Appendix A
Oregon: Data Analysis and Strategy Matrix

Data Overview 2
Countermeasure(s): All Sign and Marking Countermeasures, Curve Reconstruction 12
Countermeasure(s): Centerline Rumble Stripes 17
Countermeasure(s): Wider Centerline Pavement Markings 17
Countermeasure(s): Edge Line Rumble Strips, Standard Edge Line Markings, Wider Edge Line Markings 22
Countermeasure(s): Shoulder Rumble Strips 27
Countermeasure(s): Alignment Delineation, Lighting 31
Countermeasure(s): High-Friction Surfaces 33
Countermeasure(s): Guard Rail Relocation/Safety Enhancements 35
Countermeasure(s): Tree Removal/Safety Enhancements, Shield Tree(s) 37
Countermeasure(s): Utility Pole Relocation/Safety Enhancements 39
Countermeasure(s): Fixed Object Delineation 41
Countermeasure(s): More Effective Snow Removal Treatments 43
Countermeasure(s): Wider Shoulders 47
Countermeasure(s): Median Barrier 48
Countermeasure(s): Improved Recovery Areas, Slope Flattening 50
Countermeasure(s): Alternate Passing Lanes 54
Countermeasure(s): Four to Three Lane Conversion 55
Countermeasure(s): Enforcement and Education 56
Countermeasure(s): Corridor 3E Improvements 65
Countermeasure(s): Area-Wide 3E Improvements 68
Summary of ODOT Roadway Departure Crashes 70
Oregon Roadway Departure Candidate Countermeasures and Potential Applications 74
Strategy Matrix for Systematic Low-Cost Countermeasures 77
Strategy Matrix for Comprehensive Improvements 88
Strategy Matrix for Traditional Major Improvements 95
Summary of Strategy Matrix 98

Data Overview

Roadway departure crashes are those identified in the crash data as having the following crash types:

- Fixed Object.
- Head On.
- Overturn/Rollover.
- Ran Off Road – Left.
- Ran Off Road – Right.
- Ran Off Road – Straight.
- Sideswipe, Opposite Direction.

Table 1: Roadway Departure Crashes and Fatalities by Year

Year	Crashes		Fatalities	
	Total	Percentage	Total	Percentage
2002	7,340	13.31%	290	13.51%
2003	7,809	14.16%	347	16.17%
2004	6,993	12.68%	296	13.79%
2005	8,279	15.02%	318	14.82%
2006	8,286	15.03%	330	15.38%
2007	8,459	15.34%	299	13.93%
2008	7,963	14.44%	266	12.40%
Total	**55,129**	**100.00%**	**2,146**	**100.00%**

Table 2: Roadway Departure Crashes and Fatalities by Locality

Locality	Crashes		Fatalities	
	Total	Percentage	Total	Percentage
State	**27,911**	**50.63%**	**1,234**	**57.50%**
Rural	21,827	39.59%	1,078	50.23%
Urban	6,084	11.04%	156	7.27%
Local	**27,218**	**49.37%**	**912**	**42.50%**
Rural	15,677	28.44%	726	33.83%
Urban	11,541	20.93%	186	8.67%
Grand Total	**55,129**	**100.00%**	**2,146**	**100.00%**

Table 3: Roadway Departure Crashes and Fatalities by Route Type and Locality

Route Type	Locality	Crashes		Fatalities	
		Total	Percentage	Total	Percentage
State		**27,911**	**50.63%**	**1,234**	**57.50%**
IS	Rural	4,655	8.44%	134	6.24%
	Urban	2,439	4.42%	50	2.33%
	Total	***7,094***	***12.87%***	***184***	***8.57%***
OR	Rural	9,496	17.23%	490	22.83%
	Urban	1,884	3.42%	67	3.12%
	Total	***11,380***	***20.64%***	***557***	***25.96%***
US	Rural	6,670	12.10%	436	20.32%
	Urban	1,297	2.35%	34	1.58%
	Total	***7,967***	***14.45%***	***470***	***21.90%***
Other	Rural	1,006	1.82%	18	0.84%
	Urban	464	0.84%	5	0.23%
	Total	***1,470***	***2.67%***	***23***	***1.07%***
Local		**27,218**	**49.37%**	**912**	**42.50%**
	Rural	15,677	28.44%	726	33.83%
	Urban	11,541	20.93%	186	8.67%
Total		**55,129**	**100.00%**	**2,146**	**100.00%**

Table 4: Roadway Departure Crashes and Fatalities by Collision Type and Locality

Crash Type	Locality	Crashes		Fatalities	
		Total	Percentage	Total	Percentage
ANGLE	**State**	**8**	**0.01%**	**-**	**0.00%**
	Rural	3	0.01%	-	0.00%
	Urban	5	0.01%	-	0.00%
	Local	**43**	**0.08%**	**3**	**0.14%**
	Rural	19	0.03%	1	0.05%
	Urban	24	0.04%	2	0.09%
BACKING	**State**	**-**	**0.00%**	**-**	**0.00%**
	Rural	-	0.00%	-	0.00%
	Urban	-	0.00%	-	0.00%
	Local	**13**	**0.02%**	**-**	**0.00%**
	Rural	1	0.00%	-	0.00%
	Urban	12	0.02%	-	0.00%
FIXED OBJECT	**State**	**21,626**	**39.23%**	**553**	**25.77%**
	Rural	16,696	30.29%	477	22.23%
	Urban	4,930	8.94%	76	3.54%
	Local	**18,507**	**33.57%**	**637**	**29.68%**
	Rural	11,676	21.18%	514	23.95%
	Urban	6,831	12.39%	123	5.73%
HEAD-ON	**State**	**1,536**	**2.79%**	**472**	**21.99%**
	Rural	1,181	2.14%	405	18.87%
	Urban	355	0.64%	67	3.12%
	Local	**2,171**	**3.94%**	**147**	**6.85%**
	Rural	1,053	1.91%	107	4.99%
	Urban	1,118	2.03%	40	1.86%
NON-COLLISION	**State**	**2,229**	**4.04%**	**71**	**3.31%**
	Rural	2,035	3.69%	66	3.08%
	Urban	194	0.35%	5	0.23%
	Local	**1,344**	**2.44%**	**91**	**4.24%**

	Rural	1,141	2.07%	83	3.87%
	Urban	203	0.37%	8	0.37%
OTHER	**State**	**114**	**0.21%**	**-**	**0.00%**
	Rural	99	0.18%	-	0.00%
	Urban	15	0.03%	-	0.00%
	Local	**173**	**0.31%**	**1**	**0.05%**
	Rural	131	0.24%	1	0.05%
	Urban	42	0.08%	-	0.00%
PARKING	**State**	**3**	**0.01%**	**-**	**0.00%**
	Rural	-	0.00%	-	0.00%
	Urban	3	0.01%	-	0.00%
	Local	**12**	**0.02%**	**-**	**0.00%**
	Rural	4	0.01%	-	0.00%
	Urban	8	0.01%	-	0.00%
REAR	**State**	**524**	**0.95%**	**15**	**0.70%**
	Rural	263	0.48%	11	0.51%
	Urban	261	0.47%	4	0.19%
	Local	**1,930**	**3.50%**	**4**	**0.19%**
	Rural	187	0.34%	1	0.05%
	Urban	1,743	3.16%	3	0.14%
SIDESWIPE - MEETING	**State**	**1,772**	**3.21%**	**119**	**5.55%**
	Rural	1,493	2.71%	115	5.36%
	Urban	279	0.51%	4	0.19%
	Local	**2,897**	**5.25%**	**28**	**1.30%**
	Rural	1,440	2.61%	19	0.89%
	Urban	1,457	2.64%	9	0.42%
SIDESWIPE - OVERTAKING	**State**	**90**	**0.16%**	**4**	**0.19%**
	Rural	51	0.09%	4	0.19%
(Note: All SS-O crashes here were	Urban	39	0.07%	-	0.00%
included because crash event 1, 2, or 3	**Local**	**106**	**0.19%**	**1**	**0.05%**
for these crashes was a fixed object.)	Rural	16	0.03%	-	0.00%
	Urban	90	0.16%	1	0.05%
TURNING	**State**	**9**	**0.02%**	**-**	**0.00%**
	Rural	6	0.01%	-	0.00%
	Urban	3	0.01%	-	0.00%
	Local	**22**	**0.04%**	**-**	**0.00%**
	Rural	9	0.02%	-	0.00%
	Urban	13	0.02%	-	0.00%
Total		**55,129**	**86.67%**	**2,146**	**92.03%**

Table 5: Roadway Departure Crashes and Fatalities by First Crash Event Type and Locality

1st Crash Event Collision	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
ATENUATN	State	Rural	15	-	0.05%	0.00%
ATENUATN		Urban	29	-	0.09%	0.00%
ATENUATN	Local	Rural	-	-	0.00%	0.00%
ATENUATN		Urban	4	-	0.01%	0.00%
BARRIER	State	Rural	1,199	17	3.69%	1.32%
BARRIER		Urban	929	9	2.86%	0.70%
BARRIER	Local	Rural	7	1	0.02%	0.08%
BARRIER		Urban	103	3	0.32%	0.23%
BERM	State	Rural	11	-	0.03%	0.00%
BERM		Urban	4	-	0.01%	0.00%
BERM	Local	Rural	9	-	0.03%	0.00%
BERM		Urban	6	-	0.02%	0.00%
BR ABUT	State	Rural	37	1	0.11%	0.08%
BR ABUT		Urban	15	-	0.05%	0.00%
BR ABUT	Local	Rural	20	4	0.06%	0.31%
BR ABUT		Urban	10	-	0.03%	0.00%
BR COLMN	State	Rural	12	-	0.04%	0.00%
BR COLMN		Urban	10	-	0.03%	0.00%
BR COLMN	Local	Rural	9	1	0.03%	0.08%
BR COLMN		Urban	12	1	0.04%	0.08%
BR GIRDR	State	Rural	12	-	0.04%	0.00%
BR GIRDR		Urban	16	-	0.05%	0.00%
BR GIRDR	Local	Rural	10	-	0.03%	0.00%
BR GIRDR		Urban	16	-	0.05%	0.00%
BR RAIL	State	Rural	186	2	0.57%	0.16%
BR RAIL		Urban	189	4	0.58%	0.31%
BR RAIL	Local	Rural	86	3	0.26%	0.23%
BR RAIL		Urban	54	-	0.17%	0.00%
CULVERT	State	Rural	54	5	0.17%	0.39%
CULVERT		Urban	7	-	0.02%	0.00%
CULVERT	Local	Rural	59	5	0.18%	0.39%
CULVERT		Urban	22	-	0.07%	0.00%
DITCH	State	Rural	8,705	329	26.79%	25.54%
DITCH		Urban	720	20	2.22%	1.55%
DITCH	Local	Rural	7,091	333	21.82%	25.85%
DITCH		Urban	1,345	22	4.14%	1.71%
FENC/BLD	State	Rural	260	12	0.80%	0.93%
FENC/BLD		Urban	85	2	0.26%	0.16%
FENC/BLD	Local	Rural	447	10	1.38%	0.78%
FENC/BLD		Urban	427	5	1.31%	0.39%
GARDRAIL	State	Rural	1,851	77	5.70%	5.98%
GARDRAIL		Urban	788	8	2.43%	0.62%
GARDRAIL	Local	Rural	252	10	0.78%	0.78%
GARDRAIL		Urban	208	3	0.64%	0.23%
GDRL END	State	Rural	8	-	0.02%	0.00%
GDRL END		Urban	6	-	0.02%	0.00%
GDRL END	Local	Rural	4	2	0.01%	0.16%
GDRL END		Urban	2	-	0.01%	0.00%
GORE	State	Rural	1	1	0.00%	0.08%
GORE		Urban	5	-	0.02%	0.00%

GORE	**Local**	Rural	1	-	0.00%	0.00%
GORE		Urban	-	-	0.00%	0.00%
GUY WIRE	**State**	Rural	5	1	0.02%	0.08%
GUY WIRE		Urban	1	-	0.00%	0.00%
GUY WIRE	**Local**	Rural	4	1	0.01%	0.08%
GUY WIRE		Urban	4	-	0.01%	0.00%
OTHER WALL	**State**	Rural	81	3	0.25%	0.23%
OTHER WALL		Urban	20	1	0.06%	0.08%
OTHER WALL	**Local**	Rural	37	9	0.11%	0.70%
OTHER WALL		Urban	48	-	0.15%	0.00%
POLE UNK	**State**	Rural	25	1	0.08%	0.08%
POLE UNK		Urban	23	-	0.07%	0.00%
POLE UNK	**Local**	Rural	46	-	0.14%	0.00%
POLE UNK		Urban	64	2	0.20%	0.16%
POLE UTL	**State**	Rural	312	6	0.96%	0.47%
POLE UTL		Urban	162	5	0.50%	0.39%
POLE UTL	**Local**	Rural	627	33	1.93%	2.56%
POLE UTL		Urban	647	17	1.99%	1.32%
SGN BRDG	**State**	Rural	4	-	0.01%	0.00%
SGN BRDG		Urban	3	1	0.01%	0.08%
SGN BRDG	**Local**	Rural	3	1	0.01%	0.08%
SGN BRDG		Urban	2	-	0.01%	0.00%
ST LIGHT	**State**	Rural	8	-	0.02%	0.00%
ST LIGHT		Urban	43	1	0.13%	0.08%
ST LIGHT	**Local**	Rural	8	-	0.02%	0.00%
ST LIGHT		Urban	104	-	0.32%	0.00%
SUB OTRN	**State**	Rural	401	57	1.23%	4.43%
SUB OTRN		Urban	61	3	0.19%	0.23%
SUB OTRN	**Local**	Rural	405	26	1.25%	2.02%
SUB OTRN		Urban	177	7	0.54%	0.54%
TREE	**State**	Rural	740	65	2.28%	5.05%
TREE		Urban	121	10	0.37%	0.78%
TREE	**Local**	Rural	1,028	100	3.16%	7.76%
TREE		Urban	735	26	2.26%	2.02%
TRF SGNL	**State**	Rural	2	-	0.01%	0.00%
TRF SGNL		Urban	5	-	0.02%	0.00%
TRF SGNL	**Local**	Rural	-	-	0.00%	0.00%
TRF SGNL		Urban	10	-	0.03%	0.00%
UNK FIXD	**State**	Rural	229	2	0.70%	0.16%
UNK FIXD		Urban	102	1	0.31%	0.08%
UNK FIXD	**Local**	Rural	215	5	0.66%	0.39%
UNK FIXD		Urban	189	5	0.58%	0.39%
VEG OHED	**State**	Rural	8	-	0.02%	0.00%
VEG OHED		Urban	1	-	0.00%	0.00%
VEG OHED	**Local**	Rural	9	-	0.03%	0.00%
VEG OHED		Urban	11	-	0.03%	0.00%
WALL	**State**	Rural	49	-	0.15%	0.00%
WALL		Urban	208	1	0.64%	0.08%
WALL	**Local**	Rural	31	2	0.10%	0.16%
WALL		Urban	115	6	0.35%	0.47%
Total			**32,491**	**1,288**	100.00%	100.00%
Percentage of Total RD Crashes / Fatalities			**58.94%**	**60.02%**		

Table 6: Roadway Departure Crashes and Fatalities by Second Crash Event Type and Locality

2nd Crash Event Collision	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
ATENUATN	State	Rural	1	-	0.00%	0.00%
ATENUATN		Urban	5	-	0.02%	0.00%
ATENUATN	Local	Rural	1	-	0.00%	0.00%
ATENUATN		Urban	2	-	0.01%	0.00%
BARRIER	State	Rural	254	5	0.78%	0.39%
BARRIER		Urban	231	1	0.71%	0.08%
BARRIER	Local	Rural	-	-	0.00%	0.00%
BARRIER		Urban	20	-	0.06%	0.00%
BERM	State	Rural	10	-	0.03%	0.00%
BERM		Urban	1	-	0.00%	0.00%
BERM	Local	Rural	11	1	0.03%	0.08%
BERM		Urban	6	-	0.02%	0.00%
BR ABUT	State	Rural	14	-	0.04%	0.00%
BR ABUT		Urban	3	-	0.01%	0.00%
BR ABUT	Local	Rural	8	1	0.02%	0.08%
BR ABUT		Urban	6	-	0.02%	0.00%
BR COLMN	State	Rural	8	-	0.02%	0.00%
BR COLMN		Urban	12	2	0.04%	0.16%
BR COLMN	Local	Rural	3	-	0.01%	0.00%
BR COLMN		Urban	7	1	0.02%	0.08%
BR GIRDR	State	Rural	2	-	0.01%	0.00%
BR GIRDR		Urban	3	-	0.01%	0.00%
BR GIRDR	Local	Rural	3	-	0.01%	0.00%
BR GIRDR		Urban	1	-	0.00%	0.00%
BR RAIL	State	Rural	38	1	0.12%	0.08%
BR RAIL		Urban	33	-	0.10%	0.00%
BR RAIL	Local	Rural	15	2	0.05%	0.16%
BR RAIL		Urban	22	-	0.07%	0.00%
CULVERT	State	Rural	67	5	0.21%	0.39%
CULVERT		Urban	7	-	0.02%	0.00%
CULVERT	Local	Rural	77	6	0.24%	0.47%
CULVERT		Urban	15	1	0.05%	0.08%
DITCH	State	Rural	1,691	42	5.20%	3.26%
DITCH		Urban	220	6	0.68%	0.47%
DITCH	Local	Rural	1,466	47	4.51%	3.65%
DITCH		Urban	410	4	1.26%	0.31%
FENC/BLD	State	Rural	545	26	1.68%	2.02%
FENC/BLD		Urban	144	1	0.44%	0.08%
FENC/BLD	Local	Rural	681	27	2.10%	2.10%
FENC/BLD		Urban	543	6	1.67%	0.47%
GARDRAIL	State	Rural	496	15	1.53%	1.16%
GARDRAIL		Urban	187	3	0.58%	0.23%
GARDRAIL	Local	Rural	59	-	0.18%	0.00%
GARDRAIL		Urban	51	-	0.16%	0.00%
GDRL END	State	Rural	7	-	0.02%	0.00%
GDRL END		Urban	2	-	0.01%	0.00%
GDRL END	Local	Rural	5	1	0.02%	0.08%
GDRL END		Urban	2	-	0.01%	0.00%
GORE	State	Rural	-	-	0.00%	0.00%
GORE		Urban	1	-	0.00%	0.00%

GORE	**Local**	Rural	-	-	0.00%	0.00%
GORE		Urban	-	-	0.00%	0.00%
GUY WIRE	**State**	Rural	6	1	0.02%	0.08%
GUY WIRE		Urban	6	-	0.02%	0.00%
GUY WIRE	**Local**	Rural	9	-	0.03%	0.00%
GUY WIRE		Urban	8	-	0.02%	0.00%
OTHER WALL	**State**	Rural	33	3	0.10%	0.23%
OTHER WALL		Urban	21	-	0.06%	0.00%
OTHER WALL	**Local**	Rural	21	2	0.06%	0.16%
OTHER WALL		Urban	44	4	0.14%	0.31%
POLE UNK	**State**	Rural	19	-	0.06%	0.00%
POLE UNK		Urban	13	2	0.04%	0.16%
POLE UNK	**Local**	Rural	33	2	0.10%	0.16%
POLE UNK		Urban	58	2	0.18%	0.16%
POLE UTL	**State**	Rural	289	9	0.89%	0.70%
POLE UTL		Urban	103	1	0.32%	0.08%
POLE UTL	**Local**	Rural	472	16	1.45%	1.24%
POLE UTL		Urban	423	9	1.30%	0.70%
SGN BRDG	**State**	Rural	1	-	0.00%	0.00%
SGN BRDG		Urban	-	-	0.00%	0.00%
SGN BRDG	**Local**	Rural	1	-	0.00%	0.00%
SGN BRDG		Urban	2	-	0.01%	0.00%
ST LIGHT	**State**	Rural	5	-	0.02%	0.00%
ST LIGHT		Urban	18	2	0.06%	0.16%
ST LIGHT	**Local**	Rural	6	-	0.02%	0.00%
ST LIGHT		Urban	75	1	0.23%	0.08%
SUB OTRN	**State**	Rural	4,912	194	15.12%	15.06%
SUB OTRN		Urban	485	30	1.49%	2.33%
SUB OTRN	**Local**	Rural	3,070	200	9.45%	15.53%
SUB OTRN		Urban	522	15	1.61%	1.16%
TREE	**State**	Rural	876	109	2.70%	8.46%
TREE		Urban	146	8	0.45%	0.62%
TREE	**Local**	Rural	1,113	101	3.43%	7.84%
TREE		Urban	790	24	2.43%	1.86%
TRF SGNL	**State**	Rural	1	-	0.00%	0.00%
TRF SGNL		Urban	4	-	0.01%	0.00%
TRF SGNL	**Local**	Rural	1	-	0.00%	0.00%
TRF SGNL		Urban	3	-	0.01%	0.00%
UNK FIXD	**State**	Rural	87	7	0.27%	0.54%
UNK FIXD		Urban	29	-	0.09%	0.00%
UNK FIXD	**Local**	Rural	65	4	0.20%	0.31%
UNK FIXD		Urban	74	-	0.23%	0.00%
VEG OHED	**State**	Rural	4	1	0.01%	0.08%
VEG OHED		Urban	3	-	0.01%	0.00%
VEG OHED	**Local**	Rural	17	2	0.05%	0.16%
VEG OHED		Urban	14	-	0.04%	0.00%
WALL	**State**	Rural	23	-	0.07%	0.00%
WALL		Urban	37	2	0.11%	0.16%
WALL	**Local**	Rural	7	-	0.02%	0.00%
WALL		Urban	51	2	0.16%	0.16%
Total			**21,396**	**957**	65.85%	74.30%
Percentage of Total RD Crashes / Fatalities			**38.81%**	**44.59%**		

Table 7: Roadway Departure Crashes and Fatalities by Third Crash Event Type and Locality

3rd Crash Event Collision	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
BARRIER	State	Rural	32	-	0.10%	0.00%
BARRIER		Urban	27	-	0.08%	0.00%
BARRIER	Local	Rural	1	2	0.00%	0.16%
BARRIER		Urban	3	-	0.01%	0.00%
BERM	State	Rural	1	-	0.00%	0.00%
BERM		Urban	1	-	0.00%	0.00%
BERM	Local	Rural	-	-	0.00%	0.00%
BERM		Urban	1	-	0.00%	0.00%
BR ABUT	State	Rural	2	-	0.01%	0.00%
BR ABUT		Urban	-	-	0.00%	0.00%
BR ABUT	Local	Rural	2	1	0.01%	0.08%
BR ABUT		Urban	-	-	0.00%	0.00%
BR COLMN	State	Rural	2	-	0.01%	0.00%
BR COLMN		Urban	2	-	0.01%	0.00%
BR COLMN	Local	Rural	2	-	0.01%	0.00%
BR COLMN		Urban	2	1	0.01%	0.08%
BR RAIL	State	Rural	6	1	0.02%	0.08%
BR RAIL		Urban	6	-	0.02%	0.00%
BR RAIL	Local	Rural	2	-	0.01%	0.00%
BR RAIL		Urban	3	-	0.01%	0.00%
CULVERT	State	Rural	12	-	0.04%	0.00%
CULVERT		Urban	1	-	0.00%	0.00%
CULVERT	Local	Rural	15	2	0.05%	0.16%
CULVERT		Urban	6	-	0.02%	0.00%
DITCH	State	Rural	233	14	0.72%	1.09%
DITCH		Urban	27	1	0.08%	0.08%
DITCH	Local	Rural	196	10	0.60%	0.78%
DITCH		Urban	95	3	0.29%	0.23%
FENC/BLD	State	Rural	144	3	0.44%	0.23%
FENC/BLD		Urban	22	-	0.07%	0.00%
FENC/BLD	Local	Rural	195	6	0.60%	0.47%
FENC/BLD		Urban	151	5	0.46%	0.39%
GARDRAIL	State	Rural	64	5	0.20%	0.39%
GARDRAIL		Urban	26	1	0.08%	0.08%
GARDRAIL	Local	Rural	5	-	0.02%	0.00%
GARDRAIL		Urban	8	-	0.02%	0.00%
GDRL END	State	Rural	2	-	0.01%	0.00%
GDRL END		Urban	1	-	0.00%	0.00%
GDRL END	Local	Rural	-	-	0.00%	0.00%
GDRL END		Urban	1	-	0.00%	0.00%
GORE	State	Rural	-	-	0.00%	0.00%
GORE		Urban	-	-	0.00%	0.00%
GORE	Local	Rural	-	-	0.00%	0.00%
GORE		Urban	1	-	0.00%	0.00%
GUY WIRE	State	Rural	2	-	0.01%	0.00%
GUY WIRE		Urban	2	-	0.01%	0.00%
GUY WIRE	Local	Rural	6	1	0.02%	0.08%
GUY WIRE		Urban	2	-	0.01%	0.00%
OTHER WALL	State	Rural	7	-	0.02%	0.00%
OTHER WALL		Urban	2	-	0.01%	0.00%

OTHER WALL	**Local**	Rural	6	-	0.02%	0.00%
OTHER WALL		Urban	11	-	0.03%	0.00%
POLE UNK	**State**	Rural	4	-	0.01%	0.00%
POLE UNK		Urban	7	1	0.02%	0.08%
POLE UNK	**Local**	Rural	11	1	0.03%	0.08%
POLE UNK		Urban	14	-	0.04%	0.00%
POLE UTL	**State**	Rural	67	5	0.21%	0.39%
POLE UTL		Urban	27	1	0.08%	0.08%
POLE UTL	**Local**	Rural	103	4	0.32%	0.31%
POLE UTL		Urban	76	3	0.23%	0.23%
SGN BRDG	**State**	Rural	-	-	0.00%	0.00%
SGN BRDG		Urban	1	-	0.00%	0.00%
SGN BRDG	**Local**	Rural	-	-	0.00%	0.00%
SGN BRDG		Urban	1	-	0.00%	0.00%
ST LIGHT	**State**	Rural	-	-	0.00%	0.00%
ST LIGHT		Urban	7	1	0.02%	0.08%
ST LIGHT	**Local**	Rural	-	-	0.00%	0.00%
ST LIGHT		Urban	20	1	0.06%	0.08%
SUB OTRN	**State**	Rural	1,087	65	3.35%	5.05%
SUB OTRN		Urban	130	5	0.40%	0.39%
SUB OTRN	**Local**	Rural	714	58	2.20%	4.50%
SUB OTRN		Urban	190	13	0.58%	1.01%
TREE	**State**	Rural	222	25	0.68%	1.94%
TREE		Urban	39	2	0.12%	0.16%
TREE	**Local**	Rural	283	27	0.87%	2.10%
TREE		Urban	176	8	0.54%	0.62%
TRF SGNL	**State**	Rural	2	-	0.01%	0.00%
TRF SGNL		Urban	2	-	0.01%	0.00%
TRF SGNL	**Local**	Rural	1	-	0.00%	0.00%
TRF SGNL		Urban	-	-	0.00%	0.00%
UNK FIXD	**State**	Rural	39	5	0.12%	0.39%
UNK FIXD		Urban	4	1	0.01%	0.08%
UNK FIXD	**Local**	Rural	29	4	0.09%	0.31%
UNK FIXD		Urban	16	1	0.05%	0.08%
VEG OHED	**State**	Rural	4	-	0.01%	0.00%
VEG OHED		Urban	1	-	0.00%	0.00%
VEG OHED	**Local**	Rural	2	-	0.01%	0.00%
VEG OHED		Urban	6	-	0.02%	0.00%
WALL	**State**	Rural	1	-	0.00%	0.00%
WALL		Urban	4	-	0.01%	0.00%
WALL	**Local**	Rural	1	-	0.00%	0.00%
WALL		Urban	18	-	0.06%	0.00%
Total			**4,647**	**287**	14.30%	22.28%
Percentage of Total RD Crashes / Fatalities			**8.43%**	**13.37%**		

Table 8: Roadway Departure Crashes and Fatalities by Speeding-Related and Locality

Crash Type	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
Speeding-Related	**State**	Rural	15,208	611	27.59%	28.47%
		Urban	3,724	89	6.76%	4.15%
	Local	Rural	10,419	523	18.90%	24.37%
		Urban	6,424	146	11.65%	6.80%
Sub-Total			**35,775**	**1,369**	**64.89%**	**63.79%**
Not Speeding-Related	**State**	Rural	6,619	467	12.01%	21.76%
		Urban	2,360	67	4.28%	3.12%
	Local	Rural	5,258	203	9.54%	9.46%
		Urban	5,117	40	9.28%	1.86%
Sub-Total			**19,354**	**777**	**35.11%**	**36.21%**
Total			**55,129**	**2,146**	**100.00%**	**100.00%**

Table 9: Roadway Departure Crashes and Fatalities by Alcohol-Related and Locality

Crash Type	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
Alcohol-Related	**State**	Rural	1,141	307	2.07%	14.31%
		Urban	508	78	0.92%	3.63%
	Local	Rural	1,381	374	2.51%	17.43%
		Urban	1,404	106	2.55%	4.94%
Sub-Total			**4,434**	**865**	**8.04%**	**40.31%**
Not Alcohol-Related	**State**	Rural	20,686	771	37.52%	35.93%
		Urban	5,576	78	10.11%	3.63%
	Local	Rural	14,296	352	25.93%	16.40%
		Urban	10,137	80	18.39%	3.73%
Sub-Total			**50,695**	**1,281**	**91.96%**	**59.69%**
Total			**55,129**	**2,146**	**100.00%**	**100.00%**

Table 10: Roadway Departure Crashes and Fatalities by Restraint and Locality

Crash Type	StateLocal	RuralUrban	Crashes Total	Fatalities Total	Percent Crashes	Percent Fatalities
Belted	**State**	Rural	8,020	290	14.55%	13.51%
		Urban	1,908	47	3.46%	2.19%
	Local	Rural	5,333	161	9.67%	7.50%
		Urban	3,403	45	6.17%	2.10%
Sub-Total			**18,664**	**543**	**33.86%**	**25.30%**
Unbelted	**State**	Rural	291	97	0.53%	4.52%
		Urban	56	11	0.10%	0.51%
	Local	Rural	318	89	0.58%	4.15%
		Urban	123	16	0.22%	0.75%
Sub-Total			**788**	**213**	**1.43%**	**9.93%**
Unknown	**State**	Rural	13,516	691	24.52%	32.20%
		Urban	4,120	98	7.47%	4.57%
	Local	Rural	10,026	476	18.19%	22.18%
		Urban	8,015	125	14.54%	5.82%
Sub-Total			**35,677**	**1,390**	**64.72%**	**64.77%**
Total			**55,129**	**2,146**	**35.28%**	**35.23%**

Countermeasure(s): All Sign and Marking Countermeasures, Curve Reconstruction

Table 11: Curve Roadway Departure Crashes - State Roads - ≤ 1,000 AADT - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INURIES PER 100 CRASHES
Rural	1,652	80	201	4.84	12.17
Urban	106	5	13	4.72	12.26
Total	**1,758**	**85**	**214**	**4.84**	**12.17**

Table 12: Curve Roadway Departure Crashes - State Rural Roads - ≤ 1,000 ADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	7	7	0.86%	45	4.03%
4	19	26	3.18%	121	10.84%
3	36	62	7.59%	229	20.52%
2	132	194	23.75%	493	44.18%
1	623	817	100.00%	1,116	100.00%
Total	**817**	**817**	**100.00%**	**1,116**	**100.00%**

Table 13: Curve Roadway Departure Crashes - State Roads – 1,001 – 3,000 AADT – 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	1,726	126	221	7.30	12.80
Urban	5	-	1	0.00	20.00
Total	**1,731**	**126**	**222**	**7.28**	**12.82**

Table 14: Curve Roadway Departure Crashes - State Rural Roads - 1,001 – 3,000 AADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	1	1	0.12%	21	1.22%
10 - 19	7	8	0.93%	104	6.03%
5 - 9	60	68	7.92%	482	27.93%
4	35	103	11.99%	622	36.04%
3	82	185	21.54%	868	50.29%
2	184	369	42.96%	1,236	71.61%
1	490	859	100.00%	1,726	100.00%
Total	**859**	**859**	**100.00%**	**1,726**	**100.00%**

Table 15: Curve Roadway Departure Crashes - State Urban Roads - 1,001 – 3,000 AADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	1	1	25.00%	2	40.00%
1	3	4	100.00%	5	100.00%
Total	**4**	**4**	**100.00%**	**5**	**100.00%**

Table 16: Curve Roadway Departure Crashes - State Roads - 3,001 – 5,000 AADT - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	1,225	95	185	7.76	15.10
Urban	23	-	1	0.00	4.35
Total	**1,248**	**95**	**186**	**7.61**	**14.90**

Table 17: Curve Roadway Departure Crashes - State Rural Roads - 3,001 – 5,000 ADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	11	11	2.02%	146	11.92%
5 - 9	40	51	9.38%	387	31.59%
4	36	87	15.99%	531	43.35%
3	58	145	26.65%	705	57.55%
2	121	266	48.90%	947	77.31%
1	278	544	100.00%	1,225	100.00%
Total	**544**	**544**	**100.00%**	**1,225**	**100.00%**

Table 18: Curve Roadway Departure Crashes - State Urban Roads - 3,001 – 5,000 ADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	1	1	5.88%	4	17.39%
3	1	2	11.76%	7	30.43%
2	1	3	17.65%	9	39.13%
1	14	17	100.00%	23	100.00%
Total	**17**	**17**	**100.00%**	**23**	**100.00%**

Table 19: Curve Roadway Departure Crashes - State Roads - > 5,000 AADT - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	2,017	121	243	6.00	12.05
Urban	806	34	66	4.22	8.19
Total	**2,823**	**155**	**309**	**5.49**	**10.95**

Table 20: Curve Roadway Departure Crashes - State Rural Roads - > 5,000 - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	2	2	0.20%	44	2.18%
10 - 19	7	9	0.92%	142	7.04%
5 - 9	72	81	8.30%	577	28.61%
4	53	134	13.73%	789	39.12%
3	94	228	23.36%	1,071	53.10%
2	198	426	43.65%	1,467	72.73%
1	550	976	100.00%	2,017	100.00%
Total	**976**	**976**	**100.00%**	**2,017**	**100.00%**

Table 21: Curve Roadway Departure Crashes - State Urban Roads - > 5,000 ADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.27%	85	10.55%
30 - 49	1	2	0.54%	117	14.52%
20 - 29	1	3	0.81%	142	17.62%
10 - 19	2	5	1.35%	163	20.22%
5 - 9	17	22	5.95%	270	33.50%
4	11	33	8.92%	314	38.96%
3	40	73	19.73%	434	53.85%
2	75	148	40.00%	584	72.46%
1	222	370	100.00%	806	100.00%
Total	**370**	**370**	**100.00%**	**806**	**100.00%**

Table 22: Curve Roadway Departure Crashes - State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**7,803**	**467**	**949**	**5.98**	**12.16**
Rural	6,787	425	863	6.26	12.72
Urban	1,016	42	86	4.13	8.46
Local	**9,965**	**513**	**1,062**	**5.15**	**10.66**
Rural	7,447	428	862	5.75	11.58
Urban	2,518	85	200	3.38	7.94
Total	**17,768**	**980**	**2,011**	**5.52**	**11.32**

Table 23: Curve Roadway Departure Crashes - Total - Local Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	5	5	0.18%	176	2.53%
20 - 29	14	19	0.67%	512	7.35%
10 - 19	71	90	3.16%	1,452	20.84%
5 - 9	261	351	12.31%	3,121	44.80%
4	149	500	17.54%	3,717	53.36%
3	212	712	24.97%	4,353	62.49%
2	474	1,186	41.60%	5,301	76.10%
1	1,665	2,851	100.00%	6,966	100.00%
Total	**2,851**	**2,851**	**100.00%**	**6,966**	**100.00%**

Table 24: Curve Roadway Departure Crashes - Total - Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.07%	31	1.23%
20 - 29	1	2	0.14%	52	2.07%
10 - 19	19	21	1.46%	288	11.45%
5 - 9	69	90	6.28%	699	27.78%
4	32	122	8.51%	827	32.87%
3	79	201	14.02%	1,064	42.29%
2	219	420	29.29%	1,502	59.70%
1	1,014	1,434	100.00%	2,516	100.00%
Total	**1,434**	**1,434**	**100.00%**	**2,516**	**100.00%**

Countermeasure(s): Centerline Rumble Stripes

Countermeasure(s): Wider Centerline Pavement Markings

Table 25: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Roads - ≥ 16 and < 18 Feet Road Width - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	1	-	-	0.00	0.00
Urban	-	-	-	0.00	0.00
Total	**1**	**-**	**-**	**0.00**	**0.00**

Table 26: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Rural Roads - ≥ 16 and < 18 Feet Road Width - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	-	-	0.00%	-	0.00%
1	1	1	100.00%	1	100.00%
Total	**1**	**1**	**100.00%**	**1**	**100.00%**

Table 27: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Roads - ≥ 18 and < 20 Feet Road Width - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	8	-	1	0.00	12.50
Urban	5	-	1	-	20.00
Total	**13**	**-**	**2**	**0.00**	**15.38**

Table 28: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Rural Roads - ≥ 18 and < 20 Feet Road Width - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	1	1	20.00%	3	37.50%
2	1	2	40.00%	5	62.50%
1	3	5	100.00%	8	100.00%
Total	**5**	**5**	**100.00%**	**8**	**100.00%**

Table 29: Head-On and Sideswipe, Opposite Direction Crashes Undivided State Urban Roads - ≥ 18 and < 20 Feet Road Width - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	1	1	50.00%	4	80.00%
3	-	1	50.00%	4	80.00%
2	-	1	50.00%	4	80.00%
1	1	2	100.00%	5	100.00%
Total	**2**	**2**	**100.00%**	**5**	**100.00%**

Table 30: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Roads - ≥ 20 and < 22 Feet Road Width - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	33	3	6	9.09	18.18
Urban	2	-	-	0.00	0.00
Total	**35**	**3**	**6**	**8.57**	**17.14**

Table 31: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Rural Roads - ≥ 20 and < 22 Feet Road Width - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	1	1	4.00%	3	9.09%
2	6	7	28.00%	15	45.45%
1	18	25	100.00%	33	100.00%
Total	**25**	**25**	**100.00%**	**33**	**100.00%**

Table 32: Head-On and Sideswipe, Opposite Direction Crashes Undivided State Urban Roads - ≥ 20 and < 22 Feet Road Width - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	-	-	0.00%	-	0.00%
1	2	2	100.00%	2	100.00%
Total	**2**	**2**	**100.00%**	**2**	**100.00%**

Table 33: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Roads - ≥ 22 Feet Road Width - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	2,502	492	750	19.66	29.98
Urban	519	47	101	9.06	19.46
Total	**3,021**	**539**	**851**	**17.84**	**28.17**

Table 34: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Rural Roads - ≥ 22 Feet Road Width - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	1	1	0.10%	25	1.00%
10 - 19	11	12	1.19%	172	6.87%
5 - 9	123	135	13.41%	911	36.41%
4	78	213	21.15%	1,223	48.88%
3	127	340	33.76%	1,604	64.11%
2	231	571	56.70%	2,066	82.57%
1	436	1,007	100.00%	2,502	100.00%
Total	**1,007**	**1,007**	**100.00%**	**2,502**	**100.00%**

Table 35: Head-On and Sideswipe, Opposite Direction Crashes – Undivided State Urban Roads - ≥ 22 Feet Road Width - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	3	3	1.39%	41	7.90%
5 - 9	24	27	12.50%	179	34.49%
4	14	41	18.98%	235	45.28%
3	30	71	32.87%	325	62.62%
2	49	120	55.56%	423	81.50%
1	96	216	100.00%	519	100.00%
Total	**216**	**216**	**100.00%**	**519**	**100.00%**

Table 36: Head-On and Sideswipe, Opposite Direction Crashes – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**3,308**	**591**	**916**	**17.87**	**27.69**
Rural	2,674	520	782	19.45	29.24
Urban	634	71	134	11.20	21.14
Local	**5,068**	**175**	**482**	**3.45**	**9.51**
Rural	2,493	126	287	5.05	11.51
Urban	2,575	49	195	1.90	7.57
Total	**8,376**	**766**	**1,398**	**9.15**	**16.69**

Table 37: Head-On and Sideswipe, Opposite Direction Crashes – Total – Local Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	3	3	0.21%	64	2.84%
10 - 19	5	8	0.55%	118	5.24%
5 - 9	48	56	3.88%	420	18.66%
4	32	88	6.09%	548	24.34%
3	68	156	10.80%	752	33.41%
2	211	367	25.42%	1,174	52.15%
1	1,077	1,444	100.00%	2,251	100.00%
Total	**1,444**	**1,444**	**100.00%**	**2,251**	**100.00%**

Table 38: Head-On and Sideswipe, Opposite Direction Crashes – Total – Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	3	3	0.18%	76	2.95%
10 - 19	13	16	0.97%	244	9.48%
5 - 9	41	57	3.44%	487	18.91%
4	40	97	5.85%	647	25.13%
3	84	181	10.92%	899	34.91%
2	199	380	22.92%	1,297	50.37%
1	1,278	1,658	100.00%	2,575	100.00%
Total	**1,658**	**1,658**	**100.00%**	**2,575**	**100.00%**

Countermeasure(s): Edge Line Rumble Strips, Standard Edge Line Markings, Wider Edge Line Markings

Table 39: Single Vehicle Roadway Departure Crashes - State Roads - 2 Lanes, < 4 Foot Shoulder - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Divided	**43**	**3**	**8**	**6.98**	**18.60**
Rural	31	2	7	6.45	22.58
Urban	12	1	1	8.33	8.33
Undivided	**5,212**	**179**	**559**	**3.43**	**10.73**
Rural	5,003	175	545	3.50	10.89
Urban	209	4	14	1.91	6.70
Total	**5,255**	**182**	**567**	**3.46**	**10.79**

Table 40: Single Vehicle Roadway Departure Crashes – State Rural Roads - 2 Lanes, < 4 Foot Shoulder – Divided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	1	1	4.00%	3	9.68%
2	4	5	20.00%	11	35.48%
1	20	25	100.00%	31	100.00%
Total	**25**	**25**	**100.00%**	**31**	**100.00%**

Table 41: Single Vehicle Roadway Departure Crashes - State Urban Roads - 2 Lanes, < 4 Foot Shoulder - Divided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	1	1	9.09%	2	16.67%
1	10	11	100.00%	12	100.00%
Total	**11**	**11**	**100.00%**	**12**	**100.00%**

Table 42: Single Vehicle Roadway Departure Crashes - State Rural Roads - 2 Lanes, < 4 Foot Shoulder - Undivided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	9	9	0.35%	105	2.10%
5 - 9	173	182	7.13%	1,160	23.19%
4	140	322	12.61%	1,720	34.38%
3	239	561	21.97%	2,437	48.71%
2	573	1,134	44.40%	3,583	71.62%
1	1,420	2,554	100.00%	5,003	100.00%
Total	**2,554**	**2,554**	**100.00%**	**5,003**	**100.00%**

Table 43: Single Vehicle Roadway Departure Crashes - State Urban Roads - 2 Lanes, < 4 Foot Shoulder - Undivided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	2	2	1.44%	17	8.13%
4	2	4	2.88%	25	11.96%
3	11	15	10.79%	58	27.75%
2	27	42	30.22%	112	53.59%
1	97	139	100.00%	209	100.00%
Total	**139**	**139**	**100.00%**	**209**	**100.00%**

Table 44: Single Vehicle Roadway Departure Crashes - State Roads - 4 or More Lanes, < 4 Foot Shoulder - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Divided	**331**	**9**	**16**	**2.72**	**4.83**
Rural	199	3	11	1.51	5.53
Urban	132	6	5	4.55	3.79
Undivided	**314**	**5**	**16**	**1.59**	**5.10**
Rural	66	1	4	1.52	6.06
Urban	248	4	12	1.61	4.84
Total	**645**	**14**	**32**	**2.17**	**4.96**

Table 45: Single Vehicle Roadway Departure Crashes - State Rural Roads - 4 or More Lanes, < 4 Foot Shoulder – Divided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	1	1	1.25%	20	10.05%
10 - 19	2	3	3.75%	44	22.11%
5 - 9	4	7	8.75%	68	34.17%
4	6	13	16.25%	92	46.23%
3	11	24	30.00%	125	62.81%
2	18	42	52.50%	161	80.90%
1	38	80	100.00%	199	100.00%
Total	**80**	**80**	**100.00%**	**199**	**100.00%**

Table 46: Single Vehicle Roadway Departure Crashes - State Urban Roads - 4 or More Lanes, < 4 Foot Shoulder – Divided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	1.27%	10	7.58%
5 - 9	3	4	5.06%	25	18.94%
4	1	5	6.33%	29	21.97%
3	7	12	15.19%	50	37.88%
2	15	27	34.18%	80	60.61%
1	52	79	100.00%	132	100.00%
Total	**79**	**79**	**100.00%**	**132**	**100.00%**

Table 47: Single Vehicle Roadway Departure Crashes - State Rural Roads - 4 or More Lanes, < 4 Foot Shoulder – Undivided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	2	2	5.41%	10	15.15%
4	2	4	10.81%	18	27.27%
3	5	9	24.32%	33	50.00%
2	5	14	37.84%	43	65.15%
1	23	37	100.00%	66	100.00%
Total	**37**	**37**	**100.00%**	**66**	**100.00%**

Table 48: Single Vehicle Roadway Departure Crashes - State Urban Roads - 4 or More Lanes, < 4 Foot Shoulder – Undivided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	4	4	3.15%	22	8.87%
4	14	18	14.17%	78	31.45%
3	17	35	27.56%	129	52.02%
2	27	62	48.82%	183	73.79%
1	65	127	100.00%	248	100.00%
Total	**127**	**127**	**100.00%**	**248**	**100.00%**

Table 49: Single Vehicle Roadway Departure Crashes – Total - State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**22,851**	**590**	**1,761**	**2.58**	**7.71**
Rural	18,199	517	1,523	2.84	8.37
Urban	4,652	73	238	1.57	5.12
Local	**19,478**	**720**	**1,686**	**3.70**	**8.66**
Rural	12,739	593	1,293	4.65	10.15
Urban	6,739	127	393	1.88	5.83
Total	**42,329**	**1,310**	**3,447**	**3.09**	**8.14**

Table 50: Single Vehicle Roadway Departure Crashes – Total - Local Rural Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.02%	57	0.47%
30 - 49	21	22	0.53%	846	6.95%
20 - 29	42	64	1.56%	1,835	15.07%
10 - 19	182	246	5.98%	4,150	34.09%
5 - 9	407	653	15.88%	6,807	55.91%
4	198	851	20.69%	7,599	62.42%
3	342	1,193	29.01%	8,625	70.85%
2	629	1,822	44.30%	9,883	81.18%
1	2,291	4,113	100.00%	12,174	100.00%
Total	**4,113**	**4,113**	**100.00%**	**12,174**	**100.00%**

Table 51: Single Vehicle Roadway Departure Crashes – Total - Local Urban Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	3	3	0.09%	99	1.47%
20 - 29	12	15	0.46%	377	5.60%
10 - 19	60	75	2.31%	1,165	17.30%
5 - 9	204	279	8.59%	2,445	36.30%
4	117	396	12.20%	2,913	43.25%
3	228	624	19.22%	3,597	53.40%
2	516	1,140	35.11%	4,629	68.72%
1	2,107	3,247	100.00%	6,736	100.00%
Total	**3,247**	**3,247**	**100.00%**	**6,736**	**100.00%**

Countermeasure(s): Shoulder Rumble Strips

Table 52: Single Vehicle Roadway Departure Crashes - State Roads - 2 Lanes, ≥ 4 Foot Paved Shoulder - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Divided	**608**	**13**	**48**	**2.14**	**7.89**
Rural	508	11	42	2.17	8.27
Urban	100	2	6	2.00	6.00
Undivided	**7,900**	**233**	**618**	**2.95**	**7.82**
Rural	6,862	211	553	3.07	8.06
Urban	1,038	22	65	2.12	6.26
Total	**8,508**	**246**	**666**	**2.89**	**7.83**

Table 53: Single Vehicle Roadway Departure Crashes - State Rural Roads - 2 Lanes, ≥ 4 Foot Paved Shoulder – Divided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	3	3	0.82%	18	3.54%
4	7	10	2.74%	46	9.06%
3	21	31	8.49%	109	21.46%
2	65	96	26.30%	239	47.05%
1	269	365	100.00%	508	100.00%
Total	**365**	**365**	**100.00%**	**508**	**100.00%**

Table 54: Single Vehicle Roadway Departure Crashes - State Urban Roads - 2 Lanes, ≥ 4 Foot Paved Shoulder - Divided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	1	1	1.33%	5	5.00%
4	3	4	5.33%	17	17.00%
3	2	6	8.00%	23	23.00%
2	8	14	18.67%	39	39.00%
1	61	75	100.00%	100	100.00%
Total	**75**	**75**	**100.00%**	**100**	**100.00%**

Table 55: Single Vehicle Roadway Departure Crashes - State Rural Roads - 2 Lanes, ≥ 4 Foot Paved Shoulder - Undivided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	19	19	0.63%	223	3.25%
5 - 9	299	318	10.47%	2,037	29.69%
4	202	520	17.12%	2,845	41.46%
3	392	912	30.02%	4,021	58.60%
2	715	1,627	53.55%	5,451	79.44%
1	1,411	3,038	100.00%	6,862	100.00%
Total	**3,038**	**3,038**	**100.00%**	**6,862**	**100.00%**

Table 56: Single Vehicle Roadway Departure Crashes - State Urban Roads - 2 Lanes, ≥ 4 Foot Paved Shoulder - Undivided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.21%	85	8.19%
30 - 49	1	2	0.43%	132	12.72%
20 - 29	2	4	0.85%	184	17.73%
10 - 19	1	5	1.06%	201	19.36%
5 - 9	22	27	5.74%	332	31.98%
4	20	47	10.00%	412	39.69%
3	54	101	21.49%	574	55.30%
2	95	196	41.70%	764	73.60%
1	274	470	100.00%	1,038	100.00%
Total	**470**	**470**	**100.00%**	**1,038**	**100.00%**

Table 57: Single Vehicle Roadway Departure Crashes - State Roads – 4 or More Lanes, ≥ 4 Foot Paved Shoulder - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Divided	**5,281**	**97**	**310**	**1.84**	**5.87**
Rural	3,431	78	223	2.27	6.50
Urban	1,850	19	87	1.03	4.70
Undivided	**1,248**	**22**	**87**	**1.76**	**6.97**
Rural	741	12	54	1.62	7.29
Urban	507	10	33	1.97	6.51
Total	**6,529**	**119**	**397**	**1.82**	**6.08**

Table 58: Single Vehicle Roadway Departure Crashes - State Rural Roads – 4 or More Lanes, ≥ 4 Foot Paved Shoulder – Divided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	2	2	0.21%	76	2.22%
20 - 29	6	8	0.85%	209	6.09%
10 - 19	46	54	5.76%	787	22.94%
5 - 9	183	237	25.29%	1,953	56.92%
4	103	340	36.29%	2,365	68.93%
3	139	479	51.12%	2,782	81.08%
2	191	670	71.50%	3,164	92.22%
1	267	937	100.00%	3,431	100.00%
Total	**937**	**937**	**100.00%**	**3,431**	**100.00%**

Table 59: Single Vehicle Roadway Departure Crashes - State Urban Roads – 4 or More Lanes, ≥ 4 Foot Paved Shoulder - Divided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	5	5	1.16%	116	6.27%
10 - 19	32	37	8.58%	515	27.84%
5 - 9	115	152	35.27%	1,247	67.41%
4	45	197	45.71%	1,427	77.14%
3	59	256	59.40%	1,604	86.70%
2	71	327	75.87%	1,746	94.38%
1	104	431	100.00%	1,850	100.00%
Total	**431**	**431**	**100.00%**	**1,850**	**100.00%**

Table 60: Single Vehicle Roadway Departure Crashes - State Rural Roads - 4 or More Lanes, ≥ 4 Foot Paved Shoulder - Undivided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	18	18	4.17%	108	14.57%
4	20	38	8.80%	188	25.37%
3	44	82	18.98%	320	43.18%
2	71	153	35.42%	462	62.35%
1	279	432	100.00%	741	100.00%
Total	**432**	**432**	**100.00%**	**741**	**100.00%**

Table 61: Single Vehicle Roadway Departure Crashes - State Urban Roads - 4 or More Lanes, ≥ 4 Foot Paved Shoulder - Undivided - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.34%	10	1.97%
5 - 9	9	10	3.41%	69	13.61%
4	8	18	6.14%	101	19.92%
3	25	43	14.68%	176	34.71%
2	81	124	42.32%	338	66.67%
1	169	293	100.00%	507	100.00%
Total	**293**	**293**	**100.00%**	**507**	**100.00%**

Countermeasure(s): Alignment Delineation, Lighting

Table 62: Roadway Departure Crashes – State and Local Roads - Dark - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**7,717**	**343**	**737**	**4.44**	**9.55**
Rural	6,683	306	673	4.58	10.07
Urban	1,034	37	64	3.58	6.19
Local	**7,392**	**328**	**700**	**4.44**	**9.47**
Rural	5,287	292	575	5.52	10.88
Urban	2,105	36	125	1.71	5.94
Total	**15,109**	**671**	**1,437**	**4.44**	**9.51**

Table 63: Roadway Departure Crashes - State Rural Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	6	6	0.15%	73	1.09%
5 - 9	152	158	4.06%	962	14.39%
4	157	315	8.09%	1,590	23.79%
3	321	636	16.33%	2,553	38.20%
2	872	1,508	38.73%	4,297	64.30%
1	2,386	3,894	100.00%	6,683	100.00%
Total	**3,894**	**3,894**	**100.00%**	**6,683**	**100.00%**

Table 64: Roadway Departure Crashes - State Urban Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.17%	12	1.16%
5 - 9	23	24	3.99%	147	14.22%
4	23	47	7.81%	239	23.11%
3	51	98	16.28%	392	37.91%
2	138	236	39.20%	668	64.60%
1	366	602	100.00%	1,034	100.00%
Total	**602**	**602**	**100.00%**	**1,034**	**100.00%**

Table 65: Roadway Departure Crashes - Local Rural Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.04%	33	0.65%
20 - 29	8	9	0.37%	203	3.98%
10 - 19	41	50	2.05%	732	14.35%
5 - 9	164	214	8.79%	1,759	34.48%
4	112	326	13.39%	2,207	43.27%
3	196	522	21.45%	2,795	54.79%
2	394	916	37.63%	3,583	70.24%
1	1,518	2,434	100.00%	5,101	100.00%
Total	**2,434**	**2,434**	**100.00%**	**5,101**	**100.00%**

Table 66: Roadway Departure Crashes - Local Urban Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	4	4	0.27%	47	2.23%
5 - 9	35	39	2.59%	247	11.75%
4	19	58	3.85%	323	15.36%
3	57	115	7.63%	494	23.49%
2	216	331	21.95%	926	44.03%
1	1,177	1,508	100.00%	2,103	100.00%
Total	**1,508**	**1,508**	**100.00%**	**2,103**	**100.00%**

Countermeasure(s): High-Friction Surfaces

Table 67: Roadway Departure Crashes – State and Local Roads - Wet - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**6,438**	**237**	**576**	**3.68**	**8.95**
Rural	4,475	210	477	4.69	10.66
Urban	1,963	27	99	1.38	5.04
Local	**6,854**	**199**	**541**	**2.90**	**7.89**
Rural	3,745	149	347	3.98	9.27
Urban	3,109	50	194	1.61	6.24
Total	**13,292**	**436**	**1,117**	**3.28**	**8.40**

Table 68: Roadway Departure Crashes - State Rural Roads - Wet - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	2	2	0.08%	73	1.63%
20 - 29	4	6	0.24%	165	3.69%
10 - 19	20	26	1.03%	422	9.43%
5 - 9	95	121	4.78%	996	22.26%
4	79	200	7.91%	1,312	29.32%
3	189	389	15.38%	1,879	41.99%
2	456	845	33.41%	2,791	62.37%
1	1,684	2,529	100.00%	4,475	100.00%
Total	**2,529**	**2,529**	**100.00%**	**4,475**	**100.00%**

Table 69: Roadway Departure Crashes - State Urban Roads - Wet - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	3	3	0.42%	208	10.60%
30 - 49	-	3	0.42%	208	10.60%
20 - 29	4	7	0.99%	305	15.54%
10 - 19	23	30	4.25%	598	30.46%
5 - 9	56	86	12.18%	947	48.24%
4	39	125	17.71%	1,103	56.19%
3	67	192	27.20%	1,304	66.43%
2	145	337	47.73%	1,594	81.20%
1	369	706	100.00%	1,963	100.00%
Total	**706**	**706**	**100.00%**	**1,963**	**100.00%**

Table 70: Roadway Departure Crashes – Local Rural Roads - Wet - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.05%	33	0.91%
20 - 29	4	5	0.26%	124	3.41%
10 - 19	24	29	1.51%	443	12.18%
5 - 9	104	133	6.93%	1,083	29.79%
4	74	207	10.79%	1,379	37.93%
3	110	317	16.53%	1,709	47.00%
2	326	643	33.52%	2,361	64.93%
1	1,275	1,918	100.00%	3,636	100.00%
Total	**1,918**	**1,918**	**100.00%**	**3,636**	**100.00%**

Table 71: Roadway Departure Crashes – Local Urban Roads - Wet - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.05%	31	1.00%
20 - 29	2	3	0.16%	81	2.61%
10 - 19	21	24	1.31%	358	11.52%
5 - 9	64	88	4.81%	761	24.49%
4	47	135	7.37%	949	30.54%
3	97	232	12.67%	1,240	39.91%
2	268	500	27.31%	1,776	57.16%
1	1,331	1,831	100.00%	3,107	100.00%
Total	**1,831**	**1,831**	**100.00%**	**3,107**	**100.00%**

Countermeasure(s): Guard Rail Relocation/Safety Enhancements

Table 72: Guard Rail Crashes (1st, 2nd, or 3rd Crash Event) – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**3,412**	**109**	**208**	**3.19**	**6.10**
Rural	2,411	97	175	4.02	7.26
Urban	1,001	12	33	1.20	3.30
Local	**583**	**13**	**27**	**2.23**	**4.63**
Rural	316	10	16	3.16	5.06
Urban	267	3	11	1.12	4.12
Total	**3,995**	**122**	**235**	**3.05**	**5.88**

Table 73: Guard Rail Crashes (1st, 2nd, or 3rd Crash Event) - State Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	3	3	0.19%	41	1.70%
5 - 9	37	40	2.57%	261	10.83%
4	41	81	5.20%	425	17.63%
3	101	182	11.69%	728	30.19%
2	308	490	31.47%	1,344	55.74%
1	1,067	1,557	100.00%	2,411	100.00%
Total	**1,557**	**1,557**	**100.00%**	**2,411**	**100.00%**

Table 74: Guard Rail Crashes (1st, 2nd, or 3rd Crash Event) - State Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.23%	46	4.60%
20 - 29	1	2	0.46%	67	6.69%
10 - 19	6	8	1.83%	154	15.38%
5 - 9	32	40	9.15%	349	34.87%
4	22	62	14.19%	437	43.66%
3	44	106	24.26%	569	56.84%
2	101	207	47.37%	771	77.02%
1	230	437	100.00%	1,001	100.00%
Total	**437**	**437**	**100.00%**	**1,001**	**100.00%**

Table 75: Guard Rail Crashes (1st, 2nd, or 3rd Crash Event) - Local Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.44%	11	3.53%
5 - 9	6	7	3.10%	46	14.74%
4	1	8	3.54%	50	16.03%
3	7	15	6.64%	71	22.76%
2	30	45	19.91%	131	41.99%
1	181	226	100.00%	312	100.00%
Total	**226**	**226**	**100.00%**	**312**	**100.00%**

Table 76: Guard Rail Crashes (1st, 2nd, or 3rd Crash Event) - Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	2	2	1.05%	27	10.11%
5 - 9	2	4	2.09%	38	14.23%
4	1	5	2.62%	42	15.73%
3	9	14	7.33%	69	25.84%
2	21	35	18.32%	111	41.57%
1	156	191	100.00%	267	100.00%
Total	**191**	**191**	**100.00%**	**267**	**100.00%**

Countermeasure(s): Tree Removal/Safety Enhancements, Shield Tree(s)

Table 77: Tree Crashes (1st, 2nd, or 3rd Crash Event) – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**2,164**	**219**	**340**	**10.12**	**15.71**
Rural	1,853	199	313	10.74	16.89
Urban	311	20	27	6.43	8.68
Local	**4,184**	**288**	**554**	**6.88**	**13.24**
Rural	2,452	230	397	9.38	16.19
Urban	1,732	58	157	3.35	9.06
Total	**6,348**	**507**	**894**	**7.99**	**14.08**

Table 78: Tree Crashes (1st, 2nd, or 3rd Crash Event) - State Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	5	5	0.34%	28	1.51%
4	16	21	1.45%	92	4.96%
3	46	67	4.62%	230	12.41%
2	239	306	21.09%	708	38.21%
1	1,145	1,451	100.00%	1,853	100.00%
Total	**1,451**	**1,451**	**100.00%**	**1,853**	**100.00%**

Table 79: Tree Crashes (1st, 2nd, or 3rd Crash Event) - State Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	3	3	1.25%	18	5.79%
4	2	5	2.08%	26	8.36%
3	12	17	7.08%	62	19.94%
2	26	43	17.92%	114	36.66%
1	197	240	100.00%	311	100.00%
Total	**240**	**240**	**100.00%**	**311**	**100.00%**

Table 80: Tree Crashes (1st, 2nd, or 3rd Crash Event) - Local Rural Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	6	6	0.43%	74	3.24%
5 - 9	58	64	4.55%	410	17.93%
4	48	112	7.96%	602	26.32%
3	90	202	14.36%	872	38.13%
2	210	412	29.28%	1,292	56.49%
1	995	1,407	100.00%	2,287	100.00%
Total	**1,407**	**1,407**	**100.00%**	**2,287**	**100.00%**

Table 81: Tree Crashes (1st, 2nd, or 3rd Crash Event) - Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	4	4	0.34%	42	2.43%
5 - 9	28	32	2.70%	214	12.36%
4	25	57	4.82%	314	18.14%
3	53	110	9.30%	473	27.33%
2	185	295	24.94%	843	48.70%
1	888	1,183	100.00%	1,731	100.00%
Total	**1,183**	**1,183**	**100.00%**	**1,731**	**100.00%**

Countermeasure(s): Utility Pole Relocation/Safety Enhancements

Table 82: Utility Pole Crashes (1st, 2nd, or 3rd Crash Event) – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**1,129**	**35**	**96**	**3.10**	**8.50**
Rural	727	21	70	2.89	9.63
Urban	402	14	26	3.48	6.47
Local	**2,782**	**88**	**199**	**3.16**	**7.15**
Rural	1,305	56	115	4.29	8.81
Urban	1,477	32	84	2.17	5.69
Total	**3,911**	**123**	**295**	**3.14**	**7.54**

Table 83: Utility Pole Crashes (1st, 2nd, or 3rd Crash Event) - State Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	1	1	0.17%	5	0.69%
4	6	7	1.16%	29	3.99%
3	15	22	3.63%	74	10.18%
2	69	91	15.02%	212	29.16%
1	515	606	100.00%	727	100.00%
Total	**606**	**606**	**100.00%**	**727**	**100.00%**

Table 84: Utility Pole Crashes (1st, 2nd, or 3rd Crash Event) - State Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	1	1	0.33%	5	1.24%
4	6	7	2.30%	29	7.21%
3	10	17	5.59%	59	14.68%
2	56	73	24.01%	171	42.54%
1	231	304	100.00%	402	100.00%
Total	**304**	**304**	**100.00%**	**402**	**100.00%**

Table 85: Utility Pole Crashes (1st, 2nd, or 3rd Crash Event) - Local Rural Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.11%	10	0.78%
5 - 9	23	24	2.63%	147	11.40%
4	20	44	4.83%	227	17.60%
3	40	84	9.22%	347	26.90%
2	116	200	21.95%	579	44.88%
1	711	911	100.00%	1,290	100.00%
Total	**911**	**911**	**100.00%**	**1,290**	**100.00%**

Table 86: Utility Pole Crashes (1st, 2nd, or 3rd Crash Event) - Local Urban Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	3	3	0.29%	36	2.44%
5 - 9	24	27	2.64%	184	12.47%
4	29	56	5.47%	300	20.34%
3	49	105	10.25%	447	30.31%
2	109	214	20.90%	665	45.08%
1	810	1,024	100.00%	1,475	100.00%
Total	**1,024**	**1,024**	**100.00%**	**1,475**	**100.00%**

Countermeasure(s): Fixed Object Delineation

Table 87: Fixed Object Crashes (By Collision Type) - Dark – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**6,187**	**187**	**448**	**3.02**	**7.24**
Rural	5,330	172	405	3.23	7.60
Urban	857	15	43	1.75	5.02
Local	**5,853**	**253**	**541**	**4.32**	**9.24**
Rural	4,428	225	451	5.08	10.19
Urban	1,425	28	90	1.96	6.32
Total	**12,040**	**440**	**989**	**3.65**	**8.21**

Table 88: Fixed Object Crashes (By Collision Type) - State Rural Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	5	5	0.15%	59	1.11%
5 - 9	97	102	3.11%	622	11.67%
4	111	213	6.50%	1,066	20.00%
3	248	461	14.08%	1,810	33.96%
2	706	1,167	35.63%	3,222	60.45%
1	2,108	3,275	100.00%	5,330	100.00%
Total	**3,275**	**3,275**	**100.00%**	**5,330**	**100.00%**

Table 89: Fixed Object Crashes (By Collision Type) - State Urban Roads - Dark - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.20%	12	1.40%
5 - 9	17	18	3.53%	112	13.07%
4	19	37	7.25%	188	21.94%
3	42	79	15.49%	314	36.64%
2	112	191	37.45%	538	62.78%
1	319	510	100.00%	857	100.00%
Total	**510**	**510**	**100.00%**	**857**	**100.00%**

Table 90: Fixed Object Crashes (By Collision Type) - Local Rural Roads - Dark - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	2	2	0.09%	47	1.10%
10 - 19	36	38	1.75%	518	12.11%
5 - 9	124	162	7.45%	1,271	29.72%
4	94	256	11.77%	1,647	38.52%
3	182	438	20.14%	2,193	51.29%
2	346	784	36.05%	2,885	67.47%
1	1,391	2,175	100.00%	4,276	100.00%
Total	**2,175**	**2,175**	**100.00%**	**4,276**	**100.00%**

Table 91: Fixed Object Crashes (By Collision Type) - Local Urban Roads - Dark - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	2	2	0.19%	25	1.76%
5 - 9	15	17	1.63%	115	8.08%
4	18	35	3.35%	187	13.14%
3	43	78	7.47%	316	22.21%
2	141	219	20.98%	598	42.02%
1	825	1,044	100.00%	1,423	100.00%
Total	**1,044**	**1,044**	**100.00%**	**1,423**	**100.00%**

Countermeasure(s): More Effective Snow Removal Treatments

Table 92: Roadway Departure Crashes - State and Local Roads – Snow or Ice - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**8,482**	**151**	**571**	**1.78**	**6.73**
Rural	7,519	143	523	1.90	6.96
Urban	963	8	48	0.83	4.98
Local	**3,725**	**34**	**170**	**0.91**	**4.56**
Rural	2,440	29	134	1.19	5.49
Urban	1,285	5	36	0.39	2.80
Total	**12,207**	**185**	**741**	**1.52**	**6.07**

Table 93: Roadway Departure Crashes - State Rural Roads – Snow or Ice - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	10	10	0.37%	238	3.17%
10 - 19	96	106	3.89%	1,431	19.03%
5 - 9	337	443	16.27%	3,557	47.31%
4	170	613	22.51%	4,237	56.35%
3	292	905	33.24%	5,113	68.00%
2	588	1,493	54.83%	6,289	83.64%
1	1,230	2,723	100.00%	7,519	100.00%
Total	**2,723**	**2,723**	**100.00%**	**7,519**	**100.00%**

Table 94: Roadway Departure Crashes - State Urban Roads – Snow or Ice - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	7	7	1.56%	76	7.89%
5 - 9	37	44	9.78%	299	31.05%
4	24	68	15.11%	395	41.02%
3	46	114	25.33%	533	55.35%
2	94	208	46.22%	721	74.87%
1	242	450	100.00%	963	100.00%
Total	**450**	**450**	**100.00%**	**963**	**100.00%**

Table 95: Roadway Departure Crashes - Local Rural Roads – Snow or Ice - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	1	1	0.08%	32	1.42%
20 - 29	-	1	0.08%	32	1.42%
10 - 19	12	13	1.00%	185	8.21%
5 - 9	52	65	4.98%	491	21.78%
4	43	108	8.28%	663	29.41%
3	92	200	15.33%	939	41.66%
2	210	410	31.42%	1,359	60.29%
1	895	1,305	100.00%	2,254	100.00%
Total	**1,305**	**1,305**	**100.00%**	**2,254**	**100.00%**

Table 96: Roadway Departure Crashes - Local Urban Roads – Snow or Ice - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	3	3	0.33%	42	3.27%
5 - 9	16	19	2.07%	135	10.51%
4	12	31	3.38%	183	14.24%
3	42	73	7.95%	309	24.05%
2	131	204	22.22%	571	44.44%
1	714	918	100.00%	1,285	100.00%
Total	**918**	**918**	**100.00%**	**1,285**	**100.00%**

Table 97: Roadway Departure Crashes - State and Local Roads - Ice During Clear or Cloudy Weather - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**4,158**	**68**	**291**	**1.64**	**7.00**
Rural	3,715	64	270	1.72	7.27
Urban	443	4	21	0.90	4.74
Local	**1,610**	**14**	**92**	**0.87**	**5.71**
Rural	1,103	14	72	1.27	6.53
Urban	507	-	20	0.00	3.94
Total	**5,768**	**82**	**383**	**1.42**	**6.64**

Table 98: Roadway Departure Crashes - State Rural Roads - Ice During Clear or Cloudy Weather - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	6	6	0.26%	61	1.64%
5 - 9	79	85	3.74%	531	14.29%
4	81	166	7.30%	855	23.01%
3	151	317	13.94%	1,308	35.21%
2	450	767	33.73%	2,208	59.43%
1	1,507	2,274	100.00%	3,715	100.00%
Total	**2,274**	**2,274**	**100.00%**	**3,715**	**100.00%**

Table 99: Roadway Departure Crashes - State Urban Roads - Ice During Clear or Cloudy Weather - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	3	3	0.95%	17	3.84%
4	9	12	3.79%	53	11.96%
3	24	36	11.36%	125	28.22%
2	37	73	23.03%	199	44.92%
1	244	317	100.00%	443	100.00%
Total	**317**	**317**	**100.00%**	**443**	**100.00%**

Table 100: Roadway Departure Crashes - Local Rural Roads - Ice During Clear or Cloudy Weather - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.14%	11	1.07%
5 - 9	16	17	2.45%	117	11.39%
4	18	35	5.05%	189	18.40%
3	42	77	11.11%	315	30.67%
2	96	173	24.96%	507	49.37%
1	520	693	100.00%	1,027	100.00%
Total	**693**	**693**	**100.00%**	**1,027**	**100.00%**

Table 101: Roadway Departure Crashes - Local Urban Roads - Ice During Clear or Cloudy Weather - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	1	1	0.24%	6	1.18%
4	4	5	1.18%	22	4.34%
3	15	20	4.74%	67	13.21%
2	38	58	13.74%	143	28.21%
1	364	422	100.00%	507	100.00%
Total	**422**	**422**	**100.00%**	**507**	**100.00%**

Countermeasure(s): Wider Shoulders

Table 102: Roadway Departure Crashes - State Roads - Shoulders ≤ 4 Feet - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	11,568	575	1,338	4.97	11.57
Urban	1,710	48	122	2.81	7.13
Total	**13,278**	**623**	**1,460**	**4.69**	**11.00**

Table 103: Roadway Departure Crashes - State Rural Roads - Shoulders ≤ 4 Feet - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	6	6	0.13%	131	1.13%
10 - 19	67	73	1.53%	928	8.02%
5 - 9	528	601	12.61%	4,197	36.28%
4	329	930	19.51%	5,513	47.66%
3	578	1,508	31.63%	7,247	62.65%
2	1,062	2,570	53.91%	9,371	81.01%
1	2,197	4,767	100.00%	11,568	100.00%
Total	**4,767**	**4,767**	**100.00%**	**11,568**	**100.00%**

Table 104: Roadway Departure Crashes - State Urban Roads - Shoulders ≤ 4 Feet - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.16%	68	3.98%
30 - 49	1	2	0.33%	100	5.85%
20 - 29	-	2	0.33%	100	5.85%
10 - 19	12	14	2.28%	245	14.33%
5 - 9	78	92	14.98%	722	42.22%
4	47	139	22.64%	910	53.22%
3	86	225	36.64%	1,168	68.30%
2	153	378	61.56%	1,474	86.20%
1	236	614	100.00%	1,710	100.00%
Total	**614**	**614**	**100.00%**	**1,710**	**100.00%**

Countermeasure(s): Median Barrier

Table 105: Head-On and Sideswipe, Opposite Direction Crashes - State Roads - Raised Median or Barrier Median Types - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	41	16	15	39.02	36.59
Urban	27	13	15	48.15	55.56
Total	**68**	**29**	**30**	**42.65**	**44.12**

Table 106: Head-On and Sideswipe, Opposite Direction Crashes - State Rural Roads - Raised Median or Barrier Median Types - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	1	1	2.94%	3	7.32%
2	5	6	17.65%	13	31.71%
1	28	34	100.00%	41	100.00%
Total	**34**	**34**	**100.00%**	**41**	**100.00%**

Table 107: Head-On and Sideswipe, Opposite Direction Crashes - State Urban Roads - Raised Median or Barrier Median Types - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	2	2	8.70%	6	22.22%
2	-	2	8.70%	6	22.22%
1	21	23	100.00%	27	100.00%
Total	**23**	**23**	**100.00%**	**27**	**100.00%**

Table 108: Head-On and Sideswipe, Opposite Direction Crashes - State Roads - Earth, Grass, or Divided Median Types - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	20	6	2	30.00	10.00
Urban	56	7	11	12.50	19.64
Total	**76**	**13**	**13**	**17.11**	**17.11**

Table 109: Head-On and Sideswipe, Opposite Direction Crashes - State Rural Roads - Earth, Grass, or Divided Median Types - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	1	1	5.26%	2	10.00%
1	18	19	100.00%	20	100.00%
Total	**19**	**19**	**100.00%**	**20**	**100.00%**

Table 110: Head-On and Sideswipe, Opposite Direction Crashes - State Urban Roads - Earth, Grass, or Divided Median Types - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	2	2	4.17%	6	10.71%
2	4	6	12.50%	14	25.00%
1	42	48	100.00%	56	100.00%
Total	**48**	**48**	**100.00%**	**56**	**100.00%**

Countermeasure(s): Improved Recovery Areas, Slope Flattening

Table 111: Run-Off-Road and Fixed Object Crashes – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**20,220**	**531**	**1,509**	**2.63**	**7.46**
Rural	15,969	462	1,298	2.89	8.13
Urban	4,251	69	211	1.62	4.96
Local	**17,455**	**622**	**1,487**	**3.56**	**8.52**
Rural	11,342	507	1,128	4.47	9.95
Urban	6,113	115	359	1.88	5.87
Total	**37,675**	**1,153**	**2,996**	**3.06**	**7.95**

Table 112: Run-Off-Road and Fixed Object Crashes - State Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	3	3	0.05%	124	0.78%
20 - 29	10	13	0.21%	345	2.16%
10 - 19	111	124	1.98%	1,758	11.01%
5 - 9	739	863	13.76%	6,335	39.67%
4	415	1,278	20.38%	7,995	50.07%
3	790	2,068	32.97%	10,365	64.91%
2	1,400	3,468	55.29%	13,165	82.44%
1	2,804	6,272	100.00%	15,969	100.00%
Total	**6,272**	**6,272**	**100.00%**	**15,969**	**100.00%**

Table 113: Run-Off-Road and Fixed Object Crashes - State Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	3	3	0.25%	221	5.20%
30 - 49	1	4	0.34%	256	6.02%
20 - 29	9	13	1.10%	470	11.06%
10 - 19	61	74	6.28%	1,260	29.64%
5 - 9	189	263	22.31%	2,462	57.92%
4	104	367	31.13%	2,878	67.70%
3	165	532	45.12%	3,373	79.35%
2	231	763	64.72%	3,835	90.21%
1	416	1,179	100.00%	4,251	100.00%
Total	**1,179**	**1,179**	**100.00%**	**4,251**	**100.00%**

Table 114: Run-Off-Road and Fixed Object Crashes - Local Rural Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	17	17	0.45%	624	5.74%
20 - 29	38	55	1.44%	1,493	13.73%
10 - 19	143	198	5.19%	3,313	30.48%
5 - 9	389	587	15.39%	5,867	53.97%
4	186	773	20.27%	6,611	60.81%
3	302	1,075	28.19%	7,517	69.15%
2	615	1,690	44.31%	8,747	80.46%
1	2,124	3,814	100.00%	10,871	100.00%
Total	**3,814**	**3,814**	**100.00%**	**10,871**	**100.00%**

Table 115: Run-Off-Road and Fixed Object Crashes - Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	2	2	0.07%	66	1.08%
20 - 29	6	8	0.26%	203	3.32%
10 - 19	58	66	2.17%	980	16.04%
5 - 9	172	238	7.82%	2,047	33.50%
4	120	358	11.77%	2,527	41.36%
3	211	569	18.70%	3,160	51.72%
2	477	1,046	34.39%	4,114	67.33%
1	1,996	3,042	100.00%	6,110	100.00%
Total	**3,042**	**3,042**	**100.00%**	**6,110**	**100.00%**

Table 116: Roadway Departure Crashes - Ditch (1st Crash Event) - 2002-2008 – State and Local Roads - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**9,425**	**349**	**907**	**3.70**	**9.62**
Rural	8,705	329	842	3.78	9.67
Urban	720	20	65	2.78	9.03
Local	**8,436**	**355**	**825**	**4.21**	**9.78**
Rural	7,091	333	744	4.70	10.49
Urban	1,345	22	81	1.64	6.02
Total	**17,861**	**704**	**1,732**	**3.94**	**9.70**

Table 117: Roadway Departure Crashes - Ditch (1st Crash Event) - State Rural Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	1	1	0.02%	20	0.23%
10 - 19	17	18	0.39%	221	2.54%
5 - 9	230	248	5.31%	1,581	18.16%
4	234	482	10.33%	2,517	28.91%
3	450	932	19.97%	3,867	44.42%
2	1,102	2,034	43.57%	6,071	69.74%
1	2,634	4,668	100.00%	8,705	100.00%
Total	**4,668**	**4,668**	**100.00%**	**8,705**	**100.00%**

Table 118: Roadway Departure Crashes - Ditch (1st Crash Event) - State Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	10	10	2.11%	58	8.06%
4	12	22	4.64%	106	14.72%
3	33	55	11.60%	205	28.47%
2	96	151	31.86%	397	55.14%
1	323	474	100.00%	720	100.00%
Total	**474**	**474**	**100.00%**	**720**	**100.00%**

Table 119: Roadway Departure Crashes - Ditch (1st Crash Event) - Local Rural Roads - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	3	3	0.11%	98	1.45%
20 - 29	17	20	0.75%	500	7.40%
10 - 19	89	109	4.09%	1,637	24.24%
5 - 9	242	351	13.17%	3,157	46.75%
4	130	481	18.04%	3,677	54.45%
3	237	718	26.93%	4,388	64.98%
2	417	1,135	42.57%	5,222	77.33%
1	1,531	2,666	100.00%	6,753	100.00%
Total	**2,666**	**2,666**	**100.00%**	**6,753**	**100.00%**

Table 120: Roadway Departure Crashes - Ditch (1st Crash Event) - Local Urban Roads - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	1	1	0.11%	22	1.64%
10 - 19	2	3	0.33%	42	3.13%
5 - 9	21	24	2.67%	167	12.43%
4	24	48	5.35%	263	19.57%
3	48	96	10.69%	407	30.28%
2	135	231	25.72%	677	50.37%
1	667	898	100.00%	1,344	100.00%
Total	**898**	**898**	**100.00%**	**1,344**	**100.00%**

Countermeasure(s): Alternate Passing Lanes

Table 121: Head-On and Sideswipe, Opposite Direction Crashes - State Roads - 2 Lanes, > 8,000 AADT - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	429	92	134	21.45	31.24
Urban	177	19	36	10.73	20.34
Total	**606**	**111**	**170**	**18.32**	**28.05**

Table 122: Head-On and Sideswipe, Opposite Direction Crashes - State Rural Roads - 2 Lanes, > 8,000 AADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	25	25	15.06%	148	34.50%
4	20	45	27.11%	228	53.15%
3	24	69	41.57%	300	69.93%
2	32	101	60.84%	364	84.85%
1	65	166	100.00%	429	100.00%
Total	**166**	**166**	**100.00%**	**429**	**100.00%**

Table 123: Head-On and Sideswipe, Opposite Direction Crashes - State Urban Roads - 2 Lanes, > 8,000 AADT - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (15,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	1.08%	16	9.04%
5 - 9	6	7	7.53%	48	27.12%
4	5	12	12.90%	68	38.42%
3	7	19	20.43%	89	50.28%
2	14	33	35.48%	117	66.10%
1	60	93	100.00%	177	100.00%
Total	**93**	**93**	**100.00%**	**177**	**100.00%**

Countermeasure(s): Four to Three Lane Conversion

Table 124: Roadway Departure Crashes - State Roads - 4 Lanes, < 18,000 AADT, Undivided - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Rural	797	56	100	7.03	12.55
Urban	282	8	21	2.84	7.45
Total	**1,079**	**64**	**121**	**5.93**	**11.21**

Table 125: Roadway Departure Crashes - State Rural Roads - 4 Lanes, < 18,000 AADT, Undivided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	11	11	3.26%	137	17.19%
5 - 9	33	44	13.06%	341	42.79%
4	18	62	18.40%	413	51.82%
3	31	93	27.60%	506	63.49%
2	47	140	41.54%	600	75.28%
1	197	337	100.00%	797	100.00%
Total	**337**	**337**	**100.00%**	**797**	**100.00%**

Table 126: Roadway Departure Crashes - State Urban Roads - 4 Lanes, < 18,000 AADT, Undivided - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (6,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	14	14	10.37%	85	30.14%
4	7	21	15.56%	113	40.07%
3	11	32	23.70%	146	51.77%
2	33	65	48.15%	212	75.18%
1	70	135	100.00%	282	100.00%
Total	**135**	**135**	**100.00%**	**282**	**100.00%**

Countermeasure(s): Enforcement and Education

Table 127: Roadway Departure Crashes – State and Local Roads - Alcohol-Related - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**1,649**	**385**	**409**	**23.35**	**24.80**
Rural	1,141	307	315	26.91	27.61
Urban	508	78	94	15.35	18.50
Local	**2,785**	**480**	**484**	**17.24**	**17.38**
Rural	1,381	374	340	27.08	24.62
Urban	1,404	106	144	7.55	10.26
Total	**4,434**	**865**	**893**	**19.51**	**20.14**

Table 128: Roadway Departure Crashes - State Rural Roads - Alcohol-Related - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (27,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	29	29	4.66%	170	14.90%
4	30	59	9.49%	290	25.42%
3	68	127	20.42%	494	43.30%
2	152	279	44.86%	798	69.94%
1	343	622	100.00%	1,141	100.00%
Total	**622**	**622**	**100.00%**	**1,141**	**100.00%**

Table 129: Roadway Departure Crashes - State Urban Roads - Alcohol-Related - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.37%	10	1.97%
5 - 9	15	16	5.86%	97	19.09%
4	10	26	9.52%	137	26.97%
3	30	56	20.51%	227	44.69%
2	64	120	43.96%	355	69.88%
1	153	273	100.00%	508	100.00%
Total	**273**	**273**	**100.00%**	**508**	**100.00%**

Table 130: Roadway Departure Crashes - Local Rural Roads - Alcohol-Related - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	1	1	0.11%	10	0.77%
5 - 9	17	18	1.92%	106	8.11%
4	15	33	3.52%	166	12.70%
3	49	82	8.74%	313	23.95%
2	138	220	23.45%	589	45.07%
1	718	938	100.00%	1,307	100.00%
Total	**938**	**938**	**100.00%**	**1,307**	**100.00%**

Table 131: Roadway Departure Crashes - Local Urban Roads - Alcohol-Related - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	2	2	0.19%	22	1.57%
5 - 9	18	20	1.94%	134	9.55%
4	12	32	3.11%	182	12.97%
3	40	72	6.99%	302	21.53%
2	143	215	20.87%	588	41.91%
1	815	1,030	100.00%	1,403	100.00%
Total	**1,030**	**1,030**	**100.00%**	**1,403**	**100.00%**

Table 132: Roadway Departure Crashes – State and Local Roads - Speeding-Related or Unbelted Driver - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Interstates					
State	**5,077**	**114**	**323**	**2.25**	**6.36**
Rural	3,552	83	246	2.34	6.93
Urban	1,525	31	77	2.03	5.05
Non-Interstates					
State	**13,996**	**629**	**1,405**	**4.49**	**10.04**
Rural	11,765	566	1,266	4.81	10.76
Urban	2,231	63	139	2.82	6.23
Local	**16,991**	**692**	**1,526**	**4.07**	**8.98**
Rural	10,525	545	1,141	5.18	10.84
Urban	6,466	147	385	2.27	5.95
Total	**36,064**	**1,435**	**3,254**	**3.98**	**9.02**

Table 133: Roadway Departure Crashes - State Rural Roads - Speeding-Related or Unbelted Driver - Interstates - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	2	2	0.52%	106	2.98%
30 - 49	11	13	3.41%	529	14.89%
20 - 29	24	37	9.71%	1,070	30.12%
10 - 19	108	145	38.06%	2,563	72.16%
5 - 9	98	243	63.78%	3,210	90.37%
4	35	278	72.97%	3,350	94.31%
3	35	313	82.15%	3,455	97.27%
2	29	342	89.76%	3,513	98.90%
1	39	381	100.00%	3,552	100.00%
Total	**381**	**381**	**100.00%**	**3,552**	**100.00%**

Table 134: Roadway Departure Crashes - State Urban Roads - Speeding-Related or Unbelted Driver - Interstates - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	2	2	1.56%	109	7.15%
30 - 49	10	12	9.38%	461	30.23%
20 - 29	10	22	17.19%	687	45.05%
10 - 19	37	59	46.09%	1,233	80.85%
5 - 9	29	88	68.75%	1,426	93.51%
4	11	99	77.34%	1,470	96.39%
3	10	109	85.16%	1,500	98.36%
2	6	115	89.84%	1,512	99.15%
1	13	128	100.00%	1,525	100.00%
Total	**128**	**128**	**100.00%**	**1,525**	**100.00%**

Table 135: Roadway Departure Crashes - State Rural Roads - Speeding-Related or Unbelted Driver - Non-Interstates - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.03%	56	0.48%
30 - 49	6	7	0.24%	266	2.26%
20 - 29	28	35	1.21%	905	7.69%
15-19	51	52	1.79%	1,760	14.96%
10-14	174	226	7.79%	3,780	32.13%
8-9	225	260	8.96%	4,931	41.91%
5-7	444	704	24.25%	7,508	63.82%
4	310	1,014	34.93%	8,748	74.36%
3	358	1,372	47.26%	9,822	83.48%
2	548	1,920	66.14%	10,918	92.80%
1	847	2,767	95.32%	11,765	100.00%
Total	**2,992**	**2,903**	**100.00%**	**11,765**	**100.00%**

Table 136: Roadway Departure Crashes - State Urban Roads - Speeding-Related or Unbelted Driver - Non-Interstates - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	4	4	0.88%	337	15.11%
30 - 49	1	5	1.10%	375	16.81%
20 - 29	4	9	1.98%	471	21.11%
10 - 19	40	49	10.77%	998	44.73%
5 - 9	90	139	30.55%	1,579	70.78%
4	47	186	40.88%	1,767	79.20%
3	62	248	54.51%	1,953	87.54%
2	71	319	70.11%	2,095	93.90%
1	136	455	100.00%	2,231	100.00%
Total	**455**	**455**	**100.00%**	**2,231**	**100.00%**

Table 137: Roadway Departure Crashes – Local Rural Roads - Speeding-Related or Unbelted Driver - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.03%	58	0.58%
30 - 49	11	12	0.33%	445	4.43%
20 - 29	32	44	1.20%	1,199	11.92%
10 - 19	133	177	4.84%	2,896	28.80%
5 - 9	357	534	14.60%	5,206	51.77%
4	195	729	19.93%	5,986	59.53%
3	288	1,017	27.80%	6,850	68.12%
2	565	1,582	43.25%	7,980	79.36%
1	2,076	3,658	100.00%	10,056	100.00%
Total	**3,658**	**3,658**	**100.00%**	**10,056**	**100.00%**

Table 138: Roadway Departure Crashes – Local Urban Roads - Speeding-Related or Unbelted Driver - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	3	3	0.09%	97	1.50%
20 - 29	11	14	0.43%	352	5.45%
10 - 19	53	67	2.05%	1,027	15.89%
5 - 9	177	244	7.47%	2,141	33.13%
4	136	380	11.64%	2,685	41.54%
3	195	575	17.61%	3,270	50.60%
2	503	1,078	33.02%	4,276	66.16%
1	2,187	3,265	100.00%	6,463	100.00%
Total	**3,265**	**3,265**	**100.00%**	**6,463**	**100.00%**

Table 139: Roadway Departure Crashes – State and Local Roads - Speeding-Related - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Interstates					
State	**5,058**	**112**	**322**	**2.21**	**6.37**
Rural	3,544	82	245	2.31	6.91
Urban	1,514	30	77	1.98	5.09
Non-Interstates					
State	**13,874**	**588**	**1,365**	**4.24**	**9.84**
Rural	11,664	529	1,229	4.54	10.54
Urban	2,210	59	136	2.67	6.15
Local	**16,843**	**669**	**1,501**	**3.97**	**8.91**
Rural	10,419	523	1,124	5.02	10.79
Urban	6,424	146	377	2.27	5.87
Total	**35,775**	**1,369**	**3,188**	**3.83**	**8.91**

Table 140: Roadway Departure Crashes - State Rural Roads – Non-Interstates - Speeding-Related - 2002-2008 - Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (27,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	8	8	0.56%	547	4.69%
30 - 49	47	55	3.84%	2,283	19.57%
20 - 29	92	147	10.27%	4,432	38.00%
10 - 19	255	402	28.09%	7,959	68.24%
5 - 9	334	736	51.43%	10,217	87.59%
4	110	846	59.12%	10,657	91.37%
3	114	960	67.09%	10,999	94.30%
2	194	1,154	80.64%	11,387	97.63%
1	277	1,431	100.00%	11,664	100.00%
Total	**1,431**	**1,431**	**100.00%**	**11,664**	**100.00%**

Table 141: Roadway Departure Crashes - State Urban Roads – Non-Interstates - Speeding-Related - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (9,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	4	4	0.88%	333	15.07%
30 - 49	1	5	1.11%	371	16.79%
20 - 29	4	9	1.99%	467	21.13%
10 - 19	39	48	10.62%	982	44.43%
5 - 9	89	137	30.31%	1,561	70.63%
4	47	184	40.71%	1,749	79.14%
3	59	243	53.76%	1,926	87.15%
2	75	318	70.35%	2,076	93.94%
1	134	452	100.00%	2,210	100.00%
Total	**452**	**452**	**100.00%**	**2,210**	**100.00%**

Table 142: Roadway Departure Crashes - Local Rural Roads - Speeding-Related - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	1	1	0.03%	58	0.58%
30 - 49	11	12	0.33%	445	4.46%
20 - 29	31	43	1.18%	1,174	11.77%
10 - 19	129	172	4.73%	2,829	28.37%
5 - 9	357	529	14.53%	5,144	51.59%
4	195	724	19.89%	5,924	59.41%
3	283	1,007	27.66%	6,773	67.93%
2	565	1,572	43.19%	7,903	79.26%
1	2,068	3,640	100.00%	9,971	100.00%
Total	**3,640**	**3,640**	**100.00%**	**9,971**	**100.00%**

Table 143: Roadway Departure Crashes - Local Urban Roads - Speeding-Related - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	3	3	0.09%	97	1.51%
20 - 29	11	14	0.43%	351	5.47%
10 - 19	51	65	2.00%	1,001	15.59%
5 - 9	177	242	7.45%	2,118	32.99%
4	133	375	11.55%	2,650	41.27%
3	199	574	17.67%	3,247	50.57%
2	500	1,074	33.07%	4,247	66.14%
1	2,174	3,248	100.00%	6,421	100.00%
Total	**3,248**	**3,248**	**100.00%**	**6,421**	**100.00%**

Table 144: Roadway Departure Crashes – State and Local Roads - Unbelted Driver - 2002-2008

LOCALITY	TOTAL CRASHES	TOTAL FATALITIES	TOTAL INCAPACITATING INJURIES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
State	**347**	**108**	**130**	**31.12**	**37.46**
Rural	291	97	115	33.33	39.52
Urban	56	11	15	19.64	26.79
Local	**441**	**105**	**111**	**23.81**	**25.17**
Rural	318	89	88	27.99	27.67
Urban	123	16	23	13.01	18.70
Total	**788**	**213**	**241**	**27.03**	**30.58**

Table 145: Roadway Departure Crashes – State Rural Roads - Unbelted Driver - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	5	5	1.75%	10	3.44%
1	281	286	100.00%	291	100.00%
Total	**286**	**286**	**100.00%**	**291**	**100.00%**

Table 146: Roadway Departure Crashes – State Urban Roads - Unbelted Driver - 2002-2008 – Summary

NUMBER OF CRASHES PER SECTION	NUMBER OF SECTIONS (3,000 FT)	CUMULATIVE		CUMULATIVE	
		SECTIONS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	1	1	1.92%	3	5.36%
2	2	3	5.77%	7	12.50%
1	49	52	100.00%	56	100.00%
Total	**52**	**52**	**100.00%**	**56**	**100.00%**

Table 147: Roadway Departure Crashes - Local Rural Roads - Unbelted Driver - 2002-2008 – Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	2	2	0.79%	6	2.21%
2	15	17	6.75%	36	13.28%
1	235	252	100.00%	271	100.00%
Total	**252**	**252**	**100.00%**	**271**	**100.00%**

Table 148: Roadway Departure Crashes - Local Urban Roads - Unbelted Driver - 2002-2008 - Summary

NUMBER OF CRASHES PER LOCAL ROAD	NUMBER OF LOCAL ROADS	CUMULATIVE		CUMULATIVE	
		LOCAL ROADS	PERCENT	CRASHES	PERCENT
50 and greater	-	-	0.00%	-	0.00%
30 - 49	-	-	0.00%	-	0.00%
20 - 29	-	-	0.00%	-	0.00%
10 - 19	-	-	0.00%	-	0.00%
5 - 9	-	-	0.00%	-	0.00%
4	-	-	0.00%	-	0.00%
3	-	-	0.00%	-	0.00%
2	7	7	6.09%	14	11.48%
1	108	115	100.00%	122	100.00%
Total	**115**	**115**	**100.00%**	**122**	**100.00%**

Countermeasure(s): Corridor 3E Improvements

Table 149: Roadway Departure Fatalities, Incapacitating Injuries, and Total Crashes - Corridors - Interstates - 2002-2008

COUNTY NAME	HWY_NO	HWY_NAME	TOTAL INCAPACITATING INJURIES	TOTAL FATALITIES	TOTAL CRASHES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Douglas	1	PACIFIC	62	24	775	3.10	8.00
Baker	6	OLD OREGON TRAIL	30	12	575	2.09	5.22
Marion	1	PACIFIC	25	10	572	1.75	4.37
Umatilla	6	OLD OREGON TRAIL	22	9	497	1.81	4.43
Multnomah	2	COLUMBIA RIVER	28	7	491	1.43	5.70
Jackson	1	PACIFIC	33	18	490	3.67	6.73
Union	6	OLD OREGON TRAIL	36	9	478	1.88	7.53
Josephine	1	PACIFIC	24	4	415	0.96	5.78
Lane	1	PACIFIC	40	16	358	4.47	11.17
Multnomah	1	PACIFIC	23	10	354	2.82	6.50
Clackamas	64	EAST PORTLAND FREEWAY	24	4	296	1.35	8.11
Wasco	2	COLUMBIA RIVER	11	6	240	2.50	4.58
Hood River	2	COLUMBIA RIVER	8	9	212	4.25	3.77
Linn	1	PACIFIC	11	9	211	4.27	5.21
Washington	1	PACIFIC	11	8	196	4.08	5.61
Multnomah	64	EAST PORTLAND FREEWAY	13	4	169	2.37	7.69
Malheur	6	OLD OREGON TRAIL	8	5	168	2.98	4.76
Gilliam	2	COLUMBIA RIVER	16	8	121	6.61	13.22
Clackamas	1	PACIFIC	14	1	107	0.93	13.08
Lane	227	EUGENE-SPRINGFIELD	3	-	90	0.00	3.33
Multnomah	61	STADIUM FREEWAY	2	-	89	0.00	2.25
Umatilla	70	MCNARY	8	2	49	4.08	16.33
Sherman	2	COLUMBIA RIVER	6	5	45	11.11	13.33
Morrow	2	COLUMBIA RIVER	7	2	41	4.88	17.07
Morrow	6	OLD OREGON TRAIL	3	2	37	5.41	8.11
Washington	64	EAST PORTLAND FREEWAY	-	-	12	0.00	0.00
Baker	10	WALLOWA LAKE	-	-	1	0.00	0.00
Clackamas	171	CLACKAMAS	-	-	1	0.00	0.00
Jackson	272	JACKSONVILLE	-	-	1	0.00	0.00
Lane	200	TERRITORIAL	-	-	1	0.00	0.00
Marion	164	JEFFERSON	-	-	1	0.00	0.00

Table 150: Roadway Departure Fatalities, Incapacitating Injuries, and Total Crashes - Corridors - Not Interstates - 2002-2008

COUNTY NAME	HWY_NO	HWY_NAME	TOTAL INCAPACITATING INJURIES	TOTAL FATALITIES	TOTAL CRASHES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Klamath	4	THE DALLES-CALIFORNIA	63	48	528	9.09	11.93
Linn	16	SANTIAM	53	22	473	4.65	11.21
Deschutes	4	THE DALLES-CALIFORNIA	61	35	471	7.43	12.95
Lane	18	WILLAMETTE	34	16	422	3.79	8.06
Washington	47	SUNSET	26	15	404	3.71	6.44
Tillamook	9	OREGON COAST	28	18	375	4.80	7.47
Lincoln	9	OREGON COAST	34	13	362	3.59	9.39
Clackamas	26	MT. HOOD	39	21	353	5.95	11.05
Marion	162	NORTH SANTIAM	36	21	329	6.38	10.94
Lane	15	MCKENZIE	40	11	314	3.50	12.74
Coos	9	OREGON COAST	22	11	308	3.57	7.14
Josephine	25	REDWOOD	40	21	290	7.24	13.79
Coos	35	COOS BAY-ROSEBURG	26	6	273	2.20	9.52
Clackamas	171	CLACKAMAS	28	14	261	5.36	10.73
Clatsop	47	SUNSET	42	13	259	5.02	16.22
Klamath	270	LAKE OF THE WOODS	22	8	259	3.09	8.49
Polk	30	WILLAMINA-SALEM	31	14	251	5.58	12.35
Lincoln	33	CORVALLIS-NEWPORT	19	12	249	4.82	7.63
Douglas	45	UMPQUA	31	22	248	8.87	12.50
Lane	62	FLORENCE-EUGENE	29	7	240	2.92	12.08
Columbia	92	LOWER COLUMBIA RIVER	34	18	225	8.00	15.11
Curry	9	OREGON COAST	17	8	216	3.70	7.87
Malheur	7	CENTRAL OREGON	21	13	211	6.16	9.95
Klamath	20	KLAMATH FALLS-LAKEVIEW	18	15	197	7.61	9.14
Tillamook	37	WILSON RIVER	29	8	197	4.06	14.72
Hood River	26	MT. HOOD	16	6	195	3.08	8.21
Multnomah	47	SUNSET	5	1	193	0.52	2.59
Clackamas	81	PACIFIC HIGHWAY EAST	22	6	191	3.14	11.52
Washington	144	BEAVERTON-TIGARD	5	-	190	0.00	2.63
Yamhill	91	PACIFIC HIGHWAY WEST	25	9	187	4.81	13.37
Washington	140	HILLSBORO-SILVERTON	26	8	183	4.37	14.21
Clackamas	160	CASCADE HWY SOUTH	23	7	181	3.87	12.71
Malheur	456	I.O.N.	27	14	181	7.73	14.92
Jackson	22	CRATER LAKE	18	9	179	5.03	10.06
Clatsop	9	OREGON COAST	26	7	177	3.95	14.69
Clatsop	92	LOWER COLUMBIA RIVER	21	9	171	5.26	12.28
Clackamas	161	WOODBURN-ESTACADA	24	9	160	5.63	15.00
Douglas	9	OREGON COAST	18	9	160	5.63	11.25
Crook	41	OCHOCO	20	7	159	4.40	12.58
Jackson	270	LAKE OF THE WOODS	14	10	157	6.37	8.92
Benton	91	PACIFIC HIGHWAY WEST	19	7	155	4.52	12.26
Yamhill	39	SALMON RIVER	22	8	144	5.56	15.28
Jackson	272	JACKSONVILLE	22	12	141	8.51	15.60
Lane	69	BELTLINE	12	6	141	4.26	8.51
Marion	81	PACIFIC HIGHWAY EAST	16	15	138	10.87	11.59
Wasco	53	WARM SPRINGS	12	19	137	13.87	8.76
Wasco	4	THE DALLES-CALIFORNIA	10	2	136	1.47	7.35

Douglas	35	COOS BAY-ROSEBURG	19	9	135	6.67	14.07
Sherman	42	SHERMAN	19	14	133	10.53	14.29
Lake	19	FREMONT	20	7	131	5.34	15.27
Washington	29	TUALATIN VALLEY	7	3	131	2.29	5.34
Jefferson	16	SANTIAM	18	4	130	3.08	13.85
Multnomah	26	MT. HOOD	17	2	126	1.59	13.49
Linn	162	NORTH SANTIAM	19	5	125	4.00	15.20
Washington	102	NEHALEM	12	5	124	4.03	9.68
Douglas	138	NORTH UMPQUA	26	7	121	5.79	21.49
Polk	39	SALMON RIVER	22	10	119	8.40	18.49
Lincoln	39	SALMON RIVER	12	5	118	4.24	10.17
Grant	5	JOHN DAY	16	3	116	2.59	13.79
Harney	7	CENTRAL OREGON	17	8	114	7.02	14.91
Klamath	50	KLAMATH FALLS-MALIN	13	2	110	1.82	11.82
Deschutes	17	MCKENZIE-BEND	13	10	108	9.26	12.04
Marion	140	HILLSBORO-SILVERTON	9	2	108	1.85	8.33
Lane	9	OREGON COAST	6	4	106	3.77	5.66
Lane	91	PACIFIC HIGHWAY WEST	12	5	106	4.72	11.32
Polk	91	PACIFIC HIGHWAY WEST	16	3	105	2.86	15.24
Josephine	272	JACKSONVILLE	10	5	104	4.81	9.62
Deschutes	16	SANTIAM	5	4	102	3.92	4.90
Umatilla	8	OREGON-WASHINGTON	7	5	100	5.00	7.00
Benton	33	CORVALLIS-NEWPORT	22	7	99	7.07	22.22
Deschutes	372	CENTURY DRIVE	3	1	98	1.02	3.06
Jefferson	4	THE DALLES-CALIFORNIA	19	15	97	15.46	19.59
Umatilla	28	PENDLETON-JOHN DAY	12	4	95	4.21	12.63
Lane	200	TERRITORIAL	6	5	94	5.32	6.38
Lincoln	181	SILETZ	12	4	94	4.26	12.77
Wallowa	10	WALLOWA LAKE	9	3	94	3.19	9.57
Douglas	231	ELKTON-SUTHERLIN	10	10	93	10.75	10.75
Lane	229	MAPLETON-JUNCTION CITY	8	2	92	2.17	8.70
Hood River	281	HOOD RIVER	10	2	91	2.20	10.99
Yamhill	29	TUALATIN VALLEY	7	3	91	3.30	7.69
Deschutes	7	CENTRAL OREGON	13	11	90	12.22	14.44
Klamath	18	WILLAMETTE	14	5	88	5.68	15.91
Deschutes	15	MCKENZIE	6	1	87	1.15	6.90
Washington	37	WILSON RIVER	16	16	86	18.60	18.60
Yamhill	32	THREE RIVERS	11	2	86	2.33	12.79
Linn	210	CORVALLIS-LEBANON	9	7	83	8.43	10.84
Malheur	455	OLDS FERRY-ONTARIO	4	1	82	1.22	4.88
Jefferson	53	WARM SPRINGS	15	10	80	12.50	18.75
Multnomah	123	NORTHEAST PORTLAND	4	2	79	2.53	5.06
Clatsop	102	NEHALEM	7	6	77	7.79	9.09
Polk	191	KINGS VALLEY	9	4	76	5.26	11.84
Douglas	73	NORTH UMPQUA	9	3	75	4.00	12.00
Lincoln	27	ALSEA	10	3	74	4.05	13.51
Linn	58	ALBANY-JUNCTION CITY	6	0	74	0.00	8.11
Yamhill	151	YAMHILL-NEWBERG	0	3	74	4.05	0.00
Umatilla	2	COLUMBIA RIVER	13	4	71	5.63	18.31
Benton	27	ALSEA	13	0	70	0.00	18.57
Columbia	102	NEHALEM	14	3	70	4.29	20.00

Countermeasure(s): Area-Wide 3E Improvements

Table 151: Roadway Departure Fatalities, Incapacitating Injuries, and Crashes - Cities - 2002-2008

CITY NAME	TOTAL INCAPACITATING INJURIES	TOTAL FATALITIES	TOTAL CRASHES	FATALITIES PER 100 CRASHES	INCAPACITATING INJURIES PER 100 CRASHES
Portland SE	67	25	1103	2.27	6.07
Salem	51	27	1083	2.49	4.71
Portland NE	78	34	1062	3.20	7.34
Portland SW	44	15	1000	1.50	4.40
Eugene	39	12	797	1.51	4.89
Beaverton	33	9	741	1.21	4.45
Gresham	40	6	545	1.10	7.34
Hillsboro	26	7	492	1.42	5.28
Bend	28	10	491	2.04	5.70
Portland N	34	16	458	3.49	7.42
Medford	19	4	343	1.17	5.54
Springfield	18	9	311	2.89	5.79
Portland NW	17	2	300	0.67	5.67
Oregon City	13	1	283	0.35	4.59
Tigard	16	4	278	1.44	5.76
Lake Oswego	19	2	247	0.81	7.69
Albany	20	8	242	3.31	8.26
Tualatin	9	1	236	0.42	3.81
West Linn	8	3	171	1.75	4.68
Corvallis	12	1	170	0.59	7.06
Milwaukie	3	0	164	0.00	1.83
Grants Pass	8	3	158	1.90	5.06
Portland Bridges	11	1	149	0.67	7.38
Wilsonville	6	3	142	2.11	4.23
Roseburg	21	5	138	3.62	15.22
Klamath Falls	6	7	130	5.38	4.62
Coos Bay	3	2	128	1.56	2.34
Pendleton	3	1	123	0.81	2.44
The Dalles	7	1	120	0.83	5.83
McMinnville	10	1	113	0.88	8.85
Redmond	8	2	113	1.77	7.08
Troutdale	4	0	111	0.00	3.60
Keizer	2	0	109	0.00	1.83
Astoria	4	1	105	0.95	3.81
Woodburn	3	0	103	0.00	2.91
Lincoln City	8	2	84	2.38	9.52
Ashland	6	1	82	1.22	7.32
Damascus	9	1	80	1.25	11.25
Fairview	1	0	79	0.00	1.27
North Bend	3	2	78	2.56	3.85
Newport	2	1	71	1.41	2.82
Forest Grove	2	2	68	2.94	2.94
Gladstone	4	0	65	0.00	6.15
Sherwood	7	3	62	4.84	11.29

Prineville	6	1	60	1.67	10.00
Lebanon	3	0	56	0.00	5.36
Ontario	3	0	56	0.00	5.36
Cottage Grove	5	1	51	1.96	9.80
La Grande	2	0	51	0.00	3.92
Sandy	3	1	51	1.96	5.88
Newberg	1	1	50	2.00	2.00
St. Helens	4	1	48	2.08	8.33
Wood Village	4	0	47	0.00	8.51
Happy Valley	3	0	46	0.00	6.52
Warrenton	3	1	46	2.17	6.52
Sutherlin	4	0	45	0.00	8.89
Sweet Home	3	2	45	4.44	6.67
Canby	3	1	44	2.27	6.82
Hermiston	3	0	44	0.00	6.82
Portland E. Burnside	3	0	44	0.00	6.82
Dallas	2	0	40	0.00	5.00
Baker City	-	0	36	0.00	0.00
Hood River	1	1	35	2.86	2.86
Portland W. Burnside	3	0	35	0.00	8.57
Seaside	2	0	34	0.00	5.88
Silverton	1	0	34	0.00	2.94
Cornelius	1	1	33	3.03	3.03
Rainier	4	1	33	3.03	12.12
Central Point	3	1	32	3.13	9.38
Tillamook	1	0	32	0.00	3.13
Stayton	2	0	31	0.00	6.45
Monmouth	-	0	30	0.00	0.00
Florence	-	0	29	0.00	0.00
Madras	-	0	27	0.00	0.00
Toledo	-	0	26	0.00	0.00
Milton-Freewater	-	1	25	4.00	0.00
Brookings	1	0	24	0.00	4.17
Junction City	-	0	24	0.00	0.00
Molalla	4	0	24	0.00	16.67
Sheridan	-	0	22	0.00	0.00
Talent	-	0	22	0.00	0.00
Scappoose	1	0	21	0.00	4.76
Coquille	1	0	20	0.00	5.00
Umatilla	3	1	20	5.00	15.00
Independence	1	0	19	0.00	5.26
Phoenix	-	0	19	0.00	0.00
Reedsport	-	0	19	0.00	0.00
Portland	1	0	18	0.00	5.56
Tangent	7	1	18	5.56	38.89
Winston	1	0	18	0.00	5.56
Myrtle Creek	-	0	17	0.00	0.00
Nyssa	-	0	16	0.00	0.00
Dundee	1	0	15	0.00	6.67
Rogue River	2	0	14	0.00	14.29
Sisters	-	0	14	0.00	0.00
Millersburg	1	0	13	0.00	7.69
Myrtle Point	-	0	13	0.00	0.00

Summary of ODOT Roadway Departure Crashes

Table 152: Summary of Roadway Departure Crashes by Route Type

Locality	State Rural	State Urban	Local Rural	Local Urban
All RD Crashes				
Fatalities	1,078	156	726	186
Crashes	21,827	6,084	15,677	11,541
Fat/100 crashes	4.94	2.56	4.63	1.61
Interstate RD Crashes				
Fatalities	134	50	-	-
Crashes	4,655	2,439	-	-
Fat/100 crashes	2.88	2.05	-	-
OR Route Type RD Crashes				
Fatalities	490	67	-	-
Crashes	9,496	1,884	-	-
Fat/100 crashes	5.16	3.56	-	-
US Route Type RD Crashes				
Fatalities	436	34	-	-
Crashes	6,670	1,297	-	-
Fat/100 crashes	6.54	2.62	-	-
Other Route Type RD State Crashes				
Fatalities	18	5	-	-
Crashes	1,006	464	-	-
Fat/100 crashes	1.79	1.08	-	-

Table 153: Summary of Roadway Departure Crashes by ADT Interval

Locality	State Rural				State Urban				Local Rural	Local Urban
ADT Interval	<1000	1,001-3,000	3,001-5,000	>5,000	<1,000	1,001-3,000	3,001-5,000	>5,000	(Total)	(Total)
Curve RD Crashes										
Fatalities	80	126	95	121	5	-	-	34	428	85
Incapacitating Injuries	201	221	185	243	13	1	1	66	862	200
Total Crashes	1,652	1,726	1,225	2,017	106	5	23	806	7,447	2,518
Incap. Injuries / 100 crashes	12.17	12.80	15.10	12.05	12.26	20.00	4.35	8.19	11.58	7.94
Fat/100 crashes	4.84	7.30	7.76	6.00	4.72	-	-	4.22	5.75	3.38

Table 154: Summary of Roadway Departure Crashes by Roadway Width

Locality	State Rural				State Urban				Local Rural	Local Urban
Roadway Width	16'–18	18'–20'	20'–22'	≥ 22'	16'–18'	18'–20'	20'–22'	≥ 22'	(Total)	(Total)
Head-on and Sideswipe-Opposite Direction RD Crashes										
Fatalities	-	-	3	492	-	-	-	47	126	49
Incapacitating Injuries	-	1	6	750	-	1	-	101	287	195
Total Crashes	1	8	33	2,502	-	5	2	519	2,493	2,575
Incap. Injuries / 100 crashes	-	12.50	18.18	29.98	-	20.00	-	19.46	11.51	7.57
Fat/100 crashes	-	-	9.09	19.66	-	-	-	9.06	5.05	1.90

*Note: Intervals do not overlap. For example, the 14' – 16' interval includes all crashes with roadway widths between 14 and 15.99 feet, where as the 16' – 18' interval includes all crashes with roadway widths between 16 and 17.99 feet. This applies to all intervals.

Table 155: Summary of 2 Lanes, Single Vehicle Roadway Departure Crashes by Shoulder Width

Locality	State Rural	State Urban	State Rural	State Urban	Local Rural	Local Urban
Shoulder Width	Greater than 4'	Greater than 4'	Less than 4'	Less than 4'	Total SV RD Crashes	Total SV RD Crashes
Single Vehicle, 2 Lane RD Crashes						
Fatalities	11	2	2	1	593	127
Incapacitating Injuries	42	6	7	1	1,293	393
Total Crashes	508	100	31	12	12,739	6,739
Incap. Injuries / 100 crashes	8.27	6.00	22.58	8.33	10.15	5.83
Fat/100 crashes	2.17	2.00	6.45	8.33	4.65	1.88

Table 156: Summary of 4 or More Lanes, Single Vehicle Roadway Departure Crashes by Shoulder Width

Locality	State Rural	State Urban	State Rural	State Urban	Local Rural	Local Urban
Shoulder Width	Greater than 4'	Greater than 4'	Less than 4'	Less than 4'	Total SV RD Crashes	Total SV RD Crashes
Single Vehicle, 4 or More Lane RD Crashes						
Fatalities	78	19	3	6	593	127
Incapacitating Injuries	223	87	11	5	1,293	393
Total Crashes	3,431	1,850	199	132	12,739	6,739
Incap. Injuries / 100 crashes	6.50	4.70	5.53	3.79	10.15	5.83
Fat/100 crashes	2.27	1.03	1.51	4.55	4.65	1.88

Table 157: Summary of Roadway Departure Crashes by Fixed Object Type

Locality	State Rural	State Urban	Local Rural	Local Urban	State Rural	State Urban	Local Rural	Local Urban	State Rural	State Urban	Local Rural	Local Urban
Fixed Object Type	**Guardrail**	**Guardrail**	**Guardrail**	**Guardrail**	**Trees**	**Trees**	**Trees**	**Trees**	**Utility Poles**	**Utility Poles**	**Utility Poles**	**Utility Poles**
Fixed Object RD Crashes (1st, 2nd, or 3rd Crash Event)												
Fatalities	97	12	10	3	199	20	230	58	21	14	56	32
Incapacitating Injuries	175	33	16	11	313	27	397	157	70	26	115	84
Total Crashes	2,411	1,001	316	267	1,853	311	2,452	1,732	727	402	1,305	1,477
Incap. Injuries / 100 crashes	7.26	3.30	5.06	4.12	16.89	8.68	16.19	9.06	9.63	6.47	8.81	5.69
Fat/100 crashes	4.02	1.20	3.16	1.12	10.74	6.43	9.38	3.35	2.89	3.48	4.29	2.17

Table 158: Summary of Roadway Departure Crashes by Human Factor

Locality	State Rural	State Urban	Local Rural	Local Urban	State Rural Interstate Only	State Urban Interstate Only	State Rural Non-Interstate	State Urban Non-Interstate	Local Rural	Local Urban
Human Factor	Alcohol	Alcohol	Alcohol	Alcohol	Speeding or Unbelted	Speeding or Unbelted	Speeding or Unbelted	Speeding or Unbelted	Speeding or Unbelted	Speeding or Unbelted
Enforcement and Education-Related RD Crashes										
Fatalities	307	78	374	106	83	31	566	63	545	147
Incapacitating Injuries	315	94	340	144	246	77	1,266	139	1,141	385
Total Crashes	1,141	508	1,381	1,404	3,552	1,525	11,765	2,231	10,525	6,466
Incap. Injuries / 100 crashes	27.61	18.50	24.62	10.26	6.93	5.05	10.76	6.23	10.84	5.95
Fat/100 crashes	26.91	15.35	27.08	7.55	2.34	2.03	4.81	2.82	5.18	2.27

Table 159: Summary of Roadway Departure Crashes by Human Factor (continued)

Locality	State Rural Non-Interstate	State Urban Non-Interstate	Local Rural	Local Urban	State Rural	State Urban	Local Rural	Local Urban
Human Factor	Speeding	Speeding	Speeding	Speeding	Unbelted	Unbelted	Unbelted	Unbelted
Enforcement and Education-Related RD Crashes								
Fatalities	529	59	523	146	97	11	89	16
Incapacitating Injuries	1,229	136	1,124	377	115	115	88	23
Total Crashes	11,664	2,210	10,419	6,424	291	291	318	123
Incap. Injuries / 100 crashes	10.54	6.15	10.79	5.87	39.52	39.52	27.67	18.70
Fat/100 crashes	4.54	2.67	5.02	2.27	33.33	3.78	27.99	13.01

Oregon Roadway Departure Candidate Countermeasures and Potential Applications

Table 160: Candidate Countermeasures and Potential Applications/Reductions

Countermeasure	Targeted Crashes	Typical Crash Threshold for Application	State Urban	State Rural	Local Urban	Local Rural	CRF b (%)	Comments
Systematic Low-Cost Countermeasures (Project comprising many similar improvements at various locations)								
Fundamental Signs and Markings for Curves	All curve crashes	≥3			X	X	10	Standard advanced curve warning sign plus advisory speed plaque and curve center and edge lines; chevrons per MUTCD NPA.
Enhanced Signs and Markings for Curves	All curve crashes	AADT >5,000: ≥5 AADT <5,000: ≥3	X	X	X	X	30	Oversized, left, and right fluorescent yellow, advance warning signs; chevrons; slow and XX mph pavement markings; center and edge lines.
Enhanced Signs and Markings for Curves Plus Flashing Beacons	All curve crashes	AADT >5,000: ≥8 AADT <5,000: ≥6	X	X	X	X	49 combined	Same as enhanced signs and markings for curves except solar powered flashing beacons added to warning signs.
Enhanced Signs and Markings for Curves Plus Dynamic Curve Warning System	All curve crashes	AADT >5,000: ≥10 AADT <5,000: ≥6	X	X	X		51 combined	Same as enhanced signs and markings for curves except dynamic advanced warning signs added.
Reconstruct Curve, Minor to Intermediate	All curve crashes	AADT >5,000: ≥10 AADT <5,000: ≥8	X	X	X	X	Varies	High friction surface, shoulder widening; increased recovery zone. CRF depends on type of improvement.
Centerline Rumble Stripes	Head-on crashes [c]	≥3 in 15,000 feet and pavement widths ≥22 feet		X		X	44 (fatal & injury)	
Wider Centerline Pavement Markings	Head-on crashes [c]	≥3 in 15,000 feet and pavement widths ≥20 feet	X	X	X	X	5 [d]	Apply where center line rumble stripes cannot be installed.
Edge Line Rumble Stripes or Shoulder Rumble Strips	SVROR crashes	≥5 in 3,000 feet		X		X	29 (fatal & injury)- State Rural 2 Lane Roads	
Standard Edge Line Markings	Roadway departure crashes	≥3 in 3,000 feet and no existing edge lines		X		X	10 [d]	

Countermeasure	Targeted Crashes	Typical Crash Threshold for Application	State Urban	State Rural	Local Urban	Local Rural	CRF b (%)	Comments
Wider Edge Line Markings	Roadway departure crashes	≥5 in 3,000 feet		X	X	X	5 [d]	Apply in problem sections where edge or shoulder rumble strips cannot be applied.
Pavement Wedge	Roadway departure crashes	All paving operations	X	X	X	X	NA	Apply during paving operations or in areas of recurring edge drop-off.
Alignment Delineation	Night roadway departure crashes	≥5 in 3,000 feet	X	X	X	X	15 [d]	
Lighting	Dark, dusk, or dawn crashes	≥15 in 3,000 feet	X	X	X	X	50 (night only)	
High Friction Surfaces	Wet pavement crashes	≥8 in 3,000 feet		X		X	50 (wet) 25 (all)	
Wider Shoulders	Roadway departure crashes	≥12 in 3,000 feet and existing shoulders ≤2 feet		X		X	Varies	CRF dependent on initial and final shoulder width. See Toolbox or Roadside Design Guide to determine.
Tree Removal	Tree crashes	≥3 in 3,000 feet	X	X	X	X	Up to 100	
Shield Tree(s)	Tree crashes	≥3 in 3,000 feet					Varies	Apply when removal is not feasible. Risk analysis will provide CRF.
Utility Pole Relocation	Utility pole crashes	≥3 in 3,000 feet	X	X	X	X		CRF dependent on initial and final distance and spacing.
Fixed Object Delineation	Night fixed object crashes	≥5 in 3,000 feet	X	X	X	X	10 [d]	
Freeway Median Barrier	Head-on [c] freeway crashes	≥2 in 6,000 feet	X	X			80	Attempt to exclude wrong-way crashes. Expect to result in higher number of reported, but less severe crashes.
Comprehensive Improvements (3E)								
Corridor 3E Improvements	Severe [e] roadway departure crashes	≥100 in 5 miles	X	X	X	X	25	CRFs are applied to all crashes.
Area-Wide 3E Improvements	Severe [e] roadway departure crashes	≥300 in a municipality	X	X	X	X	10 [d]	CRFs are applied to all crashes.
Traditional Major Improvements								
Curve Flattening or Other Major Reconstruction	Curve crashes	Curves with highest number of crashes [f] statewide		X		X	38	

Countermeasure	Targeted Crashes	Typical Crash Threshold for Application	State Urban	State Rural	Local Urban	Local Rural	CRF b (%)	Comments
Improved Recovery Areas, Slope Flattening	Run-off-road and fixed object crashes	3,000-foot rural sections with highest number of crashes statewide [f]		X		X	Varies	CRF dependent on initial and final recovery zone and extent of fixed objects removed.
Alternate Passing Lanes	Increased potential for head-on crashes	Two-lane rural corridors with highest crashes statewide [f]		X			25 [d]	Missouri data indicates reductions as high as 55 percent possible.
Four to Three Lane Conversions	All crashes	Rural to suburban or urban transition sections of four-lane, low-volume, undivided highways with highest number of crashes statewide [f]	X	X	X	X	37	

[a] Threshold levels will vary depending on volumes and number of crashes in individual states. Threshold applies to 5 years of the targeted crashes.
[b] CRFs are primarily from FHWA toolbox and are applied to targeted crashes unless otherwise noted.
[c] Head-on includes opposite direction sideswipes and similar crashes based on the State crash data elements.
[d] CRF is estimate since there is no reliable information available.
[e] Fatal and severe injury crashes.
[f] Number of sites to be determined based on discussion with State (may be 5-10 in some states or 50-60 in another).

Strategy Matrix for Systematic Low-Cost Countermeasures

Table 161: Enhanced Signs and Markings for Curves – Curve Roadway Departure Crashes – State Rural Roads

AADT	Threshold Crash Level (7 Years)	Number of 3000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
<1,000	2	194	493	136	0.68	4.84	12.17	15	1.80	0.72
1,000-3,000	2	369	1,236	258	1.29	7.30	12.80	37	4.75	2.71
3,001 - 5,000	2	266	947	186	0.93	7.76	15.10	28	4.29	2.20
>5000	3	228	1,071	160	0.80	6.00	12.05	32	3.87	1.93
Total		-	-	740	3.70		-	112	14.71	7.56

[1] Assumes 70% of curves can be improved.

[2] Assumes an average cost of $5,000 per curve.

[3] A CRF of 0.30 is used (oversized, left, and right fluorescent yellow, advance warning signs; chevrons; slow and XX mph pavement markings; center and edge lines).

Table 162: Enhanced Signs and Markings for Curves Plus Flashing Beacons – Curve Roadway Departure Crashes – State Rural Roads

AADT	Threshold Crash Level (7 Years)	Number of 3000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
<1,000	10	-	-	-	-	-	-	-	-	-
1,000-3,000	10	8	104	6	0.04	7.30	12.80	1.56	0.21	0.11
3,001 - 5,000	10	11	146	8	0.05	7.76	15.10	2.19	0.29	0.15
>5000	10	9	142	6	0.04	6.00	12.05	2.13	0.28	0.15
Total	-	-	392	20	0.14	-	-	5.88	0.78	0.41

[1] Assumes 70% of curves can be improved.

[2] Assumes an average cost of $7,000 per curve for the flashing beacon.

[3] An incremental increase of 0.15 above the enhanced signs and markings for curves CRF (i.e., increasing overall CRF from 0.30 to 0.45) is used.

Table 163: Enhanced Signs and Markings for Curves – Curve Roadway Departure Crashes – State Urban Roads

AADT	Threshold Crash Level (7 Years)	Number of 3000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
<1,000	5	-	-	-	-	-	-	-	-	-
1,000-3,000	5	-	-	-	-	-	-	-	-	-
3,001 - 5,000	5	-	-	-	-	-	-	-	-	-
>5000	5	27	270	19	0.09	4.22	8.19	8.1	0.66	0.34
Total		-	270	19	0.09	-	-	8.10	0.66	0.34

[1] Assumes 70% of curves can be improved.

[2] Assumes an average cost of $5,000 per curve.

[3] A CRF of 0.30 is used (oversized, left, and right fluorescent yellow, advance warning signs; chevrons; slow and XX mph pavement markings; center and edge lines).

Table 164: Enhanced Signs and Markings for Curves – Curve Roadway Departure Crashes – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	10	90	1,452	72	0.72	11.58	5.75	49.78	5.76	2.86
Local Rural (Option 1)	5	351	3,121	281	2.81	11.58	5.75	107.01	12.39	6.15
Local Urban	5	90	699	72	0.72	7.94	3.38	23.97	1.90	0.81
Local Urban (Option 1)	3	201	1,064	161	1.61	7.94	3.38	36.48	2.90	1.23
Total (Option 1)	-	-	-	442	4.42	-	-	143.49	15.29	7.39

[1] Assumes 80% of curves can be improved.

[2] Assumes an average cost of $10,000 per local road (multiple curves on each local road to be improved)

[3] Assumes 80% of curve crashes occur on curves to be improved by sign and markings. A CRF of 0.30 is used (oversized, left, and right fluorescent yellow, advance warning signs; chevrons; slow and XX mph pavement markings; center and edge lines).

Table 165: Centerline Rumble Stripes – Head-On and Sideswipe, Opposite Direction Crashes – ≥ 20 Feet Road Width – State Rural Roads

Roadway Width	Threshold Crash Level (7 Years)	Number of 15,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
≥ 22 ft.	4	213	1,223	170.4	2.56	19.66	29.98	61.50	18.44	12.09
≥ 22 ft. (Option 1)	3	340	1,604	272	4.08	19.66	29.98	80.66	24.18	15.86
≥20 and <22 ft.	4	-	-	-	-	-	-	-	-	-
≥20 and <22 ft. (Option 1)	3	1	3	0.8	0.01	9.09	18.18	0.15	0.03	0.01
Total (Option 1)	-	-	-	273	6.65	-	-	80.81	24.21	15.87

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $15,000 per section.

[3] A CRF of 0.44 is used.

Table 166: Wider Centerline Pavement Markings – Head-On and Sideswipe, Opposite Direction Crashes – ≥ 22 Feet Road Width – State Urban Roads

Roadway Width	Threshold Crash Level (7 Years)	Number of 15,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
≥ 22 ft	4	41	235	33	0.49	9.06	19.46	1.34	0.26	0.12

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $15,000 per section.

[3] A CRF of 0.05 is used.

Table 167: Centerline Rumble Stripes – Head-On and Sideswipe, Opposite Direction Crashes – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	4	88	548	70	3.52	5.05	11.51	27.56	1.39	3.17

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $50,000 per rural road for center line rumble strips.

[3] A CRF of 0.44 is used for center line rumble strips.

Table 168: Edge Line Rumble Strips or Shoulder Rumble Strips – Single Vehicle Roadway Departure Crashes – Divided and Undivided State Rural Roads

Number of Lanes, Shoulder Width (Countermeasure)	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
2 lanes, < 4 foot shoulder (Edge Line Rumble Strips)	5	182	1,160	109	0.66	3.52	10.97	28.83	3.16	1.01
2 lanes, < 4 foot shoulder (Edge Line Rumble Strips) – Option 1	4	322	1,720	193	1.16	3.52	10.97	42.75	4.69	1.50
2 lanes, < 4 foot shoulder (Edge Line Rumble Strips) – Option 2	3	562	2,440	337	2.02	3.52	10.97	60.65	6.65	2.13
2 lanes, < 4 foot shoulder (Edge Line Rumble Strips) – Option 3	2	1,139	3,594	683	4.10	3.52	10.97	89.34	9.80	3.14
2 lanes, ≥ 4 foot shoulder (Shoulder Rumble Strips)	5	321	2,055	257	1.54	3.01	8.07	68.11	5.50	2.05
2 lanes, ≥ 4 foot shoulder (Shoulder Rumble Strips) - Option 1	4	530	2,891	424	2.54	3.01	8.07	95.82	7.73	2.88
2 lanes, ≥ 4 foot shoulder (Shoulder Rumble Strips) - Option 2	3	943	4,130	754	4.53	3.01	8.07	136.88	11.05	4.12
2 lanes, ≥ 4 foot shoulder (Shoulder Rumble Strips) - Option 3	2	1,723	5,690	1,378	8.27	3.01	8.07	188.58	15.22	5.68
Total (Option 3)	-	-	9,284	2,062	12.37	-	-	277.92	25.02	8.82

[1] For edge line rumble strips, assumes 60% of locations can be improved. For shoulder rumble strips, assumes 80% of locations can be improved.
[2] Assumes an average cost of $3,000 per section.
[3] A CRF of 0.29 is used.

Table 169: Edge Line Rumble Strips or Wider Edge Line Pavement Markings – Single Vehicle Roadway Departure Crashes – Local Roads

Countermeasure - Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Edge Rumble Strips – Local Rural	20	64	1,835	38	3.84	4.65	10.15	45.60	4.63	2.12
Wide Edge Pavement Markings – Local Rural	5	653	6,807	392	2.35	4.65	10.15	29.20	2.96	1.36
Wide Edge Pavement Markings – Local Urban	5	279	2,445	167	1.00	1.88	5.83	10.50	0.61	0.20
Total Wider Edge Line Markings	-	-	-	559	3.36	-	-	39.65	3.57	1.55

[1] For edge line rumble strips, assumes 60% of locations can be improved. For wide pavement markings, assume 60% of locations can be improved.
[2] Assumes an average cost of $60,000 per local road for rumbles; $6,000 per local road for wider edge striping.
[3] A CRF of 0.29 for edge rumble strips and 0.05 for wider edge markings is used.

Table 170: Wider Edge Line Pavement Markings – Single Vehicle Roadway Departure Crashes – State Urban Roads

Number of Lanes – Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
2 & 4 Lane Divided and Undivided Highways – State Urban	5	10	64	6	0.04	1.57	5.12	0.27	0.01	-

[1] For wider edge lines, assumes 60% of locations are not curbed and can be improved.
[2] Assumes an average cost of $6,000 per section.
[3] A CRF of 0.05 is used.

Table 171: Alignment Delineation – Roadway Departure Crashes – Dark – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	5	158	962	126	0.63	4.58	10.07	16.491	1.66	0.76

[1] Also need a dark to total crash ratio of at least 0.30.
[2] Assumes 80% of locations can be improved.
[3] Assumes an average cost of $5,000 per section.
[4] A CRF of 0.15 dark crashes is used.

Table 172: Alignment Delineation – Roadway Departure Crashes – Dark – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	10	50	732	40	1.00	5.52	10.88	12.55	1.37	0.69
Local Urban	5	39	247	31	0.78	1.71	5.94	4.23	0.25	0.07
Total	-	-	-	71	1.78	-	-	16.78	1.62	0.77

[1] Also need a dark to total crash ratio of at least 0.30.
[2] Assumes 80% of locations can be improved.
[3] Assumes an average cost of $25,000 per local road.
[4] A CRF of 0.15 dark crashes is used.

Table 173: High Friction Surfaces – Roadway Departure Crashes – Wet – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	10	26	422	18	2.73	4.69	10.66	21.10	2.25	0.99
State Urban	10	38	598	27	3.99	1.38	5.04	29.90	1.51	0.41

[1] Also need a wet to total crash ratio of at least 0.35 (average 0.22) and a skid number of 30 or less.

[2] Assumes 70% of locations will be tested below a skid number of 30 and can be improved.

[3] Assumes an average cost of $150,000 per section.

[4] A CRF of 0.50 is used.

Table 174: Tree Removal/Safety Enhancements – Tree Crashes (1st, 2nd, or 3rd crash Event) – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Roads	4	21	92	17	0.42	10.74	16.89	5.26	0.89	0.56
State Roads (Option)	3	67	230	54	1.34	10.74	16.89	13.14	2.22	1.41

[1] Assumes 80% of locations can be improved by tree removal, other improvements to reduce roadway departure frequencies in the vicinity of the struck trees, or reduced speed to reduce severity. A field review will be needed to determine the appropriate countermeasure.

[2] Assumes an average cost of $25,000 per section.

[3] An average CRF of 0.50 is used as an overall average for all possible tree countermeasures.

Table 175: Tree Removal/Safety Enhancements – Tree Crashes (1st, 2nd, or 3rd crash Event) – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	5	64	410	51	1.28	9.38	16.19	11.71	1.90	1.10
Local Rural (Option 1)	4	112	602	90	2.24	9.38	16.19	17.20	2.78	1.61
Local Urban	10	4	42	3	0.08	3.35	9.06	1.20	0.11	0.04
Local Urban (Option 1)	5	32	214	26	0.64	3.35	9.06	6.11	0.55	0.20
Total (Base)	-	-	-	115	2.88	-	-	23.31	3.34	1.82

[1] Assumes 80% of locations can be improved by tree removal, other improvements to reduce roadway departure frequencies in the vicinity of the struck trees, or reduced speed to reduce severity. A field review will be needed to determine the appropriate countermeasure.
[2] Assumes an average cost of $25,000 per local road.
[3] An average CRF of 0.25 is used as an overall average for all possible tree countermeasures.

Table 176: Utility Pole Relocation/Safety Enhancements – Utility Pole Crashes (1st, 2nd, or 3rd crash Event) – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural Roads	3	22	74	18	0.44	2.89	9.63	4.23	0.41	0.12
State Rural Roads (Option)	2	91	212	73	1.82	2.89	9.63	12.11	1.17	0.35

[1] Assumes 80% of locations can be improved by pole relocation, other improvements to reduce roadway departure frequencies in the vicinity of the struck poles, or reduced speed to reduce severity. A field review will be needed to determine the appropriate countermeasure.
[2] Assumes an average cost of $25,000 per section.
[3] An average CRF of 0.50 is used as an overall average for all possible utility pole countermeasures.

Table 177: Utility Pole Relocation/Safety Enhancements – Utility Pole Crashes (1st, 2nd, or 3rd crash Event) – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	5	24	147	19	0.48	4.29	8.81	4.20	0.37	0.18
Local Urban	5	27	184	22	0.54	2.17	5.69	5.26	0.30	0.11
Total	-	-	-	41	1.02	-	-	9.46	0.67	0.29

[1] Assumes 80% of locations can be improved by pole relocation, other improvements to reduce roadway departure frequencies in the vicinity of the struck poles, or reduced speed to reduce severity. A field review will be needed to determine the appropriate countermeasure.
[2] Assumes an average cost of $25,000 per section.
[3] An average CRF of 0.25 is used as an overall average for all possible utility pole countermeasures.

Table 178: Guard Rail Safety Enhancements – Guard Rail Crashes (1st, 2nd, or 3rd crash Event) – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	4	81	425	65	1.62	4.02	7.26	-	6.17	0.49
State Rural (option)	3	182	728	146	3.64	4.02	7.26	-	10.57	0.84

[1] Assumes 80% of locations can be improved by guard rail upgrade.
[2] Assumes an average cost of $25,000 per section.
[3] An average CRF of 0.00 is used since the exposure is not changed. However it is assumed that the severity will be reduced by 25% for the Fatal and Incapacitating Injury crashes.

Table 179: Infrastructure Traffic Calming Measures to Reduce Speeding – Education and Enforcement-related Crashes – State and Local Roads

Locality (Section Length)	Threshold Crash Level (7 Years)	Number of Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural (27,000 ft. section)	30	55	2,283	44	1.10	4.81	10.76	78.27	8.42	3.76
State Urban (9,000 ft. section)	20	9	467	7	0.18	2.82	6.23	16.01	1.00	0.45
Local Rural (entire roadway)	20	43	1,174	34	0.86	5.02	10.79	40.25	4.34	2.02
Local Urban (entire roadway)	20	14	351	11	0.28	2.27	5.87	12.03	0.71	0.27
State Total	-	-	-	36	1.35	-	-	4.58	1.11	1.04
Local Total	-	-	-	30	1.14	-	-	4.11	0.93	0.84
Total	-	-	-	194	4.74	-	-	293.14	14.47	6.51

[1] Assumes 80% of locations can be improved by incorporating speed reduction traffic calming measures through pavement markings. No Interstate Highways included

[2] Assumes an average cost of $25,000 per section / roadway.

[3] An average CRF of 0.30 is used as an overall average for all possible speed reduction measures.

Table 180: Enhanced Corridor Enforcement – Roadway Departure Crashes – Speeding-Related or Unbelted Driver – State Roads – Interstates

Locality	Threshold Crash Level (7 Years)	Number of 9,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	20	37	1,070	30	0.89	2.34	6.93	18.34	1.27	0.43
State Urban	30	12	461	10	0.29	2.03	5.05	7.90	0.40	0.16
Total	-	-	-	39	1.18	-	-	26.25	1.67	0.59

[1] Assumes 80% of locations will have sufficient enforcement capabilities to implement enhanced enforcement (at least 10 hours per week of highly visible active enforcement per section).
[2] Assumes an average annual enforcement cost of $37,500 per section.
[3] A CRF of 0.15 is used as an overall average for all possible enhanced corridor enforcement countermeasures. Estimated from speed and safety belt enforcement effectiveness information in NHTSA's *Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices.* (http://www.nhtsa.gov/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811081.pdf).

Table 181: Enhanced Corridor Enforcement – Roadway Departure Crashes – Speeding-Related or Unbelted Driver – Not Interstates

Locality	Threshold Crash Level (7 Years)	Number of 9,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural (workshop modified)	30	7	266	6	0.17	4.81	10.76	4.56	0.49	0.22
State Rural	15	52	1,760	42	1.25	4.81	10.76	30.17	3.25	1.45
State Rural (Option 1)	10	226	3,780	181	5.42	4.81	10.76	64.80	6.97	3.12
State Rural (Option 2)	8	260	4,931	208	6.24	4.81	10.76	84.53	9.10	4.07
State Urban (workshop modified)	30	5	375	4	0.12	2.82	6.23	6.43	0.40	0.18
State Urban	20	9	471	7	0.22	2.82	6.23	8.07	0.50	0.23
State Urban (Option)	10	49	998	39	1.18	2.82	6.23	17.11	1.07	0.48
Total (3-16 modified)	-	-	-	10	0.29	-	-	10.99	0.89	0.40
Total (base)	-	-	-	49	1.46	-	-	38.25	3.75	1.68

[1] Assumes 80% of locations will have sufficient enforcement capabilities to implement enhanced enforcement (at least 10 hours per week of highly visible active enforcement per section).
[2] Assumes an average annual enforcement cost of $37,500 per section.
[3] A CRF of 0.15 is used as an overall average for all possible enhanced corridor enforcement countermeasures. Estimated from speed and safety belt enforcement effectiveness information in NHTSA's *Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices.* (http://www.nhtsa.gov/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811081.pdf).

Table 182: Enhanced Corridor Enforcement – Roadway Departure Crashes – Speeding-Related or Unbelted Driver – Local Roads

Locality	Threshold Crash Level (7 Years)	Number of Local Roads	Number of Local Road Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
Local Rural	20	44	1,199	35	1.06	5.18	10.84	20.55	2.23	1.06
Local Urban	20	14	352	11	0.34	2.27	5.95	6.03	0.36	0.14
Local Rural (option)	30	12	445	10	0.29	5.18	10.84	7.63	0.83	0.40
Local Urban (option)	30	3	97	2	0.07	2.27	5.95	1.66	0.10	0.04
Total (modified)	-	-	-	12	0.36	-	-	9.29	0.93	0.43
Total	-	-	-	46	1.39	-	-	26.59	2.59	1.20

[1] Assumes 80% of locations will have sufficient enforcement capabilities to implement enhanced enforcement (at least 10 hours per week of highly visible active enforcement per section).

[2] Assumes an average annual enforcement cost of $37,500 per roadway

[3] A CRF of 0.15 is used as an overall average for all possible enhanced corridor enforcement countermeasures. Estimated from speed and safety belt enforcement effectiveness information in NHTSA's *Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices.* (http://www.nhtsa.gov/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811081.pdf).

Table 183: Enhanced Corridor Enforcement – Roadway Departure Crashes – Alcohol-Related – State and Local Roads

Locality (Section Length)	Threshold Crash Level (7 Years)	Number of Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural (9000 ft. section)	5	29	170	23	0.70	26.91	27.61	2.91	0.80	0.78
State Urban (9000 ft. section)	5	16	97	13	0.38	15.35	18.50	1.66	0.31	0.26
Local Rural (entire roadway)	5	18	106	14	0.43	26.91	27.61	1.82	0.50	0.49
Local Urban (entire roadway)	5	20	134	16	0.48	15.35	18.50	2.30	0.42	0.35
State Total	-	-	-	36	1.35	-	-	4.58	1.11	1.04
Local Total	-	-	-	30	1.14	-	-	4.11	0.93	0.84
Total	-	-	-	66	1.99	-	-	8.69	2.04	1.88

[1] Assumes 80% of locations will have sufficient enforcement capabilities to implement enhanced alcohol enforcement (i.e., sobriety checkpoints).

[2] Assumes an average annual enforcement cost of $37,500 per section or local roadway.

[3] A CRF of 0.20 is used as an overall average for all possible enhanced corridor enforcement countermeasures. Estimated from speed and safety belt enforcement effectiveness information in NHTSA's *Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices.* (http://www.nhtsa.gov/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811081.pdf).

Table 184: Corridor 3E Improvements – Corridors – Not Interstates

County Name	Highway No	Highway Name	Number of Roadway Departure Fatalities	Number of Roadway Departure Incapacitating Injuries	Total Roadway Departure Crashes
Klamath	**4**	**THE DALLES-CALIFORNIA**	**48**	**63**	**528**
Deschutes	**4**	**THE DALLES-CALIFORNIA**	**35**	**61**	**471**
Linn	**16**	**SANTIAM**	**22**	**53**	**473**
Douglas	45	UMPQUA	22	31	248
Clackamas	26	MT. HOOD	21	39	353
Marion	162	NORTH SANTIAM	21	36	329
Josephine	25	REDWOOD	21	40	290
Wasco	53	WARM SPRINGS	19	12	137
Tillamook	9	OREGON COAST	18	28	375
Columbia	92	LOWER COLUMBIA RIVER	18	34	225
Lane	18	WILLAMETTE	16	34	422
Washington	37	WILSON RIVER	16	16	86
Washington	47	SUNSET	15	26	404
Klamath	20	KLAMATH FALLS-LAKEVIEW	15	18	197
Marion	81	PACIFIC HIGHWAY EAST	15	16	138
Jefferson	4	THE DALLES-CALIFORNIA	15	19	97
Clackamas	171	CLACKAMAS	14	28	261
Polk	30	WILLAMINA-SALEM	14	31	251
Malheur	456	I.O.N.	14	27	181
Sherman	42	SHERMAN	14	19	133

- Number of potential corridors – 20.
- Estimated number of corridors that may be implemented as a pilot– 3.
- 7-year Fatalities in the 3 corridors selected – 105.
- 7-year incapacitating injuries in the 3 corridors – 177.
- Estimated crash reduction factor for applying 3E improvements – 0.25.
- Number of crashes in the 3 corridors – 1472.
- Estimated annual reduction in crashes – (1472/7) x 0.25 = 53
- Estimated annual reduction in fatalities – (105/7) ´ 0.25 = 3.75
- Estimated annual reduction in incapacitating injuries – (177/7) ´ 0.25 = 6.32
- Estimated costs at $500,000 for infrastructure and $100,000 for education and enforcement per corridor = $1.5 million for infrastructure and $0.3 million for education and enforcement.

Table 185: Area-Wide 3E Improvements – Cities

City Name	Number of Roadway Departure Fatalities	Number of Roadway Departure Incapacitating Injuries	Total Roadway Departure Crashes
Portland NE	*34*	*78*	*1062*
Portland SE	*25*	*67*	*1103*
Portland N	*16*	*34*	*458*
Portland SW	*15*	*44*	*1000*
Portland NW	*2*	*17*	*300*
Portland (Total)	**92**	**240**	**3923**
Salem	**27**	**51**	**1083**
Eugene	12	39	797
Bend	10	28	491
Beaverton	9	33	741
Springfield	9	18	311

- Number of potential cities – 6
- Estimated number of cities that may pursue 3E improvements as a pilot – 2 (Portland and Salem).
- Fatalities within the two cities – 119.
- Incapacitating injuries within the two cities – 291
- RD crashes within the two cities-
- Estimated crash reduction factor for applying 3E improvements – 0.10.
- Estimated annual reduction in crashes in the two cities– (5,006) ´ (0.10/7) = 71.51
- Estimated annual reduction in incapacitating injuries in the two cities – (291)x (.10/7) = 4.16
- Estimated annual reduction in RD fatalities in the two cities – (119/7) ´ 0.1 = 1.70
- Estimated costs at $1,000,000 per city for infrastructure and $100,000 for education/enforcement – $2 million for infrastructure and $0.2 million for education and enforcement.

Table 186: Area-Wide 3E Improvements – Counties

COUNTY NAME	TOTAL INCAPACITATING CRASHES	TOTAL FATALITIES	TOTAL CRASHES	FATALITIES PER 100 CRASHES	INCAPACITATING CRASHES PER 100 CRASHES
Multnomah	396	120	5,728	2.09	6.91
Clackamas	487	140	4,984	2.81	9.77
Lane	374	173	4,235	4.09	8.83
Washington	318	113	4,235	2.67	7.51
Marion	287	141	3,609	3.91	7.95
Douglas	328	145	2,761	5.25	11.88
Jackson	265	115	2,625	4.38	10.10
Deschutes	209	103	2,423	4.25	8.63
Linn	235	108	2,233	4.84	10.52
Klamath	187	111	1,834	6.05	10.20
Yamhill	160	61	1,685	3.62	9.50
Josephine	153	82	1,594	5.14	9.60
Umatilla	116	41	1,522	2.69	7.62
Coos	114	55	1,454	3.78	7.84
Lincoln	134	54	1,363	3.96	9.83
Polk	157	53	1,330	3.98	11.80
Tillamook	116	55	1,154	4.77	10.05
Clatsop	115	40	977	4.09	11.77
Malheur	91	40	958	4.18	9.50
Benton	112	36	926	3.89	12.10
Baker	59	36	894	4.03	6.60
Union	68	21	855	2.46	7.95
Columbia	92	38	839	4.53	10.97
Wasco	74	33	791	4.17	9.36
Hood River	41	28	762	3.67	5.38
Crook	44	20	521	3.84	8.45
Jefferson	67	51	505	10.10	13.27
Curry	37	20	472	4.24	7.84
Lake	46	22	328	6.71	14.02
Grant	50	13	318	4.09	15.72
Harney	40	18	245	7.35	16.33
Morrow	21	8	242	3.31	8.68
Sherman	37	23	228	10.09	16.23
Wallowa	23	9	209	4.31	11.00
Gilliam	23	13	199	6.53	11.56
Wheeler	12	7	91	7.69	13.19

Strategy Matrix for Traditional Major Improvements

Table 187: Wider Shoulders – Roadway Departure Crashes –Shoulders ≤ 4 Feet – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	20	6	131	5	1.44	4.97	11.57	5.09	0.59	0.25
State Rural (Option)	10	73	928	58	17.52	4.97	11.57	36.06	4.17	1.79

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $300,000 per section.

[3] An average increase of 6 foot shoulder width and a CRF of 0.34 are used.

Table 188: Median Barrier – Head-On and Sideswipe, Opposite Direction Crashes – Raised, Barrier, Earth, Grass, or Divided Median Types – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 6,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	2	6	13	5	0.58	30.00	10.00	1.19	0.01	0.36

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $120,000 per section.

[3] A CRF of 0.80 in terms of Incapacitating Injuries and fatalities is used. Reduction in total crashes unlikely.

Table 189: Improved Recovery Areas, Slope Flattening – Run-Off-Road and Fixed Object Crashes – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	30	3	124	2	1.20	2.89	8.13	7.09	0.58	0.20
State Rural (Option)	20	13	345	10	5.20	2.89	8.13	19.71	1.60	0.57

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $500,000 per section for slope flattening and clear zone improvements. A field view is needed to identify the appropriate improvements.

[3] An average CRF of 0.50 for overall roadway departure crashes is used.

Table 190: Improved Recovery Areas, Slope Flattening – Ditch Crashes (First Crash Event) – State Rural Roads

Locality	Threshold Crash Level (7 Years)	Number of 3,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	10	18	221	14	7.20	2.89	8.13	12.63	1.03	0.36

[1] Assumes 80% of locations can be improved.

[2] Assumes an average cost of $500,000 per section for slope flattening and clear zone improvements. A field view is needed to identify the appropriate improvements.

[3] An average CRF of 0.50 for overall roadway departure crashes is used.

Table 191: Four to Three Lane Conversions – Roadway Departure Crashes –4 Lanes, < 18,000 AADT, Undivided – State Roads

Locality	Threshold Crash Level (7 Years)	Number of 6,000 ft. Sections	Number of Section Crashes in 7 Years (02-08)	Estimated Number of Improvements [1]	Construction Costs ($ Million) [2]	Fatalities per 100 Crashes	Incapacitating Injuries per 100 Crashes	Annual Targeted Crash Reduction [3]	Annual Estimated Incapacitating Injury Reduction	Annual Estimated Fatality Reduction
State Rural	10	11	137	7	0.66	7.03	12.55	4.34	0.55	0.31
State Urban	10	-	-	-	-	2.84	7.45	-	-	-
Total	-	-	137	7	0.66	-	-	4.34	0.55	0.31

[1] Assumes 60%of locations can be improved.

[2] Assumes an average cost of $100,000 per section. A field view is needed to identify the appropriate improvements.

[3] A CRF of 0.37 for roadway departure crashes is used for roadway departure crashes.

Summary of Strategy Matrix

Table 192 presents the initial list of countermeasures to be considered after analyzing the roadway departure crash data provided by Oregon.

Table 192: Shopping List of Countermeasures, Deployment Levels, Costs, and Crash Impacts to Achieve Roadway Departure Goal

Countermeasure	Approach	Estimated Number of Improvements	Construction Cost ($ Million)	Enforcement, Education and EMS Costs (Annual $ Million)	Estimated Annual Crashes Reduced	Estimated Annual Incapacitating Injuries Reduced	Estimated Annual Fatalities Reduced	$ (million) required to save one annual life
Enhanced Signs and Markings for Curves – State Rural Roads	Systematic	740	3.70	-	112	14.71	7.56	0.49
Enhanced Signs and Markings for Curves Plus Flashing Beacons – State Rural Roads	Systematic	20	0.14	-	6	0.78	0.41	0.34
Enhanced Signs and Markings for Curves – State Urban Roads	Systematic	19	0.09	-	8	0.66	0.34	0.26
Enhanced Signs and Markings for Curves – Local Roads	Systematic	442	4.42	-	143	15.29	7.39	0.60
Centerline Rumble Stripes – ≥ 20 Feet Road Width – State Rural Roads	Systematic	273	6.65	-	81	24.21	15.87	0.42
Centerline Rumble Strips - Local Rural Roads	Systematic	88	3.52	-	28	1.39	3.17	1.11
Wider Center Line Pavement markings – State Urban roads	Systematic	41	0.49	-	1	0.26	0.12	4.08
Edge Line or Shoulder Rumble Strips – 2 & 4 Lane – State Rural Roads	Systematic	2,062	6.19	-	278	25.02	8.82	1.40
Edge Line Rumble Strips - Local Rural Roads	Systematic	38	2.30	-	46	4.63	2.12	1.81
Wider Edge Line Pavement Markings – Local Roads (Rural and Urban)	Systematic	559	3.36	-	40	3.57	1.55	2.17
Alignment Delineation – State Rural Roads	Systematic	126	0.63	-	16	1.66	0.76	0.83
Alignment Delineation – Local Roads (Rural and Urban)	Systematic	71	1.78	-	17	1.62	0.77	2.31
High Friction Surfaces – State Rural Roads	Systematic	26	2.73	-	21	2.25	0.99	2.76
Tree Removal/Safety Enhancements – State Rural Roads	Systematic	54	1.34	-	13	2.22	1.41	0.95
Tree Removal/Safety Enhancements – Local Roads (Rural and Urban)	Systematic	115	2.88	-	23	3.34	1.82	1.58
Utility Pole Relocation/Safety Enhancements – State Rural Roads	Systematic	73	1.82	-	12	1.17	0.35	5.20
Utility Pole Relocation/Safety Enhancements – Local Roads	Systematic	41	1.02	-	9	0.67	0.29	3.52
Guard Rail Enhancements – State Rural	Systematic	81	1.62	-	-	6.17	0.49	3.31
Traffic Calming to Reduce Speeding-related Crashes – State Roads	Systematic	51	1.28	-	94	9.42	4.22	0.30
Traffic Calming to Reduce Speeding-related Crashes - Local Roads	Systematic	46	1.04	-	52	5.05	2.29	0.45
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – State Roads – Interstates	Education and Enforcement	39	-	1.46	26	1.67	0.59	2.47
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – State Roads – Not Interstates	Education and Enforcement	10	-	0.38	11	0.89	0.40	0.95

Countermeasure	Approach	Estimated Number of Improvements	Construction Cost ($ Million)	Enforcement, Education and EMS Costs (Annual $ Million)	Estimated Annual Crashes Reduced	Estimated Annual Incapacitating Injuries Reduced	Estimated Annual Fatalities Reduced	$ (million) required to save one annual life
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – Local Rural Roads	Education and Enforcement	12	-	0.36	9	0.93	0.43	0.84
Enhanced Corridor Enforcement – Alcohol-Related – State Roads	Education and Enforcement	36	-	1.35	5	1.11	1.04	1.30
Enhanced Corridor Enforcement – Alcohol-Related – Local Roads	Education and Enforcement	30	-	1.14	4	0.93	0.84	1.36
Corridor 3E Improvements – State Roads – Not Interstates	Comprehensive	3	1.50	0.30	53	6.32	3.75	0.40
Area-Wide 3E Improvements – Cities – State Roads	Comprehensive	2	2.00	0.20	72	4.16	1.70	1.18
Wider Shoulders – Shoulders ≤ 4 Feet – State Rural Roads	Traditional	5	1.44	-	5	0.59	0.25	5.76
Median Barrier – Raised Mountable, Flush, and Depressed Median Types – State Roads	Traditional	5	0.58	-	1	-	0.36	1.61
Improved Recovery Areas, Slope Flattening – State Rural Roads	Traditional	10	5.20	-	20	1.60	0.57	9.12
Four to Three Lane Conversions –4 Lanes, < 18,000 AADT, Undivided – State Roads	Traditional	7	0.66	-	4	0.55	0.31	2.13
Total Cost			**58.38**	**25.95**	-	-	-	-
Annual Cost for 5 years ; Annual Benefit			**11.68**	**5.19**	**1,211**	**143**	**71**	**0.82**

In order to reach the state roadway departure goal more cost effectively, the countermeasures list was reduced by removing countermeasures with high costs to save one annual life with a cost per annual life and other countermeasures for various reasons during the March 2010 Implementation Plan Workshop. Table 193 below shows a list of the countermeasures that were removed from the Strategy Matrix.

Table 193: Roadway Departure Countermeasures Removed from Strategy Matrix

Countermeasure	Approach	Estimated Number of Improvements	Construction Cost ($ Million)	Enforcement, Education and EMS Costs (Annual $ Million)	Estimated Annual Crashes Reduced	Estimated Annual Incapacitating Injuries Reduced	Estimated Annual Fatalities Reduced	$ (million) required to save one annual life
Wider Center Line Pavement markings – State Urban roads	Systematic	41	0.49	-	1	0.26	0.12	4.08
Utility Pole Relocation/Safety Enhancements – State Rural Roads	Systematic	73	1.82	-	12	1.17	0.35	5.20
Wider Shoulders – Shoulders ≤ 4 Feet – State Rural Roads	Traditional	5	1.44	-	5	0.59	0.25	5.76
Improved Recovery Areas, Slope Flattening – State Rural Roads	Traditional	10	5.20	-	20	1.60	0.57	9.12
Utility Pole Relocation/Safety Enhancements – Local Roads	Systematic	41	1.02	-	9	0.67	0.29	3.52
High Friction Surfaces – State Rural Roads	Systematic	26	2.73	-	21	2.25	0.99	2.76
Area-Wide 3E Improvements – Counties	Comprehensive	-	-	-	-	-	-	-
Centerline Rumble Strips - Local Rural Roads	Systematic	88	3.52	-	28	1.39	3.17	1.11
Guard Rail Enhancements – State Rural	Systematic	81	1.62	-	-	6.17	0.49	3.31
Median Barrier – Raised Mountable, Flush, and Depressed Median Types – State Roads	Traditional	5	0.58	-	1	0.00	0.36	1.61
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – State Roads – Interstates	Education and Enforcement	39	-	1.46	26	1.67	0.59	2.47
Wider Edge Line Pavement Markings – Local Roads (Rural and Urban)	Systematic	559	3.36	-	40	3.57	1.55	2.17

Table 194 presents the Final Strategy Matrix based on the data analysis and input from and Implementation Workshop. It includes the final list of countermeasures to be implemented in order to meet the state roadway departure goal.

Table 1944: Final Strategy Matrix

Countermeasure	Approach	Estimated Number of Improvements	Construction Cost ($ Million)	Enforcement, Education and EMS Costs (Annual $ Million)	Estimated Annual Crashes Reduced	Estimated Annual Incapacitating Injuries Reduced	Estimated Annual Fatalities Reduced	$ (million) required to save one annual life
State Roads								
Enhanced Signs and Markings for Curves – State Rural Roads	Systematic	740	3.70	-	112	14.71	7.56	0.49
Enhanced Signs and Markings for Curves Plus Flashing Beacons – State Rural Roads	Systematic	20	0.14	-	6	0.78	0.41	0.34
Enhanced Signs and Markings for Curves – State Urban Roads	Systematic	19	0.09	-	8	0.66	0.34	0.26
Centerline Rumble Stripes – ≥ 20 Feet Road Width – State Rural Roads	Systematic	273	4.09	-	81	24.21	15.87	0.26
Edge Line Rumble Strips – 2 Lane– State Rural Roads	Systematic	683	2.05	-	89	9.80	3.14	0.65
Shoulder Rumble Strips – 2 Lane – State Rural Roads	Systematic	1,378	4.41		189	15.22	5.68	0.78
Alignment Delineation – State Rural Roads	Systematic	126	0.63	-	16	1.66	0.76	0.83
Tree Removal/Safety Enhancements – State Rural Roads	Systematic	54	1.34	-	13	2.22	1.41	0.95
Traffic Calming to Reduce Speeding-related Crashes - State Roads	Systematic	51	1.28	-	94	9.42	4.22	0.30
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – State Roads – Not Interstates	Education and Enforcement	10	-	0.35	11	0.89	0.40	4.38
Enhanced Corridor Enforcement – Alcohol-Related – State Roads	Education and Enforcement	36	-	1.30	5	1.11	1.04	6.25
Corridor 3E Improvements – State Roads – Not Interstates	Comprehensive	3	1.50	0.3	53	6.32	3.75	
Area-Wide 3E Improvements – Cities – State Roads	Comprehensive	2	2.00	0.2	72	4.16	1.70	
Four to Three Lane Conversions –4 Lanes, < 18,000 AADT, Undivided – State Roads	Traditional	7	0.66	-	4	0.55	0.31	2.13
Local Roads								
Enhanced Signs and Markings for Curves – Local Roads	Systematic	442	4.42	-	143	15.29	7.39	0.60
Centerline Rumble Strips - Local Rural Roads	Systematic	88	3.52	-	28	1.39	3.17	1.11
Edge Line Rumble Strips - Local Rural Roads	Systematic	38	2.30	-	46	4.63	2.12	1.08
Alignment Delineation – Local Roads (Rural and Urban)	Systematic	71	1.78	-	17	1.62	0.77	2.31
Tree Removal/Safety Enhancements – Local Roads (Rural and Urban)	Systematic	54	1.36	-	13	2.01	1.14	1.19
Traffic Calming to Reduce Speeding-related Crashes - Local Roads	Systematic	45	1.04		52	5.05	2.29	0.45
Enhanced Corridor Enforcement – Speeding-Related or Unbelted Driver – Local Rural Roads	Education and Enforcement	10	-	0.29	9	0.93	0.43	3.37
Enhanced Corridor Enforcement – Alcohol-Related – Local Roads	Education and Enforcement	30		0.73	4	0.93	0.84	4.35
Total Cost and Benefit (State and Local)								
Total Cost (Million)			**36.31**	**15.85**	-	-	-	-
Annual Cost (Million) for 5 years ; Annual Benefit			**7.26**	**3.17**	**1,065**	**124**	**65**	