



# N.C. Data Validation of the AASHTO SHSP

A. C. "Cliff" Braam, P.E.



# Presentation Overview

- Brief overview/summary of North Carolina's data as related to the Key Emphasis Areas of the AASHTO SHSP
- Data utilized was most current 3 years (2000-2001), unless otherwise noted
  - Taken from either DMV's Crash Facts Book or from querying the Crash database directly
- Not intended to discuss the strategies or current initiatives



# 1. Instituting Graduated Licensing for Young Drivers

- Defining the “Young” Driver:
  - 16 - 20 years of age
- 3 Year Driver Totals
  - 174,500 Crashes (39.7% of all)
  - 977 Fatalities (20.9% of all)
  - 128,693 Injuries (31.5% of all)



## 2. Ensuring Drivers are Licensed and Fully Competent

License of Driver	1999		
	Fatal	Injury	All
	Crashes	Crashes	Crashes
Licensed In State	1,365	126,952	282,623
Resident - No License	487	30,677	67,797
Other State License	185	9,113	21,811
Not Stated	48	2,383	5,787
<b>Total Drivers</b>	<b>2,085</b>	<b>169,125</b>	<b>378,018</b>

23.4% of drivers involved in fatal crashes were unlicensed



## 2. Ensuring Drivers are Licensed and Fully Competent

Violation	All Crashes	Fatal Crashes	Injury Crashes
Speed	22.3%	34.4%	18.0%
Other	52.5%	53.1%	55.6%
None	27.3%	11.2%	25.5%
Not Stated	2.4%	1.4%	0.9%

2000-2002  
Violations by  
Crash Type

### Violations in Crashes

74.8% of all Crashes

87.4% of all Fatal Crashes

73.7% of all Injury Crashes



# 3. Sustaining Proficiency in Older Drivers

- Defining the “Older” Driver:
  - 65 years of age and older
- 3 Year Driver Totals
  - 83,464 Crashes (19.0% of all)
  - 866 Fatalities (18.6% of all)
  - 58,662 Injuries (14.3% of all)



# 4. Curbing Aggressive Driving

Contributing Circumstance	% of Statewide	
	Fatalities	Injuries
Disregarded Traffic Control Device	8.6%	9.8%
Speed Involved Crash	39.8%	15.7%
Improper Lane Change	1.0%	2.0%
Passing Crashes	1.4%	1.1%
Followed Too Closely	0.3%	3.6%
Operated vehicle in erratic, reckless, careless, negligent or aggressive manner	16.3%	6.4%
All Above Circumstances	55.2%	34.9%



# 5. Reducing Impaired Driving

Year	No.	All		Percent of Statewide		
	Crashes	Fatals	Injuries	Crashes	Fatals	Injuries
2000	13,613	465	12,053	6.2%	29.8%	8.5%
2001	14,183	374	11,712	6.5%	24.4%	8.7%
2002	12,290	384	10,766	5.5%	24.4%	8.1%
<b>Avg.</b>	<b>13,362</b>	<b>408</b>	<b>11,510</b>	<b>6.1%</b>	<b>26.2%</b>	<b>8.4%</b>

2000-2003  
Alcohol Related Crashes



# 6. Keeping Drivers Alert

- Analysis of “Driver Physical Condition”
  - Includes: illness, fatigued, fell asleep, intoxication, medical condition, physical impairment, & restrictions not complied with
- 3 Year averages where driver condition other than normal was noted
  - 5.4% of All Crashes
  - 32.9% of Fatal Crashes
  - 7.1% of Injury Crashes



# 7. Increasing Driver Safety Awareness

- Lots of Data here; Refer to table of Contributing Circumstances in handout
- Sort data by Fatal, Injury and All Crashes:
  - **Fatal:** *Exceeded Authorized Speed, Crossed Centerline/Going Wrong Way*
  - **Injury:** *Failure to Reduce Speed, Inattention, Failure to Yield Right of Way, Exceeded Safe Speed for Conditions, Crossed Centerline/Going Wrong Way, Exceeded Authorized Speed Limit*
  - **All:** *Failure to Reduce Speed, Inattention, Exceeded Safe Speed for Conditions, Crossed Centerline/Going Wrong Way, Exceeded Authorized Speed Limit*



# 8. Increasing Seat Belt Usage and Improving Airbag Effectiveness

- Data not reliable for Airbag statistics
- Seat Belt Usage
  - *95.4% usage*



# 9. Making Walking and Street Crossing Easier

- 11% of all fatalities are pedestrians
- NC ranked 10<sup>th</sup> in the nation in pedestrian fatalities each year between 1999 and 2001
- Pedestrian Fatalities:
  - 69% occurred either at dusk or at night,
  - 70% occurred on roads with a posted speed limit  $\geq$  45 MPH,
  - 78% occurred more than 50 feet from an intersection,
  - 80% of the pedestrians were partially or wholly at fault,
  - 72% of the pedestrians were male, and
  - 33% of the pedestrians had consumed alcohol



# 10. Ensuring Safer Bicycle Travel

- 1% of all fatalities are bicyclists
- NC ranked 8<sup>th</sup> or higher in the nation in bicycle fatalities between 1999 and 2001
- Bicycle Fatalities:
  - 45% occurred while the motorist and the bicyclist were on parallel paths and the motorist was overtaking the bicyclist (i.e. coming from behind),
  - 40% occurred either at dusk or at night,
  - 72% occurred on roads with a posted speed limit  $\geq$  45 MPH,
  - 73% of the bicyclists were partially or wholly at fault,
  - 34% of the bicyclists were under the age of 16,
  - 88% of the bicyclists were male, and
  - 17% of the bicyclists had consumed alcohol.



# 11. Improving Motorcycle Safety & Increasing Motorcycle Awareness

- Fatalities increased each of the last 3 years -  
89 (5.7%), 102 (6.7%), 114 (7.2%)
  - 2000; 89 or 5.7% of all
  - 2001; 102 or 6.7% of all
  - 2002; 114 or 7.2% of all
- Top 15 counties account for 48.8% of all motorcycle related fatalities
- Motorcycles only account for 1.3% of all registered vehicles, but 6.5% of all fatalities



# 12. Making Truck Travel Safer

Year	Crashes			% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries
2000	8,046	151	4,388	9.7%	3.1%
2001	6,981	156	3,756	10.2%	2.8%
2002	7,258	136	3,897	8.6%	2.9%

2000-2002 Truck Crashes

- Trucks/Commercial Motor Vehicles defined as:
  - Truck/Trailer
  - Truck/Tractor
  - Tractor/Semi-Trailer
  - Tractor/Doubles
  - Unknown Heavy Truck



# 13. Increasing Safety Enhancements in Vehicles

- No Crash Data Available



# 14. Reducing Vehicle-Train Crashes

		All Crashes	Persons Killed	Persons Injured	% Statewide	
					Persons Killed	Persons Injured
2000	RR Train	35	2	24	0.128%	0.017%
2001	RR Train	16	1	10	0.065%	0.007%
2002	RR Train	16	0	9	0.000%	0.007%

2000-2002 Train Related Crashes



# 15. Keeping Vehicles on the Roadway

Year	Crashes			People		% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	52,585	855	26,133	960	38,770	61.6%	27.4%
2001	49,955	868	25,238	986	37,588	64.3%	28.0%
2002	55,081	909	26,697	1,014	39,912	64.3%	29.9%

2000-2002 Run-Off-Road Crashes



# 16. Minimizing the Consequences of Leaving the Road

Year	Crashes			People		% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	42,185	640	20,506	706	30,007	45.3%	21.2%
2001	39,923	638	19,681	725	28,498	47.3%	21.2%
2002	44,812	704	21,018	777	30,470	49.3%	22.9%

2000-2002 Hit Fixed Object Crashes

Overlap between Ran-Off-Road and Hit Fixed Object Crashes

## Fixed Objects Struck

- 25.5% Ditch
- 19.7% Tree
- 9.1% Utility Pole



# 17. Improving the Design and Operation of Highway Intersections

Year	Crashes			People		% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	57,237	296	26,341	328	46,616	21.0%	33.0%
2001	60,938	292	27,399	325	47,755	21.2%	35.6%
2002	61,014	285	26,700	317	46,682	20.1%	35.0%

2000-2002 Intersection Crashes



# 18. Reducing Head-On and Across-Median Crashes

Year	Crashes			People		% of Statewide	
	Total	Fatal	Injuries	Fatalities	Injuries	Fatalities	Injuries
2000	5,371	213	3,348	255	7,490	16.4%	5.3%
2001	4,712	187	3,000	235	6,742	15.3%	5.0%
2002	4,708	168	2,946	203	6,399	12.9%	4.8%

2000-2002 Head-On Crashes



# 18. Reducing Head-On and Across-Median Crashes

<b>Fatal Crashes</b>	All Crashes	Predicted	Actual	Fatal Crashes Saved
1999	178.0	30.4	24.0	6.4
2000	191.0	32.7	23.0	9.7
2001	160.0	27.4	7.0	20.4
Through July 2002	79.0	13.5	7.0	6.5
				<b>43.0</b>
<b>Fatalities</b>	All Crashes	Predicted	Actual	Fatalities Saved
1999	207.0	44.2	30.0	14.2
2000	226.0	48.3	36.0	12.3
2001	183.0	39.1	11.0	28.1
Through July 2002	94.0	20.1	8.0	12.1
				<b>66.7</b>

1999-2002 Across Median Crashes



# 19. Designing Safer Work Zones

Year	Crashes	Fatal	Injury	% of Statewide	
				Fatalities	Injuries
2000	3,394	33	2,345	2.1%	1.7%
2001	3,957	35	2,706	2.3%	2.0%
2002	4,552	39	2,975	2.5%	2.2%

2000-2002 Work Zone Crashes



# 20. Enhancing Emergency Medical Capabilities to Increase Survivability

Year	Fatal			A Injuries			B Injuries			C Injuries			PDO		
	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%	Total	Used EMS	%
2000	1,449	1,234	85%	4,697	3,825	81%	23,830	15,898	67%	61,482	23,109	38%	174,523	2,296	1%
2001	1,393	1,226	88%	3,612	3,022	84%	22,004	15,005	68%	60,576	23,686	39%	171,155	2,144	1%
2002	1,467	1,227	84%	3,412	2,882	84%	21,613	15,403	71%	60,532	25,310	42%	182,702	2,753	2%

2000-2002 Utilization of EMS Services

Need to link to EMS or other records to better determine needs; response times, urban vs. rural issues, etc.



# 21. Improving Information and Decision Support Systems

- No crash data for this area
- Dependent on identification of the various agencies to identify
- Good candidate for “write in ballot” when prioritizing needs



## 22. Creating More Effective Processes and Safety Management Systems

# *The Executive Committee for Highway Safety*



Questions?

