT)	8500	22500					2					All	Divided by TWLTL
584	Roadway	Introduce TWLTL (two-way left turn lanes) on rural two lane roads	0.65	All	Serious injury,Minor injury	Not specified	Rural	4		no		Not specified	Not specified					2						
4958	Roadway	Removing mainline barrier toll plazas on highways	0.597	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Not specified	4	11 mainline toll plazas existed on the Gardens State Parkway (GSP) in New Jersey.	no	Annual Average Daily Traffic (AADT)							7-Feb					Not specified	Divided by Median
2976	Roadway	Resurface pavement	0.95	All	Fatal,Serious injury	Not Specified		4		no													All	
3450	Shoulder treatments	Install shoulder rumble strips	0.97	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	4959	20763										All	Divided by Median
3428	Shoulder treatments	Install shoulder rumble strips	0.95	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	5326	20763										All	Divided by Median

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3430	Shoulder treatments	Install shoulder rumble strips	0.92	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	782	10386					2					All	Undivided
3426	Shoulder treatments	Install shoulder rumble strips	0.9	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	4959	20763										All	Divided by Median
3433	Shoulder treatments	Install shoulder rumble strips	0.82	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	948	9067					2					All	Undivided
3478	Shoulder treatments	Install shoulder rumble strips	0.72	All	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3454	Shoulder treatments	Install shoulder rumble strips	0.64	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	5		no	Average Daily Traffic (ADT)	782	10386					2					All	Undivided
3457	Shoulder treatments	Install shoulder rumble strips	0.63	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	948	9067					2					All	Undivided
3502	Shoulder treatments	Install shoulder rumble strips	0.63	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776										All	Divided by Median
3550	Shoulder treatments	Install shoulder rumble strips	0.6	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3561	Shoulder treatments	Install shoulder rumble strips	0.53	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3424	Shoulder treatments	Install shoulder rumble strips	0.94	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)	11539	37112										All	Divided by Median
3423	Shoulder treatments	Install shoulder rumble strips	0.93	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)	6777	37112										All	Divided by Median
3425	Shoulder treatments	Install shoulder rumble strips	0.87	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)	6777	24752										All	Divided by Median

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3448	Shoulder treatments	Install shoulder rumble strips	0.84	Run off road	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	4		no	Average Daily Traffic (ADT)	11539	37112										All	Divided by Median
3447	Shoulder treatments	Install shoulder rumble strips	0.83	Run off road	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Rural	5		no	Average Daily Traffic (ADT)	6777	37112										All	Divided by Median
3446	Shoulder treatments	Install shoulder rumble strips	0.93	Run off road	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Urban	4		no	Average Daily Traffic (ADT)	11254	59391										All	Divided by Median
3422	Shoulder treatments	Install shoulder rumble strips	0.84	All	Fatal,Serious injury,Minor injury	Principal Arterial Other Freeways and Expressways	Urban	4		no	Average Daily Traffic (ADT)	11254	59391										All	Divided by Median
3627	Shoulder treatments	Install shoulder rumble strips on roadways with a shoulder width equal to 5 feet	0.46	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4	Roadway with no rumble strips and a shoulder width less than 5 feet	no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3637	Shoulder treatments	Install shoulder rumble strips with an offset of 0-8 inches relative to the edgeline	0.67	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
3651	Shoulder treatments	Install shoulder rumble strips with an offset of 9-20 inches relative to the edgeline	0.62	Run off road	Fatal,Serious injury,Minor injury	Not Specified	Rural	4		no	Average Daily Traffic (ADT)	180	12776					2					All	Undivided
4326	Shoulder treatments	Installation of safety edge treatment	0.983	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	310	18697					2					All	
4399	Shoulder treatments	Installation of safety edge treatment	0.953	Other	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	310	18697					2					All	

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4314	Shoulder treatments	Installation of safety edge treatment	0.89	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	397	18697					2					All	
4323	Shoulder treatments	Installation of safety edge treatment	0.835	All	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	397	18697					2					All	
4397	Shoulder treatments	Installation of safety edge treatment	0.784	Other	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	397	18697					2					All	
4362	Shoulder treatments	Installation of safety edge treatment	0.769	Run off road	Fatal,Serious injury,Minor injury	Principal Arterial Other	Rural	4	Rural highways prior to resurfacing and installation of safety edge treatment	no	Annual Average Daily Traffic (AADT)	397	18697					2					All	
2450	Signs	Advance street name signs	0.99	All	Fatal,Serious injury,Minor injury	Not Specified	All	4	No advance signs at a signalized intersection	yes									Roadway/roadway (not interchange related)	3-leg,4-leg	Signalized		All	
4918	Signs	Install a "Vehicles Entering When Flashing" (VEWF) system (advance post mounted signs on major and loops on minor)	0.73	All	Fatal,Serious injury,Minor injury	Not specified	All	4	stop-controlled	yes	Annual Average Daily Traffic (AADT)			3000	30000			2	Roadway/roadway (not interchange related)	4-leg	Stop-controlled	45-55 mph		
2438	Signs	Install chevron signs on horizontal curves	0.84	Non-intersection	Fatal,Serious injury,Minor injury	All	Rural	4	No sign	no	Annual Average Daily Traffic (AADT)	261	14790					2					All	Undivided
2433	Signs	Install new fluorescent curve signs or upgrade existing curve signs to fluorescent sheeting	0.75	Non-intersection	Fatal,Serious injury,Minor injury	All	Rural	4	No sign or sign without fluorescent sheeting	no	Annual Average Daily Traffic (AADT)	895	20479					2					All	Undivided

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144	Speed management	10% reduction in mean speed	0.68	All	Fatal	All	All	4		no		All	All											
145	Speed management	10% reduction in mean speed	0.85	All	Serious injury, Minor injury	All	All	5		no		All	All											
147	Speed management	15% reduction in mean speed	0.56	All	Fatal	All	All	4		no		All	All											
148	Speed management	15% reduction in mean speed	0.78	All	Serious injury, Minor injury	All	All	4		no		All	All											
141	Speed management	5% reduction in mean speed	0.83	All	Fatal	All	All	5		no		All	All											
142	Speed management	5% reduction in mean speed	0.93	All	Serious injury, Minor injury	All	All	5		no		All	All											
132	Speed management	Install speed humps	0.6	All	Serious injury, Minor injury	Local	Urban and Suburban	4		no		Not specified	Not specified					2						
134	Speed management	Install speed humps	0.5	All	Serious injury, Minor injury	Local	Urban and Suburban	4		no		Not specified	Not specified					2						
139	Speed management	Install transverse rumble strips as traffic calming device	0.64	All	Serious injury, Minor injury	Local	Urban and Suburban	4		no		Not specified	Not specified					2						
129	Speed management	Traffic calming	0.67	All	Serious injury, Minor injury	Minor Collector	Urban	4		no		Average Daily						2						
131	Speed management	Traffic calming	0.67	All	Serious injury, Minor injury	Minor Collector	Urban	4		no		Average Daily						2						
406	Speed management	Transverse bar pavement marking at roundabout approaches	0.43	Speed related	Serious injury, Minor injury	Not specified	Not specified	4		yes		Not specified		Not specified	Not specified				Roadway/roadway (not interchange related)	Not specified	Roundabout			