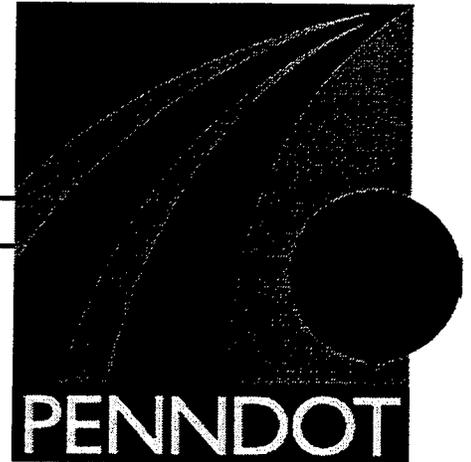




**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION**

PENNDOT RESEARCH



**I-95 CORRIDOR COALITION
FIELD OPERATIONAL TEST 10:
COORDINATED SAFETY MANAGEMENT**

**VOLUME IV: PILOT TESTING AND EVALUATION OF
MOTOR CARRIER SAFETY EDUCATION/OUTREACH**

**University-Based Research, Education and Technology Transfer Program
AGREEMENT NO. 359704, WORK ORDER 8**

FINAL REPORT

August 2001

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PENNSSTATE



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1. Report No. FHWA-PA-2001-020-97-04 (8)		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle I-95 Corridor Coalition Field Operational Test # 10: Coordinated Safety Management Volume IV. Pilot Testing and Evaluation of Motor Carrier Safety Education/Outreach Materials				5. Report Date August 17, 2001	
				6. Performing Organization Code	
7. Author(s): Daniel E. Stock, American Trucking Association Foundation; Debra Rood and Mark Hammer, University of Albany				8. Performing Organization Report No. PTI 2002-04, IV	
9. Performing Organization Name and Address The Pennsylvania Transportation Institute Transportation Research Building The Pennsylvania State University University Park, PA 16802-4710				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. 359704 Work Order 8	
12. Sponsoring Agency Name and Address The Pennsylvania Department of Transportation Bureau of Planning and Research 555 Walnut Street, 6 th Floor Forum Place Harrisburg, PA 17101-1900				13. Type of Report and Period Covered Final Report 7/9/98-8/31/01	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract Coordinated Safety Management is an I-95 Corridor Coalition-sponsored project which was designed to identify the factors that contribute to exemplary motor carrier safety performance and develop outreach materials and tools to help carriers operate more safely. The effort collected information via survey from 600 truck and bus companies from Connecticut, Maryland, New York, Pennsylvania, and Virginia on what they do to operate safely and to identify those factors most critical to their safety programs. The survey also examined motor carriers' perceptions of what information would be most useful to them and their preferred modes for receiving the information. The information developed through the survey and review of safety outreach materials and educational programs for motor carriers formed the basis for the development and testing of three products. The first product is a three-hour seminar on Best Practices in Motor Carrier Safety Management focusing on cost-effective strategies and management practices. The second product is a six-page brochure which highlights frequently used management practices of safe motor carriers and provides a resource/contact guide for motor carriers wishing additional information. The third product is an interactive, web-based safety toolbox to allow motor carriers to benchmark their safety programs. The purpose of the technical memorandum is to describe the three pilot products and present the evaluation analyses and test user comments, which can be used to refine and expand the usefulness of future motor carrier safety outreach and educational programs/products.					
17. Key Words Motor carrier safety, safety education, I-95 Corridor Coalition				18. Distribution Statement No restrictions. This document is available from the National Technical Information Service, Springfield, VA 22161	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages	22. Price



I-95 CORRIDOR COALITION
FIELD OPERATIONAL TEST #10: COORDINATED SAFETY MANAGEMENT

VOLUME IV: PILOT TESTING AND EVALUATION OF MOTOR CARRIER SAFETY
EDUCATION/OUTREACH MATERIALS

University-Based Research, Education and Technology Transfer Program
Agreement No. 359704
Work Order 8

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This work was sponsored by the Pennsylvania Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration. The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of either the Federal Highway Administration, U.S. Department of Transportation, or the Commonwealth of Pennsylvania at the time of publication. This report does not constitute a standard, specification, or regulation.



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1. INTRODUCTION

Coordinated Safety Management is an I-95 Corridor Coalition-sponsored project which, in part, was designed to identify the factors that contribute to exemplary motor carrier safety performance and develop outreach materials and tools to help carriers operate more safely.

This effort collected information via survey from 600 truck and bus companies from the states of Connecticut, Maryland, New York, Pennsylvania, and Virginia on what they do to operate safely and to identify those factors most critical to their safety programs. The survey also examined the motor carriers' perceptions of what information would be most useful to them and their preferred modes for receiving the information. The results of the survey are documented in separate report entitled *Best Practices in Motor Carrier Safety Management*.

The information developed through the survey and review of safety outreach materials and educational programs for motor carriers formed the basis for the development and testing of three products:

- A three-hour seminar on Best Practices in Motor Carrier Safety Management focusing on cost-effective strategies and management practices.
- A printed, six page brochure highlighting the frequently used management practices of safe motor carriers and providing a resource/contact guide for motor carriers wishing additional information.
- An interactive, web-based safety toolbox to allow motor carriers to benchmark their safety programs relative to the 600 surveyed motor carriers.

The test seminar was presented three times during May and June 2000 to a total of 27 participants. The informational brochure and web-based safety toolbox were made available to approximately 8,000 motor carriers in February 2001. Evaluation data and user feedback on the pilot products were gathered via questionnaire and telephone interviews.

PURPOSE OF REPORT

The purpose of this report is to describe the three pilot products and present the evaluation analyses and test user comments which can be used to refine and expand the usefulness of future motor carrier safety outreach and educational programs/products.

ORGANIZATION OF REPORT

This report is organized as follows:

- Section 2—*Best Safety Practices Pilot Seminar*—describes the seminar and its goals; the participants; the seminar topics and materials; and evaluation of the seminar.
- Section 3—*Informational Brochure and Web-Based Safety Toolbox*—describes the informational brochure (content and distribution to motor carriers); the web-based safety toolbox; and evaluation of these two products.
- Section 4—*Conclusions and Recommendations*.

2. BEST SAFETY PRACTICES PILOT SEMINAR

As part of the I-95 Corridor Coalition Field Operational Test 10 (FOT 10) Coordinated Safety Management Program, a three-hour curriculum for a seminar on Best Practices in Motor Carrier Safety Management was developed and pilot tested. The test seminar was developed as a joint effort of the American Trucking Association's Foundation, ATA's North American Transportation Management Institute, the University of Connecticut, and Liberty Mutual Insurance Company. Team members from the State University of New York's Institute for Traffic Safety Management and Research documented participant responses and comments. Participant responses form the basis of the evaluation assessment detailed in section 4.

SEMINAR CONCEPT AND GOALS

The seminar was designed to provide smaller carriers with information on safety management because many smaller carriers may not be familiar with these practices or have effective safety management practices in place. The objectives for the seminar were to:

- Present participants with research findings about what safe carriers do to make their operations the safest on the road.
- Facilitate the exchange of information among the participating carriers regarding what best practices they implement in such areas as driver hiring, training, and management; vehicle maintenance; compliance activities; accident prevention; and awards and incentives.
- Provide participants with resources on best practices in motor carrier safety management and information on how to implement such practices.

PILOT TESTS AND PARTICIPANTS

Three pilot tests of the seminar curriculum were conducted between May 16 and June 1, 2000 in Hartford, Conn.; Albany, N.Y.; and Camp Hill, PA. Representatives from a total of 27 motor carriers attended the three seminars. These carriers were members of their respective state

motor carrier associations' safety councils and regarded as among the safest carriers. The purpose in inviting them to attend was to gain their expert input on the content and value of the seminar and solicit their advice on applicability and transferability of the seminar to smaller carriers with less developed safety programs.

All of the participants were from companies ranging in size from those employing 10 to 7,000 drivers. They all held management positions in their companies with the majority functioning as their company's safety director. The participants had been employed in the trucking industry for an average of 20 years.

SEMINAR FORMAT AND MATERIALS

The pilot seminar was presented by a series of speakers, supported by Microsoft PowerPoint slides and handout materials (related safety publications). The seminar slides are presented in appendix A. The seminar consisted of the following three modules:

- **Module 1: "General Best Practices"**—This module provided an overview of practices implemented by safe carriers. David Melton of the Liberty Mutual Insurance Group discussed bench marking a company's performance and presented research linking a number of safety practices with reductions in insurance claims. Professor Don Tepas of the University of Connecticut summarized the most and least used safety practices that emerged from the ATA Foundation's survey of motor carriers, conducted as part of this project. Dr. Tepas concluded with a discussion of the categories of best practices, including those relating to hiring, accident management, training, supervision, inspection, and awards and incentives.
- **Module 2: "Best Practices in Action"**—This module was conducted by Dan Stock of the ATA Foundation. This module consisted of a round table discussion of the practices conducted by the seminar participants. Mr. Stock also used the round table to collect information on the participants' perceptions of the feasibility and utility of selected practices.
- **Module 3: "Implementing Best Practices in Your Company"**—Jeff Arnold from the ATA's North American Transportation Management Institute discussed practical matters relating to the implementation of best practices by companies.

Handouts distributed at the seminar included the following: 1) *Best Practices in Motor Carrier Safety Management*, a compilation of the slides and overheads used in the seminar, and the publication, *Motor Fleet Safety Supervision, Principles and Practices*, 6th ed., J. W. Arnold (ed.), NATMI; 2) *Truck Driver Risk Assessment Guide and Effective Countermeasures: Recommended Management Practices*, ATA, Federal Highway Administration, and The Driver Training and Development Alliance; 3) *Making the Difference...A Compendium of Safety Management Practices of Award Winning Carriers*, Western Highway Institute; and, 4) *American Trucking Association's 1999 National Truck Safety Contest*.

SEMINAR EVALUATION AND PARTICIPANT REMARKS

At the conclusion of each seminar, the participants were asked to complete a written evaluation of the seminar and to rate a number of practices according to their importance in improving the safety of smaller carriers. The evaluation forms are included in appendix A.

The following sections describe how the participant's evaluated various aspects of the seminar. It also describes some of the more important safety practices used by the participants and how they rated or emphasized the value of selected safety practices.

It should be noted that the relatively small number of participants, the fact that they were experienced in safety management, and were representatives of safer carriers, should be taken into account when interpreting the results of the program evaluation (i.e., though some participants may not have been exposed to areas of new information due to their experience, they did indicate that the important topics were covered).

Participants' Evaluation of the Seminar

The participants rated various aspects of the seminar in tot, and for each module. These ratings are described in the following section.

Overall Usefulness of Seminar

The majority of the carriers found each section to be very useful (table 1). No carrier found any section of the seminar to be “not at all useful.”

Table 1. Perceived usefulness of seminar modules to carriers.

Usefulness of Presentation:	Very Useful	Somewhat Useful	Not at all Useful
Module I: General Best Practices	17	4	0
Module II: Round Table Discussion	14	8	0
Module III: Implementing Best Practices in your Company	15	6	0

Table 2 presents the findings for the remaining questions relating to the carriers' evaluation of the seminar presentations. These questions relate to the amount of new information the seminar provided to them, what additional topics they recommend should be included, and rated the usefulness of the handouts. These are summarized in the following:

New information presented—None of the 22 carriers indicated that they received a great deal of new information; however, 18 of the participants said they received a moderate amount of new information; four participants said they only received a small amount of new information.

Additional topics—Five carriers suggested additional topics for inclusion in the training; these included more information on how to implement safety practices, help with getting mid-management and employees to “buy into” safety, insurance considerations, safety practices for owner/operators, and information for train-the-trainer sessions.

Value of handouts—Sixteen of the 22 participants rated the handouts as very useful, with the remaining attendees rating them as somewhat useful.

Ability to increase safety awareness—While only two participants said the seminar program had increased their awareness of the importance of safety to their companies a great deal, 15 said it had increased their awareness a moderate amount.

Ability to increase drivers' safety—Similarly, seven carriers said the information they received had the potential to increase their drivers' safety a great deal, and 14 participants said it could increase safety a moderate amount.

Table 2. Participant perceptions of seminar.

Item	Number of Respondents
Amount of New Information Received	
A great deal	0
A moderate amount	18
A small amount	4
None	0
Need for Additional Topics	
Yes (e.g., How to implement safety practices, cost of practices, help with mid-management and employee buy-in, insurance, safety in owner/operator fleets, training for trainers)	5
No	13
Usefulness of Handouts	
Very useful	16
Somewhat useful	6
Not at all useful	0
Effectiveness of Program in Increasing Awareness of Importance of Safety	
A great deal	2
A moderate amount	15
A small amount	3
None	1
Potential Impact of Program on Drivers' Safety	
A great deal	7
A moderate amount	14
A small amount	1
None	0

Participants' Remarks on "How They Do It"

During the round table discussion (module 2) in each of the three seminars, participants were asked for their input on selected safety practices and to describe the safety practices their companies used. Participants were also encouraged to discuss these issues among themselves. Since the structure of the round table discussions differed slightly for each of the three pilot-tests, the participants' comments on specific safety practices are presented separately for each session. Detailed notes from the three pilot seminars are presented in appendix A.

Hartford, Connecticut

Following distance: One representative said his company's policy was to maintain a four truck-length following distance; another said his company's guideline is to maintain a following distance of one-second per 10 mph; two representatives noted that maintaining any significant following distance would result in being cut off by another vehicle.

Driver training: Most representatives said their companies have in-vehicle training for new drivers, but not on-going training.

Driver monitoring: On-board monitoring systems are capable of identifying drivers who speed, who brake hard, and who cause excessive wear and tear on equipment. One representative said that if a company uses such a system, it should review the data with drivers and give them immediate feedback on what they are doing.

Ergonomic equipment: Several representatives noted that drivers should have good equipment, including a comfortable seat. Poor equipment, or equipment in need of repair, such as a side rear view mirror that vibrates, can distract drivers and impact safety.

Albany, New York

Following distances: One representative reported that his company has a following distance policy for long tandems. Another said they recommend leaving at least a couple of seconds following distance, preferably a minimum of 6 seconds. Another recommendation for in-city driving was to allow enough distance to be able to see the bottom of the rear tires of the vehicle in front.

Driver screening: Several participants mentioned driver violations that would disqualify a new applicant; these included convictions for three violations in the previous three years, two serious violations in three years, driving while impaired within five years, and driving while intoxicated within ten years. All of the participants indicated that driver screening was a very important first step in maintaining safety. One participant indicated that all companies dismiss a driver with a DUI on the job; a DUI off the job should be considered as serious since the person holds a CDL.

Driver training: With regard to emergency reaction training, one participant noted that a driver needs to experience unexpected situations in order to learn the appropriate response. Four representatives said their companies use skid pan training. In-vehicle training was not practiced by any of the companies represented.

Driver monitoring: One company monitored their vehicles' miles per gallon, but not hard-braking data. Another representative indicated that their vehicles' engine's computers provide data, without the expense of installing separate monitoring devices. One representative discussed the necessity of maintaining a positive culture in the company, encouraging drivers with problems to go to the safety manager. Since drivers feel comfortable talking about problems, there is rarely a need to call a driver in to discuss an incident.

Other: There was general agreement that mirror check stations, as discussed by Dave Melton, is an excellent idea. One participant indicated that the person responsible for safety in a

company may wear many different hats, and safety may take a lower priority when it should be number one.

Camp Hill, Pennsylvania

Following distances: Mandated following distances are difficult to implement in the Northeast due to congested travel conditions. One carrier advocates a four-second following distance, another uses six seconds. Another participant said that a rule of thumb is to be able to see the tires of the vehicle in front where they touch the pavement.

Driver screening: There was consensus among the participants regarding the necessity of careful selection of new drivers.

Driver training: None of the participants provide emergency reaction training to their drivers; however, all agreed that some type of training is important. Training most often involves explaining company policies and procedures; few offer actual driving skills training. One participant's company has the safety supervisor ride with the driver to check and comment on his driving skills.

Driver monitoring: None of the participants review on-board data to monitor how the driver is handling the vehicle on the road. Driver monitoring through 800 call-in numbers was used by about half of the carriers. One safety director weighs the complaints against his experience of the commercial driver's previous behavior. The issues raised by these call-ins are best discussed as soon as possible with the drivers. The drivers themselves often mention incidents first, rather than have the supervisor hear about it from a motorist's complaint.

Mirrors: Two of the participants train their drivers in proper mirror adjustment. Five of the participants use right side fender-mounted mirrors to increase visibility.

Posters: Six of the participants use posters as safety reminders.

Driver Rewards Programs: Four of the participants indicated that they have employee recognition/rewards programs. These are in the form of safety/performance bonuses and higher per mile pay.

Participant Recommendations for Safety Program Emphasis

The participants were also asked to rate 10 selected practices on their perceived importance in improving the safety of small carriers. As table 3 indicates, all of the participants said that top management commitment and involvement in safety, pre-employment driver screening and testing, and vehicle inspection and maintenance were very important in improving the safety of small carriers. Nineteen of the 22 carriers said that driver training, monitoring driver performance, and an accident review process were very important. Safety awareness posters, letters, and messages were seen as the least important strategy.

Table 3. Perceived importance of selected practices on improving the safety of small carriers.

Item	Very Important	Somewhat Important	Not at all Important
Top management commitment and involvement in safety	22	0	0
Pre-employment driver screening and testing	22	0	0
Vehicle inspection/timely maintenance	21	0	0
Driver training (e.g., defensive driving, fatigue management, equipment inspection, regulations)	19	3	0
Monitoring driver performance (e.g., citations, hours-of-service, crashes)	19	3	0
Accident review process	19	3	0
Scheduled safety meetings	15	7	0
Integration of safety into compensation and retention programs	13	9	0
Safety recognition/rewards program	12	10	0
Safety awareness posters, letters, messages	8	13	1

The participants were then asked to rate which of the 10 practices were first, second, and third in importance to the safety of small carriers. The results are shown in tables 4 and 5.

Twelve carriers rated top management commitment to safety as first in importance, five rated pre-employment driver screening and testing as first in importance, and four said driver training was number one. These three practices were also the top-rated strategies for second in importance. For third in importance, the most frequently chosen strategies were monitoring driver performance, driver training, and pre-employment screening.

Table 4. Practices perceived as most crucial to the safety of small carriers.

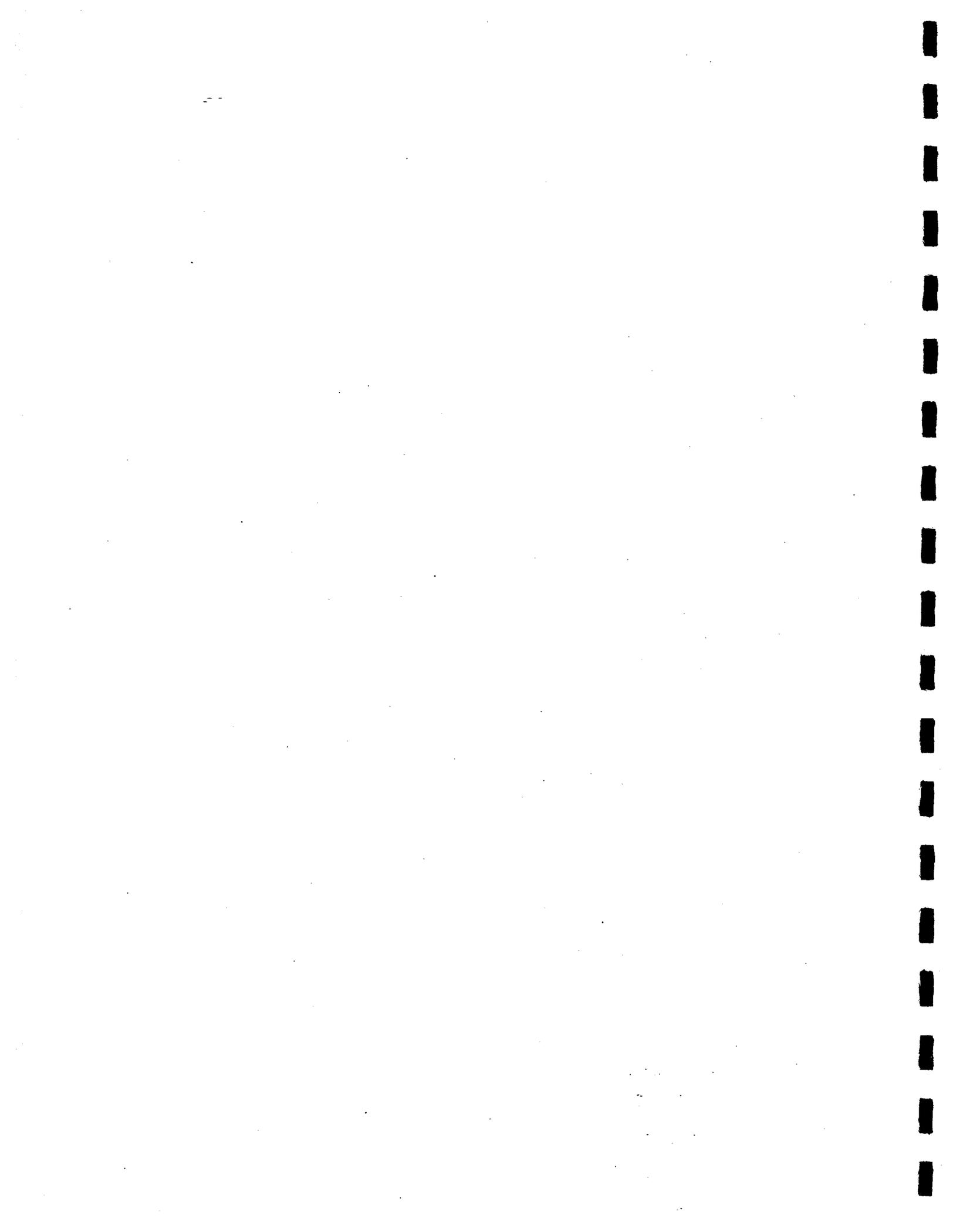
Item	Number of Respondents
1st in Importance	
Top management commitment and involvement in safety	12
Pre-employment driver screening and testing	5
Driver training (e.g., defensive driving, fatigue management, equipment inspection, regulations)	4
2nd in Importance	
Pre-employment driver screening and testing	7
Driver training (e.g., defensive driving, fatigue management, equipment inspection, regulations)	6
Top management commitment and involvement in safety	3
Vehicle inspection/timely maintenance	2
Monitoring driver performance (e.g., citations, hours-of-service, crashes)	2
Scheduled safety meetings	1
3rd in Importance	
Monitoring driver performance (e.g., citations, hours-of-service, crashes)	7
Driver training (e.g., defensive driving, fatigue management, equipment inspection, regulations)	6
Pre-employment driver screening and testing	5
Top management commitment and involvement in safety	2
Vehicle inspection/timely maintenance	1

Table 5 also shows the total number of participants rating each practice as first, second, or third in importance. Analyzed in this way, pre-employment screening emerges as the most important practice (19 votes), followed by top-management commitment (14 votes), driver training (13 votes), monitoring driver performance (10 votes), vehicle inspection and

maintenance (3 votes), and scheduled safety meetings (1 vote). The remaining strategies were not rated as first, second, or third in importance by any of the participants.

Table 5. Summary of most crucial safety practices.

Item	Number of Participants Ranking as 1 st , 2 nd , or 3 rd in Importance
Pre-employment driver screening and testing	19
Top management commitment and involvement in safety	14
Driver training (e.g., defensive driving, fatigue management, equipment inspection, etc.)	13
Monitoring driver performance (e.g., citations, hours-of-service, crashes)	10
Vehicle inspection/timely maintenance	3
Scheduled safety meetings	1
Integration of safety into compensation and retention programs	0
Safety recognition/rewards program	0
Accident review process	0
Safety awareness posters, letters, messages	0



3. INFORMATIONAL BROCHURE AND WEB-BASED SAFETY TOOLBOX

The seminar mode for the delivery and exchange of information on motor carrier safety practices proved to be very effective, as detailed in section 2. Drawbacks to this mode include its relatively high costs for production and staffing—materials, meeting space, refreshments, staff time, and travel. These are costs that in a commercially available seminar product would have to be recouped, at least in part, through participant registration fees. Additionally, attending a seminar requires motor carriers to invest staff time and travel. These factors could limit potential participation levels.

Though not as intensive in the delivery of information, lesser-cost alternatives for reaching motor carriers were developed and tested. These include an informational brochure and an interactive, web-based safety bench marking tool. These modes represent an initial information push to motor carriers in the form of the brochure with resultant information pulls on the part of the motor carriers via phone or Internet.

The following sections describe these two pilot products.

SAFETY INFORMATIONAL BROCHURE

The initial survey of 600 motor carriers indicated that one of the most preferred methods for receiving information was in the form of a concise overview brochure with references to additional detailed information sources. Based on the survey results and input from the participants of the seminar pilot tests, a brochure was developed and mailed to motor carriers for their use.

The brochure highlights the common safety practices used by motor carriers with exemplary safety programs. It was designed to provide motor carriers with useful information to help them get the most from their safety programs. It also provides contact information for help

with implementing effective safety programs and to answer questions about state and federal safety regulations. The brochure also introduces/promotes the interactive web-based safety toolbox. The brochure is presented in appendix B. The brochure presents information on the following:

- Overview of what makes a safety program successful.
- Driver hiring criteria.
- Driver orientation and training.
- Driver supervision, recognition, and awards programs.
- Enhancing safety awareness.
- Accident investigation/reviews.
- Safety program bench marking using the web-based safety toolbox.
- Contact information for technical support and regulations.

Distribution of The Informational Brochure

The brochure was delivered via United States mail to approximately 8,000 motor carriers in Connecticut, New York, and Pennsylvania. These motor carriers were identified through the MCMIS database. To evaluate the usefulness of the brochure and the safety toolbox, a prepaid postcard-questionnaire was included in the mailing with the request that the carriers fill out and post the questionnaire.

The universe of recipients was comprised predominantly of small fleet operators. Fifty percent of the mail universe operated five or fewer vehicles, while 70 percent had fleets of ten vehicles or less. Only 10 percent of the mail universe had fleets larger than 30 vehicles.

To ascertain the relative usefulness of the products to motor carriers of varying degrees of safety management success, as proxied by performance in roadside safety inspections, the study team examined the total Out-Of-Service (O-O-S) rates for motor carriers identified for the

mailing. Based on an average O-O-S rate for the target carriers, it was determined that the target universe represented adequate diversity to infer relative value of the products— approximately half of the mailings were to motor carriers with total out-of-service rates of one to 25 percent.

WEB-BASED SAFETY TOOLBOX

The “Trucking Safety Toolbox” is designed to help managers of trucking companies assess their safety practices, as well as provide them with options that may improve the safety practices they implement at their company. Managers of trucking companies can see where they stand in terms of their safety practices relative to other companies. Sample screens from the toolbox are presented in appendix C. The toolbox can be accessed at:

<http://safetytoolbox.uconn.edu>.

The toolbox uses the detailed information on the safety programs of 408 motor carriers collected by the ATA Foundation to present an easy to use, web-based safety bench marking model. This system allows motor carriers to check off the safety practices used in their fleets from a list of documented safety practices. The toolbox returns to the user a “benchmark” score that can be compared to other motor carriers. Safety practices in different combinations can be added or deleted to see how the benchmark safety score can be changed.

Each safety practice is weighted by its relation to the accident rates of companies who use those practices and responded to the ATA Foundation survey. The weights of each of the practices indicated are added to create the benchmark score. Figure 1 describes the distribution of safety scores found in the core data of ATA Foundation survey responses.

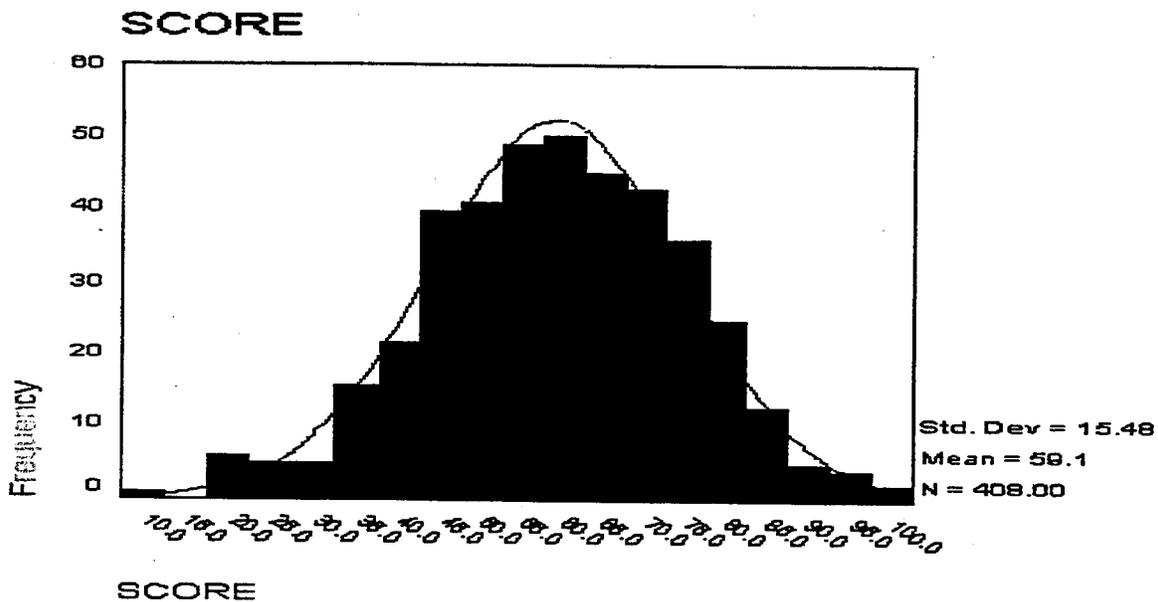


Figure 1. Distribution of safety scores of survey respondents as determined by the “Trucking Safety Toolbox.”

A safety score of less than 60, suggests that the safety practices of system’s user are below average when compared to the scores of the operators responding to the original ATA Foundation Survey. A safety score of more than 60 suggests that the safety practices of the user are above average in comparison the operators surveyed by the ATA Foundation. Thus, safety scores do not indicate whether a users practices are bad or good, but rather where the user’s company stands relative to the practices of other trucking companies. The predictions made by the toolbox session analysis must be regarded as an estimate, not a guarantee, of likely impact.

The toolbox also has a facility in which motor carrier sessions can be captured and analyzed. This activity is conducted confidentially with the assurance that responses of individual trucking system managers will not to be distributed to any other company or government organization. Further analyses of the interactive sessions can be incorporated in future research and refinement of the toolbox.

As mentioned previously, according to supporting motor carriers, the effectiveness of individual outreach materials can be maximized if they provide links or pointers to more detailed

sources of information. The web site provides hyperlinks to federal and state regulatory agencies, national, and state motor carrier associations, and related transportation organizations.

EVALUATION OF THE INFORMATIONAL BROCHURE AND SAFETY TOOLBOX

To assess the usefulness of the brochure and the web site, an 11 question survey on postage-paid cards was sent with the brochure to each of the approximately 8,000 companies. The survey questionnaire is presented in appendix D.

The survey was color-coded into four groups based on out-of-service rates. Based on an average out-of-service rate of 26 percent, the carriers were grouped by out-of-service rates as follows: 19 percent or less, 20 to 26 percent, 27 to 33 percent, and 34 percent or greater. The brochures with the survey cards inserted were mailed in February 2001.

Survey cards were returned by 62 companies. An additional 17 surveys were collected through telephone interviews, for a total response by 79 companies. Due to the relatively small number of respondents, caution is advised in interpreting the results.

Respondent Demographics

As shown in Table 6, of the 79 companies that responded to the survey, 34 percent were private carriers; 28 percent were for-hire general freight, truckload carriers; and eight percent were for-hire general freight, less-than-truckload carriers. Thirty percent indicated that they were an "other" type of company, which included construction companies and contractors hauling mail for the United States Postal Service.

When examined by out-of-service rate (O-O-S), table 8 shows the following :

- Companies with an O-O-S rate of 19 percent or less were more likely to be private carriers, while those with an O-O-S rate of 34 percent or more were more likely to be for-hire general freight, truckload carriers.
- For companies with an O-O-S rate of 20 to 26 percent or 27 to 33 percent, the type of carrier was evenly distributed among for-hire general freight, truckload carriers; private carriers; and “other” type carriers.

Table 6 also shows that slightly more than one-half of the 79 respondents indicated that their company operated 10 or fewer vehicles and 20 percent operated more than 50 vehicles.

Table 6 further shows that:

- Of the companies with an O-O-S rate of 19 percent or less or 27 to 33 percent, the largest number operate five or fewer vehicles, while of the companies with an O-O-S rate of 34 percent or greater, the largest number operate 6-10 vehicles.
- The fleet size of companies with an O-O-S rate of 20 to 26 percent is fairly evenly distributed among the vehicle size groups.

Table 6. Respondent demographic characteristics by out-of-service rates.

Item	Out-of-Service Rates								Total	
	<19%		20%-26%		27%-33%		34% +			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Which best describes your company?										
For-hire general freight, truckload	5	17.9%	4	36.4%	5	33.3%	8	32.0%	22	27.8%
For-hire general freight, less-than-truckload	2	7.1%	0	0.0%	0	0.0%	4	16.0%	6	7.6%
Private carrier	12	42.9%	4	36.4%	5	33.3%	6	24.0%	27	34.2%
Other	9	32.1%	3	27.3%	5	33.3%	7	28.0%	24	30.4%
Totals	28	100.0%	11	100.0%	15	100.0%	25	100.0%	79	100.0%
Number of vehicles operated by your company?										
<5	8	29.6%	1	9.1%	6	42.9%	7	28.0%	22	28.6%
6-10	4	14.8%	2	18.2%	3	21.4%	9	36.0%	18	23.4%
11-25	2	7.4%	2	18.2%	3	21.4%	4	16.0%	11	14.3%
26-50	5	18.5%	2	18.2%	1	7.1%	3	12.0%	11	14.3%
51-100	4	14.8%	1	9.1%	1	7.1%	1	4.0%	7	9.1%
101+	4	14.8%	3	27.3%	0	0.0%	1	4.0%	8	10.4%
Totals	27	100.0%	11	100.0%	14	100.0%	25	100.0%	77	100.0%

Usefulness of Informational Safety Brochure

Ninety-five percent of the 79 respondents reported that they had read the Best Safety Practices brochure. Of the 74 respondents who reported that they had read the brochure, table 7 shows that:

- Four out of five respondents indicated that the brochure was either very useful or somewhat useful.
 - Companies with an O-O-S rate of 34 percent or greater were most likely to report that it was useful (83 percent), while companies with an O-O-S rate of 20 to 26 percent were least likely to report it as being useful (73 percent).
 - Companies with an O-O-S rate of 27 to 33 percent were most likely to report that the brochure was not at all useful (15 percent).
- Approximately one-half of the respondents reported that the brochure provided them with a lot or a moderate amount of new information; 14 percent reported that it did not provide any new information.
 - Companies with an O-O-S rate of 34 percent or greater were most likely to report that the brochure provided them with a lot or a moderate amount of new information (57 percent), while companies with an O-O-S rate of 27 to 33 percent were least likely to report that it had provided a lot or a moderate amount of new information (39 percent).
 - Companies with an O-O-S rate of 19 percent or less were most likely to report that it had provided no new information (23 percent).
- Almost three out of five respondents reported that the brochure encouraged them to consider implementing additional safety procedures.
- Little variation occurred among the four O-O-S rate groups with regard to whether the brochure encouraged them to consider implementing additional safety procedures.

Table 7. Usefulness of informational brochure by out-of-service rates

Item	Out-of-Service Rates								Total	
	<19%		20%-26%		27%-33%		34%+			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Did you read the Best Safety Practices brochure?										
Yes	27	96.4%	11	100.0%	13	86.7%	23	95.8%	74	94.9%
No	1	3.6%	0	0.0%	2	13.3%	1	4.2%	4	5.1%
Totals	28	100.0%	11	100.0%	15	100.0%	24	100.0%	78	100.0%
If yes, how useful was the brochure?										
Very useful	2	7.4%	1	9.1%	2	15.4%	4	17.4%	9	12.2%
Somewhat useful	20	74.1%	7	63.6%	8	61.5%	15	65.2%	50	67.6%
Not very useful	4	14.8%	2	18.2%	1	7.7%	4	17.4%	11	14.9%
Not at all useful	1	3.7%	1	9.1%	2	15.4%	0	0.0%	4	5.4%
Totals	27	100.0%	11	100.0%	13	100.0%	23	100.0%	74	100.0%
If Yes, how much new information about safety practices did the brochure provide?										
A lot	1	3.8%	1	9.1%	1	7.7%	2	8.7%	5	6.8%
A moderate amount	12	46.2%	4	36.4%	4	30.8%	11	47.8%	31	42.5%
A small amount	7	26.9%	5	45.5%	6	46.2%	9	39.1%	27	37.0%
None	6	23.1%	1	9.1%	2	15.4%	1	4.3%	10	13.7%
Totals	26	100.0%	11	100.0%	13	100.0%	23	100.0%	73	100.0%
If yes, did the brochure encourage you to consider implementing any additional safety procedures?										
Yes	13	50.0%	6	54.5%	8	61.5%	15	65.2%	42	57.5%
No	13	50.0%	5	45.5%	5	38.5%	8	34.8%	31	42.5%
Totals	26	100.0%	11	100.0%	13	100.0%	23	100.0%	73	100.0%

Usefulness of Best Practices Toolbox Internet Web Site

Eighty-eight percent of the 79 respondents indicated that they have access to the Internet. (Table 8). Of the 68 respondents who reported that they have access to the Internet, 23 percent reported that they had explored the toolbox web site. Of the 18 respondents who had explored the web site, table 8 shows that:

- 13 of the 18 respondents reported that they found the web site to be very useful or somewhat useful; 2 reported that it was not at all useful.
 - All four companies with an O-O-S rate of 27 to 33 percent reported that they found the web site very useful or somewhat useful.
 - Three of the seven companies with an O-O-S rate of 19 percent or less reported that the web site was not very useful (1) or not at all useful to them (2).
- Nine of the 17 respondents reported that the web site encouraged them to consider implementing additional safety procedures; eight reported that it did not encourage them to do so.
 - All four companies with an O-O-S rate of 27 to 33 percent reported that the web site encouraged them to implement additional safety procedures.
 - Five of the seven companies with an O-O-S rate of 19 percent or less reported that the web site did not encourage them to consider implementing additional safety practices.

Table 8. Usefulness of safety toolbox web site by out-of-service rates

Item	Out-of-Service Rates								Total	
	<19%		20%-26%		27%-33%		34% +			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)		
Do you have access to the Internet, either at work or at home?										
Yes	24	85.7%	10	90.9%	14	100.0%	20	83.3%	68	88.3%
No	4	14.3%	1	9.1%	0	0.0%	4	16.7%	9	11.7%
Totals	28	100.0%	11	100.0%	14	100.0%	24	100.0%	77	100.0%
Have you explored the CTI Safety Toolbox?										
Yes	7	25.0%	3	27.3%	4	28.6%	4	16.0%	18	23.1%
No	21	75.0%	8	72.7%	10	71.4%	21	84.0%	60	76.9%
Totals	28	100.0%	11	100.0%	14	100.0%	25	100.0%	78	100.0%
If Yes, how useful was the Toolbox web site?										
Very useful	0	0.0%	2	66.7%	1	25.0%	1	25.0%	4	22.2%
Somewhat useful	4	57.1%	0	0.0%	3	75.0%	2	50.0%	9	50.0%
Not very useful	1	14.3%	1	33.3%	0	0.0%	1	25.0%	3	16.7%
Not at all useful	2	28.6%	0	0.0%	0	0.0%	0	0.0%	2	11.1%
Totals	7	100.0%	3	100.0%	4	100.0%	4	100.0%	18	100.0%
If yes, did the Toolbox web site encourage you to implement any additional safety practices?										
Yes	2	28.6%	1	50.0%	4	100.0%	2	50.0%	9	52.9%
No	5	71.4%	1	50.0%	0	0.0%	2	50.0%	8	47.1%
Totals	7	100.0%	2	100.0%	4	100.0%	4	100.0%	17	100.0%

Willingness to Pay for Best Practices Seminar

The opportunity was taken with the mail in survey to try to determine motor carrier interest or potential market for a commercial "Best Safety Practices" seminar. The results, based on the limited response to the survey showed that 10 percent of the 79 respondent companies would be willing to pay \$300 to \$400 to send a representative to a "Best Safety Practices" seminar (table 9). The cost range was based on estimated per-person costs of conducting a seminar and prevailing rates for commercially available seminars of similar format.

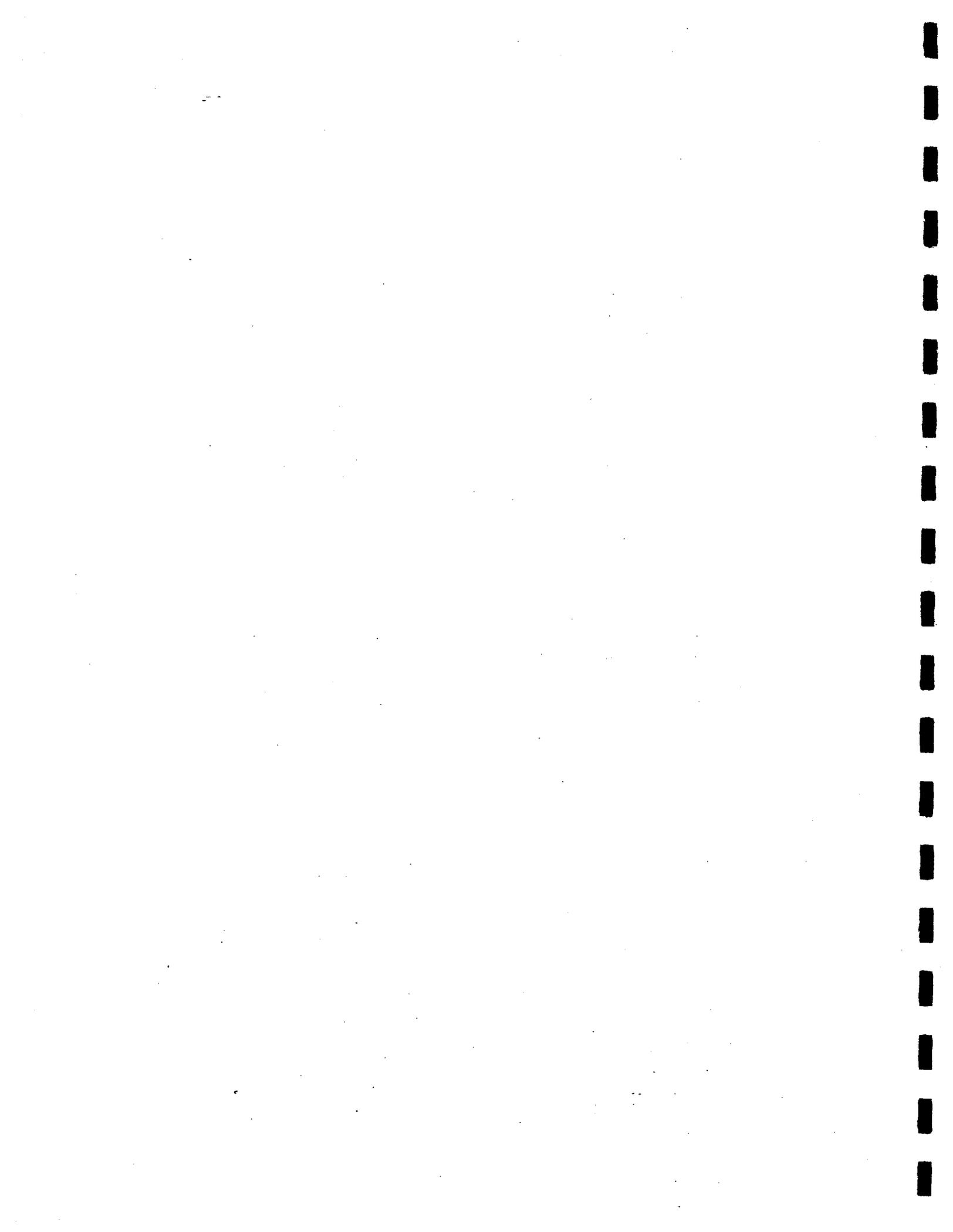
Forty-three percent reported that their companies would not be willing to pay \$300-\$400 to send a representative to a "Best Safety Practices" seminar, while 47 percent were not sure whether their company would be willing to pay for such a seminar. As reported in table 9, an examination of the responses by company O-O-S rate shows that:

- Companies with an O-O-S rate of 19 percent or less were most likely to be willing to pay \$300-\$400 to send a representative to a "Best Safety Practices" seminar (4 of 28), while companies with an O-O-S rate of 27 to 33 percent were least likely (0 of 15).
- Companies with an O-O-S rate of 27 to 33 percent were most likely to be unsure whether their company would be willing to pay for such a seminar (11 out of 15), followed by companies with O-O-S rates of 20 to 26 percent (7 out of 11), and companies with O-O-S rates of 34 percent or greater (11 out of 25).

These responses are not surprising considering that companies with well-developed safety management programs with resultant lower Out-Of-Service rates recognize the importance of educating their employees in safety and compliance issues and are willing to invest the time and money required to achieve success. Unfortunately, those in greatest need of the information appear to be those that are either unable or unwilling to pay.

Table 9. Willingness to pay \$300-\$400 to send representatives to "Best Safety Practices" seminar by out-of-service rates.

Item	Out-of-Service Rates										
	<19%		20%-26%		27%-33%		34% +		Total		
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	
If offered, would your company be willing to pay \$300-\$400 per person to send a representative to A Best Safety Practices Seminar?											
Yes	4	14.3%	1	9.1%	0	0.0%	3	12.0%	8	10.1%	
No	16	57.1%	3	27.3%	4	26.7%	11	44.0%	34	43.0%	
Not sure	8	28.6%	7	63.6%	11	73.3%	11	44.0%	37	46.8%	
Totals	28	100.0%	11	100.0%	15	100.0%	25	100.0%	79	100.0%	



4. CONCLUSIONS AND RECOMMENDATIONS

The three motor carrier safety pilot products developed, delivered, and tested as part of the I-95 Corridor Coalition Field Operational Test #10—*Coordinated Safety Management* program—have been met with varying levels of user acceptance, though generally responses have been generally positive. That is to say, the topics covered in the pilot products were seen as important elements of motor carrier safety management programs. Additional detail and subject topics were recommended by test users.

The evaluation mechanisms used to assess the products indicate that motor carriers with higher levels of safety awareness and well-developed safety management programs received somewhat limited amounts of new information and the effectiveness of the products in terms of improving their safety programs was limited. Anecdotally, these carriers tended to appreciate the information delivered through the products as a reminder of the activities required to ensure safe performance. As was stated during the safety seminars, “safety is a message that has to be constantly reiterated to all concerned”.

It was seen, primarily through the direct feedback mechanism of the seminar, that the information could be most valuable to motor carriers with less sophisticated safety programs.. This is indicated by the mail-in survey responses. Motor carriers with marginal safety performance, as exhibited through out-of-service rates above the national average, found relatively high utility in the informational brochure and web-based toolbox and were encouraged to implement new safety practices in their companies.

As indicated in section 3.3.4, the investment in time and money to send a representative to a safety seminar may be prohibitive to many carriers such as smaller operations with fewer resources. Their decision to make this investment needs to be bolstered by outreach detailing the benefits and costs to their company of enhanced safety management.

It is not feasible within the context of this effort to estimate how many accidents, injuries, or deaths may have been avoided through the distribution of information to approximately 8,000 motor carriers. One could argue that a reminder of good practices or adoption of new safety practices at the right time could prevent circumstances leading to accidents. With the average cost of a commercial vehicle accident estimated at \$135,000, the cost effectiveness of educational and outreach programs could be high.

It is recommended that the findings of this effort be used to assist in developing national motor carrier outreach programs targeted towards carriers with limited resources. It is also recommended that the three products developed in this effort be refined based on user feedback, be widely publicized, and made available to all motor carriers.

**APPENDIX A: PILOT SEMINAR MATERIALS, NOTES, AND
EVALUATION FORMS**



Best Practices in Motor Carrier Safety Management

A partnership program of:

**North American
Transportation
Management Institute**

**The ATA
Foundation**

**Liberty Mutual
Insurance**

**I-95 Corridor
Coalition**

**New York State
Motor Truck
Association**

**Motor Transport
Association of
Connecticut**

**Pennsylvania
Motor Truck
Association**

**New York Bus
Association**

**Pennsylvania Bus
Association**

University of Connecticut

Pennsylvania State University

**State University of
New York at Albany**

**Connecticut Dept.
of Motor Vehicles**

**Pennsylvania Dept.
of Transportation**

**New York Dept.
of Transportation**

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1

Liberty Mutual Trucker's Survey

Best Practices

Best Practices
Partnership 2000

2



Why Survey?

We Knew:

- **Avg. Insured Cost of Crashes by Type**
- **% of Crashes by Type**
- **Many Other After the Fact %'s and \$'s**

We Used Data to Identify:

- **Common Practices**
- **Best Practices**

& Relate to Results!!

Best Practices
Partnership 2000

3



Used Consistent Data Points for Benchmarking

Truckers Survey History:

- **1996 - One State in Upper MW**
- **1997 - 5 States in MW**
- **1998 - 14 States**
- **1999 - 41 States**
- **2000 - ?? States**

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4



1999 Survey

- **41 States**
- **1.8 Billion Miles Total**
- **21,130 Power Units**
- **162 Companies**

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5



Types of Operations

- **63% Trailer Load Companies**
- **15% LTL Companies**
- **18% Combination Trailer Load
& LTL**
- **4% Tanker**

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6



What is Benchmarking?

- **A point of reference from which meaningful measurements can be made**
- **A standard against which others may be measured**

Apples to Apples



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7



Benchmarks

- **Dollar Losses Per Million Miles**
- **Preventables Per Million Miles**
- **Reportables Per Million Miles**
- **Crashes with 1 or More Claims Over \$1,000**

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8



Best Practice Criteria

- **Used by Companies with Excellent Results in All Four Categories**
 - Losses per Million Miles
 - Preventables per Million Miles
 - Reportables per Million Miles
 - Crashes with 1 or More Claims of >\$1,000
- **Used by any Company to Achieve Superior Results in a Specific Area**

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9



Best Practices

- **Following Distance Policy**
- **ERD Training**
- **Mirror Check Station Usage**
- **In-Vehicle Training**
- **On Board Systems Review**
- **MVR Criteria**

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10



Following Distance

Number of HOIR* Claims per Mill. Miles

1,320 to 1,500 ft.	Mean: .22
Other or No policy	Mean: .41

*HOIR: Hit Other in Rear

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11



Emergency Reaction Training

Mean \$ Loss / Mill. Miles

Provide to Some Or All Drivers **\$14,114**

Do Not Provide **\$20,103**

>\$1,000 Crash Frequency Mean

Do Provide **1.34**

Don't Provide **1.69**

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Mirror Check Stations

Sideswipe Crash Frequency / Mill. Miles

With Mirror Check Stations Mean: .38

Without Mirror Check Sta. Mean: .61

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13



On-Going In Vehicle Training

Mean \$ Loss / Mill. Miles

Yes: Existing Drivers \$16,195

No: Existing Drivers \$18,882

On-Going, Planned, Training!!

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14



On-Board Systems Review

Mean \$ Loss / Mill. Miles

Have and Routinely Review	\$15,442
Have But Do Not Routinely Review	\$22,989

Review Systems Data With Your DRIVERS!

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MVR Hiring Criteria

- **Number of Years Looked At** **3 Yrs.**
- **Maximum Allowable Violations** **3**
- **Hire with DUI/OUI?** **Yes**
- **How Old DUI/OUI?** **5 Yrs.**

Written & Strictly Enforced

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It's The Data, but.....

It's Only Good If You Use It

- **Know Your Results and How They Compare**
- **Set Crash Cost & Frequency Goals**
- **Communicate Progress to ALL**
- **Don't Lower Your Standards to Grow**

This is NOT Rocket Science!

Implement BEST Practices!

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Motor Carrier Safety Practices



**AN ANALYSIS OF THE ATA FOUNDATION
1999 SURVEY DATA**

**Don Tepas and James Pratt
Connecticut Transportation Institute
University of Connecticut
Storrs, Connecticut**

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18

Survey Methods:

- **Part of the I-95 Corridor Coalition Safety Management Study**
- **Survey designed by the ATA Foundation in cooperation with the coalition members**
- **A five-page survey offered by mail to operators in CT, MA, NY, PA and RI**
- **Mailing and data reduction completed by the ATA Foundation**
- **Nearly 600 respondents**

Our Survey Analysis

- **Based on frequency-of-use survey data supplied by the ATA Foundation**
- **Rate of use for each of 39 safety related practices were calculated and examined**
- **An extensive statistical analysis was completed**
- **Data from four motor carrier operator groups are presented here**
- **These rates were ranked from highest to lowest rate of use**

Motor Carrier Operator Groups

- **"All Percent" - ALL 596 Carriers responding to the survey**
- **"All Trucks" - All 524 Truck Carriers responding to the survey**
- **">100 Trucks" - the 64 Truck Carriers with 100 or more vehicles in their fleet**
- **"Busses" - All 48 Bus Carriers responding to the survey.**

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Top 10 Most Utilized Safety Practices

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
When screening driver applicants for hire, does your company require in-person applications/interviews?	98%	98%	89%*	100%
Are drivers instructed in what to do in the event of an accident?	98%	97%	98%	100%
When screening driver applicants for hire, does your company test for drugs and alcohol?	97%	97%	98%	100%
Does your company train new drivers in company policies and procedures?	97%	96%	96%	100%

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Top 10 Most Utilized - Continued

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
Does your company's practices include monitoring drivers' traffic citations?	96%	96%	96%	98%
Does your company train new drivers in equipment inspection?	94%	93%	96%	100%
When screening driver applicants for hire, does your company call past employers to review employment history?	93%	93%	94%	93%*

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Top 10 Most Utilized - Continued

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
Are drivers provided accident-reporting forms?	90%	89%	98%	100%
When screening driver applicants for hire, does your company conduct an on-road driving test before hiring process is complete?	90%	89%	90%	100%
When screening driver applicants for hire, does your company turn down applicants with points/accidents/violations above a company maximum?	82%	81%	92%	88%*

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Top 10 Least Utilized Safety Practices

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
Does your company's practices include monitoring driver/vehicle performance via on-board computers/ recorders or vehicle tracking devices?	19%	19%	40%	15%
When screening driver applicants for hire, does your company have medical requirements more stringent than DOT requirements?	23%	22%	50%	46%
Does your company require drivers to attend defensive driving training courses?	23%	21%	42%	48%

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Top 10 Least Utilized - Continued

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
Does your company's practices include using a motorist call-in number to report driver performance?	24%	21%	26%	51%*
Does your company have a fitness for duty program?	25%	24%	45%	41%
Does your company's practices include offering awards for adopted employee safety suggestions?	27%	26%	46%	40%
Does your company have specific policies/programs for driver alertness/fatigue?	30%	28%	49%	50%

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Top 10 Least Utilized - Continued

	All Percent (N = 569)	All Trucks (N = 524)	>100 Trucks (N = 64)	Busses (N = 48)
Does your company have or use trained accident investigation specialists to investigate accident sites?	33%	31%	74%*	53%*
Does your company's practices include observing drivers using an in-house or hired "Road Patrol"?	34%	32%	53%	68%*
When screening driver applicants for hire, does your company use a third party to review employment history/driving record?	37%	37%*	43%	39%

Summary

- Among the four carrier groups presented here, there was an impressive degree of agreement with regard to which practices are most and least used by operators.
- Survey results demonstrate that some practices which show great promise fall in the least used category. It is also possible that some very frequently used practices may not be very effective.
- Therefore, it may not be appropriate to assume that the most frequently used practices are necessarily the best practices. Additional information is needed.

In Many Cases These May Not Be The Same:

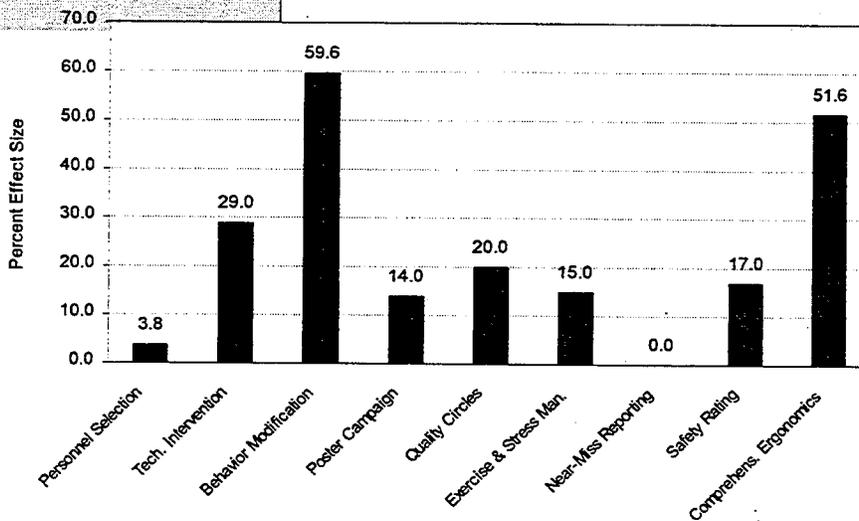
- The easiest-to-implement practice
- The most frequent safety practice
- The most effective safety practice
- The most practical safety practice
- The best safety practice

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Summary of Effect Sizes for Nine Types of Accident Prevention Programs
Summary of Evaluation Data from 53 Studies (Guastello, 1993)



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Conclusions

- **The results of this survey have clearly indicated 10 practices that are frequently used, and 10 that are not.**
- **These practices are related to hiring, accident management, training, supervision, inspection, and awards/incentives.**
- **In the next section of this seminar, a panel of operators will be asked to tell us if they use the practices identified on both lists, how they are implemented, and how they evaluate their implementations.**

U.S. DOT Federal Motor Carrier Safety Administration April 25, 2000: Proposed Hours-of-Service

- **Part of their effort to meet the DOT goal of a 50% reduction in truck related fatalities by the year 2010**
- **Tougher standards are proposed, due to the high level fatigue-related fatal truck crashes**
- **"...long-haul and regional drivers would be required to use electronic on-board recording devices (EOBRs), for the purpose of managing the driver's hours-of-service."**

Best Practices in Motor Carrier Safety Management

*This section will allow us to learn from
each other through sharing of
successful approaches and practices*

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Common Emphasis in Safe Operations: Topics

- **Top Level Commitment by Management**
- **Safety as the First Priority**
- **Communication**
- **Selection and Retention of Good Employees**
- **Training Programs**
- **Supervision**
- **Recognition / Awards / Compensation**
- **Maintenance / Equipment**

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Driver Hiring / Training

- **Appearance, Attitude, and Past Employment**
 - 98% Require In-Person Applications
 - 93% Conduct a Thorough Check on Past Employment
- **Minimums / Maximums**
 - 58% Require at Least 2 Years of Experience
 - 82% Have Point, Violation, or Accident Maximums
- **Testing**
 - 40% Require Written Test on DOT Regs
 - 90% Require On-Road Driving Test

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Driver Hiring / Training

- **Supervised Training Period Before Solo Driving- 76%, Average 2-4 weeks**
- **Company Policies/Procedures- 97%**
- **Safety Regulations- 75%**
- **Fatigue Management- 43%**
- **Equipment Inspection- 94%**
- **Defensive Driving- 23%**

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Driver Supervision

- **Use "Road Patrol" to Observe Drivers- 34%**
- **Use 800 Call Number- 24%**
- **Use On-Board Computers- 19%**
- **Closely Monitor HOS- 77%**
- **Closely Monitor Citations- 96%**
- **Regularly Check Fleet Safety Inspection Reports (SAFER)-58%**
 - *Monthly- 11%*
 - *Quarterly-21%*
 - *Every 6 Months- 25%*

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Driver Recognition / Awards

- **Offer Salary Incentives or Awards for Safety Performance- 51%**
 - *Cash or Merchandise*
 - *Salary Increases*
 - *Recognition at Company Functions*
- **Offer Awards or Bonus for Safety Suggestions- 27%**
- **Encourage Participation in Driving Skill Championships- 38%**

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Safety Meetings

- **Conduct Regularly Scheduled Safety Meetings- 72%**
 - *Monthly- 22%*
 - *Quarterly- 42%*
- **Meetings Include:**
 - *Management- 68%*
 - *Safety Staff- 65%*
 - *Dispatchers- 57%*
 - *Shop- 43%*
- **Covered Topics:**
 - *Regulations-72%*
 - *Defensive Driving-58%*
 - *Accident Reviews- 57%*
 - *Business Specific or Seasonal- 34%*

Accident Review

- **Instruct Drivers What to Do In Event of Accident- 97%**
- **Provide Cameras to Drivers to Document Scene- 42%**
- **Conduct a Panel Review of Accidents-68% (All Accidents)**
- **Panel Consists of:**
 - *Management, Safety Staff, Drivers, Insurance Reps, Shop Personnel*

Where Do Safe Carriers Currently Get Safety Information?

- **Periodicals - 66%**
- **State Associations - 70%**
- **National Associations - 35%**
- **FMCSA - 42%**
- **State Agencies - 31%**
- **Insurance Companies - 67%**
- **Safety Consultants - 28%**
- **Other - 24%**

Best Practices
Partnership 2000

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What Information Would Help Carriers Manage Safety?

- **Defensive & Adverse Conditions Driving Skills**
- **Inspection, Repair, & Maintenance of Equipment**
- **Driver Fatigue Management**
- **Selection, Evaluation, & Instruction of Drivers**
- **Regulations**
- **Managing a D&A Testing Program**

Best Practices
Partnership 2000

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What Are the Preferred Ways to Get the Information?

- **Preferred:**
 - Videos
 - Instructed Courses
 - Brochures/Pamphlets
- **Mid-Value:**
 - Signs/Posters
 - Self-Paced Printed Materials
- **Lesser Value:**
 - Self-Paced Software
 - Web Sites

Best Practices
Partnership 2000

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Implementing Best Practices in Your Company

- **Identify all phases of the process**
- **Audit your operations**
- **Compare your company's practices to best practices**
- **Determine which practices you will implement**
- **Establish performance indicators**
- **Evaluate the results**
- **Refine as necessary**

Best Practices
Partnership 2000

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Each Practice is Part of an Overall System

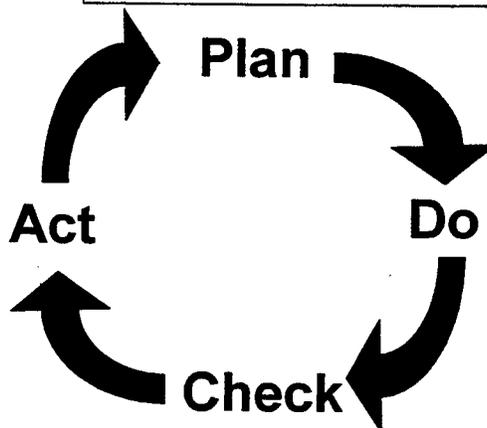
- Recognize importance of interrelationships
- Consider process inputs and steps, not just outputs

Best Practices
Partnership 2000

45

NATMI
North American Transportation Management Institute

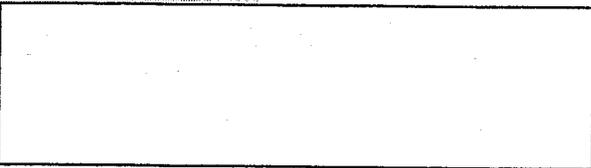
Cycle of Improvement



Best Practices
Partnership 2000

46

NATMI
North American Transportation Management Institute

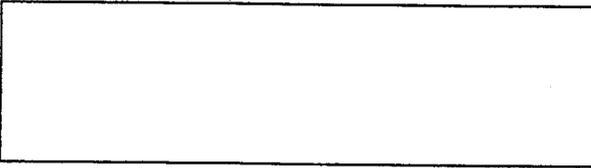


What Will You Take Back to Your Company?

Best Practices
Partnership 2000

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NATMI
North American Transportation Management Institute



How do we best reach the industry?

Best Practices
Partnership 2000

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NATMI
North American Transportation Management Institute

FOT 10 Safety Seminar Notes – Hartford, CT

May 16, 2000

Module 1:

Dave Melton

Benchmark and catalog safety materials.

Safety awareness programs that look at what safe carriers are doing and present results

Biggest customer is UPS

Trucking accidents only for liberty customers. After the fact numbers. 454 surveys using scantron, hiring criteria, passenger in cab, and entire gambit of safety practices questions. 36% response rate.

What's a power unit?

Incentive was a report.

Carrier only at top 33% of category for criteria

HOIR policy had about half the rate of those who did not.

4 truck lengths said on guy

Another guy said someone would cut you off if you had that much distance between.

One second per 10 mph.

Another suggestion of common sense, back off, but roll with the flow. Minute you build a safety cushion, you'll get cut off.

Liberty offers emergency reaction training. Cost differs, not frequency, but cost...skid pan work, reduces the cost of emergencies. They learn how ABS feels, or jackknives feel. No one responded to type of training they provide.

Mirror check stations. They help carries understand no matter how good mirrors look, drivers aren't adjusting them correctly. They establish a mirror check station process, which shows a significant sideswipe accident. What is the right size for a mirror for a truck? DOT has a reg for it. Dave has a system that is cheap that covers this.

In vehicle training, most have new driver training, but not ongoing training. Only a few people do ongoing training. Saved money lost with ongoing trained people.

On-board system. Zeta (?). Who is speeding, who is hard breaking, who is excessive wear and tear. Sensors in break line, for example. If they have systems, need to review data with drivers. Ways of using onboard systems to tell drivers immediate feedback on what they are doing. Will driver respond to a system like this? Behavior modification. Do humans respond positively to this?

Don Tepas - UConn

Most calling previous employees is in regards to verifying previous employment and checking drug screens.

Asked: do they actually have on-board systems? Well, that's how ... missed it.

DOT stringent? How can they be more stringent. More frequent exams, more in-depth exams. Intertech test. Movement tests, and gave you an amount of time that they would last. They don't do that anymore though. Some people have manual materials handling screening. But some people do more lifting than others.

Dan Stock - ATA

The boss has to make clear that safety is the priority. It has to be communicated both down and up in the organization.

Compensation programs tied to safety performance. <http://www.safersys.org> one or two people use this. Gives inspection risks for carriers for last two years. Can order very specific reports, like company profiles. A lot of carriers do this quarterly.

Module 2:

What is it that you do the most?

- Proper attitude
- Mock drills, inspections, Role Playing
- What do you look for in hire?
 - Attitude
 - Experiences
 - Temperament
 - Good experience
- Hang on to them by/Retention:
 - Good schedules
 - Good equipment
 - Suggestions/open door policy
 - Bonus/performance incentives
 - Communication
 - Open door policy, listen to what they say, their suggestions
 - \$1200 to hire a new driver, includes road test, interview, drug testing, training, people meeting. Others pay 4 weeks pay to train. If turnover is industry, then operating ratio hits hard.
 - Building a good relationship, "open door" policy. Approach it as a long-term relationship.
- Base compensation on safety program?
 - Overall performance program that includes safety, categorized. Guys with good bonus works well, they know why. Guys who don't get it, want to hear it. Semi-annually.
- How do you let drivers know how they do?
 - Pay/benefits
 - One-on-one
 - Pat on back
- How get this safety info out?
 - One shoe doesn't fit all. Two different types drivers, one consistent schedule; others want to drive all night.
 - Communicate through paycheck, benefits and paychecks.
 - Video/brochure suck, 10 minutes, and your bored. Speaking works well one-on-one is good. This makes things much more smooth. Give them a pat on the back.
- Comments
 - Tough thing to get guys that want to drive midnight.
 - Owner operators and employees may work differently. People suspect they give themselves their own motivation if an owner operator.

Module 3:

Jeff Arnold

Look at each practice and see how it fits into your process. One size does not fit it all.

1. Driver screening:
2. Driver application completion
3. Min screening criteria
4. MVR check, drug screen
5. Employment background
6. Second interview
7. Road test
8. Position offering

Look at each process, map out the process, and see what you are doing, look at best practices and see where you are. Each process is a system. It's an overall safety system. Due to barriers, you may be unable to implement safety practices in your own system. HR having to do tons of background checks may not be able to handle turnover rate. So need to look at the whole system. How does a practice impact your whole trucking practice? Look at "making the difference..." handout. All different aspects of the system affect each other.

What people got out of program?

- Safety program on track, behavior modification, and comprehensive ergonomics approach may be the way to go. Comfy seat may go a long way. Need a new ladder that's not wiggly wiggly.
- The level of impact that certain policies have. What's the effect?
- Mirror way-station, check station, even for state troopers. Even better that its cheap.
- Vernon session on hours of service handout. Good one to go to, CVSA will be there.

FOT 10 Safety Seminar Notes – Albany, NY

5/30/00

Dan Stock

Started with intros, was quick. Outreach program to collect information to start course.

Module 1:

Dave Melton

Title is Director of transportation service. Develops products and services in field loss prevention, as well as research work. Hopkinton, MA. Surveyed industry on crashes and costs. Surveyed for common and best practices. Surveys started with a liberty researcher in upper Midwest, ended up taking it national. Surveyed only liberty customers, mostly a portion thereof. Survey went countrywide in 1999. Referred to slides. 44 questions. Dave went on to listed types of questions.

Benchmarks (in per million miles)

- Dollar losses
- Preventables
- Reportables
- Crashes with 1 or more over \$1000

Used co's with excellent results in benchmarks. Above 33%ile. Listed best practices. Note: ERD = emergency reaction driver training. HOIR = hit other in rear, average cost is \$30k. Those carriers with no following policy had 2X's as many crashes as those who did not. Long tandems have a following distance policy, reported some guy. Question: what kind of benchmark could you use on a highway? Response: we typically remind in seconds of following distance, when that shadow passes, count the number of seconds, leave a couple of seconds, advocating a min of 6 seconds. For "in city" a rep made recommendation: see the bottom of rear tire of auto in front. Not how far the policy is, but do you have one showed difference.

For ERD, driver needs to experience unexpected situations to learn them. Rep: we do skidding control, but no simulation stuff yet. Another rep had 3 drivers go to skid pan training. Train the trainer.

Mirror checking stations, Dave drew on board. Asked what about distances of mirrors from driver, and mirror location, but specs cover that, not handout.

No one did live training. Dave mentioned research starting up on on-board systems, behavior mod stuff. One rep used miles per gallon, but not hard breaking stuff. Drivers usually go to rep, not the other way around. Rarely need to call a driver in, they usually come in on their own. Commented on culture being good at company, since drivers feel comfortable talking about problems. Another rep is just starting to use it. First rep mentioned that data came from engine data, not onboard systems, so its free!

MVR hiring criteria. 3 violations in 3 years. Rep mentioned no oui in 5 years, and something else (dui's?) in 10 years (missed it). Everyone fires with a dui on the job. Off the job same thing since it's a commercial license. Rep mentioned CDL; (commercial driving license) two serious violations in 3 years in danger of losing CDL. Time: ~41 minutes.

Don Tepas

Start time: 11:52:20 AM

Intro about survey from Dan. Frequency of use survey data. What do most people do, not necessarily best ones. Most utilized categories in 4 groups. People asked about what accident reporting forms were included, and we didn't know answer for that. Listed most frequent and least frequent practices. Guastello

chart. Tied in behavior mod stuff with Dave. Talked about comprehensive ergonomics. Giggles about exercise machines at truck stops.

Dan brought up selection, but response was on SAFETY, not all selection. People thought selection was first step. People found interest in Guastello graph.

Finish time: 12:17:10 PM, so 25 mins.

Dan Stock

Start: 12:18:04 PM

Discussed selection and training results. Asked who use SAFER reports. One rep commented they use it Weekly. <http://www.safersys.org> seems to be used a lot. Shippers check SAFER reports on carriers.

Question is are these percentages "Best practices" or "Common practices". Brought up that if you belong to trucking associations, then you are safer. Leap of faith is that this survey went to only those belonging to state trucking associations.

Break: 12:28:40 PM

Lunch and groups

1:34:54 PM report breakout notes

Module 2

Jeff Arnold Notes:

Supervision

- Never start at same time (safety director)
- Earn their trust
 - Report problems, shouldn't fear that it will haunt them, no negative repercussions
 - Open door policy
- Follow through on policies
 - No favorites
 - Enforce evenly
- Safety meetings
 - Keep short, ½ hour once a month
 - Paid meeting
 - Flexible on scheduling
 - Food

Recognition and Awards

- On probation 6 months; 3rd quarter, no chargeables or customer complaints, incentive was 5% of wages and safety bonus
- Full year without comp injuries or accidents is take out to diner and some incentive like jacket
- Group incentives by terminal or by group of drivers against other groups
 - Creates peer pressure to perform
- Make recognition progressive
 - Longer performing well, better the recognition is
 - Mechanics should be included in on recognition
- Incentive posters
 - Fuel use
 - Accidents
 - Days off

Maintenance

- Driver shouldn't feel they should have to wait until they get back to report on road problems

- Make sure the driver feels comfortable driving vehicle, i.e. loose mirror
- If repair is not signed off on by maintenance when driver is ready to start shift (by morning) then you decide whether to ground the truck; have driver do dock work
- Watch vendors to keep up on them for maintenance
- Follow up on maintenance staff, don't let them skip the small steps
- Make sure driver does pre-trip, even after PM

Dan Stock Notes:

Communications, Selection and Retention, and Training

- Peer communications, drivers talking to drivers
 - Experienced drivers are used to interview potentials
- Mentoring program where one of drivers on selection team is assigned to new driver as a mentor
- New drivers get 6 month probation
- Turnover is low to 0%, high pay
- Self-managed teams, default quality circles
- Awareness meetings once a month. Safety bulletin once a month, try to parallel meeting and bulletin.
- Consistent, consistent communication
- Get message across that this isn't words, but for your own goods
 - Meetings
 - Pamphlets
 - Letters
 - Urinal posters
- Less emphasis on punitive approach; lets fix problem not the blame
 - Offer driver training school instead of punishing them
 - They let drivers take a day off, helps on retention instead of punishing them
- Involve driver training to family members as well
 - Take spouse on trip
 - Bring kids along to encourage sense of family
 - Issues of insurance and liability
 - Rider policy big hurdle to get by. Especially for self-insured, hard to get.
- Mechanics are easy, but message is why do you do it this way is hard but important
- Driver dispatch communications; mothering by dispatcher; open ear, open door for problems
- "Commentary drives"; have expert drive along with driver, using think-aloud process to identify hazards
- Selection is 300k miles or 3 years, but problem is, they are set in their ways at that point
- Posters need to be changed regularly or they become wallpaper and no one ever looks at them
- "Cost in miles to pay for crash" stories on posters
- In terms of tailgating policy, ask, "What are the pro's of following closely? Here are the con's, so why do it?"
- Driver stories about accidents in safety meetings... peer to peer type.
- Dispatch and driver relations are good for retention.

Module 3:

Jeff Arnold

Wrap-up

11:32 PM

What's methodology of applying this information? Jeff points to ATA handout on applying safety programs. 5 key factors ... see presentation. See handout page 1-2 on ROI of safety. Bottom-line it for top management support.

Break down for top management: Do these steps make sense to us as a business? Do we require all these steps? Look at these practices and decide whether these processes make sense for your own operation. Do these process make sense of the overall system? What are all the steps? Are the necessary? Example: Sales oversold operations. As a result, accidents and turnover occur. Complete systems approach. Sales and safety need to be balanced.

In Appendix On in Making a difference book, gives a nice breakdown of areas to look at in your own business. Nice tool for what we talked about today. Shows Cycle of Improvement.

Wrap up exercise. Pretend that your CEO has called you into their office. What has your participation in this meeting bought me? What would be /your answer:

1. Mirrors thing
2. Direction – many different hats, safety can be put by wayside, when it should be number one
3. We are doing things right, feeling as though work is being justified
4. Reinforced what they already know, but not giving people that don't know how to do it. Give it somewhere where the CEO's are. Maybe we should get CEO's here. Or 9th hole or something!
5. Is it a matter of cost or matter of motivation? We should know this.

FOT 10 Safety Seminar Notes - Camp Hill, PA

6/01/00

Dan Stock

Overview of research program and development of pilot safety seminar. Objectives of the pilot seminar. Self introductions around the table.

Module 1:

Dave Melton

Presentation of Liberty Mutual Benchmarking survey— see notes for 5/31/00, Albany NY for presentation content.

Questions/comments:

- The question was asked whether the Liberty Mutual data was “regionalized” to account for differences in traffic/driving conditions throughout the country—The answer was no.
- Mandated following distances are difficult to implement in the Northeast due to congested travel conditions. One carrier has a four-second following distance, another uses six seconds.
- Stopping distances—rule of thumb used is to be able to see the tires of the vehicle in front touching the ground.
- Emergency reaction driver training—none of the participants provide this to their drivers.
- Mirror check stations—two of the participants train their drivers in proper mirror adjustment. Five of the participants use right side fender-mount mirrors to add visibility.
- Ongoing driver training—one participant uses ride-alongs by the safety supervisor to check/comment on driver skills.
- On-board systems data review—none of the participants review on-board data to monitor how the driver is handling the vehicle on the road.
- Liberty Mutual is planning a study to investigate whether on-board machine generated “good” feedback to drivers will improve driving skills. It was emphasized that improved driver performance could best be achieved through a “pat on the back” approach.

Don Tepas

Presentation of ATA Foundation survey results— see notes for 5/31/00, Albany NY for presentation content.

Dan Stock

Presentation of ATA Foundation survey results— see notes for 5/31/00, Albany NY for presentation content.

-Explained the best practices concept of the survey—it was developed through source materials documenting the safety practices of recognized safe carriers and input from State Association safety directors, the ATA Safety Department, the ATA Safety Management Council, and the National Private Truck Council.

-Good consensus among participants regarding selection and training activities (training primarily in policies and procedures and less on actual driving skills training).

-Driver monitoring through 800 call in numbers was used by about half the carriers. The motorist call-ins are weighed with the safety director's experience. The issues raised by these call-ins are best discussed as soon as possible with the drivers. The drivers themselves often mention "incidents" first rather than have the boss hear of things from complaints.

-Six of the participants make use of posters as safety reminders.

-four indicated that they have employee recognition/rewards programs-These are in the form of safety/performance bonuses and higher per mile pay.

Lunch and Breakout Group Discussion

Module 2:

Jeff Arnold Notes:

Selection of Employees

- Selection (finding qualified driver candidates) is getting increasingly difficult.
- Hire graduates of qualified driving schools (PTDI).
- Conduct thorough background check (past employment)-DAC Services.
- Look for any "red flags" in background-research anything questionable.
- Use Owner/Operator magazine/Truckers news service for referrals.
- No DUI.
- Be firm on MVR-must have a clean record.
- Older drivers work out well-(70 years old).
- Recruitment/advancement within the company-train from scratch-takes about three years to develop the driver.
- Candidates preferable at least 25 years old; at least three years experience.
- Does the candidate have mechanical skills, is the candidate a stable individual?
- Ex-military personnel work out well-recruit from bases.

Retention of Employees

- Pay attention to drivers and their problems.
- Act on what they express concern about or explain why you didn't.
- With Owner/Operators-the issue is money.
- Dispatcher relations-ex-drivers are not always good dispatchers.
- Owner/Operators need to be managed differently than other drivers.
- Invite dispatchers to driver championships and banquets.

Training

- Orientation period of two days to a week—HazMat program, brake certification, roadside inspections, road rage...
- Road test—if they don't do well on the road test, they may work with another driver to improve skills.
- Provide an orientation manual.
- Probation period—90 days (may extend up to a year due to MVR results).
- PDT—skid control.

- Use Global Safety Services-simulator for emergency reaction driver training.
- Work with driver trainers (experienced drivers)/finishers.
- Ongoing training—tie-downs, skid control and recovery (winter driving) in fall, school bus orientation—end of summer, ABS.
- In-service training-seven minute videos.

Communications

- Written policies and procedures given to drivers.
- Drivers have access to three numbers-home, work, cell so they can be reached 24/7.
- Beepers and 24-hour emergency telephone.
- Safety letters weekly (ATA, PMTA, Keller).
- Audio tapes (e.g., super-driver).
- Cell phones-(train on use).
- Burma shave signs down the highway-safety messages.
- Poster contest for drivers' children/grand-children-to be judged by local community reps (state patrol, school teachers, etc.).
- Get families involved.
- Teach drivers' kids about safety/trucking.
- Traffic light in terminal-red=accident, yellow=weather problem, green=no problem.
- Encourage drivers to communicate regularly.

Dan Stock Notes-

Supervision/Recognition

- Maintain an open-door policy with employees.
- Take quick action on driver concerns.
- Have the ability to glean what is a real issue to be acted upon.
- Be patient-let drivers get things off their chest.
- Encourage drivers to be straight forward-own up to mistakes.
- Profit sharing and bonuses-once they are given, they become an ongoing target or concern. Build conversation and awareness among drivers, also peer pressure.
- Do not tolerate hard case or reckless drivers-terminate.
- Use a "Trucker-Buddy" system to encourage drivers to speak about their experience and skills.
- Use conversational ride-alongs (Smith System) to build drivers' awareness and defensive driving skills.
- Allow family members to ride along.

Module 3:

Jeff Arnold

Wrap-up Presentation— see notes for 5/31/00, Albany NY on content.

Wrap up exercise. Pretend that your CEO has called you into their office. What has your participation in this meeting bought me? What would be /your answer:

6. It was a good reminder or refresher course-priorities and things to do.
7. We are doing things right—"In-the-Zone"
8. We are on-track, but could use some tweaking. feeling as though work is being justified.

Participant Evaluation: Motor Carrier Best Practices

(Number of participants indicated to left of check boxes or under response heading)

Background Information on You and Your Company

Please indicate which category best describes your position:

- 5 Company owner/executive/manager
- Driver
- 2 Safety manager
- Dispatcher
- 1 Other Please specify distribution manager

How many years have you been employed in the field of commercial trucking?
range 10-54, mean 25

Which best describes the type of service your company provides?

- 3 For-hire general freight, truckload
- For-hire general freight, less-than-truckload
- 3 Private carrier
- 1 Specialized hauling. Please describe moving
- 1 Other. Please describe break-up for printed matter

Are you an...

- 1 intrastate only motor carrier
- 7 interstate motor carrier

How many of the following does your company employ?

range 10-143, mean 47 Drivers _____
range 1-2 Safety staff _____

Evaluation of Today's Presentations

6. How useful to you were each of the following segments of today's presentation?

	Very Useful	Somewhat Useful	Not at all Useful
Part I: General Best Practices			
Part II: Round Table Discussion			
Part III: Implementing Best Practices in Your Company			

7. Overall, how much **new** information did you receive during today's presentation?

- A great deal
- A moderate amount
- A small amount
- None

8. Was there any additional topic(s) that you think should have been included in the presentation?

- Yes (Please specify) _____ How implement safety practices _____
 No (2 no ans.)

9. How useful do you think the handouts will be to you?

- Very useful
 Somewhat useful
 Not at all useful

10. To what degree would you say today's program has increased your awareness of the importance of safety issues for your company?

- A great deal
 A moderate amount
 A small amount
 Not at all

11. To what degree do you think the information you received today has the potential for positively impacting your drivers' **safety** on the road?

- A great deal
 A moderate amount
 A small amount
 Not at all

APPENDIX B: SAFETY INFORMATIONAL BROCHURE



The **ATA FOUNDATION** Inc.

5 MITCHELL AVENUE • WAKEFIELD, RHODE ISLAND 02879

Daniel W. Stock
Manager, IT Research

February 20, 2001

Dear Fleet Manager:

The American Trucking Associations (ATA) Foundation is leading an effort called **"Coordinated Safety Management"** to develop and test informational materials and educational programs to help motor carriers operate safely and legally. One of the products from this effort is the enclosed informational brochure for your use.

The brochure highlights the common safety practices used by motor carriers with exemplary safety programs. It is designed to provide you with useful information to help you get the most from your safety program. It also provides contact information for help with implementing effective safety programs and to answer questions about state and Federal safety regulations.

The brochure also introduces a free, confidential, interactive web site to allow motor carriers to benchmark their company's safety program relative to over 600 safe carriers. A motor carrier can add or delete various safety practices in different combinations from a list of frequently used practices to see what effect these changes may have on their benchmark score.

We invite you to visit the web site and use the **"Trucking Safety Toolbox"** as much as you want. The toolbox can be found at:

<http://safetytoolbox.uconn.edu>

To help us refine and develop more effective safety materials, we ask that you take a minute and let us know what you think of the brochure and the web-based toolbox. **Please complete and send us the enclosed confidential, postage-paid response card.**

We hope these materials are useful to you and look forward to your feedback. If you have any questions or comments, please feel free to contact me at (401) 792-3670, or by email at NARORIVER@AOL.COM.

Thank you for your time.

Sincerely,

Dan Stock
Manager, IT Research
ATA Foundation

B-1

COORDINATED SAFETY MANAGEMENT

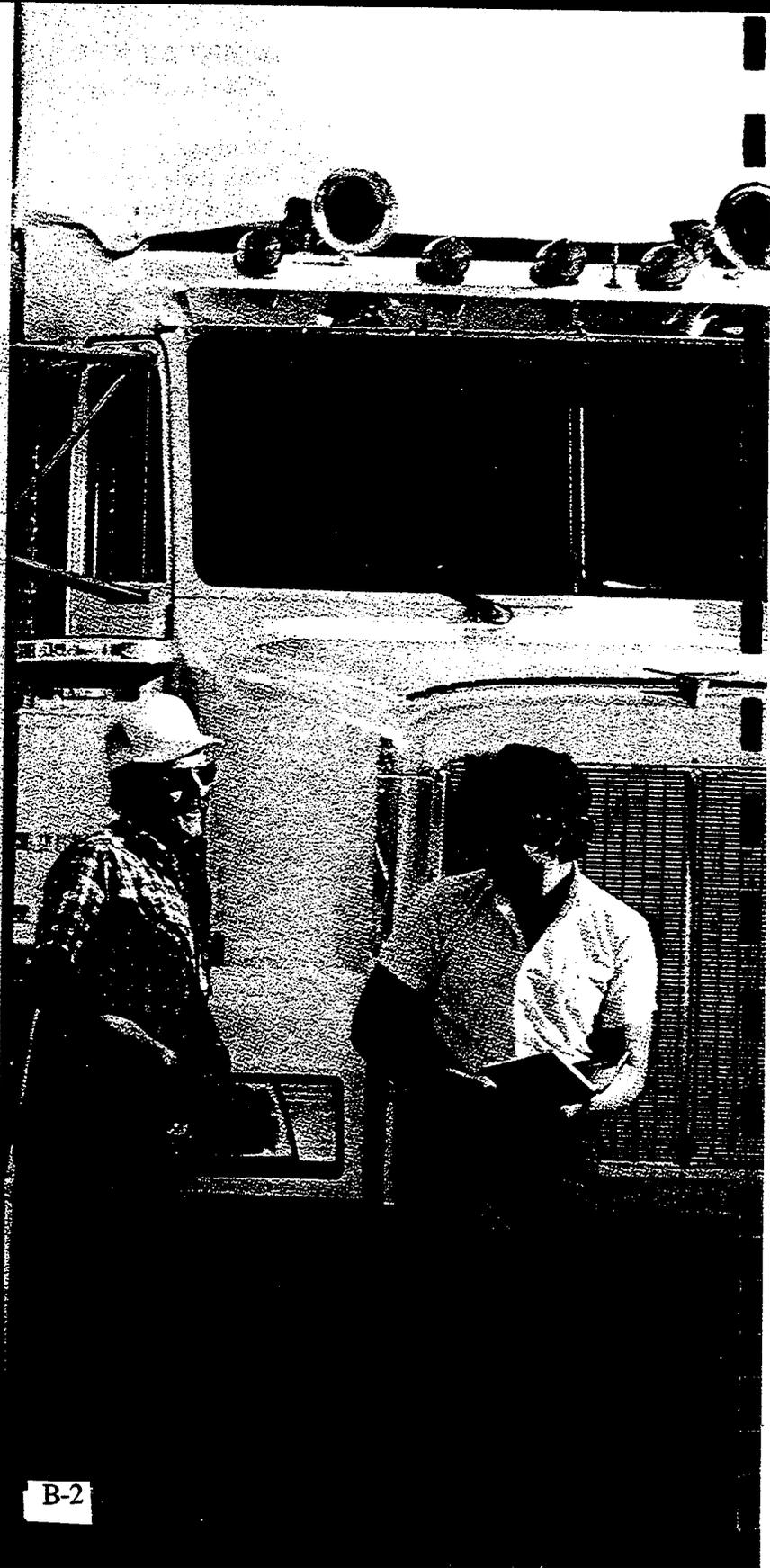
PROGRAM DESCRIPTION

Coordinated Safety Management is an I-95 Corridor Coalition-sponsored project to identify the factors that contribute to exemplary motor carrier safety performance and develop outreach materials and tools to help carriers operate more safely.

This effort collected information from 600 truck and bus companies from the states of Connecticut, Maryland, New York, Pennsylvania and Virginia on what they do to operate safely and to identify those factors most critical to their safety programs. The information developed through the survey was expanded through three safety expert focus groups comprised of motor carrier safety directors, insurance company representatives, and industry association safety specialists.

Coordinated Safety Management is being led by the ATA Foundation and supported by The University Transportation Centers of Excellence of The Pennsylvania State University, The University of Connecticut, and The State University of New York.

This brochure highlights the frequently used motor carrier safety management practices identified through the effort. It also provides a resource/contact guide for motor carriers wishing additional safety information or technical assistance and Federal and state safety regulations.



Coordinated Safety Management



All employees of the company should consider themselves a part of the safety program, regardless of whether they are drivers, mechanics, dispatchers, salesmen, or administrative staff.

WHAT MAKES A SAFETY PROGRAM SUCCESSFUL?

The participating motor carriers ranked the importance of various key factors to operating safely. Though the carriers may differ in how they implement their safety programs, several factors are common to their approaches to safety. These include:

Top management commitment to the safety program. The active support of top management and their willingness to make safety the number 1 priority for the company, translates to commitment to safety by employees at all levels of the organization.

Employee participation in safety. All employees of the company should consider themselves a part of the safety program, regardless of whether they are drivers, mechanics, dispatchers, salesmen, or administrative staff. Safety as a corporate culture reminds all employees that they have a stake in the safety performance of their company.

Open and constant communications about safety. Constantly reiterating the safety message, through regularly scheduled safety meetings, informal discussions among employees and managers, or distribution of safety letters and posters can help identify safety issues and solve problems before they translate into accidents.

Selection, training, and retention of the best people. Starting out with good people—those with the right

attitude and commitment to safety—and keeping them is vital to a good safety program.

Many carriers hold fast to stringent criteria when selecting new employees. Often individual skills are less important than the demonstration of a good attitude in selecting new hires. Many carriers feel that it is easier to teach an employee job skills than it is to teach them the right attitude and commitment to the job.

DRIVER HIRING CRITERIA

The selection of drivers is one of the most important safety activities conducted by a motor carrier.

Important selection criteria include:

Good attitude and appearance on the part of the applicant, good references from previous employers, clean driving record, minimum years of experience, knowledge of equipment and regulations, and the ability to pass a drug and alcohol screen.

The majority of the participating carriers follow similar procedures in screening applicants. These include:

In-person application/interviews. The carriers require an applicant to be interviewed by several persons within the company—often with human resources personnel, safety managers, shop personnel, other drivers, or insurance company representatives.

Coordinated Safety Management



About half of the carriers require a driver applicant to pass a written test on safety regulations. Eight out of ten require the applicant to pass an on-road driving test usually conducted by a driver-trainer or experienced driver before the hiring process is complete.

Stable employment history. The carriers contact previous employers to check on job performance, time at the job, attitude, reasons for leaving, etc. The number of job changes over previous years of employment is closely scrutinized. Several carriers automatically eliminate the applicant if the number exceeds a reasonable maximum.

Personality screening and background checks. The applicants are sometimes required to complete a psychological profile test to assess their ability to handle the stresses of the job or relate positively to customers and company management. Other screening criteria include criminal record checks, credit checks, and personal references. Some smaller firms report that they will only hire drivers who are personally known by the owner or referred by company drivers.

Violations and accident history. About eight out of ten of the carriers said they will turn down applicants if their driving record shows accidents, points, or violations above company maximums. These average a maximum of six points, or one accident, or three violations over a three year period. In the case of accidents, severity and cause of the accident(s) are sometimes taken into consideration.

Minimum experience levels. Most of the carriers require a minimum number of years of driving experience. The usual minimum is two years, though three to five years is not uncommon, especially among

specialized hauling operations. Often offsetting the requirement of a minimum number of years of experience are strong in-house driver training and apprenticeship programs.

Knowledge and skills testing. About half of the carriers require a driver applicant to pass a written test on safety regulations. Eight out of ten carriers require the applicant to pass an on-road driving test, usually conducted by a driver-trainer or experienced driver before the hiring process is complete.

Drug and alcohol screening. Per Federal regulations, the carriers test new drivers for drugs and alcohol, though some accept the results of recent tests if the candidate is currently enrolled in a testing program.

DRIVER ORIENTATION AND TRAINING PROGRAMS

Motor carriers also view driver orientation and training as a key factor in safety performance.

During the first 120 days following hire, turnover rates can be the greatest, and statistically, drivers are most likely to be involved in an accident. Retaining potentially good drivers, especially after the intense effort of screening them for hire is not only cost effective, but provides the time to develop the individual's skills, safety awareness, and understanding of the company culture, policies, and procedures.

Coordinated Safety Management



Regardless of a driver's previous experience, many companies provide initial training in company policies and procedures, safety regulations, equipment use and inspection, defensive driving techniques, driver fitness/wellness, or fatigue management.

Initial Training. Regardless of a driver's previous experience, many companies provide initial training in company policies and procedures, safety regulations, equipment use and inspection, defensive driving techniques, driver fitness/wellness, or fatigue management.

Probation/Apprenticeships. Most of the carriers surveyed require a new driver to "apprentice" with an experienced driver for a period of time (usually two weeks to three months) before they are allowed to incrementally assume driving responsibility. This allows the company to assess and develop the new driver's skills under the close supervision of trainers or experienced drivers. It also helps the new driver to learn what is expected of them and reinforces the training they have received.

Ongoing Training. Safe carriers also regard training as a continuous effort, frequently refreshing their drivers' training through instructed courses, videos, handbooks, management and peer safety reviews, and general discussion.

DRIVER SUPERVISION, RECOGNITION, AND AWARDS PROGRAMS

Close monitoring of drivers' activities are necessary to identify and correct poor habits before they translate into accidents or violations.

Monitoring Performance. Monitoring how drivers perform on the road can be accomplished using in-house or third party road-teams to visually observe the driver; through motorist complaints via an 800 call-in number; or, via interpretation of information from on-board data recorders.

Thorough review/audit of drivers' logbooks and regularly checking drivers' records are also conducted to monitor driver activities. Most carriers periodically review drivers' records, and two out of three examine results of on-road safety inspections by accessing the USDOT-sponsored <http://www.Safersys.org> website.

Addressing Poor Performance. Poor driving performance and lack of compliance with regulations usually leads safety managers to write the driver a warning letter, discuss his performance with him either one-on-one or in a peer group situation, or recommend him for remedial training. Continued poor performance will generally lead to increasingly strict disciplinary action, such as company fines, suspension, or job termination.

Rewarding Good Performance. Rewarding good, safe performance is an effective way to motivate drivers and improve retention rates. Such rewards are often in the form of recognition awards, merchandise, paid-time off, free vacation trips, cash bonuses, or are directly tied to salary increases. Half of the surveyed carriers offer salary incentives or awards for safe performance. Awards and bonuses are also offered to employees for safety suggestions

Coordinated Safety Management



Accident review panels made up of management and safety staff, drivers, dispatchers, and shop personnel are used to investigate all accidents—property, injury, or fatal—by the majority of surveyed fleets.

adopted by the company. Recognition and encouragement of employees' skills is also accomplished through encouragement to participate in safety championships, such as truck rodeos.

SAFETY AWARENESS

The respondents recognize communications, management commitment, and reiteration of safety principles as vital elements to successful safety programs. The main way of expressing these is through regularly scheduled and frequent safety meetings.

Safety Meetings. Three quarters of the surveyed carriers hold regularly scheduled safety meetings at quarterly intervals or more frequently. In attendance at the safety meetings are managers, safety staff, drivers, dispatchers, mechanics, and administrative staff. Having a wide range of employees at the meetings reinforces the concept that safety requires a team effort with open communication between all employees.

Topics of discussion during the safety meetings often include safety regulations, defensive driving techniques, accident reviews, and business-specific or seasonal topics (winter driving, etc.). Often presented at the meetings are safety videos and outside speakers from trucking associations, insurance companies, USDOT, or state motor carrier enforcement agencies.

Safety Posters and Messages. The safety message is also reiterated through display of safety-related posters and regular distribution of safety letters and messages. These are designed to keep the message in front of the workers. Carriers report that these are most effective if changed often and hung in unusual places that surprise the employees.

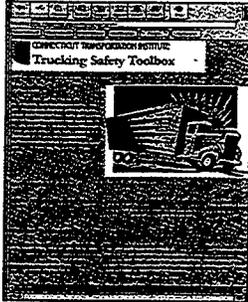
ACCIDENT INVESTIGATION/ REVIEW-LEARNING FROM MISTAKES

An important aspect in accident prevention is the thorough investigation and documentation of the cause(s) and effects of all accidents in a fleet, no matter how minor.

Accident Policies and Procedures.

Nearly all of the carriers have company policies and procedures for drivers to follow in the event they are involved in an accident. These include thorough documentation of the event using accident reporting forms, and increasingly with cameras provided to drivers to photograph the accident scene.

Accident Review. Accident review panels made up of management, safety staff, drivers, dispatchers, and shop personnel are used to investigate all accidents—property, injury, or fatal—by the majority of surveyed fleets. The results of these reviews are used for the education of other employees, so everyone can learn from mistakes.



Many motor carriers ask-“what are other companies doing and how does my safety program compare?” To help answer that question, this effort used the detailed information on the safety programs of over 600 exemplary motor carriers to develop an easy to use, web-based safety tool box.

BENCHMARKING-HOW DOES YOUR FLEET COMPARE?

Every motor carrier on the road is a unique business. No two companies are exactly the same-each with sometimes greatly different approaches to managing safety. The basics of what makes a good safety program tends to apply across the industry. Many motor carriers ask-“What are other companies doing and how does my safety program compare?”

To help answer that question, this effort used the detailed information on the safety programs of over 600 exemplary motor carriers to develop an easy to use, web-based safety tool box. This tool box allows motor carriers to check off the safety practices used by their fleets from a list of

frequently used safety practices.

The tool box will return a “benchmark” score which can be compared to other motor carriers. Safety practices in different combinations can be added or deleted to see how the benchmark safety score can be changed. It is important to remember that the impact of any individual practice on safety depends on how well the practice is implemented.

The model can be accessed at the address:

<http://safetytoolbox.uconn.edu>

The website also includes numerous links to Federal and state motor carrier safety and regulatory information, and national and state motor carrier associations offering members safety information and technical assistance.

CONTACTS FOR SAFETY INFORMATION AND REGULATIONS

Federal Motor Carrier Safety Administration contacts for states:

CT: (860) 659-6700
NY: (518) 431-4156
PA: (717) 212-4443

State Motor Carrier Safety Agencies:

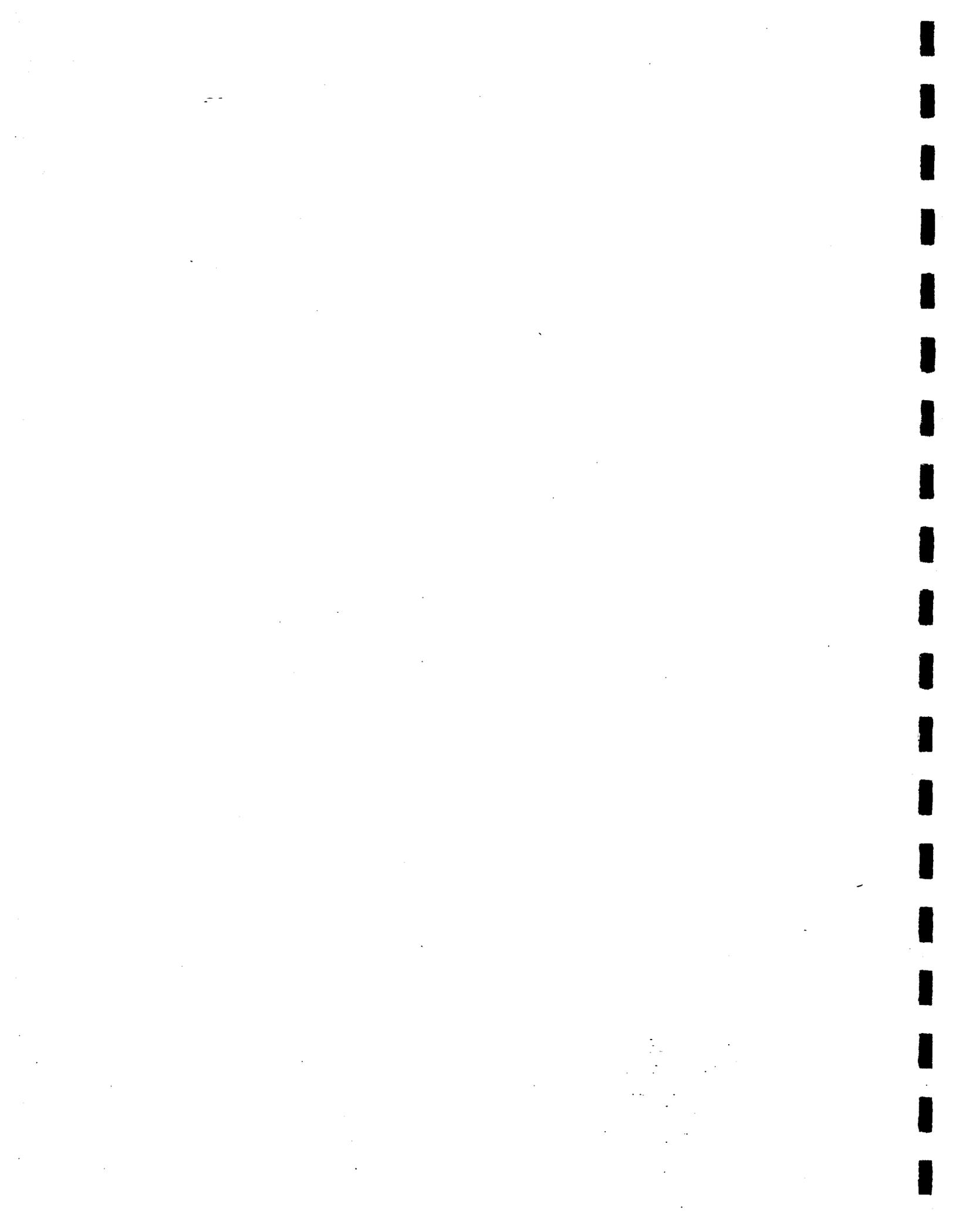
CT: Department of Motor Vehicles	(860) 263-5445
NY: Department of Transportation	(518) 457-6512
PA: Department of Transportation	(717) 787-7445

State Motor Carrier Association Contacts:

CT: Motor Transport Association of Connecticut	(860) 520-4455
Connecticut Bus Association	(860) 953-2782
NY: New York State Motor Truck Association	(518) 464-5065
New York Bus Association	(518) 465-8235
PA: Pennsylvania Motor Truck Association	(717) 761-7122
Pennsylvania Bus Association	(717) 236-9042

National Motor Carrier Contacts:

American Trucking Associations:	(703) 838-1700.
National Private Truck Council:	(703) 683-1300
American Bus Association:	(202) 842-1645



**APPENDIX C: SCREEN SHOTS OF THE
WEB-BASED SAFETY TOOLBOX**

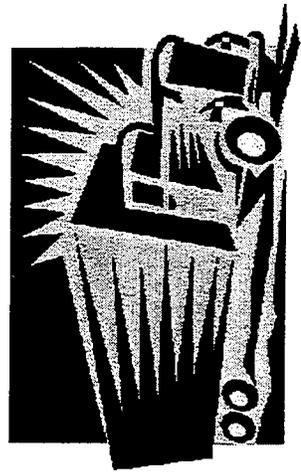


CONNECTICUT TRANSPORTATION INSTITUTE Trucking Safety Toolbox

[Home] [Start Safety Session] [Links]

Introduction

The Trucking Safety Toolbox is designed to help managers of trucking companies assess their safety practices, as well as provide them with options that may improve the safety practices they implement at their company. Managers of trucking companies can see where they stand in terms of their safety practices by starting a Safety Session now!



Start a Safety Session

Begin an analysis of the safety practices you use.

DOT and OSHA

Read about the Department of Transportation's top priority, Safety. The Occupational Safety and Health Administration also has a lot of useful information about safety.

Origins of this report

This toolbox is based on data collected by the American Trucking Association (ATA) Foundation and supported by the I95 Corridor Coalition. The Survey Information page describes the data used to create this toolbox.

Credits

This project was completed by Donald I. Tepas and James H. Pratt of the ergonomics group at the Connecticut Transportation Institute. Users of this Toolbox are encouraged to provide the designers of the Toolbox with feedback on Toolbox use. If you would like to complete a feedback and evaluation survey, please request one by emailing Dr. Tepas.

[Home] [Start Safety Session] [Links]



CONNECTICUT TRANSPORTATION INSTITUTE Trucking Safety Toolbox

[Home] [Start Safety Session] [Links]

This safety toolbox is intended for use by managers of trucking systems. It is not designed for use by individual truck drivers. The accuracy of the assessment made depends on the quality of the information entered by the person completing this form, as well as the extent to which these practices have been implemented. Please complete the following information. Note that any individual information provided here will be kept anonymous and confidential. Your name and email address will not be distributed to any mailing list, government agency, or other organization. Please note that this information is optional and voluntary. Using the Toolbox does not obligate you in any way. Our analysis of information collected by the Toolbox will be limited to pooled and combined data, gathered from many Toolbox users. This analysis is planned to monitor how well the Toolbox works, and to communicate our findings to other safety specialists.

Company Name (optional):

Job Title (optional):

Contact E-Mail Address (optional):

Number of DOT reportable Accidents in your company last year (required):

Number of drivers in your company (required):

Have you or anyone else in your company used this toolbox before? Check the box if so.

[Home] [Start Safety Session] [Links]



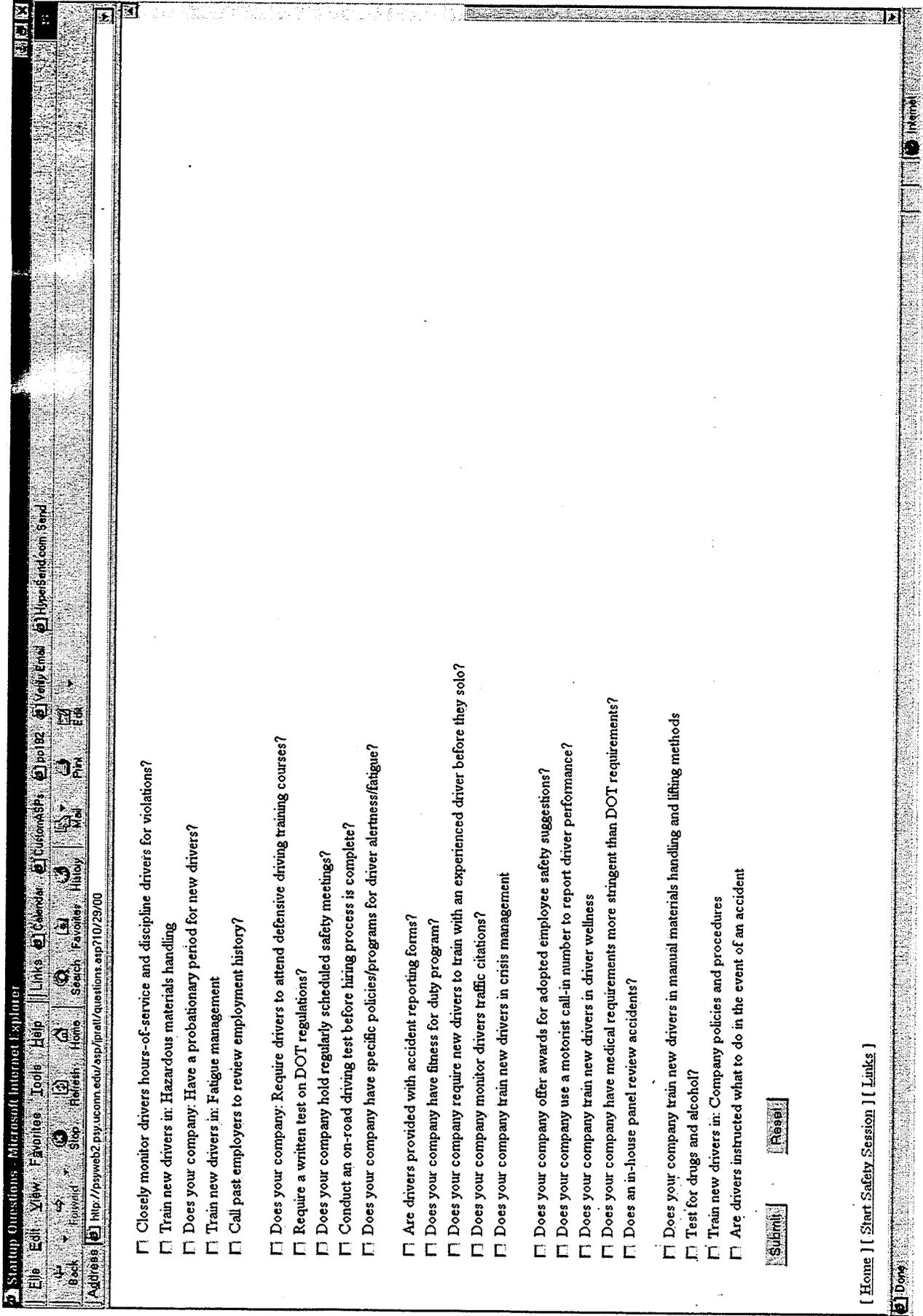
CONNECTICUT TRANSPORTATION INSTITUTE Trucking Safety Toolbox

[Home] [Start Safety Session] [Links]

Please remember that the responses of individual trucking system managers will not be distributed to any other company or government organization.

For each of the safety practices below, indicate the practices you currently use and have successfully implemented by clicking the check box next to that practice. Once you have selected the practices you utilize at your company, press the Submit button at the bottom of this page to see how your safety practices rank.

- Does your company require remedial training for drivers who have accidents?
- Are safety-oriented letters or messages posted or distributed regularly?
- Monitor driver/vehicle performance via on-board computers/recorders or vehicle tracking devices?
- Are drivers provided cameras to document the accident scene?
- Require minimum years of driving experience?
- Require in-person applications/interviews?
- Train new drivers in: Federal and state safety regulations
- Train new drivers in: Equipment inspection
- Use a third party to review employment history/driving record?
- Observe drivers using an in-house or hired Road Patrol?
- Does your company have or use trained accident investigation specialists to investigate accident sites?
- Offer a salary incentive or awards program for safety performance?
- Does your company display safety awareness posters at its facilities?
- Turn down applicants with points/accidents/violations above a company maximum?
- Encourage employees to participate in safety championships?
- Closely monitor drivers hours-of-service and discipline drivers for violations?
- Train new drivers in: Hazardous materials handling
- Does your company: Have a probationary period for new drivers?
- Train new drivers in: Fatigue management
- Call past employers to review employment history?
- Does your company: Require drivers to attend defensive driving training courses?
- Require a written test on DOT regulations?



- Closely monitor drivers hours-of-service and discipline drivers for violations?
- Train new drivers in: Hazardous materials handling
- Does your company: Have a probationary period for new drivers?
- Train new drivers in: Fatigue management
- Call past employers to review employment history?
- Does your company: Require drivers to attend defensive driving training courses?
- Require a written test on DOT regulations?
- Does your company hold regularly scheduled safety meetings?
- Conduct an on-road driving test before hiring process is complete?
- Does your company have specific policies/programs for driver alertness/fatigue?
- Are drivers provided with accident reporting forms?
- Does your company have fitness for duty program?
- Does your company require new drivers to train with an experienced driver before they solo?
- Does your company monitor drivers traffic citations?
- Does your company train new drivers in crisis management
- Does your company offer awards for adopted employee safety suggestions?
- Does your company use a motorist call-in number to report driver performance?
- Does your company train new drivers in driver wellness
- Does your company have medical requirements more stringent than DOT requirements?
- Does an in-house panel review accidents?
- Does your company train new drivers in manual materials handling and lifting methods
- Test for drugs and alcohol?
- Train new drivers in: Company policies and procedures
- Are drivers instructed what to do in the event of an accident

CONNECTICUT TRANSPORTATION INSTITUTE Trucking Safety Toolbox

[Home] [Start Safety Session] [Links]

Here is a list of the safety practices you indicated that you use in managing your trucking company.

Your Current Practices

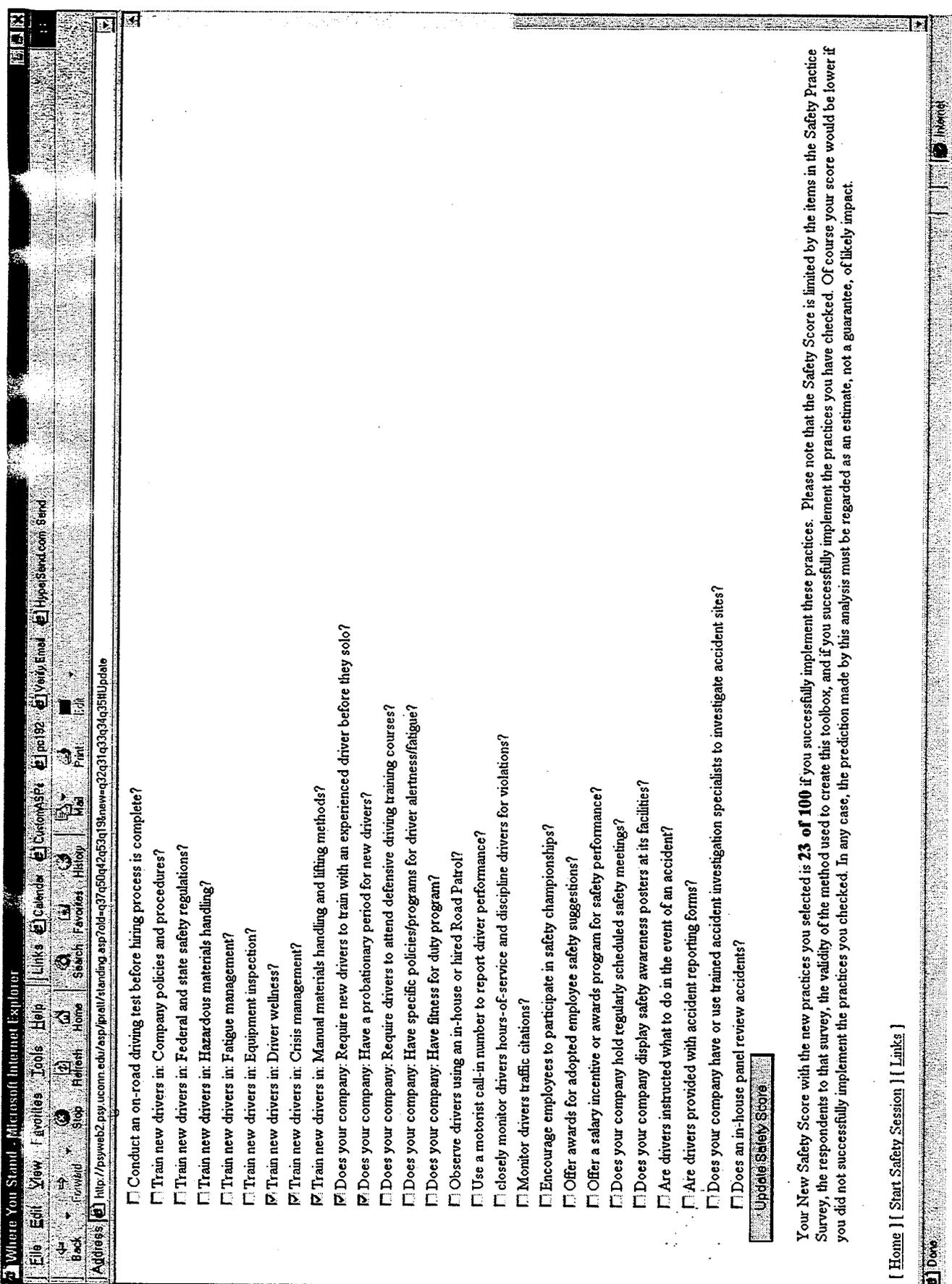
- Require minimum years of driving experience?
- Does your company. Require remedial training for drivers who have accidents?
- Monitor driver/vehicle performance via on-board computers/recorders or vehicle tracking devices?
- Are safety-oriented letters or messages posted or distributed regularly?
- Are drivers provided cameras to document the accident scene?

Your Safety Score with the practices you indicated is **11 of 100**. Your Safety Score is derived from the database of trucking company surveys. Each practice is weighted by its relation to the accident rates of companies who use those practices and responded to the survey. The weights of each of the practices you indicated are added to create your score. If you have a Safety Score of less than 60, this suggests that the safety practices of your company are below average when compared to the scores of the operators responding to the original ATA Foundation Survey. A Safety Score of more than 60 suggests that the safety practices of your company are above average in comparison to the operators surveyed by the ATA Foundation. Thus, Safety Scores do not indicate whether your practices are bad or good, but rather where you stand relative to the practices of other trucking companies.

The following list shows the safety practices that you did NOT indicate you practice. You may want to consider implementing some of these practices to increase your safety score. To see how your safety score would change if you successfully added these practices, select the practices below that you would consider implementing and then click on the Update button at the bottom of the page.

Practices Not Currently Used

- Require in-person applications/interviews?
- Call past employers to review employment history?
- Use a third party to review employment history/driving record?
- Turn down applicants with points/accidents/violations above a company maximum?
- Require a written test on DOT regulations?
- Have medical requirements more stringent than DOT requirements?
- Test for drugs and alcohol?
- Conduct an on-road driving test before hiring process is complete?



- Conduct an on-road driving test before hiring process is complete?
- Train new drivers in: Company policies and procedures?
- Train new drivers in: Federal and state safety regulations?
- Train new drivers in: Hazardous materials handling?
- Train new drivers in: Fatigue management?
- Train new drivers in: Equipment inspection?
- Train new drivers in: Driver wellness?
- Train new drivers in: Crisis management?
- Train new drivers in: Manual materials handling and lifting methods?
- Does your company: Require new drivers to train with an experienced driver before they solo?
- Does your company: Have a probationary period for new drivers?
- Does your company: Require drivers to attend defensive driving training courses?
- Does your company: Have specific policies/programs for driver alertness/fatigue?
- Does your company: Have fitness for duty program?
- Observe drivers using an in-house or hired Road Patrol?
- Use a motonist call-in number to report driver performance?
- closely monitor drivers hours-of-service and discipline drivers for violations?
- Monitor drivers traffic citations?
- Encourage employees to participate in safety championships?
- Offer awards for adopted employee safety suggestions?
- Offer a salary incentive or awards program for safety performance?
- Does your company hold regularly scheduled safety meetings?
- Does your company display safety awareness posters at its facilities?
- Are drivers instructed what to do in the event of an accident?
- Are drivers provided with accident reporting forms?
- Does your company have or use trained accident investigation specialists to investigate accident sites?
- Does an in-house panel review accidents?

Update Safety Score

Your New Safety Score with the new practices you selected is **23 of 100** if you successfully implement these practices. Please note that the Safety Score is limited by the items in the Safety Practice Survey, the respondents to that survey, the validity of the method used to create this toolbox, and if you successfully implement the practices you have checked. Of course your score would be lower if you did not successfully implement the practices you checked. In any case, the prediction made by this analysis must be regarded as an estimate, not a guarantee, of likely impact.

[Home] [Start Safety Session] [Links]

Done

APPENDIX D: MAIL SURVEY QUESTIONNAIRE





NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 1565 ALBANY NY

POSTAGE WILL BE PAID BY ADDRESSEE



INSTITUTE FOR TRAFFIC SAFETY
MANAGEMENT AND RESEARCH (320-7045A)
UNIVERSITY AT ALBANY / SUNY
1400 WASHINGTON AVE
ALBANY NY 12214-0222



Please fill in the circle next to the best answer:

Which best describes your company?

- For-hire general freight, truckload
- For-hire general freight, less-than-truckload
- Private carrier
- Other (Specify) _____

Number of vehicles operated by your company _____

Did you read the Best Safety Practices brochure?

- Yes
- No

How useful was the brochure to you?

- Very useful
- Somewhat useful
- Not very useful
- Not at all useful

How much new information about safety practices did the brochure provide?

- A lot
- A moderate amount
- A small amount
- None

Did the brochure encourage you to consider implementing any additional safety procedures?

- Yes
- No

Do you have access to the Internet, either at work or at home?

- Yes
- No

Have you explored the Connecticut Transportation Institute's Best Practices Toolbox Internet web site?

- Yes
- No

(If yes) How useful was the Toolbox web site?

- Very useful
- Somewhat useful
- Not very useful
- Not at all useful

Did the Toolbox web site encourage you to consider implementing any additional safety procedures?

- Yes
- No

If offered, would your company be willing to pay \$300 - \$400 per person to send a representative to a Best Safety Practices seminar?

- Yes
- No
- Not sure

