

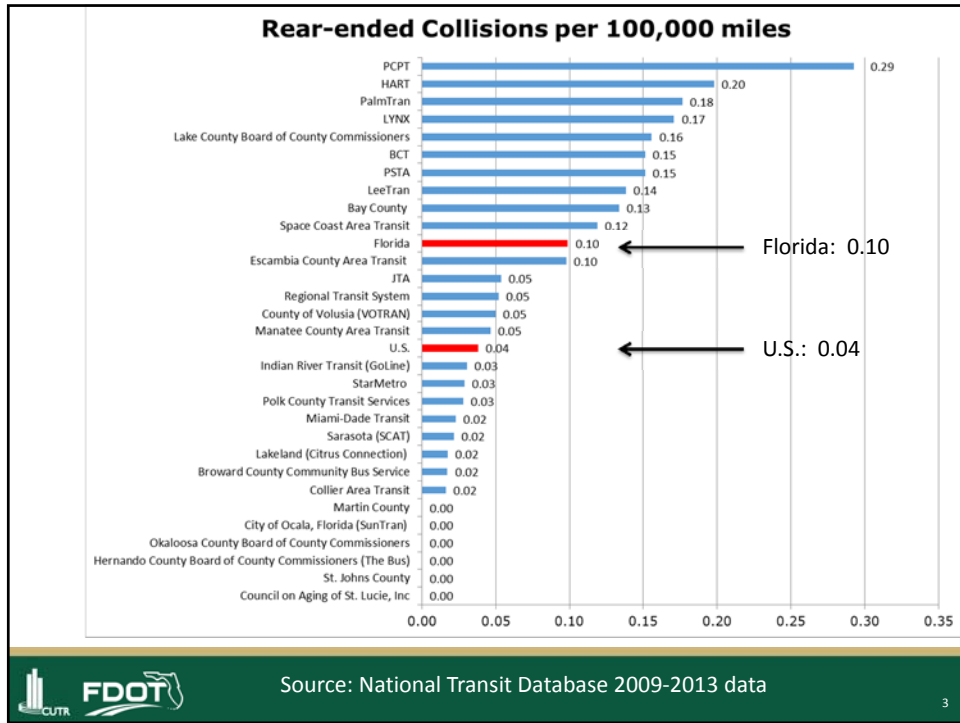
Strategies to Prevent, Reduce and Mitigate Bus Collisions

Transit Safety Summit
June 6, 2016
Brian Pessaro



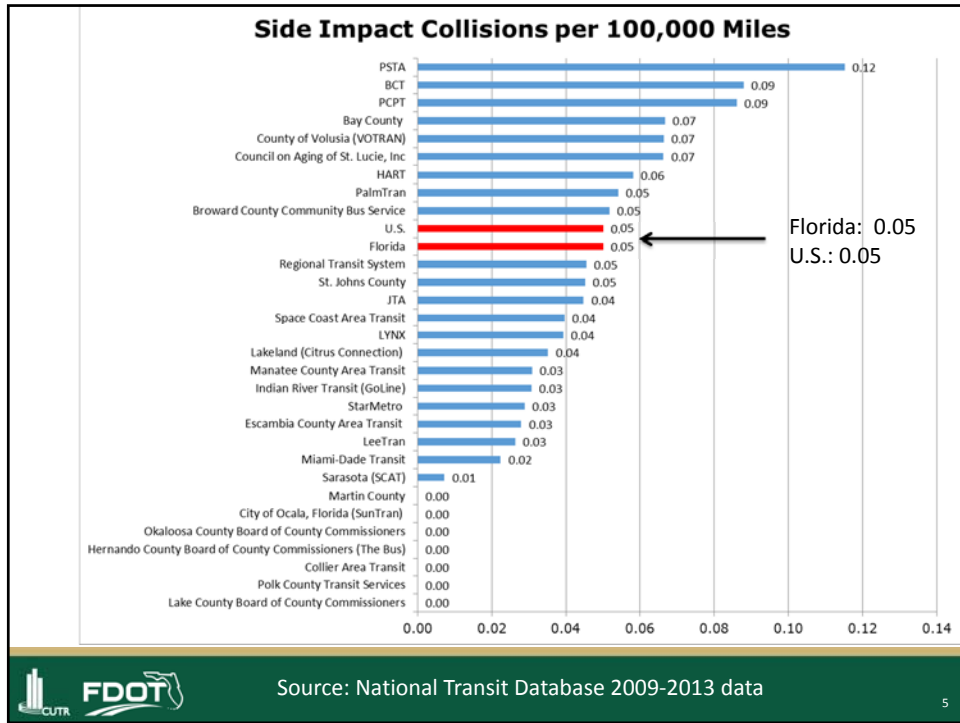
Florida exceeds the national rate in bus rear-ended collisions





Florida matches the national rate in side impact collisions





National Trends

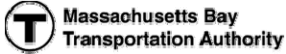
What are other transit agencies doing to reduce bus collisions?



METRO
Metropolitan Transit Authority of Harris County



cta
Chicago Transit Authority



T Massachusetts Bay Transportation Authority



M
Los Angeles County Metropolitan Transportation Authority



S SOUNDTRANSIT

Source: National Transit Database 2009-2013 data



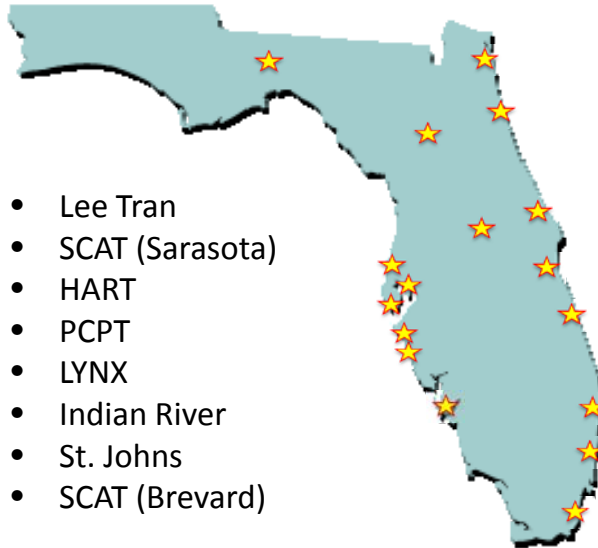
National Trends

- No national standard either for types of warning devices or for their placement
- Agencies commonly use a “try and see” approach
- No single device or combination has substantially reduced rear collisions
- Florida transit agencies are in the same boat as other U.S. transit agencies



Florida Transit Agencies Visited

- RTS
- VOTRAN
- StarMetro
- PSTA
- JTA
- MDT
- BCT
- Palm Tran
- MCAT
- Lee Tran
- SCAT (Sarasota)
- HART
- PCPT
- LYNX
- Indian River
- St. Johns
- SCAT (Brevard)



Key Findings from Site Visits

- Similar accident investigation procedures
 - Most have sent supervisors to accident investigation course (e.g. TSI)
- Variation in who determines preventability
 - Formal vs. informal review committee
 - Review committee vs. single person
 - Labor representation vs. no representation

Key Findings from Site Visits

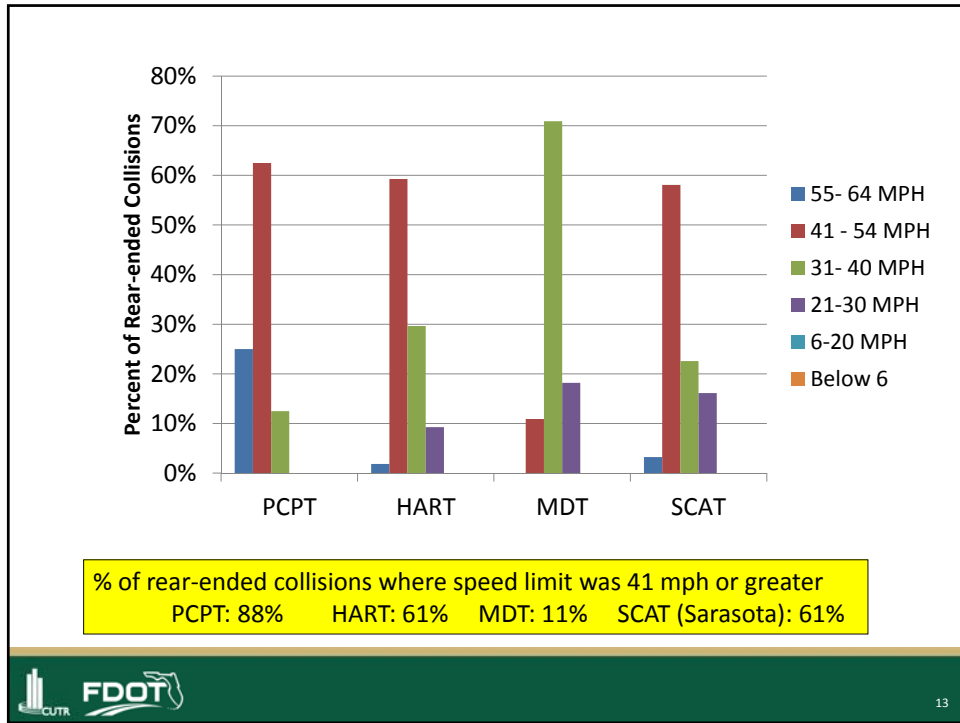
- Variation in the extent to which agencies use collision data to shape safety training
 - Some actively track data; others build training around anecdotal info
- Variation in extent of refresher training
 - RTS reported most hours (40 hrs/year)
 - Some agencies cut training due to budget or staff turnover

Key Findings from Site Visits

- Only RTS has mapped accident locations in GIS
- All agencies have video cameras in buses
 - Numbers vary from 5 to 12
 - All use video for accident investigation
 - Most use video footage in safety training
 - JTA experimenting with DriveCam system
- LYNX and SpaceCoast testing alternative lighting (i.e. strobe lights)

Key Findings from Data Analysis

- In general, more bus revenue miles → higher collision rates
 - Some exceptions: MDT & PCPT
- Agencies with high rear-end collision rates show large % on divided highways
 - LeeTran: 45% of rear-ended collisions
 - PalmTran: 79% of rear-ended collision
 - PCPT: 69% of all collisions were on a divided highway; 31% of rear ended collisions were on U.S. 19 alone



Key Findings from Data Analysis

- Bus collisions in relation to driver experience
 - HART, BCT, and Space Coast include date of hire in collision logs
 - Analyzed collision rates according to cohorts of years of experience
 - All rear-ended collisions
 - All preventable collisions
 - In general, rookie operators have higher collision rates, but there were some exceptions

Broward County Transit

Rear-ended Collisions

Years of Experience	Number of Operators	Number of Collisions	Collisions per Operator
< 2 Years	119	21	0.18
2 to 5 Years	128	10	0.08
> 5 Years	429	49	0.11

All Preventable Collisions

Not what you would expect

Years of Experience	Number of Operators	Number of Collisions	Collisions per Operator
< 2 Years	119	37	0.31
2 to 5 Years	128	16	0.13
> 5 Years	429	78	0.18



Other Key Findings

- Rear-bus advertising may be distracting automobile drivers




Agency	Rear-ended Collisions per 100,000 Miles	Rear Advertising?
PCPT	0.29	Yes
HART	0.20	Yes
PalmTran	0.18	Yes
LYNX	0.17	Yes
BCT	0.15	Yes
PSTA	0.15	Yes
LeeTran	0.14	No
Space Coast Area Transit	0.12	Yes
Florida	0.10	N/A
JTA	0.05	Yes
Regional Transit System	0.05	Yes
VOTRAN	0.05	Yes
MCAT	0.05	No
Indian River Transit (GoLine)	0.03	No
StarMetro	0.03	Yes
Miami-Dade Transit	0.02	Yes
Sarasota (SCAT)	0.02	No
St. Johns County	0.00	No

12 of the 17 (71%) allow rear advertising

7 of the 8 above the statewide average allow rear advertising

4 of the 9 below the statewide average do not allow rear advertising


17

Other Key Findings

- Rear-bus advertising may be distracting automobile drivers
- Non-NTD collision data varies from agency to agency
 - Different data fields
 - Different data formatting
 - Makes statewide analysis difficult

Six Recommendations

1. Statewide Awareness Campaign
 - Emphasize need to be prepared to stop when behind buses
2. Create Statewide Transit Collision Database
 - With consistent data format
3. Support Innovate Bus Light Treatment
 - Support necessary legislation



Six Recommendations

4. Eliminate Bus Rear Advertising
 - Counterproductive to safety
5. Support Bus Pullouts where posted speed >40 mph
6. Include Operator Date of Hire in Collision Logs



Best Practice

JTA's use of video-based Onboard Monitoring System (OSM)

- Targets risky driver behavior before an accident occurs

