

INTRODUCTION

PURPOSE

This synthesis is a review of successful practices used by transportation agencies to evaluate and deal with truck parking demands. Operators of commercial motor vehicles on the nation's highways are finding it more difficult to find adequate, safe parking for rest purposes. Many state departments of transportation (DOTs) are experiencing a heavy demand for commercial vehicle parking at public rest areas; one that exceeds capacity. These rest areas are primarily intended for short-term safety breaks. Therefore, there continues to be a need for longer-term parking services in high-use corridors.

Because of the parking shortages and limits on stays in public facilities, truck drivers may be creating unsafe situations by driving without a needed short break or by parking on roadway access ramps and shoulders to obtain adequate rest. Parking illegally on shoulders and ramps is dangerous for a number of reasons. First, it limits the ability of parked vehicles to accelerate safely into the traffic stream from their parked position. Second, the presence of parked vehicles creates a conflict between exiting and parked vehicles. Third, errant vehicles may stray into the shoulder area and strike parked vehicles.

An alternative source for parking space to rest is private truck stops; however, they are not always able to provide long-term parking. Commercial truck stops and travel plazas provide parking as an incentive to stop and purchase goods and services. There is no financial incentive to provide parking as a revenue generator by these facilities, because truckers are resistant to paying additional out-of-pocket costs from a very limited operating budget. The inability of truck drivers to obtain adequate rest in public or private facilities may be a significant contributor to an increasing number of truck crashes, especially those at night involving single vehicles. The lack of available safe parking for obtaining needed rest may be part of this problem.

There is potential for state DOTs to partner with other agencies and the private sector to develop cost-effective strategies to help resolve the problem. This synthesis discusses what states are doing to address the problem of limited commercial motor vehicle parking.

BACKGROUND

The role of the federal government in addressing issues related to driver fatigue and the safety of the commercial

vehicle industry began in 1937 with the promulgation of Hours of Service (HOS) rules by the Interstate Commerce Commission (ICC) (1). These rules established limits on the number of hours that truck drivers may drive and be on duty before being required to take a mandatory rest break. Complying with these rules has created a demand for parking spaces for commercial vehicle drivers. Until the 1970s, a rough balance seemed to exist between this demand for truck parking spaces and the spaces available at public rest areas, commercial truck stops and travel plazas, and other locations. However, beginning in the 1980s, changes in the trucking industry upset this balance.

The deregulation of the trucking industry in the early 1980s led to significant changes in the way goods and products are moved throughout the United States. Before deregulation, approximately 20,000 motor carriers operated in an environment wherein the ICC issued operating authority, and entry into the industry was restricted. As of 2000, approximately 500,000 interstate motor carriers operated in the United States, and projections over the next 20 years point to continuing growth. As truck traffic on America's highways has increased, the demand for services and facilities for the trucking industry, including the demand for truck parking spaces, has increased as well.

Another significant change in the movement of goods and services was the advent of "just-in-time" delivery. Manufacturers now operate in an environment where large warehouse inventories of parts and supplies are no longer maintained but, instead, are delivered by trucks in tightly scheduled deliveries such that these inputs arrive just in time to be used in the manufacturing process. Just-in-time delivery places new demands on truck parking facilities, because trucks use these facilities as staging areas to better meet their delivery requirements. The combination of increased truck traffic and tighter delivery schedules is a primary reason for the increased demand for truck parking—a demand that has resulted in shortages of truck parking spaces in some parts of the United States.

The Federal Motor Carrier Safety Administration has estimated that driver fatigue is a primary factor in 4.5% of truck-involved fatal crashes and a secondary factor in an additional 10.5% of such crashes (2). A 1995 study conducted by the National Transportation Safety Board asserts that the most important factors in predicting a fatigue-related accident are the duration of the last sleep period, the time slept in the past 24 h, and interruptions in sleep

periods. The availability of parking for commercial vehicles can affect all of these factors.

In 1996, the FHWA funded a study entitled *Commercial Driver Rest & Parking Requirements: Making Space for Safety* (3). That study of parking along the Interstate highway system (IHS) was conducted in response to a U.S. Senate recommendation to evaluate the adequacy of places for truck drivers to stop and rest. It estimated a shortfall of 28,400 public truck parking spaces nationwide. Although a detailed survey of public rest areas was conducted, the survey of commercial truck stops and travel plazas was more cursory and relied on a statistical weighting of the 17% of commercial truck stops and travel plazas that completed and returned the survey.

That national study was followed by a number of state-specific studies documenting shortages of truck parking facilities. For example, Minnesota completed a study of public rest area usage in 1998 that estimated potential nighttime capacity problems for more than 50% of the public rest areas surveyed (4). In 1999, New York completed a study that summarized public rest area construction activities for Interstate highways in New York (5). That study led to the development of a Statewide Rest Area Plan. A Tennessee study completed in 1999 indicated that nearly 44% of truck parking on weekday evenings occurred on ramps and shoulders (6). Iowa completed a study in 1999 that observed an excess demand for parking at public rest areas, but sufficient supply at most commercial truck stops and travel plazas (7).

In 1999, the National Transportation Safety Board began an initiative to address issues related to improving the safety of trucks and buses (8). As part of this initiative, a report was published in 2000 addressing the inadequate safe, available commercial vehicle parking on or near Interstates. The report also addressed the lack of information about parking available to truck drivers and the state-enforced parking time limits.

Congress responded to this growing body of evidence that availability of truck parking was becoming a significant problem with potential safety implications and to the concerns raised about the previous studies of this issue by mandating, in Section 4027 of the Transportation Equity Act for the 21st Century (TEA-21) (9), that a study be conducted to determine the adequacy of parking facilities. The mandated study of the National Highway System (NHS) was intended as a follow-up study to the previously referenced 1996 study of the IHS and was intended to address some of the criticisms of the earlier study.

SECTION 4027 STUDY

Section 4027 requires the following:

... a study to determine the location and quantity of parking facilities at commercial truck stops and travel plazas and public rest areas that could be used by motor carriers to comply with Federal hours of service rules. The study shall include an inventory of current facilities serving the National Highway System, analyze where shortages exist or are projected to exist, and propose a plan to reduce the shortages. The study may be carried out in cooperation with research entities representing motor carriers, the travel plaza industry, and commercial motor vehicle drivers (9).

To assist in the preparation of this report, the FHWA encouraged the creation of partnerships of public- and private-sector stakeholders at the state level and provided a technical guidance document for their use in (1) conducting an inventory of current facilities serving the NHS, (2) analyzing current and projected shortages, and (3) developing plans for action at the appropriate jurisdictional levels. The FHWA provided technical assistance to the partnerships to guide them in completing these activities.

The FHWA solicited input on the truck rest parking issue through the Rest Area Forum, which the agency hosted in Atlanta, Georgia, June 29 and 30, 1999 (10). Forum participants included more than 70 state DOT and enforcement officials, representatives of the motor carrier industry, commercial truck stop operators, commercial drivers, safety advocates, and other interested parties.

In addition, on May 21, 1999, the FHWA issued a Request for Information (RFI-ST-001) to obtain feedback on how best to design, focus, and conduct the Section 4027 study. Five individuals or organizations responded. The results from the 1996 report and individual states' subsequent studies, the input from the Rest Area Forum participants, and responses to the Request for Information can be summarized in the following comments.

- Many Rest Area Forum participants and respondents to the Request for Information voiced the sentiment that we now know the problem and, therefore, should focus on solutions rather than on more studies. One significant exception is a response to the Request for Information that recommends "The TEA-21 study should count all private and public sector spaces to accurately assess the truck parking situation."
- Parking shortages are concentrated and solutions thereto should be targeted at a corridor or regional level; therefore, the analysis of shortages and development of solutions should be performed at the corridor, state, or sub-state, rather than the national level.
- Satisfying drivers' rest parking needs in corridors or regions with either real or perceived shortages in parking supply is likely to require public, private, and public-private solutions. Identifying consensus solutions among parties with competing interests is likely to be easier and more successful at the corridor, state, or sub-state level.

- A major unknown and point of contention is whether, or to what extent, public rest area and commercial truck stop parking are interchangeable. To supply parking where drivers need it, a better understanding of their parking-related needs and decision-making processes is required.

In consideration of this input, the FHWA undertook a two-pronged approach to the Section 4027 study. First, the FHWA contracted research to clarify the parking-related needs and decision-making processes of commercial drivers (11). Second, the FHWA encouraged the creation of partnerships of public- and private-sector stakeholders in 49 states (excluding Hawaii) and provided a guidance document for their use in inventorying current facilities serving the NHS, analyzing current and projected shortages, and developing plans for action at the appropriate jurisdictional levels (12). Such partnerships provided a forum for interested parties, including state and local agencies as well as the private sector, to examine the problem and formulate strategies to mitigate any problems identified. The final technical report for the Section 4027 study was published in 2001 (13).

PURPOSE AND SCOPE

The purpose of this synthesis report is to assist transportation agency administrators in identifying those practices that have been used to manage the increasing demand for commercial motor vehicle parking. The emphasis is on identifying successful and innovative strategies that have been implemented by transportation agencies, as well as potential strategies that have yet to be deployed. In some cases, the motor carrier industry is working with the private sector to make spaces available for use for long-term parking.

METHODOLOGY

The primary data sources for this report are responses to a detailed survey questionnaire distributed to highway

maintenance engineers in 50 states, the District of Columbia, and Puerto Rico. The survey questionnaire is provided as Appendix A. In several cases, maintenance engineers supplemented their survey responses with additional documentation. This information included reports describing the nature and magnitude of the truck parking problem as well as master plan documents that presented state plans to address parking deficiencies. A review of the literature provided background information that supplemented the survey data.

Responses were received from the 24 transportation agencies listed in Appendix B. The survey responses were summarized in a series of tables and are presented as Appendix C. The tabulations enabled responses to be categorized for comparative analysis and for common practices to be easily identified.

The literature review started with a topic search for sources using the Transportation Research Information Service. Material related to commercial vehicle parking was obtained from various state DOTs in response to questionnaire inquiries. The body of literature on this topic is not very extensive, but is adequate to provide the necessary background in the topic and reinforce conclusions drawn from the survey responses and interviews.

ORGANIZATION

Chapter two presents a summary of the legislative authority governing the provision of commercial vehicle parking by state DOTs, including federal requirements as well as selected state laws providing the framework for action. Chapter three provides an analysis of the extent of the commercial vehicle parking demand problem, as reflected in survey responses and other research. Chapter four contains an overview of potential solutions to the commercial vehicle parking demand challenge. Chapter five presents conclusions and proposals for further research.