

Grand Valley Metropolitan Council

Traffic Crash Facts 2014

July 2015

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 2014, 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

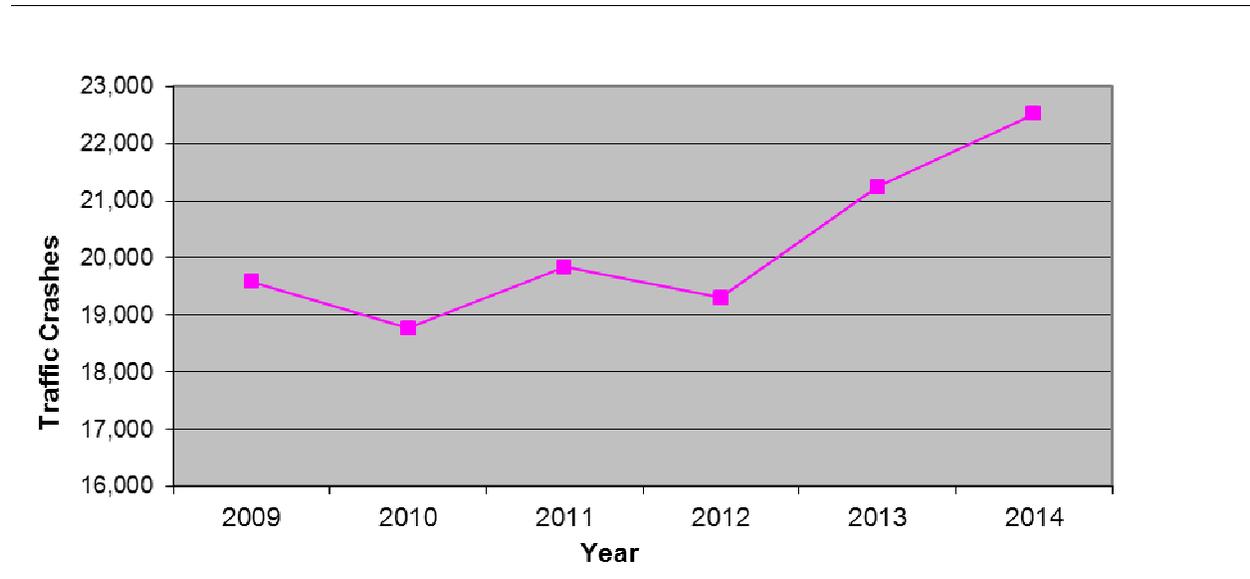
C-Type: Number of crashes involving possible injuries

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

All Traffic Crashes

In 2014, there are 22,521 traffic crashes reported in GVMC area. This is an increase of 6 percent from 2013. Figure 1 below shows total traffic crashes form 2009 to 2014.

Figure 1 **Traffic Crashes, 2009-2014**



Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Jurisdiction

Table 1 shows the number of total crashes by jurisdiction in GVMC area from 2009-2014.

Local Governments	2009	2010	2011	2012	2013	2014
Ada	327	356	355	284	310	331
Algoma	350	254	269	214	268	264
Allendale	368	270	305	258	335	371
Alpine	333	275	318	272	294	313
Blendon	156	145	149	152	156	146
Bowne	109	73	72	64	85	64
Byron	626	528	579	504	623	653
Caledonia	363	365	347	280	366	425
Cannon	263	239	207	199	203	193
Cascade	655	620	667	623	647	718
Casnovia	5	3	4	7	6	2
Cedar Springs	64	78	64	69	88	90
Chester	65	45	41	46	47	54
Courtland	187	173	174	164	160	171
East Grand Rapids	158	185	154	162	149	203
Gaines	434	418	445	408	476	467
Georgetown	828	745	748	720	758	903
City of Grand Rapids	6257	6377	6931	6920	7409	7756
Grand Rapids Township	563	468	538	510	567	573
Grandville	726	611	674	660	776	771
Grattan	125	118	101	102	86	92
Hudsonville	165	186	187	160	200	199
Jamestown	165	149	180	146	166	206
Kent City	10	31	20	22	14	15
Kentwood	1055	1069	1047	1118	1152	1304
Lowell	322	313	275	299	320	358
Nelson	129	126	98	97	108	114
Oakfield	154	132	158	132	113	110
Plainfield	824	854	807	852	895	1031
Polkton	191	182	197	187	230	241
Rockford	121	135	109	122	139	146
Sand Lake	4	5	6	8	8	7
Solon	172	191	166	147	185	181
Sparta	209	201	220	213	200	238
Spencer	91	78	78	67	67	58
Tallmadge	245	180	223	186	231	222
Tyrone	115	85	113	84	94	88
Vergennes	130	113	106	117	108	80
Walker	1086	1093	1084	1106	1277	1333
Wright	216	210	212	179	292	204
Wyoming	1848	1674	2014	1961	2316	2471

Traffic Crashes by Severity

Of the 22,521 traffic crashes in GVMC area in 2014, there are 4,025 crashes causing fatalities or injuries. A total of 57 fatal crashes resulted in 147 deaths, and a total of 3,968 injury crashes resulted in some degree of injuries of 10,184 people. Figure 2 shows traffic crashes distribution by injury severity in 2014. 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 2014**

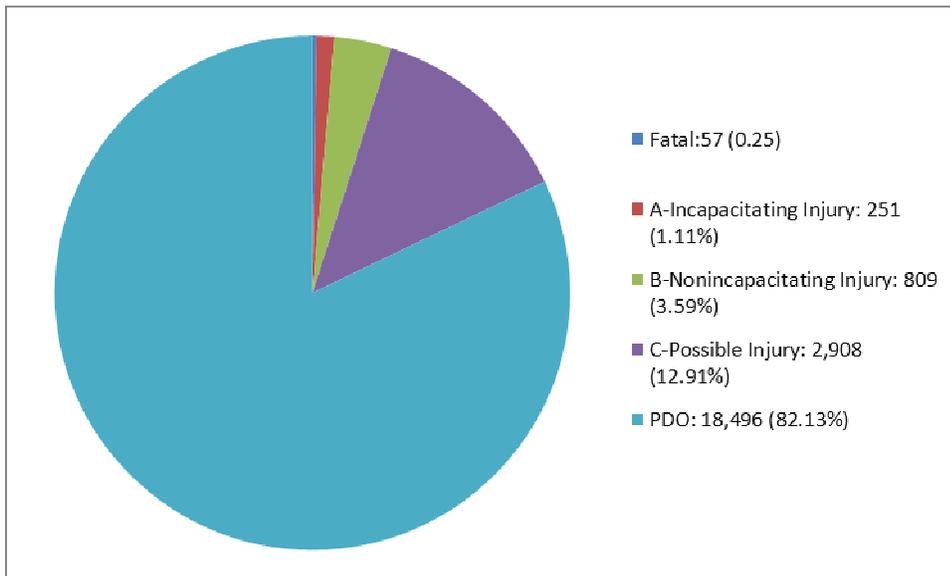


Table 2 **Traffic Crash Severity in 2014**

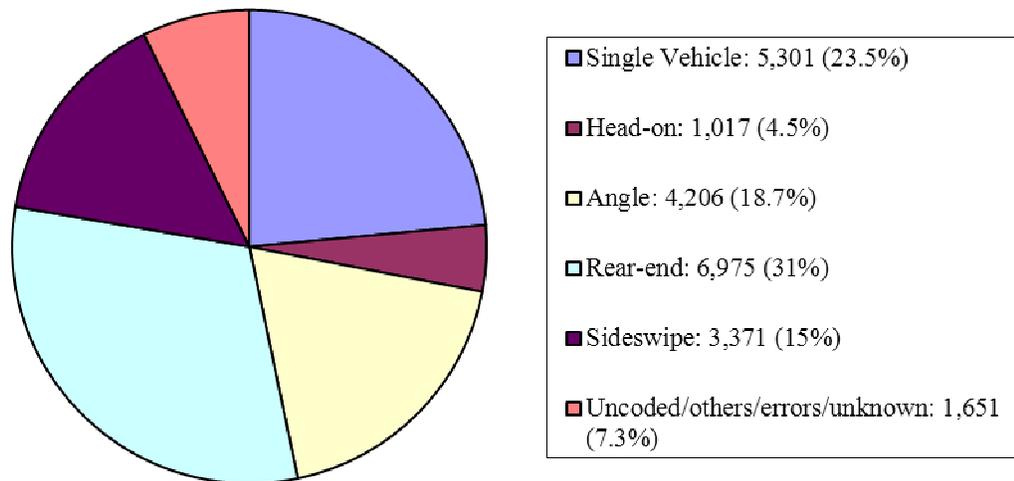
Crash Severity	Number of Traffic Crashes	Number of Injuries
Fatal	57	147
A-Type Injury	251	672
B-Type Injury	809	2,056
C-Type Injury	2,908	7,456
Injury and Fatality subtotal	4,025	10,331
PDO	18,496	
Total	22,521	

Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Crash Type

Figure 3 shows traffic crash distribution by crash type in 2014. As shown in the figure, the most common type of crash was rear end crash, which accounted for 31% of all traffic crashes, and the least common type crash was head-on, which accounted for 4.5%.

Figure 3 Traffic Crashes by Crash Type in 2014

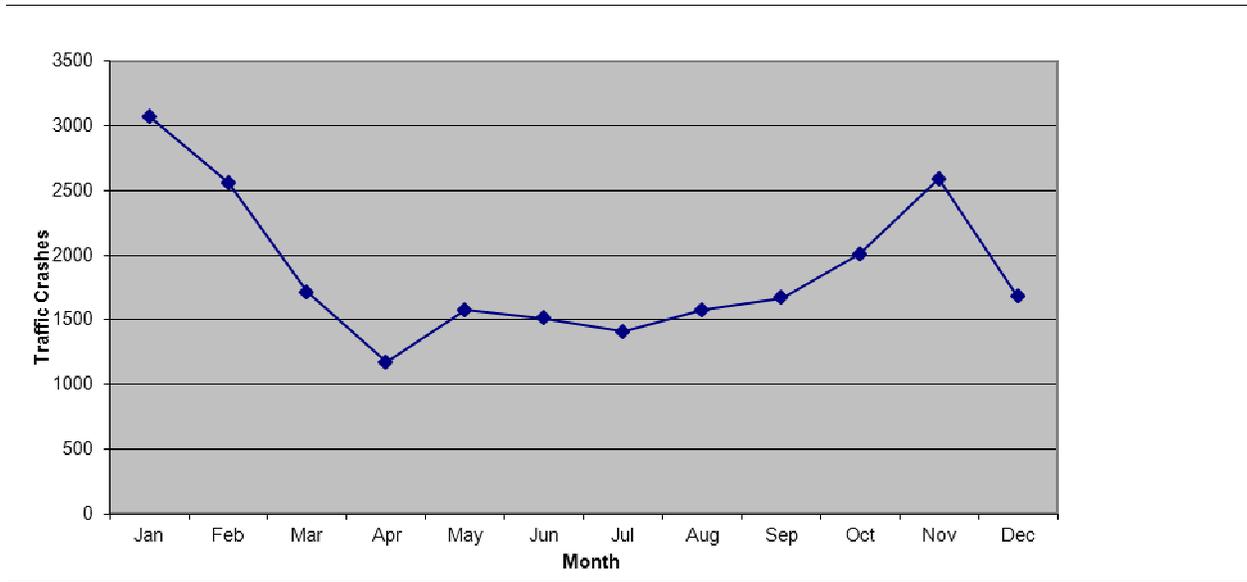


Source: www.michigantrafficcrashfacts.org

Traffic Crashes by Month, Day, and Hour

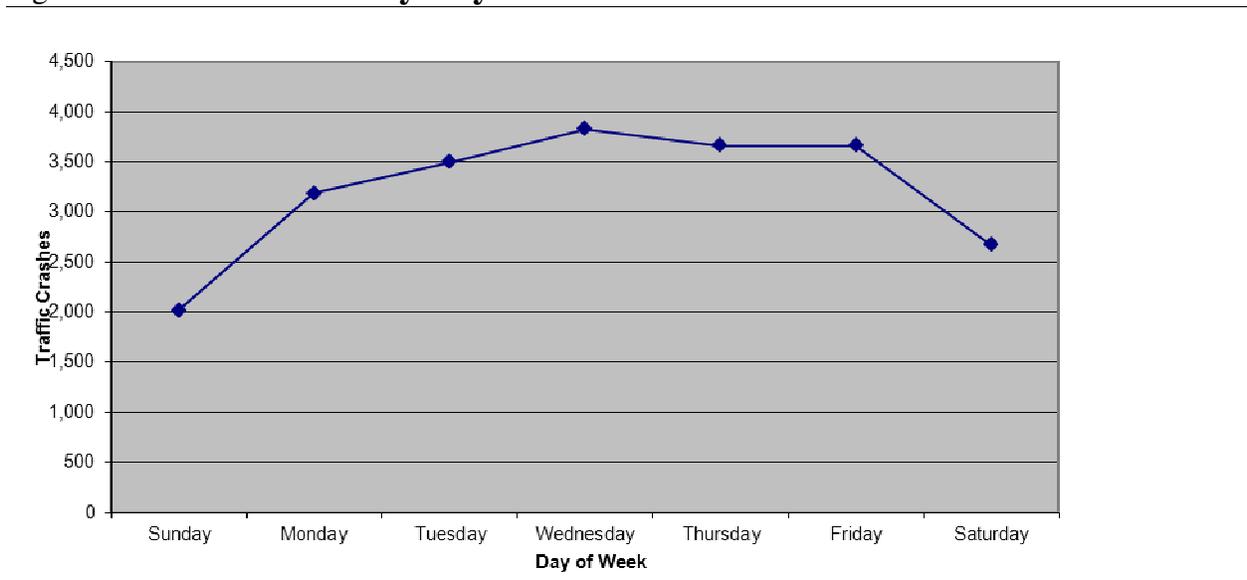
Figure 4-6 show traffic crashes distribution by month, day and hour, respectively. As shown in Figure 4, there were more traffic crashes in January than any other month in 2014(3,073). April had the fewest crashes (1,173) in 2014. Figure 5 shows that more traffic crashes occurred on Wednesdays than any other day of the week (3,823) in 2014, and Sunday had the fewest traffic crashes (2,018). Figure 6 shows that more traffic crashes occurred between 5 pm and 6 pm than any other hour interval in 2014 (1,878), and the time of day with the fewest crashes was between 4 am and 5 am (228 crashes).

Figure 4 **Traffic Crashes by Month in 2014**



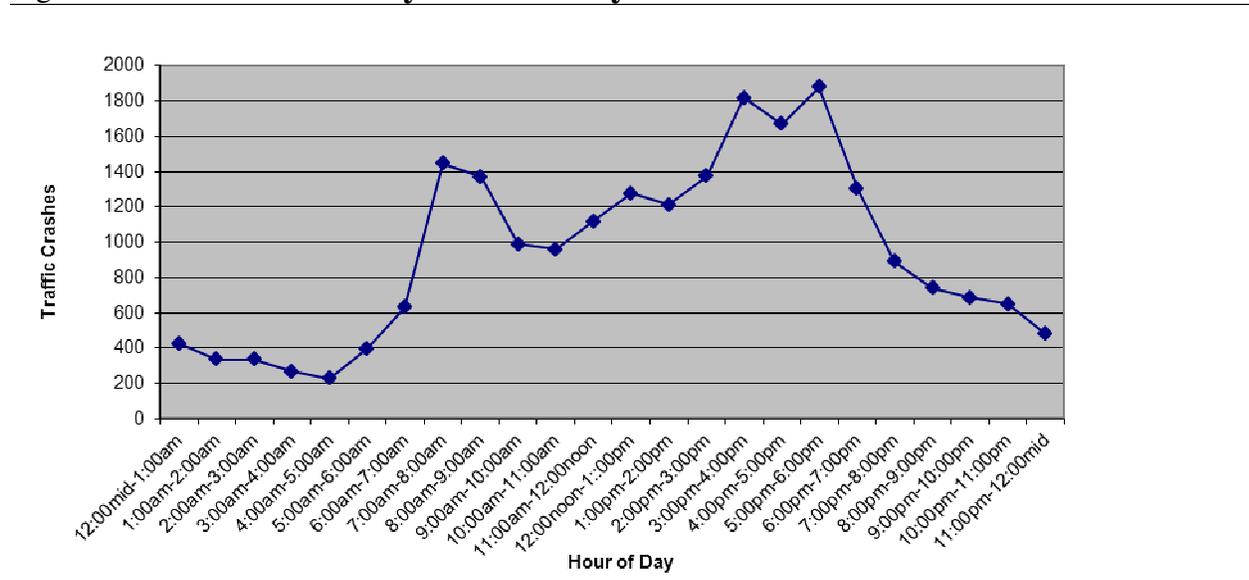
Source: www.michigantrafficcrashfacts.org

Figure 5 **Traffic Crashes by Day of Week in 2014**



Source: www.michigantrafficcrashfacts.org

Figure 6 **Traffic Crashes by Hour of Day in 2014**

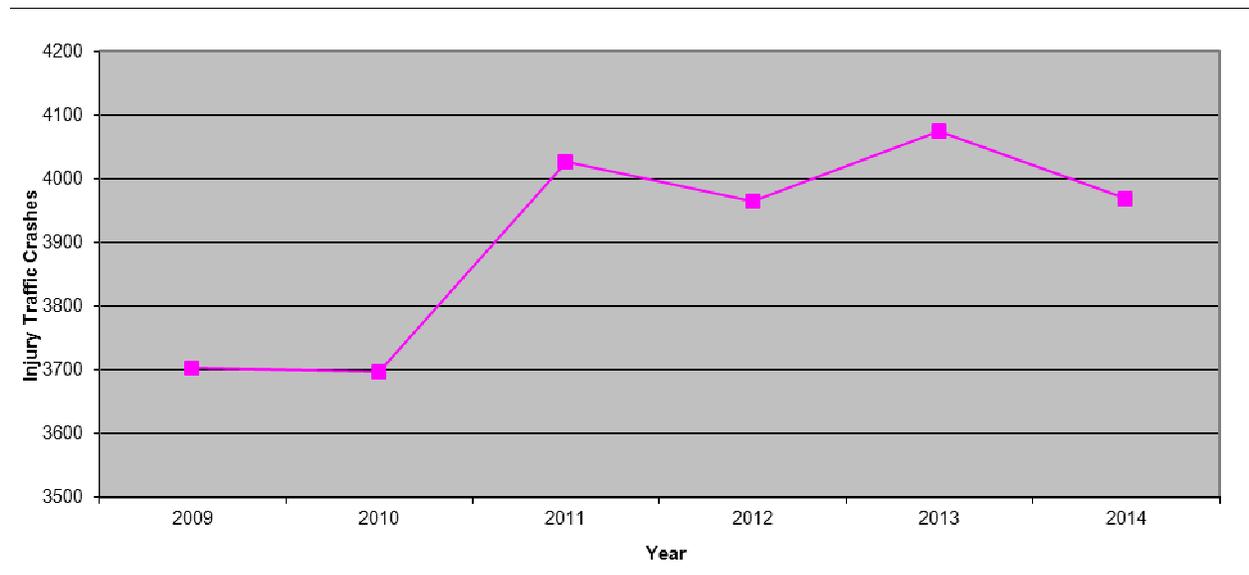


Source: www.michigantrafficcrashfacts.org

Injury Traffic Crashes

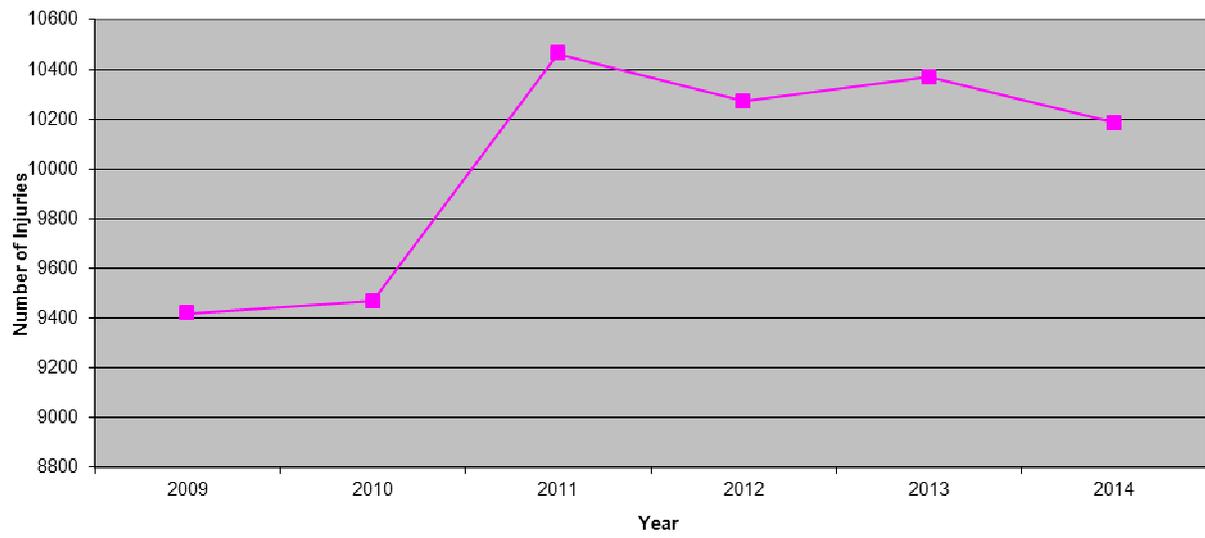
Injury traffic crash is defined as a crash resulting in an injury, but not a fatality. Figure 7 below shows injury traffic crash in GVMC area. Injury traffic crashes increased 7.2 percent from 2009 to 2014, and Figure 8 shows a 8.1 percent increase in number of injuries from 2009 to 2014.

Figure 7 **Injury Traffic Crashes, 2009- 2014**



Source: www.michigantrafficcrashfacts.org

Figure 8 **Numbers of Injuries, 2009- 2014**



Source: www.michigantrafficcrashfacts.org

Injury Traffic Crashes by Jurisdiction

Table 3 shows the number of injury traffic crashes by jurisdiction in GVMC area from 2009-2014.

Local Governments	2009	2010	2011	2012	2013	2014
Ada	58	64	62	53	59	63
Algoma	57	54	56	49	48	35
Allendale	69	47	49	47	40	60
Alpine	82	66	78	49	75	63
Blendon	16	21	32	25	20	22
Bowne	22	8	14	12	17	9
Byron	124	121	114	104	125	113
Caledonia	62	81	67	64	81	69
Cannon	44	45	37	38	42	35
Cascade	114	104	122	102	101	112
Casnovia	1	2	0	1	2	1
Cedar Springs	10	29	17	20	18	14
Chester	13	5	7	9	6	4
Courtland	36	34	34	39	32	29
East Grand Rapids	20	33	23	19	20	27
Gaines	95	79	90	81	106	90
Georgetown	156	137	160	127	152	154
City of Grand Rapids	1157	1197	1358	1378	1328	1323
Grand Rapids Township	98	89	90	99	100	86
Grandville	146	119	142	150	151	137
Grattan	15	14	8	16	16	16
Hudsonville	40	30	30	24	25	36
Jamestown	31	29	23	24	40	37
Kent City	4	6	5	6	4	5
Kentwood	248	277	277	297	265	258
Lowell	57	57	62	59	60	57
Nelson	20	22	12	29	15	20
Oakfield	37	27	29	39	25	24
Plainfield	149	156	172	186	166	174
Polkton	25	20	24	20	31	38
Rockford	20	16	18	21	25	18
Sand Lake	1	1	0	1	2	0
Solon	34	43	38	28	32	28
Sparta	42	38	52	39	39	34
Spencer	14	18	13	12	14	9
Tallmadge	31	33	28	36	39	30
Tyrone	11	14	28	18	20	15
Vergennes	15	17	16	20	12	13
Walker	195	202	215	241	255	260
Wright	27	32	36	28	37	29
Wyoming	388	388	487	436	523	514

Injury Traffic Crashes by Crash Type

Figure 9 shows that rear-end crashes was the most common type of injury crashes (31.8%) in 2014, and sideswipe crashes was the least common type of injury crashes (5.8%)

Table 4 shows head-on crashes are more likely to cause injury than any other type of crashes, with 36.7% head-on crashes resulting in injury. Only 6.9% of sideswipe crashes causes injury in 2014.

Figure 9 **Injury Traffic Crashes by Crash Type in 2014**

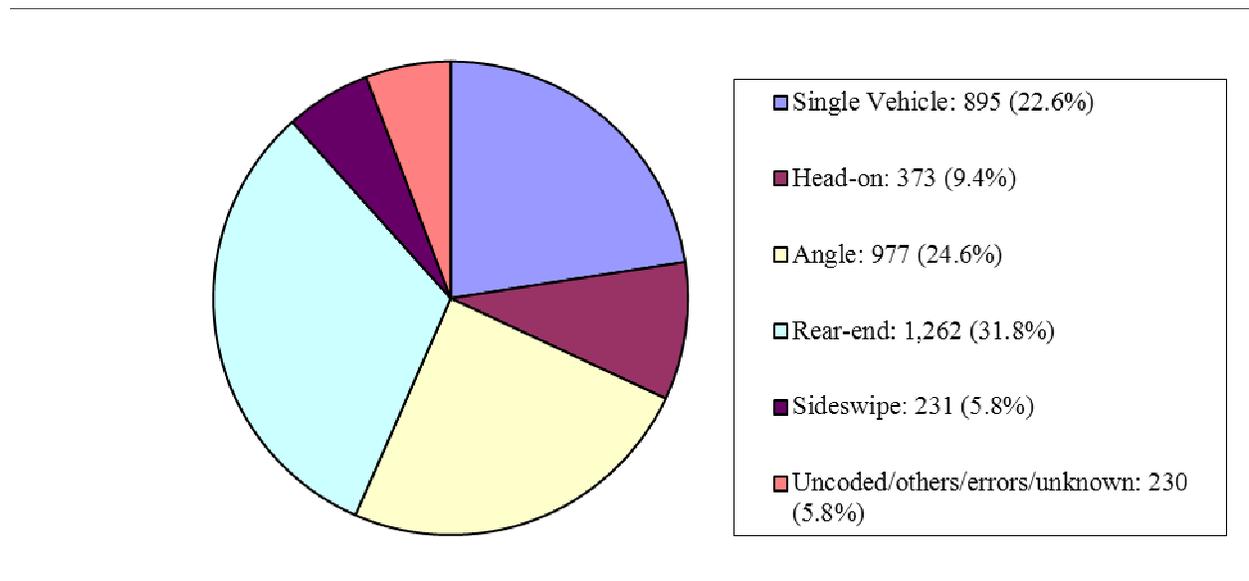


Table 4 **Traffic Crash Type by Percent Resulting in Injury in 2014**

Crash Type	Injury Crashes	All Crashes	Percent Resulting in Injury
Head-on	373	1,017	36.7%
Angle	977	4,206	23.2%
Rear-End	1,262	6,975	18.1%
Single-Vehicle	895	5,301	16.9%
Sideswipe	231	3,371	6.9%
Uncoded/others/errors/unknown	230	1,651	13.9%
Total	3,968	22,521	17.6%

Source: www.michigantrafficcrashfacts.org

Injury Traffic Crashes by Month, Day, and Hour

Figure 10 shows more injury traffic crashes occurred in January than any other months in 2014, with 409 injury traffic crash, and Figure 11 shows that Thursdays was the day of week in 2014 with the most injury traffic crashes (663).

Figure 10 **Injury Traffic Crashes by Month in 2014**

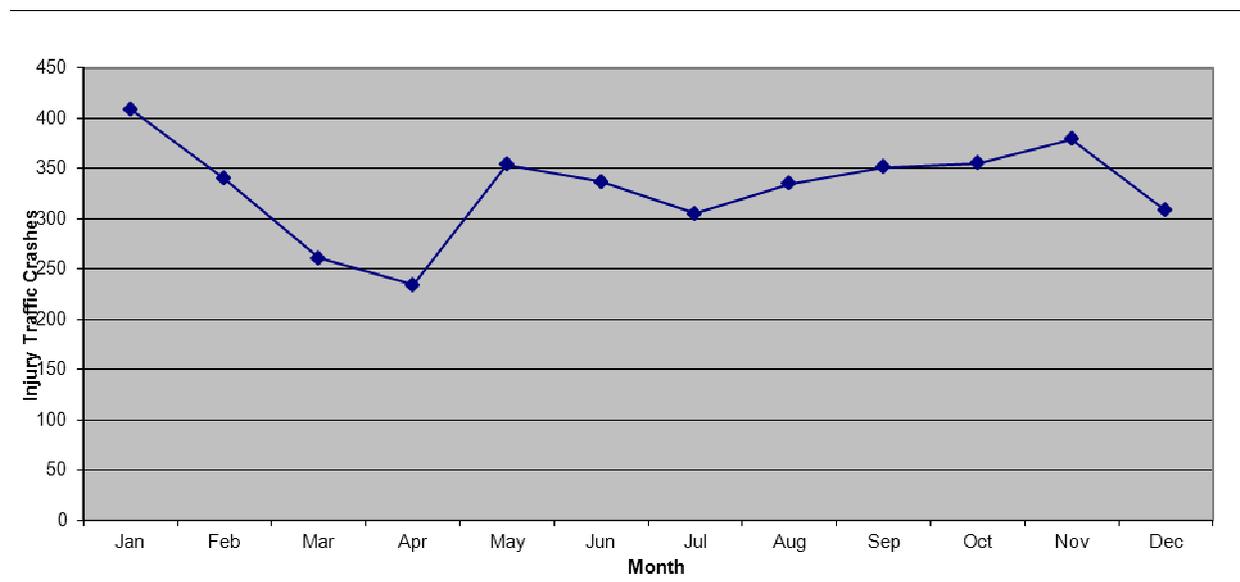
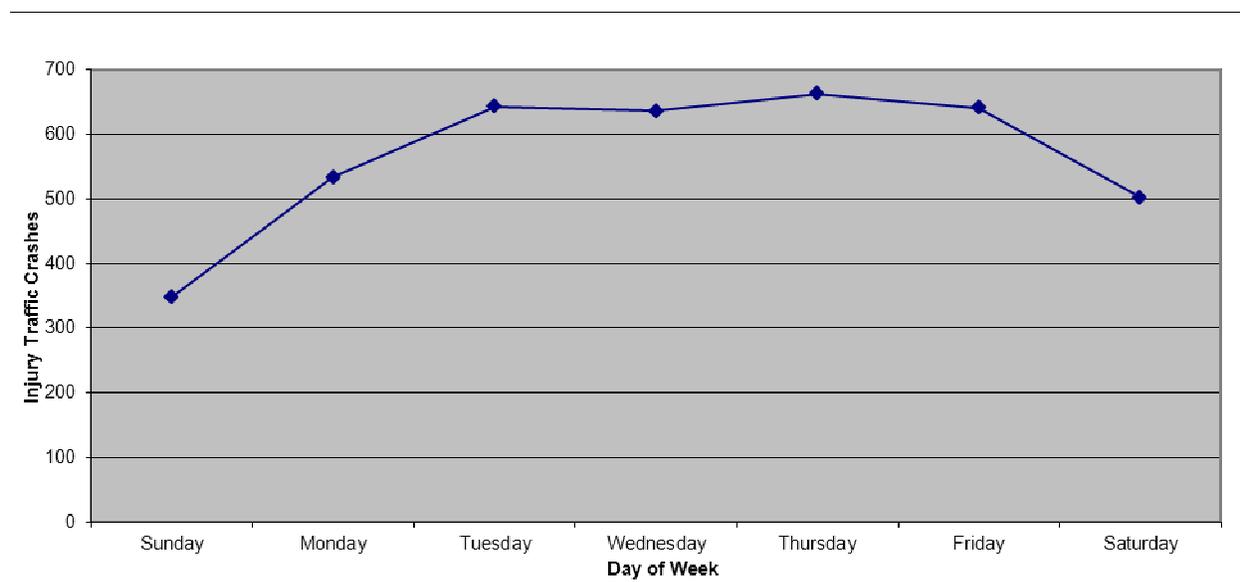


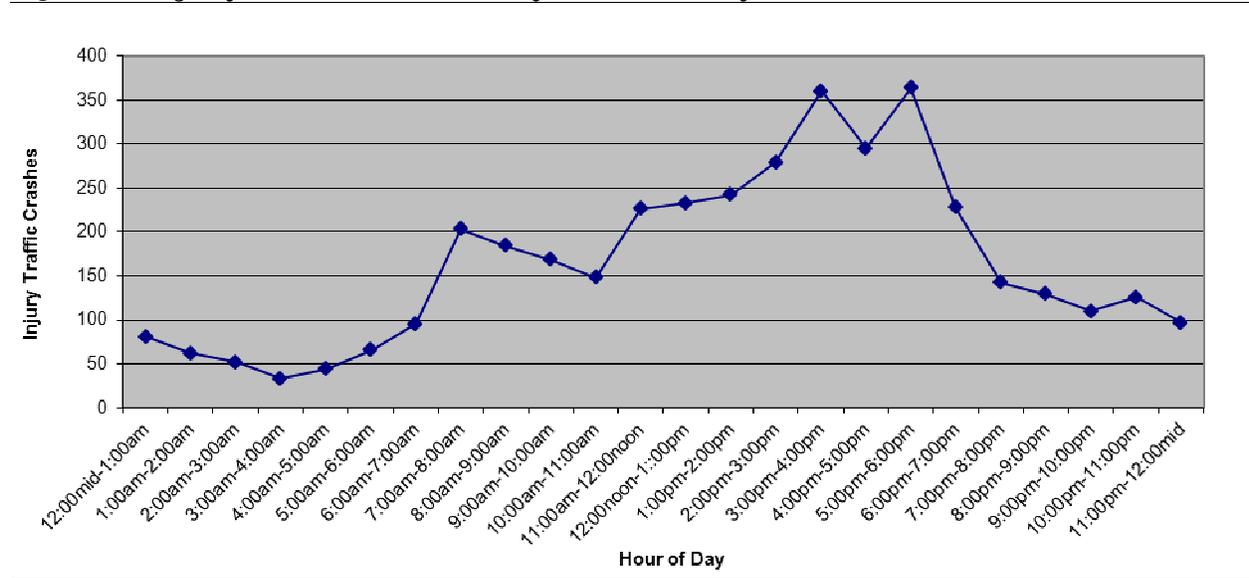
Figure 11 **Injury Traffic Crashes by Day of Week in 2014**



Source: www.michigantrafficcrashfacts.org

Figure 12 indicates that most injury traffic crashes occurred between 5 pm to 6 pm during each hour interval in 2014, with 364 injury crashes.

Figure 12 **Injury Traffic Crashes by Hour of Day in 2014**



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 57 fatal crashes in GVMC area in 2014, a 26.7% increase from 2013, which had 45 fatal crashes. Figure 13 and Figure 14 show the number fatal crashes and the number of fatalities caused by traffic crashes from 2009 to 2014.

Figure 13 **Fatal Traffic Crashes, 2009-2014**

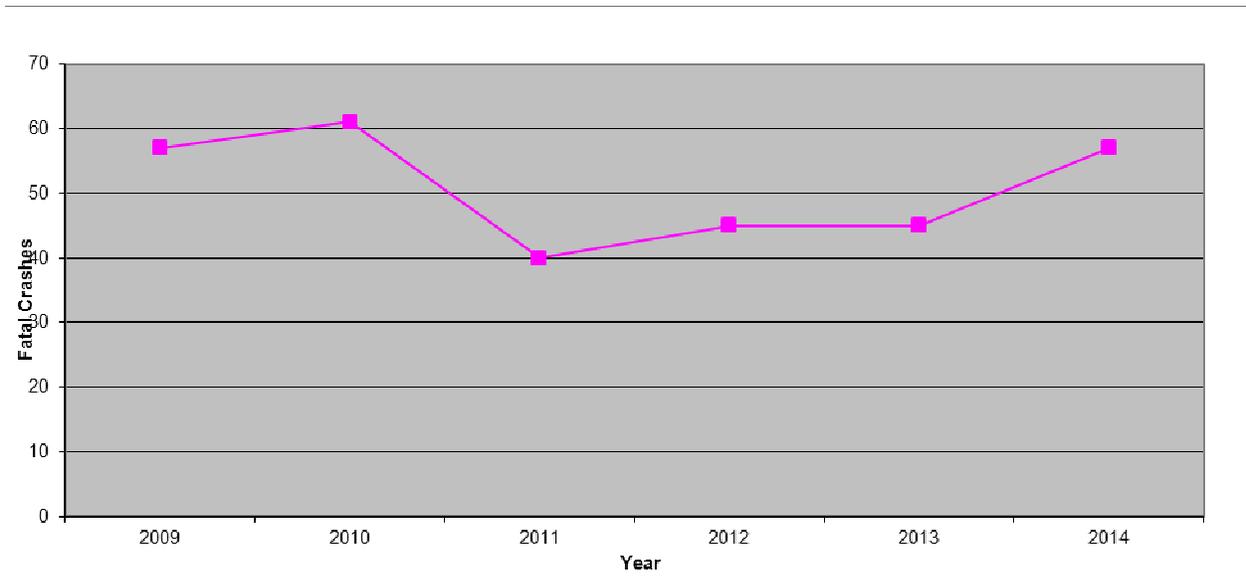
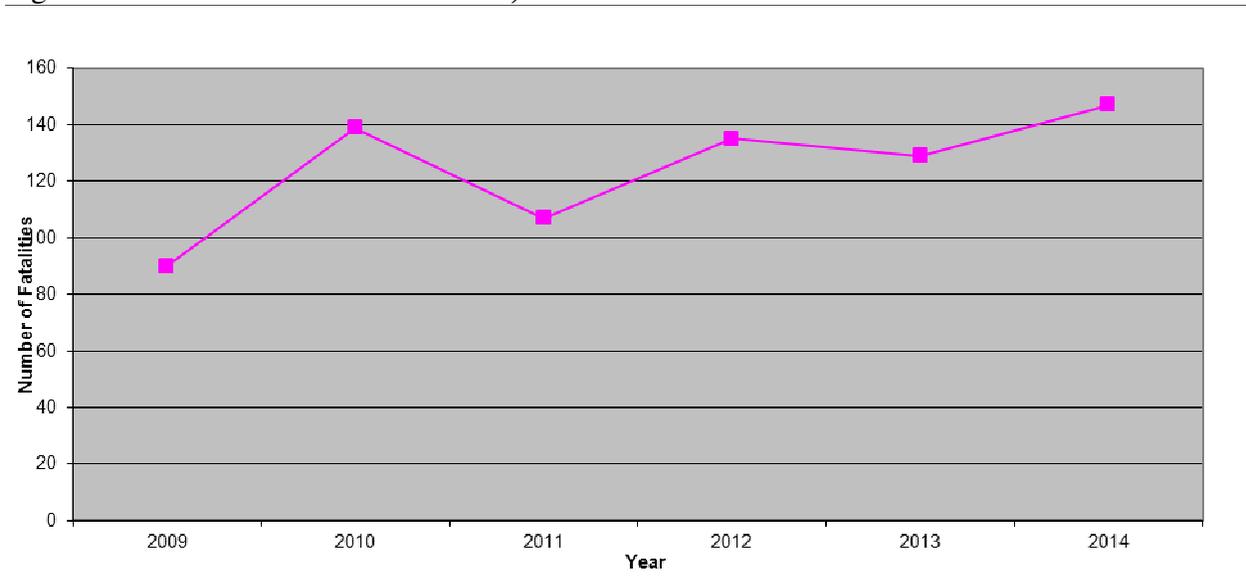


Figure 14 **Traffic Crash Fatalities, 2009-2014**



Source: www.michigantrafficcrashfacts.org

Fatal Traffic Crashes by Crash Type

Figure 15 shows that the most common type of crash causing fatalities in 2014 was single vehicle crash, which accounts for 33.3 percent of all fatal crashes. But Head-on crashes were more likely to result in a fatality, with 1.2% of Head-on crashes causing fatality.

Figure 15 **Fatal Traffic Crashes by Crash Type in 2014**

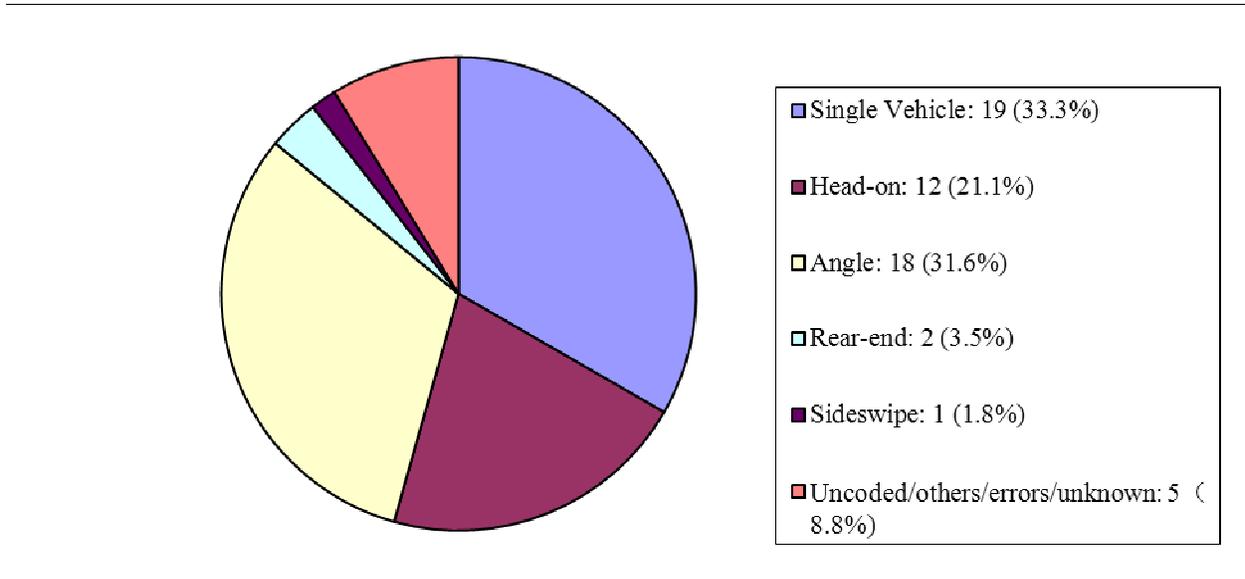


Table 5 **Crash Type by Percent Resulting in Fatality in 2014**

Crash Type	Fatal Crashes	All Crashes	Percent Resulting in Fatality
Head-on	12	1,017	1.2%
Single-Vehicle	19	5,301	0.36%
Angle	18	4,206	0.43%
Sideswipe	1	3,371	0.03%
Rear-End	2	6,975	0.03%
Uncoded/others/errors/unknown	5	1,651	0.3%
Total	57	22,521	0.25%

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 2014.

Figure 16 **Fatal Traffic Crashes by Month in 2014**

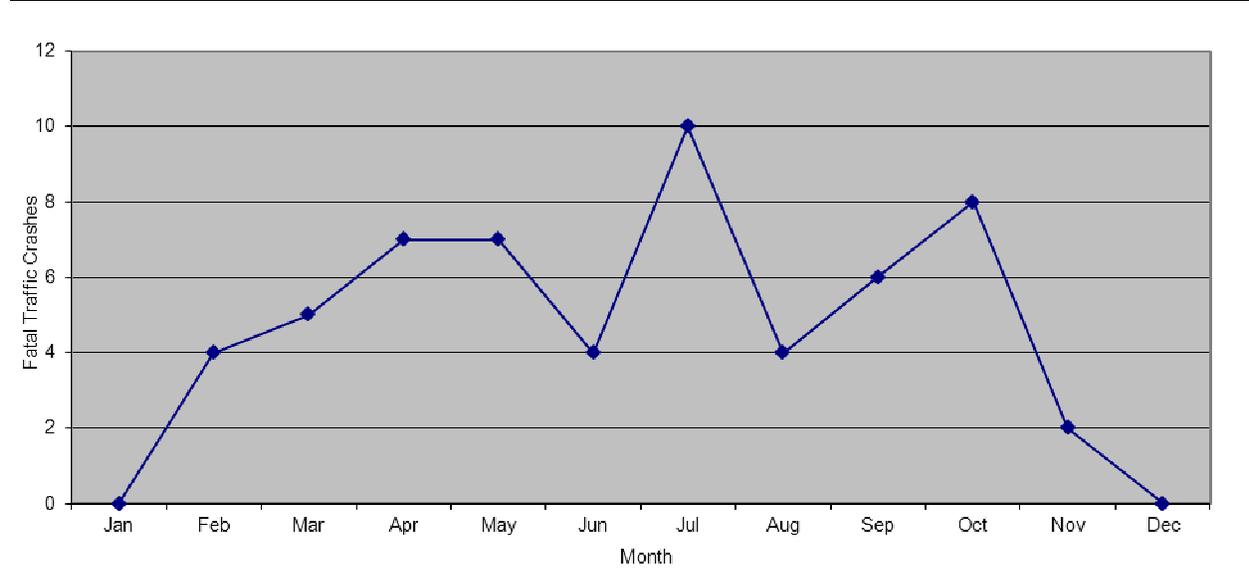
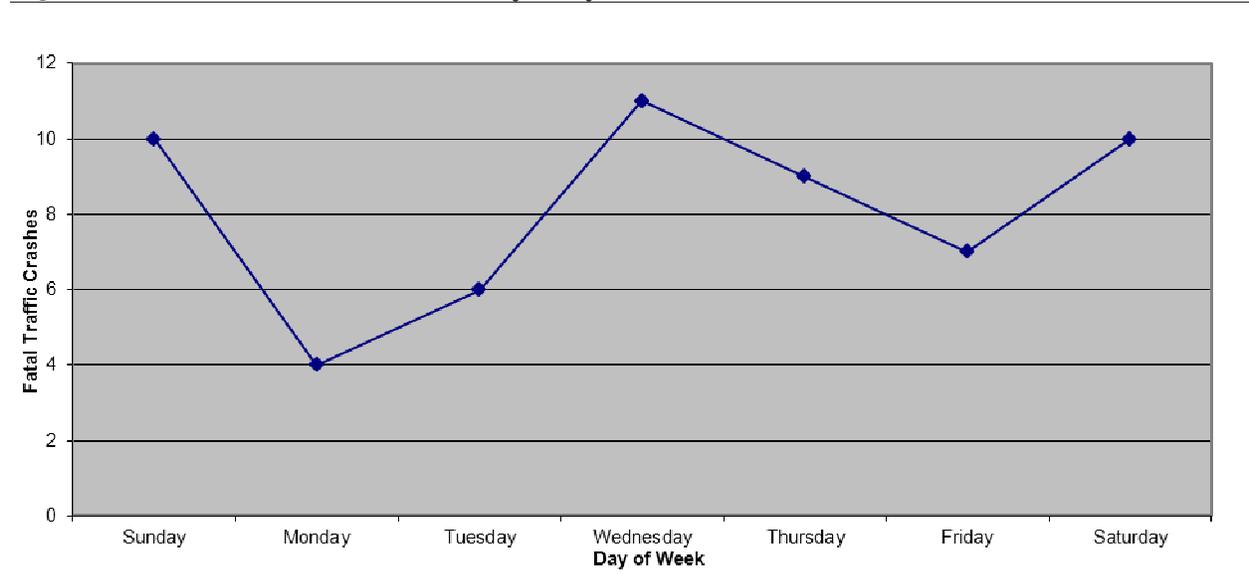


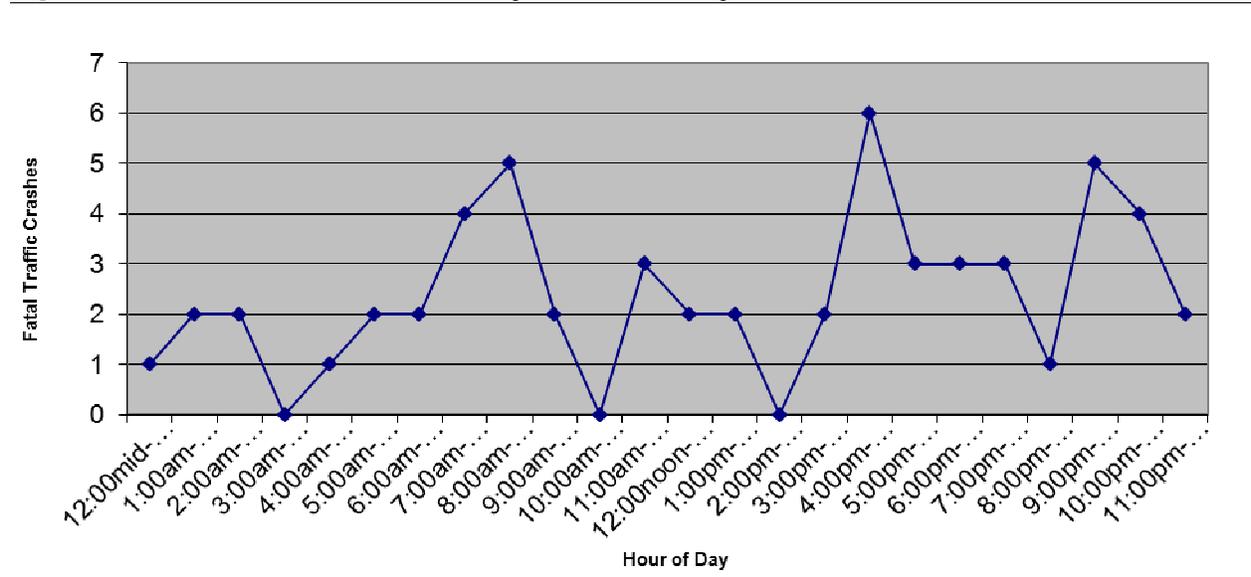
Figure 17 **Fatal Traffic Crashes by Day of Week in 2014**



Source: www.michigantrafficcrashfacts.org

Figure 18 below shows the distribution of fatal traffic crashes in GVMC area in 2014.

Figure 18 **Fatal Traffic Crashes by Hour of Day in 2014**



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 844 in 2009 to 831 in 2014. Figure 20 shows the percentages of alcohol-involved crashes in GVMC area from 2009 to 2014.

Figure 19 Alcohol-Involved Traffic Crashes, 2009-2014

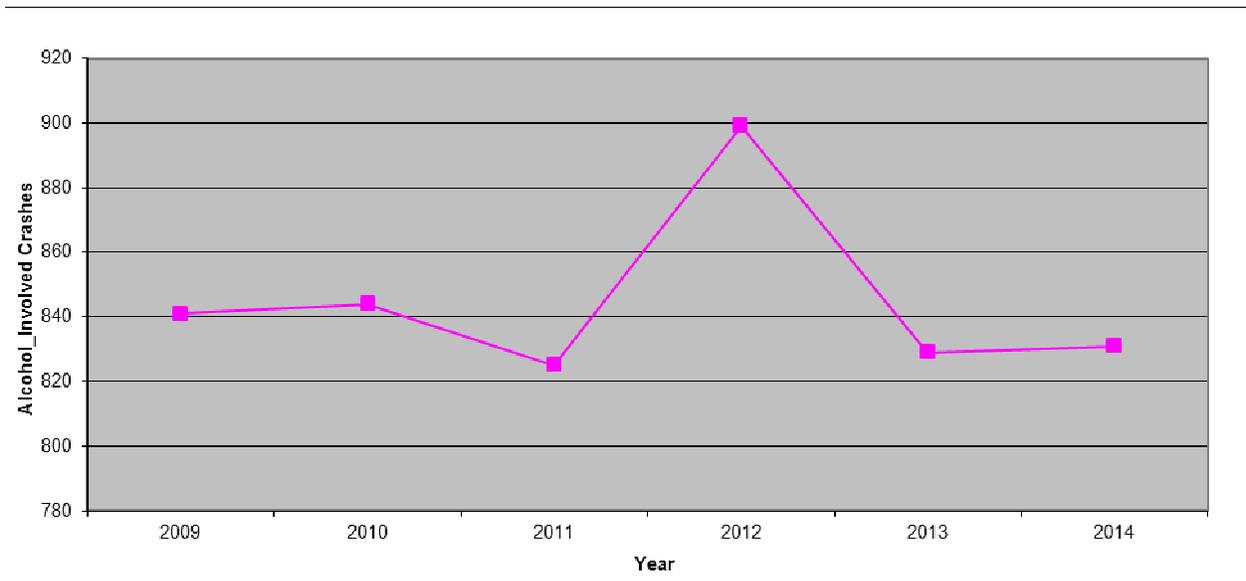


Figure 20 Percentages of Alcohol-Involved Traffic Crashes, 2009-2014

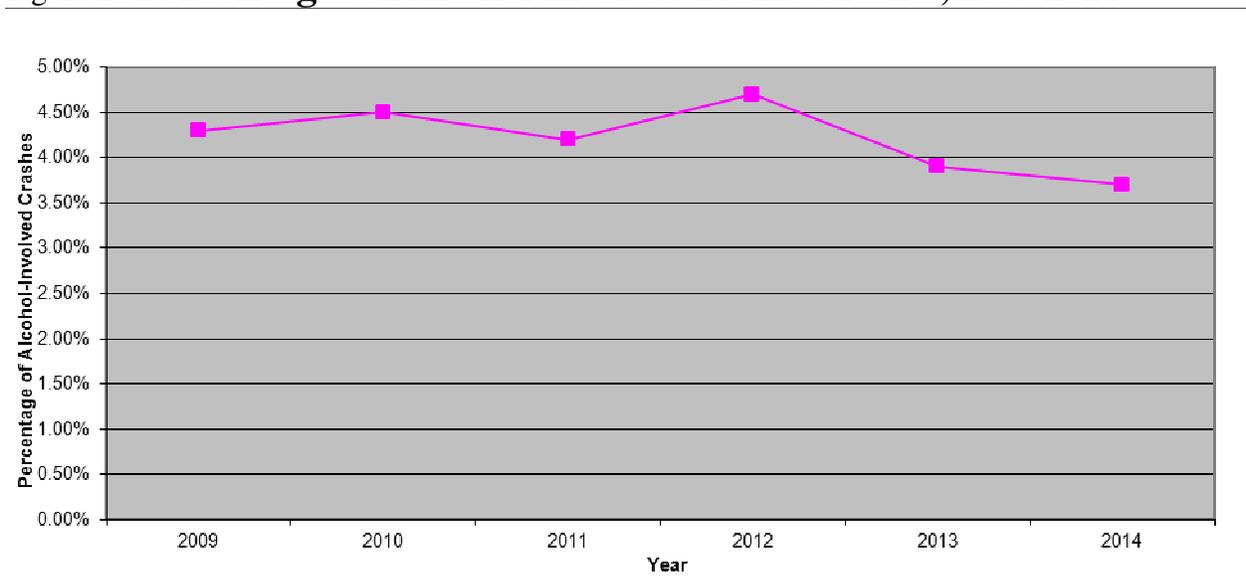


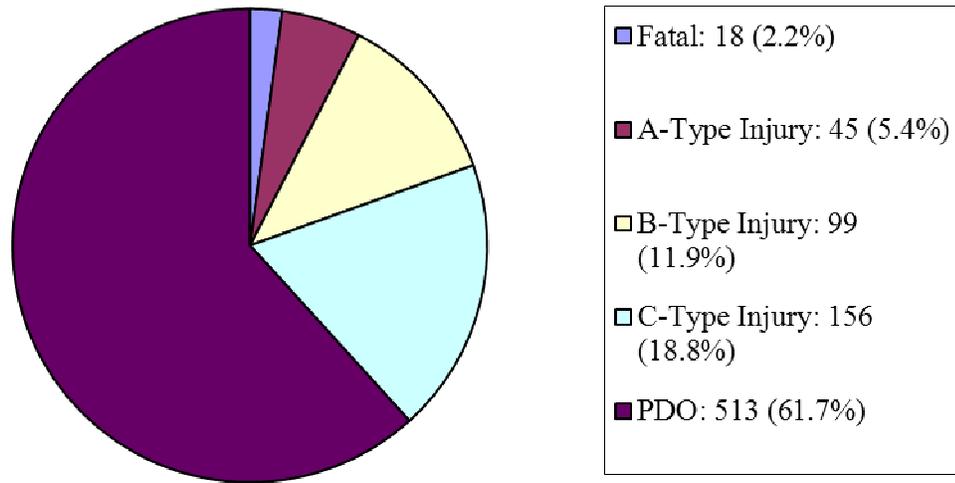
Table 6 below shows the number of Alcohol-Involved traffic crashes by jurisdiction in GVMC area from 2009-2014.

Local Governments	2009	2010	2011	2012	2013	2014
Ada	9	18	16	14	10	15
Algoma	7	16	12	11	9	12
Allendale	19	9	12	15	7	11
Alpine	20	26	21	14	13	14
Blendon	4	5	5	8	6	7
Bowne	12	6	1	6	8	1
Byron	37	20	37	17	27	31
Caledonia	8	14	9	14	23	19
Cannon	12	12	12	16	9	7
Cascade	16	14	25	24	19	24
Casnovia	1	1	0	0	0	0
Cedar Springs	3	1	1	2	0	3
Chester	5	3	1	3	3	5
Courtland	11	8	9	12	9	6
East Grand Rapids	2	7	3	10	7	4
Gaines	9	15	8	17	19	13
Georgetown	30	34	33	20	25	22
City of Grand Rapids	290	325	286	359	310	318
Grand Rapids Township	19	21	14	13	18	16
Grandville	22	21	20	15	17	24
Grattan	7	5	3	3	6	3
Hudsonville	2	6	3	3	4	7
Jamestown	4	6	5	3	5	9
Kent City	1	0	1	1	0	0
Kentwood	32	17	38	32	34	32
Lowell	16	8	10	8	17	14
Nelson	8	2	6	12	4	4
Oakfield	14	4	15	17	6	7
Plainfield	37	43	47	44	35	37
Polkton	7	8	8	9	6	5
Rockford	5	7	5	3	5	2
Sand Lake	1	0	0	5	0	0
Solon	9	12	7	11	9	13
Sparta	15	15	14	21	18	9
Spencer	6	11	10	1	4	6
Tallmadge	13	13	9	9	8	7
Tyrone	4	5	10	10	5	4
Vergennes	6	3	6	6	2	1
Walker	59	41	51	33	45	44
Wright	14	10	6	12	14	10
Wyoming	75	78	66	98	92	92

Alcohol-Involved Traffic Crashes by Severity

Although alcohol-involved traffic crashes only accounts for 3.7 percent of all traffic crashes in 2014, there were 31.6 percent fatal crashes related to alcohol, and 17.9 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 2014



Source: www.michigantrafficcrashfacts.org

Table 7 Alcohol-Involved Traffic Crash by Severity in 2014

Crash Severity	Alcohol-Involved Traffic Crashes	All Traffic Crashes	Alcohol-Involved Percentage
Fatal	18	57	31.6%
A-Type Injury	45	251	17.9%
B-Type Injury	99	809	12.2%
C-Type Injury	156	2,908	5.4%
PDO	513	18,496	2.8%
Total	831	22,521	3.7%

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 47.7 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 2014

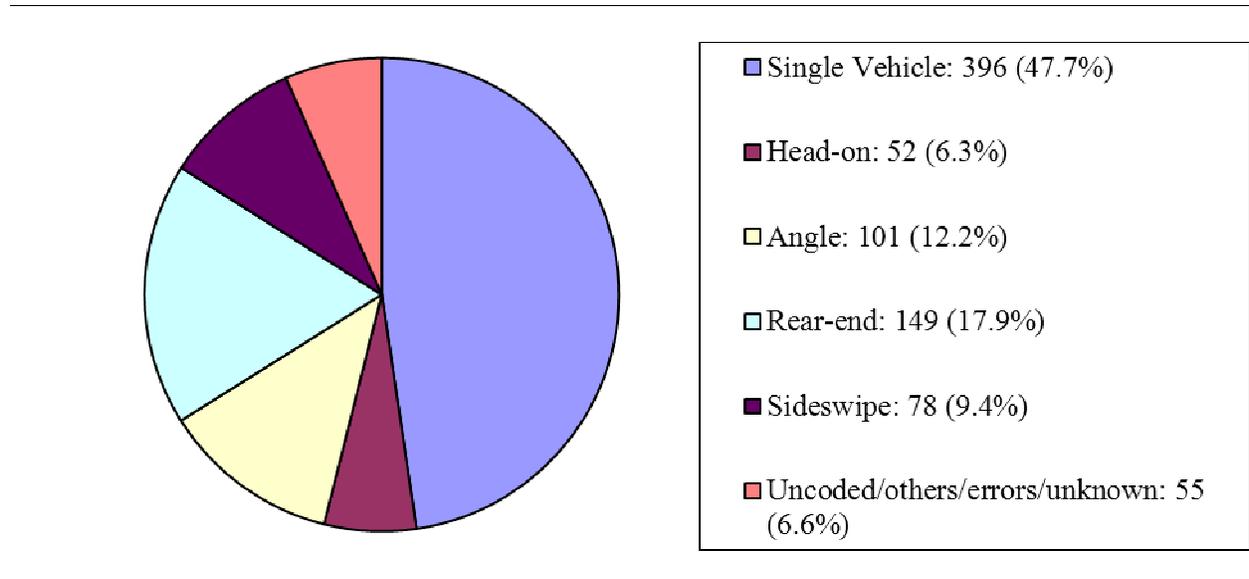


Table 8 Percentage of Alcohol-Involved Traffic Crashes

Crash Type	Alcohol-Involved Traffic Crashes	All Crashes	Percentage of Alcohol-Involved Crash
Single-Vehicle	396	5,301	7.5%
Head-on	52	1,017	5.1%
Angle	101	4,206	2.4%
Rear-End	149	6,975	2.1%
Sideswipe	78	3,371	2.3%
Uncoded/others/errors/unknown	55	1,651	3.3%
Total	831	22,521	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 88 crashes and the fewest took place in September and October with 57 crashes. Figure 24 indicates Saturdays had the most alcohol-involved traffic crashes (204) compared to any other days of week, while Tuesdays had the fewest alcohol-involved crashes (58) in 2014.

Figure 23 Alcohol-Involved Traffic Crashes by Month in 2014

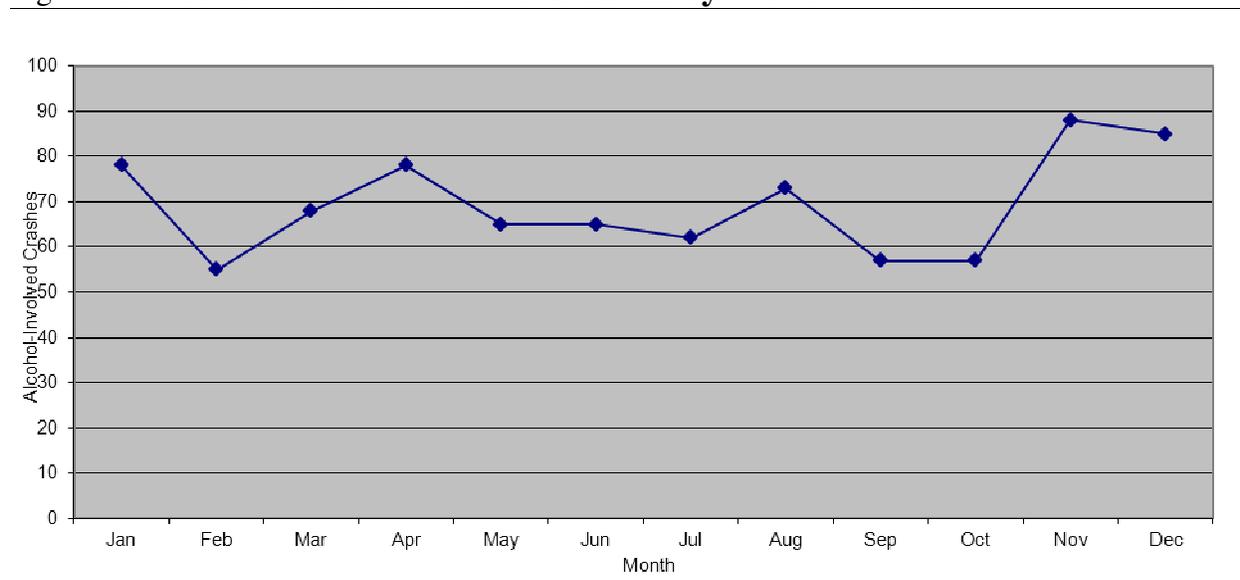
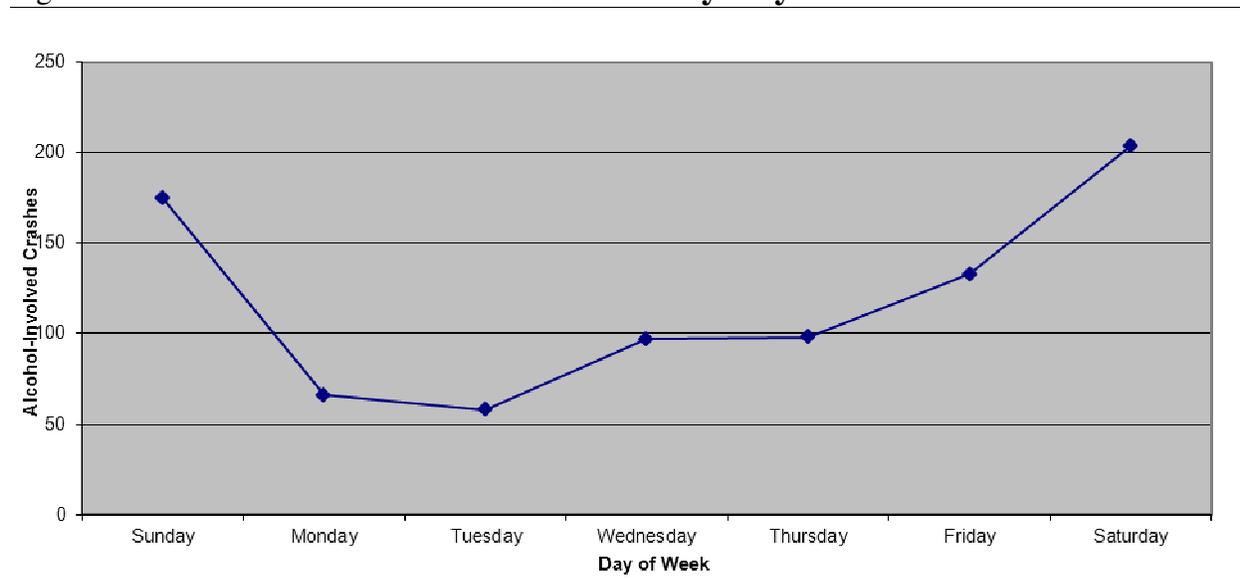


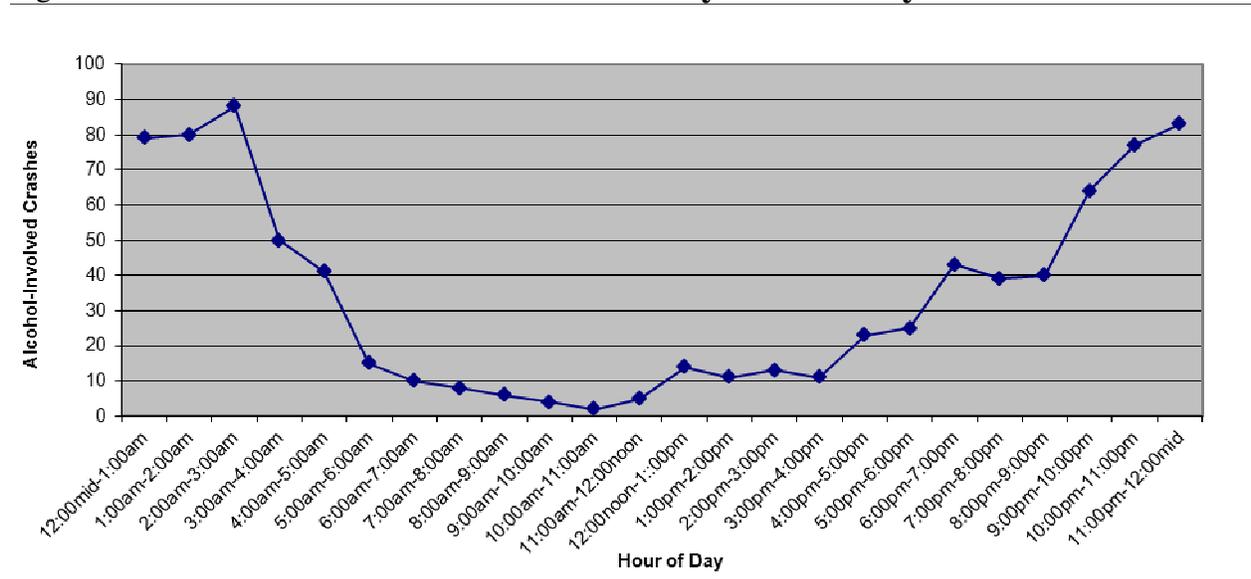
Figure 24 Alcohol-Involved Traffic Crashes by Day of Week in 2014



Source: www.michigantrafficcrashfacts.org

As shown in Figure 25, most alcohol-involved crashes occurred between 2 a.m. to 3 a.m. with 88 crashes in 2014, and the fewest alcohol-involved crashes took place between 10 a.m. to 11 a.m. with 2 crashes.

Figure 25 Alcohol-Involved Traffic Crashes by Hour of day in 2014



Source: www.michigantrafficcrashfacts.org

Vehicle-Deer Traffic Crashes

There were 1,535 traffic crashes between vehicle and deer in GVMC area in 2014, a 39.6 percent decrease from 2009. As shown in Figure 27, the percentage of vehicle-deer crash in GVMC area decreased from 13 percent in 2009 to 6.8 percent in 2014.

Figure 26 Vehicle-Deer Traffic Crashes, 2009-2014

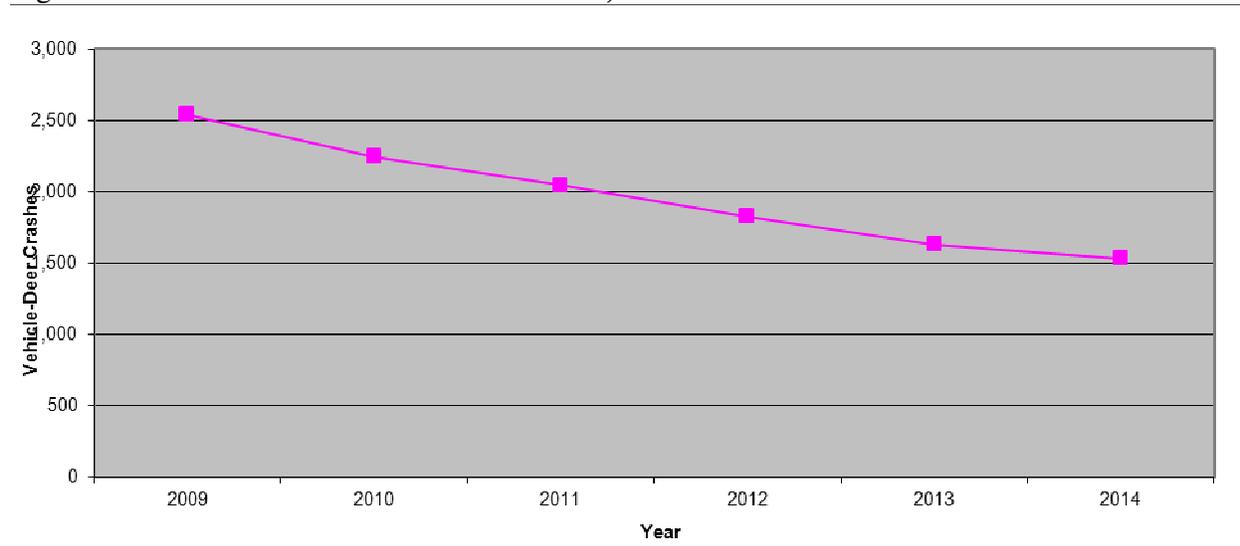
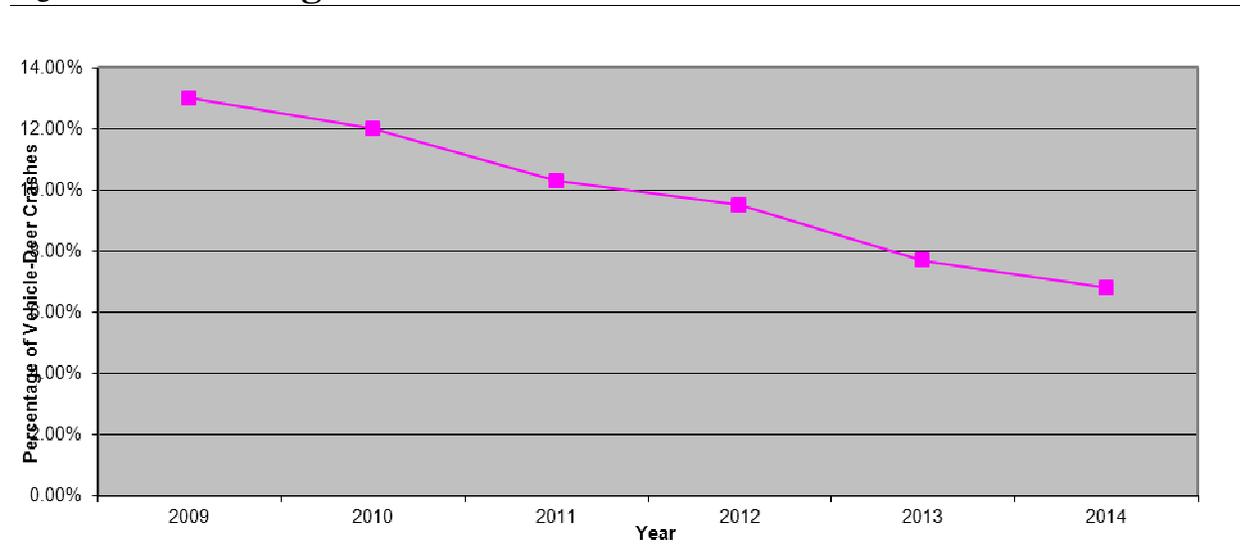


Figure 27 Percentages of Vehicle-Deer Crashes in 2014



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 2014, which accounted for 96.9% of all vehicle-Deer crashes and 8% of all PDO crashes.

Figure 28 **Vehicle-Deer Traffic Crashes by Type in 2014**

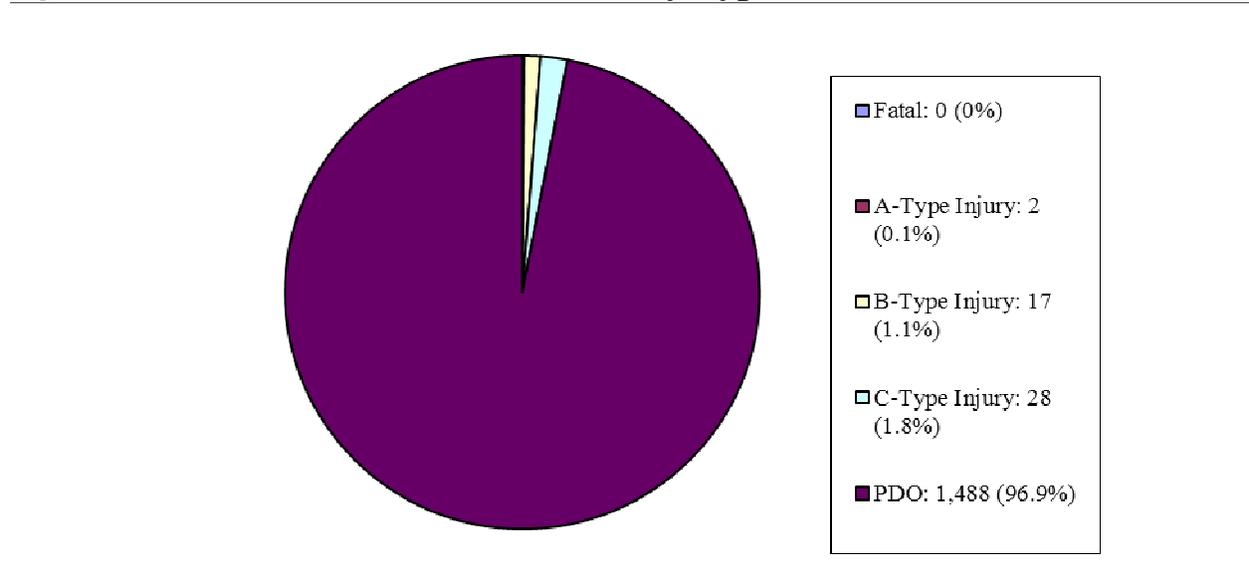


Table 9 **Vehicle-Deer Traffic Crashes by Severity in 2014**

Crash Severity	Vehicle-Deer Traffic Crashes	All Traffic Crashes	Vehicle-Deer Percentage
Fatal	0	57	0%
A-Type Injury	2	251	0.8%
B-Type Injury	17	809	2.1%
C-Type Injury	28	2,908	0.96%
PDO	1,488	18,496	8%
Total	1,535	22,521	6.8%

Source: www.michigantrafficcrashfacts.org

Vehicle-Deer Traffic Crashes by Month, Day and Hour in 2014

Figure 29 shows that November had the most vehicle-deer crashes at 328 in 2014, and February had the fewest vehicle-deer crashes at 35.

Figure 29 **Vehicle-Deer Traffic Crashes by Month in 2014**

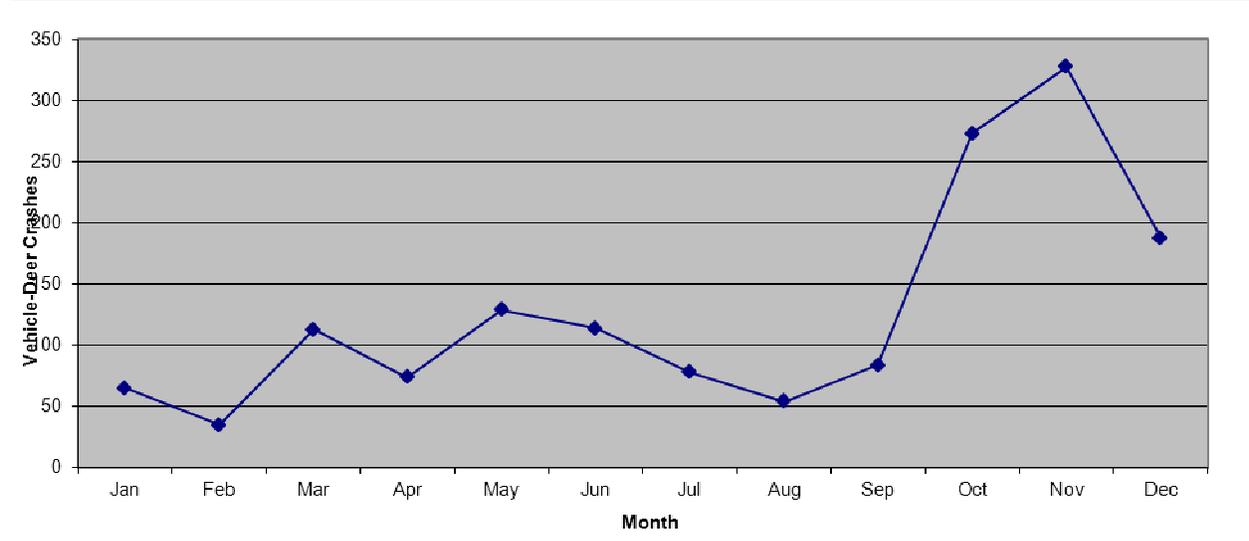
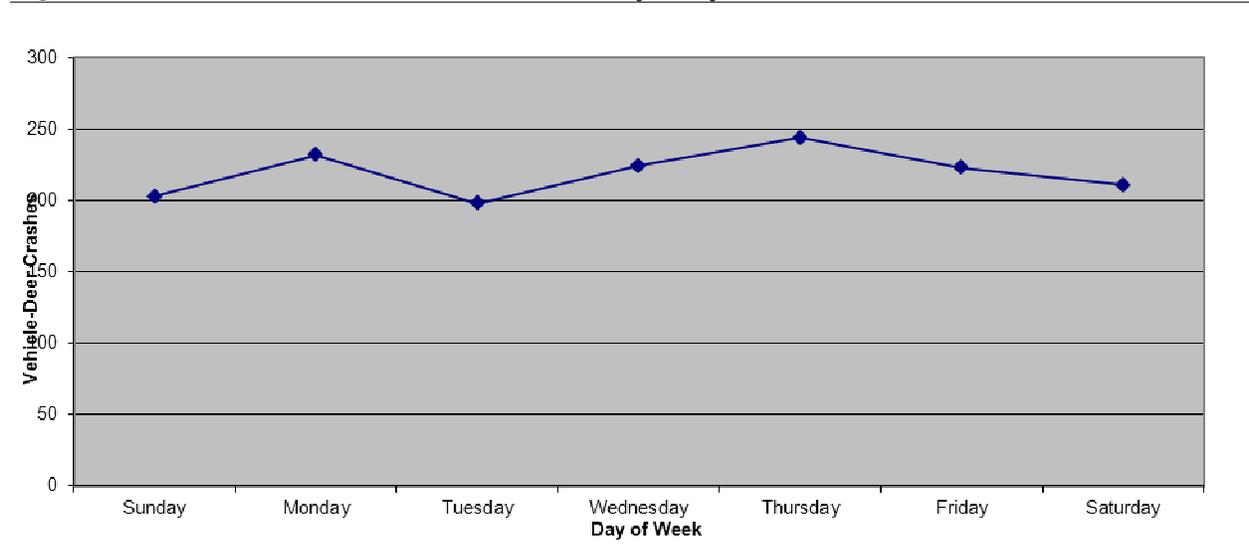


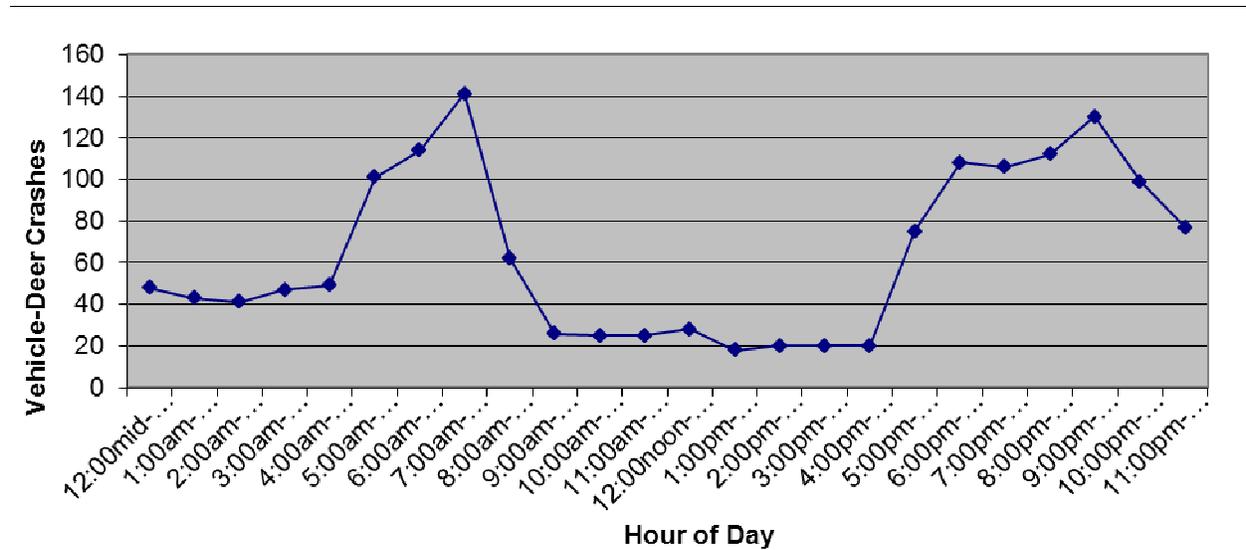
Figure 30 **Vehicle-Deer Traffic Crashes by Day of Week in 2014**



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 2014**

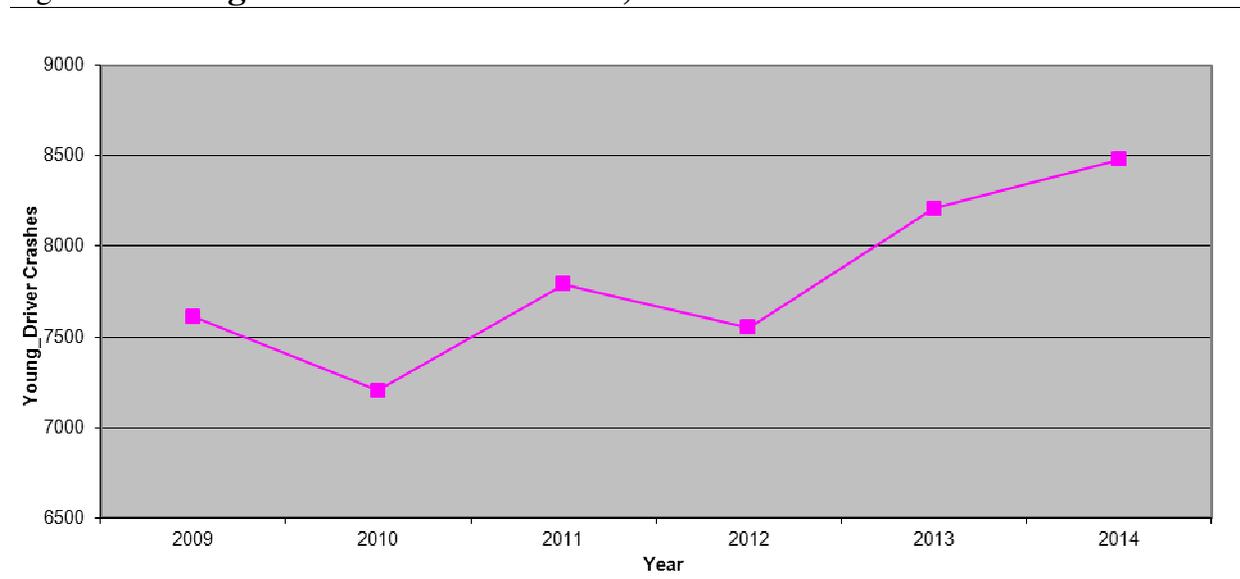


Source: www.michigantrafficcrashfacts.org

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 2009 to 2014 in GVMC area, down from 7,612 in 2009 to 7,204 in 2010, and increased again to 8,481 in 2014. Table 10 shows the percentage of young-driver traffic crashes for 2009-2014.

Figure 32 **Young-Driver Traffic Crashes, 2009-2014**



Source: www.michigantrafficcrashfacts.org

Table 10 **Percentages of Young-Driver Traffic Crashes, 2009-2014**

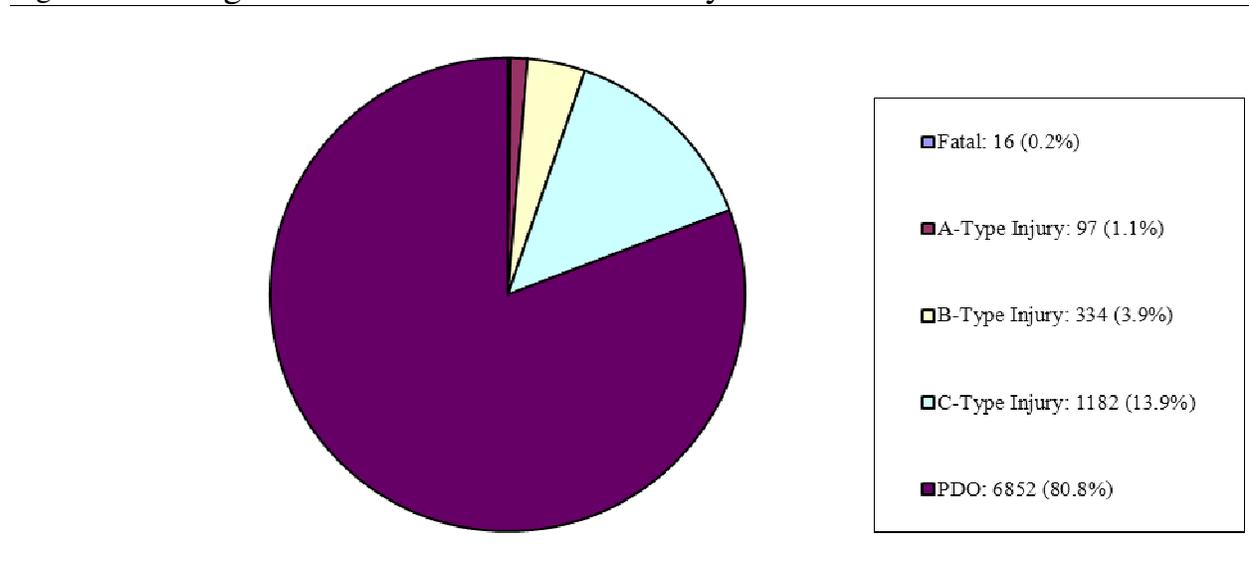
Year	Young-Driver Traffic Crashes	All Traffic Crashes	Percentage of Young-Driver Traffic Crashes
2009	7,612	19,586	38.9%
2010	7,204	18,771	38.4%
2011	7,789	19,843	39.3%
2012	7,553	19,301	39.1%
2013	8,210	21,246	38.6%
2014	8,481	22,521	37.7%

Source: www.michigantrafficcrashfacts.org

Young-Driver Traffic Crashes by Severity

Figure 33 shows the distribution of traffic crashes severity involving young driver in 2014. 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 2014



Source: www.michigantrafficcrashfacts.org

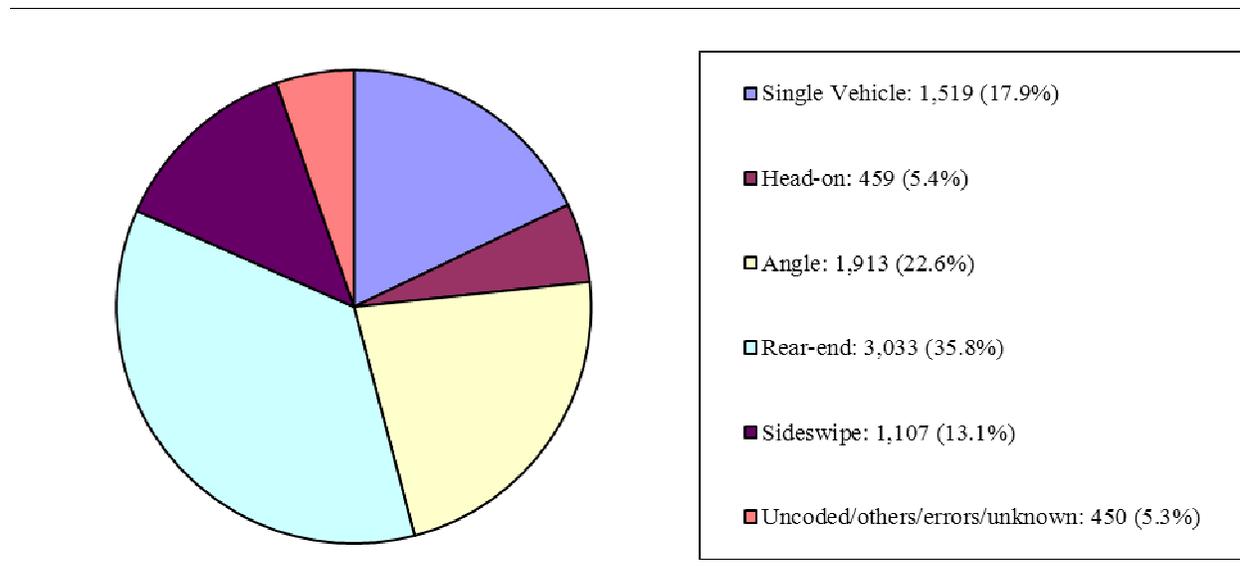
Table 11 Young-Driver Traffic Crash by Severity in 2014

Crash Severity	Young-Driver Traffic Crashes	All Traffic Crashes	Young-Driver Percentage
Fatal	16	57	28.1%
A-Type Injury	97	251	38.6%
B-Type Injury	334	809	41.3%
C-Type Injury	1,182	2,908	40.6%
PDO	6,852	18,496	37%
Total	8,481	22,521	37.7%

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 2014**



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 January than any other months in 2014.

Figure 35 Young-Driver Traffic Crashes by Month in 2014

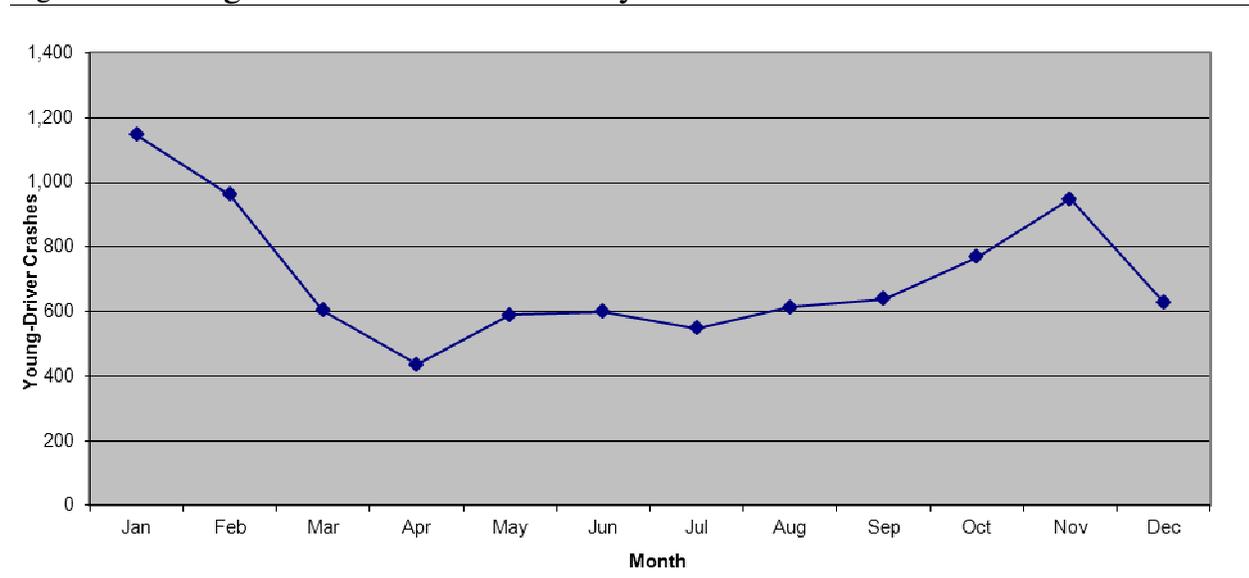
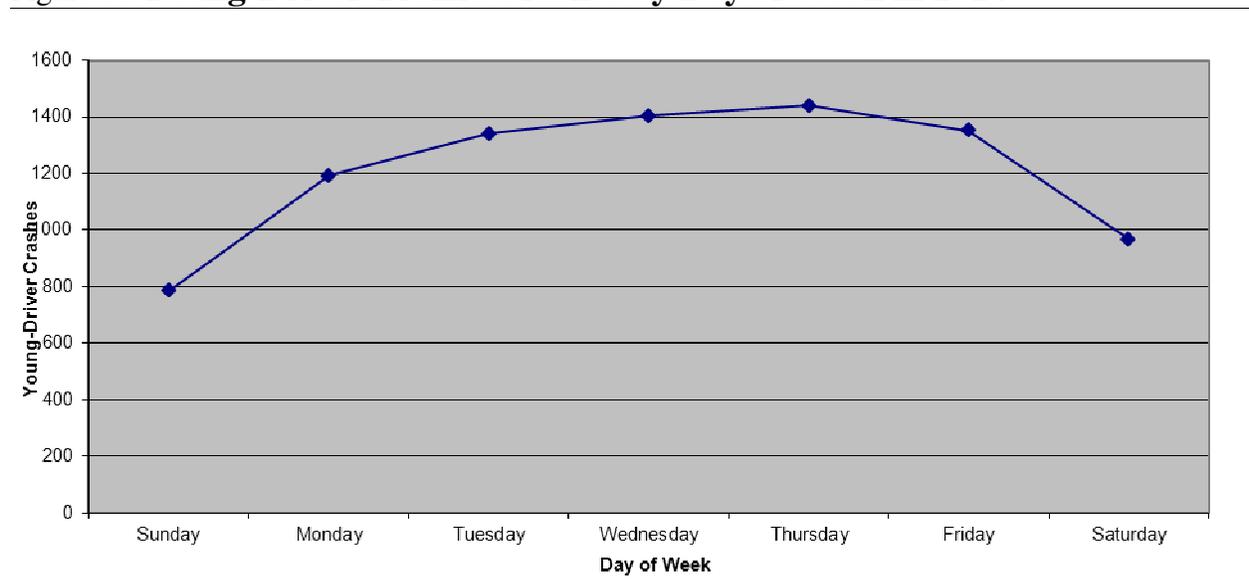


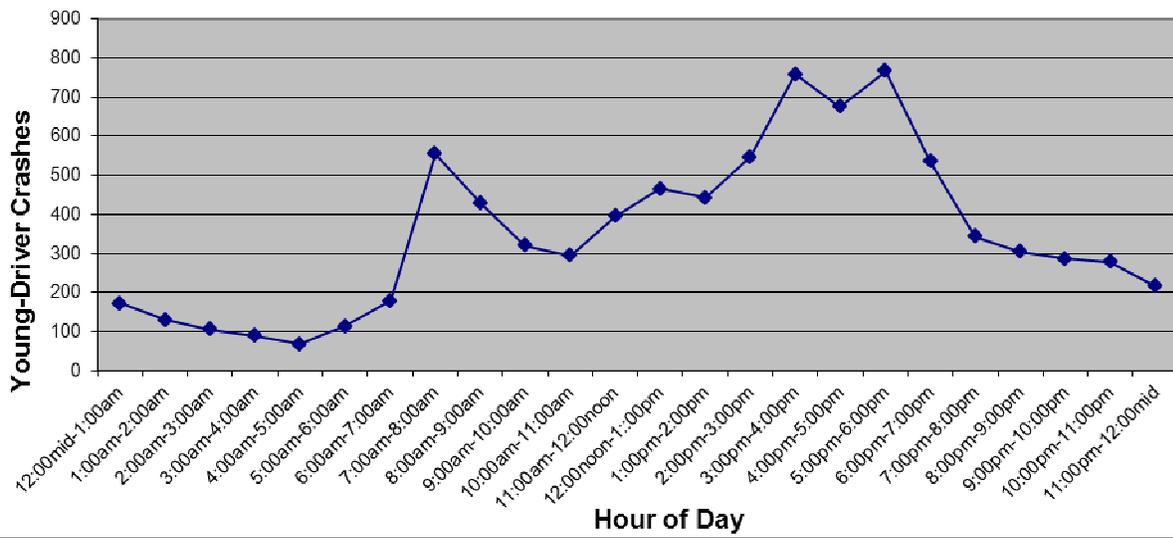
Figure 36 shows that Thursdays had the most young-driver traffic crashes, and Sundays had the least crashes in 2014. Figure 37 shows that young –driver crashes were more likely to occur during afternoon and early evening, and were less likely to occur during early morning.

Figure 36 Young-Driver Traffic Crashes by Day of Week in 2014



Source: www.michigantrafficcrashfacts.org

Figure 37 **Young-Driver Traffic Crashes by Hour of Day in 2014**

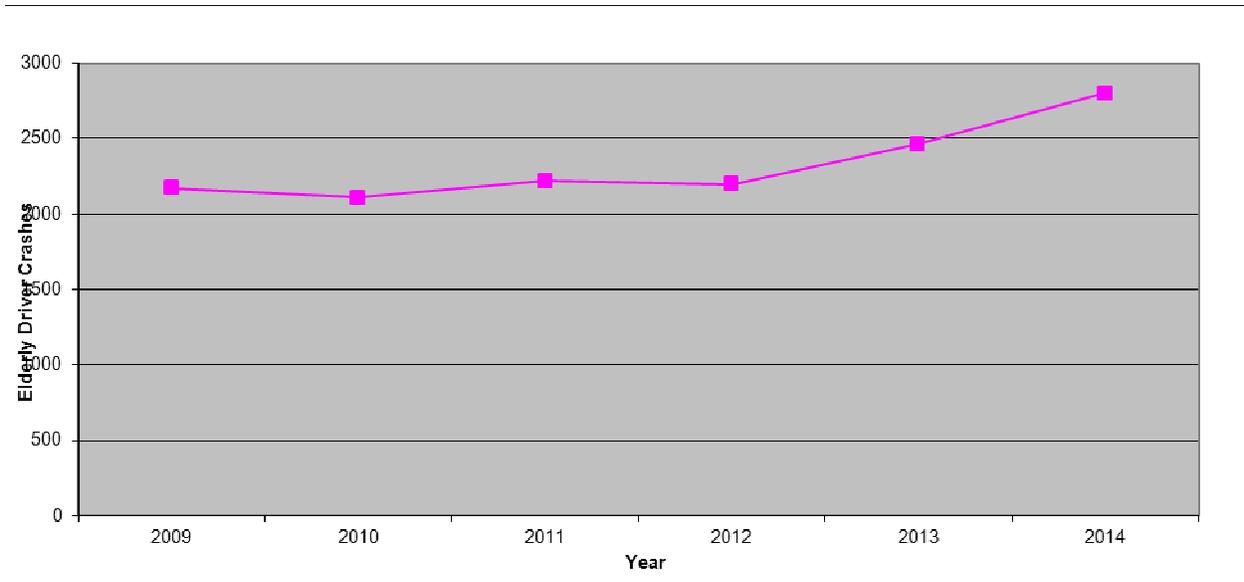


Source: www.michigantrafficcrashfacts.org

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 2009 and 2014. Table 12 shows the percentages of elderly driver crashes from 2009 to 2014.

Figure 38 **Elderly Driver Traffic Crashes, 2009-2014**



Source: www.michigantrafficcrashfacts.org

Table 12 **Percentages of Elderly Driver Traffic Crashes, 2009-2014**

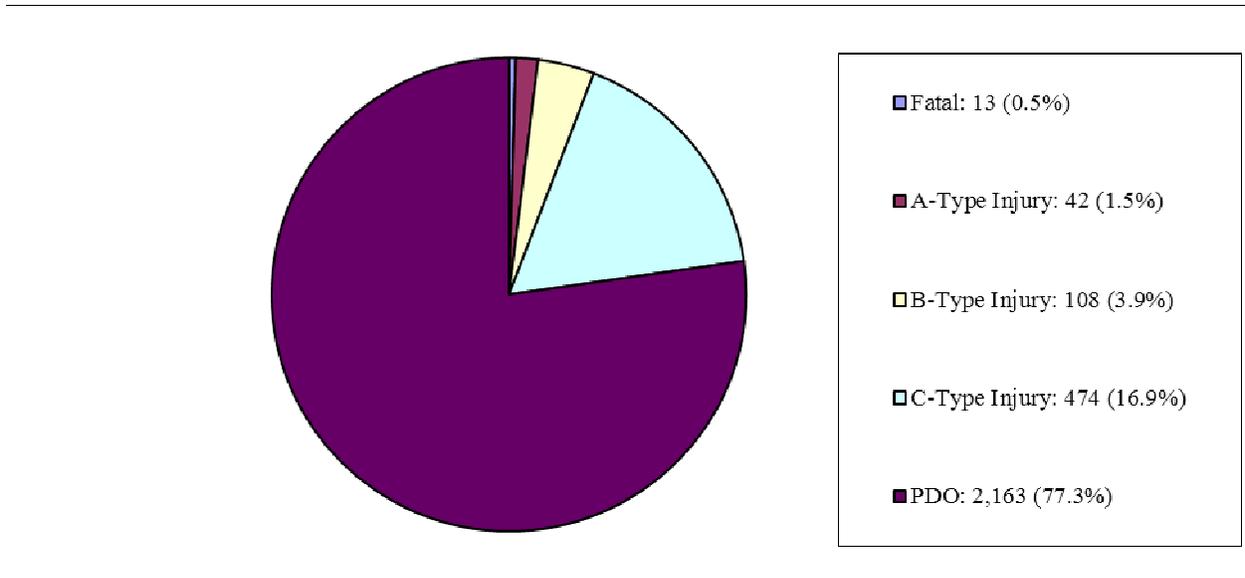
Year	Elderly Driver Traffic Crashes	All Traffic Crashes	Percentage of Elderly Driver Traffic Crashes
2009	2,175	19,586	11.1%
2010	2,110	18,771	11.2%
2011	2,221	19,843	11.2%
2012	2,197	19,301	11.4%
2013	2,466	21,246	11.6%
2014	2,800	22,521	12.4%

Source: www.michigantrafficcrashfacts.org

Elderly Driver Traffic Crashes by Severity

Figure 39 shows the distribution of traffic crash severity involving elderly driver in 2014. As shown in Table 13, fatal crashes caused by elderly driver accounted for 22.8 percent in all fatal traffic crashes in 2014.

Figure 39 **Elderly Driver Traffic Crashes Severity in 2014**



Source: www.michigantrafficcrashfacts.org

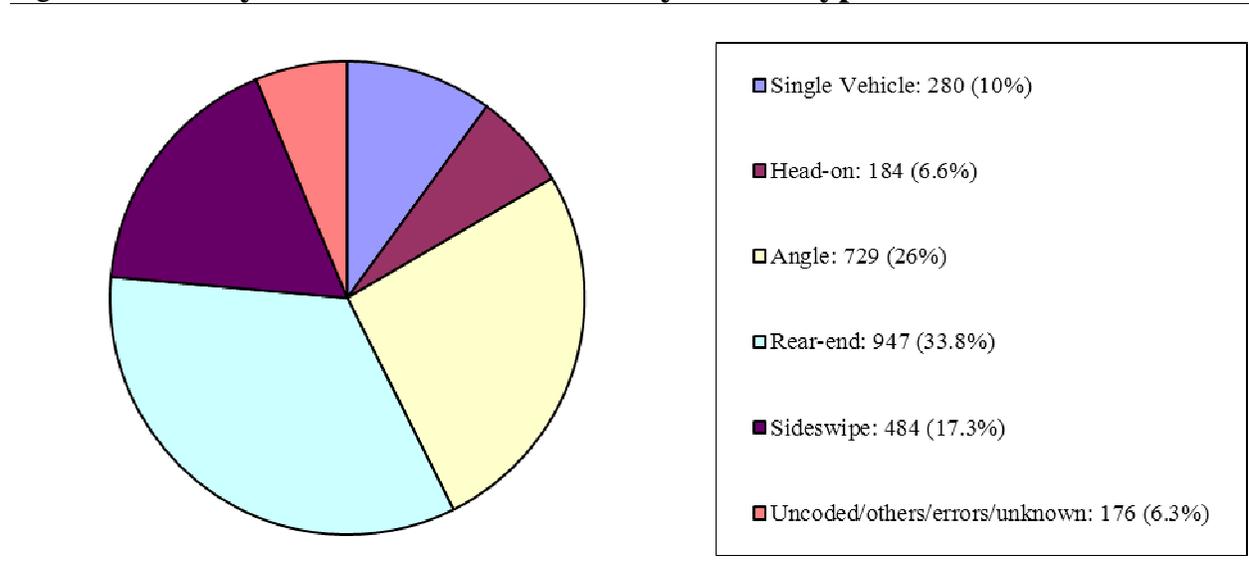
Table 13 **Elderly Driver Traffic Crash by Severity in 2014**

Crash Severity	Elderly-Driver Traffic Crashes	All Traffic Crashes	Elderly-Driver Percentage
Fatal	13	57	22.8%
A-Type Injury	42	251	16.7%
B-Type Injury	108	809	13.3%
C-Type Injury	474	2,908	16.3%
PDO	2,163	18,496	11.7%
Total	2,800	22,521	12.4%

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 2014

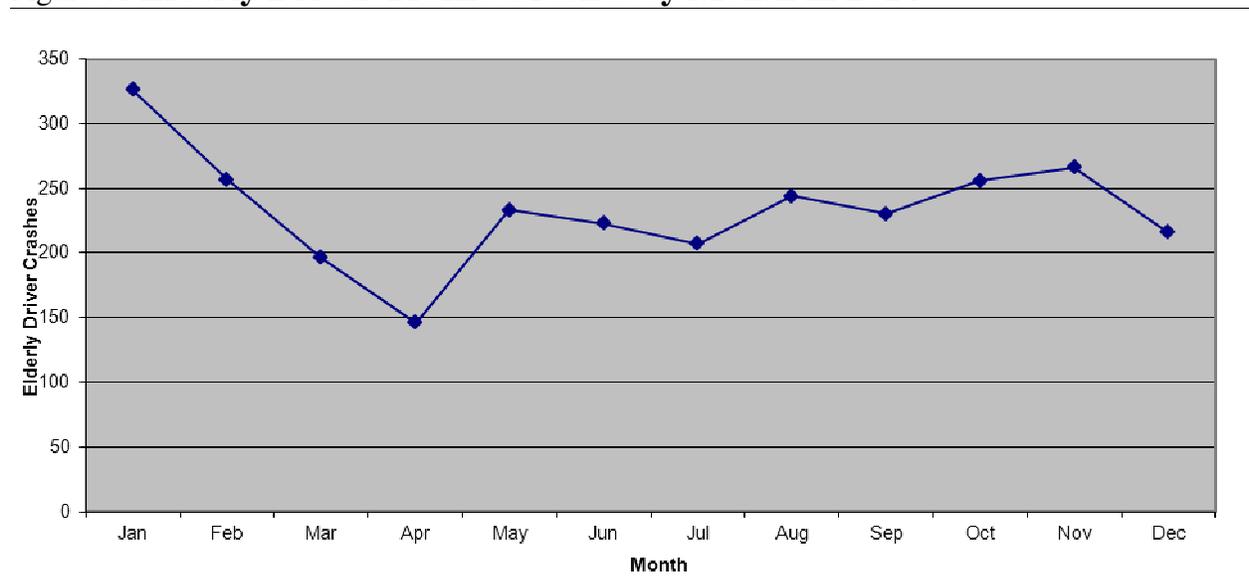


Source: www.michigantrafficcrashfacts.org

Elderly Driver Traffic Crashes by Month, Day and Hour

As shown in Figure 41, elderly driver traffic crashes were more likely to occur in January, and were less likely to occur in April in 2014.

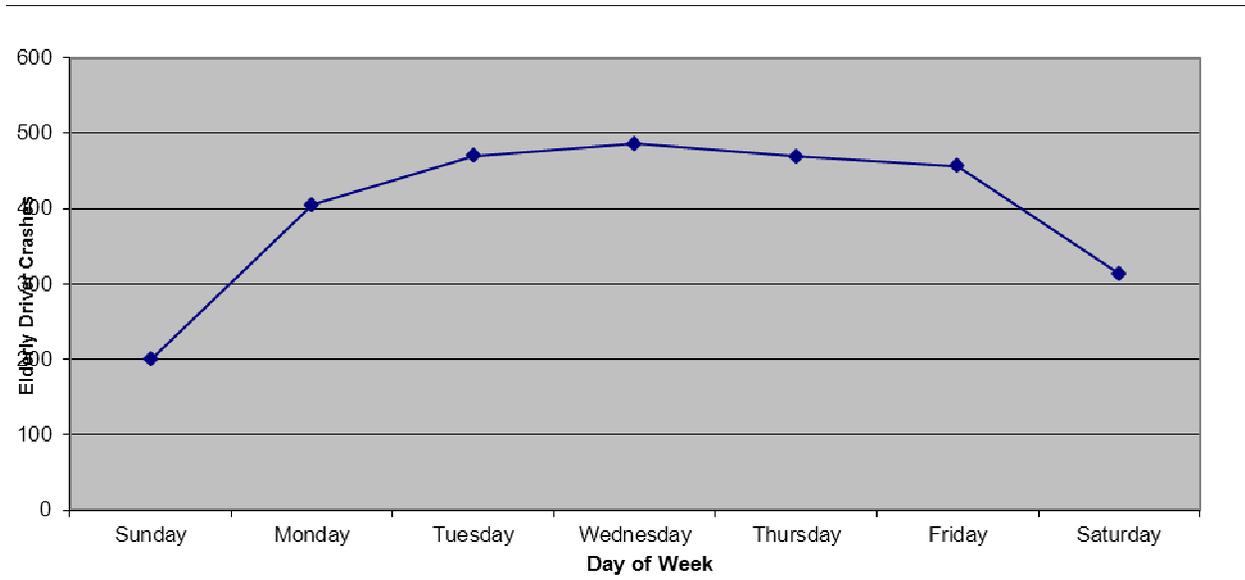
Figure 41 Elderly Driver Traffic Crashes by Month in 2014



Source: www.michigantrafficcrashfacts.org

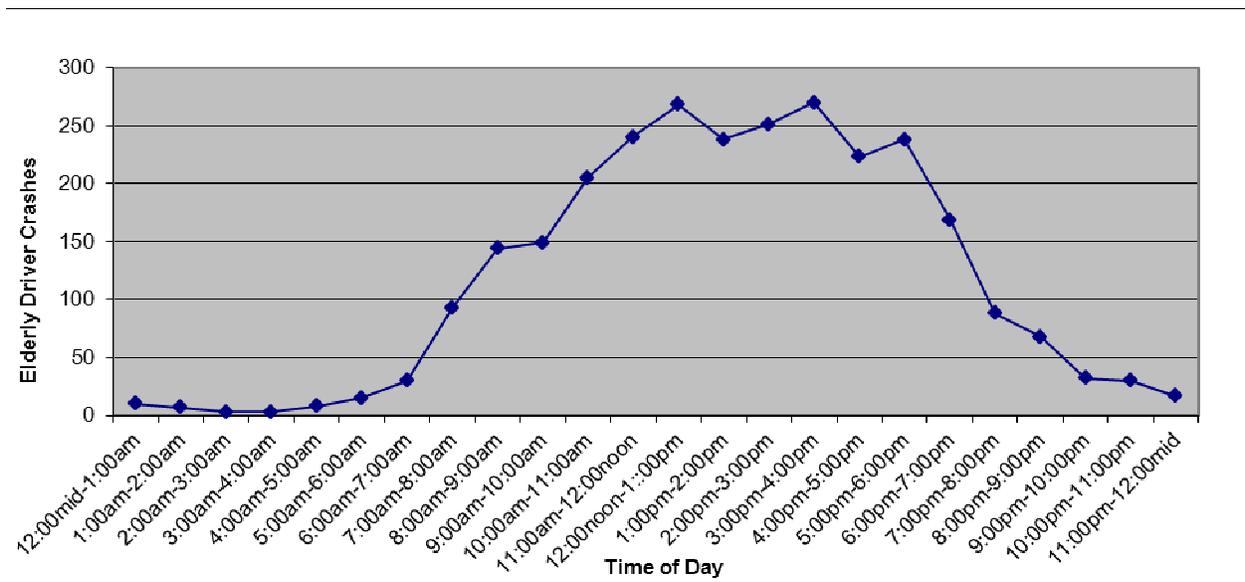
Figure 42 and Figure 43 show Elderly driver traffic crashes by Day of Week, and by Hour of Day, respectively.

Figure 42 Elderly Driver Traffic Crashes by Day of Week in 2014



Source: www.michigantrafficcrashfacts.org

Figure 43 Elderly Driver Traffic Crashes by Hour of Day in 2014

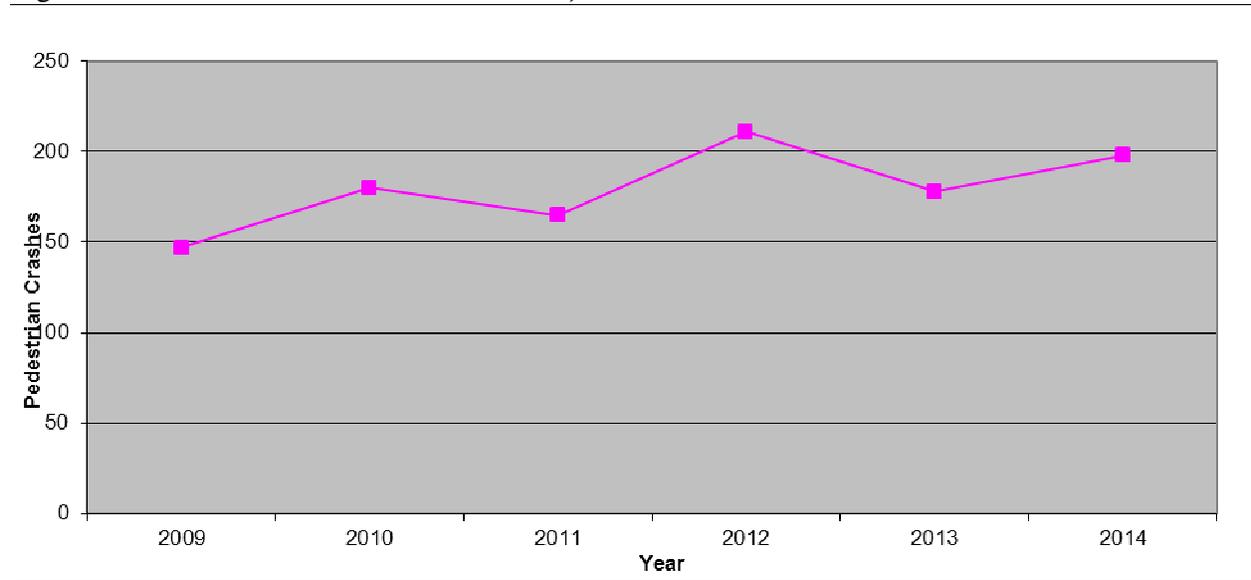


Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes

As shown in Figure 44, the pedestrian traffic crashes moved up and down between 2009 and 2014 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 2014.

Figure 44 Pedestrian Traffic Crashes, 2009-2014



Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes by Severity

Figure 45 Pedestrian Traffic Crashes by Severity in 2014

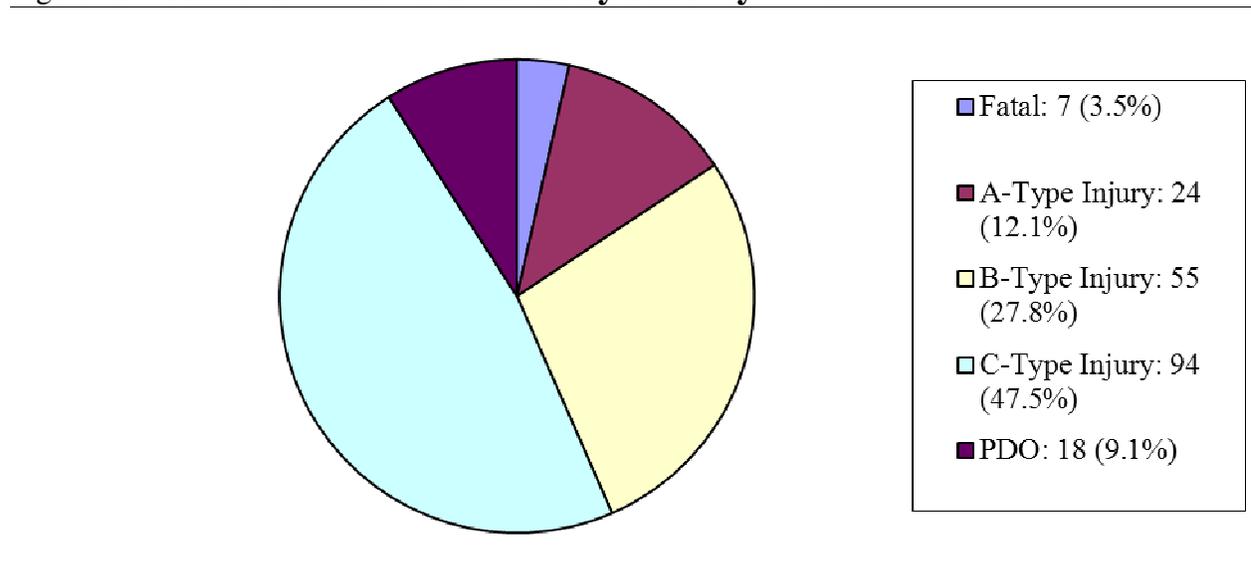


Table 13 **Pedestrian Traffic Crash by Severity in 2014**

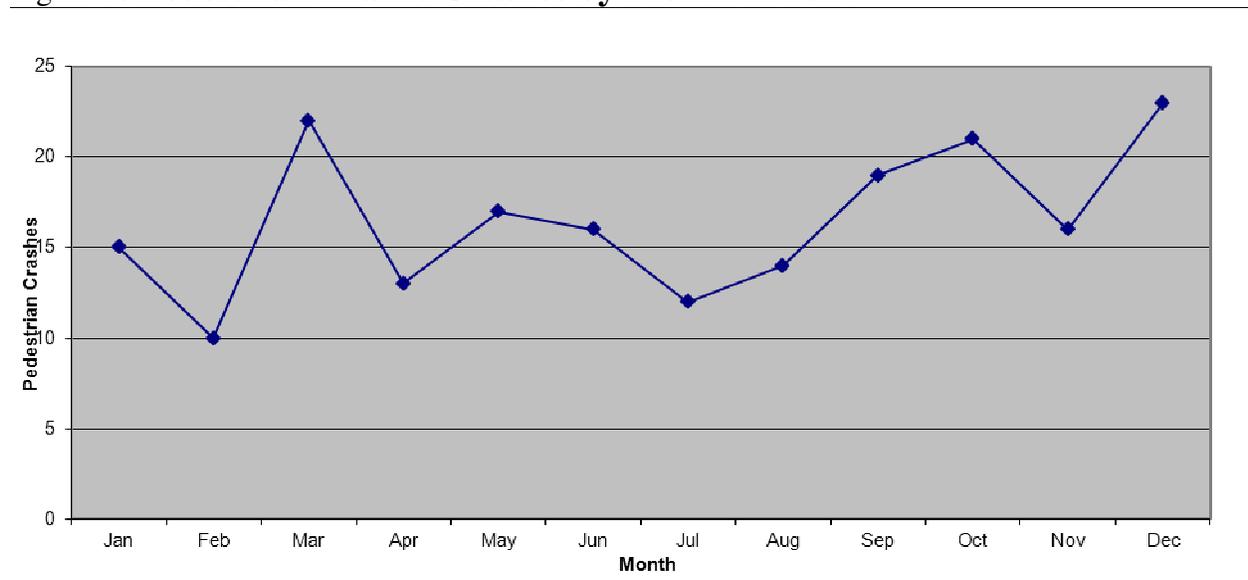
Crash Severity	Pedestrian Traffic Crashes	All Traffic Crashes	Pedestrian Crashes Percentage
Fatal	7	57	12.3%
A-Type Injury	24	251	9.6%
B-Type Injury	55	809	6.8%
C-Type Injury	94	2,908	3.2%
PDO	18	18,496	0.1%
Total	198	22,521	0.9%

Source: www.michigantrafficcrashfacts.org

Pedestrian Traffic Crashes by Month, Day and Hour

Figure 46 shows pedestrian traffic crashes were more likely to occur on December than any other months in 2014.

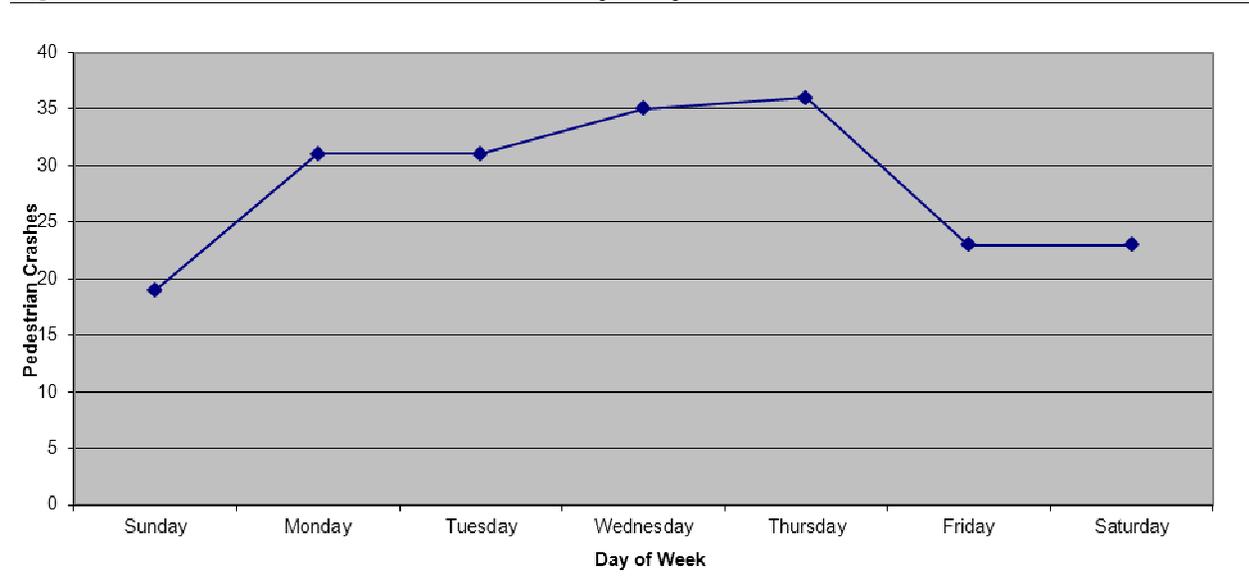
Figure 46 **Pedestrian Traffic Crashes by Month in 2014**



Source: www.michigantrafficcrashfacts.org

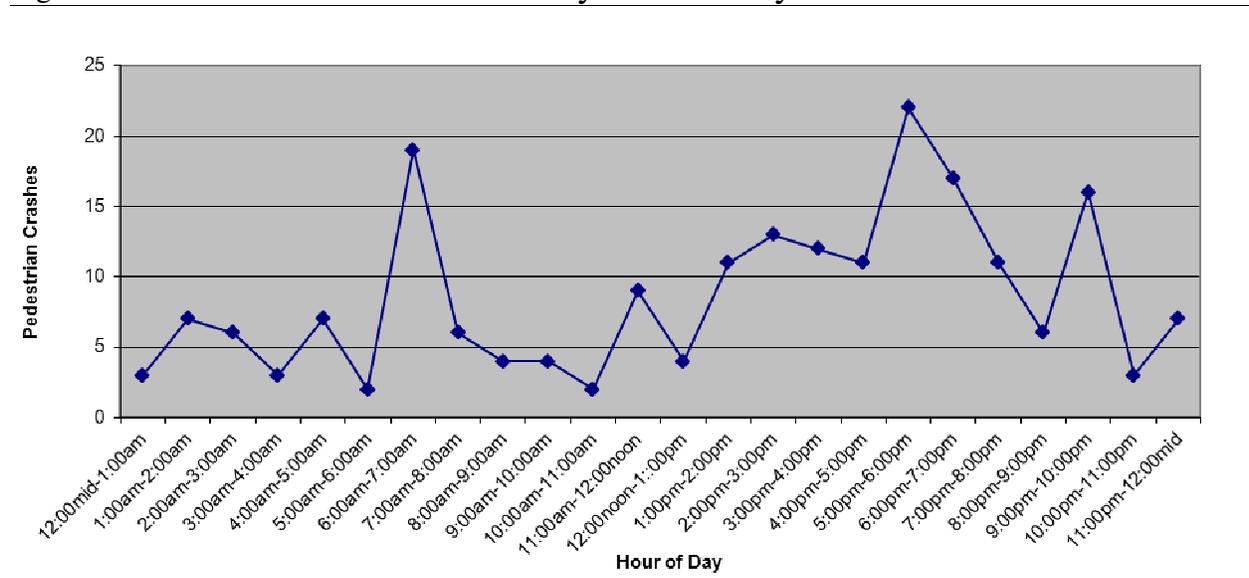
It can be seen from Figure 47 that Thursdays had the most pedestrian crashes and Sundays the fewest. As shown in Figure 48, pedestrian crashes were most likely to occur between 5:00pm to 6:00pm in 2014.

Figure 47 **Pedestrian Traffic Crashes by Day of Week in 2014**



Source: www.michigantrafficcrashfacts.org

Figure 48 **Pedestrian Traffic Crashes by Hour of Day in 2014**

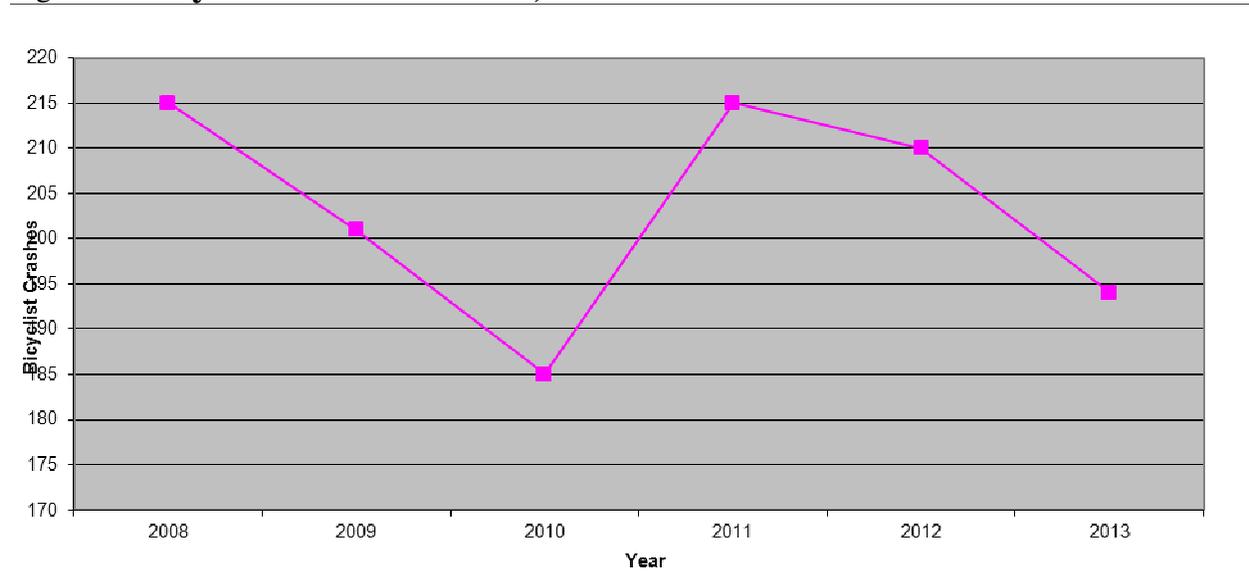


Source: www.michigantrafficcrashfacts.org

Bicyclist Traffic Crashes

Figure 49 shows bicyclist traffic crashes between 2009 and 2014. There was a 16.9 percent decrease of bicyclist traffic crashes in 2014 compared with it was in 2009.

Figure 49 **Bicyclist Traffic Crashes, 2009-2014**

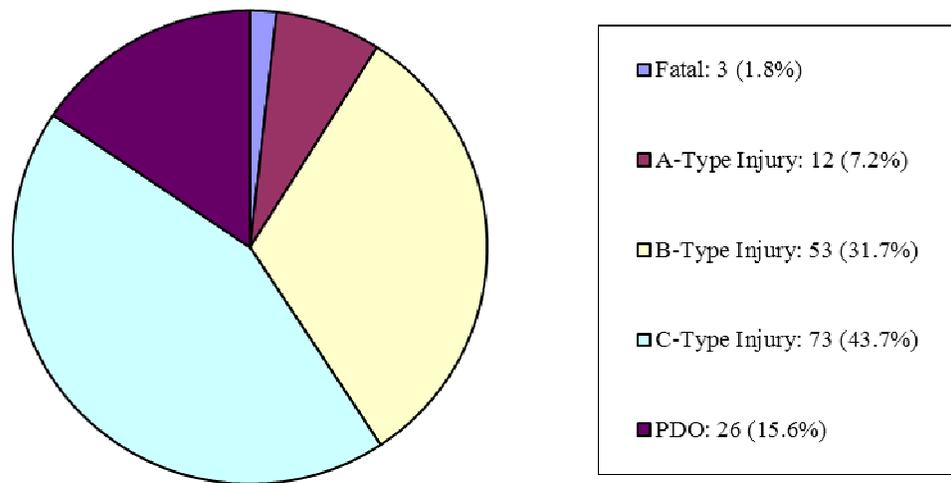


Source: www.michigantrafficcrashfacts.org

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 15.6 percent of all bicyclist traffic crashes. Table 14 shows the distribution of bicyclist severity in 2014.

Figure 50 **Bicyclist Traffic Crashes by Severity in 2014**



Source: www.michigantrafficcrashfacts.org

Table 14 **Bicyclist Traffic Crash by Severity in 2014**

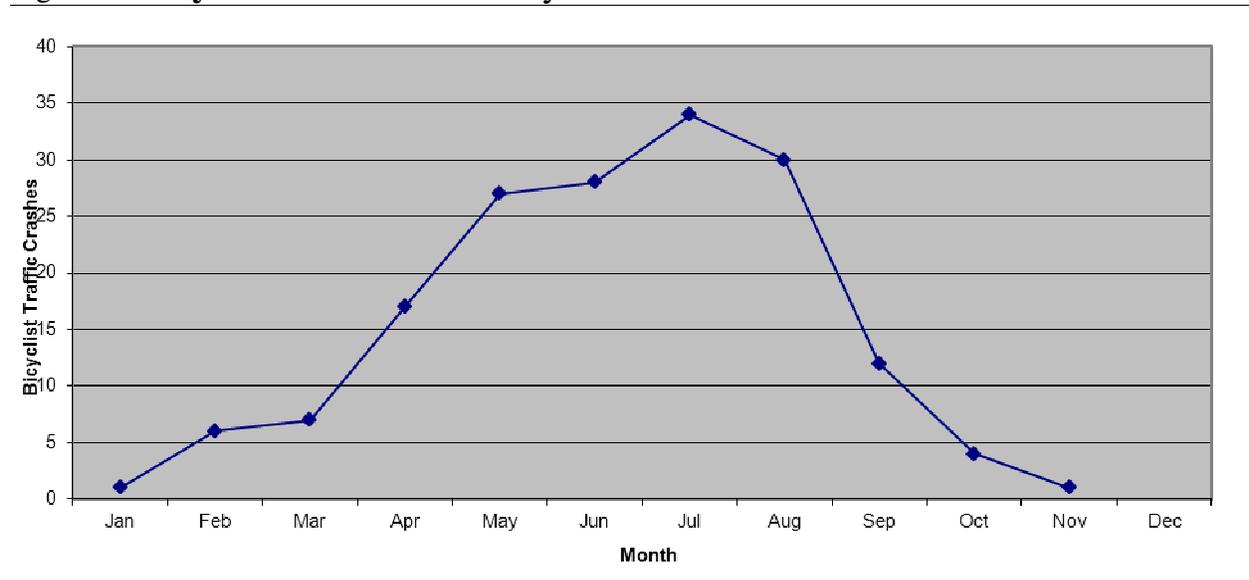
Crash Severity	Bicyclist Traffic Crashes	All Traffic Crashes	Bicyclist Crashes Percentage
Fatal	3	57	5.3 %
A-Type Injury	12	251	4.8%
B-Type Injury	53	809	6.6%
C-Type Injury	73	2,908	2.5%
PDO	26	18,496	0.1%
Total	167	22,521	0.7%

Source: www.michigantrafficcrashfacts.org

Bicyclist Traffic Crashes by Month, Day and Hour

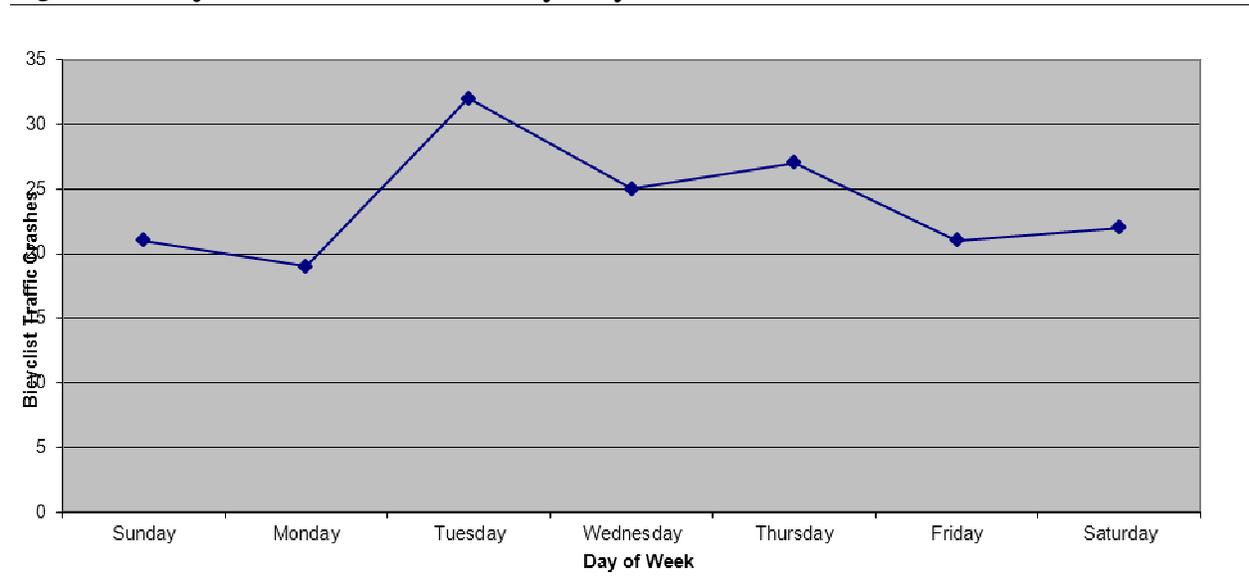
As shown in Figure 51, bicyclist traffic crashes were more likely to occur during summer time and least likely to occur during winter season due to the harsh weather condition.

Figure 51 **Bicyclist** Traffic Crashes by Month in 2014



Source: www.michigantrafficcrashfacts.org

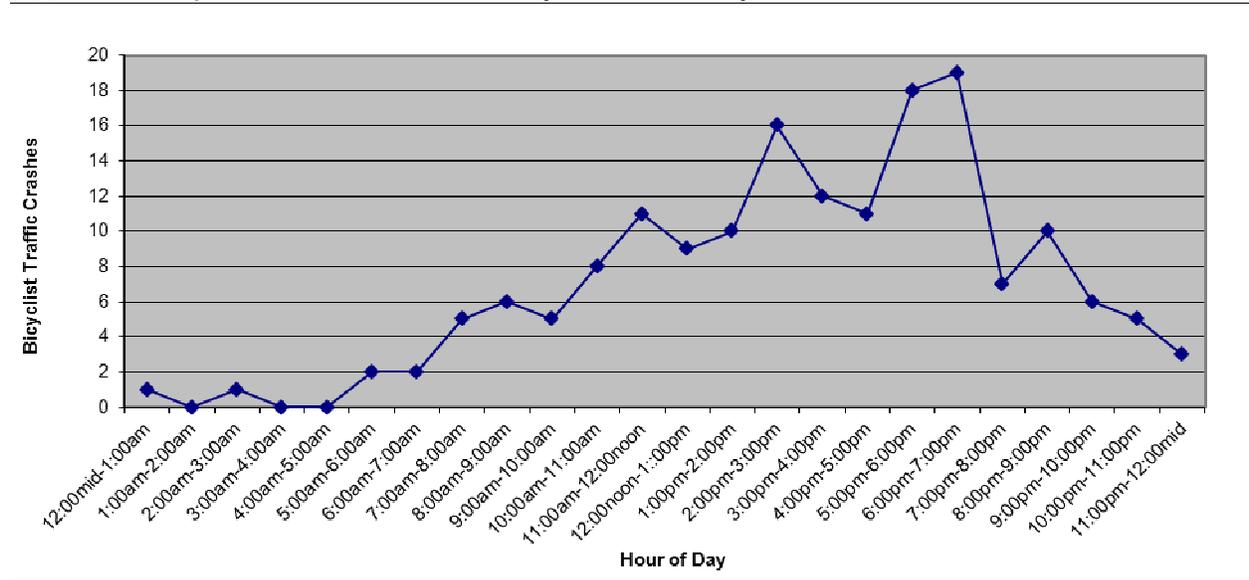
Figure 52 **Bicyclist** Traffic Crashes by Day of Week in 2014



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 2014**

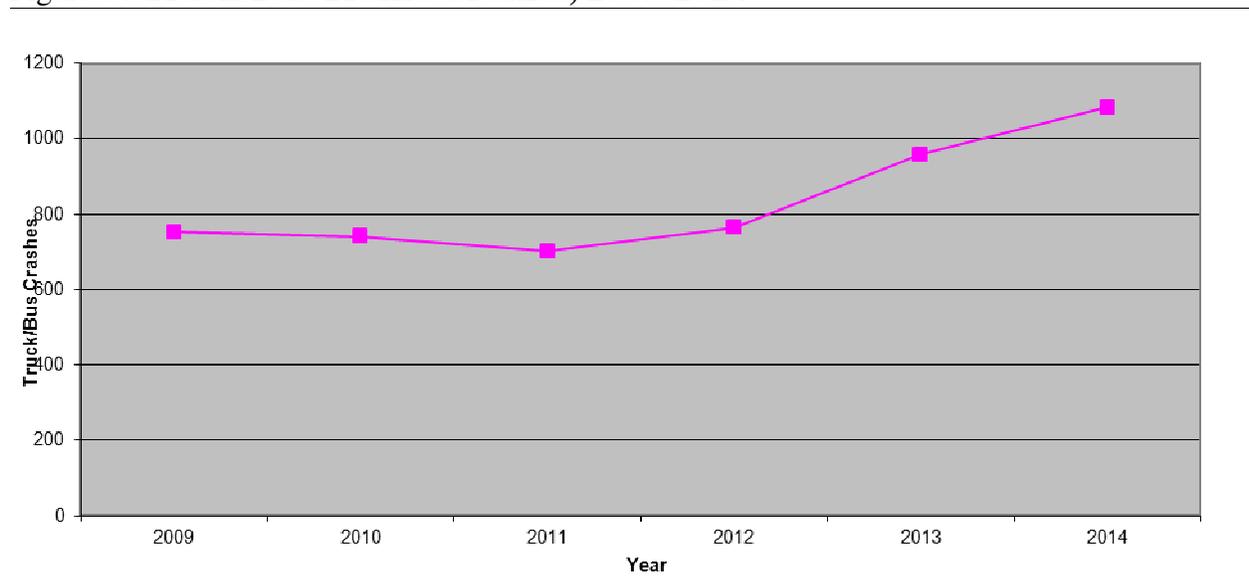


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes

Figure 54 shows the decrease trend of truck/bus crashes from 2009 to 2011 in GVMC area, while the crashes increased from 2011 to 2014.

Figure 54 **Truck/Bus Traffic Crashes, 2009-2014**

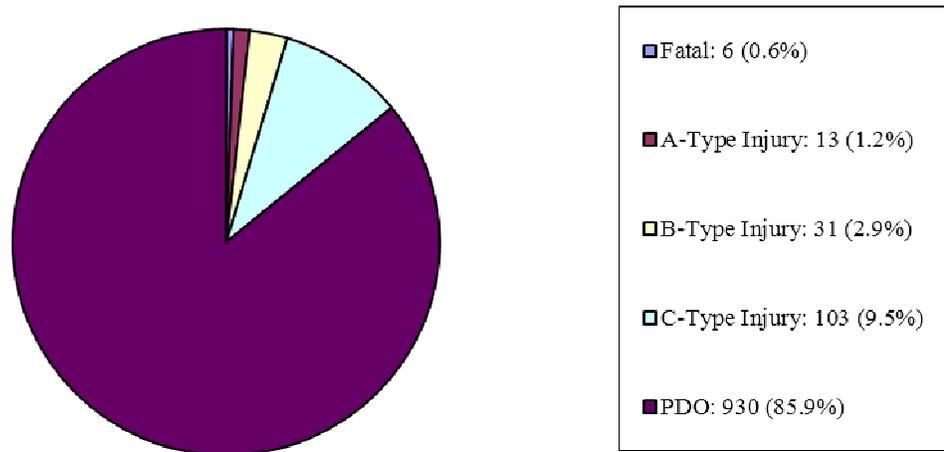


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes by Severity

Figure 55 shows truck/bus traffic crashes by severity in 2014. Most of the crashes were PDO crash (85.9%). As shown in Table 15, fatalities and A-type injuries in truck/bus crashes accounted for 10.5% of all traffic fatal crashes and 5.2% of all traffic A-Type injuries, respectively.

Figure 55 **Truck/Bus Traffic Crashes by Severity in 2014**



Source: www.michigantrafficcrashfacts.org

Table 15 **Truck/Bus Traffic Crash by Severity in 2014**

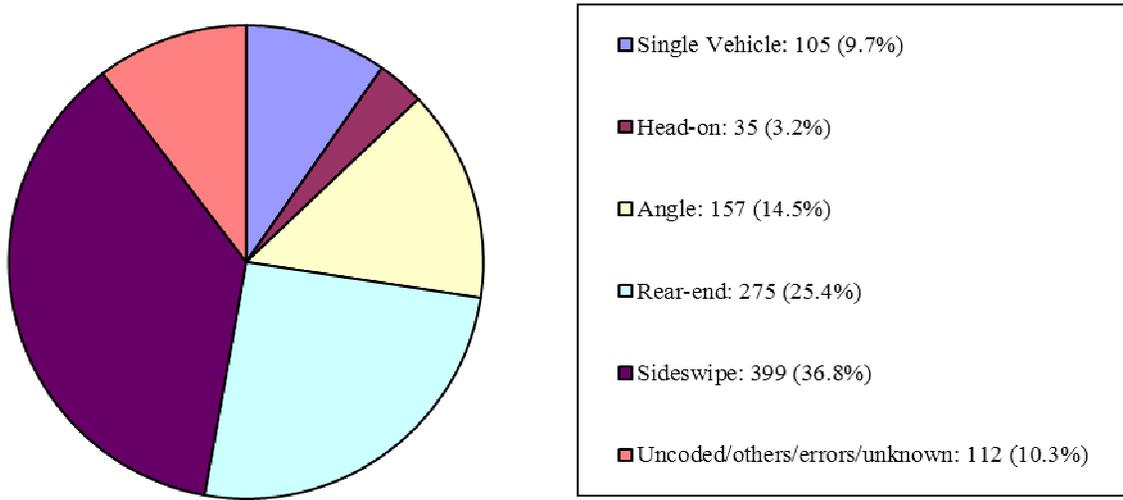
Crash Severity	Truck/Bus Traffic Crashes	All Traffic Crashes	Truck/Bus Crashes Percentage
Fatal	6	57	10.5%
A-Type Injury	13	251	5.2%
B-Type Injury	31	809	3.8%
C-Type Injury	103	2,908	3.5%
PDO	930	18,496	5.0%
Total	1083	22,521	4.8%

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 (36.8%) than any other crash type in 2014, and head-on were the fewest crash type (3.2%).

Figure 56 **Truck/Bus** Traffic Crashes by Crash Type in 2014

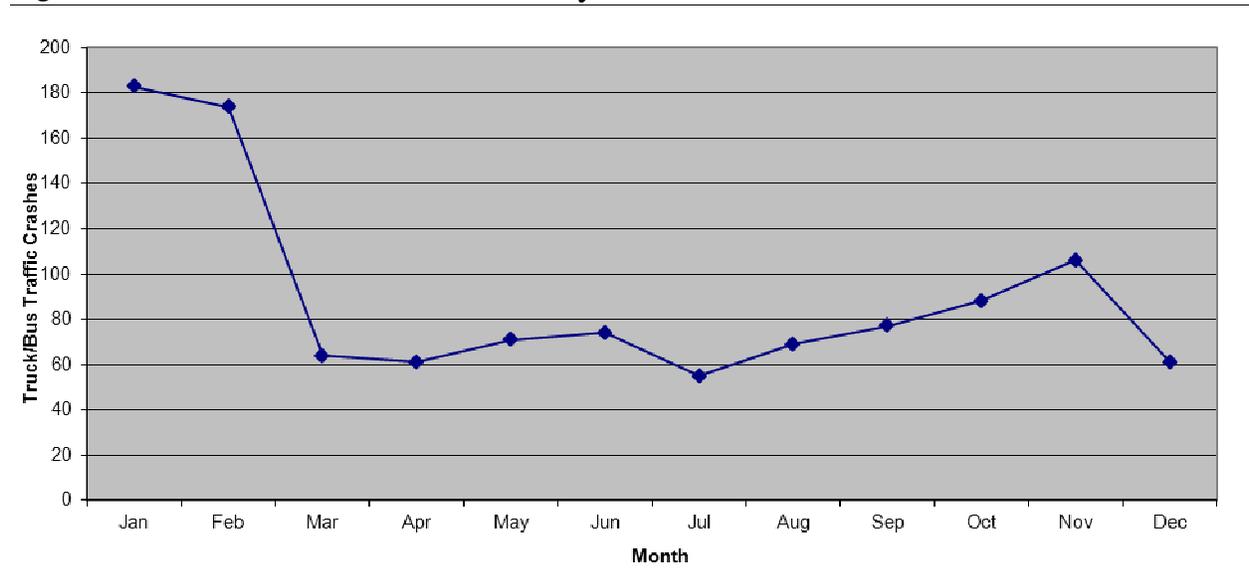


Source: www.michigantrafficcrashfacts.org

Truck/Bus Traffic Crashes by Month, Day and Hour

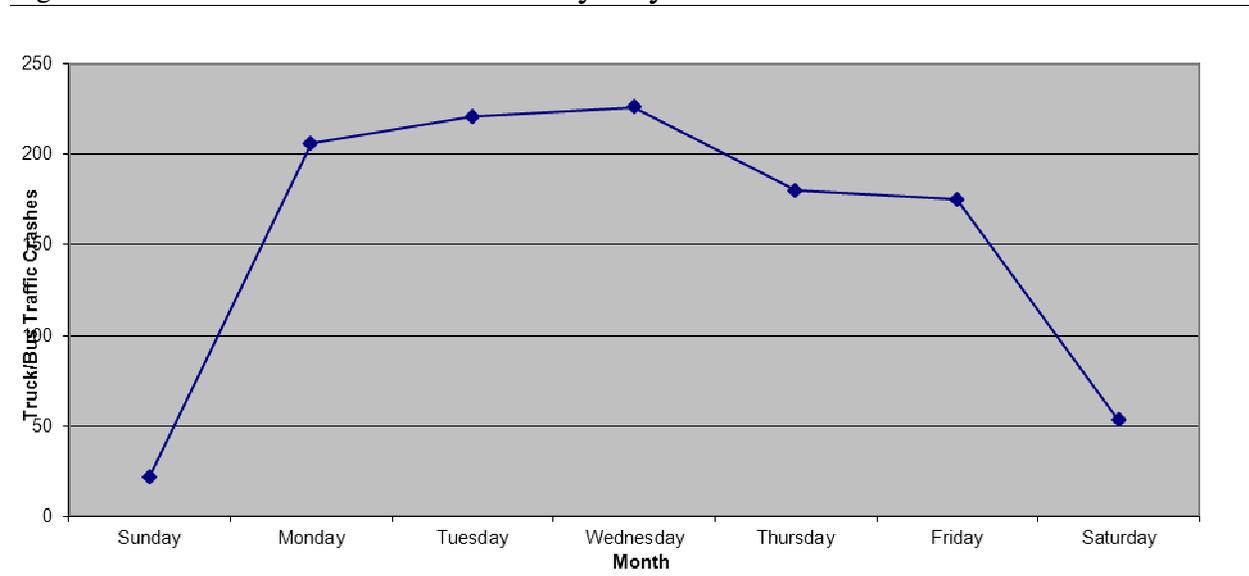
Figure 57 shows that truck/bus crashes were more likely to take place in January, and less likely to occur in July in 2014.

Figure 57 **Truck/Bus** Traffic Crashes by Month in 2014



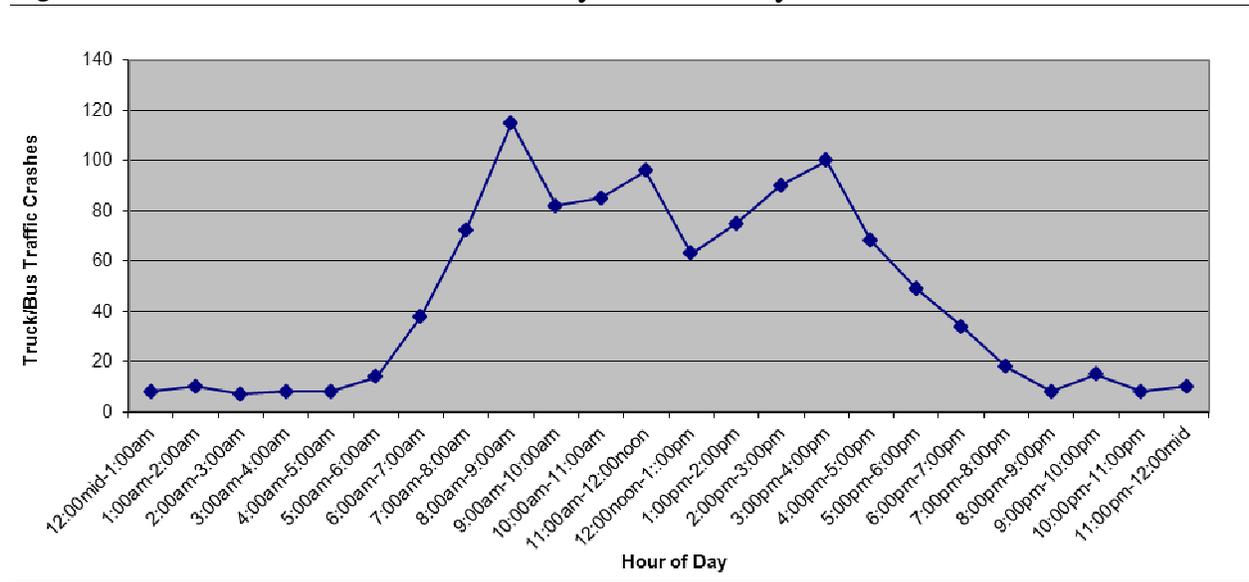
Source: www.michigantrafficcrashfacts.org

Figure 58 **Truck/Bus** Traffic Crashes by Day of Week in 2014



Source: www.michigantrafficcrashfacts.org

Figure 59 **Truck/Bus** Traffic Crashes by Hour of Day in 2014



Source: www.michigantrafficcrashfacts.org

Appendix: 2012-2014 Top 50 Crash intersections and Segments

Table 15 2012-2014 Top 50 Crash Intersections

Rank	Street	Cross Street	Total Crashes	Crash Rate	Fatal	Injury	PDO
1	44th St	Byron Center Ave	164	4.06	0	38	126
2	28th St	Eastern	145	2.6	1	41	103
3	Lake Eastbrook Blvd	E Beltline Ave	145	2.79	0	28	117
4	28th St	E Beltline Ave	134	1.79	0	30	104
5	44th St	Breton Rd	128	2.86	0	35	93
6	28th St SE	Kalamazoo Ave	124	1.98	0	25	99
7	28th St	Breton	124	2.01	0	31	93
8	28th St	Burlingame Ave	122	2.78	0	34	88
9	44th St SE	Eastern Ave	118	2.48	0	35	83
10	Lake Michigan Dr	Wilson Ave NW	118		0	20	98
11	28th St	S Division Ave	117	2.07	0	26	91
12	Michigan St	Ottawa Ave	115	3.3	0	17	98
13	Alpine Ave	4 Mile Rd	114		0	22	92
14	Fuller Ave	Michigan St	111	2.59	0	13	98
15	44th St	S Division Ave	109	2.21	0	26	83
16	28th St	East Paris Ave	106	2.13	0	24	82
17	44th St SE	Kalamazoo Ave	101	1.92	0	22	79
18	Alpine Ave	3 Mile Rd	100		0	23	77
19	Fuller Ave	Leonard St	99	2.28	0	23	76
20	28th St SW	Clyde Park Ave	98	2.39	0	24	74
21	44th St	Canal Ave	97	2.74	0	18	79
22	52nd St	Eastern Ave	96	2.88	0	26	70
23	44th St	Clyde Park Ave	94	2.57	0	17	77
24	28th St SE	Madison Ave	92	1.97	0	24	68
25	Alpine Ave	N I 296/Alpine RAMP	88		1	13	74

Table 15 2012-2014 Top 50 Crash Intersections (Cont')

Rank	Street	Cross Street	Total Crashes	Crash Rate	Fatal	Injury	PDO
26	Alpine Ave	Old Orchard Dr	87		0	21	66
27	28th St	Patterson Ave	82	2.6	0	12	70
28	Alpine Ave	Henze Dr	81		0	16	65
29	54 th St	Clyde Park Ave	79	2.52	0	19	60
30	E Beltline Ave	Burton St	77	1.8	0	18	57
31	28th St	Buchanan Ave	77	1.39	0	20	57
32	28th St	Radcliff Ave	75	1.67	0	17	58
33	Alpine Ave	Center Dr	75		0	18	57
34	E Beltline Ave	E I 96/Beltline RAMP	73	1.4	0	16	57
35	E Beltline Ave	Burton St	73	2.21	0	16	57
36	28th St	Dehoop Ave	73	2.37	0	12	61
37	Lake Michigan Dr	Collindale Ave	71	1.83	0	23	48
38	E Beltline Ave	Fulton St	71		0	15	56
39	28th St SE	E I 96/E 28th RAMP	70		0	8	62
40	Alpine Ave	Coventry Dr	70		0	11	59
41	Wealthy St	N US 131	69	1.99	0	11	58
42	E Beltline Ave	Cascade Rd	69		0	13	56
43	Michigan St	College Ave	68	1.96	0	21	47
44	E Beltline Ave	Knapp Ave	68	1.09	0	16	52
45	56 th St	Byron Center Ave	68	2.09	0	10	58
46	Wealthy St	Division Ave	67	1.60	0	7	60
47	Cottonwood Dr	Baldwin St	66		0	8	58
48	Burton	E Beltline Ave	66	1.49	0	13	53
49	44 th St	Ivanrest Ave	66	2.28	1	12	53
50	54 th St	Division Ave	66	1.88	1	19	46

Table 16 2012-2014 Top 50 Segments

Rank	Segment Name	From	To	Length	Crashes	Fatal	Injured	PDO
1	Alpine Ave NW	4 Mile Rd	Alpenhorn Dr	0.436	144	1	37	106
2	E Beltline Ave	Bradford St NE	Leonard St NE	0.498	124	0	26	98
3	28th St SW	Buchanan Ave	S Division Ave	0.25	118	0	30	88
4	Alpine Ave	Kingsbury St	4 Mile Rd	0.126	117	0	30	87
5	28th St	Breton Rd	Woodlawn Ave	0.485	115	0	19	96
6	Wilson Ave	Lake Michigan Dr	O Brien Rd	1.001	112	0	12	100
7	28th St	Broadmoor Ave	Lake Eastbrook Blvd	0.424	111	0	23	88
8	28th St	Lake Eastbrook Blvd	East Paris Ave	0.325	109	0	35	74
9	Alpine Ave	Coventry Dr	Old Orchard Dr	0.207	105	0	21	84
10	Alpine Ave	Old Orchard Dr	Kingsbury St	0.102	104	0	32	72
11	E Beltline Ave	Broadmoor Ave	Mall Dr	0.213	94	0	22	72
12	N US 131	N US 131/Wealthy RAMP	Wealthy St SW	0.119	94	0	24	70
13	Alpine Ave	Center Dr	Coventry Dr	0.125	94	0	19	75
14	E Beltline Ave	E Mall Dr	Lake Eastbrook	0.175	93	0	19	74
15	N US 131	Franklin Ramp	Franklin St	0.13	93	0	17	76
16	28th St	Eastern Ave	Brooklyn Ave	0.461	89	0	20	69
17	28th St SW	Hook Ave	Dehoop Ave	0.203	89	0	22	67
18	E Beltline Ave	Cascade Rd	Fulton St	0.425	85	0	13	72
19	28th St SE	East Paris Ave	Acquest Ave	0.501	84	0	19	65
20	44th St	Byron Center Ave	Forest Park Dr	0.345	84	0	23	61
21	28th St	City/Twp Line	Eastern Ave	0.199	83	1	29	53
22	28th St SE	Acquest Ave	Patterson Ave	0.497	82	0	22	60
23	N I 296 /Alpine RAMP	N US 131	Alpine Ave	0.37	80	1	12	67
24	Lake Michigan Dr	Ferndale	Wilson Ave	0.187	79	0	15	64
25	44th St SE	Applewood Dr	Breton Rd SE	0.289	78	2	19	57

Table 16 20121-2014 Top 50 Segments (Cont')

Rank	Segment Name	From	To	Length	Crashes	Fatal	Injured	PDO
26	28th St SE	Birchcrest Dr	Breton Rd	0.113	77	0	23	54
27	Broadmoor Ave	29th St	28th St	0.232	76	0	22	54
28	Fillmore St	Meana Dr	28 th Ave	0.96	74	1	13	60
29	Alpine Ave	Ferris St	3 Mile Rd	0.18	72	0	8	64
30	Rivertown Pkwy	Rivertown Parkway	Wilson Ave	0.498	72	0	13	59
31	S US 131	Wealthy St SW	Wealthy Ramp	0.188	70	0	13	57
32	28th St SE	Radcliff Ave	Shaffer Ave	0.18	69	0	13	56
33	28th St SE	Ridgemoor Dr	Radcliff Ave	0.124	67	0	16	51
34	Kalamazoo Ave	Auditorium Dr	60th St SE	0.332	67	0	15	52
35	44th St	Ivanrest Ave	Macatawa Dr	0.158	67	0	15	52
36	28th St SE	Madison Ave	Union Ave	0.156	66	0	17	49
38	28th St SE	Patterson Ave	Northern Dr	0.272	65	0	12	53
39	N US 131	Franklin St	Franklin RAMP	0.17	65	0	14	51
40	44th St	Prairie Dr	Clyde Park	0.105	65	0	14	51
41	Broadmoor Ave	84 th St	Valley Point West Dr	0.315	64	0	17	47
42	Michigan St NE	Monroe Ave	Ottawa Ave	0.112	64	0	8	56
43	E Beltline Ave	Burton Ridge Rd	Burton St	0.118	63	0	9	54
44	54th St SW	Haughey Ave	S Division Ave	0.319	63	1	17	45
45	28th St	Vineland Ave	Kalamazoo Ave	0.32	62	0	16	46
46	44 th St	Breton Rd	Breton Woods Dr	0.217	62	0	13	49
47	48 th Ave	W Campus Dr	Lake Michigan Dr	0.608	61	0	5	56
48	44 th St	Carol Ave	Byron Center Ave	0.157	61	0	12	49
49	N US 131	Burton Ramp	Burton St	0.13	60	0	19	41
50	28th St SE	Kalamazoo Ave	Chamberlain Ave	0.483	59	0	18	41