



Federal Motor Carrier
Safety Administration
Office of Research and Technology

RESULTS FROM THE 2003 R&T STAKEHOLDER FORUMS

DRIVER



VEHICLE



CARRIER/SHIPPER



ROADSIDE/
ENVIRONMENT

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Executive Summary

FMCSA's Office of Research and Technology held a series of five stakeholder forums throughout February and March 2003. These forums were structured to gather stakeholder input regarding the agency's research agenda, and educate stakeholders about the FMCSA Research and Technology program and key ongoing projects. The forums were attended by a wide range of stakeholders, including representatives from:

- Motor carriers;
- Motor coach companies;
- Industry associations;
- Safety advocacy groups;
- State enforcement agencies;
- Commercial vehicle manufacturers;
- Academia; and
- Vendors of systems and services focused on improving commercial vehicle safety.

The forums generated over 150 recommendations regarding FMCSA's research program. Recommendations ranged from the need for better data sources to specific research questions that need to be investigated to improve commercial motor vehicle safety. The majority of recommendations focused on driver-related factors. Recommendations also were made regarding vehicle, carrier/shipper, and roadside/environmental issues. This document summarizes the forum's recommendations.

Recommended Driver-Related Research

Participants cited numerous recent studies noting the high frequency with which driver-related factors are recorded in commercial motor vehicle-involved crashes. As such, participants recommended that driver-related issues be FMCSA's top research priority. Participants recommended that driver-related research be conducted in four areas to improve commercial vehicle safety. These areas included:

- **Fatigue**—identified as a primary factor in commercial motor vehicle crashes by all participants;

- **Commercial Driver Medical Qualifications** – a key concern because some of FMCSA’s medical standards are inconsistent with current medical research and drivers often are medically qualified to operate a commercial vehicle erroneously;
- **Route Familiarity** – an underlying cause of many driver-related issues, including running of the road and driver inattention; and
- **Driver Training and Testing** – a research topic that is perceived as supporting improved commercial vehicle and passenger vehicle operations, as well a motor carrier safety management programs.

Specific recommendations for this program area are summarized in Table ES-1.

Table ES-1: Driver-Related Recommendations

Research Area	Recommended Research Focus	Specific Research Recommendation
Driver	Fatigue	<ul style="list-style-type: none"> • Investigate the correlation between fatigue-related crashes and commercial motor vehicle drivers returning to work (from illness, vacation, etc.) or changing shifts
		<ul style="list-style-type: none"> • Evaluate the safety impacts of differing commercial driver compensation models, including requiring drivers be paid for non-driving time
		<ul style="list-style-type: none"> • Evaluate the safety impacts of differing commercial driver working conditions (frequency of returning home, sleeper berths, etc.)
		<ul style="list-style-type: none"> • Evaluate the safety impact of FMCSA’s “extended day” rule interpretation on motor coach safety
		<ul style="list-style-type: none"> • Develop a fatigue impairment standard that can be used to objectively determine when a driver is fatigued—similar to the blood alcohol content measure for driving while intoxicated
		<ul style="list-style-type: none"> • Investigate the development of a “smart parking” system to notify commercial motor vehicle drivers of the location and availability of commercial vehicle parking spots in real-time

Table ES-1: Driver-Related Recommendations (continued)

Research Area	Recommended Research Focus	Specific Research Recommendation
Driver (continued)	Commercial driver medical qualifications	<ul style="list-style-type: none"> Review existing CDL medical guidelines and ensure they are consistent with the most recent medical studies and guidelines of major medical organizations (World Health Organization, American Medical Association, etc.)
		<ul style="list-style-type: none"> Identify the safety benefits of properly conducting a CDL medical exam
		<ul style="list-style-type: none"> Survey medical personnel to determine the extent of their knowledge regarding CDL medical requirements
		<ul style="list-style-type: none"> Develop a standard curriculum to train medical personnel on how to conduct a proper CDL medical exam
		<ul style="list-style-type: none"> Review FAA model for medical exams and identify any “best practices” that could be incorporated into FMCSA’s operations
	Route familiarity	<ul style="list-style-type: none"> Study the safety impact of integrating existing solutions (Highway Advisory Radio, 511, integrated routing systems) into commercial vehicle operations
		<ul style="list-style-type: none"> Develop the national infrastructure to monitor in real-time a commercial vehicle’s position and provide travel-related updates and advisories
	Driver training and testing	<ul style="list-style-type: none"> Study the benefits of requiring expanded skills tests for commercial drivers, including the testing of a driver’s night vision, reaction time, and reflexes
		<ul style="list-style-type: none"> Investigate the feasibility and benefits of developing continuous driver training for commercial and passenger vehicle drivers
		<ul style="list-style-type: none"> Study the feasibility of testing passenger vehicle drivers on how to operate their vehicles around a commercial vehicle
		<ul style="list-style-type: none"> Study the feasibility of developing a standardized commercial drivers’ license training curriculum
		<ul style="list-style-type: none"> Study the effectiveness of passenger vehicle driver education programs on improving safety

Recommended Vehicle-Related Research

Participants noted that vehicle-based research could improve the safety performance of commercial vehicles and identify countermeasures to other crash factors, such as fatigue, roll-overs, and running off the road. Participants also noted that vehicle-based research could provide substantial security benefits. Recommendations generally fell into two categories:

- **Existing vehicle design and systems**—ensuring that existing commercial vehicle equipment and on-board safety systems perform optimally; and
- **New vehicle design and systems**—redesigning commercial motor vehicles and safety technologies to improve commercial vehicle performance.

Table ES-2 summarizes the stakeholders recommendations in this area.

Table ES-2: Vehicle-Related Recommendations

Research Area	Recommended Research Focus	Specific Research Recommendation
Vehicle	Existing systems	<ul style="list-style-type: none"> • Test the voltage reaching commercial motor vehicle brake lights (especially on longer combination vehicles) to ensure the lights are performing properly
		<ul style="list-style-type: none"> • Conduct a technical scan of existing on-board technologies that could have a security application
		<ul style="list-style-type: none"> • Conduct a scan of other countries' use of on-board technologies to identify "best practices"
		<ul style="list-style-type: none"> • Evaluate truck design to balance a driver's comfort versus making him/her too comfortable, which may contribute to fatigue
		<ul style="list-style-type: none"> • Conduct an operational test of rear fog lights on commercial vehicles
		<ul style="list-style-type: none"> • Review existing vehicle standards to ensure that they are still applicable to the modern commercial vehicle, such as the appropriateness of push-open windows on modern motor coaches
		<ul style="list-style-type: none"> • Identify the long-term benefits (or harm) to driver behavior associated with use of on-board safety technologies

Table ES-2: Vehicle-Related Recommendations (continued)

Research Area	Recommended Research Focus	Specific Research Recommendation
Vehicle (continued)	Existing systems (continued)	<ul style="list-style-type: none"> Study the feasibility of providing in-cab notifications regarding weather advisories, parking, etc.
		<ul style="list-style-type: none"> Conduct a case study on the US Army's dynamic routing of loads around adverse weather conditions
		<ul style="list-style-type: none"> Study the effectiveness of "smart signs" for weather-related information
		<ul style="list-style-type: none"> Study the design and safety performance of 15-passenger vans
		<ul style="list-style-type: none"> Extend Intelligent Vehicle Initiative research to the motor coach industry
		<ul style="list-style-type: none"> Study the safety impact of transporting medical equipment in the passenger compartment of a motor coach
		<ul style="list-style-type: none"> Study the adequacy of motor coach evacuation plans for disabled and/or wheelchair dependent riders
	New systems	<ul style="list-style-type: none"> Conduct an operational test on using on-board diagnostic systems to automate the commercial motor vehicle inspection process
		<ul style="list-style-type: none"> Investigate commercial vehicle redesign to lower the center of gravity
		<ul style="list-style-type: none"> Coordinate with Department of Energy's video mirror project
		<ul style="list-style-type: none"> Study the feasibility of developing in-cab electronic "rumble strips" to notify drivers of swerving or improper lane tracking
		<ul style="list-style-type: none"> Study the applicability of infrared/vision-enhancement technology in commercial vehicles
		<ul style="list-style-type: none"> Evaluate the safety impacts of developing side impact, under-ride protection for tank trucks
		<ul style="list-style-type: none"> Research systems to require identification of the driver before enabling a commercial vehicle to start
<ul style="list-style-type: none"> Conduct research on fully-automated vehicles 		

Recommended Carrier/Shipper -Related Research

Motor carriers/motor coach companies and shippers/customers are perceived to have both positive and negative influences on commercial vehicle safety. To support the positive influences and combat the negative, participants recommended FMCSA conduct research in the following areas:

- **Safety management programs**—internal management practices, such as roving safety vans and performance-based reviews, designed to improve a company’s safety performance;
- **Shipper liability**—extending FMCSA enforcement and sanctions to shippers, which are perceived as the root cause of many commercial vehicle violations; and
- **Improved regulation and enforcement**—augmenting FMCSA’s regulatory and enforcement activities targeted at commercial vehicle operators, especially new entrants.

Specific research recommendations for the carrier/shipper area are summarized in Table ES-3.

Table ES-3: Carrier/Shipper-Related Recommendations

Research Area	Recommended Research Focus	Specific Research Recommendation
Carrier/Shipper	Safety management programs	<ul style="list-style-type: none"> • Study the effectiveness of carrier incentive programs (awards, bonuses, etc.) in modifying commercial driver behavior and improving safety
		<ul style="list-style-type: none"> • Evaluate a driver’s “churning” —continuously changing jobs—as an indicator of safety performance
		<ul style="list-style-type: none"> • Study the feasibility of notifying motor carriers of their driver’s unsafe behavior
		<ul style="list-style-type: none"> • Evaluate the behavioral impact of monitoring driver’s performance through on-board sensors
		<ul style="list-style-type: none"> • Develop recommended hiring criteria to assist motor carrier and motor coach companies identify “good” drivers—“how many violations is too many”
		<ul style="list-style-type: none"> • Study the safety impact of motor carriers employing roving safety vans to monitor their drivers’ on-the-road performance

Table ES-3: Carrier/Shipper-Related Recommendations (continued)

Research Area	Recommended Research Focus	Specific Research Recommendation
Carrier/Shipper (continued)	Safety management programs (continued)	<ul style="list-style-type: none"> • Investigate the development of sanctions against companies that refuse a request regarding a former employees driving history
	Shipper liability	<ul style="list-style-type: none"> • Document shippers' influence on motor carrier and motor coach operations • Assess the feasibility of requiring owners of intermodal chasses to obtain US DOT numbers • Conduct a scan of other countries' models of shared safety liability between carriers and shippers (e.g., Australia) • Identify "best practices" for carrier/shipper interactions • Identify electronic methods to make the supply-chain more efficient, including freight posting services, shared resources, etc. • Conduct feasibility analysis for creating a hot-line for motor carriers/motor coach operators to report shippers making unreasonable scheduling demands/requests
	Improved regulation and enforcement	<ul style="list-style-type: none"> • Study the feasibility of requiring new entrants to pass a proficiency exam before applying for operating authority and/or being granted full operating authority • Study the safety impact of requiring new entrants to acquire training in Federal safety regulations and "best practices" • Study the safety benefits and feasibility of requiring bi-annual terminal audits for all interstate motor carriers • Assess the safety differences between contract and company drivers • Study regulatory methods to ensure that corporate officials from a firm ordered out of service by the government are not allowed to reconstitute their company under another name and U.S. DOT number

Recommended Roadside/Environmental-Related Research

Weather-related issues were noted as the most common roadside/environmental safety factor. Participants, however, noted that this risk is best addressed through vehicle-based research. Within the roadside/environmental area, participants recommended that FMCSA research the following:

- **Roadway design**—ensuring that the nation’s infrastructure can accommodate commercial vehicles; and
- **State/local ordinances**—studying the safety impact of State and local ordinances and ensuring that they do not negatively impact commercial vehicle safety.

Specific stakeholder recommendations in this area are summarized in Table ES-4.

Table ES-4: Roadside/Environmental-Related Recommendations

Research Area	Recommended Research Focus	Specific Research Recommendation
Roadside/ Environment	Roadway design	<ul style="list-style-type: none"> • Determine the feasibility of including commercial vehicle-related factors in AASHTO’s “Green Book-- A Policy on Geometric Design of Highways and Streets “, which identifies the universal standards for roadway design
		<ul style="list-style-type: none"> • Study the safety impact of narrower lanes on commercial motor vehicles
		<ul style="list-style-type: none"> • Study the safety impact of States’ implementation of rumble strips in lane dividers
		<ul style="list-style-type: none"> • Study the safety impact of creating truck-only lanes and truck-exclusion lanes
	State and local ordinances	<ul style="list-style-type: none"> • Study the safety impact of speed limit differentials
		<ul style="list-style-type: none"> • Study the safety impact of ordinances limiting motor coach idling time

1.0 Introduction

The Federal Motor Carrier Safety Administration (FMCSA) was founded to prevent commercial motor vehicle fatalities and injuries. The agency works to ensure safety through a combination of activities, including strong and targeted enforcement of safety regulations, improved information technologies and data sharing, strengthened equipment and operating standards, and public education and outreach¹. The most recent crash statistics indicate that the safety performance of the commercial vehicle industry continues to improve; although the number of fatalities resulting from large truck-involved crashes remains unacceptably high (5,082²). FMCSA's Office of Research and Technology conducts a wide range of research activities in support of the agency's mission to improve commercial vehicle safety.

In an effort to standardize the research approach across the agency, FMCSA is implementing a new research methodology. A key component of this methodology is to solicit the input of external stakeholders in advance of setting the agency's research agenda. As part of this effort, the Office of Research and Technology conducted five stakeholder forums, on:

- February 6, 2003: San Diego, CA;
- February 12, 2003: Austin, TX;
- February 20, 2003: Washington, DC;
- February 21, 2003: Washington, DC; and
- March 19, 2003: Washington DC.

Originally, only three forums were planned. The February 21st forum was added due to the large number of stakeholders registering for the February 20th session. The March 19th session was added as a special session focused exclusively on the motor coach industry.

This report summarizes the forums and highlights the key findings.

1.1 Forum Organization

The primary objective of the forums was to gather stakeholders' input towards the agency's research agenda. However, the forums also served to educate stakeholders about the FMCSA Research and Technology program and key ongoing projects.

¹ FMCSA web site: www.fmcsa.dot.gov

² Large Truck Crash Facts 2001, page 4.

Participants represented a cross-section of the agency's constituencies. Participants represented:

- Motor carriers;
- Motor coach companies;
- Industry associations;
- Safety advocacy groups;
- State enforcement agencies;
- Commercial vehicle manufacturers;
- Academia; and
- Vendors with systems and services focused on improving commercial vehicle safety.

All meetings were open to the public with a maximum of thirty attendees per session. A list of session participants is included in Appendix A.

The forums were organized as facilitated roundtable discussions divided into five segments. Each segment addressed a specific component of commercial vehicle safety, security, and productivity. The five segments included:

- Driver-Related Factors;
- Vehicle-Related factors;
- Carrier/Shipper-Related Factors;
- Roadside/Environment-Related Factors; and
- Miscellaneous Topics (such as cross-area interaction).

Participants were allowed to determine the length of time spent on each topic. The issue of Security was addressed throughout the forum during each topic.

The roundtable format allowed participants to engage in lively discussions about the causes of commercial vehicle crashes and identify research areas that could be effective in addressing these areas. The forums yielded over 150 recommendations for research activities related to commercial vehicle safety and security. Most of these recommendations address topics under the jurisdiction of the FMCSA. Some recommendations were outside the jurisdiction of the FMCSA or would require a joint study between FMCSA and another Federal agency. These recommendations will be referred to the appropriate Federal agency for their review.

1.2 Report Organization

The report is organized into three sections and two appendices, which are as follows:

- Section 1.0 provides an overview of the forums and highlights the sessions' key findings;
- Section 2.0 documents the key findings from the stakeholder forums;
- Section 3.0 identifies more general recommendations for FMCSA's research program and the agency as a whole;
- Appendix A contains a list of participants; and
- Appendix B contains the forums' agendas.

2.0 Recommended Research Agenda

A diverse group of safety professionals and commercial vehicle experts participated in the FMCSA Office of Research and Technology Forums. These stakeholders drew upon their vast experience to provide input towards FMCSA's research agenda. In general terms, recommendations from industry and enforcement participants focused on research topics that offered operational improvements to their day-to-day activities. Representatives from academia, manufacturers, and safety advocacy groups tended to recommend longer-term research activities with potentially larger safety impacts. Taken in combination, this input provides FMCSA with a robust and diverse set of recommendations for its research agenda for the future.

This section details the participants' research recommendations. The recommendations are organized around FMCSA's four primary research areas:

- Driver (commercial and passenger vehicles);
- Vehicle;
- Carrier/shipper; and
- Roadside/environmental.

2.1 Recommended Driver-Related Research

Driver-related factors dominated the forums' discussions. Participants cited numerous recent studies noting the high frequency with which driver-related factors are recorded in commercial motor vehicle-involved crashes. To this end, participants recommended that driver-related issues be FMCSA's top research priority. Specifically, participants recommended that driver-related research be conducted in four areas to improve commercial vehicle safety, including:

- Fatigue;
- Commercial driver medical qualifications;
- Route familiarity; and
- Driver training and testing.

Fatigue

Participants agreed that fatigue remains a primary factor in commercial motor vehicle crashes, even though it is infrequently reported in crash data. Stakeholders also agreed that fatigue often exacerbates other driver-related factors, such as inattention, speeding, improperly changing lanes, etc., increasing the risk that a driver will be involved in a crash. Participants differed on the causes of fatigue, citing a variety of possible contributing factors. These factors included:

- Returning to “overnight” duty after a vacation, illness, or a weekend;
- Unreasonable shipping/delivery schedules;
- Driver compensation schemes that are based on miles driven;
- Inadequate rest/sleep from being in a sleeper berth; and
- FMCSA “extended day” rule interpretation for motor coach drivers.³

Industry representatives also suggested that driver negligence is a likely cause of fatigue, especially in terms of how a driver spends his/her “off duty” time. Carrier representatives noted, however, this aspect of driver behavior is beyond their control; despite its profound impact on commercial vehicle safety.

Participants recommended FMCSA conduct research to validate the correlation between these factors and fatigue and/or to identify countermeasures to these factors. Participants also recommended the following research activities to address fatigue:

- Investigate the correlation between fatigue-related crashes and commercial motor vehicle drivers returning to work (from illness, vacation, etc.) or changing shifts;
- Investigate impact of fatigue on passenger-vehicle drivers;
- Evaluate the safety impacts of differing commercial driver compensation models, including requiring drivers be paid for non-driving time;
- Evaluate the safety impacts of differing commercial driver working conditions (frequency of returning home, sleeper berths, etc.);
- Evaluate the safety impact of FMCSA’s “extended day” rule interpretation on motor coach safety;
- Develop a fatigue impairment standard that can be used to objectively determine when a driver is fatigued—similar to the blood alcohol content measure for driving while intoxicated; and

³ The “extended day” rule interpretation allows motor coach drivers to log any time, in which they are not “in control” of the motor coach as “off duty” time. Participants noted that this rule in some cases can allow a driver to be awake and “attached” to a group for upwards of 17 hours, even though they have not violated their hours of service.

- Investigate the development of a “smart parking” system to notify commercial motor vehicle drivers of the location and availability of commercial vehicle parking spots in real-time.

Commercial driver medical qualifications

Participants noted the need for extensive research in the area of commercial driver medical qualifications. This area was of particular interest to representatives from the motor carrier, motor coach, and medical communities. These participants identified several FMCSA medical guidelines which are inconsistent with current medical research and are in need of updating. As an example, participants noted that the U.S. DOT standard for “mild hypertension” is a blood pressure of 161-180 systolic and 104 diastolic, which is considerably higher than the current medical standard for this condition (140 systolic and 90 diastolic⁴). In the cases of diverging standards, research was recommended to support the alignment of the U.S. DOT standards with the medical community’s standards.

The industry representatives and medical personnel at the forums also noted a need to improve the process by which commercial drivers are medically examined and cleared for work. Currently, medical practitioners performing driver physicals are not required to demonstrate knowledge of the regulations governing driver medical qualifications or demonstrate aptitude in completing the U.S. DOT medical forms. Motor carrier and motor coach participants offered numerous anecdotal examples of drivers being cleared for duty despite the presence of a disqualifying condition. To address this concern, one participant noted that his company maintains an internal medical staff to review its drivers’ medical results as a “double-check” to the official process. Research into means by which the medical personnel performing could be trained and/or certified was recommended.

Representatives from the medical community suggested that a medical professional’s perceived liability to legal action if they do not qualify a driver to operate a commercial vehicle also may be contributing to the number of commercial drivers being qualified erroneously. These participants indicated that FMCSA medical standards are general guidelines for the medical professionals, not “hard” criteria. As such, medical professionals believe they can be sued by individuals whom they disqualify if that individual finds another doctor to grant them medical clearance to operate a commercial vehicle. As such, participants recommended FMCSA research the legal standing of its medical standards and the possible liability of medical professionals that administer them.

Participants recommended the following research activities to address these concerns:

- Review existing CDL medical guidelines and ensure they are consistent with the most recent medical studies and guidelines of major medical organizations (World Health Organization, American Medical Association, etc.)

⁴ Source: American Medical Association

- Identify the safety benefits of properly conducting a CDL medical exam;
- Survey medical personnel to determine the extent of their knowledge regarding CDL medical requirements;
- Develop a standard curriculum to train medical personnel on how to conduct a proper CDL medical exam;
- Review FAA model for medical exams and identify any “best practices” that could be incorporated into FMCSA operations;
- Evaluate the feasibility of certifying medical personnel in administering CDL medical exams and developing a register of certified individuals; and
- Study the legal liability of a medical professional disqualifying a commercial driver from work for health reasons.

Route familiarity

A driver’s unfamiliarity with his/her route was noted as an underlying cause of commercial motor vehicle crashes by industry representatives and enforcement personnel. Participants suggested this factor often compounds other driver-related factors, such as speeding or making an illegal turn. To address this concern, it was recommended that FMCSA research technologies which better guide commercial motor vehicle drivers and warn them of dangerous driving conditions they may encounter.

Specifically, participants recommended the following activities be included in the FMCSA research agenda:

- Study the safety impact of integrating existing solutions (Highway Advisory Radio, 511, integrated routing systems) into commercial vehicle operations; and
- Develop the national infrastructure to monitor, in real-time, a commercial vehicle’s position and provide travel-related updates and advisories.

Driver training and testing

Participants agreed that commercial driver training is inconsistent and varies widely based on the source of training a driver receives. As such, motor carriers noted that possession of a commercial drivers license is not viewed as ensuring a driver’s qualification or ability to operate a commercial vehicle. This issue is a major hindrance to the industry’s efforts to hire safe and responsible drivers. To address these concerns, the stakeholders recommended FMCSA research methods to standardize commercial driver training. Stakeholders also noted that recurring training and testing for commercial drivers (to ensure their skills remain sharp throughout their careers) may be valuable and should be investigated. It also was recommended that commercial drivers’ tests be expanded to verify the skills required to operate a commercial vehicle, including night vision, reaction time, and reflexes.

In regard to passenger vehicle drivers, all participants agreed that non-commercial drivers are the root cause of many commercial vehicle crashes. To address this issue, participants recommended educating passenger vehicle drivers on how to drive around commercial vehicles. Stakeholders recommended this work start with a review of the effectiveness of existing driver education programs (Share the Road Safely, mobile simulators, etc.). Participants at the San Diego and Austin forums viewed this evaluation as particularly important as both California and Texas have extensive driver outreach and education programs in place which have not been evaluated for effectiveness.

Specific recommendations in the driver training area included:

- Study the benefits of requiring expanded skills tests for commercial drivers, including the testing of a driver's night vision, reaction time, and reflexes;
- Investigate the feasibility and benefits of developing continuous driver training for commercial and passenger vehicle drivers;
- Study the feasibility of testing passenger vehicle drivers on how to operate their vehicles around a commercial vehicle;
- Study the feasibility of developing a standardized commercial drivers' license training curriculum; and
- Study the effectiveness of passenger vehicle driver education programs on improving safety.

2.2 Recommended Vehicle-Related Research

While cited less often than driver-related factors, stakeholders agreed that vehicle-based research should be a key component of FMCSA's research agenda. Participants noted that research in this area could improve the safety performance of the commercial vehicles and identify countermeasures to other crash factors, such as fatigue, roll-overs, and running off the road. Participants also noted that vehicle-based research could provide substantial security benefits, as well. Recommendations generally fell into two categories:

- Existing vehicle design and systems; and
- New vehicle design and systems.

Industry and manufacturer participants noted that a lack of funding is the primary obstacle to conducting vehicle-based research. Vehicle-related factors are reported infrequently in commercial motor vehicle crashes, which limits the government's funding of research in this area. Stakeholders suggested that FMCSA, in conjunction with the National Traffic Safety Administration (NHTSA), rectify this funding inequity, especially given the potential for research in this area to improve safety in other areas (i.e. driver-related factors, weather, etc.)

Existing systems

Safety advocates, industry representatives, and manufacturers recommended FMCSA research maximizing the safety performance of the current commercial motor vehicle design and suite of on-board technologies. This short-term research is believed to offer substantial long-term safety benefits without requiring a major redesigning of the commercial fleet. The research should be designed to ensure that all current systems are performing optimally. For instance, a participant noted that the current standard of 12 volts for electricity to power the brake lights on a commercial vehicle may be inadequate to illuminate the light fully—especially on longer combination vehicles or vehicles with old/dirty electrical contacts. This issue should be researched and the standard updated, if necessary. Participants recommended a variety of research activities in this area, including:

- Test the voltage reaching commercial motor vehicle brake lights (especially on longer combination vehicles) to ensure the lights are performing properly;
- Conduct a technical scan of existing on-board technologies that could have a security application;
- Conduct a scan of other countries' use of on-board technologies to identify "best practices";
- Evaluate truck design to balance a driver's comfort versus making him/her too comfortable, which may contribute to fatigue;
- Conduct an operational test of rear fog lights on commercial vehicles;
- Review existing vehicle standards to ensure that they are still applicable to the modern commercial vehicle, such as the appropriateness of push-open windows on modern motor coaches;
- Identify the long-term benefits (or harm) to driver behavior associated with use of on-board safety technologies;
- Study the feasibility of providing in-cab notifications regarding weather advisories, congestion, parking, etc.;
- Conduct a case study on the US Army's dynamic routing of loads around adverse weather conditions;
- Study the effectiveness of "smart signs" for weather-related information;
- Study the design and safety performance of 15-passenger vans;
- Extend Intelligent Vehicle Initiative research to the motor coach industry;
- Study the safety impact of transporting medical equipment (i.e. oxygen tanks and batteries for medical equipment) in the passenger compartment of a motor coach; and
- Study the adequacy of motor coach evacuation plans for disabled and/or wheelchair dependent riders.

New systems

As a complimentary initiative to the research in existing systems, stakeholders recommended FMCSA and other Federal agencies undertake a long-term research initiative to consider necessary large-scale redesigns to commercial vehicles and identify new on-board technologies that should be developed and deployed. Safety advocates and manufacturers recommended research into the fundamental aspects of commercial vehicle design, including lowering the commercial vehicles' center of gravity to prevent roll-overs and providing under-ride protection on the side of tank trailers.

Motor coach operators also noted the need to research the safety performance of the "push-open" emergency windows that currently are required on motor coaches. They believe that these windows are dangerous and allow for passengers to be ejected from the vehicle during a rollover event, while providing little safety benefits given the design of the modern motor coach. Research in this area also could investigate alternate window and emergency exit designs that are employed on motor coaches in other countries.

Enforcement personnel recommended that FMCSA study new vehicle-based opportunities to streamline the inspection process. They suggested that FMCSA investigate integrating on-board vehicle diagnostic systems with enforcement systems. This integrated system would allow roadside personnel to "plug-into" commercial vehicles or use wireless technology to assess the performance of on-board systems and equipment. An integrated system is thought to reduce the need for an officer to perform a physical inspection of the vehicle and make the inspection process more efficient.

Specific recommendations in this area included:

- Conduct an operational test on using on-board diagnostic systems to automate the commercial motor vehicle inspection process; the operational test also would identify ways to access the on-board system's information, including "plugging into the vehicle", wireless access, and/or Dedicated Short-Range Communications (DSRC);
- Investigate commercial vehicle redesign to lower the center of gravity;
- Coordinate with the Department of Energy's video mirror project;
- Study the feasibility of developing in-cab electronic "rumble strips" to notify drivers of swerving or improper lane tracking;
- Study the applicability of infrared/vision-enhancement technology in commercial vehicles;
- Evaluate the safety impacts of developing side impact, under-ride protection for tank trucks;
- Research systems to require identification of the driver before enabling the commercial motor vehicle to start; and
- Conduct research on fully-automated vehicles.

2.3 Recommended Carrier/Shipper-Related Research

Motor carriers/motor coach companies and shippers/customers were perceived by participants to have both positive and negative influences on commercial vehicle safety. Stakeholders noted that the safety culture fostered by the commercial vehicle operators and the safety programs instituted by these companies may be the most effective means to improve commercial vehicle safety. Conversely, motor carriers and safety advocates identified numerous ways in which carriers and shippers can undermine commercial vehicle safety. These factors include:

- Demanding/accepting unreasonable and illegal shipping schedules;
- Long waiting lines at shipper facilities;
- Employing unqualified commercial drivers; and
- Poor working conditions.

To support the positive influences and combat the negative, participants recommended FMCSA conduct research in the following areas:

- Safety management programs;
- Shipper liability; and
- Improved regulation and enforcement.

Safety management programs

A variety of safety management programs have been implemented by commercial vehicle operators. Industry representatives noted their companies' had implemented roving safety vans to monitor their drivers' behavior, aggressive human resource policies to ensure that only qualified drivers were hired, and performance-based driver reviews. The design and implementation of these programs, however, has been inconsistent across the industry. Accordingly, participants recommended that FMCSA research "best practices" in carrier-based driver management programs and communicate this information to the industry as a whole. The industry representatives also recommended that FMCSA research guidelines to help them identify "bad" drivers before they are hired. For instance, motor carriers noted their need for guidance on how many violations over a given time period makes a driver "good" or "bad"; is a driver's frequent job changes ("churning") a safety concern, etc.

Specific recommendations included:

- Study the effectiveness of carrier incentive programs (awards, bonuses, etc.) in modifying commercial driver behavior and improving safety;
- Evaluate a driver's "churning" as an indicator of safety performance;

- Evaluate the behavioral impact of monitoring a driver's performance through on-board sensors;
- Develop recommended hiring criteria to assist motor carrier and motor coach companies identify "good" drivers—"how many violations is too many?";
- Study the safety impact of commercial vehicle operators employing roving safety vans to monitor their drivers' on-the-road performance; and
- Investigate the development of sanctions against companies that refuse a request regarding a former employee's driving history.

Shipper liability

Stakeholders noted that despite their potential impact on commercial motor vehicle safety, the shippers of freight remain largely unregulated. Stakeholders stated that the shippers' ability to find alternative transportation services often pressures commercial vehicle operators to accept shippers' unreasonable/illegal scheduling demands. Nearly all participants recounted examples of this happening. Educating shippers on reasonable/legal shipping requirements was recommended as a necessary step in addressing this concern. Realizing that education alone would not be sufficient in solving this problem, stakeholders also recommended FMCSA research methods by which enforcement/penalties could be extended to the shipper community. Specific recommendations in this area included:

- Document shippers' influence on motor carrier and motor coach operations;
- Assess the feasibility of requiring owners of intermodal chasses to obtain US DOT numbers. This would allow violations associated with a chasses to be assigned to the equipment's owner, not the carrier "pulling" the equipment;
- Conduct a scan of other countries' models of shared safety liability between carriers and shippers – a participant noted Australia as an example;
- Identify "best practices" for carrier/shipper interactions;
- Identify electronic methods to make the supply-chain more efficient, including freight posting services, shared resources, etc.; and
- Conduct feasibility analysis for creating a hot-line for motor carriers/motor coach operators to report shippers making unreasonable scheduling demands/requests.

Improved regulation and enforcement

While participants agreed that corporate policies greatly impact commercial vehicle safety, they acknowledged the need for aggressive enforcement of the safety regulations. In particular, stakeholders expressed concern regarding the safety performance of new motor carriers. Participants suggested that new entrants be required to demonstrate their knowledge of safety regulations before they are given permanent operating authority. Participants also recommended FMCSA institute rules by which corporate officers of commercial vehicle operators placed out of business for safety violations be precluded

from being involved in the industry. To address support for both of these recommendations, participants suggested FMCSA research an augmented new entrant program with additional enforcement capabilities.

Stakeholders also recommended that FMCSA research alternate enforcement models to enforcing safety regulations. Participants agreed that FMCSA is not capable of inspecting the operations of the over 600,000 active interstate motor carriers. As such, stakeholders recommended that FMCSA identify new approaches to enforcing its safety regulations, given the number and distribution of motor carriers across the country. In particular, participants recommended that FMCSA investigate how other Federal agencies responsible for numerous small operations enforce their regulations. For instance, FMCSA could evaluate how the United States Coast Guard and Maritime Administration enforce the maritime regulations on the numerous charter boat and water taxi operations in the United States. Specific recommendations in this area included:

- Study the feasibility of requiring new entrants to pass a proficiency exam before applying for operating authority and/or being granted full operating authority;
- Study the safety impact of requiring new entrants to acquire training in Federal safety regulations and “best practices”;
- Study the safety benefits and feasibility of requiring bi-annual terminal audits for all interstate motor carriers;
- Assess the safety differences between contract and company drivers; and
- Study regulatory methods to ensure that corporate officials from a firm ordered out of service by the government are not allowed to reconstitute their company under another name and U.S. DOT number.

2.4 Recommended Roadside/Environmental-Related Research

Stakeholders had far fewer suggestions regarding the roadside/environmental area than the other discussion topics. Many of the suggestions related to this topic involved vehicle-based countermeasures to weather conditions, which were detailed in the vehicle-based section of this document. Participants did recommend research in two additional areas:

- Roadway design; and
- State/local ordinances.

Roadway design

A representative from one safety advocacy group suggested the nation’s infrastructure on which commercial vehicles operate, is largely inadequate to serve these heavy vehicles.

As evidence of this, participants noted AASHTO's "Green Book"⁵ which guides the design of the nation's roadways, explicitly states that its recommendations are not sufficient for commercial vehicles. This is a serious safety concern as commercial motor vehicles comprise an increasing number of the nation's vehicle traffic. Further, industry representatives noted that the need to maximize capacity on the nation's roads in order to combat congestion has dictated narrower lanes in some urban areas, which are more difficult for commercial vehicles to navigate and deserves investigation. Stakeholders recommended that FMCSA research the following, in order to address this issue:

- Determine the feasibility of including commercial vehicle-related factors in "Green Book";
- Study the safety impact of narrower lanes on commercial motor vehicles;
- Study the safety impact of State's implementation of rumble strips in lane dividers; and
- Study the safety impact of creating truck-only lanes and truck-exclusion lanes.

State and local ordinances

Stakeholders also noted that commercial motor vehicle safety is being adversely affected by some State and local ordinances. Stakeholders were mixed on the safety impact of speed differentials between passenger vehicles and commercial vehicles. Some participants viewed these laws as effective, while the industry representatives and many enforcement personnel viewed them as dangerous because they force commercial vehicles to become slower moving "obstacles" on the roads.

Motor coach participants also noted municipalities "anti-idling" as a possible safety concern. These laws, designed to improve air quality by prohibiting motor coaches from idling for more than two minutes while parked, often forces motor coaches to drive around congested urban areas as they need to keep their engines running to operate their air conditioning and other "customer-oriented" systems. Both of these topics were recommended for further study.

⁵The "Green Book-- A Policy on Geometric Design of Highways and Streets" is a publication of the American Association of State Highway and Transportation Officials (AASHTO), which contains the latest design practices and the standard of highway geometric design currently in universal use.

3.0 General FMCSA Recommendations

In addition to the specific research recommendations detailed in Section 2.0 of this document, stakeholders also provided FMCSA with general feedback on the agency's research program and enforcement activities. These recommendations included:

- Improving commercial vehicle data sources;
- Researching the agency's staffing levels;
- Improving the agency's "follow-through"; and
- Developing a knowledge management system.

Each of these recommendations are detailed below.

3.1 Improve Commercial Vehicle Data Sources

Stakeholders recommended FMCSA work to improve commercial vehicle data sources, including demographic data sources, and crash reporting systems. Stakeholders noted that basic information related to the commercial motor vehicle industry is not known. For instance, the number of active motor coach operations in the United States is an estimate based on survey results—not a known fact. Further, the number of active commercial vehicle drivers also is an approximation. This lack of basic demographic data makes it very difficult for FMCSA and its safety partners to understand fully the safety problem, its root causes, and possible solutions. This issue was raised as a particular concern to the motor coach operators who would like a more accurate accounting of their industry, as well as safety advocates and academics that research commercial vehicle industries.

Participants also recommended that the nation's crash reporting system be expanded to include new crash factors that have been identified as significant to commercial vehicle safety. These data elements could include a driver's medical condition(s) before the accident, length of time that a driver involved in a crash has possessed his/her license, etc. Stakeholders universally praised the agency's Large Truck Crash Causation study and recommended key factors identified from that study also be incorporated into the crash reporting system. Stakeholders also recommended that the crash reporting system be expanded to include the vehicle identification number of vehicles involved in a crash be captured. This information would facilitate future analyses by allowing the type of vehicle involved in the crash to be identified easily.

In addition to improving existing data sources, all stakeholders agreed that FMCSA should conduct a series of “baseline” research studies to develop new data sources to serve as the foundation for future commercial vehicle safety research. Specifically, participants identified a need for data on crash factors which increase the risk for being involved in a crash and which factors are most often associated with fatal crashes, as opposed to injury or property damage-only crashes. To satisfy this analytical need, participants recommended FMCSA conduct a naturalistic driver study to identify typical driving habits of commercial drivers and a case control study to analyze the risks associated with certain discreet driver behaviors.

Stakeholders specifically recommended that FMCSA investigate the following:

- Development of an accurate understanding of the motor coach industry;
- Development of an accurate accounting for commercial drivers licenses;
- Augment nation’s crash reporting system with additional crash factors that have been proven as significant to commercial motor vehicle safety;
- Augment nation’s crash reporting system to differentiate between different types of buses (motor coach, school, transit, etc.);
- Augment nation’s crash reporting system to capture vehicle identification numbers (VIN) on all vehicles involved in crashes to allow for additional analyses;
- Conduct a naturalistic driving behavior study to identify “typical” driver behavior; and
- Conduct a case control study to identify the safety risks associated with specific driving behaviors.

3.2 Research the Agency’s Staffing Levels

To ensure that FMCSA’s resources are aligned with its organizational objectives, stakeholders recommended FMCSA conduct an internal analysis of its staffing levels. In particular, several participants, representing a variety of interests, suggested FMCSA investigate why so many Federal and State resources are dedicated to vehicle-related enforcement activities when crash statistics and the majority of safety experts indicate that driver-related factors are disproportionately responsible for commercial vehicle crashes. Stakeholders recommended this review consider both the need for additional staff members and the recasting of existing resources to new areas. Participants also recommended that FMCSA analyze its staffing levels against similarly tasked Federal agencies as a benchmark for necessary funding/staffing levels.

3.3 Improve Agency's "Follow-Through"

Participants recommended FMCSA improve its "follow-through" on research and policy initiatives. Several stakeholders expressed some frustration with the forum's objective to identify new research topics when results/recommendations from past research initiatives have not been implemented. For instance, participants noted that FMCSA should investigate how to encourage the deployment of proven technologies from the initial round of intelligent vehicle initiative operational tests before research on additional technologies begins. This was a particular concern of the vehicle manufacturers that attended.

Likewise, stakeholders suggested that existing regulations should be enforced more aggressively before additional safety rules are developed. Stakeholders specifically noted traffic laws as an area which would yield considerable safety benefit with additional enforcement resources. Participants noted that the driver-related factors most often associated with commercial vehicle crashes (speeding, following improperly, improper turn, etc.) related to commercial motor vehicle crashes could be addressed through enhanced enforcement activity. Motor coach representatives emphasized this point by indicating their preference that enforcement personnel stop all motor coaches seen speeding because this behavior is perceived as such a critical safety concern.

3.4 Develop a Knowledge Management System

Participants indicated a need for a central electronic knowledge management system that would allow those interested in commercial motor vehicle safety to monitor the ongoing research in the field. The diversity among the forum participants was indicative of the wide variety of public and private stakeholders involved in commercial vehicle research. These stakeholders include industry associations, individual motor carriers, safety advocacy groups, State and local departments of transportation, State enforcement agencies, and academics. At the Federal government, FMCSA, the Federal Highway Administration, the National Highway Traffic Safety Administration, the Department of Defense, and the Department of Energy all conduct research related to commercial vehicle safety.

The diversity and amount of research being conducted makes it difficult for all stakeholders, including FMCSA personnel, to continually monitor and leverage the latest research. For instance, one participant noted that the Department of Energy (DOE) is conducting an operational test of video mirrors on commercial vehicles as part of a test to improve commercial vehicle fuel economy. Most stakeholders were unaware of the test and the potential for DOE to advocate such a new concept for the industry. The recommended system would allow stakeholders to post their existing research projects, highlight results, and provide contact for other interested parties. The system also would allow FMCSA to remain current with the cutting-edge research being conducted in the field.

Appendix A

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Federal Motor Carrier Safety Administration
Research and Technology Stakeholder Forums
Motor Coach Session
Washington, DC
March 19, 2003
List of Registrants

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<u>Support Team</u>	
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Appendix B

*Office of Research and Technology Stakeholder Forums'
Agendas*



Federal Motor Carrier Safety Administration
Research and Technology Stakeholder Forums
DoubleTree Club Hotel
1515 Hotel Circle South
San Diego, CA
February 6, 2003
9 AM – 4 PM

Forum Objectives:

1. Provide an overview of FMCSA’s Research and Technology Program
2. Discuss characteristics associated with commercial motor vehicle safety
3. Discuss research and technology opportunities designed to improve commercial motor vehicle safety, security and productivity
4. Identify key research questions that FMCSA should investigate

Workshop Outcomes:

1. Understanding of FMCSA Research and Technology Program
2. Understanding of characteristics associated with large truck safety, security and productivity
3. List of research topics that FMCSA should investigate in FY2005 and beyond

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
09:00 – 09:10 AM	Welcome/Introduction - Doug McKelvey— FMCSA - Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Welcome the participants to the Forum. • Outline the day’s general objectives and specific session objectives. • Introductions. 	<ul style="list-style-type: none"> • Set the tone for the day, with objectives and expectations clearly outlined. • Ensure each participant understands his/her role and expected contribution to the day’s discussion.
9:10 – 9:45 AM	Session 1: Presentation “Overview of FMCSA research and technology activities”	<ul style="list-style-type: none"> • Provide the group with an overview of FMCSA’s research and technology activities, including objectives, methodology and organization. • Provide participants with an overview of the Forum’s roundtable format and anticipated outcomes. 	<ul style="list-style-type: none"> • General understanding of the role of research and technology in FMCSA, and the agency’s R&T methodology. • Clear understanding of the Forum’s desired outcome.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
9:45 – 10:45 AM	Session 2: Roundtable Discussion “Driver-Related Factors”	<ul style="list-style-type: none"> Identify commercial vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify passenger vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of driver-related topics and questions that should be investigated by FMCSA
10:45 – 11:00 AM	Break		
11:00 AM– 12:00 PM	Session 3: Round Table Discussion “Vehicle-Related Factors”	<ul style="list-style-type: none"> Identify vehicle-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of vehicle-related topics and questions that should be investigated by FMCSA.
12:00 – 1:00 PM	Lunch		
1:00 – 2:00 PM	Session 4: Roundtable Discussion “Carrier-Related Factors”	<ul style="list-style-type: none"> Identify carrier-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of carrier-related topics and questions that should be investigated by FMCSA.
2:00 – 2:45 PM	Session 5: Roundtable Discussion “Roadside/Environment-Related Factors”	<ul style="list-style-type: none"> Identify roadside/environmental-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of roadside/environmental-related topics and questions that should be investigated by FMCSA.
2:45 – 3:00 PM	Break		
3:00 – 3:45 PM	Session 6: Roundtable Discussion “Other Related Factors”	<ul style="list-style-type: none"> Identify “other” research topics (i.e. shippers, standards, traffic operations) that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of “other” topics and questions that should be investigated by FMCSA
3:45--4:00 PM	Wrap-up and session evaluation - Jeff Loftus, FMCSA	<ul style="list-style-type: none"> Solicit feedback on the day’s activity 	<ul style="list-style-type: none"> Complete session evaluation form

Scheduling note: All session times are approximate. The length of each session will be determined by the participants during Session



Federal Motor Carrier Safety Administration
Research and Technology Stakeholder Forums
Joe C. Thompson Conference Center
University of Texas at Austin
Austin, TX
February 12, 2003
9 AM – 4 PM

Forum Objectives:

5. Provide an overview of FMCSA’s Research and Technology Program
6. Discuss characteristics associated with commercial motor vehicle safety
7. Discuss research and technology opportunities designed to improve commercial motor vehicle safety, security and productivity
8. Identify key research questions that FMCSA should investigate

Workshop Outcomes:

4. Understanding of FMCSA Research and Technology Program
5. Understanding of characteristics associated with large truck safety, security and productivity
6. List of research topics that FMCSA should investigate in FY2005 and beyond

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
09:00 – 09:10 AM	Welcome/Introduction - Martin Walker— FMCSA - Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Welcome the participants to the Forum. • Outline the day’s general objectives and specific session objectives. • Introductions. 	<ul style="list-style-type: none"> • Set the tone for the day, with objectives and expectations clearly outlined. • Ensure each participant understands his/her role and expected contribution to the day’s discussion.
9:10 – 9:45 AM	Session 1: Presentation “Overview of FMCSA research and technology activities”	<ul style="list-style-type: none"> • Provide the group with an overview of FMCSA’s research and technology activities, including objectives, methodology and organization. • Provide participants with an overview of the Forum’s roundtable format and anticipated outcomes. 	<ul style="list-style-type: none"> • General understanding of the role of research and technology in FMCSA, and the agency’s R&T methodology. • Clear understanding of the Forum’s desired outcome.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
9:45 – 10:45 AM	Session 2: Roundtable Discussion “Driver-Related Factors”	<ul style="list-style-type: none"> Identify commercial vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify passenger vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of driver-related topics and questions that should be investigated by FMCSA
10:45 – 11:00 AM	Break		
11:00 AM– 12:00 PM	Session 3: Round Table Discussion “Vehicle-Related Factors”	<ul style="list-style-type: none"> Identify vehicle-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of vehicle-related topics and questions that should be investigated by FMCSA.
12:00 – 1:00 PM	Lunch		
1:00 – 2:00 PM	Session 4: Roundtable Discussion “Carrier-Related Factors”	<ul style="list-style-type: none"> Identify carrier-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of carrier-related topics and questions that should be investigated by FMCSA.
2:00 – 2:45 PM	Session 5: Roundtable Discussion “Roadside/Environment-Related Factors”	<ul style="list-style-type: none"> Identify roadside/environmental-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of roadside/environmental-related topics and questions that should be investigated by FMCSA.
2:45 – 3:00 PM	Break		
3:00 – 3:45 PM	Session 6: Roundtable Discussion “Other Related Factors”	<ul style="list-style-type: none"> Identify “other” research topics (i.e. shippers, standards, traffic operations) that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of “other” topics and questions that should be investigated by FMCSA
3:45--4:00 PM	Wrap-up and session evaluation - Jeff Loftus, FMCSA	<ul style="list-style-type: none"> Solicit feedback on the day’s activity 	<ul style="list-style-type: none"> Complete session evaluation form

Scheduling note: All session times are approximate. The length of each session will be determined by the participants during Session 1.



Federal Motor Carrier Safety Administration
Research and Technology Stakeholder Forums
Hall of States
Room #333
444 North Capitol Street
Washington, DC
February 20, 2003

Forum Objectives:

9. Provide an overview of FMCSA’s Research and Technology Program
10. Discuss characteristics associated with commercial motor vehicle safety
11. Discuss research and technology opportunities designed to improve commercial motor vehicle safety, security and productivity
12. Identify key research questions that FMCSA should investigate

Workshop Outcomes:

7. Understanding of FMCSA Research and Technology Program
8. Understanding of characteristics associated with large truck safety, security and productivity
9. List of research topics that FMCSA should investigate in FY2005 and beyond

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
09:00 – 09:10 AM	Welcome/Introduction - Mary Powers-King—FMCSA - Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Welcome the participants to the Forum. • Outline the day’s general objectives and specific session objectives. • Introductions. 	<ul style="list-style-type: none"> • Set the tone for the day, with objectives and expectations clearly outlined. • Ensure each participant understands his/her role and expected contribution to the day’s discussion.
9:10 – 9:45 AM	“Overview of FMCSA research and technology activities” Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Provide the group with an overview of FMCSA’s research and technology activities, including objectives, methodology and organization. • Provide participants with an overview of the Forum’s roundtable format and anticipated outcomes. 	<ul style="list-style-type: none"> • General understanding of the role of research and technology in FMCSA, and the agency’s R&T methodology. • Clear understanding of the Forum’s desired outcome.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
9:45 AM – 12:00 PM	Break-out Session #1 Group 1: Driver-Related Factors Group 2: Roadside/Environmental Factors	<ul style="list-style-type: none"> Identify passenger and commercial vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify roadside/ environmental-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of driver-related topics and questions that should be investigated by FMCSA. A list of roadside/ environmental-related topics and questions that should be investigated by FMCSA.
12:00 – 1:00 PM	Lunch		
1:00 – 1:30 PM	Break-out Session #1 Reports	<ul style="list-style-type: none"> Present findings from Break-out Session #1 	<ul style="list-style-type: none"> 15 minute presentations from each group highlighting the key findings from their discussions.
1:30 – 3:30 PM	Break-out Session #2 Group 1: Vehicle-Related Factors Group 2: Carrier/Shipper-Related Factors	<ul style="list-style-type: none"> Identify commercial vehicle-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify carrier/shipper-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of commercial vehicle-related topics and questions that should be investigated by FMCSA. A list of carrier/shipper-related topics and questions that should be investigated by FMCSA.
3:30 – 4:00 PM	Break-out Session #2 Reports	<ul style="list-style-type: none"> Present findings from Break-out Session #2 	<ul style="list-style-type: none"> 15 minute presentations from each group highlighting the key findings from their discussions.
4:00 PM	Wrap-up and session evaluation - Jeff Loftus, FMCSA	<ul style="list-style-type: none"> Solicit feedback on the day's activity 	<ul style="list-style-type: none"> Complete session evaluation form

Scheduling note: All session times are approximate. The length of each session will be determined by the participants.



Federal Motor Carrier Safety Administration
Research and Technology Stakeholder Forums
Hall of States
Room #333
444 North Capitol Street
Washington, DC
February 21, 2003

Forum Objectives:

13. Provide an overview of FMCSA’s Research and Technology Program
14. Discuss characteristics associated with commercial motor vehicle safety
15. Discuss research and technology opportunities designed to improve commercial motor vehicle safety, security and productivity
16. Identify key research questions that FMCSA should investigate

Workshop Outcomes:

10. Understanding of FMCSA Research and Technology Program
11. Understanding of characteristics associated with large truck safety, security and productivity
12. List of research topics that FMCSA should investigate in FY2005 and beyond

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
09:00 – 09:10 AM	Welcome/Introduction - Mary Powers-King— FMCSA - Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Welcome the participants to the Forum. • Outline the day’s general objectives and specific session objectives. • Introductions. 	<ul style="list-style-type: none"> • Set the tone for the day, with objectives and expectations clearly outlined. • Ensure each participant understands his/her role and expected contribution to the day’s discussion.
9:10 – 9:45 AM	“Overview of FMCSA research and technology activities” Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Provide the group with an overview of FMCSA’s research and technology activities, including objectives, methodology and organization. • Provide participants with an overview of the Forum’s roundtable format and anticipated outcomes. 	<ul style="list-style-type: none"> • General understanding of the role of research and technology in FMCSA, and the agency’s R&T methodology. • Clear understanding of the Forum’s desired outcome.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
9:45 AM – 12:00 PM	Break-out Session #1 Group 1: Driver-Related Factors Group 2: Roadside/Environmental Factors	<ul style="list-style-type: none"> Identify passenger and commercial vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify roadside/ environmental-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of driver-related topics and questions that should be investigated by FMCSA. A list of roadside/ environmental-related topics and questions that should be investigated by FMCSA.
12:00 – 1:00 PM	Lunch		
1:00 – 1:30 PM	Break-out Session #1 Reports	<ul style="list-style-type: none"> Present findings from Break-out Session #1 	<ul style="list-style-type: none"> 15 minute presentations from each group highlighting the key findings from their discussions.
1:30 – 3:30 PM	Break-out Session #2 Group 1: Vehicle-Related Factors Group 2: Carrier/Shipper-Related Factors	<ul style="list-style-type: none"> Identify commercial vehicle-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. Identify carrier/shipper-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of commercial vehicle-related topics and questions that should be investigated by FMCSA. A list of carrier/shipper-related topics and questions that should be investigated by FMCSA.
3:30 – 4:00 PM	Break-out Session #2 Reports	<ul style="list-style-type: none"> Present findings from Break-out Session #2 	<ul style="list-style-type: none"> 15 minute presentations from each group highlighting the key findings from their discussions.
4:00 PM	Wrap-up and session evaluation - Jeff Loftus, FMCSA	<ul style="list-style-type: none"> Solicit feedback on the day's activity 	<ul style="list-style-type: none"> Complete session evaluation form

Scheduling note: All session times are approximate. The length of each session will be determined by the participants.



Federal Motor Carrier Safety Administration
R&T Stakeholder Forum
Motor Coach Session
 Hall of the States
 444 North Capitol Street N.W. Room #233
 Washington, DC
 March 19, 2003
 9 AM – 4 PM

Forum Objective:

Gather input from public and private stakeholders regarding motorcoach research and technology topics that FMCSA should investigate in order to improve motorcoach safety.

Workshop Outcomes:

1. Understanding of FMCSA R&T Program;
2. Understanding of motorcoach safety, security, and productivity issues; and
3. List of motorcoach R&T topics that FMCSA should investigate in FY 2005 and beyond.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
09:00 – 09:10 AM	Welcome/Introduction - Jeff Loftus—FMCSA	<ul style="list-style-type: none"> • Welcome the participants to the Forum. • Outline the day’s general objectives and specific session objectives. • Introductions. 	<ul style="list-style-type: none"> • Set the tone for the day, with objectives and expectations clearly outlined. • Ensure each participant understands his/her role and expected contribution to the day’s discussion.
9:10 – 9:45 AM	Session 1: Presentation “Overview of FMCSA research and technology activities”	<ul style="list-style-type: none"> • Provide the group with an overview of FMCSA’s research and technology activities, including objectives, methodology and organization. • Provide participants with an overview of the Forum’s roundtable format and anticipated outcomes. 	<ul style="list-style-type: none"> • General understanding of the role of research and technology in FMCSA, and the agency’s R&T methodology. • Clear understanding of the Forum’s desired outcome.

TIME	AGENDA ITEM	OBJECTIVE	OUTCOME
9:45 – 10:45 AM	Session 2: Roundtable Discussion “Driver-Related Factors”	<ul style="list-style-type: none"> Identify motorcoach driver-related research topics that should be investigated to improve motorcoach safety, security and productivity. Identify passenger vehicle driver-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of driver-related topics and questions that should be investigated by FMCSA.
10:45 – 11:00 AM	Break		
11:00 AM– 12:00 PM	Session 3: Round Table Discussion “Vehicle -Related Factors”	<ul style="list-style-type: none"> Identify vehicle -related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of vehicle-related topics and questions that should be investigated by FMCSA.
12:00 – 1:00 PM	Lunch		
1:00 – 2:00 PM	Session 4: Roundtable Discussion “Motorcoach -Related Factors”	<ul style="list-style-type: none"> Identify motorcoach - related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of motorcoach - related topics and questions that should be investigated by FMCSA.
2:00 – 2:45 PM	Session 5: Roundtable Discussion “Roadside/Environment-Related Factors”	<ul style="list-style-type: none"> Identify roadside/ environmental-related research topics that should be investigated to improve commercial motor vehicle safety, security and productivity. 	<ul style="list-style-type: none"> A list of roadside/ environmental-related topics and questions that should be investigated by FMCSA.
2:45 –3:00 PM	Break		
3:00 – 3:45 PM	Session 6: Roundtable Discussion “Other Related Factors”	<ul style="list-style-type: none"> Identify “other” research topics that should be investigated to improve motorcoach safety, security and productivity. 	<ul style="list-style-type: none"> A list of “other” topics and questions that should be investigated by FMCSA
3:45--4:00 PM	Wrap-up and session evaluation - Jeff Loftus, FMCSA	<ul style="list-style-type: none"> Solicit feedback on the day’s activity 	<ul style="list-style-type: none"> Complete session evaluation form

Scheduling note: All session times are approximate. The length of each session will be determined by the participants during Session 1.