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UNIFORMITY OF ROADSIDE SAFETY INSPECTIONS OF COMMERCIAL VEHICLES AND DRIVERS ON THE NATIONAL LEVEL

PROJECT FINAL REPORT:

SUMMARY AND CONCLUSIONS

Sponsored by

U. S. DEPARTMENT OF TRANSPORTATION
OFFICE OF MOTOR CARRIER SAFETY

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FHWA Project Manager: Barbara Kenefake
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16. Abstract

The goal of the project was to provide practical information to FMCSA, commercial carriers, MCSAP agencies, and the CVSA which will be used to guide and improve standardized roadside enforcement of commercial vehicle regulations across North America.

This report documents the findings of team-based observations of roadside safety inspections of commercial vehicles and drivers which were conducted by a team of State, Federal and industry representatives to assess their uniformity. The contents of this report reflect the views of the project advisory group based on observations and interviews during seven site visits (Illinois, Arizona, California, Tennessee, Connecticut, Minnesota, and West Virginia) and project team meetings. The report identifies States' best practices in the commercial vehicle inspection process that merit consideration for implementation by other states.

The information on State's best practices presented in this report should be considered as tools that States may want to use to strengthen their program. The decision of which practices to choose is entirely up to the State, since each State will have varying organizational structure, levels of resources, and critical safety issues.

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While this report has a single primary author, it nonetheless represents the work of a team. This project was designed from its inception to evaluate the uniformity of commercial vehicle inspections through the efforts of a panel of experts. Much of the project work was conducted on-site and project team members also participated in two intensive meetings. Rather than repeat all of the names here, the reader is referred to the list of project team members and at-large members of the advisory group in Appendix A of this volume.

The extra efforts of two individuals, Barbara Kenefake of the Office of Motor Carrier Safety, and Gary March of the Illinois State Police must be acknowledged. Ms. Kenefake was responsible for contract technical administration, but also played an active role on the project team. She offered considerable guidance as to the course of the project as well as participating in project meetings and some site visits. Mr. March was the project manager with responsibility for the considerable logistics needed for all of the site work as well as coordinating overall project activities. We also especially appreciate the assistance and support provided by staff members of the IDOT and the ISP in carrying out this project.

We appreciate the support and participation of the Motor Carrier Safety Assistance Program agencies and the many motor carriers that responded to the survey for the project and sent individuals to our on-site focus groups. Our appreciation also goes to the drivers and other industry representatives who participated in those focus group sessions. Finally, those individuals and agencies who served as hosts for all of the site visits must be recognized. Each devoted considerable effort to preparing overviews of their agencies' operations and planning itineraries for members of the project observation teams. The agencies and individuals are:

Illinois State Police - M/Sgt. Ed Weigler, Sgt. David Beasley

Arizona Department of Public Safety - Lt. Dan Wells, Capt. Gary Hughs

California Highway Patrol - Sgt. Steve Dowling, Capt. Steve Vaughn, Lt. Vince Calderon, Mr. Linn Holmes

Tennessee Department of Safety - Maj. Burton Lawson, Mr. Michael Boshers, Lt. Steve Binkley

Connecticut Department of Motor Vehicles - Sgt. Michael Glinski, Lt. Rudy Supina,

Minnesota State Patrol - Maj. Gene Halverson, Lt. Ken Urquhart, CVI Wes Pemble

West Virginia Public Service Commission - Mr. Bob Brooks, Mr. Robert Hatfield, Ms. Loretta Bitner

Roy E. Lucke
Evanston, Illinois

Disclaimer

The contents of this report reflect the views of the project advisory group based on observations and interviews during seven site visits and project team meetings. These findings represent the practices found mostly in the states visited. Other states that were not visited may perform similar practices. The contents of this report do not necessarily reflect the views of the U.S. Department of Transportation Office of Motor Carrier Safety, the Illinois State Police, or the Northwestern University Traffic Institute.

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List of Abbreviations

CDL - Commercial Driver's License

CMV - Commercial Motor Vehicle

CVSA - Commercial Vehicle Safety Alliance

FHWA - Federal Highway Administration

MCSAP - Motor Carrier Safety Assistance Program

NASI - North American Standard Inspection

NTC - National Training Center (of the Office of Motor Carrier Safety)

OMCS (OMC) - Office of Motor Carrier Safety (Formerly, Office of Motor Carriers)

OOS - Out-of-Service

USDOT - United States Department of Transportation

Definitions of Motor Carrier Operational Classifications

For hire motor carrier: a person (or company) engaged in the transportation of goods or passengers for compensation. This typically includes most motor carriers that transport goods for other companies who produce the products being carried.

For hire - truckload: a for hire carrier that transports a full truck load from one point to another, typically for a single shipper.

For hire - less than truckload: a for hire carrier that transports multiple loads within a single truck and may pick up at or deliver to multiple locations.

For hire - exempt: a for hire carrier not subject to the economic regulations of the Interstate Commerce Commission (ICC), but subject to Federal Motor Carrier Safety Regulations.

Owner-Operator: a person involved in the transportation of goods or passengers where the power unit is owned by the driver (as opposed to a trucking company).

Private motor carrier: a person (or company) who provides transportation of property or passengers, by commercial motor vehicle, and is not a for-hire-motor carrier. These carriers are typically companies that own their own trucks to transport their own goods,

Other carrier: if any carrier believed that the above classifications did not describe their operation, they were asked to check "other" on their survey form and describe their operation. Examples included liquid and dry bulk, refrigerated, household goods, and dedicated contract (or contract).

Chapter 1:
Executive Summary

Over the past 20 years, the miles traveled by large commercial vehicles has increased much more rapidly than miles traveled by passenger vehicles. While the overall number of persons killed in traffic crashes has declined in this period, the percentage of deaths in crashes involving large trucks (gross vehicle weight rating greater than 10,000 pounds) has remained constant at about 12% of all fatalities. While this means that large commercial vehicles are involved in fewer fatal crashes, in terms of exposure, than 20 years ago, there are still too many fatal crashes involving large trucks.

The safety of these commercial vehicles is an important component of overall traffic safety. This was recognized by the Office of Motor Carrier Safety (OMCS) when they organized a Truck and Bus Safety Summit in Kansas City in March 1995. At that summit, roadside inspections of commercial motor vehicles was an important topic. Studies have shown that tractor trailers with mechanical defects are twice as likely as those without defects to be involved in crashes. While there can be questions concerning the attribution of causality in such a study, the relationship is nevertheless suggestive.

During the 1996 FHWA Driver/Fleet Survey of eleven states, 29 percent of trucks were found to have mechanical defects serious enough to require putting them out-of-service. Driver and vehicle performance is often cited as a significant cause of traffic crashes. Data from the same survey showed that 5 percent of drivers inspected were also placed out-of-service. Comparable figures from 1992 were 28.3 percent for trucks and 5.3 percent for drivers.

The number and percentage of safety violations found relating to commercial vehicles and their drivers in roadside inspections leaves no doubt that these inspections are important to overall traffic safety. However, questions were raised concerning the uniformity and fairness of these inspections. One of the 17 safety issues from the summit was uniformity of regulations and their enforcement.

To examine this issue of inspection uniformity, the Office of Motor Carrier Safety provided funding to the Illinois State Police (ISP) via the Illinois Department of Transportation, Division of Traffic Safety, to serve as the lead agency for team-based observations of roadside safety inspections of commercial vehicles and drivers to assess their uniformity. The Illinois State Police subcontracted with the Northwestern University Traffic Institute (TI) to provide support for the conduct of the project.

The objectives of the project were to:

1. Assess uniformity of roadside safety inspections of commercial vehicles, estimate the magnitude and locations of the problem, and prioritize issues to be resolved concerning the non-standardized roadside activities;

2. Identify similarities and differences in perceptions of uniformity of roadside inspections among researchers, carriers, drivers, inspectors and law enforcement supervisors;

3. Identify factors which contribute to, or cause disparities or perceived disparities;

4. Document and evaluate agency roadside practices and administrative controls for maximizing uniformity of inspections; and

5. Promulgate conclusions and recommendations with the greatest potential impact on improving roadside enforcement to a wide industry and governmental audience.

Structure of the Project

Members of the project team met several times to develop the structure of the project. Four primary project tasks were identified:

- Reviewing the literature relating to commercial vehicle inspections
- Surveying the Motor Carrier Safety Assistance Program (MCSAP) agencies in all states and territories, and the motor carrier industry to learn practices and perceptions relating to inspections;
- Assembling a project advisory group involving inspectors, regulators, and the motor carrier industry to guide much of the program's subsequent activities; and
- Carrying out a number of site visits to observe the actual inspection process, interviewing both inspectors and drivers about inspections, and gaining further information from drivers and fleet safety officers through driver/industry focus group sessions held in conjunction with the site visits.

The first two of these activities (literature review and surveys) were initiated concurrently. The project advisory group was then convened to review the results of these activities and to make plans for the site visits. Separate reports have been completed for both the literature review and the surveys. These reports, *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: A Compendium of Research Studies in the Field of Safety Inspections for Motor Carriers and Drivers* and *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Results of a Survey of State Agencies and Carriers*, are available from the Office of Motor Carrier Safety and are also available on-line on their World Wide Web site at http://www.mchs.fhwa.dot.gov.

Project Results

Based on the site observations, surveys, literature review, and project team meeting, the members of the project team determined that the focus of the project final report would be a set of:

- **Findings** that describe what they considered to be the most important items they learned from the project;
- **Recommendations** that relate how, in the collective opinions of the project team members, the commercial motor vehicle inspection process could be made even stronger;
- **Best Practices** that demonstrate programs and practices utilized by one or more of the states visited that should be considered for implementation by other agencies.

Findings

Finding 1: The great majority of inspections observed during the project were uniformly conducted in accordance with the guidelines established for the North American Standard Inspection criteria.

Finding 2: Although very limited in number, most "non-conformity" with the North American Standard Inspection criteria involved the inspector's omission in checking one or more specific items, as opposed to applying a more stringent inspection criteria.

Finding 3: Drivers interviewed were generally not aware of what a commercial motor vehicle inspection involved, the levels of inspections, how a CVSA decal is obtained and what it means, or what out-of-service criteria or penalties were for violating an OOS order.

Finding 4: Commercial motor vehicle inspectors generally are not trained or expected to inform commercial vehicle drivers about the level of inspection being conducted or provide them with information about the CVSA decal.

Finding 5: All commercial vehicle inspectors observed were trained according to the North American Standard Inspection criteria, and most states visited require frequent and extensive retraining.

Finding 6: Most commercial vehicle drivers interviewed reported receiving no more than one inspection in the preceding twelve months.

Finding 7: Most commercial vehicle drivers thought that the inspection they just received was fair.

Finding 8: Most commercial vehicle drivers thought that inspections both within the state in which they had just been inspected, and across all states, were done in a uniform manner.

Finding 9: Participants in the driver/industry focus group sessions did not consistently identify any problems with uniformity or fairness of inspections for inspections carried out by state-level inspectors.

Finding 10: Most complaints about the inspection process concerning lack of uniformity or general unfairness were addressed to inspections carried out by non-state-level agency inspectors (i.e. municipal and county law enforcement agency inspectors).

Finding 11: All driver/industry focus group sessions reached a consensus that there should be more Level 1 (and especially Level 5) inspections of vehicles, by qualified state-level inspectors, leading to the issuance of more CVSA decals, as warranted.

Finding 12: All drivers' qualifications were checked as part of the inspections that were observed, but technological/institutional barriers made conducting Commercial Driver License (CDL) verifications difficult in some locations.

Finding 13: While inspectors almost always asked for and checked driver log books, they sometimes did not ask for evidence to verify log entries.

Finding 14: Observers noted some inspection practices that had the potential to adversely affect inspector and possibly driver safety.

Finding 15: The quality and quantity of inspections can be negatively impacted by inadequate facilities or equipment and by using inspectors who do not have sufficient law enforcement authority to perform all aspects of the inspection task.

Finding 16: Some inspectors did not seem to have a good knowledge of load securement requirements.

Finding 17: In some states, more emphasis needs to be placed on hazardous materials roadside inspection training.

Recommendations

Recommendation 1: Establish improved partnerships among inspectors/inspecting agencies, drivers/commercial motor vehicle carriers, commercial motor vehicle associations and trade organizations, the Commercial Vehicle Safety Alliance, and the Federal Office of Motor Carrier Safety to educate drivers about the roadside inspection process and the CVSA decal program.

Recommendation 2: To enhance both safety and quality of inspections, particularly at Level 1, safe, suitable environments for those inspections must be established and adequate equipment provided.

Recommendation 3: States with facilities that are barriers to conducting safe inspection activities should explore non-MCSAP federal/state funding sources to remedy the barrier.

Recommendation 4: Continue to implement new technologies in the inspection process, particularly in the areas of records access, accuracy and reporting; methodology for selection of vehicles to be inspected; and attempt to achieve uniformity in selection of hardware and software.

Recommendation 5: Assure that all inspections carried out in North America continue to be done in a uniform manner through the implementation of a program that will observe the inspection process and make recommendations for continuing improvement.

Recommendation 6: All states should have regularly scheduled in-service and refresher training for all commercial motor vehicle inspectors.

Recommendation 7: All states, provinces and other entities that have control of the commercial vehicle inspection process within their jurisdiction need to assure that:

- CVSA decals are issued when warranted;
- Inspection criteria are understood by all inspectors within their jurisdiction; and
- All inspectors within their jurisdiction are aware of the CVSA memorandum of understanding.

Recommendation 8: Research needs to be conducted to learn more about the role of non-state-agency inspectors in the inspection process.

Recommendation 9: All state-level agencies that carry out commercial motor vehicle inspections should periodically conduct strictly random inspections.

Recommendation 10: States should have a program in place that enables them to follow-up, and take action as necessary, on violations noted on inspection reports that call for vehicle repairs.

Best Practices

Best Practice 1: Requiring drivers who are placed out-of-service to sign a form that explains penalties for violating an OOS order and acknowledges that they are aware of the penalties for violating the order.

Best Practice 2: Use of an out-of-service decal that contains information for the driver about what an out-of-service order means and penalties for violating such an order.

Best Practice 3: Implementation of an inspector evaluation process that focuses on quality rather than quantity of inspections, that also encourages inspectors to direct their efforts to higher risk locations and vehicles.

Best Practice 4: Working with the motor carrier industry, particularly seasonal carriers, to inspect vehicles during their off-season thus enhancing safety during their heavy usage periods.

Best Practice 5: Use of short range "handy-talky" type radios to enhance communication between the inspector and the vehicle driver.

Best Practice 6: Outreach program to make both commercial vehicle industry and general public more aware of commercial vehicle safety.

Best Practice 7: Conducting special inspection details in cooperation with local agency police officers where local officers identify vehicles to be inspected which are operating on local streets, and then escort them to a site for inspection by state-level officers.

Best Practice 8: Use of modems or cellular packet technology to permit real time uploads of commercial vehicle inspection reports to a central authority.

Barriers to Quality Inspections

As has been stated, the inspections observed by members of the project team were carried out in compliance with the North American Standard Inspection (NASI) procedures. However, practices were noted that while not directly affecting inspection uniformity, did appear to have negative impact on the overall inspection process. These included:

- Absence of central supervisory control over the inspectors.
- Enforcement vehicles without adequate emergency lights.
- Inspector's vehicles without adequate equipment.

Literature Review

A variety of motor carrier research has been conducted throughout the country. While some studies overlapped existing studies, surprisingly few were duplicative. Also, no study was located which refuted other study results.

The following summarizes some of the research findings:

- Quality maintenance and inspection procedures were strongly related to a decline in defect-related crashes. One study showed the application of out-of-service criteria influenced a decrease in defect-related truck crashes.
- Inspections do not concentrate enough on factors related to drivers who cause crashes. A suggestion was made to reduce out-of-service criteria to those items which most contribute to commercial vehicle crashes.
- Carriers with unsatisfactory performance ratings also had poor inspection performance. Carriers with satisfactory performance ratings had lower out-of-service rates and carriers with less than satisfactory performance ratings had higher out-of-service rates.
- Considering time and cost, Level 1 and Level 3 inspections should be conducted more frequently than Level 2 inspections. Fixed facilities should concentrate on Level 1 inspections while roadside facilities should concentrate on Level 3.
- Inspections recommended by the Inspection Selection System (ISS) had a 35 percent higher driver out-of-service rate and a 75 percent higher vehicle out-of-service rate. Another study concluded that use of the Inspection Selection System will help target unsafe carriers while reducing the inspection burden on safer carriers.

A study carried out by the Upper Great Plains Transportation Institute (UGPTI) , North Dakota State University *(An Evaluation of Commercial Vehicle Drivers' and Roadside Inspectors' Opinions Regarding the MCSAP, the Roadside Inspection Process, and Motor Carrier Safety)*,

provided additional information on perceptions of the roadside inspection process as well as suggesting a revision to the surveys to be conducted by this project.

Since the UGPTI survey asked drivers for their opinions about aspects of the roadside inspection process, it was decided not to go back to the drivers to ask similar questions about inspection uniformity. Rather, this project would ask representatives of the carrier industry about this issue. The survey was sent to a sampling of motor carriers through various carrier-related organizations, specifically including those that represent owner-operators.

The UGPTI survey found that both drivers and inspectors indicated a positive perception of roadside inspections. They also found that approximately half of the drivers disagreed with the statement that roadside inspections are the same from State to State. The vast majority of drivers, inspectors, and state administrators of the MCSAP agreed that the selection process for roadside inspections is fair, but motor carrier managers were undecided about this issue.

The Project Surveys

One of the first project tasks completed was completion of a survey of MCSAP agencies and a sampling of commercial motor vehicle carriers. Fifty-six states and other territories were sent a questionnaire addressing their motor carrier safety operations and practices; responses were received from all but four. This questionnaire was designed to identify the uniformity of roadside inspections of commercial motor vehicles and drivers across the states, within a state, and even within a specific agency.

In addition to state agencies being surveyed, approximately 2,000 questionnaires were distributed to motor carriers throughout the country with a return of almost 200. These surveys were designed to examine safety inspection issues and their consistency and uniformity from the perspective of the motor carrier.

MCSAP Agency Survey

This summary is divided into three sections which reflect the structure of the survey: 1) general information about the agencies, 2) inspections provided, and 3) factors affecting inspections.

General Information

- The 49 states and 3 territories responding have 10,197 trained inspectors (both full and part time), an average of 218 per agency (for those responding).
- In more than two-thirds of the cases, each inspection is done by one person.
- Inspectors receive NASI training on average once per year.
- More than one-half the agencies provide their own NASI training, a majority of the remainder comes from a state-level law enforcement agency in their state.
- More than 50% of the states have more than one agency conducting inspections, most frequently the other agencies are municipal and county police.

Inspections

- By level, approximately 6,000 are trained for Level 1, 7,900 for Level 2, and all 10,200 for Level 3.
- The most frequent reason for a Level 1 inspection is an observed equipment violation, and for levels 2 and 3 it is a traffic law infraction.
- Most Level 1 inspections are performed at facilities off the roadway. Those for levels 2 and 3 are performed roadside.

Factors Affecting Inspections

- The most common barrier to consistent inspections is not having enough staff, followed by not enough supervisors.
- The most frequent strategies used to enhance consistency are supervisory review of reports, membership in CVSA, and periodic training.

Follow-up Interviews with Selected State MCSAP Agency Directors

In order to obtain more in depth information about key areas from the initial survey of state agencies, telephone contact was made with selected state MCSAP agency directors. Each respondent who indicated a class of carrier likely to have problems noted a different carrier type. Although, when asked to expand, most indicated that the smaller carriers with few trucks were more likely to have vehicle related violations than the larger companies. On the other hand, driver (logbook) violations appear more frequently in the large companies.

Those contacted were asked to indicate how many of the trained inspectors noted on the original survey did truck inspections as a full-time effort rather than as part of general patrol. Of the 3,219 trained inspectors, approximately one-fifth conduct the task as a full-time job. If this relationship held with all respondents, then of the slightly more than 10,000 trained inspectors nationwide, approximately 2,000 are performing the function on a full-time basis.

Several barriers originally noted were discussed in greater detail. Most prominent are three:

- The number of inspectors performing the work full time,
- Funding levels (which affects both the number of inspectors and supervisors available), and
- Better control over local agencies.

Analysis of Responses Received from the Motor Carrier Surveys

From a mailing of approximately 2,000 surveys to motor carriers throughout the United States, 181 responses were received. Responses showed that most respondents had no knowledge of what was meant by "levels of inspection." Approximately one-third of those responding provided the correct information when asked to describe what occurred during a Level 1, 2, and

3 inspection. An additional six percent provided a correct answer for at least one of the three levels. Therefore, 60 percent either gave no answer or the wrong answers.

A summary of responses shows the following:

- Carriers operate an average of 304 power units (two operated more than 6,500), 34% of which are owner-operator and average of 109,000 miles driven per year per unit.
- They operate in an average of 32 states with the heaviest concentration of operations in the Northeast and Midwest.
- More than 60% operate as "For Hire Truckload" carriers and 50% are owner-operators.
- In regard to inspections, carriers reported a total of 37,000 inspections of which more than 50% were Level 1.
- More than 55% of the carriers indicated moderate or great uniformity of inspections among the states.
- 70% of the carriers were familiar with the North American Out-of-Service Criteria, but only 50% believed that they were applied uniformly.

Inspections. During the past year, approximately 45% of the carriers noted that they had at least one driver or vehicle placed out-of-service. Approximately 7% of the carriers reported 50 or more out-of-service drivers and 10% had 50 or more vehicles placed out of service. The carriers were asked how many safety inspections were conducted at each level. Although the carriers entered data related to inspections at all three levels, the results are suspect. Responses showed that approximately 60 percent could not describe what occurred during the various levels of inspections. Therefore, many of the Level 1 inspections reported may have been Level 3, and visa versa, or they may not have even been inspections.

Fairness and Consistency of Inspections. Some questions sought responses regarding the states which carriers felt were *especially fair or consistent* and *especially unfair or inconsistent* in their inspections. Those states indicated as providing especially fair and consistent inspections were Illinois, followed by Maryland, Ohio, and Indiana. There was a consensus regarding those states being especially unfair or inconsistent; Tennessee, California, and Ohio led the list (see Table D-3, Appendix D).

Several items appeared frequently in the list of "Recommendations for Changes" including:

- Common and comprehensive training for all inspectors and follow-up to ensure that they are doing consistent work;
- All regulations should be the same from state to state without states writing their own regulations which create a climate of having to know 48 different sets of rules;
- Eliminate roadside inspections, do the inspections in a safe location;
- Improve courtesy; and
- Eliminate numbers (quotas).

What is most obvious about the responses from the MCSAP agencies and the carriers is the wide divergence in the consideration of uniformity, consistency, and fairness of the inspections and especially the inspectors. The states believe that the process is being done well in their states (and they could not identify other states where they thought problems might be existing). On the

other hand, at least one-half the carriers indicated they believed that inspections were not uniform and were inconsistent.

From responses by the carriers, it can clearly be seen that there is a lack of understanding about the process and its goals. Drivers and carrier representatives cannot distinguish among the various inspection levels. Education of carriers and drivers then is clearly indicated, if for no other reason than to ensure that these groups clearly understand the role of the MCSAP inspection process and the national standards.

The Project Advisory Group

All recipients of the MCSAP agency survey were asked if they were willing to serve with the project advisory group and also participate in the proposed project site visits. Other members were selected by project team staff to assure carrier industry representation. The membership of the project advisory group that was selected consisted of:

- Six representatives of MCSAP agencies (one of whom also represented CVSA);
- Two representatives of the carrier industry;
- Two additional representatives from carrier associations who did not participate in site visits;
- Three representatives of the Office of Motor Carrier Safety; and
- Two project team staff members.

The initial meeting of the group took place in the Chicago, Illinois, area on October 14-15, 1998, and its goals were to:

- brainstorm and identify priority issues;
- develop specific procedures;
- develop data collection procedures, reporting forms and other observation guides to be used during site visits;
- recommend field sites; and
- draft a tentative schedule for visiting the selected sites and remaining project activities.

The survey of MCSAP agencies also asked if that agency would be willing to host a site visit. Approximately twenty agencies offered to host such a visit, but project budget and time constraints limited the list to seven agencies. Following the initial project meeting, project staff made follow-up telephone calls and confirmed dates for the site visits. The agencies selected and the dates of the site visit were:

- Illinois State Police, November 2-6, 1998;
- Arizona Department of Public Safety, February 2-4, 1999;
- California Highway Patrol, March 2-4, 1999;
- Tennessee Department of Safety, April 7-9, 1999;
- Connecticut Department of Motor Vehicles, May 4-6, 1999;
- Minnesota State Patrol, June 2-4, 1999; and
- West Virginia Public Service Commission, June 29-July 1, 1999.

Field Site Visits. At the initial meeting of the of the project advisory group, considerable discussion was held concerning what was to be accomplished during the site visits. The points listed above were the primary sources for defining the agenda for the site visits. The first site visit, in Illinois, was to be a test of the approach to the site visits, information that was to be collected, and data collection instruments. For all of the sites, the following agenda was followed:

- A site overview briefing;
- Fifty to one-hundred completed inspection reports for team review;
- On-site observations of the inspection process (preferably involving more that a single inspection site, and some opportunity for project team members to ride along with inspectors to observe on-road as well as fixed site inspections;
- Local focus group sessions; and
- A site debriefing.

Final Advisory Group Meeting. After all site visits had been completed, the full advisory group reconvened in the Chicago area from July 26-28, 1999, to view all project activities to date and to make recommendations as to what should be part of the project final report. A preliminary list of project findings, recommendations, and best practices was sent to each member in advance. Most of the final meeting was spent discussing the findings, recommendations, and best practices and deciding how they were to be presented.

Overview Descriptions of the Sites Visited

It is of interest that all of the states visited had developed substantially different structures and tables of organization for their commercial vehicle inspection programs. For each state visited, except Illinois, the lead enforcement agency was also the MCSAP agency. In most states, the lead agency was either the state police (or patrol) or part of an umbrella agency that also included the state police. Two states, California and Minnesota, make extensive use of civilian commercial vehicle inspectors.

In most of the states visited, almost all inspectors work for state-level agencies. Minnesota has only one remaining local agency inspector. Connecticut also has only a few local agency inspectors, but at the state level, inspections are performed by both Connecticut Department of Motor Vehicles inspection officers and Connecticut State Police troopers. Arizona and California have considerable numbers of local agency inspectors as well as Department of Public Safety and Highway Patrol inspectors, respectively.

All states reported that their training is provided under the NASI format in conformance with the National Training Center's guidelines. All of the states visited have their own training staff and new inspectors for those states are trained internally. All states make in-service and refresher training available to their inspectors with some mandating the retraining on a periodic basis. State level control of initial and in-service training for county and local agency inspectors varied.

All states visited are moving toward automation of their inspection reports. Five of the states currently use laptop computers loaded with Aspen software for recording inspections.

Considerable variation was found in the frequency of CDL verifications done in conjunction with inspections. The primary criteria for determining this frequency was adequacy of communications systems. In some states most inspectors have fully integrated laptop computer systems that enable them to directly run CDL checks. Other states do not have access to computerized systems and all CDL checks must be run via their in-vehicle radios through communications centers. Some agencies share these communications systems with other agencies or other divisions within their agency and the systems are so busy that running CDL verifications is difficult due to the time involved.

Summary of Observer Comments

At all of the sites, members of the observation team met at the conclusion of their field work and discussed what they had seen. The project team would first meet among themselves to discuss their observations, and would then present their findings to representatives of the host agency. While the intent of the observations was to assess uniformity of inspections, observers also noted anything that enhanced or detracted from the inspection process or overall commercial vehicle safety.

For all seven states, observers found that the inspectors were conducting inspections in conformance with the NASI procedure with few and very limited exceptions. In no case was it found that there was a consistent, identifiable problem with uniformity of inspections. In almost all cases, the observers pointed out the conscientious effort of the inspector to follow the NASI procedures and carry out the inspection in a fair and professional manner. Similarly, inspectors were praised for efforts to establish good rapport with drivers. Comments from the drivers confirmed the overall fairness of the inspectors.

It was noted that most inspectors do a very thorough job of explaining violations to the drivers. In some instances this included inviting drivers to join them underneath the vehicle, in others this involved using laser pointing devices to show the drivers where the problems were. In interviews with drivers, the observers noted that the drivers also appreciated the inspectors' efforts to show them exactly what their violations were and what would be needed to be done to correct them.

Concerns. The observers noted that the inspectors generally did not explain the overall inspection process to the drivers, and were inconsistent in explaining the CVSA decal. Such explanations are not, however, currently part of the training that inspectors receive. Most drivers could not identify the level of the inspection they had just received, and most could not describe the purpose/value of the CVSA decal.

Some items were consistently not checked in a number of sites. These usually included:

- 5th wheel plate movement,
- steering wheel lash, and
- tractor protection valve

In each of the states, the members of the observation team were also given a set of 50-100 already completed inspection reports for review. The team members reviewed the report forms for apparent problems with uniformity or inconsistencies with the reports. Generally, no uniformity problems were identified in this review. The most-often raised concern with this review was the identification of inspection reports where no critical item violations were noted, but there was no evidence that a CVSA decal was issued.

Summary of Observer Survey Findings

During the site visits, the members of the observation team spent the majority of their on-site time with commercial vehicle inspectors, watching them carry out inspections. For each of these inspections, the observer completed a "Commercial Vehicle Inspection Observer's Report." The average inspection at a fixed facility took about 40 minutes and the average roadside inspection took just under 33 minutes. Much of this difference is attributable to the fact that most of the roadside inspections were Level 2 and most of the fixed facility inspections were Level 1.

For the 253 recorded inspections, inspectors found a total of 798 minor violations, and 191 violations serious enough to place 18 drivers and 104 vehicles out-of-service. The most common unit inspected was a tractor/box trailer combination. The next most common units were straight trucks and tractor/flatbed combinations. No commercial bus inspections were observed.

Approximately 450 individual vehicles were inspected, 253 power units and close to 200 trailers (some straight trucks were towing trailers as well); 38 had current CVSA decals attached. Across all states, more than one-half of the vehicles inspected were operating "for hire." Private carriers were just over half as common as the for hire units, and owner/operator units were about half as common as the private carriers. Seventy percent of the inspections observed took place at fixed facilities with almost all of the rest done on the roadside.

Both the observer and the inspector found the driver to be cooperative in almost all of the inspections. Drivers were not often able to identify the level of inspection they just received, or define the levels of inspection, what a CVSA decal meant, or penalties for violating an out-of-service order.

Discounting the California data (due to the fact that most of their data came from inspections at an international border crossing), the 217 drivers remaining reported that they were inspected a total of 499 times, an average of just over twice per year. It should also be noted that there was some inconsistency among the observers as to whether they counted the inspection they were observing as one of the inspections received either in the past 30 day or in the past 12 months. About 40% of the drivers were not able to respond to the questions about the uniformity of inspections either within the state where they were being inspected or across all states. The

reason given for non-response was that they had not been inspected elsewhere to give them a basis for comparison.

Summary of Driver/Industry Focus Group Findings

One of the more important goals of this project was to obtain as much feedback as possible from the motor carrier industry as to the uniformity and fairness of inspections. To accomplish this goal, focus group sessions were conducted in five of the seven sites visited. All focus group sessions followed the same general approach. They were facilitated by a member of the project team staff. At least one member of the observation team attended and participated in each focus group. This member was a representative of the motor carrier industry and sometimes a CVSA representative. All of the focus group sessions were scheduled for two hours. During the first 90 minutes, only the project team members, drivers, and safety officers were present. For the final 30 minutes, representatives of the local inspection agency(ies) were asked to join the group.

Topics Discussed. The key finding from the focus group sessions was that no driver or safety officer participants were able to identify any consistent, national problems with inspection uniformity. Some participants commented on perceptions of over-zealousness of inspectors in some states and occasional condescending attitudes of some inspectors towards drivers. However, there were no complaints about uniformity from state-level inspectors.

One exception to this general agreement concerning inspection uniformity came from comments related to local agency inspectors. In every focus group, the participants mentioned negative experiences with inspectors from non-state-level agencies. The comments focused on the belief that the inspectors from municipal and county law enforcement agencies were "far more interested in revenue generation than commercial vehicle safety."

The driver and safety officer participants unanimously agreed that the inspection process is designed to keep drivers, vehicles and the road safe, and to "level the playing field" for all carriers. The participants acknowledged that without inspections, there were carriers who would ignore regulations and increase profits by cutting maintenance and forcing drivers to exceed hours-of-service regulations.

The participants in the focus groups recommended that state-level inspection programs be expanded. It was their belief that more inspections by qualified inspectors, with appropriate issuance of CVSA decals, would enhance safety and improve the carrier industry by forcing non-compliant carriers either into compliance or out of business. The focus group participants agreed that there is considerable ignorance in their industry concerning the inspection process, out-of-service criteria, and the CVSA decal.

While not directly related to uniformity of inspections, one other safety-related topic was raised at several focus group sessions. There is great concern among drivers and safety officers about the lack of suitable rest areas for drivers in many parts of the country. Drivers were also displeased with the practice in areas that have placed time limits in rest areas where officers will awaken sleeping drivers and make them move on - often in violations of hours-of-service criteria.

Conclusions

While not a perfect system, no evidence was found in the site visits, or any other aspect of the project, that there is a significant problem with overall uniformity of commercial motor vehicle inspections. Almost all inspections were performed in substantial compliance with the North American Standard inspection criteria. Drivers interviewed in the field as well as those who participated in driver/industry focus groups did not identify any consistent problems with uniformity or fairness of inspections.

There does appear to be a lack of knowledge among drivers about both the levels and practices of roadside safety inspections and the Commercial Vehicle Safety Alliance decal program. More needs to be done by all entities involved in the commercial motor vehicle industry and its regulation to increase this awareness level.

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Chapter 2:
Project Findings And Recommendations

Background Overview

To further identify and to decrease the number of serious truck-related crashes, the Office of Motor Carrier Safety (OMCS), conducted a Truck and Bus Safety Summit in Kansas City in March 1995. It identified uniformity of regulations and enforcement as one of 17 safety issues that needed to be examined. This project was selected as the mechanism for that examination.

The OMCS provided funding to the Illinois State Police (ISP) via the Illinois Department of Transportation, Division of Traffic Safety, to serve as the lead agency for team-based observations of roadside safety inspections of commercial vehicles and drivers to assess their uniformity. The Illinois State Police subcontracted with the Northwestern University Traffic Institute (TI) to provide support for the conduct of the project.

The ultimate goal of the project is to provide practical information to OMCS, commercial carriers and Motor Carrier Safety Assistance Program (MCSAP) agencies, which will be used to guide and improve standardized roadside enforcement of commercial motor vehicle regulations across North America.

The project objectives were to:

- Assess uniformity of roadside safety inspections of commercial vehicles, estimate the magnitude and locations of the problem, and prioritize issues to be resolved concerning the non-standardized roadside activities;
- Identify similarities and differences in perceptions of uniformity of roadside inspections among researchers, carriers, drivers, inspectors and law enforcement supervisors;
- Identify factors which contribute to, or cause the disparities or perceived disparities;
- Document and evaluate agency roadside practices and administrative controls for maximizing uniformity of inspections; and
- Promulgate conclusions and recommendations with the greatest potential impact on improving roadside enforcement to wide industry and governmental audience.

Four primary mechanisms were identified for gathering the information necessary to make appropriate findings and recommendations:

1. Conducting a survey of MCSAP agencies, commercial carriers, and drivers to gain knowledge about their roles and perceptions relating to uniformity of inspections;
2. Conducting site visits to observe actual inspections as they are carried out in the field, interview both inspectors and drivers following those inspections, and conduct local focus groups to gain insight from drivers and carrier safety officers;

3. Reviewing the literature to learn from other studies that have looked at inspection uniformity and related issues;

4. Conducting two advisory group meetings with representatives from regulators and the carrier industry to plan actual project field work and review all information gathered through the project and to determine project findings, make recommendations, and identify best practices.

More detail relating to project background, approach and information gathering can be found in Chapters 3 and 4 of this report.

While the project team has fully reviewed information gained from all data sources: the literature, the survey reports, the site visits, and their own experience, the information gained from the site visits was the key element for project findings, recommendations, and best practices. A great amount of information was learned at the site visits. While much of that information directly relates to the uniformity of inspections, other information relates more to the general safety or efficiency of inspections, which can also affect uniformity. While not a direct objective of the project, the project team believes it important to present these findings as well.

Findings

This section of the project final report presents the key knowledge gained by members of the project team, particularly during their field site visits. Some of the findings are calls for action while others report the facts as they were discovered. The findings disclose what the members of the project team identified as the most important issues they discovered. Some are positive and some are negative.

While the first finding is by far the most important, the remainder are not in any order of priority. The initial findings are mostly involved with the inspection process, first from field observations and then from the driver/industry focus groups. They are followed by findings that relate to driver inspections and then inspection safety. The final findings address specific inspection issues.

Finding 1

The great majority of inspections observed during the project were uniformly conducted in accordance with the guidelines established for the North American Standard Inspection criteria.

A primary reason for the implementation of this project was a concern among some, particularly those in the motor carrier industry, that commercial motor vehicle inspections were not being carried out in a uniform manner across North America. While conducting their field site visits,

project team members observed 253 inspections. Observers were asked to rate the compliance of the inspection with the NASI criteria on a 1-5 scale. Only three of the inspections were rated as a "3" (with two of them in the same state) and none were lower; 61% were rated as a "5."

Observer comments indicated that it is not possible to eliminate individual variance in inspections. For example, while high compliance was indicated in following the NASI procedures, there was considerable variation in the order in which the 36 steps were followed. Thoroughness in checking a given item (e.g. always measuring 5th wheel plate movement versus sometimes visually estimating and measuring only if there was doubt) also varied among individuals.

The observers also noted that all inspectors whom they interviewed received training according to NASI criteria as specified by the CVSA guidelines. All inspectors had access to the most current edition of the CVSA out-of-service criteria and frequently referred to these criteria to assure that they were being followed.

Finding 2

Although very limited in number, most "non-conformity" with the North American Standard Inspection criteria involved the inspector's omission in checking one or more specific items, as opposed to applying a more stringent inspection criteria.

As described immediately above, the vast majority of all inspections were carried out in compliance with the NASI procedures. When uniformity concerns were noted by observers, they almost always mentioned an omission on the part of the inspector. Omitted items most often included:

- 5th wheel plate movement,
- steering wheel lash, and
- tractor protection valve.

Other items were mentioned less often, but this type of omission was the observers' greatest concern relating to inspection uniformity. Each of the above concerns was noted in either three or four of the states visited. Other omissions, such as horns or air pressure warning, were mentioned, but in no more than two states and usually only in a single state.

In no case was there any observation of an inspector checking items not part of the 36 steps described in the NASI procedure or using out-of-service criteria other than those set by CVSA.

Finding 3 (Also see Recommendation 1)

Drivers interviewed were generally not aware of what a commercial motor vehicle inspection involved, the levels of inspections, how a CVSA decal is obtained and what it means, or what out-of-service criteria or penalties were for violating an OOS order.

While complaints have been heard from the driver community about the non-uniformity of inspections, it would appear difficult for many drivers to comment on uniformity since they demonstrated little knowledge of what was to take place in an inspection. Only 36% (94 of 253) of the observed drivers could identify the level of the inspection they just received. Only 16% (40 of 253) could identify the levels of roadside inspection. In addition, when asked to assess the uniformity of inspections nationally, over 100 of the drivers could not respond since they had not undergone another inspection for at least one year (in many cases ever) to compare to the one they just received.

About 40% of the drivers were able to explain either what a CVSA decal was or knew the penalties for violating an out-of-service order. There was considerable state-to-state variability among these items. For example, in Connecticut, where OOS penalties are specifically explained and are written on the OOS decal, about 75% of the drivers could explain the penalties. In California, where virtually all trucks crossing the U.S./Mexico border without a valid CVSA decal are inspected, over 60% of the drivers could explain the decal.

Finding 4 (Also see Recommendation 1)

Commercial motor vehicle inspectors generally are not trained or expected to inform commercial vehicle drivers about the level of inspection being conducted or provide them with information about the CVSA decal.

As noted in Finding 3, above, most drivers are not able to describe inspection levels, CVSA decals, or OOS penalties. The observers noted, however, that most commercial motor vehicle inspectors did not provide any information to the drivers about any of these items with the exception of sometimes explaining OOS penalties. Providing such information to the drivers is not part of the training inspectors receive when they attend a class on the NASI procedures. None of the states visited had a policy that specifically asked the inspectors to inform the drivers about these levels of inspections and CVSA decals.

When a driver or vehicle was placed OOS, all of the observed inspectors placed an OOS decal on the vehicle (when appropriate) and told the driver what they needed to do to correct the problem, and possible sanctions for violating the order. Connecticut and West Virginia had even more explicit procedures to assure that the drivers knew the provisions of the OOS order and the penalties for violating such an order.

Most observed inspectors did do a thorough job of explaining specific violations to drivers. In many cases the inspector asked the driver to go with him/her to the involved part of the vehicle so the violation or defect could be viewed and more clearly explained.

Finding 5 (Also see Recommendation 6)

All commercial vehicle inspectors observed were trained according to the North American Standard Inspection criteria, and most states visited require frequent and extensive retraining.

All inspectors interviewed were trained according to the curriculum developed by the Office of Motor Carrier Safety National Training Center. There were differences among the states visited concerning retraining and recertification of inspectors. All states require inspectors doing Level 1 inspections to conduct at least 32 Level 1 inspections annually to remain certified according to the CVSA policy, and most state-level inspectors perform far more. It was less certain that local agency inspectors were held to this standard in all states. All states also required some level of refresher or in-service training. The most extensive refresher training program found was in Minnesota, where all inspectors are required to go back through the full 80 hour NASI course at least every four years.

Finding 6

Most commercial vehicle drivers interviewed reported receiving no more than one inspection in the preceding twelve months.

Another complaint sometimes heard from drivers and the motor carrier industry is that drivers and their vehicles are subjected to very frequent inspections. Among the questions asked of all drivers was the number of inspections they had received in the preceding 12 months. In most cases the observer qualified the question to exclude the inspection that had just taken place, however in some instances the just-observed inspection may have been included in the totals.

Over one-third of the drivers reported that they or their vehicles had not been inspected at all in the past year. The 253 interviewed drivers reported receiving a total of 1,036 inspections during the past year; over one-half (529) of those inspections took place in California. (As more fully described later, all trucks crossing the U.S./Mexico border are subject to inspection and the absence of a current CVSA decal will usually prompt an inspection - many tractors cross the border several times per day, towing a different trailer each time, thus having a high probability of receiving multiple inspections annually.)

If a driver wanted to always have a valid CVSA decal, it would be necessary to be inspected four times per year. Based on the inspections observed, and the interviews with drivers, inspections do not occur with anything near this frequency. It should be noted that drivers who were

carrying a placarded hazardous materials cargo were more likely to report multiple inspections (four or more in the prior 12 months) than drivers not carrying such cargo.

Finding 7

Most commercial vehicle drivers thought that the inspection they just received was fair.

All observed drivers were asked to rate the inspection they had just received on a 1-5 scale ranging from very unfair to very fair. Of the 231 drivers who responded to this question, 195 gave that inspection the highest possible fairness rating, a "5." No driver rated the inspection as very unfair, one rated it as a "2," ten gave it a "3," and 25 rated the inspection as a "4." The observer asked for the assessment of fairness after the inspection was completed and results of the inspection already presented so that the drivers would be less likely to think that their responses would influence inspection results.

The observers were also asked to rate the fairness of the inspector and inspection and their responses were virtually identical to the driver responses. Only one inspection was rated as a "2" and 222 (of 253) were rated as a "5."

Finding 8 (Also see Recommendation 7)

Most commercial vehicle drivers thought that inspections both within the state in which they had just been inspected, and across all states, were done in a uniform manner.

In addition to rating fairness, the drivers were also asked to rate the uniformity of their just completed inspection compared to others they had received in that state and across all states. Uniformity within a state was rated as "high" or "very high" by 124 of 163 drivers who responded to the question. Only eight of the drivers gave a negative response as to uniformity within a state. The negative responses were not concentrated in any particular state.

Uniformity across all states was not rated as highly as uniformity within a state, but 84 of 136 respondents gave across-state uniformity a high or very high rating and another 32 were neutral. Of the twenty negative responses concerning uniformity, about one-half were recorded in one state. It should be noted that many drivers did not respond to these questions since they had not received another inspection within the previous year to compare to the current one.

Finding 9

Participants in the driver/industry focus group sessions did not consistently identify any problems with uniformity or fairness of inspections for inspections carried out by state-level inspectors.

In every driver/industry focus group, the participants were encouraged to discuss any knowledge or even perceptions they had about inspections not being uniform or performed in an unfair manner. While there were anecdotes related about a problem with a given inspection, there was no pattern to the comments that suggested a problem with inspections in a given state or involving a specific vehicle or driver type. Some states were identified as possibly being more thorough than others or in having inspectors who were less friendly toward drivers, but there were no claims about the lack of overall uniformity.

Finding 10 (Also see Recommendation 8)

Most complaints about the inspection process concerning lack of uniformity or general unfairness were addressed to inspections carried out by non-state-level agency inspectors (i.e. municipal and county law enforcement agency inspectors).

Only about 25 of the drivers interviewed following an inspection reported having been inspected by a county or municipal agency inspector in the preceding year. However, in the driver/industry focus group sessions, inspections by local officers were often mentioned. In almost every case, the members of the focus group stated they believed that local agencies conducted inspections solely for the purpose of "generating revenue for their agency." They thought that the local agency inspectors looked only for violations that could generate large fines, forfeitures, or other monetary penalties and often did not conduct inspections in compliance with the NASI procedures.

Finding 11

All driver/industry focus group sessions reached a consensus that there should be more Level 1 (and especially Level 5) inspections of vehicles, by qualified state-level inspectors, leading to the issuance of more CVSA decals, as warranted.

Without exception, the driver/industry focus group participants agreed that inspections were both necessary and useful. The most common statement in favor of inspections was that they "leveled the playing field" for all commercial carriers. The participants agreed that the inspection criteria promoted safety, and inspections were necessary to insure that the criteria were followed. They thought that more inspections would serve to further discourage unsafe drivers and carriers and increase safety for those who followed the rules.

The driver/industry focus group participants thought that CVSA decals were of great benefit to the industry and wanted to see many more issued. They were also in favor of having more vehicles inspected at terminals (Level 5 inspections) so that a driver and cargo were not being detained. Their final consensus suggestion concerning inspections was that they only be conducted by trained, state-level inspectors whose primary goal was safety and not revenue collection.

Finding 12 (Also see Recommendation 4)

All drivers' qualifications were checked as part of the inspections that were observed, but technological/institutional barriers made conducting Commercial Driver License (CDL) verifications difficult in some locations.

Whether or not CDL status was verified as part of the commercial vehicle and driver inspection process varied considerably from state to state. States that routinely did not conduct CDL verifications usually had communications systems that made such checks difficult. In those states, the inspector would have to call a communications center via radio, transmit the CDL information, the communications operator would run the inquiries (sometimes a several step process) and then radio the results back to the inspector. For agencies that shared communications facilities and frequencies with other agencies, radio traffic loads made this process very difficult.

At the other end of the spectrum, some agencies, such as the Connecticut Department of Motor Vehicles, equipped their inspectors with in-vehicle computers that are used to automatically perform the entire CDL verification. No involvement of voice radio or communications operators was needed at all.

Verifying CDL status is an important part of the inspection process and inspectors should have access to the tools necessary to carry out this part of the inspection.

Finding 13

While inspectors almost always asked for and checked driver log books, they sometimes did not ask for evidence to verify log entries.

Concerning log books, observers noted a few cases where inspectors did not ask for a log book at all. In almost all of these instances, the inspector subsequently told the observer they knew that it was a local area (100 air miles) driver where the log was not required. In other instances, even when the log book was examined, the inspector did not ask for supporting evidence such as fuel or toll receipts, or loading or delivery verification information.

Finding 14

Observers noted some inspection practices that had the potential to adversely affect inspector and possibly driver safety.

While safety was a primary concern in virtually all inspections, three practices were noted that could compromise safety. The first was not placing wheel chocks to inhibit both forward and

backward motion of the commercial vehicle; in these cases, usually only a single chock was used. In a few instances, an inspector was observed going underneath a commercial vehicle while its engine was running. The final practice noted that could compromise safety was performing inspections on the sides of heavily traveled, high speed roads. It was suggested that even Level 2 inspections be conducted at an off-high speed road location whenever possible.

Finding 15 (Also see Recommendations 2 and 3)

The quality and quantity of inspections can be negatively impacted by inadequate facilities or equipment and by using inspectors who do not have sufficient law enforcement authority to perform all aspects of the inspection task.

The quality of fixed inspection facilities ranged from California's multiple bay, fully enclosed buildings that included inspection pits, to other states' locations that even lacked indoor plumbing. Some inspection sites had insufficient room for placing vehicles out-of-service or pavement so deteriorated that it was difficult to use creepers to roll under vehicles. The lack of room for locating OOS vehicles and allowing space for their repair is a potentially serious safety concern.

While most states provide their on-road inspectors with permanently assigned vehicles, other states do not. With these "fleet" vehicles, inspectors often did not know what equipment was actually in their vehicle or where it was in the vehicle.

The law enforcement authority of inspectors varied widely across the states. Where inspectors were sworn members of a state police or highway patrol agency, this was not an issue. However, inspectors in several states are employed by other state-level agencies. Some of these inspectors had full police powers, while others had much more limited authority which sometimes even prohibited inspectors from stopping commercial vehicles that had committed traffic law violations (e.g. Minnesota's Commercial Vehicle Inspectors). Other states use civilian inspectors who, even though they had patrol vehicles, could not stop a commercial vehicle with an obvious safety violation. Civilian inspectors in some states also lacked authority to place vehicles or drivers out-of-service following an inspection.

Finding 16

Some inspectors did not seem to have a good knowledge of load securement requirements.

Spillage from commercial vehicles or loads shifting and causing overturns are a significant safety problem. Loads such as coiled steel can weigh many tons and can wreak havoc with the roadway itself and other traffic when they break loose from the trailer. Such loads shifting due to poor securement and/or improper loading can cause trailers to roll over on curves and ramps, causing significant traffic congestion problems in addition to other safety concerns.

There are guidelines in the NASI procedures regarding load securement. Observers noted that some inspectors were not comfortable with the load securement requirements or how to calculate the holding capacity of various types of tie down assemblies. Inspector supervisors must insure that all Level 1 inspectors are able to assess the adequacy of load securement for all commercial vehicles where load securement is required.

Finding 17

In some states, more emphasis needs to be placed on hazardous material roadside inspection training.

Some of the most dangerous cargos transported are carried in cargo tanks. By definition, there is danger in hazardous materials cargos. Observers noted a few instances where inspectors did not seem sure of themselves in inspecting cargo tankers or other hazardous materials loads. In another instance, it was noted that some Level 1 inspectors were not encouraged or required to become certified in cargo tanks or hazardous materials. Some members of the inspection team believe that more full time commercial vehicle inspectors should be trained to conduct hazardous materials inspections.

Recommendations

Based on what was learned from the site visits, the earlier project surveys, and project team deliberations, the project team offers the following recommendations to improve the commercial vehicle inspection process generally, and the uniformity of those inspections in particular.

Recommendation 1

Establish improved partnerships among inspectors/inspecting agencies, drivers/commercial motor vehicle carriers, commercial motor vehicle associations and trade organizations, the Commercial Vehicle Safety Alliance, and the Federal Office of Motor Carrier Safety to educate drivers about the roadside inspection process and the CVSA decal program.

As described in the "Findings" section, too many commercial motor vehicle drivers lack knowledge of the commercial vehicle inspection process, levels of roadside inspection, and the CVSA decal. While it is not the responsibility of any agency to provide this information to the drivers, there are potential opportunities to do so, and thus have a positive effect on both inspections and overall safety. All commercial carriers are strongly encouraged to provide this information to their drivers. However, it is recognized that a large number of smaller carriers and owner/operators do not have ready access to this information.

The project team members therefore recommend that the Commercial Vehicle Safety Alliance take a lead role in developing materials that can be used to provide information to drivers. It is important that the information given to drivers be standardized across North America. This can include simple handout sheets or pamphlets that describe the inspection levels and the CVSA decal. In addition, posters containing this information can be developed for display in truck stops and terminals. Grant funds could be sought from both government and industry to cover printing costs.

Another suggested means for providing information on inspections and CVSA decals to drivers was through publications and other outreach programs of national and state level trucking and other motor carrier associations. Additionally there were suggestions that states include questions about levels of inspections on commercial driver license examinations. A final suggestion for dissemination of information was through insurance companies that cover commercial motor vehicles and their drivers.

Recommendation 2

To enhance both safety and quality of inspections, particularly at Level 1, safe, suitable environments for those inspections must be established and adequate equipment provided.

It is difficult to conduct inspections at unsuitable locations. Any fixed site routinely used for Level 1 inspections should have:

- Sufficient room for multiple inspections to be carried out simultaneously, giving each inspector enough room to work "their" vehicle without danger from other vehicles entering and leaving the site or where a driver might mistakenly hear inspector directions to another driver;
- Sufficient room to park out-of-service vehicles (or their drivers) and where repairs to those vehicles can be safely made;
- A surface that permits inspectors to adequately conduct under-carriage inspections;
- Facilities where drivers (and inspectors) have indoor access to a telephone and restroom; and
- A desk or table where inspectors can interview drivers and review paperwork and inspection results.

In addition, all inspectors should have all equipment necessary to carry out quality inspections, including measuring devices, markers, creepers, wheel chocks, etc.

Recommendation 3

States with facilities that are barriers to conducting safe inspection activities should explore non-MCSAP federal/state funding sources to remedy the barrier.

The commercial motor vehicle inspection program is a fundamental (National Program) element of MCSAP, consuming a substantial amount of the program funding within each state. Under the MCSAP, expenditures are limited to "eligible" items associated with commercial vehicle safety, which primarily revolve around personnel salary and related program equipment. The MCSAP expressly excludes from its eligibility allowance items involving capital improvement investments. It is crucial that inspection activities within the MCSAP be performed at locations (facilities) which are conducive to enhancing officer, driver, and general public safety.

States are encouraged to incorporate CMV transportation safety issues and potential facility safety improvement projects during the development of their overall transportation (highway) safety plans. A potential source of funding for CMV inspection facility capital improvement is FHWA highway funds. Specifically, under 23 USC 133(b)(4), Surface Transportation Program (STP) funds may be used to acquire right-of-way; and construct access lanes, vehicle storage areas, signing, lighting, and the inspection building for a truck safety inspection station adjacent to any public highway. Additionally, 23 USC 103(b)(6) National Highway System (NHS) funds are available on a more limited (restricted) basis. The leveraging of all federal-aid funds with the grants states receive under the MCSAP, and other Transportation Equity Act for the 21st Century (TEA-21) discretionary programs, should provide the states with the best opportunity to expand their CMV enforcement capabilities.

Recommendation 4

Continue to implement new technologies in the inspection process, particularly in the areas of records access, accuracy and reporting; methodology for selection of vehicles to be inspected; and attempt to achieve uniformity in selection of hardware and software.

Technology to assist the inspection process continues to develop and be implemented at a rapid pace. The use of laptop computers is probably the fastest growing technology. With appropriate software and modem/cellular packet communications, inspectors can verify CDL's and registration, record and upload inspection reports, and communicate via e-mail from a single device. These computers can also be loaded with software that can access carrier profiles to assist inspectors with the vehicle selection process.

Technology can also be used to assure both accuracy and completeness of inspection reports. Software can be designed to require that all data elements be completed and can reject entries that appear to be "out of range" values. In addition, electronic downloading of information about the driver, vehicle, and carrier can help eliminate errors in transcribing information.

Technology advances will be of greatest value if the potential users of new technologies agree to uniformity of hardware and software prior to large-scale field implementations. The motor carrier industry has also requested greater uniformity in outputs, such as standardized inspection reports.

Recommendation 5

Assure that all inspections carried out in North America continue to be done in a uniform manner through the implementation of a program that will observe the inspection process and make recommendations for continuing improvement.

A primary goal of this project was to assess uniformity of inspections on a national basis. The members of the project team observed many things about the inspection process and the findings, recommendations, and best practices they identified are detailed in this report. Once the project ends, however, there is no other program in place or proposed to continue such observations. The project team recommends that such a program be continued and site visits be made to other states.

To assure uniformity, it is important that all inspection programs be observed and assessed, not just the seven states that volunteered for this project. While no significant uniformity problems were identified in the states visited, and there was no consensus as to potential uniformity problems in any other particular state, such visits should be made to all MCSAP agencies (and lead enforcement agencies, if different). Observations at other North American sites should also be considered. It is suggested that observations include a "peer review" component allowing states to be evaluated by others having an understanding of commercial vehicle enforcement programs.

Recommendation 6

All states should have regularly scheduled in-service and refresher training for all commercial motor vehicle inspectors.

All states visited were found to have in-service and refresher training programs in place for their inspectors. However, the quality of those programs did vary, and in some cases were not extended to non-state-level inspectors. CVSA has developed the criteria for both the NASI and for training and certifying individuals to perform those inspections. The only CVSA requirement for continuing certification is to perform 32 Level 1 inspections annually.

The project team suggests that CVSA develop minimum standards for annual retraining criteria for inspectors. Other states should also consider the Minnesota State Patrol requirement that all inspectors retake the full North American Standard course approximately every four years.

Recommendation 7

All states, provinces and other entities that have control of the commercial vehicle inspection process within their jurisdiction need to assure that:

- CVSA decals are issued when warranted;
- Inspection criteria are understood by all inspectors within their jurisdiction; and
- All inspectors within their jurisdiction are aware of the CVSA memorandum of understanding.

All U.S., Canadian, and Mexican states, provinces, districts and territories have signed memorandums of understanding (MOU's) with the Commercial Vehicle Safety Alliance that govern their participation in the CVSA program. During their site visits, members of the project team found that most inspectors were not aware of the provisions of the MOU, even though they are responsible for implementing many of those provisions. It is important that all inspectors understand the agreement that governs much of what they do.

In addition, while the inspectors understood the CVSA program, they often did not have written policy from their agency governing the use of the decal, both in terms of applying it and honoring its provisions.

Recommendation 8

Research needs to be conducted to learn more about the role of non-state-agency inspectors in the inspection process.

In the driver/industry focus group sessions conducted as part of this project, most of the comments regarding unfairness and non-uniformity were attributed to inspections conducted by county or municipal agency inspectors. While few of the drivers interviewed by members of the project team reported inspections by local inspectors in the previous year, they were still mentioned as a source of non-uniformity.

Many participants in the driver/industry focus group sessions expressed an opinion that local agency inspectors were performing inspections only to "generate revenue for their agency" (through citations issued for violations), and not to enhance commercial vehicle safety. There appears to be little information on:

- The number of local agency inspectors;
- Retraining/recertification requirements for local agency inspectors;
- Guidelines within local agencies as to when, where, and how inspections are conducted;
- Whether local agencies have signed, or are even aware of, the CVSA memorandums of understanding that their state signed;
- Revenue generation and allocation from local agency inspections; and

- Whether local agency inspection reports are entered into Safetynet.

Gathering such information, at a minimum, is necessary to gain a more complete understanding about the role of local agency inspectors in the inspection process.

Recommendation 9

State-level agencies that carry out commercial motor vehicle inspections should periodically conduct strictly random inspections.

With performance based programs and software such as ISS (Inspection Selection System) and ISS 2 and other guidance that inspectors can utilize in selecting vehicles to inspect can greatly impact the percentage of drivers and vehicles that are placed out-of-service. These rates are often requested as measure of the overall safety of commercial motor vehicles on the road. If selection processes are such that inspectors are guided to vehicles/drivers that are likely to be in violation, this could increase OOS rates and not accurately reflect the overall condition of the commercial vehicle fleet.

To measure the true percentage of commercial vehicles on the road that should be placed OOS, inspecting agencies need to conduct random inspections of those vehicles. It is recommended that periodically all inspections be done on a truly random basis, and the OOS percentage determined through this be used for estimates of "unsafe" commercial drivers and vehicles on the road.

Recommendation 10

States should have a program in place that enables them to follow-up, and take action as necessary, on violations noted on inspection reports that call for vehicle repairs.

During their field site visits, members of the project team learned there were a variety of approaches taken on following up on violations where a vehicle repair is necessary. All states visited request that repair notices be returned to the MCSAP or lead enforcement agency which is required by Motor Carrier Safety Regulations. However, in some cases, when the repair notice is not received, a follow-up letter is sent to the carrier but no further action is taken beyond that.

A system such as that used by the Minnesota State Patrol is recommended where, if the repair notice is not received, a follow-up letter is mailed to the carrier. An additional follow-up might be made, but in all cases where repair notices are not received in a timely manner, civil fines can be imposed against the carrier. The Illinois State Police, Arizona DPS and Connecticut Department of Transportation also have similar programs.

Best Practices

In the course of their site visits, the observation team members identified approaches to the commercial vehicle inspection process and commercial vehicle safety that merit consideration for implementation by other states. While not all of these practices would directly affect the uniformity of inspections, they do offer the potential for improving the inspection process and the relationships of all entities involved with inspections. Contact persons and addresses for more information about these best practices can be found in Appendix B.

Best Practice 1

Requiring drivers who are placed out-of-service to sign a form that explains penalties for violating an OOS order and acknowledges that they are aware of the penalties for violating the order.

Commercial vehicles or their drivers are placed out-of-service for violations that compromise safety. Some drivers violate the out-of-service order because they do not fully comprehend what "out-of-service" means, while others consciously disregard the order. A West Virginia study found that almost 25% of OOS orders were being violated. To counteract this, the **West Virginia Public Service Commission** revised their OOS form along with developing a special education program and requiring OOS drivers to sign a "declaration of knowledge" regarding the violation and what OOS means. They did subsequent follow-up operations on OOS drive-aways, and in both those instances only five of almost 300 drivers (<2%) violated an OOS order.

Best Practice 2

Use of an out-of-service decal that contains information for the driver about what an out-of-service order means and penalties for violating such an order.

The inspectors with the **Connecticut Department of Motor Vehicles** (DMV) noted the same circumstance as the West Virginia inspectors: drivers who had either themselves or their vehicles placed out-of-service were violating those orders. The DMV took a different approach from West Virginia to resolve the same problem. In Connecticut, when a driver or vehicle is placed OOS, a decal is placed on the vehicle's windshield. Wording has been placed on the back of the decal, visible through the windshield, that provides a brief explanation of OOS and a statement of the penalty for violating an OOS order. The same wording appears on the decal backing (which is made of a heavy stock similar to a note card) which is handed to the driver when the decal is applied.

Best Practice 3

Implementation of an inspector evaluation process that focuses on quality rather than quantity of inspections, that also encourages inspectors to direct their efforts to higher risk locations and vehicles.

Project team members believed that the **Illinois State Police** SCORE program was a good approach for overall evaluation of inspectors. SCORE is designed to help inspectors focus more on quality inspections than on the quantity of inspections. There was complete agreement that inspector evaluation should not be a "numbers game" and SCORE was an effort to accomplish that. With the SCORE program, inspectors are awarded points for an inspection based on level of inspection, vehicle type, hazmat presence, OOS notices, drug seizures, and custodial arrests. Points are also awarded for traffic law offenses and overweight citations.

Best Practice 4

Working with the motor carrier industry, particularly seasonal carriers, to inspect vehicles during their off-season, thus enhancing safety during their heavy usage periods.

The motor carrier industry consists of many diverse populations, almost all of whom operate under some time constraints. Some of them, especially in agricultural areas, operate only seasonally during very concentrated harvest seasons. During that period, some vehicles are used on-road for the only time during the year, and they are used almost non-stop. A challenge both industry and enforcement officials face annually is how to ensure safe vehicle operations during those peak seasons without placing undue burdens or interruptions during critical transportation periods.

To assure that the vehicles used on the road are in compliance with all commercial motor vehicle regulations, while minimizing disruption during critical periods, the **Minnesota State Patrol** implemented a program of carrying out voluntary inspections at designated off-road sites or terminals prior to peak season. This approach enhances the safety of vehicles operating in seasonal industries and promotes carrier efficiency and effectiveness in meeting seasonal demands.

Best Practice 5

Use of short range "handy-talky" type radios to enhance communication between the inspector and the vehicle driver.

Good communication between the inspector and driver is important for both inspector safety and for inspection efficiency. When multiple vehicles are being inspected at a given site, it is both difficult to hear over the noise of the truck engines and drivers might inadvertently hear and obey the directions of the "wrong" inspector. To help overcome this problem, inspectors with the **California Highway Patrol** use multichannel, short range portable radios. These inexpensive radios make driver-inspector communications clearer and more certain.

Best Practice 6

Developing an outreach program to make both the commercial vehicle industry and the general public more aware of commercial vehicle safety.

One of the key findings of the project team members was that commercial vehicle drivers were not very knowledgeable about the commercial vehicle inspection process. It is also well documented that most members of the general driving public are not aware of how to most safely interact with commercial motor vehicles in traffic. The **Tennessee Department of Safety** developed an outreach program to help resolve both of these concerns. Their program, the "Alternative Commercial Enforcement Strategies" (ACES) brings the community-oriented policing concept to commercial vehicle safety. The officers assigned to ACES conduct education programs for carriers and assist them in problem compliance areas. ACES officers also do "No Zone" presentations at schools and other venues such as vehicle races and community festivals. Approximately 160,000 people were reached by that presentation last year.

Best Practice 7

Conducting special inspection details in cooperation with local agency police officers where local officers identify vehicles to be inspected which are operating on local streets, and then escort them to a site for inspection by state-level officers.

In many states, commercial vehicle inspections are conducted only by state-level law enforcement agencies, and members of these agencies rarely patrol city streets. As a result, commercial vehicles that are used almost exclusively within a city, or never pass through a weigh station, are seldom inspected. To expose more of these vehicles to inspection, the **Minnesota State Patrol** works joint programs with local officers who are asked to patrol truck routes in their communities and stop trucks that commit traffic law violations or have apparent equipment violations, and escort them to a site where MSP inspectors are set up. Most local agencies are great supporters of this effort. They have the opportunity to learn more about commercial vehicle safety and inspections and can impact the number of unsafe vehicles on their local roads.

Best Practice 8

Use of modems or cellular packet technology to permit real time uploads of commercial vehicle inspection reports to a central authority.

Using paper inspection reports or even computers without communications capabilities means there is a delay between completing an inspection and getting the results of that inspection into the states central inspection records system and forwarded on to Safetynet. Automating the upload process means more up-to-date information for the carrier's profile, and more current management information for the inspecting agency.

Cellular data packet technology, such as that used by the **Connecticut Department of Motor Vehicles**, permits instantaneous uploading of reports wherever a cellular signal is available. Uploading reports via modem, currently in use by other states, requires land line telephone access. Inspection data that are timely and accurate are an important part of a carrier's safety fitness profile. Keeping the profiles up to date is important.

Barriers to Quality Inspections

As has been repeatedly stated, the inspections observed by members of the project team were carried out in compliance with the NASI protocol. However, practices were noted that while not affecting inspection uniformity directly, did appear to have negative impact on the overall inspection process. These included:

- **Absence of central control over the inspectors.** Field supervisors for inspectors should be qualified inspectors themselves. At the operational level, it is difficult to supervise individuals when the supervisor does not know the job they are to be doing. While high-level supervisors and managers do not necessarily need to be qualified inspectors themselves, the inspection process seems to work best when it is a separate command.

- **Enforcement vehicles without adequate emergency lights.** While most of the equipment carried in inspector's vehicles is for use in off-road inspections, most inspectors also use those vehicles to make traffic stops involving commercial vehicles. Some of the inspector vehicles observed were not properly equipped with emergency lights for this purpose, even though the inspectors were expected to make such stops.

- **Inspector's vehicles without adequate equipment.** Most of the states visited provide on-road inspectors with their own vehicles. Inspectors use much more equipment than general traffic officers and access to the equipment and knowledge of its location is important. When inspectors are assigned fleet or motor pool vehicles, they are never certain where a piece of equipment might be located, or even if it is in that vehicle. This results in both time expended on a vehicle inventory or in not having something needed for an inspection.

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Chapter 3:
Project Background And Issues

Between 1988 and 1992, large truck-related crash fatalities and the large truck crash rate per mile traveled steadily declined. Since 1992, the crash rate has remained stable while the actual number of fatalities has increased numbering more than 5,000 per year since 1996. Large trucks (gross vehicle weight rating higher than 10,000 pounds) are involved in one out of eight traffic fatalities. While trucks accounted for only three percent of registered vehicles and seven percent of vehicle miles traveled, large trucks were associated with 5,374, or 12.8%, of crash fatalities in 1998; down slightly from 5,398 crash fatalities the previous year.

Large trucks are more likely to be involved in fatal, multiple-vehicle crashes than passenger vehicles, according to a report from the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration. A Truck and Bus Safety Summit held in Kansas City in March 1995 identified uniformity of regulations and enforcement as one of 17 safety issues that needed to be addressed. Partly as an outcome of that summit, the U.S. Department of Transportation recently set a goal of reducing fatalities in large truck crashes by 50 percent in the next ten years.

According to a report published in *Accident Analysis and Prevention*, "Defective Equipment and Tractor Trailer Crash Involvement," by Jones and Stein (1989), tractor trailers with mechanical defects are twice as likely as those without defects to be involved in crashes. While there can be questions concerning the attribution of causality in such a study, the relationship is nevertheless suggestive. It can be inferred that carriers who are less concerned about vehicle maintenance are probably also less concerned about driver quality and enforcement of regulations.

During a special eleven state inspection survey in 1996, 29% of trucks were found to have mechanical defects serious enough to require putting them out-of-service. Data from the same survey showed that 5% of drivers inspected were also placed out-of-service. Comparable figures from 1992 were 28.3% for trucks and 5.3% for drivers. All trucks inspected as part of this survey were randomly selected based on selection criteria developed by the OMCS (*1996 National Fleet Survey*, USDOT, Office of Motor Carrier Safety, September 1998).

The percentage of vehicles and drivers in the entire operating fleet with violations serious enough to place them out-of-service is difficult to establish. Most inspections are not done randomly. Vehicles are most often selected because of traffic law violations, ISS ratings, carrier profiles, or visible safety violations. Therefore, the percentage of vehicles placed out-of-service following an inspection should be higher than the OOS percentage expected from true random selection of vehicles. As selection criteria based on need become more sophisticated, the percentage of inspected vehicles placed OOS should even increase. It is not appropriate to equate the percentage of vehicles placed OOS following inspections with a potential OOS rate for the entire operating commercial motor vehicle fleet.

The Motor Carrier Safety Assistance Program (MCSAP) was created by the United States Congress in 1983 to improve the safety of truck operations and to reduce truck-related crashes and fatalities. Voluntary compliance is seen, by MCSAP agencies, as the most effective and lasting way to increase safety. Clear understanding of commercial motor vehicle regulations by

carriers and drivers, coupled with uniform enforcement of those regulations, will increase voluntary compliance. With the enactment of uniform regulations in 1983, and the current zero-based effort, industry-wide understanding is achievable. However, if enforcement remains inconsistent, carriers may inadvertently remain out of compliance, or may even conclude the regulations are not directly related to safety.

Roadside inspections are one part of the combined enforcement effort (federal, state and local) perceived as being inconsistent. Carriers suggest inspections vary among states as well as within states. However, to date, this lack of uniformity is unsubstantiated, and factors and practices related to greater consistency have not been identified. Some issues which relate to perceived inconsistencies may be those which most adversely affect profits: the likelihood of being inspected, the level of inspection performed, duration of the inspection, and the penalties which result from being out of compliance. Other inconsistencies may well occur due to how the inspection is conducted, including:

- what regulations are emphasized or de-emphasized;
- inspector thoroughness and attitude;
- individual qualifications and interpretations of regulations;
- documentation and observations; and
- leniency toward specific carriers, industries or drivers.

Other factors may be whether the commercial vehicle enforcement officer is civilian or sworn and whether the inspections are conducted:

- by teams or individually;
- in inspection pits or on the side of the road; and
- by MCSAP agencies only or local officers as well.

Of importance, of course, is not just for all commercial vehicle inspectors to perform the inspections in the same way. Also needed is conformance with the established standards for inspections. Thus, any review of the discrepancies in enforcement practices must examine which practices most closely adhere to the training and regulatory guidelines.

Project Goals and Objectives

The goal of the project was to provide practical information to OMCS, commercial carriers, MCSAP agencies, and the CVSA which will be used to guide and improve standardized roadside enforcement of commercial regulations across North America.

Based on preliminary information available to the ISP and TI at the initiation of the project, a set of objectives was established to guide early planning and conceptualizing. As further information was gained, particularly from the project's carrier and MCSAP agency surveys, and input from the initial project advisory group meeting, these have been modified. The actual course of the project was generally defined at the initial meeting of the project advisory group. The results of that meeting are discussed in the following chapter.

Project Preliminary Objectives

1. Assess uniformity of roadside safety inspections of commercial vehicles, estimate the magnitude and locations of the problem, and prioritize issues to be resolved concerning the non-standardized roadside activities which are of most concern to all parties involved in the inspection process;

2. Identify and evaluate the vehicle, driver inspection and crash data which are available to assess the relationship between inspections and crashes;

3. Identify similarities and differences in perceptions of uniformity of roadside inspections among researchers, carriers, drivers, inspectors and law enforcement supervisors.

4. Identify factors which contribute to, or cause the disparities or perceived disparities, including:

   - varying resource availability and allocation;
   - ambiguity of regulations and training;
   - differing perspectives of observers;
   - inconsistencies in agency-specific procedures and CVEO qualifications and training; and
   - volume and types of commercial and non-commercial traffic within jurisdiction.

5. Document and evaluate agency roadside practices and administrative controls for maximizing uniformity of inspections.

6. Build consensus between commercial carriers, regulatory agencies and enforcement agencies for standardizing enforcement procedures and adopting management and reporting practices for increasing inter- and intra-state uniformity of roadside inspections.

7. Promulgate conclusions and recommendations with the greatest potential impact on improving roadside enforcement to a wide industry and governmental audience.

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Chapter 4:
Project Approach/Tasks

Once all contracts were executed and actual project work was initiated, members of the project administrative team and representatives of the Office of Motor Carrier Safety met several times to plan the overall strategy for carrying out the project. The initial project task was to initiate a review of the literature. This review is summarized in Appendix C of this report. The next major task was to carry out the initial surveys of MCSAP agencies and carriers. The results of those surveys are summarized in Appendix D. Full copies of these reports: *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: A Compendium of Research Studies in the Field of Safety Inspections for Motor Carriers and Drivers* and *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Results of a Survey of State Agencies and Carriers*, are available from the Office of Motor Carrier Safety and are also available on-line on their World Wide Web site at http://www.mchs.fhwa.dot.gov.

The preliminary goals of the project were stated in the project proposal and are listed in Chapter 3 of this report. The project principals agreed, however, that the actual conduct of much of the project would be guided by what was learned in the preliminary surveys and from the members of the project advisory group. Therefore initial project efforts were devoted to those tasks.

North Dakota State University Survey

One initially planned project activity was to carry out a survey of commercial motor vehicle drivers to learn about their perceptions of the inspection process. However, is was learned that a survey of drivers had just been completed as part of another project[1]. While that survey did not specifically address uniformity of inspections, it did address many related issues. The findings from that survey included the following:

- Both drivers and inspectors indicated a positive perception of roadside inspections.
- When asked if they were aware of the *specific* penalty for violating an out-of-service order, two-thirds of the drivers indicated that they did not know.
- Approximately half of the drivers disagreed with the statement that roadside inspections are the same from state to state.
- About 70% of drivers agreed that roadside inspections improve safety for their company, but only 43% of motor carrier managers agreed with this statement.

[1] *An Evaluation of Commercial Vehicle Drivers' and Roadside Inspectors' Opinions Regarding the MCSAP, the Roadside Inspection Process, and Motor Carrier Safety*; Lantz, Brenda M.; Upper Great Plains Transportation Institute, North Dakota State University; Department Publication No. 125; September 1998

- The vast majority of drivers, inspectors, and state administrators of the MCSAP agreed that the selection process for roadside inspections is fair, but motor carrier managers were undecided about this issue.

- Drivers were extremely positive in their responses evaluating inspectors, indicating that roadside inspectors are doing an excellent job. However, drivers and inspectors evaluated driver performance lower than inspectors.

- When asked to define the relationship between inspectors and drivers, no one group gave an overwhelmingly positive response. However, all groups agreed that it would be beneficial to improve their partnership.

- About 81% of inspectors versus 53% of drivers indicated that safety is a problem in the commercial vehicle industry. Similarly, 88% of state administrators of the MCSAP versus 50% of motor carrier managers responded that safety is a problem.

- Almost 89% of inspectors, versus only 52% of drivers, responded that there was a problem with fatigued commercial vehicle drivers on the road. However, 84% of drivers and 72% of inspectors believed there was a need for more rest areas for drivers to get required rest.

Since that driver survey had already been completed, it was decided that, for this project, the survey recipients would be altered to carrier management rather than individual drivers (although the independent owner/operator was still well represented in the survey for this project). As mentioned, the results of that survey are summarized in Appendix D.

Project Team Selection

The results of the MCSAP agency survey were then used to assist in forming the project advisory group. All survey recipients were asked if they were willing to serve with the group and/or participate in the proposed project site visits. Other members were selected by project team staff to assure carrier industry representation. The membership of the project advisory group that was selected consisted of:

- Six representatives of MCSAP agencies (one of whom also represented CVSA);
- Two representatives of the carrier industry;
- Two additional at-large representatives from carrier associations who would not participate in site visits;
- Three representatives of the Office of Motor Carrier Safety; and
- Two project team staff members.

A listing of all project team members and their affiliations can be found in Appendix A.

Advisory Group Meetings

The initial meeting of the group took place in the Chicago, Illinois, area on October 14-15, 1998, and its goals were to:

- brainstorm and identify priority issues;
- develop specific procedures;
- develop data collection procedures, reporting forms and other observation guides to be used during site visits;
- recommend field sites; and
- draft a tentative schedule for visiting the selected sites and remaining project activities.

Initial Tasks

A welcome, opening remarks and introductions were made by members of the project team. The history and background for the project was presented by Barbara Kenefake of the OMCS. The remainder of the first day was spent reviewing results of three surveys:

- Upper Great Plains Transportation Institute Driver Survey;
- Traffic Institute MCSAP Agency Survey; and
- Traffic Institute Motor Carrier Survey

The two Traffic Institute surveys were carried out as part of this project and the summary of those results can be found in Appendix D. The results of all three surveys were presented to the meeting participants to give them background information and notes of concern and interest from those most directly involved in commercial vehicle inspections. They were intended to provide background for the meeting's major focuses which were to brainstorm on uniformity issues and site visit activities, and to develop site visit guidelines and identify site visit training needs.

The group deliberations addressed the entire commercial vehicle inspection process. While the focus was on issues relating to the uniformity of inspections, uniformity could not be addressed outside of the context of inspections in general. Some of the topics that were discussed and ultimately determined to be beyond the scope of the project were:

- The need for a better method to be available for carriers to use to "clean" their carrier profiles from information introduced as a result of errors in an inspection or inspection data entry;

- Data available through Safetynet;

- Administrative details relating to state-level management of the inspection process.

A total of ten topics were ultimately discussed that were relevant to the site visits/observations. These topics are described below.

1. What the barriers to uniformity are and how can they be overcome;

2. How observers can assess the uniformity of the field inspections that they monitor;

3. What do the observers need to know to do the site visit work;

4. What can be learned from the examination/evaluation of state-level inspection records that will promote or measure uniformity;

5. How selection of vehicles to be inspected impacts uniformity;

6. Are there differences in uniformity among the different levels (e.g. is uniformity more of a problem at Level 3 inspections than with other levels);

7. What is the role of local agencies that conduct commercial vehicle inspections, especially municipal and county law enforcement officers, relative to the possible lack of uniformity of inspections;

8. How is the training and retraining of inspectors conducted and how are training needs identified;

9. What are state guidelines for issuance of CVSA decals and acknowledgment of them when they are on vehicles, inspectors' understanding of decals, and drivers' understanding of decals; and

10. What does out-of-service mean to the inspector and the driver - are there exceptions.

Identification of Sites to Be Visited

The survey of MCSAP agencies also asked if that agency would be willing to host a site visit. Approximately twenty agencies offered to host such a visit, but project budget and time constraints limited the list of possible visits to seven agencies. Considerations used to select the sites to visit included geography, volume of inspections, and percentage of OOS orders. Following the initial project meeting, project staff made follow-up telephone calls and confirmed dates for the site visits. The agencies selected and the dates of the site visit were:

- Illinois State Police, November 2-6, 1998 (which would also serve as the pilot test and training site);
- Arizona Department of Public Safety, February 2-4, 1999;
- California Highway Patrol, March 2-4, 1999;
- Tennessee Department of Safety, April 7-9, 1999;
- Connecticut Department of Motor Vehicles, May 4-6, 1999;
- Minnesota State Patrol, June 2-4, 1999; and
- West Virginia Public Service Commission, June 29-July 1, 1999.

At the initial meeting of the of the project advisory group, considerable discussion was held concerning what was to be accomplished during the site visits. The points listed above were the primary sources for defining the agenda for the site visits. The first site visit, in Illinois, was to be a test of the approach to the site visits, information that was to be collected, and data collection instruments. The full agenda of what was to be included in each site visit consisted of:

- A site overview briefing;
- Fifty to one-hundred completed inspection reports for team review;
- On-site observations of the inspection process (preferably involving more that a single inspection site, and some opportunity for project team members to ride along with inspectors to observe on-road as well as fixed site inspections;
- Local focus group sessions (for five of the seven visits); and
- A site debriefing.

Following each site visit, a summary report describing each site, the project activities carried out there, and results of on-site data collection was drafted and submitted to the project team members and host site for review and comments. The final versions of those reports served as the basis for Chapters 5-8 of this report.

Final Advisory Group Meeting

After all site visits had been completed, the full advisory group reconvened in the Chicago area from July 26-28, 1999, to review all project activities to date and to make recommendations regarding content of the project final report. A preliminary list of project findings, recommendations, and best practices was sent to each member in advance. Most of the final meeting was spent discussing the findings, recommendations, and best practices and deciding how they were to be presented.

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Chapter 5:
Overview Descriptions of the Sites Visited

A key activity carried out under this project was to conduct visits to seven different states to observe the commercial motor vehicle inspection process as performed in the field. Prior to going into the field, each state provided an overview briefing that described the commercial vehicle inspection program in their state. This included where the inspection program was situated organizationally in the state, lines of authority, who had authority to conduct inspections, etc.

Agency Organizational Structures

It is of interest that all of the states visited had developed substantially different structures and tables of organization for their commercial vehicle inspection programs. More complete details of each state's presentation can be found in the report *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Compilation of Site Visit Interim Reports,* available from the OMCS. Table 1 compares some key attributes of each state's program.

For each state visited, except Illinois, the lead enforcement agency was also the MCSAP agency. In Illinois, the Department of Transportation is the lead agency, while all inspections are done by the Illinois State Police. In most states, the lead agency was either the state police (or patrol) or part of an umbrella agency that also included the state police. Exceptions were Connecticut, where the lead agency is part of the Department of Motor Vehicles, and West Virginia, where the lead agency is part of an independent Public Service Commission.

Two states, California and Minnesota, make extensive use of civilian commercial vehicle inspectors. In California, the civilians work only in fixed facilities and do not have the authority to place a vehicle out-of-service; a sworn officer (assigned to the same facility) must be called to do this. In Minnesota, civilians work both at fixed facilities and on the road, but cannot make traffic stops; they do have the power to place vehicles out-of service, however.

Illinois is also the only state visited where the inspection program does not operate under a centralized command structure. All Level 1 inspectors in Illinois are assigned to that state's various district commands rather than to a commercial vehicle enforcement unit. All inspectors are fully sworn troopers who are assigned commercial vehicle enforcement duties. They are supervised and evaluated by the district command staff and most supervisors are not inspectors. The Illinois State Police administrative commercial vehicle unit arranges for inspector training, schedules special enforcement programs, oversees data entry of inspection report forms, and performs other administrative tasks, but has no direct control over the inspectors. In Illinois only the state police can inspect commercial vehicles. The state has about 60 Level 1 inspectors who are assigned full time to that duty. All Illinois troopers are trained at Level 3, and about one-third of all field troopers are trained at Level 2.

ATTRIBUTE	STATE						
	Arizona	**California**	**Connecticut**	**Illinois**	**Minnesota**	**Tennessee**	**West Virginia**
MCSAP Agency	Arizona Dept. of Public Safety	California Highway Patrol	Connecticut Dept. of Motor Vehicles	Illinois Dept. of Transportation	Minnesota State Patrol	Tennessee Dept. of Safety	W. Virginia Commerce Commission
Lead Enforcement Agency	Same	Same	Same	Illinois State Police	Same	Same	Same
Other State-Level Inspection Agency	No	No	Connecticut State Police	No	No	Tennessee Highway Patrol - Level 3 only	No
Local Agency Inspectors	Yes - many	Yes - many	Yes - few	No	Yes - one individual	No	No
Use Civilian Inspectors	No	Yes	No	No	Yes	No	No

Table 1 - Attributes of State Inspection Programs

West Virginia and Tennessee are the other two states visited that have all inspectors under a single, state-level agency. In Tennessee the inspectors work for the Tennessee Department of Safety, which includes the Tennessee Highway Patrol, but no other employees of the patrol, including troopers, do commercial vehicle inspections. All West Virginia inspectors are enforcement officers with the Motor Carrier Section of that state's Public Service Commission.

In Connecticut and Minnesota, almost all inspectors work for state-level agencies. Minnesota has only one remaining local agency inspector. Almost all inspections are carried out by sworn and civilian inspectors of the Minnesota State Patrol. Connecticut also has only a few local agency inspectors, but at the state level, inspections are performed by both Connecticut Department of Motor Vehicles inspection officers and Connecticut State Police troopers. Arizona and California have considerable numbers of local agency inspectors as well as Department of Public Safety and Highway Patrol inspectors, respectively.

Inspection Procedures

Training

All states reported that their training is provided under the NASI format in conformance with the National Training Center's guidelines. All of the states visited have their own training staff and new inspectors for those states are trained internally. All states make in-service and refresher training available to their inspectors with some mandating the retraining on a periodic basis. Minnesota requires its inspectors to go back through the entire NASI course every four years or less.

State level control of initial and in-service training for county and local agency inspectors varied. Some states, such as Minnesota, require all local agency inspectors to meet the same training and minimum performance criteria as state-level inspectors. Other states have no control over where local agency inspectors receive their initial training, or whether they need to take any refresher training at all.

Use of Automation

All states visited are moving toward automation of their inspection reports. Five of the states currently use laptop computers loaded with Aspen software for recording inspections. West Virginia has new laptops on order to replace earlier hand-held computers that used different inspection software. Illinois does not currently use computers in the field. All other states visited have near-term goals of equipping all state-level inspectors with Aspen-based laptop computers. One state was using a pen-based computer system rather than a keyboard based system. The pen-based system was thought more difficult to use in the field.

Locations of Inspections

In all states visited except Arizona, the most common location for conducting a Level 1 inspection was at a fixed weigh station. Arizona does have inspectors assigned to the state's ports of entry, but most inspections are done at roadside by patrolling inspectors. That state has no interior fixed weigh stations. In all other states except West Virginia, the commercial vehicle inspectors can also assist as weigh masters (or have specific duties as weigh masters) and can combine the weighing and inspection functions. California, Connecticut, Minnesota, and Tennessee have inspectors whose primary duty station is at a fixed weigh facility.

Considerable variation was found in the frequency of CDL verifications done in conjunction with inspections. The primary criteria for determining this frequency was adequacy of communications systems. In some states, like Connecticut, most inspectors have fully integrated laptop computer/communications systems that enable them to directly run CDL checks without involving a communications center. Other states do not have access to computerized systems and all CDL checks must be run via their in-vehicle two-way radios through their communications centers. Some agencies share these communications systems with other agencies or other divisions within their agency and the systems are so busy that running CDL checks is difficult due to the time involved.

Chapter 6:
Summary of Observer Comments

At all of the sites, members of the observation team met at the conclusion of their field work and discussed what they had seen. The project team would first meet among themselves to discuss their observations, and would then present their findings to representatives of the host agency. While the intent of the observations (and the primary purpose of the project itself) was to assess uniformity of inspections, observers also noted anything that enhanced or detracted from the inspection process or overall commercial vehicle safety.

For the most part, observer comments fell into one of two categories: practices/performance that were praiseworthy, and items of concern. This chapter will summarize the observer comments. A more complete listing of observer comments can be found in the report *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Compilation of Site Visit Interim Reports,* available from the OMCS.

General Observations

For all seven states visited, observers found that the inspectors were conducting inspections in conformance with the NASI procedure with few and very limited exceptions. In no case was it found that there was a consistent, identifiable problem with uniformity of inspections. In almost all cases, the observers pointed out the conscientious efforts of the inspectors to follow the standard and carry out the inspection in a fair and professional manner. Similarly, inspectors were praised for efforts to establish good rapport with drivers. Comments from the drivers confirmed the overall fairness of the inspectors.

In no case was it noted that an inspector was using an outdated out-of-service criteria. Almost every state had an annual retraining session where inspectors received their current year reference materials. Some states also forward updated materials to the inspectors in the field as soon as they are received. Inspectors also use their references. In many cases observers noted that inspectors would refer to their manuals to reconfirm what the violation or OOS criteria were. Inspectors are also willing to go to their peers and supervisors to seek help with an interpretation or an unusual situation.

It was noted that most inspectors do a very thorough job of explaining violations to the drivers. In some instances this included inviting drivers to join them underneath the vehicle, in one state this involved using laser pointing devices to clearly show the drivers where the problems were. In interviews with drivers, the observers noted that the drivers also appreciated the inspectors' efforts to show them exactly what their violations were and what would be needed to be done to correct them.

Concerns

On a less-positive note, the observers noted that the inspectors often did not fully explain the overall inspection process to the drivers, and were inconsistent in explaining the CVSA decal.

Such explanations are not, however, currently part of the training that inspectors receive. Most drivers could not identify the level of the inspection they had just received, and most could not describe the purpose/value of the CVSA decal. An inspection is a "teachable moment" that needs to be utilized so that the drivers become more aware of the inspection program and process.

Some items were not checked in a number of sites. These usually included

- 5th wheel plate movement,
- steering wheel lash, and
- tractor protection valve

Other items of concern that were noted in more than one state were:

- Inconsistency in conducting CDL verifications - some states verified every license, some rarely verified any;
- Locations for roadside inspections need to be carefully chosen - in some states, vehicles are almost always taken to an off-road location for anything other than a Level 3 inspection - other states do Level 2 inspections on the shoulders of heavily traveled interstate highways;
- Not making sure there was proper air pressure in the system while checking brakes; and
- Inconsistencies across the states in how thoroughly drivers' log books and supporting documentation were checked.

Review of Completed Inspection Reports

In each of the states, the members of the observation team were also given a set of 50-100 already completed inspection reports for review. The team members reviewed the report forms to look for apparent problems with uniformity or inconsistencies with the reports. Generally, no uniformity problems were identified in this review. The most-often raised concern with this review was the identification of inspection reports where no critical item violations were noted, but there was no evidence that a CVSA decal was issued.

In some states, there were unintended biases introduced into the selection of the reports for review. This resulted in the reports being reviewed showing a greater number of violations or even the likelihood of showing a violation than a more truly random selection of report forms. Other concerns noted in the review were:

- Difficulty in reading the inspectors handwriting;
- One instance of a vehicle being placed out-of-service for a non-OOS violation;

- Aspen-generated inspection reports often showed an unrealistically short time expended on a Level 1 inspection - this was believed to be a function of the inspector not manually setting the time for inspection field with the time shown being only the automatically recorded time for the computer data entry part of the inspection;

- Brake measurements are often not shown when brakes are presumably not out of adjustment; and

- Concern in one state that non-state-level inspectors were "stacking" violations apparently to maximize their revenue collection.

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Chapter 7:
Summary of Findings from On-Site Surveys

During the site visits, the members of the observation team spent the majority of their on-site time with commercial vehicle inspectors, watching them carry out inspections. For each of these inspections, the observer completed a "Commercial Vehicle Inspection Observer's Report." A copy of this instrument can be found in Appendix E. Summaries of these observation forms were completed for each site, and they can be found in the *Compilation of Site Visit Interim Reports,* available from the OMCS. This chapter will provide an overview of those findings.

Inspection Facts

The first item examined from the observations forms was the average time expended on an inspection. As shown in Table 2, the average time of inspection was available for 253 observed inspections. The average inspection at a fixed facility took about 40 minutes and the average roadside inspection took just under 33 minutes. Much of this difference is attributable to the fact that most of the roadside inspections were Level 2 and most of the fixed facility inspections were Level 1. Usually, the only reason that fixed facility inspections were not made at Level 1 was inclement weather. Variations in time of inspection across the states visited was usually based on the mix of inspections done at fixed facilities versus roadside.

Table 2
Average Time for Inspections

Location	No. Insp.	Minutes
Fixed Facility	179	40.3
Roadside	68	32.8
Other	6	30.8
Average Time (Minutes)	253	38.1

Table 3 shows the total number of major and minor violations found at all sites and the total number of vehicles placed out-of-service. For the 253 recorded inspections, inspectors found a total of 798 minor violations, and 191 violations serious enough to place 18 drivers and 104 vehicles out-of-service. It is of interest to note that tractors had almost twice as many minor violations as trailers, but about the same number of out-of-service violations. There were 54 straight trucks and an unknown number of semi-tractors not towing trailers (bobtails) inspected. Therefore there were probably 60 to 70 more tractor/straight truck units inspected than trailers. The ratio of violations for tractors to trailers for both minor and OOS violations was consistent in all states except Minnesota. There, a special inspection detail observed resulted in a much larger than usual proportion of straight trucks being inspected thus producing much higher ratio of tractor to trailer violations than was found in other states.

Table 3
Violations Detected and Out-of-Service

	Number of Violations		Number
Observed	Not OOS		Placed
Element	(minor)	OOS	OOS
Driver	131	23	18
Tractor	406	82	55
Trailer	247	84	45
HazMat	14	2	4

Table 4 provides more details about the kind of vehicles that were inspected. The most common unit inspected was a tractor/box trailer combination. The next most common units were straight trucks and tractor/flatbed combinations. The percentages of one type of unit to the others was generally consistent across the states except for the over-representation of straight trucks in Minnesota, as mentioned above.

Table 4
Inspections Results by Vehicle Type, Type of Operation and Location of Inspection

		Carrying	CVSA Decal		
		Hazardous	Attached		Critical
Type of Vehicle	**Count**	**Materials**	**Tractor**	**Trailer**	**Defects**
Tractor/Box Trailer	92	3	10	7	28
Tractor/Dump	21	4	2	2	8
Tractor/Flatbed	44		4	5	20
Tractor/Tanker	12	6		1	6
Straight truck	54	10	5		20
Auto Hauler	4				1
Not Stated	4				2
Other	22	4	1	1	7
Type Operation					
For Hire	135	11	13	7	38
Owner/Operator	31	4	1	1	16
Private	79	11	7	8	35
Other	8	1	1		3
Location of Inspection					
Fixed Facility	179	21	17	14	66
Roadside	68	5	4	1	26
Other	6	1	1	1	
Total	253	27	22	16	92

Almost 450 individual vehicles were inspected, 253 power units and close to 200 trailers (some straight trucks were towing trailers as well), and 38 had current CVSA decals attached. In these cases where one unit had a CVSA decal attached, only the other unit was given an inspection unless an obvious violation was noted. Three units with CVSA decals attached, two tractors and one trailer, were placed out-of-service. Over half of the units with CVSA decals attached (21 of the 38) were found in California. The location where members of the observation team spent most of their time in California was at the primary U.S./Mexico border crossing for commercial vehicles. There, all vehicles entering the U.S. are weighed and considered for inspection; the lack of a current CVSA decal on either unit is by far the most common reason to select it for inspection.

Across all states, over one-half of the vehicles inspected were operating "for hire." Private carriers were just over half as common as the for hire units, and owner/operator units were about half as common as the private carriers. There was considerable variation in the ratio of operator type in the states visited. In California, for hire and private carriers were found in almost equal numbers. In Connecticut, no owner/operator units were inspected at all.

Seventy percent of the inspections observed took place at fixed facilities with almost all of the rest done on the roadside. In Connecticut and Illinois, no project team members participated in ride-along operations with inspectors, so almost all of the inspections in those states took place at fixed facilities.

Observer and Driver Comments on Inspections

Table 5 shows that both the observer and the inspector found the driver to be cooperative in almost all of the inspections. Twelve of the 21 instances where cooperativeness was rated as "3" or lower were recorded in California, possibly as a result of the fact that many of the drivers inspected there did not speak English. Two of the four instances where the fairness of the inspection was rated "3" or lower by a driver also took place in California.

Table 5
Observed Cooperativeness of Drivers and Fairness of Inspections

	Degree of Cooperativeness or Fairness					
	Very High				Very Low	Not
	5	4	3	2	1	Stated
Driver Cooperativeness						
from Inspector	173	44	10	1	1	24
from Observer	183	53	8	1		8
Fairness of Inspection	222	22	3	1		5
Use of NASI Standards	154	66	25			8

Due to a revision in the observation form, observers did not rate the compliance of the inspection with the North American Standard Inspection criteria in the first two sites visited, Illinois and Arizona. The compliance with the standard was rated highest in Minnesota and West Virginia.

Table 6
Driver Knowledge, OOS, and Local Inspections

	YES	NO
Level of Inspection Known	92	161
Describe Levels	39	214
Know CVSA	99	154
Define OOS	104	149
Local Inspection	21	232

As can be seen in Table 6, drivers were not often able to identify the level of inspection they just received, or define the levels of inspection, what a CVSA decal meant, or penalties for violating an out-of-service order. Of the responses to these items, the smallest percentage was able to define the inspection levels; only 15% of the 253 drivers asked were able to do this. The best showing was in identifying penalties for violating out-of-service orders, where 41% of the drivers were able to do so. There was little variation found from state to state as to driver knowledge in any of these areas with one exception. A majority of the drivers in California, 22 of 36, were able to describe what a CVSA decal meant.

Tables 7 and 7a contradict one of the claims made by members of the carrier industry that their vehicles are subject to very frequent inspections. Table 7 shows information for all states visited, while 7a excludes California data. As mentioned earlier, all vehicles crossing the U.S./Mexico border are subject to inspection, and the absence of a valid CVSA decal will result

in a vehicle being inspected. As such, a tractor involved in cross-border freight shuttle operations, as most of the border crossing vehicles are, is likely to be inspected four times per year. Since one tractor may take as many as seven trailers across the border in a day, the actual likelihood of being inspected is even higher. Discounting the California data, the 217 drivers remaining reported that they were inspected a total of 499 times, an average of just over twice per year. It should also be noted that there was some inconsistency among the observers as to whether they counted the inspection they were observing as one of the inspections received either in the past 30 days or in the past 12 months.

Table 7
Inspections and OOS for Drivers

	Last 30 Days	Last 12 Months
Number of inspections	207	1028
Driver OOS	6	17
Vehicle OOS	28	61
Number Pre-Trip Inspections This Trip	238	

Table 7a
Inspections and OOS for Drivers (Excluding CA)

	Last 30 Days	Last 12 Months
Number of inspections	144	499
Driver OOS	5	16
Vehicle OOS	24	41
Number Pre-Trip Inspections This Trip	203	

Table 8 also confirms this. About 40% of the drivers were not able to respond to the questions about the uniformity of inspections either within the state where they were being inspected or across all states. The reason given for non-response was that they had not been inspected elsewhere to give them a basis for comparison.

Table 8
Fairnesss and Uniformity - Driver Perspective

	Degree of Fairness or Uniformity						
	Very High				Very Low	Not	
	5	4	3	2	1	Stated	Average
Fairness of Inspection	195	25	10	1		22	4.79
Uniformity, This State	76	48	21	6	2	100	4.24
Uniformity, All States	34	54	32	10	10	113	3.66

Chapter 8:
Summary of Driver/Industry Focus Group Findings

One of the more important goals of this project was to obtain as much feedback as possible from the motor carrier industry as to the uniformity and fairness of inspections. Three opportunities were created for this purpose:

- The survey of motor carriers (summarized in Appendix D);
- Comments from drivers as obtained by observers following inspections of their vehicles (summarized in Chapter 7): and
- Comments obtained in driver/industry focus group sessions conducted during five of the seven site visits.

This chapter will provide an overview of comments made and discussions held during those driver/industry focus group sessions which took place in:

- Arizona,
- Connecticut,
- Tennessee,
- Minnesota, and
- West Virginia.

Driver/Industry Focus Group Approach

All focus groups followed the same general approach. They were facilitated by a member of the project team staff. At least one member of the observation team attended and participated in each focus group. This member was a representative of the motor carrier industry and sometimes a CVSA representative. More complere comments made in each focus group can be found in the report *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Compilation of Site Visit Interim Reports,* available from the OMCS.

At each site, the local host was asked to make arrangements to have local drivers and carrier safety officers attend the focus group sessions. The number of these participants ranged from five to twelve with an average of nine. Representation was about evenly split between drivers and safety officers. Several drivers were current or former members of their state's Road Teams.

All of the focus group sessions were scheduled for two hours. During the first 90 minutes, only the project team members, drivers, and safety officers were present. For the final 30 minutes, representatives of the local inspection agency(ies) were asked to join the group. Four of the focus group sessions were held in hotel meeting rooms and the fifth was held in the conference room located in the site visit host agency's headquarters building.

Topics Discussed

The key finding from the driver/industry focus group sessions was that no driver or safety officer participants were able to identify any consistent, national problems with inspection uniformity. Some participants commented on perceptions of over-zealousness of inspectors in some states and occasional condescending attitudes of some inspectors towards drivers. However, there were no complaints about uniformity from state-level inspectors.

One exception to this general agreement concerning inspection uniformity came from comments on local agency inspectors. In every focus group, the participants mentioned negative experiences with inspectors from non-state-level agencies. The comments focused on the belief that the inspectors from municipal and county law enforcement agencies were far more interested in revenue generation than commercial vehicle safety. There were reports of comments from local inspectors that they looked at CVSA decals as a challenge to find a defect rather than as a sign that a vehicle should not be reinspected. It was also stated that "local agency inspectors rarely look at driver log books - there is not enough revenue in log book violations to bother with learning those rules," at least compared with vehicle equipment and safety violations.

There was also discussion as to whether or how the state MCSAP agency could or should attempt to regulate local inspectors. It was acknowledged that state law ultimately governed whether or not local agencies could do inspections, but entry of local inspection data into Safetynet was presumably controlled by the MCSAP agency.

The driver and safety officer participants unanimously agreed that the inspection process is designed to keep drivers, vehicles and the road safe, and to "level the playing field" for all carriers. The participants acknowledged that without inspections, there were carriers who would ignore regulations and increase profits by cutting maintenance and forcing drivers to exceed hours-of-service regulations.

The participants in the focus groups recommended that state-level inspection programs be expanded. It was their belief that more inspections by qualified inspectors, with appropriate issuance of CVSA decals, would enhance safety and better the carrier industry by forcing non-compliant carriers either into compliance or out of business. The participants thought that most carriers try very hard to observe all safety regulations - insurance penalties for poor records are more expensive than safety and compliance-assurance programs.

There was concern expressed that some states seemed lax in issuing CVSA decals when they were warranted. With the local agency exception already mentioned, and complaints about one specific state, it was agreed that CVSA decals were honored and they were definitely worth having on the vehicle. Even states with reputations as "nit-pickers" were acknowledged as honoring the decal. The participants, particularly the safety officers, also wanted more inspections done at their terminals so that drivers and cargos were not detained on the road.

They also thought there should be a different method for reporting violations found in voluntary terminal inspections. They argued that if a carrier voluntarily asks for terminal inspections, any out-of-service violations found should not go against their carrier profile. They agreed that the vehicle should be placed out-of-service when such violations are found, but that the "reward" for

volunteering is that the violation does not go on the profile. If the out-of-service indication goes on their profile, much of the incentive to volunteer for inspections is gone. They argued that they are better off not asking for terminal inspections because there is a small chance that a vehicle will actually be inspected on the road. The safety officers indicated that the lack of a permanent penalty (the OOS notation on the carrier profile) would be an incentive for them to ask for a terminal inspection.

The focus group participants agreed that there is considerable ignorance in their industry concerning the inspection process, out-of-service criteria, and the CVSA decal. Even among focus group participants, not everyone knew the term a CVSA decal was valid (three months), that all inspectors received the same training in the NASI procedures, or that CVSA had a process for addressing complaints resulting from inspections. They agreed that the industry needed to do a better job of educating drivers about inspections and related issues. They also indicated that larger companies had the means to do some of this driver education, but it would be difficult to reach many smaller carriers to even let them know what training should be given to their drivers.

While not directly related to uniformity of inspections, one other safety-related topic was raised at several focus group sessions. There is great concern among drivers and safety officers about the lack of suitable rest areas for drivers in many parts of the country. Drivers were also displeased with the practice in areas that have placed time limits in rest areas and will awaken sleeping drivers and make them move on - often in violations of hours-of-service criteria.

Other specific comments that were made at one or more driver/industry focus group sessions are as follows:

- A quality inspection can never hurt, the worst it can do is educate;
- The MCSAP program, since its inception, has done much to make both trucks and drivers safer;
- To maximize the likelihood of uniform inspections on a national basis, it is important to have well-trained, full-time inspectors doing the inspections;
- Inspections should be done at the state level only - local inspectors can be very arbitrary and are more concerned with revenue than safety;
- Many drivers need better training in how to properly fill out a log book;
- Far too many drivers do not know what paperwork they are required to carry or where it is kept;
- There is considerable pressure on drivers to deliver according to the shippers schedule, and this results in both driver and vehicle violations;
- There also should be a way to assure that shippers do not mandate unrealistic (from safety and obedience to regulations perspectives) delivery schedules;

- Drivers will sometimes ask for inspections as a means to force their carriers to perform needed service and repairs on the tractors and trailers;
- There should be a better way to assure that shippers are responsible for all penalties when the driver/carrier picks up a sealed load;
- Companies need to better train their managers in safety issues rather than pressuring them to move more product;
- Local carriers often skirt safety regulations because they know that inspections are seldom done on city streets or in areas away from major highways;
- When a truck is selected for inspection, it was believed that the attitude of the driver could have an impact on the results of the inspection;
- In most states, inspectors seldom tell drivers what level inspection they are doing or what they are looking for;
- Drivers do not like side-of-the-road safety inspections - they are considered dangerous to all involved - take the truck to a safe off-road location;
- Drivers consider the CVSA decal as something worth attaining, but believed that most inspectors were reluctant to issue them;
- Safety officers would like to see a more standardized inspection report form - each state seems to have its own variation and it is difficult to read and interpret some of them - legibility of handwritten forms is also a problem;
- Safety officers said they are sometimes reluctant to complain about inspections, they likened it to "complaining to the IRS" and were concerned that complaints would subject them to retaliation. Company policies on poor inspections were to "grin and bear it;"
- Drivers should be allowed to attempt repairs they are comfortable with, a certified mechanic should not be needed for every little thing; and
- While safety regulations are a positive thing, the paperwork burden has become such that safety officers are spending too much time dealing with paper rather than overseeing fleet safety - this comment was directed mostly to compliance reviews.

Appendices

Appendix A:
Project Team Members

Appendix B:
Contact Information for Best Practices

Appendix C:
Summary of the Literature Review

Appendix D:
Summary of the Survey Reports

Appendix E:
On-Site Data Collection Forms

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Appendix A:
Project Team Members

Advisory Group

Sergeant Norman Anger
Massachusetts State Police/
Office of Motor Carrier Safety

Rita Bontz,* President
Independent Truckers and Drivers
Association

Bob R. Brooks, Manager
Motor Carrier Section
West Virginia Transportation Division

Major Gene Halverson
Minnesota State Patrol

Darin Jones,
State Program Manager
Office of Motor Carrier Safety

Barbara Kenefake
Office of Motor Carrier Safety

Tim Lem
Safety and Security Group
ABF Freight Systems, Inc.

David Osiecki*
Vice President for Safety Policy
American Trucking Associations

Chuck Shue, Manager
Motor Carrier Safety Program
Maryland State Highway Administration

Paul Tamburelli, Director
Safety and Claims Administration
XTRA Corporation

Ronald Thompson
Illinois Motor Carrier Division Office
Office of Motor Carrier Safety

Master Sergeant Ed Weigler
Illinois State Police (Ret.)
CVSA

Lieutenant Dan Wells
Commercial Vehicle Enforcement
Arizona Department of Public Safety

Project Staff

Gary March
Illinois State Police

Roy Lucke
Northwestern University Traffic Institute

Richard Raub
Northwestern University Traffic Institute

Lynda Moss
Illinois State Police

*At large member - did not participate in site visits

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Appendix B:
Contact Information for Best Practices

West Virginia Public Service Commission
Bob R. Brooks, Manager
Motor Carrier Section
West Virginia Transportation Division
P.O. Box 812
Charleston, WV 25323
304/340-0453

Connecticut Department of Transportation
Sgt. Michael Glinski
Commercial Vehicle Safety Division
22 Meadows St.
East Hartford, CT 06108
860/528-6388

Illinois State Police
Master Sergeant Glen Hincks
500 Iles Park Place, Suite 400
Springfield, IL 62718
217/782-6629

Minnesota State Patrol
Major Gene Halverson
1110 Centre Point Curve, Suite 410
Mendota Heights, MN 55120
651/405-6185

California Highway Patrol
Captain Steve Vaughn
Commercial Vehicle Section
444 North 3rd St., Suite 310
Sacramento, CA
916/445-1965

Tennessee Department of Safety
Michael Boshers, Administrative Assistant
Commercial Vehicle Enforcement
1150 Menzler Rd.
Nashville, TN 37210
615/253-2227

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Appendix C:
Literature Review Summary

In late 1997, the Office of Motor Carrier Safety through the Illinois Department of Transportation, awarded a grant to the Illinois State Police to fund the project entitled, *Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level.* One component of this project grant was to develop a compendium of previous research in motor carrier safety. This section summarizes that review. A full copy of the literature review is available on the OMCS World Wide Web site at http://www.mchs.fhwa.dot.gov.

A variety of motor carrier research has been conducted throughout the country. While some studies overlapped existing studies, surprisingly few were duplicative. Also, no study was located which refuted other study results.

The following summarizes some of the research findings:

Issue: Do roadside safety inspections improve motor carrier safety?

The Highway Safety Research Institute (1977) examined this issue and showed quality maintenance and inspection procedures were strongly related to a decline in defect-related crashes. This relationship between inspections and crashes was also demonstrated in a 1991 study by Jack Faucett Associates. This group showed the application of out-of-service criteria influenced a decrease in defect-related truck crashes.

The opinions of individuals involved in motor carrier safety reflect these findings. A large majority of motor carrier management as well as nearly all state MCSAP administrators indicated their belief that roadside inspections improve safety for the industry, based on the 1995 survey by the Upper Great Plains Transportation Institute. Another study UGPTI conducted in 1998 indicated 78.1% of commercial vehicle drivers and 87.9% of vehicle inspectors believe vehicle inspections improve safety for the industry. A smaller majority of both groups also believed driver inspections improve safety for the industry.

Issue: Should roadside inspections concentrate on certain items or areas?

In 1989, the Pennsylvania State University stated inspections do not concentrate enough on factors related to drivers who cause crashes since drivers are the main cause of crashes yet most out-of-service violations are vehicle-related. That same year, the Oregon State University recommended reducing out-of-service criteria to those items which most contribute to commercial vehicle crashes, namely brakes; safe loading; and tires, wheels and rims.

Issue: Is there a relationship between roadside inspection performance and safety/compliance review record?

A study conducted by Jack Faucett Associates (1991) found carriers with unsatisfactory performance ratings also had poor inspection performance. This was reconfirmed in 1993 by the Upper Great Plains Transportation Institute. They showed carriers with satisfactory performance

ratings had lower out-of-service rates and carriers with less than satisfactory performance ratings had higher out-of-service rates.

Issue: Which inspection level is the best to conduct?

Jack Faucett Associates (1992) compared the time and cost of conducting various level inspections with the probability of detecting crash-causing defects. Based on this analysis, they concluded Level I and Level III inspections should be conducted more frequently than Level II inspections.

The Utah Highway Patrol in cooperation with the Utah Department of Transportation (1998) studied the level of inspections based on whether the inspection was conducted at a roadside or fixed facility. They concluded fixed facilities should concentrate on Level I inspections while roadside facilities should concentrate on Level III. Again, Level II inspections were not the preferred level.

Issue: How should drivers and vehicles be selected for inspection?

Lantz, Blevins and Hillegass reviewed the Inspection Selection Process in 1996. They determined the benefit of this selection system when they found inspections recommended by the Inspection Selection Process had a 35% higher driver out-of-service rate and a 75% higher vehicle out-of-service rate.

They replicated their study that same year and had similar findings. This next study concluded that use of the Inspection Selection System (ISS) will help target unsafe carriers while reducing the inspection burden on safer carriers.

In 1997, the Office of Motor Carrier Safety formed an Inspection Quality Team comprised of representatives of stakeholder groups in motor carrier safety. This group developed a series of recommendations for improving the quality of roadside inspections. While they indicated driver and vehicle selection should be done fairly, according to the jurisdiction's policies and procedures, they also stated use of the Inspection Selection System would increase the success of the inspection process.

Appendix D:
Summary of The Survey Report

Introduction

One of the first project tasks completed was a survey of MCSAP agencies and a sampling of commercial motor vehicle carriers[2]. This appendix is a summary of that report. Fifty-six states and territories were sent a questionnaire addressing their motor carrier safety operations and practices; responses were received from all but four: Alaska, American Samoa, District of Columbia, and Guam. The questionnaire was sent to those responsible for motor carrier safety administration within each state as provided by the Office of Motor Carrier Safety.

This questionnaire was designed to identify the uniformity of roadside inspections of commercial motor vehicles and drivers across the states, within a state, and even within a specific agency. Following review of the information received from the agency questionnaire, more in-depth telephone interviews were conducted with agencies that indicated a willingness to participate.

In addition to state agencies being surveyed, approximately 2,000 questionnaires were distributed to motor carriers throughout the country. Distribution of these surveys was done with the cooperation of various carrier industry associations who either provided mailing lists or performed the actual distribution. These surveys were designed to examine safety inspection issues and their consistency and uniformity from the perspective of the motor carrier.

Summary of Findings

This summary is divided into three sections which reflect the structure of the survey: 1) general information about the agencies, 2) inspections provided, and 3) factors affecting inspections.

General Information

1. The 49 states and 3 territories responding have 10,197 trained inspectors (both full and part time), an average of 218 per agency (for those responding).

2. Typically, each inspection is done by one person (more than two thirds of the inspections).

3. Inspectors receive training on average once per year.

4. More than one half the agencies provide their own NASI training, a majority of the remainder comes from a state-level law enforcement agency in their state.

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[2]*Uniformity of Roadside Safety Inspections of Commercial Vehicles and Drivers on the National Level: Results of a Survey of State Agencies and Carriers*; Raub, Richard A. and Roy E. Lucke; Northwestern University Traffic Institute; July 1999

5. More than 50% of the states have more than one agency conducting inspections, most frequently the other agencies are municipal and county police.

Inspections

1. By level, approximately 6,000 are trained for Level 1, 7,900 for Level 2, and all 10,200 for Level 3.

2. The most frequent reason for a Level 1 inspection is an observed equipment violation, and for Levels 2 and 3 it is a traffic law infraction.

3. Most Level 1 inspections are performed at facilities off the roadway. Those for Levels 2 and 3 are performed roadside.

Factors Affecting Inspections

1. The most common barrier to consistent inspections is not having enough staff, followed by not enough supervisors.

2. The most frequent strategies used to enhance consistency are supervisory review of reports, membership in CVSA, and periodic training.

General Information about the Agencies and Inspections

Number of trained inspectors. Of the 52 respondents, 50 provided the number of persons trained for inspections (Virginia and Vermont did not provide a count). The term "trained" was used to refer to the number of persons who could perform inspections whether such were done full time or as part of general patrol. The number of full-time inspectors was considerably fewer.

Responding states indicated a total of 10,197 inspectors. The average was 218 inspectors per agency ranging from a low of 5 in the Virgin Islands to a high of 1,115 in Missouri. However, the Missouri number represents all inspectors, both at the state and local level. The other agencies included only those trained to perform inspections in their agency or theirs and the other primary state agency. Table D-1 provides a list of the states with the highest number of trained personnel. Those with 10 or fewer included:

Delaware
Marianas
Puerto Rico
Virgin Islands.

Table D-1
States with the Most Persons Trained for Inspections

State	Number of Trained
Missouri	1,115
Arizona	952
Illinois	951
California	904
Washington	831

Number of inspectors used per inspection. The typical inspection was done by one inspector for 68% of the respondents. The remainder used teams of two or more.

Frequency of training. Inspector training was done as frequently as monthly and as infrequently as once every 4 years or more (Hawaii and New York). The mean was 15 months and the mode 12 months. The one state which indicated monthly training may have considered meetings and joint organizational sessions as training. The questionnaire did not request how often *an* inspector received formal training or retraining.

Providing the training. The survey requested the agencies to indicate who provided NASI training. Approximately one-half of the 50 respondents (24) provided their own training and used no one else. Another seven used their own agency in conjunction with others. The remainder used outside sources.

1. Where the primary agency handling the inspections was not the state police or state patrol, training was often done by the state police or patrol.

2. Additionally, 19 of those using outside sources used OMCS and the National Training Center (NTC) either solely or in conjunction with other training bodies

Conducting the inspections. Similarly, agencies were asked who does inspections in the state. Twenty-one of the 50 state and territorial agencies were the only ones that conducted inspections. In the remaining states, at least one other agency also inspected vehicles and drivers. The most common other agency was municipal and/or county police. Next most common was the use of inspectors from the state patrol or police (when it was not the primary agency), followed by public service or utility commissions, and departments of transportation (when not the primary agency).

Inspections by Level

For each level of inspection, the respondents were asked to describe how many inspectors were qualified, what percentage of inspections were done for "cause," how long they lasted, and where they were done most frequently.

Number of inspectors at each level. For Level 1 inspection, 5,967 persons were reported qualified as inspectors.

- Mean per state is 119
- Maximum, 904 in California
- Minimum, 5 qualified inspectors in the Virgin Islands

There were 7,890 persons qualified for Level 2 inspections.

- Mean per state is 158
- Maximum, 952 in Arizona
- Minimum, 5 qualified inspectors in the Virgin Islands

All 10,917 inspectors were qualified at Level 3.

Reasons for inspections. At each level, respondents were asked to indicate percentage of inspections for "causes." The two most frequent reasons given for Level 1 inspections were:

- Observed equipment violation
- No probable cause (or random, often arising at fixed locations where commercial vehicles had to stop)

For Level 2, the two most frequent were:

- Other traffic law violations
- Observed equipment violations

Finally, for Level 3, the two most frequent were:

- Other traffic law violations
- No probable cause

Time required and most common locations. Each respondent also provided an average time to complete an inspection at each of the levels.

- Level 1 inspections, on the average required 37 minutes, with several states showing 60 minutes.
- Level 2, the average time spent was 25 minutes with a maximum of 35 minutes.
- Level 3 inspections were the fastest, averaging 18 minutes.

The most common location for Level 1 inspections was fixed facilities (these may also have included weigh scales, but not indicated in the responses), followed by roadside. The second most common location (where some other location was more common) was roadside. Level 2 inspections most commonly were performed at roadside followed by fixed facilities. The second most common locations were either fixed facilities or roadside. Finally, Level 3 inspections were almost always at roadside.

Other than fixed facilities, which probably included weigh scales, inspections were performed at crash scenes, carrier terminals, temporary sites, specially built roadside pullouts, park and ride lots, and parking lots near the highway. Off-road facilities were the most common location.

Factors Affecting the Inspections

Barriers. Every respondent included some information about elements that affected inspections, including barriers which prevented consistency, strategies for uniformity, and recommendations. The most common barrier was staffing levels (inadequate) with 25 of the respondents indicating this as a problem. Closely behind was lack of adequate supervision of the inspectors, indicated in 17 responses. Other barriers from the list included:

- inspector training (8)
- legislation (7)
- agency management (5).

Recommendations. Seven agencies provided recommendations. Two suggested that more fixed facilities designated for inspection purposes were needed. One added a need for more roadside pullouts. Other recommendations included: streamlining and reducing inspection time, putting more teeth in the OOS manual, random inspections for quality control and establishing benchmarks, using multiple inspectors, and allowing the states to set inspection standards and schedules.

Additional Comments

Most apparent from the responses was that many persons are trained as commercial vehicle inspectors. Whether all conduct inspections on a full time basis, or simply are trained was not provided in the responses. Given that more than 2.1 million inspections were performed during fiscal year 1997 (OMCS statistics), that represents an average of approximately 190 inspections per year per trained officer.

Approximately 60% of the states provide inspections through several organizations; two-thirds of these others are city or county police departments. However, only six respondents indicated they had formal structures in place for communication and coordination, such as involving inter-agency meetings, common training, or inter-agency working agreements, which included the municipal and county police agencies. If there is a lack of common training and working arrangements across multiple agencies within a state, then uniformity of inspections across the state may be difficult. Finally, 41 of the 51 respondents noted one or more barriers to consistent inspections.

Follow-up Interviews with Selected State MCSAP Agency Directors

Further Characteristics of Inspections

In order to obtain more in depth information about key areas from the initial survey of state agencies and to follow-up and clarify some responses, telephone contact was made with selected MCSAP directors. These states were chosen 1) because the respondent to the mail survey indicated a willingness to assist with further work, and 2) to get a nationwide perspective.

Two other summary responses were recorded: 1) classes or types of carriers most often found with violations, and 2) whether any state or country was more likely to have trucks or drivers in violation. Each respondent that indicated a class of carriers likely to have problems noted a different type. Although, when asked to expand, most indicated that the smaller carriers with few trucks were more likely to have vehicle related violations than the larger companies. On the other hand, driver (logbook) violations appear more frequently in the large companies. As far as truck origin, only those coming from Mexico were noted as having frequent violations. Those from Canada usually passed inspections. Plus, the Canadian provinces seem more likely to take corrective action when a number of carriers from a specific province are found in violation.

Those contacted were asked to indicate how many of the trained inspectors noted on the original survey did truck inspections as a full-time effort rather than as part of general patrol. Table D-2 summarizes the responses. Of the 3,219 trained inspectors for the selected states shown in Table D-2, approximately one-fifth conduct the task as a full-time job. If this relationship holds with all respondents, then of the slightly more than 10,000 trained inspectors nationwide, approximately 2,000 are performing the function on a full-time basis.

Table D-2
Number of Full-Time Inspectors
for Selected States

State	Number of Inspectors	
	Trained	Full-Time
Alabama	195	20
Arkansas	162	162
Connecticut	91	29
Illinois	951	58
Maryland	555	80
Michigan	115	115
New York	145	35
Oregon	455	0
Pennsylvania	290	105
South Dakota	224	75
Utah	36	3
TOTALS	3,219	682

All of the agencies contacted (except Illinois) either are fully computerized in the field or are in the process (Arkansas has the fewest computers in the field, nine introduced in August 1998). Those using laptop computers in the field use Aspen software and then upload electronically to the central site. An issue about the use of computers was raised by Oregon. With the electronic upload, they do not have a paper trail to determine whether the inspector failed to indicate inspection of specific items, especially brakes, because they passed or because the inspector did not check them.

Issues That Affect Inspections

Several barriers originally noted were discussed in greater detail. Most prominent are three:

- The number of inspectors performing the work full time,
- Funding levels (which affects both the number of inspectors and supervisors available), and
- Better control over local agencies.

This latter issue was raised by most of the respondents where agencies other than another state agency also performed inspections. Several problems arise. First, the state Motor Carrier Safety Assistance Program (MCSAP) agency does not have direct control over the local inspections, and because of an awkward chain of command have difficulty correcting problems that arise with their inspections. Second, the local agencies often appear more interested in doing "x" number of inspections rather than treating the process from a performance based direction.

Another issue revolved around differences between those who do the job on a full-time basis and those who do truck inspection as part of general patrol. According to the MCSAP directors, those who performed inspections on a full-time basis appeared to perform them faster and more thoroughly. Moreover, they, especially in states that separate commercial vehicle inspection

from state or highway patrol, often have a mechanical background and are more knowledgeable in terms of finding safety defects. As one MCSAP director said, "it is easier to train mechanics to enforce the law then to train law enforcement officers to be mechanics."

The most frequent violations found during a Level 1 inspection are bad brakes or brakes out of adjustment. At Level 2, it is lights, and at Level 3, the driver log book, especially for the daily driving hours (although Utah usually finds problems with drivers exceeding maximum hours of service).

All of the states respond to complaints, although several require the complaint to be in writing. Where the MCSAP director can settle the complaint directly, most will do so by telephone and by follow-up letter. Generally, these cases involve a misunderstanding of a rule or the inspection performed. Other written complaints are forwarded directly to the supervisor for handling and response. Agencies noted that they try to work within the CVSA procedures for resolution of complaints.

Changes Recommended to Help Ensure Uniformity

Connecticut indicated that the field supervisors need to spend more time in the field monitoring (and even doing) inspections to ensure that all officers are performing the inspections uniformly. (What is not clear is how this supervisory review could be extended to those persons in local police agencies, not under the direct supervision of the MCSAP agency.) Illinois indicated that the lack of adequate inspection facilities (such as facilities equipped with inspection pits) can hamper and lengthen the process. Those states with pits, especially at ports of entry, enthusiastically support the worth of such facilities.

Maryland commented on the need to shift to performance based results and away from count-based results. Moreover, the addition of tools such as the dynamic brake testing equipment recently demonstrated will prove valuable in both speeding the process, allowing more inspections, and focusing on those carriers that are definitely more likely to have defects. Michigan echoes the views of Maryland in the need to get away from inspecting all carriers and spend more resources examining carriers which produce the greater number of out-of-service drivers or vehicles. In a similar vein, Oregon believes that time often is consumed inspecting those elements which play a limited role in truck safety when it should be devoted to inspecting aspects which can create hazards.

Finally, South Dakota believes that inspections should always be done by pairs of inspectors. This suggestion comes from two perspectives: efficiency of the inspection and safety of the inspector.

Analysis of Responses Received from the Motor Carrier Surveys

Overview of the Questionnaire and Its Respondents

From a mailing of approximately 2,000 surveys to motor carriers throughout the United States, 181 responses were received. This section examines the responses. The questions were divided

into four groups : 1) information about the respondents, 2) data about inspections, 3) profiles of the carriers and information they receive, and 4) opinions about uniformity and consistency.

Responses showed that most respondents had no knowledge of what was meant by "levels of inspection." Approximately one-third of those responding provided the correct information when asked to describe what occurred during a Level 1, 2, and 3 inspection. An additional six percent provided a correct answer for at least one of the three levels. Therefore, 60% either gave no answer or the wrong answers. Of these 104 responses that were incorrect, 10% gave the correct process but in the wrong order. More than 50% gave incorrect information. For example, one carrier indicated that a Level 2 inspection was what occurred when the truck was weighed.

Summary of Responses

This section summarizes some of the findings.

- Carriers operate an average of 304 power units (two operated more than 6,500), 34% of which are owner-operator and average of 109,000 miles driven per year per unit.
- They operate in an average of 32 states with the heaviest concentration of operations in the Northeast and Midwest.
- More than 60% operate as "For Hire Truckload" carriers and 50% are owner-operator.
- During the past year, carriers with out-of-service orders averaged 18 for drivers and 30 for vehicles, although one carrier reported 853 driver and 954 vehicle out-of-service orders .
- In regard to inspections, carriers reported a total of 37,000 inspections of which more than 50% were Level 1.
- A majority of the inspections occurred at fixed facilities.
- More than 55% of the carriers indicated moderate or great uniformity of inspections among the states.
- 70% of the carriers were familiar with the North American Out-of-Service Criteria, but only 50% believed that they were applied uniformly.
- Approximately 50% of the carriers have never requested their Motor Carrier Profile.
- Carriers considered Illinois (followed by Maryland, Indiana, and Ohio) to have the most fair and consistent inspections, and Tennessee, California, and Ohio (this state was near the top on both lists) to be most inconsistent or unfair (See Table D-3).

Information About the Carriers

Of the 181 respondents, 75 (or 45%) operate in all 48 states and more than 60% operate in at least one-half the states. The average number of states served per carrier was 32. On the other hand, 19 or 10% operate in five or fewer states.

As noted, approximately one half the carriers operate throughout all lower 48 states. For those that do not operate nationally, the Northeast, Southeast, and Midwest are the most frequent operating regions. Approximately 25% of the carriers operate outside the U.S. borders, with 40 indicating Canadian and 6, Mexican routes.

Over 60% of the respondents operate as "for hire, truckload." More than 50% are owner-operator, many also operating as for hire, truckload or for hire, less than truckload (LTL). Under "other," carriers indicated liquid and dry bulk, refrigerated, household goods, and dedicated contract (or contract) as examples.

Three questions were used to determine the operational size of the respondents, in terms of units operated and mileage driven, as well as the percent that were owner operated. The largest respondent operates more than 6,500 units. The average was 304 units; however, 50% of the carriers operate 25 or fewer units. Maximum mileage driven per unit was 300,000 per year; the average was approximately 110,000 miles. Finally, approximately 30% of the carriers do not use owner-operator units, while 22% of the carriers used only owner-operator tractors. The average was 34% and the median 10%.

Inspections

During the past year, approximately 45% of the carriers noted that they had at least one driver, or at least one vehicle placed out-of-service. The average number of out-of-service drivers was 18 with a maximum of 853. The average of out-of-service vehicles was 30 with a maximum of 954. Approximately 7% of the carriers reported 50 or more drivers and 10% had 50 or more vehicles placed out-of-service

In one question, the carriers were asked how many safety inspections were conducted at each level. The respondents (although not all answered the question) indicated more than 37,000 inspections performed with 20,167 done at Level 1. However, this large number at Level 1 is somewhat deceiving in that one respondent indicated 13,000 inspections; otherwise, the remaining carriers indicated slightly more than 7,000 at this level. Next most frequent was Level 2 and then Level 3. Level 3 inspections were performed at a rate of approximately 50% of Level 1 inspections (excluding the one carrier for the totals). What is not known is how the 8,300 "unsure" would have been distributed.

Although the carriers entered data related to inspections at all three levels, the results are suspect. Responses showed that approximately 60% could not describe what occurred during the various levels of inspections. Therefore, many of the 20,000 Level 1 inspections reported may have been at other levels, or they may not have even been inspections.

Also, the carriers were asked to show, by percentage, the number of inspections for each of five locations: traffic stop, weight or inspection facilities, terminals, roadside, and other. It was difficult to determine a reasonable average of percentages because some carriers responded by indicating values that did not add to 100 (or conversely to more than 100), or in many cases, appeared to be the number of inspections rather than a percentage. Only 116 of the responses were used.

Carrier Profiles and Out of Service Criteria

Four questions examined how frequently the carriers received their Motor Carrier Profile, how they rated uniformity of inspections among the states, their familiarity with the North American Out-of-Service Criteria, and uniformity of applying those criteria. Of the respondents, 45% left the question blank or have never received the Motor Carrier Profile. Most of the remainder receive it quarterly or annually.

In terms of uniformity of inspections across the United States, slightly more than 50% of the respondents considered them to be moderately uniform (with 7 indicating "great" uniformity). On the other hand, 65 or 35% indicated "very little" or "almost none" in response to degree of uniformity.

Seventy five percent of the carriers are moderately or very familiar with the North American Standard Out-of-Service Criteria. Only 50%, however, indicated that the criteria were applied with "great" or "moderate" uniformity. This is about the same percentage that indicated great or moderate uniformity of inspections across the country. One quarter of the respondents also indicated that there was "very little" or "almost no" uniformity of application.

Fairness and Consistency of Inspections

States described as fair and unfair. Two questions sought responses regarding the states which carriers felt were *especially fair or consistent* and *especially unfair or inconsistent* in their inspections. The results are provided in Table D-3. Because each carrier could list multiple regions of services, the ability to interpret the counts based on an opportunity to be placed on the list is not straight forward. Because more carriers operated in regions east of the Mississippi River, states listed as fair or unfair had a slightly greater likelihood of appearing. Conversely, the western states would have been less likely to appear based on number of potential contacts. For example, 130 respondents served Tennessee and 133 Ohio versus 93 serving California. As a result, based on possible opportunities for mention, California's frequency of mention, in terms of percentage of carriers who indicated they served that state, would be greater than that for either Tennessee or Ohio.

A cross tabulation based on the number of units operated and whether carriers listed states as fair or unfair also showed no significant direction. Those operating more units, e.g. above 100, tended to provide a list of both fair and unfair states more frequently than their counterparts operating smaller fleets. This result could have arisen, however, because they have more opportunity to hear complaints usually from a larger service area.

Those states indicated as providing especially fair and consistent inspections were Illinois, followed by Maryland, Ohio, and Indiana. However, 10 states were listed more than 10 times each with Illinois having the maximum of 21 responses.

There was a consensus regarding those states being especially unfair or inconsistent. Tennessee, California, and Ohio led the list. A large gap separated these three from the next most frequently mentioned, Maryland. Of interest is that Ohio appears at or near the top of both lists. Pennsylvania, Tennessee, Kentucky, and California also had 10 or more responses for both fair and unfair inspections. The results might come from discrepancies across the state, or might simply be the results of the most frequently noted states providing more thorough inspections.

Table D-3
Especially Fair and Unfair Inspections

States Noted as Having Especially:			
Fair Inspections		**Unfair Inspections**	
State	Times Indicated	State	Times Indicated
IL	21	TN	25
MD	18	CA	24
OH	17	OH	24
IN	16	MD	15
PA	14	KY	14
TN	12	PA	12
VA	12	MO	11
CA	11	NY	11
KY	11	IL	10
WI	11	IN	9
CO	9	NJ	9
IA	9	CT	8
MI	9	IA	8
TX	9	VA	8
FL	8	LA	6
GA	8		
MO	8		
WA	8		
NJ, NY, OR	5	GA, NC, TX	5
AL, AR, AZ, DE, KS, NC, NM, SC	4	AR, MS	4
MN, OK,SD, WV, WY	3	MA, NM, OR, WA, WV	3
CT, ID, LA, MS, NE, NV	2	AZ, ID, NE	2
MA, ME, ND, RI, UT, VT	1	FL, MI MN, MT, OK, VT, WI, WY	1

Summary of comments regarding inconsistent inspections. This section attempts to summarize some of the more important points made in these comments. Some of the most frequent comments included:

- poor attitude...rude, are never wrong, treated as if lower class or criminals, and "they think they are God!"
- Brake adjustments needed when they were within specifications.
- Unauthorized entry into truck cabs.
- Appearance of having quotas or numbers to fill, or having to meet a revenue goal.
- Do not provide paperwork at completion of inspection or fail to attach CVSA decals.
- Order repair trucks to roadside for repairs that can be done elsewhere, and do not give choice of repair company.
- Lack of training and apparent inconsistency from inspector to inspector.
- Too much attention given to log book with less attention given to defects.

Without specifically spending time with truck drivers and recording what is occurring, with perhaps attention given to operations in those states listed both as especially fair or unfair, little can be done to verify or refute the comments made.

Recommendations for changes. Several items appeared frequently in the responses including:

- Common and comprehensive training for all inspectors and follow-up to ensure that they are doing consistent work.
- All regulations should be the same from state to state without states writing own regulations which create climate of having to know 48 different sets of rules.
- Eliminate roadside inspections, do the inspections in a safe location.
- Improve courtesy
- Eliminate numbers (quotas)

Of all the recommendations, the one regarding the need for uniformity of rules from state to state and better training for the inspectors appears in almost every other comment These are followed closely with performing inspections, including having trucks wait off the major roadways because of the dangers.

Closing Comments

What is most obvious about the responses from the MCSAP agencies and the carriers is the wide divergence in the consideration of uniformity, consistency, and fairness of the inspections and especially the inspectors. The MCSAP agencies believe that the process is being done well in their states (and they could not identify other states where they thought problems might be existing). On the other hand, at least one-half the carriers indicated they believed that inspections were not uniform and were inconsistent.

Certainly a driver who is placed out of service for what he or she "perceives" is a minor violation is going to be upset. This in turn will be communicated to the carrier who also will consider the process flawed. To a degree, this conflict will remain regardless of what other steps are taken. It is a conflict inherent in the two objectives of the entities, on one side to promote traffic safety and on the other primarily to earn a living (and can appear to be mutually opposite).

Clearly from responses by the carriers there is a lack of understanding about the process and its goals. Drivers and carrier representatives cannot distinguish among the various inspection levels. Education of carriers and drivers then is clearly indicated, if for no other reason than to ensure that these groups clearly understand the role of the MCSAP inspection process, the national standards, and their application to traffic safety.

If the inspectors are inconsistent within and across state boundaries, if the process appears geared to generating numbers or revenues, and if the punishments for violations are unrealistic or highly variable, then a risk remains that the inspection program is assumed to be a flawed effort. The goal of promoting safety, at least in the minds of those inspected may become subverted to "not getting caught."

In reviewing comments both from the states and from carriers, there is a clear sense that inspections of commercial vehicles and their drivers are absolutely necessary for safety. To ensure that this safety function is being met may require more than simply assuming that inspectors, once trained, are doing a consistent and correct job. It would suggest a need to review all inspectors' work on a regular basis, and to incorporate a performance based system with all states operating under the same safety rules.

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Appendix E:
On-Site Data Collection Forms

Similar data collection forms were used at all sites with the state name added for identification.

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Control Number:

(State Name) Commercial Vehicle Inspection Observer's Report

Inspection Facts

1) Date:_____ 2) Duration (minutes):_____ 3) Location:_____

4) Location of inspection: Fixed Facility_____; Roadside _____; Other_____
(specify)

5) Type of Vehicle Inspected: (a) Auto Hauler____; (b) Straight Truck____; (c) Tractor/Box Trailer_____
(d) Tractor/Flat Bed ____; (e) Tractor/Dump ____; (f) Tractor/Tanker ____
(g) Other (specify)_____

6) Type of operation: Owner/Operator____; Private Carrier_____; For Hire_____; Other_____

7) Level of inspection: Level 1 _____; Level 2 _____; Level 3 _____; Other _____ (level number)

8) Hazardous materials present? YES NO

9) Critical item defect found? YES NO

10) Valid CVSA decal on tractor YES NO

11) Valid CVSA decal on trailer YES NO

12) CVSA decal issued to tractor? YES NO

13) CVSA decal issued to trailer? YES NO

14) Number of driver violations ____/____ (other / oos)
Driver placed out of service? YES NO

15) Number of tractor violations ____/____ (other / oos)
Tractor placed out of service? YES NO

16) Number of trailer violations ____/____ (other / oos)
Trailer placed out of service? YES NO

17) Number of hazmat violations____/____ (other / oos)
Hazmat out of service? YES NO

18) Carrier properly identified? YES NO

19) Inspection Report Number:_____

Questions for the Inspector

20) Why vehicle selected for inspection: Random:____; Traffic Law Violation:___; Other:____

Visible Safety Violation:____; Selective Enforcement/ISS:____; Driver Request:____;

21) How cooperative/professional was the driver: 1 (Very Uncooperative) 2 3 (Cooperative) 4 5 (Very Cooperative)

Observer Opinions

22) Was inspection location safe? YES NO

23) Was inspector fair and professional: 1 (Very Unfair) 2 3 (Fair) 4 5 (Very Fair)

24) Was driver cooperative and professional: 1 (Very Uncooperative) 2 3 (Cooperative) 4 5 (Very Cooperative)

25) Conformance with North American Inspection Standards? 1 (Low) 2 3 4 5 (High)

26) Other notes on the inspection:_____

Questions for the Driver

31) How many years have you been driving:____; 32) Do you operate: Interstate____; IntrAstate____

33) Why was your vehicle selected for inspection:_____

_____

34) Pre-trip inspection completed? YES NO Results:_____

_____

35) Has this inspector been fair in the inspection 1 2 3 4 5
Very Unfair Fair Very Fair

36) What was the level of this inspection? ___

37) Can you describe different inspection levels? YES NO

38) Can you explain CVSA decal, how to get it, and what it means? YES NO

39) Can you define penalties for violating OOS order? YES NO

40) How many inspections have you had in the last 30 days? _____ last 12 months?_____

41) At what location types are most inspections done: Fixed Facility____; Roadside____; Other_____

42) In the past year were you inspected by a city or county officer? YES NO

43) Recollections of that inspection:_____

_____

44) Number of driver OOS last 30 days____ ; last 12 months____

45) Number of vehicle OOS last 30 days____; last 12 months____

46) How uniform are the inspections done across this state 1 2 3 4 5
Very non-uniform Very uniform

47) How uniform are the inspections done across all states 1 2 3 4 5
Very non-uniform Very uniform

48) In past year, describe an unfair inspection (and where)_____

_____

49) What can be done to make process more uniform_____

_____

50) What keeps inspections from being uniform:_____

_____