

# Lassen County

# Local Roadway Safety Plan

*FINAL REPORT*



*Prepared for the*

## Lassen County Transportation Commission



June 2, 2022



*Prepared by LSC Transportation Consultants*



Lassen County  
*Local Roadway Safety Plan*

*FINAL REPORT*

*Prepared for the*

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## Chapter 1

# INTRODUCTION

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Traffic safety is an important issue for any community and is particularly important for a rural region where many residents make long motor vehicle trips to access jobs, schools, and services. The Lassen County Transportation Commission (LCTC), using funding provided by Caltrans, has conducted a Local Roadway Safety Plan (LRSP) for Lassen County. Using the services of LSC Transportation Consultants, Inc., this plan develops strategies and projects to improve roadway safety in Lassen County, California, with a focus on the non-state highway local roadway network.

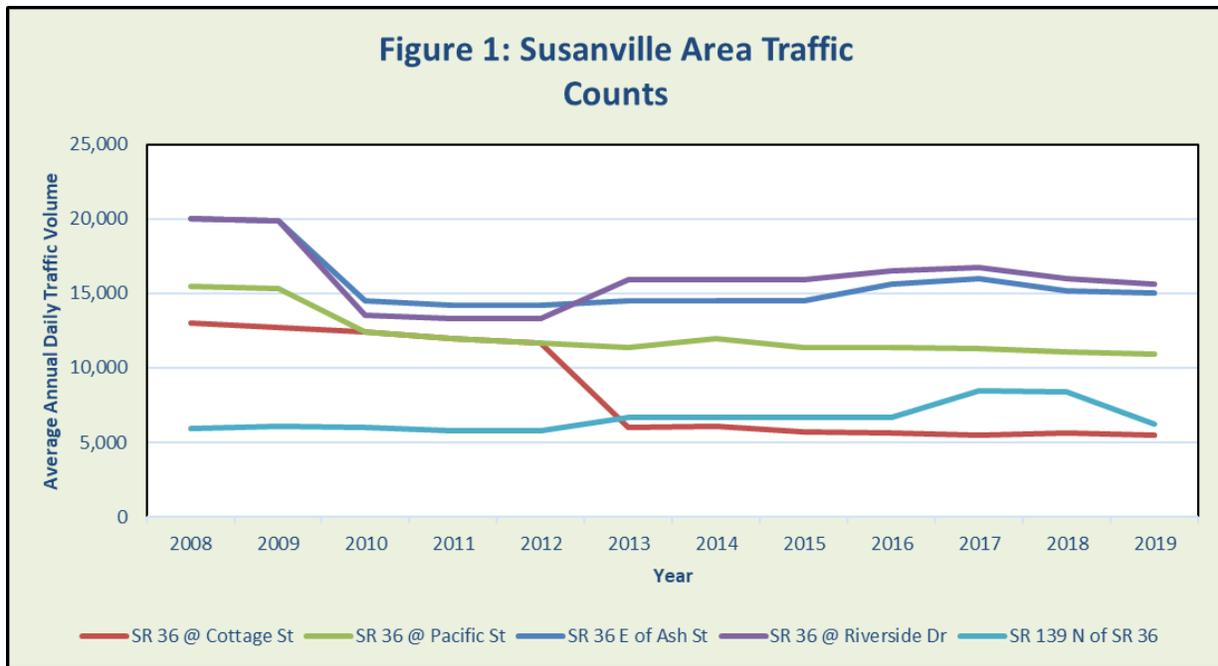
This study included a detailed analysis of traffic crash data throughout Lassen County, as well as traffic volumes, traffic citations and state studies. Public input regarding existing traffic safety conditions was also reviewed. A series of both project-level potential improvements as well as programmatic safety strategies were then identified. Detailed analysis of potential safety improvement projects was then conducted, including assessment of the forecast reduction in crashes and the cost effectiveness of potential improvements. A final set of recommended project-level improvements were identified as the basis for future funding, as well as programmatic strategies.

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**EXISTING TRAFFIC VOLUMES**

Existing traffic volumes for the most recent 12 years (2008 – 2019) for which data is available on Lassen County state highways was obtained from Caltrans. Volumes at several key locations have been summarized. Though these locations are on state highways and not local roads, they give a fair representation of vehicle volume trends within various area within Lassen County. The Annual Average Daily Through Volumes at thirteen locations are presented in Table 1. The 13 locations presented in this table were selected to represents areas within Lassen County with higher vehicle traffic volumes, within population centers or at the borders with neighboring counties.

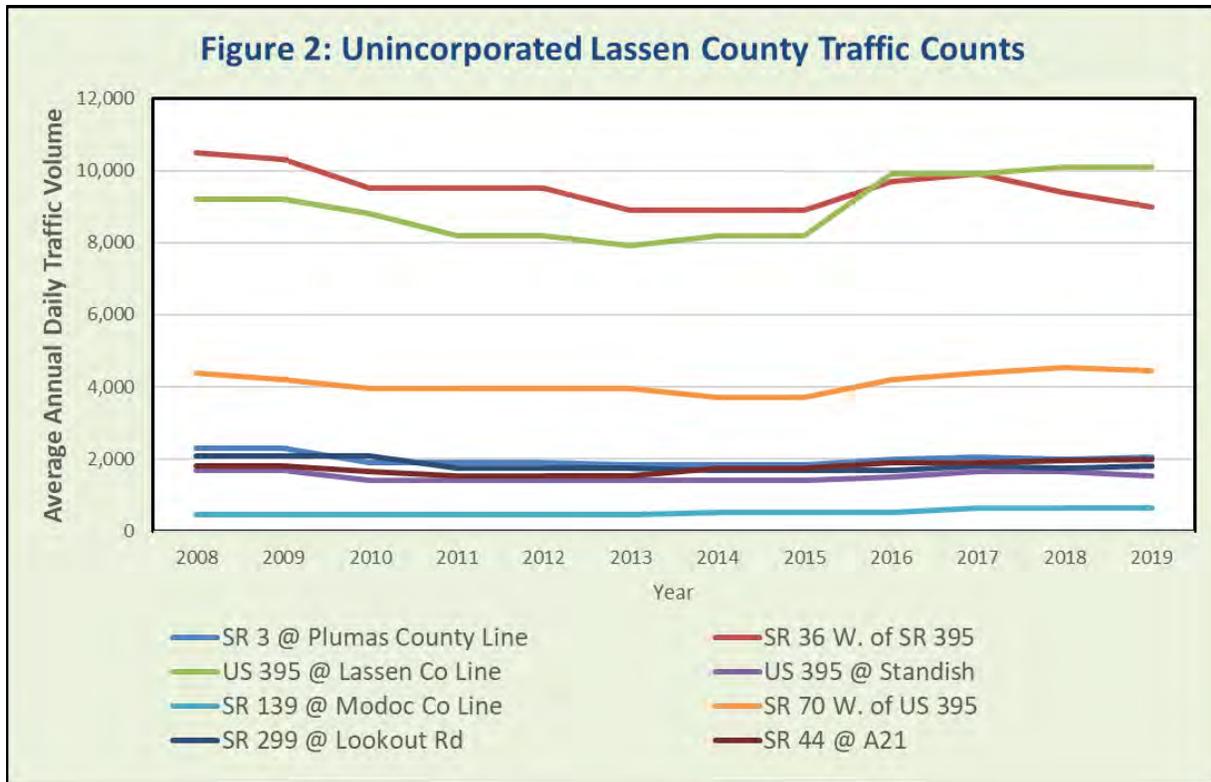
State highways within the Susanville area have generally seen a decrease of traffic volumes over the last ten years with the exception of Ash Street-SR 139, as shown in Figure 1. In general, volumes at the western and eastern ends of Susanville dropped prior to 2014, while volumes since that time have remained roughly steady.



Many state highways within Lassen County have relatively consistent traffic volumes over the last twelve years (see Figure 2). The exception is US 395 at the Sierra-Lassen County line, which saw a 23 percent increase from 2014 – 2019 as well as SR 139 at the Modoc County line, which saw a 27 percent increase (though on a much smaller number). Over all of the 13 count locations, total traffic volume decreased by 8 percent over the past 10 years (2009 – 2019) but increased by 7 percent over the past 5 years (2014 – 2019).

**Table 1: Lassen County - AADT Summary**

YEAR	SR 36						SUS 395		SR 139		SR 70	SR 299	SR 44
	Plumas/Lassen Co Line	Susanville, Cottage St	Susanville, Pacific St	Susanville. E of Ash St (SR 139)	Susanville, Riverside Dr	Junction with SR 395	Sierra/Lassen County Line	Standish County Road A3	Lassen/ Modoc County Line	Susanville N of SR 36	Junction Route 395	Lookout Rd	County Rd A21
2008	2,300	13,000	15,500	20,000	20,000	10,500	9,200	1,700	470	5,900	4,400	2,100	1,800
2009	2,300	12,700	15,300	19,900	19,900	10,300	9,200	1,700	470	6,100	4,200	2,100	1,800
2010	1,900	12,400	12,400	14,500	13,500	9,500	8,800	1,400	470	6,000	3,950	2,100	1,650
2011	1,900	12,000	12,000	14,200	13,300	9,500	8,200	1,400	450	5,800	3,950	1,750	1,550
2012	1,900	11,700	11,700	14,200	13,300	9,500	8,200	1,400	450	5,800	3,950	1,750	1,550
2013	1,850	6,000	11,400	14,500	15,900	8,900	7,900	1,400	450	6,700	3,950	1,750	1,550
2014	1,850	6,100	12,000	14,500	15,900	8,900	8,200	1,400	520	6,700	3,700	1,700	1,750
2015	1,850	5,700	11,400	14,500	15,900	8,900	8,200	1,400	520	6,700	3,700	1,700	1,750
2016	2,000	5,600	11,400	15,600	16,500	9,700	9,900	1,500	520	6,700	4,200	1,700	1,900
2017	2,050	5,500	11,300	16,000	16,700	9,900	9,900	1,650	650	8,500	4,400	1,800	1,900
2018	2,000	5,600	11,100	15,200	16,000	9,400	10,100	1,650	630	8,400	4,550	1,750	1,950
2019	2,050	5,500	10,900	15,000	15,600	9,000	10,100	1,550	660	6,200	4,450	1,800	2,000
Percent Change Over Last													
10 yr	-11%	-57%	-29%	-25%	-22%	-13%	10%	-9%	40%	2%	6%	-14%	11%
5 yr	11%	-10%	-9%	3%	-2%	1%	23%	11%	27%	-7%	20%	6%	14%
<i>Note: Estimated volume for missing years.</i>													
Source: Caltrans													



## EXISTING CRASH HISTORY

The recorded crashes within Lassen County were analyzed as part of the LRSP. Crash data for the last ten years (2010 – 2019) was collected from a combination of sources: The California Highway Patrol’s Statewide Integrated Traffic Information System (SWITRS), UC Berkeley’s Transportation Injury Mapping System (TIMS), and the Susanville Police Department. All roads within Lassen County were included as part of the crash summary.

In total 3,977 crashes were reports to have occurred within Lassen County in the ten-year study period. 2,719 (68.4 percent) of these occurred on State Highways and 1,258 (32.6 percent) on local roads (18.0 percent on County roadways and 13.7 percent in the City of Susanville, a total of 1,133 crashes occurred with 589 (52 percent) on state highways and 544 (48 percent) on local roads. Put another way, of the 1,258 crashes on local roads, 57 percent were on County roadways and 43 percent on City of Susanville roadways.

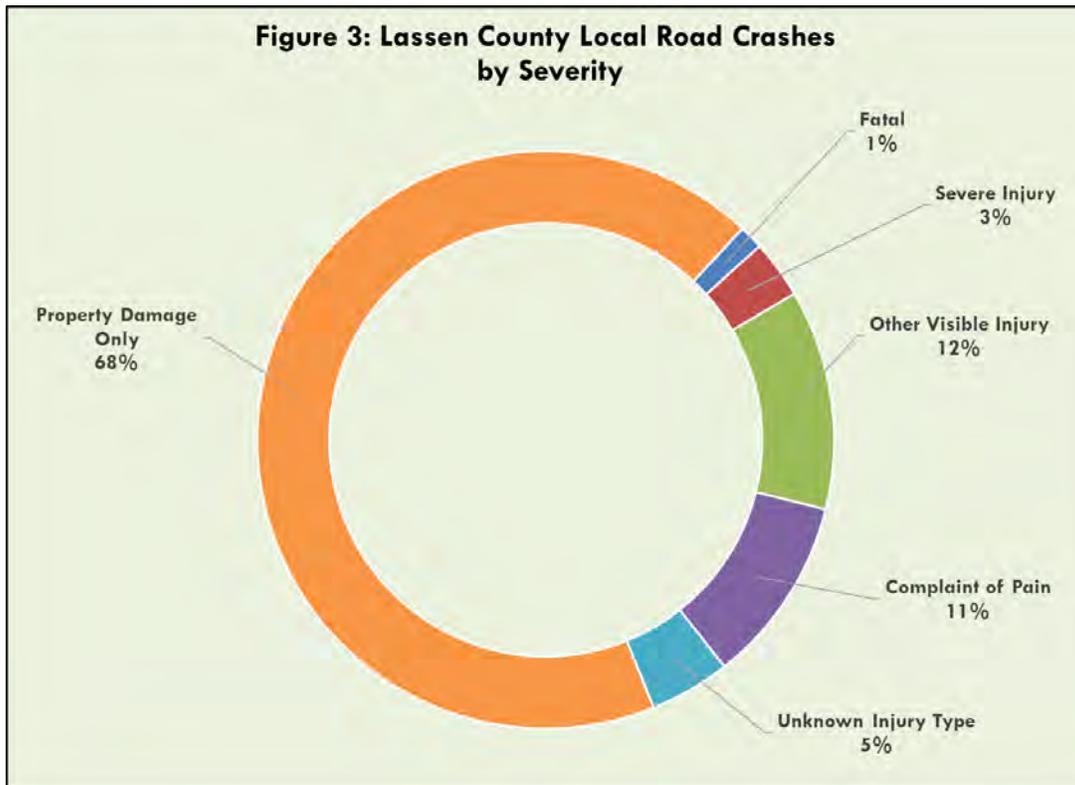
### Fatalities and Injuries

Of all crashes, 72 (1.8%) resulted in a fatality (17 on local road and 55 on state highways). In total, these crashes resulted in 84 fatalities; 161 (4%) crashes resulted in severe injuries (41 on local road and 120 on state highways), and 499 (12.5%) crashes resulted in other visible injuries (155 on local road and 344 on state highways). See Table 2 and Figure 3.

**TABLE 2: Summary of Crashes by Severity in Lassen County**

2010 to 2019

Severity	Local Roadways			State Highways			Total		
	Uninc.			Uninc.			Uninc.		
	Susnvl	County	Total	Susnvl	County	Total	Susnvl	County	Total
Fatal	1	16	17	1	54	55	2	70	72
Severe Injury	8	33	41	9	111	120	17	144	161
Other Visible Injury	26	129	155	34	310	344	60	439	499
Complaint of Pain	34	98	132	54	325	379	88	423	511
Unknown Injury Type	57	0	57	61	0	61	118	0	118
PDO	418	438	856	430	1330	1760	848	1768	2616
<b>Total</b>	544	714	1258	589	2130	2719	1133	2844	3977
<i>Total Injury</i>	125	260	385	158	746	904	283	1006	1289
<b>Percent of All Crashes by Jurisdiction</b>									
Fatal	0.2%	2.2%	1.4%	0.2%	2.5%	2.0%	0.2%	2.5%	1.8%
Severe Injury	1.5%	4.6%	3.3%	1.5%	5.2%	4.4%	1.5%	5.1%	4.0%
Other Visible Injury	4.8%	18.1%	12.3%	5.8%	14.6%	12.7%	5.3%	15.4%	12.5%
Complaint of Pain	6.3%	13.7%	10.5%	9.2%	15.3%	13.9%	7.8%	14.9%	12.8%
Unknown Injury Type	10.5%	0.0%	4.5%	10.4%	0.0%	2.2%	10.4%	0.0%	3.0%
PDO	76.8%	61.3%	68.0%	73.0%	62.4%	64.7%	74.8%	62.2%	65.8%
<b>Total</b>	13.7%	18.0%	31.6%	14.8%	53.6%	68.4%	28.5%	71.5%	100.0%
<i>Total Injury</i>	23.0%	36.4%	30.6%	26.8%	35.0%	33.2%	25.0%	35.4%	32.4%



The location of the fatalities within Lassen County, on local roads only, have been plotted on a map and can be seen in Figure 4. The highest concentration of fatalities occurred in the southeast portion of the county on local roads along the 395 Corridor, between Doyle and Susanville. Fatalities on local roads within the City of Susanville have been plotted on map and can be seen in Figure 5. This map does not include fatalities that occurred on Main Street or Ash Street as those are technically State Highways. Of the three fatalities within Susanville’s local roads, all of them occurred on Johnstonville Road, two of which happened between Big Sky Boulevard and Commercial Road.

Injuries on local roads within Lassen County have been plotted on a map and can be seen in Figure 6. Reflecting relative traffic activity, injury crashes are concentrated in the middle portion of the county at the population centers of Susanville, Johnsonville, and Janesville. Two additional high injury zones occur alone Eagle Lake Road and County Road A22 between Herlong and US 395.

### Severe Crashes Resulting in Fatalities and Severe Injuries

A review of crashes resulting in fatalities and severe injuries on local roads is presented in Table 3. As seen in the table, DUIs generated about a third of fatalities as well as serious injuries. This indicates a need for more DUI education and enforcement. "Hit object" is about half of the collision types. This indicates that additional shoulder width, recovery zones, and guardrails should be considered. Other findings from this review consist of the following:

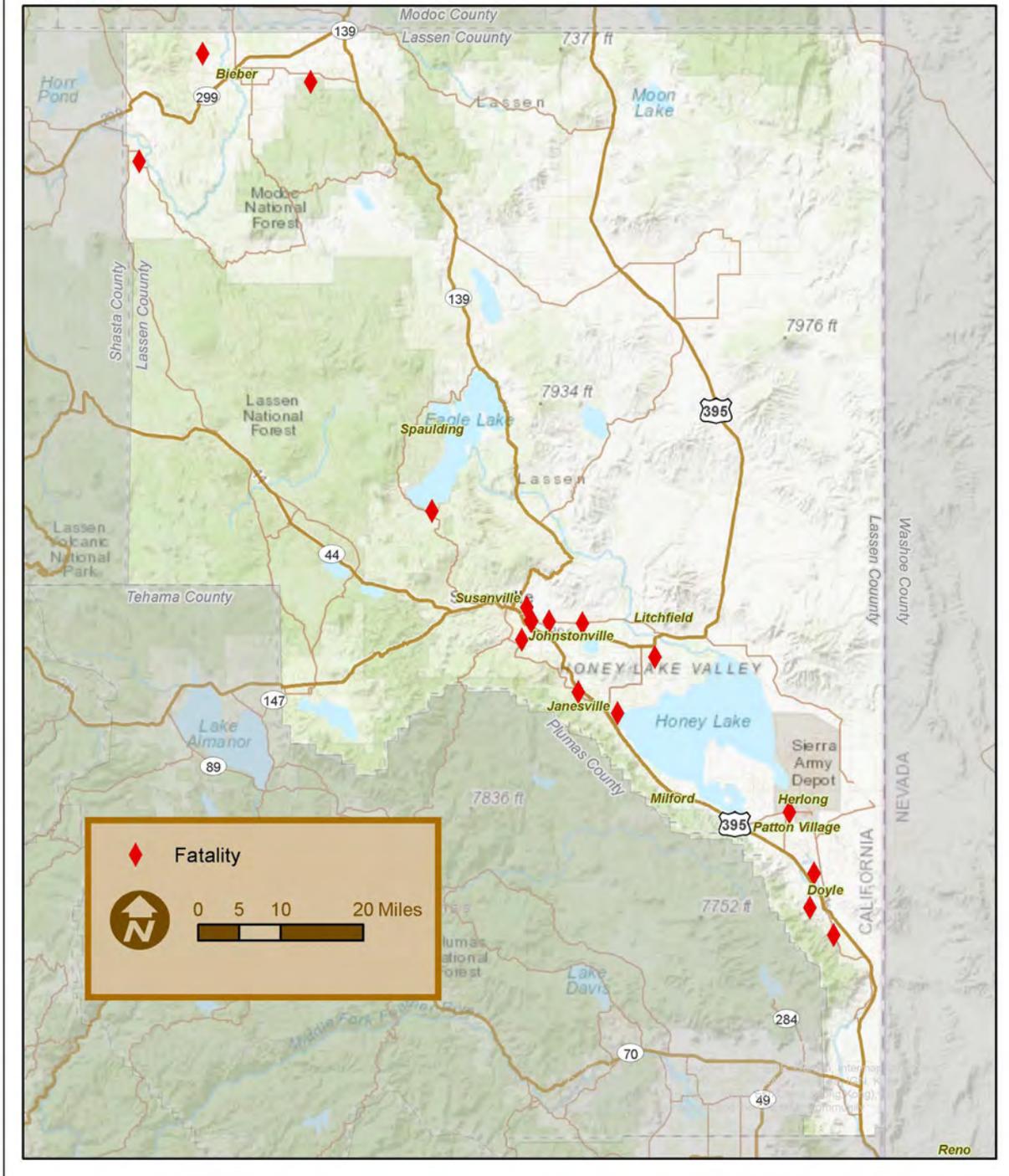
- Given the rural nature of much of Lassen County, severe crashes caused by animals are rare. Only one severe injury crash was reported over the ten-year period.
- Road surface was reported to be dry for a large majority of the serious crashes (95 percent), with only 1.7 percent of crashes occurring on snowy or icy roads.

### Bicycle and Pedestrian Crashes

In the ten-year study period, a total of 21 crashes involving bicycles and 30 involving pedestrians occurred in Lassen County, of which 11 and 10 respectively occurred on local roads. Table 4 provides a summary of these crashes, while Appendix C provides detailed information in the “Crashes by Motor Vehicle Involved” series of tables. These crashes resulted in one pedestrian death and two severely injured (as shown in Table 3). No reported fatalities or severe injuries involved a bicyclist. Figure 7 shows the location of bicycle and pedestrian related crashes which occurred on local roads within the City of Susanville.

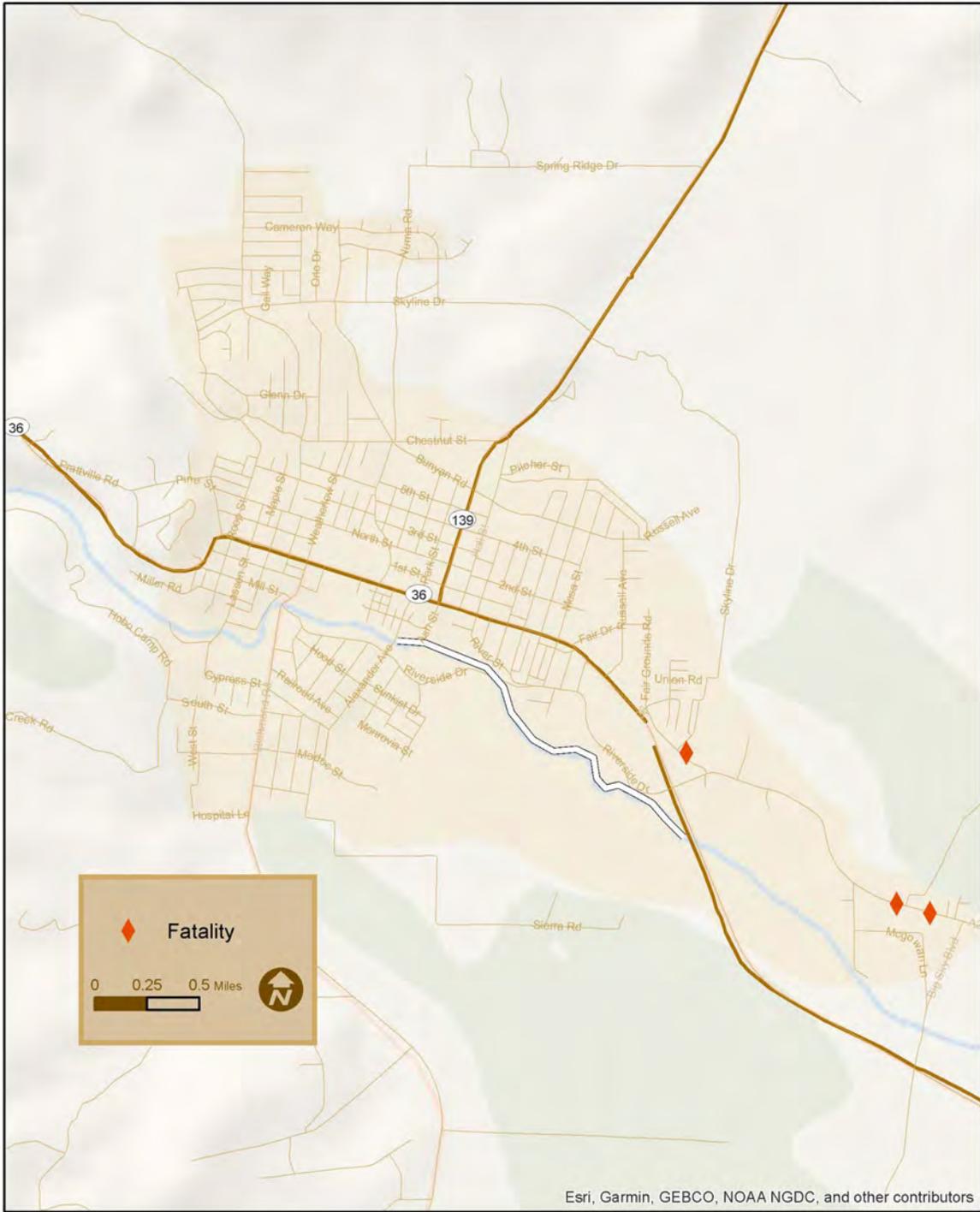


**Figure 4**  
**Crashes Resulting in Fatalities on Lassen County Local Roadways**  
2010-2019





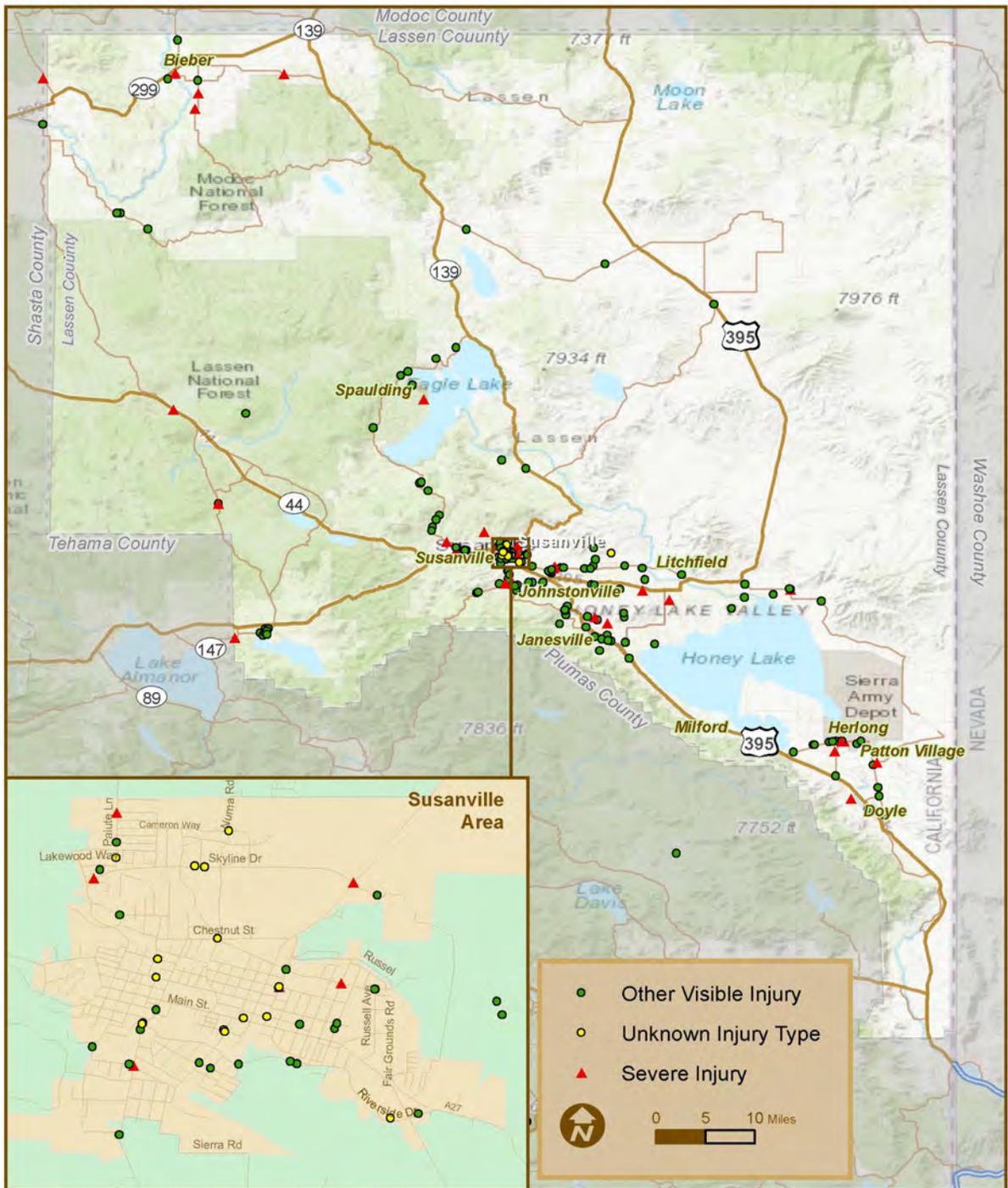
**Figure 5**  
**Crashes Resulting in Fatalities on Susanville Area Local Roadways**  
2010-2019



Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



**Figure 6**  
**Injury Crashes on Lassen County Local Roadways**  
2010-2019



**Table 3: Fatality and Severe Injury Crashes on Local Roads in Lassen County**

2010 to 2019

	City of Susanville			Unincorporated Lassen			Total			% of Total		
	Severe			Severe			Severe			Severe		
	Fatal	Injury <sup>1</sup>	Total	Fatal	Injury	Total	Fatal	Injury	Total	Fatal	Injury	Total
<b>PCF Violation</b>												
Improper Turning	0	2	2	8	9	17	8	11	19	47.1%	26.8%	32.8%
Driving Under the Influence	1	2	3	5	10	15	6	12	18	35.3%	29.3%	31.0%
Automobile Right of Way	0	1	1	1	6	7	1	7	8	5.9%	17.1%	13.8%
Pedestrian Violation	0	1	1	1	0	1	1	1	2	5.9%	2.4%	3.4%
Traffic Signals and Signs	0	0	0	1	0	1	1	0	1	5.9%	0.0%	1.7%
Unsafe Speed	0	2	2	0	3	3	0	5	5	0.0%	12.2%	8.6%
Wrong Side of Road	0	0	0	0	3	3	0	3	3	0.0%	7.3%	5.2%
Other than Driver/Ped	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
Unsafe Starting or Backing	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
Bicyclist Violation	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Collision Type</b>												
Hit Object	1	2	3	9	17	26	10	19	29	58.8%	46.3%	50.0%
Overturned	0	0	0	4	8	12	4	8	12	23.5%	19.5%	20.7%
Broadside	0	2	2	2	4	6	2	6	8	11.8%	14.6%	13.8%
Vehicle/Pedestrian	0	2	2	1	0	1	1	2	3	5.9%	4.9%	5.2%
Head-On	0	1	1	0	3	3	0	4	4	0.0%	9.8%	6.9%
Sideswipe	0	1	1	0	0	0	0	1	1	0.0%	2.4%	1.7%
Other	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
Bicyclist	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Motor Vehicle Involvement</b>												
Fixed Object	1	4	5	9	15	24	10	19	29	58.8%	46.3%	50.0%
Non-Collision	0	1	1	4	8	12	4	9	13	23.5%	22.0%	22.4%
Other Motor Vehicle	0	1	1	2	7	9	2	8	10	11.8%	19.5%	17.2%
Pedestrian	0	2	2	1	0	1	1	2	3	5.9%	4.9%	5.2%
Other Object	0	0	0	0	2	2	0	2	2	0.0%	4.9%	3.4%
Animal	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
Bicyclist	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Weather</b>												
Clear	0	7	7	12	26	38	12	33	45	70.6%	80.5%	77.6%
Cloudy	1	0	1	4	5	9	5	5	10	29.4%	12.2%	17.2%
Raining	0	1	1	0	0	0	0	1	1	0.0%	2.4%	1.7%
Snowing	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
Other	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Road Surface</b>												
Dry	1	7	8	16	31	47	17	38	55	100.0%	92.7%	94.8%
Slippery (Mud/Oil/Etc)	0	1	1	0	1	1	0	2	2	0.0%	4.9%	3.4%
Snowy or Icy	0	0	0	0	1	1	0	1	1	0.0%	2.4%	1.7%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Lighting</b>												
Daylight	1	5	6	10	23	33	11	28	39	64.7%	68.3%	67.2%
Dusk - Dawn	0	0	0	0	2	2	0	2	2	0.0%	4.9%	3.4%
Dark - Street Lights	0	0	0	1	0	1	1	0	1	5.9%	0.0%	1.7%
Dark - No Street Lights	0	3	3	5	8	13	5	11	16	29.4%	26.8%	27.6%
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>17</b>	<b>41</b>	<b>58</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Note 1: Data may be incomplete for Severe Injury counts in the City of Susanville between 2017-2019

**TABLE 4: Summary of Crashes by Motor Vehicle Involvement in Lassen County**

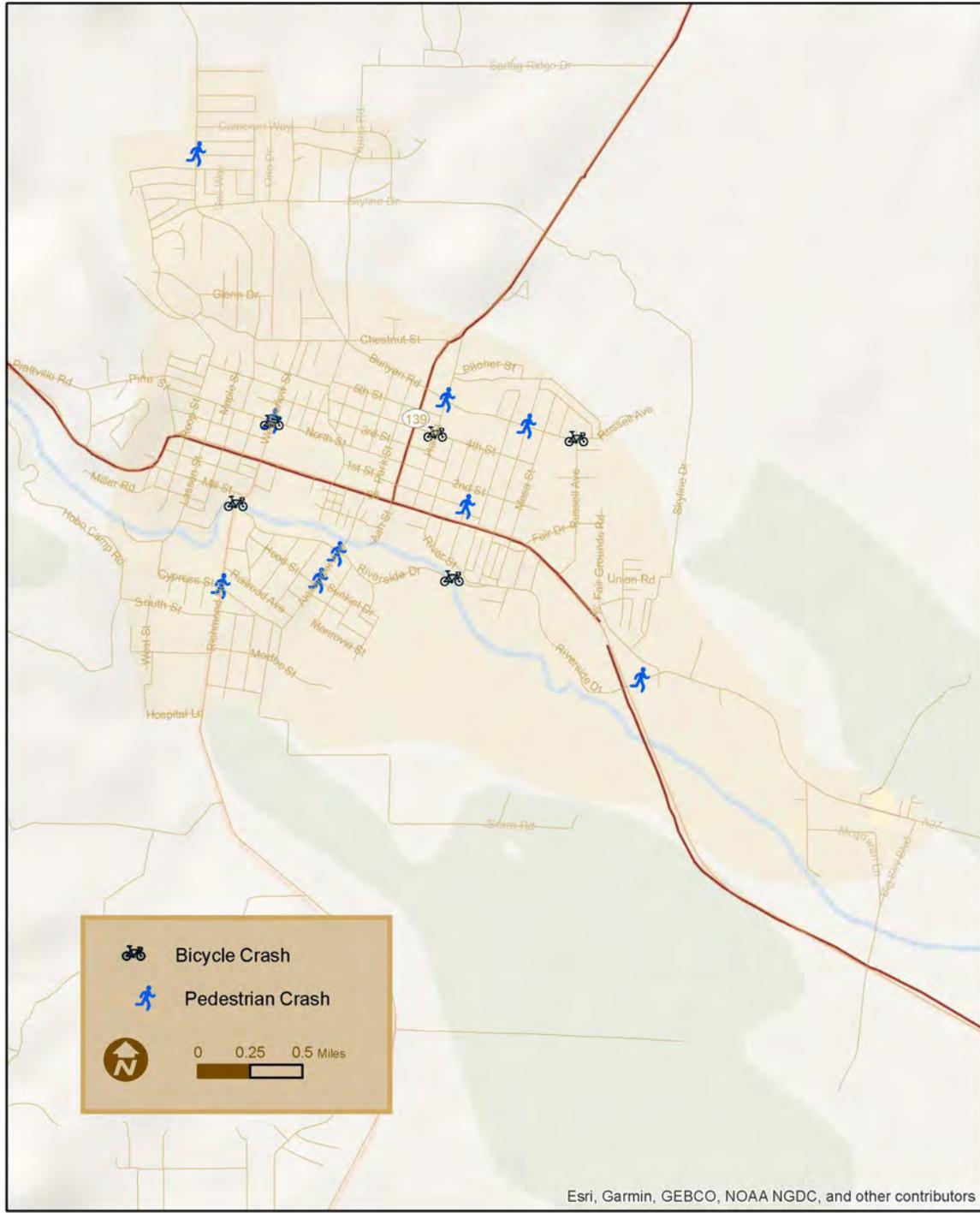
2010 to 2019

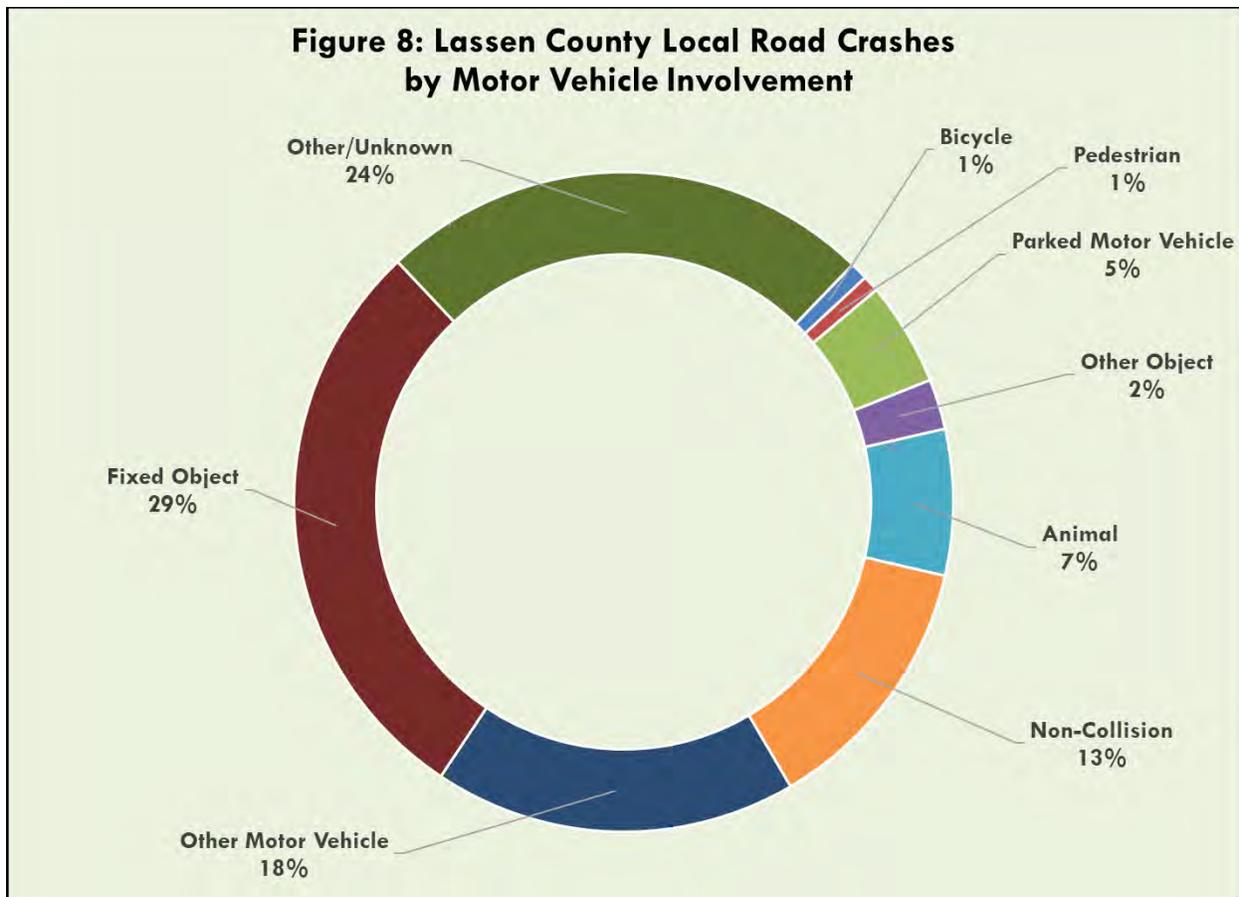
Motor Vehicle Involvement	Local Roadways			State Highways			Total		
	Uninc.			Uninc.			Uninc.		
	Susnvl	County	Total	Susnvl	County	Total	Susnvl	County	Total
<b>Train</b>	0	0	0	0	2	2	0	2	2
<b>Motor Vehicle on Other Roadway</b>	2	0	2	1	4	5	3	4	7
<b>Bicycle</b>	5	6	11	6	4	10	11	10	21
<b>Pedestrian</b>	8	2	10	16	4	20	24	6	30
<b>Parked Motor Vehicle</b>	45	19	64	13	19	32	58	38	96
<b>Other Object</b>	11	20	31	5	86	91	16	106	122
<b>Animal</b>	2	88	90	10	468	478	12	556	568
<b>Non-Collision</b>	11	152	163	14	488	502	25	640	665
<b>Other Motor Vehicle</b>	109	115	224	257	419	676	366	534	900
<b>Fixed Object</b>	48	312	360	18	636	654	66	948	1014
<b>Unknown</b>	303	0	303	249	0	249	552	0	552
<b>Total</b>	544	714	1258	589	2130	2719	1133	2844	3977
<b><i>Percent of All Crashes by Jurisdiction</i></b>									
<b>Train</b>	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%
<b>Motor Vehicle on Other Roadway</b>	0.4%	0.0%	0.2%	0.2%	0.2%	0.2%	0.3%	0.1%	0.2%
<b>Bicycle</b>	0.9%	0.8%	0.9%	1.0%	0.2%	0.4%	1.0%	0.4%	0.5%
<b>Pedestrian</b>	1.5%	0.3%	0.8%	2.7%	0.2%	0.7%	2.1%	0.2%	0.8%
<b>Parked Motor Vehicle</b>	8.3%	2.7%	5.1%	2.2%	0.9%	1.2%	5.1%	1.3%	2.4%
<b>Other Object</b>	2.0%	2.8%	2.5%	0.8%	4.0%	3.3%	1.4%	3.7%	3.1%
<b>Animal</b>	0.4%	12.3%	7.2%	1.7%	22.0%	17.6%	1.1%	19.5%	14.3%
<b>Non-Collision</b>	2.0%	21.3%	13.0%	2.4%	22.9%	18.5%	2.2%	22.5%	16.7%
<b>Other Motor Vehicle</b>	20.0%	16.1%	17.8%	43.6%	19.7%	24.9%	32.3%	18.8%	22.6%
<b>Fixed Object</b>	8.8%	43.7%	28.6%	3.1%	29.9%	24.1%	5.8%	33.3%	25.5%
<b>Unknown</b>	55.7%	0.0%	24.1%	42.3%	0.0%	9.2%	48.7%	0.0%	13.9%

Table 4 also shows the other elements of the roadway environment that vehicles were involved with in the course of the crash. The largest overall category on county local roadways was involvement with a fixed object (43.7 percent of crashes), non-collision crashes, (21.3 percent), involvement of another motor vehicle (16.1 percent), and collision with an animal (12.3 percent). In Susanville, the highest proportion of crashes involved another motor vehicle (20.0 percent of all crashes). This data is also shown in Figure 8.



**Figure 7**  
**Bicycle and Pedestrian Crashes on Susanville Area Local Roadways**  
2010-2019





### Other Conditions

Variable weather conditions are often blamed for vehicles crashes. Table 5 shows the weather conditions for the crashes which occurred from 2010 – 2016 (crash details for the City of Susanville were not available from 2017 forward). For detail tables of “Crashes by Road Conditions,” see Appendix E. For crash reports that included the weather condition, 1,594 (56.5%) occurred during clear weather in all of Lassen County and 480 on local roads within the county as shown in Figure 9. Of these crashes, 209 (7.4%) across the county occurred as a result of snow, including 37 on local roadways. With the low crash rate associated with snow, snow and icy roadways are not a big contributor to the serious crashes, as shown in Figure 10.

### Summary by Violation Category

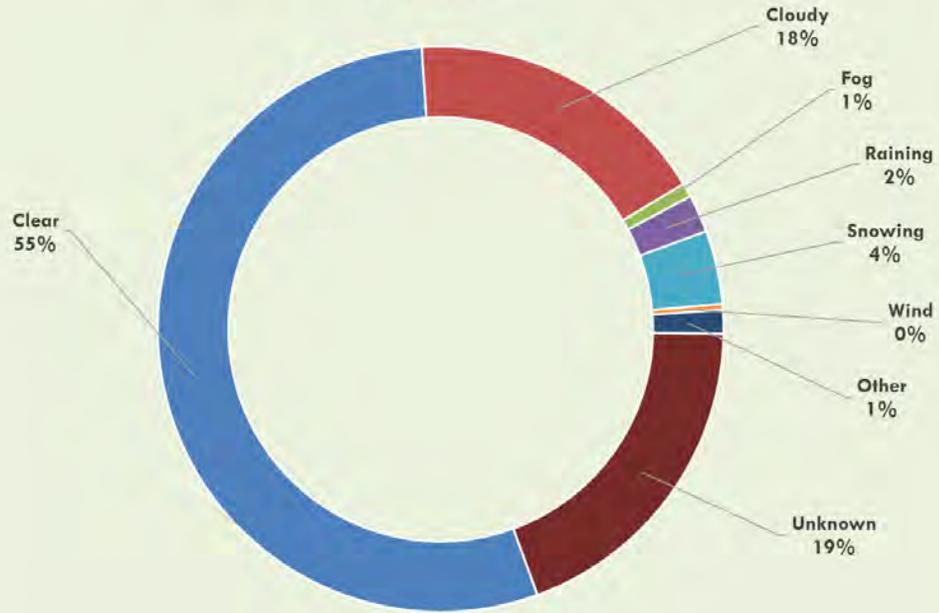
A summary of crashes by violation is summarized in Table 6. Unsafe speed resulting in a crash is the greatest preventable cause, with 256 (20.3%) incidences on local roads. Countywide, the largest number of crashes on local roadways were due to unsafe speed (256) and improper turning (232). Excluding local roadway crashes for which the violation category is unknown, these two categories comprise just under half (49 percent) of all crashes. This indicates that increased enforcement, and various traffic calming efforts should be considered.

**TABLE 5: Summary of Crashes by Weather, Road Surface and Lighting  
Conditions in Lassen County**

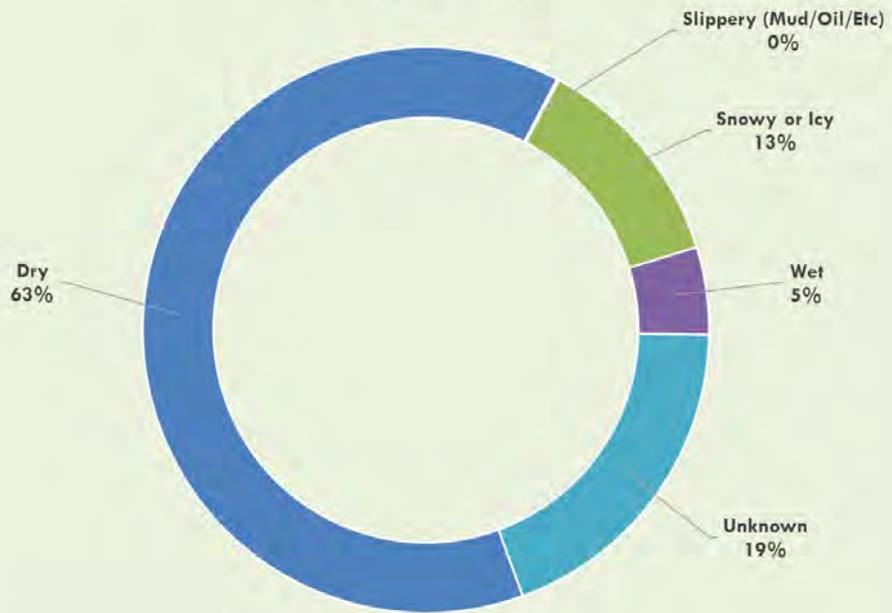
2010 to 2016

	Local Roadways			State Highways			Total		
	Uninc.			Uninc.			Uninc.		
	Susnvl	County	Total	Susnvl	County	Total	Susnvl	County	Total
<b>Weather</b>									
Clear	171	311	482	244	866	1592	415	1177	1592
Cloudy	28	126	154	52	354	560	80	480	560
Fog	1	6	7	0	14	21	1	20	21
Raining	10	9	19	19	45	83	29	54	83
Snowing	12	25	37	9	156	202	21	181	202
Wind	2	1	3	2	32	37	4	33	37
Other	2	10	12	2	13	27	4	23	27
Unknown	169	0	169	132	0	301	301	0	301
<b>Total</b>	<b>395</b>	<b>488</b>	<b>883</b>	<b>460</b>	<b>1480</b>	<b>2823</b>	<b>855</b>	<b>1968</b>	<b>2823</b>
<i>Percent of All Crashes by Jurisdiction</i>									
Clear	43.3%	63.7%	54.6%	53.0%	58.5%	56.4%	48.5%	59.8%	56.4%
Cloudy	7.1%	25.8%	17.4%	11.3%	23.9%	19.8%	9.4%	24.4%	19.8%
Fog	0.3%	1.2%	0.8%	0.0%	0.9%	0.7%	0.1%	1.0%	0.7%
Raining	2.5%	1.8%	2.2%	4.1%	3.0%	2.9%	3.4%	2.7%	2.9%
Snowing	3.0%	5.1%	4.2%	2.0%	10.5%	7.2%	2.5%	9.2%	7.2%
Wind	0.5%	0.2%	0.3%	0.4%	2.2%	1.3%	0.5%	1.7%	1.3%
Other	0.5%	2.0%	1.4%	0.4%	0.9%	1.0%	0.5%	1.2%	1.0%
Unknown	42.8%	0.0%	19.1%	28.7%	0.0%	10.7%	35.2%	0.0%	10.7%
<b>Road Surface</b>									
Dry	188	371	559	290	978	1268	478	1349	1827
Slippery (Mud/Oil/Etc)	1	0	1	0	1	1	1	1	2
Snowy or Icy	22	88	110	8	409	417	30	497	527
Wet	15	29	44	28	92	120	43	121	164
Unknown	169	0	169	134	0	134	303	0	303
<b>Total</b>	<b>395</b>	<b>488</b>	<b>883</b>	<b>460</b>	<b>1480</b>	<b>1940</b>	<b>855</b>	<b>1968</b>	<b>2823</b>
<i>Percent of All Crashes by Jurisdiction</i>									
Dry	47.6%	76.0%	63.3%	63.0%	66.1%	65.4%	55.9%	68.5%	64.7%
Slippery (Mud/Oil/Etc)	0.3%	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Snowy or Icy	5.6%	18.0%	12.5%	1.7%	27.6%	21.5%	3.5%	25.3%	18.7%
Wet	3.8%	5.9%	5.0%	6.1%	6.2%	6.2%	5.0%	6.1%	5.8%
Unknown	42.8%	0.0%	19.1%	29.1%	0.0%	6.9%	35.4%	0.0%	10.7%
<b>Lighting</b>									
Daylight	159	277	436	266	845	1111	425	1122	1547
Dusk - Dawn	6	25	31	11	88	99	17	113	130
Dark - Street Lights	25	14	39	40	22	62	65	36	101
Dark - Street Lights Not Functioning	0	3	3	0	5	5	0	8	8
Dark - No Street Lights	38	169	207	9	520	529	47	689	736
Unknown	228	488	716	326	1480	1806	554	1968	2522
<b>Total</b>	<b>456</b>	<b>976</b>	<b>1432</b>	<b>652</b>	<b>2960</b>	<b>3612</b>	<b>1108</b>	<b>3936</b>	<b>5044</b>
<i>Percent of All Crashes by Jurisdiction</i>									
Daylight	34.9%	28.4%	30.4%	40.8%	28.5%	30.8%	38.4%	28.5%	30.7%
Dusk - Dawn	1.3%	2.6%	2.2%	1.7%	3.0%	2.7%	1.5%	2.9%	2.6%
Dark - Street Lights	5.5%	1.4%	2.7%	6.1%	0.7%	1.7%	5.9%	0.9%	2.0%
Dark - Street Lights Not Functioning	0.0%	0.3%	0.2%	0.0%	0.2%	0.1%	0.0%	0.2%	0.2%
Dark - No Street Lights	8.3%	17.3%	14.5%	1.4%	17.6%	14.6%	4.2%	17.5%	14.6%
Unknown	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%

**Figure 9: Lassen County Local Road Crashes by Weather**



**Figure 10: Lassen County Local Road Crashes by Road Surface**



**TABLE 6: Summary of Crashes by Violation Category in Lassen County**

2010 to 2019

Violation Category	Local Roadways			State Highways			Total		
	Uninc.			Uninc.			Uninc.		
	Susnvl	County	Total	Susnvl	County	Total	Susnvl	County	Total
Brakes	0	0	0	0	1	1	0	1	1
Impeding Traffic	0	0	0	0	1	1	0	1	1
Other Equipment	1	0	1	0	6	6	1	6	7
Hazardous Parking	0	4	4	1	5	6	1	9	10
Pedestrian Right of Way	4	0	4	9	0	9	13	0	13
Pedestrian Violation	3	1	4	6	3	9	9	4	13
Other Improper Driving	5	6	11	2	5	7	7	11	18
Other Hazardous Violation	1	2	3	6	10	16	7	12	19
Unsafe Lane Change	5	0	5	9	7	16	14	7	21
Improper Passing	0	6	6	2	21	23	2	27	29
Following Too Closely	4	0	4	21	6	27	25	6	31
Traffic Signals and Signs	12	5	17	16	5	21	28	10	38
Unsafe Starting or Backing	28	13	41	16	16	32	44	29	73
Wrong Side of Road	10	46	56	8	114	122	18	160	178
Automobile Right of Way	29	39	68	73	72	145	102	111	213
Driving Under the Influence	29	85	114	6	106	112	35	191	226
Other than Driver/Ped	5	85	90	14	529	543	19	614	633
Improper Turning	25	207	232	26	489	515	51	696	747
Unsafe Speed	60	196	256	105	701	806	165	897	1062
Unknown	323	19	342	269	33	302	592	52	644
<b>Total</b>	<b>544</b>	<b>714</b>	<b>1258</b>	<b>589</b>	<b>2130</b>	<b>2719</b>	<b>1133</b>	<b>2844</b>	<b>3977</b>
<b>Percent of All Crashes by Jurisdiction</b>									
Brakes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Impeding Traffic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Equipment	0.2%	0.0%	0.1%	0.0%	0.3%	0.2%	0.1%	0.2%	0.2%
Hazardous Parking	0.0%	0.6%	0.3%	0.2%	0.2%	0.2%	0.1%	0.3%	0.3%
Pedestrian Right of Way	0.7%	0.0%	0.3%	1.5%	0.0%	0.3%	1.1%	0.0%	0.3%
Pedestrian Violation	0.6%	0.1%	0.3%	1.0%	0.1%	0.3%	0.8%	0.1%	0.3%
Other Improper Driving	0.9%	0.8%	0.9%	0.3%	0.2%	0.3%	0.6%	0.4%	0.5%
Other Hazardous Violation	0.2%	0.3%	0.2%	1.0%	0.5%	0.6%	0.6%	0.4%	0.5%
Unsafe Lane Change	0.9%	0.0%	0.4%	1.5%	0.3%	0.6%	1.2%	0.2%	0.5%
Improper Passing	0.0%	0.8%	0.5%	0.3%	1.0%	0.8%	0.2%	0.9%	0.7%
Following Too Closely	0.7%	0.0%	0.3%	3.6%	0.3%	1.0%	2.2%	0.2%	0.8%
Traffic Signals and Signs	2.2%	0.7%	1.4%	2.7%	0.2%	0.8%	2.5%	0.4%	1.0%
Unsafe Starting or Backing	5.1%	1.8%	3.3%	2.7%	0.8%	1.2%	3.9%	1.0%	1.8%
Wrong Side of Road	1.8%	6.4%	4.5%	1.4%	5.4%	4.5%	1.6%	5.6%	4.5%
Automobile Right of Way	5.3%	5.5%	5.4%	12.4%	3.4%	5.3%	9.0%	3.9%	5.4%
Driving Under the Influence	5.3%	11.9%	9.1%	1.0%	5.0%	4.1%	3.1%	6.7%	5.7%
Other than Driver/Ped	0.9%	11.9%	7.2%	2.4%	24.8%	20.0%	1.7%	21.6%	15.9%
Improper Turning	4.6%	29.0%	18.4%	4.4%	23.0%	18.9%	4.5%	24.5%	18.8%
Unsafe Speed	11.0%	27.5%	20.3%	17.8%	32.9%	29.6%	14.6%	31.5%	26.7%
Unknown	59.4%	2.7%	27.2%	45.7%	1.5%	11.1%	52.3%	1.8%	16.2%

Summary by Crash Type

A final way of classifying crashes is by “Crash Type Category” as shown in Table 7. Note that this data was not recorded for some of the review period by Susanville Police, resulting in a substantial number of crashes for which the information is unknown. As also shown in Figure 11, of all the crashes for which

this information is available, the greatest proportion of crashes is attributed to “Hit Object,” which resulted in 41.6 percent of the crashes in the county and 22.4 percent in the City. Another large proportion in the county were overturning crashes (20.9 percent), while broadside crashes were more common in the city (24.9 percent).

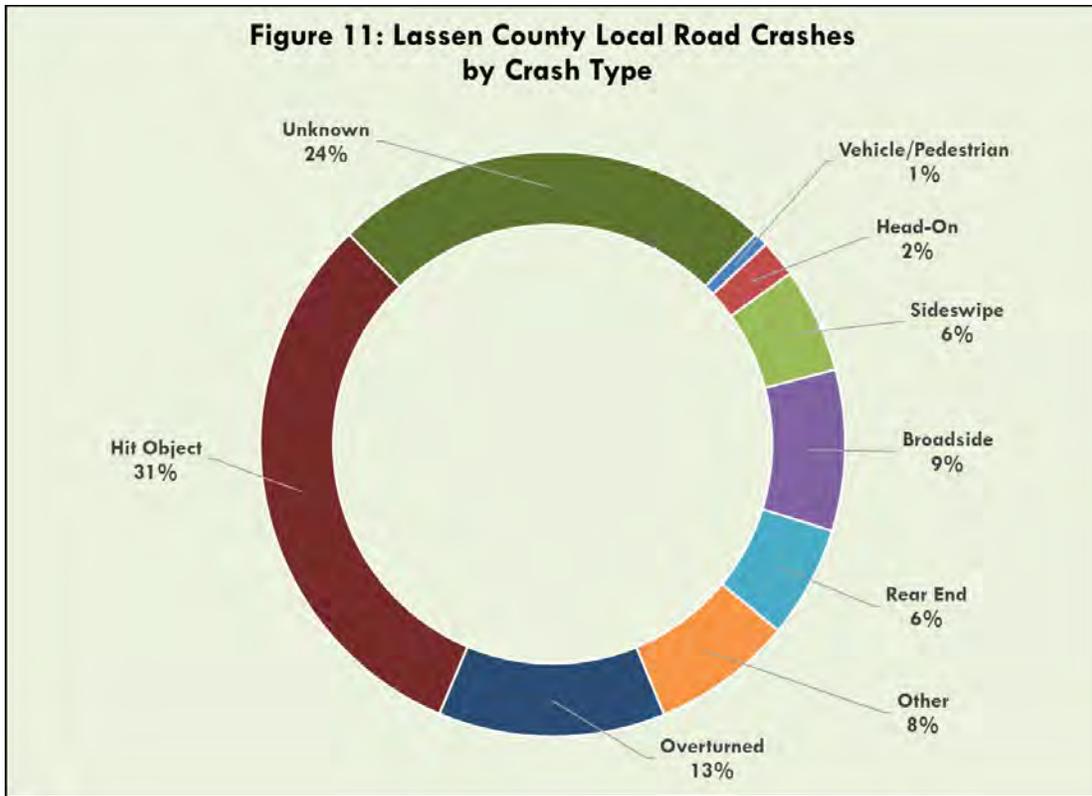
Crash Type	Local Roadways			State Highways			Total		
	Uninc.			Uninc.			Uninc.		
	Susnvl	County	Total	Susnvl	County	Total	Susnvl	County	Total
Vehicle/Pedestrian	7	3	10	15	7	22	22	10	32
Head-On	14	12	26	9	66	75	23	78	101
Sideswipe	36	37	73	44	131	175	80	168	248
Broadside	59	53	112	97	114	211	156	167	323
Rear End	45	33	78	123	127	250	168	160	328
Other	14	84	98	20	433	453	34	517	551
Overturned	9	149	158	12	478	490	21	627	648
Hit Object	53	342	395	20	774	794	73	1116	1189
Unknown	307	1	308	249	0	249	556	1	557
<b>Total</b>	544	714	1258	589	2130	2719	1133	2844	3977
<b><i>Percent of All Crashes by Jurisdiction (Excluding Unknown)</i></b>									
Vehicle/Pedestrian	3.0%	0.4%	1.1%	4.4%	0.3%	0.9%	3.8%	0.4%	0.9%
Head-On	5.9%	1.7%	2.7%	2.6%	3.1%	3.0%	4.0%	2.7%	3.0%
Sideswipe	15.2%	5.2%	7.7%	12.9%	6.2%	7.1%	13.9%	5.9%	7.3%
Broadside	24.9%	7.4%	11.8%	28.5%	5.4%	8.5%	27.0%	5.9%	9.4%
Rear End	19.0%	4.6%	8.2%	36.2%	6.0%	10.1%	29.1%	5.6%	9.6%
Other	5.9%	11.8%	10.3%	5.9%	20.3%	18.3%	5.9%	18.2%	16.1%
Overturned	3.8%	20.9%	16.6%	3.5%	22.4%	19.8%	3.6%	22.1%	18.9%
Hit Object	22.4%	48.0%	41.6%	5.9%	36.3%	32.1%	12.7%	39.3%	34.8%
Unknown	129.5%	0.1%	32.4%	73.2%	0.0%	10.1%	96.4%	0.0%	16.3%

## TRAFFIC CITATIONS

Traffic citation data was obtained from the Susanville Police Department for the most recent last six years (2015 – 2020) available. This data set is limited to citations which were issued within the City of Susanville city limits. This data set did not include citations issued in Lassen County outside of Susanville.

The citation data set was sorted and filtered to only include those which were traffic related, consisting of the following:

- Unsafe Speed
- DUI
- Hit and Run
- Fail to Stop at Stop Sign or Red Light
- Fail to Yield to Pedestrian
- Cellphone
- Seat Belt
- Other Illegal/Unsafe Vehicle Maneuver



The citation data was then organized by category by year. The results are shown in Table 8.

**Table 8: Susanville Traffic Violations by Year**

Traffic Violation	2015	2016	2017	2018	2019	2020	Total	Percent
Unsafe speed	18	15	9	21	51	57	<b>171</b>	28%
DUI	36	53	15	17	9	15	<b>145</b>	24%
Fail to stop at stop sign or red light	30	22	8	38	24	23	<b>145</b>	24%
Fail to yield to pedestrian	12	2	2	3	3	3	<b>25</b>	4%
Cellphone	3	3	2	2	3	14	<b>27</b>	4%
Seat Belts	10	4	0	8	2	13	<b>37</b>	6%
Hit and Run	0	2	0	0	0	1	<b>3</b>	0%
Other illegal/unsafe vehicle maneuver	27	13	8	6	6	4	<b>64</b>	10%
<b>Total</b>	<b>136</b>	<b>114</b>	<b>44</b>	<b>95</b>	<b>98</b>	<b>130</b>	<b>617</b>	

*NOTE: Data from the Susanville Police Department*  
*NOTE: Citations for December of 2020 are estimated based on trends from past years.*

In general, a reduction of traffic related citations can be observed over the six years for which the data was summarized, with the lowest total number in 2017. However, a correlation between the number of citations issued and safety cannot be drawn. Unknown factors such as changes in police force budgets and policies can affect the number of citations issued.

Table 9 shows the locations of the highest percentages of issued citations. The area around Lassen High School (1 block of HWY 36) and two intersections received between seven and four percent of all citations. The six streets (Main, Ash, Riverside, Grand, Paul Bunyan, and Skyline) received between 5 and 43 percent of total citations.

<b>Table 9: Traffic Citations by Locations</b>		
Total citations with location data	585	
<b>Locations</b>		
High School	33	6%
ASH ST. & FOURTH ST.	39	7%
ALEXANDER AVE. & RIVERSIDE DR.	23	4%
<b>Streets</b>		
SKYLINE RD	32	5%
MAIN ST (SR36)	250	43%
PAUL BUNYAN RD	38	6%
ASH ST (SR139)	77	13%
RIVERSIDE DR	53	9%
GRAND AVE	34	6%

### OFFICE OF TRAFFIC SAFETY CRASH RANKINGS

The California Office of Traffic Safety has implemented an annual analysis of how individual jurisdictions throughout California rank in comparison with the rest of the state. These rankings are developed through a detailed methodology that considers traffic volumes, crash history (with a focus on serious crashes) and population. Note that this analysis includes crashes on state highways as well as local roads, and that a high ranking indicates a relatively safe condition compared with other jurisdictions. Table 10 presents the ranking results for 2017 and 2018 (the only two years currently available). Overall, this analysis indicates that Lassen County and Susanville rank very well.

With a focus on total fatal and injury crashes, with Lassen County ranked 56<sup>th</sup> out of 58 counties in 2017 and 47<sup>th</sup> in 2018. The City of Susanville ranked even higher—99<sup>th</sup> out of 101 cities in 2017 and 99<sup>th</sup> out of 102 cities in 2018. Both jurisdictions also rank relatively high in most categories in both years, and Susanville in particular. In Lassen County, the relatively low rankings were found for pedestrians under the age of 15 (ranked 25<sup>th</sup> in 2018), pedestrians aged 65 and above (ranked 37<sup>th</sup> in 2018) and bicyclists under the age of 15 (ranked 39<sup>th</sup> in 2018). Nighttime crashes also ranked relatively low (23<sup>rd</sup> in 2019).

In Susanville, the lower ranking was identified for drivers under 21 that had been drinking (53<sup>rd</sup>), bicyclists under the age of 15 (63<sup>rd</sup>) and pedestrians under the age of 15 (74) or over age 76. Overall, these rankings indicate the need for bicycle and pedestrian safety programs for children, safer pedestrian conditions for the elderly, and the need to address DUI issues among young drivers.

**TABLE 10: Office of Traffic Safety Crash Rankings**

*Note that a higher ranking indicates a safer condition*

2018 Analysis

Crash Type	Lassen County		City of Susanville	
	2017	2018	2017	2018
<b>Total Fatal and Injury</b>	56/58	47/58	99/101	99/102
<b>Alcohol Involved</b>	57/58	42/58	91/101	96/102
<b>Had Been Drinking Driver &lt; 21</b>	41/58	45/58	51/101	53/102
<b>Had Been Drinking Driver 21 – 34</b>	46/58	49/58	76/101	76/102
<b>Motorcycles</b>	50/58	48/58	80/101	84/102
<b>Pedestrians</b>	53/58	49/58	95/101	95/102
<b>Pedestrians &lt; 15</b>	37/58	25/58	79/101	74/102
<b>Pedestrians 65+</b>	43/58	37/58	69/101	76/102
<b>Bicyclists</b>	45/58	57/58	88/101	87/102
<b>Bicyclists &lt; 15</b>	36/58	39/58	63/101	63/102
<b>Composite</b>	NA	NA	87/101	90/102
<b>Speed Related</b>	36/58	41/58	89/101	95/102
<b>Nighttime (9:00pm – 2:59am)</b>	42/58	23/58	89/101	90/102
<b>Hit and Run</b>	51/58	40/58	82/101	81/102

Source: <https://www.ots.ca.gov/media-and-research/crash-rankings/>

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## ANALYSIS OF HIGH CRASH RATE LOCAL ROADWAYS

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Analysis of the data discussed in detail in Chapter 2, along with discussions with Advisory Committee members, identified several “hotspots” where a high concentration of fatal and injury crashes has been reported to have occurred over the last ten years. These hotspots were identified through plotting crash locations. LSC conducted a more detailed analysis of these locations in order to determine the cause of the crashes and potential countermeasures which might reduce the number of crashes. By calculating a crash rate for these roadways and comparing to published statewide averages for the same type of roadways, a proper evaluation of the roadways safety can be made. LSC conducted the analysis in the following step:

- Collect roadway volume. As most of these local roads do not have count volumes, the first step was to collect 24-hour, two-way roadway volumes along the study roadway segments for several days.
- Calculate a million-vehicle mile crash rate. Compare the crash rate to similar roadways within the state.
- Make a site visit to evaluate roadway conditions.
- Review crash history to determine if there are prevalent type of crashes which might be preventable.
- Collect vehicle speed data to determine if speeding is common on the study roadway.
- Determine potential safety treatments which can most effectively reduce the crashes.

Vehicle volume and speed data were not collected along all study roadways. The following roadway segments were identified as having a high concentration of crashes:

- Main Street, Janesville
- Johnstonville and Center Road, Johnstonville
- Richmond Road, Susanville
- Eagle Lakes Road
- Herlong Access Road.

## ANALYSIS OF EXISTING CONDITIONS ON KEY ROADWAY SEGMENTS OF CONCERN

### Herlong Access Road (County Road A25)

The Herlong Access Road is a 4.5-mile-long, two-lane roadway segment from SR 395 to east to Garnier Road (County Road A26). It is one of two access roads for the Federal Corrections Institution and the Sierra Army Depot. The 24-foot-wide roadway has white edge striping but no paved shoulder. Speed limit is posted at 55 mph. Cattle grazing borders both sides of the roadway and is separated by a barbed wire fence, which was observed to be broken in some spots. The roadway has little vertical or horizontal curvature.

A summary of crashes on Herlong Access Road can be found in Table 11. Over a ten-year period, there were a total of 35 reported crashes. Details regarding these crashes are as follows:

- One crash resulted in a fatality and 15 resulted in injuries. This is a relatively high proportion of injury crashes (47 percent), compared with 37 percent injury crashes across all County roadways.
- By collision type, 37 percent of crashes were “hit object” followed by overturned (29 percent) and rear end (11 percent). In particular, the proportion of rear end crashes are relatively high compared with the county average of 5 percent, and the proportion of head-on crashes is three times the countywide proportion of 2 percent.
- By type of motor vehicle involvement, the predominant crashes were fixed object (31 percent), other motor vehicle (31 percent) and non-collision (29 percent). This is a relatively low proportion of crashes with fixed objects compared to countywide average but relatively high in the other two categories. A relatively low proportion of crashes involved an animal (3 percent compared with an average of 12 percent).
- Seventy-one percent of crashes occurred on dry pavements, with snowy/icy conditions involved in 28 percent of crashes.
- The highest number of crashes by violation category were for unsafe speed (34 percent) and improper turning (31 percent), followed by “automobile right of way” (14 percent). DUI crashes are relatively low (9 percent) compared with countywide roads.
- Weather was not a factor in the large majority of crashes, with 92 percent occurring during clear or cloudy conditions.
- As shown in Figure 12, there is not a significant concentration of crashes in any particular area.

**TABLE 11: Summary of Crash Data -- Herlong Access Road Focus Corridor**

2010 to 2019

<b>Severity</b>		
Fatal	1	3%
Severe Injury	2	6%
Other Visible Injury	9	26%
Complaint of Pain	4	11%
Unknown Injury Type	0	0%
PDO	19	54%
<b>Total</b>	<b>35</b>	<b>100%</b>

<b>Collision Type</b>		
Unknown	0	0%
Other	1	3%
Bicyclist	0	0%
Vehicle/Pedestrian	0	0%
Head-On	2	6%
Sideswipe	2	6%
Broadside	3	9%
Rear End	4	11%
Overtaken	10	29%
Hit Object	13	37%
<b>Total</b>	<b>35</b>	<b>100%</b>

% reduction

<b>Motor Vehicle Involvement</b>		
Fixed Object	11	31%
Non-Collision	10	29%
Other Motor Vehicle	11	31%
Parked Motor Vehicle	0	0%
Motor Vehicle on Other Roadway	0	0%
Pedestrian	0	0%
Other Object	2	6%
Animal	1	3%
Bicyclist	0	0%
Unknown	0	0%
<b>Total</b>	<b>35</b>	<b>100%</b>

<b>Road Surface</b>		
Dry	25	71%
Slippery (Mud/Oil/Etc)	0	0%
Snowy or Icy	6	17%
Wet	4	11%
Unknown	0	0%
<b>Total</b>	<b>35</b>	<b>100%</b>

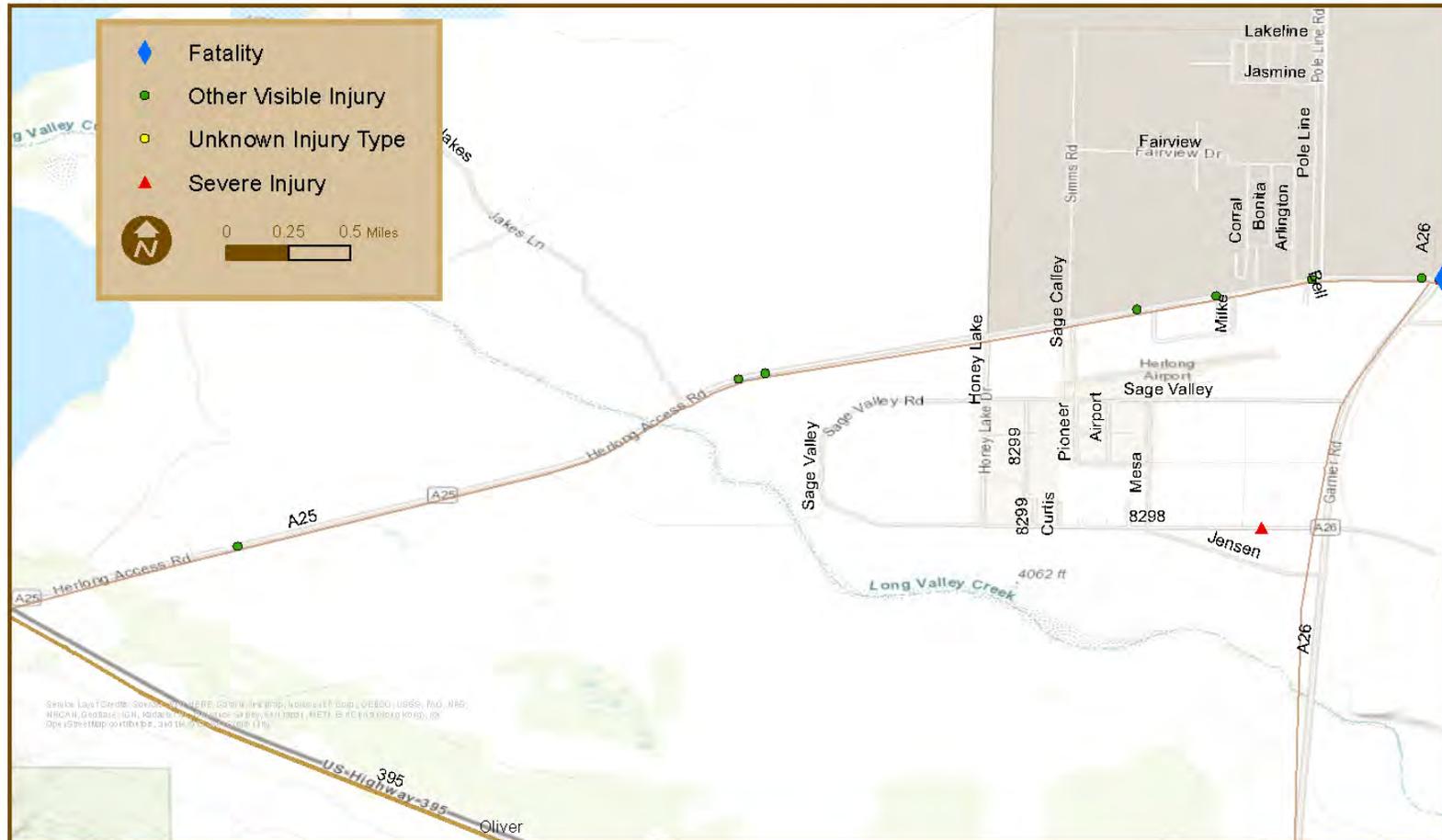
<b>Violation Category</b>		
Brakes	0	0%
Impeding Traffic	0	0%
Other Equipment	0	0%
Hazardous Parking	0	0%
Pedestrian Right of Way	0	0%
Pedestrian Violation	0	0%
Other Improper Driving	0	0%
Other Hazardous Violation	0	0%
Unsafe Lane Change	0	0%
Improper Passing	0	0%
Following Too Closely	0	0%
Traffic Signals and Signs	0	0%
Unsafe Starting or Backing	0	0%
Wrong Side of Road	1	3%
Automobile Right of Way	5	14%
Driving Under the Influence	3	9%
Other than Driver/Ped	3	9%
Improper Turning	11	31%
Unsafe Speed	12	34%
Unknown	0	0%
<b>Total</b>	<b>35</b>	<b>100%</b>

<b>Weather</b>		
Clear	24	69%
Cloudy	8	23%
Raining	2	6%
Snowing	0	0%
Wind	0	0%
Fog	0	0%
Other	1	3%
Unknown	0	0%
<b>Total</b>	<b>35</b>	<b>100%</b>

<b>Lighting</b>		
Daylight	21	60%
Dusk - Dawn	2	6%
Dark - Street Lights Not Functioning	1	3%
Dark - Street Lights	2	6%
Dark - No Street Lights	9	26%
Unknown	0	0%
<b>Total</b>	<b>35</b>	<b>100%</b>



**Figure 12**  
**Fatal and Injury Crashes in Herlong Road Focus Area**  
2010-2019



## Main St. Janesville

Main Street in Janesville is a 3.2-mile-long roadway parallel to US Highway 395. The majority of the roadway is rural residential with an approximate 1.5 miles stretch of commercial land uses centrally located along the study roadway segment. The posted speed limit is 25 mph. The central portion of Main Street has many closely spaced driveways and has limited driver sight distance both vertically and horizontally. The roadway has little to no shoulder with no or worn edge striping. Immediately north of the elementary school the pavement is 24 feet wide. Roadway vehicle volumes were collected at this location (at the intersection with Trinity Way). A speed feedback sign is located just north of the school, which records data that indicates the average speed is approximately 35 mph.

A summary of crashes on Main Street, Janesville can be found in Table 12. Over a ten-year period, there were a total of 24 reported crashes. Details regarding these crashes are as follows:

- No crashes resulted in a fatality, while 12 (50 percent) resulted in injuries. This is a relatively high proportion of injury crashes compared with 37 percent injury crashes across all County roadways.
- By collision type, 42 percent were “hit object,” followed by 21 percent broadside crashes, and 21 percent “other.” The broadside crashes are particularly high compared with the countywide average of 7 percent.
- By type of motor vehicle involvement, the predominant crashes were fixed object (42 percent), other motor vehicle (29 percent), non-collision and animal (13 percent each). The “other motor vehicle” is relatively high compared with the countywide average of 16 percent.
- Seventy-one percent of crashes occurred on dry pavements, with snowy/icy conditions involved in 21 percent of crashes.
- The highest number of crashes by violation category were for unsafe speed and DUI (21 percent each), followed by automobile right of way and “other than driver/pedestrian” (17 percent each). DUI crashes are relatively high compared with the countywide average of 12 percent.
- Weather was not a factor in the large majority of crashes, with 88 percent occurring during clear or cloudy conditions.

**TABLE 12: Summary of Crash Data -- Main Street Focus Corridor**

2010 to 2019

<b>Severity</b>		
Fatal	0	0%
Severe Injury	2	8%
Other Visible Injury	6	25%
Complaint of Pain	4	17%
Unknown Injury Type	0	0%
PDO	12	50%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Collision Type</b>		
Unknown	0	0%
Other	5	21%
Bicyclist	0	0%
Vehicle/Pedestrian	0	0%
Head-On	0	0%
Sideswipe	2	8%
Broadside	5	21%
Rear End	0	0%
Overtaken	2	8%
Hit Object	10	42%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Motor Vehicle Involvement</b>		
Fixed Object	10	42%
Non-Collision	3	13%
Other Motor Vehicle	7	29%
Parked Motor Vehicle	1	4%
Motor Vehicle on Other Roadway	0	0%
Pedestrian	0	0%
Other Object	0	0%
Animal	3	13%
Bicyclist	0	0%
Unknown	0	0%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Road Surface</b>		
Dry	17	71%
Slippery (Mud/Oil/Etc)	0	0%
Snowy or Icy	5	21%
Wet	2	8%
Unknown	0	0%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Violation Category</b>		
Brakes	0	0%
Impeding Traffic	0	0%
Other Equipment	0	0%
Hazardous Parking	0	0%
Pedestrian Right of Way	0	0%
Pedestrian Violation	0	0%
Other Improper Driving	0	0%
Other Hazardous Violation	0	0%
Unsafe Lane Change	0	0%
Improper Passing	0	0%
Following Too Closely	0	0%
Traffic Signals and Signs	0	0%
Unsafe Starting or Backing	1	4%
Wrong Side of Road	2	8%
Automobile Right of Way	4	17%
Driving Under the Influence	5	21%
Other than Driver/Ped	4	17%
Improper Turning	2	8%
Unsafe Speed	5	21%
Unknown	1	4%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Weather</b>		
Clear	18	75%
Cloudy	3	13%
Raining	0	0%
Snowing	2	8%
Wind	1	4%
Fog	0	0%
Other	0	0%
Unknown	0	0%
<b>Total</b>	<b>24</b>	<b>100%</b>

<b>Lighting</b>		
Daylight	13	54%
Dusk - Dawn	1	4%
Dark - Street Lights Not Functioning	0	0%
Dark - Street Lights	0	0%
Dark - No Street Lights	10	42%
Unknown	0	0%
<b>Total</b>	<b>24</b>	<b>100%</b>

### Johnstonville Road/Center Road

The study segment of Johnstonville Road (A27) is between SR 36 (in Susanville) and the High Desert State Prison (in Leavitt). A27 is named Riverside Dr. at the intersection of SR 36 and soon changes names to Johnstonville Road. About 2.5 miles east of SR 36, A27 splits and the study roadway becomes Center Road and continues to the east. The western portion of A27 has a three-lane cross section and is bordered by a mix of commercial/light industrial and residential land uses before transitioning to a rural two-lane roadway to the east fronting cattle grazing fields, and well-spaced residential driveways.

The western portion of A27 has a posted speed limit of 35 mph that increases to 45 as it transitions out of the commercial/light industrial/residential portion. Once A27 becomes Center Road, the speed limit becomes 55 mph. Traffic counts were conducted near the intersection of Center Road and Cramer Ranch Road. At this location, A27 has 12-foot travel lanes, painted edge striping and an approximate four-foot shoulder. Casual observation, on a midweek at midday, showed a large number of heavy vehicles along this section of roadway.

A summary of crashes on Johnstonville/Center Road can be found in Table 13. Over a ten-year period, there were a total of 150 reported crashes. Details regarding these crashes are as follows:

- Four crashes resulted in a fatality, and 45 resulted in injuries. This is a relatively high proportion of fatalities (3 percent), compared with 2 percent over all County roadways.
- By collision type, 30 percent of crashes were “hit object” followed by 14 percent each consisting of broadside or rear-end crashes. In particular, the proportion of rear end crashes is relatively high compared with the county average of 5 percent, while the proportion of hit object and overturned crashes are relatively low.
- By type of motor vehicle involvement, the predominant crashes were other motor vehicles (40 percent) and fixed object (26 percent). This proportion involving another motor vehicle is substantially higher than the countywide average of 16 percent.
- Seventy-three percent of crashes occurred on dry pavements, with snowy/icy/wet conditions involved in 16 percent of crashes.
- The highest number of crashes by violation category were for unsafe speed and improper turning (22 percent each), followed by “automobile right of way” (12 percent). DUI crashes are relatively low (7 percent) compared with countywide average.
- Weather was not a factor in the large majority of crashes, with 80 percent occurring during clear or cloudy conditions.
- As shown in Figure 13, there is a significant concentration of crashes in the S-curve area crossing Jensen Slough (the westernmost portion of Center Road). In addition, three serious crashes (including two fatalities) occurred in the segment near Big Sky Road.

**TABLE 13: Summary of Crash Data -- Johnstonville Road/Center Road Focus Corridor**

2010 to 2019

<b>Severity</b>		
Fatal	4	3%
Severe Injury	2	1%
Other Visible Injury	17	11%
Complaint of Pain	24	16%
Unknown Injury Type	2	1%
PDO	101	67%
<b>Total</b>	<b>150</b>	<b>100%</b>

<b>Collision Type</b>		
Unknown	17	11%
Other	12	8%
Bicyclist	0	0%
Vehicle/Pedestrian	0	0%
Head-On	4	3%
Sideswipe	15	10%
Broadside	21	14%
Rear End	21	14%
Overtaken	15	10%
Hit Object	45	30%
<b>Total</b>	<b>150</b>	<b>100%</b>

<b>Motor Vehicle Involvement</b>		
Fixed Object	39	26%
Non-Collision	15	10%
Other Motor Vehicle	60	40%
Parked Motor Vehicle	1	1%
Motor Vehicle on Other Roadway	1	1%
Pedestrian	0	0%
Other Object	2	1%
Animal	14	9%
Bicycle	1	1%
Unknown	17	11%
<b>Total</b>	<b>150</b>	<b>100%</b>

<b>Road Surface</b>		
Dry	109	73%
Slippery (Mud/Oil/Etc)	0	0%
Snowy or Icy	18	12%
Wet	6	4%
Unknown	17	11%
<b>Total</b>	<b>150</b>	<b>100%</b>

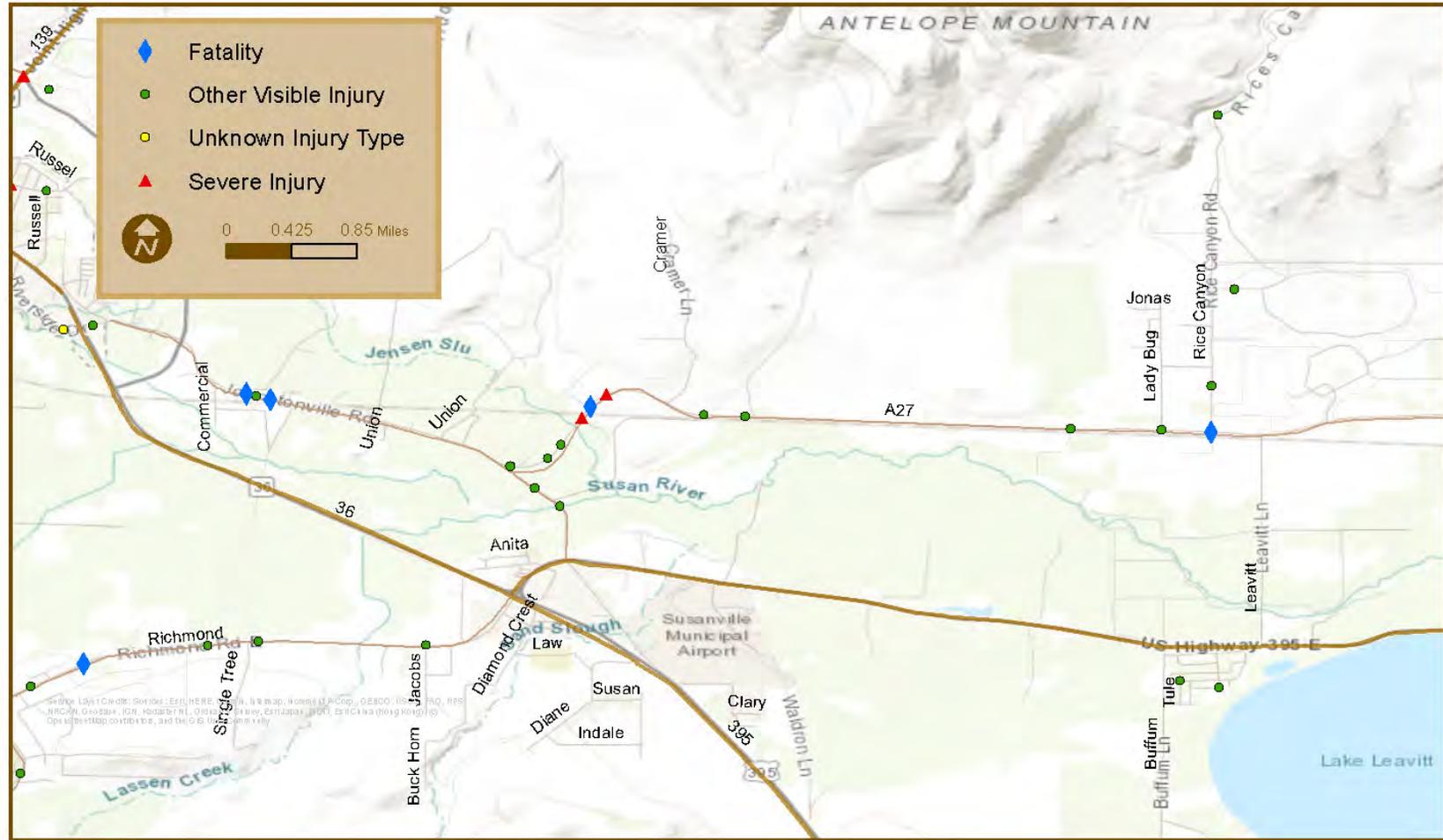
<b>Violation Category</b>		
Brakes	0	0%
Impeding Traffic	0	0%
Other Equipment	0	0%
Hazardous Parking	0	0%
Pedestrian Right of Way	0	0%
Pedestrian Violation	0	0%
Other Improper Driving	0	0%
Other Hazardous Violation	0	0%
Unsafe Lane Change	2	1%
Improper Passing	2	1%
Following Too Closely	2	1%
Traffic Signals and Signs	3	2%
Unsafe Starting or Backing	0	0%
Wrong Side of Road	5	3%
Automobile Right of Way	18	12%
Driving Under the Influence	11	7%
Other than Driver/Ped	16	11%
Improper Turning	33	22%
Unsafe Speed	33	22%
Unknown	25	17%
<b>Total</b>	<b>150</b>	<b>100%</b>

<b>Weather</b>		
Clear	87	58%
Cloudy	33	22%
Raining	2	1%
Snowing	8	5%
Wind	0	0%
Fog	2	1%
Other	1	1%
Unknown	17	11%
<b>Total</b>	<b>150</b>	<b>100%</b>

<b>Lighting</b>		
Daylight	88	59%
Dusk - Dawn	6	4%
Dark - Street Lights Not Functioning	1	1%
Dark - Street Lights	10	7%
Dark - No Street Lights	27	18%
Unknown	18	12%
<b>Total</b>	<b>150</b>	<b>100%</b>



**Figure 13**  
**Fatal and Injury Crashes in Johnstonville Rd./Center Rd. Focus Area**  
2010-2019



### Eagle Lake Road (County Road A1)

Eagle Lake Road is a two-lane, 34-mile-long road starting at SR 36, 2.5 miles northwest of Susanville and terminating at SR 139. Based on a review of crash locations, the study segment of the roadway (13 miles) is from SR 36 to Gallatin Road (that accesses the boat ramp and campground). As the majority of traffic seen on Eagle Lakes (and reported crashes) are on this section, it was selected for analysis rather than the entire length of the road.

From SR 36, Eagle Lakes Road travels north with a posted 50-mph speed limit. The two-lane roadway consists of 11-foot travel lanes, white-edge striping, and no paved shoulder. A soft shoulder is provided.

At 1.2 miles from SR 36, the speed limit changes to 45 mph. Within 2.1 miles (from SR36) the speed limit drops to 35 mph as the roadway enters the residential neighborhood of Lake Forest Estates.

Past Lake Forest Estates, Eagle Lakes Road becomes a windy mountain road with lanes widths that vary between 10 and 12 feet. No shoulders or painted edge-striping are present for the majority of the roadway. The roadway is often cut into the hill side with embankments on either side of the roadway and no opportunity for vehicles to pull out of the travel lane. While occasional marked turnouts are provided, overall, there are many areas with little or no recovery zone for vehicles leaving the pavement. Twenty-five-mph speed advisory signs are posted at a few curves.

A summary of crashes in this segment of Eagle Lake Road can be found in Table 14. Over a ten-year period, there were a total of 59 reported crashes, as detailed below:

- One crash resulted in a fatality, and 30 resulted in injuries. Compared with 37 percent injury crashes across all County roadways, the 50 percent injury crashes in this segment are relatively high.
- By collision type, 54 percent of crashes were “hit object” followed by overturned (29 percent). The proportion of hit object crashes is slightly higher than the county average of 48 percent and the proportion of overturned crashes is higher than the countywide proportion of 21 percent.
- By type of motor vehicle involvement, the predominant crashes were fixed object (53 percent), followed by non-collision (29 percent) and “other motor vehicle” (14 percent). This is a relatively high proportion of crashes with fixed objects and non-collision crashes compared to countywide average. Only 2 percent of crashes involved an animal (compared with an average of 12 percent).
- Snow/ice conditions are an important factor in this segment, occurring during 34 percent of the crashes, compared with a countywide average of 18 percent.

**TABLE 14: Summary of Crash Data -- Eagle Lake Road Focus Corridor**

2010 to 2019

<b>Severity</b>		
Fatal	1	2%
Severe Injury	2	3%
Other Visible Injury	15	25%
Complaint of Pain	13	22%
Unknown Injury Type	0	0%
PDO	28	47%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Collision Type</b>		
Unknown	0	0%
Other	1	2%
Bicyclist	0	0%
Vehicle/Pedestrian	0	0%
Head-On	1	2%
Sideswipe	4	7%
Broadside	2	3%
Rear End	2	3%
Overtuned	17	29%
Hit Object	32	54%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Motor Vehicle Involvement</b>		
Fixed Object	31	53%
Non-Collision	17	29%
Other Motor Vehicle	8	14%
Parked Motor Vehicle	1	2%
Motor Vehicle on Other Roadway	0	0%
Pedestrian	0	0%
Other Object	1	2%
Animal	1	2%
Bicyclist	0	0%
Unknown	0	0%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Road Surface</b>		
Dry	37	63%
Slippery (Mud/Oil/Etc)	0	0%
Snowy or Icy	20	34%
Wet	2	3%
Unknown	0	0%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Violation Category</b>		
Brakes	0	0%
Impeding Traffic	0	0%
Other Equipment	0	0%
Hazardous Parking	0	0%
Pedestrian Right of Way	0	0%
Pedestrian Violation	0	0%
Other Improper Driving	0	0%
Other Hazardous Violation	1	2%
Unsafe Lane Change	0	0%
Improper Passing	0	0%
Following Too Closely	0	0%
Traffic Signals and Signs	0	0%
Unsafe Starting or Backing	1	2%
Wrong Side of Road	5	8%
Automobile Right of Way	4	7%
Driving Under the Influence	7	12%
Other than Driver/Ped	1	2%
Improper Turning	20	34%
Unsafe Speed	20	34%
Unknown	0	0%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Weather</b>		
Clear	42	71%
Cloudy	14	24%
Raining	0	0%
Snowing	3	5%
Wind	0	0%
Fog	0	0%
Other	0	0%
Unknown	0	0%
<b>Total</b>	<b>59</b>	<b>100%</b>

<b>Lighting</b>		
Daylight	42	71%
Dusk - Dawn	3	5%
Dark - Street Lights Not Functioning	0	0%
Dark - Street Lights	0	0%
Dark - No Street Lights	14	24%
Unknown	0	0%
<b>Total</b>	<b>59</b>	<b>100%</b>

- The highest number of crashes by violation category were for unsafe speed (34 percent) and improper turning (35 percent). Both of these proportions slightly exceed the countywide average. At a rate of 12 percent, DUI crashes are consistent with the countywide average.
- Weather was not a factor in the large majority of crashes, with 95 percent occurring during clear or cloudy conditions. It was snowing during the remaining 5 percent of crashes.
- As shown in Figure 14, crashes occurred at various locations along the corridor. There is a moderate concentration along a relatively straight and level section 0.7 miles north of SR 36, as well as in a series of curves roughly 0.6 miles south of Boat Harbor Road.

### Richmond Road

Richmond Road is a 6.8-miles-long roadway serving the valley south of Susanville, connecting Susanville on the north with the US 395/SR 36 intersection to the southeast. It ties together the northwest and southern portion of Susanville. At the north it turns into South Weatherlow Street connecting to Main Street (SR36). The two-lane roadway predominantly serves rural residential neighborhoods and ranch lands; however, several businesses, schools, and churches are accessed via Richmond Road. The roadway has two 14-foot travel lanes with no white-edge-striping and no shoulder. At the time of the site, visit the roadway appeared to be recently paved. Historical photos show 12-foot travels lanes, edge striping, and a 2-foot shoulder. Turn pockets and passing zone are both present along Richmond Road. Many sections of Richmond Road are on fill approximately 15 feet or more. No guard rails are present along these elevated roadway segments.

The northernmost portion of Richmond Road is dense residential (with an occasional business) with a speed limit of 25mph. A few streetlights can be found along this segment of the study roadway. A mile to the south, the roadway becomes rural with decreased driveway spacing and the speed limit increases to 35 mph. After an additional half mile south, an “end 3 5mph speed limit” sign is posted. No additional speed limit signs are post. Based on California Vehicle code Section 22349 the speed limit for an undivided unsigned 2-lane roadway is 55 mph. Continuing southbound to SR36/SR395, no additional speed limit signs are posted except for a “25 mph When Children are Present” sign in front of Richmond Elementary School. Traveling northbound from the SR36/SR395, no speed limit signs are posted (with the exception of Richmond Elementary School) until the 35mph zone at the northern portion of Richmond Road.

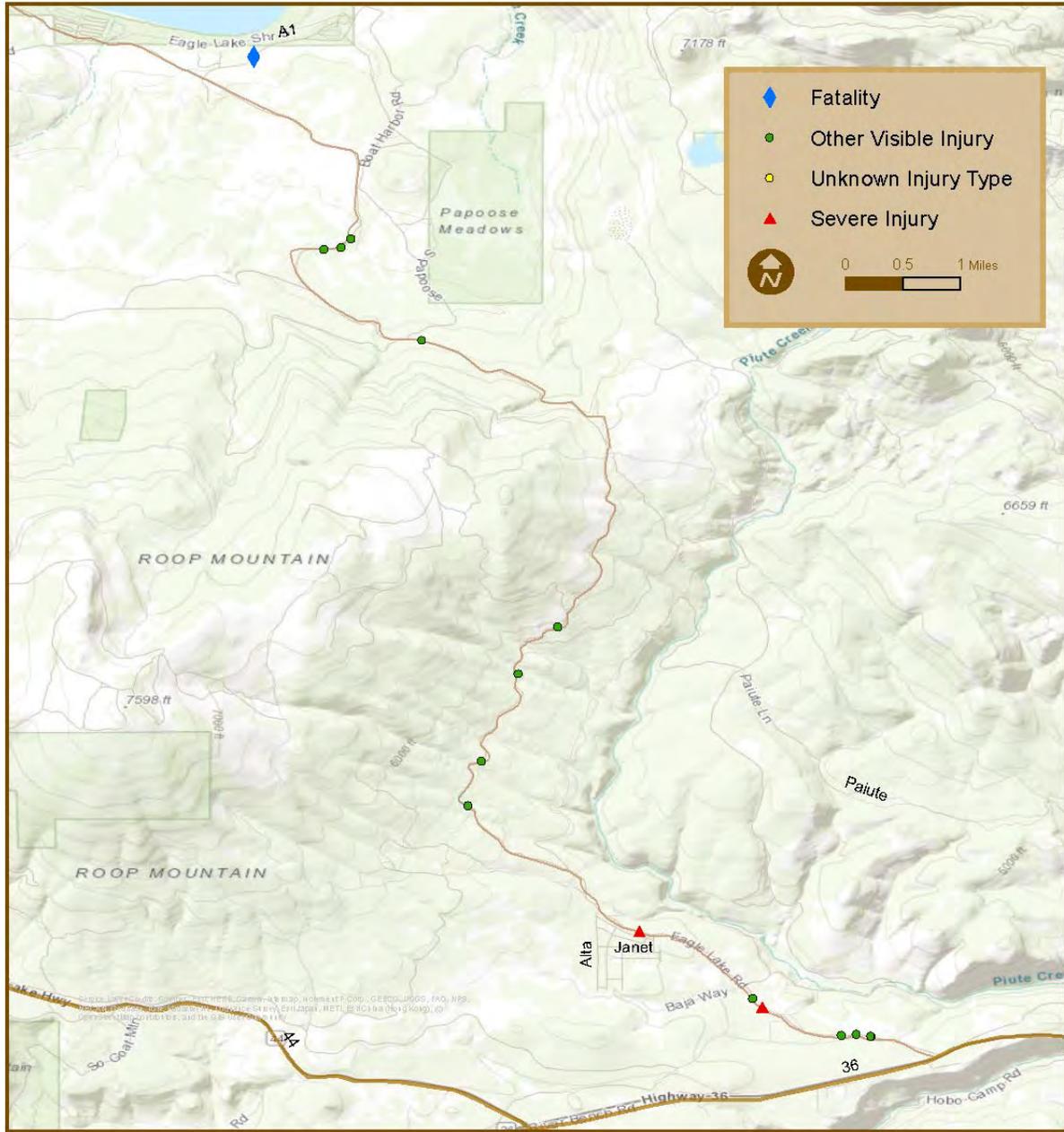
A summary of crashes on Richmond Road can be found in Table 15, which indicates the following:

- A total of 79 crashes were reported over a ten-year period, including one fatal crash, 27 injury crashes and 51 crashes that resulted in property damage only.
- The largest proportion of crashes were “hit object” (54 percent), compared with a countywide average of 48 percent.



**Figure 14**  
**Fatal and Injury Crashes in Eagle Lake Road Focus Area**

2010-2019



**TABLE 15: Summary of Crash Data -- Richmond Road Focus Corridor**

2010 to 2019

<b>Severity</b>		
Fatal	1	1%
Severe Injury	4	5%
Other Visible Injury	13	16%
Complaint of Pain	9	11%
Unknown Injury Type	1	1%
PDO	51	65%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Collision Type</b>		
Unknown	7	9%
Other	4	5%
Bicyclist	0	0%
Vehicle/Pedestrian	0	0%
Head-On	3	4%
Sideswipe	2	3%
Broadside	4	5%
Rear End	7	9%
Overtaken	9	11%
Hit Object	43	54%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Motor Vehicle Involvement</b>		
Fixed Object	38	48%
Non-Collision	10	13%
Other Motor Vehicle	13	16%
Parked Motor Vehicle	3	4%
Motor Vehicle on Other Roadway	0	0%
Pedestrian	0	0%
Other Object	4	5%
Animal	4	5%
Bicyclist	0	0%
Unknown	7	9%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Road Surface</b>		
Dry	56	71%
Slippery (Mud/Oil/Etc)	0	0%
Snowy or Icy	13	16%
Wet	3	4%
Unknown	7	9%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Violation Category</b>		
Brakes	0	0%
Impeding Traffic	0	0%
Other Equipment	0	0%
Hazardous Parking	0	0%
Pedestrian Right of Way	0	0%
Pedestrian Violation	0	0%
Other Improper Driving	1	1%
Other Hazardous Violation	0	0%
Unsafe Lane Change	2	3%
Improper Passing	0	0%
Following Too Closely	1	1%
Traffic Signals and Signs	1	1%
Unsafe Starting or Backing	2	3%
Wrong Side of Road	4	5%
Automobile Right of Way	1	1%
Driving Under the Influence	11	14%
Other than Driver/Ped	5	6%
Improper Turning	27	34%
Unsafe Speed	17	22%
Unknown	7	9%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Weather</b>		
Clear	49	62%
Cloudy	13	16%
Raining	4	5%
Snowing	5	6%
Wind	0	0%
Fog	1	1%
Other	0	0%
Unknown	7	9%
<b>Total</b>	<b>79</b>	<b>100%</b>

<b>Lighting</b>		
Daylight	42	53%
Dusk - Dawn	2	3%
Dark - Street Lights Not Functioning	0	0%
Dark - Street Lights	2	3%
Dark - No Street Lights	26	33%
Unknown	7	9%
<b>Total</b>	<b>79</b>	<b>100%</b>

- By motor vehicle involvement, 48 percent of crashes were “fixed object,” followed by 16 percent for “other motor vehicle” incidents. Animals were involved in a relatively low proportion of crashes (5 percent).
- Snow or ice was the pavement conditions for 16 percent of the crashes, in line with the countywide average.
- Improper turning was the cited violation category for 34 percent of the crashes (compared with a county average of 29 percent). DUIs were a relatively high proportion of crashes (14 percent compared with 12 percent), but unsafe speed was a relatively low proportion of violations (22 percent compared with 28 percent).
- Rain and snow were occurring during 11 percent of crashes, compared with a 7-percent average countywide.
- A review of crash location did not find any significant concentrations of crashes.

## REVIEW OF CRASH RATES

Using traffic volume data collected, a crash rate is calculated based on Million Vehicle Miles (MVM) traveled for the various study roadway segments. For fatalities, a 100 MVM rate is used. The volume data was adjusted to estimated annual volumes for the ten-year study period based on Caltrans trends and ratio of annual to daily volumes. A summary of the crash rates is presented in Table 16. Using the most recent (2018) Caltrans published statewide average crash statistics, the study roadway segments can be compared to similar roadway types within the state.

All of the study roadway segments have crash rates higher than the statewide average for similar roadway types for both total crashes and fatality crashes. Three segments—Eagle Lake Road, Johnstonville/Center Road, and Herlong Access Road—have crash rates more than twice (200 percent) the statewide average. Of these, Eagle Lake Road stands out as having a total crash rate five times (501 percent) of the statewide average. The remaining two focus roadways (Main Street and Richmond Road) are not as high but still 49 percent over the statewide average.

Focusing on the fatality rate, both Eagle Lake Road and Herlong Access Road have rated more than twice the statewide average (225 percent and 213 percent, respectively). Johnstonville/Center Road’s fatality rate is 67 percent higher than the statewide average. The remaining two focus roadways are less than the statewide average, with no reported fatalities over the ten-year period on Janesville Road and a fatality rate that is 43 percent less than the statewide average on Richmond Road.

Based on this review, the remainder of this study focuses on three study areas: Herlong Access Road, Johnstonville/Center Road, and Eagle Lake Road. These roadways are selected as having the highest potential to generate highway safety funding, such as Local Highway Safety Improvement Program (HSIP) funding based on the potential for significant and cost-effective safety improvement measures.

**Table 16 - Lassen Local Road Crash Rate Analysis -- Focus Roadways**

Road	Eagle Lake Road (CR A-1) <sup>4</sup>	Main Street (Janesville Rd)	Richmond Road/ Richmond Rd E	Johnstonville Road/ Center Road (CR A-27) <sup>5</sup>	Herlong Access Road (CR A-25)
From	SR 36	Lakecrest Rd	Riverside Dr	Johnstonville Road/ SR 36	US 395
To	Gallatin Rd	US 395	SR 36/US 395	Center Road/ High Desert State Prison	Garnier Rd A26
Number of Crashes	67	24	79	150	35
Number of Fatalities	1	0	1	4	1
Average Daily Traffic Volume	265	1,324	2,056	2,799	800
Number of Years	10	10	10	10	10
Length of Roadway Segment (miles)	13.3	3.2	6.78	6.79	4.66
Crash Rate per Million Vehicle-Miles <sup>1</sup>	5.21	1.55	1.55	2.16	2.57
Fatality Rate per 100 Million Vehicle-Miles <sup>2</sup>	7.78	0.00	1.97	5.77	7.35
Roadway Type	2 and 3 Ln	2 and 3 Ln	2 and 3 Ln	2 and 3 Ln	2 and 3 Ln
Rural 2018 Caltrans Crash Rate Total per MVM <sup>3</sup>	1.04	1.04	1.04	1.04	1.04
Rural 2018 Caltrans Crash Rate Fatalities per 100 MVM <sup>3</sup>	3.45	3.45	3.45	3.45	3.45
Ratio of Total Crash Rate to Statewide Rural Average Rate	501%	149%	149%	208%	247%
Ratio of Fatality Rate to Statewide Rural Average Rate	225%	0%	57%	167%	213%
<p><i>Note 1: Crash Rate = (Number of Crashes) x (1,000,000)/ (Average Traffic Volumes x Number of Years x Length of Roadway Segment in miles)</i></p> <p><i>Note 2: Fatality Rate = (Number of Fatalities) x (1,000,000)/ (Average Traffic Volumes x Number of Years x Length of Roadway Segment in miles)</i></p> <p><i>Note 3: Standards found in 2018 Crash Data on California Highways by Caltrans</i></p> <p><i>Note 4: Assuming summer volumes on Eagle Lake Road at twice the volume observed in the fall.</i></p> <p><i>Note 5: Google Maps also shows County Sign Route A27 continuing S along Johnstonville Rd and Johnstonville Dr to US 395. This segment appears not to be part of the County Route system, although it does appear to be a former routing of Route 36.</i></p>					

## EVALUATION OF COUNTERMEASURES

Various roadway treatments can be applied to the study roadway segments as countermeasures to potentially reduce the number of future crashes. Existing conditions were evaluated in light of the types of crashes (and weather/roadway/driver factors) as well as the professional literature. For each of the three remaining focus corridors, a series of potential improvements were considered, with a focus on those measures that have proven in similar settings to be effective in reducing crash risk. Consistent with HSIP guidance, this evaluation focuses on a Benefit-Cost Analysis, which is the ratio of the total benefit of the potential improvement (reflecting the reduction in crashes, injuries and fatalities expected) over the total construction cost. The HSIP analysis procedure was applied, as reflected in Caltrans' *Highway Safety Improvement Program Analyzer* online tool, as available at <https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/apply-now>.

The analysis uses "crash reduction factors," which are available in the *Desktop Reference for Crash Reduction Factors* published by the Federal Highway Administration (FHWA-SA-07-015). These factors reflect the percentage of reduction in crashes expected after implementation of the countermeasure, based upon an extensive inventory of previous studies. The specific crash reduction factors incorporated by Caltrans into the *Highway Safety Improvement Program Analyzer* were used, which are on a decimal basis. For example, a crash reduction factor of 0.15 indicates that a specific countermeasure would reduce the potential for crashes by 15 percent.

Costs were estimated based upon unit quantities and cost factors reported through the Caltrans Contract Cost Data webpage ([d8data.dot.ca.gov/contract cost/index.php](http://d8data.dot.ca.gov/contract%20cost/index.php)). This data was analyzed for similar projects over the last five years. Note that this contract cost data includes mobilization and time-related overhead but does not include other project-related costs, such as engineering, contingency, and construction management. To provide a planning-level estimate of total project implementation costs, the following additional factors were applied:

Contingency	30 percent
Traffic Control	10 percent

After applying these factors, the following additional factors were applied to the running total:

Engineering	15 percent
Construction Management	15 percent

Note that, given that all potential improvements are within existing right-of-way, environmental costs are assumed to be negligible. Overall, these factors result in a total increase over the base cost of 85 percent.

### Johnstonville Road/Center Road

The results of the analysis for the Johnstonville Road/Center Road corridor are shown in Table 17. Based on a review of crash locations, this evaluation focuses on a 1.3-mile-long segment from 1,600 feet west of the A27 junction to Cramer Lane, roughly halfway between Susanville and Leavitt. Five potential countermeasures were evaluated:

**TABLE 17: Potential Crash Countermeasures on Johnstonville/Center Road**

1,600' West of A27 Junction to Cramer Lane

Treatment Type	Segment Length		Cost		CRF <sup>2</sup>	Total Benefit	Benefit-Cost Ratio
	Units	Quantity	Unit Cost	Total <sup>1</sup>			
Shoulder Rumble Strips	Feet	7000	\$4.49	\$58,100	0.15	\$2,626,651	45.2
Centerline Rumble Strip	Feet	7000	\$2.24	\$29,000	0.20	\$3,502,200	120.8
Chevron Signs	Sign Set	2	\$4,500	\$16,700	0.40	\$6,696,400	401.0
Curve Advance Warning Signs	Each	2	\$2,000	\$7,400	0.25	\$4,377,750	591.6
High Friction Surface Treatment	Feet	7000	\$16	\$204,400	0.55	\$9,631,050	47.1

Note 1: Includes a total 85 percent factor for contingency, traffic control, engineering, construction management.

Note 2: CRF=Crash Reduction % from Caltrans HSIP Analyzer Worksheet

- Rumble strips along both sides of the roadway in the existing paved shoulder;
- Centerline rumble strip;
- Curve advanced warning signs at the two major curves just east of the Johnstonville/Center Road intersection;
- Chevron signs along the two roadways; and
- High friction surface treatment could be applied to the roadway. This consists of a thin surface of heat-treated bauxite (or similar material) in a polymer resin binder, which significantly improves skid resistance. It is particularly beneficial for wet/icy conditions and on horizontal curves.

Due to the concentration of crashes in this segment, the high reduction in crashes reflected in the CRFs and the modest costs, each of these potential measures have a high (positive) Benefit-Cost Ratio (BCA). These values range from a BCA of 45.2 for the shoulder rumble strips to 591.6 for the advance curves warning signs.

**Herlong Access Road (County Road A25)**

A summary of the BCA analysis for potential safety improvements along Herlong Access Road is shown in Table 18:

<b>TABLE 18: Potential Crash Countermeasures on Herlong Access Road (A25)</b>							
US 395 to Garnier Road							
Treatment Type	Segment Length		Cost		CRF <sup>2</sup>	Total Benefit	Benefit-Cost Ratio
	Units	Quantity	Unit Cost	Total <sup>1</sup>			
Centerline Rumble Strip	Miles	4.7	\$2,345	\$20,400	20%	\$3,370,800	165.2
Shoulder Widening	Miles	4.7	\$1,382,980	\$12,025,000	30%	\$10,112,401	0.8
Edge Rumble Strips	Miles	4.7	\$4,690	\$40,778	15%	\$2,528,100	62.0
Shoulder Widening and Edge Rumble Strips	Miles	4.7	\$1,387,670	\$12,065,800	41%	\$13,651,741	1.1
High Friction Surface Treatment	Miles	4.7	\$69,440	\$603,800	55%	\$18,539,402	30.7

Note 1: Includes a total 85 percent factor for contingency, traffic control, engineering, construction management.  
 Note 2: CRF=Crash Reduction % from Caltrans HSIP Analyzer Worksheet

- A centerline rumble strip could be installed, which would have an incredibly good BCA (165.2).
- Paved shoulders could be provided. Assuming a 4-foot shoulder is added to both sides of the roadway, the total project cost is estimated at \$12 Million. While there would be a traffic safety benefit, the BCA would be only 0.8.
- However, providing paved shoulders would also allow installation of edge line rumble strips which would have an additional safety benefit at a relatively small marginal cost. Considering both the shoulder widening and edge line rumble strips as a package, a BCA of 1.1 would result. While this exceeds 1.0, it is not a particularly high BCA figure for supporting a grant application.
- High friction surface treatment would have a good BCA of 30.7.

### Eagle Lake Road (County Road A1)

Because of the relatively long length of Eagle Lake Road and the differing roadway characteristics, countermeasures were evaluated for several segment options, as well as a wide range of potential measures. Note that a centerline rumble strip was not considered, as the limited roadway width makes this option inadvisable. As shown in Table 19, the results of the analysis are as follows:

**TABLE 19: Potential Crash Countermeasures Eagle Lakes Road**

Treatment Type	Segment	Segment Length		Cost		CRF <sup>2</sup>	Total Benefit	Benefit-Cost Ratio
		Units	Quantity	Unit Cost	Total <sup>1</sup>			
Edge Line Striping - 4" Thermo	SR 36 to Gallatin Rd	Miles	13	\$6,336	\$152,400	25%	\$5,064,300	33.2
	Alta Dr to Boat Harbor Rd	Miles	8	\$6,336	\$93,800	25%	\$665,950	7.1
Chevron Signs	4 locations (5 signs per location)	Sign Set	4	\$4,500	\$33,300	40%	\$751,840	22.6
Curve Advance Warning Sign	4 locations	Sign	4	\$2,000	\$14,800	25%	\$469,900	31.8
Shoulder Widening	Curve Section between Alta Dr and Boat Harbor Rd	Miles	4	\$3,750,000	\$27,750,000	30%	\$1,127,761	0.04
High Friction Surface Treatment	Curve Section between Alta Dr and Boat Harbor Rd	Miles	4	\$69,440	\$513,900	55%	\$1,033,780	2.0
	Alta Dr to Boat Harbor Rd	Miles	8	\$69,440	\$1,027,700	55%	\$1,465,090	1.4
	SR 36 to Gallatin Rd	Miles	13	\$69,440	\$1,670,000	55%	\$11,141,460	6.7

Note 1: Includes a total 85 percent factor for contingency, traffic control, engineering, construction management.  
 Note 2: CRF=Crash Reduction % from Caltrans HSIP Analyzer Worksheet

- Shoulder widening would be expensive (\$27.7 Million for a 4-mile segment), reflecting the need for cut and fill in hilly terrain. It would also have an exceptionally low BCA. This option should not be considered further.
- Edge line striping has a good (33.2) BCA, applied over the entire length of the roadway.
- Curve advance signs and chevron signs at four key curves also have a high BCA (31.8 and 22.6, respectively).
- High friction surface treatment has a lower BCA, though it still exceeds 1.0 for all segments evaluated. The highest value (6.7) is for the entire 13-mile length.

Public input for the LRSP study consisted of participation with a stakeholder group, as well as two opportunities for broader public input.

**STUDY STAKEHOLDER GROUP**

A study stakeholder group was established. This group has met virtually two times over the course of the study, to (1) provide input into existing traffic safety issues and (2) review the summary of existing safety conditions. A third meeting will be held to review and discuss this draft study report. Organizations and individuals involved in this group are shown in Table 20. Note that multiple attempts were made to include participation from the Susanville Indian Rancheria as well as the Lassen County Sheriff’s Department, with no response.

<b>TABLE 20: Lassen County Local Roadway Safety Advisory Group</b>			
<b>Organization</b>	<b>Contact</b>	<b>Title</b>	<b>Email</b>
Lassen County Transportation Commission	John Clerici	Executive Secretary	jlfclerici@gmail.com
	Steve Borroum	Engineer	sborroum@comcast.net
City of Susanville	Dan Newton	Director of City Public Works	dnewton@cityofsusanville.org
Lassen County	Pete Heimbigner	Director of County Public Works/Transportation	PHeimbigner@co.lassen.ca.us
CHP	Ian Troxell	Captain	ITroxell@chp.ca.gov
Caltrans District 2	Mike Mogen	Project Manager	michael.mogen@dot.ca.gov
	Kelly Zolotoff	STIP (NonSHOPP) Coordinator	kelly.zolotoff@dot.ca.gov
Lassen National Forest	Deb Bumpus	Supervisor	deb.bumpus@usda.gov
	Leslie Ross	Forest Engineer	leslie.ross@usda.gov
Lassen County Schools	Patty Guderson	Superintendent	pguderson@lcoe.org

A public meeting was held on July 30, 2021, to provide an opportunity for input into study concerns and issues. In addition to technical staff, two members of the public participated. A summary of input received is as follows:

- The key areas of concern presented by the technical team were in line with public perceptions.
- Bicycle crashes are a concern. Growth in e-bike popularity is expected to increase bicycle crashes in the future.
- Driving under the influence is a concern, such as along Paul Bunyan Road.
- Chestnut/Paul Bunyan/Grand Ave is a problematic, five-leg intersection.
- Speeding is an issue along Richmond Road, indicating the need for additional enforcement.

A separate public meeting will be held to present and discuss this draft study report.

## LASSEN COUNTY LOCAL ROADWAY SAFETY PLAN

Based on the analysis of existing conditions, evaluation of alternatives and public and stakeholder input, the following Local Roadway Safety Plan for Lassen County was prepared. This plan consists of two major elements: specific safety improvement projects and programmatic strategies.

### SAFETY IMPROVEMENT PROJECTS

The analysis of crash data and effectiveness of potential countermeasures forms the basis for the recommended traffic safety improvement projects, as summarized in Table 21. These projects have been defined to provide safety benefits in a cost-effective manner and to provide a high potential for funding through the Local Highway Safety Improvement Program (HSIP). In addition, some options are discussed depending on funding availability.

Segment Treatment	Segment	Cost <sup>1</sup>	CRF <sup>2</sup>	Total Benefit	Benefit-Cost Ratio	Forecast Reduction in Crashes Over 10 Years		
						Fatal	Injury	Total
<b>Johnstonville/Center Road (A27)</b>								
Shoulder Rumble Strips	1,600' West of A27 Junction to Cramer Ln.	\$58,100						
Centerline Rumble Strips		\$29,000						
Chevron Signs		\$16,700						
Curve Advance Warning Signs		\$7,400						
High Friction Surface Treatment		\$204,400						
<b>Total</b>		\$315,600	0.86	\$15,099,735	47.8	0.9	15.5	59.5
<i>Without High Friction Surface Treatment</i>	\$111,200	0.69	\$12,152,634	109.3	0.7	12.5	47.9	
<b>Herlong Access Road (A25)</b>								
Centerline Rumble Strip	US 395 to Garnier Road	\$20,400						
High Friction Surface Treatment		\$204,400						
<b>Total</b>		\$224,800	0.64	\$21,573,122	96.0	0.6	9.6	22.4
<i>Without High Friction Surface Treatment</i>	\$20,400	0.20	\$3,370,800	165.2	0.2	3.0	7.0	
<b>Eagle Lake Road (A1)</b>								
Edge Line Striping -4" Thermo	SR 36 to Gallatin Rd	\$152,400						
Chevron Signs (4 Locations)		\$33,300						
Curve Advance Warning Sign (4 Locations)		\$14,800						
High Friction Surface Treatment		\$1,670,000						
<b>Total</b>		\$1,870,500	0.89	\$18,103,606	9.7	0.9	26.8	52.7
<i>Without High Friction Surface Treatment</i>	\$200,500	0.76	\$15,471,437	77.2	0.8	22.9	45.1	
<b>TOTAL</b>		\$2,410,900		\$54,776,464	22.7	2	52	135
<i>Without High Friction Surface Treatment</i>		\$332,100		\$30,994,871	93.3	2	38	100

Note 1: Includes a total 85 percent factor for contingency, traffic control, engineering, construction management.  
 Note 2: CRF=Crash Reduction % from Caltrans HSIP Analyzer Worksheet

Per Caltrans guidance, total program CRF factors are calculated as follows:

$$\text{Overall CRF} = 1 - ((1 - \text{CRF for Element 1}) \times (1 - \text{CRF for Element 2}) \times \dots)$$

As a point of comparison, current HSIP guidance indicates that eligible projects must have a BCR of at least 3.5 to be considered, except that high friction surface treatment projects require a BCR of at least 2.5.

### Johnstonville Road/Center Road (CR A27)

Safety improvements are recommended to be focused on the 1.3-mile-long segment from 1,600 feet west of the Johnstonville Road/Center Road intersection east to Cramer Lane, consisting of the following:

- Shoulder rumble strips;
- Centerline rumble strip;
- Curve advance warning signs and chevron signs for the two curves east of the Johnstonville Road/Center Road intersection; and
- High Friction Surface Treatment.

As a whole, these improvements are estimated to cost \$315,600 to implement (including engineering, construction management, traffic control and contingency). Per the HSIP Calculator, they will yield \$15.1 million in traffic safety benefits, resulting in a Benefit-Cost Ratio of 47.8. This set of improvements would reduce total crashes over a ten-year period by an estimate 59 total crashes, including 15 injury crashes and 1 fatality crash (rounded to the nearest integer).

If funding limits require, a smaller project that excludes the high friction surface treatment would cost an estimate \$111,200, but still yield a total benefit of \$3.37 million in benefits.

### Herlong Access Road (CR A25)

Recommended safety improvements along the length of Herlong Access Road from US 395 to Garnier Road consist of a centerline rumble strip along with high friction surface treatment. Together, these improvements would cost an estimated \$224,800 and yield a benefit of \$21.6 million, for an exceedingly high BCA of 96.0. If the high friction surface treatment is excluded, the centerline rumble strip cost is only \$20,400. Note that this value is less than the \$100,000 minimum project cost for HSIP application.

### Eagle Lake Road (CR A1)

The recommended traffic safety improvement package for Eagle Lake Road consists of the following:

- Curve advance warning signs and chevron signs for four key curves:
  - Advance warning sign (northbound) at a tight-radius curve 4.1 miles north of SR 36.

- Chevron signs at two adjacent tight curves 4.5 miles north of SR 36.
- Advance warning sign (southbound) at a curve 4.7 miles north of SR 36.
- Advance warning signs and chevron signs at two adjacent curves 8.6 miles north of SR 36 (1.9 miles southeast of Merrill Flat Road).
- Edge line striping
- High friction surface treatment.

As a whole, these improvements would cost an estimated \$1,870,500. They would yield \$18.1 million in benefits, for a BCR of 9.7. They are estimated to result in a reduction of 53 crashes over a ten-year period, including 27 injury crashes and one fatality crash.

If the high friction surface treatment is excluded, total project costs drop significantly to \$200,500, but benefits drop only slightly to \$15.5 million.

### Total Safety Improvement Projects

As a whole, the full recommended projects over the three project locations would total \$2,410,900 in project costs but yield \$54.8 million in traffic safety benefits. A total of 135 crashes would be avoided over a ten-year period, including 52 injury crashes and two fatal crashes.

If the relatively expensive high friction surface treatment is excluded, costs would be \$332,100 while benefits would be \$31 million. Two fatal crashes and 38 injury crashes would be avoided over ten years, and a total of 100 total crashes.

## **PROGRAMMATIC STRATEGIES**

Beyond physical improvements, the following are broader strategies to improve local roadway traffic safety across Lassen County:

- Consider increased enforcement and review of speed limits. The recent passage of Assembly Bill 43 provides local jurisdictions with greater flexibility to set speed limits in business districts and where high levels of pedestrian accidents have occurred. Speeding is a high contribution to traffic safety issues in more developed rural areas, such as along Richmond Road.
- Future roadway improvement projects should include consideration of expanded shoulders and recovery zones on high-crash roadways. At least 44 percent of local roadways involve vehicles leaving the road. While shoulder-widening as a “stand alone” safety improvement project is relatively cost-ineffective, as part of a larger reconstruction project, the incremental cost of improving driver’s ability to regain the travel lane after drifting to the shoulder could be substantially lower. Key roadways for this approach are:
  - Herlong Access Road

- Eagle Lake Road
  - Main Street (Janesville)
- Bicycle and Pedestrian safety programs for children. While the California Office of Traffic Safety ranks Lassen County relatively high (76 out of a total of 102 jurisdictions) with regards to child pedestrian safety and 63 out of 102 for child bicyclist safety, there still is room for improvement. Local law enforcement and schools can partner to provide education to children regarding safe walking and bicycling practices. Organized “walking school buses” and “bicycle trains” that select specific days early in the new school year for staff and volunteers to organize and guide groups of students to/from the school provide an excellent opportunity to instill good walking/cycling behavior.
- Safer pedestrian conditions should be provided, particularly for the elderly. Improvements in sidewalks and multiuse trails, particularly in developed areas such as Susanville can reduce elderly pedestrian’s exposure to auto traffic. The pedestrian crash data presented in this report (particularly Figure 7) should be used to guide the update to the Active Transportation Plan.
- There is a need to address DUI issues among young drivers. The California Office of Traffic Safety indicates that Lassen County is close to the statewide average for crashes involving drivers less than 21 years of age that had been drinking. This is the poorest ranking among all 14 of the categories evaluated by the Office. One potential resource is the “Every 15 Minutes” program provided by CHP with funding from the California Office of Traffic Safety, which provide a two-day-long program for high school juniors and seniors.

*Appendix A*

**CRASHES BY PCF VIOLATION AUTHORITY**

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**TABLE A-1: Crashes by PCF Violation Category  
Total - State Highways and Local Roads**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	1	0	0	0	1	0.0%
Impeding Traffic	0	0	1	0	0	0	0	0	0	0	1	0.0%
Other Equipment	1	1	1	0	0	1	0	0	1	2	7	0.2%
Hazardous Parking	1	1	1	1	2	1	1	0	0	2	10	0.3%
Pedestrian Right of Way	3	3	1	1	1	3	1	0	0	0	13	0.3%
Pedestrian Violation	0	2	3	1	2	2	2	1	0	0	13	0.3%
Other Improper Driving	2	1	1	2	0	2	2	5	3	0	18	0.5%
Other Hazardous Violation	5	4	2	1	1	0	2	2	1	1	19	0.5%
Unsafe Lane Change	2	3	4	3	1	3	2	0	1	2	21	0.5%
Improper Passing	1	3	1	3	3	6	2	4	5	1	29	0.7%
Following Too Closely	4	2	7	3	7	4	3	0	0	1	31	0.8%
Traffic Signals and Signs	5	8	6	3	2	7	4	1	1	1	38	1.0%
Unsafe Starting or Backing	10	17	11	9	8	3	6	4	2	3	73	1.8%
Wrong Side of Road	16	27	35	23	15	16	13	16	7	10	178	4.5%
Automobile Right of Way	35	29	16	17	28	26	21	11	15	15	213	5.4%
Driving Under the Influence	21	30	25	17	26	25	23	15	26	18	226	5.7%
Other than Driver/Ped	51	72	61	67	56	53	91	56	65	61	633	15.9%
Improper Turning	76	59	70	60	62	78	88	87	97	70	747	18.8%
Unsafe Speed	175	143	103	91	79	88	102	111	76	94	1062	26.7%
Unknown	73	61	79	48	44	36	42	106	72	83	644	16.2%
<b>Total</b>	<b>481</b>	<b>466</b>	<b>428</b>	<b>350</b>	<b>337</b>	<b>354</b>	<b>406</b>	<b>419</b>	<b>372</b>	<b>364</b>	<b>3977</b>	<b>100.0%</b>

**TABLE A-2: Crashes by PCF Violation Category**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	0	0	0	0	0	0.0%
Impeding Traffic	0	0	0	0	0	0	0	0	0	0	0	0.0%
Other Equipment	1	0	0	0	0	0	0	0	0	0	1	0.1%
Hazardous Parking	0	0	0	0	0	0	0	0	0	1	1	0.1%
Pedestrian Right of Way	3	3	1	1	1	3	1	0	0	0	13	1.1%
Pedestrian Violation	0	2	1	1	2	2	1	0	0	0	9	0.8%
Other Improper Driving	0	0	0	2	0	1	1	1	2	0	7	0.6%
Other Hazardous Violation	3	0	0	0	1	0	2	1	0	0	7	0.6%
Unsafe Lane Change	2	3	3	3	0	3	0	0	0	0	14	1.2%
Improper Passing	0	1	1	0	0	0	0	0	0	0	2	0.2%
Following Too Closely	4	1	6	3	6	3	2	0	0	0	25	2.2%
Traffic Signals and Signs	3	7	4	2	2	5	4	1	0	0	28	2.5%
Unsafe Starting or Backing	9	14	5	5	5	2	3	0	1	0	44	3.9%
Wrong Side of Road	5	2	0	3	1	3	3	1	0	0	18	1.6%
Automobile Right of Way	24	20	11	11	12	16	7	1	0	0	102	9.0%
Driving Under the Influence	7	5	4	3	3	6	7	0	0	0	35	3.1%
Other than Driver/Ped	2	1	3	5	1	3	1	0	0	3	19	1.7%
Improper Turning	8	9	10	5	5	5	4	0	3	2	51	4.5%
Unsafe Speed	33	50	13	16	19	11	15	4	0	4	165	14.6%
Unknown	64	47	73	47	38	33	38	101	71	80	592	52.3%
<b>Total</b>	<b>168</b>	<b>165</b>	<b>135</b>	<b>107</b>	<b>96</b>	<b>96</b>	<b>89</b>	<b>110</b>	<b>77</b>	<b>90</b>	<b>1133</b>	<b>100.0%</b>

**TABLE A-3: Crashes by PCF Violation Category**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	1	0	0	0	1	0.0%
Impeding Traffic	0	0	1	0	0	0	0	0	0	0	1	0.0%
Other Equipment	0	1	1	0	0	1	0	0	1	2	6	0.2%
Hazardous Parking	1	1	1	1	2	1	1	0	0	1	9	0.3%
Pedestrian Right of Way	0	0	0	0	0	0	0	0	0	0	0	0.0%
Pedestrian Violation	0	0	2	0	0	0	1	1	0	0	4	0.1%
Other Improper Driving	2	1	1	0	0	1	1	4	1	0	11	0.4%
Other Hazardous Violation	2	4	2	1	0	0	0	1	1	1	12	0.4%
Unsafe Lane Change	0	0	1	0	1	0	2	0	1	2	7	0.2%
Improper Passing	1	2	0	3	3	6	2	4	5	1	27	0.9%
Following Too Closely	0	1	1	0	1	1	1	0	0	1	6	0.2%
Traffic Signals and Signs	2	1	2	1	0	2	0	0	1	1	10	0.4%
Unsafe Starting or Backing	1	3	6	4	3	1	3	4	1	3	29	1.0%
Wrong Side of Road	11	25	35	20	14	13	10	15	7	10	160	5.6%
Automobile Right of Way	11	9	5	6	16	10	14	10	15	15	111	3.9%
Driving Under the Influence	14	25	21	14	23	19	16	15	26	18	191	6.7%
Other than Driver/Ped	49	71	58	62	55	50	90	56	65	58	614	21.6%
Improper Turning	68	50	60	55	57	73	84	87	94	68	696	24.5%
Unsafe Speed	142	93	90	75	60	77	87	107	76	90	897	31.5%
Unknown	9	14	6	1	6	3	4	5	1	3	52	1.8%
<b>Total</b>	<b>313</b>	<b>301</b>	<b>293</b>	<b>243</b>	<b>241</b>	<b>258</b>	<b>317</b>	<b>309</b>	<b>295</b>	<b>274</b>	<b>2844</b>	<b>100.0%</b>

**TABLE A-4: Crashes by PCF Violation Category  
Total - Local Roads Only**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	0	0	0	0	0	0.00%
Impeding Traffic	0	0	0	0	0	0	0	0	0	0	0	0.00%
Other Equipment	1	0	0	0	0	0	0	0	0	0	1	0.08%
Hazardous Parking	0	0	0	1	2	1	0	0	0	0	4	0.32%
Pedestrian Right of Way	1	1	0	0	1	1	0	0	0	0	4	0.32%
Pedestrian Violation	0	1	0	0	1	0	2	0	0	0	4	0.32%
Other Improper Driving	1	1	1	2	0	1	0	2	3	0	11	0.87%
Other Hazardous Violation	2	0	0	0	0	0	0	0	1	0	3	0.24%
Unsafe Lane Change	2	0	2	1	0	0	0	0	0	0	5	0.40%
Improper Passing	0	0	0	0	0	2	0	2	1	1	6	0.48%
Following Too Closely	0	0	2	1	0	1	0	0	0	0	4	0.32%
Traffic Signals and Signs	3	2	3	1	1	4	2	0	0	1	17	1.35%
Unsafe Starting or Backing	6	13	3	5	5	0	4	1	1	3	41	3.26%
Wrong Side of Road	6	12	8	9	7	5	3	3	1	2	56	4.45%
Automobile Right of Way	15	12	3	6	4	8	5	5	4	6	68	5.41%
Driving Under the Influence	14	15	16	6	13	13	10	10	11	6	114	9.06%
Other than Driver/Ped	7	12	10	9	6	5	5	11	13	12	90	7.15%
Improper Turning	22	18	25	15	20	30	24	32	26	20	232	18.44%
Unsafe Speed	33	49	29	19	20	25	26	22	13	20	256	20.35%
Unknown	40	26	41	27	23	21	20	52	47	45	342	27.19%
<b>Total</b>	<b>153</b>	<b>162</b>	<b>143</b>	<b>102</b>	<b>103</b>	<b>117</b>	<b>101</b>	<b>140</b>	<b>121</b>	<b>116</b>	<b>1258</b>	<b>100.00%</b>

**TABLE A-5: Crashes by PCF Violation Category**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	0	0	0	0	0	0.0%
Impeding Traffic	0	0	0	0	0	0	0	0	0	0	0	0.0%
Other Equipment	1	0	0	0	0	0	0	0	0	0	1	0.2%
Hazardous Parking	0	0	0	0	0	0	0	0	0	0	0	0.0%
Pedestrian Right of Way	1	1	0	0	1	1	0	0	0	0	4	0.7%
Pedestrian Violation	0	1	0	0	1	0	1	0	0	0	3	0.6%
Other Improper Driving	0	0	0	2	0	1	0	0	2	0	5	0.9%
Other Hazardous Violation	1	0	0	0	0	0	0	0	0	0	1	0.2%
Unsafe Lane Change	2	0	2	1	0	0	0	0	0	0	5	0.9%
Improper Passing	0	0	0	0	0	0	0	0	0	0	0	0.0%
Following Too Closely	0	0	2	1	0	1	0	0	0	0	4	0.7%
Traffic Signals and Signs	2	2	1	1	1	3	2	0	0	0	12	2.2%
Unsafe Starting or Backing	6	10	2	4	3	0	2	0	1	0	28	5.1%
Wrong Side of Road	4	0	0	2	0	2	1	1	0	0	10	1.8%
Automobile Right of Way	9	10	2	2	1	3	1	1	0	0	29	5.3%
Driving Under the Influence	7	3	4	3	2	5	5	0	0	0	29	5.3%
Other than Driver/Ped	1	1	1	0	0	2	0	0	0	0	5	0.9%
Improper Turning	2	3	6	2	2	3	3	0	2	2	25	4.6%
Unsafe Speed	13	21	6	3	6	6	4	0	0	1	60	11.0%
Unknown	37	23	37	27	21	20	19	50	46	43	323	59.4%
<b>Total</b>	<b>86</b>	<b>75</b>	<b>63</b>	<b>48</b>	<b>38</b>	<b>47</b>	<b>38</b>	<b>52</b>	<b>51</b>	<b>46</b>	<b>544</b>	<b>100.0%</b>

**TABLE A-6: Crashes by PCF Violation Category**

Violation Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Brakes	0	0	0	0	0	0	0	0	0	0	0	0.0%
Impeding Traffic	0	0	0	0	0	0	0	0	0	0	0	0.0%
Other Equipment	0	0	0	0	0	0	0	0	0	0	0	0.0%
Hazardous Parking	0	0	0	1	2	1	0	0	0	0	4	0.6%
Pedestrian Right of Way	0	0	0	0	0	0	0	0	0	0	0	0.0%
Pedestrian Violation	0	0	0	0	0	0	1	0	0	0	1	0.1%
Other Improper Driving	1	1	1	0	0	0	0	2	1	0	6	0.8%
Other Hazardous Violation	1	0	0	0	0	0	0	0	1	0	2	0.3%
Unsafe Lane Change	0	0	0	0	0	0	0	0	0	0	0	0.0%
Improper Passing	0	0	0	0	0	2	0	2	1	1	6	0.8%
Following Too Closely	0	0	0	0	0	0	0	0	0	0	0	0.0%
Traffic Signals and Signs	1	0	2	0	0	1	0	0	0	1	5	0.7%
Unsafe Starting or Backing	0	3	1	1	2	0	2	1	0	3	13	1.8%
Wrong Side of Road	2	12	8	7	7	3	2	2	1	2	46	6.4%
Automobile Right of Way	6	2	1	4	3	5	4	4	4	6	39	5.5%
Driving Under the Influence	7	12	12	3	11	8	5	10	11	6	85	11.9%
Other than Driver/Ped	6	11	9	9	6	3	5	11	13	12	85	11.9%
Improper Turning	20	15	19	13	18	27	21	32	24	18	207	29.0%
Unsafe Speed	20	28	23	16	14	19	22	22	13	19	196	27.5%
Unknown	3	3	4	0	2	1	1	2	1	2	19	2.7%
<b>Total</b>	<b>67</b>	<b>87</b>	<b>80</b>	<b>54</b>	<b>65</b>	<b>70</b>	<b>63</b>	<b>88</b>	<b>70</b>	<b>70</b>	<b>714</b>	<b>100.0%</b>

*Appendix B*

**CRASHES BY COLLISION TYPE**

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**Table B-1: Crashes by Collision Type  
Total - State Highways and Local Roads**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	5	3	4	3	5	3	5	1	1	2	32	0.8%
Head-On	8	17	8	9	5	14	13	11	9	7	101	2.5%
Sideswipe	27	26	26	20	29	30	22	22	23	23	248	6.2%
Broadside	49	50	30	30	36	34	32	17	25	20	323	8.1%
Rear End	49	54	35	41	37	31	32	15	18	16	328	8.2%
Other	53	67	56	64	48	36	62	49	56	60	551	13.9%
Overtuned	105	69	70	45	48	59	72	73	52	55	648	16.3%
Hit Object	126	137	131	98	100	116	133	129	117	102	1189	29.9%
Unknown	59	43	68	40	29	31	35	102	71	79	557	14.0%
<b>Total</b>	<b>481</b>	<b>466</b>	<b>428</b>	<b>350</b>	<b>337</b>	<b>354</b>	<b>406</b>	<b>419</b>	<b>372</b>	<b>364</b>	<b>3977</b>	<b>100.0%</b>

**Table B-2: Crashes by Collision Type  
City of Susanville - State Highways and Local Roads**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	4	3	2	3	3	3	3	0	0	1	22	1.9%
Head-On	4	8	2	1	0	3	5	0	0	0	23	2.0%
Sideswipe	14	19	13	11	6	10	5	1	1	0	80	7.1%
Broadside	33	32	16	17	20	22	15	1	0	0	156	13.8%
Rear End	36	35	20	22	24	14	16	1	0	0	168	14.8%
Other	6	4	3	6	3	5	2	0	2	3	34	3.0%
Overtuned	4	4	0	1	5	1	2	2	0	2	21	1.9%
Hit Object	9	17	11	6	6	7	6	3	3	5	73	6.4%
Unknown	58	43	68	40	29	31	35	102	71	79	556	49.1%
<b>Total</b>	<b>168</b>	<b>165</b>	<b>135</b>	<b>107</b>	<b>96</b>	<b>96</b>	<b>89</b>	<b>110</b>	<b>77</b>	<b>90</b>	<b>1133</b>	<b>100.0%</b>

**Table B-3: Crashes by Collision Type  
Unincorporated Lassen County - State Highways and Local Roads**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	1	0	2	0	2	0	2	1	1	1	10	0.4%
Head-On	4	9	6	8	5	11	8	11	9	7	78	2.7%
Sideswipe	13	7	13	9	23	20	17	21	22	23	168	5.9%
Broadside	16	18	14	13	16	12	17	16	25	20	167	5.9%
Rear End	13	19	15	19	13	17	16	14	18	16	160	5.6%
Other	47	63	53	58	45	31	60	49	54	57	517	18.2%
Overtuned	101	65	70	44	43	58	70	71	52	53	627	22.0%
Hit Object	117	120	120	92	94	109	127	126	114	97	1116	39.2%
Unknown	1	0	0	0	0	0	0	0	0	0	1	0.0%
<b>Total</b>	<b>313</b>	<b>301</b>	<b>293</b>	<b>243</b>	<b>241</b>	<b>258</b>	<b>317</b>	<b>309</b>	<b>295</b>	<b>274</b>	<b>2844</b>	

**Table B-4: Crashes by Collision Type  
Total - Local Roads Only**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	1	2	0	0	0	1	3	0	1	2	10	0.8%
Head-On	3	6	1	0	3	3	4	2	3	1	26	2.1%
Sideswipe	7	10	10	7	10	9	5	6	4	5	73	5.8%
Broadside	26	23	10	9	6	12	6	6	6	8	112	8.9%
Rear End	13	14	8	8	7	9	8	2	5	4	78	6.2%
Other	9	10	10	9	9	4	7	10	14	16	98	7.8%
Overturned	20	23	20	8	18	16	14	20	13	6	158	12.6%
Hit Object	37	55	49	35	33	45	36	44	29	32	395	31.4%
Unknown	37	19	35	26	17	18	18	50	46	42	308	24.5%
<b>Total</b>	<b>153</b>	<b>162</b>	<b>143</b>	<b>102</b>	<b>103</b>	<b>117</b>	<b>101</b>	<b>140</b>	<b>121</b>	<b>116</b>	<b>1258</b>	<b>100.0%</b>

**Table B-5: Crashes by Collision Type  
City of Susanville - Local Roads Only**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	1	2	0	0	0	1	2	0	0	1	7	1.3%
Head-On	3	4	1	0	0	3	3	0	0	0	14	2.6%
Sideswipe	6	8	7	5	3	3	3	0	1	0	36	6.6%
Broadside	18	19	5	3	4	7	2	1	0	0	59	10.8%
Rear End	11	9	6	5	4	5	5	0	0	0	45	8.3%
Other	2	1	2	2	2	3	0	0	2	0	14	2.6%
Overturned	2	1	0	1	4	1	0	0	0	0	9	1.7%
Hit Object	7	12	7	6	4	6	5	1	2	3	53	9.7%
Unknown	36	19	35	26	17	18	18	50	46	42	307	56.4%
<b>Total</b>	<b>86</b>	<b>75</b>	<b>63</b>	<b>48</b>	<b>38</b>	<b>47</b>	<b>38</b>	<b>52</b>	<b>51</b>	<b>46</b>	<b>544</b>	<b>100.0%</b>

**Table B-6: Crashes by Collision Type  
Unincorporated Lassen County - Local Roads Only**

Collision Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Vehicle/Pedestrian	0	0	0	0	0	0	1	0	1	1	3	0.4%
Head-On	0	2	0	0	3	0	1	2	3	1	12	1.7%
Sideswipe	1	2	3	2	7	6	2	6	3	5	37	5.2%
Broadside	8	4	5	6	2	5	4	5	6	8	53	7.4%
Rear End	2	5	2	3	3	4	3	2	5	4	33	4.6%
Other	7	9	8	7	7	1	7	10	12	16	84	11.8%
Overturned	18	22	20	7	14	15	14	20	13	6	149	20.9%
Hit Object	30	43	42	29	29	39	31	43	27	29	342	47.9%
Unknown	1	0	0	0	0	0	0	0	0	0	1	0.1%
<b>Total</b>	<b>67</b>	<b>87</b>	<b>80</b>	<b>54</b>	<b>65</b>	<b>70</b>	<b>63</b>	<b>88</b>	<b>70</b>	<b>70</b>	<b>714</b>	<b>100.0%</b>

*Appendix C*

**CRASHES BY MOTOR VEHICLE INVOLVEMENT**

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**Table C-1: Crashes by Motor Vehicle Involvement  
Total - State Highways and Local Roads**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	1	0	0	1	0	0	0	0	0	0	2	0.1%
Motor Vehicle on Other Roadway	1	1	0	1	1	1	0	2	0	0	7	0.2%
Bicycle	6	2	2	4	2	1	2	0	1	1	21	0.5%
Pedestrian	4	5	4	3	4	4	3	1	1	1	30	0.8%
Parked Motor Vehicle	21	13	10	11	8	9	8	9	5	2	96	2.4%
Other Object	19	15	12	15	13	5	11	13	8	11	122	3.1%
Animal	46	65	56	57	52	46	80	50	57	59	568	14.3%
Non-Collision	105	74	71	48	51	65	74	71	50	56	665	16.7%
Other Motor Vehicle	107	133	89	87	102	102	92	52	72	64	900	22.6%
Fixed Object	114	116	116	83	75	92	100	120	107	91	1014	25.5%
Unknown	57	42	68	40	29	29	36	101	71	79	552	13.9%
<b>Total</b>	<b>481</b>	<b>466</b>	<b>428</b>	<b>350</b>	<b>337</b>	<b>354</b>	<b>406</b>	<b>419</b>	<b>372</b>	<b>364</b>	<b>3977</b>	<b>100.0%</b>

**Table C-2: Crashes by Motor Vehicle Involvement  
City of Susanville - State Highways and Local Roads**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	0	0	0	0	0	0	0	0	0	0	0	0.0%
Motor Vehicle on Other Roadway	1	0	0	1	0	0	0	1	0	0	3	0.3%
Bicycle	3	2	1	2	1	1	1	0	0	0	11	1.0%
Pedestrian	4	5	2	3	4	4	1	0	0	1	24	2.1%
Parked Motor Vehicle	17	12	7	7	4	7	3	0	1	0	58	5.1%
Other Object	5	5	3	1	2	0	0	0	0	0	16	1.4%
Animal	0	0	1	4	1	2	1	0	0	3	12	1.1%
Non-Collision	7	3	0	1	2	3	4	2	1	2	25	2.2%
Other Motor Vehicle	65	81	44	44	48	43	37	2	2	0	366	32.3%
Fixed Object	9	15	9	4	5	7	6	4	2	5	66	5.8%
Unknown	57	42	68	40	29	29	36	101	71	79	552	48.7%
<b>Total</b>	<b>168</b>	<b>165</b>	<b>135</b>	<b>107</b>	<b>96</b>	<b>96</b>	<b>89</b>	<b>110</b>	<b>77</b>	<b>90</b>	<b>1133</b>	<b>100.0%</b>

**Table C-3: Crashes by Motor Vehicle Involvement  
Unincorporated Lassen County - State Highways and Local Roads**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	1	0	0	1	0	0	0	0	0	0	2	0.1%
Motor Vehicle on Other Roadway	0	1	0	0	1	1	0	1	0	0	4	0.1%
Bicycle	3	0	1	2	1	0	1	0	1	1	10	0.4%
Pedestrian	0	0	2	0	0	0	2	1	1	0	6	0.2%
Parked Motor Vehicle	4	1	3	4	4	2	5	9	4	2	38	1.3%
Other Object	14	10	9	14	11	5	11	13	8	11	106	3.7%
Animal	46	65	55	53	51	44	79	50	57	56	556	19.5%
Non-Collision	98	71	71	47	49	62	70	69	49	54	640	22.5%
Other Motor Vehicle	42	52	45	43	54	59	55	50	70	64	534	18.8%
Fixed Object	105	101	107	79	70	85	94	116	105	86	948	33.3%
Unknown	0	0	0	0	0	0	0	0	0	0	0	0.0%
<b>Total</b>	<b>313</b>	<b>301</b>	<b>293</b>	<b>243</b>	<b>241</b>	<b>258</b>	<b>317</b>	<b>309</b>	<b>295</b>	<b>274</b>	<b>2844</b>	<b>100.0%</b>

**Table C-4: Crashes by Motor Vehicle Involvement  
Total - Local Roads Only**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	0	0	0	0	0	0	0	0	0	0	0	0.0%
Motor Vehicle on Other Roadway	1	0	0	0	0	0	0	1	0	0	2	0.2%
Bicycle	2	1	2	3	1	1	0	0	0	1	11	0.9%
Pedestrian	1	3	0	0	2	1	1	0	1	1	10	0.8%
Parked Motor Vehicle	14	11	9	9	6	5	3	2	3	2	64	5.1%
Other Object	5	5	2	4	5	2	2	0	3	3	31	2.5%
Animal	8	10	11	7	6	6	6	10	11	15	90	7.2%
Non-Collision	20	24	20	9	18	17	15	20	14	6	163	13.0%
Other Motor Vehicle	35	40	19	16	18	28	22	13	17	16	224	17.8%
Fixed Object	35	49	45	28	30	39	34	44	26	30	360	28.6%
Unknown	32	19	35	26	17	18	18	50	46	42	303	24.1%
<b>Total</b>	<b>153</b>	<b>162</b>	<b>143</b>	<b>102</b>	<b>103</b>	<b>117</b>	<b>101</b>	<b>140</b>	<b>121</b>	<b>116</b>	<b>1258</b>	<b>100.0%</b>

**Table C-5: Crashes by Motor Vehicle Involvement  
City of Susanville - Local Roads Only**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	0	0	0	0	0	0	0	0	0	0	0	0.0%
Motor Vehicle on Other Roadway	1	0	0	0	0	0	0	1	0	0	2	0.4%
Bicycle	0	1	1	2	0	1	0	0	0	0	5	0.9%
Pedestrian	1	3	0	0	2	1	0	0	0	1	8	1.5%
Parked Motor Vehicle	11	10	7	6	2	5	3	0	1	0	45	8.3%
Other Object	4	3	1	1	2	0	0	0	0	0	11	2.0%
Animal	0	0	1	0	0	1	0	0	0	0	2	0.4%
Non-Collision	3	1	0	1	2	2	1	0	1	0	11	2.0%
Other Motor Vehicle	27	28	11	8	9	13	11	0	2	0	109	20.0%
Fixed Object	7	10	7	4	4	6	5	1	1	3	48	8.8%
Unknown	32	19	35	26	17	18	18	50	46	42	303	55.7%
<b>Total</b>	<b>86</b>	<b>75</b>	<b>63</b>	<b>48</b>	<b>38</b>	<b>47</b>	<b>38</b>	<b>52</b>	<b>51</b>	<b>46</b>	<b>544</b>	<b>100.0%</b>

**Table C-6: Crashes by Motor Vehicle Involvement  
Unincorporated Lassen County - Local Roads Only**

Motor Vehicle Involvement	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Train	0	0	0	0	0	0	0	0	0	0	0	0.0%
Motor Vehicle on Other Roadway	0	0	0	0	0	0	0	0	0	0	0	0.0%
Bicycle	2	0	1	1	1	0	0	0	0	1	6	0.8%
Pedestrian	0	0	0	0	0	0	1	0	1	0	2	0.3%
Parked Motor Vehicle	3	1	2	3	4	0	0	2	2	2	19	2.7%
Other Object	1	2	1	3	3	2	2	0	3	3	20	2.8%
Animal	8	10	10	7	6	5	6	10	11	15	88	12.3%
Non-Collision	17	23	20	8	16	15	14	20	13	6	152	21.3%
Other Motor Vehicle	8	12	8	8	9	15	11	13	15	16	115	16.1%
Fixed Object	28	39	38	24	26	33	29	43	25	27	312	43.7%
Unknown	0	0	0	0	0	0	0	0	0	0	0	0.0%
<b>Total</b>	<b>67</b>	<b>87</b>	<b>80</b>	<b>54</b>	<b>65</b>	<b>70</b>	<b>63</b>	<b>88</b>	<b>70</b>	<b>70</b>	<b>714</b>	<b>100.0%</b>

*Appendix D*

**CRASHES BY SEVERITY**

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**Table D-1: Crashes by Severity  
Total - State Highways and Local Roads**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	9	7	8	7	5	7	7	8	10	4	72	1.8%
Severe Injury	14	25	18	8	16	11	15	19	18	17	161	4.0%
Other Visible Injury	60	70	54	42	48	48	42	46	39	50	499	12.5%
Complaint of Pain	55	49	49	59	52	56	70	42	53	26	511	12.8%
Unknown Injury Type	12	6	11	5	7	6	8	23	15	25	118	3.0%
PDO	331	309	288	229	209	226	264	281	237	242	2616	65.8%
<b>Total Injury</b>	<b>141</b>	<b>150</b>	<b>132</b>	<b>114</b>	<b>123</b>	<b>121</b>	<b>135</b>	<b>130</b>	<b>125</b>	<b>118</b>	<b>1289</b>	<b>32.4%</b>
<b>Total</b>	<b>481</b>	<b>466</b>	<b>428</b>	<b>350</b>	<b>337</b>	<b>354</b>	<b>406</b>	<b>419</b>	<b>372</b>	<b>364</b>	<b>3977</b>	<b>100.0%</b>

**Table D-2: Crashes by Severity  
City of Susanville - State Highways and Local Roads**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	0	0	0	2	0	0	0	0	0	0	2	0.2%
Severe Injury	4	4	2	0	2	2	2	0	0	1	17	1.5%
Other Visible Injury	7	11	8	6	7	14	5	0	1	1	60	5.3%
Complaint of Pain	16	12	6	14	11	10	17	1	0	1	88	7.8%
Unknown Injury Type	12	6	11	5	7	6	8	23	15	25	118	10.4%
PDO	129	132	108	80	69	64	57	86	61	62	848	74.8%
<b>Total Injury</b>	<b>39</b>	<b>33</b>	<b>27</b>	<b>25</b>	<b>27</b>	<b>32</b>	<b>32</b>	<b>24</b>	<b>16</b>	<b>28</b>	<b>283</b>	<b>25.0%</b>
<b>Total</b>	<b>168</b>	<b>165</b>	<b>135</b>	<b>107</b>	<b>96</b>	<b>96</b>	<b>89</b>	<b>110</b>	<b>77</b>	<b>90</b>	<b>1133</b>	<b>100.0%</b>

**Table D-3: Crashes by Severity  
Unincorporated Lassen County - State Highways and Local Roads**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	9	7	8	5	5	7	7	8	10	4	70	2.5%
Severe Injury	10	21	16	8	14	9	13	19	18	16	144	5.1%
Other Visible Injury	53	59	46	36	41	34	37	46	38	49	439	15.4%
Complaint of Pain	39	37	43	45	41	46	53	41	53	25	423	14.9%
Unknown Injury Type	0	0	0	0	0	0	0	0	0	0	0	0.0%
PDO	202	177	180	149	140	162	207	195	176	180	1768	62.2%
<b>Total Injury</b>	<b>102</b>	<b>117</b>	<b>105</b>	<b>89</b>	<b>96</b>	<b>89</b>	<b>103</b>	<b>106</b>	<b>109</b>	<b>90</b>	<b>1006</b>	<b>88.8%</b>
<b>Total</b>	<b>313</b>	<b>301</b>	<b>293</b>	<b>243</b>	<b>241</b>	<b>258</b>	<b>317</b>	<b>309</b>	<b>295</b>	<b>274</b>	<b>2844</b>	<b>251.0%</b>

**Table D-4: Crashes by Severity  
Total - Local Roads Only**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	2	1	1	1	2	3	2	3	1	1	17	1.4%
Severe Injury	5	5	5	0	4	1	4	5	6	6	41	3.3%
Other Visible Injury	18	23	19	17	19	10	12	18	9	10	155	12.3%
Complaint of Pain	18	17	13	12	12	17	14	8	17	4	132	10.5%
Unknown Injury Type	5	2	6	2	4	2	3	11	11	11	57	4.5%
PDO	105	114	99	70	62	84	66	95	77	84	856	68.0%
<b>Total Injury</b>	<b>46</b>	<b>47</b>	<b>43</b>	<b>31</b>	<b>39</b>	<b>30</b>	<b>33</b>	<b>42</b>	<b>43</b>	<b>31</b>	<b>385</b>	<b>30.6%</b>
<b>Total</b>	<b>153</b>	<b>162</b>	<b>143</b>	<b>102</b>	<b>103</b>	<b>117</b>	<b>101</b>	<b>140</b>	<b>121</b>	<b>116</b>	<b>1258</b>	<b>100.0%</b>

**Table D-5: Crashes by Severity  
City of Susanville - Local Roads Only**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	0	0	0	1	0	0	0	0	0	0	1	0.2%
Severe Injury	3	1	1	0	0	1	1	0	0	1	8	1.5%
Other Visible Injury	4	3	5	4	4	3	2	0	1	0	26	4.8%
Complaint of Pain	10	7	1	5	1	4	6	0	0	0	34	6.3%
Unknown Injury Type	5	2	6	2	4	2	3	11	11	11	57	10.5%
PDO	64	62	50	36	29	37	26	41	39	34	418	76.8%
<b>Total Injury</b>	<b>22</b>	<b>13</b>	<b>13</b>	<b>11</b>	<b>9</b>	<b>10</b>	<b>12</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>125</b>	<b>23.0%</b>
<b>Total</b>	<b>86</b>	<b>75</b>	<b>63</b>	<b>48</b>	<b>38</b>	<b>47</b>	<b>38</b>	<b>52</b>	<b>51</b>	<b>46</b>	<b>544</b>	<b>100.0%</b>

**Table D-6: Crashes by Severity  
Unincorporated Lassen County - Local Roads Only**

Crash Severity	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	% of Total
Fatal	2	1	1	0	2	3	2	3	1	1	16	2.2%
Severe Injury	2	4	4	0	4	0	3	5	6	5	33	4.6%
Other Visible Injury	14	20	14	13	15	7	10	18	8	10	129	18.1%
Complaint of Pain	8	10	12	7	11	13	8	8	17	4	98	13.7%
Unknown Injury Type	0	0	0	0	0	0	0	0	0	0	0	0.0%
PDO	41	52	49	34	33	47	40	54	38	50	438	61.3%
<b>Total Injury</b>	<b>24</b>	<b>34</b>	<b>30</b>	<b>20</b>	<b>30</b>	<b>20</b>	<b>21</b>	<b>31</b>	<b>31</b>	<b>19</b>	<b>260</b>	<b>36.4%</b>
<b>Total</b>	<b>67</b>	<b>87</b>	<b>80</b>	<b>54</b>	<b>65</b>	<b>70</b>	<b>63</b>	<b>88</b>	<b>70</b>	<b>70</b>	<b>714</b>	<b>100.0%</b>

*Appendix E*

**CRASHES BY ROAD CONDITIONS**

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**Table E-1: Crashes by Road Conditions**  
**All Severity -- 2010 to 2016**

Road Condition	Total Lassen County				City of Susanville				Unincorporated Lassen County			
	State Route	Local Roads	Total	% of Total	State Route	Local Roads	Total	% of Total	State Route	Local Roads	Total	% of Total
<b>Weather</b>												
Clear	1114	480	1594	56.5%	245	171	416	48.6%	869	309	1178	59.9%
Cloudy	404	154	558	19.8%	52	28	80	9.3%	352	126	478	24.3%
Fog	14	7	21	0.7%	0	1	1	0.1%	14	6	20	1.0%
Raining	52	19	71	2.5%	19	10	29	3.4%	33	9	42	2.1%
Snowing	172	37	209	7.4%	9	12	21	2.5%	163	25	188	9.6%
Wind	38	3	41	1.5%	2	2	4	0.5%	36	1	37	1.9%
Other	15	12	27	1.0%	2	2	4	0.5%	13	10	23	1.2%
Unknown	132	169	301	10.7%	132	169	301	35.2%	0	0	0	0.0%
<b>Total</b>	<b>1941</b>	<b>881</b>	<b>2822</b>	<b>100.0%</b>	<b>461</b>	<b>395</b>	<b>856</b>	<b>100.0%</b>	<b>1480</b>	<b>486</b>	<b>1966</b>	<b>100.0%</b>
<b>Road Surface</b>												
Dry	1279	557	1836	65.1%	291	188	479	56.0%	988	369	1357	69.0%
Slippery (Mud/Oil/ETC)	1	1	2	0.1%	0	1	1	0.1%	1	0	1	0.1%
Snowy or Icy	417	110	527	18.7%	8	22	30	3.5%	409	88	497	25.3%
Wet	110	44	154	5.5%	28	15	43	5.0%	82	29	111	5.6%
Unknown	134	169	303	10.7%	134	169	303	35.4%	0	0	0	0.0%
<b>Total</b>	<b>1941</b>	<b>881</b>	<b>2822</b>	<b>100.0%</b>	<b>461</b>	<b>395</b>	<b>856</b>	<b>100.0%</b>	<b>1480</b>	<b>486</b>	<b>1966</b>	<b>100.0%</b>
<b>Lighting</b>												
Daylight	1108	435	1543	30.6%	266	159	425	38.3%	842	276	1118	28.4%
Dusk - Dawn	111	31	142	2.8%	11	6	17	1.5%	100	25	125	3.2%
Dark - Street Lights	55	39	94	1.9%	40	25	65	5.9%	15	14	29	0.7%
Dark - Street Lights Not Functioning	5	3	8	0.2%	0	0	0	0.0%	5	3	8	0.2%
Dark - No Street Lights	528	206	734	14.6%	10	38	48	4.3%	518	168	686	17.4%
Unknown	1807	714	2521	50.0%	327	228	555	50.0%	1480	486	1966	50.0%
<b>Total</b>	<b>3614</b>	<b>1428</b>	<b>5042</b>	<b>100.0%</b>	<b>654</b>	<b>456</b>	<b>1110</b>	<b>100.0%</b>	<b>2960</b>	<b>972</b>	<b>3932</b>	<b>100.0%</b>

**Table E-2: Crashes by Road Conditions  
Fatalities and Severe Injury Only -- 2010-2016**

Road Condition	Total Lassen County				City of Susanville				Unincorporated Lassen County			
	State Route	Local Roads	Total	% of Total	State Route	Local Roads	Total	% of Total	State Route	Local Roads	Total	% of Total
<b>Weather</b>												
Clear	83	25	108	68.8%	9	6	15	83.3%	74	19	93	66.9%
Cloudy	23	8	31	19.7%	0	1	1	5.6%	23	7	30	21.6%
Fog	2	0	2	1.3%	0	0	0	0.0%	2	0	2	1.4%
Raining	2	1	3	1.9%	1	1	2	11.1%	1	0	1	0.7%
Snowing	6	1	7	4.5%	0	0	0	0.0%	6	1	7	5.0%
Wind	3	0	3	1.9%	0	0	0	0.0%	3	0	3	2.2%
Other	2	1	3	1.9%	0	0	0	0.0%	2	1	3	2.2%
Unknown	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
<b>Total</b>	<b>121</b>	<b>36</b>	<b>157</b>	<b>100.0%</b>	<b>10</b>	<b>8</b>	<b>18</b>	<b>100.0%</b>	<b>111</b>	<b>28</b>	<b>139</b>	<b>100.0%</b>
<b>Road Surface</b>												
Dry	97	34	131	83.4%	9	7	16	88.9%	88	27	115	82.7%
Slippery (Mud/Oil/ETC)	0	1	1	0.6%	0	1	1	5.6%	0	0	0	0.0%
Snowy or Icy	16	1	17	10.8%	0	0	0	0.0%	16	1	17	12.2%
Wet	8	0	8	5.1%	1	0	1	5.6%	7	0	7	5.0%
Unknown	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
<b>Total</b>	<b>121</b>	<b>36</b>	<b>157</b>	<b>100.0%</b>	<b>10</b>	<b>8</b>	<b>18</b>	<b>100.0%</b>	<b>111</b>	<b>28</b>	<b>139</b>	<b>100.0%</b>
<b>Lighting</b>												
Daylight	77	24	101	64.3%	6	5	11	61.1%	71	19	90	64.7%
Dusk - Dawn	6	1	7	4.5%	0	0	0	0.0%	6	1	7	5.0%
Dark - Street Lights	4	1	5	3.2%	3	0	3	16.7%	1	1	2	1.4%
Dark - Street Lights Not Functioning	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Dark - No Street Lights	34	10	44	28.0%	1	3	4	22.2%	33	7	40	28.8%
Unknown	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
<b>Total</b>	<b>121</b>	<b>36</b>	<b>157</b>	<b>100.0%</b>	<b>10</b>	<b>8</b>	<b>18</b>	<b>100.0%</b>	<b>111</b>	<b>28</b>	<b>139</b>	<b>100.0%</b>

*Appendix F*

**FATAL CRASHES VS. NUMBER KILLED**

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**Table F: Fatal Crashes vs. Number Killed - 2010-2019**

Location	Fatal Crashes	Number Killed
<b>State Highway</b>		
Susanville	1	1
Unincorporated	54	65
<i>Total</i>	55	66
<b>Local Roads</b>		
Susanville	0	0
Unincorporated	17	18
<i>Total</i>	17	18
<b>Total Lassen County</b>		
Susanville	1	1
Unincorporated	71	83
<i>Total</i>	72	84