



Appendix

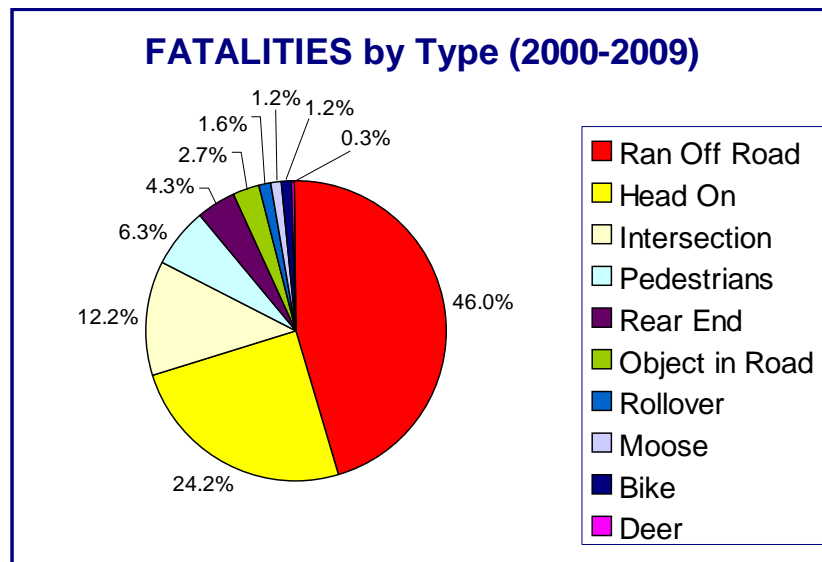
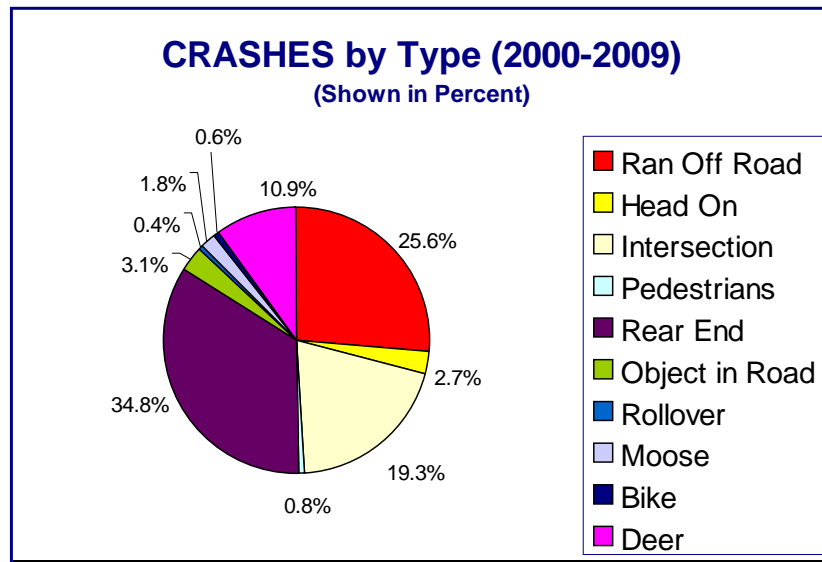
The Appendix includes additional data that provides other looks at topical crash information that further illustrate safety performance. Appendix displays will include chapter references that the additional data refers to (not all chapters have supplemental information). Appendix exhibits are:

Introduction and Overview (Maine crash data)	Page 46
• Crashes & Fatalities by Type	
• Crashes & Fatalities by Time of Day	
• Driver Contributing Factors List	
Chapter 1. Young Drivers	48
• Crash and Fatality Experience by Driver Age	
• Teen Driver Crash and Fatality Rates	
• Summary of Teen Fatality Trends - 2003-2009	
• Maine’s Graduated Driver’s License (GDL)	
Chapter 4. Driver Behaviors	52
A. Impaired Driving	
- Alcohol-Involved Fatality Trends Since 1976	
- Alcohol-Related Crashes by Age	
- 2006-2008 Maine Driver Top Drug Result Findings	
B. Illegal/Unsafe Speed	
- Speed-Related Crashes and Fatalities by Age	
D. Drowsy Driving	
- Asleep or Fatigued Drivers by Age	
Chapter 6. Lane Departure Crashes	55
• Single Vehicle Crash Facts	
• Types of Fixed Objects Struck	
Chapter 7. Intersections	56
• Fatal Crash Type Distribution (nationwide FARS data)	
Chapter 8. Motorcycles	57
• Motorcycle Crashes by Type	
• Motorcycle Fatalities by Age	
• Helmet Use in Fatal Crashes	
• Motorcyclist Fatalities, by Age and Year (national)	
Chapter 9. Large Trucks	59
• Truck Crashes by Road Type	
• Truck Crash Contributing Factors	
• Top Driver & Vehicle Violations	
• Maine State Police Commercial Vehicle Unit Activity Summary	
Chapter 10. Winter Driving	61
• Crash Type Comparisons on All Road Surface Conditions vs. Wintry Surfaces Only	
Chapter 11. Large Animals including Moose	62
• Moose and Deer Crashes by Light Conditions	
• Moose and Deer Crashes by County	
• Maine Moose Crash Map	

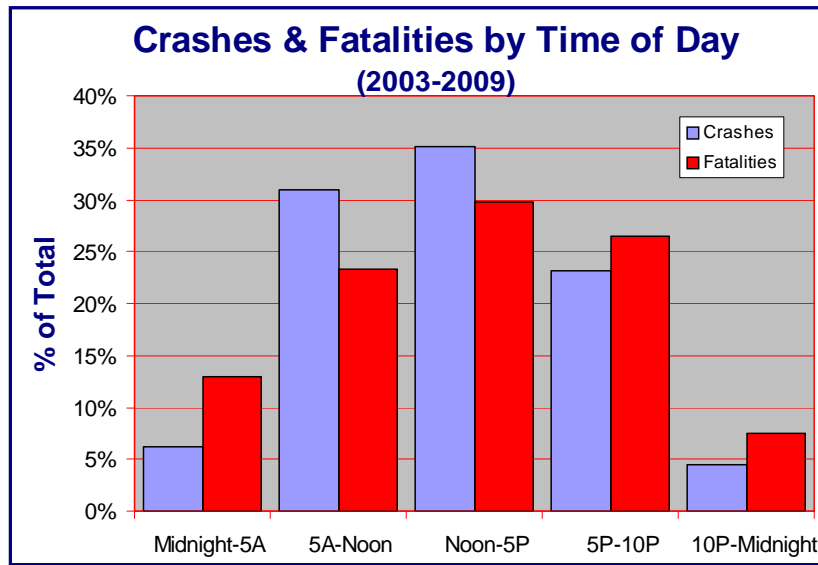


Introduction and Overview

General Maine Trends



The major types of crashes in Maine are shown in the two pie charts above. One key observation is with the yellow and red pie slices (Run Off Road and Head On – which are the main components of Lane Departure crashes). The larger representation of these crash types in the Fatalities pie chart reflect how severe these crash types are.



This bar chart shows Maine crash activity by time of day. Most travel is conducted between 5AM and 10PM, so the higher crash and fatality numbers are expected. There is very little traffic volume from 10PM through 5AM, and even though the bars may be lower, they do represent a disproportionate number of crashes and fatalities for these hours based on traffic volume. The red bar being higher than the blue in these nighttime hours indicates the much higher severity of these crashes on average.

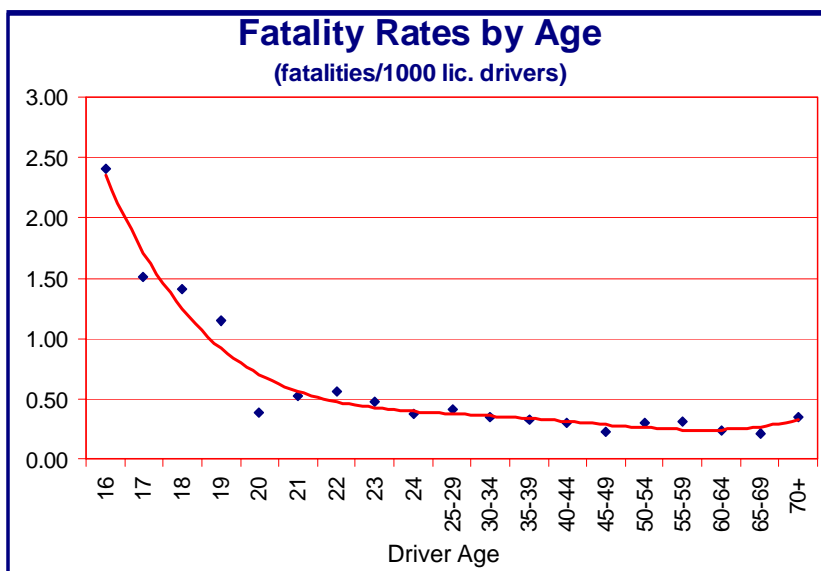
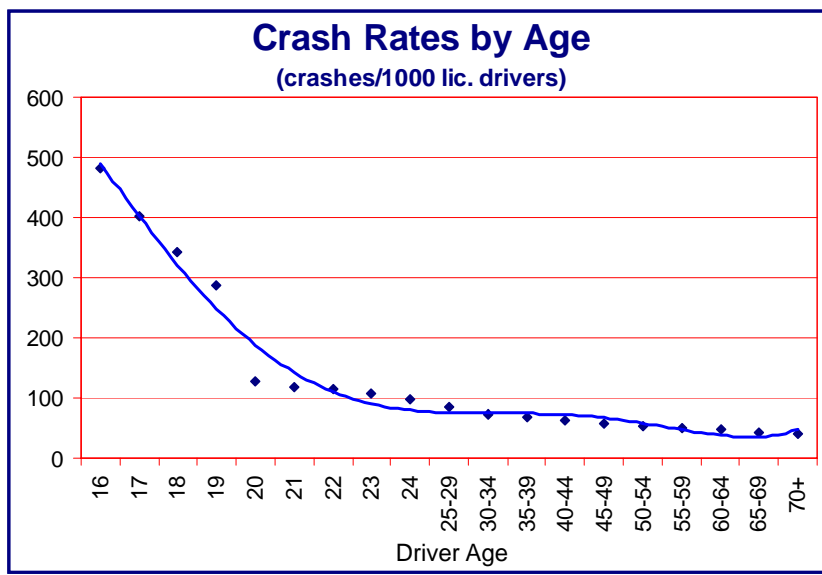
Driver Contributing Factors That Can Be Cited In Maine Police Crash Reports

Disregard Traffic Control Device	Improper Turn
Driver Inattention - Distraction	Improper Unsafe Lane Change
Driver Inexperience	No Signal or Improper Signal
Driving Left of Center Not Passing	Other Human Violation Factor
Failure to Yield Right of Way	Other Vehicle Defect or Factor
Following Too Close	Other Vision Obscurement
Hit and Run	Pedestrian Violation Error
Illegal Unsafe Speed	Physical Impairment
Impeding Traffic	Unsafe Backing
Improper Parking: Start, Stop	Vision Obscured - Sun, Headlights
Improper Passing - Overtaking	Vision Obscured - Windshield Glass



Chapter 1: Younger Drivers

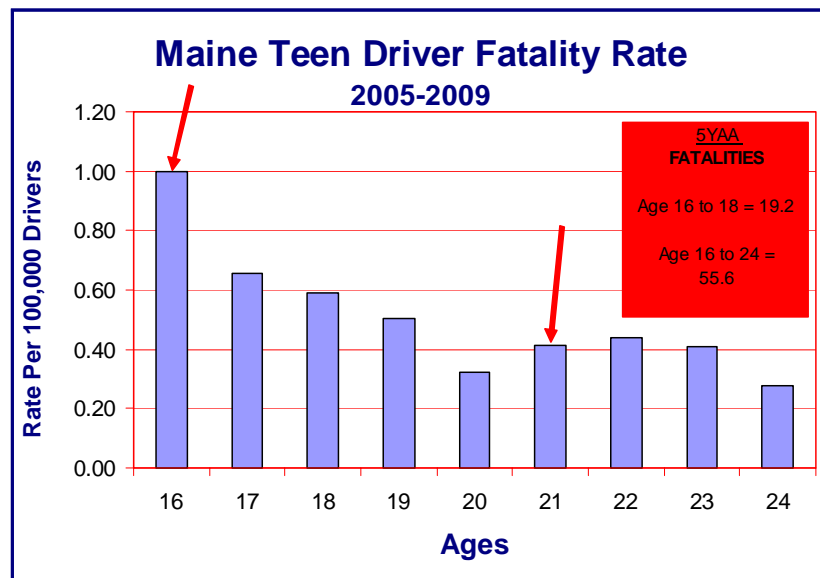
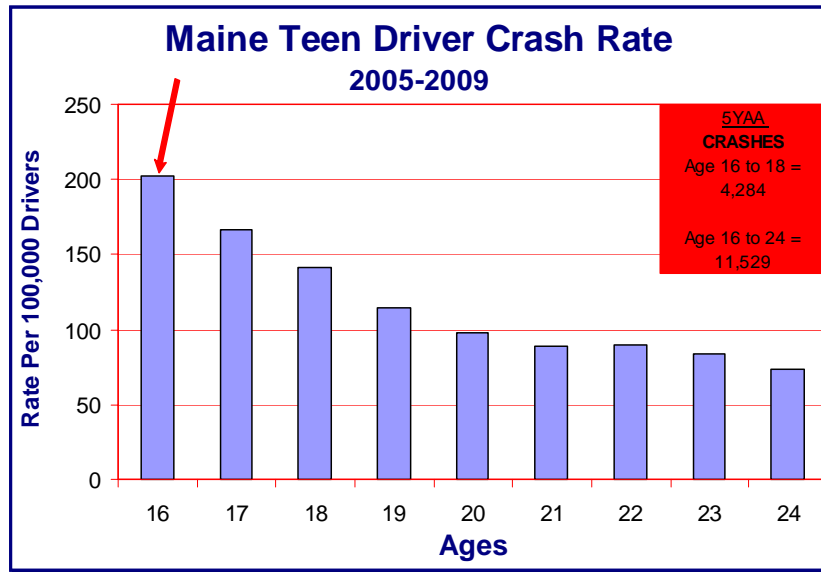
Crash Experience by Driver Age



When normalizing crash and fatality experience by licensed driver age, it is clear that younger drivers are much more susceptible to crashes, including those with fatal results. When adjusted for miles traveled (not shown), older drivers also show crash performance deterioration sometime after 70 years of age, on average.



Crash Experience by Driver Age



Maine Teen Crash and Fatality rates are shown in the above two charts. For Crashes in the upper chart, rates steadily decrease with age, with rates plateauing at age 21 and then continue to decrease a couple of years later. For Fatalities shown in the lower table, the rates decrease until age 20, and at age 21, rates increase for the next several years. The legal drinking age of 21 may be the reason for this trend change.



MAINE 16-20 YEAR OLD DRIVER FATAL CRASH DATA

	2003	2004	2005	2006	2007	2008	2009
Total Number of Fatalities - All Ages	207	194	169	188	183	155	159
Total Number of Crashes - All Ages	186	178	151	168	170	144	153
Total Number of 16-20 Year Old Involved Drivers	33	39	34	37	26	18	20
Total Number of Deceased 16-20 Year Olds	21	36	27	32	28	15	17
Total Number of Deceased 16-20 Year Old Drivers	13	21	16	23	13	12	11
Number of Fatal Crashes involving 16-20 YO Drivers	33	39	34	37	26	17	15
Number of Deaths caused by 16-20 YO Drivers	39	50	41	47	28	18	16
Number of Deceased Drivers (16-20) with a Positive BAC	3	7	5	8	5	4	3
Number of Deceased Drivers (16-20) Using a Seat Belt	3	5	6	4	4	8	5

Contributing causation factors with teen drivers are as follows:

- Unsafe speed or going too fast for road conditions
- Crossing center line or run off road
- Failure to keep in proper lane
- Driver Inexperience
- Driver Inattention
- Drowsy, Sleepy, Asleep, Fatigued

This table shows recent trends in 16-20 year old driver crash experience compared with total crash and fatality experience in Maine. Number of deaths caused by these young drivers peaked from 2004-2006, but has improved since then.





Maine's Graduated Driver's License (GDL)

The GDL restrictions are:

Learner's Permit - Under 21 years old:

If a permit is issued to a person under 21 years of age, that person must hold the permit for six months before applying for a road test (previous law was three months) and is prohibited from using a cellular phone while operating with a permit.

- If a permit is issued to a person under 21 years of age, they must log 35 hours of driving and five of the hours must be done after dark.
- If a permit expires, the person must take an exam for a new permit but will not be required to wait before applying for a road test. The restriction from using a cellular phone still applies.

Learner's Permit - Age 21 and Over:

- If a permit is issued to a person 21 years of age and over, that person does not have to wait six months before applying for a road test, however, they are prohibited from using a cellular phone while operating with a permit.

License - Under 18 years of age:

If a license is issued to a person under the age of 18 on or after September 13, 2003, that person will receive an "Intermediate License" which prohibits the licensee from the following:

- Carrying passengers, except immediate family (grandparent; step grandparent; parent; stepparent; spouse; child; stepchildren; brother; sister; stepbrother; stepsister; a foreign exchange student that is living with the immediate family) unless accompanied by a licensed driver who is at least 20 years of age and has held a valid license for the past two years and is occupying the seat beside the driver for six months after licensure.
- Operating a motor vehicle from 12 a.m. to 5 a.m.
- Operating a motor vehicle while using a cellular phone.

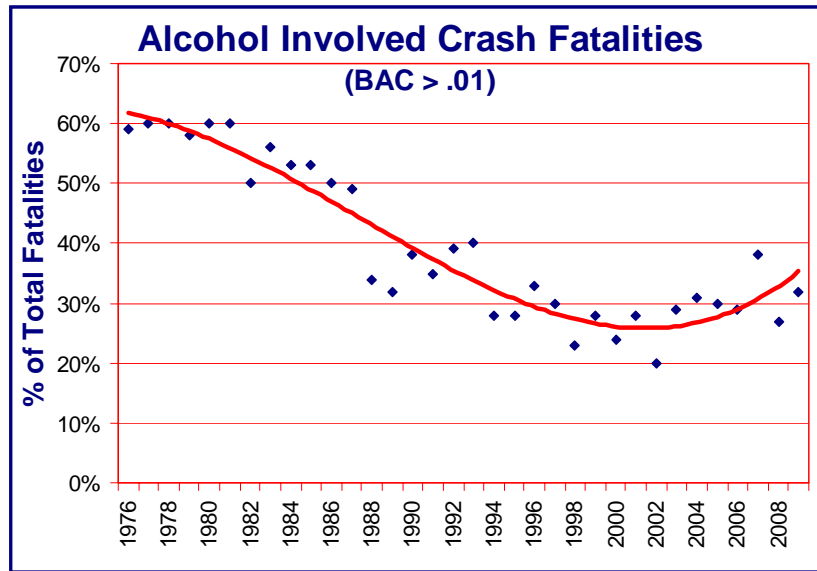
A person must hold an intermediate license for 180 days from the date the license was originally issued before they can receive an unrestricted license. If someone is convicted of violating one of the three restrictions listed above, the license restrictions will be extended for an additional period of 180 days from the date of the violation.

Use of any handheld electronic device, including cellular phones, is prohibited for anyone under 18 years of age.

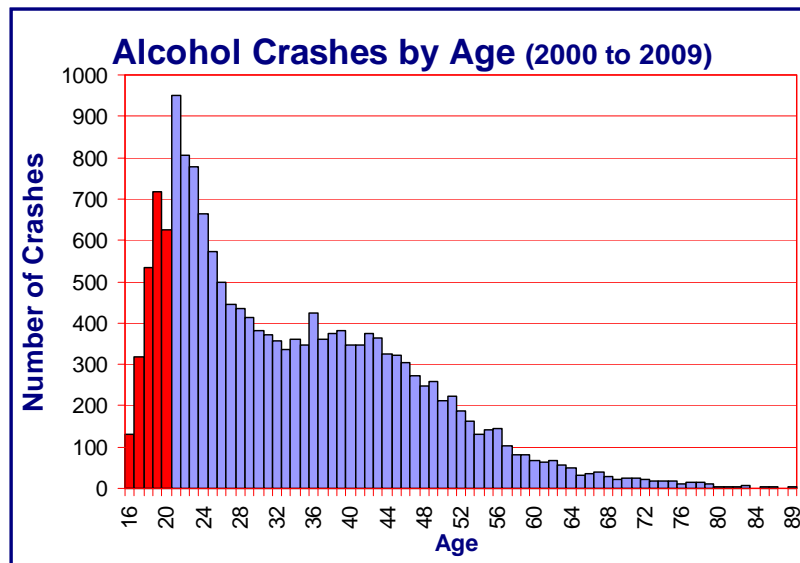


Chapter 4: Driver Behaviors

A. Impaired Driving - Alcohol



Alcohol involved crashes expressed as a percent of total fatalities was about 60% in the late 1970's. This percentage steadily improved through 2002. Since 2002, the percentage of total fatalities has shown an increasing trend.



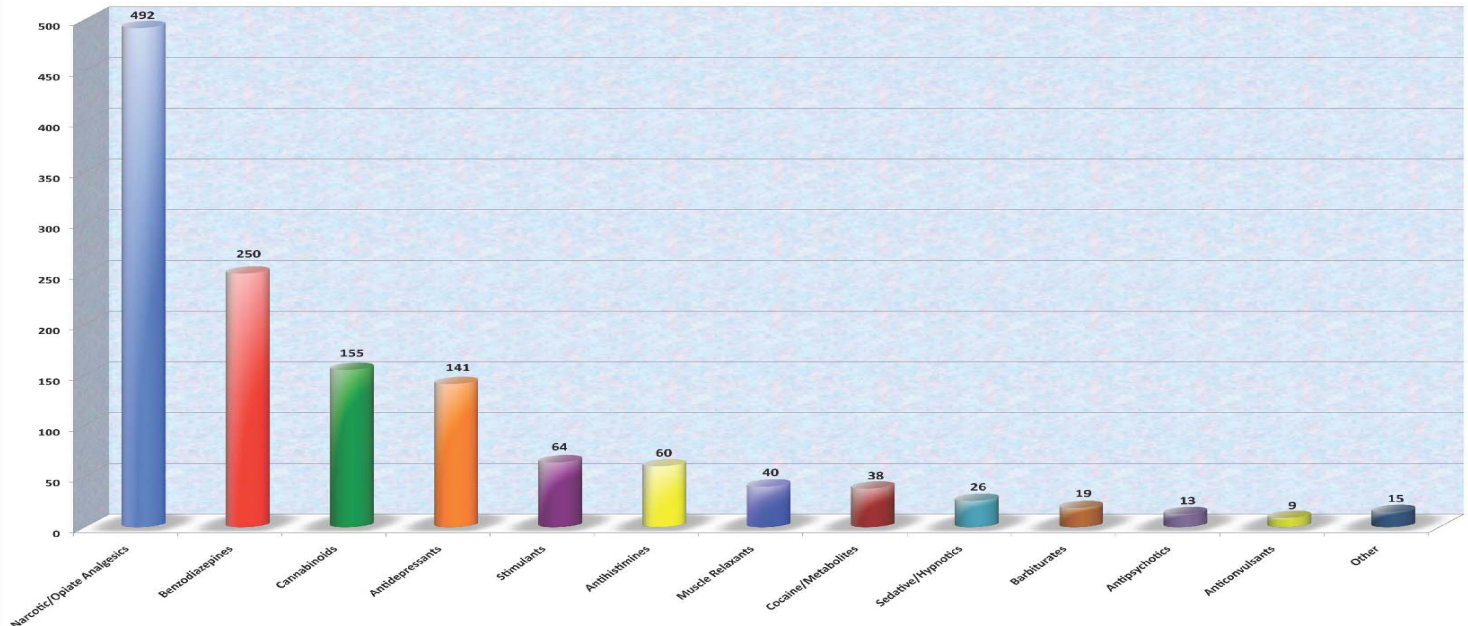
This chart illustrates a number of important alcohol-related crash findings:

1. The number of underage alcohol-related crashes.
2. The sharp increase of alcohol-related crashes for those of early legal drinking age (21-23)
3. The decrease in alcohol-related crashes as age increases (driver population decreases in later years).

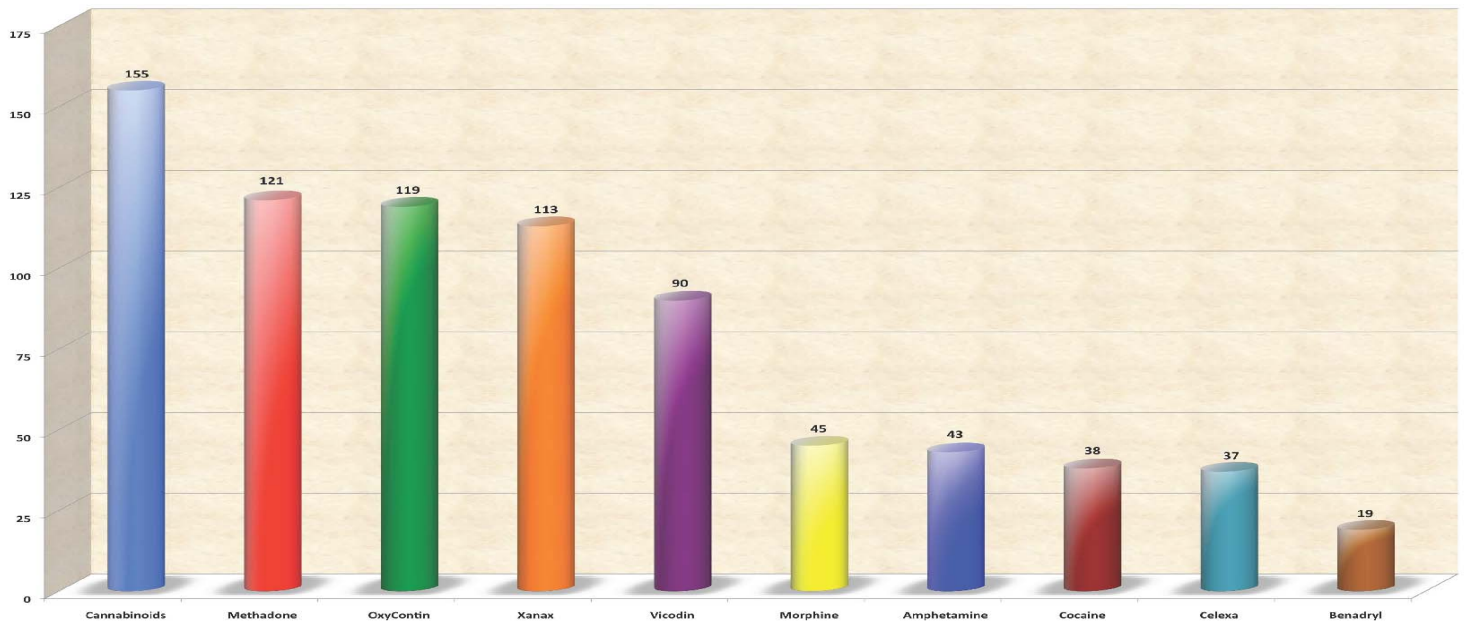


Drugs 2009-2010 Maine Driver Drug Results

2009 - 2010 Maine Driver - Drug Test Results by Category



Top Ten 2009 - 2010 Maine Driver - Drug Test Results by Drug



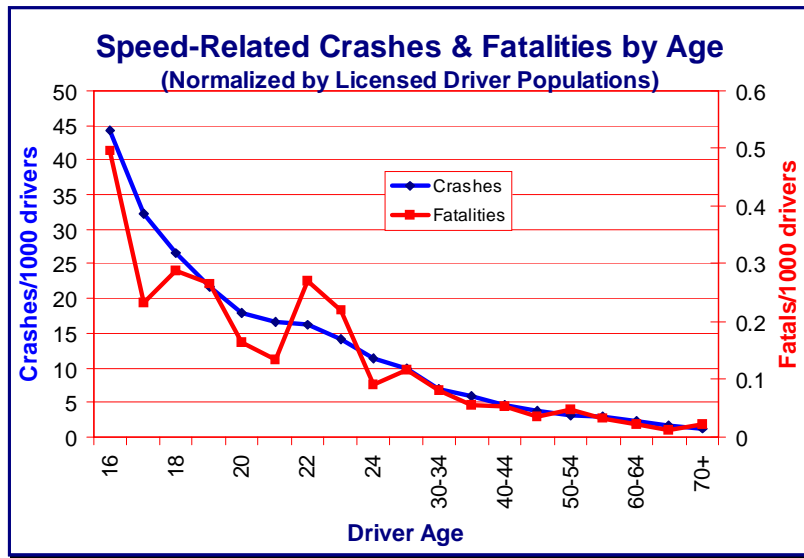
Graphing assistance provided by: Rod Larson, Husson University School of Pharmacy
207-941-7163; LarsonR@Husson.edu

Submitted by: Duane Brunell, MaineDOT, Safety Office 207-624-3278; duane.brunell@maine.gov
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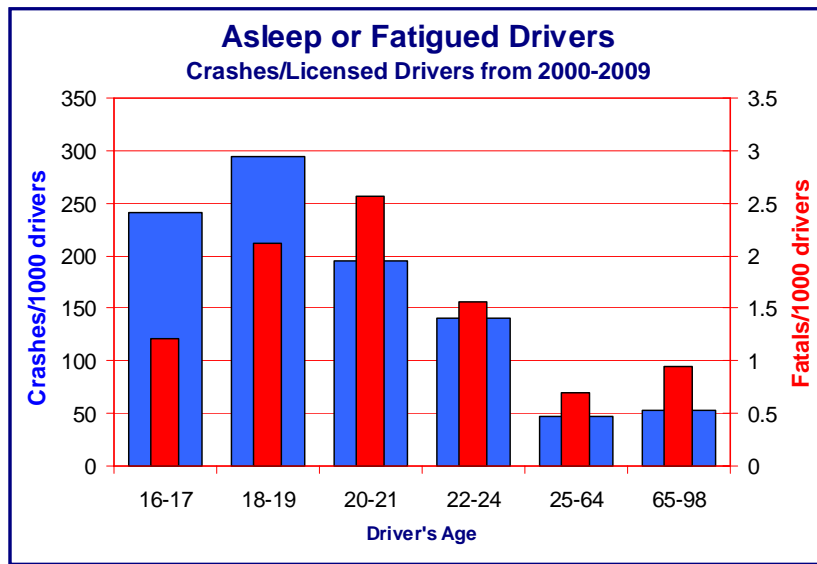


B. Illegal or Unsafe Speed



Speed-relationship in crashes and resulting fatalities is most prevalent in younger driver ages.

D. Drowsy Driving



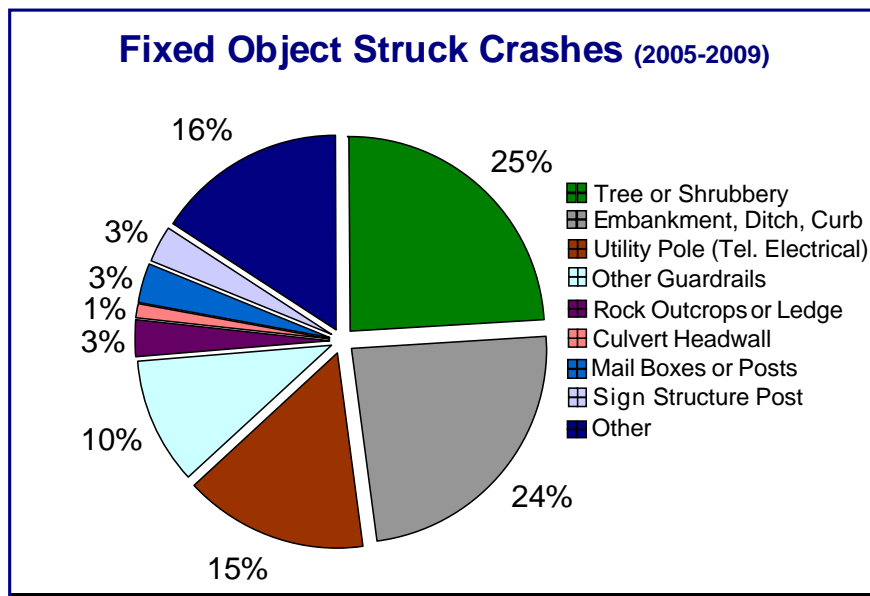
Sleepy/fatigue-related crashes are not just a mature driver phenomenon as the above chart indicates. The chart shows crash and fatality data on a per licensed driver basis. Crashes and fatalities are common for younger drivers.



Chapter 6: Lane Departure Crashes

Single vehicle crashes often are Run Off Road type crashes. Here are some findings about single vehicle fatal crashes:

- 58 % of all fatal crashes are single vehicle
- 50 % of all single vehicle crashes are speed-related
- 37 % of all single vehicle crashes are alcohol-related
(12% of drivers of single vehicle crashes are not tested)

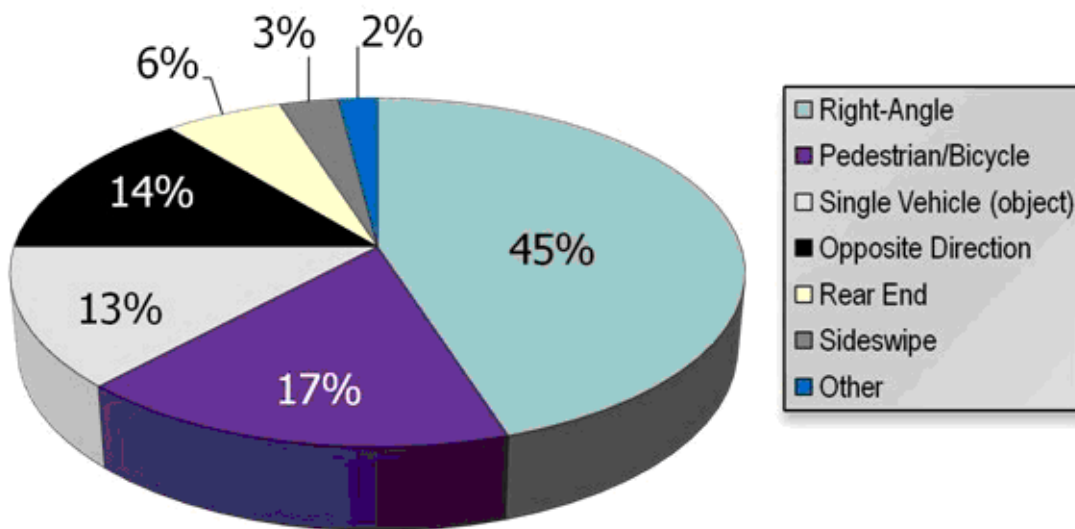


Hitting a fixed object is a frequent outcome when a vehicle leaves the road, and also the source of injuries to the vehicle occupants. The leading types of fixed objects struck are trees, embankments/ditches, and utility poles.



Chapter 7: Intersections

Fatal Crash Type Distribution (Nationwide FARS data)



Nationally, the number one fatal crash type at intersections is Right-Angle. This pie chart also shows that pedestrians and bicyclists are particularly vulnerable.





Chapter 8: Motorcycles

Motorcycle Crashes by Type (2000-2009)

Red is top ranked, Blue is second, Bold is third

Crash type	Crashes	Fatalities	SEVERITY <i>(Fatalities/ 1000 crashes)</i>
Ran Off Road	1529	79	51.7
Intersection Movement	1227	44	35.9
Rear End/Sideswipe	1194	10	8.4
Other	643	12	18.7
Head-on/Sideswipe	172	37	215.1
Deer	170	3	17.6
Object in Road	157	4	25.5
Rollover	131	2	15.3
All Other Animal	74	0	
Moose	37	7	189.2
Pedestrians	21	1	47.6
Bike	13	0	
Bear	2	0	
Fire	2	0	
TOTAL	5372	199	

2005-2009 Motorcycle Fatalities by Age

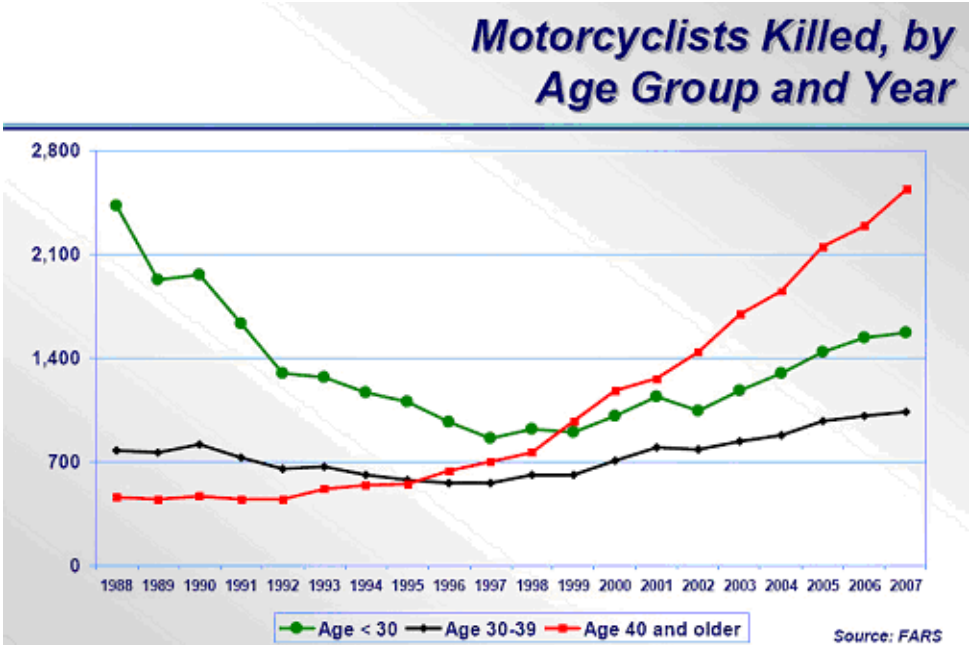
Age	Fatalities
16-20	4
21-24	8
25-34	15
35-44	23
45-54	24
55-64	19
65-74	4
75+	1

Motorcycle crashes by type are shown (left). The two most frequent crash and fatality types are Run Off Road and Intersection.

The table above shows Maine fatalities by age group, with most of the fatalities occurring to 35 to 64 year olds.

Year	Fatalities	No Helmet	% No Helmet
2000	18	15	83.3%
2001	14	5	35.7%
2002	13	8	61.5%
2003	20	13	65.0%
2004	22	12	54.5%
2005	15	9	60.0%
2006	23	15	65.2%
2007	21	15	71.4%
2008	18	13	72.2%
2009	24	18	75.0%
TOTAL	188	123	65.4%

The table above shows number of motorcycle fatalities by year, and helmet use. Overall, helmets were not worn in 65% of the fatalities.

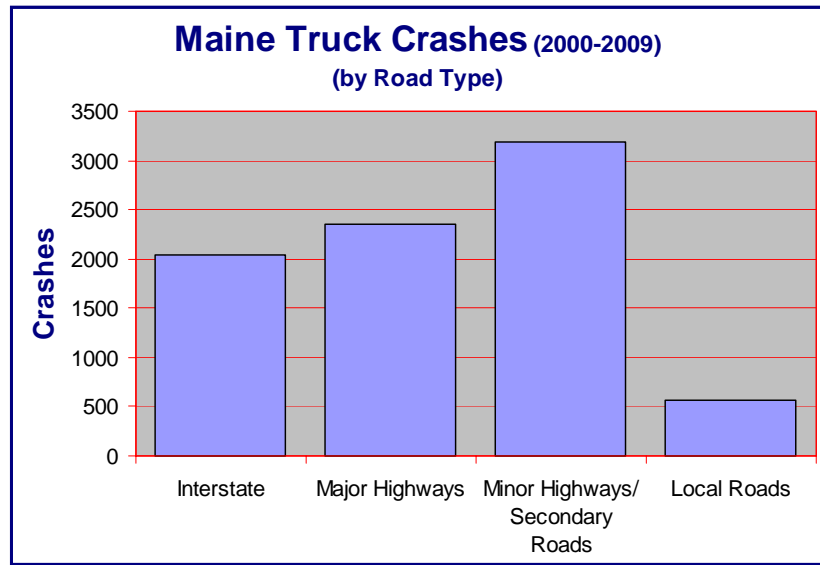


Nationwide, riders aged 40 years and older represent the largest fatal age-bracket. This age group also represents the largest fatality trend increase.





Chapter 9: Large Trucks



Large truck crashes can happen on any road type, with a large number of crashes occurring on minor highways and secondary roads.

5+ Axle Truck Crash Contributing Factors (2005-2009)	
Apparent Contributing Factor	Number of Crashes
Driver Inattention, Distraction	637
Illegal Unsafe Speed	298
Failure to Yield Right of Way	154
Other Vehicle Defect or Factor	153
Following Too Close	151
Improper Turn	143
Improper Unsafe Lane Change	124



Above are the leading reported crash contributing factors involving large truck units.



Maine State Police Commercial Vehicle Violation Data

2009 Top 10 Commercial Driver Violations		2009 Top 10 Commercial Vehicle Violations	
	Totals		Totals
Medical Certificate	466	Brakes, Out of Adjustment	865
False Record of Duty Status(RODS)	771	Brakes, All Others	4,472
No RODS/RODS not current	1,840	Emergency Equipment	1,377
10/11 & 14/15 Hours	1,107	Windshield	602
Speeding	409	Annual Inspection	900
All Other Hours-of-Service	1,481	Lighting	4,461
Disqualified Drivers	448	Steering & Suspension	1,435
Drugs & Alcohol	82	Tires	1,803
Seat Belt	72	Load Securement	1,163
All Other Violations	3,953	All Other Vehicle Defects	2,291
Total	10,629	Total	19,369

Maine State Police Commercial Vehicle Unit Activity (2009)	
Summonses	7,002
Warnings	25,997
Defects	5,178
Crashes Investigated	408
Assist to other MSP	125
Assist to other Agencies	530
Speaking Engagements	53
OUI/.04 Violations	27
OAS/Disqualified Drivers	448
Calls for Service	5,318
Total Trucks Weighed	10,922
Aggravated Overweight Violations	8
Interstate Violations	265
CVSA Safety Inspections (total)	21,321
Drivers Out Of Service	2,088
Vehicles Out Of Service	3,922
Safety Audits / Compliance Reviews	145
Total Trucks Checked	32,243



Chapter 10: Winter Driving

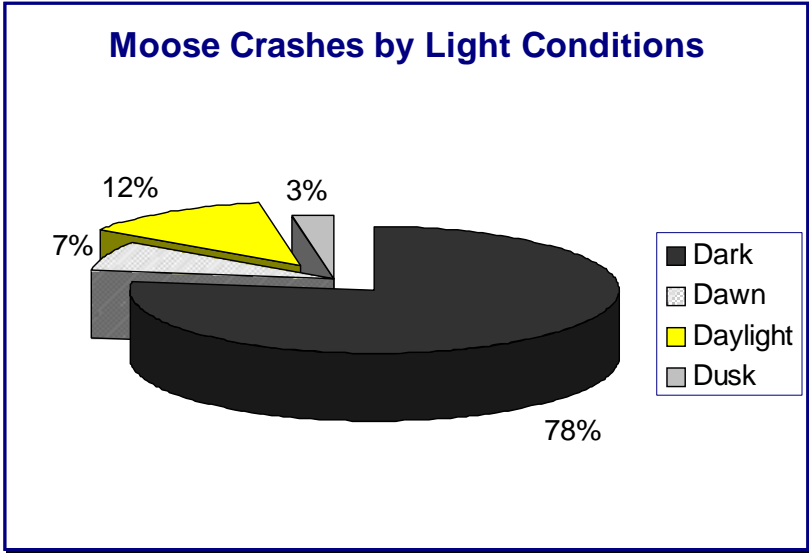
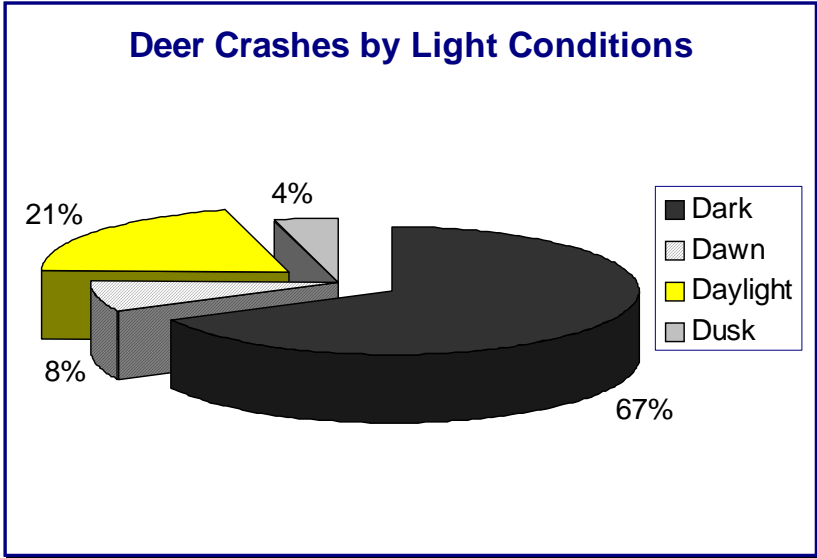
Increased Likelihood of Lane Departure Crashes on Wintry Road Surfaces (2005-2009)

CRASH TYPE	Crashes on ALL Roads		Crashes on Wintry Surfaces	
	Crashes	% of Total	Crashes	% of Total
Ran Off Road	42031	26.2%	18623	52.8%
Rear End	52917	32.9%	6596	18.7%
Intersection	30352	18.9%	4096	11.6%
Object in Road	15140	9.4%	2511	7.1%
Head-on	4134	2.6%	1774	5.0%

Slick roads coupled with driving at unsafe speed result in increased driver difficulty with lane discipline. This is reflected in the table above, where the higher representation of Run Off Road and Head-on collisions on ‘Wintry Surfaces’ can be seen compared with ‘ALL Road’ Surface conditions.



Chapter 11: Large Animals



Crashes with large animals (Moose and Deer) are most common from dusk until dawn, and particularly at night.



Moose and Deer Crashes by County (2005-2009)		
County name	Moose Crashes	Deer Crashes
Androscoggin	42	875
Aroostook	1139	713
Cumberland	92	2126
Franklin	294	494
Hancock	59	1184
Kennebec	82	1614
Knox	17	429
Lincoln	17	318
Oxford	211	707
Penobscot	374	2039
Piscataquis	98	402
Sagadahoc	8	375
Somerset	225	1066
Waldo	30	829
Washington	133	596
York	112	1382

