National Transportation Safety Board

Updates Regarding NTSB School Bus Investigations

Christopher A. Hart
Chairman, NTSB

November 7, 2016

Outline

- NTSB 101
- Ongoing investigations
- Distracted driving
- Seat belts on the school bus
- NTSB school bus safety video

NTSB 101

- Independent federal agency, investigate transportation mishaps, all modes
- Determine probable cause(s) and make recommendations to prevent recurrences
- Primary product: Safety recommendations
  - Favorable response > 80%
- *SINGLE FOCUS IS SAFETY*
- Independence
  - Political: Findings and recommendations based upon evidence rather than politics
  - Functional: No “dog in the fight”

NTSB Investigations

- NTSB's three teams of highway investigators that launch to about 21 crashes per year

- Launch selection criteria
  - **High public interest?**
  - Emerging new issues?
  - Can we make a difference?
  - Do we have the resources?

Most Wanted List 2016

- Impaired driving
- Distracted driving
- Fatigued driving
- Medical fitness for duty
- Collision avoidance systems
- Occupant protection
- Vehicle recorders
- Complete rules on positive train control & tank cars
- Rail Transit
- General aviation loss of control

NTSB School Bus Investigations

NTSB

St. Mark's, FL, July 2, 2016

- Intersection collision between school bus and truck
- Truck driver and three bus passengers killed
- Investigation issues
  - Migrant worker safety
  - Intersection safety

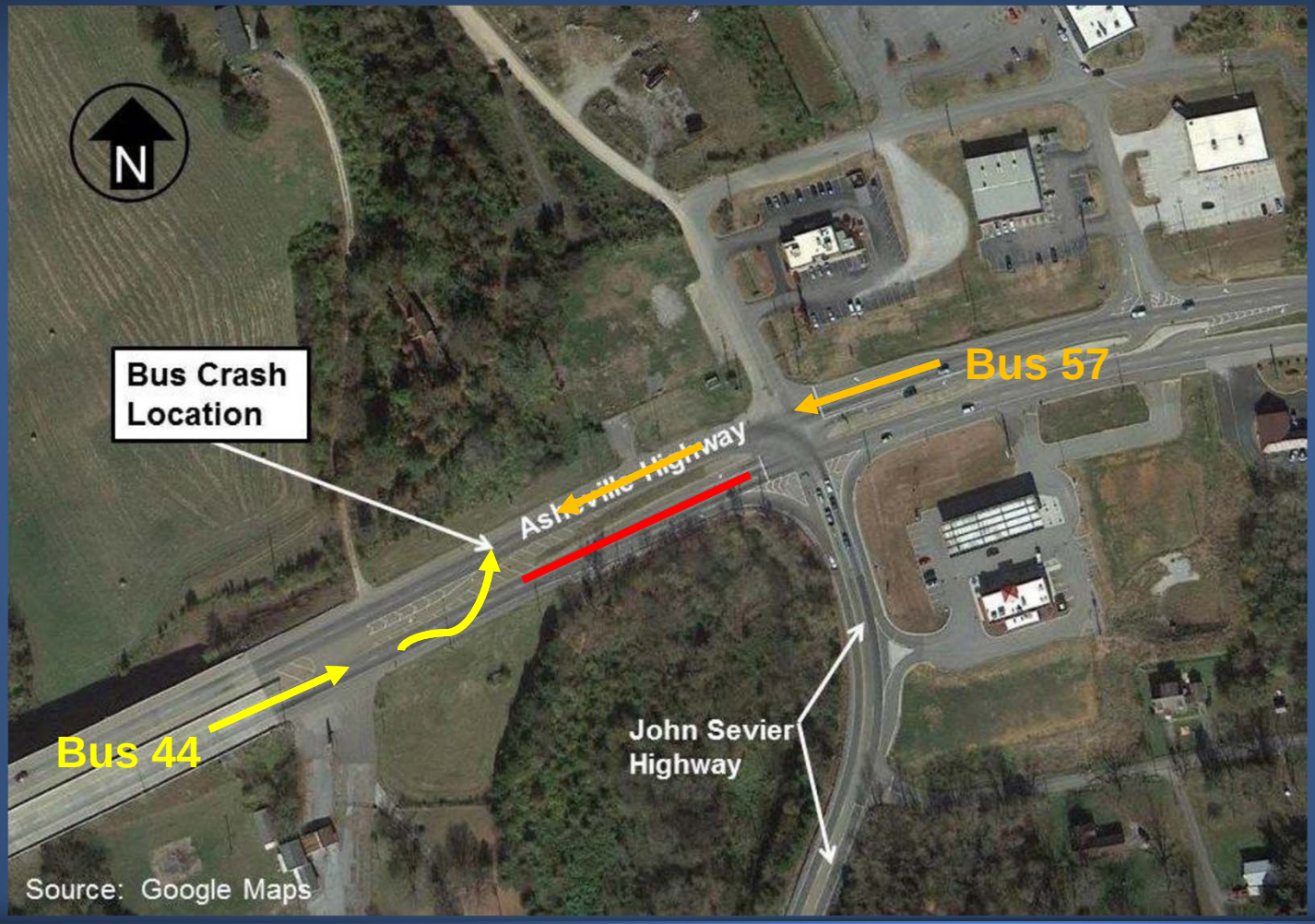
Ongoing Pedestrian Safety

- NTSB examining pedestrian fatalities
- School buses involvement
- Thief River Falls, MN (10/4/2016)
  - Child killed crossing to stopped bus
- New York, NY (10/14/2016)
  - Pedestrian in crosswalk killed

Driver Distraction

- Knoxville, TN
- December 2, 2014
- Collision between two school buses
- 3 fatalities and 22 injuries

Knoxville Crash Sequence



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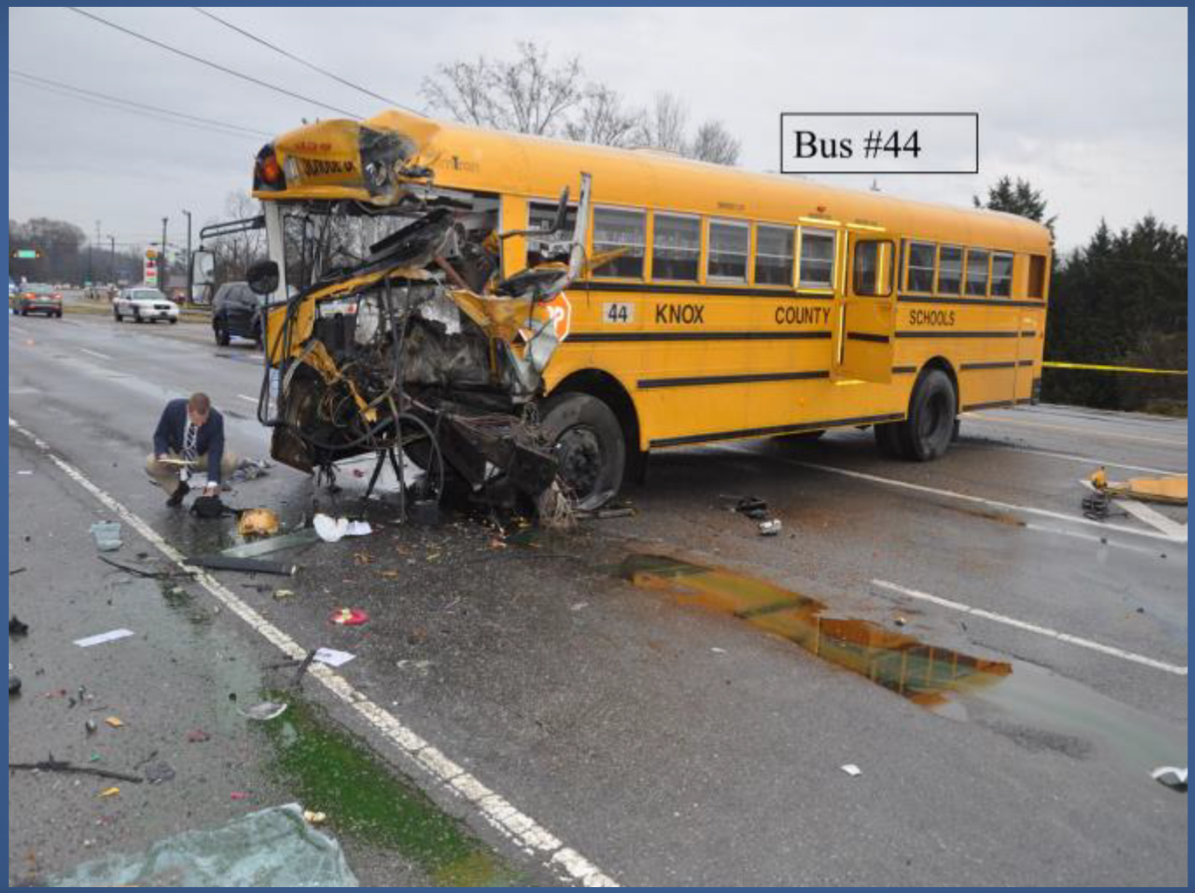
Bus 44 Crash Damage



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Bus 57 Damage

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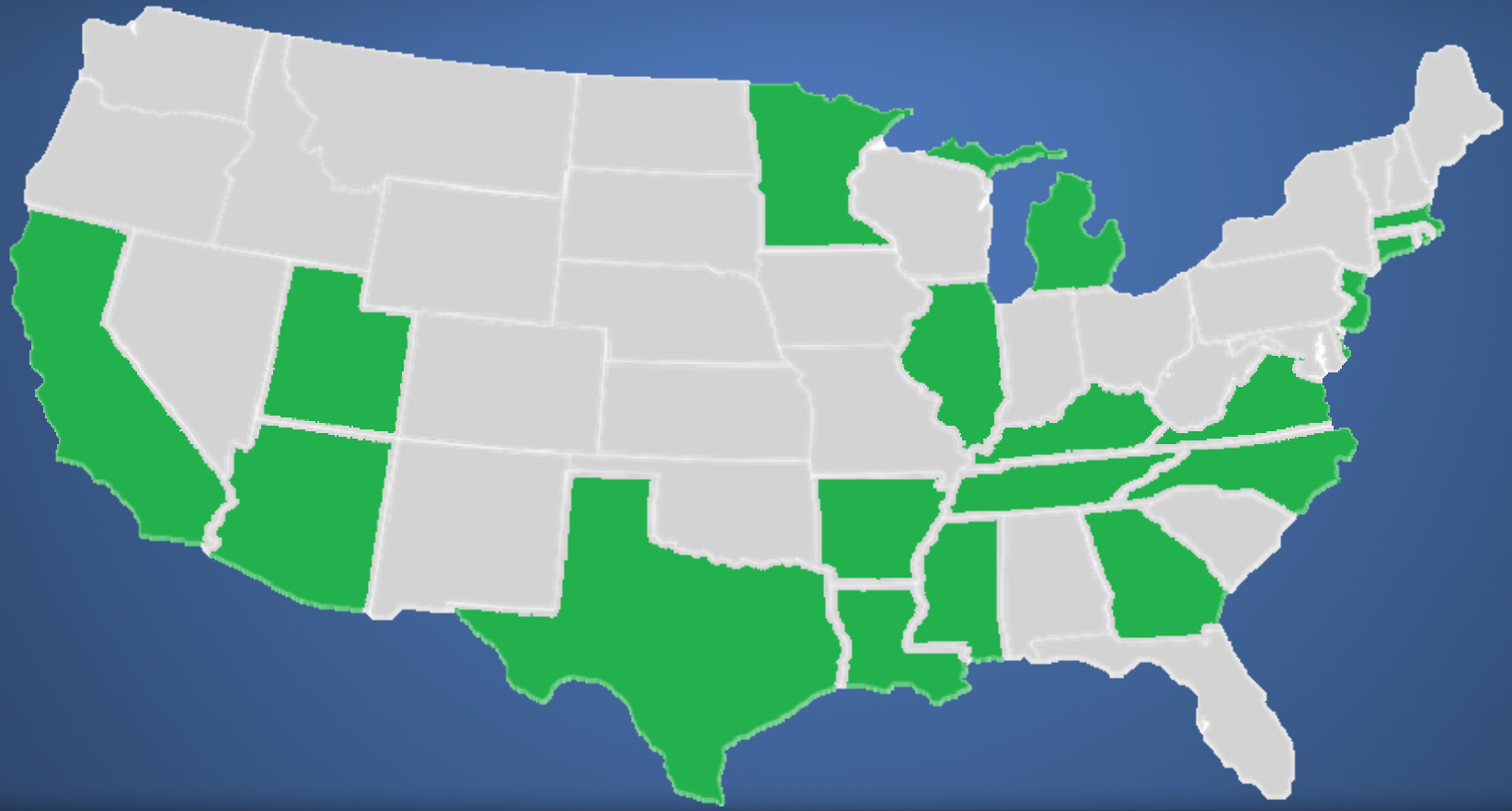
Knoxville Crash Findings

- Driver of bus 44 texting frequently
- Driver reading text approaching stopped traffic
- Driver swerved into bus 57 due to distraction

NTSB Recommendation on Distracted Driving in Buses

TO THE 50 STATES AND THE DISTRICT OF COLUMBIA: Enact legislation to prohibit cellular telephone use by commercial driver's license holders with a passenger-carrying or school bus endorsement, while driving under the authority of that endorsement, except in emergencies. (Superseded by H-11-29)

Bus Driver Cell Phone Bans



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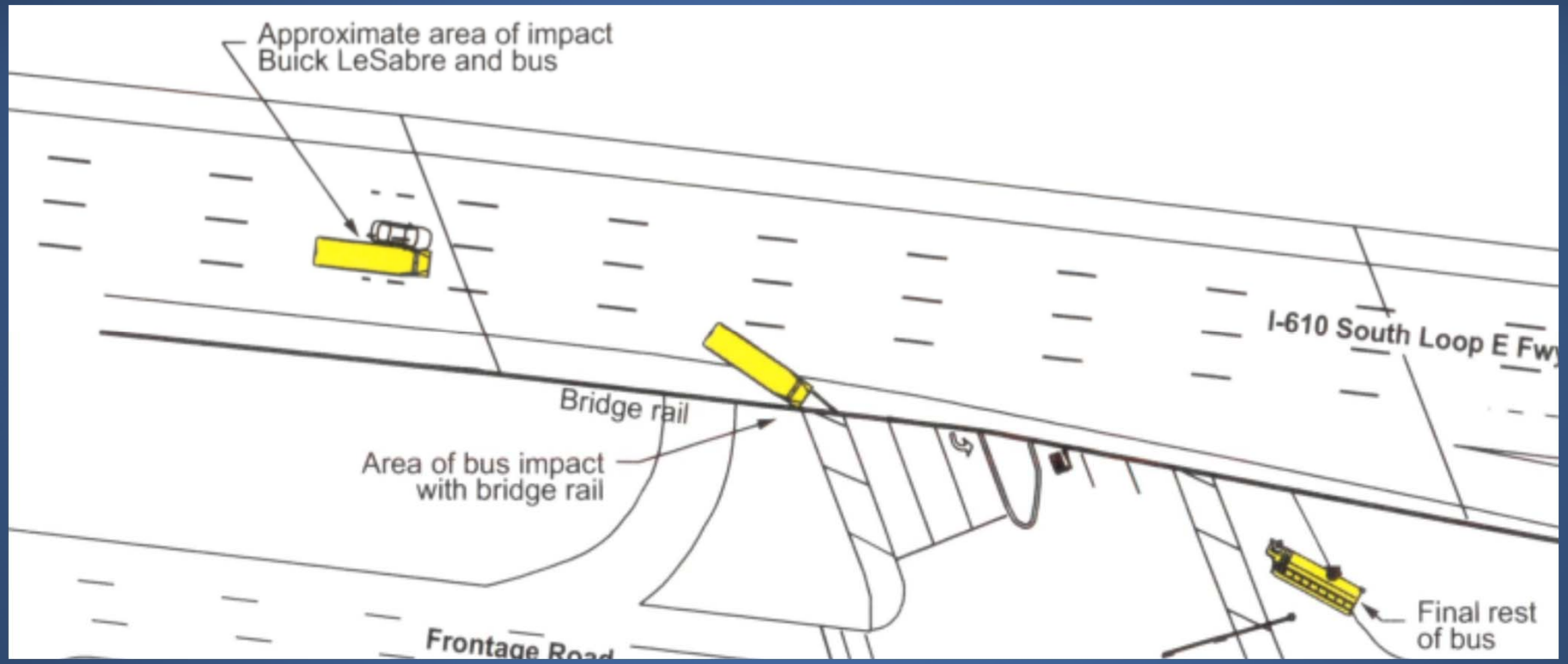
The Other Driver

- Houston, TX
- September 15, 2015
- Passenger vehicle collided with school bus
- School bus left elevated ramp
- 2 fatalities and 3 injuries

Houston Crash Sequence



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Houston Bus Damage

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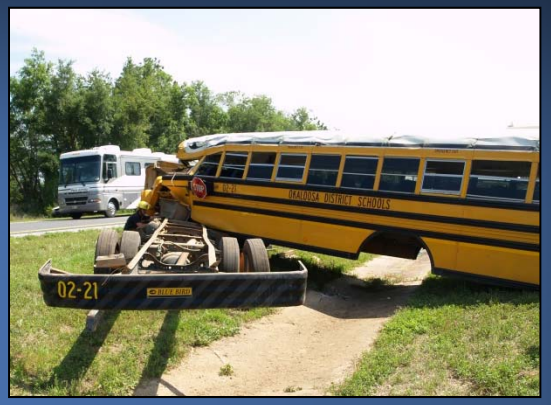
Houston Crash Findings

- Bridge railing repair deficient
- Corrosion on anchor bolts
- Children were not belted
  - Likely would not have made a difference

NTSB Investigations of Seat Belt Equipped School Buses

Central Bridge, NY - 1999

Conasauga, TN - 2000



Milton, FL - 2008

Chesterfield, NJ-2012

Port Saint Lucie, FL-2012

Anaheim, CA - 2014

NTSB

Best Occupant Protection?

- Compartmentalization
  - Works well for all seated occupants and all occupant sizes
  - Requires no passenger action
  - Designed for longitudinal impacts
- Seat Belts
  - Much more effective in side impacts and rollovers

Chesterfield, NJ

(1 fatality)

Port St. Lucie, FL

(1 fatality)

Lap Belts

Lateral Impact

High Impact Force in Back of Bus

Less Proper Belt Use (Compared to Pt. St. Lucie)

Video Evidence

Seat Integrity Issues

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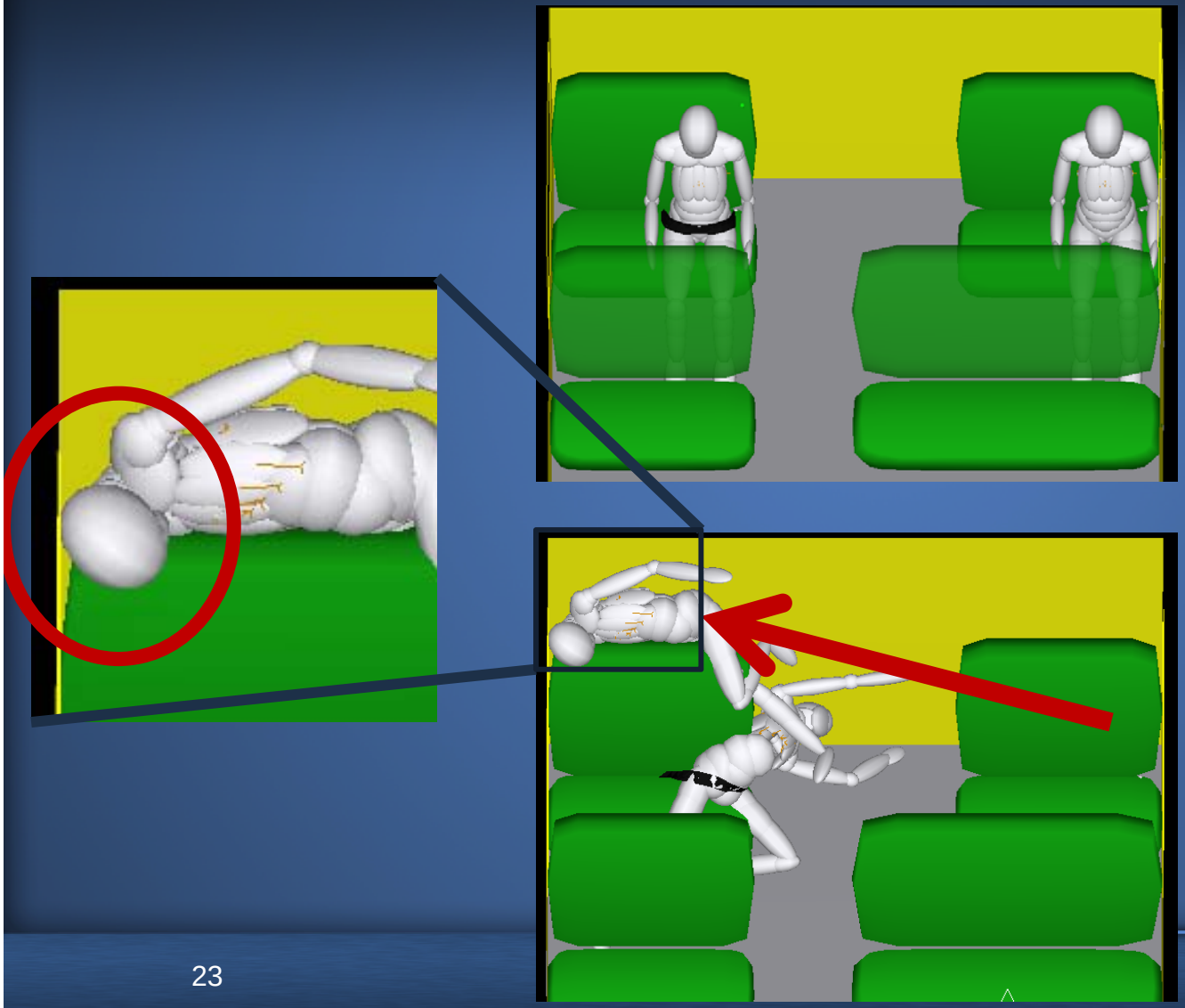
Chesterfield: Unbelted Occupant Motion



Time = 0.0 second

Time = 1.4 seconds

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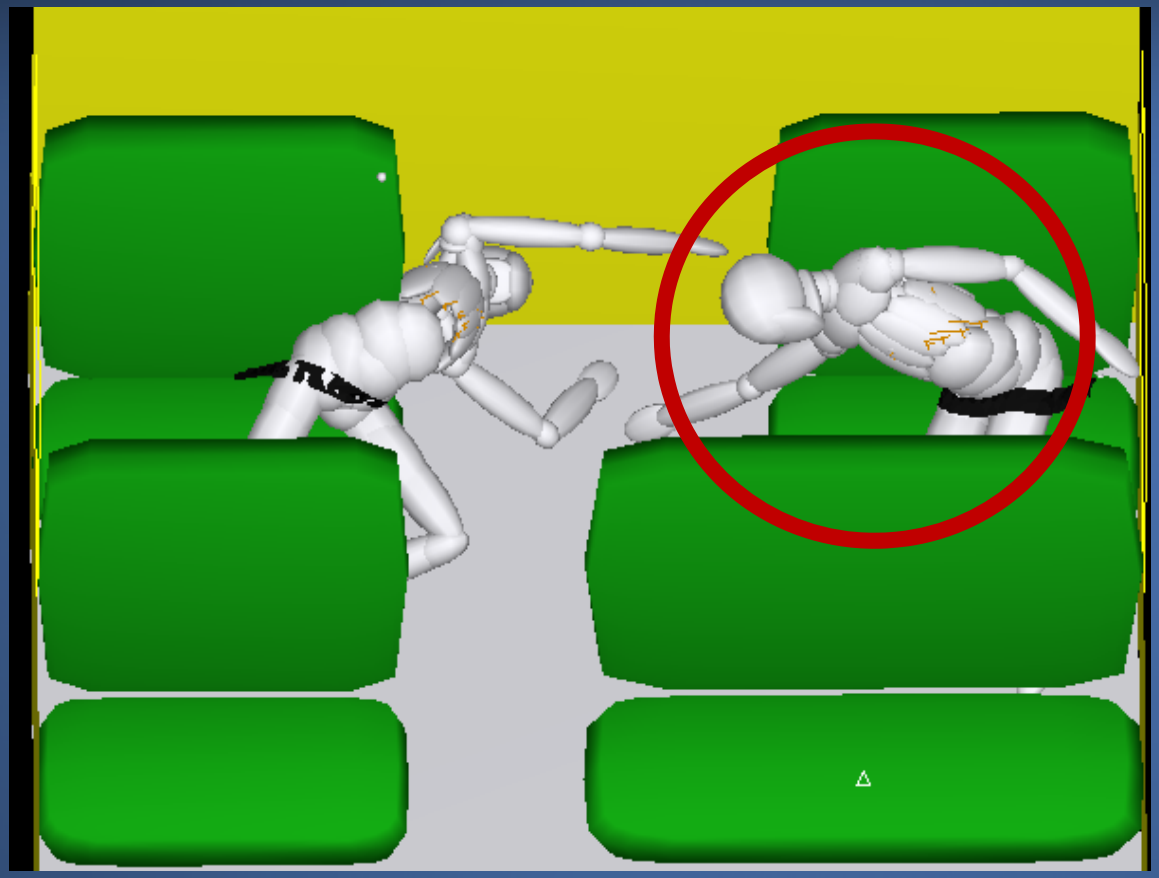
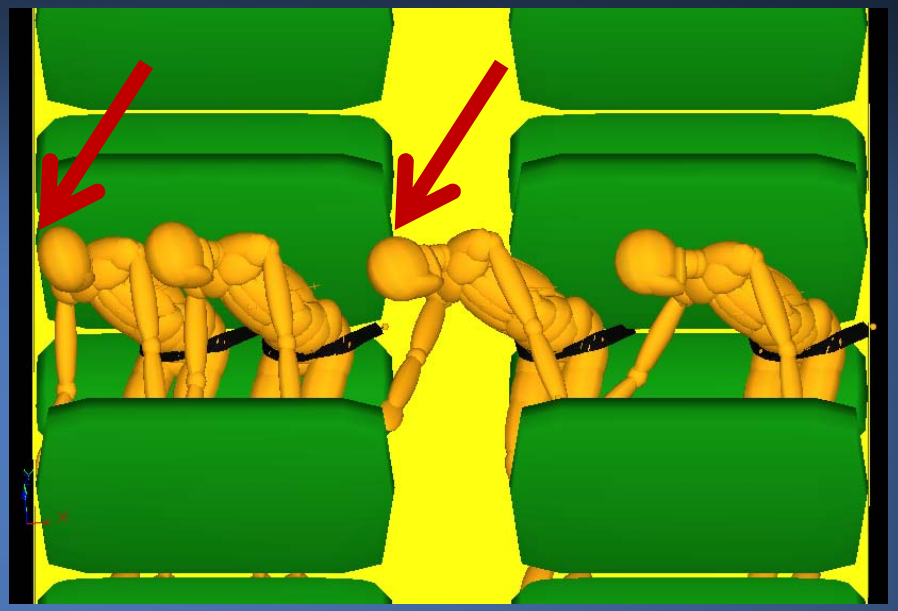
Chesterfield: Lap Belted Occupant Motion



Time = 1.4 seconds

Injury from Contact on Non-Protected Interior Surfaces



- Lap belts do not prevent injury from upper body flailing
- Hard surfaces pose a risk even with compartmentalization and/or lap belts
- Recommendations to include interior surfaces in performance standards

Conclusions

- Properly worn lap belts provide some benefit
- Properly worn lap/shoulder belts provide greater benefit by reducing injuries related to upper body flailing

Anaheim, CA April 24, 2014

- Partial roll onto embankment
- Sliding/lateral impact
- Lap/shoulder belts
- On-board video

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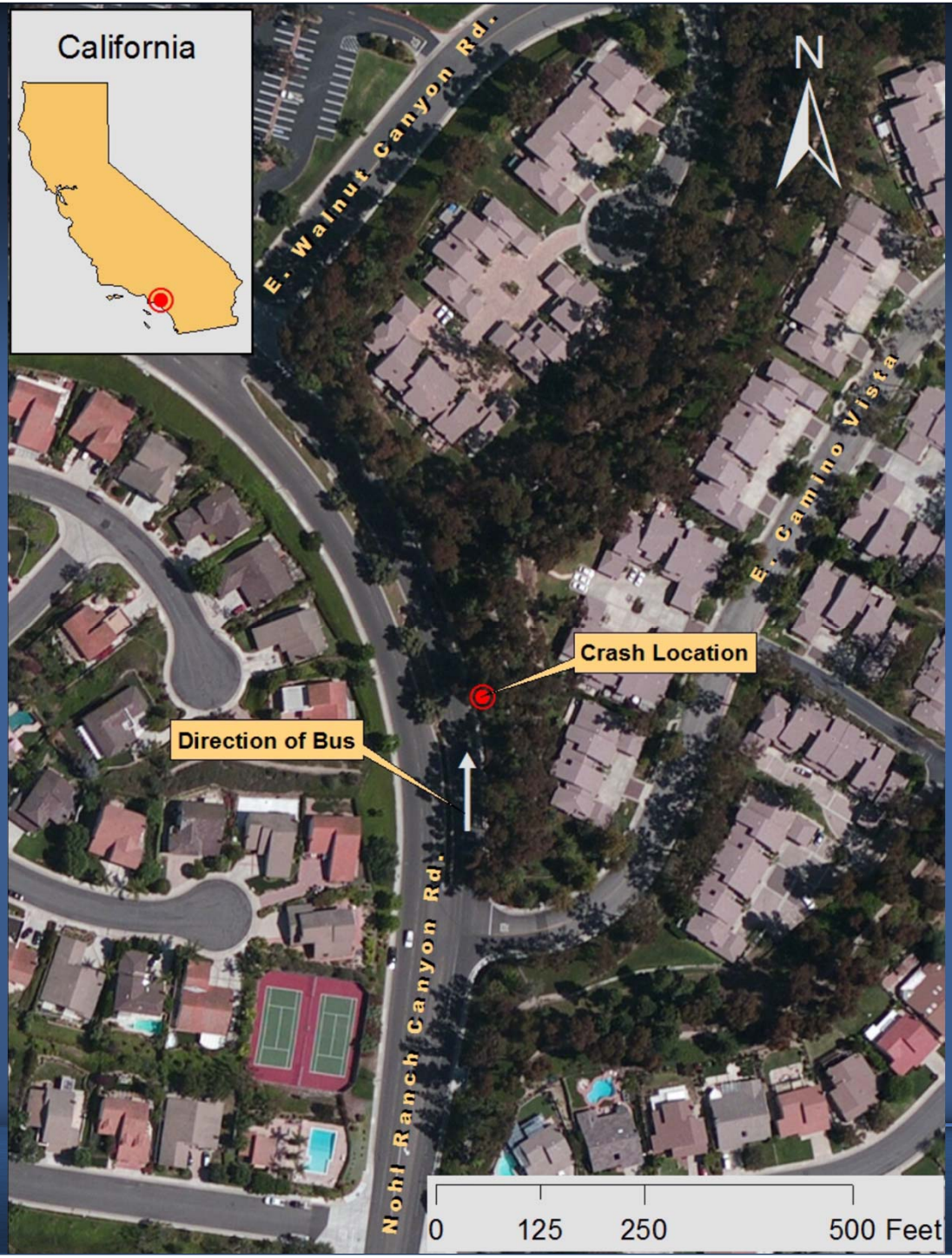
Anaheim, CA (NTSB HAB-16/06)

- 2012 Blue Bird 78-passenger school bus departed roadway (speed ~43 mph), struck pole and trees climbing a ~30 degree embankment
- Driver, 11 students
  - 5 serious (including driver), 5 minor, 2 uninjured


California
E. Walnut Canyon Rd.
N
E. Camino Vista
Crash Location
Direction of Bus
Nohl Ranch Canyon Rd.
0
125
250
500 Feet

NTSB

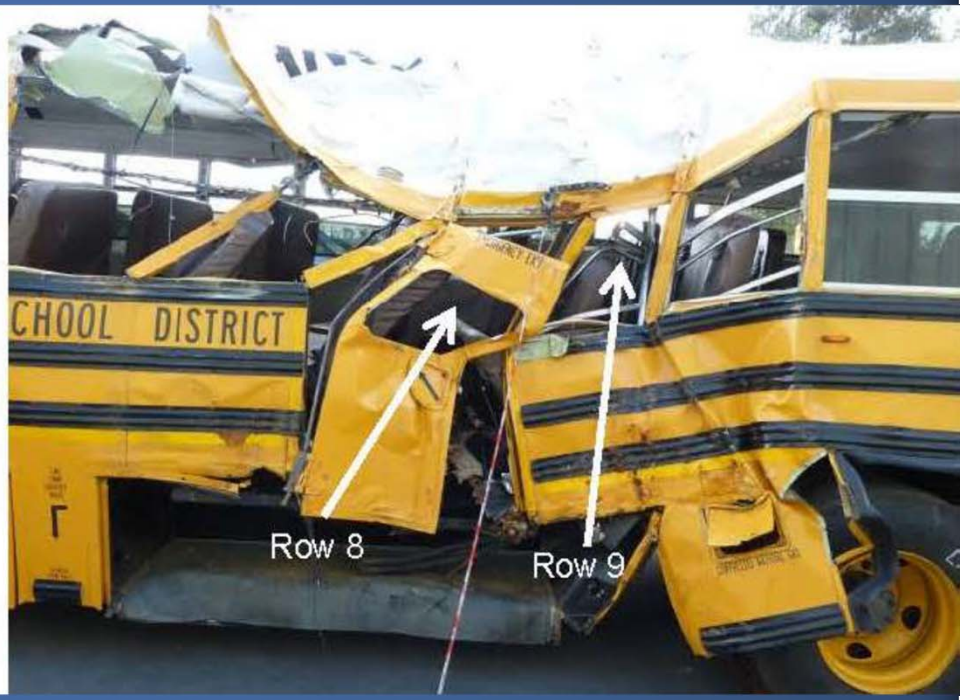
Probable Cause

- Driver's loss of consciousness resulting in loss of control – bus departure and collision

Video Evidence and Driver Health History

- Driver Issue: pulmonary hypertension
- Conclusion: Driver did not provide complete health history
- FMCSA requires certified medical examiner since May 2014
- Obtaining a CDL with pulmonary hypertension depends on treatment/condition management

Tree Intrusion at Row 8 and 9



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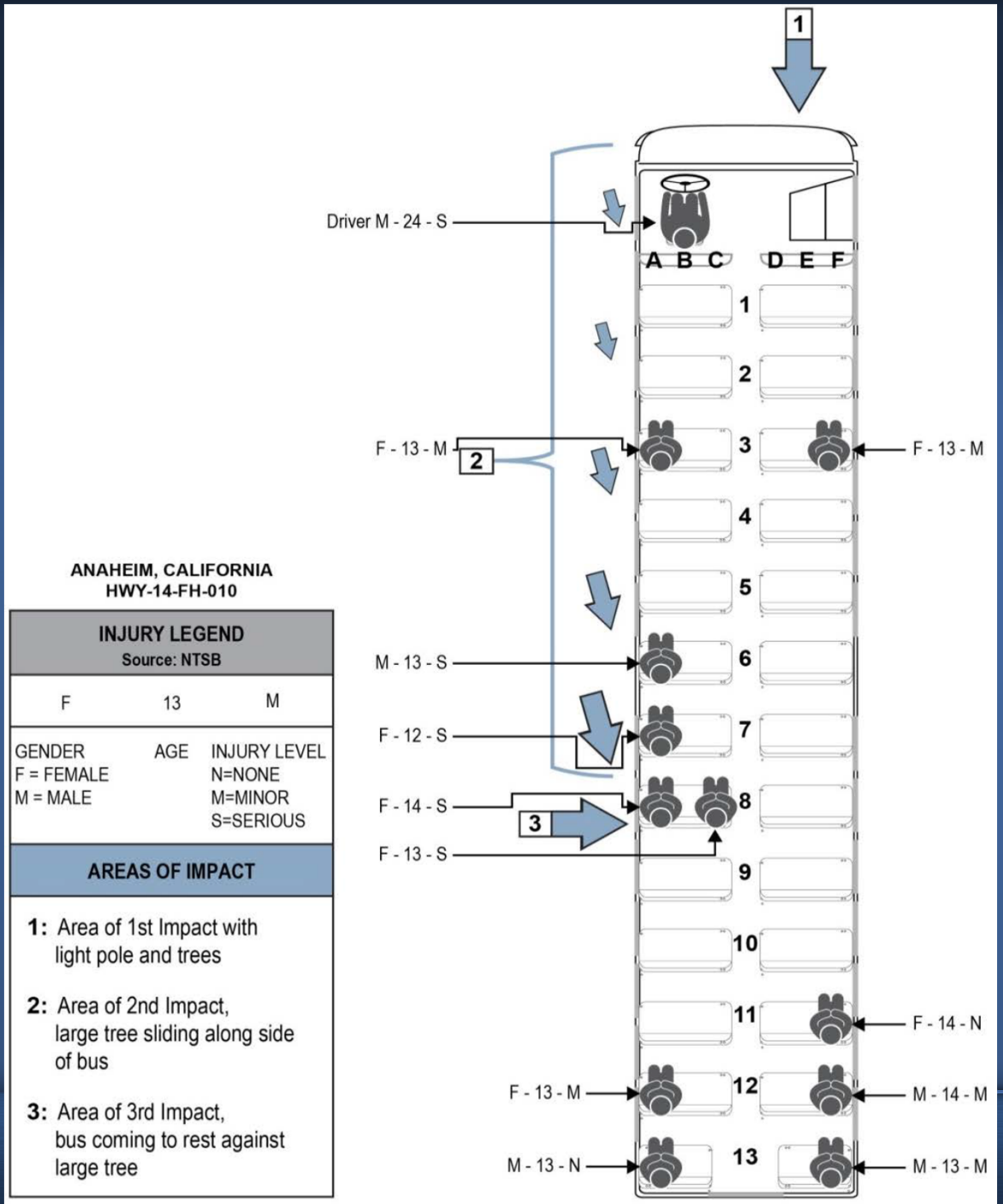

ANAHEIM, CALIFORNIA
HWY-14-FH-010

INJURY LEGEND Source: NTSB		
F	13	M
GENDER F = FEMALE M = MALE	AGE	INJURY LEVEL N=NONE M=MINOR S=SERIOUS

AREAS OF IMPACT

1: Area of 1st Impact with light pole and trees

2: Area of 2nd Impact, large tree sliding along side of bus

3: Area of 3rd Impact, bus coming to rest against large tree

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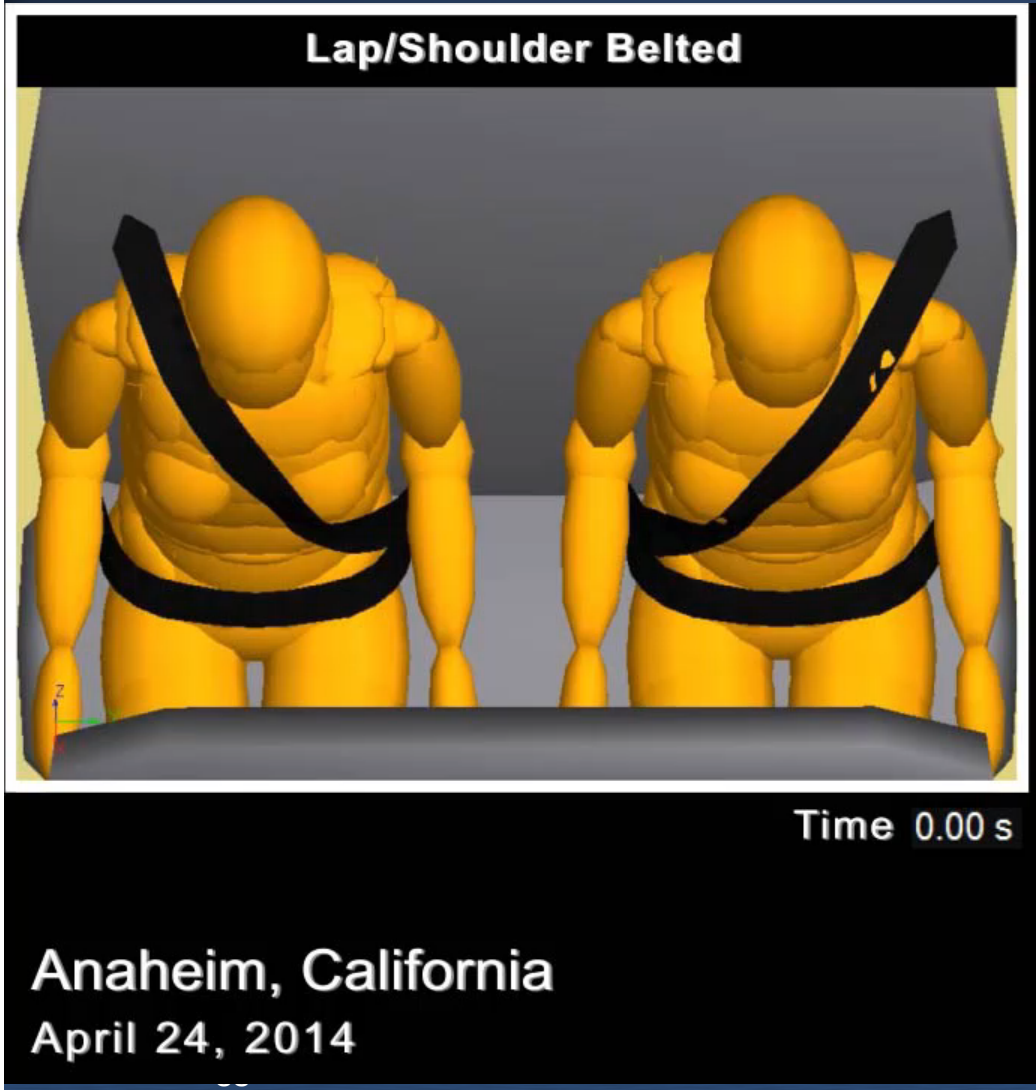
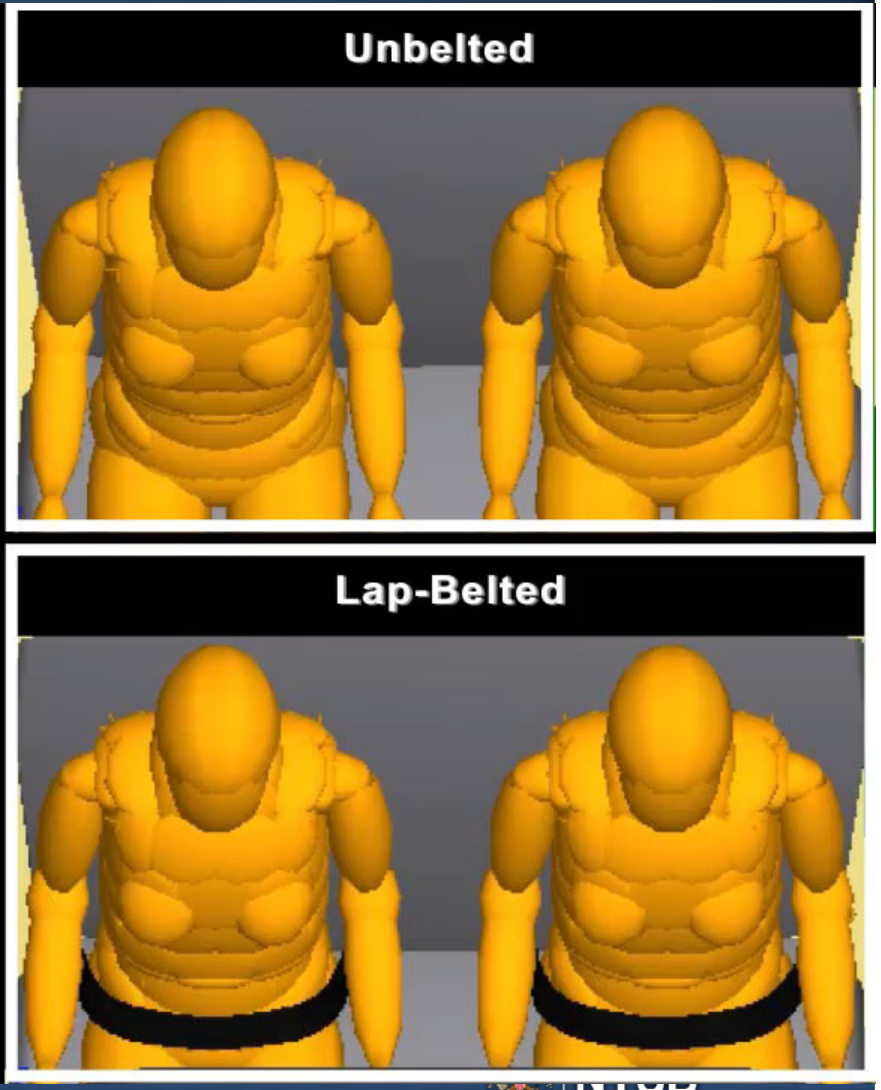
Occupant Simulation





Recommendations (Anaheim-Medical)

- Inform drivers – impact of health on safe transportation – responsibility to report health history – consequences of dishonest on medical examination report (H-16-15)
- Develop comprehensive medical oversight program – specific guidance for examiners to FMCSA (H-01-20, Reiterated)

Recommendations (Anaheim-Belts)

- Develop handout – proper use of belts; Develop training procedures to State of California (H-13-32, Reiterated)
- Encourage members – on board video systems (are set up and function well) to NASDPTS (H-15-2, Reiterated)
- Provide members – education on lap/shoulder belts, consider them a safety benefit when purchasing belt-equipped buses to NAPT and NASDPTS (H-13-36, Reiterated)

Issues From Recent Investigations

- Most Wanted List: Distraction (not only the bus driver)
- Most Wanted List: Medical fitness
- Most Wanted List: Belts
- Most Wanted List: Onboard video systems

Conclusions

- School buses are still the safest means of transportation to and from school
- There is always room for improvement, and more can be done

NTSB School Bus Safety Video

Thank You!

National Transportation Safety Board

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Questions?