Bus Crash Causation Study

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FMCSA Office of Analysis, Research and Technology Webinar

Wednesday, April 23, 2008

Trucks and Buses in Fatal Crashes

- Nation, 2005-2006
  - Large Trucks – 9,683
  - Buses – 579

    Motor coaches – 70

Motor coaches represent 0.7 percent of all large truck and bus crashes.

Crashes in Study – 39 in New Jersey

- Crashes by Severity
  - 14 fatal crashes
  - 25 injury crashes
- Crashes by Configuration
  - 24 with other vehicles (2 motorcycles, 1 light rail)
  - 9 with pedestrians, pedal cyclists
  - 6 single vehicle (2 bus fires)

Bus Type – 40 Buses

- 26 Motor coaches (5 transit types)
  - 5 – Transit
  - 3 – School
  - 3 – Large Vans
  - 3 – Small Buses

Bus Operation

- Charter – 15
- Intercity regular route – 10
- Private/business – 4
- Transit – 4
- School – 2
- Other – 4

BCCS Crash Coding

- Critical event (CE) – event after which crash is unavoidable
- Critical reason for critical event (CR) – immediate reason for the critical event; not the cause of the crash
- Crash associated factors – all factors selected from the current understanding of factors related to crash occurrence, and present at the time of the crash

Critical Events coded to Bus

- 5 – Pedestrian/Pedal cycle in lane (4 pedestrians)
- 4 – Lane change/run off road
- 3 – Other vehicle stopped in lane
- 3 – Traveling too fast
- 4 – Other events

(CE coded to bus in 19 of 39 crashes)

Critical reasons coded to Bus – 19

- 15 – Driver
  - 6 – Inadequate surveillance
  - 4 – Inattention
  - 2 – Following too close
  - 3 – Other reasons
- 3 – Vehicle
  - 2 – Bus fire
  - 1 - Brakes failed
- 1 – Environment
  - Ice on Road

Critical Events not coded to Buses – 20

- Other Vehicles – 16
  - 5 – Vehicle entering intersection, roadway
  - 3 – Traveling too fast
  - 3 – Lane change
  - 2 – Bus stopped in lane
  - 3 – Other events
- Pedestrians – 4
  - 4 – Pedestrian entered intersection, roadway

Critical Reasons coded to Others

- Driver – 16
  - 5 – Traveling too fast or too slow
  - 4 – Non-performance (asleep, impaired)
  - 3 – Inattention/distraction
  - 4 – Other driver reasons
- Pedestrians – 4
  - 4 – entering intersection, roadway

Bus Driver Age

- 18 drivers coded with CR
- 21 not coded with CR

Age	Coded w/CR	NOT coded w/CR	Total
Under 40	2	6	8
40 – 49	3	3	6
50 – 59	9	7	16
60 – 69	3	5	8
Over 69	1	0	1
TOTALS	18	21	39

Vehicle OOS Violations

- 19 buses coded with CR: 5 had OOS violations
- 21 not coded with CR: 2 had OOS violations

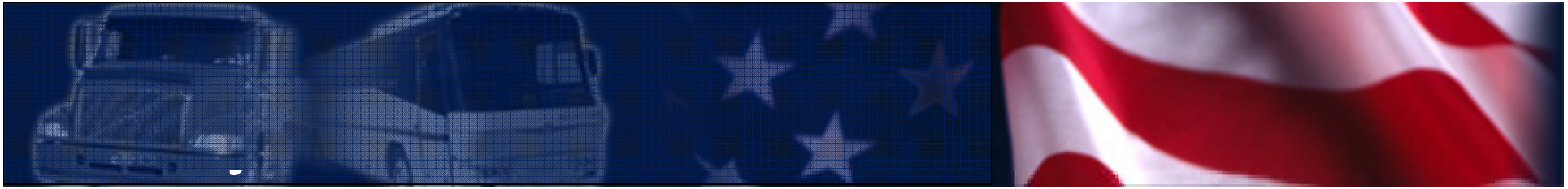
Violation	Coded w/CR	NOT coded w/CR	Total
Brakes	5	1	6
Repair & Maintenance	2	1	3
Lighting Devices	2	1	3
Others	3	3	6
Others: steering, suspension, frame, axle, windshield, emergency exit			

Driver OOS Violations*

- 19 buses with CR: 5 had driver OOS violations; 3 had expired or no medical certificate (not an OOS)

Total Quantity	Driver OOS Violations
1	No CDL
1	10-hour rule
1	No passenger endorsement on CDL
2	Reckless operation
1	Too fast for conditions

*No ***driver*** *OOS violations for the 21 buses not coded with the CR*



- 18 of 19 drivers with CR had violations history
- 16 of 21 drivers without CR have history of violations

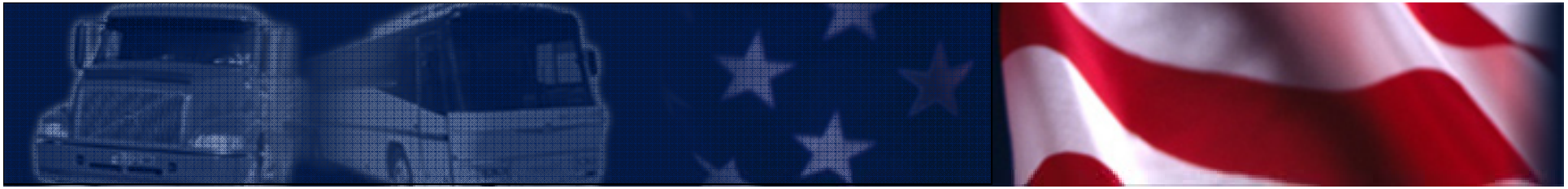
Driver Violation	Buses coded w/CR	Buses not coded w/CR	Total
Driving w/out active license	2	4	6
Prior license suspended	3	5	8
Improper lane change, turn or passing	5	4	9
FT obey traffic sign/light	6	6	12
Speeding (>10 miles+)	8	7	15

Summary of Results

1. In half the crashes the Bus was coded with the Critical Reason for the crash – almost all the reasons were Driver errors
2. These results were very similar to those of the Large Truck Crash Causation Study
3. FMCSA should focus effort on bus drivers and their working conditions (influence on driving behavior is employer)

Implications – It's the Driver!

1. Focus more on the driver during Inspections
2. Make sure the CDL system works (violations show up from State to State)
3. Traffic enforcement, punishment
4. Develop a driver rating system similar to carrier system
5. Human Factors research: other modes, outside DOT
6. Narrow vehicle focus to critical areas – brakes, other



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