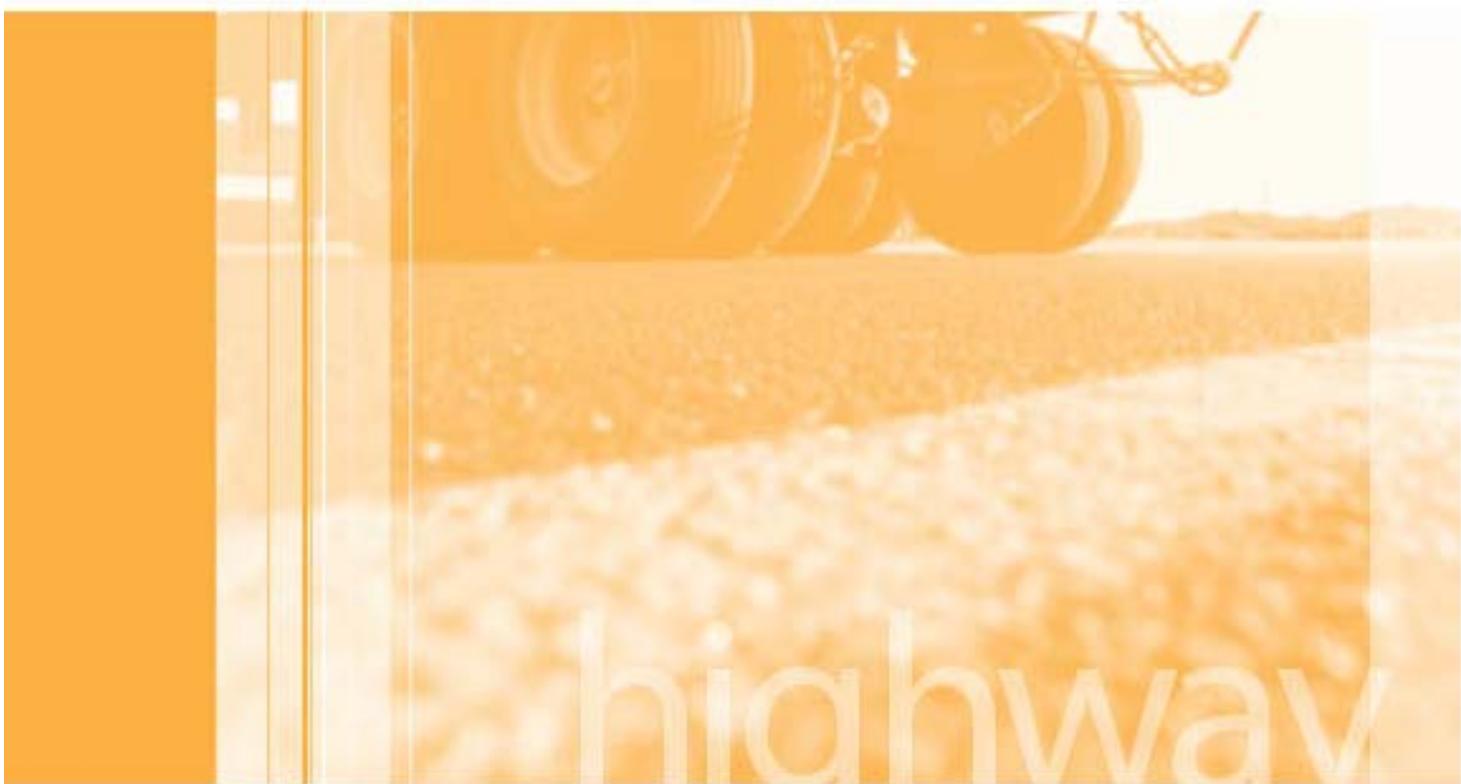


# Report on Curbside Motorcoach Safety



## Special Report

NTSB/SR-11/01  
PB2011-917002



National  
Transportation  
Safety Board



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PB2011-917002  
Notation 8350  
Adopted October 12, 2011

# Special Report

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## Report on Curbside Motorcoach Safety



National  
Transportation  
Safety Board

490 L'Enfant Plaza, S.W.  
Washington, D.C. 20594

**National Transportation Safety Board. 2011. *Report on Curbside Motorcoach Safety*. Special Report NTSB/SR-11/01. Washington, DC.**

**Abstract:** Motorcoach safety has received increased public attention after several serious accidents during 2011, some of which involved curbside carriers. As a result, the National Transportation Safety Board conducted an investigation of motorcoach safety with a focus on curbside operations. This report (1) describes the characteristics of the curbside business model among interstate motorcoach carriers; (2) describes the safety record of interstate motorcoach carriers, including those that use a curbside business model; and (3) evaluates the adequacy of safety oversight for interstate motorcoach carriers using a curbside business model.

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# Contents

<b>Contents</b> .....	<b>iii</b>
<b>Figures</b> .....	<b>v</b>
<b>Tables</b> .....	<b>v</b>
<b>Abbreviations and Definitions</b> .....	<b>vii</b>
<b>Executive Summary</b> .....	<b>ix</b>
<b>Chapter 1: Introduction</b> .....	<b>1</b>
Background .....	1
Description of Curbside Operations.....	2
Objectives .....	5
Methodology .....	6
Literature Review .....	6
Data Analyses .....	6
Development of Curbside Operators List .....	6
Focus Groups of Motorcoach Inspectors, Safety Investigators, and Drivers .....	7
Meeting With Curbside Motorcoach Operator .....	8
Compliance Reviews and Motorcoach Inspections .....	8
Meetings With Industry Associations.....	8
Investigation Limitations .....	8
Identification of Interstate Curbside Motorcoach Carriers .....	8
Data Analyses .....	9
Focus Groups.....	10
<b>Chapter 2: Motorcoach Operational Characteristics</b> .....	<b>11</b>
Motorcoach Travel Data .....	11
Motorcoach Leasing and Brokers .....	12
Leasing.....	12
Brokers.....	13
Motorcoach and Bus Accident Information.....	15
Research on Accidents.....	15
Previous NTSB Motorcoach Accident Investigations and Safety Recommendations .....	17
<b>Chapter 3: Regulatory Requirements and Oversight Procedures</b> .....	<b>18</b>
Responsibilities of Federal Motor Carrier Safety Administration.....	18
Compliance, Safety, and Accountability Program .....	18
Evaluation of Compliance, Safety, and Accountability Operational Model .....	22
Compliance Reviews .....	22
New Entrant Safety Assurance Program .....	24
Funding for State Oversight of Interstate Motor Carriers .....	26
Voluntary Safety Reporting System .....	27

<b>Chapter 4: Motorcoach Transportation Safety Data Analyses .....</b>	<b>29</b>
Methods.....	29
Qualitative Classification of Motorcoach Carriers Based on Type of Service.....	29
Quantitative Classification of Motorcoach Carriers Based on Accident and Inspection History .....	32
Analysis Results.....	35
Characteristics of Motorcoach Carriers .....	35
New Entrant Safety Assurance Program .....	36
Accident History of Motorcoach Carriers, January 2005 to December 2010 .....	36
Inspection History of Motorcoach Carriers, April 2009 to March 2011 .....	37
Compliance Reviews and Safety Audits, January 2007 to April 2011.....	38
Classification of Motorcoach Carriers Based on Accident and Inspection History .....	40
Operational Characteristics of Motorcoach Carriers With Substandard Accident and Inspection History .....	41
Comparison of Accident, Inspection, and Violation Rates by Service Type .....	43
 <b>Chapter 5: Curbside Motorcoach Transportation Qualitative Findings .....</b>	<b>49</b>
Motorcoach Driver Fatigue.....	50
Concerns Identified by State Inspectors and Federal Safety Investigators.....	51
Safety Concerns Discussed by Motorcoach Drivers.....	55
Speeding and Motorcoach Safety .....	55
English Proficiency.....	56
 <b>Chapter 6: Conclusions .....</b>	<b>58</b>
Findings.....	59

## Figures

<b>Figure 1</b>	Wreckage of Motorcoach Involved in Bronx, New York, Accident. ....	2
<b>Figure 2a</b>	Distribution of Commercial Motor Carriers, Passenger Carriers, Motorcoach Carriers, and Curbside Carriers.....	31
<b>Figure 2b</b>	Distribution of Power Units Operated by Commercial Motor Carriers, Passenger Carriers, Motorcoach Carriers, and Curbside Carriers. ....	32
<b>Figure 3</b>	Locations of U.S. Motorcoach Carriers by Service Type.....	35
<b>Figure 4</b>	Distribution of Carriers by Number of Motorcoaches and Service Type.....	36
<b>Figure 5</b>	Number of Roadside Inspections by Inspection Level and Service Type, January 2005 to March 2011.....	38
<b>Figure 6</b>	Distribution of Compliance Review Ratings for Motorcoach Carriers, January 2007 to April 2011.....	38
<b>Figure 7</b>	Percent of Motorcoach Carriers Receiving Federal or State Oversight, January 2007 to April 2011.....	40
<b>Figure 8</b>	Percent of Inspected Drivers and Vehicles Linked With More Than One Carrier.....	43
<b>Figure 9</b>	Average Rates for Overall Accidents, Injury and Fatal Accidents, Deaths, and Injured Persons by Service Type, January 2005 to March 2011.....	45
<b>Figure 10</b>	Average Violation Rates and Out-of-Service Violation Rates by Service Type, April 2009 to March 2011. ....	46
<b>Figure 11</b>	Distribution of Accidents, January 2005 to March 2011.....	47
<b>Figure 12</b>	Distribution of Driver Fitness Violations and Out-of-Service Orders Associated With English Language Deficiencies.....	57

## Tables

<b>Table 1</b>	Behavior Analysis Safety Improvement Categories.....	19
<b>Table 2</b>	Roadside Driver and Vehicle Inspections.....	20
<b>Table 3</b>	Compliance Review Ratings.....	24

<b>Table 4</b>	Interstate Motor Carrier Inspection Personnel During 2011.....	27
<b>Table 5</b>	Variables Developed From Accident and Inspection Data.....	33
<b>Table 6</b>	Seven Violation Categories Used in Detailed Analyses.....	34
<b>Table 7</b>	Motorcoach Carriers in Business for 10 Years of Less. ....	36
<b>Table 8</b>	Number of Accidents, Deaths, and Injured Persons Involving Motorcoach Carriers. ....	37
<b>Table 9</b>	Number of Motorcoach Carrier Inspections by Service Type, April 2009 to March 2011.....	37
<b>Table 10</b>	Compliance Reviews for Motorcoach Carriers With More Than 18 Months in Business, January 2007 to April 2011.....	39
<b>Table 11</b>	Number of Motorcoach Carriers by Principal Component Analysis Category and 90th Percentile Analysis Results. ....	41
<b>Table 12</b>	Number of Carriers With Up to 10 Motorcoaches and Up to 10 Years in Business. ....	41
<b>Table 13</b>	Accident, Inspection, and Violation Rates by Type of Service. ....	42
<b>Table 14</b>	Percent of Inspected Drivers and Vehicles Linked With More Than One Company. ....	43

## Abbreviations and Definitions

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<b>BASIC</b>	Behavior Analysis Safety Improvement Category
<b>CDL</b>	commercial driver's license
<b>CFR</b>	<i>Code of Federal Regulations</i>
<b>CMV</b>	commercial motor vehicle
<b>CSA</b>	compliance, safety, and accountability
<b>DOT</b>	Department of Transportation
<b>FARS</b>	Fatality Analysis Reporting System
<b>FHWA</b>	Federal Highway Administration
<b>FMCSA</b>	Federal Motor Carrier Safety Administration
<b>FMCSR</b>	<i>Federal Motor Carrier Safety Regulations</i>
<b>HOS</b>	hours of service
<b>MCMIS</b>	Motor Carrier Management Information System
<b>MCSAP</b>	Motor Carrier Safety Assistance Program
<b>NTSB</b>	National Transportation Safety Board
<b>OOS</b>	out of service
<b>PCA</b>	principal component analysis
<b>SMS</b>	Safety Measurement System
<b>UMTRI</b>	University of Michigan Transportation Research Institute

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**Broker** (also known as **bus broker**)—passenger transportation intermediaries (entities or businesses) that arrange bus or motorcoach transportation between a client and a passenger motor carrier for a fee. Unlike brokers that facilitate the transportation of property, bus brokers are not required to register with or obtain operating authority from the FMCSA because they do not fall under the legal jurisdiction of the DOT.

**Bus**—a vehicle with seating for 9 or more occupants, including the driver (except for personal passenger vehicles), and all vehicles that are designed to transport 16 or more people.

**Charter operations**—passenger transportation service for which an individual or an organization, such as a tour or social group or sports team, contracts with a commercial passenger carrier. A typical charter trip is customized individually and does not involve fixed-route scheduled service.

**Conventional motorcoach operations**—interstate motorcoach carriers that provide scheduled service from one terminal to another terminal.

**Curbside motorcoach operations**—a business model in which interstate motorcoach carriers conduct scheduled trips from one city to another city or a destination and originate or terminate at a location other than a traditional bus terminal; most of these operations pick up or discharge passengers at one or more curbside locations (such as sidewalks or parking lots).

**Motorcoach**—a bus that measures at least 35 feet in length and has seating for 30 or more passengers on an elevated passenger deck over a baggage compartment, with integral construction designed for long-distance passenger transportation.

## Executive Summary

Motorcoach safety has received increased public attention as a result of multiple serious accidents during 2011. The most serious of these accidents occurred on March 12, 2011, in the Bronx borough of New York City. In that accident, a 1999 Prevost motorcoach, operated by World Wide Travel of Greater New York, was traveling along Interstate 95 when it departed the interstate to the right, crossed over an 11-foot shoulder into a roadside barrier, and rolled onto its side. The front of the motorcoach then collided with the support pole for an overhead cantilevered highway sign. Of the 33 occupants aboard the bus, 15 were fatally injured, and 18 received injuries ranging from serious to minor. World Wide Travel was operating a curbside service, making 14 roundtrips daily between the Mohegan Sun Casino in Uncasville, Connecticut, and New York City.

The National Transportation Safety Board conducted an investigation of motorcoach safety with a focus on scheduled interstate curbside operations. The objectives of this investigation were to (1) describe the characteristics of the curbside business model among interstate motorcoach carriers; (2) describe the safety record of interstate motorcoach carriers, including those that use a curbside business model; and (3) evaluate the adequacy of safety oversight for motorcoach carriers using a scheduled curbside business model.

No formal definition of curbside carriers exists, and federal and state oversight authorities have no unique categorization and tracking mechanism for these carriers. For the purpose of this investigation, curbside motorcoach operations are those in which interstate motorcoach carriers conduct scheduled trips from one city to another city or a destination and originate or terminate at a location other than a traditional bus terminal; most of these operations pick up or discharge passengers at one or more curbside locations.

The analyses conducted during this investigation accurately depict the results from the comparisons of the various motorcoach carriers defined in this report based on the data available from the Federal Motor Carrier Safety Administration (FMCSA). This investigation could not account for uncertainty associated with the identification of curbside carriers or for missing or inaccurate data from FMCSA data sources. Applying these results to different groups of motorcoach carriers would require additional categorization of the motorcoach carrier groups and new analyses.

Of the 4,172 active interstate motorcoach carriers operating in the United States, 71 were identified as scheduled motorcoach carriers providing curbside service. Although accidents among all types of interstate motorcoach carriers (including those applying the curbside business model) are infrequent, curbside carriers have higher fatal accident and death rates and higher out-of-service rates resulting from driver violations (specifically, fatigued driving and driver fitness violations) compared with conventional carriers. Curbside carriers also have higher driver fitness violation rates and out-of-service rates, and they are overrepresented in driver logbook violations. The safety record of individual curbside carriers varies, with some carriers having very good safety records and others having worse safety records.

In addition, the oversight for this segment of the motorcoach industry has several challenges. FMCSA and state investigators are overburdened by the number of inspections and compliance reviews that need to be accomplished to properly assess a motor carrier's safety performance due to the large number of motor carriers that the investigators have to oversee in addition to motorcoach carriers. The prohibition of routine en route inspections, the minimal requirements for obtaining new operating authority, the inconsistent enforcement of the requirement to submit mileage and other essential information to the FMCSA, and language barriers all indicate that oversight of curbside carriers is more challenging than that for other segments of the motorcoach industry.

# Chapter 1: Introduction

## Background

Motorcoach safety has received increased public attention as a result of multiple serious accidents during 2011.<sup>1</sup> Motorcoach occupants died in at least eight fatal accidents from January to July 2011.<sup>2</sup> Since March 2011, the National Transportation Safety Board (NTSB) has initiated investigations for two motorcoach accidents and has been investigating select issues in three other accidents. These five accidents resulted in 22 fatalities and 159 injuries.

The most serious of these accidents occurred on March 12, 2011, in the Bronx borough of New York City. In that accident, a 1999 Prevost motorcoach, operated by World Wide Travel of Greater New York, crashed about 5:37 a.m. along Interstate 95. The motorcoach had departed from the Mohegan Sun Casino in Uncasville, Connecticut, about 3:48 a.m. and was returning to New York City when it departed the interstate to the right, crossed over an 11-foot shoulder into a roadside barrier, and rolled onto its side. The front of the motorcoach then collided with the support pole for an overhead cantilevered highway sign, as shown in figure 1. Of the 33 occupants aboard the motorcoach, 15 were fatally injured, and 18 received injuries ranging from serious to minor.<sup>3</sup> The NTSB is considering all potential factors in its investigation of this accident, including passenger carrier characteristics, driver performance, vehicle characteristics, the roadway environment, and the effectiveness of state and federal oversight of passenger carriers.<sup>4</sup>

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<sup>1</sup> The Federal Motor Carrier Safety Administration (FMCSA) provided the following definition of a motorcoach in its July 2009 *Motorcoach Fire Safety Analysis Report*: “a motorcoach is a bus with integral construction designed for long-distance passenger transportation. It measures at least 35 feet long and can seat 30 or more passengers on an elevated passenger deck over a baggage compartment.” For more information, see <<http://www.fmcsa.dot.gov/facts-research/research-technology/analysis/Motorcoach-Fire-Study.pdf>> (accessed October 2, 2011).

<sup>2</sup> Six of the eight motorcoach accidents occurred along the northeast corridor.

<sup>3</sup> Title 49 *Code of Federal Regulations* (CFR) 830.2 defines a fatal injury as any injury that results in death within 30 days of an accident. The regulations define a serious injury as an injury that (1) requires hospitalization for more than 48 hours, beginning within 7 days of the date of injury; (2) results in a fracture of any bone (except simple fractures of the fingers, toes, or nose); (3) causes severe hemorrhages or nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns or any burn affecting more than 5 percent of the body surface. The motorcoach driver survived the accident with minor injuries.

<sup>4</sup> For information about the NTSB’s investigation of this accident, see case number HWY11MH005 on the NTSB’s website at <<http://www.nts.gov/investigations/dms.html>>.



**Figure 1.** Wreckage of Motorcoach Involved in Bronx, New York, Accident. *Source: New York State Police.*

World Wide Travel began operating in Brooklyn, New York, in 1989, providing charter trips, tours, and line runs (that is, fixed routes with fixed schedules).<sup>5</sup> The company, under contract with Mohegan Sun Casinos, made 14 roundtrips daily between the casino and New York City. World Wide Travel is considered to be a carrier providing curbside service. For the purpose of this investigation, curbside motorcoach operations consist of scheduled trips from one city to another city or destination and originate or terminate at a location other than a traditional bus terminal; most of these operations pick up or discharge passengers at one or more curbside locations.

## Description of Curbside Operations

The term “curbside operations” represents a business model (that is, the means by which motorcoach service is provided) rather than a category of motorcoach carrier. In fact, no formal definition of curbside carriers exists, and federal and state oversight authorities have no unique

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<sup>5</sup> Line runs can be conducted between fixed terminals, or passengers can be picked up and dropped off at roadside locations.

categorization and tracking mechanism for curbside carriers. As a result, these carriers are tracked and regulated as part of the entire commercial motor carrier population.

Most motorcoach carriers that engage in curbside operations provide other services, including charter operations<sup>6</sup> for private groups.<sup>7</sup> Some curbside motorcoach carriers also provide service from one bus terminal to another, scheduled commuter bus service, and shuttle service to airports. Curbside motorcoach operators typically pick up passengers from sidewalks or parking lots,<sup>8</sup> travel directly from one metropolitan area to another or to a popular destination, and serve heavily traveled routes; such operations typically do not use terminals with indoor waiting rooms at departure or destination points.<sup>9</sup> Established motorcoach carriers, which have been in operation for many years, have also adopted the curbside business model due to competitive economic pressure.

Although curbside motorcoach carriers adopt a similar business model, they vary greatly in other characteristics. Some carriers operate a large fleet of motorcoaches throughout the United States, whereas others have a fleet of only a few buses that operate in local regions. Driver training practices differ, with some curbside carriers providing multiweek training programs and others using a less formal driver instruction process. Safety oversight practices also differ, with some curbside carriers having safety quality assurance programs that incorporate sophisticated real-time motorcoach monitoring, random driver observations, and safety event trending; in contrast, other curbside carriers have no formal safety programs or processes. The safety record of individual curbside carriers varies, with some carriers having very good safety records and others having worse safety records.

Curbside motorcoach operations began as an inexpensive means of travel between New York City and Boston primarily for low-income Chinese workers.<sup>10</sup> Curbside operations subsequently became popular among college students and customers with higher incomes who took advantage of the convenience and low prices.<sup>11</sup> For example, during 2002, curbside motorcoach carriers traveling from Chinatown in New York to Chinatown in Washington, D.C., charged as little as \$10 each way, whereas traditional motorcoach carriers were charging about \$80 for the same trip.<sup>12</sup>

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<sup>6</sup> For charter operations, an individual or an organization contracts with an interstate motorcoach operator to provide service between two points. Charter trips typically involve tour or social groups or sports teams.

<sup>7</sup> *2011 Membership Survey and Industry Assessment* (Alexandria, Virginia: United Motorcoach Association).

<sup>8</sup> Pickup and dropoff locations are subject to change depending on parking availability and city regulations.

<sup>9</sup> (a) R. O'Toole, *Intercity Buses: The Forgotten Mode*, Policy Analysis No. 680 (Washington, DC: Cato Institute, June 29, 2011). (b) *What is the Chinatown Bus?*, Chinatown-Bus.org <<http://www.chinatown-bus.org/>> (accessed September 21, 2011).

<sup>10</sup> J. Chen, "Brief History of Chinatown Bus," GotoBus.com, 2011 <<http://www.gotobus.com/chinatownbus/history/>> (accessed September 21, 2011).

<sup>11</sup> (a) N.J. Klein, "Emergent Curbside Intercity Bus Industry: Chinatown and Beyond," *Transportation Research Record: Journal of the Transportation Research Board*, issue 2111 (2009), pp. 83–89. (b) N.J. Klein, *The Impacts of Low-Cost Buses on the Transit Industry, Final Report* (New Brunswick, New Jersey: Transportation Coordinating Council/Federal Transit Administration Research Program, Rutgers University, 2010).

<sup>12</sup> (a) M. Barbaro, "D.C. to New York for \$10. Seriously. Thrifty Travelers Discover a Gem in Chinatown Bus Lines," *The Washington Post*, December 1, 2002, p. A1. (b) S. Weinstein, "Cheap East Coast Services," 2002 <<http://www.sethweinstein.com/travel/boston/index.shtml>> (accessed September 21, 2011).

Currently, one-way curbside fares can be as low as \$1 to \$5 for those buying seats weeks in advance,<sup>13</sup> and the fares typically do not exceed \$30.<sup>14</sup> Curbside operators carefully choose the routes, days of week, and times of the day that are most popular with travelers to ensure that seats will be filled. To continue to expand their customer base, curbside operators have been offering more amenities for passengers, including wireless Internet services, electrical outlets, reclining seats, seat belts, movies, and more spacious compartments.<sup>15</sup> These operators have also expanded service to the suburbs of large cities.

Along the northeast corridor, curbside operations have attracted customers (who would otherwise have taken trains to their destination) partly because curbside fares are far lower than rail fares and curbside carriers operate more frequently. Amtrak may charge more than \$250 for a weekend round trip from Washington, D.C., to New York City, whereas curbside carriers typically charge \$40 to \$50 for the same round trip. Curbside operations have also attracted customers who had previously flown from one city to another but are deterred by rising airfares and the longer travel times that result from increased airport security procedures. Rising gasoline prices and toll charges have likely played some role in the increased popularity of curbside operations because the cost of traveling by passenger vehicle is often higher than the cost of traveling by bus for some routes.

Curbside service includes intercity operations in high population areas. Intercity motorcoach service has been described as the fastest growing mode of transportation during the past few years.<sup>16</sup> After years of declining ridership from 1960 to 2005, annual growth rates for intercity motorcoach service ranged from 5.1 to 9.8 percent between 2006 and 2010.<sup>17</sup>

Although most motorcoach carriers with curbside operations are relatively small businesses, large companies, such as Coach USA and Greyhound, began curbside operations in 2006 and 2008, respectively. As of August 2011, Greyhound and Peter Pan's joint curbside operation, BoltBus, specialized in travel along the northeast corridor, serving locations including Boston, New York City; Newark (New Jersey), Philadelphia, and Washington, D.C. Coach USA's curbside operation, Megabus, served the midwest, northeast, and south. Megabus has introduced double-decker buses, which can transport 81 passengers compared with 45 to 57 passengers on typical motorcoaches. In July 2011, Megabus announced that it was expanding

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<sup>13</sup> Some curbside bus operators use a yield management system in which the first seats sold are the least expensive, and then seats become more expensive as the time of the trip grows closer.

<sup>14</sup> Megabus.com, "Megabus.com Offers 100,000 Free Seats to Stimulate Travel in 2010," press release, December 8, 2009.

<sup>15</sup> (a) "Changes You'll Love, Love, Love!," DC2NY.com, 2011 <<http://www.dc2ny.com/pages/changes.aspx>> (accessed September 21, 2011). (b) This information was obtained from the Megabus.com website, <<http://us.megabus.com/Default.aspx>> (accessed September 21, 2011). (c) R. O'Toole.

<sup>16</sup> For the purpose of this investigation, intercity operations are interstate buses that transport passengers from one city to another city or a popular destination.

<sup>17</sup> J.P. Schwieterman and L. Fischer, *The Intercity Bus: America's Fastest Growing Transportation Mode: 2010 Update on Scheduled Bus Service* (Chicago: Chaddick Institute for Metropolitan Development, DePaul University, December 20, 2010).

service to 60 North American cities and that it had served 10 million customers.<sup>18</sup> New curbside services could be economically viable in other areas of the United States.<sup>19</sup>

One important point to note is that conventional motorcoach carriers providing scheduled service from one terminal to another terminal have lowered their fares so that they are comparable with those charged by curbside carriers. (As with curbside carriers, these fares are lowest when purchased weeks in advance.) Consequently, the term “low-cost carrier” is no longer meaningful because conventional and curbside motorcoach carriers charge similar fares.

## Objectives

The NTSB conducted an investigation of motorcoach safety with a focus on scheduled interstate curbside operations. The objectives of this investigation were to (1) describe the characteristics of the curbside business model among scheduled interstate motorcoach carriers; (2) describe the safety record of interstate motorcoach carriers, including those that use a curbside business model; and (3) evaluate the adequacy of safety oversight for interstate motorcoach carriers using a curbside business model. This report presents the NTSB’s findings in these areas and the information and data on which the findings were based.<sup>20</sup>

Oversight of interstate motor carriers, including the transportation of passengers, is the responsibility of the Federal Motor Carrier Safety Administration (FMCSA), which is part of the Department of Transportation (DOT). The FMCSA is headquartered in Washington, D.C., and employs more than 1,000 people in all 50 states and the District of Columbia.<sup>21</sup> FMCSA regulations and oversight of interstate motorcoach operations are the same regardless of the business model applied by the motorcoach operator. The National Highway Traffic Safety Administration (NHTSA), which is also part of the DOT, has safety responsibilities related to motorcoach design.<sup>22</sup> Although the FMCSA and NHTSA perform separate but complementary roles in ensuring motorcoach safety, this report focused on the functions of the FMCSA in overseeing the safety of interstate curbside motorcoach operators. As part of this report, the NTSB reviewed the FMCSA’s current and proposed oversight program improvements, interviewed FMCSA management and staff, and analyzed FMCSA motor carrier safety performance and management data to assess the challenges that the FMCSA faces in carrying out its motorcoach oversight efforts.

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<sup>18</sup> Megabus.com, “Megabus.Com Reaches 10 Million Customers,” press release, July 18, 2011.

<sup>19</sup> J.P. Schwieterman and L. Fischer.

<sup>20</sup> Along with this report, the NTSB issued an executive report that focuses primarily on those issues that pertain only to curbside operations. For more information, see *Executive Report on Curbside Motorcoach Safety*, Safety Report NTSB/SR-11/02 (Washington, DC: National Transportation Safety Board, 2011).

<sup>21</sup> This information was obtained from the FMCSA website, <<http://www.fmcsa.dot.gov/about/what-we-do/mission/mission.htm>> (accessed September 21, 2011).

<sup>22</sup> For more information, see <<http://www.nhtsa.gov/>> (accessed October 5, 2011).

## Methodology

- A multifaceted approach was used to collect data and information to evaluate each of the objectives of this investigation (which were mentioned previously), including the following:
- a review of relevant literature on motorcoach safety, regulatory requirements, and oversight procedures as they pertain to curbside carriers;
- an analysis of accident, inspection, and compliance review<sup>23</sup> data and retrospective data analyses of the safety performance of interstate motorcoach operators;
- development of a nationwide list of scheduled interstate motorcoach carriers that conduct curbside operations;
- focus groups with state motor carrier inspectors and FMCSA safety investigators and supplemental focus groups with motorcoach drivers;
- visits to interstate motorcoach operators that use the curbside business model;
- observations of motorcoach operator compliance reviews and motorcoach inspections; and
- discussions with motorcoach industry associations.

The FMCSA facilitated access to relevant data and personnel, which was essential during data-gathering and research activities for this investigation.

## Literature Review

Information was gathered from a search of Transportation Research International Documentation (a combined national and international database of transportation articles), federal and state government agency websites, and other sources.

## Data Analyses

The FMCSA's data portal provided integrated access to various databases that were used for the analyses in this report. Also, FMCSA staff provided the NTSB with extracts from internal databases that are not accessible via the portal.

## Development of Curbside Operators List

A key element of this investigation was to develop an accurate list of scheduled motorcoach operators using a curbside business model (either full or part time)<sup>24</sup> because no

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<sup>23</sup> A compliance review is an on-site examination of a motor carrier's operation to determine the carrier's compliance with the *Federal Motor Carrier Safety Regulations* (FMCSRs) and evaluate the carrier's management controls. Additional information about compliance reviews is discussed in chapter 3.

publicly available list of such carriers existed. The NTSB used a three-step procedure to complete this task. First, passenger carriers with at least one motorcoach in their fleets and authorization to provide interstate “for-hire” or “for-hire and private” operation were identified as a motorcoach carrier. Second, a list of motorcoach carriers providing scheduled interstate regular route service was compiled. Third, with the use of online ticket booking services, such as GotoBus.com, carriers that provided scheduled service were categorized into two groups: those offering curbside service and those not known to offer curbside service, referred to as conventional carriers in this report.<sup>25</sup>

### **Focus Groups of Motorcoach Inspectors, Safety Investigators, and Drivers**

To learn about the methods and challenges of the front line personnel who perform direct oversight of passenger motorcoach carriers, the NTSB conducted two focus groups on June 13, 2011, at the central New Jersey office of the FMCSA.<sup>26</sup> This activity was facilitated by the FMCSA at the request of the NTSB.

The first focus group consisted of nine state personnel from two New Jersey law enforcement agencies who conduct roadside inspections and some compliance reviews of interstate motorcoach carriers. The supervisors of several state inspectors observed the first focus group. The second focus group consisted of 12 FMCSA safety investigators based in New Jersey, New York, and Pennsylvania who conduct compliance reviews. FMCSA supervisory personnel also participated in this focus group. Topics of interest for the focus group discussions included curbside motorcoach inspection procedures, curbside carrier inspection selection protocols, inspector training, typical curbside motorcoach carrier inspection findings, and other related topics.

In addition, to understand common challenges experienced by drivers in the interstate motorcoach industry, the NTSB conducted two supplemental focus groups of motorcoach drivers on July 6, 2011, in Atlantic City, New Jersey. The 11 participating drivers had a broad range of driving experience. Their work involved charter and tour bus operations and scheduled motorcoach operations, including curbside operations. The topics discussed during the focus groups included safety challenges, hours of service (HOS), rest and sleep opportunities, fatigue, working conditions, and the role of government in promoting motorcoach safety. Additional information on the focus group procedures and findings is discussed in chapter 5.

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<sup>24</sup> As previously stated, some interstate motorcoach carriers conduct only curbside operations. Other carriers conduct operations from transportation terminals or hubs in addition to curbside operations. Finally, some motorcoach operators conduct on-demand charter operations in addition to scheduled line runs that may use curbside passenger pickup and drop off.

<sup>25</sup> A detailed description of these three steps is provided in chapter 4.

<sup>26</sup> Focus groups are a useful research technique for understanding attitudes, beliefs, and behaviors of specific groups. Standardized methods for conducting focus groups and analyzing acquired information are well developed. Focus groups can establish that specific behaviors and attitudes are present within a population and can provide valuable insight into understanding the topics of interest.

## Meeting With Curbside Motorcoach Operator

NTSB staff visited two curbside interstate motorcoach operators located in the northeastern United States. While visiting one of the operators, NTSB staff discussed that operator's training program, technical enhancements for oversight capability, maintenance program, and bus operation monitoring system, and management officials communicated their safety concerns about, and recommendations for improvements in, the interstate curbside motorcoach operator community.

## Compliance Reviews and Motorcoach Inspections

NTSB staff observed two compliance reviews conducted by FMCSA investigators. One compliance review was for a medium-sized motorcoach charter company, and the other review was for a small curbside operator. For both compliance reviews, NTSB staff observed the document review process and the discussions of the officials performing the compliance reviews.

In addition, NTSB staff observed level I motorcoach inspections of commercial buses and motorcoaches in Washington, D.C., conducted by inspectors from the District of Columbia Metropolitan Police Force and the FMCSA.<sup>27</sup> NTSB staff observed the inspection of the driver's credentials and motorcoach mechanical inspections, including brake, suspension, and exhaust examinations.

## Meetings With Industry Associations

NTSB staff met with representatives from the American Bus Association and the United Motorcoach Association to solicit their views on interstate curbside motorcoach operations and interstate motorcoach safety. Other topics discussed included industry safety efforts, FMCSA oversight practices, and factors associated with the growth of the curbside motorcoach industry.

## Investigation Limitations

The following limitations associated with this investigation must be considered when interpreting the results:

## Identification of Interstate Curbside Motorcoach Carriers

Currently, FMCSA databases contain no official classification to identify carriers that provide curbside service. Before March 2009, passenger carriers seeking for-hire authority to transport passengers along regular routes were required to submit a detailed description and a map of the route(s) along which they proposed to operate. However, the FMCSA has not required scheduled passenger carriers to describe their routes and fixed endpoints since that

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<sup>27</sup> There are seven categories of roadside driver and vehicle inspections. A level I inspection, known as the North American standard inspection, includes an examination of a driver's credentials and logbook and a vehicle mechanical inspection. Inspection levels II through VII are described in chapter 3 of this report. For more information on inspection levels, see <[http://www.cvsa.org/programs/nas\\_levels.php](http://www.cvsa.org/programs/nas_levels.php)> (accessed September 22, 2011).

time.<sup>28</sup> This change was initiated by the FMCSA to streamline the registration process for new entrant carriers and make it easier for existing passenger carriers to add routes.<sup>29</sup> The discontinuation of this requirement made it difficult to definitively identify carriers offering curbside service. Further, the data sources did not permit the identification of charter/tour motorcoach carriers that had added scheduled trips to their services if the carriers had not notified the FMCSA of this change.

Information on motorcoach companies was important for the NTSB's investigation. Registered company names and "doing business as" names were commonly included in FMCSA databases. However, there was no systematic way to determine if these company names were actually used. For example, the NTSB identified names of companies offering interstate scheduled motorcoach services from various public sources, such as advertisements and ticketing websites, but many of the company names could not be found in FMCSA databases. This finding suggests that more motorcoach carriers may be providing scheduled service, including curbside service, than those identified for this investigation.

To find evidence of interstate scheduled service and curbside service offered by a motorcoach carrier, the NTSB relied on online ticketing websites. It is possible that motorcoach carriers that have no independent company website or that do not use online ticketing websites might use a curbside business model and conduct this service using a walk-up ticketing method. Such carriers could not be identified by the methods used in this investigation. Further, it is possible that the investigation methods missed those operators that primarily conduct charter operations but also conduct curbside operations either infrequently or only on one or two specific scheduled trips. As a result, although the list of curbside motorcoach operators is the first known publicly available source for this information, the list likely omits some of these operators.

## Data Analyses

Most data that the NTSB obtained from the FMCSA, either via the data portal or FMCSA staff, are "snapshot" data; that is, the information is current as of a specific date, and historical information is not included because it was not readily available. Longer-term data, such as FMCSA state crash data and roadside inspection data, are limited to a specific time frame. For example, roadside inspection data with detailed violation information cover a 24-month period.

Data regarding vehicle body type were not consistently organized, particularly for motorcoaches. Specifically, FMCSA state crash data records identified buses based on vehicle configuration (that is, number of seats) and gross vehicle weight. In contrast, NHTSA's Fatality Analysis Reporting System (FARS)<sup>30</sup> provided fatal accident data for buses using different

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<sup>28</sup> *Federal Register*, vol. 74, no. 11 (January 16, 2009).

<sup>29</sup> The FMCSA received comments on the proposed rule from eight organizations (three motorcoach carriers, a bus trade association, two labor unions, a state regulatory agency, and a disability rights nonprofit organization). All eight organizations opposed this change, but the FMCSA stated in the final rule that the change would have no adverse effects on safety.

<sup>30</sup> The FARS is a census of fatal accidents on U.S. public roads in which at least one person died (except for documented suicides) within 30 days of an accident.

classifications, such as vehicle body type (for example, intercity/cross-country) and bus use (for example, scheduled). Because of the varying definitions and categorization of bus types and uses, it was difficult to directly compare FARS and state crash data.

Accident and inspection records were linked to motorcoach carriers, so it was not possible to determine if a particular accident or inspection activity was attributed to a specific service type. Also, because a motorcoach carrier may provide curbside service along with conventional, charter, shuttle, and/or commuter services, the data indicate the safety culture of the carrier as a whole and not by the specific service type that the carrier provides.

The most important mechanism for collecting motorcoach mileage information is the FMCSA's MCS-150 form, which motorcoach operators are required to update every 24 months. However, the FMCSA appears to be inconsistent in enforcing the requirement for updating the MCS-150 form, as discussed in chapter 4.

The analyses conducted during this investigation accurately depict the results from the comparisons of the various motorcoach carriers defined in this report based on the data available from the FMCSA. This investigation could not account for uncertainty associated with the identification of curbside carriers or for missing or inaccurate data from FMCSA data sources. Applying these results to different groups of motorcoach carriers would require additional categorization of the motorcoach carrier groups and new analyses.

The cumulative effect of these limitations could reduce the accuracy and precision of the resulting data analyses. As a result, the findings from the data analyses should be interpreted with those limitations in mind. Also, the findings should be interpreted as an indication of general safety rather than an evaluation of individual operators.

## **Focus Groups**

The focus groups of inspectors, investigators, and drivers verified the existence of specific motorcoach safety problems, including some that affect curbside carriers more than other motorcoach carriers, and the multiple factors contributing to them. The qualitative nature of focus group research meant that the frequency of the identified safety problems and their contributing factors could not be measured.

## Chapter 2: Motorcoach Operational Characteristics

As previously stated, for the purpose of this investigation, curbside motorcoach operations consist of scheduled trips from one city to another city or a destination and originate or terminate at a location other than a traditional bus terminal; most of these operations pick up or discharge passengers at one or more curbside locations. Even though curbside motorcoach carriers use a specific business model, they share many important characteristics with other types of motorcoach carriers. These characteristics need to be considered when comparing curbside motorcoach carriers with other types of motorcoach carriers.

### Motorcoach Travel Data

Comparing risks per unit of travel is essential for assessing motorcoach safety. Accurate travel data are necessary for such assessments; however, measuring the volume of highway travel in the United States by type of vehicle involves a considerable degree of uncertainty. States monitor traffic volume along certain roads and then submit travel data to the Federal Highway Administration (FHWA), which determines if the state estimates are reasonable.<sup>31</sup> The federal government publishes annual statistics on intercity rail and airplane travel but does not distinguish intercity bus operations from other bus operations in annual reports on highway travel. Further, separate travel data on curbside motorcoach operations are not routinely collected by federal or state government agencies.<sup>32</sup>

The National Household Travel Survey, which the FHWA conducts every 5 to 7 years, estimated that 60 million person-trips<sup>33</sup> occurred on intercity buses in 2009 and that 241 million person-trips occurred on charter and tour buses during 2009.<sup>34</sup> Motorcoaches are the most common type of bus used for intercity and charter/tour bus trips. Curbside services were estimated to comprise more than 20 percent of all intercity motorcoach departures (using a different travel measure than person-trips).<sup>35</sup> Researchers estimated that about 5.9 million person-trips, accounting for 1.2 billion passenger-miles, took place in 2010 aboard buses providing intercity curbside service.<sup>36</sup> Another researcher estimated that 2.4 billion passenger

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<sup>31</sup> *Annual Vehicle Miles of Travel and Related Data: Procedures Used to Derive the Data Elements of the 1994 Table VM-1*, Publication No. FHWA-PL-96-024 (Washington, DC: U.S. Department of Transportation, Federal Highway Administration, June 1996).

<sup>32</sup> J.P. Schwieterman and L. Fischer.

<sup>33</sup> A person-trip is defined as one trip taken by one person. For example, a motorcoach carrying 57 passengers and 1 driver is equivalent to 58 person-trips.

<sup>34</sup> *2009 National Household Travel Survey, Day Trip File, Public Use Codebook, Version 2.1, Travel Day Person Trips, annualized* (Washington, DC: U.S. Department of Transportation, Federal Highway Administration, 2009), p. B-84.

<sup>35</sup> J.P. Schwieterman and L. Fischer.

<sup>36</sup> J.P. Schwieterman and L. Fischer.

miles were traveled during 2010 using intercity bus service (both curbside and conventional operations) in the Boston to Washington, D.C., corridor alone.<sup>37</sup>

## Motorcoach Leasing and Brokers

### Leasing

When a motor carrier needs additional drivers or vehicles for a specific charter, a scheduled route, or seasonal transportation, the carrier may partner with another motor carrier or company to lease its vehicles and drivers.<sup>38</sup> Maintenance may or may not be included in the lease. These leases can be informal and do not require written agreements. Current FMCSA regulations (49 *Code of Federal Regulations* [CFR] Part 376) apply only to the leasing of motor vehicles for interstate for-hire transportation of property, such as freight and other goods. The FMCSA provides no oversight for leasing agreements among motorcoach carriers. This absence of oversight (1) may increase the likelihood that motorcoach owners, managers, lessees, operators, and customers could either intentionally or inadvertently participate in improper or illegal motorcoach operations and (2) hinders the FMCSA's ability to detect and correct such activities.

The lack of oversight for leasing agreements among motorcoach carriers was one of the major safety issues identified in the NTSB's investigation of the 2008 motorcoach accident south of Victoria, Texas.<sup>39</sup> In that accident, Capricorn Bus Lines, Inc., a motorcoach company, was unable to secure the mandatory insurance and was thus unable to operate as an interstate passenger carrier. As a result, Capricorn leased its vehicles and drivers to another motorcoach company, International Charter Services, Inc., which then permitted Capricorn to use the leased vehicles and drivers to conduct its own line runs under International's insurance and operating authority. The NTSB concluded that a motor carrier with passenger carrier operating authority<sup>40</sup> should be required to exercise documented full operational control over all drivers, vehicles, and trip operations being conducted under the carrier's operating authority.

The postaccident compliance review of International clarified that the FMCSA was aware of the lease arrangements between Capricorn and International. The NTSB concluded that the FMCSA, by not having regulations in place to address leasing arrangements involving passenger carriers, provided a lower level of safety oversight for motor carriers transporting passengers

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<sup>37</sup> R. O'Toole.

<sup>38</sup> This arrangement is referred to as a trip lease (per charter or trip) or a term lease (for a specific length of time). Vehicle leasing is also called pooling.

<sup>39</sup> On January 2, 2008, a 2005 Volvo motorcoach was traveling northbound on U.S. Highway 59 about 5 miles south of Victoria, Texas, when the motorcoach driver drifted partially off the roadway and rolled over. One passenger was fatally injured, and 46 passengers and the driver received injuries ranging from serious to minor. For more information, see *Motorcoach Rollover on U.S. Highway 59, Near Victoria, Texas, January 2, 2008*, Highway Accident Summary Report NTSB/HAR-09/03/SUM (Washington, DC: National Transportation Safety Board, 2009).

<sup>40</sup> Before beginning interstate operations, passenger carriers must obtain operating authority by submitting an OP-1(P) form, which must be approved by the FMCSA. Carriers are also required to apply for a DOT number using the MCS-150 form.

than for those transporting freight.<sup>41</sup> On December 29, 2009, the NTSB issued Safety Recommendation H-09-33, which asked the FMCSA to revise 49 CFR Part 376 to require that passenger motor carriers be subject to the same limitations on the leasing of equipment as interstate for-hire motor carriers of cargo. On May 9, 2011, the FMCSA responded that it would initiate rulemaking during the calendar year for amendments to its leasing regulations. On September 9, 2011, the NTSB classified Safety Recommendation H-09-33 “Open—Acceptable Response” pending publication of a final rule that addresses the intent of this recommendation.

The NTSB’s report on the Victoria, Texas, accident also expressed concern that a new carrier without operating authority could operate under the DOT number and insurance of another carrier and thus circumvent the FMCSA’s New Entrant Safety Assurance Program (which is discussed in chapter 3). As a result, on December 29, 2009, the NTSB issued Safety Recommendation H-09-36, which asked the FMCSA to establish a requirement to review all passenger carrier lease agreements during new entrant safety audits and compliance reviews to identify and take action against carriers that have lease agreements that result in a loss of operational control by the certificate holder. On February 4, 2011, the FMCSA responded that, if it were to adopt new regulations concerning lease agreements for certain passenger carriers, then the agency would modify its new entrant and intervention policies to require federal and state personnel to review these agreements. On September 9, 2011, the NTSB classified Safety Recommendation H-09-36 “Open—Acceptable Response” pending the establishment of the recommended requirement.

## Brokers

Brokers of passenger transportation, also known as bus brokers, are transportation intermediaries (entities or businesses) that arrange bus or motorcoach transportation between a client and a passenger motor carrier for a fee.<sup>42</sup> Unlike brokers that facilitate the transportation of property, bus brokers are not subject to the Secretary of Transportation’s jurisdiction. Accordingly, bus brokers are not required to register with or obtain operating authority from the FMCSA.<sup>43</sup>

In general, bus brokers arrange scheduled and charter motorcoach services. Passengers can buy tickets from bus brokers (either on line or at a storefront), and the motorcoach operator providing bus service is reimbursed by the bus broker. For charters, the group requesting the charter pays the bus broker for this service, and the broker then pays the motorcoach company.

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<sup>41</sup> Currently, the FMCSA has no requirement for the approval or review of lease arrangements between passenger carriers.

<sup>42</sup> Such companies derive their income from the difference between the fees charged to the client and the amount the company agrees to compensate the motor carrier operator.

<sup>43</sup> Title 49 *United States Code* 13506(a)(14).

The NTSB investigated a 2005 accident near Wilmer, Texas, that involved a charter operation that was set up through a bus broker.<sup>44</sup> The motorcoach had been chartered by the broker Global Charter Services, Ltd.,<sup>45</sup> doing business as The BusBank. The BusBank website indicated that the company had “a comprehensive bus operator qualification process” that included a review of an operator’s insurance, safety program, driver certification, and customer feedback. However, the NTSB found that The BusBank did not truly perform due diligence to ensure the safety of its charter operators.<sup>46</sup> During the NTSB’s public hearing on the Wilmer accident,<sup>47</sup> an FMCSA official stated that the agency did not have the authority to regulate brokers for passenger motor carriers. In addition, the FMCSA informed the NTSB that 49 *United States Code* 13506(a)(14) exempted brokers for passenger motor carriers from the Secretary of Transportation’s jurisdiction.<sup>48</sup>

The motor carrier industry does not require that an operator be disclosed to the consumer when a ticket is purchased. For example, GotoBus.com, an online resource for bus tickets, is a broker for bus and tour operators. The website’s online booking system shows schedules, prices, and pickup and drop-off locations for more than 200 bus companies throughout the United States. However, the name of the bus or tour operator for a specific trip is not transparent when it is displayed on the website. The lack of a motorcoach company name prevents passengers and others from evaluating the company’s safety record or characteristics, including number of vehicles operated, corporate location, and other relevant information.

On June 13, 2011, the FMCSA Administrator testified before the Committee on Transportation and Infrastructure, U.S. House of Representatives, about improving bus safety. The administrator indicated that “unregulated web sites broker and sell tickets with no

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<sup>44</sup> On September 23, 2005, a 1998 Motor Coach Industries motorcoach, operated by Global Limo, Inc., was en route from Bellaire to Dallas, Texas, carrying 44 assisted-living facility residents and nursing staff as part of the evacuation ahead of Hurricane Rita. As the motorcoach traveled northbound on Interstate 45 near Wilmer, a motorist noticed that the right rear tire hub was glowing red. The motorist alerted the motorcoach driver, who proceeded to the right shoulder of the interstate. The driver and the nursing staff exited the motorcoach and observed flames emanating from the right rear wheel well. As they initiated an evacuation of the motorcoach, heavy smoke and fire engulfed the entire vehicle. For more information, see *Motorcoach Fire on Interstate 45 During Hurricane Rita Evacuation, Near Wilmer, Texas, September 23, 2005*, Highway Accident Report NTSB/HAR-07/01 (Washington, DC: National Transportation Safety Board, 2007.)

<sup>45</sup> Global Limo, Inc., the operator of the accident motorcoach, and Global Charter Services, Ltd., the bus broker, were two distinct and separate commercial entities.

<sup>46</sup> In addition, the NTSB found that The BusBank was not familiar with Global Limo and had no ongoing qualifications review process for this operator; Global Limo had no driver training program and accomplished no drug or alcohol testing of the accident driver; the accident driver was not properly licensed in the state of Texas and did not have the required medical certificate; the driver could not communicate with passengers because he could not speak English; and the accident bus was not properly registered, was not well maintained, and was being operated in violation of a leasing contract signed by the owners of the motorcoach.

<sup>47</sup> The NTSB may hold a public hearing as part of its investigation into an accident to supplement the factual record. Technical experts are called to testify, and NTSB investigative staff, designated representatives from the parties to the investigation, and additional parties to the hearing can ask questions to obtain additional factual information.

<sup>48</sup> The regulation states, “neither the Secretary nor the Board has jurisdiction under this part over . . . brokers for motor carriers of passengers, except as provided in section 13904(d).”

transparency to the public” and that the FMCSA was seeking authority to regulate brokers of passenger tickets as is done for brokers of freight and household goods.<sup>49</sup>

On May 5, 2011, the FMCSA launched its “Think Safety: Every Trip, Every Time” pre-trip safety checklist to help consumers review a bus company’s safety record, safety rating, and DOT operating authority before buying a ticket or hiring an operator for group travel.<sup>50</sup> However, information about the actual motor carrier that will be conducting the trip may still not be transparent to consumers. A review of online brokerage services showed that 72 percent of curbside carriers use such services to sell their tickets compared with 22 percent of conventional carriers. These brokering services include independent companies, such as GotoBus.com, and consolidated ticketing websites provided by Coach USA, Coach America, and Trailways.

It is unclear whether consumers are likely to use the FMCSA’s website to determine the safety of the motorcoach carrier that they are considering. Further, the website is not intuitive because scores are computed on a scale of 0 to 100 percent, with 100 percent indicating the worst performance and 0 percent indicating the best performance. Also, the website does not permit direct comparisons of the relative safety of different motorcoach carriers because passenger carriers are grouped with property carriers that have a similar number of vehicles. (This information is discussed further in chapter 3.)

## Motorcoach and Bus Accident Information

### Research on Accidents

National statistics on the number of police-reported accidents, registered vehicles, and vehicle-miles of travel are reported for buses. Even though these data are not fully available specifically for motorcoaches, bus statistics are useful for understanding motorcoach safety because of the similarities in vehicle design among different categories of buses.<sup>51</sup>

FARS data includes information on cross-country/intercity buses (including both scheduled route and charter/tour services), school buses, transit buses, and other/unknown buses. Of these bus types, cross-country/intercity buses are the only ones considered to be

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<sup>49</sup> For more information, see <<http://www.fmcsa.dot.gov/about/news/speeches/OralStatement-AnneSFerro06132011.aspx>>, accessed August 19, 2011.

<sup>50</sup> The checklist can be found on the FMCSA’s website at <<http://www.fmcsa.dot.gov/safety-security/pcs/Index.aspx>> (accessed September 22, 2011).

<sup>51</sup> As previously stated, a motorcoach is a bus that has seating for 30 or more passengers on an elevated passenger deck over a baggage compartment along with integral construction designed for long-distance passenger transportation. According to the Buses Involved in Fatal Accidents database (University of Michigan Transportation Research Institute, Center for National Truck and Bus Statistics), buses are vehicles with seating for 9 or more occupants, including the driver (except for personal passenger vehicles), and all vehicles that are designed to transport 16 or more people. School buses are defined as buses that provide transportation for pupils regardless of whether the buses are publicly or privately owned. Transit buses provide passenger transportation within urban geographical areas and have fixed scheduled routes. Intercity buses provide long-distance passenger transportation between cities or from cities to popular destinations along fixed routes with regular schedules. Charter buses operate buses for groups on a for-hire basis. Other buses are operated by private organizations that are not in the business of providing transportation, such as churches, or non-educational units of government, such as departments of correction.

motorcoaches.<sup>52</sup> According to NHTSA, in 2009, 38 cross-country/intercity buses were involved in fatal crashes, representing 0.1 percent of all motor vehicles involved in fatal crashes that year. In comparison, 89 school buses and 77 transit buses were involved in fatal crashes during 2009.<sup>53</sup> Buses and other commercial motor vehicles (CMV) have a higher likelihood of fatal accident involvement per registered vehicle. FHWA and NHTSA data showed that, per 100,000 registered vehicles, 14.7 passenger cars, 19 light trucks (pickups and sport utility vehicles), 29.3 buses, 45.4 large trucks, and 69.8 motorcycles were involved in fatal accidents during 2008.<sup>54</sup> However, the occupant death rate per accident was lower for buses overall than for passenger cars. During 2009, the bus occupant fatality rate was 45 deaths per 100,000 accidents compared with 251 deaths per 100,000 accidents for passenger car occupants.

A study by the University of Michigan Transportation Research Institute (UMTRI) that examined fatal bus accidents from 1999 to 2007 found that school buses were the most common type of passenger carrier involved in fatal accidents (39 percent) followed by transit buses (33 percent), charter/tour buses (11.5 percent), other/unknown bus types (10 percent),<sup>55</sup> and intercity buses (3.4 percent).<sup>56</sup> The UMTRI study also found that most road users who were fatally injured in bus accidents were occupants of other vehicles followed by non-occupants (pedestrians and bicyclists) and then bus occupants. The proportion of fatally injured road users who were bus occupants was higher for intercity and charter/tour buses than for school or transit buses. According to 2008 fatality data from the Buses Involved in Fatal Accidents database and travel data from the National Household Travel Survey for April 2008 through April 2009, the estimated occupant fatalities per 100 million person-trips was 10.0 for intercity buses and 13.7 for charter/tour buses.<sup>57</sup>

The UMTRI study compared the type of buses involved in fatal accidents with police-reported driving errors. According to the study, 31 percent of intercity bus drivers involved in fatal accidents had been cited with driving errors compared with 33 percent of charter/tour bus drivers and 24 percent of school bus drivers. Also, intercity bus and charter/tour bus drivers were coded more often than transit and school bus drivers as “driving too fast” or being “drowsy/asleep.” The study pointed out that the drivers of charter/tour and intercity buses had more opportunities to speed because they tended to travel more frequently on interstates compared with buses conducting other operations. The study’s statistical model indicated the

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<sup>52</sup> The NTSB has investigated motorcoach accidents that could not be located in the FARS database by cross-country/intercity body type. Motorcoach accidents may be coded as “other” or “unknown” body types in the FARS.

<sup>53</sup> (a) *Traffic Safety Facts 2008* (Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, 2010). (b) *Traffic Safety Facts 2009: Early Edition* (Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, 2010).

<sup>54</sup> (a) *Traffic Safety Facts 2009: Early Edition*. (b) *Highway Statistics 2008* (Washington, DC: U.S. Department of Transportation, Federal Highway Administration, 2009), table MV-10.

<sup>55</sup> “Other” can refer to usage of the vehicle, which could include motorcoaches involved in activities other than intercity or charter operations.

<sup>56</sup> D. Blower, P.E. Green, and A. Matteson, *Bus Operator Types and Driver Factors in Fatal Bus Crashes: Results from the Buses Involved in Fatal Accidents Survey*, FMCSA-RRA-09-041 (Washington, DC: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, 2010).

<sup>57</sup> Both the small number of bus occupant fatalities and the difficulties in measuring travel resulted in considerable uncertainty in the estimated rates of occupant fatalities per unit of travel.

following risk factors for driver errors associated with fatal accidents: previous moving violations, a police-reported accident during the 3 years before a fatal accident, and an intercity or a charter/tour bus operation.

### **Previous NTSB Motorcoach Accident Investigations and Safety Recommendations**

From 1998 to 2010, the NTSB investigated 19 motorcoach accidents. These accidents, which resulted in 140 fatalities, involved interstate motorcoaches providing scheduled service, tour buses, and charter buses. One of these accidents (Victoria, Texas) involved a curbside motorcoach carrier (as defined in this report). (The NTSB is currently investigating accidents involving curbside carriers that occurred during 2011.) Among the safety issues identified during the investigations were driver fatigue, drivers exceeding legal driving hour limits, unqualified drivers, driver distraction from cell phone use, medical problems, unqualified mechanics, motorcoach carriers that violated safety regulations, and motorcoach carriers that had been placed out of service (OOS) but had been “reincarnated” as new carriers with different names.

As a result of these and other accident investigations, the NTSB issued numerous recommendations to improve motorcoach safety.<sup>58</sup> These recommendations were issued to federal agencies, including the FMCSA, NHTSA, and FHWA; state government agencies; private companies; and trade associations representing passenger carriers using motorcoaches. Some of the issues addressed by these recommendations were the following:

- requiring electronic onboard recorders to enable effective enforcement of driving hour limits;
- assessing driver qualifications and monitoring driving records;
- banning cell phones use while operating a passenger-carrying vehicle;
- assessing medical fitness of drivers;
- disseminating safety information to motor carriers;
- ensuring that companies are employing qualified mechanics;
- detecting unsafe carriers that have been reincarnated under another name;
- implementing crash avoidance technologies, such as forward collision warning systems and automatic braking;
- making motorcoaches more crashworthy by strengthening roofs, improving seat anchorages, revising window glazing requirements, and developing performance standards for luggage racks to prevent injury; and
- improving fire protection.

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<sup>58</sup> For information about the NTSB’s motorcoach accident reports and motorcoach safety recommendations, see the public docket for this report, which can be found on the NTSB’s website at <http://www.nts.gov/investigations/dms.html> >.

## Chapter 3: Regulatory Requirements and Oversight Procedures

### Responsibilities of Federal Motor Carrier Safety Administration

As stated in chapter 1, oversight of interstate motor carrier operations, including transportation of passengers, is the responsibility of the FMCSA. As part of its oversight responsibilities, the FMCSA oversees commercial vehicle safety by regulating commercial interstate driver HOS regulations, alcohol and drug testing requirements, driver medical certification standards, minimum requirements for commercial driver's licenses (CDL) issued by individual states, requirements for freight carriers and certain types of brokers, and minimum standards for vehicle maintenance and roadworthiness.<sup>59</sup> The FMCSA and individual states work together to ensure that both federal and state regulatory safety requirements for interstate motor carriers are enforced. FMCSA regulations for the interstate operation of motorcoaches are the same regardless of the type of operation.

### Compliance, Safety, and Accountability Program

In December 2010, the FMCSA began the Compliance, Safety, and Accountability (CSA) program as its new oversight and enforcement system for commercial motor carriers. This program replaced the previous SafeStat program, which was designed to identify and target high-risk motor carriers.<sup>60</sup> The CSA program encompasses several different factors to improve the FMCSA's ability to identify carriers that are not operating safely. The CSA program also provides the FMCSA, states, U.S. territories, and local jurisdictions the means to prioritize and manage CMV operator inspections. Full implementation of the CSA program has been delayed because the implementation requires rulemaking as well as additional technology.<sup>61</sup>

The CSA operational model has three major components: measurement, evaluation, and intervention, each of which is described below.

#### **Measurement**

The Safety Measurement System (SMS) component of the CSA program is intended to identify individual operator safety problems that can be targeted for correction. The SMS comprises six categories that address motor carrier, driver, and vehicle safety performance and a crash indicator that considers histories or patterns of motor carrier accident involvement

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<sup>59</sup> This information was obtained from the FMCSA website, <<http://www.fmcsa.dot.gov/about/aboutus.htm>> (accessed September 22, 2011).

<sup>60</sup> The SafeStat program rated motor carriers (but not individual drivers) in four safety evaluation areas: accident, driver, vehicle, and safety management. The FMCSA developed the CSA program to better measure motor carrier, driver, and vehicle safety performance and use these data to correct unsafe practices.

<sup>61</sup> *Motor Carrier Safety: More Assessment and Transparency Could Enhance Benefits of New Oversight Program*, GAO Report 11-858 (Washington, DC: Government Accountability Office, 2011).

(including frequency and severity).<sup>62</sup> These seven categories are collectively called the Behavior Analysis Safety Improvement Categories (BASICS), as detailed in table 1. According to the FMCSA, these specific behaviors are most strongly associated with accident risk.<sup>63</sup>

**Table 1.** Behavior Analysis Safety Improvement Categories.

Category	Description
<b>Unsafe driving</b>	Operation of a CMV in a dangerous or careless manner, including speeding, reckless driving, improper lane changes, and inattention.
<b>Fatigued driving</b>	Operation of a CMV by drivers who are ill, fatigued, or not in compliance with HOS regulations. Violation of regulations requiring the complete and accurate recording of logbooks as they relate to HOS requirements and the management of driver fatigue.
<b>Driver fitness</b>	Operation of a CMV by drivers who are unfit to operate a CMV because of a lack of training, experience, or medical qualifications.
<b>Controlled substances and alcohol</b>	Operation of a CMV by drivers who are impaired because of alcohol, illegal drugs, or misuse of prescription or over-the-counter medications.
<b>Vehicle maintenance</b>	Failure to properly maintain a CMV.
<b>Improper loading/cargo securement</b>	Failure to properly secure cargo to prevent shifting loads, spilled or dropped cargo, or unsafe handling of hazardous materials.
<b>Crash indicator</b>	State-reported accident involvement for motor carriers.

The FMCSA uses roadside inspection data, as well as operator violation data (weighted by accident risk), state crash data, and compliance review results,<sup>64</sup> to develop safety performance measures used in the SMS. The most important component of the SMS is data obtained from roadside inspections of a carrier. The SMS also considers data from FMCSA national databases, including the previous 24 months of roadside inspection data and state-reported CMV accidents from the Motor Carrier Management Information System (MCMIS), motor carrier registration/census data, and results from federal and state compliance reviews conducted within the previous 12 months. SMS scores are updated to reflect recent inspections, compliance reviews, and traffic violations. If no data are collected during a 24-month period, the individual BASIC value for a particular category is listed as “insufficient data.”

Roadside inspection data are collected by FMCSA, state, and local personnel. These inspections are typically conducted at motorcoach terminals or parking areas once the passengers have disembarked. (En route inspections of motorcoaches are no longer conducted because they

<sup>62</sup> The crash indicator considers all accidents involving a motor carrier regardless of whether the driver was deemed to be at fault.

<sup>63</sup> *Safety Measurement System (SMS) Methodology, Version 2.1* (Washington, DC: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, December 2010), <<http://csa2010.fmcsa.dot.gov/documents/smsmethodology.pdf>> (accessed October 12, 2011).

<sup>64</sup> This information is available to FMCSA investigators and inspectors and state and local law enforcement agencies through the Motor Carrier Management Information System (MCMIS). The MCMIS contains information on the safety fitness of commercial motor carriers and hazardous material shippers subject to the FMCSRs and the *Hazardous Materials Regulations*. This information is also available to the public through the MCMIS data dissemination program.

are prohibited by law except in the case of imminent hazard or when a motorcoach is at a planned stop location.)<sup>65</sup> Table 2 shows the seven types of roadside inspections for CMVs, six of which are generally applicable to motorcoaches.<sup>66</sup>

**Table 2.** Roadside Driver and Vehicle Inspections.

Inspection level	Title	Description
I	North American standard inspection	Examination of a driver's credentials and logbook and a vehicle mechanical inspection.
II	Walk-around driver/vehicle inspection	Examination of a driver's credentials and logbook and a walk-around inspection of the vehicle.
III	Driver-only inspection	Examination of a driver's credentials and logbook.
IV	Special inspection	One-time examination of a particular item to support a study or verify or refute a suspected trend.
V	Vehicle-only inspection	Inspection that includes each vehicle inspection item specified under level I but without a driver present and conducted at any location.
VI	North American standard inspection for transuranic waste and highway route controlled quantities of radioactive materials	A level I inspection and an inspection to ensure that radiological requirements and transuranic waste and highway route controlled quantities of radioactive materials requirements are met.
VII	Jurisdictional mandated commercial vehicle inspection	Other inspection programs that are required by various jurisdictions (for example, mandated inspections of motorcoaches, limousines, and school buses).

The SMS is a data-driven process that requires that adequate data be collected through inspections or from the states (in the form of accident data or operator violation data) for a carrier to be evaluated. If no data are collected for a carrier, it cannot be easily evaluated using SMS.

## Evaluation

Data entered into the SMS are scored and ranked based on how recently the safety event occurred and the severity of the event.<sup>67</sup> The carrier ranking process comprises the following steps:

1. Relevant inspection, violation, and accident data obtained from the MCMIS are used to create a safety event history for each carrier.
2. The resulting information is entered into the BASIC data system.

<sup>65</sup> Title 49 *United States Code* 31102(b)(1)(x).

<sup>66</sup> This information was obtained from the Commercial Vehicle Safety Alliance website, <<http://www.cvsa.org/programs/nas.php>> (accessed October 2, 2011). Level VI does not generally pertain to motorcoaches.

<sup>67</sup> More information on safety scoring and weighting can be found at *Safety Measurement System (SMS) Methodology, Version 2.1*.

3. Each carrier's violations are classified into a BASIC and are time weighted, severity weighted, and normalized to form a quantifiable measure for a carrier in each BASIC.
4. Each carrier is grouped with similar-sized carriers, their BASIC measures are ranked, and a percentage is calculated (with 100 percent indicating the worst performance in the group and 0 percent indicating the best performance)<sup>68</sup> to determine the safety behavior of a carrier compared with similar carriers in each BASIC.

The comparison of motor carrier groups used for the percentage calculations are based on the number and type of vehicles being used in interstate transportation as well as the number of safety violations discovered during inspections or compliance reviews. The FMCSA further segments the motor carrier groups as follows:

The SMS uses segmentation within the Unsafe Driving and Crash Indicator BASICs to account for carrier differences by placing the carrier population into two groups based on the types of vehicles operated. Carriers are grouped by the following two vehicle types/operations:

- Combo Segment—Combination trucks/motor coach buses constituting 70 percent or more of the total power units (vehicles).
- Straight Segment—Straight trucks/other vehicles constituting more than 30 percent of the total power units (vehicles).

The segmentation of motor carriers means that companies that have fundamentally different types of vehicles/operations are not compared with each other.<sup>69</sup>

The type of motor carrier operation is not considered in the comparison grouping. As a result, interstate motorcoach carriers could be grouped with interstate motor carriers transporting freight depending on the number and type of vehicles used and the safety performance of the carriers.

### **Intervention**

The FMCSA monitors interstate motor carrier safety performance and scores on a monthly basis. The goal of this ongoing surveillance is to identify carriers that are having safety problems early so that appropriate interventions can be initiated before an accident occurs. Currently, the FMCSA intervention process is predicated on the severity of the violation(s). Interventions range from a letter of warning to a compliance review.

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<sup>68</sup> All other carriers in that comparison group have a calculated percentage between 0 and 100 percent based on their performance relative to the other carriers in the group.

<sup>69</sup> This information was obtained from the FMCSA's website, <<http://ai.fmcsa.dot.gov/sms/infocenter/#question25>> (accessed September 22, 2011).

If a motorcoach operator's scores equal or exceed 50 percent for unsafe driving, fatigued driving, or crashes, then the FMCSA sends a warning letter and may initiate a compliance review or another intervention with the operator to address the problem. The threshold for triggering a warning letter or FMCSA intervention is set higher (65 percent) for other measures of safety performance, including driver fitness, controlled substances, and maintenance.

### **Evaluation of Compliance, Safety, and Accountability Operational Model**

A report prepared by UMTRI evaluated the CSA operational model during a 29-month period between February 2008 and June 2010.<sup>70</sup> Passenger carriers were combined with other motor carriers for this investigation. UMTRI examined the association between the seven CSA safety performance factors (BASICS) and accident risk. The strongest associations with accident risk were found for the following factors: unsafe driving (primarily because of speeding citations), crash indicator, controlled substance and alcohol, and fatigued driving.

The UMTRI report compared the effectiveness of CSA with that of the previous operational model (SafeStat) in selecting carriers for inspections and compliance reviews. Data from four states, which randomly assigned motor carriers to the CSA or the previous model, were used to determine whether the carriers exceeded FMCSA preset thresholds for intervention. UMTRI found that motor carriers that received a warning letter under the CSA program showed dramatic improvements in key safety performance measures during 12 months of followup compared with motor carriers evaluated under the SafeStat operational model.

UMTRI also examined the percent of motor carriers that were contacted under the CSA program and the previous system and used this information to estimate that 6.3 percent (and perhaps up to 9.9 percent) of motor carriers would receive an intervention annually under the CSA program compared with 2.2 percent under the previous system. The UMTRI report concluded that the CSA operational model was beneficial for identifying carriers with an increased risk for accidents, performing safety oversight for a higher percent of carriers, and producing improvements in safety practices. The FMCSA announced that it would continue to improve the methods used in CSA operational model and that an additional evaluation would be published in 2016 to determine whether the CSA operational model was working as intended.

### **Compliance Reviews**

A compliance review is an on-site examination of a motor carrier's operation to determine the carrier's compliance with the *Federal Motor Carrier Safety Regulations* (FMCSRs) and evaluate the carrier's management controls.<sup>71</sup> The FMCSA selects motor carriers for this review based on whether the following events have occurred:

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<sup>70</sup> P.E. Green and D. Blower, *Evaluation of the CSA 2010 Operational Model Test*, FMCSA-RRA-11-019 (Washington, DC: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, August 2011). It is important to note that, although UMTRI's evaluation defined CSA as "comprehensive safety analysis," the FMCSA had changed the name of the operational model to "compliance, safety, and accountability."

<sup>71</sup> Compliance reviews that are limited to specific problems or include a detailed investigation of specific problem areas are called onsite focused investigations.

- an investigation of a nonfrivolous complaint from a passenger or another operator,
- a fatal accident,
- a major hazardous materials incident,
- a high SMS ranking,
- an enforcement followup action, or
- a carrier's request for the review.

Compliance reviews are labor-intensive processes that can take from 1 day to several weeks to complete depending on the carrier's size and the number of investigators involved with the review. After a compliance review, a safety rating is assigned. To determine the safety rating, an FMCSA or a state official examines a carrier's safety and transportation-related records<sup>72</sup> and interviews company safety officials to gauge the carrier's compliance with the FMCSRs. The review is organized into six safety performance factors—general, driver, operational, vehicle, hazardous materials, and crash rate<sup>73</sup>—and each factor is assessed to be satisfactory, conditional, or unsatisfactory based on the following criteria:

- **Satisfactory:** records indicated no evidence of substantial noncompliance with safety requirements.
- **Conditional:** records indicated that the carrier was out of compliance with one or more safety requirements.
- **Unsatisfactory:** records indicated evidence of substantial noncompliance with safety requirements.<sup>74</sup>

The safety performance factors are then combined to determine a proposed overall safety rating of satisfactory, conditional, or unsatisfactory, as shown in table 3. A carrier can have up to two factors with conditional ratings and still receive an overall satisfactory rating. FMCSA management makes the final determination of a carrier's overall safety rating. The FMCSA can also fine carriers for FMCSR violations.

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<sup>72</sup> These records include the carrier's HOS practices, vehicle maintenance and inspections, driver qualifications, CDL requirements, financial responsibility, accidents, and hazardous materials compliance.

<sup>73</sup> The FMCSR references for each of the factors are the following: general, 49 CFR 387 and 390; driver, 49 CFR 382, 383, and 391; operational, 49 CFR 392 and 395; vehicle, 49 CFR 393 and 396; and hazardous materials, 49 CFR 171, 177, 180, and 397. The crash rate is rated as satisfactory or unsatisfactory. More information can be found in 49 CFR Part 385, appendix B, section II.

<sup>74</sup> For more information, see <<http://www.safer.fmcsa.dot.gov/saferhelp.aspx#SafetyRating>> (accessed October 2, 2011).

**Table 3.** Compliance Review Ratings.

Number of safety performance factors with		
Unsatisfactory ratings	Conditional ratings	Overall safety rating
None	Two or less	Satisfactory
None	More than two	Conditional
One	Two or less	Conditional
One	More than two	Unsatisfactory
Two or more	Zero or more	Unsatisfactory

Carriers determined to have an overall unsatisfactory safety rating can continue to operate if they develop a plan to correct the deficiencies (within 45 days for passenger and hazardous materials carriers and 60 days for other carriers). If the FMCSA approves the submitted plan, the rating can be upgraded from unsatisfactory to conditional. However, if the carrier does not submit a plan to correct the deficiencies, or if a submitted plan is not approved, then the FMCSA will issue an OOS order for the carrier to cease operations. Carriers with conditional ratings may continue to operate without any restrictions except that they are not permitted to have self-insurance or hazardous materials. If these carriers want to have their rating changed from conditional to satisfactory, they can submit a corrective plan to the FMCSA, have the plan approved, and undergo another compliance review.

### **New Entrant Safety Assurance Program**

A person or company interested in starting an interstate motor carrier needs to assemble the assets necessary (for example, vehicles, physical facility, and financing) and apply to the FMCSA for operating authority. The FMCSA application requires the following forms: (1) the MCS-150 for property and nonhazardous materials safety permit carriers or MCS-150B for hazardous materials safety permit carriers and (2) the OP-1 for cargo carriers and property brokers, OP-1(P) for passenger carriers, or OP-1(FF) for freight forwarders (which can arrange shipments for a customer and act as a carrier). In addition, if applying for operating authority, the prospective carrier needs to provide proof of the required insurance coverage and a process agent. By filling out the application for DOT registration and the application for authority to operate, the applicant is legally verifying that it has access to and is familiar with the FMCSRs; however, the applicant does not have to demonstrate proof of knowledge and the ability to comply with the regulations.

On January 1, 2003, the FMCSA implemented its New Entrant Safety Assurance Program. Under this program, all new motor carriers operating in interstate commerce are considered new entrants when they register with the FMCSA. A new entrant carrier is subject to an 18-month safety monitoring period.<sup>75</sup> After the new entrant's first 3 months of operation and

<sup>75</sup> Before any operation, all new entrant motor carriers must obtain a DOT number; if the operation is "for-hire," then the carrier must also obtain a motor carrier number. A new entrant motor carrier will be issued a DOT number with a new entrant designation, and the carrier's registration will become permanent after the 18-month safety monitoring period has been successfully completed.

before it completes 18 months of operation, the FMCSA conducts a safety audit of the carrier and evaluates its accident and roadside inspection data. At a minimum, the safety audit covers driver qualifications, driver duty status, vehicle maintenance, accident history, and controlled substances and alcohol use testing requirements. If the FMCSA identifies deficiencies, then the carrier must provide the FMCSA with evidence showing that the carrier is correcting the faults found during the audit. Also, the FMCSA can revoke operating authority without affording the carrier an opportunity for correction. The FMCSA stated that it would grant permanent motor carrier registration only if the new entrant successfully completed the 18-month safety monitoring period. During 2008, 2009, and 2010, there were 37,400, 41,280, and 33,845 new entrant applicants (for all types of motor carriers), respectively, that reached the screening phase.

Beginning in 2006, the FMCSA developed an evasion detection algorithm to screen household goods applicants and identify those household goods carriers with a history of poor safety performance. In August 2008, the FMCSA developed the new applicant screening program and began applying it to newly registered passenger carriers before granting them operating authority. This program seeks matches between applicant information and corporate-identifying information contained in the FMCSA's MCMIS, Licensing and Insurance System, and Enforcement Management Information System databases to identify new applicants that may be enforcement evaders. In some instances, the FMCSA identified existing carriers that were reapplying for operating authority under a different company name and/or management name but were essentially the same carrier that the FMCSA had put out of service or that owed civil penalties to the FMCSA resulting from violations discovered during a compliance review. These "reincarnated carriers" were sometimes described as "chameleon carriers" because they tried to camouflage their past poor safety records by changing names,<sup>76</sup> even though the carriers still lacked adequate safety measures.

In addition to reviewing applicant information during the vetting process to identify reincarnated or chameleon carriers as part of the new entrant safety audit, FMCSA investigators ask applicants questions intended to clarify their business relationships with other regulated entities. The FMCSA uses the new entrant program and vetting process to help ensure that a new motor carrier is not a continuation of a previous motor carrier that reorganized to avoid enforcement action. The FMCSA must consider the legal issue of motor carrier successor liability to determine if a former company and a new entrant are essentially the same. In a 2010 Order Denying Petition for Reconsideration, the FMCSA decided that it was not necessary to determine whether the standard for successor liability of motor carrier civil penalty enforcement cases should be the traditional common law, the particular state law, or the federal doctrine of substantial continuity. In determining whether a company is a continuation of a previous corporation, the FMCSA considers a number of factors, including the retention of the same employees, supervisory personnel, and production facilities; production of the same products, with a continuity of assets and business operations; use of the same name; and presentation to the public.<sup>77</sup>

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<sup>76</sup> As stated in *Federal Register*, vol. 73, no. 242 (December 16, 2008), a reincarnated or chameleon carrier is "a carrier that attempts to register as a new entrant and operate as a different entity under a new DOT number in an effort to evade enforcement action and/or out-of-service orders issued against it by the [FMCSA]."

<sup>77</sup> *In the Matter of Williamson Transport Co. Inc.*, Docket No. FMCSA-2004-17247, Final Order, (Washington, DC: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, July 20, 2010).

On December 16, 2008, the FMCSA published a final rule addressing the new entrant safety assurance process. The intent of the rule was to improve the FMCSA's "ability to identify at-risk new entrant motor carriers and ensure that deficiencies are corrected before granting them permanent registration." The rule specifically addressed reincarnated cargo carriers and stated that any carrier that provided false or misleading information or concealed information would be subject to revocation of its new entrant registration and civil penalties.<sup>78</sup> The final rule identified 16 regulatory violations that would automatically result in the failure of an FMCSA safety audit.<sup>79</sup>

After publication of the December 2008 final rule, a petition for reconsideration challenged that the FMCSA had failed to address section 210(a) of the Motor Carrier Safety Improvement Act of 1999 (Public Law 106-159, December 9, 1999), which required new entrant carriers to demonstrate a minimum knowledge of the safety standards. On August 25, 2009, the FMCSA published an Advance Notice of Proposed Rulemaking<sup>80</sup> to address the knowledge requirements in 49 CFR Part 385. The FMCSA has not issued a notice of proposed rulemaking addressing this issue. In 2011, the DOT asked Congress to provide the FMCSA with greater authority to pursue unsafe reincarnated passenger carriers by establishing a uniform federal standard to help determine whether a new carrier is a reincarnation of a previous unsafe carrier. The DOT also asked Congress for authority to require new motorcoach companies to undergo a comprehensive safety audit before receiving operating authority.

Federal motor carrier law is organized under two distinct statutory frameworks: one governs economic and commercial regulation of the industry, and the other addresses safety regulation of the industry. The statutory provision that provides the DOT with the authority to grant operating authority is found within the economic statutory framework and not the safety framework. As a result, the DOT has limited ability to use this statutory provision for raising the standards for those seeking operating authority. Legislative change is required to link registration to safety oversight.

## **Funding for State Oversight of Interstate Motor Carriers**

To support the interstate motor carrier oversight and enforcement activities of states, territories, and local jurisdictions, the FMCSA provides supplemental funding through grants from the Motor Carrier Safety Assistance Program (MCSAP). The FMCSA reimburses each state's lead MCSAP agency with 80 percent of eligible costs incurred during a fiscal year, and each lead agency must provide 20 percent of the costs to qualify for the program. For fiscal year 2012, the FMCSA proposed a total MCSAP budget of about \$263 million.<sup>81</sup>

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<sup>78</sup> According to 49 *United States Code* 521(b)(2)(A), civil penalties are not to exceed \$2,500 for employees and \$10,000 for companies.

<sup>79</sup> The violations resulting in an automatic failure of a safety audit involve the following regulations: 49 CFR 382.115(a) and (b), 382.201, 382.211, 382.215, 382.305, 383.3(a), 383.23(a), 383.37(a), 383.51(a), 387.7(a), 387.31(a), 391.15(a), 391.11(b)(4), 395.8(a), 396.9(c)(2), 396.11(c), and 396.17(a).

<sup>80</sup> *Federal Register*, vol. 74, no. 163 (August 25, 2009).

<sup>81</sup> William A. Quade, Associate Administrator for Enforcement and Program Delivery, FMCSA, memorandum (regarding Fiscal Year 2012 Commercial Vehicle Safety Plan, including MCSAP funding) to FMCSA Field Administrators Division, Administrators State Program Managers, April 8, 2011.

Table 4 provides a listing of interstate motor carrier inspection personnel by organization and the type of motor carrier inspections that they are authorized to conduct.<sup>82</sup> The FMCSA does not prescribe how MCSAP funds are to be allocated; states can determine how many inspectors are needed for vehicle inspections and compliance reviews. Inspectors need specialized training to conduct motorcoach inspections. Of the 10,273 total inspectors that are qualified to conduct CMV inspections nationwide, 2,327 (22.7 percent) are qualified to conduct motorcoach inspections.<sup>83</sup>

**Table 4.** Interstate Motor Carrier Inspection Personnel During 2011.

Authorized inspection	Inspection personnel			Total
	FMCSA staff	State and territory staff	Local staff and other authorities	
CMV inspections	792	7,082	2,399	10,273
Motorcoach inspections	417	1,880	171	2,327
CMV compliance reviews	347	469	62	878

The 878 inspectors qualified to perform compliance reviews are responsible for a total of 765,221 motor carriers, which is equivalent to a ratio of 1.15 investigators per 1,000 motor carriers. The 10,273 inspectors qualified to conduct CMV inspections are responsible for a total of 4,830,972 CMVs, which is equivalent to a ratio of 2.13 inspectors per 1,000 CMVs. The ratio of qualified motorcoach inspectors per 1,000 motorcoaches is higher (43 motorcoach inspectors per 1,000 motorcoaches) and is based on a total of 53,097 motorcoaches; however, these inspectors are responsible for inspecting all motor carriers and not only motorcoach carriers.

### Voluntary Safety Reporting System

The FMCSA stated that it might conduct a compliance review of a carrier if safety complaints about the carrier were received from other operators or passengers. The FMCSA's website includes the National Consumer Complaint Database, where consumers and others can submit safety complaints about motor carriers.<sup>84</sup> To reach the location to file a complaint, the user needs to select the "Quick Links" section at the bottom right of the FMCSA home page.

The database offers four options for submitting complaints electronically. Consumers and others can submit (1) a safety violation complaint, (2) a passenger carrier or an Americans With Disabilities Act complaint, (3) a household goods complaint, or (4) a hazardous materials or cargo tank facility complaint.<sup>85</sup> After selecting one of these four options, the reporter must select

<sup>82</sup> The data presented in this table, which were provided by FMCSA headquarters staff, reflect staffing levels during 2011.

<sup>83</sup> The inspector categories are not mutually exclusive because most investigators and inspectors who are approved to conduct compliance reviews are also qualified to conduct CMV inspections.

<sup>84</sup> For more information, see <<http://nccdb.fmcsa.dot.gov/HomePage.asp>> (accessed October 2, 2011).

<sup>85</sup> Consumers and others can also call a toll-free hotline to submit a complaint. The hotline telephone number can be found by selecting "Contact Us" under the "About FMCSA" tab on the upper right side of the FMCSA website's homepage.

the type of carrier and then confirm that the violation or safety event occurred within the last 60 days. A reporter submitting a household goods complaint is required to provide contact information, including name, address, and telephone number; anonymous reports are not accepted. However, the FMCSA indicated that it would not disclose the identity of the person filing the complaint. (The other three complaint types do not require this information.)

The NTSB spoke with FMCSA management and contractor staff who manage the National Consumer Complaint Database to determine how voluntary violation or safety complaints are handled and how the information from them is used. One FMCSA manager stated that information from household goods complaints was used in a formal oversight program known as the “Top 100 Household Goods Carrier List.”<sup>86</sup> This program uses information from inspections, violations reported by the public, and recordable accidents and considers a carrier’s size, number of years in business, operating authority, safety history, and vehicle inspection and driver inspection history to identify and prioritize the 100 worst-performing carriers. This list is used to help the FMCSA prioritize those carriers that need additional oversight. The FMCSA manager indicated that this program has not been implemented for passenger carriers but that the agency was considering implementing such a program.

In addition, the FMCSA manager indicated that complaints involving passenger carriers were screened and “triaged” to determine those reports that warranted further attention. However, the FMCSA manager was unaware of the actual protocol and associated procedures for doing so. Summary statistics on the frequency and type of reports received are not routinely compiled. The NTSB does not know of any evaluations conducted by the FMCSA regarding the extent that passengers, drivers, and others are aware of the methods for reporting safety concerns and whether the current methods are easy to use.

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<sup>86</sup> William. A. Quade, Associate Administrator for Enforcement and Program Delivery, FMCSA, memorandum (regarding the Top 100 Household Goods Carrier List) to FMCSA investigation managers and staff, June 5, 2009.

## Chapter 4: Motorcoach Transportation Safety Data Analyses

The analyses presented in this chapter were conducted primarily using data obtained from the FMCSA's data portal or FMCSA staff.<sup>87</sup> These data included motorcoach carrier information and relevant accident, inspection, and compliance review data for the carrier.

The NTSB found that, although motorcoach carriers are required to report, every 2 years, their annual fleet mileage to the FMCSA using the MCS-150 form, 32 percent of all motorcoach carriers did not report any annual mileage. Another 32 percent of the carriers had not updated their annual mileage since 2008. The lack of reliable annual mileage information for 64 percent of all motorcoach carriers renders this source of information as unsuitable for use in analysis. Typically, the number of miles traveled is used to calculate rates so that meaningful comparisons can be made, including those between curbside and conventional carriers. Because such comparisons were not possible in this analysis, the NTSB used the total number of vehicles operated by a carrier as a replacement exposure measure.

### Methods

#### Qualitative Classification of Motorcoach Carriers Based on Type of Service

According to FMCSA data, a total of 1,251,861 active commercial motor carriers were operating in the United States as of April 22, 2011. The total number of interstate motor carriers and intrastate hazardous materials carriers under the jurisdiction of the FMCSA was 765,221. Of these carriers, 21,998 were interstate passenger carriers.

As stated in chapter 1, the NTSB utilized a three-step procedure to classify passenger carriers that operated motorcoaches based on the type of service that the carriers provided. First, a passenger carrier was identified as a motorcoach carrier if it met the following criteria:

- the carrier was authorized for interstate operation,
- the carrier was authorized to conduct “for-hire only” or “for-hire and private” service,
- the carrier was considered active by the FMCSA,<sup>88</sup> and

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<sup>87</sup> The FMCSA data portal (<<https://portal.fmcsa.dot.gov>>) provides single sign-on access to numerous central and field data systems. For this report, the NTSB used the FMCSA's portal to obtain access to, and extract data from, the MCMIS and the analysis and information databases. Detailed information about the FMCSA data systems can be found at <<http://www.fmcsa.dot.gov/about/infosys/publicinformationsystems/publiccoresystems.aspx>>. (Both websites were accessed on October 6, 2011.) FMCSA staff extracted detailed inspection data during a 24-month period for a list of 4,172 motorcoach carriers.

<sup>88</sup> The FMCSA has different means for recognizing a carrier that is no longer active. According to the field administrator of the FMCSA's Eastern Service Center, a motor carrier can contact the FMCSA to advise that the carrier is no longer in business. Also, the FMCSA field offices periodically review carrier records to inactivate those carriers with an undeliverable address and no inspections, accidents, and reviews for many years and those carriers that appear to be out of business. Further, the FMCSA can also inactivate a carrier record after a 6- to 12-month period of monitoring following an OOS order, which shuts down the carrier's operation.

- the carrier owned at least one motorcoach.

This effort produced a list of 4,172 active U.S. interstate motorcoach carriers. The second step in the procedure was to identify which of the 4,172 carriers provided interstate scheduled regular route services and which ones did not provide such service. For a motorcoach carrier to be considered a provider of interstate scheduled regular route service, the carrier needed to meet one of the following criteria:

- the carrier was listed in an online directory of intercity bus services,<sup>89</sup> and the carrier's services extended beyond one state;
- the carrier had applied for regular route authority and had been accepted to provide regular route services between 2005 and 2011;<sup>90</sup>
- the carrier was identified as an affiliate of companies whose primary operation was scheduled service,<sup>91</sup>
- the carrier sold its tickets through online ticket booking services,<sup>92</sup> or
- the carrier had been identified by the FMCSA as a curbside service provider in 2009.<sup>93</sup>

Once the list of carriers providing interstate scheduled regular route service was developed, the NTSB used online resources to verify that these carriers did in fact provide these services. This effort resulted in a list of 122 scheduled service carriers. The 4,050 interstate motorcoach carriers that did not meet the selection criteria were considered nonscheduled other carriers. (The nonscheduled other carriers provided mostly charter or tour services.)

The last step was to identify which of the 122 scheduled service carriers provided curbside service and which ones showed no evidence of providing curbside service. The NTSB researched each carrier's company website and used online ticket booking services to determine the type of scheduled interstate services provided by the carriers. Most scheduled interstate motorcoach carriers have some stops that are not within a terminal. As a result, to be classified as providing curbside service, evidence was needed showing that the carriers had routes that

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<sup>89</sup> Online directories of intercity bus services include <<http://users.rcn.com/lawhughes/index.htm>> and <<http://www.aibra.org/>> (both of which were accessed on September 23, 2011).

<sup>90</sup> Regular route is contained within scope of authority during the application process using the OP-1(P) form. As stated in chapter 1, before March 2009, the FMCSA required applicants seeking for-hire authority to transport passengers along regular routes to submit a detailed description and map of the route(s) along which they proposed to operate. The FMCSA discontinued this requirement after that date but still requires scheduled carriers to indicate their scope of authority.

<sup>91</sup> The NTSB recognized that many carriers providing interstate scheduled services were affiliates of Coach USA, Coach America, and Trailways.

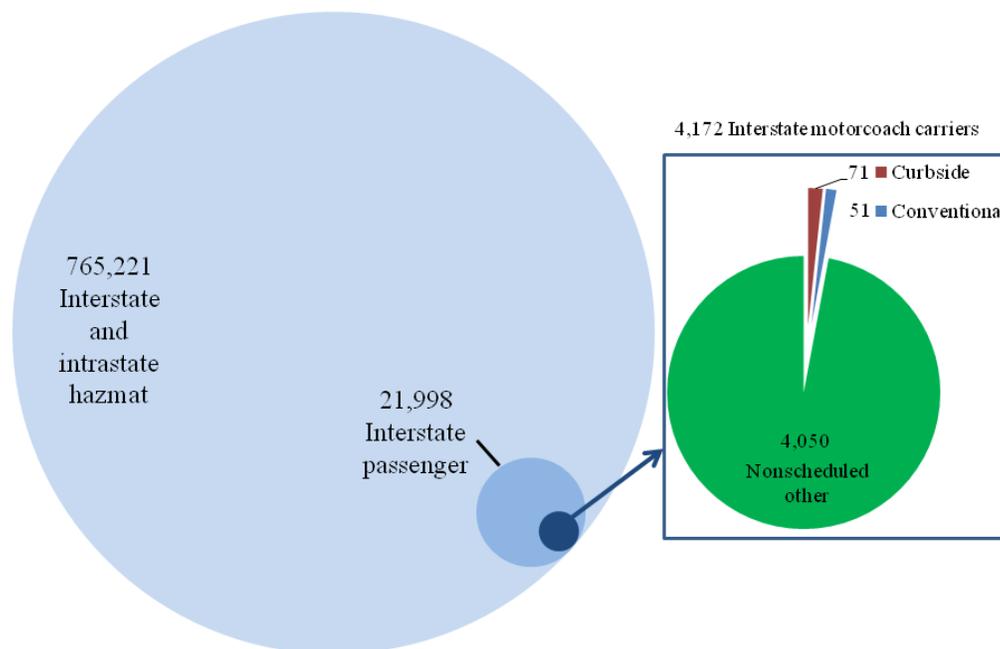
<sup>92</sup> One online ticket booking service used to make this determination was Gotobus.com.

<sup>93</sup> This list of curbside carriers was obtained from the FMCSA's Eastern Service Center, which had developed the list to support a project.

originated or terminated at locations other than terminals, such as at a street corner or outside of a retail business.

Of the 122 scheduled carriers that provided scheduled interstate services, 71 were identified as curbside carriers, and 51 were identified as conventional carriers. The public docket for this report contains a list of the 122 motorcoach carriers that provided scheduled interstate service, including the 71 carriers that were identified as providing curbside service.<sup>94</sup> Figure 2a shows the distribution of commercial motor carriers, passenger carriers, motorcoach carriers, and curbside carriers. Figure 2b shows the distribution of power units for these carriers.<sup>95</sup>

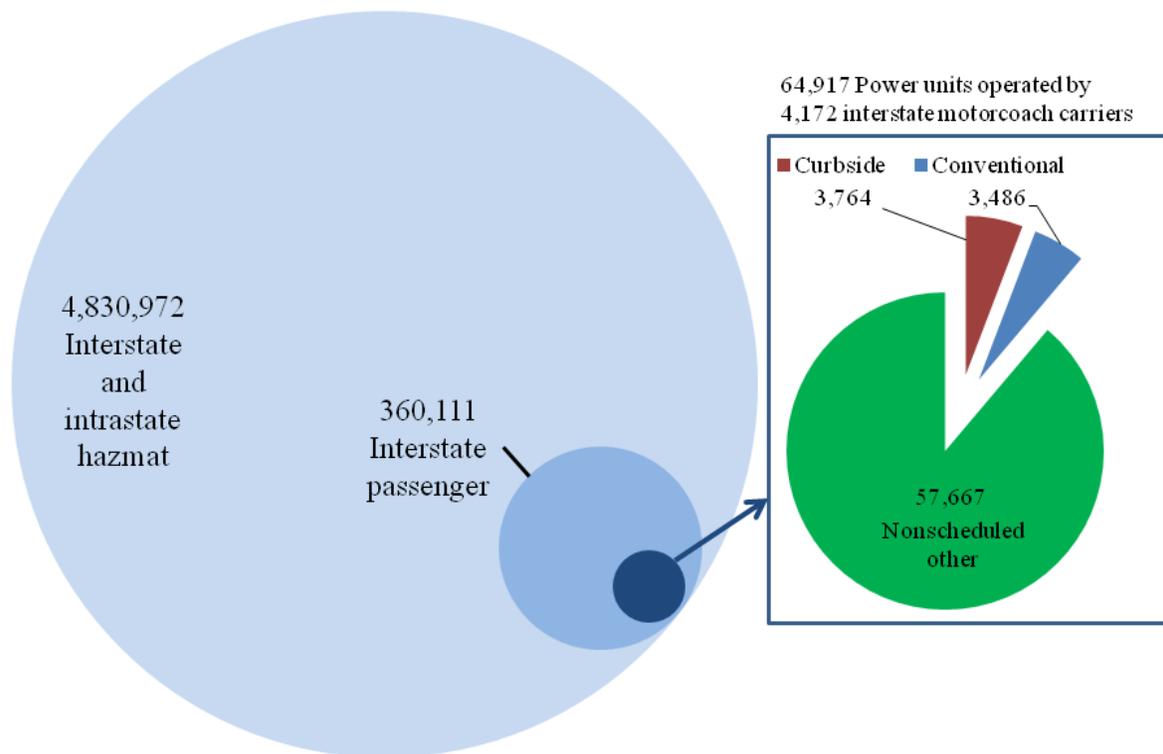
There is uncertainty associated with the identification of curbside motorcoach carriers because regulatory authorities have not developed a formal definition or category for these carriers. This investigation could not account for that uncertainty or for missing or inaccurate data from FMCSA data sources. The analyses conducted in this investigation accurately depict the results from the comparisons of the various motorcoach carriers defined in this report based on the data available from the FMCSA. Applying these results to different groups of motorcoach carriers would require additional categorization of the motorcoach carrier groups and new analyses.



**Figure 2a.** Distribution of Commercial Motor Carriers, Passenger Carriers, Motorcoach Carriers, and Curbside Carriers.

<sup>94</sup> The docket for this report can be found on the NTSB's website at <http://www.nts.gov/investigations/dms.html>. A listing of the 4,050 interstate motorcoach carriers that were considered nonscheduled other carriers is also included in the docket.

<sup>95</sup> A power unit is considered to be the primary drive unit in a tractor-trailer combination vehicle. The term is also used for buses, single-unit trucks, and other vehicles used for interstate transportation.



**Figure 2b.** Distribution of Power Units Operated by Commercial Motor Carriers, Passenger Carriers, Motorcoach Carriers, and Curbside Carriers.

The NTSB's three-step, evidence-based procedure might have underestimated the number of carriers providing scheduled service and, more specifically, curbside service. However, without any official systematic mechanism to classify and identify motorcoach carriers by service type, the three-step procedure provided the best estimates.

## Quantitative Classification of Motorcoach Carriers Based on Accident and Inspection History

The NTSB used a quantitative approach to classify all of the 4,172 motorcoach carriers based on their overall accident and inspection history. The following three sets of data derived from the MCMIS were used for this classification:

- The first data set included motorcoach inspections conducted and violations observed during an inspection between January 2007 and March 2011.
- The second data set included a more detailed listing of all bus inspections between April 2009 and March 2011.<sup>96</sup>

<sup>96</sup> These inspections included all commercial vehicles owned by the motorcoach carriers. (The vehicles were not limited to motorcoaches.) These data were supplied directly by FMCSA staff.

- The third data set included all reported accidents involving buses (with at least nine seats) that occurred between January 2005 and March 2011.<sup>97</sup>

Some motorcoach carriers were not in operation during the entire period covered by the inspection data (January 2007 to March 2011 for motorcoach inspections and April 2009 to March 2011 for all bus inspections). As a result, the NTSB derived adjustment factors using the number of months that a carrier had been in business relative to the length of the inspection records.<sup>98</sup>

The NTSB calculated the adjusted inspection, violation, and OOS violation rates<sup>99</sup> and expressed these rates per 100 vehicles (based on the number of vehicles operated) for each motorcoach carrier during the two inspection periods. Also, the adjusted accident rates for each motorcoach carrier from January 2005 to March 2011 were computed using a similar approach. The NTSB considered all reported accidents, nonfatal accidents, and fatal accidents, and the death and injured person rates per 100 vehicles were computed accordingly. In addition, the NTSB examined information on the number of states where inspections occurred as well as the percent of roadside motorcoach inspections for reasons other than traffic enforcement. This work resulted in the development of the 12 variables shown in table 5, which were used for subsequent analyses.

**Table 5. Variables Developed From Accident and Inspection Data.**

Variable	Data period
Adjusted overall accident rate	2005 to 2011
Adjusted injured person or fatal accident rate	2005 to 2011
Adjusted fatal accident rate	2005 to 2011
Adjusted death rate	2005 to 2011
Adjusted injured person rate	2005 to 2011
Adjusted motorcoach inspection rate	2007 to 2011
Adjusted inspection rate (all buses)	2009 to 2011
Adjusted motorcoach OOS rate	2007 to 2011
Adjusted violation rate (all buses)	2009 to 2011
Adjusted OOS rate (all buses)	2009 to 2011
Number of states where motorcoach inspections occurred	2009 to 2011
Percent of nontraffic enforcement motorcoach inspections	2009 to 2011

<sup>97</sup> Some of the buses involved in reported accidents were not linked to valid DOT numbers. The NTSB evaluated the company names reported in the accident records and linked these records to as many DOT numbers as possible.

<sup>98</sup> For example, a carrier in business for only 1 year would have an adjustment factor of 0.2 for motorcoach inspections (because the carrier had been in operation for 20 percent of the inspection data's 4-year period) and 0.5 for all passenger vehicle inspections (because the carrier had been in operation for 50 percent of the inspection data's 2-year period).

<sup>99</sup> In this chapter, the term "OOS violations" refers to OOS orders resulting from inspections.

These variables reflect somewhat different aspects of the overall safety record of the carriers, but the variables are highly correlated with each other. As a result, a principal component analysis (PCA)<sup>100</sup> was used to define composite variables that could be used to categorize the 4,172 carriers. This analysis produced three principal components that accounted for most of the variance in the data and were, by definition, uncorrelated with each other. The principal components were defined by the accident variables and inspection and violation variables. On the basis of the carriers' principal component scores, the following three categories were identified: (1) those carriers with high accident rates, (2) those carriers with high inspection and violation rates, and (3) all other carriers not defined by high accident or inspection/violation indicators.

To evaluate the type of violations, the NTSB further categorized the carriers using the more detailed inspection data (from April 2009 to March 2011) obtained directly from the FMCSA. Each detailed inspection record contained 50 specific violation codes.<sup>101</sup> These specific violations were arranged into the seven violation categories shown in table 6.

**Table 6. Seven Violation Categories Used in Detailed Analyses.**

<b>Violation category</b>
Driver fitness violation
Driver fitness OOS violation
Fatigued driving violation
Fatigued driving OOS violation
Vehicle maintenance violation
Vehicle maintenance OOS violation
Unsafe driving violation

The NTSB found that 2,652 motorcoach carriers (64 percent) were inspected at least once between April 2009 and March 2011. The adjusted violation rate (per 100 vehicles during the 2-year period) for each of the seven violation groups was computed. The carriers that ranked among the top 10 percent (that is, in the 90th percentile) in each of the seven violation groups were identified. This additional step augmented the PCA results by further highlighting carriers with severe violation rates.

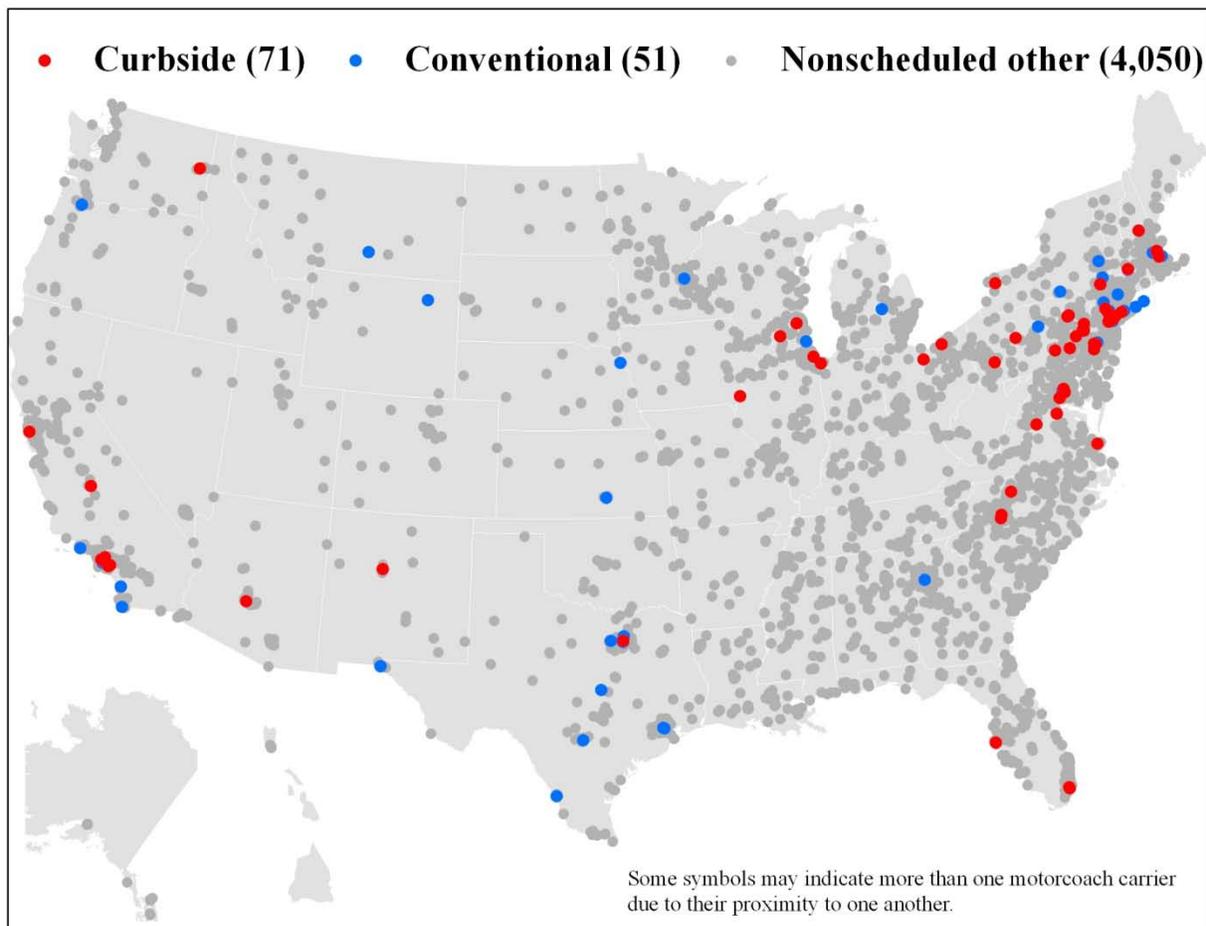
<sup>100</sup> PCA is a statistical method that evaluates the correlations among a set of variables to create linear combinations of the original variables that are uncorrelated (orthogonal). The number of these linear combinations, or principal components, is constrained to be less than or equal to the number of original variables. This transformation is defined so that the first principal component accounts for as much of the variability in the data as possible and that each succeeding component has the highest possible percent of variance explained, with the constraint that the component be uncorrelated with the preceding components.

<sup>101</sup> Examples of specific violation codes are "10/15 hours of service violation" and "disqualified drivers violation."

## Analysis Results

### Characteristics of Motorcoach Carriers

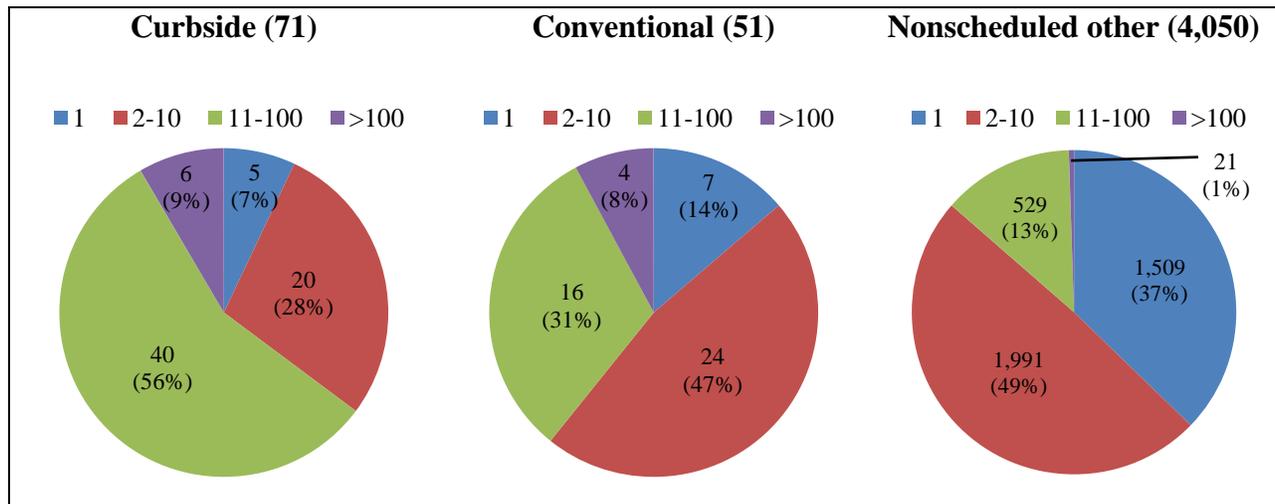
Motorcoach carriers are located throughout the United States. California has the highest number of motorcoach carriers, comprising 11 percent of all 4,172 U.S. motorcoach carriers, followed by New York, Texas, New Jersey, and Pennsylvania; 35 percent of all U.S. motorcoach carriers are located in these five states. Scheduled route service carriers are located in 29 states. New York has 25 motorcoach carriers offering some form of scheduled route service, and 14 of these carriers offer curbside service. Pennsylvania has the highest number of carriers providing curbside service with 16 such carriers. Most of the scheduled route service carriers (including curbside carriers) are based near large metropolitan areas, especially along the northeast corridor, as shown in figure 3.



**Figure 3.** Locations of U.S. Motorcoach Carriers by Service Type.

Figure 4 shows that 35 percent of curbside carriers have 10 or fewer motorcoaches, whereas 61 percent of conventional carriers and 86 percent of nonscheduled other carriers have 10 or fewer motorcoaches. Table 7 shows that 52 percent of curbside carriers, 63 percent of

conventional carriers, and 58 percent of nonscheduled other carriers have been in business for 10 years or less.



**Figure 4.** Distribution of Carriers by Number of Motorcoaches and Service Type.

**Table 7.** Motorcoach Carriers in Business for 10 Years of Less.

Service type (number of carriers)	Number	Percent
Curbside (71)	37	52
Conventional (51)	32	63
Nonscheduled other (4,050)	2,338	58
Total (4,172)	2,407	58

### New Entrant Safety Assurance Program

Since the New Entrant Safety Assurance Program began in 2003, 31 curbside and 28 conventional carriers had successfully completed the program by May 2011. As of May 13, 2011, the program was monitoring 221 motorcoach carriers of all types. Two of these carriers provide curbside service, and one provides conventional service.

### Accident History of Motorcoach Carriers, January 2005 to December 2010

According to state crash data compiled by the FMCSA, 1,254 of the 4,172 motorcoach carriers had been involved in at least one reported accident from January 2005 to December 2010. These motorcoach carriers were involved in a total of 6,019 accidents, 191 of which were fatal (resulting in 262 deaths) and 3,134 of which were nonfatal injury accidents (injuring 9,062 people).

Table 8 shows the number of accidents, deaths, and injured persons involving motorcoach carriers (based on the FMCSA’s MCMIS data from 2005 to 2010). On average,

motorcoach carriers were involved in 1,003 reported accidents, 32 fatal accidents resulting in 44 deaths, and 505 nonfatal accidents that injured at least one person.

**Table 8.** Number of Accidents, Deaths, and Injured Persons Involving Motorcoach Carriers.

Year	All accidents	Fatal accidents	Nonfatal injury accidents	Property damage-only accidents	Deaths	Injured persons
2005	910	34	449	427	43	1,250
2006	866	25	447	394	31	1,530
2007	1,064	33	543	488	40	1,657
2008	1,004	33	508	463	62	1,737
2009	1,091	38	541	512	45	1,493
2010	1,084	28	539	517	41	1,395
Average	1,003	32	505	467	44	1,510

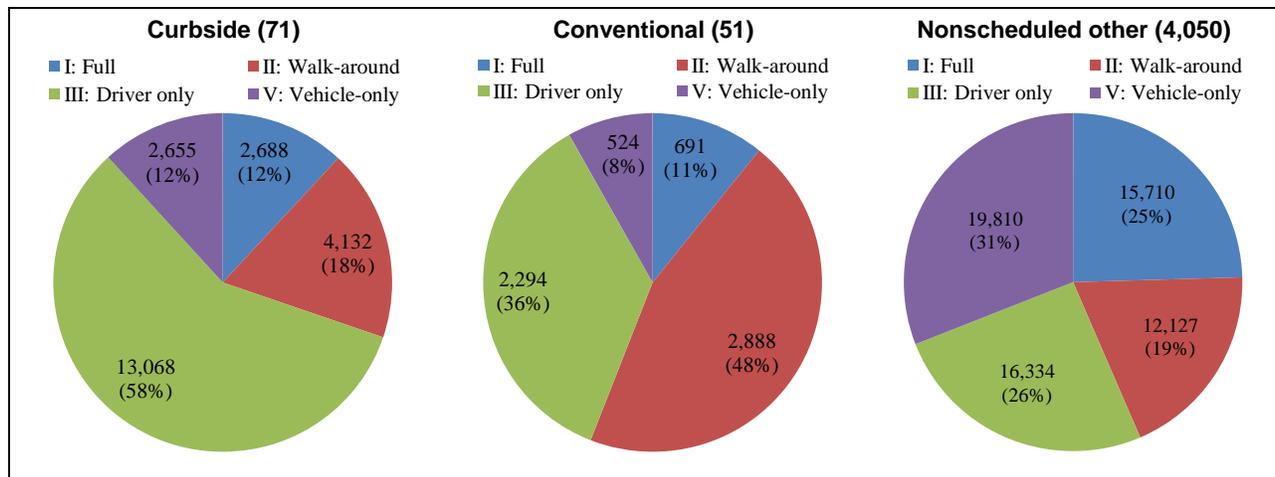
### Inspection History of Motorcoach Carriers, April 2009 to March 2011

Table 9 shows the distribution of carriers that received at least one inspection between April 2009 and March 2011. Eight percent of curbside carriers, 12 percent of conventional carriers, and 37 percent of nonscheduled other carriers did not have inspections during that period, which is important to note because the CSA program depends on data derived, in large part, from these inspections.

**Table 9.** Number of Motorcoach Carrier Inspections by Service Type, April 2009 to March 2011.

Service type	Carriers with no inspection		Carriers with at least one inspection		Total
	Number	Percent	Number	Percent	
Curbside	6	8	65	92	71
Conventional	6	12	45	88	51
Nonscheduled other	1,508	37	2,542	63	4,050
Total	1,520	36	2,652	64	4,172

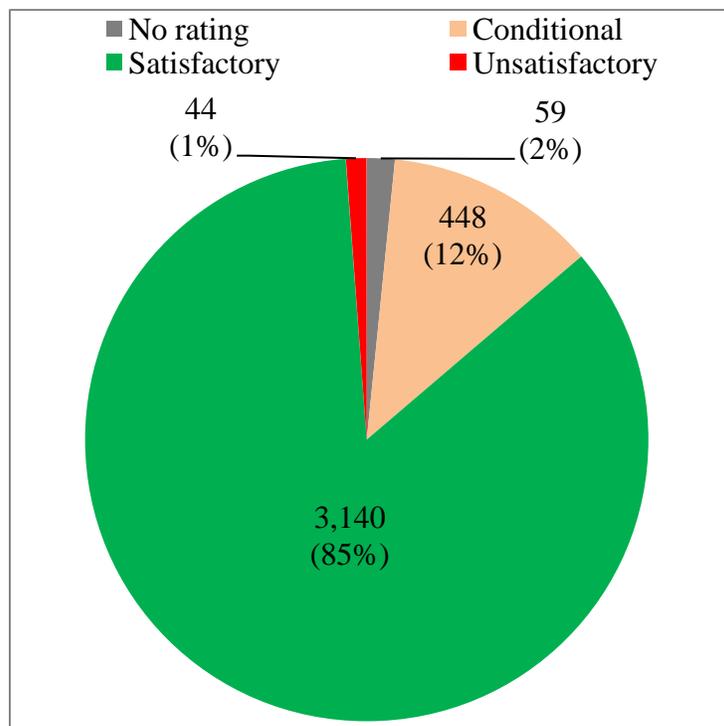
For curbside carriers, 58 percent of all roadside inspections were level III driver-only inspections, and 18 percent were level II walk-around inspections. For conventional carriers, 36 percent of all roadside inspections were level III driver-only inspections, and 48 percent were level II walk-around inspections. For nonscheduled other carriers, level V vehicle-only inspections occurred most frequently (31 percent) followed by level III driver-only inspections (26 percent). Level I full inspections comprised 12 and 11 percent of all roadside inspections for curbside and conventional carriers, respectively, but comprised 25 percent of all roadside inspections for nonscheduled other carriers, as shown in figure 5.



**Figure 5.** Number of Roadside Inspections by Inspection Level and Service Type, January 2005 to March 2011.

**Compliance Reviews and Safety Audits, January 2007 to April 2011**

From January 2007 to April 2011, the FMCSA conducted 3,691 compliance reviews for motorcoach carriers, representing 76 percent of all compliance reviews for passenger carriers. Figure 6 shows the distribution of ratings resulting from these compliance reviews. Most compliance reviews (85 percent) resulted in satisfactory ratings, 44 compliance reviews (1 percent) resulted in unsatisfactory ratings, and 448 compliance reviews (12 percent) resulted in conditional ratings.



**Figure 6.** Distribution of Compliance Review Ratings for Motorcoach Carriers, January 2007 to April 2011.

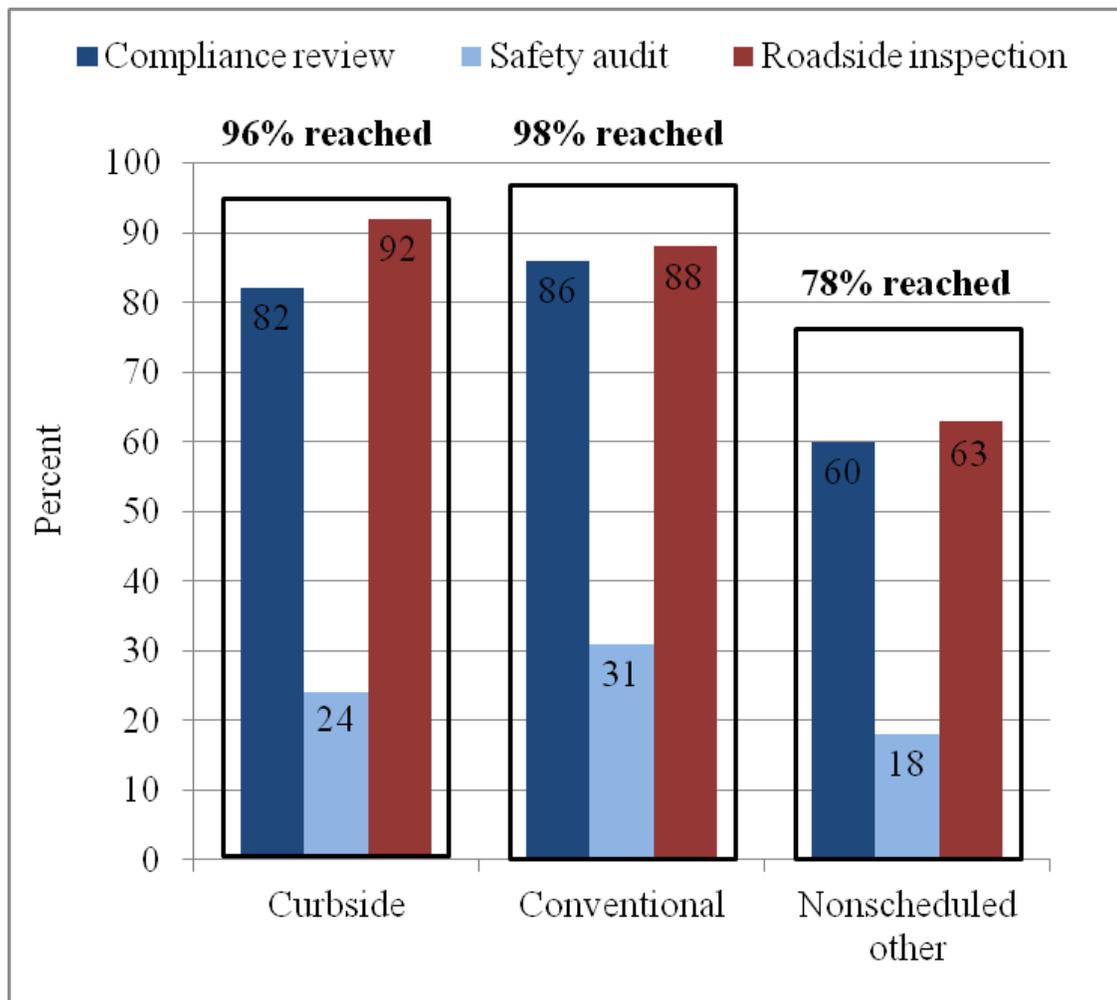
Table 10 provides data on the 3,794 motorcoach carriers that had been in business for more than 18 months. Among these carriers, 87 percent of curbside carriers, 94 percent of conventional carriers, and 65 percent of nonscheduled other carriers received at least one compliance review between January 2007 and April 2011. Of the 1,303 motorcoach carriers that received no compliance review during that period, 252 (19 percent) received at least one safety audit.

**Table 10.** Compliance Reviews for Motorcoach Carriers With More Than 18 Months in Business, January 2007 to April 2011.

Service type (number of carriers)	Number of carriers with		Percent of carriers with at least one compliance review
	At least one compliance review	No compliance review	
Curbside (67)	58	9	87
Conventional (47)	44	3	94
Nonscheduled other (3,680)	2,389	1,291	65
Total (3,794)	2,491	1,303	66

Between January 2007 and April 2011, the FMCSA evaluated the safety performance of most scheduled service carriers, including those providing curbside service, by conducting compliance reviews, safety audits, and roadside inspections. Figure 7 shows the combined efforts of the FMCSA using all three oversight activities.<sup>102</sup> The figure shows that 82 percent of curbside carriers had received at least one compliance review, 24 percent had received at least one safety audit, and 92 percent had received at least one roadside inspection. In all, 96 percent of curbside carriers were reached by FMCSA federal and state oversight activities. Of the three curbside carriers with no compliance review, safety audit, or roadside inspection, two had been in business for less than 18 months. For conventional and nonscheduled other carriers, 98 and 78 percent of carriers were reached, respectively.

<sup>102</sup> These federal and state oversight activities are not mutually exclusive.



**Figure 7.** Percent of Motorcoach Carriers Receiving Federal or State Oversight, January 2007 to April 2011.

## Classification of Motorcoach Carriers Based on Accident and Inspection History

PCA category 1 included 233 carriers whose highest principal component score was influenced by the accident variables. The NTSB was primarily interested in 74 of the 233 carriers because they ranked in the 90th percentile in at least one violation or OOS violation category. These 74 carriers were considered to have the worst safety records of the 4,172 interstate motorcoach carriers. PCA category 2 included 279 carriers with high inspection and violation rates. These carriers generally had a higher number of inspections and a higher number of inspection and OOS violations but did not have high accident rates. The operational characteristics of these 353 carriers were evaluated in more detail and compared with all of the remaining carriers to determine the elements that might be associated with the substandard safety performance of the 353 carriers. Table 11 describes the PCA categories and shows the number of carriers in each category.

**Table 11.** Number of Motorcoach Carriers by Principal Component Analysis Category and 90th Percentile Analysis Results.

PCA category	Description	Number of motorcoach carriers
1	High overall accident rates and ranking above the 90th percentile in one of seven violation and OOS violation categories	74
2	High overall inspection and violation rates and ranking above the 90th percentile in one of seven violation and OOS violation categories	279
3	All remaining carriers (grouped for comparison purposes)	3,819

## Operational Characteristics of Motorcoach Carriers With Substandard Accident and Inspection History

### Size and History of Carriers

The NTSB determined that two thresholds were useful for comparing carriers in PCA categories 1 (high accident rates) and 2 (high inspection and violation rates) with carriers in PCA category 3 (the comparison category). These two thresholds were carriers with 1 to 10 motorcoaches and carriers with up to 10 years in business. Table 12 shows that 96 percent of carriers in the high accident rate category, 91 percent of carriers in the high inspection and violation rate category, and 85 percent of carriers in the comparison category had 1 to 10 motorcoaches. Regarding time in business, the high inspection and violation rate category had the highest percent of carriers (71 percent) that had been in business for up to 10 years.

**Table 12.** Number of Carriers With Up to 10 Motorcoaches and Up to 10 Years in Business.

Category (number of carriers)	1 to 10 motorcoaches		Up to 10 years in business	
	Number of carriers	Percent of carriers	Number of carriers	Percent of carriers
1: High accident rate (74)	71	96	42	57
2: High inspection and violation rates (279)	255	91	198	71
3: Comparison (3,819)	3,230	85	2,167	57
Total (4,172)	3,556	85	2,407	58

### Type of Service Provided

The relationship between the type of service provided by a carrier and the carrier's accident and inspection history was examined. Table 13 shows that, although curbside carriers comprised 2 percent of all motorcoach carriers, they comprised 5 percent of carriers in the high

accident rate category and 6 percent of carriers in the high inspection and high violation rate category.

**Table 13.** Accident, Inspection, and Violation Rates by Type of Service.

Category (number of carriers)	Curbside		Conventional		Nonscheduled other	
	Number of carriers	Percent	Number of carriers	Percent	Number of carriers	Percent
1: High accident rate (74)	4	5	0	0	70	95
2: High inspection and violation rates (279)	16	6	9	3	254	91
3: Comparison (3,819)	51	1	42	1	3,726	98
Total (4,172)	71	2	51	1	4,050	97

Although table 13 indicates that a total of 20 curbside carriers were categorized as having either high accident rates or high inspection and violation rates, the remaining 51 curbside carriers were not considered to have high rates in either category. Further analyses of the operational characteristics of the curbside carriers showed that the 20 curbside carriers operated fewer motorcoaches (averaging 17 motorcoaches compared with 63 motorcoaches operated by the 51 remaining curbside carriers) and that they had less time in business (with a median time of 6 years compared with 16 years for the 51 remaining curbside carriers).

### **Linked Drivers or Vehicles**

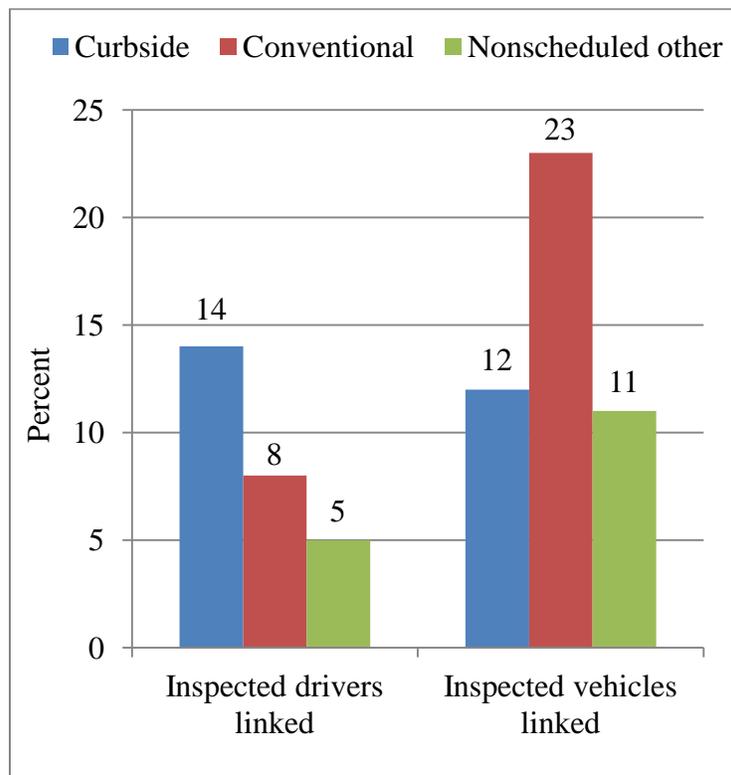
FMCSA investigators expressed concern during the focus groups about the practice of sharing drivers and motorcoaches among different motorcoach carriers. The NTSB could not measure the extent that drivers and motorcoaches were shared but could examine inspection records to determine whether inspected drivers and inspected vehicles had been associated with more than one motorcoach carrier.<sup>103</sup> It is also possible that vehicles linked to more than one carrier were operating under lease arrangements. Table 14 shows that carriers assigned to PCA categories 1 and 2 had higher percentages of either linked drivers or vehicles than the percentages for PCA category 3. Specifically, 38 percent of drivers and 33 percent of vehicles for carriers in the high accident rate category were linked to other carriers compared with 26 percent of drivers and 29 percent of vehicles for carriers in the comparison group. Similarly, 31 percent of drivers and 40 percent of vehicles for carriers in the high inspection and violation rate category were linked to other carriers.

<sup>103</sup> The number of drivers identified in this data analysis as being linked to more than one motorcoach carrier during a 24-month period does not imply that the drivers are still working for more than one carrier. Data on the linkage of vehicles were based on inspection records from January 2007 to March 2011.

**Table 14.** Percent of Inspected Drivers and Vehicles Linked With More Than One Company.

Category	Percent of inspected drivers linked	Percent of inspected vehicles linked
1: High accident rate	38	33
2: High inspection and violation rates	31	40
3: Comparison	26	29

On average, curbside carriers had 14 percent of their inspected drivers linked to other carriers, conventional carriers had 8 percent, and nonscheduled carriers had 5 percent, as shown in figure 8. The figure also shows that conventional carriers had 23 percent of their inspected vehicles linked to other carriers, curbside carriers had 12 percent, and nonscheduled other carriers had 11 percent.

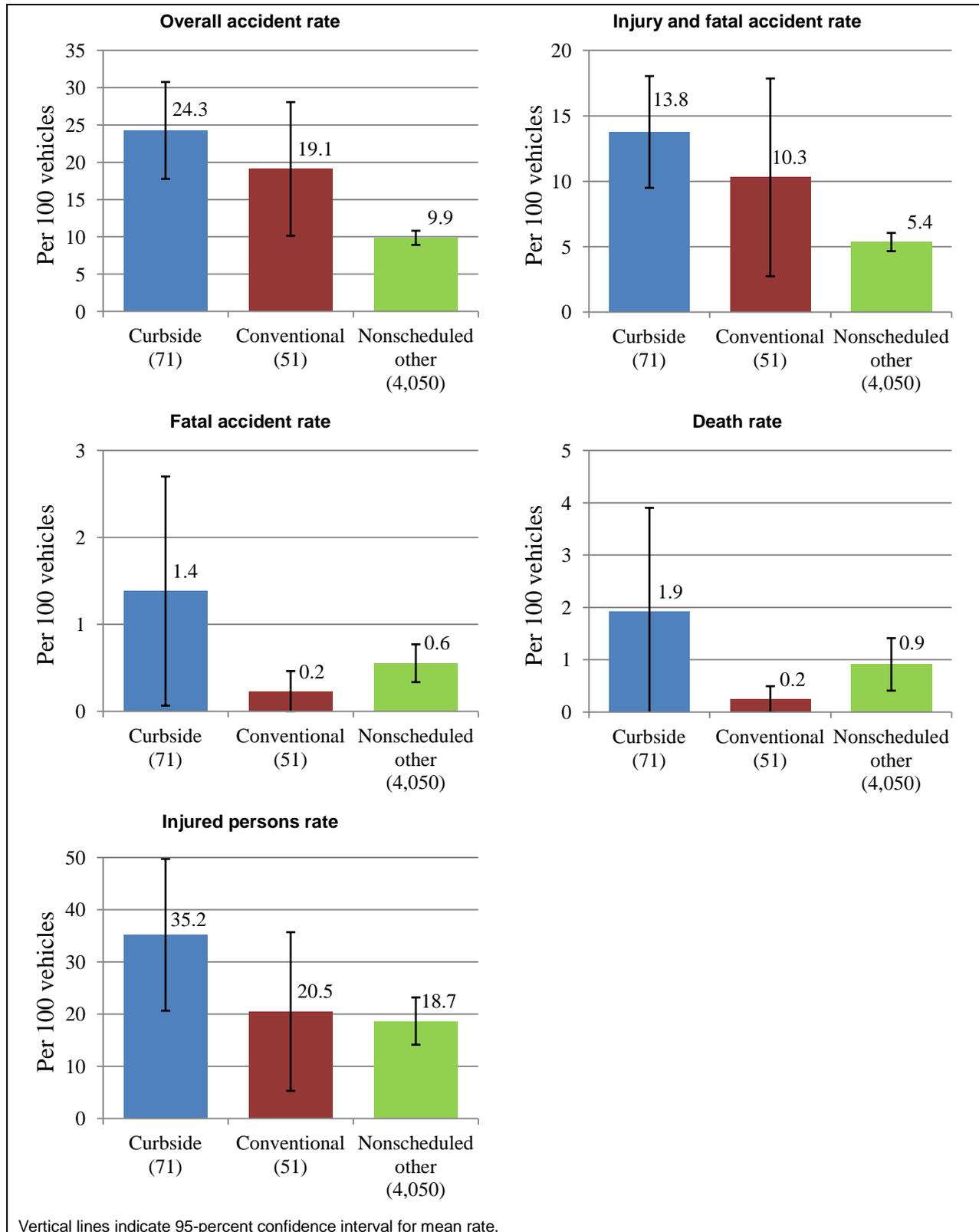
**Figure 8.** Percent of Inspected Drivers and Vehicles Linked With More Than One Carrier.

### Comparison of Accident, Inspection, and Violation Rates by Service Type

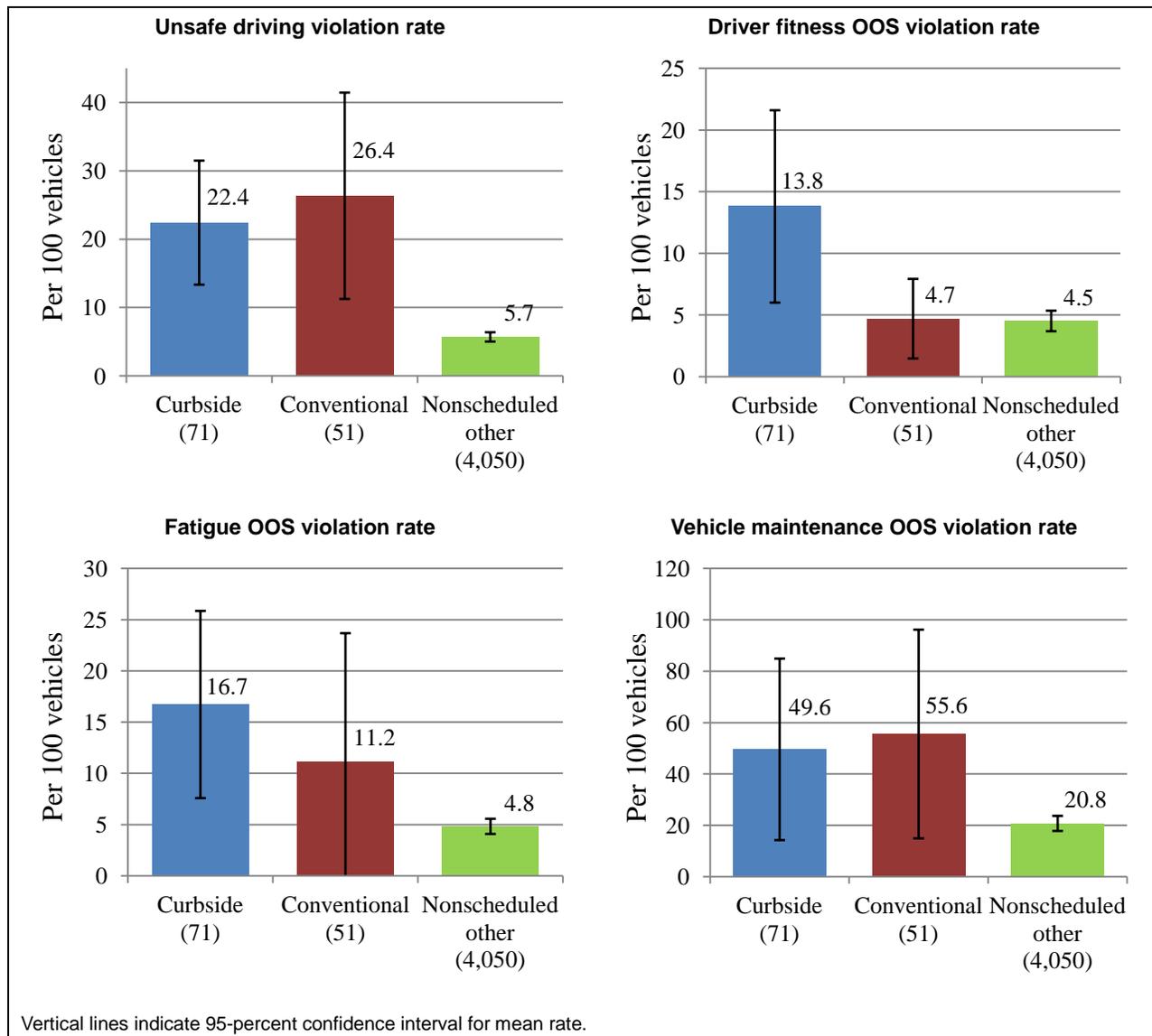
The NTSB compared the accident and OOS violation rates among the three types of motorcoach carriers (curbside, conventional, and nonscheduled other service). Adjusted accident

rates, inspection violation rates, and OOS violation rates were computed for each motorcoach carrier. These rates were then averaged by service type. There was a high degree of variation in these rates among carriers within each service type. Figures 9 and 10 compare the rates for the three types of carriers.

Figure 9 shows that curbside carriers had the highest overall accident rates and the highest death and injured person rates among the three service types. There were 1.4 fatal accidents per 100 vehicles operated by curbside carriers from January 2005 to March 2011 compared with 0.2 fatal accidents per 100 vehicles operated by conventional carriers. The death rate (number of people killed per 100 vehicles) was 1.9 for curbside carriers compared with 0.2 for conventional carriers. Figure 10 shows that curbside carriers had a higher driver fitness OOS violation rate of 13.8 compared with 4.7 for conventional carriers as well as a higher fatigued driving OOS rate (16.7 versus 11.2), whereas conventional carriers had a slightly higher unsafe driving violation rate and vehicle maintenance OOS violation rate.



**Figure 9.** Average Rates for Overall Accidents, Injury and Fatal Accidents, Deaths, and Injured Persons by Service Type, January 2005 to March 2011.

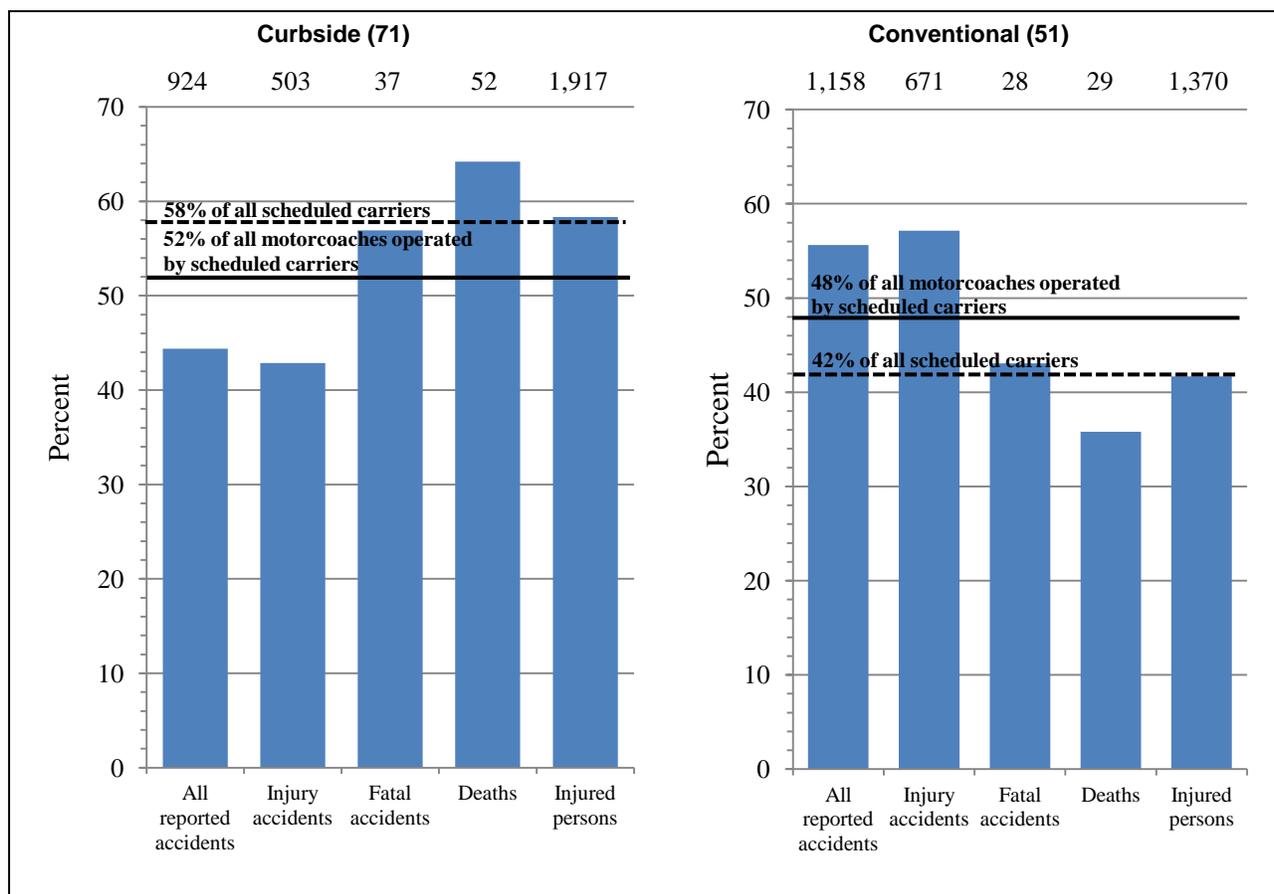


**Figure 10.** Average Violation Rates and Out-of-Service Violation Rates by Service Type, April 2009 to March 2011.

The comparisons presented in figures 9 and 10 were based on averaging rates among the carriers within each service type. It is important to note that some curbside carriers had very high rates, whereas others had very low rates. Many nonscheduled other carriers also had very high rates. In fact, table 13 showed that only 20 curbside carriers were categorized as having a high accident rate or high inspection and violation rates. A total of 324 nonscheduled other carriers were categorized into the high accident rate or the high inspection and violation rate categories.

Additional analyses of accidents were conducted but were limited to curbside and conventional carriers only. Nonscheduled other carriers were excluded from these analyses

because they have different operating practices and likely have lower mileage.<sup>104</sup> Figure 11 shows that, among scheduled carriers, curbside carriers were involved in 45 percent of all reported accidents and 43 percent of injury accidents from January 2005 to March 2011. These rates were lower than might be expected considering that curbside carriers represented 58 percent of all scheduled motorcoach carriers and operated 52 percent of all scheduled motorcoaches (as indicated by the dashed and solid black lines in the figure). Conventional carriers represented 42 percent of all scheduled carriers and operated 48 percent of all scheduled motorcoaches. These carriers were more likely to be involved in a reported accident (55 percent) or an injury accident (58 percent) than curbside carriers. Curbside carriers had higher percentages than conventional carriers for fatal accidents (57 percent), number of deaths (64 percent), and number of injured persons (58 percent). Thus, the data indicated that curbside accidents were more likely to result in injury or death for road users involved in an accident.



**Figure 11.** Distribution of Accidents, January 2005 to March 2011.

<sup>104</sup> Nonscheduled other carriers were not included in this comparison because the NTSB believes that scheduled motorcoaches (curbside and conventional) travel more miles per motorcoach in a given year. Consequently, scheduled motorcoach carriers would likely experience more accidents per motorcoach than nonscheduled carriers because of the higher mileage exposure.

These analyses were calculated as rates per carrier or per number of motorcoaches. Exposure based on mileage is a significant, but unaccounted for, factor. To provide a more complete representation, a similar analysis using mileage is warranted. However, until this information is accurately and reliably provided on the MCS-150 form, as required by the FMCSA, such an analysis is not possible.

## Chapter 5: Curbside Motorcoach Transportation Qualitative Findings

Qualitative research methods are commonly used in several fields of study, including transportation safety, to provide insight on complex questions relating to behavior. Qualitative research can provide in-depth information about possible causes of safety problems and potential solutions that are not available through quantitative data analyses.<sup>105</sup> For this investigation, qualitative data were collected through focus groups to help to answer the questions of why and how motorcoach safety violations occur; these data complement the quantitative data presented in chapter 4.

Focus groups are a useful tool for research. In the 1940s, academic researchers recognized the value of focus groups for understanding attitudes, beliefs, and behaviors.<sup>106</sup> Standardized methods for conducting focus groups and analyzing acquired information are now well developed. Focus groups do not necessarily represent the populations of interest, as surveys do, and cannot indicate how prevalent a behavior or an attitude is within the population. However, focus groups can help establish that specific behaviors and attitudes are present within a population and can help provide valuable insight into understanding the topics of interest.

A focus group consists of a small group of knowledgeable people discussing topics of interest while being led by a skilled moderator. A focus group usually lasts about 2 hours, and about five to eight participants are typically in a single group, which is an optimum size to stimulate discussion. Questions that are designed to be open ended are asked by the moderator, who ensures that all participants have an opportunity to express their views on the topics of interest. A single person's contribution can trigger comments from other participants. The information discussed in focus groups is typically recorded and transcribed so that the results can be analyzed.

As stated in chapter 1, the NTSB conducted four focus groups. The first focus group consisted of nine state personnel from two New Jersey law enforcement agencies who conduct roadside inspections and some compliance reviews of interstate motorcoach carriers. The second focus group consisted of 12 FMCSA safety investigators based in New Jersey, New York, and Pennsylvania who conduct compliance reviews. The last two focus groups involved a total of 11 motorcoach drivers who had a broad range of driving experience. Their work involved charter/tour operations and scheduled motorcoach operations, including curbside operations.

All of the focus group participants were volunteers. At the beginning of each focus group, the NTSB moderator explained the purpose of the focus group and the procedures to be followed. The moderator also emphasized that the discussion would be recorded but that the

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<sup>105</sup> N.J. Thompson, "Study Methods for Understanding Injury Behavior," chapter 8 in *Injury and Violence Prevention: Behavioral Science Theories, Methods, and Applications*, ed. A.C. Gielen, D.A. Sleet, and R.J. DiClemente (San Francisco: John Wiley & Sons, 2006).

<sup>106</sup> R.A. Krueger and M.A. Casey, *Focus Groups: A Practical Guide for Applied Research* (Thousand Oaks, California: Sage Publications, 2009).

recordings would be destroyed once the conversation was transcribed. The participants' names were not collected. Summaries of the focus group discussions appear in the public docket for this report.

## Motorcoach Driver Fatigue

The NTSB has a long history of issuing recommendations to prevent fatigue-related highway accidents, and addressing human fatigue is an issue currently on the NTSB's Most Wanted List, which represents the NTSB's advocacy priorities and is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives. From 1998 to 2010, motorcoach driver fatigue was determined to be a factor in seven motorcoach accidents that resulted in 46 fatalities.<sup>107</sup>

Interstate motorcoach drivers are subject to rules limiting how long they can drive.<sup>108</sup> Specifically, motorcoach drivers must be off duty for 8 hours before they are allowed to drive 10 nonconsecutive hours. Driving is not permitted after logging 15 hours of on-duty time, but the 15 hours may not always be consecutive, and the hours can extend over a longer time period if the driver takes breaks. Specifically, motorcoach drivers can log themselves off duty between driving periods and can legally lengthen their work day by doing so. Motorcoach drivers may be allowed to drive even if more than 14 hours have elapsed since starting their work day. Driving is also not permitted after a driver's cumulative logged on-duty time has reached 60 hours within a 7-day period or 70 hours within an 8-day period. Federal safety investigators participating in focus groups indicated that some drivers have few opportunities to take breaks while transporting passengers. Further, drivers spend a substantial amount of time performing work that does not involve driving; such work includes conducting pre- and post-trip inspections, filling out logbooks and other paperwork, assisting passengers, and loading luggage.

State inspectors and federal safety investigators expressed concern about the extended work hours permitted by current HOS rules for motorcoach drivers, pointing out that these work hours can lead to fatigue. In addition, the officials said that 8 hours of off-duty time does not provide motorcoach drivers with adequate opportunities to sleep because activities such as meals, personal hygiene, and wind-down time are included in the allotted time.

To demonstrate compliance with the HOS regulations, drivers are required to maintain handwritten logbooks; the voluntary use of automated (mechanical or electronic) recorders for this purpose is permitted. State inspectors described drivers as being adept at masking violations of these regulations. For example, inspectors have reviewed logbooks in which drivers had filled out their logs ahead of time or had waited to fill out their logs until after they reached their destination. Logbook violations are regulated under FMCSR section 395.8 and are a component of fatigued driving violations. The two main categories of logbook violations are falsified logbook violations and general log violations (including no log and a log that is not current).

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<sup>107</sup> As stated in chapter 2, a list of 19 motorcoach accidents investigated by the NTSB between 1998 and 2010 appears in the public docket for this report.

<sup>108</sup> Title 49 CFR Parts 385, 386, 390, 392, 395, et al., Hours of Service of Drivers.

As previously stated, 2,652 motorcoach carriers received at least one inspection from April 2009 to March 2011. Among curbside carriers, 65 carriers received at least one inspection, representing 2 percent of all inspected motorcoach carriers. However, curbside carriers received 20 percent of all false logbook violations and 16 percent of all general log violations issued to the 2,652 motorcoach carriers. Also, curbside carriers received 26 percent of all false logbook OOS violations and 14 percent of all general log OOS violations.

Among conventional carriers, 45 carriers received at least one inspection, which also represented 2 percent of all inspected motorcoach carriers. These carriers received 4 percent of all false logbook violations and 4 percent of all general log violations issued to the 2,652 motorcoach carriers. Also, conventional carriers received 4 percent of all false logbook OOS violations and 4 percent of all general log OOS violations.

State inspectors and federal safety investigators said that detecting falsified logbooks was a continuing challenge and that they supported the use of electronic onboard recorders to determine driving hours. To verify driving hours, state inspectors currently use toll and fuel receipts. However, because of the widespread use of toll transponders, such as E-ZPass, inspectors do not have immediate access to toll receipts. Also, inspectors may not have access to fuel receipts if a large motorcoach operator has its own fuel pump or has contracted with a supplier that does not provide date- and time-stamped fuel receipts.

## **Concerns Identified by State Inspectors and Federal Safety Investigators**

In addition to the difficulties they face in detecting falsification of logbooks, the state inspectors and federal safety investigators face other challenges, as indicated below.

**En route inspections are prohibited by law.** As a result, drivers can only be inspected after they have dropped off passengers or if they are at a planned stop location (unless police officers believe that an imminent hazard exists). This constraint hampers oversight of curbside and other motorcoach carriers because drivers on particular routes or nighttime trips might be able to avoid inspections, especially those conducted at fixed sites that can be bypassed, such as rest stops. Another challenge is that inspections of curbside carriers must take place on streets rather than in terminals, which poses logistical problems. In addition, drivers in separate focus groups mentioned instances of companies communicating with each other about the locations of inspection personnel to avoid inspections.

State inspectors said that level II inspections (examination of a driver's credentials and logbook and a walk-around inspection of the motorcoach) could be performed with passengers aboard the vehicle. However, federal safety investigators pointed out logistical challenges involving passengers if a driver is placed out of service. For example, passengers may have health problems and need adequate shelter and other facilities while waiting for a replacement motorcoach and driver. The FMCSA has asked Congress to permit en route inspections because of the potential safety benefits that could be achieved.

**Some motorcoach carriers engage in practices that make oversight difficult.** Focus groups participants reported that some drivers make false claims that a bus conducts intrastate

operations (which are not subject to federal oversight) when the bus actually conducts interstate operations. Another oversight challenge involves detecting reincarnated carriers. Repainting buses and placing company ownership in a relative's name are common practices for reincarnated carriers. The FMCSA does not currently have a standard federal definition for a reincarnated carrier, so the agency has to apply each state's definition for corporate succession, which creates problems for federal safety investigators. As stated in chapter 3, the FMCSA has asked Congress for authority to establish a uniform federal standard for determining whether a new entrant carrier has been reincarnated from a previous carrier with safety violations.

Drivers participating in focus groups also discussed reincarnated carriers. The drivers used the term "ghost buses" to refer to motorcoaches that were simply painted white or black with minimal transportation information on the outside of the vehicle, which allows carriers to easily paint over a company name and DOT number with new information. From the window of the room where the focus groups were held, the drivers pointed out ghost buses (painted all white) to the NTSB staff conducting the focus groups. Some of these motorcoaches were operated by curbside carriers identified during this investigation.

State inspectors and federal safety investigators said that some curbside carriers hold multiple DOT numbers and are able to transfer their vehicles and drivers after receiving bad safety ratings. The inspectors and investigators believed that this practice was more common among small low-cost carriers, many of which were considered to be curbside carriers. Vehicle identification numbers are currently not recorded unless a passenger carrier has been inspected or has received a compliance review, and inspectors would like to know these numbers sooner to help identify (using motor carrier names and DOT numbers) the carrier that is operating the vehicle. Federal investigators also said that an existing carrier might decide to reincarnate as a new company if its insurer were to raise rates or refuse to provide insurance (because of a less-than-satisfactory safety rating or multiple violations).

**Some motorcoach carriers are legally independent entities but may not be fully independent.** There is no official term to describe a group of motorcoach carriers that have different names but are essentially managed by the same people, and state inspectors and federal safety investigators face challenges in dealing with these carriers. It is unclear how many motorcoach carriers that belong to the same company are actually classified as separate carriers.<sup>109</sup>

**Some curbside carriers are difficult to contact.** Federal safety investigators and state inspectors reported difficulties contacting some owners and/or managers of curbside carriers to schedule a compliance review due to incorrect addresses or telephone numbers provided by the carriers. In addition, investigators are not always certain that they are dealing with the actual

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<sup>109</sup> Motorcoach carriers have economic incentives for splitting into multiple companies with multiple DOT numbers. For example, adverse consequences to profitability resulting from accidents, safety violations, or less-than-optimal safety ratings can be limited to a relatively small part of a company. Also, small companies (defined as those with annual revenues totaling less than \$8.7 million) have less stringent requirements for complying with the provisions of the Americans With Disabilities Act. For more information about the act, see *ADA Guidelines for Over-the-Road Bus Companies*, U.S. Department of Transportation, Federal Motor Carrier Safety Administration, <<http://www.fmcsa.dot.gov/rules-regulations/bus/company/ada-guidelines.htm>> (accessed September 23, 2011).

owner and/or manager of the intended company, especially when the investigators meet with company representatives in restaurants and other nontraditional places.

**State requirements for motorcoach safety vary.** The inspectors and investigators expressed concern that motorcoach operators could legally “shop” for state registrations. For example, one state requires two inspections each year and confirmation of insurance coverage, so some motorcoaches that operate in that state are registered in states with less stringent oversight. Also, the requirements for obtaining a CDL are weaker in some states than in others, which may lead to drivers shopping for CDLs. In 2011, the FMCSA issued a final rule to standardize CDLs among states, but this rule will not go into effect until 2014.

**New entrant carrier safety audits may have limited value.** The inspectors and investigators indicated that the time between DOT operating authority and the first contact with the FMCSA (up to 18 months) was too long. During safety audits of new entrants, inspectors and investigators have consistently found violations, suggesting the need for earlier intervention. However, some enforcement personnel thought that a new entrant carrier needed sufficient experience before a safety audit would be useful. Safety audits are not as comprehensive as compliance reviews and may last only 4 to 6 hours. In addition, some investigators questioned the value of safety audits in their current form because they are similar to group educational sessions. The FMCSA has asked Congress to require new motorcoach companies to undergo a safety audit before they receive DOT operating authority.<sup>110</sup>

In addition, the investigators expressed concern about the relative ease of obtaining DOT approval for interstate passenger operating authority and the lack of knowledge of the FMCSRs required by new entrants. The cost to receive interstate passenger operating authority is \$300, which is paid when the OP-1(P) form is submitted. Although passenger carriers can indicate their knowledge of the FMCSRs by signing a certification statement on the MCS-150 form, the investigators stated that the carriers often did not know the relevant regulatory requirements or misunderstood the requirements.

**The MCS-150 form is often submitted late and with inaccurate information.** State inspectors and federal investigators were concerned that passenger carriers were not submitting the MCS-150 form every 2 years, as required. Further, the investigators indicated that MCS-150 form data, including contact information, were often inaccurate and that such occurrences were more common among curbside carriers.

The information on the MCS-150 form (the number and type of vehicles owned or leased, type of operation, number of drivers employed, and annual mileage) is essential for assessing the accident and violation rates of passenger carriers and compiling the ratings developed for the SMS component of the CSA program. The FMCSA cannot compare safety risks of different passenger carriers without vehicle population measures or activity measures. Although the FMCSA can cite passenger carriers for not updating their MCS-150 forms, some investigators said that it is difficult to get this citation approved by agency managers. (Information from the FMCSA showed that citations for failing to update the MCS-150 form

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<sup>110</sup> U.S. Department of Transportation, Office of Public Affairs, “Obama Administration Has Stepped Up Action Against Unsafe Motorcoach, Trucking Companies,” press release, July 19, 2011.

were issued more often by some regions than others, with some regions issuing very few citations.)

**Some motorcoach carriers are more likely than others to violate rules.** FMCSA investigators thought that smaller carriers, particularly those with only one or two motorcoaches, and new carriers were more likely to violate rules, including those for drug testing and hours of service. The investigators believed that large motorcoach carriers could not afford to operate illegally. State inspectors said that some motorcoaches that provided curbside service were not being maintained adequately.

**Fines for serious violations are so low that some motorcoach carriers may treat them as a cost of doing business.** Investigators expressed concern that \$2,000 fines would not deter motorcoach carriers from violating safety rules. The investigators thought that \$10,000 fines would get the attention of the carriers.

**The FMCSA does not have enough personnel to evaluate passenger carrier safety.** As previously stated, compliance reviews are labor intensive and can take up to several weeks. Some motorcoach carriers have disorganized record-keeping systems, or an investigator can encounter hostility, both of which can prolong a compliance review.

FMCSA headquarters staff provides state-based federal safety investigators with monthly targets for the number of compliance reviews to be completed by each investigator, which is typically about four reviews. There is some flexibility in meeting this target if a compliance review turns out to be particularly complicated and time-consuming; however, the investigator may be expected to complete more than four compliance reviews during the next month to meet the monthly target for the average number of compliance reviews. Investigators said that they are sometimes not given adequate time to perform compliance reviews and that they have been pressured at least once or twice by their managers to complete a review before they were ready to move onto their next assignment.

Some federal investigators stated that they had a hard time keeping up with the rapid growth of the motorcoach industry, indicating that the FMCSA might only have one or two investigators assigned to a major metropolitan area with many passenger and trucking carriers. In addition, during interviews, state and federal enforcement personnel stated that there were not enough state inspectors and federal safety investigators to perform inspections and compliance reviews. The enforcement personnel indicated that many state and federal employee retirements are or will be occurring and that hiring at the state level is not keeping up with the number of departures partly because budget cuts have reduced the overall number of state inspectors.

**Voluntary safety reporting systems could be improved.** FMCSA and state investigators indicated that they were more likely to get safety reports directly from motorcoach operators rather than through the National Consumer Complaint Database. The investigators stated that they would act on these reports if they determined that action was required. The investigators further stated that information on any actions taken might not be subsequently entered into the database. The investigators believed that more qualified personnel should be involved in reviewing complaints submitted to the database to determine whether the complaints were related to safety problems and which complaints might require immediate attention.

## Safety Concerns Discussed by Motorcoach Drivers

Drivers in focus groups reported difficulties getting sufficient sleep and working longer hours than those allowed by HOS rules. In addition, the drivers were concerned that motorcoach companies were hiring inexperienced drivers who were not provided with adequate training and preparation. The drivers stated that a CDL alone does not adequately prepare a driver to safely operate a motorcoach and spoke favorably of intensive mentoring before being allowed to operate a motorcoach on their own.

The drivers said that many companies were not devoting enough resources to training, resulting in drivers having little to no experience with departure and destination areas, bus operations, traffic conditions, and inclement weather. The drivers attributed this lack of training and guidance to an insufficient number of company safety staff.

## Speeding and Motorcoach Safety

The NTSB has found speeding to be a significant factor affecting motorcoach safety.<sup>111</sup> Heavy CMVs pose a high risk of death and injury to occupants of passenger vehicles involved in collisions with them due to the disparity in size and weight; speeding makes that risk even greater. State inspectors and FMCSA investigators in the focus groups also identified speeding as a safety problem in the passenger carrier industry. The criteria used to select motorcoaches for inspections and motorcoach carriers for compliance reviews now include speeding tickets. One study found that motor carriers that are in the 50th percentile or higher for unsafe driving performance, primarily because of speeding tickets, have a significantly higher accident risk.<sup>112</sup>

The number of motorcoach speeding tickets and the content of the tickets do not demonstrate the magnitude of the speeding problem. According to focus group participants, some police officers are reluctant to pull over motorcoaches when they are speeding because of safety concerns about having a large vehicle with passengers on the side of a road. (As previously stated, police officers will pull over motorcoaches if the officers think that an imminent hazard exists.) In addition, federal safety investigators indicated that speeding tickets are often not entered into the FMCSA database. For example, police officers who are not affiliated with the MCSAP have no mechanism for uploading a speeding ticket to the FMCSA database.

Drivers in focus groups were questioned about their attitudes toward speeding and safe driving, and most drivers indicated that the decision about whether to exceed the speed limit depended on the environmental conditions and the traffic density. Most drivers thought that it was acceptable to drive 72 to 74 mph on interstate highways if the traffic was light. One driver said that his carrier strictly enforced a 70-mph limit.

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<sup>111</sup> For more information, see *Motorcoach Run-Off-the-Road and Rollover, U.S. Route 163, Mexican Hat, Utah, January 6, 2008*, Highway Accident Report NTSB/HAR-09/01 (Washington, DC: National Transportation Safety Board, 2009).

<sup>112</sup> P.E. Green and D. Blower.

Since the early 1990s, technology that can limit speed has been standard equipment on all vehicles with electronic control modules, including motorcoaches, large trucks, and passenger vehicles. On large trucks and buses, this technology is called a speed governor or a speed limiter.<sup>113</sup> The owners of motorcoaches and other CMVs equipped with speed governors decide whether to voluntarily activate them and what speed should be the vehicle's operating limit. Although speed governors prevent CMVs from exceeding certain speeds, they do not (1) prevent speeding in locations where the speed limit is substantially lower than the governed speed (such as urban interstates, where the speed limit is typically 55 mph), and (2) stop vehicles from exceeding the governed speed when traveling downhill.<sup>114</sup>

## English Proficiency

Participants in all of the focus groups and industry association representatives highlighted concerns about drivers and motorcoach company officials who could not communicate well in English. State inspectors from the northeast indicated that they frequently encountered drivers who could not communicate in English. These drivers could receive a violation because 49 CFR 391.11(b)(2) requires that CDL holders have a basic understanding of the English language.<sup>115</sup>

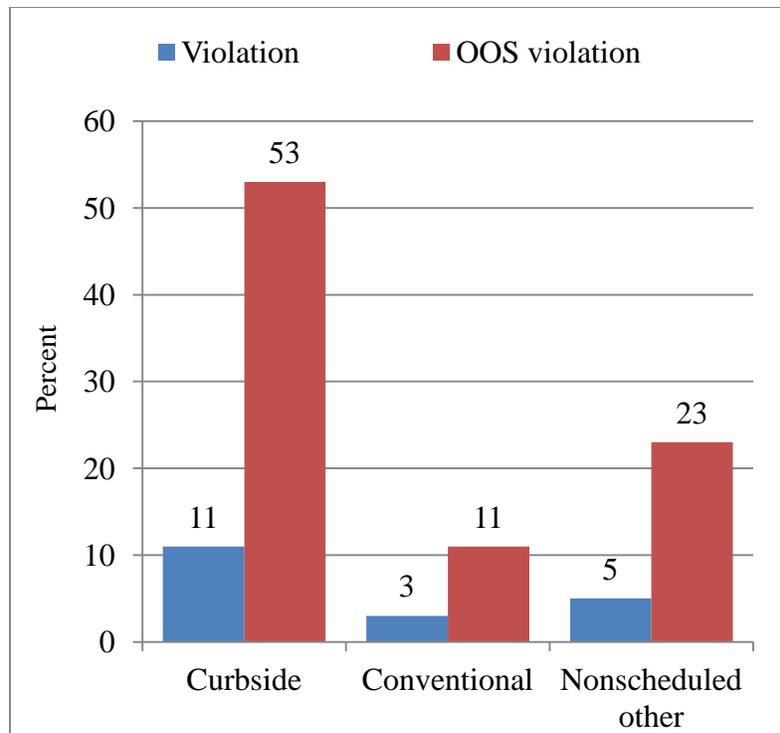
The NTSB evaluated driver fitness violations from April 2009 to March 2011 and found that, for curbside carriers, 11 percent of the driver fitness violations were due to English language deficiencies. In comparison, for conventional and nonscheduled other carriers, 3 and 5 percent, respectively, of the driver fitness violations were due to English language deficiencies. Regarding OOS orders associated with English language deficiencies, the contrast among curbside, conventional, and nonscheduled other carriers was even greater. Specifically, 55 percent of driver fitness OOS violations for curbside operators were due to English language deficiencies, whereas the corresponding percentages were 11 and 23 percent for conventional and nonscheduled other carriers, respectively. Figure 12 compares these percentages.

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<sup>113</sup> According to the Ontario and Québec Mandatory Heavy Truck Speed Limiters Fact Sheet (Québec Ministry of Transportation, 2008), a speed limiter is an electronic device that connects to an engine and limits fuel injection when the vehicle reaches a preset speed, which can be set by a manufacturer, dealer, mechanic, or owner using a portable electronic tool.

<sup>114</sup> Intelligent speed adaptation is a technology being researched in Europe that could address these issues. Intelligent speed adapters prevent drivers from exceeding speed limits by using information from global positioning systems about speed limits on particular roads. The DOT announced that the FMCSA, NHTSA, and FHWA were jointly conducting a study to evaluate the benefits of speed control technologies that adjust vehicle speed to the posted speed limit.

<sup>115</sup> FMCSR section 391.11(b)(2) requires a driver with a CDL to “read and speak the English language sufficiently to converse with the general public, to understand highway traffic signs and signals in the English language, to respond to official inquiries, and to make entries on reports and records.”



**Figure 12.** Distribution of Driver Fitness Violations and Out-of-Service Orders Associated With English Language Deficiencies.

State inspectors and federal safety investigators expressed concern during focus groups about the lack of English language skills among some owners and operators of curbside carriers. The inspectors and investigators related their personal difficulties in communicating with the owners and operators and cited the following examples:

- During compliance reviews, translators are required for owners and operators who do not speak English. Translators provided by the carrier are often family members. One investigator said that an operator had taken his child out of school to conduct the translation for a compliance review.
- Company records written in languages other than English make record review and evaluation virtually impossible.
- Answering machine messages or services that are in a foreign language make it difficult for investigators to schedule a compliance review.

These issues, although frustrating for investigators, are not illegal. Investigators stated that their major concern was that owners and operators with limited or no English language skills often violated regulations due to a lack of knowledge of the regulatory requirements. The investigators stated that a large part of their focus during compliance reviews of such carriers was educating them about regulatory requirements. Compliance rates were higher among carriers that had been in business for a longer time and had received prior interventions from the FMCSA or state enforcement personnel.

## Chapter 6: Conclusions

Motorcoach safety is not a function of whether passengers are picked up and dropped off at a curbside or a terminal or how much passengers are charged for fares. Rather, motorcoach safety, including curbside motorcoach safety, is strongly influenced by the management of the carriers that own these vehicles and the drivers that operate them.

This chapter provides the primary conclusions from the findings of the NTSB's investigation of curbside motorcoach safety. Characteristics associated with curbside motorcoach operators, their safety performance compared with other motorcoach operators, and FMCSA oversight procedures have been described and analyzed. The effectiveness of FMCSA oversight procedures was assessed through data analyses, discussions with FMCSA management staff, focus groups with state inspectors and federal safety investigators, discussions with industry representatives, and observations of motorcoach inspections and compliance reviews.

It is important to note that there is uncertainty associated with the identification of curbside motorcoach carriers because regulatory authorities have not developed a formal definition or category for these carriers. This investigation could not account for that uncertainty or for missing or inaccurate data from FMCSA data sources. The analyses conducted in this investigation accurately depict the results from the comparisons of the various motorcoach carriers defined in this report based on the data available from the FMCSA. Applying these results to different groups of motorcoach carriers would require additional categorization of the motorcoach carrier groups and new analyses.

## Findings

**1. In general, curbside, conventional, and nonscheduled motorcoach carriers all provide a safe mode of travel.**

- Accidents among all types of interstate motorcoach services, including those applying the curbside business model, are infrequent.
- Motorcoach occupant fatalities are uncommon. Most of the deaths in fatal motorcoach accidents are occupants of other vehicles.
- In an accident, bus occupants have a lower risk of dying than passenger vehicle occupants.

**2. The term “curbside operations” represents a business model (that is, the means by which motorcoach service is provided) rather than a category of motorcoach carriers.**

- Curbside motorcoach operations are those in which interstate motorcoach carriers conduct scheduled trips from one city to another city or a destination and originate or terminate at a location other than a traditional bus terminal; most of these operations discharge passengers at one or more curbside locations.
- Curbside carriers may also provide other services, such as conventional, commuter, shuttle, and unscheduled service (for example, charter and tour.)
- Although curbside bus is a common term used by the public, the term is not a recognized regulatory or operational classification.
- The Federal Motor Carrier Safety Administration (FMCSA) does not collect information about the types of terminals used and the routes provided by motorcoach carriers.

**3. The curbside business model is becoming increasingly popular and is being applied by a growing population of new and established interstate motorcoach carriers.**

- After years of declining ridership from 1960 to 2005, annual motorcoach service growth rates ranged from 5.1 to 9.8 percent between 2006 and 2010.
- Large established motorcoach companies are now using the curbside business model.
- At least 71 of the 122 scheduled motorcoach carriers identified in this investigation offer curbside service.

- 4. Motorcoach carriers with 10 or fewer motorcoaches and carriers that have been in business for 10 years or less have higher accident rates and higher roadside inspection and violation rates.**
- 5. Scheduled motorcoach carriers that have drivers and vehicles linked with other carriers (that is, their drivers or vehicles are listed in the inspection records for more than one company) are more likely to have higher accident rates.**
  - Carriers included in the high accident rate category, as defined in the full report on curbside motorcoach safety, have a higher percentage (38 percent) of their inspected drivers linked to other carriers compared with 26 percent for the comparison category.
  - Carriers included in the high inspection and violation rate category have a higher percentage (40 percent) of their vehicles linked to other carriers compared with 29 percent for the comparison category.
- 6. Curbside carriers generally have higher fatal accident and death rates than other carriers not identified as providing curbside services; however, this finding does not apply to every curbside carrier.**
  - The adjusted fatal accident rate for curbside carriers from January 2005 to March 2011 was 1.4 per 100 vehicles versus 0.2 per 100 vehicles for conventional carriers.
  - The adjusted death rate for curbside carriers during the same period was 1.9 per 100 vehicles versus 0.2 per 100 vehicles for conventional carriers.
  - Curbside carriers represented 5 percent of all motorcoach carriers in the high accident rate category but comprised about 2 percent of all motorcoach carriers.
  - The safety record of individual curbside carriers varies, with some carriers having very good safety records and others having worse safety records.
- 7. Curbside carriers generally have higher out-of-service (OOS) rates due to driver violations compared with carriers not identified as providing curbside operations; however, this finding does not apply to every curbside carrier.**
  - Curbside carriers represented 6 percent of all motorcoach carriers with high inspection and violation rates but comprised about 2 percent of all motorcoach carriers.
  - Curbside carriers have higher fatigued driving and driver fitness violations compared with conventional carriers.

**8. More than 90 percent of carriers in the high accident rate category and high inspection and violation rate category are neither curbside nor conventional carriers; rather, they are unscheduled carriers.**

- About 20 percent of the long-distance trips taken on buses occurred on scheduled motorcoaches, and about 80 percent occurred on unscheduled carriers.

**9. Motorcoach driver fatigue is a continuing safety concern.**

- The National Transportation Safety Board has identified driver fatigue as a contributing factor to fatal motorcoach accidents and has identified driver fatigue as an issue on its Most Wanted List of Safety Improvements.
- By logging off-duty time between driving periods, motorcoach drivers may be allowed to drive even if more than 14 hours have elapsed since starting their work day. Drivers are required to have only 8 hours off duty.
- Electronic onboard recorders would make it easier to detect and deter violations of hours-of-service driving limits.

**10. The FMCSA's Compliance, Safety, and Accountability (CSA) program is an improvement over its SafeStat program, but challenges exist.**

- Unlike SafeStat, the CSA program includes information on driver behavior and all roadside inspection violations.
- One of the major challenges to fully implementing the CSA program is that key data (for example, accidents, speeding citations, updated information on power units, and mileage) are incomplete or missing.

**11. The FMCSA has performed inspections and compliance reviews for a higher percent of curbside and conventional carriers during the last 5 years compared with nonscheduled other carriers.**

- About 96 percent of curbside, 98 percent of conventional, and 78 percent of nonscheduled other motorcoach carriers received an inspection, compliance review, and/or another evaluation during this time period.

**12. The statutory exemption of motorcoaches from routine en route inspections reduces opportunities to discover safety violations.**

- Curbside carriers have fewer locations where unscheduled inspections can be conducted compared with motorcoach carriers that use terminals.

**13. A carrier's safety performance cannot be assessed without inspections.**

- The CSA program requires that adequate data be collected through inspections or from the states (in the form of accident data or operator violation data) for a carrier to be evaluated.
- If no data are collected for a carrier, then it cannot be easily evaluated using the CSA operational model.
- Between April 2009 and March 2011, 8 percent of curbside carriers, 12 percent of conventional carriers, and 37 percent of nonscheduled other carriers did not have inspections.

**14. The information reported by carriers on the FMCSA's MCS-150 form is not reliable.**

- Many motor carriers are failing to submit their MCS-150 form every 24 months, as required.
- FMCSA regions are not uniformly following up with motor carriers that have passed their due date for filing a new form.
- Motorcoach mileage data and other information are frequently inaccurate or missing.
- These data are critical for determining violation and accident rates and comparing CSA safety indicators.

**15. The FMCSA's voluntary safety reporting system is not meeting its full potential as a supplemental source of motorcoach safety information.**

- FMCSA managers indicated that the FMCSA does not have a formal program to incorporate voluntary violation or safety reports involving motorcoach operations into its CSA oversight program.
- The FMCSA's system lacks a component that allows for anonymous reporting of incidents.
- The FMCSA does not generate summary statistics on the frequency and type of reports received.
- It is unclear whether the FMCSA has evaluated the extent that passengers, drivers, and others are aware of methods for reporting safety concerns and whether the current methods are easy to use.

**16. The FMCSA's evaluation of motorcoach safety performance is predicated on how an individual carrier compares with similar-sized motor carriers. This comparison grouping may not accurately measure the relative safety performance of motorcoach carriers.**

- The type of motor carrier operation (for example, passenger carrier, for-hire freight, and private carrier) is not considered in the comparison grouping.
- Interstate motorcoach carriers are grouped with interstate freight carriers for safety performance comparisons.

**17. FMCSA and state investigators are overburdened by the number of compliance reviews and inspections that need to be done.**

- A total of 878 FMCSA and state personnel are qualified to perform compliance reviews for all 765,221 U.S. motor carriers, resulting in a ratio of 1.15 investigators per 1,000 motor carriers.
- There are 2,327 state and federal personnel who are qualified to conduct motorcoach inspections for the 53,097 motorcoaches for which the FMCSA exercises oversight. These state and federal personnel also are responsible for performing oversight of other types of motor carriers.
- A thorough compliance review takes 1 to 2 weeks or even longer when motor carriers have 10 or more vehicles or have records that are not well organized.

**18. Bus brokers are stakeholders in motorcoach safety.**

- Curbside carriers use the services of bus brokers more than conventional carriers: 72 percent of curbside carriers use online brokerage services or consolidated ticketing websites to sell their tickets compared with 22 percent of conventional carriers.
- Brokers can often be the only information source available to consumers when purchasing a ticket.
- Some brokers obfuscate information regarding individual motorcoach carriers, making it difficult for passengers to identify the carrier.
- The FMCSA has no oversight or regulatory authority for organizations functioning as brokers for motorcoach services.
- The FMCSA has asked for authority to regulate brokers.

**19. The FMCSA does not provide oversight of leasing agreements among interstate motorcoach operators.**

- The absence of a requirement for written leases for interstate motorcoach operations increases the likelihood that motorcoach owners, managers, lessees, operators, and customers could either intentionally or inadvertently participate in improper or illegal motorcoach operations.
- The FMCSA stated that it would initiate rulemaking during 2011 to require that passenger carriers are subject to the same limitations on the leasing of equipment as interstate for-hire cargo carriers.

**20. It can be difficult for consumers to determine the safety record of a motorcoach carrier.**

- It can be difficult to interpret safety performance information presented on the FMCSA's website. Scores are computed on a scale of 0 to 100 percent, with 100 percent indicating the worst performance and 0 percent indicating the best performance.

- The website does not permit direct comparisons of the relative safety of different motorcoach carriers.
- The widespread practice of motorcoach carriers leasing vehicles and drivers from each other means that consumers often do not know what company will actually be providing motorcoach service.

### **21. Speeding is an important indicator of unsafe operations.**

- Motor carriers that have a higher unsafe driving percentile (which primarily reflects speeding citations) are at an increased risk of getting into accidents.
- The frequency of speeding is understated because some police officers are reluctant to ticket motorcoaches due to safety hazards and passenger inconvenience (resulting from having the motorcoaches pull over onto road shoulders).
- A substantial number of speeding tickets do not get uploaded into the FMCSA's data system because they are issued by officers who do not have access to the system.

### **22. The process of becoming a new entrant carrier does not prevent unqualified carriers from transporting passengers.**

- The process to obtain a Department of Transportation (DOT) number and a motor carrier number does not require demonstration of safety and regulatory knowledge.
- The cost to receive interstate passenger operating authority is \$300.
- The FMCSA has requested authority to conduct a comprehensive review of new passenger carriers before they start providing service.

### **23. Some curbside motorcoach carriers are engaging in practices that hinder state and federal oversight of compliance with safety rules.**

- A curbside motorcoach carrier can hold multiple DOT numbers, operate under multiple names, and appear to be multiple companies.
- Because selection for inspections and compliance reviews is influenced by prior violations and accident history, some curbside carriers spread violations across multiple DOT numbers, which hinders the ability of enforcement personnel to identify companies appropriate for oversight.
- Falsification of logbooks is a problem for all motorcoach carriers, and curbside carriers are overrepresented in this area.
- Among motorcoach carriers, curbside carriers received 20 percent of all false logbook violations and 26 percent of all false logbook OOS violations issued from April 2009 to March 2011 but comprised about 2 percent of all motorcoach carriers inspected during the same period.

- Conversely, among motorcoach carriers, conventional carriers also comprised 2 percent of all motorcoach carriers inspected from April 2009 to March 2011 but received 4 percent of all false logbook violations and 4 percent of all false logbook OOS violations during the same period.

**24. Reincarnated carriers that resume operations after getting unsatisfactory safety ratings are deliberately engaging in deceptive practices.**

- A reincarnated carrier is essentially the same entity as a former carrier with the intent of avoiding penalties applied to the former carrier.
- Reincarnated carriers may attempt to transfer drivers and vehicles and keep operating under the same management after being placed out of service.
- The FMCSA has a new applicant screening program to detect reincarnated carriers.
- Each state has its own criteria for determining what constitutes a corporate successor, which are used to define reincarnated carriers. The FMCSA has requested authority to implement standardized criteria for reincarnated carriers.
- FMCSA investigators and state inspectors reported concerns with reincarnated carriers, especially among curbside carriers.

**25. In many cases, FMCSA monetary fines for violations are too low to act as a deterrent, and motorcoach carriers may view the fines as a cost of doing business.**

**26. States vary in the standards that they apply for vehicle inspections and commercial driver's licenses (CDL).**

- Motorcoach carriers can register in a state with less stringent oversight even if their primary operations are located in another state.
- Drivers can obtain a CDL in a state with less stringent requirements.
- The FMCSA has issued a final rule to standardize CDLs among states, but this rule will not become effective until 2014.
- States vary in how much oversight they exercise over motorcoach carriers. Some states have formal bus inspection programs.
- FMCSA investigators and state inspectors reported concerns with motorcoach carriers choosing to register in states with less oversight, especially among curbside carriers.

**27. Curbside motorcoach carrier drivers are more likely to receive English deficiency driver fitness violations.**

- Eleven percent of driver fitness violations among curbside carriers were due to English language deficiencies compared with 3 percent for conventional and 5 percent for nonscheduled other carriers.

- Fifty-three percent of driver fitness OOS violations among curbside carriers were due to English language deficiencies compared with 11 percent for conventional carriers and 23 percent for nonscheduled other carriers.
- FMCSA investigators and state inspectors expressed concern about the lack of English language skills among many curbside carrier management representatives. This deficiency, although not illegal, may lead to misunderstandings and violations of FMCSA regulatory requirements.

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**Adopted: October 12, 2011**