



## VEHICLE TYPE CRASH INVOLVEMENT



### MOST SEVERE OUTCOME IN CRASH

### MOST SEVERE OUTCOME IN VEHICLE

Vehicle Types	Motor Vehicles		Fatal Crash		Injury	PDO	Fatality in Veh		Injury	No Injury
	Number of Vehicles	% of Total	Number	% of Total			Number	% of Total		
Passenger Car and Station Wagon	488,739	67.8	1,260	61.0	114,878	372,601	761	70.6	74,320	413,658
Van and Motorhome	55,368	7.7	138	6.7	12,723	42,507	53	4.9	6,807	48,508
Pickup	110,619	15.4	352	17.0	22,256	88,011	142	13.2	11,729	98,748
Small Truck (under 10,000 lbs.)	15,331	2.1	32	1.5	3,241	12,058	10	0.9	1,687	13,634
Motorcycle	2,820	0.4	80	3.9	2,090	650	74	6.9	2,065	681
Moped	266	0.0	6	0.3	185	75	6	0.6	178	82
Go Cart	16	0.0	0	0.0	10	6	0	0.0	9	7
Snowmobile	463	0.1	10	0.5	290	163	10	0.9	256	197
Off Road Vehicle	234	0.0	6	0.3	172	56	4	0.4	161	69
Other	2,068	0.3	11	0.5	417	1,640	2	0.2	191	1,875
Unkown	22,840	3.2	19	0.9	2,309	20,512	2	0.2	527	22,311
CDL Truck/Bus (breakdown below)	21,629	3.0	152	7.4	4,127	17,350	14	1.3	1,124	20,491
<b>Total Number of Vehicles</b>	<b>720,393</b>	<b>100.0</b>	<b>2,066</b>	<b>100.0</b>	<b>162,698</b>	<b>555,629</b>	<b>1,078</b>	<b>100.0</b>	<b>99,054</b>	<b>620,261</b>

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	Motor Vehicles		Fatal Crash		Injury	PDO	Fatality in Veh		Injury	No Injury
	Number of Vehicles	% of Total	Number	% of Total			Number	% of Total		
Commercial Vehicle: Group A	10,488	48.5	94	61.8	2,043	8,351	9	64.3	476	10,003
Commercial Vehicle: Group B	4,609	21.3	27	17.8	965	3,617	2	14.3	325	4,282
Commercial Vehicle: Group C	622	2.9	5	3.3	120	497	1	7.1	55	566
Other Truck	1,212	5.6	9	5.9	250	953	0	0.0	74	1,138
Unknown Truck	4,698	21.7	17	11.2	749	3,932	2	14.3	194	4,502
<b>Total Number of Vehicles</b>	<b>21,629</b>	<b>100.0</b>	<b>152</b>	<b>100.0</b>	<b>4,127</b>	<b>17,350</b>	<b>14</b>	<b>100.0</b>	<b>1,124</b>	<b>20,491</b>

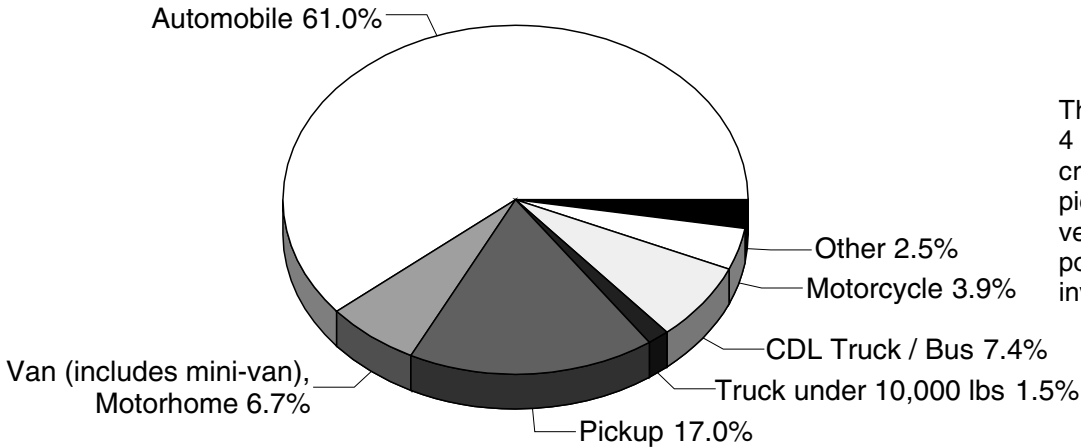
Group "A" is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group "B" is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group "C" is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group "C" is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

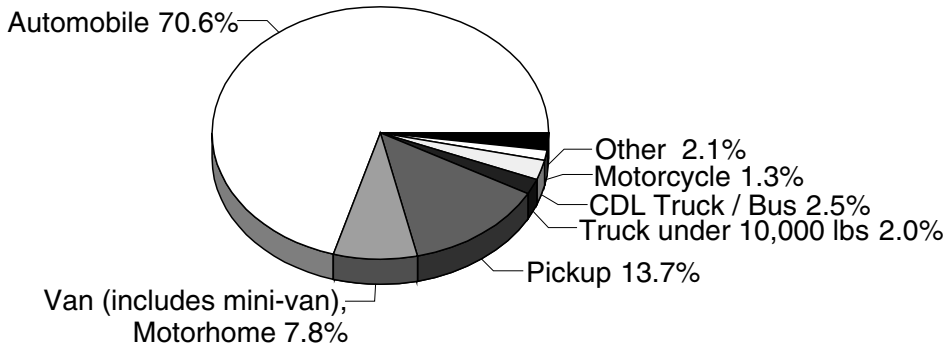
# VEHICLE TYPES IN CRASHES BY CRASH SEVERITY

## FATAL



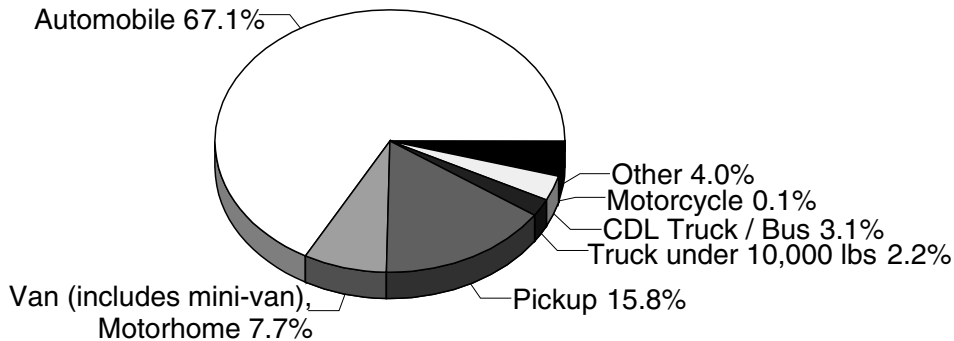
The top chart shows that 3 out of 4 vehicles involved in fatal crashes are automobiles or pickups. Van, Motorhome, the vehicle type that includes the popular minivan, has a fatal crash involvement of 6.7 percent.

## INJURY



Special Note: "Other" consists of Moped, Go Cart, Snowmobile, Off Road Vehicle, Other, and Unknown.

## PROPERTY DAMAGE ONLY



As with fatal crashes, Injury and PDO crashes are represented primarily by cars and pickups. One should also note the decline in proportional representation for motorcycles and heavy trucks compared to their levels in fatal crashes.

## ACTION PRIOR TO CRASH

### MOST SEVERE OUTCOME IN CRASH

DRIVER ACTION	All Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Going straight ahead	367,512	51.0	1,460	10,654	23,008	52,958	279,432
Turning left	53,981	7.5	116	1,612	4,064	9,116	39,073
Turning right	20,559	2.9	19	260	838	2,223	17,219
Stopped on roadway	70,399	9.8	73	1,012	3,021	15,598	50,695
In prior crash	1,034	0.1	7	38	77	209	703
Changing lanes	16,547	2.3	41	261	479	1,648	14,118
Backing	19,467	2.7	6	72	208	671	18,510
Slowing/stopping on roadway	60,556	8.4	46	682	2,044	12,258	45,526
Slowing/stopping other	869	0.1	5	17	41	144	662
Starting up on roadway	13,748	1.9	41	318	821	2,465	10,103
Starting up other	407	0.1	0	11	24	68	304
Entering parking	1,039	0.1	2	12	28	81	916
Leaving parking	2,839	0.4	5	38	125	328	2,343
Entering roadway	11,248	1.6	26	257	619	1,630	8,716
Leaving roadway	1,400	0.2	18	82	181	176	943
Making U-turn	1,736	0.2	8	72	120	252	1,284
Overtaking or passing	6,377	0.9	41	200	400	669	5,067
Avoiding object	1,978	0.3	4	74	174	296	1,430
Avoiding pedestrian	174	0.0	5	14	32	31	92
Avoiding vehicle (front/back)	5,708	0.8	39	209	421	936	4,103
Avoiding vehicle (angle)	2,489	0.3	10	97	225	376	1,781
Driverless moving	580	0.1	0	11	24	34	511
Parked	31,361	4.4	44	387	805	1,278	28,847
Crossing at intersection	89	0.0	0	4	12	23	50
Crossing not at intersection	69	0.0	1	13	20	15	20
Getting on/off vehicle	12	0.0	0	0	0	2	10
In roadway with traffic	16	0.0	1	0	3	7	5
In roadway against traffic	12	0.0	0	2	1	4	5
Standing or lying in roadway	14	0.0	1	4	1	2	6
Pushing/working on vehicle	13	0.0	0	2	1	1	9
Other working in roadway	2	0.0	0	0	0	0	2
Playing in roadway	5	0.0	0	2	2	0	1
In roadway other reason	15	0.0	0	1	3	1	10
Not in roadway	10	0.0	0	0	0	2	8
Other	549	0.1	5	25	38	72	409
Unknown	27,579	3.8	42	455	1,088	3,278	22,716
<b>TOTAL</b>	<b>720,393</b>	<b>100.0</b>	<b>2,066</b>	<b>16,898</b>	<b>38,948</b>	<b>106,852</b>	<b>555,629</b>

## ACTION PRIOR TO CRASH (continued)

### MOTORCYCLIST – INJURY SEVERITY

MOTORCYCLIST ACTION	All Motorcycles		All Motorcyclists		Fatal	Injury			No Injury
	Number of Motorcycles	% of Total	Number of Motorcyclist	% of Total		A	B	C	
Going straight ahead	1,842	65.3	2,105	65.5	67	482	695	449	361
Turning left	149	5.3	167	5.2	0	22	53	46	40
Turning right	99	3.5	111	3.5	1	10	36	29	30
Stopped on roadway	118	4.2	130	4.0	0	11	18	38	60
In prior crash	2	0.1	2	0.1	0	0	0	0	0
Changing lanes	49	1.7	52	1.6	0	8	19	5	18
Backing	2	0.1	2	0.1	0	0	0	1	1
Slowing/stopping on roadway	150	5.3	158	4.9	1	21	41	47	42
Slowing/stopping other	5	0.2	5	0.2	1	0	0	4	0
Starting up on roadway	25	0.9	28	0.9	0	2	15	5	6
Starting up other	3	0.1	7	0.2	0	0	4	2	1
Entering parking	1	0.0	1	0.0	0	0	1	0	0
Leaving parking	6	0.2	7	0.2	0	0	2	2	3
Entering roadway	25	0.9	36	1.1	0	10	12	4	10
Leaving roadway	12	0.4	16	0.5	1	2	4	6	2
Making U-turn	10	0.4	12	0.4	0	1	3	3	5
Overtaking or passing	62	2.2	69	2.1	0	19	23	13	13
Avoiding object	30	1.1	33	1.0	0	9	10	6	8
Avoiding pedestrian	4	0.1	6	0.2	0	0	3	0	3
Avoiding vehicle (front/back)	63	2.2	71	2.2	1	10	36	16	7
Avoiding vehicle (angle)	43	1.5	49	1.5	0	13	23	6	7
Driverless moving	1	0.0	2	0.1	0	0	2	0	0
Parked	36	1.3	36	1.1	0	0	1	0	8
Crossing at intersection	0	0.0	8	0.2	0	0	1	5	2
Crossing not at intersection	2	0.1	3	0.1	0	0	2	1	0
Getting on/off vehicle	0	0.0	0	0.0	0	0	0	0	0
In roadway with traffic	0	0.0	1	0.0	1	0	0	0	0
In roadway against traffic	0	0.0	4	0.1	0	1	1	1	1
Standing or lying in roadway	1	0.0	1	0.0	0	0	0	1	0
Pushing/working on vehicle	1	0.0	2	0.1	0	1	0	1	0
Other working in roadway	0	0.0	0	0.0	0	0	0	0	0
Playing in roadway	0	0.0	1	0.0	0	1	0	0	0
In roadway other reason	1	0.0	1	0.0	0	1	0	0	0
Not in roadway	0	0.0	2	0.1	0	0	0	2	0
Other	6	0.2	7	0.2	0	1	5	1	0
Unknown	72	2.6	80	2.5	4	8	30	16	15
<b>TOTAL</b>	<b>2,820</b>	<b>100.0</b>	<b>3,215*</b>	<b>100.0</b>	<b>77</b>	<b>633</b>	<b>1,040</b>	<b>710</b>	<b>643</b>

\* Includes 112 motorcyclists (drivers and passengers) with unknown injury severity

## ACTION PRIOR TO CRASH (continued)

### BICYCLIST - INJURY SEVERITY

BICYCLIST ACTION	All Bicycles		Fatal	Injury			No Injury
	Number of Bicycles	% of Total		A	B	C	
Going straight ahead	1,444	51.6	9	166	519	467	227
Turning left	90	3.2	1	12	37	22	15
Turning right	32	1.1	1	4	8	13	6
Stopped on roadway	17	0.6	0	2	6	3	6
In prior crash	2	0.1	0	0	1	1	0
Changing lanes	39	1.4	0	7	16	11	4
Backing	3	0.1	0	0	1	0	2
Slowing/stopping on roadway	12	0.4	0	0	6	3	3
Slowing/stopping other	7	0.3	0	0	3	4	0
Starting up on roadway	18	0.6	0	1	7	3	7
Starting up other	6	0.2	0	0	2	4	0
Entering parking	4	0.1	0	1	1	1	1
Leaving parking	8	0.3	0	2	1	1	3
Entering roadway	206	7.4	2	21	72	70	37
Leaving roadway	4	0.1	0	3	0	1	0
Making U-turn	6	0.2	0	0	4	1	1
Overtaking or passing	6	0.2	0	0	3	2	1
Avoiding object	0	0.0	0	0	0	0	0
Avoiding pedestrian	0	0.0	0	0	0	0	0
Avoiding vehicle (front/back)	2	0.1	0	0	0	2	0
Avoiding vehicle (angle)	9	0.3	0	0	5	4	0
Driverless moving	2	0.1	0	0	0	1	1
Parked	6	0.2	0	2	3	0	1
Crossing at intersection	391	14.0	2	23	155	137	63
Crossing not at intersection	171	6.1	2	24	73	50	17
Getting on/off vehicle	1	0.0	0	0	1	0	0
In roadway with traffic	49	1.8	2	13	18	11	5
In roadway against traffic	31	1.1	0	2	11	13	3
Standing or lying in roadway	1	0.0	0	0	0	0	1
Pushing/working on vehicle	0	0.0	0	0	0	0	0
Other working in roadway	0	0.0	0	0	0	0	0
Playing in roadway	14	0.5	0	2	6	2	4
In roadway other reason	21	0.8	1	3	7	7	3
Not in roadway	35	1.3	1	3	11	11	9
Other	55	2.0	3	8	14	25	5
Unknown	105	3.8	1	9	36	31	12
<b>TOTAL</b>	<b>2,797*</b>	<b>100.0</b>	<b>25</b>	<b>308</b>	<b>1,027</b>	<b>901</b>	<b>437</b>

\* Includes 99 bicyclists with unknown injury severity

## ACTION PRIOR TO CRASH (continued)

### PEDESTRIAN - INJURY SEVERITY

PEDESTRIAN ACTION	All Pedestrians		Fatal	Injury			No Injury
	Number of Pedestrians	% of Total		A	B	C	
Going straight ahead	178	4.8	7	28	54	50	29
Turning left	22	0.6	0	5	4	5	7
Turning right	7	0.2	0	2	3	1	0
Stopped on roadway	16	0.4	1	3	6	3	3
In prior crash	6	0.2	0	1	4	1	0
Changing lanes	5	0.1	0	0	3	1	0
Backing	4	0.1	0	0	1	1	2
Slowing/stopping on roadway	4	0.1	0	1	0	1	2
Slowing/stopping other	0	0.0	0	0	0	0	0
Starting up on roadway	3	0.1	0	0	1	0	1
Starting up other	0	0.0	0	0	0	0	0
Entering parking	0	0.0	0	0	0	0	0
Leaving parking	1	0.0	0	0	0	0	1
Entering roadway	32	0.9	0	6	16	8	1
Leaving roadway	6	0.2	0	1	1	3	1
Making U-turn	2	0.1	0	0	1	0	1
Overtaking or passing	0	0.0	0	0	0	0	0
Avoiding object	2	0.1	0	0	0	0	1
Avoiding pedestrian	1	0.0	0	0	1	0	0
Avoiding vehicle (front/back)	5	0.1	0	0	2	1	1
Avoiding vehicle (angle)	2	0.1	0	0	0	2	0
Driverless moving	2	0.1	0	0	1	1	0
Parked	12	0.3	0	2	3	2	3
Crossing at intersection	803	21.8	10	154	261	305	58
Crossing not at intersection	1,092	29.7	66	282	361	278	69
Getting on/off vehicle	60	1.6	4	16	20	14	5
In roadway with traffic	212	5.8	15	38	70	72	11
In roadway against traffic	55	1.5	9	9	16	18	3
Standing or lying in roadway	145	3.9	17	31	43	44	5
Pushing/working on vehicle	47	1.3	2	18	12	12	3
Other working in roadway	63	1.7	0	8	18	28	9
Playing in roadway	83	2.3	2	15	35	23	5
In roadway other reason	210	5.7	12	40	64	71	15
Not in roadway	179	4.9	20	39	51	60	5
Other	141	3.8	2	26	42	57	6
Unknown	277	7.5	9	68	73	86	18
<b>TOTAL</b>	<b>3,677*</b>	<b>100.0</b>	<b>176</b>	<b>793</b>	<b>1,167</b>	<b>1,148</b>	<b>265</b>

\* Includes 128 pedestrians with unknown injury severity

## MOST HARMFUL EVENT

### MOST SEVERE OUTCOME IN CRASH

NONCOLLISION	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Loss of control	6,455	0.9	12	174	451	1,006	4,812
Cross center/median	1,749	0.2	0	34	75	140	1,500
Ran off road left	1,110	0.2	2	42	88	159	819
Ran off road right	1,579	0.2	5	41	122	234	1,177
Re-enter road	412	0.1	1	16	43	64	288
Overturn	8,557	1.2	119	828	1,709	1,930	3,971
Separation of units	3,171	0.4	7	84	144	489	2,447
Fire/explosion	1,056	0.1	7	13	32	85	919
Immersion	286	0.0	4	21	34	43	184
Jackknife	402	0.1	0	6	14	41	341
Downhill runaway	84	0.0	0	1	7	5	71
Cargo loss/shift	962	0.1	1	19	25	48	869
Individual fell off	399	0.1	11	108	147	56	77
Other noncollision	2,275	0.3	3	40	124	205	1,903
NONCOLLISION Subtotal	28,497	4.0	172	1,427	3,015	4,505	19,378

### MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH NONFIXED OBJECT	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Pedestrian	2,881	0.4	160	624	911	892	294
Pedalcycle	2,546	0.4	22	274	909	794	547
Motor vehicle in transport	491,736	68.3	1,326	10,837	25,794	84,724	369,055
Parked motor vehicle	21,045	2.9	20	204	505	891	19,425
Railway train	163	0.0	6	16	21	24	96
Animal	62,679	8.7	2	59	388	881	61,349
Other nonfixed objects	6,474	0.9	6	86	205	371	5,806
COLLISION NONFIXED Subtotal	587,524	81.6	1,542	12,100	28,733	88,577	456,572

## MOST HARMFUL EVENT (continued)

### MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH FIXED OBJECT	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Bridge/pier/abutment	672	0.1	9	37	59	85	482
Bridge parapet end	403	0.1	0	9	13	13	368
Bridge rail	402	0.1	1	12	33	60	296
Guardrail face	2,590	0.4	6	66	212	400	1,906
Guardrail end	426	0.1	3	31	49	70	273
Median barrier	2,667	0.4	5	129	254	580	1,699
Highway traffic sign post	2,280	0.3	5	16	61	108	2,090
Signal post	265	0.0	2	9	12	16	226
Luminaire/light support	576	0.1	8	22	50	66	430
Utility pole	3,333	0.5	27	205	488	534	2,079
Other pole	1,045	0.1	3	31	71	113	827
Culvert	659	0.1	6	59	117	96	381
Curb	1,789	0.2	1	27	89	158	1,514
Ditch	6,923	1.0	27	299	810	1,021	4,766
Embankment	1,852	0.3	13	103	238	302	1,196
Fence	1,385	0.2	1	27	55	104	1,198
Mailbox	2,059	0.3	1	21	52	75	1,910
Tree	9,869	1.4	155	832	1,425	1,505	5,952
Rail crossing signal	132	0.0	0	1	4	4	123
Building	821	0.1	9	59	124	101	528
Traffic island	44	0.0	0	3	1	3	37
Fire hydrant	533	0.1	2	9	47	52	423
Impact attenuator	32	0.0	0	2	4	6	20
Other fixed object	3,347	0.5	12	92	266	332	2,645
<b>COLLISION FIXED Subtotal</b>	<b>44,104</b>	<b>6.1</b>	<b>296</b>	<b>2,101</b>	<b>4,534</b>	<b>5,804</b>	<b>31,369</b>

### MOST SEVERE OUTCOME IN CRASH

	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Unknown Event	60,268	8.4	56	1,270	2,666	7,966	48,310
<b>TOTAL MOST HARMFUL EVENT</b>	<b>720,393</b>	<b>100.0</b>	<b>2,066</b>	<b>16,898</b>	<b>38,948</b>	<b>106,852</b>	<b>555,629</b>

## VEHICLE DEFECTS IN CRASH INVOLVEMENT

### MOST SEVERE OUTCOME IN CRASH

VEHICLE DEFECTS	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Brakes	1,664	0.2	4	49	115	317	1,179
Lights/reflectors	400	0.1	2	10	22	39	327
Steering	253	0.0	1	10	22	46	174
Tires/wheels	744	0.1	11	34	58	93	548
Windows	155	0.0	1	4	13	19	118
Other	1,678	0.2	5	41	76	190	1,366
Unknown	715,499	99.3	2,042	16,750	38,642	106,148	551,917
<b>TOTAL</b>	<b>720,393</b>	<b>100.0</b>	<b>2,066</b>	<b>16,898</b>	<b>38,948</b>	<b>106,852</b>	<b>555,629</b>

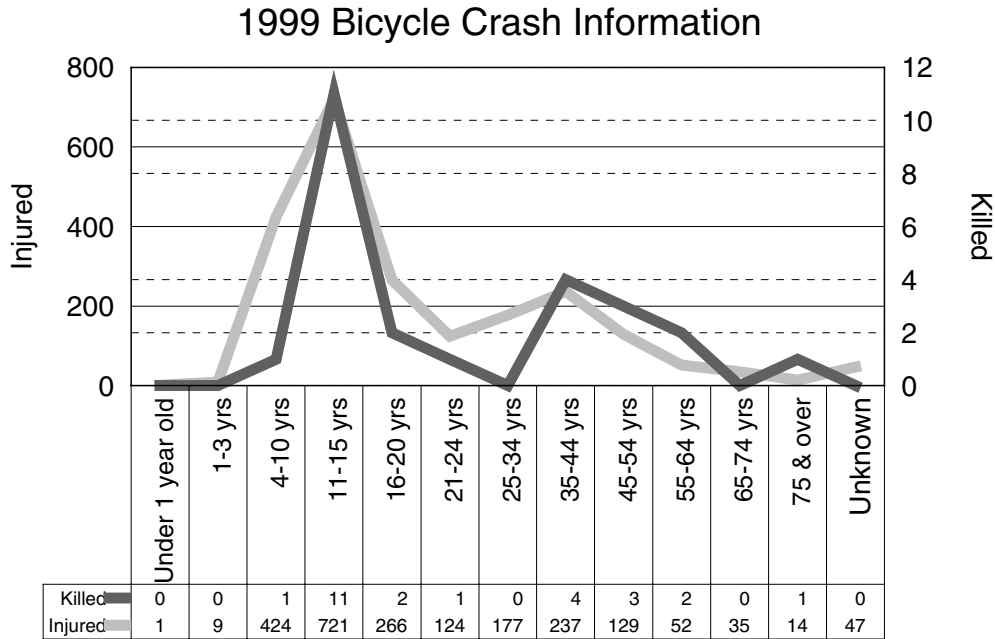
## DRIVER HAZARDOUS ACTION

### MOST SEVERE OUTCOME IN CRASH

HAZARDOUS ACTION	All Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
None	367,588	51.0	846	7,255	17,369	52,013	290,105
Speed too fast	38,184	5.3	265	1,822	3,791	6,089	26,217
Speed too slow	1,241	0.2	2	26	78	231	904
Failed to yield	65,206	9.1	184	2,029	5,155	11,596	46,242
Disregard traffic control	16,634	2.3	120	897	1,975	3,825	9,817
Drove wrong way	569	0.1	13	40	49	93	374
Drove left of center	4,498	0.6	114	328	521	647	2,888
Improper passing	5,175	0.7	14	94	203	456	4,408
Improper lane use	16,099	2.2	20	206	413	1,323	14,137
Improper turn	9,009	1.3	7	190	421	1,014	7,377
Improper/no signal	978	0.1	1	14	32	89	842
Improper backing	14,518	2.0	4	34	109	367	14,004
Unable to stop in assured clear distance	94,807	13.2	85	1,271	3,608	19,645	70,198
Other	38,565	5.4	202	1,700	3,417	5,027	28,219
Unknown	47,322	6.6	189	992	1,807	4,437	39,897
<b>TOTAL</b>	<b>720,393</b>	<b>100.0</b>	<b>2,066</b>	<b>16,898</b>	<b>38,948</b>	<b>106,852</b>	<b>555,629</b>



## MICHIGAN BICYCLE CRASHES



In 1999, there were 2,797 bicyclists involved in motor vehicles crashes, with 25 bicyclists killed and 2,236 injured. The number of bicyclists killed represents a 7.4 percent decrease from 1998.

Children under 16 years of age accounted for 12 (48%) of the bicycle deaths in 1999.

### BICYCLE HELMET USE AND INJURY SEVERITY

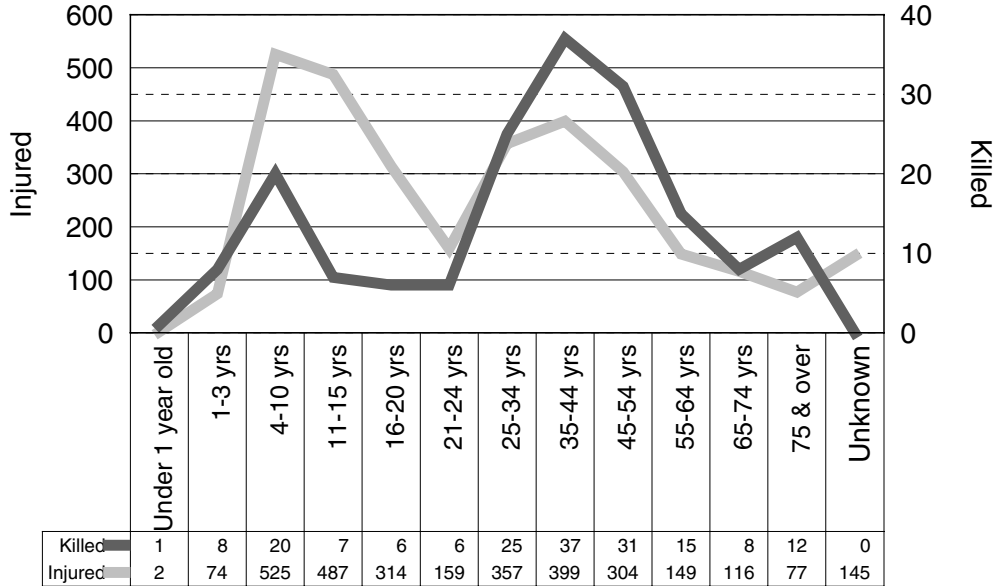
HELMET USE	Fatality	Injury			No Injury
		A	B	C	
Worn	1	21	53	39	23
Not Worn	5	106	319	285	109
Unknown	19	181	655	577	305
<b>TOTALS</b>	<b>25</b>	<b>308</b>	<b>1,027</b>	<b>901</b>	<b>437</b>

The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration cites a study by the Centers for Disease Control [11] in giving us the following information: "Bicycle helmets are 85 to 88 percent effective in mitigating head and brain injuries, making the use of helmets the **single most effective countermeasure** available to reduce head injuries and fatalities resulting from bicycle crashes."



# MICHIGAN PEDESTRIAN CRASHES

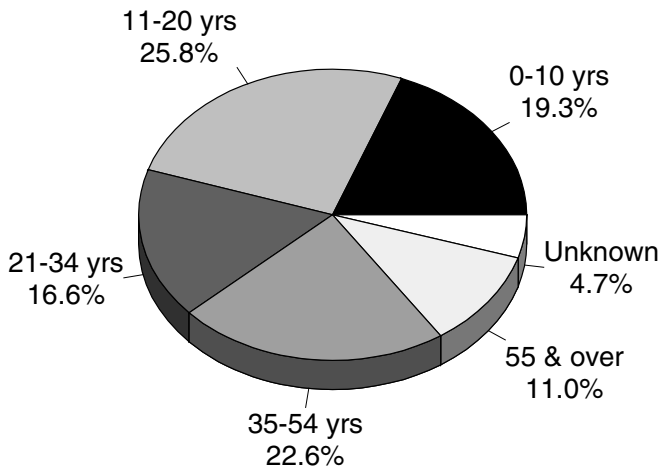
## 1999 Pedestrian Crash Information



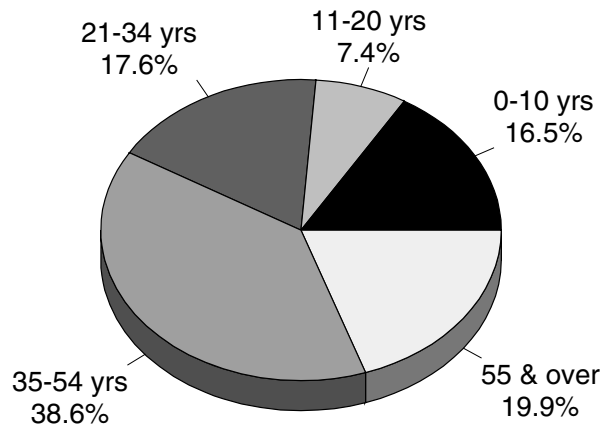
In 1999, there were 3,677 pedestrians involved in motor vehicles crashes, with 176 pedestrians killed and 3,108 injured. The number killed represents a 2.3 percent increase in fatalities from 1998.

Children under 16 years of age accounted for 36 (20.5%) of the pedestrian deaths in 1999. Adults over the age of 54 accounted for 35 (19.9%) of the pedestrian deaths in 1999.

### Pedestrians Injured



### Pedestrians Killed





## MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES

### Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

NONCOLLISION	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Loss of control	7	1.5	0	4	2	0	1
Cross center/median	1	0.2	0	0	0	0	1
Ran off road left	2	0.4	0	0	0	1	1
Ran off road right	1	0.2	0	0	1	0	0
Re-enter road	1	0.2	0	0	0	0	1
Overturn	29	6.3	1	6	6	11	5
Separation of units	3	0.6	0	0	0	3	0
Fire/explosion	1	0.2	0	0	0	1	0
Immersion	2	0.4	0	1	0	0	1
Jackknife	0	0.0	0	0	0	0	0
Downhill runaway	0	0.0	0	0	0	0	0
Cargo loss/shift	0	0.0	0	0	0	0	0
Individual fell off	28	6.0	1	16	5	5	1
Other noncollision	5	1.1	0	1	1	1	2
NONCOLLISION Subtotal	80	17.3	2	28	15	22	13

MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH NONFIXED OBJECT	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Pedestrian	5	1.1	0	2	3	0	0
Pedalcycle	0	0.0	0	0	0	0	0
Motor vehicle in transport	181	39.1	1	47	22	30	81
Parked motor vehicle	23	5.0	2	4	0	6	11
Railway train	1	0.2	0	0	0	0	1
Animal	15	3.2	0	2	0	1	12
Other nonfixed objects	4	0.9	0	2	1	0	1
COLLISION NONFIXED Subtotal	229	49.5	3	57	26	37	106



## MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES (continued)

### Most Harmful Event

#### MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH FIXED OBJECT	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Bridge/pier/abutment	0	0.0	0	0	0	0	0
Bridge parapet end	0	0.0	0	0	0	0	0
Bridge rail	0	0.0	0	0	0	0	0
Guardrail face	2	0.4	0	0	0	2	0
Guardrail end	2	0.4	0	0	0	1	1
Median barrier	0	0.0	0	0	0	0	0
Highway traffic sign post	1	0.2	0	0	1	0	0
Signal post	0	0.0	0	0	0	0	0
Luminaire/light support	0	0.0	0	0	0	0	0
Utility pole	3	0.6	0	1	1	0	1
Other pole	5	1.1	0	2	2	0	1
Culvert	8	1.7	0	0	3	2	3
Curb	1	0.2	0	0	0	1	0
Ditch	7	1.5	0	1	3	2	1
Embankment	13	2.8	1	5	2	2	3
Fence	2	0.4	0	1	1	0	0
Mailbox	4	0.9	0	2	1	0	1
Tree	46	9.9	3	22	7	6	8
Rail crossing signal	0	0.0	0	0	0	0	0
Building	1	0.2	0	0	0	0	1
Traffic island	0	0.0	0	0	0	0	0
Fire hydrant	1	0.2	0	0	0	1	0
Impact attenuator	0	0.0	0	0	0	0	0
Other fixed object	15	3.2	0	2	7	4	2
<b>COLLISION FIXED Subtotal</b>	<b>111</b>	<b>24.0</b>	<b>4</b>	<b>36</b>	<b>28</b>	<b>21</b>	<b>22</b>
<b>Unknown Event</b>	<b>43</b>	<b>9.3</b>	<b>1</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>22</b>
<b>TOTAL MOST HARMFUL EVENT</b>	<b>463</b>	<b>100.0</b>	<b>10</b>	<b>126</b>	<b>76</b>	<b>88</b>	<b>163</b>

A total of 463 snowmobiles were reported in crashes on Michigan public roadways during 1999. Of these snowmobiles, 10 were involved in fatal crashes with 10 of their operators killed.



## MICHIGAN ORV/ATV ON PUBLIC ROADWAY CRASHES

### Most Harmful Event

### MOST SEVERE OUTCOME IN CRASH

NONCOLLISION	ORV/ATV		Fatal	Injury			PDO
	Number of ORV/ATVs	% of Total		A	B	C	
Loss of control	9	3.8	0	3	4	1	1
Ran off road left	3	1.3	0	1	1	0	1
Overturn	21	9.0	0	6	12	3	0
Separation of Unit	1	0.4	0	0	0	0	1
Immersion	1	0.4	0	0	0	1	0
Individual fell off	15	6.4	1	7	5	2	0
Other noncollision	2	0.9	0	0	1	0	1
<b>NONCOLLISION Subtotal</b>	<b>52</b>	<b>22.2</b>	<b>1</b>	<b>17</b>	<b>23</b>	<b>7</b>	<b>4</b>
<b>HAD A COLLISION WITH NONFIXED OBJECT</b>							
Pedestrian	1	0.4	0	0	1	0	0
Motor vehicle in transport	98	41.9	4	26	23	10	35
Parked motor vehicle	8	3.4	0	1	1	0	6
Railway Train	1	0.4	1	0	0	0	0
Animal	4	1.7	0	1	1	0	2
Other nonfixed objects	3	1.3	0	1	2	0	0
<b>COLLISION NONFIXED Subtotal</b>	<b>115</b>	<b>49.1</b>	<b>5</b>	<b>29</b>	<b>28</b>	<b>10</b>	<b>43</b>
<b>HAD A COLLISION WITH FIXED OBJECT</b>							
Guardrail face	1	0.4	0	0	1	0	0
Traffic sign post	2	0.9	0	0	2	0	0
Utility pole	2	0.9	0	1	0	0	1
Other pole	1	0.4	0	1	0	0	0
Culvert	1	0.4	0	0	1	0	0
Ditch	6	2.6	0	2	3	1	0
Fence	5	2.1	0	2	2	1	0
Mailbox	3	1.3	0	1	2	0	0
Tree	15	6.4	0	7	6	1	1
Other fixed object	6	2.6	0	2	2	2	0
<b>COLLISION FIXED Subtotal</b>	<b>42</b>	<b>17.9</b>	<b>0</b>	<b>16</b>	<b>19</b>	<b>5</b>	<b>2</b>
Unknown Event	25	10.7	0	11	7	0	7
<b>TOTAL MOST HARMFUL EVENT</b>	<b>234</b>	<b>100.0</b>	<b>6</b>	<b>73</b>	<b>77</b>	<b>22</b>	<b>56</b>

A total of 234 Off Road Vehicles/All Terrain Vehicles were reported in crashes on Michigan public roadways during 1999. Of these ORV/ATVs, 6 were involved in fatal crashes with 4 of their operators killed. Two of the fatal crashes involved an ORV/ATV hitting an ORV/ATV, one was a single vehicle rollover, and in the other fatal crash the operator fell off of his vehicle.

## MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES

### MOST SEVERE OUTCOME IN CRASH

Driver Hazardous Action	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
None	107	23.1	0	27	19	20	41
Speed too fast	118	25.5	8	45	22	24	19
Speed too slow	4	0.9	0	1	0	3	0
Failed to yield	51	11.0	1	6	7	8	29
Disregard traffic control	6	1.3	0	1	2	0	3
Drove wrong way	8	1.7	0	1	1	3	3
Drove left of center	5	1.1	0	2	1	0	2
Improper passing	1	0.2	0	0	0	0	1
Improper lane use	4	0.9	0	1	0	0	3
Improper turn	4	0.9	0	1	0	1	2
Improper/no signal	1	0.2	0	1	0	0	0
Improper backing	4	0.9	0	0	0	0	4
Unable to stop in assured clear distance	35	7.6	0	11	6	4	14
Other	70	15.1	1	19	15	13	22
Unknown	45	9.7	0	10	3	12	20
<b>TOTAL</b>	<b>463</b>	<b>100.0</b>	<b>10</b>	<b>126</b>	<b>76</b>	<b>88</b>	<b>163</b>

## MICHIGAN ORV/ATV ON PUBLIC ROADWAY CRASHES

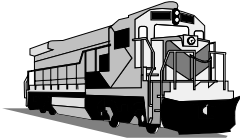
### MOST SEVERE OUTCOME IN CRASH

Driver Hazardous Action	ORV/ATV		Fatal	Injury			PDO
	Number of ORV/ATVs	% of Total		A	B	C	
None	46	19.7	0	10	16	6	14
Speed too fast	53	22.6	2	22	22	4	3
Speed too slow	1	0.4	0	0	1	0	0
Failed to yield	27	11.5	0	6	5	6	10
Disregard traffic control	3	1.3	0	1	1	0	1
Drove wrong way	0	0.0	0	0	0	0	0
Drove left of center	2	0.9	0	1	0	0	1
Improper passing	1	0.4	0	1	0	0	0
Improper lane use	2	0.9	0	0	0	0	2
Improper turn	3	1.3	0	1	0	0	2
Improper/no signal	2	0.9	0	0	2	0	0
Improper backing	1	0.4	0	0	0	0	1
Unable to stop in assured clear distance	4	1.7	0	1	2	0	1
Other	72	30.8	4	24	25	6	13
Unknown	17	7.3	0	6	3	0	8
<b>TOTAL</b>	<b>234</b>	<b>100.0</b>	<b>6</b>	<b>73</b>	<b>77</b>	<b>22</b>	<b>56</b>



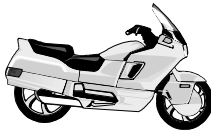
## MICHIGAN FARM EQUIPMENT CRASHES

A total of 261 crashes involving farm equipment were reported on Michigan roadways during 1999. Of these crashes, 4 were fatal crashes with 5 persons killed in other vehicles. No operator of farm equipment was killed in a crash on Michigan roadways in 1999.



## MICHIGAN VEHICLE - TRAIN CRASHES

A total of 110 crashes involving trains were reported in Michigan during 1999. The National Highway Traffic Safety Administration's 1999 Fatal Accident Reporting System [12] reported 7 fatal train crashes in Michigan, and 7 persons killed as a result of those collisions.

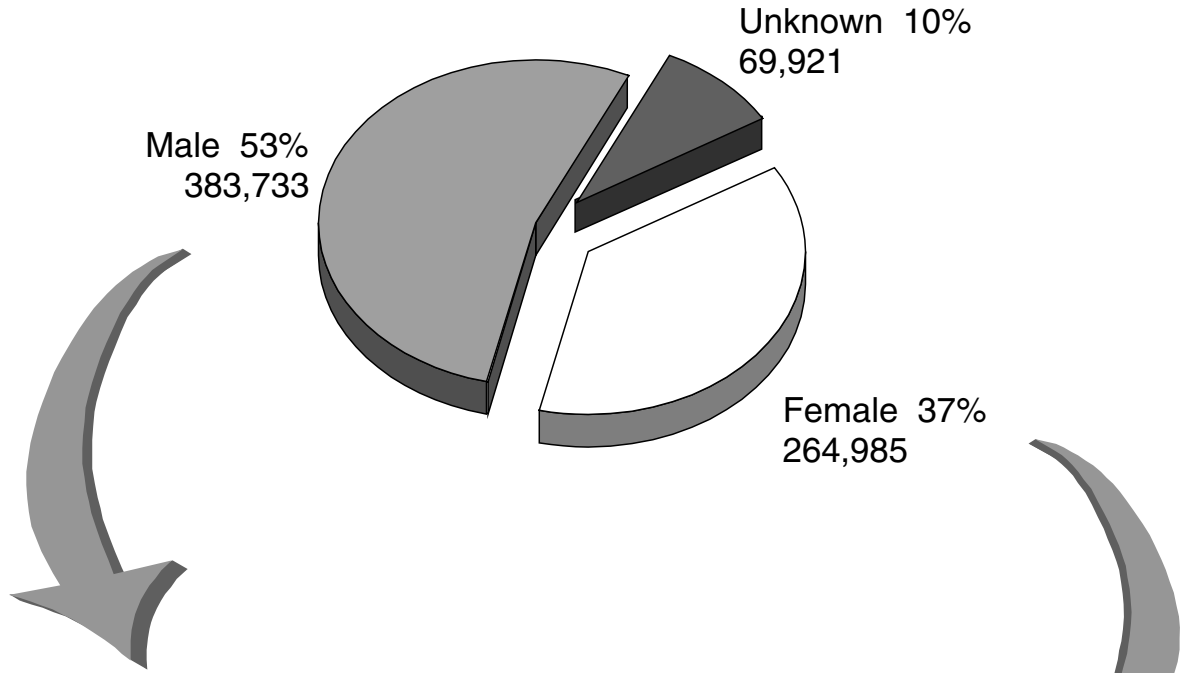


## MICHIGAN MOTORCYCLE CRASHES

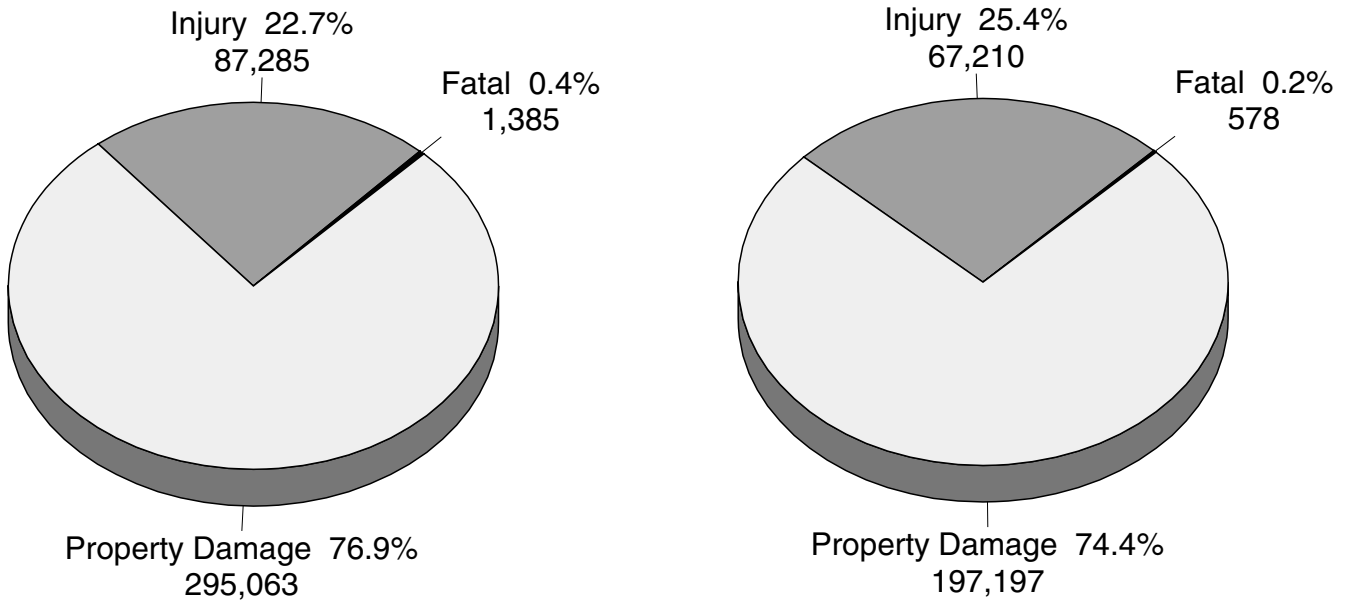
MOTORCYCLE DATA	1998	1999	% Change
Registrations	147,056.0	160,752.0	9.3
Crashes	2,931.0	2,820.0	-3.8
Deaths	53.0	77.0	45.3
Persons Injured	2,456.0	2,383.0	-3.0
Death Rate based on 10,000 motorcycle registrations	3.6	4.8	33.3
Estimated Mileage based on 3,000 miles per motorcycle	441,168,000.0	482,256,000.0	9.3
Death Rate based on deaths per 100 million vehicle miles traveled	12.0	16.0	33.3

Motorcycles were involved in 0.68 percent of all traffic crashes in Michigan in 1999. Injuries were proportionately more severe to motorcyclists than to persons in motor vehicles. The 1999 death rate for motorcyclists was 16.0 per 100 million vehicle miles traveled compared to the overall 1.5 mileage death rate per 100 million vehicle miles traveled.

## DRIVER GENDER INFORMATION - ALL CRASHES



### Crash Severity



A higher proportion of crashes involved male drivers than female drivers. When we examine the severity of crashes involving drivers of each gender, we see that fatal crashes are more prevalent among male drivers than female drivers (0.4% vs. 0.2%).

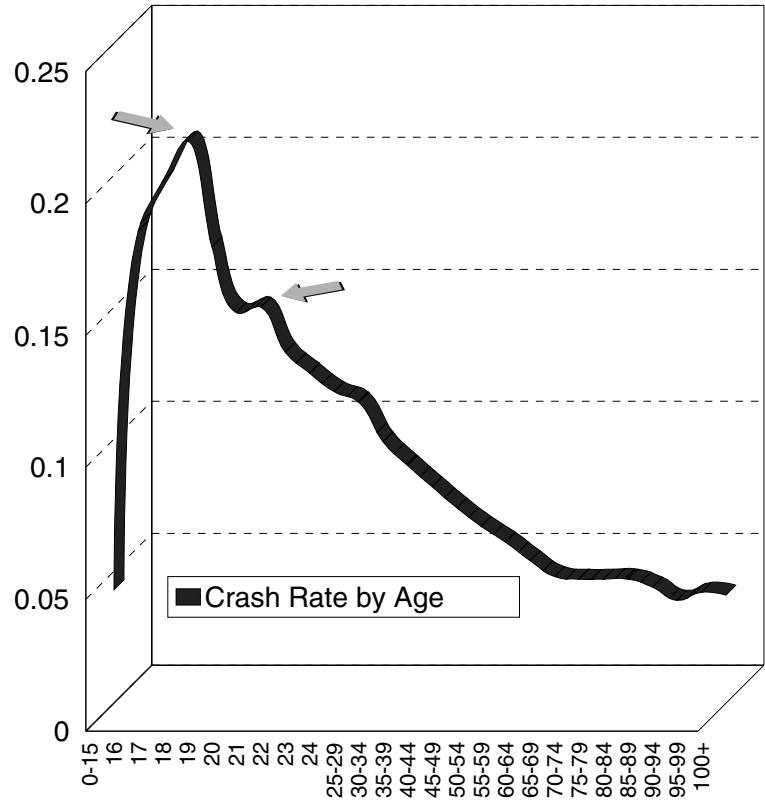
This 1999 chart was processed with numbers for all drivers (vehicle level).

**PERSON AGE:  
DEMOGRAPHICS AND CRASH INVOLVEMENTS**

Age	Licensed Drivers	Michigan Population	Drivers in all crashes	Drivers in Fatal crashes	Occupants killed	Occupants injured	Bicyclist all crashes	Bicyclist fatal crashes	Pedestrian all crashes	Pedestrian fatal crashes
0-15	47,988	2,263,248	2,069	11	57	9,339	1,383	12	1,239	44
16	92,762	149,007	16,596	37	28	3,874	107	2	75	0
17	108,273	148,884	21,492	55	25	4,500	58	0	83	2
18	109,143	141,711	23,218	63	36	4,546	73	0	52	3
19	123,109	149,431	21,284	59	30	4,113	52	0	84	2
20	127,128	140,591	18,861	51	26	3,462	32	0	62	0
21	113,218	131,523	17,033	63	32	3,229	45	1	52	1
22	119,292	124,699	15,880	52	39	2,936	41	0	45	1
23	118,118	118,115	14,712	46	21	2,560	27	0	45	1
24	119,625	121,823	14,163	43	30	2,516	38	0	34	4
25-29	626,487	650,313	71,686	186	105	11,874	114	0	228	13
30-34	673,392	712,042	66,533	192	85	10,441	110	0	199	19
35-39	748,642	810,139	67,623	186	91	10,219	143	0	238	19
40-44	761,936	822,057	62,830	190	99	9,534	146	4	248	19
45-49	691,554	716,156	51,057	151	71	8,000	102	1	204	15
50-54	594,869	599,172	39,789	113	67	6,272	64	3	155	17
55-59	459,451	469,972	27,944	84	46	4,387	33	1	113	9
60-64	351,365	371,332	18,816	61	37	3,045	31	1	66	6
65-69	301,702	330,245	14,469	56	38	2,520	23	0	63	3
70-74	279,436	314,636	13,118	65	47	2,370	22	0	69	6
75-79	216,904	259,770	10,229	57	56	1,940	8	1	36	3
80-84	126,299	174,690	5,929	42	43	1,270	8	0	35	2
85-100+	64,802	144,219	2,776	32	38	673	0	0	24	7
Unknown	--	--	100,532	166	36	4,590	137	0	228	0
Totals	6,975,495	9,863,775	718,639	2,061	1,183	118,210	2,797	26	3,677	196

## CRASH RATE PER LICENSED DRIVER BY AGE OF DRIVER IN ALL CRASHES

Age	Rate	Licensed Drivers	Drivers in all crashes
0-15	0.043	47,988	2,069
16	0.179	92,762	16,596
17	0.198	108,273	21,492
18	0.213	109,143	23,218
19	0.173	123,109	21,284
20	0.148	127,128	18,861
21	0.150	113,218	17,033
22	0.133	119,292	15,880
23	0.125	118,118	14,712
24	0.118	119,625	14,163
25-29	0.114	626,487	71,686
30-34	0.099	673,392	66,533
35-39	0.090	748,642	67,623
40-44	0.082	761,936	62,830
45-49	0.074	691,554	51,057
50-54	0.067	594,869	39,789
55-59	0.061	459,451	27,944
60-64	0.054	351,365	18,816
65-69	0.048	301,702	14,469
70-74	0.047	279,436	13,118
75-79	0.047	216,904	10,229
80-84	0.047	126,299	5,929
85-89	0.044	51,471	2,254
90-94	0.039	11,938	450
95-99	0.042	1,319	69
100+	0.041	74	1
Total		6,975,495	618,105



Drivers age 18 have the highest rate (total crashes in age group divided by total number of licensed drivers in age group) while the small peak at age 21 correlates with the beginning of legal drinking. The low crash rates of the oldest groups (per licensed driver) may reflect reduced driving and exposure to the risk of a crash relative to younger drivers.

## REPORTED AGE OF DRIVERS INVOLVED IN ALL CRASHES

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Alcona	932	4	103	51	177	201	165	110	53	36	32
Alger	774	7	102	62	131	137	127	57	36	19	96
Allegan	5,821	23	956	540	1,226	1,110	717	409	215	135	490
Alpena	2,139	5	401	152	312	413	297	190	118	87	164
Antrim	1,488	2	236	139	271	290	219	139	77	25	90
Arenac	1,316	3	202	95	236	281	209	131	66	31	62
Baraga	676	1	83	52	111	110	126	69	37	29	58
Barry	3,318	19	595	267	640	676	492	237	138	80	174
Bay	6,974	23	1,165	614	1,156	1,217	872	568	335	286	738
Benzie	861	5	127	53	150	185	128	64	43	24	82
Berrien	9,968	32	1,405	771	1,666	1,576	1,175	672	453	349	1,869
Branch	2,872	12	495	265	529	532	336	201	120	50	332
Calhoun	10,550	32	1,500	918	1,877	1,813	1,404	733	473	326	1,474
Cass	2,684	7	430	189	463	433	311	189	95	63	504
Charlevoix	1,803	7	253	162	318	335	281	152	87	52	156
Cheboygan	1,531	4	233	114	272	331	199	117	88	52	121
Chippewa	2,347	4	396	192	417	447	281	157	119	63	271
Clare	2,148	9	304	183	395	428	328	205	119	63	114
Clinton	3,331	15	567	298	621	678	478	241	124	84	225
Crawford	1,180	8	177	85	197	236	177	123	55	28	94
Delta	3,359	10	522	251	533	592	508	257	186	116	384
Dickinson	2,060	3	287	115	293	384	273	140	95	89	381
Eaton	6,900	27	1,183	619	1,298	1,311	1,011	466	241	200	544
Emmet	2,808	6	455	233	477	552	399	220	130	79	257
Genesee	28,417	96	4,401	2,464	5,416	5,256	3,690	1,920	1,176	756	3,242
Gladwin	1,436	7	196	117	316	309	199	118	61	60	53
Gogebic	870	2	107	38	112	99	78	68	40	44	282
Grand Traverse	6,908	19	1,255	532	1,240	1,347	1,044	463	292	211	505
Gratiot	2,598	12	449	252	471	533	366	194	98	88	135
Hillsdale	3,144	11	538	289	582	573	399	231	103	106	312
Houghton	2,187	9	396	224	277	321	273	138	102	105	342
Huron	2,345	12	430	188	427	463	320	190	118	91	106
Ingham	21,851	52	3,369	2,722	4,197	3,869	2,811	1,327	695	461	2,348
Ionia	3,795	20	686	318	754	775	537	231	138	92	244
Iosco	1,735	7	271	118	318	356	235	152	129	60	89
Iron	1,217	6	119	76	151	229	203	102	76	65	190
Isabella	4,250	17	829	589	791	710	517	297	151	88	261
Jackson	10,817	28	1,676	935	2,033	2,066	1,405	801	442	327	1,104
Kalamazoo	17,989	53	2,975	2,168	3,360	2,994	2,195	1,084	641	438	2,081
Kalkaska	1,203	10	195	81	228	252	185	110	46	40	56
Kent	48,965	138	7,838	5,145	10,277	9,153	5,801	2,761	1,553	1,117	5,182
Keweenaw	124	0	11	11	16	21	19	9	14	4	19
Lake	794	5	84	59	159	143	134	102	50	25	33
Lapeer	5,501	11	1,046	483	1,112	1,152	745	383	192	113	264
Leelanau	949	4	142	79	158	164	133	79	60	28	102

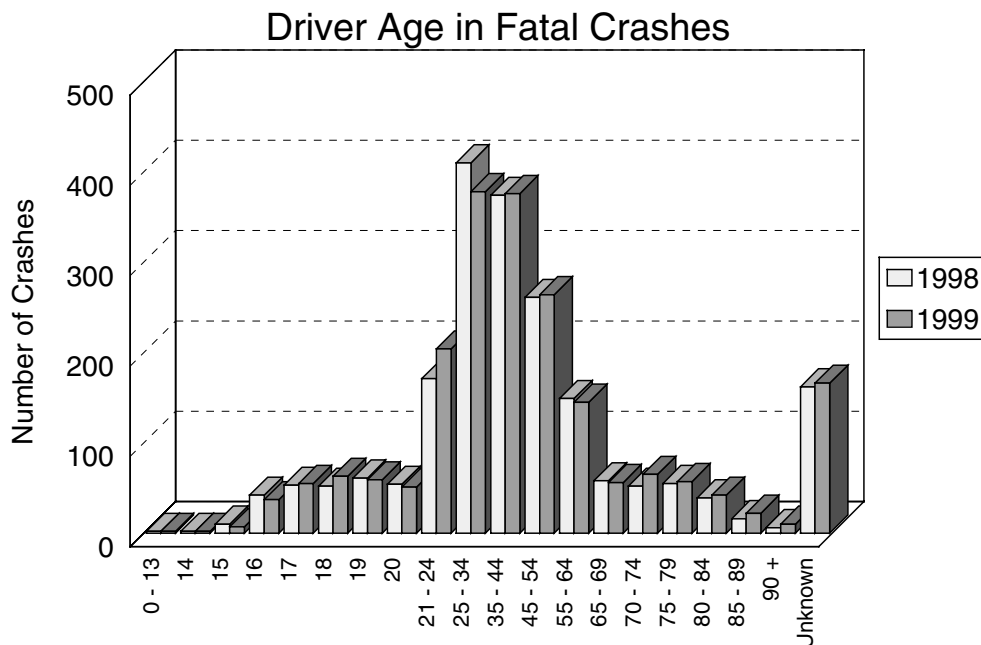
## REPORTED AGE OF DRIVERS INVOLVED IN ALL CRASHES (continued)

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Lenawee	5,804	20	1,031	474	996	972	720	409	248	189	745
Livingston	8,873	33	1,635	772	1,790	1,833	1,188	578	228	181	635
Luce	348	1	43	26	71	57	59	30	20	8	33
Mackinac	1,084	4	115	84	188	206	184	101	48	34	120
Macomb	51,808	126	7,760	4,321	10,510	9,704	6,344	3,384	2,263	1,567	5,829
Manistee	1,781	4	226	122	290	328	274	152	107	85	193
Marquette	4,187	12	755	401	591	683	582	254	178	146	585
Mason	2,407	13	366	195	432	427	363	198	116	77	220
Mecosta	3,573	9	672	449	656	603	470	277	156	77	204
Menominee	2,699	7	379	137	386	455	359	220	129	58	569
Midland	4,827	14	893	476	857	959	649	366	195	144	274
Missaukee	1,038	4	173	96	227	213	138	74	37	34	42
Monroe	7,674	30	1,373	552	1,223	1,279	900	429	268	182	1,438
Montcalm	4,377	18	786	400	905	896	579	289	167	126	211
Montmorency	547	3	91	44	113	104	73	47	34	19	19
Muskegon	10,350	44	1,876	927	1,900	1,852	1,315	734	470	429	803
Newaygo	2,753	16	473	253	556	542	384	215	111	72	131
Oakland	95,672	226	12,751	7,874	20,921	19,696	13,247	6,392	3,424	2,421	8,720
Oceana	1,584	8	261	142	304	300	206	125	59	48	131
Ogemaw	1,725	10	280	126	299	366	253	169	99	49	74
Ontonagon	777	2	81	52	100	149	141	77	44	24	107
Osceola	2,111	4	278	220	438	444	317	181	74	59	96
Oscoda	547	1	80	48	96	106	62	64	38	24	28
Otsego	1,698	6	331	146	311	349	213	133	69	38	102
Ottawa	13,589	54	2,656	1,392	2,648	2,550	1,582	823	465	365	1,054
Presque Isle	944	4	145	55	148	204	156	79	70	34	49
Roscommon	1,619	6	270	120	284	308	239	167	100	51	74
Saginaw	14,876	55	2,405	1,293	2,866	2,604	1,995	1,128	746	473	1,311
St. Clair	9,099	32	1,625	778	1,664	1,669	1,122	591	366	299	953
St. Joseph	3,825	10	657	354	638	600	441	269	150	134	572
Sanilac	2,492	6	445	227	473	502	331	205	121	73	109
Schoolcraft	836	3	101	69	144	151	111	76	39	24	118
Shiawassee	3,852	13	727	356	766	745	519	258	132	97	239
Tuscola	2,973	7	523	247	602	620	417	219	137	97	104
Van Buren	4,814	14	803	367	856	863	594	283	175	132	727
Washtenaw	23,598	58	3,219	2,469	4,736	4,215	3,072	1,380	678	386	3,385
Wayne	169,710	384	15,450	12,199	31,467	27,249	19,051	9,525	5,992	3,897	44,496
Wexford	3,119	19	513	208	585	578	381	244	149	94	348
UNKNOWN	114	2	13	9	21	19	13	8	5	0	24
Totals	718,639	2,069	101,451	61,788	138,219	130,453	90,846	46,760	27,587	18,932	100,534

## DRIVER AGE

AGE OF DRIVERS IN FATAL CRASHES	1998	1999	% Change	% 1999 Fatal Crash Involvement	Percent Active Driving Population*
13 years and under	2	2	0.0	0.1	0.0
14 years	2	2	0.0	0.1	0.3
15 years	10	7	-30.0	0.3	1.1
16 years	42	37	-11.9	1.8	1.4
17 years	53	55	3.8	2.7	1.6
18 years	52	63	21.2	3.1	1.8
19 years	61	59	-3.3	2.9	1.9
20 years	54	51	-5.6	2.5	1.8
21-24 years	171	204	19.3	9.9	7.0
25 - 34 years	410	378	-7.8	18.3	19.1
35 - 44 years	374	376	0.5	18.2	21.5
45 - 54 years	261	264	1.1	12.8	17.9
55 - 64 years	149	145	-2.7	7.0	11.2
65 - 69 years	58	56	-3.4	2.7	4.1
70 - 74 years	52	65	25.0	3.2	3.8
75 - 79 years	55	57	3.6	2.8	2.9
80 - 84 years	39	42	7.7	2.0	1.7
85 - 89 years	16	22	37.5	1.1	0.7
90 years and over	6	10	66.7	0.5	0.2
Unknown	162	166	2.5	8.1	---
TOTALS	2,029	2,061	1.6	100.0	100.0

\* Figures courtesy of the Michigan Department of State [13]



**REGISTRATION TRANSACTIONS**  
**(Includes Original, Renewal, Correction, and Replacements)**  
 Registration data courtesy of the Michigan Department of State [14]

COUNTY	VEHICLE										OTHER		
	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped				
Alcona	7,168	3,827	3,096	201	14,292	809,796.68	2,637	936	63				
Alger	5,021	3,154	1,797	228	10,200	575,372.94	1,827	1,465	21				
Allegan	59,688	27,527	17,650	1,955	106,820	6,965,223.10	11,329	3,295	286				
Alpena	18,634	10,125	6,876	580	36,215	2,308,999.69	4,638	2,438	52				
Antrim	14,367	6,540	4,827	460	26,194	1,589,771.15	5,069	2,055	62				
Arenac	9,768	5,473	3,724	440	19,405	1,162,938.48	4,045	1,463	47				
Baraga	3,955	2,604	1,320	142	8,021	478,280.29	1,053	717	6				
Barry	32,614	15,363	10,320	1,255	59,552	3,447,696.15	9,084	1,661	102				
Bay	69,982	24,983	19,571	1,787	116,323	7,589,190.53	10,273	5,023	213				
Benzie	10,140	4,602	3,468	307	18,517	1,056,622.36	3,807	1,230	46				
Berrien	103,853	33,730	19,274	2,854	159,711	10,106,445.20	13,486	2,715	447				
Branch	24,668	12,483	7,563	782	45,496	2,869,607.13	6,386	757	139				
Calhoun	88,653	28,691	16,395	2,350	136,089	8,533,479.80	10,361	1,436	362				
Cass	29,119	13,522	8,231	1,032	51,904	3,077,395.36	8,491	1,746	124				
Charlevoix	16,448	7,654	5,218	645	29,965	1,978,548.87	4,896	2,516	63				
Cheboygan	15,240	8,133	5,498	547	29,418	1,836,927.65	5,449	3,135	90				
Chippewa	17,723	9,382	6,260	539	33,904	2,104,408.37	4,649	3,994	76				
Clare	17,824	9,746	6,386	544	34,500	2,090,366.25	4,680	2,009	59				
Clinton	38,346	16,283	11,486	1,105	67,220	4,357,560.19	6,481	2,391	165				
Crawford	7,313	3,886	2,775	260	14,234	847,997.84	2,820	1,396	20				
Delta	23,417	12,960	8,534	728	45,639	2,842,258.89	4,855	3,250	117				
Dickinson	16,478	8,587	5,793	666	31,524	2,010,889.15	3,634	1,823	142				
Eaton	62,042	23,123	14,742	1,869	101,776	8,399,298.06	8,587	2,157	178				
Emmet	20,517	8,722	5,719	618	35,576	2,317,991.98	5,305	2,648	107				
Genesee	272,860	85,591	47,756	7,185	413,392	27,636,306.00	32,279	11,278	549				
Gladwin	15,282	8,106	5,748	536	29,672	1,752,520.42	4,924	1,598	59				
Gogebic	9,211	4,819	2,454	288	16,772	956,349.02	2,304	1,387	62				
Grand Traverse	54,066	19,146	14,978	1,496	89,686	6,238,248.17	12,843	4,597	131				

## REGISTRATION TRANSACTIONS (continued)

COUNTY	VEHICLE										OTHER		
	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped				
Gratiot	23,011	11,185	7,674	657	42,527	2,634,355.65	3,471	1,455	91				
Hillsdale	26,074	13,767	7,746	865	48,452	2,953,730.48	5,061	830	100				
Houghton	18,139	8,033	4,084	589	30,845	1,835,936.08	3,808	2,230	60				
Huron	22,693	12,712	7,304	642	43,351	2,982,761.71	3,478	2,501	178				
Ingham	176,814	43,164	23,627	3,884	247,489	16,587,246.07	15,822	3,538	421				
Ionia	32,870	15,036	9,008	1,000	57,914	3,439,042.15	5,209	1,450	183				
Iosco	17,149	8,281	6,279	491	32,200	1,951,765.95	5,280	1,663	106				
Iron	7,481	4,460	2,670	284	14,895	879,820.63	2,386	1,086	44				
Isabella	28,700	13,232	8,346	821	51,099	3,668,674.19	4,703	1,680	67				
Jackson	94,468	35,992	21,342	3,068	154,870	10,029,868.67	15,684	2,988	316				
Kalamazoo	150,015	39,641	24,415	3,916	217,987	15,058,272.14	18,509	2,922	448				
Kalkaska	9,031	5,713	3,810	330	18,884	1,405,829.30	2,700	1,807	19				
Kent	368,150	111,105	70,389	8,620	558,264	46,441,812.55	44,993	9,681	957				
Keweenaw	1,127	544	265	32	1,968	108,248.17	361	150	3				
Lake	5,848	3,463	2,063	210	11,584	637,490.32	2,281	894	24				
Lapeer	50,022	25,593	14,364	2,082	92,061	6,194,077.90	7,295	3,706	91				
Leelanau	13,250	4,978	4,324	342	22,894	1,439,179.92	5,365	1,472	64				
Lenawee	58,988	25,192	14,118	2,060	100,358	6,296,993.59	9,000	2,679	325				
Livingston	95,437	35,313	23,042	3,709	157,501	11,245,477.84	17,561	5,297	184				
Luce	3,152	2,299	1,625	79	7,155	494,843.31	1,355	1,086	15				
Mackinac	6,549	3,823	2,427	175	12,974	787,119.75	3,038	2,071	28				
Macomb	538,396	135,040	63,983	12,665	750,084	56,467,185.54	48,958	15,407	1,111				
Manistee	14,732	7,225	5,048	491	27,496	1,688,954.39	3,787	1,361	77				
Marquette	36,387	16,281	9,025	1,301	62,994	3,866,797.26	7,024	4,178	111				
Mason	17,449	7,956	5,324	574	31,303	1,951,003.67	4,285	1,205	69				
Mecosta	20,364	9,768	6,446	593	37,171	2,263,447.30	5,066	1,446	46				
Menominee	13,550	7,247	4,852	503	26,152	1,588,610.77	2,824	1,437	301				
Midland	54,998	18,354	14,766	1,668	89,786	5,573,838.50	9,144	2,570	144				
Missaukee	7,491	5,020	3,224	275	16,010	1,013,586.16	2,100	1,249	26				

## REGISTRATION TRANSACTIONS (continued)

COUNTY	VEHICLE										OTHER		
	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped				
Monroe	88,768	37,232	19,260	3,341	148,601	9,946,621.78	10,931	4,206	322				
Montcalm	33,577	17,013	10,828	1,049	62,467	3,742,400.30	7,120	1,920	152				
Montmorency	5,912	3,674	2,666	160	12,412	749,763.63	2,303	1,358	16				
Muskegon	105,531	33,676	23,475	3,528	166,210	9,862,166.09	15,200	4,371	445				
Newaygo	26,709	13,547	9,282	884	50,422	2,926,859.00	7,003	2,432	84				
Oakland	871,508	185,679	95,475	20,059	1,172,721	95,563,573.20	82,227	21,233	1,416				
Oceana	15,339	7,899	4,313	478	28,029	1,689,456.33	2,998	1,653	90				
Ogemaw	12,607	7,277	5,006	523	25,413	1,571,302.66	3,363	1,706	42				
Ontonagon	4,482	2,873	1,649	146	9,150	517,539.96	1,083	1,145	17				
Osceola	12,720	7,402	4,356	361	24,839	1,597,216.55	2,751	1,479	28				
Oscoda	5,235	3,157	1,966	207	10,565	619,576.91	2,020	942	12				
Otsego	13,672	7,788	5,038	497	26,995	2,064,465.41	3,240	2,729	27				
Ottawa	143,112	44,389	36,778	3,804	228,083	15,720,939.98	23,984	5,730	799				
Presque Isle	8,539	5,368	3,189	233	17,329	1,052,649.49	3,001	1,696	37				
Roscommon	16,355	7,586	6,118	505	30,564	1,833,813.71	6,379	3,444	152				
Saginaw	132,438	40,640	29,005	2,982	205,065	13,932,538.53	16,537	6,800	341				
St. Clair	100,485	39,680	21,502	3,349	165,016	10,833,417.46	15,072	5,262	295				
St. Joseph	36,785	16,556	10,249	1,592	65,182	3,844,206.76	8,581	896	175				
Sanilac	25,610	14,111	7,209	912	47,842	3,200,300.70	2,265	1,721	73				
Schoolcraft	4,717	3,145	2,083	168	10,113	641,279.70	1,789	1,284	36				
Shiawassee	44,004	20,012	12,247	1,437	77,700	4,977,722.67	6,138	2,783	158				
Tuscola	34,266	18,480	11,646	1,168	65,560	3,941,475.99	4,907	3,005	166				
Van Buren	43,925	18,925	10,564	1,448	74,862	4,539,213.76	8,376	1,967	178				
Washtenaw	193,091	44,648	21,829	4,626	264,194	18,804,290.59	15,132	3,461	368				
Wayne	1,251,451	259,666	100,512	22,994	1,634,623	124,039,572.31	70,038	14,796	2,027				
Wexford	18,731	8,444	5,916	594	33,685	2,090,353.18	4,587	2,290	51				
Non-Resident	60,774	24,957	13,966	382	100,079	41,399,732.32	35,012	4,951	127				
Unknown County							7,065	125	7				
Totals	6,287,075	1,943,003	1,115,176	160,752	9,506,006	\$709,128,908.65	825,842	256,540	17,038				