FMCSA R&T:
Today and Tomorrow

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U.S. Department of Transportation
Federal Motor Carrier Safety Administration

TRB

Research Accomplishments

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Fatigue Management Practices

Purpose

- Develop and evaluate a fatigue management program for the motor carrier industry by enhancing driver alertness

Accomplishments

- Best practices compendium of fatigue countermeasures
- Pilot test of fatigue management technologies
- Fatigue management tools: scheduling software, fatigue management resource guide, and fatigue model evaluation procedure

Next steps

- Field evaluation and finalization of Fatigue Management Program
- International conference on fatigue management, Sept. 05

Advanced Driver Fatigue Research and Modeling Study

Purpose

- Use a truck simulator and professional truck drivers to evaluate a model for the detection of driver drowsiness
- Evaluate the manipulation of the steering wheel activity as a predictor of driver fatigue

Accomplishments

- Program on track and on budget
- Truck and simulator equipment, including hardware and software, have been purchased
- Approval to conduct simulator study obtained from GWU Research Board
- Literature review has been completed

Next steps

- Identify volunteer drivers to participate in study
- Fix the truck cabin to the lab foundation
- Install the computer hardware and projectors
- Identify the moving platform for the new truck simulator

Naturalistic Truck Driving Study

Purpose

- Develop naturalistic database to investigate pre-cash events to determine the most effective countermeasures (technology, enforcement, training)

Accomplishments

- Preliminary assessment of car-truck interactions: critical incident analysis of local/short haul and sleeper berth drivers
- Assessment of car-truck interactions from car driver perspective (from NHTSA 100-Car study)
- Data collection from IVI DDWS field test

Next step

- Large-scale study to develop recommendations for effective crash countermeasures (FY05-FY08)

CMV Driving Simulator Validation Study

Purpose

- Determine if truck simulators improve driver training and enhance real world safe driving performance
- Investigate unique capabilities of truck simulators to replicate emergency and evasive maneuvers
- Explore effects of formal vs. informal training

Accomplishments

- Selection of truck driver training school and test bed truck simulator in progress

Next step

- Commence pilot test of Sim Val research design methodologies and processes planned for February 2005

On-Board Monitoring and Reporting To Improve CMV Safety

Purpose

- To determine whether onboard monitoring and feedback can improve driver performance and CMV safety
- This study consists of four parts:
  - (1) Requirements Generation
  - (2) Human Factors Studies
  - (3) On-board Monitoring Suite
  - (4) Field Operating Test and Evaluation Plan

Accomplishments

- Established a Cooperative Agreement with California Department of Transportation and California Partners for Advanced Transit and Highways

Next step

- Kick-off meeting in the first quarter of 2005

Safety Risk Data Feasibility Study

Purpose

- Investigate the feasibility of conducting a case control study to identify CMV driver factors that increase crash risk

Accomplishments

- Phase I of the study (feasibility) completed
- Phase II, to demonstrate the viability of the planned survey methods, has been developed

Next step

- Identify available data sets to be used in the pilot study
- Conduct pilot study

Conference on Future Truck & Bus Safety Research Opportunities

Purpose

- Identify truck and bus safety and operations over the next 10-15 years through research papers, abstracts, and discussion
- Develop long-range R&T strategic plan to meet these needs

Accomplishments

- Call for papers completed
- Evaluation of papers underway

Next steps

- Final selection of papers and abstracts to be completed January 2005
- Conference scheduled for March 23-24, 2005
- Conference report publication scheduled for third quarter 2005

Publications 2004

- Light Vehicle-Heavy Vehicle Interactions: An Assessment Using Critical Incident Analysis – Tech Brief
- Commercial Motor Vehicle Driver Retention and Safety – Tech Brief
- Pilot Test of Fatigue Management Technologies – Tech Brief
- Sleep Apnea Crash Risk Study – Final Report & Tech Brief
- Individual Differences and the "High Risk" Commercial Driver – TRB Synthesis Report & FMCSA Tech Brief
- Training CMV Drivers: Best Practices – TRB Synthesis Report & FMCSA Tech Brief
- The Effective Motor Coach Industry HOS & Fatigue Management Techniques – TRB Synthesis Report & FMCSA Tech Brief
- Operational Differences/Similarities Between Motor Coach, School Bus, and Trucking Industries – TRB Synthesis Report & FMCSA Tech Brief

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