

2014 State of Safety Report

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Executive Summary

Between 2008 and 2012, 645 people died as a result of crashes on Northeast Ohio's regional multimodal transportation system. Additionally, over 1000 people are severely injured as a result of crashes every year. Ensuring the safety of Northeast Ohio's regional multimodal transportation system is a critical component of NOACA's work. Although severe injury and fatal crashes have decreased to a five year low in 2012, there is still much progress that must be made in improving safety.

The NOACA State of Safety (SOS) report serves as one component of the new and improved Regional Safety Program. NOACA was awarded an implementation grant as part of the Federal Highway Administration's (FHWA) Infrastructure Voluntary Evaluation Sustainability Tool (INVEST). The project will:

- Use INVEST to evaluate the effectiveness of NOACA's Regional Safety Program
- Improve NOACA's safety data analysis and reporting
- Produce a Transportation Safety Action Plan to implement improvements and expand the sustainability of the NOACA Regional Safety Program
- Develop a case study that demonstrates to other MPOs and DOTs how INVEST can help agencies improve in the important sustainability area of safety.

The ultimate goal is to improve our region's sustainability by reducing fatal and serious injuries that negatively impact the social and economic principles through loss of life, injury and damages to personal and public property. The INVEST tool will allow NOACA to assess the sustainability of our current Regional Safety Program and incorporate sustainable strategies into the development of a Transportation Safety Action Plan (TSAP). The results will be used to refine our regional safety goals and objectives, evaluate and prioritize projects and establish safety performance measures and targets.

SOS reports will replace the traditional crash reports, previously released by NOACA on a biennial basis. One significant shift in focus for the new SOS reports will be an emphasis on severe injury (SI) and fatal (F) crashes. In addition to being the most tragic, these two crash types are the most costly, both to the families they affect and the municipalities in which they occur. Additionally, new guidance from FHWA directs MPO's to focus on severe injury and fatal crashes when tracking the performance of a regional transportation system.

The data analyzed as part of this report comes from the Ohio Department of Transportation (ODOT), and pertains to the years 2008 through 2012 (the latest year of complete crash data at the time of publication), unless noted otherwise. The report is organized into two sections. Section I includes safety analysis based on different crash characteristics. These tables help identify deficiencies and issues that exist throughout the regional transportation network. Important findings include the following:

- In 2012, there were a total of 23 fatal crashes in the city of Cleveland, which equates to 58.84 fatal crashes per 1,000,000 people. This places the city of Cleveland directly in the middle when compared to six peer Midwestern cities.

- In 2012, 63% of total crashes, 58% of severe injury crashes, and 50% of fatal crashes occurred within Cuyahoga County. However, all five counties saw similar crash rates when normalized by population and miles driven.
- Looking only at fatal and severe injury crashes per vehicle miles traveled (VMT), Geauga, Medina, and Lorain counties all had higher crash rates than the region as a whole.
- Considering the entire region, the city of Cleveland had over 17% of total crashes and over 19% of SI/F crashes, more than Geauga, Lake, Lorain, or Medina Counties. The municipality with the next highest share of the regional SI/F crashes was the city Parma with 4%.
- While only accounting for 15% of the total roadway network, arterial roadways (functional classifications one through four) account for nearly 65% of the injury and fatal crashes. Minor local roads account for nearly 75% of the network but only 20% of the injury and fatal crashes.
- In 2012, while bicyclists and pedestrians were involved with only 2% of total crashes, they were involved with 11% of severe injury crashes and 15% of fatal crashes.
- All cold weather months (October through March) have higher shares of total crashes compared to severe injury and fatal crashes, while warmer weather months (April through September) all have higher shares of severe injury crashes.
- The largest percent of total crashes, as well as severe injury and fatal crashes, occurred on Fridays.
- The largest percent of total crashes, as well as severe injury crashes, occurred during the 5:00 p.m. hour. However, severe and fatal crashes were more evenly distributed than total crashes
- Crashes on wet, snowy, or icy roads are typically less severe than crashes on dry roads.
- Considering only severe injury and fatal crashes, fixed object was the top crash type for all five counties.
- Considering only severe injury and fatal crashes, failure to yield and failure to control were major contributing factors for all five counties.
- Young males were involved with the largest percentage of fatal and severe injury crashes. Generally, younger age groups are over represented and older age groups are under represented.
- In Geauga, Lorain, and Medina counties, crashes on roads with posted speeds of 50 or 55 MPH tended to be the most severe. In Cuyahoga and Lake counties, crashes on roads with posted speeds of 30 or 40 MPH tended to be the most severe.
- In 2012, crashes in which the driver at fault's ability had been impaired by alcohol accounted for 17% of SI/F crashes, compared to only 4% of total crashes. Also, crashes in which the driver at fault had been using drugs accounted for 6% of SI/F crashes, compared to only 1% of total crashes.

Section II involves severe injury and fatal crashes that had accurate location data. The regional roadway network was organized into uniform half mile segments. Crashes were then assigned to these segments to determine which segments and corridors should be prioritized for future technical assistance and considered for safety improvements. The corridors and

segments below experienced the highest number of severe injury and fatal crashes between 2008 and 2012, and will be candidates for road safety audits (RSAs) conducted by NOACA staff.

Street Name	Location Description	Municipality
Ridge Rd.	From Regency Dr. to Brookpark Rd	Parma
Lakeshore Blvd.	From E. 185th St. to E. 293rd St.	Euclid
State Rd.	From Grantwood Dr. to US-42	Parma/ Cleveland
Pearl Rd./W 25th St.	From Arcmere Ave. to Train Ave.	Cleveland
Lorain Ave.	From W. 168th St to W. 98th St.	Cleveland
Euclid Ave. /Superior Ave.	From Amsel Rd.to Noble Rd.	East Cleveland/ Cleveland
St. Clair Ave.	From MLK Dr. to E. 145th St.	Cleveland
Cedar Rd.	From Cottage Grove Ave. to Campus Rd.	Cleveland Heights/University Heights
Snow Rd.	From west of Engle Rd. to Layor Dr.	Parma/Brook Park
Lorain Ave.	From Ranchview Ave. to W. 229th St.	North Olmsted
Lorain Blvd.	From I-80 on-ramp to Mayfield St.	Elyria
Center Rd.	From Highland Ave. to W. 130th St.	Brunswick
Turney Rd.	From Maple Leaf Dr. to Robinson Ave.	Garfield Heights
Rockside Rd. /Snow Rd.	From W. 29th St. to Pinnacle Park Dr.	Parma
Denison Ave.	From I-71 ramps to east of SR-176	Cleveland
Bagley Rd. /Pleasant Valley Rd.	From W. 130th St. to Dover Ln.	Parma
Broadway Ave.	From Dille Ave. to South Blvd.	Cleveland
Euclid Ave.	From E. 85th St. to Rosalind Ave.	East Cleveland/Cleveland
N Ridge Rd.	From McMackin Ave. to Hubbard Rd.	Madison
John F Kennedy Memorial Pkwy.	From Lorain Blvd. to Roosevelt Ave.	Elyria

Bicyclists and pedestrians are highly vulnerable road users. However, because these modes account for a small portion transportation in Northeast Ohio, roadways with high bicycle and pedestrian crash rates tend to get buried by vehicular dominated roadways. Therefore, NOACA staff also identified corridors and segments based solely on these modes. These corridors and segments will also be RSA candidates.

Street Name	Location Description	Municipality
Euclid Ave.	Sheldon Ave. to Upper Valley Dr.	Cleveland
Mayfield Rd.	From Burlington Rd. to Victory Dr.	Cleveland Heights

Street Name	Location Description	Municipality
Euclid Ave.	From Babbit Rd. to IR 90	Euclid
St. Clair Ave.	Old River Rd. to Ontario St.	Cleveland
Ridge Rd.	Selwick Dr. to Powers Blvd.	Parma
Lorain Ave.	W 127th St. to W 97th St.	Cleveland
Lorain Ave.	Westview Dr. to W 229th St.	North Olmsted
Lorain Ave.	W 214th St. to Wooster Rd.	Fairview Park
Clifton Blvd.	Thoreau Rd. to W 108th St.	Lakewood/Cleveland
W 25th St.	Meyer Ave. to north of Swift Ave.	Cleveland

By identifying system-wide trends, as well as priority segments and corridors, NOACA will have a clearer picture of safety deficiencies in the regional multimodal transportation network. As a result, scarce funding and other resources can be allocated more effectively. Additional components of the agency's Regional Safety Program will complement the 2014 State of Safety report to drive progress on the critical issue of safety.

Section 1: Regional Crash Data Tables

The following tables provide crash statistics for different factors and include data from the time period 2008 through 2012. All data come from the Ohio Department of Transportation, unless stated otherwise. Note that crash totals vary from table to table in this section because some information was not available for all crashes. For example, not all crashes included accurate information about the specific location in which they occurred, so tables involving location information have lower values in some cases.

- Table I: Peer Cities

The National Highway Transportation Safety Administration (NHTSA) compiles data on fatal crashes for municipalities in the US and is included in Table I. The table shows fatal crashes in Cleveland, as well as six peer Midwestern cities. It is valuable to compare Cleveland to peer cities in terms of current conditions, as well as progress made.

- In 2012, there were a total of 23 fatal crashes in the city of Cleveland, which equates to 58.84 fatal crashes per 1,000,000 people. This places the city of Cleveland directly in the middle when compared to six peer Midwestern cities (Minneapolis: 22.91, Pittsburgh: 45.72, Chicago: 49.36, Columbus: 62.97, Cincinnati: 80.93, Detroit: 135.42)
- Cleveland saw the second largest decrease in fatal crashes per capita in 2012, over 23% less compared to the 2008-2012 average.

	Cleveland	Columbus	Cincinnati	Pittsburgh	Detroit	Chicago	Minneapolis
2008-2012 Average Fatal Crashes	31	53.2	19.4	15.8	88	134	16.2
2008-2012 Average Fatal Crashes Per Capita	76.5	68.23	64.192	51.696	116.08	48.826	42.67
2012 Fatal Crashes	23	51	24	14	95	134	9
2012 Fatal crashes Per Capita	58.84	62.97	80.93	45.72	135.42	49.36	22.91

- Table II: Crashes by County

The NOACA region is comprised of five counties: Cuyahoga, Geauga, Lake, Lorain, and Medina. Although all fall within the same metro area, each county differs in terms of demographic and geographic characteristics, and therefore have varying transportation conditions and needs. A county level analysis allows for the investigation of these specific conditions.

- For the region as a whole, 2008 was the worst year for crashes. There were 9% more total crashes, 6% more severe injury (SI) crashes, and 48% more fatal (F) crashes in 2008 compared to the average of the other four years examined in this report.
- In 2012, 63% of total crashes, 58% of severe injury crashes, and 50% of fatal crashes occurred within Cuyahoga County. However, all five counties saw similar crash rates when normalized by population and miles driven.
- Looking only at fatal and severe injury crashes per vehicle miles traveled (VMT), Geauga, Medina, and Lorain counties all had higher crash rates than the region as a whole.
- The number of fatal and severe injury crashes per VMT decreased in all counties between 2008 and 2012.

		CUY	GEA	LAK	LOR	MED	Region
2008-2012 Average	Total Crashes	31333	2042.8	5557	6769	3679.2	50198.75
	Crashes per kVMT	1.10	0.98	0.94	1.01	0.85	1.06
	SI/F Crashes	658	93	131.4	177.6	108.2	1168.4
	SI/F Crashes per mVMT	23.03	44.50	22.34	26.59	24.87	24.56
2012 Totals	Total Crashes	29270	1907	5084	6361	3488	46110
	Crashes per kVMT	1.02	0.91	0.87	0.95	0.86	0.97
	SI/F Crashes	641	64	128	176	102	1111
	SI/F Crashes per mVMT	22.38	30.59	22.01	26.16	25.25	23.48

- Table III: Crashes by City

- Within Cuyahoga County, the city of Cleveland had nearly 36% of the total crashes as well as severe injury and fatal crashes. The city with the next highest share of county crashes was Mentor which had 31% of the total crashes and 17% of the fatal and severe injury crashes that occurred within Lake County.
- Considering the entire region, the city of Cleveland had over 17% of total crashes and over 19% of SI/F crashes, more than Geauga, Lake, Lorain, or Medina Counties. The city with the next highest share of the regional SI/F crashes was Parma with 4%.

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
CUY	Cleveland City	43042	35.59%	1123	35.92%
	Parma City	4463	3.69%	219	7.01%
	Euclid City	2481	2.05%	159	5.09%
	Strongsville City	4643	3.84%	89	2.85%
	North Olmsted City	3273	2.71%	82	2.62%
	Cuyahoga Other	63047	52.13%	1454	46.51%
	Cuyahoga Total	120949	100.00%	3126	100.00%
GEA	Munson Township	695	7.62%	45	9.72%
	Newbury Township	675	7.40%	45	9.72%
	Auburn Township	598	6.56%	34	7.34%
	Chester Township	964	10.57%	32	6.91%
	Bainbridge Township	1178	12.92%	31	6.70%
	Geauga Other	5009	54.93%	276	59.61%
	Geauga Total	9119	100.00%	463	100.00%
LAK	Mentor City	7983	30.86%	110	17.16%
	Willoughby City	3598	13.91%	77	12.01%
	Madison Township	1788	6.91%	71	11.08%
	Concord Township	1631	6.31%	57	8.89%
	Painesville City	1771	6.85%	49	7.64%
	Lake Other	9094	35.16%	277	43.21%
	Lake Total	25865	100.00%	641	100.00%
LOR	Elyria City	6757	22.96%	139	16.13%
	Lorain City	4703	15.98%	92	10.67%
	North Ridgeville City	2624	8.92%	81	9.40%
	Avon City	2223	7.55%	51	5.92%

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
LOR	Amherst Township	1239	4.21%	43	4.99%
	Lorain Other	11884	40.38%	456	52.90%
	Lorain Total	29430	100.00%	862	100.00%
MED	Medina Township	2073	12.51%	54	10.23%
	Brunswick City	1749	10.56%	47	8.90%
	Hinckley Township	604	3.65%	35	6.63%
	Montville Township	973	5.87%	35	6.63%
	Guilford Township	620	3.74%	32	6.06%
	Medina Other	10549	63.67%	325	61.55%
	Medina Total	16568	100.00%	528	100.00%

- Table IV: Crashes by Functional Classification

The functional classification of roadways groups roads into different categories based on the type of service they provide. Arterials, considered major roadways, emphasize mobility, allowing for higher speeds over longer distances. Collectors, and to a greater extent local roads, offer more direct accessibility to destinations. Each roadway class is assigned a number, and FHWA recently changed the way in which roads are classified. The new designations are as follows:

- 1 = Principal Arterial (Interstate)
- 2 = Principal Arterial (Freeways and Expressways)
- 3 = Principal arterial (Other)
- 4 = Minor Arterial
- 5 = Major Collector
- 6 = Minor Collector
- 7 = Local

Roads with different functional classifications also have different design considerations and geometric characteristics, so the level of safety provided by each type will likely vary.

- Due to the new designations, vehicle miles traveled estimates are not yet available at the functional classification level. In future reports, this will likely be a more useful factor to normalize crashes than miles of roadway.
- While only accounting for 15% of the total roadway network, arterial roadways (functional classifications one through four) account for nearly 65% of the injury and fatal crashes. Minor local roads account for nearly 75% of the network but only 20% of the injury and fatal crashes.

Crash Type		Functional Classification						All Roads
		1	2	3	4	5 & 6	7	
All Crashes	Total Crashes	31664	5904	52802	51179	25736	34684	201969
	Percent of Total Crashes	15.68%	2.92%	26.14%	25.34%	12.39%	17.17%	100.00%
	Total S/I/F Crashes	812	155	1239	1436	913	1066	5621
	Percent of Total S/I/F Crashes	14.45%	2.76%	22.04%	25.55%	15.58%	18.96%	100.00%
Bike/Ped Crashes	Total Crashes	107	24	1160	1320	576	835	4022
	Percent of Total Crashes	2.66%	0.60%	28.84%	32.82%	14.32%	20.76%	100.00%
	Total S/I/F Crashes	28	8	189	195	115	146	681
	Percent of Total S/I/F Crashes	4.11%	1.17%	27.75%	28.63%	16.89%	21.44%	100.00%

- Table V: Crashes by Mode

Different transportation modes have divergent safety considerations, and therefore NOACA tracks crash data by mode. While certain safety improvements may address an existing condition on a roadway or at an intersection, they may also create unintended effects for other modes. Additionally, modes such as bicycling and walking are particularly vulnerable to injuries or death resulting from crashes.

- In 2012, while bicyclists and pedestrians were involved in only 2% of total crashes, they were involved in 11% of SI crashes and 15% of F crashes.
- In 2012, in 40% of SI crashes and 59% of F crashes, one of two vehicle types was not listed. Crash types that typically only involve one vehicle (Fixed object, parked vehicle, overturning, other non-collision, other object) accounted for 37% of SI crashes and 47% of F crashes over the five year period. This may indicate a need for improvement in recording non-traditional modes involved in crashes.

County	Crash Type	Pedestrian	Bicycle	Motorcycle	Personal Vehicle	Other	Total
CUY	Total Crashes	2222	1754	1728	136981	13980	156665
	% of Total	1.42%	1.12%	1.10%	87.44%	8.92%	100.00%
	SI/F Crashes	371	138	419	2578	0	3290
	% of SI/F	11.28%	4.19%	12.74%	78.36%	0.00%	100.00%
GEA	Total Crashes	54	26	182	7809	2143	10214
	% of Total	0.53%	0.25%	1.78%	76.45%	20.98%	100.00%
	SI/F Crashes	19	10	70	306	60	465
	% of SI/F	4.09%	2.15%	15.05%	65.81%	12.90%	100.00%
LAK	Total Crashes	156	226	484	23889	3030	27785
	% of Total	0.56%	0.81%	1.74%	85.98%	10.91%	100.00%
	SI/F Crashes	41	26	123	489	0	657
	% of SI/F	6.24%	3.96%	18.72%	74.43%	0.00%	100.00%
LOR	Total Crashes	237	305	558	28558	4187	33845
	% of Total	0.70%	0.90%	1.65%	84.38%	12.37%	100.00%
	SI/F Crashes	54	41	159	648	0	882
	% of SI/F	6.12%	4.65%	18.03%	73.47%	0.00%	100.00%
MED	Total Crashes	70	86	313	14892	3035	18396
	% of Total	0.38%	0.47%	1.70%	80.95%	16.50%	100.00%
	SI/F Crashes	18	11	105	368	37	539
	% of SI/F	3.34%	2.04%	19.48%	68.27%	6.86%	100.00%
Region	Total Crashes	2739	2397	3265	212129	26375	246905
	% of Total	1.11%	0.97%	1.32%	85.92%	10.68%	100.00%
	SI/F Crashes	503	226	876	4389	0	5833
	% of SI/F	8.62%	3.87%	15.02%	75.24%	0.00%	100.00%

- Percentages do not add up to 100 because a crash was attributed to the mode if either one of the vehicles listed in the crash report was using the mode.
- Ped = Pedestrian, Bike = Pedacycle, MC = Motorcycle, PV = Passenger Vehicle, PB = Passenger Bus, CV = Commercial Vehicle, EV = Emergency Vehicle, T = Train, O = Other, NS = Not Stated

- Table VI: Crashes by Month

Regional and local travel patterns can vary by time year which can in turn affect the safety of roadways. An example would be the opening and closing of schools each summer and fall. Any identified trends can also assist the deployment of any temporary or programmatic improvements.

- All cold weather months (October through March) have higher shares of total crashes compared to severe injury and fatal crashes, while warmer weather months (April through September) all have higher shares of severe injury crashes.

Month	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
January	23394	9.47%	364	6.24%
February	22223	9.00%	376	6.45%
March	18578	7.52%	428	7.34%
April	17275	7.00%	453	7.77%
May	19927	8.07%	561	9.62%
June	19489	7.89%	546	9.36%
July	18766	7.60%	557	9.55%
August	19105	7.74%	579	9.93%
September	19789	8.01%	575	9.86%
October	22139	8.97%	512	8.78%
November	20903	8.47%	397	6.81%
December	25317	10.25%	485	8.31%
Total	246905	100.00%	5833	100.00%

- Table VII (A & B): Crashes by Day of Week and Time of Day

Just as travel patterns can change throughout the course of the year, they also change at different points during the day and the week. Table VII-A and Table VII-B show the distribution of all crashes and SI/F crashes, respectively. Totals by day of the week are included at the bottom of each chart, while totals by hour of the day are located at the very right of each chart.

- The largest percent of total crashes, as well as severe injury and fatal crashes, occurred on Fridays.
- The largest percent of total crashes, as well as severe injury crashes, occurred during the 5:00 p.m. hour. However, severe and fatal crashes were more evenly distributed than total crashes.

All Crashes								
Hour	SUN	MON	TUE	WED	THU	FRI	SAT	Total
0	1080	491	553	579	560	734	1053	5050
1	973	322	295	354	392	461	880	3677
2	1186	320	306	376	430	568	1151	4337
3	826	256	234	287	282	417	759	3061
4	449	198	187	223	237	272	422	1988
5	361	367	370	361	392	389	371	2611
6	367	935	971	972	904	999	443	5591
7	370	2212	2534	2450	2458	2191	626	12841
8	475	2138	2424	2287	2203	2082	939	12548
9	670	1510	1645	1578	1535	1584	1151	9673
10	912	1374	1400	1525	1354	1677	1501	9743
11	1090	1686	1721	1727	1695	1993	1886	11798
12	1481	1995	2182	2100	2033	2352	2261	14404
13	1556	1935	2100	1992	1889	2389	2132	13993
14	1494	2554	2661	2564	2468	2989	2239	16969
15	1527	3248	3224	3193	3169	3782	2295	20438
16	1594	3144	3315	3390	3331	3771	2239	20784
17	1567	3407	3858	3593	3707	3942	2060	22134
18	1478	2207	2502	2421	2516	2933	1973	16030
19	1204	1473	1728	1529	1595	1989	1549	11067
20	1071	1130	1315	1102	1241	1432	1213	8504
21	895	923	1106	1034	1119	1439	1287	7803
22	739	701	875	850	868	1272	1239	6544
23	543	546	624	545	731	1196	1132	5317
Total	23908	35072	38130	37032	37109	42853	32801	246905

Severe Injury and Fatal Crashes								
Hour	SUN	MON	TUE	WED	THU	FRI	SAT	Total
0	39	21	16	16	19	21	36	168
1	45	22	13	15	24	28	39	186
2	59	14	16	15	23	29	53	209
3	35	6	4	7	8	12	30	102
4	24	3	1	3	7	6	11	55
5	14	13	9	11	9	16	16	88
6	10	24	33	24	11	27	15	144
7	15	36	37	44	48	42	12	234
8	18	34	31	34	27	35	16	195
9	31	29	27	23	22	30	18	180
10	17	23	26	30	30	41	30	197
11	34	29	36	42	37	41	40	259
12	36	32	46	35	38	45	60	292
13	39	40	39	32	41	54	51	296
14	42	54	52	61	42	61	53	365
15	55	66	69	62	47	69	49	417
16	52	47	68	66	58	61	49	401
17	49	66	69	72	80	68	52	456
18	41	53	71	62	44	65	54	390
19	48	44	36	44	43	56	29	300
20	31	31	35	28	34	48	40	247
21	32	33	38	38	43	41	39	264
22	30	23	30	17	34	44	38	216
23	19	16	19	24	23	39	32	172
Total	815	759	821	805	792	979	862	5833

- Table VIII: Crashes by Weather Condition

Weather conditions can change aspects of a roadway and surrounding right-of-way and influence safety conditions. In Northeast Ohio, transportation network users annually experience a spectrum of weather conditions. Table VIII is the first to include the column “Percent SI/F”, which pertains to the percent of crashes occurring during the stated weather conditions that resulted in a serious injury to fatality (as opposed to “Percent of SI/F”, which pertains to the percent of total SI/F crashes that occurred during the stated weather condition).

- The highest percentage of total crashes, as well as severe injury and fatal crashes, occurred during non-inclement weather.
- Crashes during rainy and snowy weather conditions are typically less severe than crashes during non inclement weather.

Weather Condition	Percent of Total	Percent of SI/F	Percent SI/F
No Inclement Weather	75.18%	81.55%	2.56%
Rain	11.86%	10.71%	2.13%
Snow	10.15%	5.67%	1.32%
Fog	0.19%	0.31%	3.90%
Heavy Wind	0.19%	0.14%	1.67%
Other	1.35%	1.06%	1.87%
Weather not Stated	1.09%	0.55%	1.19%
Total	100.00%	100.00%	2.36%

- Table IX: Crashes by Surface Condition

Surface condition, typically related to weather condition, can also influence safety on roads. Various surface conditions can reduce the allowable reaction time roadway users due to a lack of friction. Surface condition was identified by ODOT as a prioritized systematic safety improvement, and was also investigated by NOACA staff for all segments within the region.

- The highest percentage of total crashes, as well as severe injury and fatal crashes, occurred under dry road conditions.
- Crashes on wet, snowy, or icy roads are typically less severe than crashes on dry roads.

Surface Condition	Percent of Total	Percent of S/I/F	Percent S/I/F
Dry	63.95%	72.28%	2.67%
Mud/Sand	0.07%	0.17%	6.17%
Wet	22.91%	20.90%	2.15%
Snow	8.77%	4.22%	1.14%
Ice	2.50%	1.56%	1.47%
Other	0.62%	0.41%	1.58%
Not Stated	1.19%	0.46%	0.92%
Total	100.00%	100.00%	2.36%

- Table X: Crashes by Type

Crash type can be one of the most important pieces of information included in individual crash reports. This is because the type of crashes that are occurring along a corridor or at an intersection will warrant different safety measures to reduce crashes. Table X shows crash type by county, and includes all crash types that accounted for 10% or more of SI/F crashes in each county, with 'Other' including all additional crash types.

- Considering all crashes, rear end and fixed object are the top two crash types for all counties except in Cuyahoga County, which had more angle crashes than fixed object crashes.
- Considering only severe injury and fatal crashes, fixed object was the top crash type for all five counties.

County	Type	Total	Tot. Percent	SI/F	Percent of SI/F
CUY	Angle	23865	15.23%	442	13.43%
	Fixed Object	18143	11.58%	838	25.47%
	Rear End	52893	33.76%	500	15.20%
	Pedestrian	2222	1.42%	371	11.28%
	Other	59542	38.01%	1139	34.62%
	Total	156665	100.00%	3290	100.00%
GEA	Angle	1408	13.79%	102	21.94%
	Fixed Object	2864	28.04%	145	31.18%
	Sideswipe	790	7.73%	53	11.40%
	Rear End	2307	22.59%	47	10.11%
	Other	2845	27.85%	118	25.38%
	Total	10214	100.00%	465	100.00%
LAK	Angle	3912	14.08%	98	14.92%
	Fixed Object	4364	15.71%	168	25.57%
	Rear End	9906	35.65%	112	17.05%
	Sideswipe	3097	11.15%	69	10.50%
	Other	6506	23.42%	210	31.96%
	Total	27785	100.00%	657	100.00%
LOR	Angle	4752	14.04%	144	16.33%
	Fixed Object	5837	17.25%	245	27.78%
	Rear End	9551	28.22%	109	12.36%
	Sideswipe	3529	10.43%	94	10.66%
	Other	10176	30.07%	290	32.88%
	Total	33845	100.00%	882	100.00%
MED	Angle	2697	14.66%	105	19.48%

County	Type	Total	Tot. Percent	SI/F	Percent of SI/F
MED	Fixed Object	4069	22.12%	158	29.31%
	Rear End	4990	27.13%	62	11.50%
	Sideswipe	1776	9.65%	59	10.95%
	Other	4864	26.44%	155	28.76%
	Total	18396	100.00%	539	100.00%
REGION	Angle	36634	14.84%	891	15.28%
	Fixed Object	35277	14.29%	1554	26.64%
	Rear End	79647	32.26%	830	14.23%
	Sideswipe	34472	13.96%	600	10.29%
	Other	60875	24.66%	1958	33.57%
	Total	246905	100.00%	5833	100.00%

- Crash types listed by ODOT include Angle, Animal, Backing, Fixed Object, Head On, Left Turn, Not Stated, Other (Non-Collision), Other (Non-Vehicle), Other (Object), Overturning, Parked Vehicle, Pedalcycles, Pedestrian, Rear End, Sideswipe, and Train. If a crash type is not listed for a county that crash type did not contribute to 10% or more of the SI/F crashes occurring in that county and is instead included as "Other".

- Table XI: Crashes by Contributing Factor

Although sometimes difficult to distinguish or isolate, the contributing factor committed by the driver at fault during a crash is also recorded in reports. Contributing factor is often linked to the crash type or existing roadway or traffic condition and therefore also provides information on appropriate safety measures. Table XI also only includes contributing factors which accounted for 10% or more of SI/F crashes occurring in each county.

- Considering all crashes, following too close, failure to control, and failure to yield are major contributing factors for all counties.
- Considering only severe injury and fatal crashes, failure to yield and failure to control were major contributing factors for all five counties.

County	Factor	Total	Tot. Percent	SI/F	Percent of SI/F
CUY	Failure to Control	29705	18.96%	1078	32.77%
	Failure to Yield	18138	11.58%	448	13.62%
	Following Too Close	37396	23.87%	370	11.25%
	Other Driver Error	19151	12.22%	380	11.55%
	Other	52275	33.37%	1014	30.82%
	Total	156665	100.00%	3290	100.00%
GEA	Failure to Yield	1260	12.34%	97	20.86%
	Excessive Speed	886	8.67%	77	16.56%
	Failure to Control	1836	17.98%	70	15.05%
	Following Too Close	2312	22.64%	56	12.04%
	Other	5180	50.71%	262	56.34%
	Total	10214	100.00%	465	100.00%
LAK	Failure to Control	4724	17.00%	189	28.77%
	Failure to Yield	3734	13.44%	130	19.79%
	Following Too Close	9388	33.79%	114	17.35%
	Other	9939	35.77%	224	34.09%
	Total	27785	100.00%	657	100.00%
LOR	Failure to Control	4507	13.32%	173	19.61%
	Failure to Yield	4179	12.35%	144	16.33%
	Following Too Close	9033	26.69%	110	12.47%
	Excessive Speed	1958	5.79%	99	11.22%
	Other	16126	47.65%	455	51.59%
	Total	33845	100.00%	882	100.00%
MED	Failure to Yield	2213	12.03%	98	18.18%
	Failure to Control	2187	11.89%	80	14.84%
	Excessive Speed	1686	9.17%	73	13.54%

County	Factor	Total	Tot. Percent	SI/F	Percent of SI/F
MED	Following Too Close	4639	25.22%	58	10.76%
	Drove Off Road-Reason Unknown	701	3.81%	57	10.58%
	Other	7671	41.70%	230	42.67%
	Total	18396	100.00%	539	100.00%
REGION	Failure to Control	42959	17.40%	1590	27.26%
	Failure to Yield	29524	11.96%	917	15.72%
	Following Too Close	62768	25.42%	708	12.14%
	Other	111654	45.22%	2618	44.88%
	Total	246905	100.00%	5833	100.00%

- Contributing factors listed by ODOT include debris on road, downed traffic sign or device, driver inattention, drove off road-reason unknown, excessive speed, failure to control, failure to yield, following too close, improper backing, improper lane change, improper passing, improper start from parked position, improper turning, left of center, load shift-fall-spill, no driver errors, other driver error, pavement defect, ran red light, ran stop sign or yield sign, stopped-parked illegally, vehicle defect, and view obstructed. If a contributing factor is not listed for a county that factor did not contribute to 10% or more of the SI/F crashes occurring in that county and is instead included as "Other".

- Table XII: Crashes by Age and Gender

The age and gender of people involved in crashes is also a commonly tracked statistic. Table XII shows the age and gender of those considered to be at fault for a crash (not all crashes include this information). Although this information does not provide as much insight for design countermeasures, age and gender information can help make educational and enforcement programs more effective by knowing the target audience.

- At a regional scale, while males only account for 48% of the total driving-age population, they account for 57% of total crashes and 65% of fatal and serious injury crashes.
- The three groups involved with the largest percentage of fatal and severe injury crashes were young males (15-19, 20-24, 25-29). Generally, younger age groups are over represented and older age groups are under represented.

Demographic	Total Crashes	Tot. Crashes/100 Person	SI/F Crashes	SI/F Crashes/ 1000 Person
Male	126319	12.64	3604	3.61
15-19	16783	22.49	366	4.91
20-24	18131	30.57	502	8.46
25-29	13535	22.43	408	6.76
30-34	10789	18.59	291	5.01
35-39	10013	16.26	290	4.71
40-44	10124	14.13	301	4.20
45-49	10490	13.48	336	4.32
50-54	10084	12.51	326	4.04
55-59	8180	11.78	240	3.46
60-64	6026	10.64	185	3.27
65-69	3935	9.85	101	2.53
70-74	2747	9.17	83	2.77
75-79	2264	9.37	69	2.86
80-84	1843	9.42	62	3.17
85 and Over	1375	9.26	44	2.96
Female	96569	8.93	1962	1.82
15-19	13650	19.02	244	3.40
20-24	15046	25.41	277	4.68
25-29	10906	17.19	211	3.33
30-34	8489	13.94	158	2.59
35-39	7552	11.16	156	2.31
40-44	7359	10.08	139	1.90
45-49	7257	8.70	147	1.76
50-54	6552	7.70	140	1.65

Demographic	Total Crashes	Tot. Crashes/100 Person	SI/F Crashes	SI/F Crashes/ 1000 Person
55-59	5400	7.22	122	1.63
60-64	4268	6.76	78	1.23
65-69	2971	5.94	68	1.36
70-74	2315	6.06	62	1.62
75-79	1941	5.57	65	1.86
80-84	1699	5.53	57	1.86
85 and Over	1164	3.53	38	1.15
Total	222888	10.71	5566	2.68

- Table XIII: Crashes by Posted Speed

Speed can have a tremendous impact on the types of crashes that occur along a corridor or at an intersection, both in terms of type and severity. Table XIII shows crashes by the posted speed, which sometimes does not indicate the actual driving speeds along a roadway. If speed is considered to be a contributing factor along a corridor, than infrastructure improvements, in addition to changing the posted speed, should be implemented to reduce crashes.

- o In Geauga, Lorain, and Medina counties, crashes on roads with posted speeds of 50 or 55 MPH tended to be the most severe. In Cuyahoga and Lake counties, crashes on roads with posted speeds of 30 or 40 MPH tended to be the most severe.

County	Crash Type	Speed Limit								
		20 and Under	25	30	35	40	45	50	55	Over 55
CUY	Percent of Total	1.3%	40.9%	0.6%	37.6%	0.4%	0.3%	2.1%	0.9%	12.2%
	Percent of S/I/F	0.9%	33.2%	1.5%	40.7%	0.6%	0.4%	2.3%	0.9%	16.4%
	Percent S/I/F	1.4%	1.7%	5.4%	2.3%	3.5%	2.3%	2.4%	2.2%	2.8%
GEA	Percent of Total	0.4%	9.1%	0.0%	14.0%	6.4%	36.5%	5.2%	24.9%	2.2%
	Percent of S/I/F	0.0%	4.7%	0.0%	7.3%	4.7%	36.8%	9.5%	35.3%	1.5%
	Percent S/I/F	0.0%	2.4%	0.0%	2.4%	3.4%	4.6%	8.4%	6.5%	3.1%
LAK	Percent of Total	0.5%	29.4%	0.8%	37.3%	4.3%	6.6%	5.2%	2.8%	12.0%
	Percent of S/I/F	0.3%	22.7%	0.5%	27.7%	6.1%	13.1%	6.1%	6.7%	15.2%
	Percent S/I/F	1.5%	1.8%	1.4%	1.8%	3.3%	4.7%	2.8%	5.7%	3.0%
LOR	Percent of Total	1.1%	22.2%	0.2%	32.9%	2.9%	8.5%	8.3%	11.4%	10.8%
	Percent of S/I/F	0.3%	14.0%	0.0%	28.0%	2.6%	11.2%	9.0%	24.7%	8.6%
	Percent S/I/F	0.8%	1.6%	0.0%	2.2%	2.4%	3.5%	2.8%	5.6%	2.1%
MED	Percent of Total	0.4%	20.2%	0.1%	18.8%	3.0%	19.2%	4.9%	18.9%	12.6%
	Percent of S/I/F	0.0%	7.8%	0.0%	13.4%	2.0%	23.8%	8.7%	32.7%	9.7%
	Percent S/I/F	0.0%	1.1%	0.0%	2.1%	2.0%	3.6%	5.2%	5.1%	2.2%
REGION	Percent of Total	1.0%	34.2%	0.5%	34.5%	1.6%	5.1%	3.6%	4.9%	11.6%
	Percent of S/I/F	0.6%	24.5%	0.9%	32.1%	2.0%	8.5%	4.9%	10.8%	13.3%
	Percent S/I/F	1.3%	1.7%	4.3%	2.2%	2.9%	4.0%	3.2%	5.3%	2.7%

- Table XIV: Crashes by Alcohol/Drug Detection

Although not easily addressed through design improvements, drugs and alcohol are two critical issues for roadway safety, most notably because crashes involving either tend to be more severe. In Table XIV, “HBD” stands for “Had Been Drinking”. There are numerous statewide and local programs and agencies working to reduce drunk driving, and these statistics show the progress made in recent years by comparing the 2008-2012 average to the year 2012.

- In 2012 there was a slight decrease in crashes where alcohol was detected in the driver at fault and a slight decrease in crashes where drugs were detected in the driver at fault, compared to the 2008-2012 five year average.
- In 2012, crashes in which the driver at fault’s ability had been impaired by alcohol accounted for 17% of SI/F crashes, compared to only 4% of total crashes.
- In 2012, crashes in which the driver at fault had been using drugs accounted for 6% of SI/F crashes, compared to only 1% of total crashes.

		Crashes	Percent of Total Crashes	SI/F Crashes	Percent of SI/F Crashes
Alcohol					
2008-2012 Average	No Alcohol Detected	40593	82.20%	845	72.42%
	HBD-Ability Not Impaired	129	0.26%	5	0.46%
	HBD-Ability Unknown	5833	11.81%	110	9.43%
	HBD-Ability Impaired	2529	4.10%	196	16.84%
	Alcohol not stated	803	1.63%	10	0.86%
2012	No Alcohol Detected	38741	84.02%	828	74.53%
	HBD-Ability Not Impaired	115	0.25%	5	0.45%
	HBD-Ability Unknown	4182	9.07%	78	7.02%
	HBD-Ability Impaired	1898	4.12%	188	16.92%
	Alcohol not stated	1174	2.55%	12	1.08%
Drugs					
2008-2012 Average	No Drugs Detected	42312	85.68%	987	84.59%
	Using Prescription Drugs	434	0.87%	60	5.13%
	Drugs Not Stated	6636	13.43%	120	10.29%
2012	No Drugs Detected	40298	87.40%	953	85.78%
	Using Prescription Drugs	456	0.99%	68	6.12%
	Drugs Not Stated	5356	11.62%	90	8.10%

Section 2: High Severe Crash Corridors

In previous crash reports, NOACA has identified high crash intersections both in terms of crash frequency and severity. The State of Safety report shifts the focus from intersections to segments and corridors. By considering the entire segment or corridor, NOACA staff will be able to take a more holistic approach to making the appropriate improvements to these problematic areas. The methodology for this analysis is explained below.

- All roads maintained in the ODOT state and local road inventory files within the five county region were included in the analysis.
- All located, fatal and severe injury (ODOT severity code 4 and 5) crashes within the five county region from 2008-2012 were included in the analysis (only crashes involving bicycle and pedestrian crashes for Table 2).
- The roadway network was split into half mile segments. Due to some end segments being shorter than one half mile, not all segments analyzed were the same length.
- Crashes were attributed to individual segments using GIS.
- The segments were then ranked by the number of crashes attributed to them.
- Any segments that were either contiguous or within one half mile of each other were joined together to form a corridor.
- For all corridors, the crashes attributed to each segment were summed to represent the total crashes attributed to the corridor.
- The table shows the corridors ranked by number of attributed crashes

The analysis resulted in two tables, one corresponding to all severe injury and fatal crashes, and another only for bicycle and pedestrian severe injury and fatal crashes. The two tables were developed because dangerous locations for bicyclists and pedestrians often go unnoticed due to lower crash frequencies. These two tables will help shape priorities for NOACA technical assistance and safety related funding in the immediate future.

- Table I: All Severe Injury/Fatal High Crash Corridors

Street Name	Location Description	Municipality	Count y	SI/F Crashes	Segment Length
Ridge Rd.	From Regency Dr. to Brookpark Rd	Parma	CUY	46	4.15
Lakeshore Blvd.	From E. 185th St. to E. 293rd St.	Euclid	CUY	33	3.92
State Rd.	From Grantwood Dr. to US-42	Parma/ Cleveland	CUY	25	2.96
Pearl Rd./W 25 th St.	From Arcmere Ave. to Train Ave.	Cleveland	CUY	25	4
Lorain Ave.	From W. 168th St (east of Rocky River Dr.) to W. 98th St. (south of IR-90)	Cleveland	CUY	22	3.5
Euclid Ave. /Superior	From Amsel Rd. (west of MLK Dr.) to Noble	East Cleveland/ Cleveland	CUY	22	3.5

Street Name	Location Description	Municipality	Count y	S/I/F Crashes	Segment Length
Ave.	Rd.				
St. Clair Ave.	From MLK Dr. to E. 145th St.	Cleveland	CUY	21	3
Cedar Rd.	From Cottage Grove Ave. to Campus Rd.	Cleveland Heights/University Heights/South Euclid	CUY	21	3
Snow Rd.	From west of Engle Rd. to Laylor Dr.	Parma/Brook Park	CUY	20	4
Lorain Ave.	From Ranchview Ave. to W. 229th St.	North Olmsted	CUY	18	2
Lorain Blvd.	From I-80 on-ramp to Mayfield St.	Elyria	LOR	18	2
Center Rd.	From Highland Ave. to W. 130th St.	Brunswick	MED	18	3.5
Turney Rd.	From Maple Leaf Dr. to Robinson Ave.	Garfield Heights	CUY	17	2
Rockside Rd. /Snow Rd.	From W. 29th St. to Pinnacle Park Dr.	Parma	CUY	17	2
Denison Ave.	From I-71 ramps to east of SR-176	Cleveland	CUY	16	2.5
Bagley Rd. /Pleasant Valley Rd.	From W. 130th St. to Dover Ln.	Parma	CUY	16	2
Broadway Ave.	From Dille Ave. to South Blvd.	Cleveland	CUY	16	3
Euclid Ave.	From E. 85th St. to Rosalind Ave.	East Cleveland/Cleveland	CUY	16	2.5
N Ridge Rd.	From McMackin Ave. to Hubbard Rd.	Madison	LAK	16	2.5
John F Kennedy Memorial Pkwy.	From Lorain Blvd. to Roosevelt Ave.	Elyria	LOR	16	2

- Table II: Bicycle and Pedestrian Severe Injury/Fatal High Crash Corridors

Street Name	Location Description	Municipality	Count y	Fatal/Injury Crashes	Segment Length
Euclid Ave.	Sheldon Ave. to Upper Valley Dr.	Cleveland	CUY	8	2
Mayfield Rd.	From Burlington Rd. to Victory Dr.	Cleveland Heights	CUY	6	1.5
Euclid Ave.	From Babbit Rd. to IR 90	Euclid	CUY	5	1

Street Name	Location Description	Municipality	Count y	Fatal/Injury Crashes	Segment Length
St. Clair Ave.	Old River Rd. to Ontario St.	Cleveland	CUY	4	0.5
Ridge Rd.	Selwick Dr. to Powers Blvd.	Parma	CUY	4	0.5
Lorain Ave.	W 127th St. to W 97th St.	Cleveland	CUY	4	1.5
Lorain Ave.	Westview Dr. to W 229th St.	North Olmsted	CUY	4	1.5
Lorain Ave.	W 214th St. to Wooster Rd.	Fairview Park	CUY	4	1
Clifton Blvd.	Thoreau Rd. to W 108th St.	Lakewood/Cleveland	CUY	4	1
W 25 th St.	Meyer Ave. to north of Swift Ave.	Cleveland	CUY	4	1

Appendix I: Expanded Tables

- Table I: Peer Cities

Year	Crash Type	Cleveland	Columbus	Cincinnati	Pittsburgh	Detroit	Chicago	Minneapolis
2008	Fatal Crashes	47	60	25	15	87	158	21
	Fatal Crashes Per Capita	115.17	81.07	84.81	50.47	111.9	57.63	58.19
	Fatalities Per Capita	117.62	87.83	91.6	50.47	120.9	61.28	63.73
2009	Fatal Crashes	31	51	18	17	98	142	17
	Fatal Crashes Per Capita	71.86	65.97	54.05	54.55	107.59	49.82	44.11
	Fatalities Per Capita	74.18	69.86	54.05	54.55	124.06	53.32	44.11
2010	Fatal Crashes	32	50	13	23	88	127	15
	Fatal Crashes Per Capita	80.76	63.3	43.78	75.22	123.61	47.06	39.14
	Fatalities Per Capita	88.33	64.56	43.78	88.3	130.63	51.5	52.18
2011	Fatal Crashes	22	54	17	10	72	109	19
	Fatal Crashes Per Capita	55.87	67.84	57.39	32.52	101.89	40.26	49
	Fatalities Per Capita	66.02	71.61	60.76	32.52	110.38	43.96	54.16
2012	Fatal Crashes	23	51	24	14	95	134	9
	Fatal Crashes Per Capita	58.84	62.97	80.93	45.72	135.42	49.36	22.91
	Fatalities Per Capita	61.39	71.61	84.3	45.71	145.39	52.67	25.45

- Table II: Crashes by County

Year	Crash Type	CUY	GEA	LAK	LOR	MED	REGION
2008	Total Crashes	33293	2345	5999	7146	3968	52751
	SI Crashes	624	90	120	163	99	1096
	F Crashes	92	10	13	30	18	163
	Fatalities	95	10	13	31	21	170
	Crashes Per Capita (K)	25.93	24.75	25.63	23.48	23.18	25.26
	Crashes per kVMT	25.93	24.75	25.63	23.48	23.18	25.26
	SI/F Crashes per Capita (M)	557.66	1055.38	568.3	634.09	683.37	602.89
	SI/F Crashes per mVMT	25.75	49.59	22.99	29.86	27.88	27.21
2009	Total Crashes	31033	1975	5510	6534	3497	48549
	SI Crashes	611	107	126	150	97	1091
	F Crashes	59	7	9	30	15	121
	Fatalities	60	7	9	30	15	121
	Crashes Per Capita (K)	24.33	19.94	23.27	21.37	20.09	23.21
	Crashes per kVMT	1.09	0.95	0.94	0.99	0.79	1.02
	SI/F Crashes per Capita (M)	525.2	1150.82	570.16	569.17	632.06	575.24
	SI/F Crashes per mVMT	23.46	54.98	22.97	26.45	24.86	25.32
2010	Total Crashes	31106	1949	5548	6792	3732	49127
	SI Crashes	557	78	121	153	98	1007
	F Crashes	60	9	14	21	18	122
	Fatalities	63	9	15	24	20	131
	Crashes Per Capita (K)	24.34	20.87	24.11	22.53	21.62	23.67
	Crashes per kVMT	1.07	0.91	0.92	1.02	0.82	1.02
	SI/F Crashes per Capita (M)	482.71	931.4	586.7	577.21	672.11	543.9
	SI/F Crashes per mVMT	21.3	40.49	22.44	26.04	25.34	23.33
2011	Total Crashes	31963	2038	5644	7012	3711	50368
	SI Crashes	590	93	116	143	80	1022
	F Crashes	56	7	10	22	14	109
	Fatalities	61	7	12	24	16	120
	Crashes Per Capita (K)	25.16	21.86	24.55	23.25	21.42	24.35
	Crashes per kVMT	1.11	0.96	0.95	1.01	0.82	1.04
	SI/F Crashes per Capita (M)	508.54	1072.64	548.1	547.06	542.53	546.83
	SI/F Crashes per mVMT	22.35	47.23	21.29	23.77	20.83	23.37
2012	Total Crashes	29270	1907	5084	6361	3488	46110
	SI Crashes	592	60	118	150	93	1013
	F Crashes	49	4	10	26	9	98
	Fatalities	50	4	11	29	9	103

Year	Crash Type	CUY	GEA	LAK	LOR	MED	REGION
2012	Crashes Per Capita (K)	23.14	20.36	22.14	21.1	20.08	22.35
	Crashes per kVMT	1.02	0.91	0.87	0.95	0.86	0.97
	SI/F Crashes per Capita (M)	506.67	683.18	557.53	583.79	587.27	538.4
	SI/F Crashes per mVMT	22.38	30.59	22.01	26.16	25.25	23.48

- Table III: Crashes by City

County	Municipality	Total Crashes	Percent of Total	S/I/F Crashes	Percent of S/I/F
CUY	Bay Village City	482	0.40%	18	0.58%
	Beachwood City	2542	2.10%	46	1.47%
	Bedford City	1269	1.05%	42	1.34%
	Bedford Heights City	1191	0.98%	33	1.06%
	Bentleyville Village	50	0.04%	0	0.00%
	Berea City	1377	1.14%	41	1.31%
	Bratenahl Village	643	0.53%	14	0.45%
	Brecksville City	1049	0.87%	39	1.25%
	Broadview Heights City	1749	1.45%	26	0.83%
	Brook Park City	1579	1.31%	65	2.08%
	Brooklyn City	1225	1.01%	47	1.50%
	Brooklyn Heights Village	283	0.23%	18	0.58%
	Chagrin Falls Village	373	0.31%	9	0.29%
	Cleveland City	43042	35.59%	1123	35.92%
	Cleveland Heights City	3668	3.03%	68	2.18%
	Cuyahoga Heights Village	75	0.06%	7	0.22%
	East Cleveland City	1181	0.98%	37	1.18%
	Euclid City	2481	2.05%	159	5.09%
	Fairview Park City	774	0.64%	30	0.96%
	Garfield Heights City	3179	2.63%	81	2.59%
	Gates Mills Village	399	0.33%	17	0.54%
	Glenwillow Village	123	0.10%	5	0.16%
	Highland Heights City	1003	0.83%	17	0.54%
	Highland Hills Village	81	0.07%	0	0.00%
	Hunting Valley Village	135	0.11%	7	0.22%
	Independence City	1988	1.64%	61	1.95%
	Lakewood City	2823	2.33%	40	1.28%
	Linndale Village	115	0.10%	1	0.03%
	Lyndhurst City	2088	1.73%	30	0.96%
	Maple Heights City	1755	1.45%	57	1.82%
	Mayfield Heights City	2287	1.89%	36	1.15%
	Mayfield Village	706	0.58%	16	0.51%
	Middleburg Heights City	2657	2.20%	32	1.02%
Moreland Hills Village	165	0.14%	7	0.22%	
Newburgh Heights Village	178	0.15%	5	0.16%	
North Olmsted City	3273	2.71%	82	2.62%	
North Randall Village	124	0.10%	2	0.06%	
North Royalton City	2317	1.92%	59	1.89%	

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
CUY	Oakwood Village	653	0.54%	16	0.51%
	Olmsted Falls City	526	0.43%	9	0.29%
	Olmsted Township	610	0.50%	17	0.54%
	Orange Village	235	0.19%	2	0.06%
	Parma City	4463	3.69%	219	7.01%
	Parma Heights City	1589	1.31%	34	1.09%
	Pepper Pike City	534	0.44%	8	0.26%
	Richmond Heights City	807	0.67%	22	0.70%
	Rocky River City	1068	0.88%	24	0.77%
	Seven Hills City	622	0.51%	15	0.48%
	Shaker Heights City	2325	1.92%	24	0.77%
	Solon City	2691	2.22%	56	1.79%
	South Euclid City	2329	1.93%	39	1.25%
	Strongsville City	4643	3.84%	89	2.85%
	University Heights City	768	0.63%	22	0.70%
	Valley View Village	586	0.48%	18	0.58%
	Walton Hills Village	245	0.20%	8	0.26%
	Warrensville Heights City	2090	1.73%	50	1.60%
	Westlake City	3440	2.84%	76	2.43%
	Woodmere Village	296	0.24%	1	0.03%
	CUY Total	120949	100.00%	3126	100.00%
GEA	Auburn Township	598	6.56%	34	7.34%
	Bainbridge Township	1178	12.92%	31	6.70%
	Burton Township	533	5.84%	27	5.83%
	Chardon City	658	7.22%	11	2.38%
	Chardon Township	538	5.90%	20	4.32%
	Chester Township	964	10.57%	32	6.91%
	Claridon Township	463	5.08%	23	4.97%
	Hambden Township	402	4.41%	19	4.10%
	Hunting Valley Village	0	0.00%	0	0.00%
	Huntsburg Township	235	2.58%	26	5.62%
	Middlefield Township	322	3.53%	25	5.40%
	Middlefield Village	128	1.40%	5	1.08%
	Montville Township	269	2.95%	25	5.40%
	Munson Township	695	7.62%	45	9.72%
	Newbury Township	675	7.40%	45	9.72%
	Parkman Township	380	4.17%	29	6.26%
	Russell Township	370	4.06%	22	4.75%
	South Russell Village	68	0.75%	0	0.00%
Thompson Township	272	2.98%	24	5.18%	

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
GEA	Troy Township	371	4.07%	20	4.32%
	GEA Total	9119	100.00%	463	100.00%
LAK	Concord Township	1631	6.31%	57	8.89%
	Eastlake City	1790	6.92%	45	7.02%
	Kirtland City	693	2.68%	17	2.65%
	Kirtland Hills Village	267	1.03%	7	1.09%
	Lakeline Village	18	0.07%	1	0.16%
	Leroy Township	578	2.23%	29	4.52%
	Madison Township	1788	6.91%	71	11.08%
	Mentor City	7983	30.86%	110	17.16%
	Mentor-on-the-Lake City	279	1.08%	9	1.40%
	Painesville City	1771	6.85%	49	7.64%
	Painesville Township	1130	4.37%	39	6.08%
	Perry Township	609	2.35%	38	5.93%
	Timberlake Village	48	0.19%	3	0.47%
	Waite Hill Village	55	0.21%	1	0.16%
	Wickliffe City	1478	5.71%	35	5.46%
	Willoughby City	3598	13.91%	77	12.01%
	Willoughby Hills City	1180	4.56%	34	5.30%
	Willowick City	969	3.75%	19	2.96%
	LAK Total	25865	100.00%	641	100.00%
LOR	Amherst City	980	3.33%	36	4.18%
	Amherst Township	1239	4.21%	43	4.99%
	Avon City	2223	7.55%	51	5.92%
	Avon Lake City	885	3.01%	19	2.20%
	Brighton Township	95	0.32%	5	0.58%
	Brownhelm Township	630	2.14%	25	2.90%
	Camden Township	172	0.58%	18	2.09%
	Carlisle Township	1090	3.70%	32	3.71%
	Columbia Township	697	2.37%	35	4.06%
	Eaton Township	1023	3.48%	30	3.48%
	Elyria City	6757	22.96%	139	16.13%
	Elyria Township	798	2.71%	24	2.78%
	Grafton Township	397	1.35%	28	3.25%
	Grafton Village	167	0.57%	4	0.46%
	Henrietta Township	341	1.16%	28	3.25%
	Huntington Township	195	0.66%	10	1.16%
	LaGrange Township	348	1.18%	22	2.55%

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
LOR	Lorain City	4703	15.98%	92	10.67%
	New Russia Township	445	1.51%	23	2.67%
	North Ridgeville City	2624	8.92%	81	9.40%
	Oberlin City	432	1.47%	19	2.20%
	Penfield Township	202	0.69%	13	1.51%
	Pittsfield Township	375	1.27%	18	2.09%
	Rochester Township	81	0.28%	2	0.23%
	Sheffield Lake City	184	0.63%	7	0.81%
	Sheffield Township	706	2.40%	16	1.86%
	Sheffield Village	1198	4.07%	35	4.06%
	Wellington Township	443	1.51%	7	0.81%
	LOR Total	29430	100.00%	862	100.00%
MED	Brunswick City	1749	10.56%	47	8.90%
	Brunswick Hills Township	615	3.71%	11	2.08%
	Chatham Township	281	1.70%	14	2.65%
	Chippewa Lake Village	5	0.03%	0	0.00%
	Creston Village Township	0	0.00%	0	0.00%
	Gloria Glens Park Village	4	0.02%	0	0.00%
	Granger Township	787	4.75%	30	5.68%
	Guilford Township	620	3.74%	32	6.06%
	Harrisville Township	623	3.76%	29	5.49%
	Hinckley Township	604	3.65%	35	6.63%
	Homer Township	192	1.16%	8	1.52%
	Lafayette Township	472	2.85%	28	5.30%
	Litchfield Township	274	1.65%	15	2.84%
	Liverpool Township	487	2.94%	27	5.11%
	Lodi Village	145	0.88%	7	1.33%
	Medina City	2342	14.14%	27	5.11%
	Medina Township	2073	12.51%	54	10.23%
	Montville Township	973	5.87%	35	6.63%
	Rittman City	2	0.01%	0	0.00%
	Seville Village	155	0.94%	7	1.33%
	Sharon Township	393	2.37%	19	3.60%
	Spencer Township	135	0.81%	7	1.33%
	Spencer Village	9	0.05%	0	0.00%
	Wadsworth City	1500	9.05%	23	4.36%
Wadsworth Township	766	4.62%	23	4.36%	
Westfield Center Village	39	0.24%	4	0.76%	
Westfield Township	838	5.06%	27	5.11%	
York Township	485	2.93%	19	3.60%	

County	Municipality	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
MED	MED Total	16568	100.00%	528	100.00%

- Table IV: Crashes by Functional Classification

Crashes	1	2	3	4	5	6	7	All Roads
Total Crashes	31664	5904	52802	51179	25015	721	34684	201969
Percent of Total	15.68%	2.92%	26.14%	25.34%	12.39%	0.36%	17.17%	100.00%
S/I/F Crashes	812	155	1239	1436	876	37	1066	5621
Percent of S/I/F	14.45%	2.76%	22.04%	25.55%	15.58%	0.66%	18.96%	100.00%
Percent S/I/F	2.56%	2.63%	2.35%	2.81%	3.50%	5.13%	3.07%	2.78%
Percent of Miles	2.13%	0.61%	4.22%	7.62%	10.11%	1.09%	74.23%	100.00%
Total Crashes per Mile	129.17	83.63	108.41	58.23	21.46	5.75	4.05	17.51
F Crashes per Mile	0.44	0.18	0.25	0.16	0.09	0.06	0.01	0.05
SI Crashes per Mile	2.88	2.01	2.29	1.47	0.67	0.23	0.11	0.44
S/I/F Crashes per Mile	3.31	2.2	2.54	1.63	0.75	0.29	0.12	0.49

- Table V: Crashes by Mode

County	Year	Type	Ped	Bike	MC	PV	PB	CV	EV	T	O	NS	Tot
CUY	2008	Total	509	310	386	29113	352	1964	275	9	43	6131	33293
		% T	1.53%	0.93%	1.16%	87.44%	1.06%	5.90%	0.83%	0.03%	0.13%	18.42%	100.00%
		SI/F	96	26	82	574	7	33	11	1	1	304	716
		%SI/F	13.41%	3.63%	11.45%	80.17%	0.98%	4.61%	1.54%	0.14%	0.14%	42.46%	100.00%
	2009	Total	451	363	337	27357	329	1552	275	5	48	5181	31033
		% T	1.45%	1.17%	1.09%	88.15%	1.06%	5.00%	0.89%	0.02%	0.15%	16.70%	100.00%
		SI/F	64	29	79	531	7	26	7	0	2	253	670
		%SI/F	9.55%	4.33%	11.79%	79.25%	1.04%	3.88%	1.04%	0.00%	0.30%	37.76%	100.00%
	2010	Total	437	374	335	27256	271	1670	213	6	36	5565	31106
		% T	1.40%	1.20%	1.08%	87.62%	0.87%	5.37%	0.68%	0.02%	0.12%	17.89%	100.00%
		SI/F	70	28	96	466	6	26	1	0	1	244	617
		%SI/F	11.35%	4.54%	15.56%	75.53%	0.97%	4.21%	0.16%	0.00%	0.16%	39.55%	100.00%
	2011	Total	435	374	315	27897	285	1761	226	1	47	5522	31963
		% T	1.36%	1.17%	0.99%	87.28%	0.89%	5.51%	0.71%	0.00%	0.15%	17.28%	100.00%
		SI/F	79	31	78	511	6	28	4	0	1	265	646
		%SI/F	12.23%	4.80%	12.07%	79.10%	0.93%	4.33%	0.62%	0.00%	0.15%	41.02%	100.00%
2012	Total	390	333	355	25358	198	1584	262	1	57	4231	29270	
	% T	1.33%	1.14%	1.21%	86.63%	0.68%	5.41%	0.90%	0.00%	0.19%	14.46%	100.00%	
	SI/F	62	24	84	496	9	24	2	0	3	265	641	
	%SI/F	9.67%	3.74%	13.10%	77.38%	1.40%	3.74%	0.31%	0.00%	0.47%	41.34%	100.00%	
GEA	2008	Total	11	4	37	1807	7	136	18	0	19	1179	2345
		% T	0.47%	0.17%	1.58%	77.06%	0.30%	5.80%	0.77%	0.00%	0.81%	50.28%	100.00%
		SI/F	4	1	14	69	0	6	0	0	0	38	100
		%SI/F	4.00%	1.00%	14.00%	69.00%	0.00%	6.00%	0.00%	0.00%	0.00%	38.00%	100.00%
	2009	Total	16	4	45	1488	9	103	20	0	21	927	1975
		% T	0.81%	0.20%	2.28%	75.34%	0.46%	5.22%	1.01%	0.00%	1.06%	46.94%	100.00%
		SI/F	4	3	20	67	1	9	0	0	3	47	114
		%SI/F	3.51%	2.63%	17.54%	58.77%	0.88%	7.89%	0.00%	0.00%	2.63%	41.23%	100.00%
	2010	Total	12	3	36	1511	16	121	14	0	11	883	1949
		% T	0.62%	0.15%	1.85%	77.53%	0.82%	6.21%	0.72%	0.00%	0.56%	45.31%	100.00%
		SI/F	4	0	16	54	0	3	0	0	1	43	87
		%SI/F	4.60%	0.00%	18.39%	62.07%	0.00%	3.45%	0.00%	0.00%	1.15%	49.43%	100.00%
	2011	Total	8	5	34	1566	11	116	9	0	23	939	2038
		% T	0.39%	0.25%	1.67%	76.84%	0.54%	5.69%	0.44%	0.00%	1.13%	46.07%	100.00%
		SI/F	5	3	8	72	0	6	0	0	2	42	100
		%SI/F	5.00%	3.00%	8.00%	72.00%	0.00%	6.00%	0.00%	0.00%	2.00%	42.00%	100.00%
2012	Total	7	10	30	1437	7	116	9	0	12	854	1907	

County	Year	Type	Ped	Bike	MC	PV	PB	CV	EV	T	O	NS	Tot	
GEA	2012	% T	0.37%	0.52%	1.57%	75.35%	0.37%	6.08%	0.47%	0.00%	0.63%	44.78%	100.00%	
		SI/F	2	3	12	44	0	4	0	0	0	30	64	
		%SI/F	3.13%	4.69%	18.75%	68.75%	0.00%	6.25%	0.00%	0.00%	0.00%	46.88%	100.00%	
LAK	2008	Total	40	49	114	5197	51	286	37	0	7	1582	5999	
		% T	0.67%	0.82%	1.90%	86.63%	0.85%	4.77%	0.62%	0.00%	0.12%	26.37%	100.00%	
		SI/F	11	5	32	102	1	5	0	0	0	1	51	133
		%SI/F	8.27%	3.76%	24.06%	76.69%	0.75%	3.76%	0.00%	0.00%	0.75%	38.35%	100.00%	
	2009	Total	26	54	86	4817	55	251	27	0	5	1255	5510	
		% T	0.47%	0.98%	1.56%	87.42%	1.00%	4.56%	0.49%	0.00%	0.09%	22.78%	100.00%	
		SI/F	11	2	20	102	0	6	0	0	0	1	42	135
		%SI/F	8.15%	1.48%	14.81%	75.56%	0.00%	4.44%	0.00%	0.00%	0.74%	31.11%	100.00%	
	2010	Total	32	47	109	4733	48	282	36	0	6	1300	5548	
		% T	0.58%	0.85%	1.96%	85.31%	0.87%	5.08%	0.65%	0.00%	0.11%	23.43%	100.00%	
		SI/F	6	9	35	90	0	7	1	0	1	58	135	
		%SI/F	4.44%	6.67%	25.93%	66.67%	0.00%	5.19%	0.74%	0.00%	0.74%	42.96%	100.00%	
	2011	Total	31	34	75	4815	36	335	28	0	10	1284	5644	
		% T	0.55%	0.60%	1.33%	85.31%	0.64%	5.94%	0.50%	0.00%	0.18%	22.75%	100.00%	
		SI/F	8	2	14	102	1	11	0	0	0	45	126	
		%SI/F	6.35%	1.59%	11.11%	80.95%	0.79%	8.73%	0.00%	0.00%	0.00%	35.71%	100.00%	
	2012	Total	27	42	100	4327	34	282	33	2	12	1123	5084	
		% T	0.68%	0.88%	1.62%	83.81%	0.57%	5.69%	0.55%	0.05%	0.47%	28.99%	100.00%	
		SI/F	5	8	22	93	0	5	1	0	1	50	128	
		%SI/F	3.91%	6.25%	17.19%	72.66%	0.00%	3.91%	0.78%	0.00%	0.78%	39.06%	100.00%	
LOR	2008	Total	50	65	126	6056	60	389	30	3	18	2225	7146	
		% T	0.70%	0.91%	1.76%	84.75%	0.84%	5.44%	0.42%	0.04%	0.25%	31.14%	100.00%	
		SI/F	11	14	35	138	1	14	1	0	0	71	193	
		%SI/F	5.70%	7.25%	18.13%	71.50%	0.52%	7.25%	0.52%	0.00%	0.00%	36.79%	100.00%	
	2009	Total	48	57	122	5571	47	333	38	1	17	1988	6534	
		% T	0.73%	0.87%	1.87%	85.26%	0.72%	5.10%	0.58%	0.02%	0.26%	30.43%	100.00%	
		SI/F	10	8	38	129	2	6	0	0	0	73	174	
		%SI/F	5.75%	4.60%	21.84%	74.14%	1.15%	3.45%	0.00%	0.00%	0.00%	41.95%	100.00%	
	2010	Total	52	64	109	5713	40	418	30	2	22	2112	6792	
		% T	0.77%	0.94%	1.60%	84.11%	0.59%	6.15%	0.44%	0.03%	0.32%	31.10%	100.00%	
		SI/F	9	2	28	135	0	16	1	0	0	67	174	
		%SI/F	5.17%	1.15%	16.09%	77.59%	0.00%	9.20%	0.57%	0.00%	0.00%	38.51%	100.00%	
	2011	Total	44	63	98	5887	35	413	40	2	17	2158	7012	
		% T	0.63%	0.90%	1.40%	83.96%	0.50%	5.89%	0.57%	0.03%	0.24%	30.78%	100.00%	
		SI/F	9	8	26	121	0	13	1	0	0	71	165	

County	Year	Type	Ped	Bike	MC	PV	PB	CV	EV	T	O	NS	Tot
LOR	2011	%SI/F	5.45%	4.85%	15.76%	73.33%	0.00%	7.88%	0.61%	0.00%	0.00%	43.03%	100.00%
	2012	Total	43	56	103	5331	36	362	35	3	30	1844	6361
		% T	0.68%	0.88%	1.62%	83.81%	0.57%	5.69%	0.55%	0.05%	0.47%	28.99%	100.00%
		SI/F	15	9	32	125	0	15	0	0	3	73	176
		%SI/F	8.52%	5.11%	18.18%	71.02%	0.00%	8.52%	0.00%	0.00%	1.70%	41.48%	100.00%
MED	2008	Total	20	17	78	3189	25	292	18	0	16	1626	3968
		% T	0.50%	0.43%	1.97%	80.37%	0.63%	7.36%	0.45%	0.00%	0.40%	40.98%	100.00%
		SI/F	6	2	30	79	2	11	0	0	0	46	117
		%SI/F	5.13%	1.71%	25.64%	67.52%	1.71%	9.40%	0.00%	0.00%	0.00%	39.32%	100.00%
	2009	Total	10	16	62	2838	25	233	27	0	11	1286	3497
		% T	0.29%	0.46%	1.77%	81.16%	0.71%	6.66%	0.77%	0.00%	0.31%	36.77%	100.00%
		SI/F	2	3	18	82	0	7	0	0	2	41	110
		%SI/F	1.82%	2.73%	16.36%	74.55%	0.00%	6.36%	0.00%	0.00%	1.82%	37.27%	100.00%
	2010	Total	14	17	67	3020	24	296	23	1	14	1419	3732
		% T	0.38%	0.46%	1.80%	80.92%	0.64%	7.93%	0.62%	0.03%	0.38%	38.02%	100.00%
		SI/F	5	4	31	69	1	11	0	0	1	51	116
		%SI/F	4.31%	3.45%	26.72%	59.48%	0.86%	9.48%	0.00%	0.00%	0.86%	43.97%	100.00%
	2011	Total	17	14	52	3017	34	285	16	1	15	1340	3711
		% T	0.46%	0.38%	1.40%	81.30%	0.92%	7.68%	0.43%	0.03%	0.40%	36.11%	100.00%
		SI/F	4	1	11	68	2	8	0	1	0	42	94
		%SI/F	4.26%	1.06%	11.70%	72.34%	2.13%	8.51%	0.00%	1.06%	0.00%	44.68%	100.00%
	2012	Total	9	22	54	2828	15	281	16	0	14	1164	3488
		% T	0.26%	0.63%	1.55%	81.08%	0.43%	8.06%	0.46%	0.00%	0.40%	33.37%	100.00%
		SI/F	1	1	15	70	0	12	0	0	3	44	102
		%SI/F	0.00%	0.00%	11.11%	66.67%	0.00%	22.22%	0.00%	0.00%	0.00%	55.56%	100.00%
REG	2008	Total	630	445	741	45362	495	3067	378	12	103	12743	52751
		% T	0.50%	0.43%	1.97%	80.37%	0.63%	7.36%	0.45%	0.00%	0.40%	40.98%	100.00%
		SI/F	128	48	193	962	11	69	12	1	2	510	1259
		%SI/F	10.17%	3.81%	15.33%	76.41%	0.87%	5.48%	0.95%	0.08%	0.16%	40.51%	100.00%
	2009	Total	551	494	652	42071	465	2472	387	6	102	10637	48549
		% T	1.13%	1.02%	1.34%	86.66%	0.96%	5.09%	0.80%	0.01%	0.21%	21.91%	100.00%
		SI/F	91	45	175	911	10	54	7	0	8	456	1203
		%SI/F	7.56%	3.74%	14.55%	75.73%	0.83%	4.49%	0.58%	0.00%	0.67%	37.91%	100.00%
	2010	Total	547	505	656	42233	399	2787	316	9	89	11279	49127
		% T	1.11%	1.03%	1.34%	85.97%	0.81%	5.67%	0.64%	0.02%	0.18%	22.96%	100.00%
		SI/F	94	43	206	814	7	63	3	0	4	463	1129
		%SI/F	8.33%	3.81%	18.25%	72.10%	0.62%	5.58%	0.27%	0.00%	0.35%	41.01%	100.00%
	2011	Total	535	490	574	43182	401	2910	319	4	112	11243	50368

County	Year	Type	Ped	Bike	MC	PV	PB	CV	EV	T	O	NS	Tot
REG	2011	% T	1.06%	0.97%	1.14%	85.73%	0.80%	5.78%	0.63%	0.01%	0.22%	22.32%	100.00%
		SI/F	105	45	137	874	9	66	5	1	3	465	1131
		%SI/F	9.28%	3.98%	12.11%	77.28%	0.80%	5.84%	0.44%	0.09%	0.27%	41.11%	100.00%
	2012	Total	476	463	642	39281	290	2625	355	6	125	9216	46110
		% T	1.03%	1.00%	1.39%	85.19%	0.63%	5.69%	0.77%	0.01%	0.27%	19.99%	100.00%
		SI/F	85	45	165	828	9	60	3	0	10	462	1111
		%SI/F	7.65%	4.05%	14.85%	74.53%	0.81%	5.40%	0.27%	0.00%	0.90%	41.58%	100.00%

- Percentages do not add up to 100 because a crash was attributed to the mode if either one of the vehicles listed in the crash report was using the mode.
- Ped = Pedestrian, Bike = Pedacycle, MC = Motorcycle, PV = Passenger Vehicle, PB = Passenger Bus, CV = Commercial Vehicle, EV = Emergency Vehicle, T = Train, O = Other, NS = Not Stated

- Table VI: Crashes by Month

Month	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
January	23394	9.47%	364	6.24%
February	22223	9.00%	376	6.45%
March	18578	7.52%	428	7.34%
April	17275	7.00%	453	7.77%
May	19927	8.07%	561	9.62%
June	19489	7.89%	546	9.36%
July	18766	7.60%	557	9.55%
August	19105	7.74%	579	9.93%
September	19789	8.01%	575	9.86%
October	22139	8.97%	512	8.78%
November	20903	8.47%	397	6.81%
December	25317	10.25%	485	8.31%
Total	246905	100.00%	5833	100.00%

- Table VIII: Crashes by Weather Condition

Weather Condition	Total Crashes	Percent of Total	S/I/F Crashes	Percent of S/I/F
No Inclement Weather	185613	75.18%	4757	81.55%
Rain	29280	11.86%	625	10.71%
Snow	25062	10.15%	331	5.67%
Fog	462	0.19%	18	0.31%
Heavy Wind	478	0.19%	8	0.14%
Other	3321	1.35%	62	1.06%
Weather not Stated	2689	1.09%	32	0.55%
Total	246905	100.00%	5833	100.00%

- Table IX: Crashes by Surface Condition

Surface Condition	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F
Dry	157893	63.95%	4216	72.28%
Mud/Sand	162	0.07%	10	0.17%
Wet	56570	22.91%	1219	20.90%
Snow	21643	8.77%	246	4.22%
Ice	6182	2.50%	91	1.56%
Other	1521	0.62%	24	0.41%
Not Stated	2934	1.19%	27	0.46%
Total	246905	100.00%	5833	100.00%

- Table X: Crashes by Type

County	Type	Total	Tot. Percent	S/I/F	S/I/F Percent
CUY	Angle	23865	15.23%	442	13.43%
	Animal	2203	1.41%	17	0.52%
	Backing	8491	5.42%	22	0.67%
	Fixed Object	18143	11.58%	838	25.47%
	Head On	1149	0.73%	113	3.43%
	Left Turn	6473	4.13%	200	6.08%
	Not Stated	273	0.17%	17	0.52%
	Other (Non-Collision)	1408	0.90%	52	1.58%
	Other (Non-Vehicle)	7	0.00%	0	0.00%
	Other (Object)	695	0.44%	16	0.49%
	Overturning	611	0.39%	94	2.86%
	Parked Vehicle	11169	7.13%	143	4.35%
	Pedalcycles	1754	1.12%	138	4.19%
	Pedestrian	2222	1.42%	371	11.28%
	Rear End	52893	33.76%	500	15.20%
	Sideswipe	25280	16.14%	325	9.88%
	Train	29	0.02%	2	0.06%
	Total	156665	100.00%	3290	100.00%
GEA	Angle	1408	13.79%	102	21.94%
	Animal	1636	16.02%	13	2.80%
	Backing	316	3.09%	4	0.86%
	Fixed Object	2864	28.04%	145	31.18%
	Head On	64	0.63%	12	2.58%
	Left Turn	258	2.53%	21	4.52%
	Not Stated	18	0.18%	1	0.22%
	Other (Non-Collision)	128	1.25%	2	0.43%
	Other (Non-Vehicle)	6	0.06%	2	0.43%
	Other (Object)	77	0.75%	3	0.65%
	Overturning	112	1.10%	25	5.38%
	Parked Vehicle	150	1.47%	6	1.29%
	Pedalcycles	26	0.25%	10	2.15%
	Pedestrian	54	0.53%	19	4.09%
	Rear End	2307	22.59%	47	10.11%
	Sideswipe	790	7.73%	53	11.40%
	Train	0	0.00%	0	0.00%
	Total	10214	100.00%	465	100.00%

County	Type	Total	Tot. Percent	S/F	S/F Percent
LAK	Angle	3912	14.08%	98	14.92%
	Animal	1279	4.60%	6	0.91%
	Backing	1388	5.00%	5	0.76%
	Fixed Object	4364	15.71%	168	25.57%
	Head On	191	0.69%	19	2.89%
	Left Turn	1187	4.27%	45	6.85%
	Not Stated	37	0.13%	2	0.30%
	Other (Non-Collision)	460	1.66%	21	3.20%
	Other (Non-Vehicle)	1	0.00%	0	0.00%
	Other (Object)	308	1.11%	3	0.46%
	Overturning	164	0.59%	28	4.26%
	Parked Vehicle	1107	3.98%	14	2.13%
	Pedalcycles	226	0.81%	26	3.96%
	Pedestrian	156	0.56%	41	6.24%
	Rear End	9906	35.65%	112	17.05%
	Sideswipe	3097	11.15%	69	10.50%
	Train	2	0.01%	0	0.00%
	Total	27785	100.00%	657	100.00%
LOR	Angle	4752	14.04%	144	16.33%
	Animal	2813	8.31%	18	2.04%
	Backing	1983	5.86%	6	0.68%
	Fixed Object	5837	17.25%	245	27.78%
	Head On	223	0.66%	29	3.29%
	Left Turn	1428	4.22%	70	7.94%
	Not Stated	76	0.22%	3	0.34%
	Other (Non-Collision)	428	1.26%	11	1.25%
	Other (Non-Vehicle)	0	0.00%	0	0.00%
	Other (Object)	566	1.67%	5	0.57%
	Overturning	230	0.68%	39	4.42%
	Parked Vehicle	1877	5.55%	17	1.93%
	Pedalcycles	305	0.90%	41	4.65%
	Pedestrian	237	0.70%	51	5.78%
	Rear End	9551	28.22%	109	12.36%
	Sideswipe	3529	10.43%	94	10.66%
	Train	10	0.03%	0	0.00%
	Total	33845	100.00%	882	100.00%
MED	Angle	2697	14.66%	105	19.48%

County	Type	Total	Tot. Percent	S/I/F	S/I/F Percent
MED	Animal	2029	11.03%	13	2.41%
	Backing	811	4.41%	4	0.74%
	Fixed Object	4069	22.12%	158	29.31%
	Head On	117	0.64%	20	3.71%
	Left Turn	559	3.04%	33	6.12%
	Not Stated	77	0.42%	3	0.56%
	Other (Non-Collision)	296	1.61%	6	1.11%
	Other (Non-Vehicle)	2	0.01%	0	0.00%
	Other (Object)	202	1.10%	6	1.11%
	Overturning	213	1.16%	34	6.31%
	Parked Vehicle	400	2.17%	6	1.11%
	Pedalcycles	86	0.47%	11	2.04%
	Pedestrian	70	0.38%	18	3.34%
	Rear End	4990	27.13%	62	11.50%
	Sideswipe	1776	9.65%	59	10.95%
	Train	2	0.01%	1	0.19%
	Total	18396	100.00%	539	100.00%
REG	Angle	36634	14.84%	891	15.28%
	Animal	9960	4.03%	67	1.15%
	Backing	12989	5.26%	41	0.70%
	Fixed Object	35277	14.29%	1554	26.64%
	Head On	1744	0.71%	193	3.31%
	Left Turn	9905	4.01%	369	6.33%
	Not Stated	481	0.19%	26	0.45%
	Other (Non-Collision)	2720	1.10%	92	1.58%
	Other (Non-Vehicle)	16	0.01%	2	0.03%
	Other (Object)	1848	0.75%	33	0.57%
	Overturning	1330	0.54%	220	3.77%
	Parked Vehicle	14703	5.95%	186	3.19%
	Pedalcycles	2397	0.97%	226	3.87%
	Pedestrian	2739	1.11%	500	8.57%
	Rear End	79647	32.26%	830	14.23%
	Sideswipe	34472	13.96%	600	10.29%
	Train	43	0.02%	3	0.05%
Total	246905	100.00%	5833	100.00%	

Table XI: Crashes by Contributing Factor

County	Factor	Total	Tot. Percent	S/I/F	S/I/F Percent
CUY	Debris on Road	20	0.01%	1	0.03%
	Downed Traffic Sign or Device	67	0.04%	1	0.03%
	Driver Inattention	11468	7.32%	165	5.02%
	Drove Off Road-Reason Unknown	2430	1.55%	50	1.52%
	Excessive Speed	1411	0.90%	80	2.43%
	Failure to Control	29705	18.96%	1078	32.77%
	Failure to Yield	18138	11.58%	448	13.62%
	Following Too Close	37396	23.87%	370	11.25%
	Improper Backing	6464	4.13%	12	0.36%
	Improper Lane Change	5109	3.26%	47	1.43%
	Improper Passing	1150	0.73%	11	0.33%
	Improper Start From Parked Position	562	0.36%	3	0.09%
	Improper Turning	4618	2.95%	67	2.04%
	Left of Center	1509	0.96%	73	2.22%
	Load Shift-Fall-Spill	359	0.23%	4	0.12%
	No Driver Errors	9536	6.09%	264	8.02%
	Other Driver Error	19151	12.22%	380	11.55%
	Pavement Defect	10	0.01%	0	0.00%
	Ran Red Light	3789	2.42%	142	4.32%
	Ran Stop Sign or Yield Sign	1587	1.01%	43	1.31%
	Stopped-Parked Illegally	188	0.12%	8	0.24%
	Vehicle Defect	1334	0.85%	22	0.67%
	View Obstructed	631	0.40%	16	0.49%
BLANK	33	0.02%	5	0.15%	
Total		156665	100.00%	3290	100.00%
GEA	Debris on Road	0	0.00%	0	0.00%
	Downed Traffic Sign or Device	3	0.03%	0	0.00%
	Driver Inattention	333	3.26%	17	3.66%
	Drove Off Road-Reason Unknown	290	2.84%	26	5.59%
	Excessive Speed	886	8.67%	77	16.56%
	Failure to Control	1836	17.98%	70	15.05%
	Failure to Yield	1260	12.34%	97	20.86%
	Following Too Close	2312	22.64%	56	12.04%
	Improper Backing	238	2.33%	3	0.65%
	Improper Lane Change	41	0.40%	0	0.00%
	Improper Passing	136	1.33%	10	2.15%

County	Factor	Total	Tot. Percent	SI/F	SI/F Percent
GEA	Improper Start From Parked Position	21	0.21%	1	0.22%
	Improper Turning	151	1.48%	5	1.08%
	Left of Center	201	1.97%	26	5.59%
	Load Shift-Fall-Spill	41	0.40%	0	0.00%
	No Driver Errors	1775	17.38%	24	5.16%
	Other Driver Error	318	3.11%	22	4.73%
	Pavement Defect	0	0.00%	0	0.00%
	Ran Red Light	123	1.20%	5	1.08%
	Ran Stop Sign or Yield Sign	144	1.41%	24	5.16%
	Stopped-Parked Illegally	11	0.11%	0	0.00%
	Vehicle Defect	82	0.80%	2	0.43%
	View Obstructed	12	0.12%	0	0.00%
	BLANK	0	0.00%	0	0.00%
	Total	10214	100.00%	465	100.00%
LAK	Debris on Road	1	0.00%	0	0.00%
	Downed Traffic Sign or Device	5	0.02%	0	0.00%
	Driver Inattention	667	2.40%	20	3.04%
	Drove Off Road-Reason Unknown	500	1.80%	18	2.74%
	Excessive Speed	385	1.39%	27	4.11%
	Failure to Control	4724	17.00%	189	28.77%
	Failure to Yield	3734	13.44%	130	19.79%
	Following Too Close	9388	33.79%	114	17.35%
	Improper Backing	1272	4.58%	2	0.30%
	Improper Lane Change	1010	3.64%	9	1.37%
	Improper Passing	195	0.70%	4	0.61%
	Improper Start From Parked Position	432	1.55%	1	0.15%
	Improper Turning	428	1.54%	2	0.30%
	Left of Center	308	1.11%	24	3.65%
	Load Shift-Fall-Spill	122	0.44%	0	0.00%
	No Driver Errors	1993	7.17%	41	6.24%
	Other Driver Error	1391	5.01%	41	6.24%
	Pavement Defect	0	0.00%	21	3.20%
	Ran Red Light	675	2.43%	2	0.30%
	Ran Stop Sign or Yield Sign	204	0.73%	8	1.22%
	Stopped-Parked Illegally	30	0.11%	1	0.15%
	Vehicle Defect	287	1.03%	3	0.46%
	View Obstructed	31	0.11%	0	0.00%
BLANK	3	0.01%	0	0.00%	
Total	27785	100.00%	657	100.00%	

County	Factor	Total	Tot. Percent	SI/F	SI/F Percent
LOR	Debris on Road	2	0.01%	0	0.00%
	Downed Traffic Sign or Device	7	0.02%	0	0.00%
	Driver Inattention	1054	3.11%	26	2.95%
	Drove Off Road-Reason Unknown	1008	2.98%	64	7.26%
	Excessive Speed	1958	5.79%	99	11.22%
	Failure to Control	4507	13.32%	173	19.61%
	Failure to Yield	4179	12.35%	144	16.33%
	Following Too Close	9033	26.69%	110	12.47%
	Improper Backing	1872	5.53%	5	0.57%
	Improper Lane Change	820	2.42%	9	1.02%
	Improper Passing	309	0.91%	8	0.91%
	Improper Start From Parked Position	113	0.33%	0	0.00%
	Improper Turning	729	2.15%	5	0.57%
	Left of Center	469	1.39%	47	5.33%
	Load Shift-Fall-Spill	129	0.38%	1	0.11%
	No Driver Errors	4000	11.82%	50	5.67%
	Other Driver Error	1983	5.86%	67	7.60%
	Pavement Defect	0	0.00%	0	0.00%
	Ran Red Light	706	2.09%	43	4.88%
	Ran Stop Sign or Yield Sign	534	1.58%	25	2.83%
	Stopped-Parked Illegally	24	0.07%	0	0.00%
	Vehicle Defect	357	1.05%	4	0.45%
	View Obstructed	46	0.14%	2	0.23%
BLANK	6	0.02%	0	0.00%	
Total		33845	100.00%	882	100.00%
MED	Debris on Road	0	0.00%	0	0.00%
	Downed Traffic Sign or Device	4	0.02%	0	0.00%
	Driver Inattention	679	3.69%	21	3.90%
	Drove Off Road-Reason Unknown	701	3.81%	57	10.58%
	Excessive Speed	1686	9.17%	73	13.54%
	Failure to Control	2187	11.89%	80	14.84%
	Failure to Yield	2213	12.03%	98	18.18%
	Following Too Close	4639	25.22%	58	10.76%
	Improper Backing	736	4.00%	4	0.74%
	Improper Lane Change	418	2.27%	3	0.56%
	Improper Passing	174	0.95%	11	2.04%
	Improper Start From Parked Position	62	0.34%	1	0.19%
	Improper Turning	345	1.88%	3	0.56%

County	Factor	Total	Tot. Percent	SI/F	SI/F Percent
MED	Left of Center	275	1.49%	28	5.19%
	Load Shift-Fall-Spill	84	0.46%	1	0.19%
	No Driver Errors	2490	13.54%	31	5.75%
	Other Driver Error	743	4.04%	34	6.31%
	Pavement Defect	1	0.01%	0	0.00%
	Ran Red Light	308	1.67%	11	2.04%
	Ran Stop Sign or Yield Sign	355	1.93%	19	3.53%
	Stopped-Parked Illegally	17	0.09%	1	0.19%
	Vehicle Defect	254	1.38%	4	0.74%
	View Obstructed	24	0.13%	1	0.19%
	BLANK	1	0.01%	0	0.00%
	Total	18396	100.00%	539	100.00%
	REG	Debris on Road	23	0.01%	1
Downed Traffic Sign or Device		86	0.03%	1	0.02%
Driver Inattention		14201	5.75%	249	4.27%
Drove Off Road-Reason Unknown		4929	2.00%	215	3.69%
Excessive Speed		6326	2.56%	356	6.10%
Failure to Control		42959	17.40%	1590	27.26%
Failure to Yield		29524	11.96%	917	15.72%
Following Too Close		62768	25.42%	708	12.14%
Improper Backing		10582	4.29%	26	0.45%
Improper Lane Change		7398	3.00%	68	1.17%
Improper Passing		1964	0.80%	44	0.75%
Improper Start From Parked Position		1190	0.48%	6	0.10%
Improper Turning		6271	2.54%	82	1.41%
Left of Center		2762	1.12%	198	3.39%
Load Shift-Fall-Spill		735	0.30%	6	0.10%
No Driver Errors		19794	8.02%	410	7.03%
Other Driver Error		23586	9.55%	544	9.33%
Pavement Defect		11	0.00%	21	0.36%
Ran Red Light		5601	2.27%	203	3.48%
Ran Stop Sign or Yield Sign		2824	1.14%	119	2.04%
Stopped-Parked Illegally		270	0.11%	10	0.17%
Vehicle Defect		2314	0.94%	35	0.60%
View Obstructed		744	0.30%	19	0.33%
BLANK	43	0.02%	5	0.09%	
Total	246905	100.00%	5833	100.00%	

- Table XII: Crashes by Age and Gender

Demographic	Population	Percent of Population	Total Crashes	Percent of Total	S/I/F Crashes	Percent of S/I/F
Male	999400	48.04%	126319	56.67%	3604	64.75%
15-19	74611	3.59%	16783	7.53%	366	6.58%
20-24	59306	2.85%	18131	8.13%	502	9.02%
25-29	60342	2.90%	13535	6.07%	408	7.33%
30-34	58046	2.79%	10789	4.84%	291	5.23%
35-39	61599	2.96%	10013	4.49%	290	5.21%
40-44	71,657	3.44%	10124	4.54%	301	5.41%
45-49	77,814	3.74%	10490	4.71%	336	6.04%
50-54	80,627	3.88%	10084	4.52%	326	5.86%
55-59	69,426	3.34%	8180	3.67%	240	4.31%
60-64	56640	2.72%	6026	2.70%	185	3.32%
65-69	39934	1.92%	3935	1.77%	101	1.81%
70-74	29,958	1.44%	2747	1.23%	83	1.49%
75-79	24,164	1.16%	2264	1.02%	69	1.24%
80-84	19,570	0.94%	1843	0.83%	62	1.11%
85 and Over	14,850	0.71%	1375	0.62%	44	0.79%
Female	1,080,918	51.96%	96569	43.33%	1962	35.25%
15-19	71757	3.45%	13650	6.12%	244	4.38%
20-24	59215	2.85%	15046	6.75%	277	4.98%
25-29	63,427	3.05%	10906	4.89%	211	3.79%
30-34	60,902	2.93%	8489	3.81%	158	2.84%
35-39	67,657	3.25%	7552	3.39%	156	2.80%
40-44	73,030	3.51%	7359	3.30%	139	2.50%
45-49	83,397	4.01%	7257	3.26%	147	2.64%
50-54	85,059	4.09%	6552	2.94%	140	2.52%
55-59	74,814	3.60%	5400	2.42%	122	2.19%
60-64	63176	3.04%	4268	1.91%	78	1.40%
65-69	50049	2.41%	2971	1.33%	68	1.22%
70-74	38,218	1.84%	2315	1.04%	62	1.11%
75-79	34,868	1.68%	1941	0.87%	65	1.17%
80-84	30,709	1.48%	1699	0.76%	57	1.02%
85 and Over	32,960	1.58%	1164	0.52%	38	0.68%
Total	2,080,318	100.00%	222888	100.00%	5566	100.00%

- Table XIII: Crashes by Posted Speed

County	Posted Speed	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F	Percent SI/F
CUY	20 and Under	1961	1.25%	28	0.85%	1.43%
	25	64095	40.91%	1091	33.16%	1.70%
	30	905	0.58%	49	1.49%	5.41%
	35	58864	37.57%	1340	40.73%	2.28%
	40	607	0.39%	21	0.64%	3.46%
	45	525	0.34%	12	0.36%	2.29%
	50	3211	2.05%	77	2.34%	2.40%
	55	1349	0.86%	30	0.91%	2.22%
	Over 55	19065	12.17%	538	16.35%	2.82%
	Not Stated	6083	3.88%	104	3.16%	1.71%
	Total	156665	100.00%	3290	100.00%	2.10%
GEA	20 and Under	38	0.37%	0	0.00%	0.00%
	25	926	9.07%	22	4.73%	2.38%
	30	2	0.02%	0	0.00%	0.00%
	35	1426	13.96%	34	7.31%	2.38%
	40	649	6.35%	22	4.73%	3.39%
	45	3730	36.52%	171	36.77%	4.58%
	50	526	5.15%	44	9.46%	8.37%
	55	2539	24.86%	164	35.27%	6.46%
	Over 55	227	2.22%	7	1.51%	3.08%
	Not Stated	151	1.48%	1	0.22%	0.66%
	Total	10214	100.00%	465	100.00%	4.55%
LAK	20 and Under	131	0.47%	2	0.30%	1.53%
	25	8174	29.42%	149	22.68%	1.82%
	30	214	0.77%	3	0.46%	1.40%
	35	10349	37.25%	182	27.70%	1.76%
	40	1205	4.34%	40	6.09%	3.32%
	45	1824	6.56%	86	13.09%	4.71%
	50	1432	5.15%	40	6.09%	2.79%
	55	770	2.77%	44	6.70%	5.71%
	Over 55	3343	12.03%	100	15.22%	2.99%
	Not Stated	343	1.23%	11	1.67%	3.21%
	Total	27785	100.00%	657	100.00%	2.36%
LOR	20 and Under	359	1.06%	3	0.34%	0.84%
	25	7499	22.16%	123	13.95%	1.64%
	30	76	0.22%	0	0.00%	0.00%

County	Posted Speed	Total Crashes	Percent of Total	SI/F Crashes	Percent of SI/F	Percent SI/F
LOR	35	11144	32.93%	247	28.00%	2.22%
	40	965	2.85%	23	2.61%	2.38%
	45	2864	8.46%	99	11.22%	3.46%
	50	2791	8.25%	79	8.96%	2.83%
	55	3866	11.42%	218	24.72%	5.64%
	Over 55	3644	10.77%	76	8.62%	2.09%
	Not Stated	637	1.88%	14	1.59%	2.20%
	Total	33845	100.00%	882	100.00%	2.61%
MED	20 and Under	77	0.42%	0	0.00%	0.00%
	25	3709	20.16%	42	7.79%	1.13%
	30	9	0.05%	0	0.00%	0.00%
	35	3457	18.79%	72	13.36%	2.08%
	40	553	3.01%	11	2.04%	1.99%
	45	3528	19.18%	128	23.75%	3.63%
	50	906	4.92%	47	8.72%	5.19%
	55	3476	18.90%	176	32.65%	5.06%
	Over 55	2320	12.61%	52	9.65%	2.24%
	Not Stated	361	1.96%	11	2.04%	3.05%
	Total	18396	100.00%	539	100.00%	2.93%
REG	20 and Under	2566	1.04%	33	0.57%	1.29%
	25	84403	34.18%	1427	24.46%	1.69%
	30	1206	0.49%	52	0.89%	4.31%
	35	85240	34.52%	1875	32.14%	2.20%
	40	3979	1.61%	117	2.01%	2.94%
	45	12471	5.05%	496	8.50%	3.98%
	50	8866	3.59%	287	4.92%	3.24%
	55	12000	4.86%	632	10.83%	5.27%
	Over 55	28599	11.58%	773	13.25%	2.70%
	Not Stated	7575	3.07%	141	2.42%	1.86%
	Total	246905	100.00%	5833	100.00%	2.36%