

Grand Valley Metropolitan Council

Traffic Crash Facts 2013

December 2014

Introduction

The Grand Valley Metro Council (GVMC) is the designated MPO for Grand Rapids Metro area and is responsible for the traffic safety planning in this area. The crash data assembled by GVMC staff can provide information to the MPO stakeholder and public for the future safety planning and selection of future road projects.

This report include statistics of crash data for the Grand Rapids Metropolitan Area such as crash facts in 2013, top 50 crash intersections, and top 50 crash segments.

Definition

The terms defined in this report as applied to the crash facts are as follows,

PDO: Number of crashes involving Property Damage Only

Injury: Number of crashes involving injuries, not the number of injuries

A-Type: Number of crashes involving incapacitating injuries

B-Type: Number of crashes involving non-incapacitating injuries

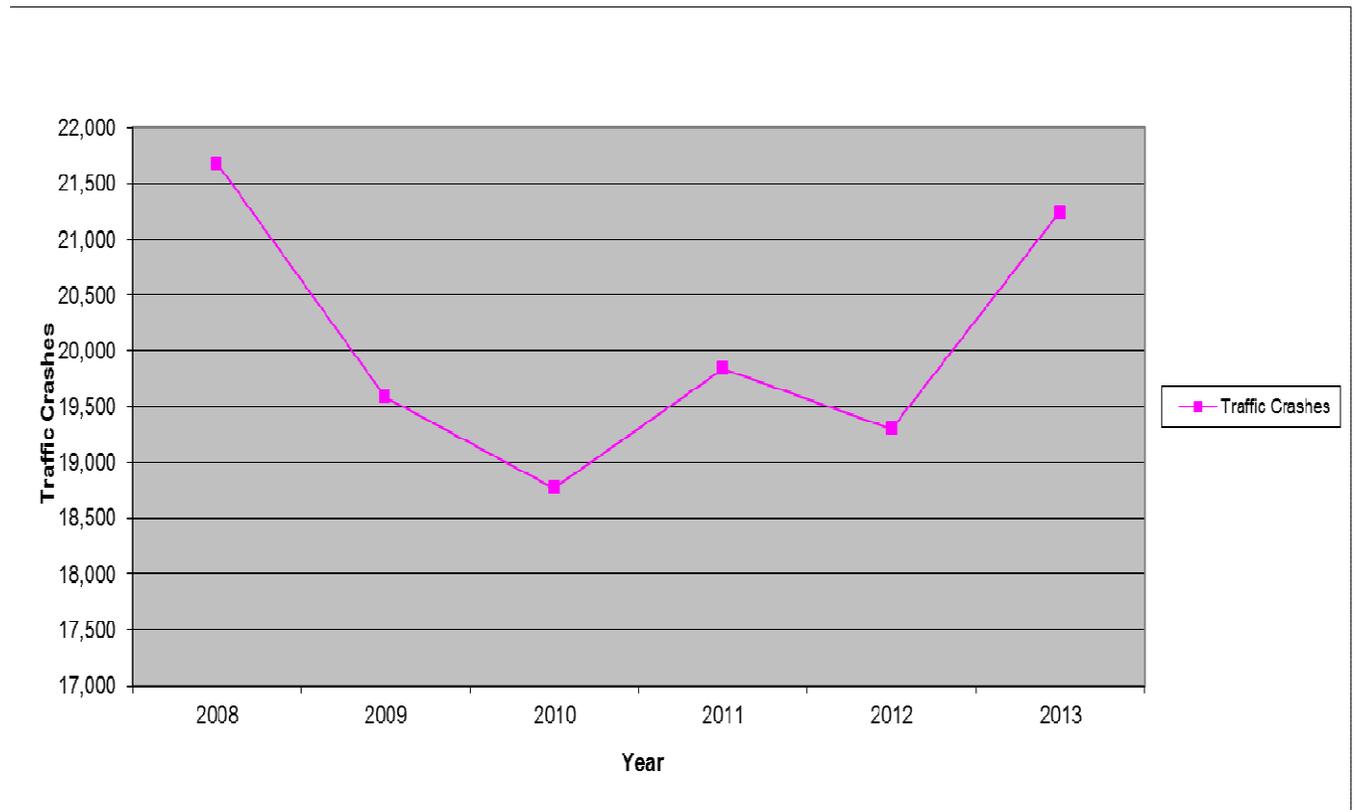
C-Type: Number of crashes involving possible injuries

Fatal: Number of crashes involving fatalities, not the number of fatalities

All Traffic Crashes

In 2013, there are 21,246 traffic crashes reported in GVMC area. This is an increase of 10.1 percent from 2012 and a decrease of 2 percent from 2008. Figure 1 below shows total traffic crashes form 2008 to 2013.

Figure 1 **Traffic Crashes, 2008-2013**



Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Jurisdiction

Table 1 shows the number of total crashes by jurisdiction in GVMC area from 2008-2013.

Local Governments	2008	2009	2010	2011	2012	2013
Ada	380	327	356	355	284	310
Algoma	403	350	254	269	214	268
Allendale	393	368	270	305	258	335
Alpine	368	333	275	318	272	294
Blendon	161	156	145	149	152	156
Bowne	101	109	73	72	64	85
Byron	642	626	528	579	504	623
Caledonia	395	363	365	347	280	366
Cannon	280	263	239	207	199	203
Cascade	767	655	620	667	623	647
Casnovia	3	5	3	4	7	6
Cedar Springs	64	64	78	64	69	88
Chester	58	65	45	41	46	47
Courtland	211	187	173	174	164	160
East Grand Rapids	174	158	185	154	162	149
Gaines	504	434	418	445	408	476
Georgetown	850	828	745	748	720	758
City of Grand Rapids	6840	6257	6377	6931	6920	7409
Grand Rapids Township	604	563	468	538	510	567
Grandville	891	726	611	674	660	776
Grattan	118	125	118	101	102	86
Hudsonville	184	165	186	187	160	200
Jamestown	196	165	149	180	146	166
Kent City	18	10	31	20	22	14
Kentwood	1262	1055	1069	1047	1118	1152
Lowell	366	322	313	275	215	234
Nelson	137	129	126	98	97	108
Oakfield	166	154	132	158	132	113
Plainfield	1004	824	854	807	852	895
Polkton	247	191	182	197	187	230
Rockford	150	121	135	109	122	139
Sand Lake	9	4	5	6	8	8
Solon	183	172	191	166	147	185
Sparta	221	209	201	220	169	151
Spencer	91	91	78	78	67	67
Tallmadge	278	245	180	223	186	231
Tyrone	111	115	85	113	84	94
Vergennes	145	130	113	106	117	108
Walker	1166	1086	1093	1084	1106	1277
Wright	190	216	210	212	179	292
Wyoming	2006	1848	1674	2014	1961	2316

Traffic Crashes by Severity

Of the 21,246 traffic crashes in GVMC area in 2013, there are 4,119 crashes causing fatalities or injuries. A total of 45 fatal crashes resulted in 129 deaths, and a total of 4,074 injury crashes resulted in some degree of injuries of 10,368 people. Figure 2 shows traffic crashes distribution by injury severity in 2013. Table 2 shows the number of each severity and the number of fatalities and injuries caused by the crashes.

Figure 2 **Traffic Crash Severities in 2013**

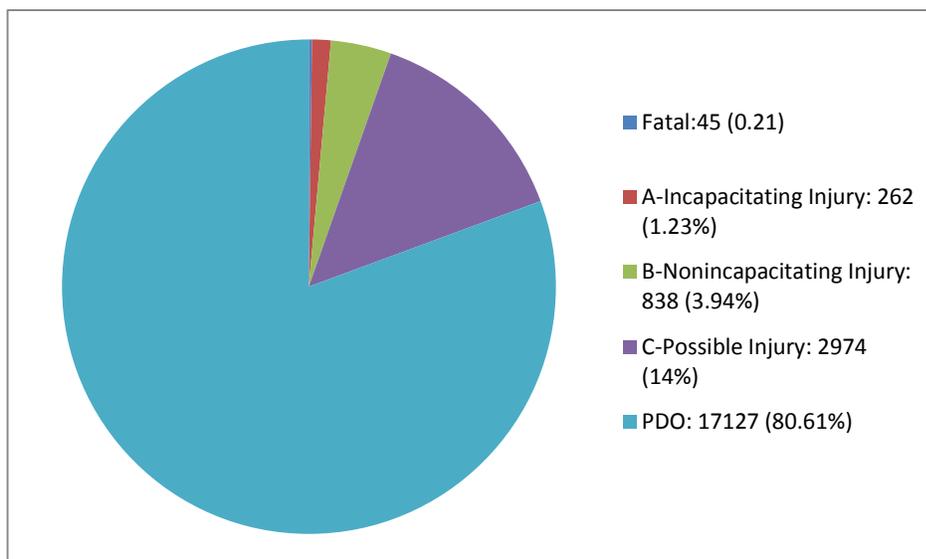


Table 2 **Traffic Crash Severity in 2013**

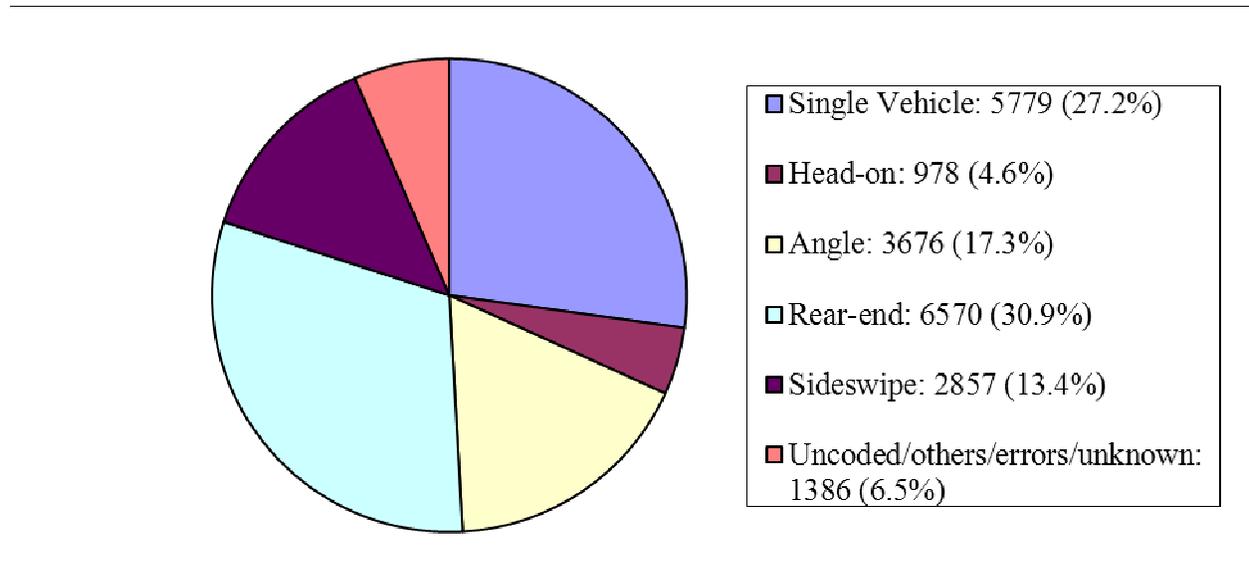
Crash Severity	Number of Traffic Crashes	Number of Injuries
Fatal	45	129
A-Type Injury	262	716
B-Type Injury	838	2,101
C-Type Injury	2,974	7,551
Injury and Fatality subtotal	4,119	10,368
PDO	17,127	
Total	21,246	

Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Crash Type

Figure 3 shows traffic crash distribution by crash type in 2013. As shown in the figure, the most common type of crash was single motor vehicle crash, which accounted for 27.2% of all traffic crashes, and the least common type crash was head-on, which accounted for 4.6%.

Figure 3 **Traffic Crashes by Crash Type in 2013**

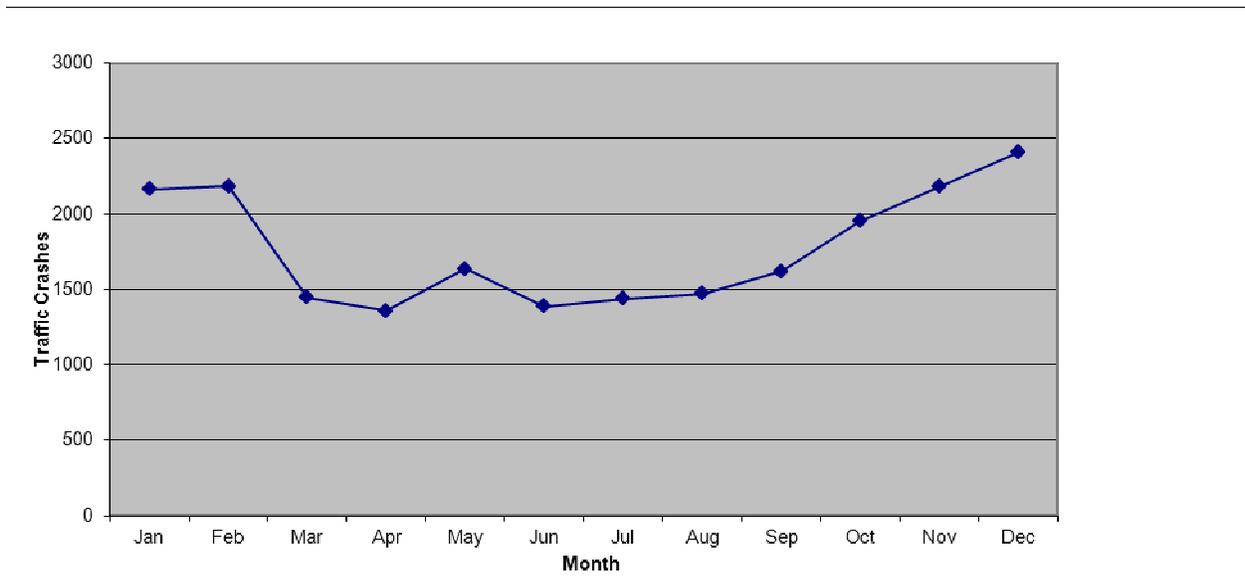


Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Month, Day, and Hour

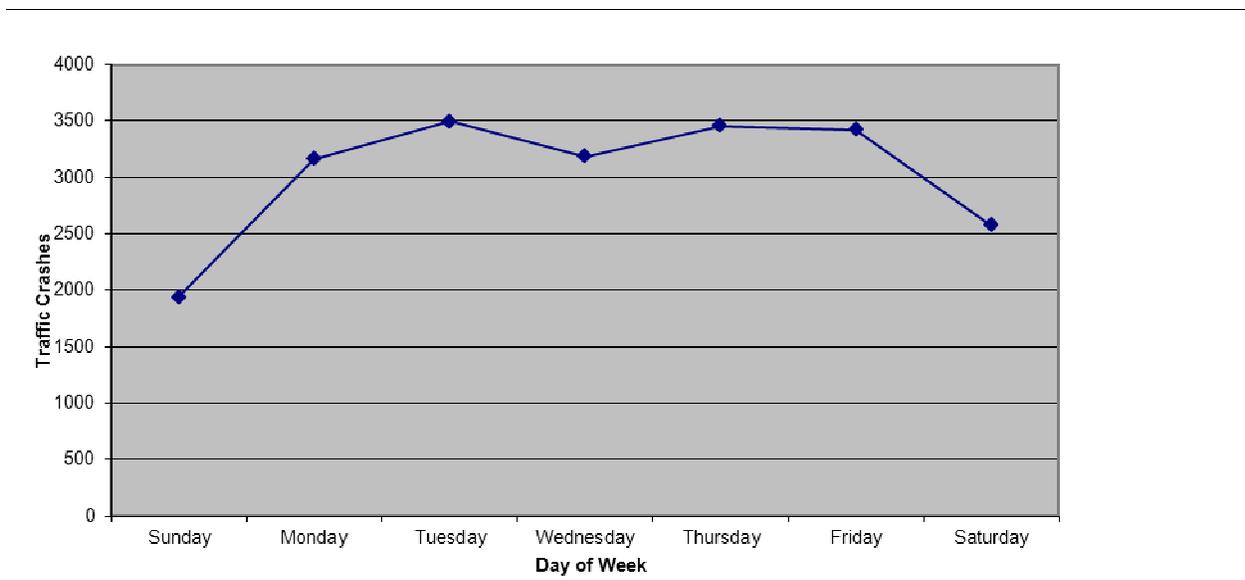
Figure 4-6 show traffic crashes distribution by month, day and hour, respectively. As shown in Figure 4, there were more traffic crashes in December than any other month in 2013(2,408). April had the fewest crashes (1,389) in 2013. Figure 5 shows that more traffic crashes occurred on Tuesdays than any other day of the week (3,498) in 2013, and Sunday had the fewest traffic crashes (1,941). Figure 6 shows that more traffic crashes occurred between 5 pm and 6 pm than any other hour interval in 2013 (1,835), and the time of day with the fewest crashes was between 4 am and 5 am (184 crashes).

Figure 4 **Traffic Crashes by Month in 2013**



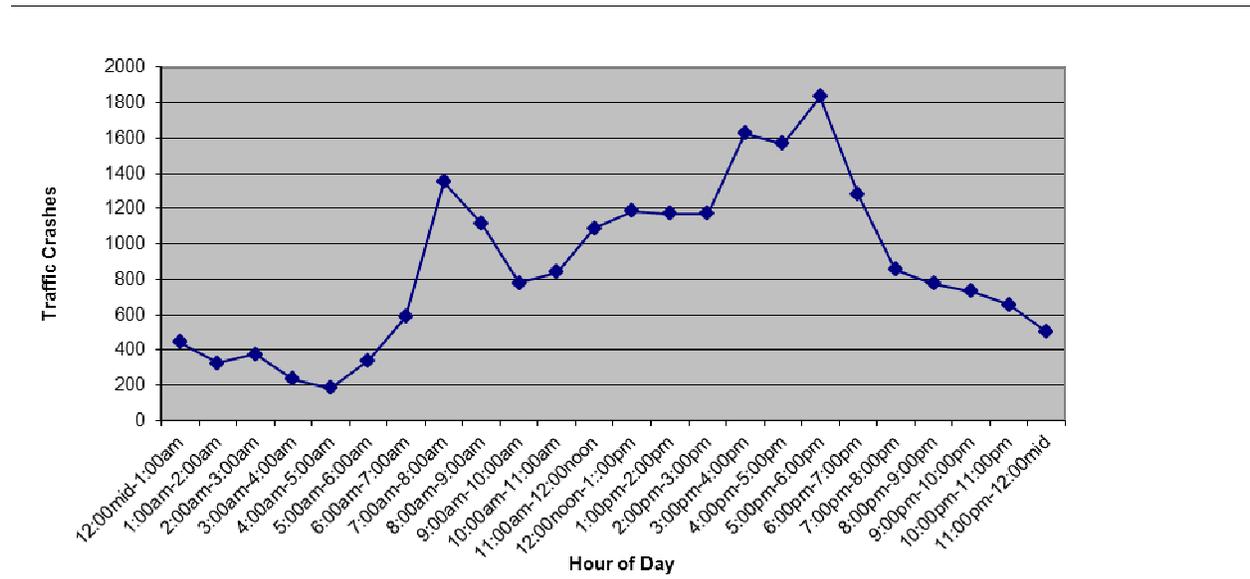
Source: www.michigantrafficcrashfacts.org

Figure 5 **Traffic Crashes by Day of Week in 2013**



Source: www.michigantrafficcrashfacts.org

Figure 6 **Traffic Crashes by Hour of Day in 2013**



Source: www.michigantrafficcrashfacts.org

Injury Traffic Crashes

Injury traffic crash is defined as a crash resulting in an injury, but not a fatality. Figure 7 below shows injury traffic crash in GVMC area. Injury traffic crashes increased 4.4 percent from 2008 to 2013, and Figure 8 shows a 6.1 percent increase in number of injuries from 2008 to 2013.

Figure 7 Injury Traffic Crashes, 2008- 2013

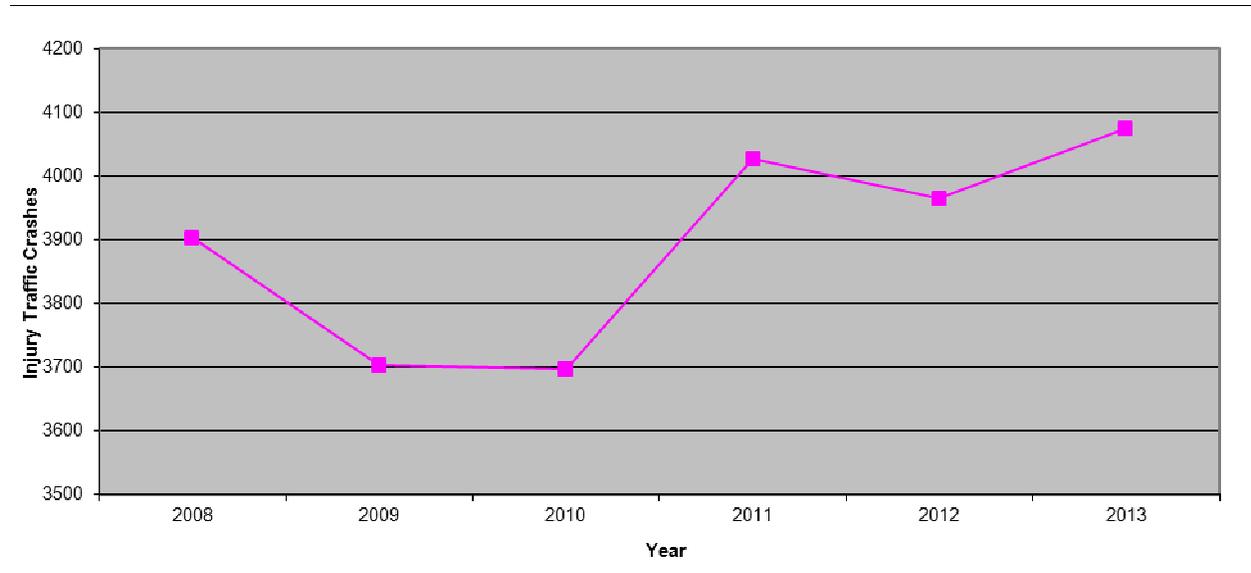
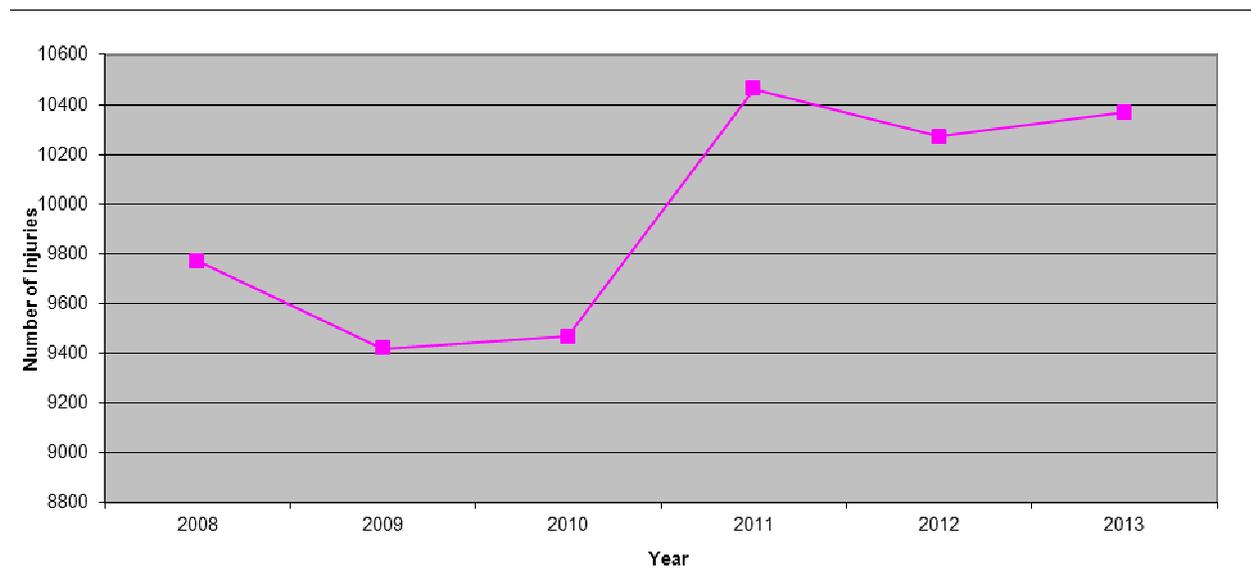


Figure 8 Numbers of Injuries, 2008- 2013



Injury Traffic Crashes by Jurisdiction

Table 3 shows the number of injury traffic crashes by jurisdiction in GVMC area from 2008-2013.

Local Governments	2008	2009	2010	2011	2012	2013
Ada	61	58	64	62	53	59
Algoma	65	57	54	56	49	48
Allendale	71	69	47	49	47	40
Alpine	75	82	66	78	49	75
Blendon	26	16	21	32	25	20
Bowne	16	22	8	14	12	17
Byron	118	124	121	114	104	125
Caledonia	63	62	81	67	64	81
Cannon	36	44	45	37	38	42
Cascade	120	114	104	122	102	101
Casnovia	1	1	2	0	1	2
Cedar Springs	12	10	29	17	20	18
Chester	12	13	5	7	9	6
Courtland	40	36	34	34	39	32
East Grand Rapids	25	20	33	23	19	20
Gaines	89	95	79	90	81	106
Georgetown	154	156	137	160	127	152
City of Grand Rapids	1172	1157	1197	1358	1378	1328
Grand Rapids Township	113	98	89	90	99	100
Grandville	155	146	119	142	150	151
Grattan	14	15	14	8	16	16
Hudsonville	25	40	30	30	24	25
Jamestown	33	31	29	23	24	40
Kent City	7	4	6	5	6	4
Kentwood	295	248	277	277	297	265
Lowell	70	57	57	62	59	60
Nelson	19	20	22	12	29	15
Oakfield	39	37	27	29	39	25
Plainfield	176	149	156	172	186	166
Polkton	45	25	20	24	20	31
Rockford	17	20	16	18	21	25
Sand Lake	0	1	1	0	1	2
Solon	41	34	43	38	28	32
Sparta	38	42	38	52	39	39
Spencer	16	14	18	13	12	14
Tallmadge	49	31	33	28	36	39
Tyrone	15	11	14	28	18	20
Vergennes	19	15	17	16	20	12
Walker	232	195	202	215	241	255
Wright	42	27	32	36	28	37
Wyoming	411	388	388	487	436	523

Injury Traffic Crashes by Crash Type

Figure 9 shows that rear-end crashes was the most common type of injury crashes (32.1%) in 2013, and sideswipe crashes was the least common type of injury crashes (5.5%)

Table 4 shows head-on crashes are more likely to cause injury than any other type of crashes, with 38% head-on crashes resulting in injury. Only 7.8% of sideswipe crashes causes injury in 2013.

Figure 9 **Injury Traffic Crashes by Crash Type in 2013**

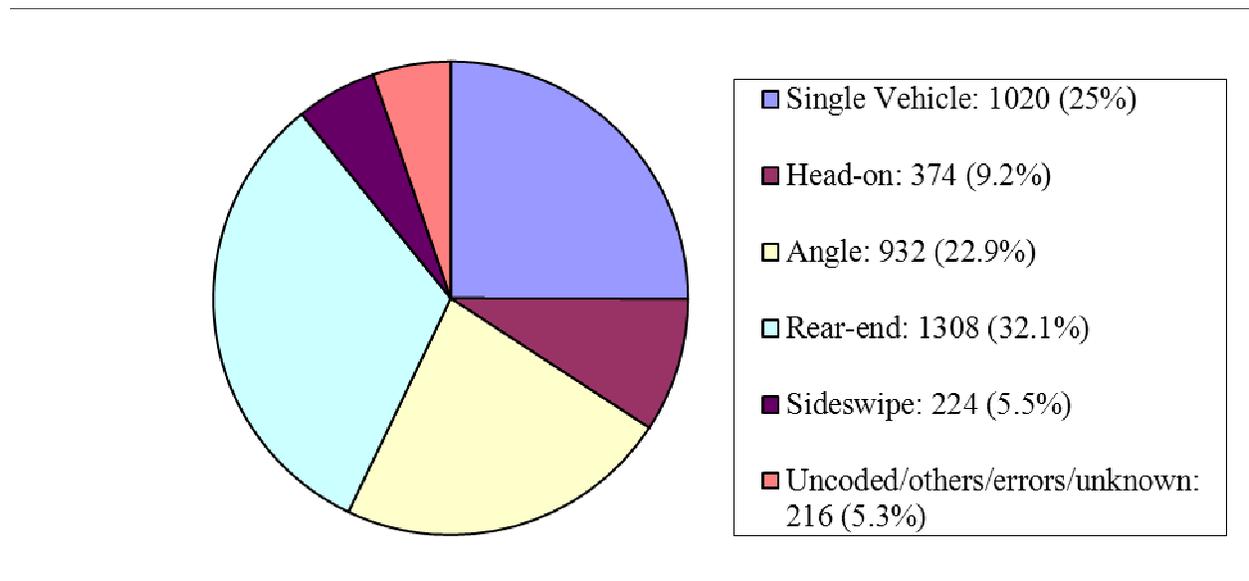


Table 4 **Traffic Crash Type by Percent Resulting in Injury in 2013**

Crash Type	Injury Crashes	All Crashes	Percent Resulting in Injury
Head-on	374	978	38%
Angle	932	3,676	25.4%
Rear-End	1,308	6,570	19.9%
Single-Vehicle	1,020	5,779	17.7%
Sideswipe	224	2,857	7.8%
Uncoded/others/errors/unknown	216	1,386	15.6%
Total	4,074	21,246	19.2%

Source: www.michigantrafficcrashfacts.org

Injury Traffic Crashes by Month, Day, and Hour

Figure 10 shows more injury traffic crashes occurred in August than any other months in 2013, with 418 injury traffic crash, and Figure 11 shows that Thursdays was the day of week in 2013 with the most injury traffic crashes (659).

Figure 10 **Injury Traffic Crashes by Month in 2013**

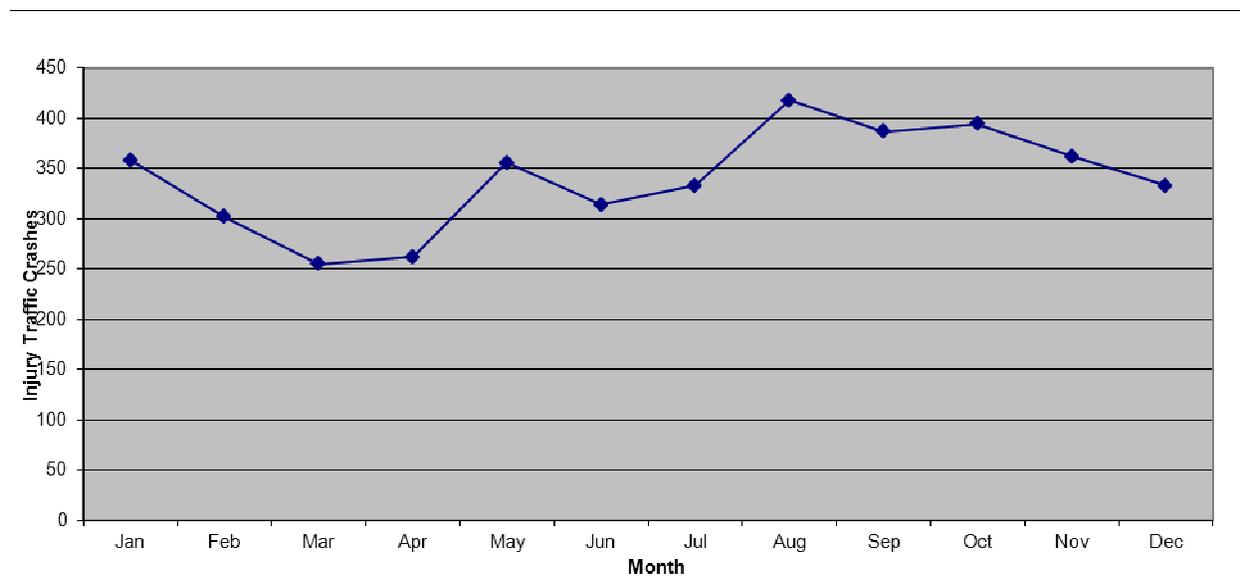
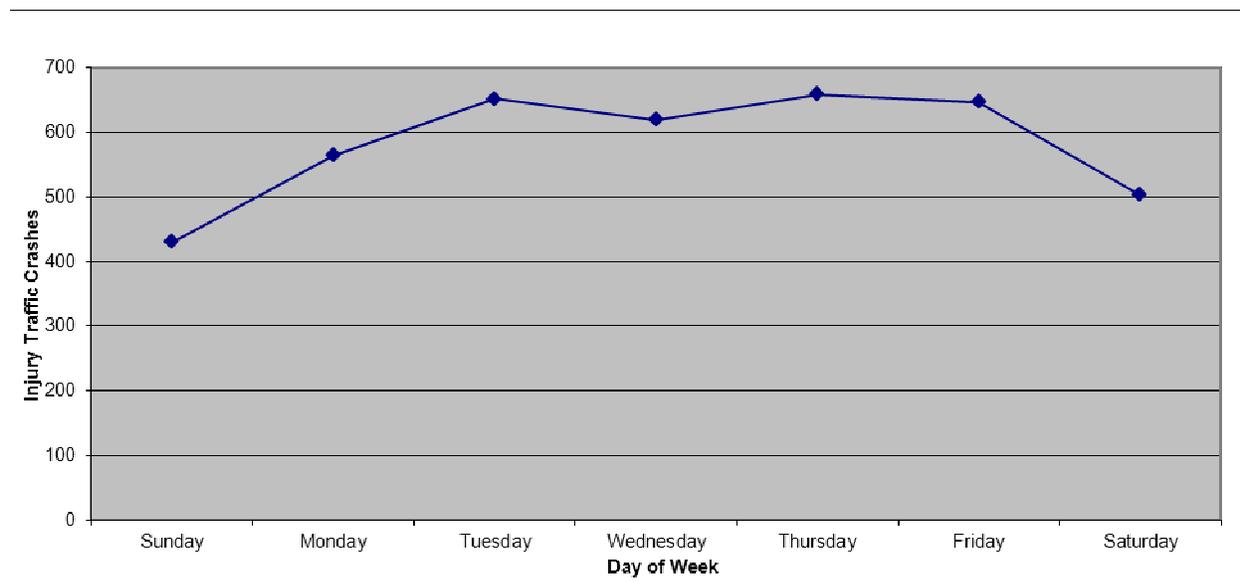


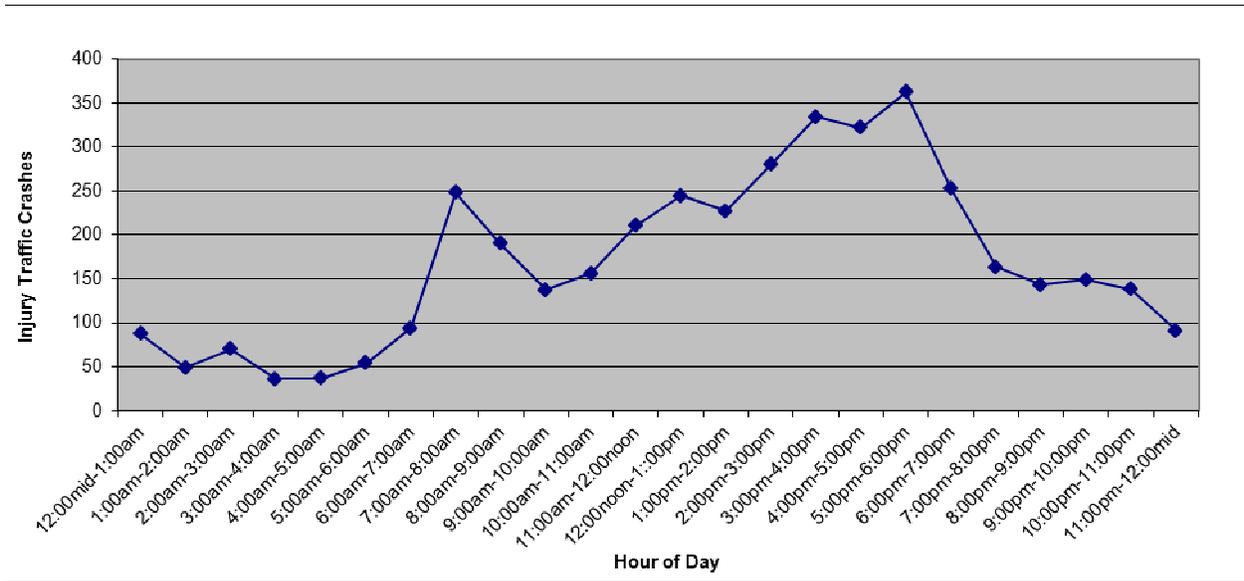
Figure 11 **Injury Traffic Crashes by Day of Week in 2013**



Source: www.michigantrafficcrashfacts.org

Figure 12 indicates that most injury traffic crashes occurred between 5 pm to 6 pm during each hour interval in 2013, with 362 injury crashes.

Figure 12 **Injury Traffic Crashes by Hour of Day in 2013**



Source: www.michigantrafficcrashfacts.org

Fatal Traffic Crashes

Fatal crash is defined as a crash that causes death within 30 days of the crash. There were 45 fatal crashes in GVMC area in 2013, an 18% decrease from 2008, which had 55 fatal crashes. Figure 13 and Figure 14 show the number fatal crashes and the number of fatalities caused by traffic crashes from 2008 to 2013.

Figure 13 **Fatal Traffic Crashes, 2008-2013**

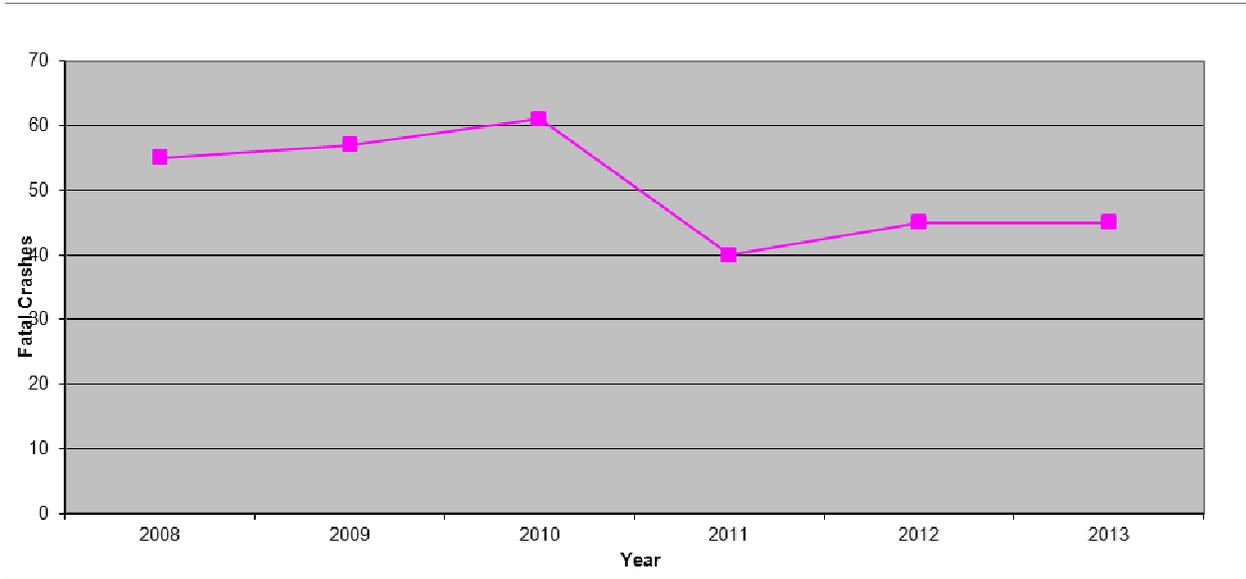
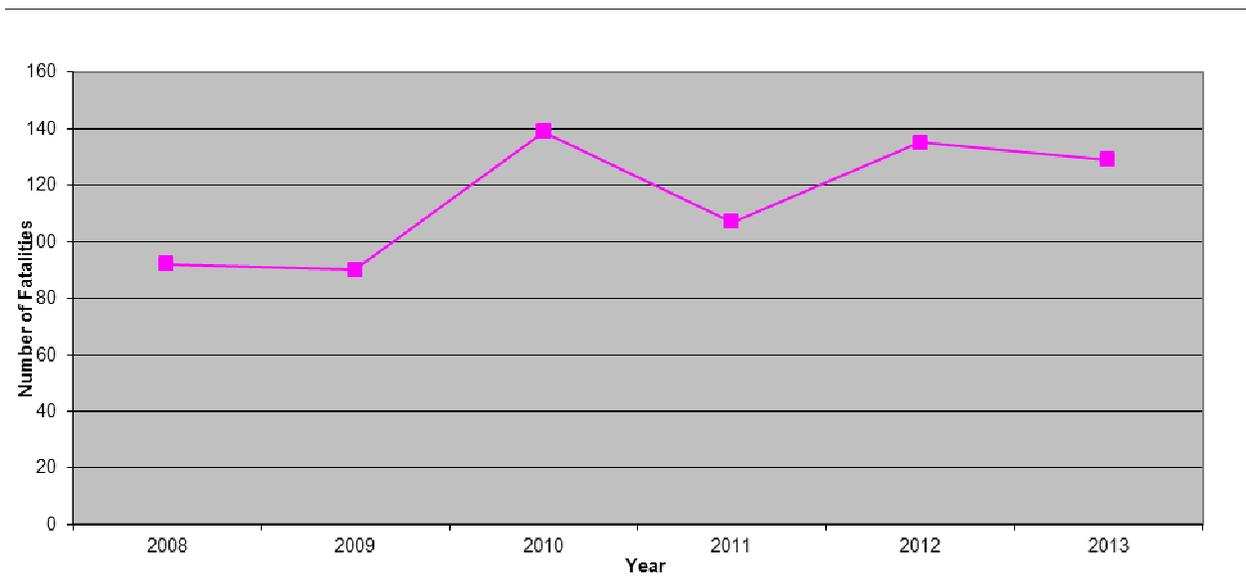


Figure 14 **Traffic Crash Fatalities, 2008-2013**



Source: www.michigantrafficcrashfacts.org

Fatal Traffic Crashes by Crash Type

Figure 15 shows that the most common type of crash causing fatalities in 2013 was single vehicle crash, which accounts for 48.9 percent of all fatal crashes. But Head-on crashes were more likely to result in a fatality, with 0.7% of Head-on crashes causing fatality.

Figure 15 **Fatal Traffic Crashes by Crash Type in 2013**

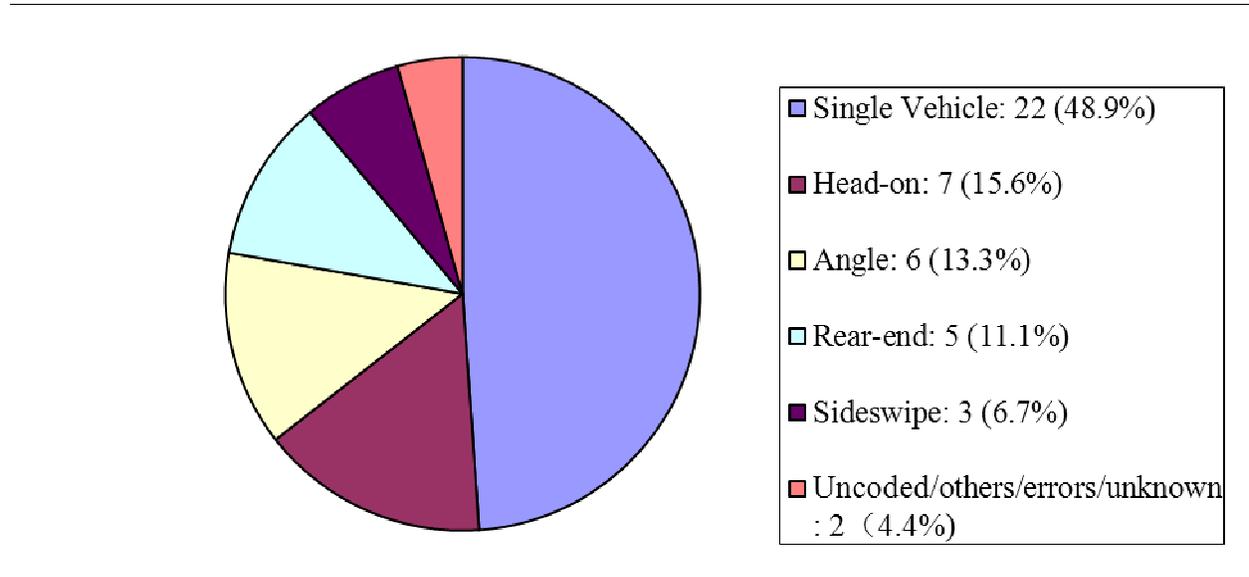


Table 5 **Crash Type by Percent Resulting in Fatality in 2013**

Crash Type	Fatal Crashes	All Crashes	Percent Resulting in Fatality
Head-on	7	978	0.7%
Single-Vehicle	22	3,676	0.59%
Angle	6	6,570	0.09%
Sideswipe	3	5,779	0.05%
Rear-End	5	2,857	0.18%
Uncoded/others/errors/unknown	2	1,386	0.14%
Total	45	21,246	0.2%

Source: www.michigantrafficcrashfacts.org

Fatal Traffic Crashes by Month, Day, and Hour

Figure 17 and 18 show the distribution of fatal traffic crashes by month and day of week in GVMC area in 2013.

Figure 16 **Fatal Traffic Crashes by Month in 2013**

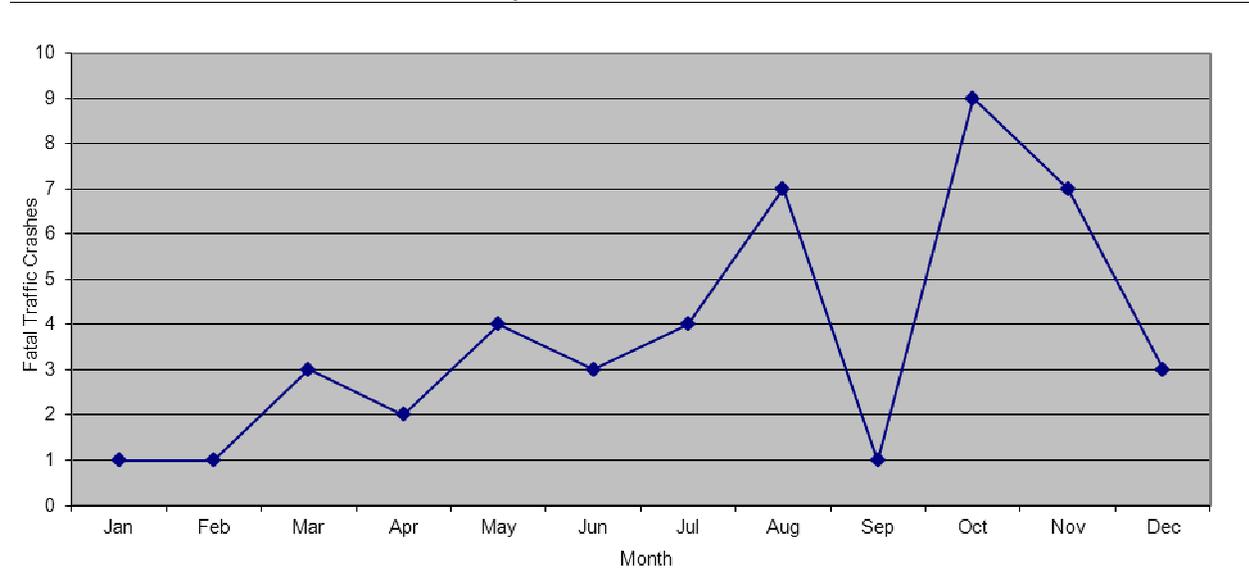
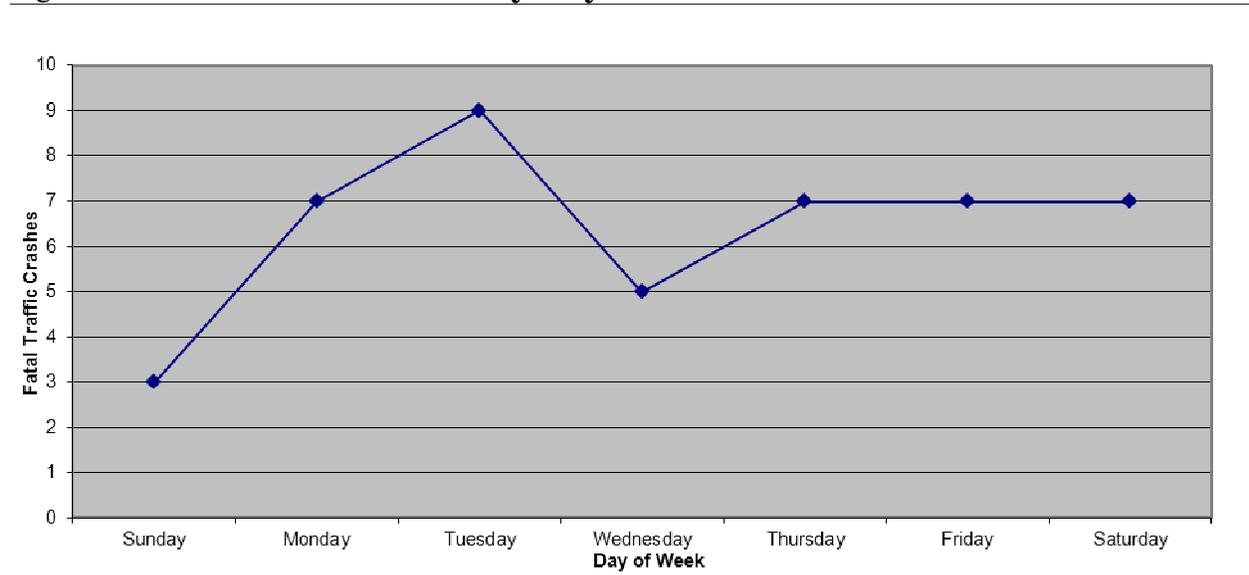


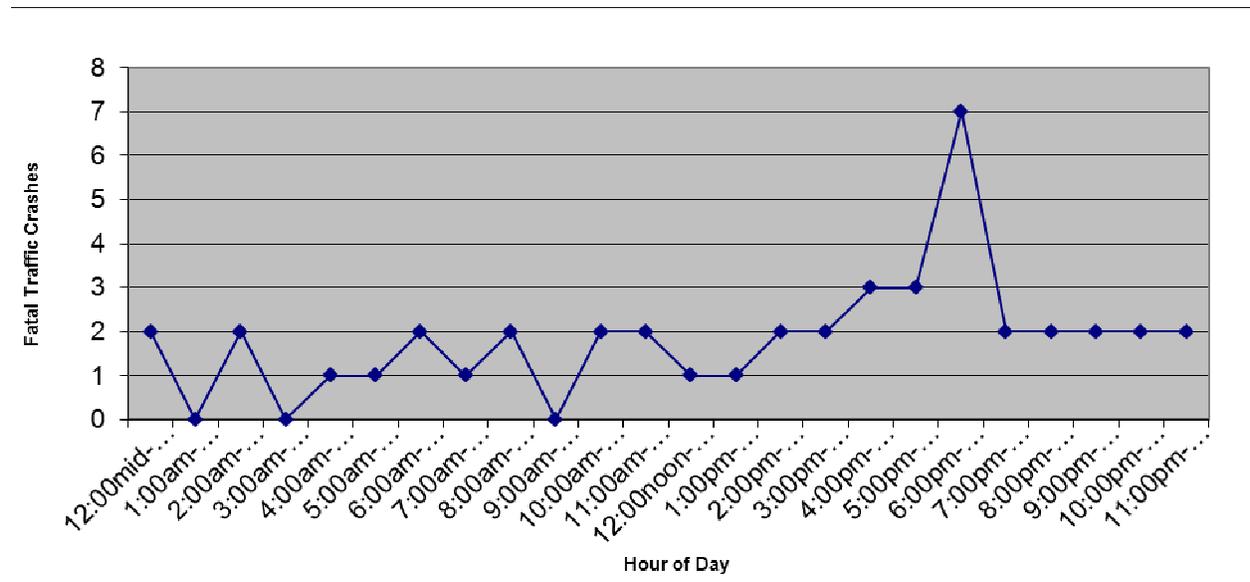
Figure 17 **Fatal Traffic Crashes by Day of Week in 2013**



Source: www.michigantrafficcrashfacts.org

Figure 18 below shows the distribution of fatal traffic crashes in GVMC area in 2013.

Figure 18 **Fatal Traffic Crashes by Hour of Day in 2013**



Source: www.michigantrafficcrashfacts.org

Alcohol-Involved Traffic Crashes

An alcohol-involved crash is defined as a crash in which a driver, pedestrian or bicyclist had any measurable alcohol in their system. Figure 19 shows the alcohol-involved traffic crashes in GVMC area from 879 in 2008 to 829 in 2013. Figure 20 shows the percentages of alcohol-involved crashes in GVMC area from 2008 to 2013.

Figure 19 Alcohol-Involved Traffic Crashes, 2008-2013

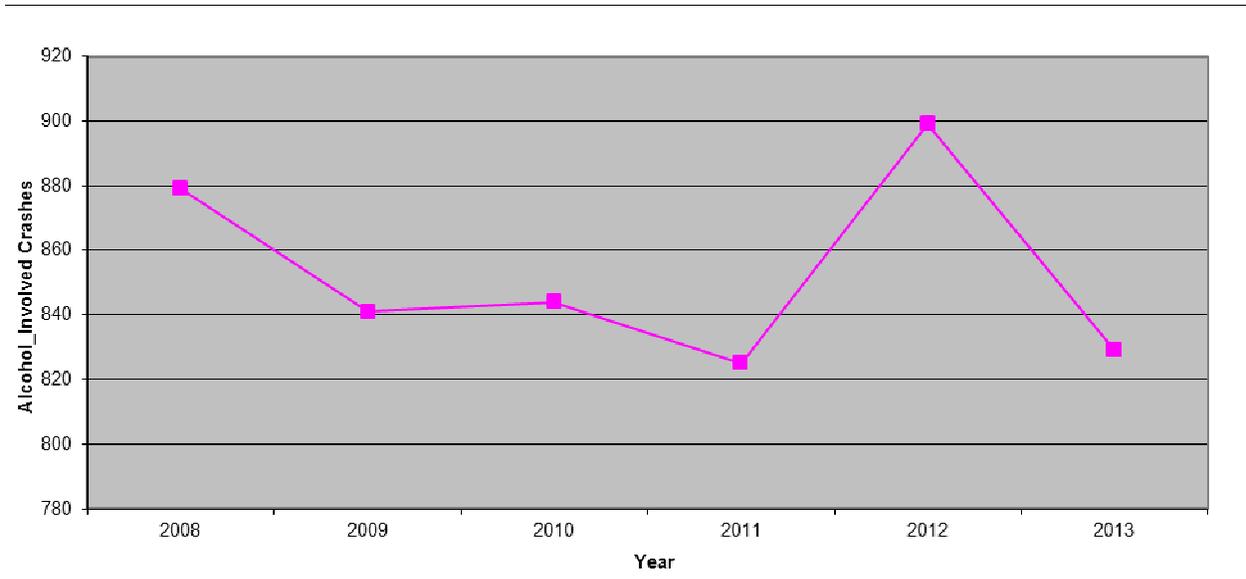


Figure 20 Percentages of Alcohol-Involved Traffic Crashes

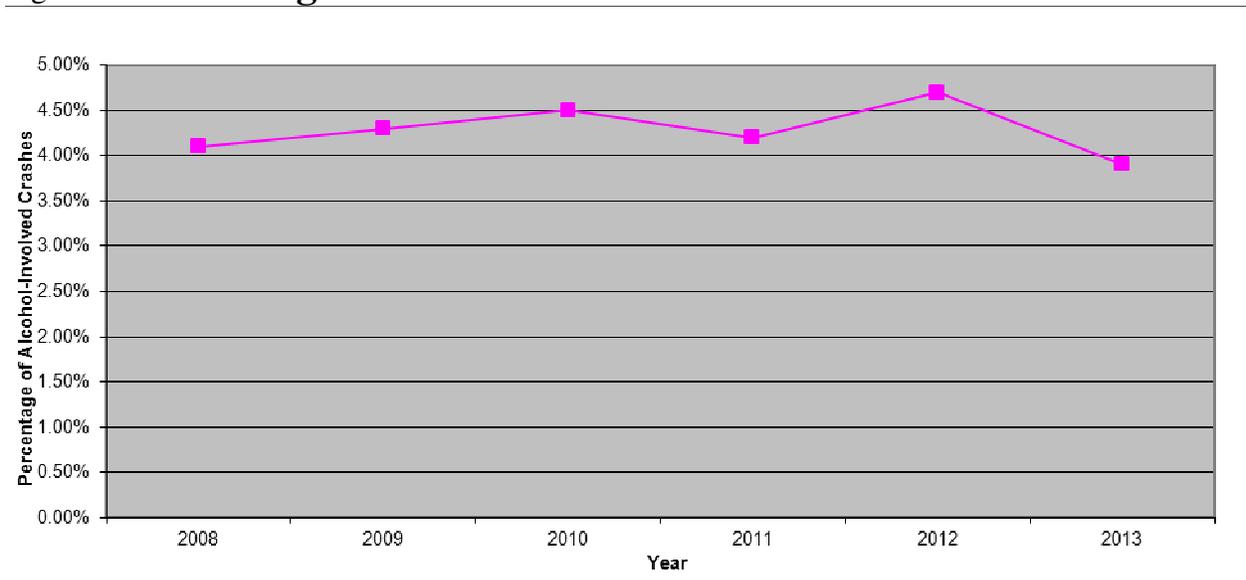


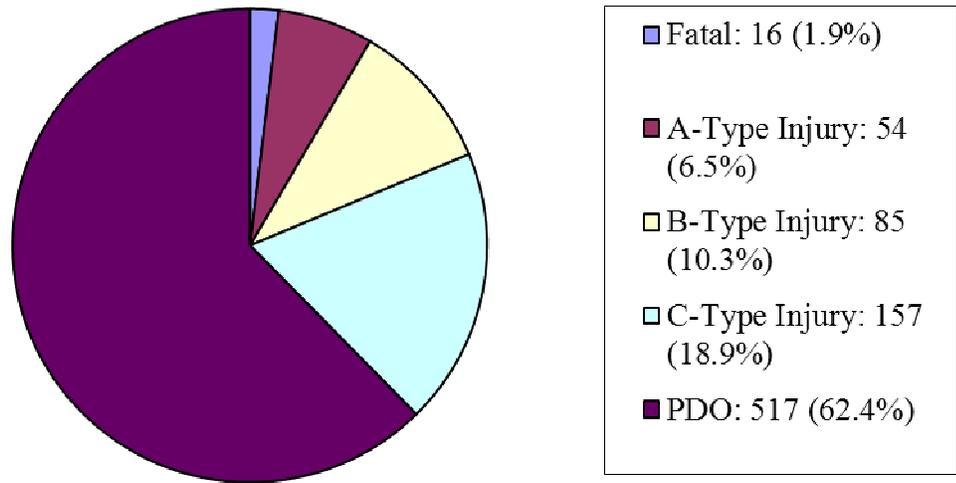
Table 6 below shows the number of Alcohol-Involved traffic crashes by jurisdiction in GVMC area from 2008-2013.

Local Governments	2008	2009	2010	2011	2012	2013
Ada	10	9	18	16	14	10
Algoma	19	7	16	12	11	9
Allendale	17	19	9	12	15	7
Alpine	25	20	26	21	14	13
Blendon	4	4	5	5	8	6
Bowne	4	12	6	1	6	8
Byron	15	37	20	37	17	27
Caledonia	16	8	14	9	14	23
Cannon	10	12	12	12	16	9
Cascade	19	16	14	25	24	19
Casnovia	0	1	1	0	0	0
Cedar Springs	2	3	1	1	2	0
Chester	6	5	3	1	3	3
Courtland	9	11	8	9	12	9
East Grand Rapids	5	2	7	3	10	7
Gaines	9	9	15	8	17	19
Georgetown	26	30	34	33	20	25
City of Grand Rapids	313	290	325	286	359	310
Grand Rapids Township	19	19	21	14	13	18
Grandville	30	22	21	20	15	17
Grattan	8	7	5	3	3	6
Hudsonville	3	2	6	3	3	4
Jamestown	6	4	6	5	3	5
Kent City	1	1	0	1	1	0
Kentwood	47	32	17	38	32	34
Lowell	10	16	8	10	8	17
Nelson	5	8	2	6	12	4
Oakfield	12	14	4	15	17	6
Plainfield	55	37	43	47	44	35
Polkton	5	7	8	8	9	6
Rockford	1	5	7	5	3	5
Sand Lake	0	1	0	0	5	0
Solon	14	9	12	7	11	9
Sparta	7	15	15	14	21	18
Spencer	8	6	11	10	1	4
Tallmadge	12	13	13	9	9	8
Tyrone	7	4	5	10	10	5
Vergennes	3	6	3	6	6	2
Walker	37	59	41	51	33	45
Wright	15	14	10	6	12	14
Wyoming	95	75	78	66	98	92

Alcohol-Involved Traffic Crashes by Severity

Although alcohol-involved traffic crashes only accounts for 3.9 percent of all traffic crashes in 2013, there were 35.6 percent fatal crashes related to alcohol, and 20.6 percent of all A-Type injuries involved alcohol. As shown in the table below, alcohol-involved crashes are more likely to cause death or serious injuries compared to other non-alcohol-involved crashes.

Figure 21 **Alcohol-Involved Traffic Crashes by Severity in 2013**



Source: www.michigantrafficcrashfacts.org

Table 7 **Alcohol-Involved Traffic Crash by Severity in 2013**

Crash Severity	Alcohol-Involved Traffic Crashes	All Traffic Crashes	Alcohol-Involved Percentage
Fatal	16	45	35.6%
A-Type Injury	54	262	20.6%
B-Type Injury	85	838	10.1%
C-Type Injury	157	2,974	5.3%
PDO	517	17,127	3%
Total	829	21,246	3.9%

Source: www.michigantrafficcrashfacts.org

Alcohol-Involved Traffic Crashes by Crash Type

Figure 22 shows that the most common type of alcohol-involved crashes were single-vehicle crashes, accounting for 50.9 percent of all alcohol-involved crashes. Table 8 shows the percentage of alcohol-involved crashes in all traffic crashes.

Figure 22 Alcohol-Involved Traffic Crashes by Type in 2013

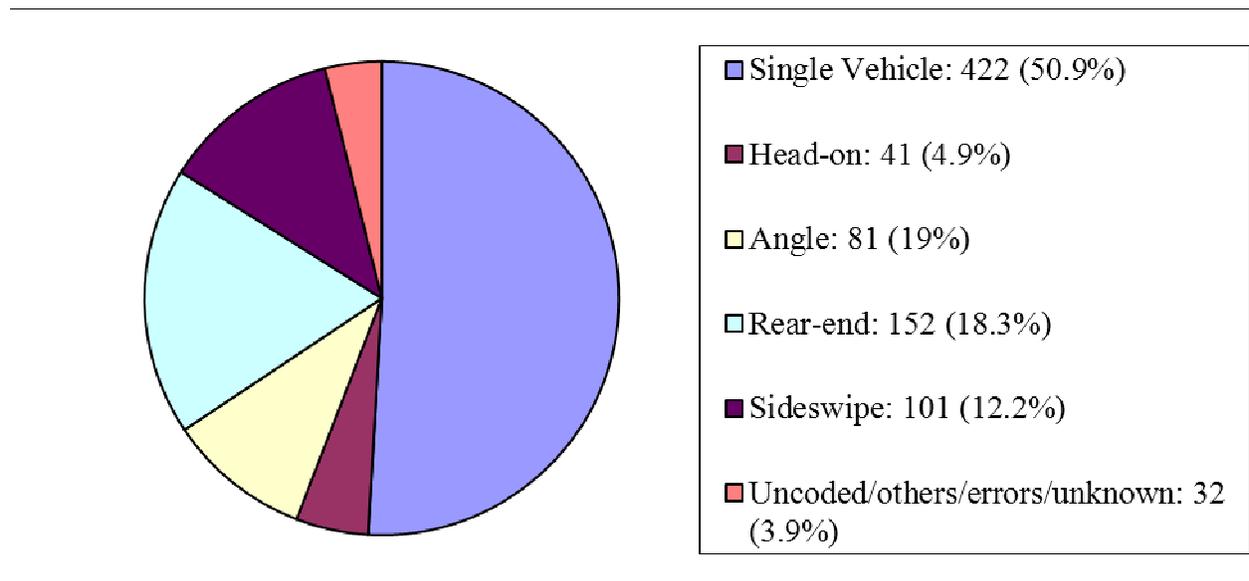


Table 8 Percentage of Alcohol-Involved Traffic Crashes

Crash Type	Alcohol-Involved Traffic Crashes	All Crashes	Percentage of Alcohol-Involved Crash
Single-Vehicle	422	5,779	7.3%
Head-on	41	978	4.2%
Angle	81	3,676	2.2%
Rear-End	152	6,570	2.3%
Sideswipe	101	2,857	3.5%
Uncoded/others/errors/unknown	32	1,386	2.3%
Total	829	21,246	3.9%

Source: www.michigantrafficcrashfacts.org

Alcohol-Involved Traffic Crashes by Month, Day and Hour

Figure 23 shows that most alcohol-involved crashes occurred in November with 76 crashes and the fewest took place in May and July with 61 crashes. Figure 24 indicates Saturdays had the most alcohol-involved traffic crashes (185) compared to any other days of week, while Mondays had the fewest alcohol-involved crashes (70) in 2013.

Figure 23 Alcohol-Involved Traffic Crashes by Month in 2013

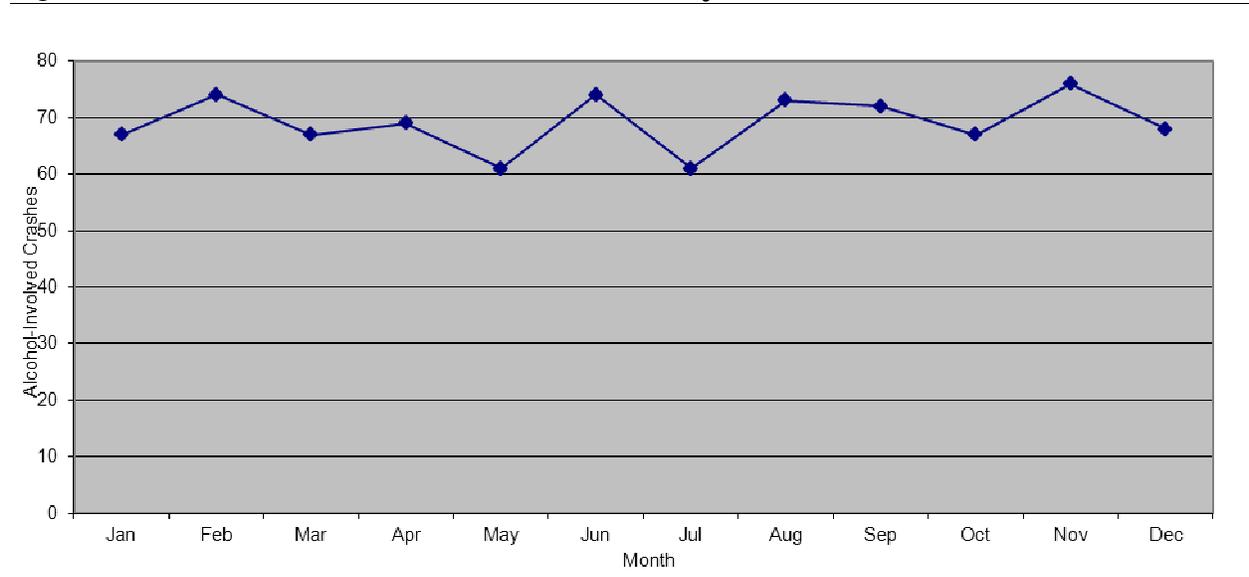
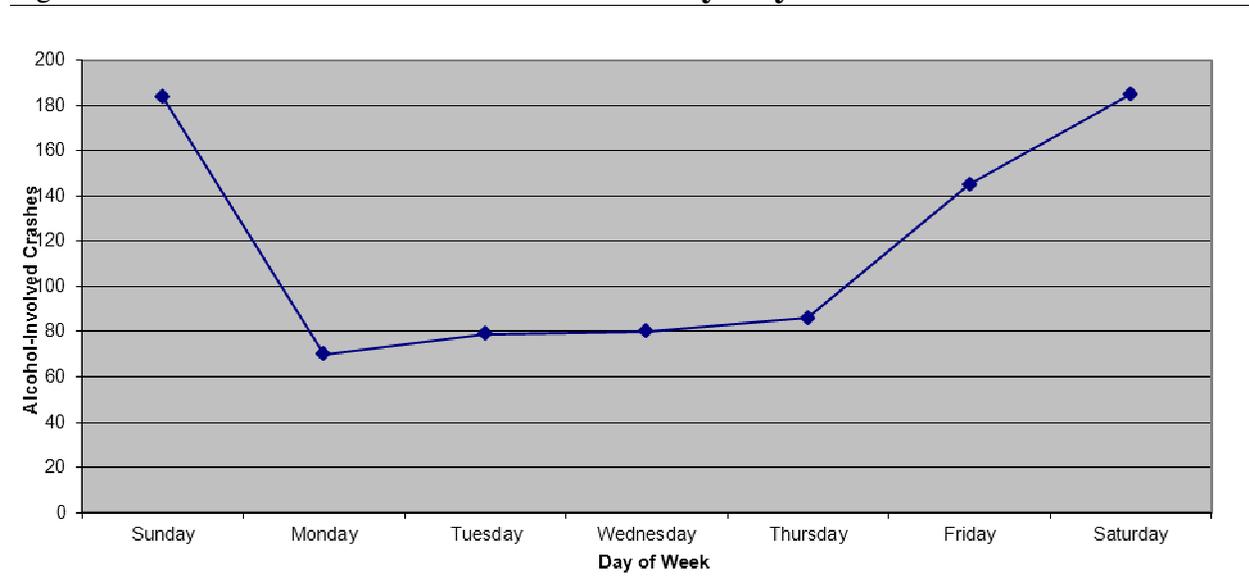


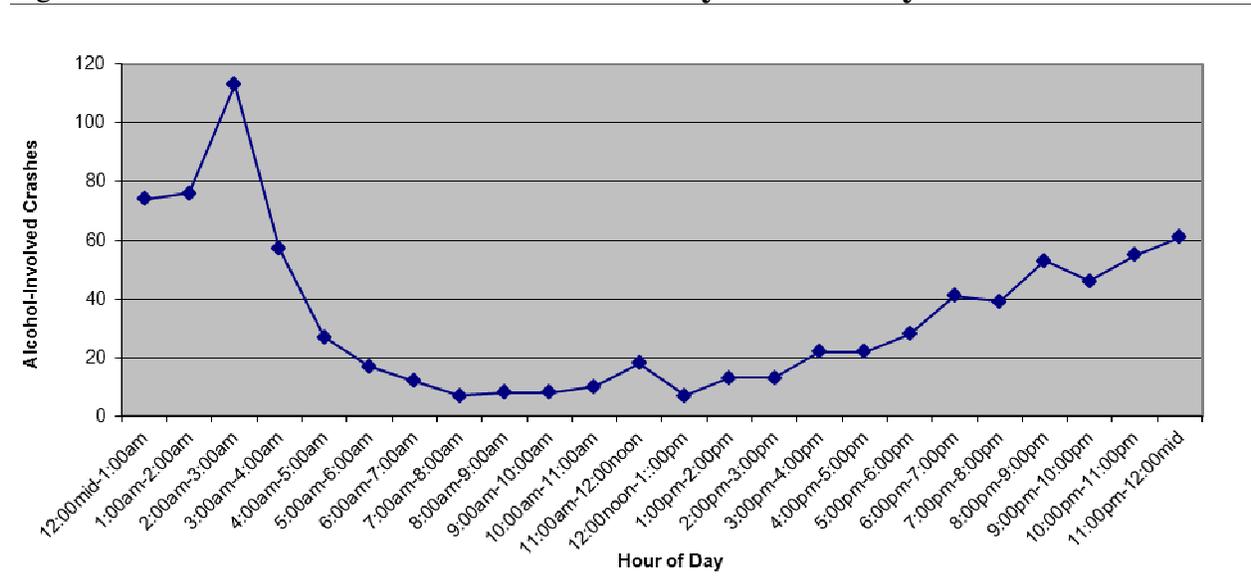
Figure 24 Alcohol-Involved Traffic Crashes by Day of Week in 2013



Source: www.michigantrafficcrashfacts.org

As shown in Figure 25, most alcohol-involved crashes occurred between 2 a.m. to 3 a.m. with 113 crashes in 2013, and the fewest alcohol-involved crashes took place between 7 a.m. to 8 a.m. and 12 p.m. to 1 p.m. with 7 crashes.

Figure 25 Alcohol-Involved Traffic Crashes by Hour of day in 2013



Source: www.michigantrafficcrashfacts.org

Vehicle-Deer Traffic Crashes

There were 1,634 traffic crashes between vehicle and deer in GVMC area in 2013, a 31.2 percent decrease from 2008. As shown in Figure 27, the percentage of vehicle-deer crash in GVMC area decreased from 11 percent in 2008 to 7.7 percent in 2013.

Figure 26 **Vehicle-Deer Traffic Crashes, 2008-2013**

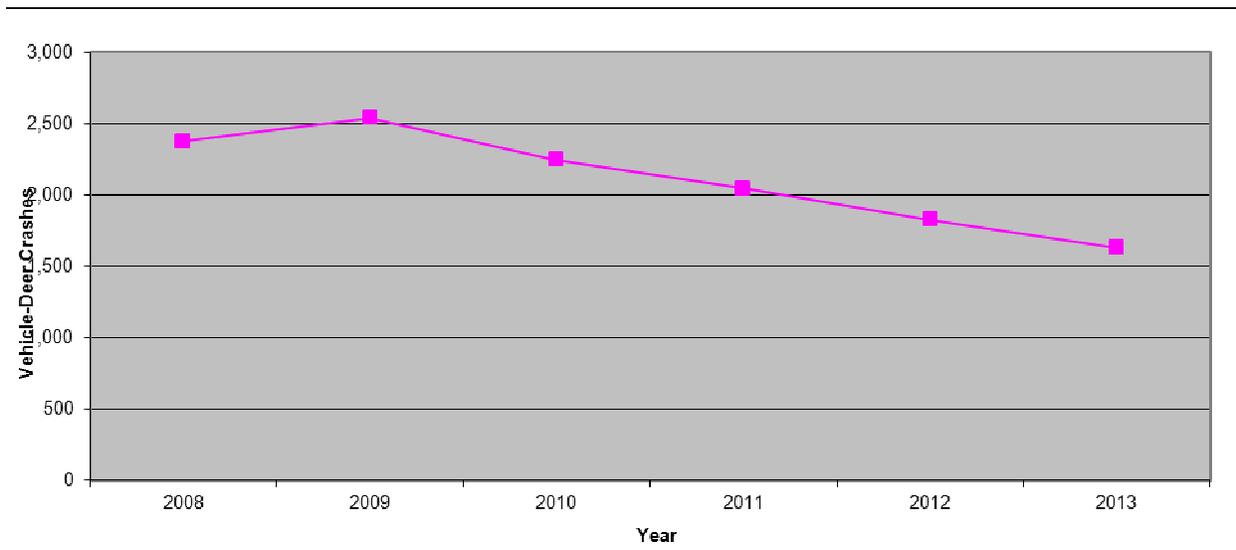
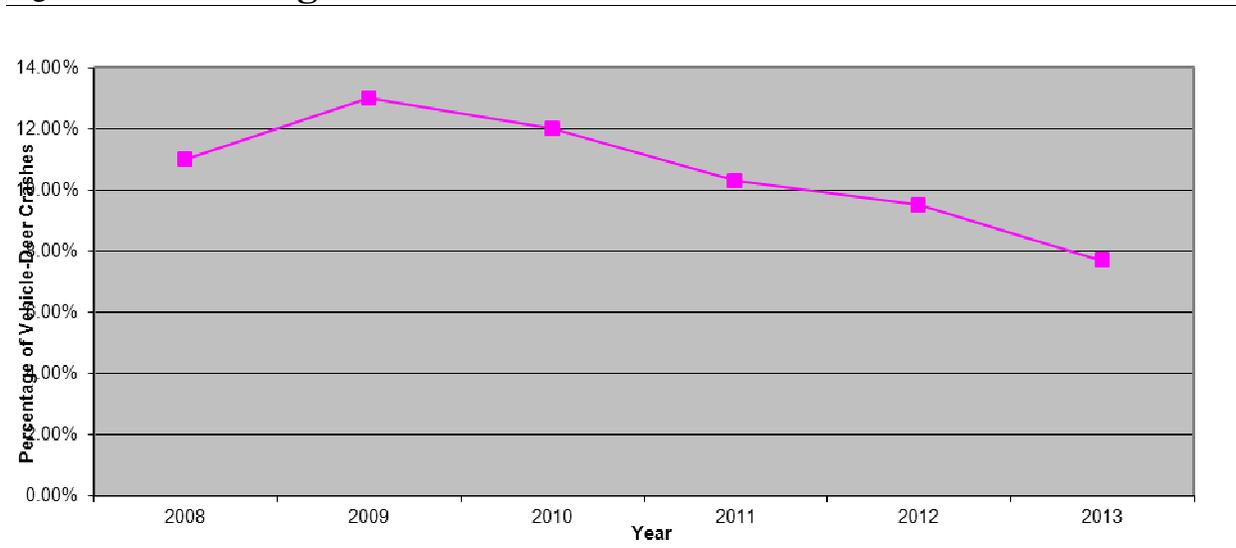


Figure 27 **Percentages of Vehicle-Deer Crashes in 2013**



Source: www.michigantrafficcrashfacts.org

Vehicle-Deer Traffic Crashes by Severity

As shown in Figure 28 and Table 9, most vehicle-deer crashes only caused property damage in GVMC area in 2013, which accounted for 96.3% of all vehicle-Deer crashes and 15.5% of all PDO crashes.

Figure 28 **Vehicle-Deer Traffic Crashes by Type in 2013**

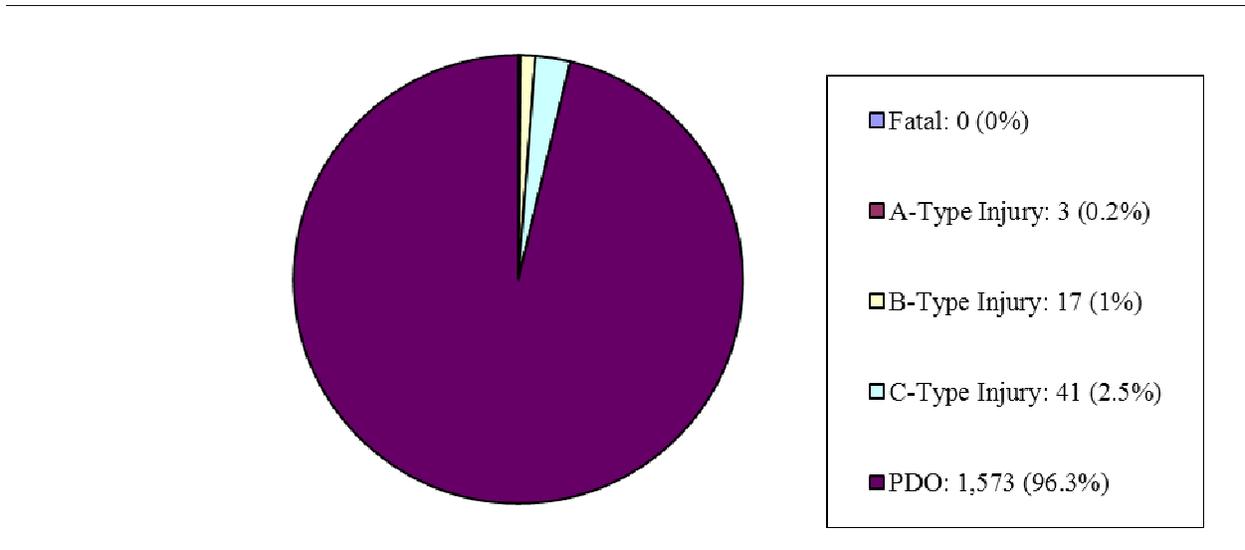


Table 9 **Vehicle-Deer Traffic Crashes by Severity in 2013**

Crash Severity	Vehicle-Deer Traffic Crashes	All Traffic Crashes	Vehicle-Deer Percentage
Fatal	0	45	0%
A-Type Injury	3	262	0.8%
B-Type Injury	17	838	2%
C-Type Injury	41	2,974	1.4%
PDO	1,573	17,127	9.2%
Total	1,634	21,246	7.7%

Source: www.michigantrafficcrashfacts.org

Vehicle-Deer Traffic Crashes by Month, Day and Hour in 2013

Figure 29 shows that November had the most vehicle-deer crashes at 358 in 2013, and August had the fewest vehicle-deer crashes at 52. Figure 30 shows that more deer crashes took place on Wednesdays in 2013 than any other days of week.

Figure 29 **Vehicle-Deer Traffic Crashes by Month in 2013**

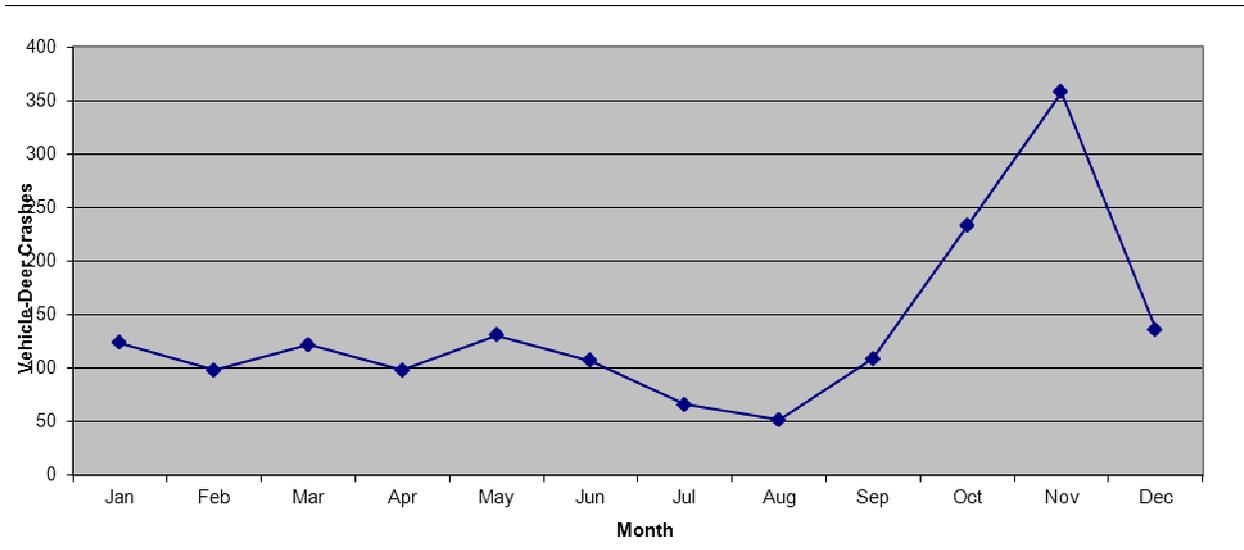
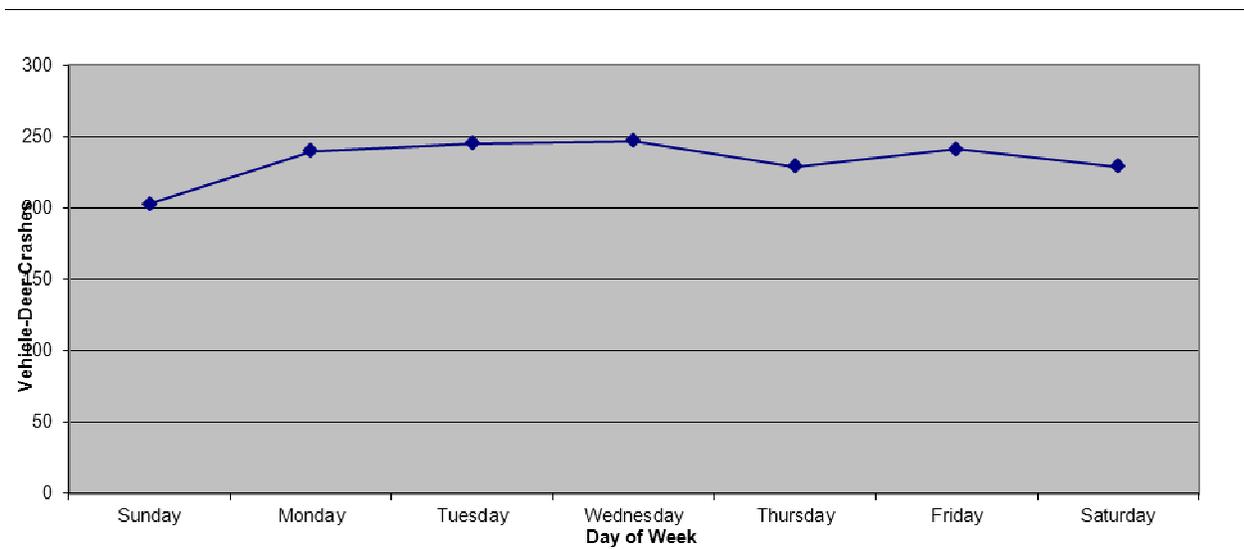


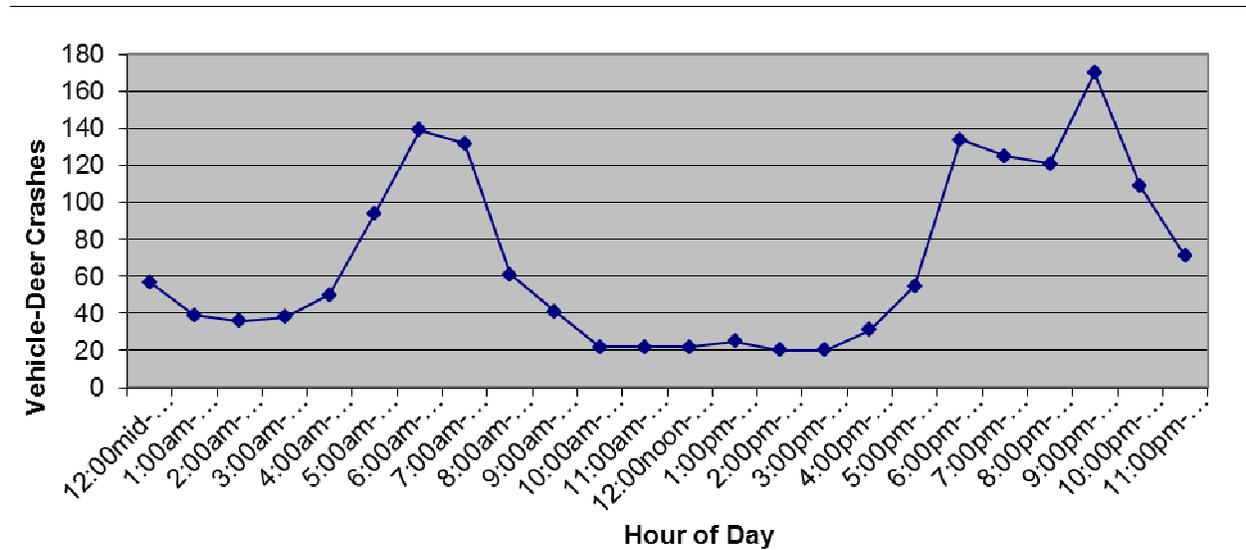
Figure 30 **Vehicle-Deer Traffic Crashes by Day of Week in 2013**



Source: www.michigantrafficcrashfacts.org

Figure 31 shows that deer crashes were most likely to occur during early mornings and early evenings, and much fewer deer crashes occurred between 9 am and 5 pm.

Figure 31 **Vehicle-Deer Traffic Crashes by Hour of Day in 2013**

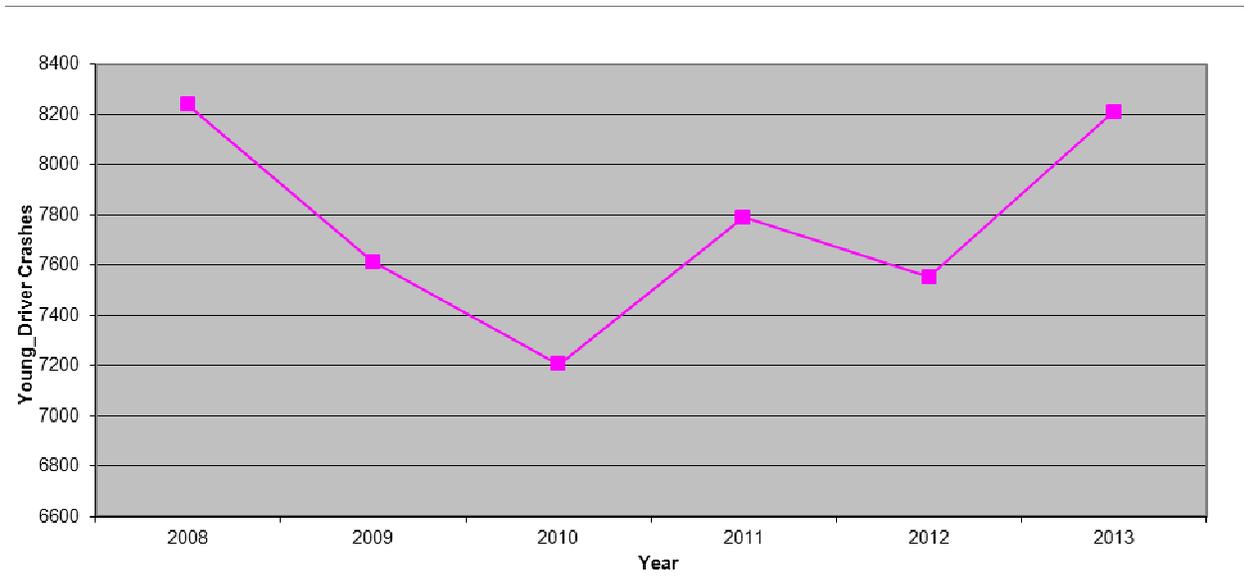


Source: www.michigantrafficcrashfacts.org

Young-Driver Traffic Crashes

A young driver is defined as a driver whose age is 24 and younger. Figure 32 shows the young-driver crashes from 2008 to 2013 in GVMC area, down from 8,237 in 2008 to 7,204 in 2010, and increased again to 8210 in 2013. Table 10 shows the percentage of young-driver traffic crashes for 2008-2013.

Figure 32 **Young-Driver Traffic Crashes, 2008-2013**



Source: www.michigantrafficcrashfacts.org

Table 10 **Percentages of Young-Driver Traffic Crashes, 2008-2013**

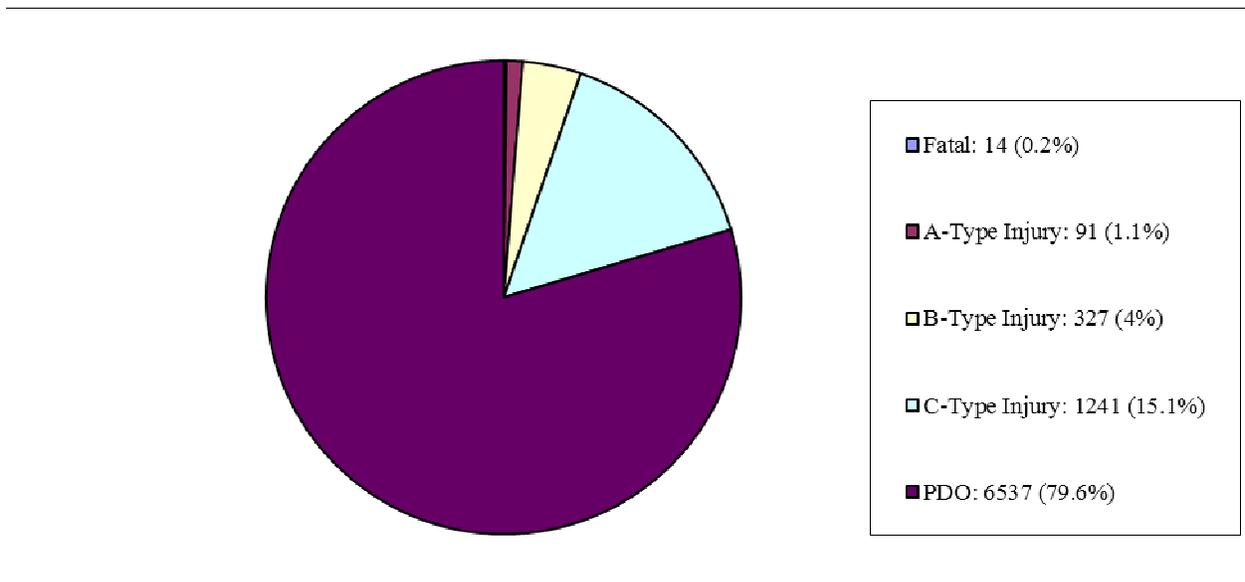
Year	Young-Driver Traffic Crashes	All Traffic Crashes	Percentage of Young-Driver Traffic Crashes
2008	8,237	21,681	38%
2009	7,612	19,586	38.9%
2010	7,204	18,771	38.4%
2011	7,789	19,843	39.3%
2012	7,553	19,301	39.1%
2013	8,210	21,246	38.6%

Source: www.michigantrafficcrashfacts.org

Young-Driver Traffic Crashes by Severity

Figure 33 shows the distribution of traffic crashes severity involving young driver in 2013. Table 11 indicates young driver traffic crashes accounted for a significantly large portion of fatal and injured crashes .

Figure 33 Young-Driver Traffic Crashes Severity in 2013



Source: www.michigantrafficcrashfacts.org

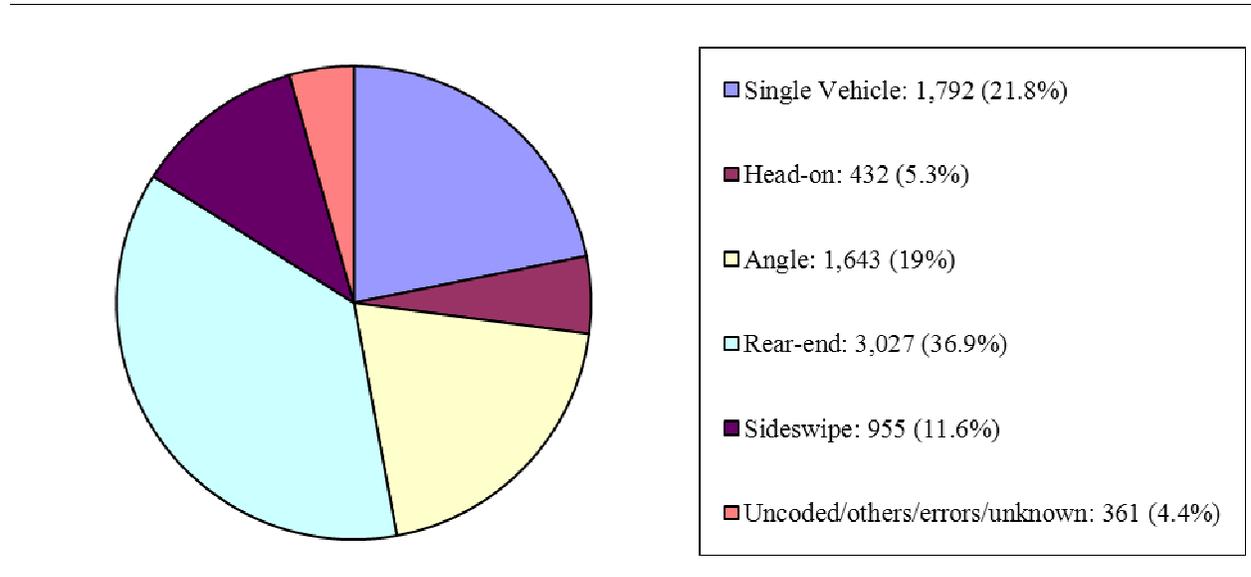
Table 11 Young-Driver Traffic Crash by Severity in 2013

Crash Severity	Young-Driver Traffic Crashes	All Traffic Crashes	Young-Driver Percentage
Fatal	14	45	31.1%
A-Type Injury	91	262	34.7%
B-Type Injury	327	838	39%
C-Type Injury	1,241	2,974	41.7%
PDO	6,537	17,127	38.2%
Total	8,210	21,246	38.6%

Source: www.michigantrafficcrashfacts.org

Figure 34 below shows that young drivers were more likely to have rear-end, single vehicle and angle crashes, and less likely to have sideswipe and head-on crashes.

Figure 34 **Young-Driver Traffic Crashes by Crash Type in 2013**



Source: www.michigantrafficcrashfacts.org

Young-Driver Traffic Crashes by Month, Day and Hour

As shown in Figure 35, young-driver crashes were more likely to occur in December than any other months in 2013.

Figure 35 Young-Driver Traffic Crashes by Month in 2013

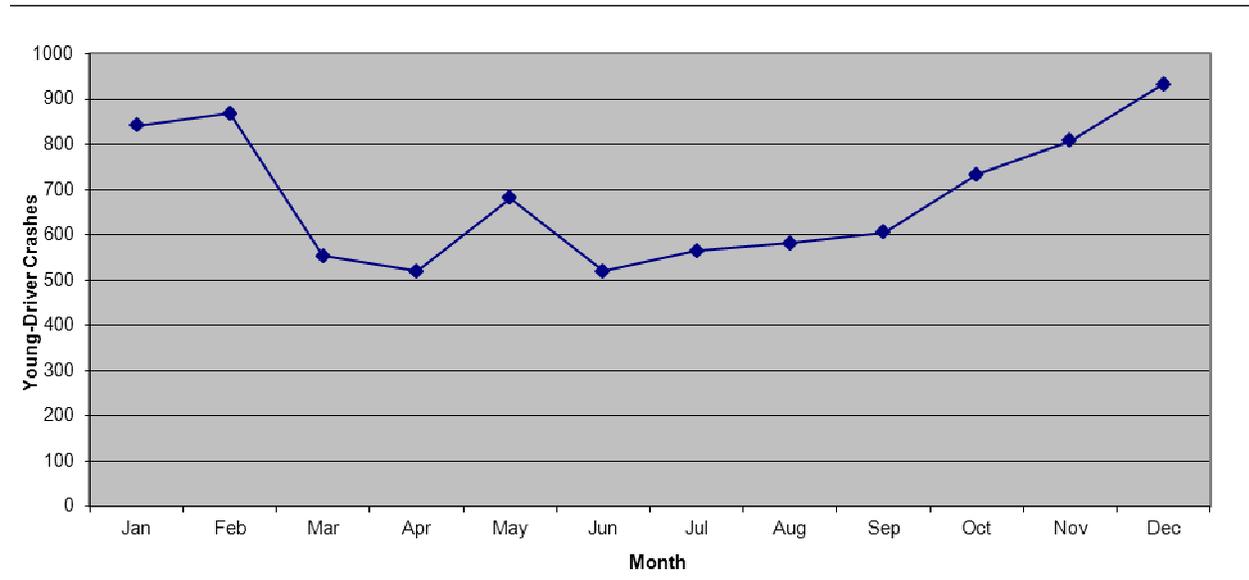
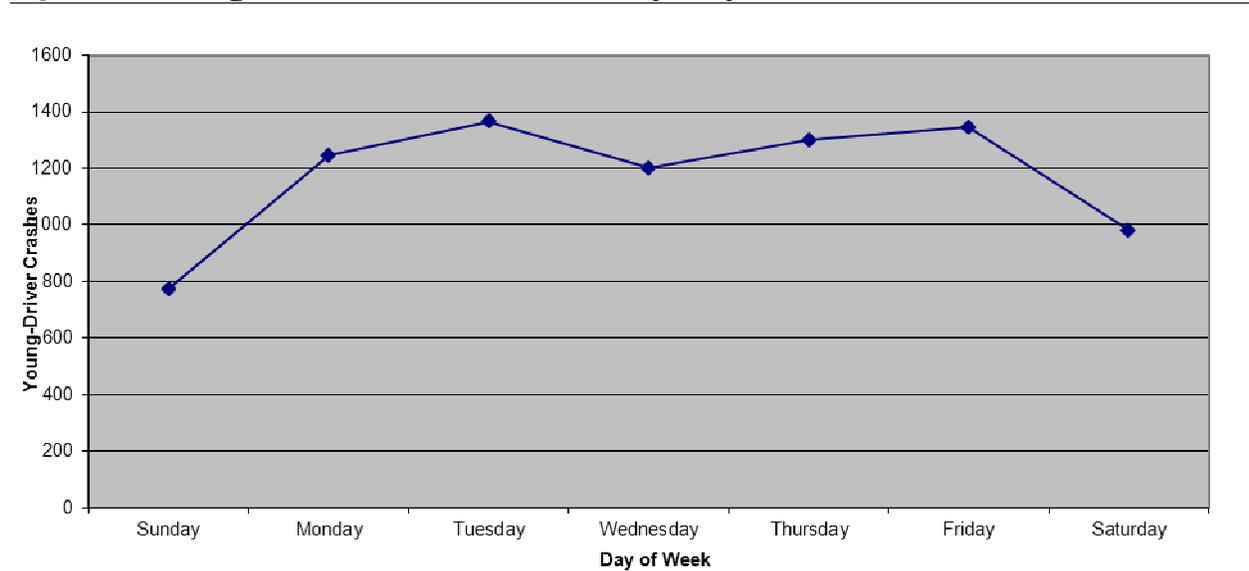


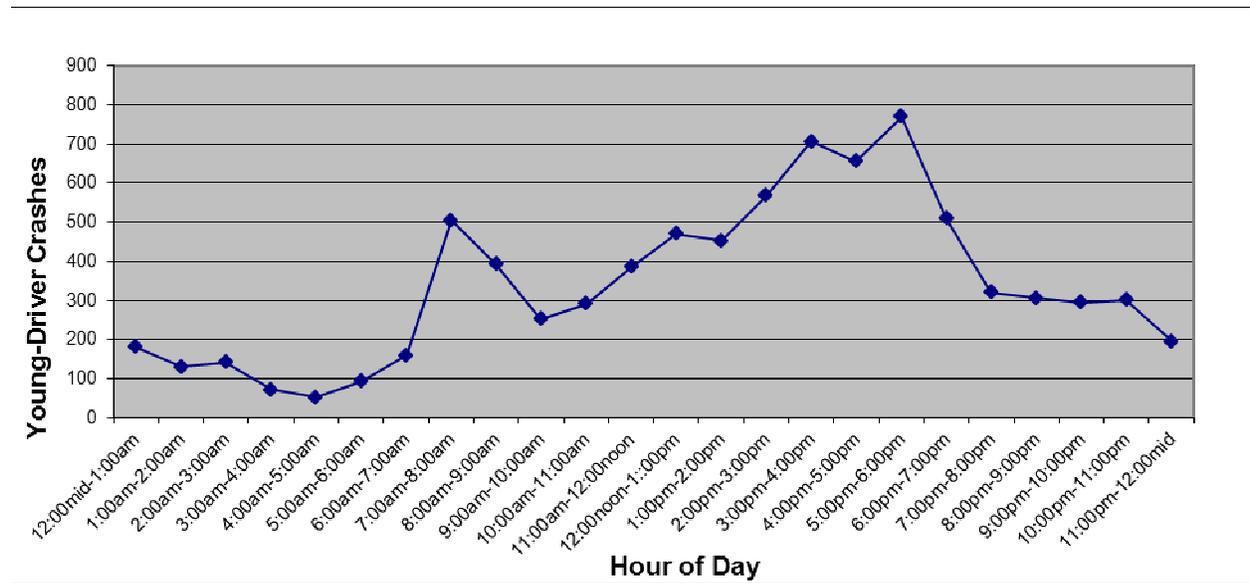
Figure 36 shows that Fridays and Tuesdays had the most young-driver traffic crashes, and Sundays had the least crashes in 2013. Figure 37 shows that young –driver crashes were more likely to occur during afternoon, and were less likely to occur during early morning.

Figure 36 Young-Driver Traffic Crashes by Day of Week in 2013



Source: www.michigantrafficcrashfacts.org

Figure 37 **Young-Driver Traffic Crashes by Hour of Day in 2013**

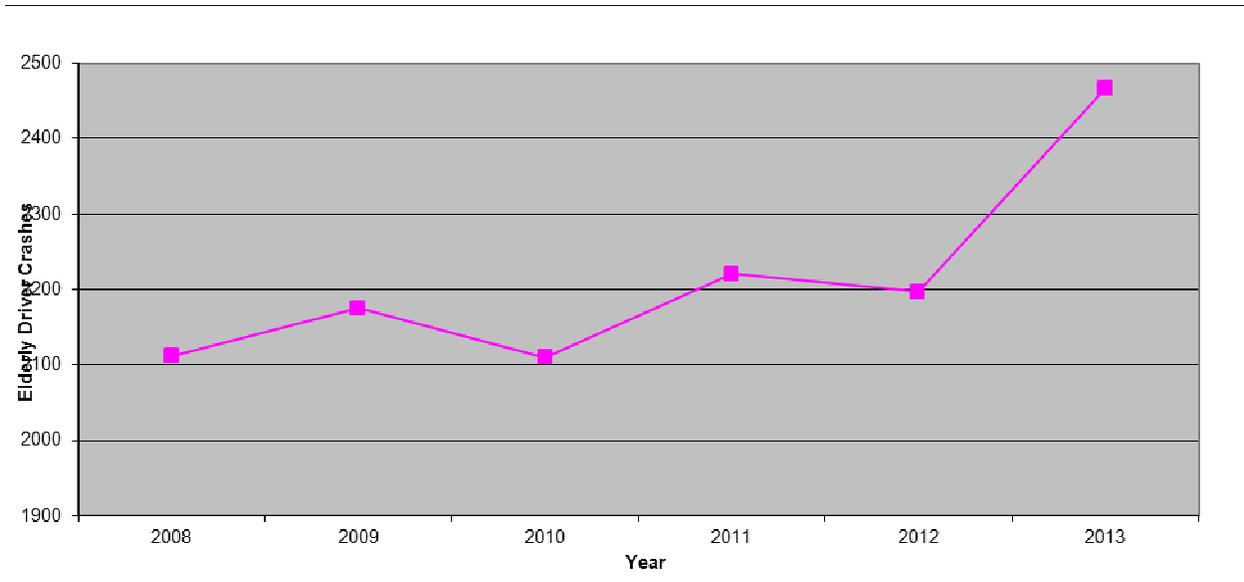


Source: www.michigantrafficcrashfacts.org

Elderly Driver Traffic Crashes

Elderly Driver is defined as a driver aging 65 or over. Figure 38 shows the increasing trend in elderly driver traffic crashes between 2008 and 2013. Table 12 shows the percentages of elderly driver crashes from 2008 to 2013.

Figure 38 **Elderly Driver Traffic Crashes, 2008-2013**



Source: www.michigantrafficcrashfacts.org

Table 12 **Percentages of Elderly Driver Traffic Crashes, 2008-2013**

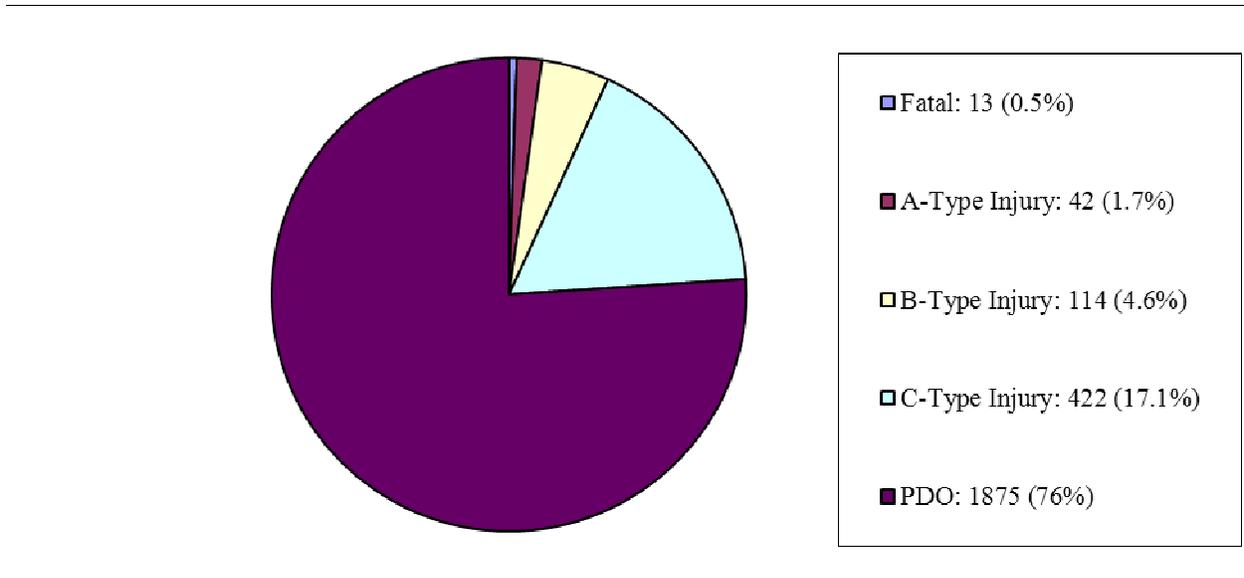
Year	Elderly Driver Traffic Crashes	All Traffic Crashes	Percentage of Elderly Driver Traffic Crashes
2008	2,112	21,681	9.7%
2009	2,175	19,586	11.1%
2010	2,110	18,771	11.2%
2011	2,221	19,843	11.2%
2012	2,197	19,301	11.4%
2013	2,466	21,246	11.6%

Source: www.michigantrafficcrashfacts.org

Elderly Driver Traffic Crashes by Severity

Figure 39 shows the distribution of traffic crash severity involving elderly driver in 2013. As shown in Table 13, fatal crashes caused by elderly driver accounted for 28.9 percent in all fatal traffic crashes in 2013.

Figure 39 **Elderly Driver Traffic Crashes Severity in 2013**



Source: www.michigantrafficcrashfacts.org

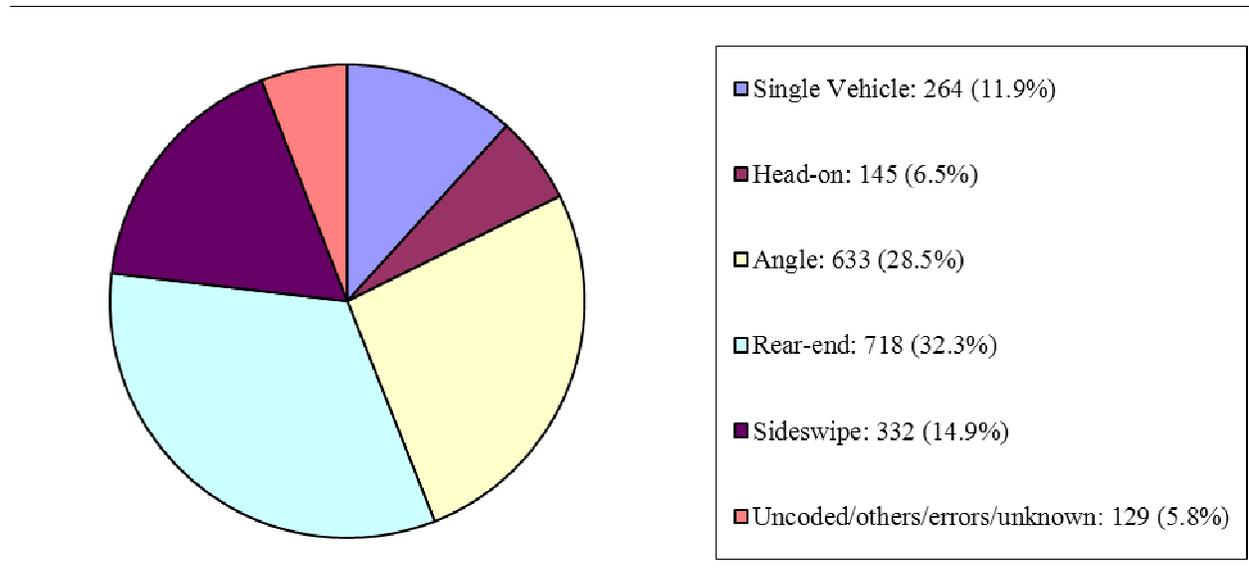
Table 13 **Elderly Driver Traffic Crash by Severity in 2013**

Crash Severity	Elderly-Driver Traffic Crashes	All Traffic Crashes	Elderly-Driver Percentage
Fatal	13	45	28.9%
A-Type Injury	42	262	16 %
B-Type Injury	114	838	13.6%
C-Type Injury	422	2,974	14.2%
PDO	1,875	17,127	10.9%
Total	2,466	21,246	11.6%

Source: www.michigantrafficcrashfacts.org

Figure 40 shows that elderly driver were most likely to have rear-end crashes, and were least likely to have head-on crashes.

Figure 40 **Elderly Driver Traffic Crashes by Crash Type in 2013**

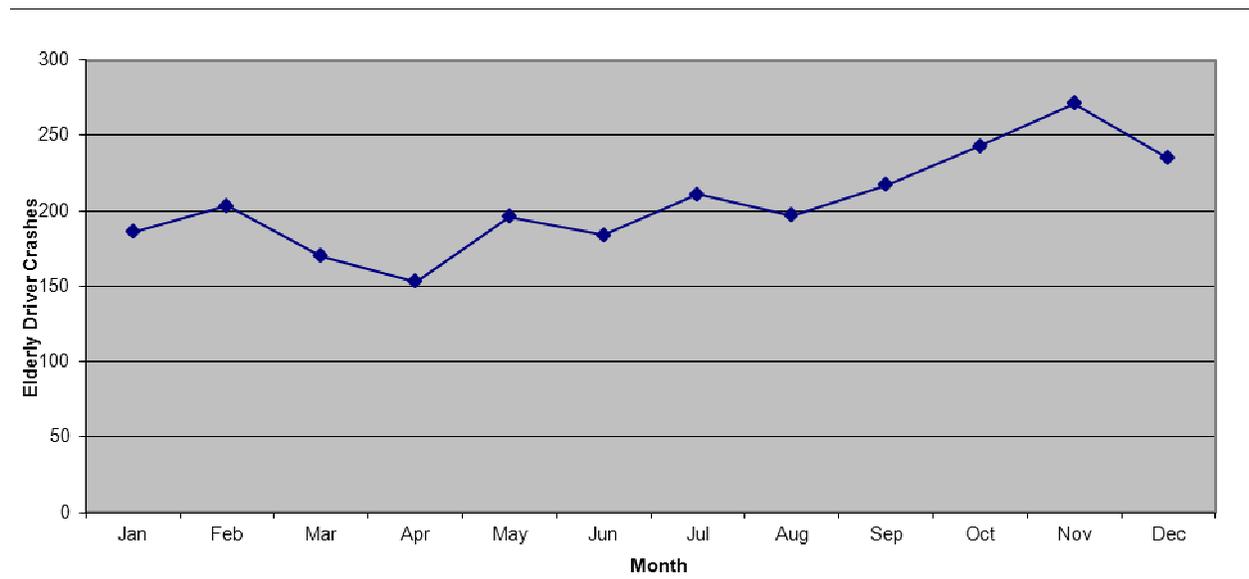


Source: www.michigantrafficcrashfacts.org

Elderly Driver Traffic Crashes by Month, Day and Hour

As shown in Figure 41, elderly driver traffic crashes were more likely to occur in November, and were less likely to occur in April.

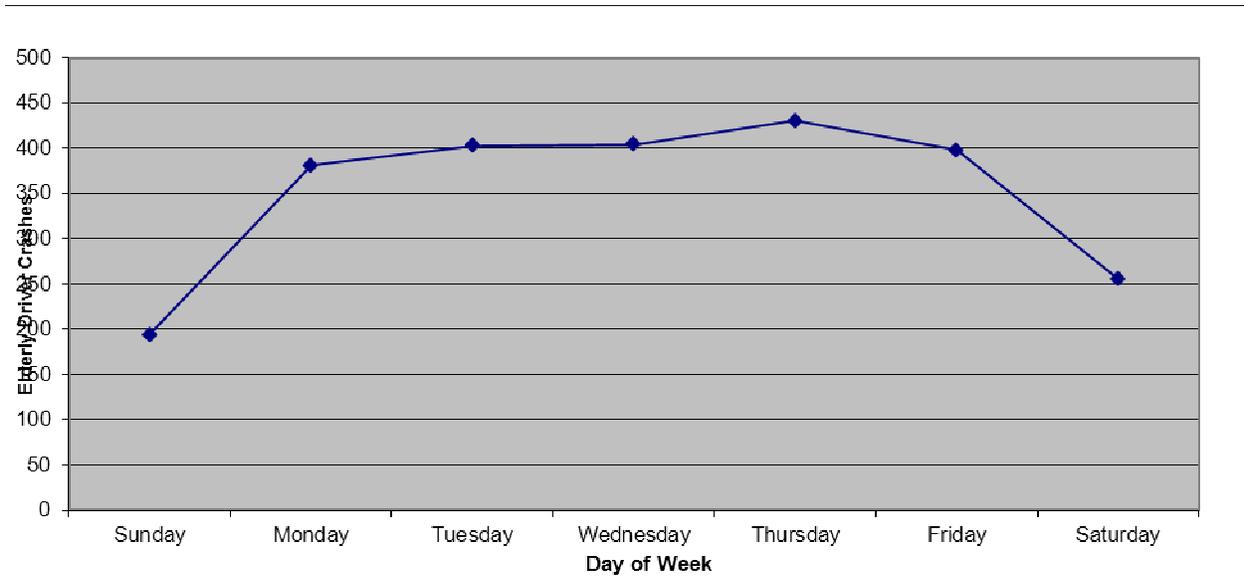
Figure 41 **Elderly Driver Traffic Crashes by Month in 2013**



Source: www.michigantrafficcrashfacts.org

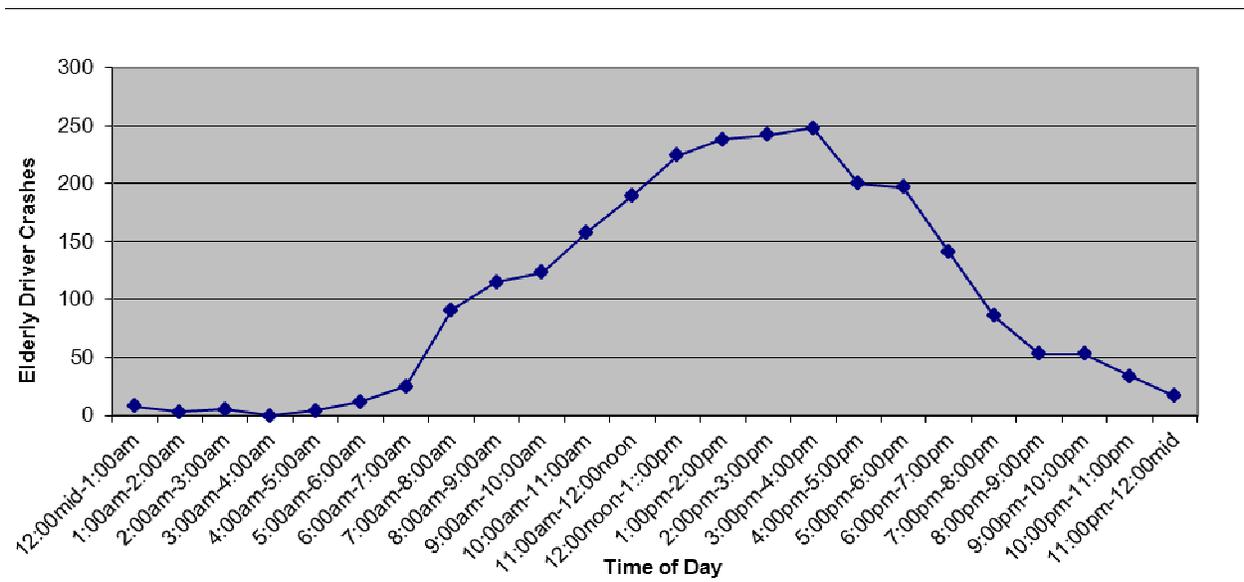
Figure 42 and Figure 43 show Elderly driver traffic crashes by Day of Week, and by Hour of Day, respectively.

Figure 42 Elderly Driver Traffic Crashes by Day of Week in 2013



Source: www.michigantrafficcrashfacts.org

Figure 43 Elderly Driver Traffic Crashes by Hour of Day in 2013

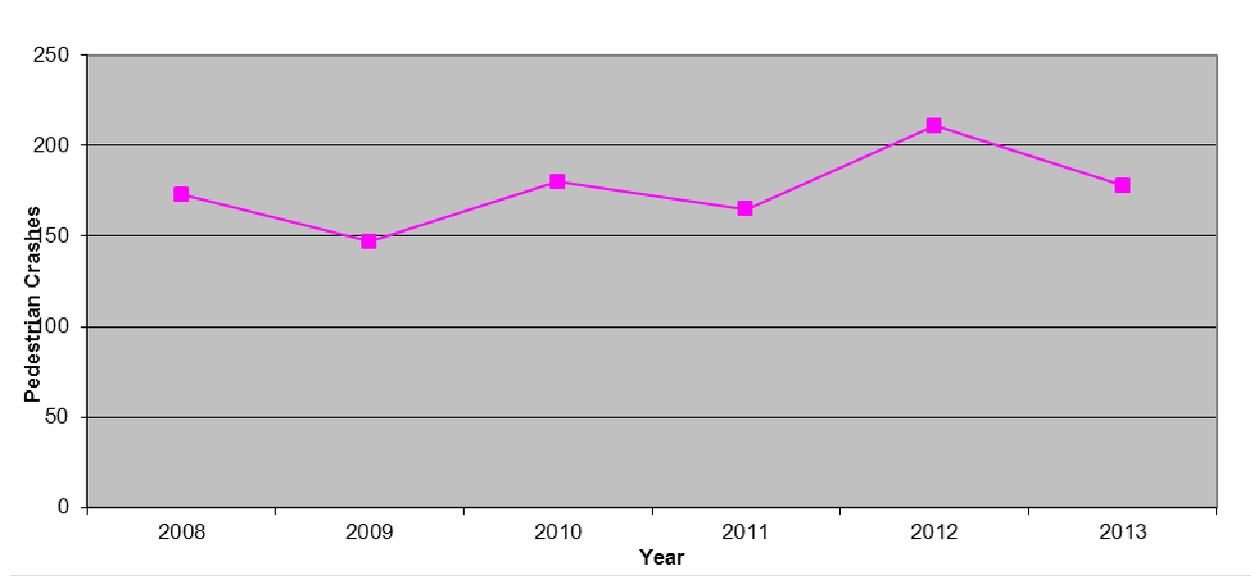


Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes

As shown in Figure 44, the pedestrian traffic crashes moved up and down between 2008 and 2013 in GVMC area, on the whole there was around 200 pedestrian crashes every year. Figure 45 and Table 13 show pedestrian traffic crashes by severity in 2013.

Figure 44 **Pedestrian Traffic Crashes, 2008-2013**



Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes by Severity

Figure 45 **Pedestrian Traffic Crashes by Severity in 2013**

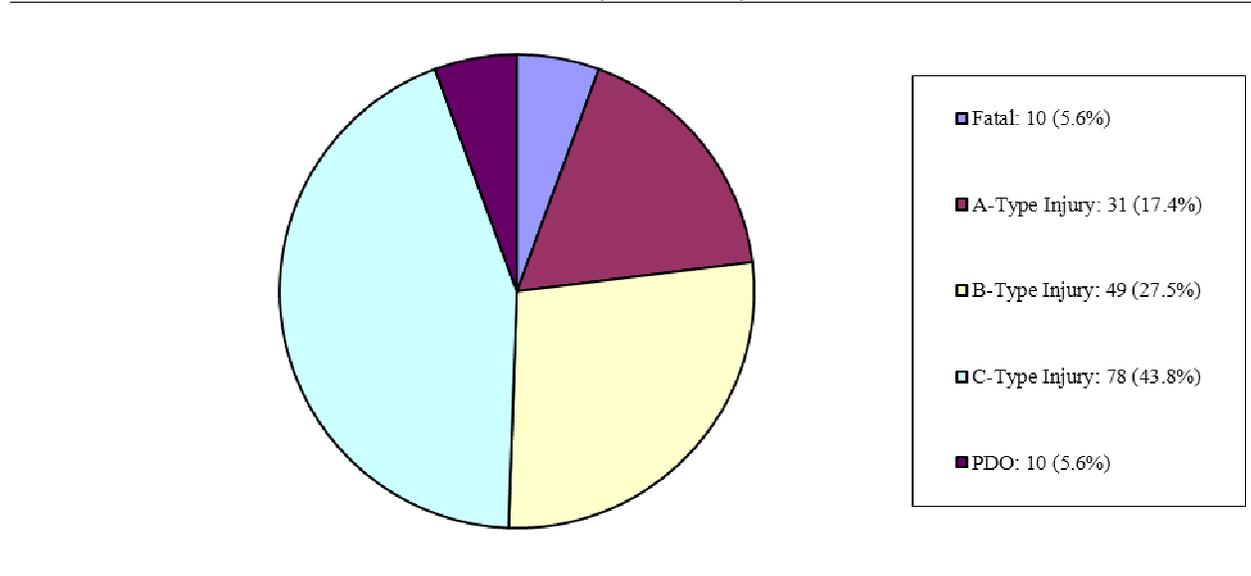


Table 13 **Pedestrian Traffic Crash by Severity in 2013**

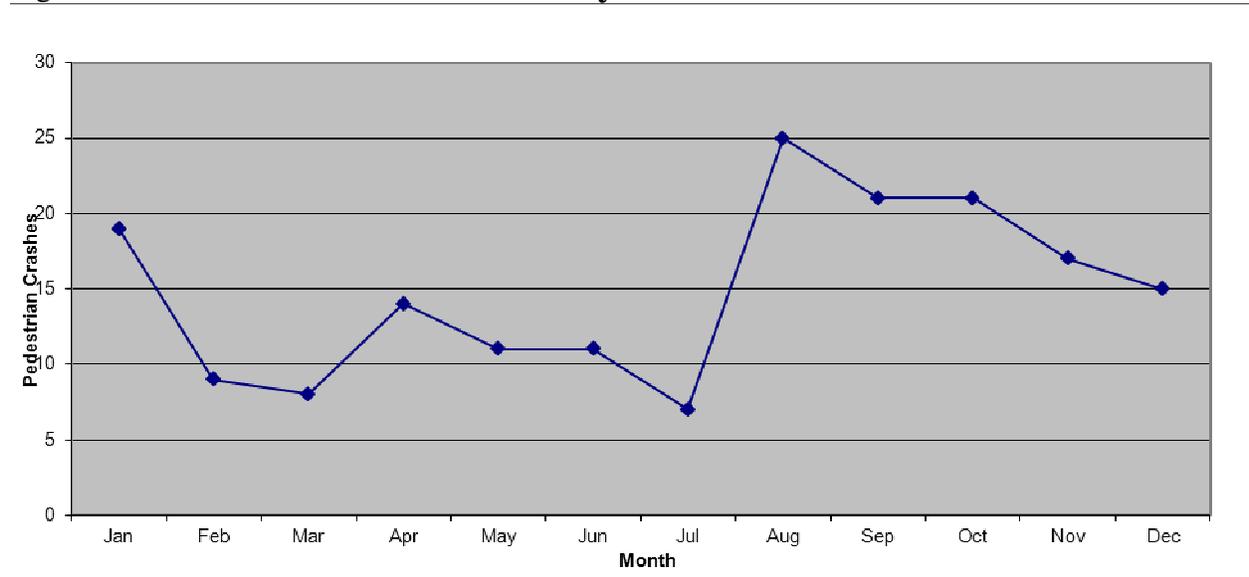
Crash Severity	Pedestrian Traffic Crashes	All Traffic Crashes	Pedestrian Crashes Percentage
Fatal	10	45	22.2 %
A-Type Injury	31	262	11.8%
B-Type Injury	49	838	5.8%
C-Type Injury	78	2,974	2.6%
PDO	10	17,127	0.06%
Total	178	21,246	0.8%

Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes by Month, Day and Hour

Figure 46 shows pedestrian traffic crashes were more likely to occur on September and October than any other months in 2013.

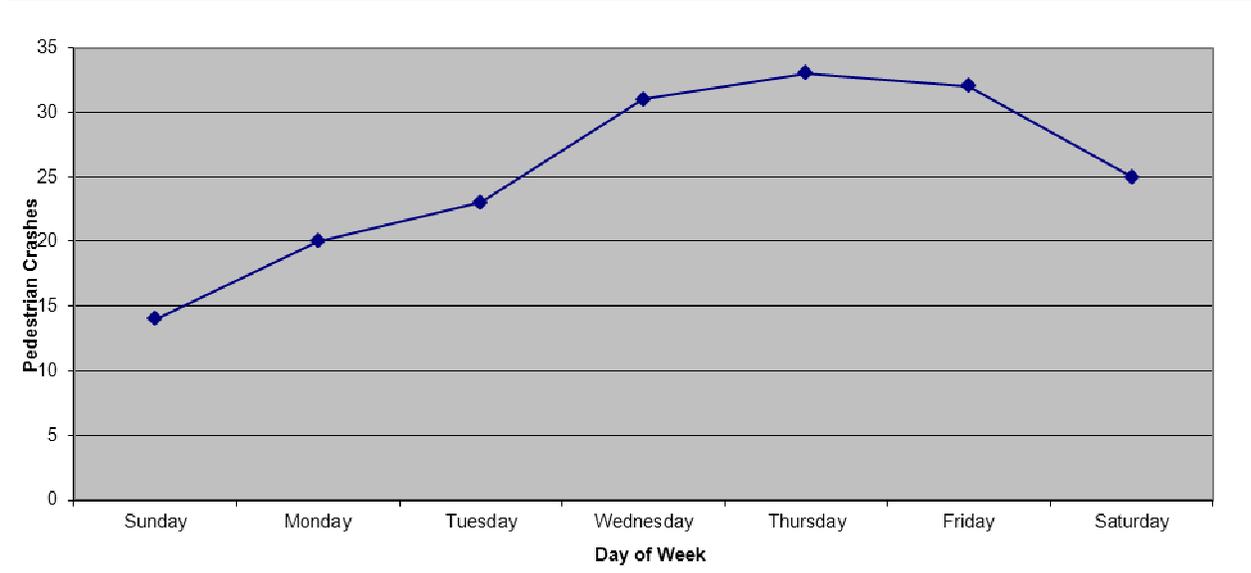
Figure 46 **Pedestrian Traffic Crashes by Month in 2013**



Source: www.michigantrafficcrashfacts.org

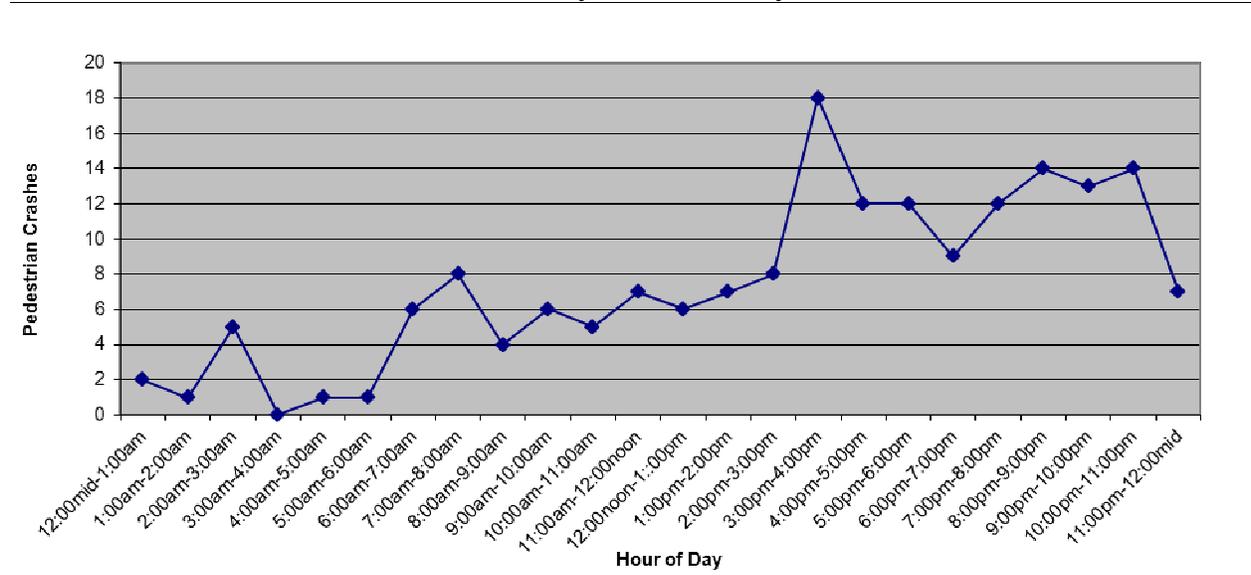
It can be seen from Figure 47 that Thursdays had the most pedestrian crashes and Sundays the fewest. As shown in Figure 48, pedestrian crashes were most likely to occur between 4:00pm to 5:00pm in 2013.

Figure 47 **Pedestrian Traffic Crashes by Day of Week in 2013**



Source: www.michigantrafficcrashfacts.org

Figure 48 **Pedestrian Traffic Crashes by Hour of Day in 2013**

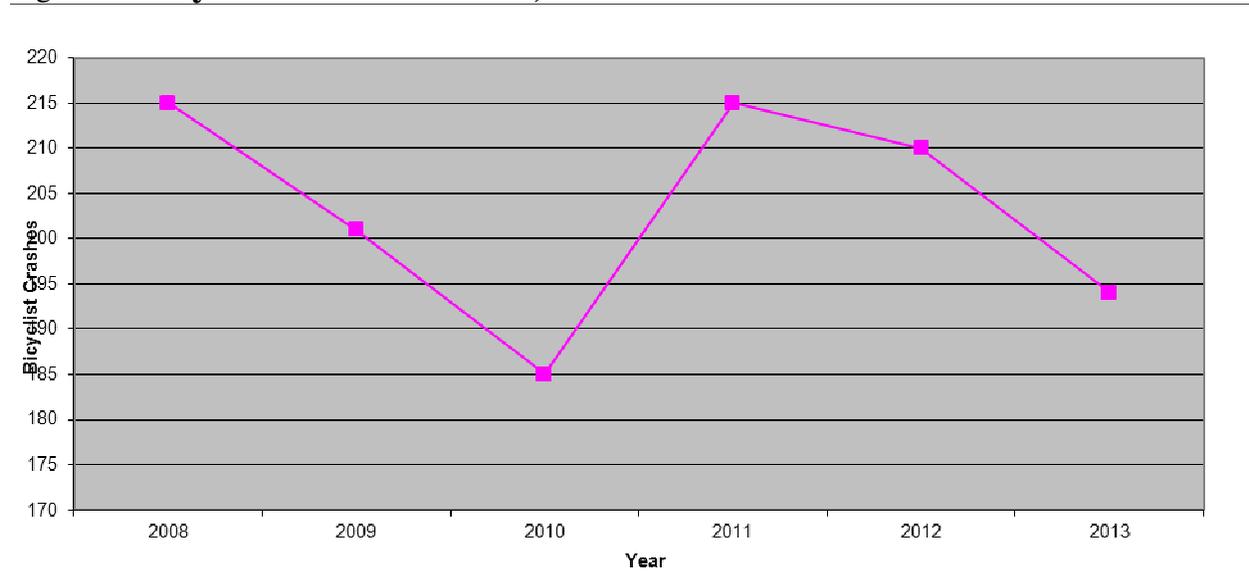


Source: www.michigantrafficcrashfacts.org

Bicyclist Traffic Crashes

Figure 49 shows bicyclist traffic crashes between 2008 and 2013. There was an average of about 200 bicyclist crashes every year from 2008 to 2013.

Figure 49 **Bicyclist Traffic Crashes, 2008-2013**

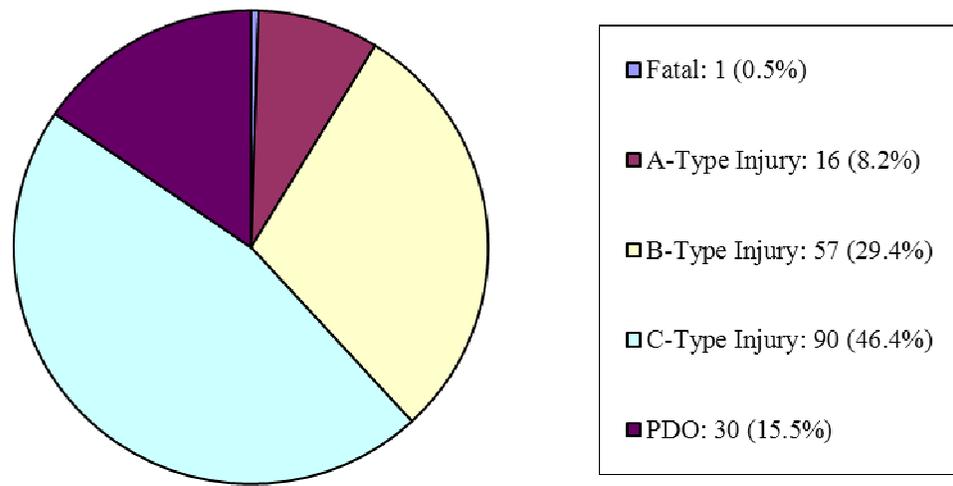


Source: www.michigantrafficcrashfacts.org

Bicyclist Traffic Crashes by Severity

Figure 50 indicates that bicyclists are easily to be injured when involved in traffic crashes, since PDO only accounted for 15.5 percent of all bicyclist traffic crashes. Table 14 shows the distribution of bicyclist severity in 2013.

Figure 50 **Bicyclist Traffic Crashes by Severity in 2013**



Source: www.michigantrafficcrashfacts.org

Table 14 **Bicyclist Traffic Crash by Severity in 2013**

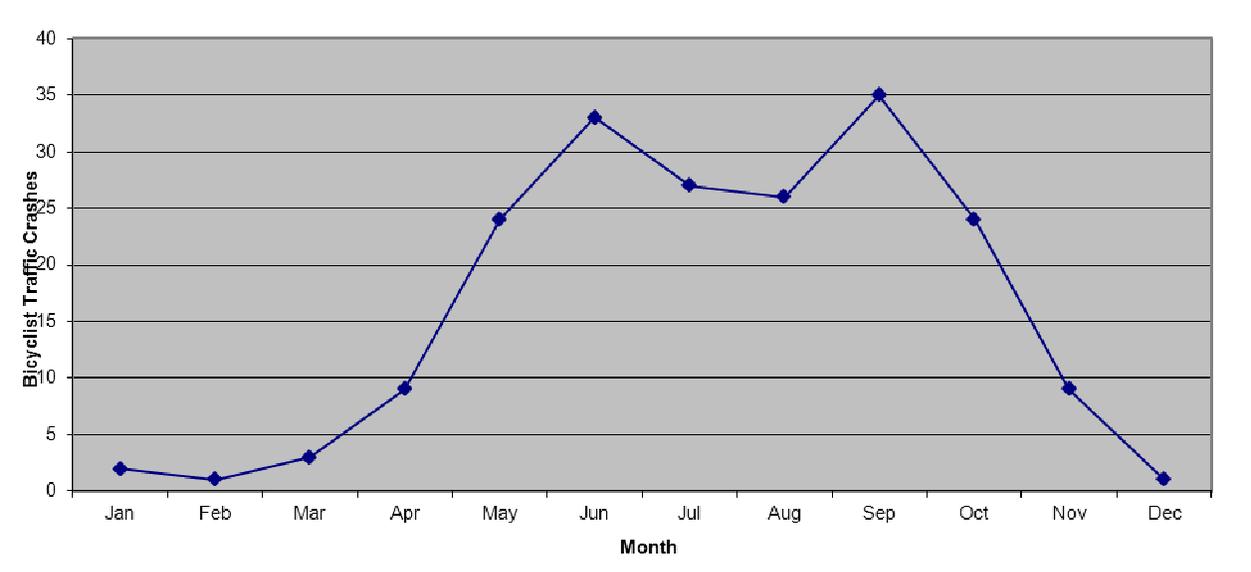
Crash Severity	Bicyclist Traffic Crashes	All Traffic Crashes	Bicyclist Crashes Percentage
Fatal	1	45	2.2 %
A-Type Injury	16	262	6.1%
B-Type Injury	57	838	6.8%
C-Type Injury	90	2,974	3%
PDO	30	17,127	0.18%
Total	194	21,246	0.91%

Source: www.michigantrafficcrashfacts.org

Bicyclist Traffic Crashes by Month, Day and Hour

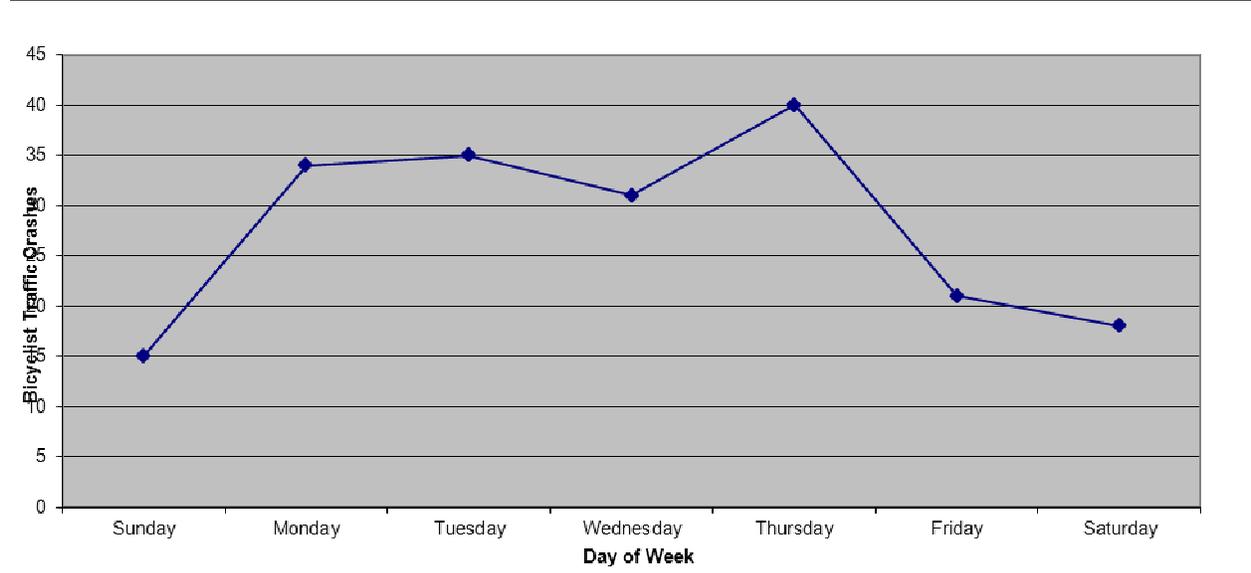
As shown in Figure 51, bicyclist traffic crashes were more likely to occur during summer time and least likely to occur during winter season due to the harsh weather condition. Figure 52 shows weekdays had more bicyclist traffic crashes than weekends.

Figure 51 **Bicyclist** Traffic Crashes by Month in 2013



Source: www.michigantrafficcrashfacts.org

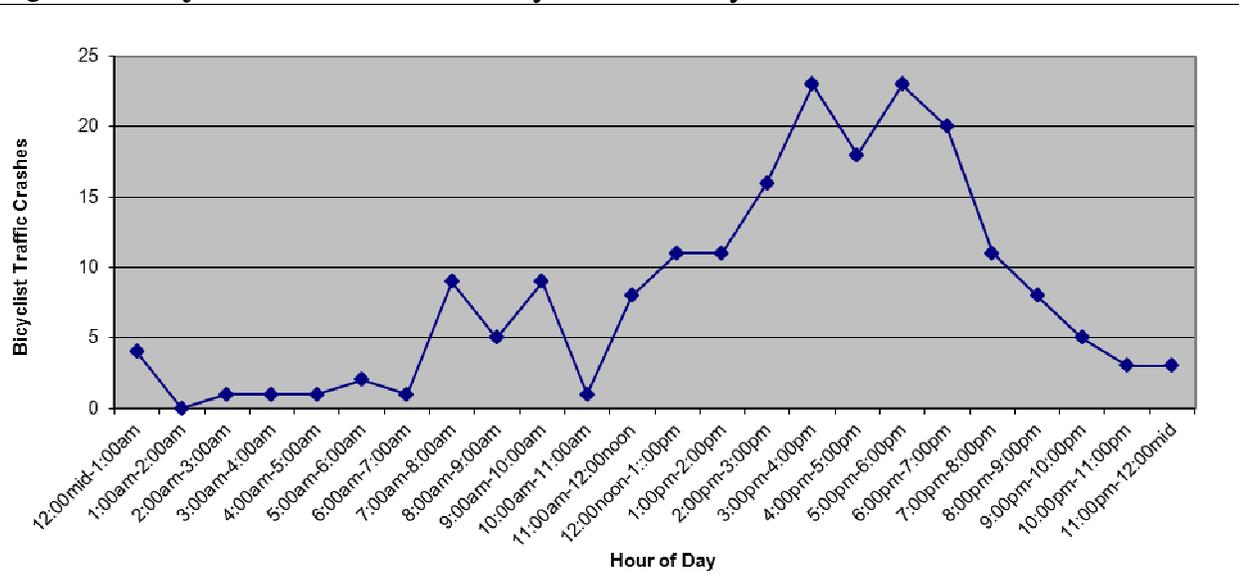
Figure 52 **Bicyclist** Traffic Crashes by Day of Week in 2013



Source: www.michigantrafficcrashfacts.org

It can be seen from Figure 53 that bicyclist traffic crashes were more likely to take place during late afternoon and early evening.

Figure 53 **Bicyclist Traffic Crashes by Hour of Day in 2013**

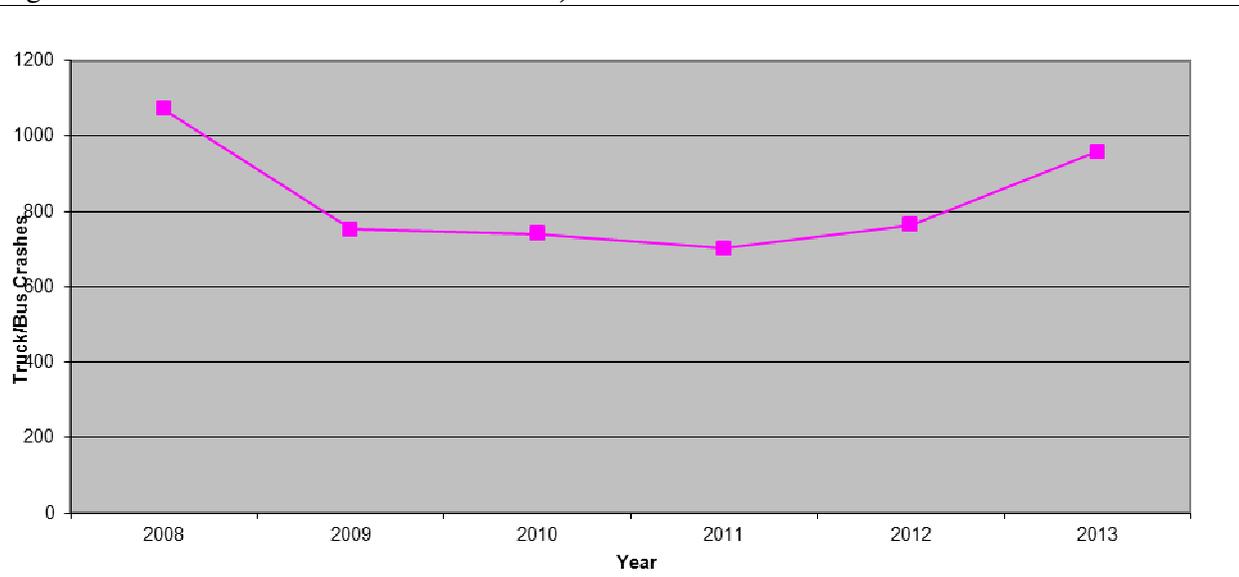


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes

Figure 54 shows the decrease trend of truck/bus crashes from 2008 to 2011 in GVMC area, while the crashes increased from 2011 to 2013.

Figure 54 **Truck/Bus Traffic Crashes, 2008-2013**

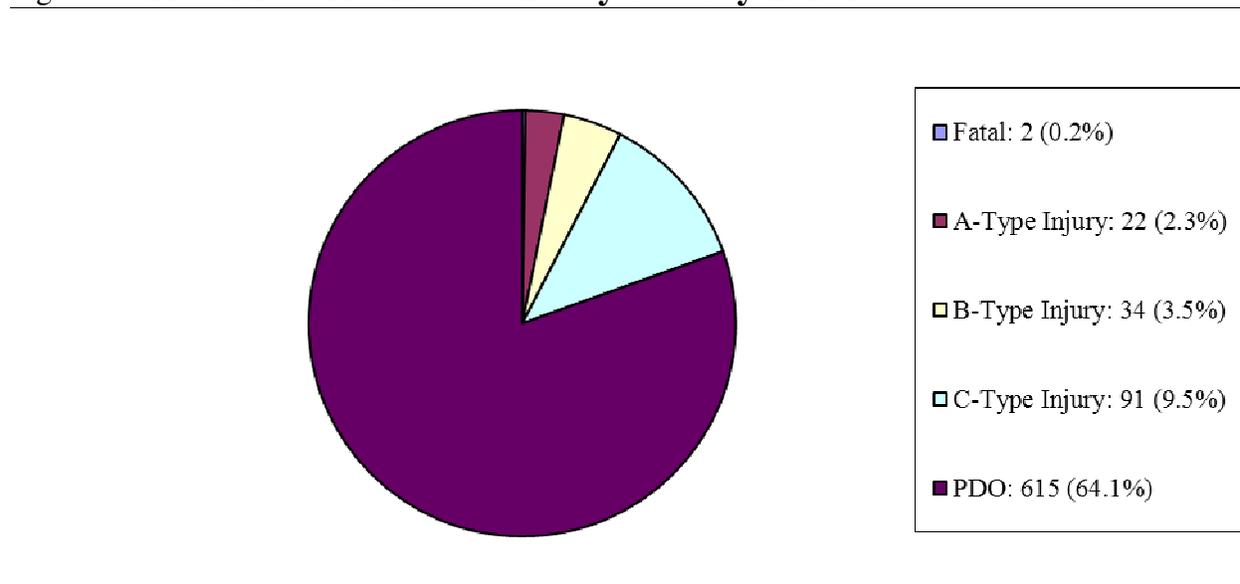


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes by Severity

Figure 55 shows truck/bus traffic crashes by severity in 2013. Most of the crashes were PDO crash (64.1%). As shown in Table 15, fatalities and A-type injuries in truck/bus crashes accounted for 4.4% in all traffic fatal crashes and 8.4% in all traffic A-Type injuries, respectively.

Figure 55 **Truck/Bus Traffic Crashes by Severity in 2013**



Source: www.michigantrafficcrashfacts.org

Table 15 **Truck/Bus Traffic Crash by Severity in 2013**

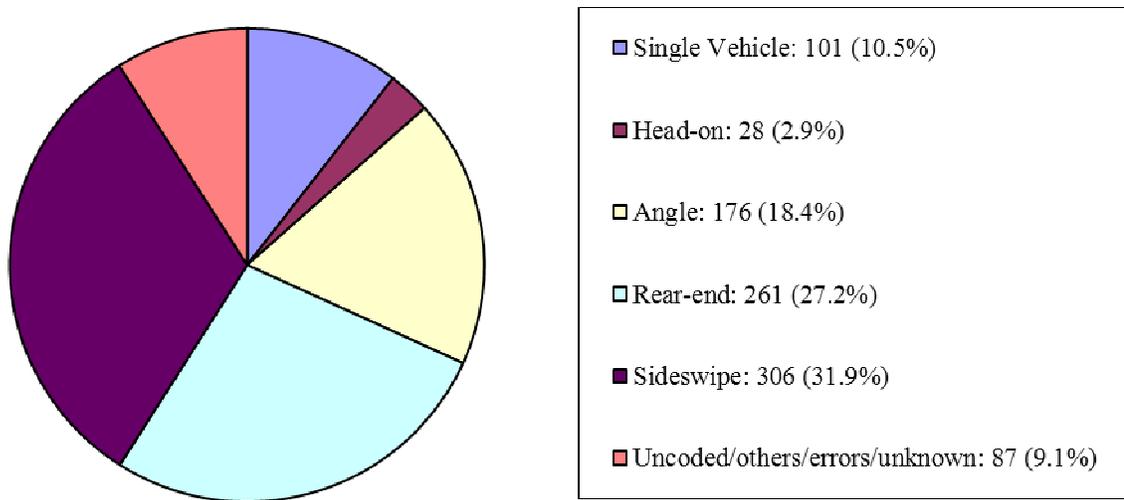
Crash Severity	Truck/Bus Traffic Crashes	All Traffic Crashes	Truck/Bus Crashes Percentage
Fatal	2	45	4.4%
A-Type Injury	22	262	8.4%
B-Type Injury	34	838	4.1%
C-Type Injury	91	2,974	3.1%
PDO	615	17,127	3.6%
Total	959	21,246	4.5%

Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes by Crash Type

Figure 56 shows the crash type distribution of truck/bus crashes. It can be seen that there was more sideswipe truck/bus crashes (31.9%) than any other crash type in 2013, and head-on were the fewest crash type (2.9%).

Figure 56 **Truck/Bus** Traffic Crashes by Crash Type in 2013

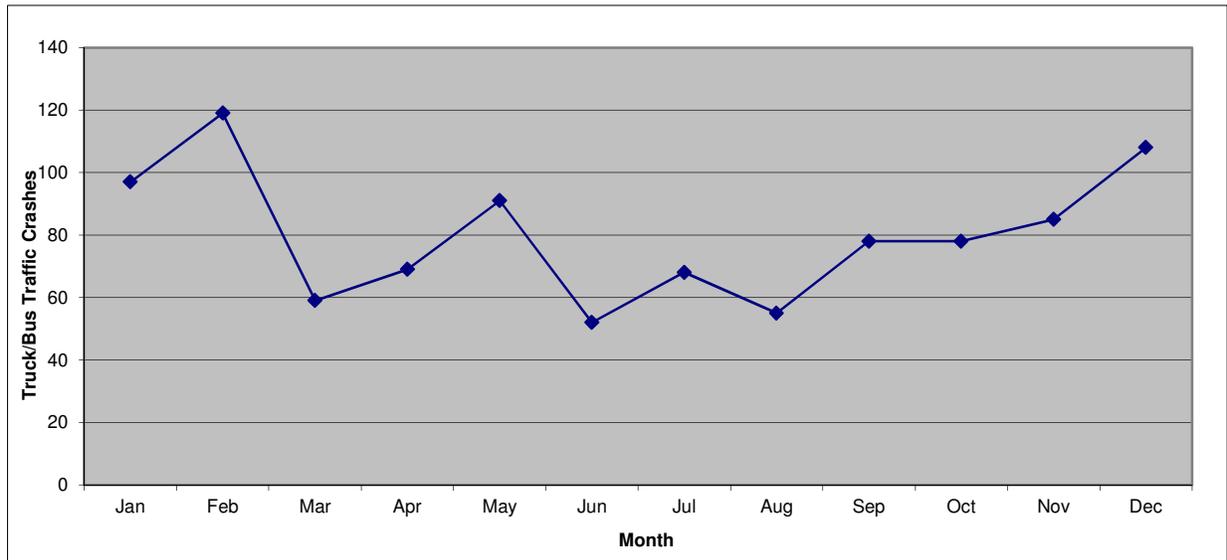


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes by Month, Day and Hour

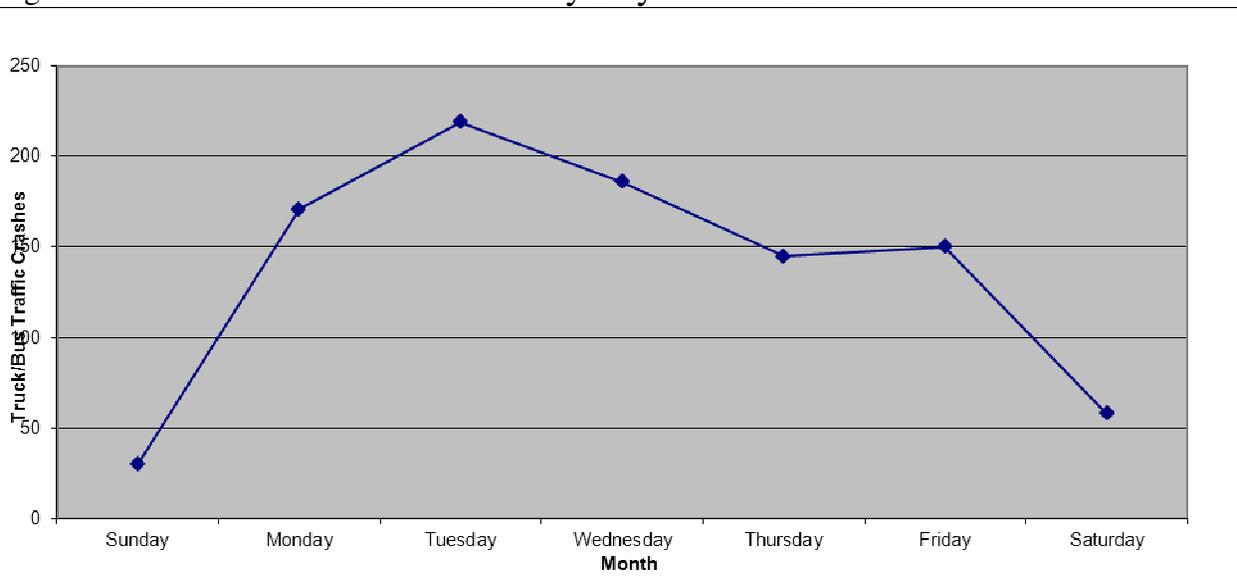
Figure 57 shows that truck/bus crashes were more likely to take place in February, and less likely to occur in June in 2013.

Figure 57 **Truck/Bus** Traffic Crashes by Month in 2013



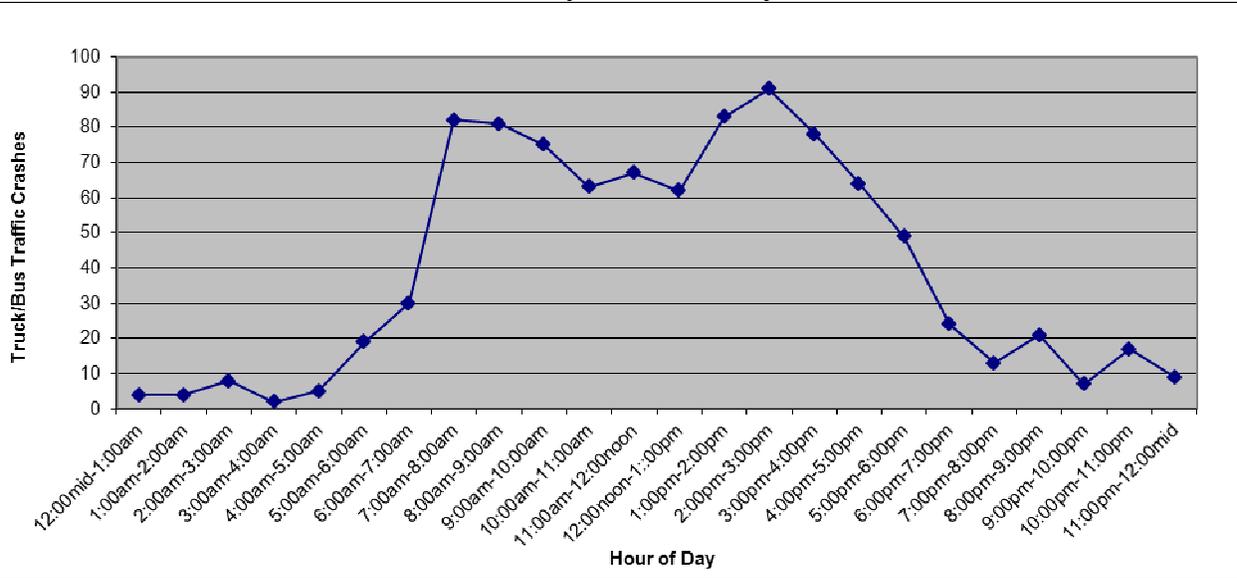
Source: www.michigantrafficcrashfacts.org

Figure 58 **Truck/Bus** Traffic Crashes by Day of Week in 2013



Source: www.michigantrafficcrashfacts.org

Figure 59 **Truck/Bus** Traffic Crashes by Hour of Day in 2013



Source: www.michigantrafficcrashfacts.org

Appendix: 2011-2013 Top 50 Crash intersections and Segments

Table 15 2011-2013 Top 50 Crash Intersections

Rank	Street	Cross Street	Total Crashes	Crash Rate	Fatal	Injury	PDO
1	28th St	Eastern	113	2.03	1	32	80
2	28th St	E Beltline Ave	94	1.25	0	31	63
3	28th St	S Division Ave	94	1.66	0	27	67
4	28th St	Breton	93	1.51	0	22	71
5	Michigan St	Ottawa Ave	90	2.58	0	26	58
6	Alpine Ave	4 Mile Rd	90		0	23	67
7	28th St SE	Kalamazoo Ave	84	1.34	0	13	71
8	44th St	Breton Rd	84	1.88	0	26	58
9	44th St	Byron Center Ave	82	2.03	0	15	67
10	Lake Eastbrook Blvd	E Beltline Ave	81	1.56	0	16	65
11	44th St SE	Kalamazoo Ave	78	1.48	0	24	54
12	28th St	East Paris Ave	78	1.57	0	16	62
13	44th St	S Division Ave	78	1.58	0	22	56
14	28th St SW	Clyde Park Ave	77	1.88	0	17	60
15	44th St SE	Eastern Ave	75	1.58	0	19	56
16	Alpine Ave	N I 296/Alpine RAMP	74		0	13	62
17	28th St	Burlingame Ave	72	1.64	0	26	46
18	Alpine Ave	Center Dr	69		0	21	48
19	Alpine Ave	Old Orchard Dr	65		0	12	53
20	Lake Michigan Dr	Wilson Ave NW	64		0	11	53
21	28th St	Radcliff Ave	64	1.43	0	15	49
22	Fuller Ave	Leonard St	62	1.43	0	12	50
23	E Beltline Ave	Burton St	59	1.33	0	9	50
24	E Beltline Ave	Burton St	58	1.35	0	15	43
25	28th St SE	Madison Ave	58	1.24	0	17	41

Table 15 2011-2013 Top 50 Crash Intersections (Cont')

Rank	Street	Cross Street	Total Crashes	Crash Rate	Fatal	Injury	PDO
26	52nd St	Eastern Ave	58	1.74	0	15	43
27	28th St	Patterson Ave	58	1.84	0	9	49
28	Alpine Ave	3 Mile Rd	57		0	13	44
29	Fuller Ave	Michigan St	56	1.31	0	6	50
30	Alpine Ave	Henze Dr	53		0	10	43
31	28th St SE	E I 96/E 28th RAMP	53		0	3	50
32	E Beltline Ave	E I 96/Beltline RAMP	52	0.99	0	12	40
33	44th St	Canal Ave	52	1.47	0	12	40
34	28th St	Shaffer Ave	49	1.08	0	9	40
35	28th St	Lake Eastbrook Blvd	49	1.21	0	10	39
36	Lake Michigan Dr	Collindale Ave	49	1.26	0	17	32
37	28th St	Dehoop Ave	49	1.59	0	12	37
38	28th St	Buchanan Ave	48	0.86	0	7	41
39	Wealthy St	N US 131	48	1.38	0	10	38
40	E Beltline Ave	Fulton St	48		0	6	42
41	E Beltline Ave	Knapp Ave	47	0.76	0	13	34
42	Alpine5Ave	Kingsbury St	46		0	14	32
43	Chicago Dr	Main St	46		0	14	32
44	Cottonwood Dr	Baldwin St	46		0	7	39
45	Alpine Ave	Coventry Dr	45		0	7	38
46	44th St	Clyde Park Ave	45	1.23	0	9	36
47	Scribner Ave	Leonard St	45	1.01	0	11	34
48	Hall St	Division Ave	45	1.31	0	11	34
49	W River Dr	Northland Dr	44		0	9	35
50	Cascade Rd	E Beltline Ave	43		0	7	36
51	Cascade Rd	E Beltline Ave	43		0	9	34

Table 16 2011-2013 Top 50 Segments

Rank	Segment Name	From	To	Length	Crashes	Fatal	Injured	PDO
1	Alpine Ave NW	4 Mile Rd	Alpenhorn Dr	0.436	108	0	32	76
2	28th St	Broadmoor Ave	Lake Eastbrook Blvd	0.424	98	0	17	81
3	28th St	Lake Eastbrook Blvd	East Paris Ave	0.325	92	0	24	68
4	28th St	Breton Rd	Woodlawn Ave	0.485	88	0	12	76
5	Alpine Ave	Kingsbury St	4 Mile Rd	0.126	87	0	23	64
6	Alpine Ave	Center Dr	Coventry Dr	0.125	83	0	17	66
7	28th St SW	Buchanan Ave	S Division Ave	0.25	82	0	21	61
8	N I 296 /Alpine RAMP	N US 131	Alpine Ave	0.37	72	0	12	60
9	Alpine Ave	Old Orchard Dr	Kingsbury St	0.102	69	0	21	48
10	28th St	City/Twp Line	Eastern Ave	0.199	64	1	17	46
11	N US 131	N US 131/Wealthy RAMP	Wealthy St SW	0.119	63	0	21	42
12	28th St SE	Ridgemoor Dr	Radcliff Ave	0.124	59	0	15	44
13	28th St SE	Radcliff Ave	Shaffer Ave	0.18	59	0	14	45
14	E Beltline Ave	Bradford St NE	Leonard St NE	0.498	58	0	14	44
15	E Beltline Ave	Broadmoor Ave	Mall Dr	0.213	57	1	17	39
16	E Beltline Ave	E Mall Dr	Lake Eastbrook	0.175	56	0	13	43
17	Michigan St NE	Monroe Ave	Ottawa Ave	0.112	55	0	8	47
18	28th St	Eastern Ave	Brooklyn Ave	0.461	55	0	11	44
19	44th St SE	Applewood Dr	Breton Rd SE	0.289	55	1	11	43
20	28th St SW	Hook Ave	Dehoop Ave	0.203	54	0	18	36
21	28th St SE	Birchcrest Dr	Breton Rd	0.113	54	0	17	37
22	N US 131	Franklin Ramp	Franklin St	0.13	53	0	13	40
23	Alpine Ave	Coventry Dr	Old Orchard Dr	0.207	52	0	8	44
24	E Beltline Ave	Cascade Rd	Fulton St	0.425	52	0	12	40
25	28th St SE	East Paris Ave	Acquest Ave	0.501	51	0	13	38

Table 16 2011-2013 Top 50 Segments (Cont')

Rank	Segment Name	From	To	Length	Crashes	Fatal	Injured	PDO
26	28th St SE	Madison Ave	Union Ave	0.156	51	0	16	35
27	Kalamazoo Ave	Auditorium Dr	60th St SE	0.332	49	0	8	41
28	Wilson Ave	Lake Michigan Dr	O'Brien Rd	1.001	49	0	5	44
29	28th St	Vineland Ave	Kalamazoo Ave	0.32	47	0	10	37
30	54th St SW	Haughey Ave	S Division Ave	0.319	47	0	12	35
31	Fillmore St	Meana Dr	28th Ave	0.96	47	1	8	38
32	E I 196	E I 196/1st RAMP	Lane Ave	0.21	46	0	13	33
33	Broadmoor Ave	29th St	28th St	0.232	45	0	20	25
34	28th St SE	Kalamazoo Ave	Chamberlain Ave	0.483	45	0	7	38
35	Lake Michigan Dr	Wilson Ave	Saint Clair Ave	0.092	45	0	8	37
36	28th St SE	Acquest Ave	Patterson Ave	0.497	45	0	15	30
37	Alpine Ave	Ferris St	3 Mile Rd	0.18	45	0	8	37
38	28th St SE	Plaza Dr	Broadmoor Ave	0.124	44	0	15	29
39	Lake Michigan Dr	Ferndale	Wilson Ave	0.187	43	0	10	33
40	N US 131	Burton Ramp	Burton St	0.13	43	0	13	30
41	44 th St	Eastern Ave	Grantwood Ave	0.19	43	0	16	27
42	N US 131	Franklin St	Franklin RAMP	0.17	42	0	6	36
43	28th St SE	Patterson Ave SE	Northern Dr SE	0.272	42	0	8	34
44	28 th St	Tennyson Dr	Clyde Park Ave	0.061	41	0	11	30
45	Rivertown Pkwy		Wilson Ave	0.501	41	0	8	33
46	E Beltline Ave	Burton St	Calvin College Dr	0.145	41	0	3	38
47	44th St	Byron Center Ave	Forest Park Dr	0.345	40	0	7	33
48	28th St	W I 96 Ramp	Kraft Ave SE	0.226	40	0	11	29
49	E Beltline Ave	Burton Ridge Rd	Burton St	0.118	40	0	6	34
50	S US 131	Wealthy St SW	Wealthy Ramp	0.188	40	0	11	29