Strategies to Prevent, Reduce, and Mitigate Bus Collisions Findings to Date

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Objectives

Identify strategies that effectively prevent and mitigate rear-ended and side-impact collisions including the following:

- Collision documentation and reporting
- Practices in risk management to manage liability and recovery
- Practices in training/policies/procedures
- Uses and needs for technology and rear bus treatments
- Paint schemes and graphics

Approach

- **Task 1** – Initial telephone interviews with transit agencies to identify policies, procedures and any associated strengths and/or areas of need for the following:

    - Collision documentation and reporting
    - Post-collision investigation
    - Risk Management
    - Training (both pre- and post-collision)
    - Use of technologies for signaling, warning, avoidance, etc.
    - Exterior vehicle equipment configurations, paint schemes and graphics

- **Task 2** – Identify 15 transit agencies for case study with data collection for all agency collisions, interviews with key personnel and any follow-up needed.

- **Task 3** – Synthesize results, provide conclusions and recommendations with definitive best practices, policies and procedures to reduce, mitigate and prevent rear-ended and side impact collisions.

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Task 1

- Group transit agencies by size

- Compile System Safety Program Plans

- Conduct On-Line Survey

Activities

A. Large Transit Agencies >220 buses
B. Medium Transit Agencies >100 and <199 buses
C. Small Transit agencies <100 buses

➢ Review for collision procedures
➢ Ascertain areas in need of development

➢ Prepare and share questions in advance
➢ Identify agencies for further case study

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A Total of 17 agencies participated in the survey as follows from the three groupings of agencies:

Group A
- Broward County Transit (BCT)
- Central Florida Regional Transportation Authority (LYNX)

Group B
- Hillsborough Area Regional Transit (HART)
- Pinellas Suncoast Transit Authority (PSTA)
- PalmTran

Group C
- Pasco County Public Transportation (PCPT)
- Polk County Transit
- Indian River – Senior Resource Association
- St. Johns County BoCC
- Star Metro (Tallahassee)
- Regional Transit Service (Gainesville)
- Manatee County Area Transit (MCAT)
- Sarasota County Transportation Authority (SCTA)
- LeeTran
- VOTRAN
- Space Coast Area Transit (SCAT)
- Martin County BoCC

Survey Participation

Records Retention

Agencies with Relative Strengths in Records Retention

1. BCT
2. LYNX
3. HART
4. PSTA
5. MCAT
6. Senior Resource (Indian River)
7. Star Metro

Collision Documentation and Reporting

Agencies with Relative Strengths in Collision Documentation and Reporting

1. PalmTran
2. HART
3. PSTA
4. LeeTran
5. RTS Gainesville
6. Star Metro
7. VOTRAN

On-scene collision management

Agencies with Relative Strengths in On-scene Collision Management

1. LYNX
2. HART
3. PalmTran
4. PSTA
5. MCAT
6. RTS Gainesville
7. SCTA
8. St. Johns
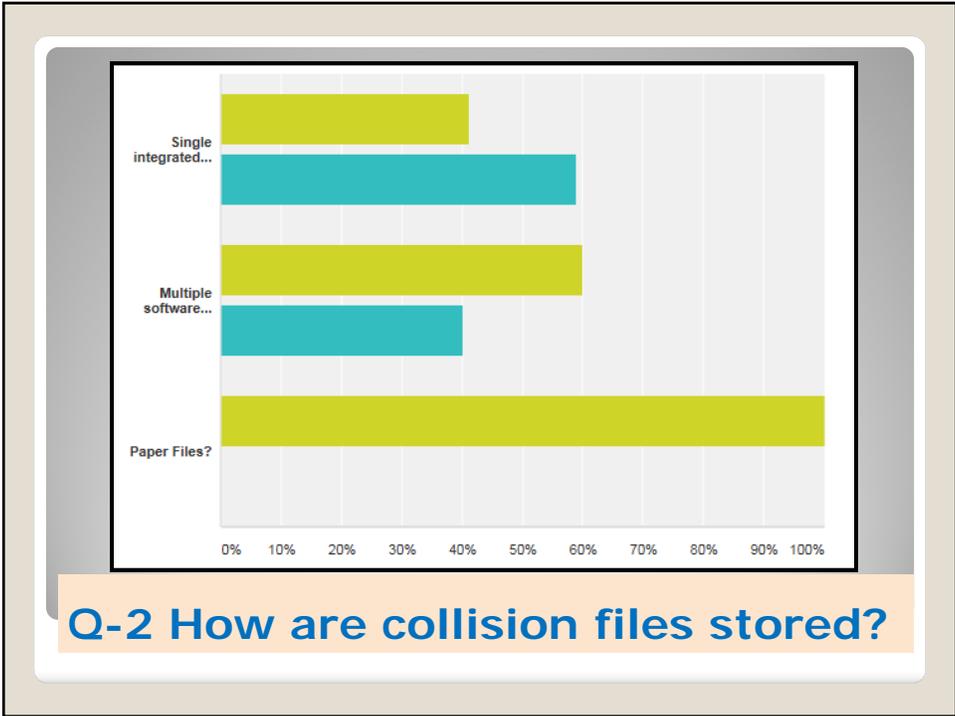9. LeeTran
10. Star Metro

Post Collision Investigation

Agencies with Relative Strengths in Post Collision Investigation

1. PalmTran
2. HART
3. PSTA
4. SCAT/Brevard
5. LeeTran
6. MCAT
7. RTS
8. SCTA
9. Star Metro
10. VOTRAN

Risk Management

Agencies with Relative Strengths in Risk Management

1. LYNX
2. PalmTran
3. PSTA
4. LeeTran
5. VOTRAN

Q-2 How are collision files stored?

|	Yes	No	Total
Single integrated software package between Operations/Safety and Security, Maintenance and Risk Management?	41.18% 7	58.82% 10	17
Multiple software packages between Operations, Maintenance, and Risk Management?	60.00% 12	40.00% 8	20
Paper Files?	100.00% 20	0.00% 0	20

Q2- How are collision files stored?

Q3- How many years of collision records are readily available?
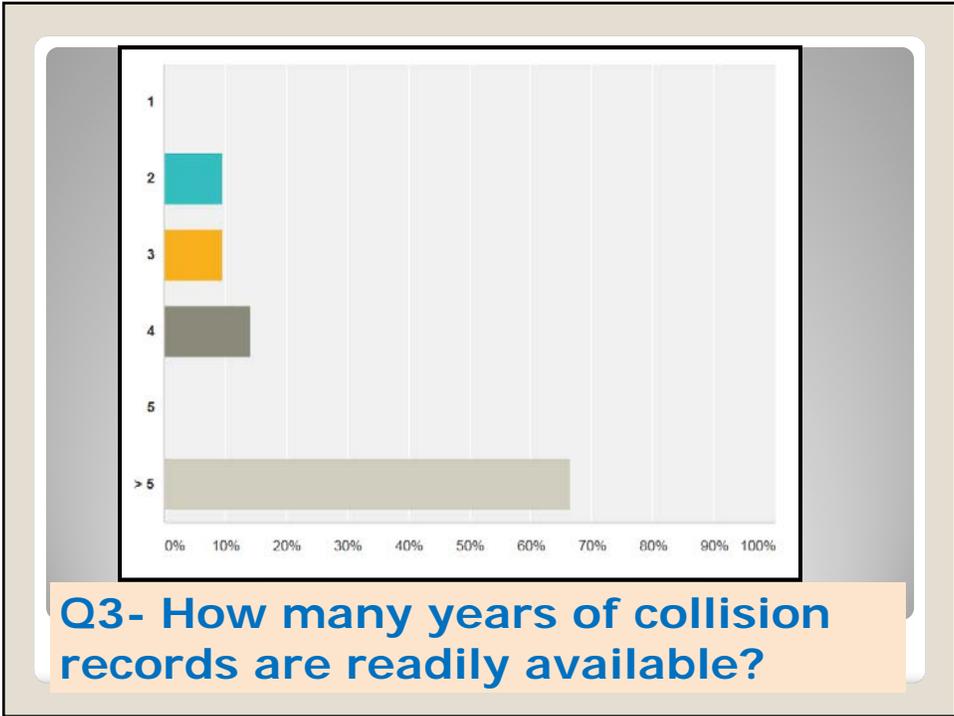
Answer Choices	Responses	
1	0.00%	0
2	9.52%	2
3	9.52%	2
4	14.29%	3
5	0.00%	0
> 5	66.67%	14
Total		21

Q3- How many years of collision records are readily available?

- Yes we follow up with continuing training watching the video of the accident, simulator and possibly some class room.
- Yes depending on the type of collision, we administer corrective action and or re-training to the operator, if it relates to a bus stop or unsafe travel pattern, we review those elements and make the necessary changes to avoid reoccurrence
- Beginning in January, 2015, monthly, we will begin Accident Prevention Classes for those operators who have been involved(preventative) in an accident. Determining the type of training would be their own particular accident. Use video from the accident(s), less the operator's picture (street side camera, curb side camera, forward and passenger compartment cameras). Present video and ask how it could have been prevented. Show also how the passengers are hurt/tossed about due to the accident. ....Do an On The Road Ride Check for operator's attention to the safe operation of the vehicle.

Q.5 - Once a collision is determined to be preventable or non-preventable, is there a difference in how your agency identifies strategies for future prevention for one type compared to the other?
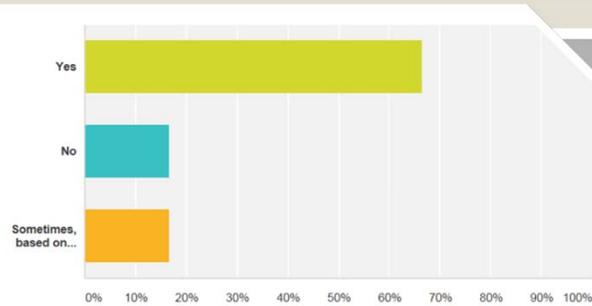
Answer Choices	Responses	
Yes	66.67%	12
No	16.67%	3
Sometimes, based on severity of collision	16.67%	3
		18

Q-10 - Do field investigators have a regimented, step by step process they follow at the scene of a collision?

	Always	On Case by Case Basis	Occasionally	Never	Total
Photography	72.22% 13	16.67% 3	11.11% 2	0.00% 0	18
Interviews with bus operator	88.89% 16	5.56% 1	5.56% 1	0.00% 0	18
Interviews with passengers	33.33% 6	55.56% 10	11.11% 2	0.00% 0	18
Interviews other witnesses	27.78% 5	55.56% 10	16.67% 3	0.00% 0	18
Interaction with law enforcement	66.67% 12	33.33% 6	0.00% 0	0.00% 0	18
Interaction with other first responders	23.53% 4	70.59% 12	0.00% 0	5.88% 1	17
Securing bus for impounding and/or transport	27.78% 5	61.11% 11	5.56% 1	5.56% 1	18
Determining chain of events	61.11% 11	22.22% 4	0.00% 0	16.67% 3	18
Center of mass and evaluating damage and debris	0.00% 0	38.89% 7	38.89% 7	22.22% 4	18
Measuring marks in the road	6.25% 1	31.25% 5	31.25% 5	31.25% 5	16
Vehicle lamp inspection	11.11% 2	38.89% 7	22.22% 4	27.78% 5	18
Speed estimates (skid marks)	0.00% 0	27.78% 5	16.67% 3	55.56% 10	18
Finding radius, measuring yaws and speed estimates from yaws	0.00% 0	16.67% 3	22.22% 4	61.11% 11	18
Field sketching	27.78% 5	22.22% 4	22.22% 4	27.78% 5	18

Q13- Please supply the elements of on-scene collision management conducted by your agency, expressed as "always," "on case by case basis," "occasionally," and "never."

	Always	On Case by Case Basis	Occasionally	Never	Total
Assembling the investigation and case history	55.56% 10	33.33% 6	5.56% 1	5.56% 1	18
Re-constructing the collision	0.00% 0	33.33% 6	22.22% 4	44.44% 8	18
Examination of video evidence	77.78% 14	22.22% 4	0.00% 0	0.00% 0	18
Identification of causal/contributory factors	66.67% 12	27.78% 5	5.56% 1	0.00% 0	18
Determination of preventable vs. non-preventable	88.89% 16	11.11% 2	0.00% 0	0.00% 0	18
Follow-up with operator (training and/or discipline)	72.22% 13	27.78% 5	0.00% 0	0.00% 0	18

Comments (2)

Q-14 Please supply the elements of post incident investigation conducted by your agency, expressed as "always," "on case by case basis," "occasionally," and "never."

Activities

- Site Visits

Task 2 – Underway

- ➢ **Make available files relative to all collision types. Files may be housed in Operations, Risk Management, and/or Finance.**

- ➢ **2-3 days in duration**

- ➢ **Review of records**

- ➢ **Expert Review**

- ➢ **Exit Interviews**

Task 3

Activities

Synthesis and Results

Ensure that the *outcomes* of this study *produce results* that are *actionable and adoptable* by transit systems.

To ensure that results provide agencies with *specific strategies to reduce, prevent and mitigate rear-ended and side impact collisions*.

To provide *general strategies* and recommendations that provide criteria, guidelines, and programs for FDOT to manage statewide collision reduction goals.

Thank You

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