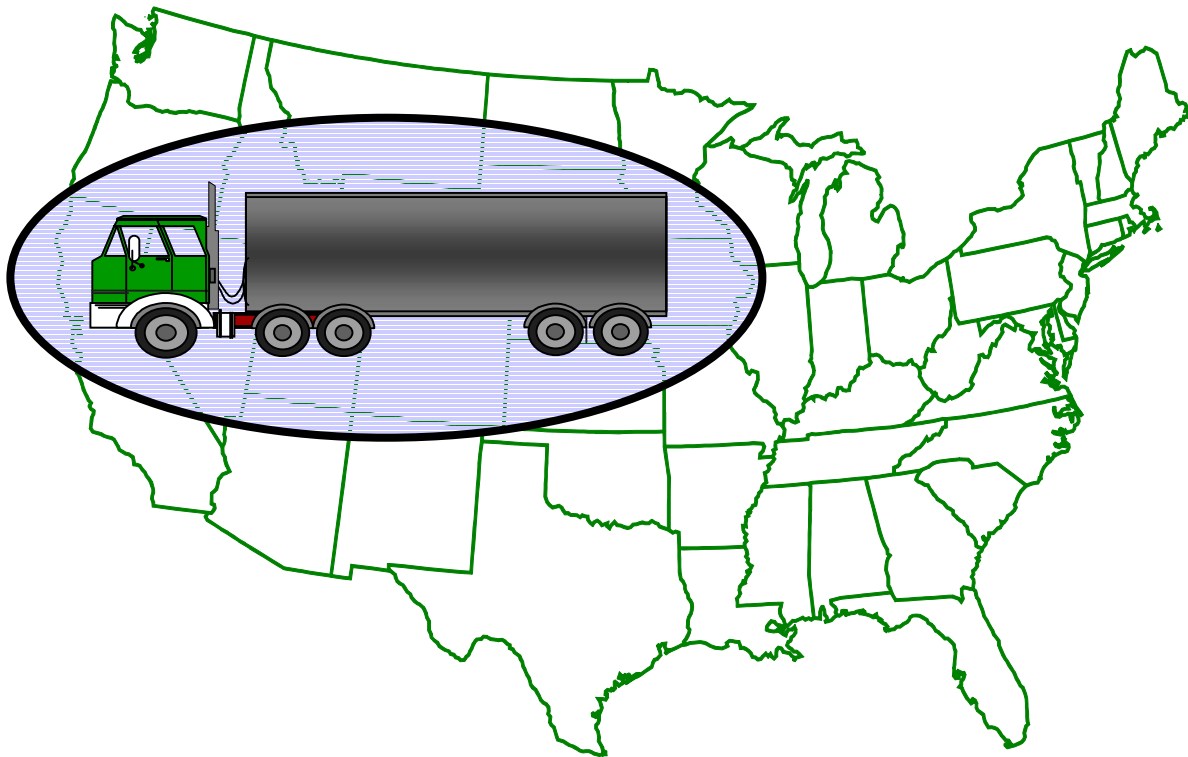




Federal
Highway
Administration
Office of
Transportation
Policy Studies

Analysis of the Vehicle Inventory and Use Survey for Trucks with Five- Axles or More



May, 2001

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for Trucks with Five-Axles or More

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Prepared by

Federal Highway Administration
Office of Transportation Policy Studies

The primary objectives of this report are: (1) to analyze the utilization of the commercial trucking fleet in the United States; (2) analyze changes in trucking utilization in comparison with the 1997 and 1992 survey results; and (3) provide input to commercial trucking policy discussions.

For more information, call Karen E. White, FHWA, 202-366-9474, 202-366-7696 (FAX), or e:mail: karen.white@fhwa.dot.gov

Executive Summary

This report provides factual information about and analysis of the U.S. freight hauling truck fleet, and is based on the Vehicle Inventory and Use Survey (VIUS) data base from 1997 and the Truck Inventory and Use Survey (TIUS) data base from 1992. The Bureau of the Census collects truck data every five years with 1997 being the latest data available. The VIUS can be used to help understand the U.S. truck fleet make-up, size, uses, location, and type of commodities hauled at the national and regional levels. This information will be used to present a picture of the U.S. truck fleet and its uses as well as to evaluate the potential national/regional policy options.

The VIUS provides data on the physical and operational characteristics of the U.S. truck fleet. The survey contains a sample of privately- and commercially-owned trucks. The survey also covers trucks used for personal transportation and freight hauling. The survey sample is drawn from each state's registration records. For example, in 1997, the sample size was over 131,000 trucks which reflected a population of over 75 million commercially- and privately-owned trucks in the U.S.

Since the majority of interstate trade are facilitated using larger trucks, they are the focus of the analysis. Specifically, trucks with 5-axles or more that contain three types of truck-trailer combinations were analyzed:

- # straight truck with one trailer
- # truck tractor with semitrailer
- # truck tractor with two or more trailing units.

This Executive Summary provides highlights of these analyses of the VIUS data, however, it is not a summary of the entire report. First, some cautions are provided about the use of the VIUS data analyses. Second, information is provided about how the data are organized in the analyses with reference to the portions of the main report that are relevant to each topic area. Third, a brief set of highlights, based on the more detailed analyses and findings contained in the body of this report, provide a snapshot of the 1997 U.S. commercial truck fleet.

Cautionary Note

There are a number of cautionary notes in reviewing this analysis of the VIUS (see Section 1.4 for more detail), including:

- # Data reported in the VIUS is based on State registration data and the potential for registration-bias exists.

- # Survey and population estimates are by registration state and care needs to be taken in conducting analysis at the state level. For example, triples are reported in New York and Wyoming where the use of such vehicles is not permitted. This may be due to ownership in one state and use in another state.

Vehicle Categorization

In this report, the trucks from the VIUS data base were categorized into vehicle configuration classes, vehicle groups, and state of registration. The vehicle configuration class identifies the way the truck is most often operated or used. Each truck was classified based on three factors:

- (1) Vehicle type: straight truck not pulling trailer, straight truck pulling trailer, tractor pulling trailer, tractor pulling two or more trailers
- (2) Number of axles on truck or tractor
- (3) Number of axles on each trailer.

Based on this categorization, the data were analyzed using five major vehicle configurations (truck, truck + trailer, tractor-semitrailer, tractor + doubles, and tractor + triples) and 31 subclasses (see Section 2.1 for detailed descriptions).

Vehicle Groups

In this report, the VIUS data for trucks with 5-axles or more were analyzed by dividing the data into eight vehicle groups, as follows (see Figure 2.2-1 in Section 2.2 for descriptions):

- # Truck + trailer with 5-axles (2+3 and 3+2)
- # Truck + trailer with 6-axles or more (3+3, 4+2, 4+3)
- # 3-S2 tractor-semitrailer
- # Tractor-semitrailer with tridem axles (2-S3, 3-S3, 4-S3)
- # Other tractor-semitrailer (4-S1, 4-S2)
- # STAA tractor + double trailers (2-S1-2)
- # Tractor + double trailer combinations with 6-axles or more (all doubles except STAA as defined above).
- # Tractor + triple trailers.

Traffic Regions And States

The report organizes the VIUS truck data into five regions (North Central, North East, South Atlantic, South Gulf, and West) and for each of the 50 states and Washington, D.C. as shown in Figure ES-1 (see Section 2.3 of the report).

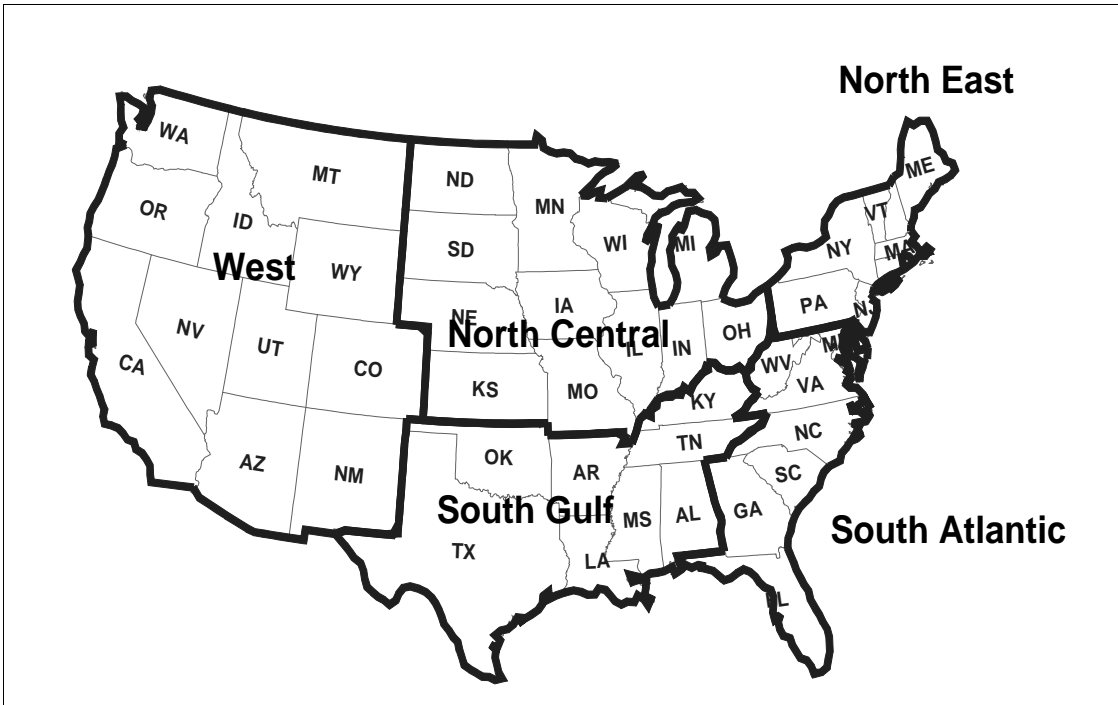


Figure ES-1. Five Regions For Analysis

Body Types

In this report, the VIUS data for trucks with 5-axles or more were analyzed by 11 major body types, as follows (see Section 4.0 for more details):

- # Platform (which consists of low boys and basic platform types)
- # Van (which includes multi-stop, basic enclosed, drop frame, insulated non-refrigerated, insulated refrigerated, and open top types)
- # Auto transport
- # Dump truck
- # Grain bodies
- # Garbage truck
- # Livestock truck
- # Pole, logging truck
- # Tank truck, dry bulk

- # Tank truck, liquids or gas
- # Other (includes platforms with devices permanently mounted, beverage truck, utility truck, winch or crane truck, wrecker, service truck, yard tractor, oil field truck, concrete mixer, and other).

Commodities Hauled

For the above-mentioned vehicle groups and body types, the VIUS database was also analyzed by principal commodity types (see Section 6.0). There were 29 commodity types ranging from raw materials to manufactured goods.

Highlights of the U.S. Commercial Truck Fleet

The VIUS data provide a comprehensive factual base of U.S. commercial freight hauling trucks. The focus of this report is a selected subset of the U.S. truck fleet, trucks with 5-axles or more, that will most likely be influenced by Federal TS&W regulations and provides data/analysis of fleet size, location, vehicle configuration, body type, principal commodity products hauled, and vehicle operating statistics. Table ES-1 provides only a snapshot of the 5-axles or more truck fleet in 1992 and some changes since 1987.

TABLE ES-1
1992 U.S. COMMERCIAL FREIGHT
TRUCK FLEET HIGHLIGHTS
 (Trucks with 5-axles or more, unless noted otherwise)

Truck Population

- ✓ 4.6 million total commercial trucks in 1997, a 6% increase from 1992.¹
- ✓ Total U.S. commercial truck fleet distribution:¹
 - 65% straight trucks
 - 3% straight trucks pulling trailer(s)
 - 30% tractor-semitrailer
 - 2% tractor with 2 or more trailers.
- ✓ 1,318,744 trucks with 5-axles or more (of most interest to truck size and weight analysis) in 1997, a 21% increase from 1992, similar to the 22% increase from 1987 to 1992.

¹The data reflect the total commercial truck fleet including trucks with 5-axles or more, but excludes personal trucks.

TABLE ES-1
1992 U.S. COMMERCIAL FREIGHT
TRUCK FLEET HIGHLIGHTS
(Trucks with 5-axles or more, unless noted otherwise)

- ✓ 5-Axle Tractor Semitrailer
 - Most common freight hauling truck
 - 22% of total truck fleet¹
 - 80% of trucks with 5-axles or more
 - 13% growth in number of trucks between 1992/1997.
- ✓ Truck + trailers [straight trucks pulling a trailer(s)]
 - 4% of total truck fleet¹
 - Little change from 1992 or 1987.
- ✓ Tractor-semitrailers with tridem axle trailers (2-S3, 3-S3, 4-S3)
 - 3% of total truck fleet¹
 - 9% of trucks with 5-axles or more
 - 33% growth in the number of trucks between 1997/1992.
- ✓ STAA (2-axle tractor with 2-28' trailing units) trucks
 - 1% of total truck fleet¹
 - Only 4% of trucks with 5-axles or more
- ✓ Double (2 or 3-axle tractor with 2 trailing units with 3+ axles) trucks
 - 2% of total truck fleet¹
 - 7% of trucks with 5-axles or more.
 - 29% growth in number of trucks between 1997/1992.
- ✓ Triple (2 or 3-axle tractor with 3-28' trailing units) trucks
 - Less than 1% of total truck fleet¹
 - Less than 1% of trucks with 5-axles or more.
 - 71% growth in number of trucks between 1997/1992

Regional Differences

- ✓ Southern Gulf Region had a 27% increase in trucks with 5-axles or more versus the national average of a 15% increase between 1992/1997.

¹The data reflect the total commercial truck fleet including trucks with 5-axles or more, but excludes personal trucks.

TABLE ES-1
1992 U.S. COMMERCIAL FREIGHT
TRUCK FLEET HIGHLIGHTS
(Trucks with 5-axles or more, unless noted otherwise)

- ✓ Northern Central Region contains the largest number of trucks with 5-axles or more with 37%.
- ✓ Illinois, California, Texas, Florida, and Ohio account for 28% of trucks with 5-axles or more.

Trailer Types

- ✓ 3-S2 Van is the preferred freight hauling truck configuration accounting for 50% of all trucks with 5-axles or more.
- ✓ Van is the preferred trailer body type, used for 40% of all trucks with 5-axles or more—a 21% growth in the number of trailers with this body type was experienced between 1992 and 1997.
- ✓ Platform is second most common trailer type with 20% of all trailers, but little change from 1992.

Commodities Hauled

- ✓ Top 7 carried commodities are: Processed Foods, Building Material, Mixed Cargo, Farm Products, Machinery, Paper, Primary Metal, and Logs, respectively [as measured by total fleet vehicle miles of travel (VMT)].
- ✓ STAA vehicles (2-S1-2) and triples predominately carry Mixed Cargo products (as measured by VMT).
- ✓ Tridem axle semitrailers predominately carry Building materials and Machinery products (as measured by VMT).

Trailer Width

- ✓ 102" trailer width continues to gain favor in all major trailer body types (e.g., 73% of 3-S2 Basic Enclosed Vans use 102").
- ✓ 96" trailer width still less than 50% for several trailer body types on 3-S2s (platform, low boy, dump, pole or logging, auto transport, liquid tank, and dry tank).

TABLE ES-1
1992 U.S. COMMERCIAL FREIGHT
TRUCK FLEET HIGHLIGHTS
(Trucks with 5-axles or more, unless noted otherwise)

Trailer Lengths

- ✓ 3-S2 Basic Enclosed Van increased use of 53 foot trailer from about 17% in 1987 to 29% in 1992 and 45% in 1997.²
- ✓ 3-S2 Reefer Van increased use of 53 foot trailer from about 27% in 1987 to 36% in 1992 and 50% in 1997.²
- ✓ 3-S2 Liquid Tank, Dry Tank and Dump have little use of 53 foot trailers (less than 10%).²

Truck Weights

- ✓ Average tare weight remained constant between 1992 and 1997 (there was a 1,000 pound growth between 1987 and 1992). The average tare weight was 29,067 pounds for 1997.
- ✓ Average payload weight was 41,731 pounds for 1997 (e.g., 3-S2 Basic Enclosed Van payloads have remained constant from 1987 through 1997).

Truck VMT

- ✓ Average annual VMT decreased over 16% for trucks with 5-axles or more between 1992/1997 although average annual VMT increased from 82,453 (1992) to 87,244 (1997) for 3-S2 Vans. The decrease follows an increase of 5% average annual VMT from 1987 to 1992. (This decrease may be attributable to the nature of the survey, other data from Highway Statistics and Weigh-in Motion Stations show an increase in VMT.)

²An overall vehicle (tractor-semitrailer) length of 65 feet or more was used as a measure of the use of 53 foot trailers for tractor-semitrailer combinations.

Source: 1997 and 1992 VIUS data base.

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1.0 Introduction

1.1 Purpose and Scope

The purpose of this report is to better understand the relative size and location of freight markets in the U.S and the truck fleet facilitating that freight. These freight markets are segmented by length of haul, freight density, value, commodities, corridors, service quality, volume of freight by highway system, and back-haul.

The focus of this report is to provide factual information and analysis of the U.S. freight hauling trucking industry using the U.S. Bureau of the Census Vehicle Inventory and Use Survey (VIUS) databases for 1992 and 1997. The VIUS is collected every five years with 1997 being the latest data base collected. The VIUS can be used to provide a better understanding of the U.S. truck fleet make-up, size, uses, location, and type of commodities hauled. This report provides data and analysis utilizing this truck fleet database and provides a picture of the U.S. national and regional truck fleets (see Section 1.3 for more details). The truck fleet of interest in this report is the freight-hauling larger trucks, specifically trucks with 5-axles or more.

1.2 Vehicle Inventory and Use Survey (VIUS)

The Bureau of the Census conducts the Vehicle Inventory and Use Survey (VIUS) every 5 years (formerly the Truck Inventory and Use Survey (TIUS)). VIUS provides data on the physical and operational characteristics of the United State's truck population for that survey year. It is based on a sample of private and commercial trucks registered (or licensed) in each State. In 1997, a sample of over 131,000 trucks were surveyed to measure the universe of over 75 million trucks. The U.S. recipients of the survey were required by law to answer the questionnaire.

For a given year, there are two versions of the VIUS survey. Based on registration information, vehicles were given either the short form or the long form of the survey. In general, the long form was given to owners of large trucks (i.e., straight trucks and truck-tractors). The short form was given to owners of small trucks (i.e., pick-ups, vans, station wagons on truck chassis). The major difference between the two forms is that the long form has more questions relevant to commercial vehicles.

1.3 The Truck Fleet

The VIUS database contains information on trucks used for personal transportation and/or freight movement. This report focuses on the freight market and analyzes larger, freight-hauling trucks which would most likely be used in the movement of commodities. Specifically, data on the following types of trucks were excluded in this analysis: (1) any truck whose body type was pick-up, mini-van, sport utility, or station wagon on a truck chassis; (2) any 2-axle truck or tractor with a total of 4 tires; and (3) any truck which hauled a 1-axle trailer or 1-axle utility

trailer. Removal of these vehicles creates a data set referred to in this analysis as the “1992/1997 Total Fleet.”

For most of this analysis, the 5-axles or more truck/tractor-trailer combinations were evaluated which are a subset of the “Total Fleet.” The “5-Axles or More Fleet” contains data for various types of truck/tractor-trailer combinations whose total number of axles is greater than or equal to 5 and are of primary interest from a truck size and weight perspective. In general, there are four types of truck/tractor-trailer combinations evaluated: (1) straight truck with trailer; (2) tractor truck with semitrailer; (3) tractor truck with two trailing units; and (4) tractor truck with three trailing units.

1.4 Cautionary Notes

The values presented in the tables throughout this report are the direct result of the analysis of the VIUS databases. There has been limited judgement as to their appropriateness; that task is the responsibility of the reader. It should be noted that the VIUS is based on survey data which assumes that the respondents will devote some time and effort to giving accurate estimates and responses about their vehicle. The Bureau of the Census did do some quality checking of the data.

State of Registration. The data presented in this report has been analyzed on the basis of the state of registration. In drawing inferences from the data, the potential for a registration-bias must be recognized. However, the correlation between state of registration and state of home base location is approximately 90% for the 1997 VIUS. Home base state is defined as the location where the vehicle is parked when not in use. If state level detail is of interest, the correlation should be examined for that state and the vehicles of interest.

Population Estimates. In the analysis of the VIUS database, each record does not reflect one vehicle, but instead it represents a number of vehicles in the population. To make interpretations about the total truck population from this small sample of the population, a weighting factor was applied to each record. This weighting factor differs for vehicles registered in different states and for vehicles belonging to different vehicle type groups. The reason that the weighting factor is not a constant number across all records is due to the method of sampling the truck population which was conducted at the state level, not the national level.

Readers must be cognizant of the fact that this weighting process can create odd results in selected situations—particularly when the sample size relating to a particular group in the population is small. This is particularly true when analyzing the VIUS at the state level where many states have small sample sizes. For example, our analysis of the 1997 VIUS database estimated that New York has 65 vehicles operating as tractor + triple trailer combinations. New York does not permit such combinations it is likely that these tractors are registered in New York but operate in another State. Alternatively, the 65 vehicle population estimate could have arisen from an incorrect answer on as little as 1 or 2 survey records—which were subsequently factored-up to create the population estimate.

Small Sample Size. In general, readers must be very cognizant of the potential for “small size problems” in parts of the analysis presented in this report. As the data set is sub-categorized from national statistics, to regional statistics, to state statistics—by configuration, by body type—and subsequently into individual statistical measures such as “empty weight” or “width,” the sample used to estimate the population value for a particular cell may become very small. In a number of sections throughout this report, the sample sizes and population estimates associated with particular parameters are presented. Readers must use judgement and caution in assessing the appropriateness of the results presented from small samples.

2.0 Categorization of Vehicles

For analysis and for interpretation of data in terms of TS&W issues, trucks were placed into different categories based on their vehicle configuration class, vehicle group, and state of registration. These categories are used throughout this report to illustrate the VIUS data.

2.1 Vehicle Configuration Classes

Based on vehicle information provided in the survey, the Bureau of the Census placed each registered truck into a configuration class. The configuration class identifies the way in which the truck is most often operated. 'Most often' is a subjective term used on the VIUS survey which has no quantitative number associated with it, such as percent of VMT. Because of this, any interpretation of the VIUS data should use discretion. In addition, some of the analyses may be misleading if interpreted incorrectly. For example, our analysis of commodities is based on the percent of VMT that a particular vehicle configuration hauls various commodities. Some of the commodities hauled by a particular truck may not be hauled in the vehicle configuration/body type that the truck usually travels in (e.g., an auto transporter hauling farm products). However, to conduct the analysis it must be assumed that a particular truck hauls all its commodities in the configuration identified with it.

From responses on the survey, each truck was classified by the Bureau of the Census into a vehicle configuration class based on 3 factors. The first factor was vehicle type, which classified a truck as a straight truck not pulling trailer, a straight truck pulling trailer, a truck tractor (power unit) pulling trailer, or other. The second factor was the total number of axles on the truck/tractor. The third factor was the number and kind of trailers most often hauled, including the number of axles. This classification scheme used survey responses to questions 5, 6 and 10.

Upon examination of the data, vehicles were placed in one of the five major vehicle configuration classes, which was a general categorization into truck or truck+trailer combination groups. The five vehicle configuration classes were partitioned into 31 subclasses based on the number of axles on the truck unit and the number of axles on the trailer(s). The labels of the subclasses are interpreted as follows: the first number represents the number of axles on the power unit, the second number defines the number of axles on the first trailer, a third and fourth number represent the number of axles on the second trailer and the third trailer, respectively. Subclass names with an * by a number, N, indicate that this subclass includes vehicles with N-axles or greater (e.g., 2+*3 subclass contains all 2-axle straight trucks pulling 3-axles or more trailers).

Table 2.1-1 The 5 Major Vehicle Configurations and the 31 Subclasses

Truck	Truck & Trailer	Tractor-Semitrailer	Tractor + Doubles	Tractor + Triples
S2	2 + 2	2-S1	2-S1-2	2-S1-2-2
S3	2 + *3	2-S2	3-S1-2	3-S1-2-2
S4	3 + 2	2-*S3	2-S2-2	other
	3 + *3	3-S1	3-S2-2	
	*4 + 2	3-S2	other @ *7-axle	
	*4 + *3	3-*S3	3-S2-3	
		4-S1	other @ *8-axle	
		4-S2	3-S2-4	
		4-*S3	other @ *9-axle	
			other @ *10-axle	

Notes:

- A semitrailer is classified by S and its number of axles (e.g., S2 means a semitrailer with 2 axles).
- The * means "equal to or more" (e.g., *4 + 2 means a straight truck with "4 or more" axles pulling a trailer with 2 axles).
- Even though the survey only asks the total number of axles on the attached trailers, the configuration type can be more clearly defined based on operational practice.

2.2 Vehicle Groups

In the analysis of the 5-axles or more fleet, trucks were categorized into 8 vehicle groups (see Figure 2.2-1 for pictures of various configurations in each group):

- # Truck + Trailer with 5-axles (which contains vehicle configurations 2+*3 and 3+2)
- # Truck + Trailer with 6 or more axles (which contains 2+*4, 3+*3, *4+2, *4+*3)
- # 3-S2 Tractor-Semitrailers
- # Tractor-Semitrailers with tridem axles (which contains 2-*S3, 3-*S3, 4-*S3)
- # Other Tractor-Semitrailers (which are 4-S1 and 4-S2)
- # STAA Tractor+Double Trailers (which is 2-S1-2)
- # Tractor+Double Trailer combinations with 6 or more axles
- # Tractor+Triple Trailers.

It should be noted that a small number of trucks may be misclassified into the wrong vehicle groups. For instance, the tridem axle tractor-semitrailers may contain a few records for vehicles hauling a trailer with more than 3-axles. The reason for this is that the survey question on the number of axles on the semitrailer was limited to 3 responses with the last category being "3 or more axles."

2.3 Traffic Regions and States

Besides evaluating the truck fleet at the national level, our analysis also focused on the regional truck fleets. Given the small sample of trucks surveyed, analyzing the truck fleet at the state level requires careful analysis and an understanding of the sample size used to generate truck populations.

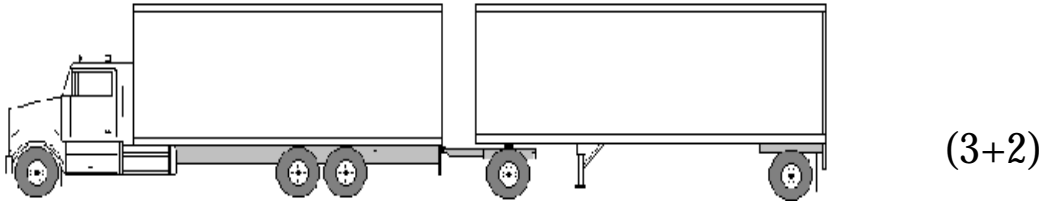
5 traffic regions (see Figure 2.3-1)

- North Central
- North East
- South Atlantic
- South Gulf
- West

50 States and Washington, D.C.

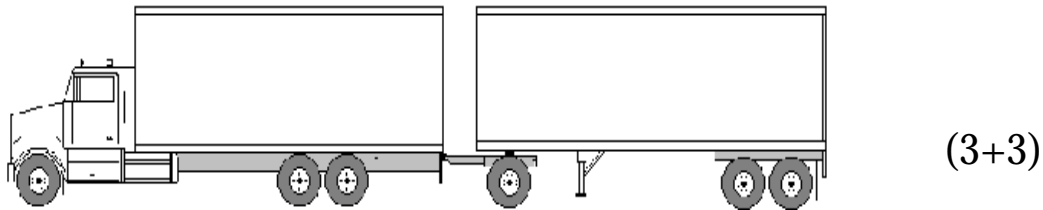
Figure 2.2-1 Vehicle Group Descriptions for the 5-axles or More Truck Fleet

1) Truck Trailer @ 5 Axles



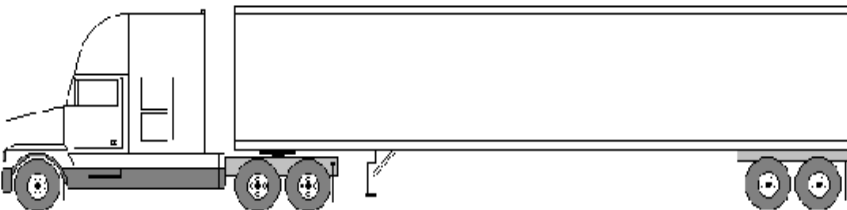
Other Examples:
2+3*

2) Truck Trailer @ 6+ Axles

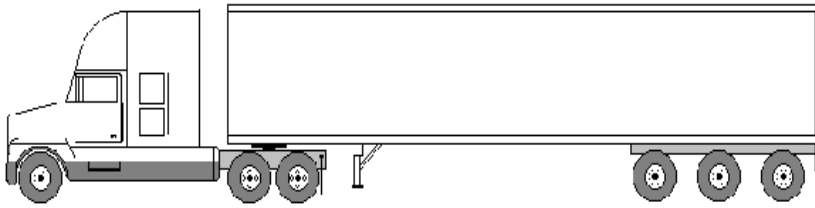


Other Examples:
3+3*, 4*+2, 4*+3*

3) 3-S2



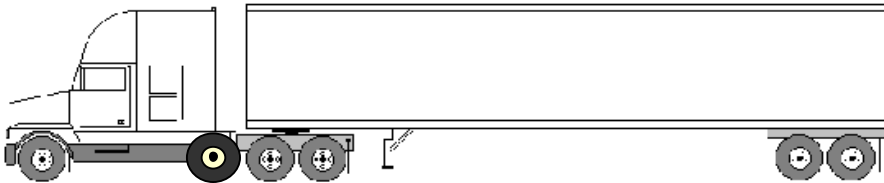
4) Tridem Axle Semitrailer



(3-S3)

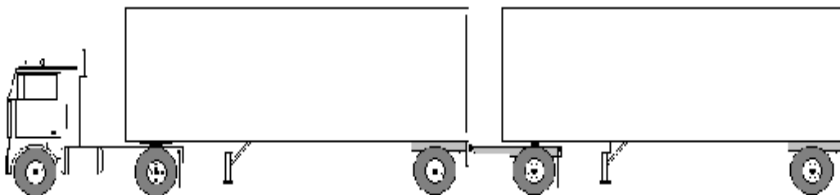
Other Examples:
2-S3*, 4-S3*

5) 4S1/S2



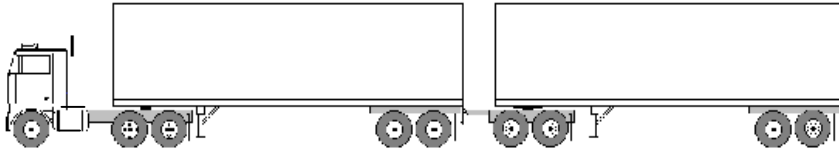
(4-S2)

6) STAA



(2-S1-2)

7) Doubles @ 6 + Axles

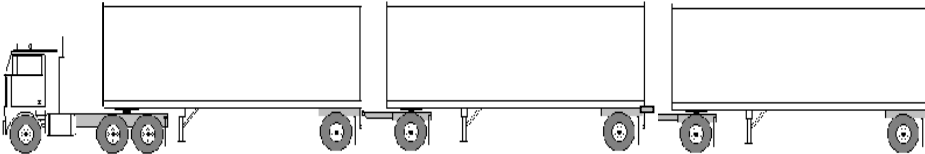


(3-S2-4)

Other Examples:

2-S2-2, 3-S1-2, 3-S2-2, 3-S2-3, 3-S2*-4*,
others @ 7-10 axles

8) Triples

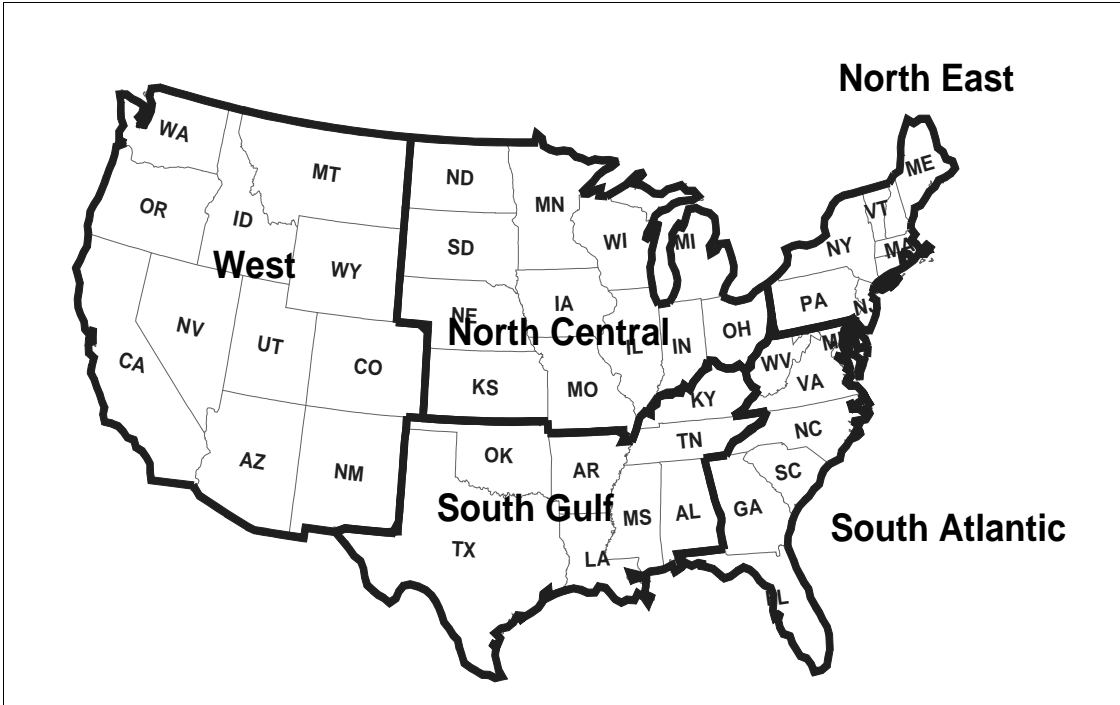


(3-S1-2-2)

Other Examples:

2-S1-2-2, Other triples

Figure 2.3-1 Traffic Data Regions



3.0 ANALYSIS OF THE DISTRIBUTION OF THE TRUCK FLEET

This section focuses on the distribution of the truck fleet by vehicle configuration, region, and state. The first part of this section analyzes the entire truck fleet with a brief discussion of the 4-axles or less truck fleet. The second part evaluates the 5-axles or more truck fleet. The vehicle configuration is derived by the Bureau of the Census from questions 5, 6, and 10 on the 1992 survey as shown in Appendix I. Appendix H gives details on the vehicle configuration variable and its use.

3.1 Analysis Structure

This section evaluates the VIUS database by the following characteristics:

- # 5 Vehicle Configuration Classes and 31 Subclasses (as defined in Table 2.1)
- # 8 Vehicle Groups (as defined in Section 2.2)
- # 5 Regions (as defined in Section 2.3 and Figure 2.3-1)
- # 50 States and the District of Columbia

3.2 Observations on the Size of the Total Truck Fleet

The following observations focus primarily on the 1997 total truck fleet (note exclusions in Section 1.3) with some selected comparisons made with the 1992 total truck fleet. Table 3.2-1 describes the number of vehicles in a configuration class, by region for 1997. Table 3.2-2 rank orders the 1997 state populations. For detailed tables of the composition of the 1992 and 1997 truck fleet, Appendix A contains population numbers for the total truck fleet broken down by configuration class, by state, by region—for 1997 and 1992.

NATIONWIDE - 1997

- # The 1997 total truck fleet contained 75 million trucks.

REGIONAL VARIATIONS - 1997

- # One-third of the total fleet was registered in the North Central region.
- # The other four regions, each contained about one-sixth of the total truck population.

STATE VARIATIONS - 1997

- # California had the largest state truck population (382,118 trucks) which accounted for about eight percent (8.32%) of the national truck fleet.

- # The next five largest state truck populations were Illinois (6.24%), Texas (5.5%), Ohio (4.38%), Florida (4.04%), and Pennsylvania (3.81%). These states account for one-quarter of the total fleet.

CHANGES BETWEEN 1992 AND 1997

- # Nationwide, the total truck fleet increased in size by 6% between 1992 and 1997.
- # Regionally, the Southern Gulf region experienced the most growth in their truck population (+27%). The North Central region (+13%), North East region (+3%), Southern Atlantic (+1%) and the West (+12%). No regions experienced a decrease in truck population, as was evident between 1987 and 1992.
- # For the States,
 - California's share of the total truck fleet has decreased slightly (-1%) between 1992 and 1997 in contrast to a growth of over 9% between 1987 and 1992.

3.3 Size and Make-up of the 4-Axles or Less Fleet

The 1997 “4-axles or less” truck fleet, which is a subsection of the total truck fleet, is briefly discussed in this section of the report as supported in Table 3.2-1 and in Appendix A. Note that this part of the fleet is not the emphasis of this report. It is worth noting that over two-thirds of the total national truck fleet (67%) were single-unit straight trucks. This included 2-axle 6-tire straight trucks, 3-axle and 4-axle straight trucks. Making the 4-axle or less vehicles the largest portion of commercial truck fleet.

Table 3.2-1

1997 Total Truck Fleet
Number of Vehicles by Truck Configuration, by Region

Configuration Class	Regions					
	North Central	North East	South Atlantic	South Gulf	West	Total
Straight Truck						
2-axle	717,009	372,622	422,662	366,882	482,237	2,361,411
3-axle	160,834	67,126	76,032	73,421	97,545	474,957
4-axle	45,438	23,922	16,969	11,153	13,764	111,247
Subtotal	923,281	463,669	515,663	451,455	593,547	2,947,615
Truck + Trailer						
2+2	36,532	16,187	18,325	14,903	20,762	106,708
2+*3	4,471	2,324	3,333	1,149	3,650	14,927
3+2	7,718	3,899	3,377	5,619	23,306	43,918
3+*3	995	1,044	902	920	2,790	6,653
*4+2	1,799	687	303	763	1,372	4,925
*4+*3	1,660	129	164	286	2,358	4,597
Subtotal	53,175	24,270	26,404	23,640	54,238	181,728
Tractor + Semitrailer						
2-S1	16,323	4,112	10,884	16,124	15,518	62,961
2-S2	40,664	16,858	24,807	33,026	27,945	143,300
2-*S3	3,483	1,240	1,899	4,809	1,235	12,667
3-S1	3,355	853	1,775	4,186	2,659	12,828
3-S2	378,137	92,057	139,700	234,925	145,702	990,521
3-*S3	35,429	12,523	13,706	26,973	13,039	101,669
4-S1	0	0	157	0	63	220
4-S2	9,538	3,166	5,349	4,604	5,716	28,374
4-*S3	4,359	1,157	1,791	1,503	3,417	12,227
Subtotal	491,288	131,966	200,068	326,149	215,295	1,364,766
Tractor + Double						
2-S1-2	17,636	556	2,622	4,274	27,046	52,134
3-S1-2	2,333	174	1,089	6,971	3,343	13,909
2-S2-2	2,599	0	1,997	0	2,273	6,869
3-S2-2	2,379	671	417	885	5,472	9,825
Other @ 7-axle	317	0	37	597	110	1,061
3-S2-3	485	130	56	96	2,346	3,114
Other @ 8-axle	75	71	25	25	765	961
3-*S2-*4	2,992	237	0	230	1,162	4,621
Other @ 9-axle	17	0	0	0	243	259
Other @ 10 axle	320	0	0	0	491	811
Subtotal	29,151	1,840	6,244	13,078	43,251	93,564
Tractor + Triples						
2-S1-2-2	0	0	0	0	232	232
3-S1-2-2	57	65	73	2,108	545	2,848
Other	337	49	0	0	1,018	1,404
Subtotal	394	114	73	2,108	1,796	4,484
Total	1,497,289	621,858	748,452	816,431	908,126	4,592,157

Note: Excludes pick-ups, mini-vans, utility sports, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle trailer or I-axle utility trailer

Table 3.2-2

1997 Total Truck Fleet
 Ranking of States from Highest Truck Population to Lowest

State	Region	Stright Truck	%	Truck+ Trailer	%	Tractor + Semitrailer	%	Tractor + Doubles	%	Tractor + Triples	%	Total Number	Total %
California	WE	241,606	8.20	22,064	12.14	102,307	7.50	16,141	17.25	0	0.00	382,118	8.32
Illinois	NC	133,490	4.53	5,606	3.08	125,308	9.18	21,879	23.38	337	7.51	286,619	6.24
Texas	SG	157,178	5.33	4,496	2.47	90,459	6.63	672	0.72	0	0.00	252,805	5.50
Ohio	NC	136,186	4.62	6,978	3.84	57,017	4.18	1,015	1.08	0	0.00	201,195	4.38
Florida	SA	123,221	4.18	6,486	3.57	54,374	3.98	1,668	1.78	0	0.00	185,749	4.04
Pennsylvania	NE	118,201	4.01	7,713	4.24	49,094	3.60	182	0.19	0	0.00	175,190	3.81
Oklahoma	SG	61,391	2.08	5,331	2.93	96,475	7.07	6,907	7.38	2,108	47.02	172,212	3.75
New York	NE	130,813	4.44	7,085	3.90	25,256	1.85	1,401	1.50	65	1.45	164,620	3.58
North Carolina	SA	101,462	3.44	6,529	3.59	47,365	3.47	3,871	4.14	73	1.62	159,300	3.47
Indiana	NC	93,811	3.18	5,053	2.78	51,367	3.76	217	0.23	0	0.00	150,448	3.28
Michigan	NC	92,134	3.13	7,509	4.13	35,117	2.57	4,227	4.52	57	1.27	139,044	3.03
Georgia	SA	85,551	2.90	5,514	3.03	37,364	2.74	413	0.44	0	0.00	128,842	2.81
Wisconsin	NC	74,111	2.51	4,332	2.38	40,966	3.00	338	0.36	0	0.00	119,746	2.61
Tennessee	SG	53,597	1.82	3,085	1.70	57,871	4.24	4,066	4.35	0	0.00	118,619	2.58
Missouri	NC	74,101	2.51	4,039	2.22	37,033	2.71	50	0.05	0	0.00	115,223	2.51
Minnesota	NC	75,733	2.57	7,061	3.89	31,685	2.32	103	0.11	0	0.00	114,581	2.49
Iowa	NC	57,301	1.94	4,227	2.33	45,045	3.30	0	0.00	0	0.00	106,574	2.32
Virginia	SA	78,674	2.67	3,180	1.75	21,771	1.60	74	0.08	0	0.00	103,699	2.26
New Jersey	NE	68,308	2.32	3,245	1.79	27,532	2.02	50	0.05	49	1.09	99,185	2.16
Kansas	NC	74,565	2.53	3,015	1.66	20,375	1.49	240	0.26	0	0.00	98,195	2.14
Kentucky	SG	76,632	2.60	396	0.22	18,274	1.34	29	0.03	0	0.00	95,330	2.08
Washington	WE	64,630	2.19	8,125	4.47	15,308	1.12	4,012	4.29	0	0.00	92,075	2.00
Oregon	WE	48,660	1.65	2,487	1.37	25,483	1.87	15,080	16.12	295	6.57	92,005	2.00
Alabama	SG	52,115	1.77	5,098	2.81	34,228	2.51	505	0.54	0	0.00	91,945	2.00
Nebraska	NC	44,379	1.51	2,198	1.21	28,131	2.06	229	0.25	0	0.00	74,938	1.63
Colorado	WE	57,184	1.94	4,059	2.23	12,159	0.89	222	0.24	0	0.00	73,625	1.60
Massachusetts	NE	56,114	1.90	2,153	1.18	11,943	0.88	54	0.06	0	0.00	70,263	1.53
Maryland	SA	51,993	1.76	1,243	0.68	14,558	1.07	75	0.08	0	0.00	67,870	1.48
Arizona	WE	41,627	1.41	3,469	1.91	10,886	0.80	2,636	2.82	1,363	30.39	59,980	1.31
South Carolina	SA	38,185	1.30	2,495	1.37	15,773	1.16	78	0.08	0	0.00	56,531	1.23
North Dakota	NC	39,502	1.34	2,387	1.31	9,598	0.70	506	0.54	0	0.00	51,993	1.13
Louisiana	SG	30,428	1.03	3,008	1.65	16,927	1.24	866	0.93	0	0.00	51,230	1.12
Connecticut	NE	34,376	1.17	1,089	0.60	5,030	0.37	59	0.06	0	0.00	40,555	0.88
South Dakota	NC	27,968	0.95	771	0.42	9,646	0.71	349	0.37	0	0.00	38,734	0.84
Montana	WE	25,305	0.86	1,978	1.09	8,515	0.62	1,233	1.32	0	0.00	37,032	0.81
New Mexico	WE	21,681	0.74	3,602	1.98	9,896	0.73	108	0.12	0	0.00	35,287	0.77
Utah	WE	17,325	0.59	2,438	1.34	13,477	0.99	1,628	1.74	82	1.82	34,949	0.76
Idaho	WE	25,046	0.85	2,550	1.40	4,926	0.36	512	0.55	0	0.00	33,033	0.72
West Virginia	SA	25,245	0.86	560	0.31	5,654	0.41	34	0.04	0	0.00	31,493	0.69
Mississippi	SG	13,793	0.47	2,045	1.13	11,537	0.85	33	0.04	0	0.00	27,408	0.60
Maine	NE	19,188	0.65	1,160	0.64	4,612	0.34	44	0.05	0	0.00	25,004	0.54
New Hampshire	NE	18,656	0.63	1,007	0.55	4,195	0.31	23	0.02	0	0.00	23,881	0.52
Nevada	WE	16,535	0.56	1,306	0.72	3,966	0.29	711	0.76	34	0.77	22,552	0.49
Wyoming	WE	15,744	0.53	1,225	0.67	4,719	0.35	785	0.84	22	0.49	22,496	0.49
Delaware	SA	9,994	0.34	369	0.20	3,138	0.23	29	0.03	0	0.00	13,530	0.29
Vermont	NE	10,641	0.36	247	0.14	2,498	0.18	17	0.02	0	0.00	13,404	0.29
Hawaii	WE	10,118	0.34	579	0.32	1,591	0.12	43	0.05	0	0.00	12,330	0.27
Alaska	WE	8,086	0.27	356	0.20	2,062	0.15	141	0.15	0	0.00	10,645	0.23
Rhode Island	NE	7,371	0.25	570	0.31	1,805	0.13	9	0.01	0	0.00	9,755	0.21
Arkansas	SG	6,321	0.21	182	0.10	378	0.03	0	0.00	0	0.00	6,882	0.15
District of Columbia	SA	1,337	0.05	28	0.02	71	0.01	2	0.00	0	0.00	1,439	0.03
Total		#####	100.00	181,728	100.00	1,364,766	100.00	93,564	#####	4,484	100.00	4,592,157	99.99

Note: Excludes pick-ups, mini-vans, utility sports, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle trailer or l-axle utility trailer

3.4 Size of the 5-Axles or More Fleet

The 5-axles or more truck fleet is obtained by removing trucks in the total fleet with 4-axles or less from the total truck fleet. The 5-axles or more truck fleet is of more interest to a truck size and weight analysis. A general map of the state distribution of the 5-axles or more fleet in 1997 is presented in Figure 3.4-1. A regional look is provided in Figure 3.4-2. More detail on the distribution of the fleet is discussed below and highlighted in Tables 3.4-1 and 3.4-2. Appendix B gives the detailed results for the number of 5-axles or more trucks in the fleet, by configuration class, by state, by region—for 1997 and 1992.

NATIONWIDE - 1997

The 1997 5-axles or more truck fleet was 1,243,725 about 27% of the total truck fleet.

REGIONAL VARIATIONS - 1997

The North Central region accounts for about one-third (32.0%) of the 5-axles or more truck fleet which is the largest population for any region.

The West region (19.7%) and the South Gulf region (17.7%) together account for over one-third of the 5-axles or more truck fleet.

The North East region (13.5%) and South Atlantic region (16.2%) together account for over one-quarter of the 5-axles or more truck fleet.

STATE VARIATIONS - 1997

Combined, Illinois and California account for 15% of the 5-axles or more truck fleet (14.46%). This is down from 20% in 1992

Illinois, California, Texas, Florida, and Ohio account for over one-quarter of the 5-axles or more truck fleet (28%).

Only 3 States have less than 10,000 trucks as compared to 22 such States in 1992. (See Table 3.4-2)

Figure 3.4-1 State Distribution of the 5-Axle or More Fleet in 1997

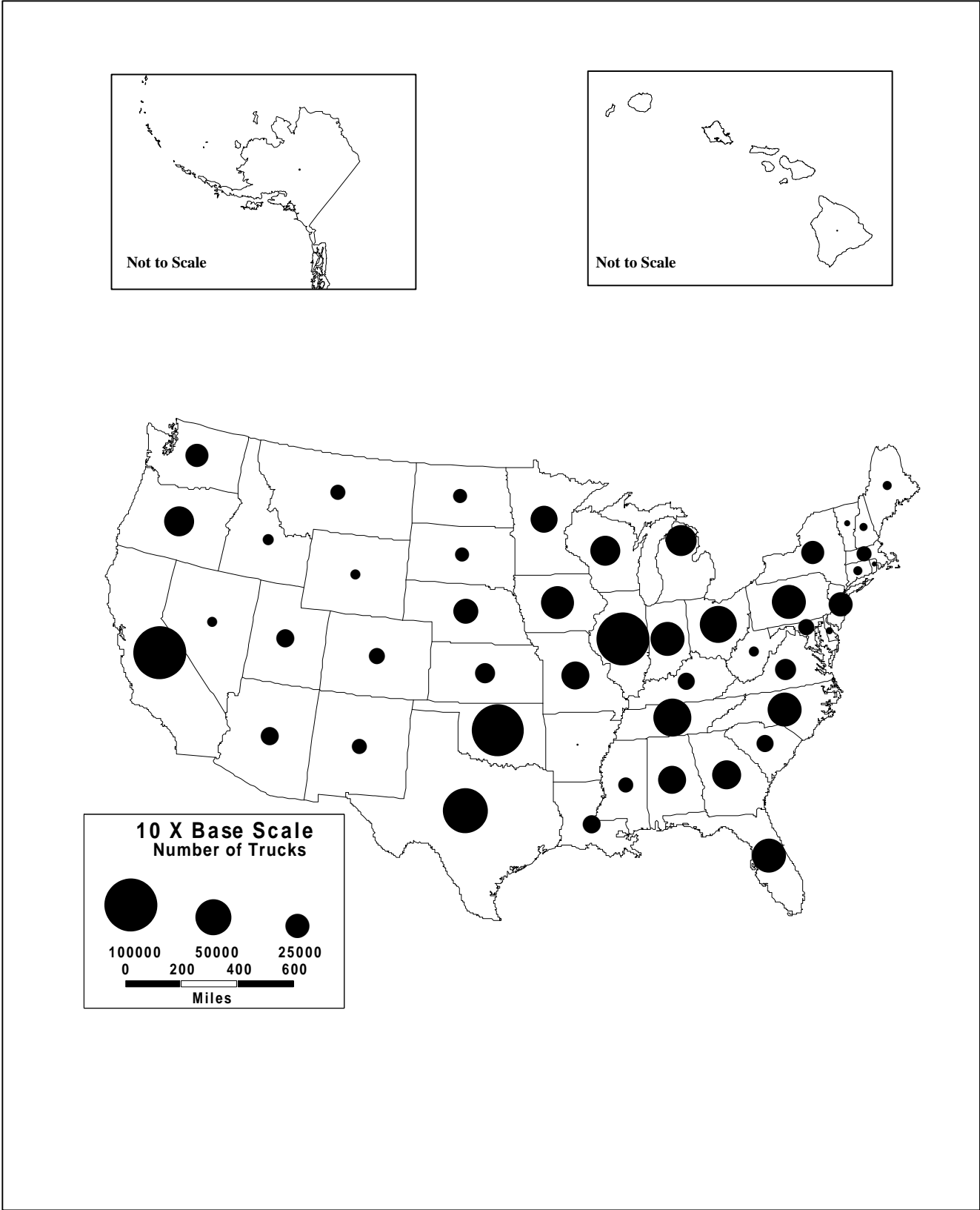


Figure 3.4-2

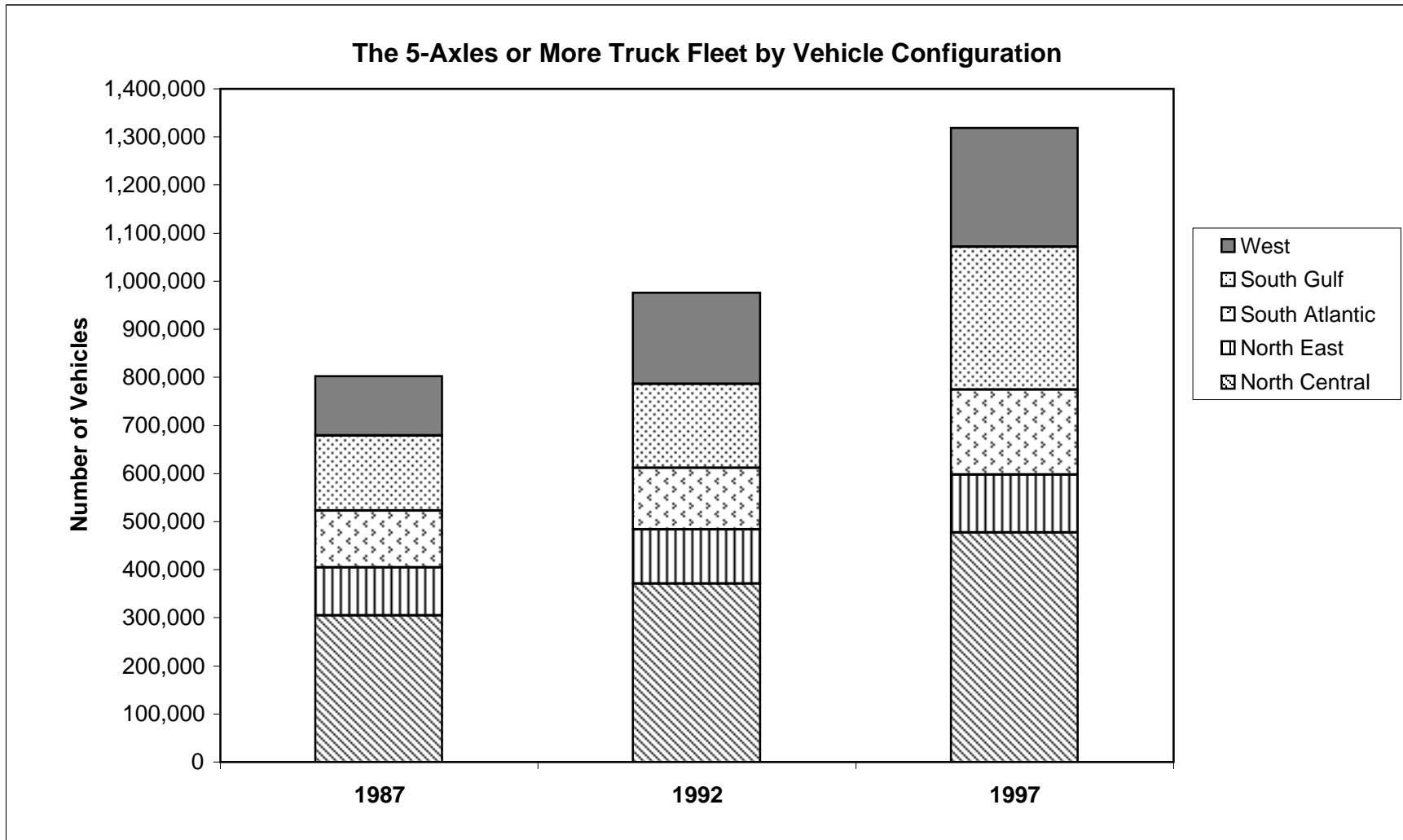


Table 3.4-1

**1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Truck Configuration, by Region**

Configuration Class	Regions					Total
	North Central	North East	South Atlantic	South Gulf	West	
Truck + Trailer						
2+*3	4,471	2,324	3,333	1,149	3,650	14,927
3+2	7,718	3,899	3,377	5,619	23,306	43,918
3+*3	995	1,044	902	920	2,790	6,653
*4+2	1,799	687	303	763	1,372	4,925
*4+*3	1,660	129	164	286	2,358	4,597
Subtotal	16,643	8,083	8,079	8,738	33,476	75,019
Tractor + Semitrailer						
2-*S3	3,483	1,240	1,899	4,809	1,235	12,667
3-S2	378,137	92,057	139,700	234,925	145,702	990,521
3-*S3	35,429	12,523	13,706	26,973	13,039	101,669
4-S1	0	0	157	0	63	220
4-S2	9,538	3,166	5,349	4,604	5,716	28,374
4-*S3	4,359	1,157	1,791	1,503	3,417	12,227
Subtotal	430,946	110,143	162,602	272,814	169,173	1,145,677
Tractor + Double						
2-S1-2	17,636	556	2,622	4,274	27,046	52,134
3-S1-2	2,333	174	1,089	6,971	3,343	13,909
2-S2-2	2,599	0	1,997	0	2,273	6,869
3-S2-2	2,379	671	417	885	5,472	9,825
Other @ 7-axle	317	0	37	597	110	1,061
3-S2-3	485	130	56	96	2,346	3,114
Other @ 8-axle	75	71	25	25	765	961
3-*S2-*4	2,992	237	0	230	1,162	4,621
Other @ 9-axle	17	0	0	0	243	259
Other @ 10-axle	320	0	0	0	491	811
Subtotal	29,151	1,840	6,244	13,078	43,251	93,564
Tractor + Triples						
2-S1-2-2	0	0	0	0	232	232
3-S1-2-2	57	65	73	2,108	545	2,848
Other	337	49	0	0	1,018	1,404
Subtotal	394	114	73	2,108	1,796	4,484
Total	477,134	120,179	176,998	296,737	247,696	1,318,744

Note: Excludes pick-ups, mini-vans, utility sports, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle trailer or I-axle utility trailer

Table 3.4-2

1997 Truck Fleet (@ 5-axles or more)

Ranking of States from Highest Truck Population to Lowest

State	Region	Truck+ Trailer	%	Tractor + Semitrailer	%	Tractor + Doubles	%	Tractor + Triples	%	Total Number	Total %
Illinois	NC	508	0.68	111,452	9.73	21,879	23.38	337	7.51	134,176	10.17
California	WE	14,136	18.84	73,544	6.42	16,141	17.25	0	0	103,820	7.87
Oklahoma	SG	1,764	2.35	85,449	7.46	6,907	7.38	2,108	47.02	96,228	7.3
Texas	SG	896	1.19	71,533	6.24	672	0.72	0	0	73,102	5.54
Tennessee	SG	1,459	1.94	48,912	4.27	4,066	4.35	0	0	54,437	4.13
Ohio	NC	2,755	3.67	47,701	4.16	1,015	1.08	0	0	51,470	3.9
Indiana	NC	445	0.59	45,054	3.93	217	0.23	0	0	45,715	3.47
Florida	SA	2,224	2.96	41,271	3.6	1,668	1.78	0	0	45,163	3.42
Pennsylvania	NE	2,564	3.42	42,356	3.7	182	0.19	0	0	45,101	3.42
North Carolina	SA	1,970	2.63	39,100	3.41	3,871	4.14	73	1.63	45,014	3.41
Iowa	NC	1,433	1.91	40,782	3.56	0	0	0	0	42,215	3.2
Michigan	NC	3,114	4.15	30,904	2.7	4,227	4.52	57	1.27	38,302	2.9
Oregon	WE	1,543	2.06	20,538	1.79	15,080	16.12	295	6.57	37,456	2.84
Wisconsin	NC	1,436	1.91	34,950	3.05	338	0.36	0	0	36,724	2.78
Georgia	SA	1,650	2.2	31,917	2.79	413	0.44	0	0	33,980	2.58
Missouri	NC	446	0.59	32,059	2.8	50	0.05	0	0	32,555	2.47
Alabama	SG	1,909	2.54	29,723	2.59	505	0.54	0	0	32,137	2.44
Minnesota	NC	2,381	3.17	28,451	2.48	103	0.11	0	0	30,935	2.35
Nebraska	NC	1,271	1.69	25,316	2.21	229	0.25	0	0	26,816	2.03
New Jersey	NE	1,485	1.98	23,206	2.03	50	0.05	49	1.09	24,791	1.88
Washington	WE	5,849	7.8	13,732	1.2	4,012	4.29	0	0	23,593	1.79
New York	NE	2,194	2.92	19,890	1.74	1,401	1.5	65	1.45	23,550	1.79
Virginia	SA	951	1.27	18,282	1.6	74	0.08	0	0	19,307	1.46
Kansas	NC	1,006	1.34	17,376	1.52	240	0.26	0	0	18,622	1.41
Louisiana	SG	1,100	1.47	13,377	1.17	866	0.93	0	0	15,344	1.16
Utah	WE	1,664	2.22	11,756	1.03	1,628	1.74	82	1.82	15,130	1.15
Arizona	WE	1,331	1.77	8,951	0.78	2,636	2.82	1,363	30.39	14,281	1.08
Kentucky	SG	211	0.28	13,427	1.17	29	0.03	0	0	13,667	1.04
South Carolina	SA	555	0.74	12,993	1.13	78	0.08	0	0	13,625	1.03
Colorado	WE	1,527	2.04	10,044	0.88	222	0.24	0	0	11,793	0.89
Maryland	SA	111	0.15	11,565	1.01	75	0.08	0	0	11,751	0.89
Mississippi	SG	1,312	1.75	10,090	0.88	33	0.04	0	0	11,435	0.87
New Mexico	WE	2,451	3.27	8,177	0.71	108	0.12	0	0	10,737	0.81
Montana	WE	1,169	1.56	7,918	0.69	1,233	1.32	0	0	10,321	0.78
Massachusetts	NE	743	0.99	9,510	0.83	54	0.06	0	0	10,307	0.78
North Dakota	NC	1,347	1.8	8,300	0.72	506	0.54	0	0	10,152	0.77
South Dakota	NC	502	0.67	8,601	0.75	349	0.37	0	0	9,452	0.72
Idaho	WE	1,721	2.29	4,121	0.36	512	0.55	0	0	6,355	0.48
Wyoming	WE	563	0.75	4,149	0.36	785	0.84	22	0.49	5,518	0.42
West Virginia	SA	339	0.45	4,752	0.41	34	0.04	0	0	5,125	0.39
Nevada	WE	1,043	1.39	3,175	0.28	711	0.76	34	0.77	4,963	0.38
Maine	NE	278	0.37	4,208	0.37	44	0.05	0	0	4,530	0.34
Connecticut	NE	322	0.43	3,730	0.33	59	0.06	0	0	4,112	0.31
New Hampshire	NE	283	0.38	3,622	0.32	23	0.02	0	0	3,928	0.3
Delaware	SA	275	0.37	2,663	0.23	29	0.03	0	0	2,967	0.22
Vermont	NE	75	0.1	2,301	0.2	17	0.02	0	0	2,394	0.18
Alaska	WE	185	0.25	1,835	0.16	141	0.15	0	0	2,160	0.16
Hawaii	WE	295	0.39	1,232	0.11	43	0.05	0	0	1,569	0.12
Rhode Island	NE	138	0.18	1,318	0.12	9	0.01	0	0	1,466	0.11
Arkansas	SG	86	0.11	301	0.03	0	0	0	0	387	0.03
District of Columbia	SA	4	0.01	59	0.01	2	0	0	0	66	0

Note: Excludes pick-ups, mini-vans, utility sports, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle trailer or I-axle utility trailer

CHANGES BETWEEN 1992 AND 1997

- # Nationwide, the 5-axles or more truck fleet increased in size by 15%.

3.5 Make-up of the 5-Axles or More Fleet

This section evaluates the make-up of the 5-axles or more fleet in terms of the 8 vehicle groups (as defined in Section 2.2). Table 3.5-1 summarizes both years, while Figures 3.5-1 and 3.5-2 provide a pictorial comparison. More detailed information is available in Appendix B.

NATIONWIDE - 1997

- # 86.9% of the 5-axles or more fleet was comprised of tractor-semitrailer combinations. More specifically, the 3-S2s accounted for 75% of the 5-axle fleet.
- # 5.7% of the 5-axles or more fleet were straight truck + trailer combinations.
- # 7.1% of the fleet were tractor + double trailer combinations (half of the doubles were STAA).
- # 0.3% of the fleet were tractor + triple trailer combinations.

REGIONAL VARIATIONS - 1997

- # The composition of the regional truck fleets in the North Central, North East, South Atlantic, and South Gulf parts of the U.S. is very similar. Over 90% of these regional fleets consist of tractor-semitrailer combinations. About 5 to 6% of these fleets contain truck+trailer combinations. Tractor + double trailers account for 5%, and triples are sparse.
- # The composition of West region fleet differs dramatically from the other regions. Tractor-semitrailer combinations only comprise 70% of the western fleet—note the U.S. average is 90%. There are more truck + trailer combinations (13%), tractor + double trailer combinations (17%), and tractor + triple trailer combinations (0.7%). Forty-Six percent of the total U.S. doubles fleet is located in the Western region.

STATE VARIATIONS - 1997

The maps in Appendix B illustrate the state distribution of each of the 8 vehicle groups.

- # California has the largest state population of truck+trailer combinations (18.8% of all truck+trailers) and the second largest tractor + double trailer (17% of all tractor + double trailer).
- # Illinois has the largest state population of tractor-semitrailer combinations (9.7% of all tractor-semitrailers), and the largest tractor-double trailer population (23.3% of all tractor + double trailer).
- # Oklahoma has the largest population of tractor-triples (47% of all triples).

(Care needs to be taken when using state data because of the small sample sizes used to generate state truck fleet totals.)

CHANGES BETWEEN 1992 AND 1997

- # Nationwide, the mix of the 5-axles or more fleet has remained relatively constant. There was a decrease in the proportion of truck + trailer combinations (from 7.2% to 5.7% of the national 5-axles or more fleet) and an increase in the proportion of tractor + double trailer combinations (from 5.3% to 7.1% of the 5-axles or more fleet). The 3-S2 population remained steady at 9 out of every 10 tractor-semitrailers. The proportion of tractor-semitrailers with tridems has increased from 6.6% in 1992 to 9.6% in 1997.
- # Regionally, the proportion of tractor-semitrailers in each regional fleet has remained relatively constant. The distribution of the various vehicle types has remained constant for the North Central fleet. The fleets in the other four regions have experienced a decline in the proportion of truck + trailer combinations (for the most part) coupled to a corresponding increase in the proportion of tractor + double trailer combinations (see Table 3.5-1).

3.6 Comments on the STAA Double Fleet

The 1982 Surface Transportation Assistance Act provided for the use of standard STAA (2-S1-2) tractor +double trailer (twin 28 foot trailers) combinations on the National Network. The take-up of these units has been relatively small. In 1997, they accounted for 4% of the 5-axles or more fleet—a slight increase from 3.4% of the fleet in 1992. California, Oregon and Illinois account for over 80 percent of all of the STAA doubles. This is an area where registration bias must be examined more closely.

3.7 Comments on Tridem Axle Fleet

In 1997, the tractor-semitrailers with tridem or more axle semitrailers accounted for 9.6% of the 5-axles or more fleet. They are more common than tractor-double trailer combinations. Every state has them.

Table 3.5-1

Truck Fleet (@ 5-axles or more)

Number of Vehicles in Each Vehicle Group, by Region

1997 Truck Fleet

Vehicle Group	Regions						% of Total
	North Central	North East	South Atlantic	South Gulf	West	Total	
Truck + Trailer @ 5-axle	11,555	5,894	6,693	6,768	26,920	57,830	4.4
Truck + Trailer @ 6-axle + 3-S2	5,088	2,189	1,386	1,970	6,556	17,189	1.3
Tridem Axle Semitrailer 4S1/S2	378,137	92,057	139,700	234,925	145,702	990,521	75.1
STAA	43,271	14,919	17,396	33,285	17,692	126,563	9.6
Doubles @ 6-axle or more	9,538	3,166	5,506	4,604	5,779	28,593	2.2
Triples	17,636	556	2,622	4,274	27,046	52,134	4.0
Total	477,134	120,179	176,998	296,737	247,696	1,318,744	100

Note: Excludes pick-ups, mini-vans, utility sports, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle trailer or I-axle utility trailer

Figure 3.5-1

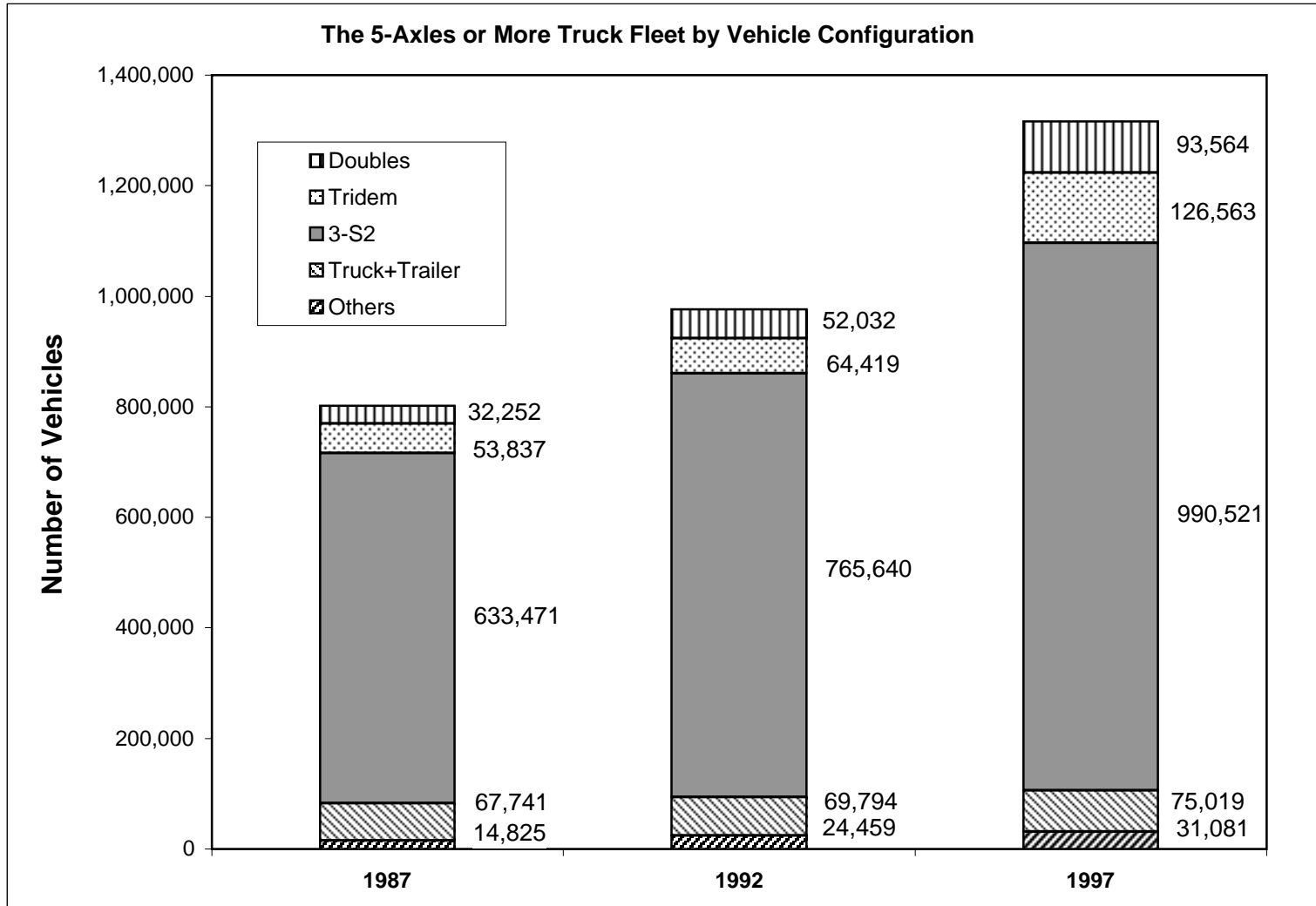
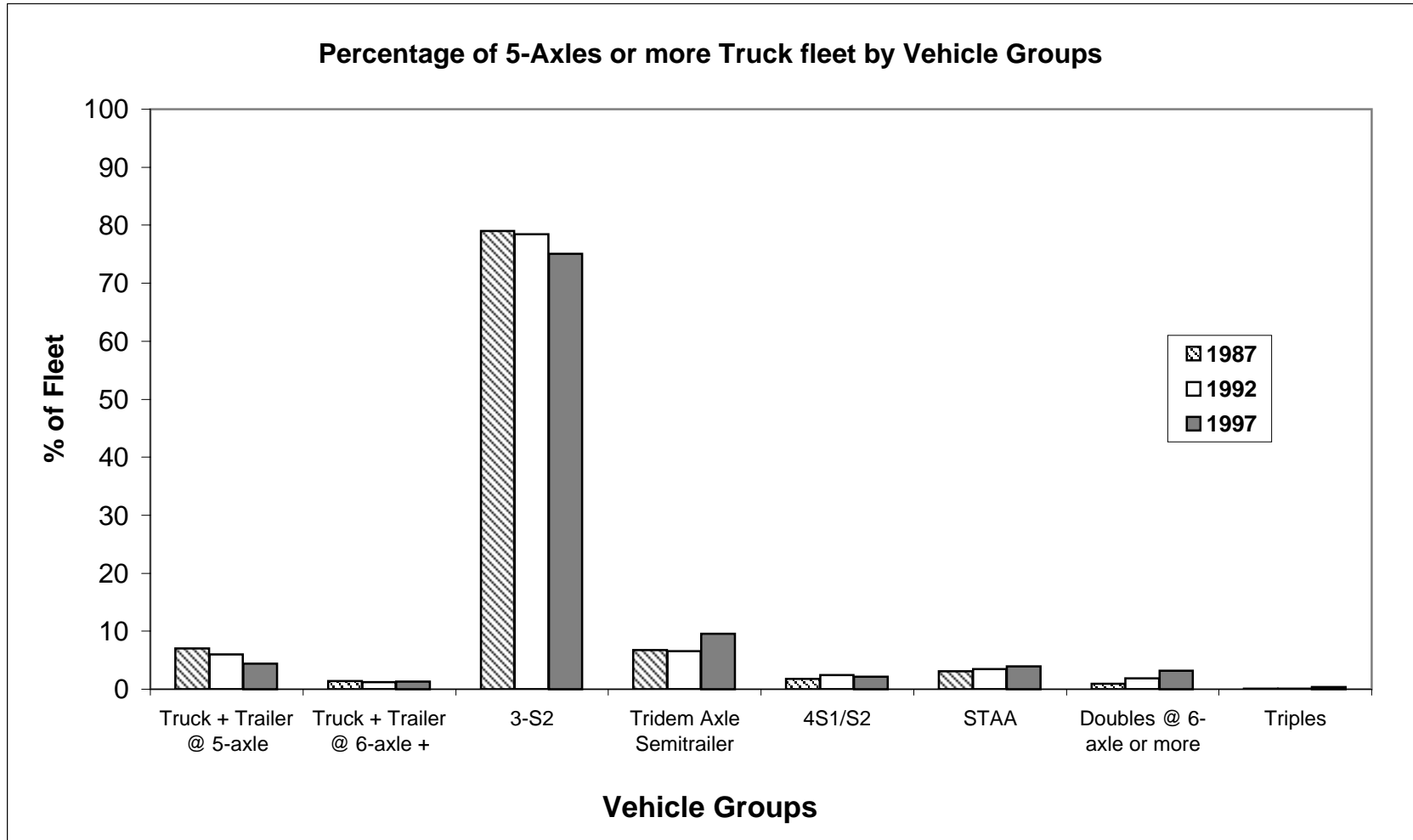


Figure 3.5-2



4.0 Analysis of the 5-Axles or More Fleet by Body Type

For each truck in the 5-axles or more fleet, there is a body type identified with this vehicle. This body type classification is an indicator of the body of the vehicle or the trailer MOST OFTEN attached to it. This analysis uses Question 9 on the 1992/1997 survey, as shown in Appendix I.

4.1 Analysis Structure

This analysis focused on the composition of the 5-axles or more fleet in terms of the number of vehicles in the different body type categories. The distribution of body types was evaluated across the regions and across vehicle groups.

26 body types

- multi-stop or step van (including hi-cube or cutaway)
- platform with devices permanently mounted on bed of truck - such as high lift, lift gate, hoist, etc.
- low boy (gooseneck)—platform with depressed center
- basic platform—including flatbed, stake, etc.
- livestock truck (including livestock drop frame)
- insulated, non-refrigerated van
- insulated, refrigerated van
- drop frame van (including furniture van, etc.)
- open top van (including fruit)
- basic enclosed van (dry cargo)
- beverage truck
- utility truck—used in public utility operations
- winch or crane truck—lifting equipment (including roll-on, roll-off)
- wrecker—for motor vehicle towing or lifting
- pole, logging, pulpwood or pipe truck
- automobile carrier
- service truck or craftsman's vehicle - body equipped for mobile repair
- yard tractor—cab and chassis only used to spot trailers
- oil field truck—service equipment permanently mounted on vehicle
- grain bodies (including low-side grain and hoppers, etc.)
- garbage, trash, or recycling truck
- dump truck (including belly or bottom dump)
- tank truck for liquids or gases
- tank truck for dry bulk
- concrete mixer
- other (respondent requested to specify)

8 vehicle groups (see Section 2.2)

5 traffic regions (see Section 2.3)

Appendix C gives the detailed results of the distribution of the 5-axles or more fleet, by body type, by vehicle group, by region. This chapter will focus on the major body type categories which were obtained by grouping the 26 body types into 11 major body types.

11 major body type groups (collapsed from the 26 body types) :

- **platform** (which consists of low boys and basic platform types)
- **van** (which includes multi-stop, basic enclosed, drop frame, insulated non-refrigerated, insulated refrigerated, and open top types)
- **auto carrier**
- **dump truck**
- **grain bodies**
- **garbage truck**
- **livestock truck**
- **pole, logging truck**
- **tank truck, dry bulk**
- **tank truck, liquids or gas**
- **other** (includes platforms with devices permanently mounted, beverage truck, utility truck, winch or crane truck, wrecker, service truck, yard tractor, oil field truck, concrete mixer, and other)

Appendix D gives the regional detailed results for the distribution of the 5-axles or more fleet by major body type group and by vehicle group.

4.2 Observations on Major Body Types in the 5-Axles or More Fleet

Table 4.2-1 summarizes the distribution of the fleet by the 11 major body type groups and by 5 regions. Table 4.2-2 describes the distribution of the fleet by the 11 major body type groups and by the 8 major vehicle groups.

The following observations on body type were made about the 1997 fleet. Selected comparisons with 1992 were made and noted in their section.

NATIONWIDE - 1997

Half of the trucks in the fleet were vans (50.7%).

Platforms accounted for the next largest portion of the population (20.5%)

- # 8.2% of the fleet were dump trucks.
- # 8.3% of the fleet were tanker trucks—with approximately 4 out of every 5 tankers being used for transporting liquids or gases and 1 out of every 5 being used for transporting dry bulk materials.
- # The remaining major body types accounted for a very small proportion of the truck fleet.

REGIONAL VARIATIONS - 1997

- # Industry-specific body types tend to concentrate in certain geographical regions:
 - Two-thirds (64%) of the grain bodies are concentrated in the North Central region. The remaining third is mostly located in the South Gulf region (18%) and West region (13%).
 - One-third (35%) of the pole and logging trucks are concentrated in the West region. One-half of these trucks are located in South Gulf region (25%) and South Atlantic region (24%).
 - Half of the livestock trucks are concentrated in the North Central region (47%). The remaining population tends to be in the West region (22%) and in the South Gulf region (19%).

CHANGES BETWEEN 1992 AND 1997

- # Nationwide for both years, vans and platforms together account for two-thirds of all body types. However, the proportion of vans in the fleet grew from 44.6% to 50.7%, while the proportion of platforms in the fleet decreased from 22.2% to 20.5%.
- # Regionally, a major shift away from platforms to vans and/or specialized body types occurred in all regions except the West region.
 - There has been a major decentralization of the auto carriers. In 1992, 75% of the auto carriers were concentrated in the North Central region, but in 1997 only 32% of the auto carriers were located in the North Central region (30% in the West, 18% in the South Atlantic, 16% in the South Gulf and 11% in the North East).
 - The percent of Dump trucks has decreased from 10% in 1992 to 8.2% in 1997.

Table 4.2-1

Truck Fleet (5-axles or more)

Number of Vehicles by Major Body Type, by Region

1997 Truck Fleet

Major Body Type	Regions					Total	% of Total
	North Central	North East	South Atlantic	South Gulf	West		
Platform	87,237	27,250	39,875	59,326	56,660	270,348	20.5
Van	252,911	58,194	89,924	160,087	107,721	668,837	50.7
Auto Transport	3,248	1,114	1,774	1,593	2,306	10,035	0.8
Dump Truck	38,548	13,014	11,265	16,266	29,397	108,490	8.2
Grain Bodies	35,656	940	2,818	8,401	7,919	55,734	4.2
Garbage Truck	2,075	1,062	1,023	372	681	5,212	0.4
Livestock Truck	6,033	114	1,104	2,230	2,563	12,044	0.9
Logging	3,160	1,969	8,491	9,003	12,134	34,757	2.6
Tank Truck, Dry Bulk	9,635	2,067	3,240	4,884	4,206	24,031	1.8
Tank Truck, Liquid or Gas	27,288	10,549	11,163	21,522	14,555	85,077	6.5
Other	11,343	3,906	6,320	13,054	9,555	44,178	3.4
Total	477,134	120,179	176,998	296,737	247,696	1,318,744	100.0

Table 4.2-2

Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type, by Vehicle Group

1997 Truck Fleet

Major Body Type	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem Axle Semitrailer	4S1/S2	STAA	Doubles @ 6-axle +	Triples	Total
Platform	16,146	2,878	197,495	34,141	6,021	7,181	6,252	234	270,348
Van	4,531	874	530,934	53,172	9,628	40,277	25,259	4,163	668,837
Auto Transport	234	0	9,072	333	377	0	18	0	10,035
Dump Truck	16,332	7,112	60,396	14,275	4,343	1,331	4,679	23	108,490
Grain Bodies	2,868	330	44,687	2,781	1,938	1,420	1,711	0	55,734
Garbage Truck	160	92	3,679	666	331	284	0	0	5,212
Livestock Truck	420	18	10,147	859	329	178	93	0	12,044
Logging	3,526	1,207	24,958	2,368	2,056	0	577	65	34,757
Tank Truck, Dry Bulk	502	18	20,357	971	279	1,179	726	0	24,031
Tank Truck, Liquid or Gas	4,146	1,788	69,945	4,961	2,420	0	1,816	0	85,077
Other	8,966	2,872	18,850	12,036	872	284	298	0	44,178
Total	57,830	17,189	990,521	126,563	28,593	52,134	41,429	4,484	1,318,744

Figure 4.2-1

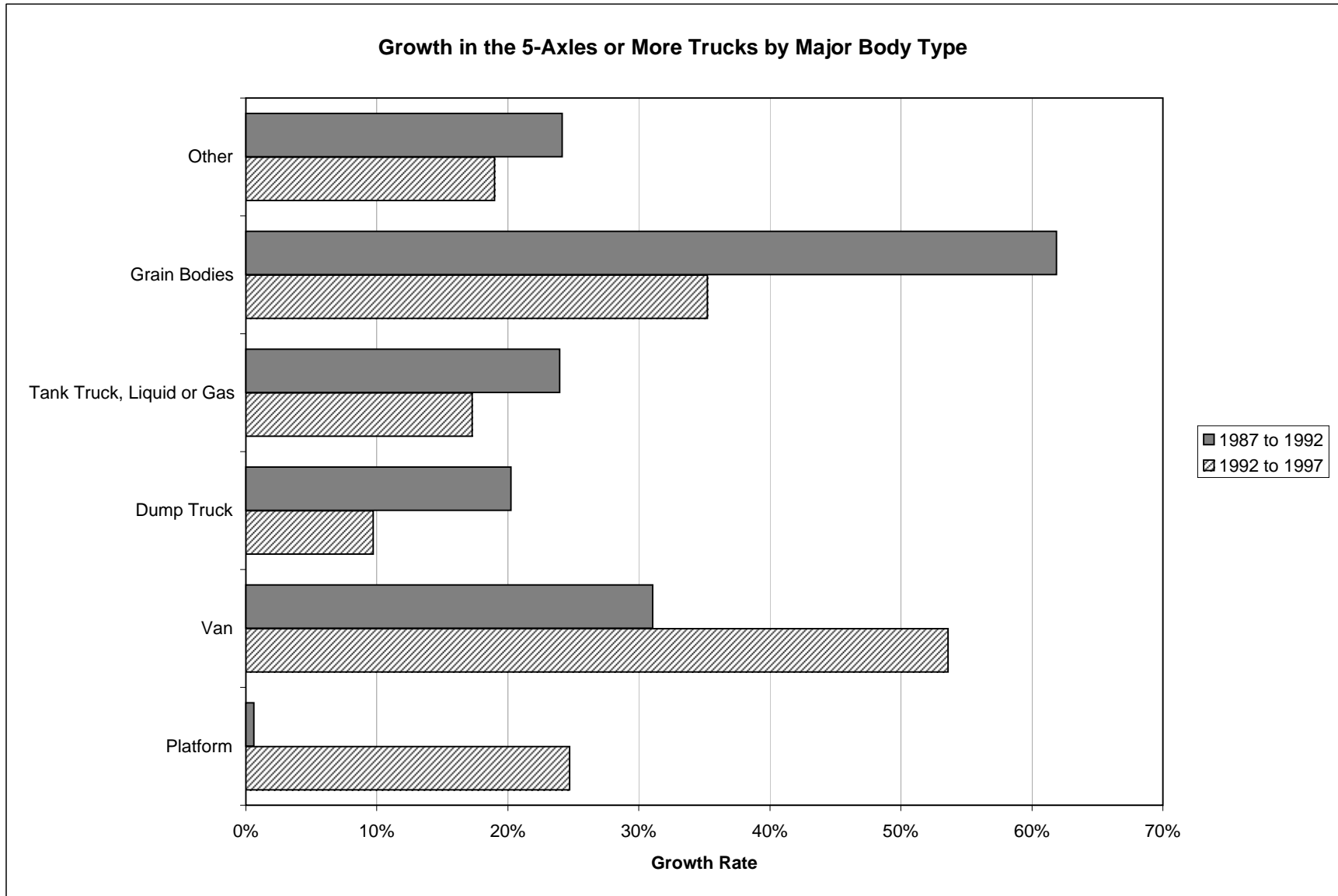


Figure 4.2-2

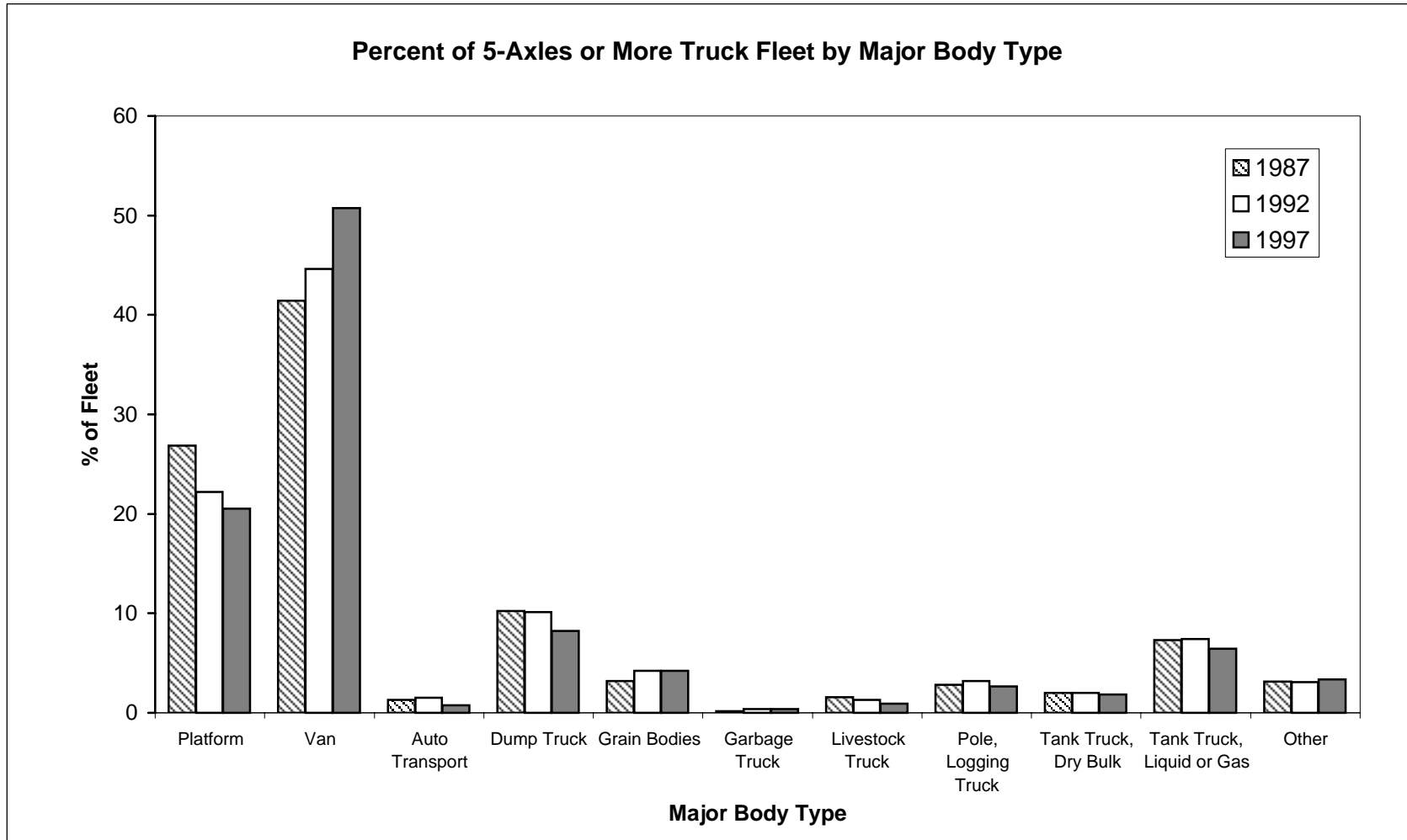
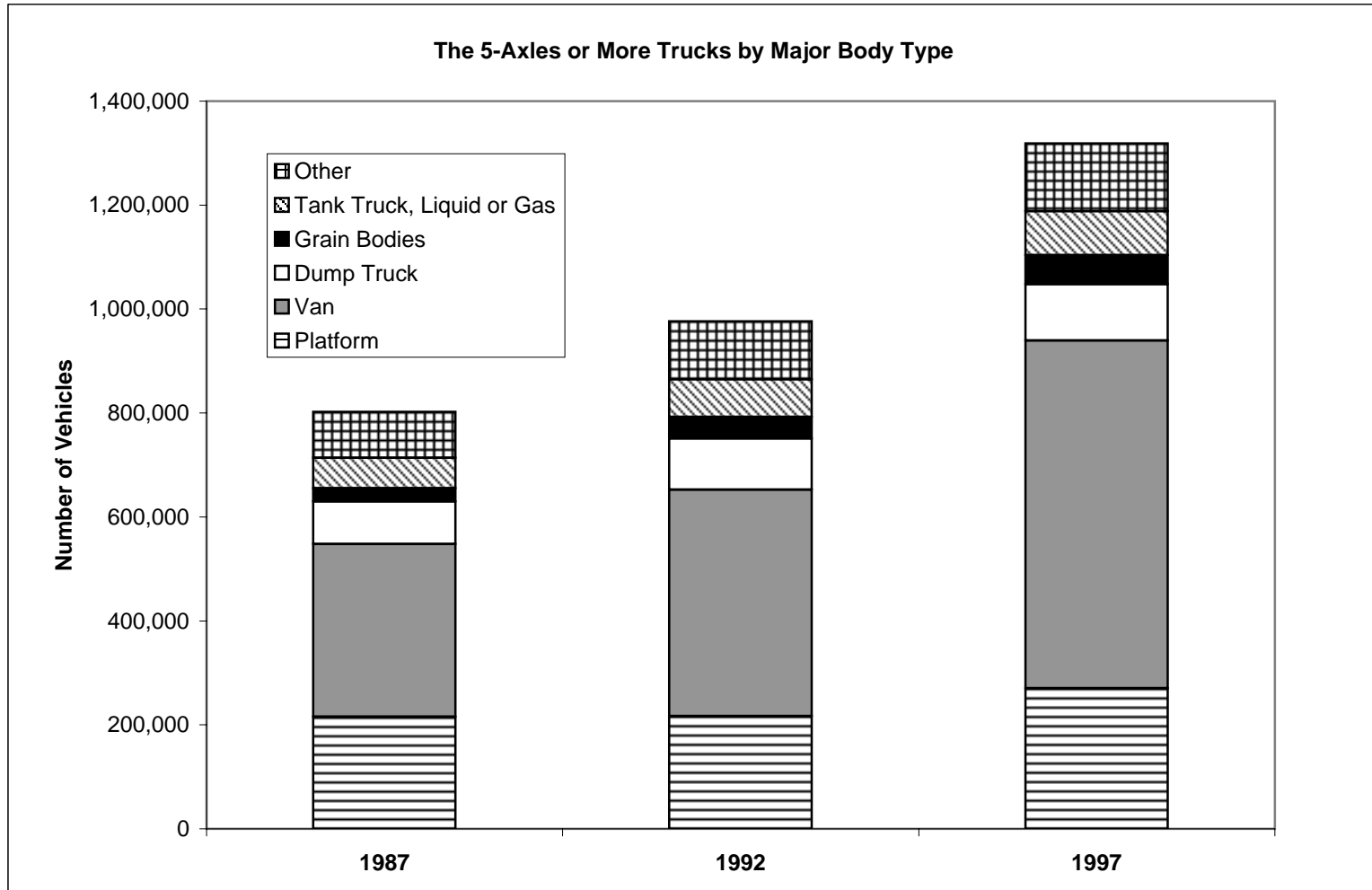


Figure 4.2-3



5.0 Analysis of the 5-Axles or More Truck Fleet by Principal Product Carried

On the survey, all trucks defined the percent of their annual mileage that they hauled each of the 29 listed commodities or no load (1997 VIUS Survey, Question 28). The percent of vehicles miles of travel (VMT) hauling the various 29 commodities and the percent of VMT hauling no load totaled to 100%. Based on the respondent's reply to this question, the Bureau of the Census created a new variable which would indicate the principal product hauled MOST OFTEN by a given truck. This chapter analyzes the "principal product" and ignores the other products the respondent selects. Chapter 6 analyzes the percent of VMT hauling a commodity and this data is used to make general conclusions about the commodities/products that are hauled most frequently.

5.1 Analysis Structure

This analysis focuses on the principal product hauled by various vehicles in the national fleet. Principal product was evaluated across the various vehicle groups and across the different traffic regions.

30 principal products (Derived variable created by the Bureau of the Census)

- **no load** — vehicle empty
- **live animals**
- **farm products** (fresh)
- **processed foods** and tobacco products
- **animal feed**
- **mining products**
- **building materials** (gravel, sand, concrete, flat glass, etc.—except cut lumber)
- **logs and other forest products**
- **lumber and fabricated wood products**—except furniture
- **paper and paper products**
- **chemicals** and/or drugs (including fertilizers, pesticides, cosmetics, paints, etc.)
- **petroleum and petroleum products** (including paving and roofing materials)
- **plastics** and/or **rubber** products
- **primary metal** products—pipes, ingots, billets, sheets, etc.
- **fabricated metal** products—except machinery or transportation equipment
- **machinery**—electrical or non-electrical and electronic
- **transportation equipment** (including complete vehicles) and parts
- **furniture** (wood and non-wood) and/or hardware—not involved in household moving
- **glass products**
- **textiles and apparels**—fibers, leather goods, carpets, clothing, etc.
- **miscellaneous products** of manufacturing

- **household** moving and office furniture
- **craftsman's equipment** - miscellaneous tools and/or parts for specialized use
- **mixed cargo** (including the delivery of small packages)
- **scrap** (not for recycling), garbage, trash, septic tank waste
- **industrial "waste" water**
- **hazardous waste (EPA manifest)**
- **hazardous waste (non-EPA manifest)**
- **recyclable products**
- **other**

8 vehicle groups (see Section 2.2)

5 traffic regions (see Section 2.3)

5.2 Observations on the Principal Products Carried by 5-Axles or More Trucks

Tables 5.2-1 and 5.2-2 give the distribution of the 5-axles or more truck fleet by principal product carried by vehicle group, and by region for 1997.

NATIONWIDE - 1997

Three-quarters of the 5-axles or more fleet vehicles reported hauling primarily only 12 products

- processed foods (14.35%)
- building materials (10.12%)
- mixed cargo (10.03%)
- farm products (9.32%)
- machinery (6.95%)
- paper and paper products (3.95%)
- primary metal (3.82%)
- logs (3.73%)
- transportation equipment (3.65%)
- miscellaneous (3.56%)
- lumber (3.51%)
- chemicals (3.37%)

For the 3-S2 vehicle group,

- 1 out of 6 (16.89%) primarily hauled processed foods.
- 1 out of 10 (9.64%) primarily hauled fresh farm products.
- 1 out of 11 (8.2%) primarily hauled building materials.

Table 5.2-1

1997 Truck Fleet (@ 5-axles or more)
Principal Product Hauled, by Vehicle Group

Commodity	Truck + Trailer @ 5- axle	Truck + Trailer @ 6-axle +	3-S2	Tridem Axle Semi-trailer	4S1/S2	STAA	Doubles @ 6-axle +	Triples	National Total
Farm products	5,605	734	95,482	6,864	4,710	5,825	3,699	11	122,930
Live animals	1,268	155	21,987	3,483	654	502	243	0	28,293
Animal feed	1,043	186	17,421	954	136	614	605	0	20,959
Processed foods	1,907	388	167,299	9,867	3,739	2,274	3,745	0	189,218
Mining	944	596	12,999	2,915	381	0	1,157	0	18,991
Building	17,174	7,579	81,186	15,257	5,014	3,161	4,016	45	133,433
Logs	4,126	1,645	35,224	4,894	2,386	0	907	65	49,247
Lumber	3,978	808	30,874	6,157	796	675	3,029	0	46,315
Paper	130	0	44,445	2,923	1,137	443	2,764	242	52,083
Chemicals	1,346	193	38,770	2,400	608	337	849	0	44,503
Petroleum	3,073	1,719	30,631	3,357	1,418	0	1,260	0	41,459
Plastics	563	133	18,630	2,665	371	232	570	44	23,208
Primary metal	669	421	43,608	3,642	811	168	1,077	0	50,396
Fabricated metal	727	97	22,850	3,140	459	620	691	49	28,633
Machinery	5,347	881	57,342	17,832	1,253	8,528	356	162	91,701
Transportation equipment	2,907	280	37,129	6,474	999	11	262	26	48,089
Furniture	119	284	15,072	1,106	290	0	434	0	17,304
Textile	472	0	29,359	1,220	332	258	370	168	32,181
Household goods	37	0	18,112	1,845	113	168	66	0	20,342
Craftsman's equipment	2,120	123	3,662	958	26	284	174	0	7,347
Mixed cargo	609	0	82,384	7,432	525	24,258	13,426	3,671	132,305
Refuse	752	252	8,757	1,517	642	0	176	0	12,096
Glass products	0	0	5,157	439	138	0	0	0	5,734
Miscellaneous	239	106	30,711	11,849	533	2,976	468	0	46,882
Industrial water	0	55	1,933	114	44	0	57	0	2,203
Hazardous waste (EPA)	0	0	3,743	724	175	0	0	0	4,642
Hazardous waste (non-EPA)	24	0	525	78	0	0	0	0	627
Recyclable products	566	401	10,235	1,070	123	416	207	0	13,019
Other*	2,016	132	23,620	5,285	778	383	802	0	33,016
No load carried	70	22	1,376	103	0	0	18	0	1,589
Total	57,830	17,189	990,521	126,563	28,593	52,134	41,429	4,484	1,318,744

*Other category contains 'other', 'personal transportation', and 'not in use'.

- # For all truck + trailer combinations which includes the truck+tractor @ 5-axles and the truck+tractor @ 6-axles or more vehicle groups,
 - 1 out of 3 (33%) primarily hauled building materials.
 - 1 out of 11 (8.45%) primarily hauled fresh farm products.
 - An additional one-quarter of the truck+trailer combinations primarily hauled either logs and forest products (7.69%), machinery (8.3%), transportation equipment (4.25%), or petroleum products (6.39%).
- # For the tridem axle semitrailer group, more than one-quarter primarily hauled either machinery (14.09%) or building products (12.05%).
- # For the STAA Doubles trucks, nearly one-half (46.53%) hauled mixed cargo. Other principal products hauled often by STAA doubles were machinery (16.36%), farm products (11.17%) and building materials (6.06%).
- # For the doubles at 6-axles or more, one-half of the group primarily hauled mixed cargo (32.41%), building materials (9.69%) and processed foods (9.04%).

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- # One-third of the fleet vehicles (34.9%) primarily hauled one of these three principal products: processed foods (13.8%), building materials (11.2%), or farm products (9.9%). Significant proportions of the regional fleets (North Central region—34.9%, North East region—35.9%, South Atlantic region—33.4%, South Gulf region—27.8%, West region—41.8%) also claim these as their top three products.

Table 5.2-3 Ranking of Principal Products by Regions in 1992

Commodity	National	North Central	North East	South Atlantic	South Gulf	West
Processed foods	1	1	1	1	1	2
Building Materials	2	4	2	4	4	1
Mixed cargo	3	3	3	2	2	4
Farm Products	4	2	5	3	5	3
Machinery	5	5	4	5	3	5
Paper	6	*	*	*	*	*
Primary metal	7	6	6	*	*	*

Note: * indicates 8th or lower ranking

Table 5.2-2

1997 Truck Fleet (@ 5-axles or more)
Principal Products Hauled, by Region

Commodity	Regions					National Total	% of Total
	North Central	North East	South Atlantic	South Gulf	West		
Farm Products	53,193	8,183	16,016	19,567	25,971	122,930	9.32
Live Animals	10,908	828	3,178	6,466	6,913	28,293	2.15
Animal Feed	7,313	1,253	3,129	4,691	4,573	20,959	1.59
Processed foods	79,872	16,614	23,236	35,074	34,422	189,218	14.35
Mining	5,835	1,362	2,734	6,584	2,477	18,991	1.44
Building Materials	43,207	15,397	15,791	21,509	37,528	133,433	10.12
Logs	6,676	4,024	12,244	13,393	12,909	49,247	3.73
Lumber	9,891	3,513	7,579	13,342	11,991	46,315	3.51
Paper	18,520	5,472	6,664	15,610	5,817	52,083	3.95
Chemicals	19,511	3,445	4,649	12,193	4,705	44,503	3.37
Petroleum	11,148	5,480	6,234	9,765	8,831	41,459	3.14
Plastics	9,023	2,784	2,366	6,471	2,565	23,208	1.76
Primary metal	24,796	5,529	2,707	11,960	5,404	50,396	3.82
Fabricated metal	12,795	3,065	3,283	6,323	3,167	28,633	2.17
Machinery	30,603	9,608	14,105	21,777	15,609	91,701	6.95
Transportation equipment	21,521	4,294	6,709	8,908	6,657	48,089	3.65
Furniture	5,482	640	4,406	4,505	2,271	17,304	1.31
Textile	12,515	1,832	7,571	9,287	977	32,181	2.44
Household goods	9,588	1,909	2,670	3,274	2,901	20,342	1.54
Craftsman's equipment	2,609	693	1,019	1,112	1,913	7,347	0.56
Mixed cargo	44,367	12,367	16,852	33,876	24,843	132,305	10.03
Refuse	4,447	2,577	2,182	862	2,029	12,096	0.92
Glass products	2,651	612	928	739	803	5,734	0.43
Miscellaneous	15,614	2,966	4,201	17,291	6,810	46,882	3.56
Industrial water	542	118	559	405	579	2,203	0.17
Hazardous waste (EPA)	1,835	920	77	366	1,443	4,642	0.35
Hazardous waste (non-EPA)	146	174	64	182	62	627	0.05
Recyclable products	3,852	2,175	2,536	2,042	2,414	13,019	1.00
Other*	8,518	2,031	3,202	8,416	10,849	33,016	2.50
No load carried	155	316	108	747	263	1,589	0.12
Total	477,134	120,179	176,998	296,737	247,696	1,318,744	100.00

*Other category contains 'other', 'personal transportation', and 'not in use'.

6.0 Analysis of the 5-Axles or More Truck Fleet by Percent of VMT Hauling a Commodity

On the survey, all trucks defined the percent of their annual mileage that they hauled each of the 29 listed commodities or no load (VIUS Survey, Question 28 for 1992 and 1997). The percent of vehicle miles of travel (VMT) hauling the various 29 commodities and the percent of VMT hauling no load totaled to 100%.

6.1 Analysis Structure

This analysis estimates the percent of VMT that a particular commodity is hauled. Commodities are evaluated across the different vehicle groups and the different regions.

30 commodities

- **no load** — vehicle empty
- **live animals**
- **fresh farm products**
- **processed foods** and tobacco products
- **animal feed**
- **mining products**
- **building materials** (gravel, sand, concrete, flat glass, etc.—except cut lumber)
- **logs and other forest products**
- **lumber and fabricated wood products**—except furniture
- **paper and paper products**
- **chemicals** and/or drugs (including fertilizers, pesticides, cosmetics, paints, etc.)
- **petroleum and petroleum products** (including paving and roofing materials)
- **plastics** and/or **rubber** products
- **primary metal** products—pipes, ingots, billets, sheets, etc.
- **fabricated metal** products—except machinery or transportation equipment
- **machinery**—electrical or non-electrical and electronic
- **transportation equipment** (including complete vehicles) and parts
- **furniture** (wood and non-wood) and/or hardware—not involved in household moving
- **glass products**
- **textiles and apparels**—fibers, leather goods, carpets, clothing, etc.
- **miscellaneous products** of manufacturing
- moving of **household** and office furniture
- **craftsman's equipment** - miscellaneous tools and/or parts for specialized use
- **mixed cargo** (including the delivery of small packages)
- **scrap** (not for recycling), garbage, trash, septic tank waste
- **industrial "waste" water**

- **hazardous waste (EPA manifest)**
- **hazardous waste (non-EPA manifest)**
- **recyclable products**
- **other**

8 vehicle groups (see Section 2.2)

5 traffic regions (see Section 2.3).

6.2 Observations on the Percent of VMT Hauling a Commodity

NATIONWIDE - 1997 (Table 6.2-1)

Two-thirds of the 5-axles or more truck fleet's VMT was used to haul 12 commodities.

- processed foods (14.8%)
- mixed cargo (11.57%)
- building materials (5.89%)
- farm products (5.84%)
- paper (4.84)
- miscellaneous (4.18%)
- machinery (4.11%)
- transportation equipment (3.92%)
- primary metals (3.9%)
- chemicals (3.47%)
- textile (3.07%)
- lumber and fabricated wood (3.06%)

Vehicles carried no loads for about 8.77% of their VMT.

VEHICLE GROUPS - 1997 (Table 6.2-2)

Half of the truck + trailer @ 5-axles group's VMT was used to haul 5 commodities: building materials (20.94% of VMT), logs or forest products (8.58%), petroleum (10.98%), farm products (6.02%), and lumber (6.36%). No loads were carried for about one-sixth of their VMT (14.09%).

Half of the truck + trailer @ 6-axles group's VMT was used to haul 3 commodities: building materials (27.69% of VMT), petroleum (12.66%) and logging (10.72%). No loads were carried for about one-eighth of their VMT (17.98%).

Table 6.2-1

1997 Truck Fleet (@ 5-axles or more)

Distribution of Percent of VMT Hauling a Commodity, by Vehicle Group
Based on Total Fleet VMT

Commodity	Truck + Trailer @ 5-axle	Truck + Trailer @ 6- axle +	3-S2	Tridem Axle Semitrailer	4S1/S2	STAA	Doubles @ 6-axle or more	Triples	National Total
No Load	0.24	0.12	7.17	0.61	0.21	0.18	0.23	0.01	8.77
Live Animal	0.03	0.00	1.16	0.31	0.05	0.01	0.01	0.00	1.58
Farm Products	0.10	0.03	4.80	0.36	0.22	0.20	0.13	0.00	5.84
Processed Food	0.08	0.01	13.27	0.87	0.24	0.09	0.24	0.00	14.80
Animal Feed	0.02	0.00	1.36	0.05	0.02	0.04	0.03	0.00	1.53
Mining	0.04	0.03	0.72	0.18	0.02	0.00	0.08	0.00	1.07
Building	0.36	0.18	3.97	0.62	0.23	0.24	0.27	0.02	5.89
Logging	0.15	0.07	1.85	0.26	0.10	0.02	0.06	0.00	2.51
Lumber	0.11	0.02	2.39	0.32	0.05	0.03	0.14	0.00	3.06
Paper	0.01	0.00	3.93	0.30	0.07	0.17	0.29	0.08	4.85
Chemicals	0.03	0.01	2.95	0.18	0.04	0.14	0.11	0.00	3.47
Petroleum	0.19	0.08	2.19	0.22	0.08	0.04	0.13	0.00	2.94
Plastic	0.02	0.00	1.96	0.17	0.05	0.13	0.20	0.06	2.59
Primary Metal	0.02	0.01	3.30	0.30	0.08	0.08	0.11	0.00	3.90
Fabricated Metal	0.04	0.00	1.90	0.20	0.04	0.12	0.08	0.00	2.39
Machinery	0.08	0.02	3.05	0.65	0.04	0.23	0.04	0.00	4.11
Transport Equipment	0.07	0.01	3.03	0.43	0.07	0.07	0.19	0.07	3.92
Furniture	0.00	0.02	1.63	0.10	0.03	0.04	0.09	0.02	1.94
Glass	0.00	0.00	0.82	0.06	0.02	0.03	0.02	0.00	0.95
Textile	0.01	0.00	2.79	0.11	0.05	0.08	0.03	0.00	3.07
Miscellaneous	0.01	0.00	3.28	0.58	0.03	0.20	0.08	0.00	4.18
Household Goods	0.00	0.00	1.20	0.15	0.00	0.02	0.00	0.00	1.39
Craftsman's Tools	0.02	0.00	0.22	0.05	0.00	0.03	0.01	0.00	0.34
Mixed Cargo	0.04	0.00	6.62	0.71	0.03	2.61	1.37	0.20	11.57
Refuse	0.02	0.01	0.41	0.07	0.04	0.01	0.01	0.00	0.55
Industrail Water	0.00	0.00	0.13	0.00	0.00	0.01	0.00	0.00	0.15
Hazardous EPA	0.00	0.00	0.31	0.02	0.01	0.01	0.00	0.00	0.35
Hazardous Non-EPA	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.09
Recyclables	0.02	0.01	0.68	0.07	0.01	0.04	0.02	0.00	0.84
Other	0.01	0.00	1.17	0.16	0.02	0.02	0.00	0.00	1.38
Total	1.72	0.65	78.35	8.13	1.85	4.86	3.96	0.47	100.00

- # For the 3-S2 group,
 - One-fifth of the VMT was used to haul either processed foods (16.94% of VMT) or farm products (6.13%).
 - No loads were carried for less than one-tenth of their VMT (9.15%).
- # Half of the tridem axle semitrailer group's VMT was used to haul 6 commodities: processed foods (10.66%), mixed cargo (8.73), machinery (7.95%), building (7.65%) and miscellaneous (7.15%). No loads were carried for about one-eighth of their VMT (7.55%).
- # Over half of the STAA doubles group's VMT was used to haul mixed cargos (53.67% of VMT).
- # Close to half of the triple trailers group's VMT was used to haul mixed cargos (41%).
- # For all commodities, the 3-S2 vehicle group accounted for the large proportion of the VMT hauling a particular product.

REGIONAL VARIATIONS - 1997

- # 38% of the 5-axles or more fleet's VMT is driven by vehicles registered in the North Central region. For all but 5 commodities, the North Central trucks accounted for a large proportion of the VMT hauling a particular product.

COMPARISON OF COMMODITY DATA AND PRINCIPAL PRODUCT

- # A comparison of Tables 5.2-3, 6.2-4 and 6.2-5 shows a difference in the ranking of commodities. Table 6.2-5 is a ranking based on the VMT that each of the commodities accounted for in 1997. Table 5.2-3 is a ranking based on the number of trucks that haul a given principal product.

Table 6.2-5 Ranking of the Major Commodities (based on VMT) by Regions in 1997

Commodity	National	North Central	North East	South Atlantic	South Gulf	West
Processed foods	1	1	1	1	1	1
Mixed cargo	2	2	2	2	2	2
Building Materials	3	4	3	4	5	3
Farm Products	4	3	4	3	6	4
Paper	5	5	6	*	3	6
Machinery	6	*	7	*	4	*
Transportation Equipment	7	7	*	*	*	*

Note * indicates 8th or lower ranking

Table 6.2-3

**1997 Truck Fleet (@ 5-axles or more)
Distribution of a percent of VMT Across Vehicle Groups
Hauling a Given Commodity**

Commodity	Truck +	Truck +	Tridem Axle				Doubles	Triples	National Total
	Trailer @ 5-axle	Trailer @ 6-axle +	3-S2	Semitrailer	4S1/S2	STAA	@ 6-axle or more		
No Load	2.77	1.33	81.72	7.00	2.40	2.06	2.64	0.08	100.00
Live Animal	2.17	0.03	73.72	19.49	3.08	0.76	0.74	0.00	100.00
Farm Products	1.78	0.56	82.23	6.10	3.73	3.44	2.14	0.02	100.00
Processed Food	0.56	0.08	89.71	5.86	1.60	0.60	1.59	0.00	100.00
Animal Feed	1.61	0.28	89.21	3.43	1.00	2.55	1.92	0.00	100.00
Mining	3.33	2.69	67.46	16.61	2.33	0.03	7.55	0.00	100.00
Building	6.13	3.05	67.46	10.57	3.88	4.00	4.54	0.37	100.00
Logging	5.89	2.77	73.75	10.46	4.10	0.67	2.28	0.07	100.00
Lumber	3.58	0.57	78.09	10.56	1.65	0.84	4.71	0.00	100.00
Paper	0.15	0.02	81.05	6.15	1.47	3.49	6.00	1.69	100.00
Chemicals	0.82	0.43	85.22	5.27	1.16	4.06	3.03	0.01	100.00
Petroleum	6.45	2.80	74.69	7.65	2.75	1.40	4.27	0.00	100.00
Plastic	0.72	0.13	75.49	6.60	1.78	4.94	7.88	2.46	100.00
Primary Metal	0.42	0.21	84.73	7.69	1.94	2.06	2.94	0.03	100.00
Fabricated Metal	1.61	0.05	79.74	8.37	1.78	5.06	3.38	0.00	100.00
Machinery	1.98	0.41	74.27	15.73	1.05	5.56	0.91	0.09	100.00
Transport Equipment	1.67	0.28	77.27	11.00	1.66	1.68	4.78	1.66	100.00
Furniture	0.17	1.11	83.71	5.24	1.51	2.21	4.81	1.24	100.00
Glass	0.23	0.16	86.39	6.62	1.83	2.63	2.04	0.11	100.00
Textile	0.21	0.09	91.11	3.44	1.47	2.45	1.14	0.08	100.00
Miscellaneous	0.25	0.06	78.36	13.90	0.71	4.89	1.83	0.00	100.00
Household Goods	0.24	0.08	86.72	10.88	0.33	1.39	0.35	0.00	100.00
Craftsman's Tools	7.31	0.21	65.35	14.82	0.72	9.31	2.27	0.00	100.00
Mixed Cargo	0.32	0.00	57.23	6.13	0.27	22.54	11.80	1.71	100.00
Refuse	3.49	1.61	73.42	12.20	6.53	1.47	1.28	0.00	100.00
Industrail Water	0.00	0.84	87.28	2.10	2.30	4.96	2.52	0.00	100.00
Hazardous EPA	0.01	0.04	87.61	6.32	3.60	2.19	0.22	0.00	100.00
Hazardous Non-EPA	2.38	0.00	77.36	16.31	2.70	0.00	1.25	0.00	100.00
Recyclables	2.01	0.91	80.79	7.97	1.52	4.87	1.94	0.00	100.00
Other	0.71	0.04	84.70	11.46	1.67	1.12	0.30	0.00	100.00
Total	1.72	0.65	78.35	8.13	1.85	4.86	3.96	0.47	100.00

Table 6.2-4

1997 Truck Fleet (@ 5-axles or more)
 Distribution of Percent of VMT Hauling a Commodity, by Region
 Based on a Total Fleet VMT

Commodity	North Central	North East	South Atlantic	South Gulf	West	National Total
No Load	3.36	0.74	1.18	2.06	1.44	8.77
Live Animal	0.53	0.06	0.18	0.38	0.43	1.58
Farm Products	2.17	0.44	0.89	1.21	1.13	5.84
Processed Food	6.02	1.10	1.99	3.06	2.63	14.80
Animal Feed	0.63	0.09	0.22	0.37	0.21	1.53
Mining	0.37	0.10	0.15	0.28	0.16	1.07
Building	1.92	0.56	0.71	1.30	1.40	5.89
Logging	0.29	0.18	0.63	0.78	0.63	2.51
Lumber	0.76	0.21	0.47	0.89	0.74	3.06
Paper	1.90	0.37	0.49	1.49	0.59	4.85
Chemicals	1.29	0.31	0.40	1.08	0.38	3.47
Petroleum	0.86	0.27	0.50	0.73	0.58	2.94
Plastic	0.89	0.19	0.29	0.95	0.27	2.59
Primary Metal	1.89	0.39	0.26	0.94	0.42	3.90
Fabricated Metal	0.95	0.19	0.25	0.69	0.31	2.39
Machinery	1.43	0.31	0.49	1.37	0.51	4.11
Transport Equipment	1.84	0.16	0.38	1.06	0.49	3.92
Furniture	0.72	0.06	0.38	0.59	0.20	1.94
Glass	0.40	0.08	0.11	0.28	0.09	0.95
Textile	1.19	0.16	0.67	0.88	0.17	3.07
Miscellaneous	2.13	0.18	0.39	1.02	0.45	4.18
Household Goods	0.68	0.13	0.19	0.22	0.17	1.39
Craftsman's Tools	0.12	0.03	0.06	0.06	0.08	0.34
Mixed Cargo	4.43	0.90	1.45	2.92	1.88	11.57
Refuse	0.19	0.12	0.10	0.04	0.10	0.55
Industrial Water	0.02	0.01	0.06	0.03	0.03	0.15
Hazardous EPA	0.16	0.06	0.01	0.03	0.09	0.35
Hazardous Non-EPA	0.04	0.01	0.01	0.02	0.01	0.09
Recyclables	0.30	0.10	0.13	0.16	0.15	0.84
Other	0.55	0.06	0.12	0.53	0.12	1.38
Total	38.03	7.58	13.13	25.42	15.84	100.00

7.0 Analysis of Weights, Dimensions, and Operating Characteristics for the 5-Axles or More Fleet

7.1 Analysis Structure

More than 93% of the 1997 5-axles or more fleet is accounted for by the combination of the 4 specific truck configurations and the 13 specific body types listed below:

FOUR SPECIFIC CONFIGURATIONS

- # the 3 + 2 truck + trailer (4.39%)
- # the 3-S2 tractor-semitrailer (75.11%)
- # the 3-S3 tractor-semitrailer (9.60%)
- # the 2-S1-2 STAA tractor + double trailer combination (3.95%).

THIRTEEN SPECIFIC BODY TYPES

- # low boy
- # basic platform
- # livestock truck
- # insulated non-refrigerated van
- # insulated refrigerated van
- # drop frame van
- # basic enclosed van
- # pole and logging truck
- # automobile transporter
- # grain body
- # dump truck
- # tank truck for liquids or gases
- # tank truck for dry bulk.

Various combinations of configuration and body type (e.g., the 3-S2 refrigerated van) were chosen for analysis based on their occurrence in the truck fleet. The most prevalent configuration/body types in the truck fleet were analyzed in terms of their national operational characteristics for both 1997 and 1992. Eight vehicle characteristics were of interest:

- # empty (tare) weight
- # average gross weight
- # maximum gross weight
- # external width of trailer
- # overall length
- # annual vehicle miles of travel (VMT)
- # base of operation
- # range of operation—% of VMT operating in different lengths of haul

Based on our knowledge of the general operational characteristics of the truck fleet, some data were excluded in the various analyses based on the following criteria:

- # if the empty weight, average weight, or maximum weight was reported as less than or equal to 20,000 lbs
- # if the empty weight was reported as more than 50,000 lbs
- # if the average weight or maximum weight was reported as greater than 140,000 lbs
- # where no value of a given attribute was reported
- # if the empty weight exceeded the average weight or maximum weight.

Appendix E gives the detailed results for each year. Each page in the appendix represents one cell in the matrix of 4 configuration types versus 13 body types. The population size of each configuration/body type and the sample size, which indicates the number of survey records analyzed, are shown at the top of the page. In addition, on the plots of empty weight, average weight and maximum weight, the following statistics are given—sample size, population size, population mean and population standard deviation. The annual VMT includes the population size, population mean, and population standard deviation.

In Appendix E, all the graphs, except for the range of operation graph, were plotted in reference to the percent of trucks in that particular configuration/body type. In other words, the Y-axis represents percent of trucks or the cumulative percent of trucks. Range of operation differs because the Y-axis is in terms of percent of total VMT for that configuration/body type.

In addition to the previously mentioned 8 characteristics that were analyzed, further analysis was conducted on the distribution of average and maximum payload weights for each configuration/body type. The results are presented in Appendix F. Payload weights were not addressed on the survey. For this analysis, they were derived by subtracting the reported empty (tare) weight from the reported average or maximum gross weights. The weight exclusions mentioned before also applied to the payload analysis; however, one more exclusion was added which did not allow the empty weight to be greater than the average/maximum weight.

Note: all weights and payloads are described in Kips (thousands of pounds) in both Appendices E and F.

7.2 Observations on Specific Truck Configurations and Body Types

In order to verbally summarize each of the 1997 configuration/body types shown in Appendix E, the following rating scales were used in the review that follows in Section 7.3. The scales defined below were used to make generalizations about the operational characteristics of the various configuration/body type groups and to provide a means of comparison between configuration/body types.

- # Key words and their percentage indication
 - most (mostly) means more than 80%
 - many (mainly) means 61 to 80%
 - half means 41 to 60%
 - some means 20 to 40%
 - few (infrequently) means less than 20%

- # Sample size
 - very small— less than 100
 - small—100 to 250
 - good—251 to 500
 - large—501 to 1000
 - very large—greater than 1000

- # Weigh-out means operation at a gross weight of 80,000 lbs. or more as shown on the cumulative percentage chart for average weight.

- # Base of Operation - uses the percentage definitions above and applies them to the percent of the vehicles that have the following travel characteristics:
 - mostly intra-state travel; means less than or equal to 20% of annual VMT out-of-state
 - mainly out-of-state travel; means 61%- 80% of annual VMT out of state
 - mostly out-of-state travel; means 81% or more of annual VMT out of state.

- # Range of Operation - Percent of VMT used in different lengths of haul
 - short haul lengths mean less than 100 miles
 - very long haul lengths mean greater than 500 miles

- # Width of Trailer
 - narrow means 96 inches
 - wide means 102 inches

- # Overall Length of Vehicle
 - short means less than 65 feet (bumper to tailgate)

- long means more than 65 feet (bumper to tailgate)

Annual VMT

- low—1 to 40,000 miles
- medium—40,001 to 80,000 miles
- high—80,001 to 120,000 miles
- very high—greater than 120,000 miles

7.3 Review of Selected Truck Configurations/Body Types

The following section provides a summary of the operational demands and typical equipment use for selected truck configuration/body type combinations as described in Section 7.1 in the 1997 5-axles or more fleet. As highlighted above, the summary for each combination is organized as follows:

- Sample size
- Weigh-Out
- Never Weigh-Out
- Base of Operation: intra-state or inter-state
- Range of operation: defined by VMT use in specific haul lengths
- Trailer width
- Overall vehicle length
- Annual VMT

7.3.1 Review of 3 + 2 Truck + Trailer Combinations - 1997

(3 + 2) Low Boy Platform [pop = 3,298 or 0.2% of the 5-axles or more fleet]

- very small (<100) sample
- few (<20%) weigh-out on average
- most (> 80%) never weigh-out
- most (> 80%) operate mostly (> 80%) intra-state
- some (20-40%) VMT is used for short haul lengths (< 100 miles), very little VMT is used in long haul lengths (> 500 miles)
- many (60-80%) are narrow (96 inches)
- most (80-100%) are short (< 65 feet)
- Annual VMT—most (80-100%) have a low annual VMT (<40,000 miles)

(3 + 2) Basic Platform [pop = 7,134 or 0.54% of the 5-axles or more fleet]

- small (100-250) sample
- some (20-40%) weigh-out on average
- many (60-80%) never weigh-out
- most (80-100%) operate mostly (80-100%) inter-state
- half (40-60%) of VMT is used for short haul lengths (< 100 miles), little VMT (<20%) for very long haul lengths (> 500 miles)
- most (80-100%) are narrow (96 inches)
- most (80-100%) are short (< 65 feet)
- Annual VMT—many (60-80%) have a small annual VMT (<40,000 miles)

- # (3 + 2) Basic Enclosed Van [pop = 1,721 or 0.13% of the 5-axles or more fleet]
- very small (<100) sample
 - few (<20%) weigh-out on average
 - many (60-80%) never weigh-out
 - half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), some (20-40%) VMT is used for very long haul lengths (> 500 miles)
 - over half (40-60%) are narrow (96 inches)
 - many (60-80%) are short (< 65 feet)
 - Annual VMT—half (40-60%) have a medium annual VMT (40,000-80,000 miles)
- # (3 + 2) Pole and Logging Truck [pop = 3,475 or 0.26% of the 5-axles or more fleet]
- very small (<100) sample
 - most (<80%) weigh-out on average
 - few (<20%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - most (80-100%) VMT is used for short haul lengths (< 100 miles)
 - many (60-80%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—many (60-80%) have a medium annual VMT (40,000-80,000 miles)
- # (3 + 2) Grain Bodies [pop = 2,813 or 0.21% of the 5-axles or more fleet]
- very small (<100) sample
 - half (41-60%) weigh-out on average
 - half (40-60%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - VMT is used mainly (60-80%) for short haul lengths (< 100 miles)
 - most (80-100%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—most (80-100%) have a small annual VMT (<40,000 miles)
- # (3 + 2) Dump Truck [pop = 13,553 or 1.03% of the 5-axles or more fleet]
- good (250-500) sample
 - some (20-40%) weigh-out on average
 - many (61-80%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - most (80-100%) VMT is used for short haul lengths (< 100 miles)
 - most (80-100%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—many (60-80%) have a small annual VMT (<40,000 miles)
- # (3 + 2) Tank Trucks for Liquids or Gases [pop = 3956 or 0.3% of the 5-axles or more fleet]
- very small (<100) sample
 - many (60-80%) weigh-out on average
 - few (<20%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles)
 - most (80-100%) are narrow (96 inches)
 - many (60-80%) are short (< 65 feet)
 - Annual VMT—mixed.

7.3.2 Review of 3-S2 Tractor-Semitrailer Combinations - 1997

- # (3-S2) Low Boy Platform [pop = 4,598 or 3.38% of the 5-axles or more fleet]
 - large (500-1,000) sample
 - some (20-40%) weigh-out on average
 - many (60-80%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles), some (20-40%) VMT is used for very long haul lengths (> 500 miles)
 - most (80-100%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—many (60-80%) have a small annual VMT (<40,000 miles)

- # (3-S2) Basic Platform [pop = 150,926 or 11.5% of the 5-axles or more fleet]
 - very large (>1,000) sample
 - some (20-40%) weigh-out on average
 - many (60-80%) never weigh-out
 - some (20-40%) operate mainly (60-80%) intra-state, some (20-40%) operate mainly (60-80%) out-of state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), half (40-60%) of VMT is used for very long haul lengths (> 500 miles)
 - most (80-100%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—mixed

- # (3-S2) Livestock Truck [pop = 10,053 or .76% of the 5-axles or more fleet]
 - good (250-500) sample
 - half (41-60%) weigh-out on average
 - half (41-60%) never weigh-out
 - some (20-40%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of state
 - some (20-40%) VMT is used for short haul lengths (< 100 miles), some (20-40%) VMT is used for very long haul lengths (> 500 miles)
 - half (40-60%) are narrow (96 inches)
 - many (60-80%) are short (< 65 feet)
 - Annual VMT—mixed

- # (3-S2) Insulated Non-Refrigerated Van [pop = 21,170 or 1.61% of the 5-axles or more fleet]
 - good (250-500) sample
 - few (<20%) weigh-out on average
 - most (>80%) never weigh-out
 - few (<20%) operate mostly (80-100%) intra-state, half (40-60%) operate mostly (80-100%) out-of state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), half (40-60%) of VMT is used for very long haul lengths (> 500 miles)
 - most (>80%) are wide (102 inches)
 - many (60-80%) are long (> 65 feet)

- Annual VMT—mixed.
- # (3-S2) Insulated Refrigerated Van [pop = 124,948 or 9.7% of the 5-axes or more fleet]
- very large (>1,000) sample
 - half (40-60%) weigh-out on average
 - few (<20%) never weigh-out
 - few (<20%) operate mostly (80-100%) intra-state, half (40-60%) operate mostly (80-100%) out-of state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), VMT is used mainly (60-80%) for very long haul lengths (> 500 miles)
 - many (60-80%) are wide (102 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—mixed
- # (3-S2) Drop Frame Van [pop = 18,242 or 1.38% of the 5-axes or more fleet]
- good (51-500) sample
 - few (<20%) weigh-out on average
 - most (>80%) never weigh-out
 - few (<20%) operate mostly (80-100%) intra-state, half (40-60%) operate mostly (80-100%) out-of state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), VMT is used mainly (60-80%) for very long haul lengths (> 500 miles)
 - some (20-40%) are narrow (96 inches), many (60-80%) are wide (102 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—mixed
- # (3-S2) Basic Enclosed Van [pop = 351,183 or 26.6% of the 5-axes or more fleet]
- very large (>1,000) sample
 - few (<20%) weigh-out on average
 - most (>80%) never weigh-out
 - some (20-40%) operate mostly (80-100%) intra-state, some (20-40%) operate mostly (80-100%) out-of-state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), half (40-60%) of VMT is used for very long haul lengths (> 500 miles)
 - some (20-40%) are narrow (96 inches), many (60-80%) are wide (102 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—mixed
- # (3-S2) Pole and Logging Truck [pop = 24,708 or 1.87% of the 5-axes or more fleet]
- large (500-1,000) sample
 - most (<80%) weigh-out on average
 - few (<20%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state
 - most (80-100%) VMT is used for short haul lengths (< 100 miles)
 - most (80-100%) are narrow (96 inches)
 - many (60-80%) are short (< 65 feet)
 - Annual VMT—mixed
- # (3-S2) Automobile Transport [pop = 8,994 or .68% of the 5-axes or more fleet]
- small (100-250) sample

- many (60-80%) weigh-out on average
- few (<20%) never weigh-out
- few (<20%) operate mostly (80-100%) intra-state, many (60-80%) operate mainly (60-80%) out-of-state
- VMT is used infrequently (<20%) for short haul lengths (< 100 miles), some (20-40%) VMT is used for very long haul lengths (> 500 miles)
- most (<80%) are narrow (96 inches), few (<20%) are wide (102 inches)
- half (40-60%) are long (> 65 feet), half(40-60% are short (<65 feet)
- Annual VMT—half (40-60%) have a medium annual VMT (40,000-80,000 miles)

(3-S2) Grain Bodies [pop = 44,247 or 3.36% of the 5-axles or more fleet]

- very large (>1,000) sample
- many (60-80%) weigh-out on average
- few (<20%) never weigh-out
- many (60-80%) operate mostly (80-100%) intra-state, few (<20%) operate mainly (60-80%) out-of-state
- VMT is used infrequently (<20%) for short haul lengths (< 100 miles),Half (40-60%) of VMT is used for medium lengths (100-500 miles), VMT is used some (20-400%) for very long haul lengths (> 500 miles)
- many (60-80%) are wide (102 inches)
- most (80-100%) are short (< 65 feet)
- Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)

(3-S2) Dump Truck [pop = 69,324 or 5.26% of the 5-axles or more fleet]

- very large (>1,000) sample
- many (60-80%) weigh-out on average
- few (<20%) never weigh-out
- most (80-100%) operate mostly (80-100%) intra-state
- VMT is used mainly (60-80%) for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for very long haul lengths (> 500 miles)
- most (80-100%) are narrow (96 inches)
- most (80-100%) are short (< 65 feet)
- Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)

(3-S2) Tank Trucks for Liquids or Gases [pop = 20,190 or 1.53% of the 5-axles or more fleet]

- very large (>1,000) sample
- many (60-80%) weigh-out on average
- some (20-40%) never weigh-out
- many (60-80%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
- most (>80%) VMT is used for short haul lengths (< 100 miles)
- most (80-100%) are narrow (96 inches)
- most (80-100%) are short (< 65 feet)
- Annual VMT—mixed

(3-S2) Tank Trucks for Dry Bulk [pop = 13,725 or 1.04% of the 5-axles or more fleet]

- good (250-500) sample
- many (60-80%) weigh-out on average
- few (<20%) never weigh-out

- half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
- half (40-60%) of VMT is used for short haul lengths (< 100 miles), VMT is infrequently (<20%) used for very long haul lengths (> 500 miles)
- most (80-100%) are narrow (96 inches)
- few (<20%) are long (more than 65 feet)
- Annual VMT—mixed

7.3.3 Review of 3-S3 Tractor-Semitrailer Combinations - 1997

- # (3-S3) Low Boy Platform [pop = 11,239 or .85% of the 5-axles or more fleet]
 - good (250-500) sample
 - half (40-60%) weigh-out on average
 - half (40-60%) never weigh-out
 - many (60-80%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles)
 - half (40-60%) are narrow (96 inches)
 - half (40-60%) are short (< 65 feet), some (40-60%) are long (> 65 feet)
 - Annual VMT—many (60-80%) have a small annual VMT (< 40,000 miles)

- # (3-S3) Basic Platform [pop = 11,239 or 0.85% of the 5-axles or more fleet]
 - good (250-500) sample
 - some (20-40%) weigh-out on average
 - many (60-80%) never weigh-out
 - half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mainly (60-80%) out-of state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles)
 - many (60-80%) are narrow (96 inches), some (20-40%) are wide (102 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)

- # (3-S3) Insulated Refrigerated Van [pop = 3,656 or 0.28% of the 5-axles or more fleet]
 - very small (<100) sample
 - half (40-60%) weigh-out on average
 - half (40-60%) never weigh-out
 - some (20-40%) operate mostly (80-100%) intra-state, half (40-60%) operate mostly (80-100%) out-of state
 - most (80-100%) VMT is used for very long haul lengths (> 500 miles)
 - many (60-80%) are wide (102 inches)
 - half (40-60%) are short (< 65 feet), half (40-60%) are long (> 65 feet)
 - Annual VMT—half (40-60%) have a large annual VMT (80,000-120,000 miles)

- # (3-S3) Basic Enclosed Van [pop = 41,929 or 3.18% of the 5-axles or more fleet]
- large (500-1000) sample
 - half (40-60%) weigh-out on average
 - half (40-60%) never weigh-out
 - half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
 - some (20-40%) VMT is used for short haul lengths (< 100 miles), half (40-60%) of VMT is used for very long haul lengths (> 500 miles)
 - many (60-80%) are narrow (96 inches), some (20-40%) are wide (102 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—mixed
- # (3-S3) Pole and Logging Truck [pop = 1,799 or 0.14% of the 5-axles or more fleet]
- small (100-250) sample
 - most (>80%) weigh-out on average
 - few (<20%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
 - VMT is used mainly (60-80%) for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for long haul lengths (> 200 miles)
 - half (40-60%) are narrow (96 inches), half (40-60%) are wide (102 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—half (40-60%) have a medium annual VMT (40,000-80,000 miles)
- # (3-S3) Grain Bodies [pop = 2,379 or 0.18% of the 5-axles or more fleet]
- very small (<100) sample
 - none weigh-out on average
 - all never weigh-out
 - half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mainly (60-80%) out-of-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for long haul lengths (> 200 miles)
 - most (80-100%) are narrow (96 inches)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)
- # (3-S3) Dump Truck [pop = 12,143 or .92% of the 5-axles or more fleet]
- good (250-500) sample
 - many (60-80%) weigh-out on average
 - few (<20%) never weigh-out
 - many (60-80%) operate mostly (80-100%) intra-state, few (<20%) operate mainly (60-80%) out-of-state
 - VMT is used mainly (60-80%) for short haul lengths (< 100 miles)
 - most (80-100%) are narrow (96 inch)
 - most (80-100%) are short (< 65 feet)
 - Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)

- # (3-S3) Tank Trucks for Liquids or Gases [pop = 3,869 or 0.29% of the 5-axles or more fleet]
- small (100-250) sample
 - most (80-100%) weigh-out on average
 - few (<20%) never weigh-out
 - many (60-80%) operate mostly (80-100%) intra-state, few (<20%) operate mainly (60-80%) out-of-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for very long haul lengths (> 500 miles)
 - most (80-100%) are narrow (96 inch)
 - many (60-80%) are short (< 65 feet)
 - Annual VMT—half (40-60%) have a medium annual VMT (40,000-80,000 miles)

7.3.4 Review of 2-S1-2 Tractor + Double Trailer Combinations - 1997

- # (2-S1-2) Basic Platform [pop = 6,384 or 0.48% of the 5-axles or more fleet]
- very small (<100) sample
 - many (60-80%) weigh-out on average
 - few (<20%) never weigh-out
 - most (80-100%) operate mostly (80-100%) intra-state, few (<20%) operate out-of state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for very long haul lengths (> 500 miles)
 - most (80-100%) are narrow (96 inches)
 - most (>80%) are long (> 65 feet)
 - Annual VMT—half (40-60%) have a small annual VMT (< 40,000 miles)
- # (2-S1-2) Drop Frame Van [pop = 4,051 or 0.31% of the 5-axles or more fleet]
- very small (<100) sample
 - none weigh-out on average
 - all never weigh-out
 - half (40-60%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of state
 - VMT is used infrequently (<20%) for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for very long haul lengths (> 500 miles)
 - few (<20%) are narrow (96 inches), most (80-100%) are wide (102 inches)
 - most (80-100%) are long (> 65 feet)
 - Annual VMT—half (40-60%) have a medium annual VMT (40,000-80,000 miles)
- # (2-S1-2) Basic Enclosed Van [pop = 35,496 or 2.69% of the 5-axles or more fleet]
- good (250-500) sample
 - few (<20%) weigh-out on average
 - some (20-40%) never weigh-out
 - some (20-40%) operate mostly (80-100%) intra-state, few (<20%) operate mostly (80-100%) out-of-state
 - some (20-40%) VMT is used for short haul lengths (< 100 miles), some (20-40%) of VMT is used for very long haul lengths (> 500 miles)
 - few (<20%) are narrow (96 inches), most (80-100%) are wide (102 inches)
 - few (<20%) are short (< 65 feet), most (80-100%) are long (> 65 feet)
 - Annual VMT—mixed

- # (2-S1-2) Grain Bodies [pop = 1,416 or 0.11% of the 5-axles or more fleet]
- very small (<100) sample
 - many (60-80%) weigh-out on average
 - few (<20%) never weigh-out
 - some (20-40%) operate mostly (80-100%) intra-state, some (20-40%) operate mainly (60-80%) out-of-state
 - half (40-60%) of VMT is used for short haul lengths (< 100 miles), VMT is used infrequently (<20%) for very long haul lengths (> 500 miles)
 - all are narrow (96 inches)
 - many (60-80%) are short (< 65 feet), some (20-40%) are long (> 65 feet)
 - Annual VMT—mixed

7.4 Summary of the Weight, Dimension and Operating Characteristics by Truck Configuration/Body Type

For the 1997 5-axles or more fleet, configuration/body type combinations described above, Tables 7.4-1 and 7.4-2 illustrate the degree of weigh-out operations—at maximum loaded weight and average loaded weight, respectively.

- # 3-S2 trucks typically weigh-out except for the Basic Enclosed Van and Drop Frame Van .
- # 3-S3 trucks typically weigh-out at average loaded weight
- # 3-S2 trucks reflect the entire range of weights
- # Basic Enclosed Van, the most favored trailer type, rarely weighs-out.

Table 7.4-3 illustrates the degree of intra-state travel in 1997 by the configuration/body type combinations described in Section 7.3.

Table 7.4-1

**Theme Matrix for Percent of Fleet
That Weights-Out - "Maximum" Loaded Weight
(Tare Weight + "Maximum" Payload)
by Vehicle Class/Body Type Combination**

Body Type	Vehicle Configuration			
	3+2	3-S2	3-S3	2-S1-2
Low Boy Platform				*
Basic Platform				
Livestock Truck	*		*	*
Insulated Non-Refridgerated	*		*	*
Insulated Refridgerated	*			*
Drop Frame Van	*		*	
Basic Enclosed Van				
Pole, Logging etc. Truck				*
Automobile Transporter	*		*	*
Grain Body				
Dump Truck				*
Tank Truck, Liquids or Gas				*
Tank Truck, Dry Bulk	*		*	*

* Indicates very small sample size for the cell.

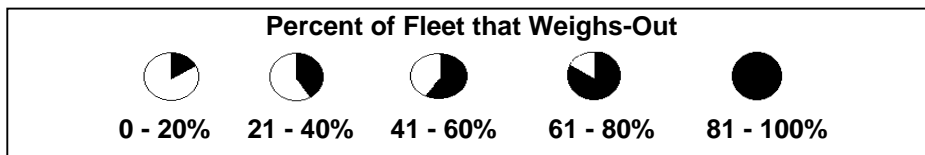


Table 7.4-2

**Theme Matrix for Percent of Fleet
That Weights-Out - "Average" Loaded Weight
(Tare Weight + "Average" Payload)
by Vehicle Class/Body Type Combination**

Body Type	Vehicle Configuration			
	3+2	3-S2	3-S3	2-S1-2
Low Boy Platform				*
Basic Platform				
Livestock Truck	*		*	*
Insulated Non-Refrigerated	*		*	*
Insulated Refrigerated	*			*
Drop Frame Van	*		*	
Basic Enclosed Van				
Pole, Logging etc. Truck				*
Automobile Transporter	*		*	*
Grain Body				
Dump Truck				*
Tank Truck, Liquids or Gas				*
Tank Truck, Dry Bulk	*		*	*

* Indicates very small sample size for the cell.

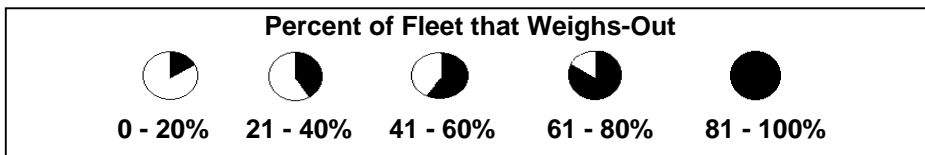
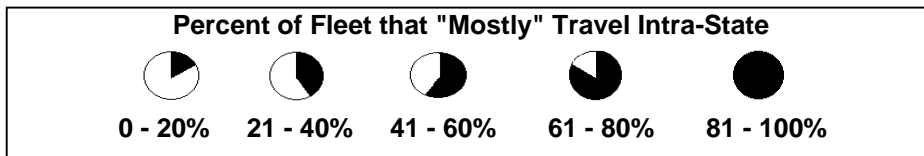


Table 7.4-3

**Theme Matrix for Percent of Fleet
That "Mostly" Travel Intra-State
by Vehicle Class/Body Type Combination**

Body Type	Vehicle Configuration			
	3+2	3-S2	3-S3	2-S1-2
Low Boy Platform				*
Basic Platform				
Livestock Truck	*		*	*
Insulated Non-Refrigerated	*		*	*
Insulated Refrigerated	*			*
Drop Frame Van	*		*	
Basic Enclosed Van				
Pole, Logging etc. Truck				*
Automobile Transporter	*		*	*
Grain Body				
Dump Truck				*
Tank Truck, Liquids or Gas				*
Tank Truck, Dry Bulk	*		*	*

* Indicates very small sample size for the cell.



7.5 Observations on Changes between 1992 and 1997 for Particular Truck Configurations and Body Types

7.5.1 Changes in Trailer Widths by 1997

The adoption of the 102 inch width trailer afforded by the 1982 STAA by different body types/truck configurations is summarized below and in Table 7.5.1-1. Figure 7.5.1-1 compares, for 1987, 1992 and 1997, the percentage of specific truck configuration/body type combinations that have trailer widths equal to or greater than 102 inches. Figure 7.5.1-2 compares the regional percent of 3S2s with trailer widths of 102 inches or more for certain body types for 1997.

BODY TYPES WITH LOW ADOPTION OF 102 INCH TRAILER WIDTH (less than 10%) - 1997

- basic platform—2-S1-2
- automobile transporter—3-S2
- grain bodies—3+2, 3-S3, and 2-S1-2
- dump trucks—3-S2
- tank trucks for liquids or gas—3-S3
- tank trucks for dry bulk—3-S2.

These truck categories are dominated by 96 inch width trailers (more than 90%).

BODY TYPES WITH MEDIUM ADOPTION OF 102 INCH WIDTH (between 10 and 50%) - 1997

- low boy platforms—all configurations
- basic platform—all configurations
- basic enclosed van—3+2, 3-S3
- pole and logging trucks—all configurations
- dump truck—3+2, 3-S3
- tank truck for liquids or gas—3+2, 3-S2

BODY TYPES WITH HIGH ADOPTION OF 102 INCH WIDTH (more than 50%) - 1997

- insulated non-refrigerated van—3-S2
- livestock truck—3-S2
- insulated refrigerated van—3-S2, 3-S3
- insulated non-refrigerated van—3-S2
- drop frame vans—3-S2 and 2-S1-2
- grain body—3-S2
- basic enclosed vans—3-S2, 2-S1-2

There has been a substantial increase in the take-up of 102 inch trailer widths for most of these truck categories between 1987, 1992 and 1997.

Table 7.5.1-1

**Comparison of Percentage of Truck Fleet With Trailer Widths of 96" and 102"
by Vehicle Class/Body Type Combination (Rounded to nearest 5%)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	85% 96" 15% 102"	75% 96" 15% 102"	90% 96" 5% 102"	60% 96" 35% 102"	80% 96" 20% 102"	80% 96" 10% 102"	40% 96" 50% 102"	60% 96" 30% 102"	85% 96" 10% 102"	*	*	*
Basic Platform	75% 96" 20% 102"	90% 96" 5% 102"	65% 96" 5% 102"	70% 96" 30% 102"	80% 96" 20% 102"	85% 96" 10% 102"	65% 96" 30% 102"	75% 96" 20% 102"	90% 96" 5% 102"	85% 96" 10% 102"	85% 96" 15% 102"	80% 96" 15% 102"
Livestock Truck	*	*	*	40% 96" 60% 102"	65% 96" 35% 102"	70% 96" 20% 102"	*	*	*	*	*	*
Insulated Non-Refrigerated	*	*	*	20% 96" 80% 102"	40% 96" 60% 102"	55% 96" 45% 102"	*	*	*	*	*	*
Insulated Refrigerated	*	*	*	25% 96" 75% 102"	45% 96" 55% 102"	60% 96" 35% 102"	25% 96" 70% 102"	80% 96" 20% 102"	55% 96" 45% 102"	*	*	*
Drop Frame Van	*	*	*	20% 96" 80% 102"	35% 96" 65% 102"	50% 96" 45% 102"	*	*	*	0% 96" 100% 102"	20% 96" 80% 102"	30% 96" 70% 102"
Basic Enclosed Van	60% 96" 40% 102"	40% 96" 60% 102"	80% 96" 20% 102"	25% 96" 70% 102"	35% 96" 65% 102"	55% 96" 40% 102"	70% 96" 30% 102"	40% 96" 60% 102"	60% 96" 35% 102"	5% 96" 95% 102"	10% 96" 90% 102"	20% 96" 80% 102"
Pole and Logging Truck	80% 96" 20% 102"	70% 96" 30% 102"	95% 96"	80% 96" 20% 102"	90% 96" 10% 102"	85% 96" 5% 102"	50% 96" 45% 102"	60% 96" 40% 102"	70% 96" 25% 102"	*	*	*
Automobile Transporter	*	*	*	85% 96" 10% 102"	25% 96" 75% 102"	80% 96" 10% 102"	*	*	*	*	*	*
Grain Body	90% 96" 5% 102"	85% 96" 10% 102"	95% 96"	30% 96" 70% 102"	90% 96" 10% 102"	80% 96" 5% 102"	85% 96" 10% 102"	95% 96" 5% 102"	95% 96"	100% 96" 0% 102"	90% 96" 10% 102"	85% 96"
Dump Truck	80% 96" 15% 102"	90% 96" 5% 102"	80% 96"	85% 96" 10% 102"	90% 96" 10% 102"	80% 96" 5% 102"	80% 96" 15% 102"	90% 96" 10% 102"	80% 96" 5% 102"	*	*	*
Tank Truck For Liquids or Gas	80% 96" 20% 102"	95% 96" 5% 102"	90% 96"	80% 96" 15% 102"	90% 96" 10% 102"	80% 96" 5% 102"	90% 96" 10% 102"	85% 96" 10% 102"	84% 96" 5% 102"	*	*	*
Tank Truck For Dry Bulk	*	*	*	85% 96" 10% 102"	95% 96" 5% 102"	80% 96" 10% 102"	*	*	*	*	*	*

Source: Appendix G

* Indicates very small sample size for the cell

Note: Total percentage for a year may not add to 100% because two additional categories in the survey question, > 102" or Other

Figure 7.5.1-1

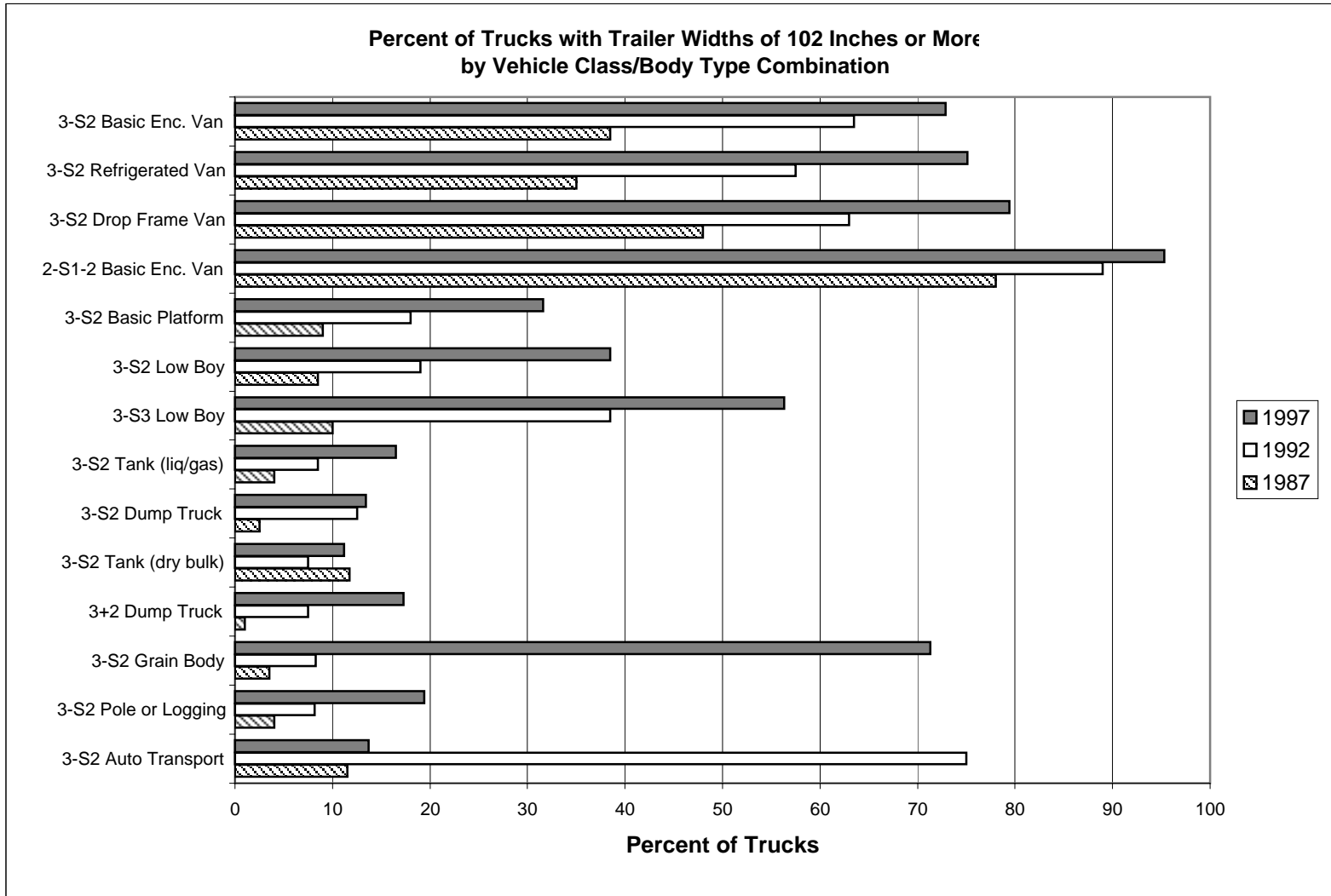
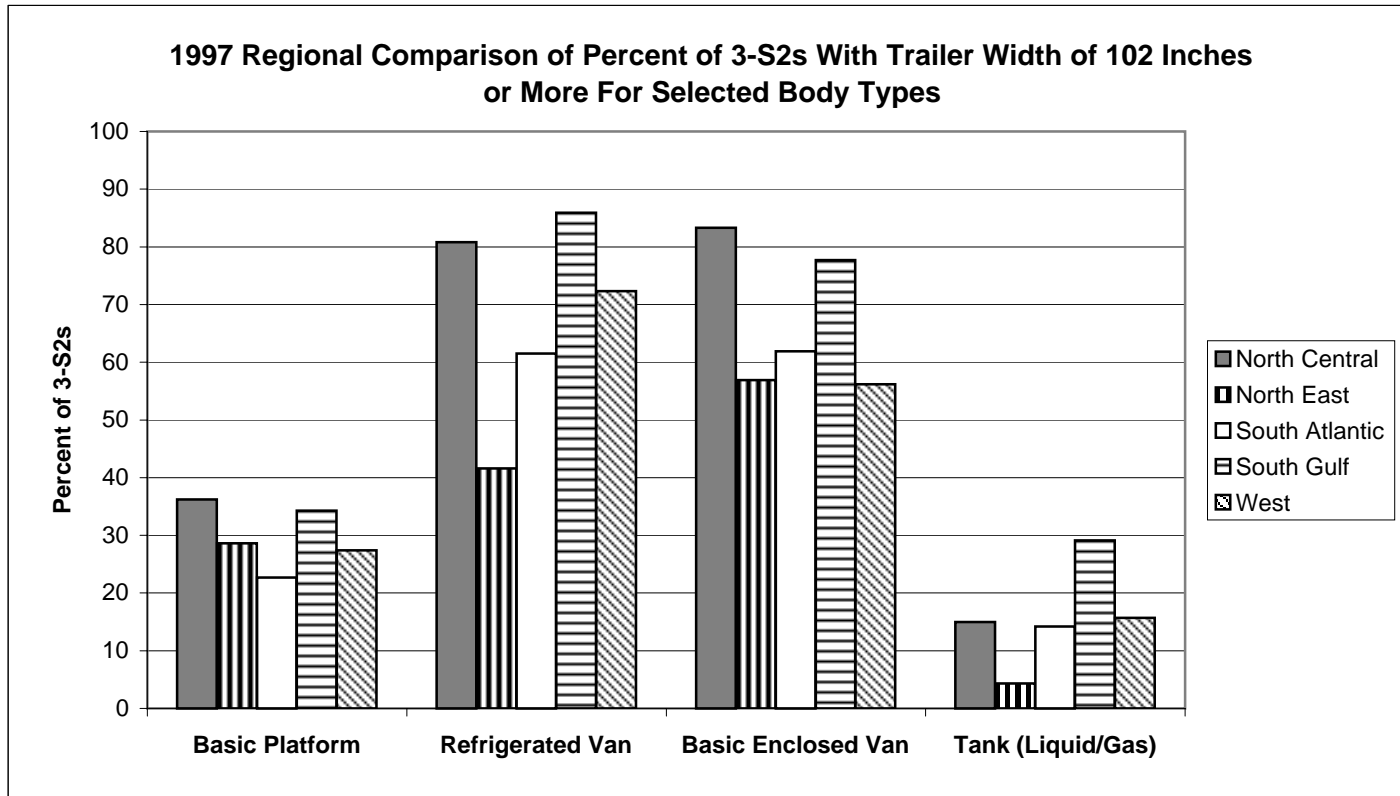


Figure 7.5.1-2



7.5.2 Changes in Truck Lengths by 1997

As of 1997, the adoption of longer trucks (greater than 65 feet in total length—being taken as a surrogate for the use of a 53+ foot trailer in a 3-S2 or 3-S3 tractor-semitrailer combination, 2-28+ foot trailers in a 2-S1-2 double combination, or the equivalent trailer capacity in a 3 + 2 truck + trailer combination) is summarized below and in Table 7.5.2-1. Figure 7.5.2-1 compares, for 1987, 1992, and 1997 the percentage of specific truck configuration/body type combinations that have overall vehicle lengths of 65 feet or more. Figure 7.5.2-2 compares the regional percent of 3-S2s with overall lengths of 65 feet or more for certain body types.

VERY LOW ADOPTION OF LONGER TRUCKS (less than 10%) - 1997

- grain bodies—3-S2
- low boy platform—3 + 2
- dump trucks—3+2, 3-S2, 3-S3
- tank trucks for liquids or gas—3-S2
- tank trucks for dry bulk—3-S2
- pole and logging trucks—3+2, 3-S2

These truck categories are dominated by short combinations. There has been very little (5%), if any, change in their lengths since 1987.

SOME ADOPTION OF LONGER TRUCKS (between 10 and 50%) - 1997

- low boy platforms—3-S2, 3-S3
- basic platform—3 + 2, 3-S2, 3-S3
- livestock truck—3-S2
- insulated refrigerated van—3-S2, 3-S3
- drop frame van—3-S2
- basic enclosed van—3 + 2, 3-S2, 3-S3
- pole and logging trucks—3-S3
- grain bodies—3+2, 3-S3, 2-S1-2
- tank trucks for liquid and gas—3 + 2, 3-S3

Most of these truck categories have experienced some increase in the longer trucks except Basic Enclosed 3+2 and 3-S3 and Pole and Logging 3-S3.

HIGH TAKE-UP OF LONGER TRUCKS (more than 50%) - 1997

- basic platform—2-S1-2
- insulated non-refrigerated—3-S2
- drop frame vans—2-S1-2
- basic enclosed vans—2-S1-2
- automobile transporter—3-S2

Table 7.5.2-1

Comparison of Percentage of Truck Fleet 65 Feet or More Length
by Vehicle Class/Body Type Combination (Rounded to nearest 5%)

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	10% > 65'	15% > 65'	0% > 65'	20% > 65'	15% > 65'	10% > 65'	40% > 65'	35% > 65'	25% > 65'	*	*	*
Basic Platform	20% > 65'	15% > 65'	15% > 65'	35% > 65'	20% > 65'	15% > 65'	25% > 65'	20% > 65'	15% > 65'	80% > 65'	55% > 65'	80% > 65'
Livestock Truck	*	*	*	45% > 65'	25% > 65'	25% > 65'	*	*	*	*	*	*
Insulated Non-Refrigerated	*	*	*	65% > 65'	40% > 65'	30% > 65'	*	*	*	*	*	*
Insulated Refrigerated	*	*	*	50% > 65'	35% > 65'	25% > 65'	45% > 65'	45% > 65'	15% > 65'	*	*	*
Drop Frame Van	*	*	*	50% > 65'	30% > 65'	20% > 65'	*	*	*	100% > 65'	90% > 65'	90% > 65'
Basic Enclosed Van	15% > 65'	25% > 65'	20% > 65'	45% > 65'	30% > 65'	20% > 65'	15% > 65'	35% > 65'	20% > 65'	100% > 65'	85% > 65'	75% > 65'
Pole and Logging Truck	10% > 65'	15% > 65'	10% > 65'	10% > 65'	10% > 65'	10% > 65'	15% > 65'	20% > 65'	15% > 65'	*	*	*
Automobile Transporter	*	*	*	65% > 65'	90% > 65'	65% > 65'	*	*	*	*	*	*
Grain Body	15% > 65'	5% > 65'	5% > 65'	10% > 65'	10% > 65'	5% > 65'	15% > 65'	15% > 65'	15% > 65'	40% > 65'	35% > 65'	60% > 65'
Dump Truck	5% > 65'	5% > 65'	5% > 65'	5% > 65'	5% > 65'	0% > 65'	5% > 65'	5% > 65'	0% > 65'	*	*	*
Tank Truck, Liquids or Gas	20% > 65'	20% > 65'	30% > 65'	10% > 65'	5% > 65'	5% > 65'	20% > 65'	25% > 65'	15% > 65'	*	*	*
Tank Truck, Dry Bulk	*	*	*	10% > 65'	10% > 65'	5% > 65'	*	*	*	*	*	*

Source: Appendix G

* Indicates very small sample size for the cell.

Figure 7.5.2-1

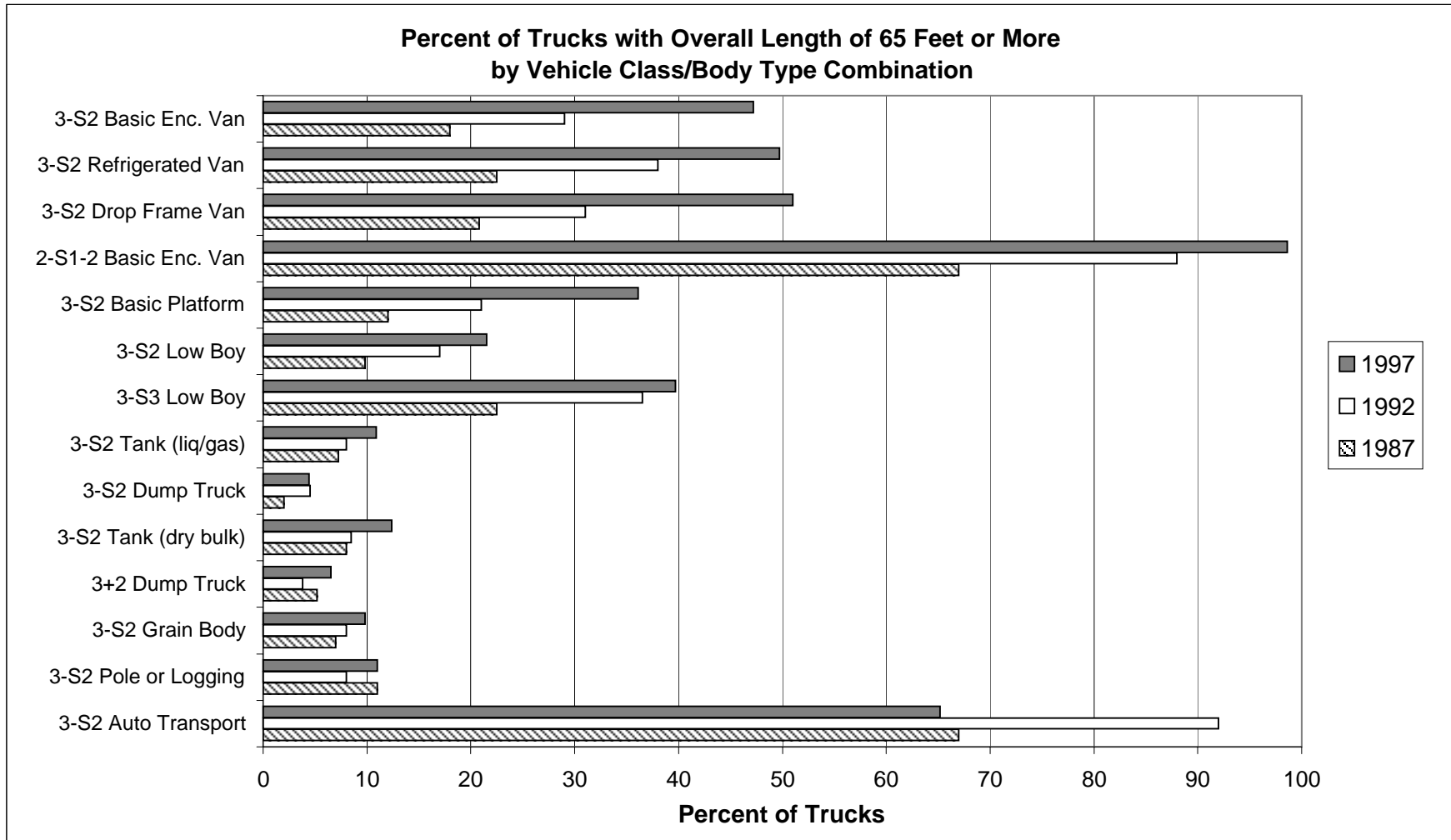
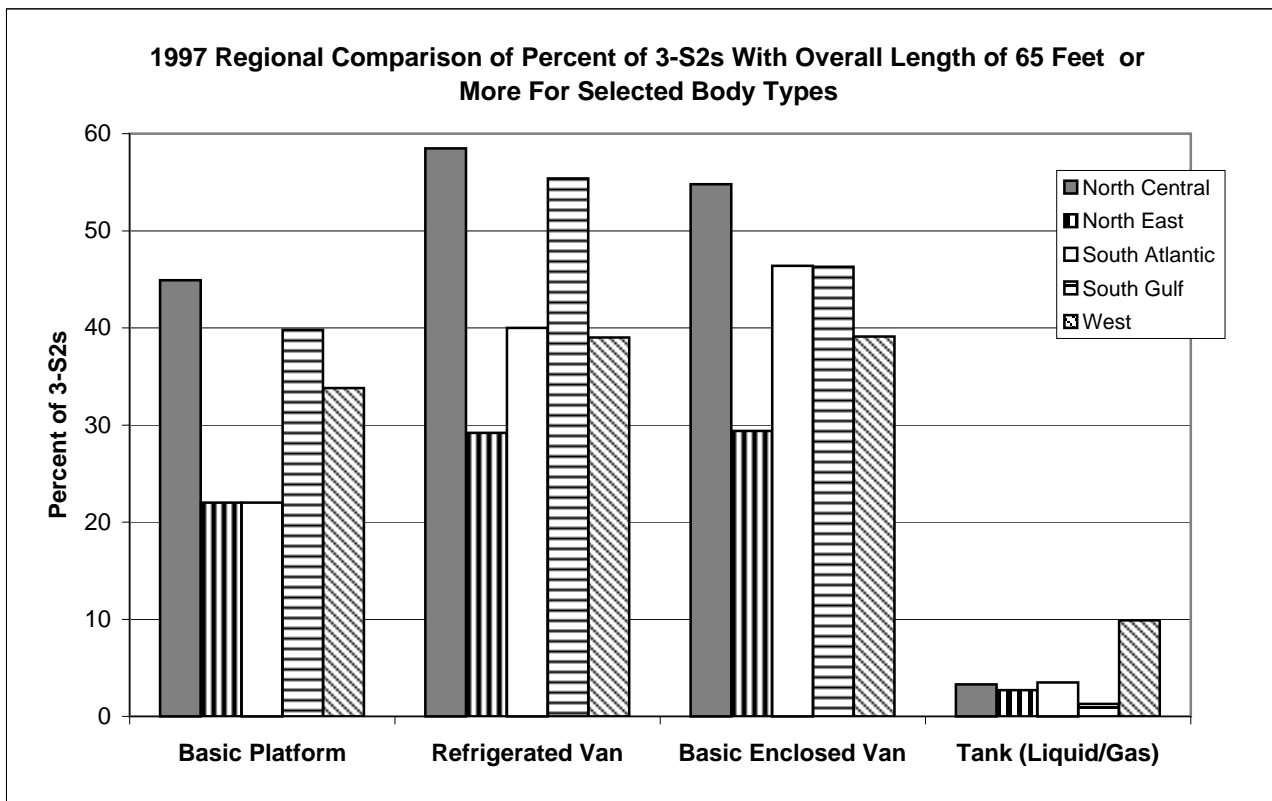


Figure 7.5.2-2



7.5.3 Changes in Truck Weights

MEAN TARE (EMPTY) WEIGHT

Changes in empty weight moderated in 1997, between 1987 and 1992 all body types increased. This was not true between 1992 and 1997 where some body types actually decreased and the increases were small, as shown in Table 7.5.3-1. Figure 7.5.3-1 graphically compares, for 1987, 1992, and 1997, the mean tare weight of specific truck configuration/body type combinations. Figure 7.5.3-2 compares regionally the mean empty weights of 3-S2s for selected body types. The average empty weight was 16,891 pounds.

MEAN “AVERAGE” LOADED WEIGHT

Mean “average” loaded weight is the statistical mean of the weight reported on the surveys as “average.” Figure 7.5.3-3 compares, for 1987, 1992 and 1997, the mean average loaded weight of specific truck configuration/body type combinations. Figure 7.5.3-4 compares, regionally, the mean “average” loaded weights of 3-S2s for selected body types.

MEAN MAXIMUM LOADED WEIGHT (TARE + MAXIMUM PAYLOAD)

Overall there is little change between 1992 and 1997 as shown in Table 7.5.3-3. The exceptions are over 5% weight increase for the 3-S2 grain body and 2-S1-2 drop frame van. On the reduction side both the 3-S3 basic platform and basic enclosed vans have decreased more than 7%.

MEAN MAXIMUM PAYLOAD WEIGHT

Some configuration/body types have shown an increase and some have shown decreases. The decreases are relatively small as shown in Table 7.5.3-4. Figure 7.5.3-5 compares, for 1987, 1992, and 1997, the mean maximum payload weight of specific truck configuration/body type combinations.

MEAN “AVERAGE” PAYLOAD WEIGHT

There were mixed results for the average payload weight between 1987, 1992 and 1997 as shown in Table 7.5.3-5. Figure 7.5.3-6 compares, for 1987, 1992 and 1997, the mean “average” payload weight of specific truck configuration/body type combinations.

Table 7.5.3-1

**Comparison of Mean Tare (Empty) Weights
by Vehicle Class/Body Type Combination (in kips)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	30.87 0.90	29.97 1.93	28.04	31.30 0.77	30.53 1.01	29.52	35.81 -0.29	36.1 3.52	32.58	*	*	*
Basic Platform	28.94 0.66	28.28 0.90	27.38	30.30 0.40	29.90 0.89	29.01	33 -1.55	34.55 3.78	30.77	26.19 -1.27	27.46 0.09	27.37
Livestock Truck	*	*	*	30.69 0.23	30.46 0.88	29.58	*	*	*	*	*	*
Insulated Non-Refrigerated	*	*	*	31.90 0.25	31.65 1.67	29.98	*	*	*	*	*	*
Insulated Refrigerated	*	*	*	33.45 0.19	33.26 1.00	32.26	33.8 0.51	33.29 2.75	30.54	*	*	*
Drop Frame Van	*	*	*	35.16 0.56	34.60 1.40	33.20	*	*	*	32.84 -2.37	35.21 0.94	34.27
Basic Enclosed Van	30.07 0.52	29.55 0.29	29.26	30.90 0.41	30.49 1.17	29.32	32.45 0.92	31.53 2.19	29.34	31.87 2.55	29.32 0.24	29.08
Pole and Logging Truck	27.71 0.19	27.52 1.53	25.99	28.68 1.13	27.55 0.64	26.91	34.92 2.21	32.71 -0.55	33.26	*	*	*
Automobile Transporter	*	*	*	38.01 -3.15	41.16 8.17	32.99	*	*	*	*	*	*
Grain Body	28.04 1.98	26.06 -1.05	27.11	27.69 0.25	27.44 0.79	26.65	30.08 -0.64	30.72 2.5	28.22	24.8 0.91	23.89 -0.93	24.82
Dump Truck	28.04 -0.31	28.35	28.19	30.78 0.49	30.29 0.92	29.37	33.13 0.51	32.62 1.23	31.39	*	*	*
Tank Truck For Liquids or Gas	29.71 1.49	28.22 0.56	27.66	29.90 -0.19	30.09 1.21	28.88	31.93 -1.43	33.36 1.01	32.35	*	*	*
Tank Truck For Dry Bulk	*	*	*	28.63 0.12	28.51 0.59	27.92	*	*	*	*	*	*

Source: Appendix G

* Indicates very small sample size for the cell

Note: Changes in kips from 1987 to 1992 are indicated below each 1992 entry. Changes from 1992 to 1997 are indicated below each 1997 entry.

Figure 7.5.3-1

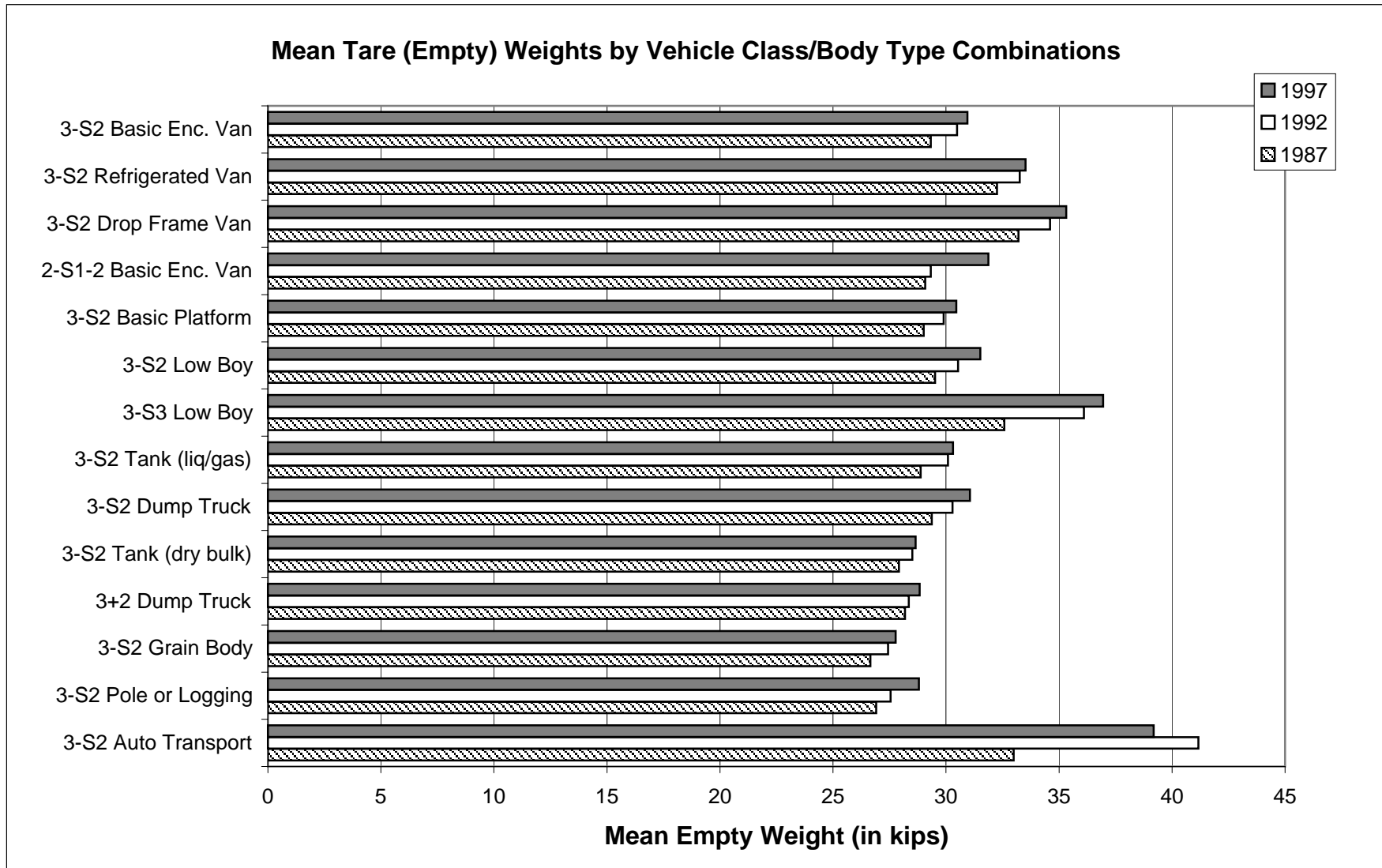


Figure 7.5.3-2

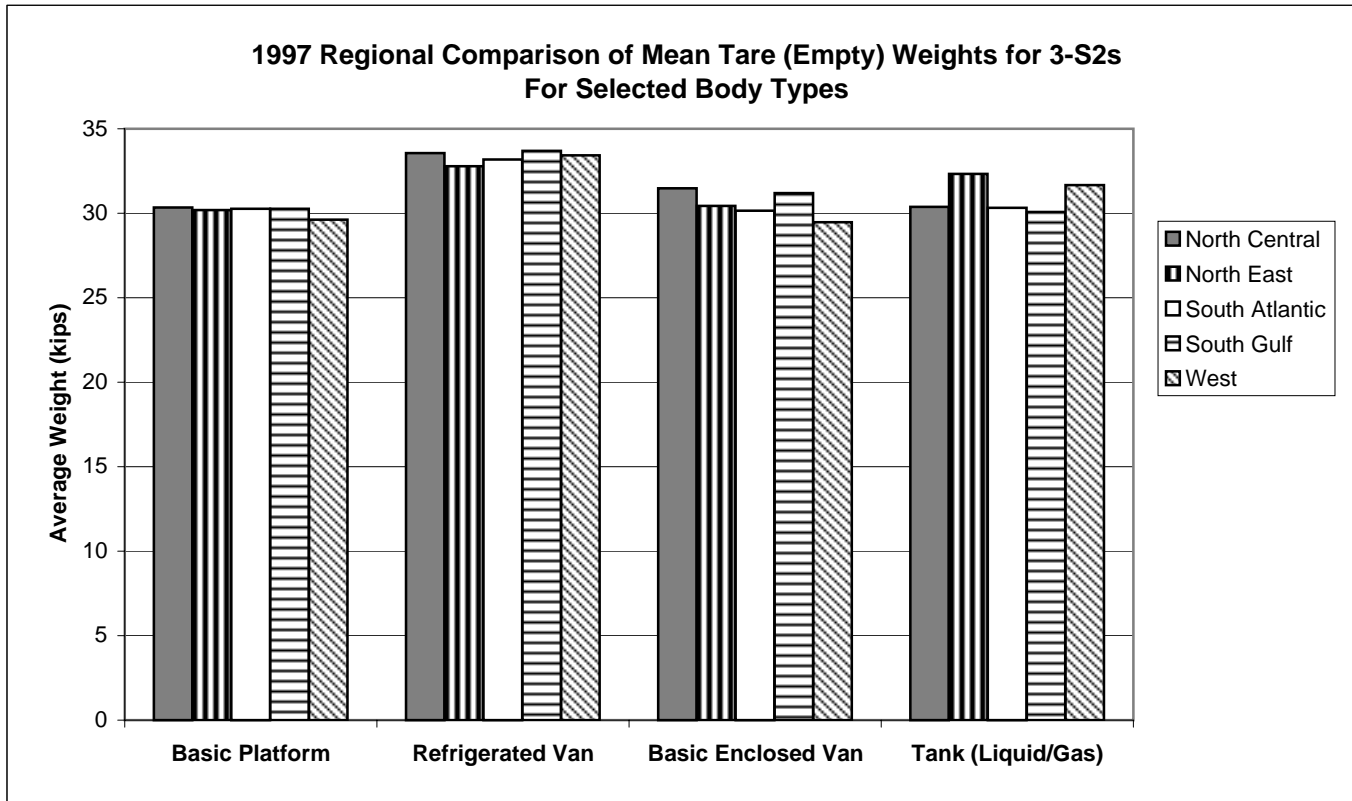


Table 7.5.3-2

**Comparison of Mean "Average" Loaded Weights (tare weight + "average" payload weight)
by Vehicle Class/Body Type Combination (in kips)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	59.85 4.27	55.58 -1.58	57.16	65.54 3.41	62.13 -2.55	64.68	76.79 -1.35	78.14 1.79	76.35	*	*	*
Basic Platform	59.19 0.97	58.22 2.04	56.18	69.40 0.83	68.57 -1.55	70.12	72.73 -1.84	74.57 1.47	73.1	73.4 8.93	64.47 -4.08	68.55
Livestock Truck	*	*	*	74.06 3.53	70.53 -2.47	73.00	*	*	*	*	*	*
Insulated Non-Refrigerated	*	*	*	63.94 -5.30	69.24 0.10	69.14	*	*	*	*	*	*
Insulated Refrigerated	*	*	*	72.02 0.61	71.41 -1.10	72.51	71.82 -0.52	72.34 2.93	69.41	*	*	*
Drop Frame Van	*	*	*	57.71 0.16	57.55 -0.33	57.88	*	*	*	71.85 10.69	61.16 -5.58	66.74
Basic Enclosed Van	62.36 2.02	60.34 2.20	58.14	66.17 0.62	65.55 -0.05	65.60	66.42 2.1	64.32 -0.17	64.49	66.68 -2.36	69.04 0.26	68.78
Pole and Logging Truck	78.27 5.76	72.51 -3.10	75.61	75.29 0.17	75.12 -0.56	75.68	88.20 3.88	84.32 -1.28	85.6	*	*	*
Automobile Transporter	*	*	*	73.85 0.88	72.97 3.55	69.42	*	*	*	*	*	*
Grain Body	61.94 -1.40	63.34 1.14	62.20	75.55 0.98	74.57 0.21	74.36	84.91 7.3	77.61 -2.78	80.39	74.51 -5.63	80.14 3.36	76.78
Dump Truck	59.75 0.29	59.46	64.02	73.12 0.96	72.16 -1.96	74.12	81.52 3.78	77.74 -2.27	80.01	*	*	*
Tank Truck For Liquids or Gas	72.33 -0.06	72.39 -2.11	74.50	75.60 1.45	74.15 -1.29	75.44	84.38 -0.01	84.39 -3.9	88.29	*	*	*
Tank Truck For Dry Bulk	*	*	*	72.58 -2.25	74.83 -1.69	76.52	*	*	*	*	*	*

Source: Appendix G

* Indicates very small sample size for the cell

Note: Changes in kips from 1987 to 1992 are indicated below each 1992 entry. Changes from 1992 to 1997 are indicated below each 1997 entry.

Figure 7.5.3-3

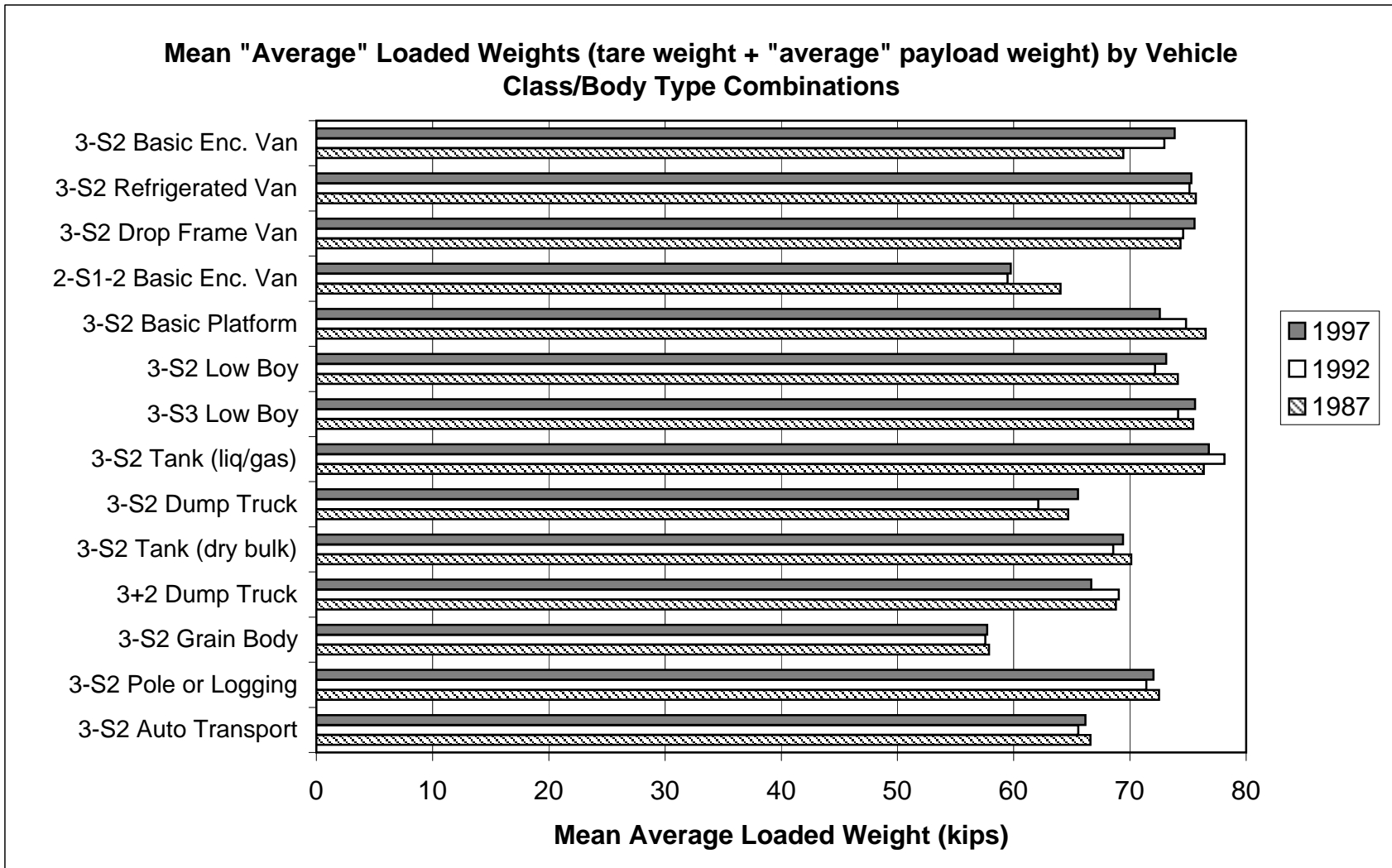


Figure 7.5.3-4

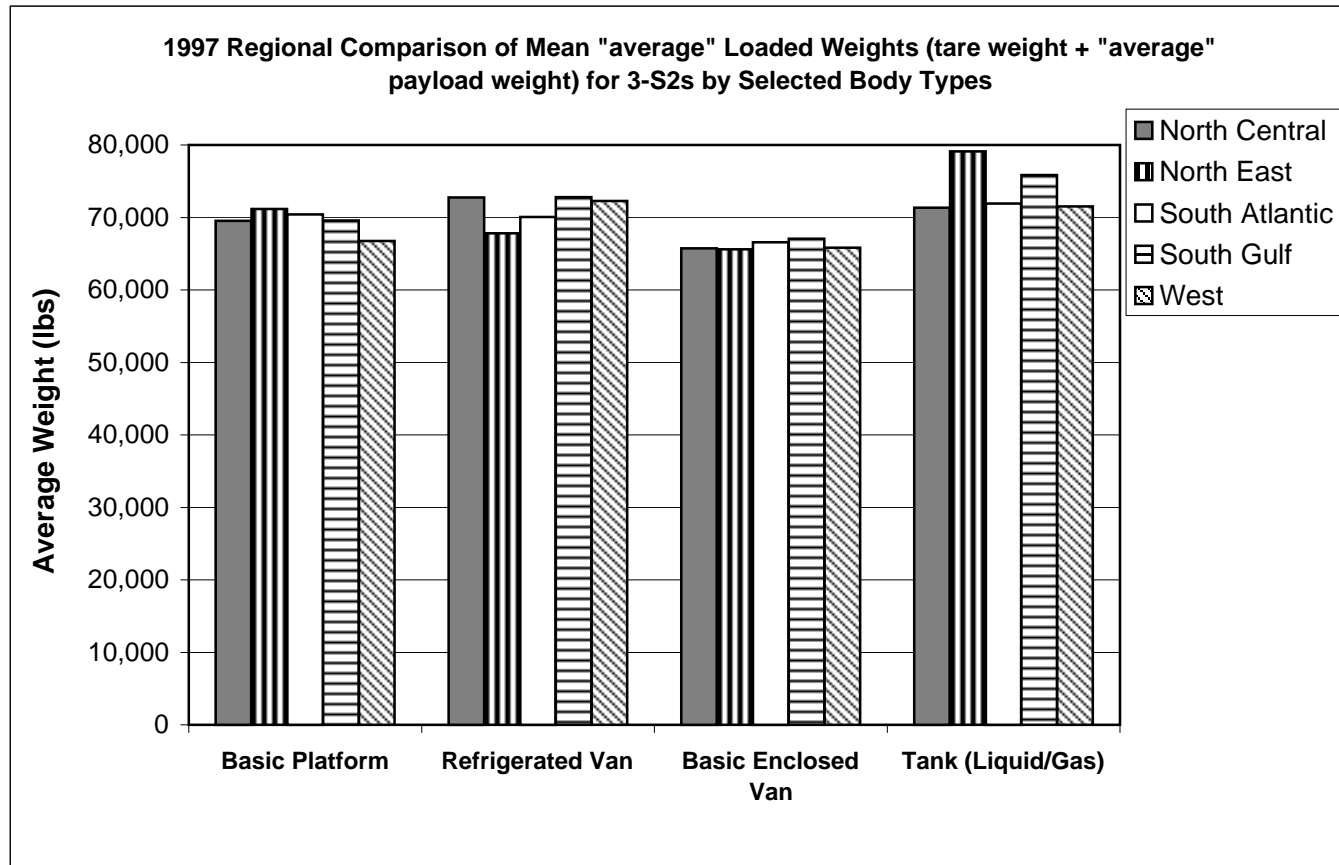


Table 7.5.3-3

**Comparison of Mean Maximum Loaded Weights (tare weight + "maximum" payload weight)
by Vehicle Class/Body Type Combination (in kips)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	72.25	67.76	66.67	76.62	73.64	76.27	92.43	95.03	93.19	*	*	*
	4.49	1.09		2.98	-2.63		-2.60	1.84				
Basic Platform	65.69	64.97	62.88	77.76	77.53	77.56	79.72	87.61	82.85	78.28	79.06	76.89
	0.72	2.09		0.23	-0.03		-7.89	4.76		-0.78	2.17	
Livestock Truck	*	*	*	79.02	78.84	78.32	*	*	*	*	*	*
				0.18	0.52							
Insulated Non-Refrigerated	*	*	*	79.01	78.29	76.90	*	*	*	*	*	*
				0.72	1.39							
Insulated Refrigerated	*	*	*	78.90	78.92	78.58	79.85	80.49	84.77	*	*	*
				-0.02	0.34		-0.64	-4.28				
Drop Frame Van	*	*	*	71.00	69.04	69.51	*	*	*	79.23	73.41	76.87
				1.96	-0.47					5.82	-3.46	
Basic Enclosed Van	75.32	70.15	76.96	76.99	76.99	76.29	72.31	80.27	76.26	75.63	77.26	77.24
	5.17	-6.81		0.00	0.70		-7.96	4.01		-1.63	0.02	
Pole and Logging Truck	80.26	77.57	78.97	80.43	79.83	80.50	92.16	92.20	103.10	*	*	*
	2.69	-1.40		0.60	-0.67		-0.04	-10.90				
Automobile Transporter	*	*	*	77.78	78.65	74.33	*	*	*	*	*	*
				-0.87	4.32							
Grain Body	71.43	73.08	69.78	79.15	79.16	78.96	87.51	82.45	84.30	80.14	81.08	80.22
	-1.65	3.30		-0.01	0.20		5.06	-1.85		-0.94	0.86	
Dump Truck	65.96	67.26	69.63	78.11	77.45	78.19	86.07	85.54	84.63	*	*	*
	-1.30	-2.37		0.66	-0.74		0.53	0.91				
Tank Truck For Liquids or Gas	74.40	77.46	77.23	79.26	79.44	78.92	88.89	92.88	93.17	*	*	*
	-3.06	0.23		-0.18	0.52		-3.99	-0.29				
Tank Truck For Dry Bulk	*	*	*	78.76	79.93	80.58	*	*	*	*	*	*
				-1.17	-0.65							

Source: Appendix G

* Indicates very small sample size for the cell

Note: Changes in kips from 1987 to 1992 are indicated below each 1992 entry. Changes from 1992 to 1997 are indicated below each 1997 entry.

Table 7.5.3-4

**Comparison of Mean Maximum Payload Weight
by Vehicle Class/Body Type Combination (in kips)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	40.88 -0.01	40.89 -0.51	41.40	46.31 1.44	44.87 -3.34	48.21	56.97 -4.53	61.50 0.18	61.32	*	*	*
Basic Platform	42.69 2.83	39.86 -6.81	46.67	48.02 -0.56	48.58 -0.52	49.10	50.24 -6.05	56.29 0.79	55.50	52.85 1.27	51.58 2.38	49.20
Livestock Truck	*	*	*	48.12 -0.65	48.77 -0.73	49.50	*	*	*	*	*	*
Insulated Non-Refrigerated	*	*	*	47.04 0.00	47.04 -0.26	47.30	*	*	*	*	*	*
Insulated Refrigerated	*	*	*	45.43 0.42	45.01 -1.53	46.54	48.48 1.07	47.41 -7.56	54.97	*	*	*
Drop Frame Van	*	*	*	36.23 2.23	34.00 4.00	35.53	*	*	*	46.83 8.55	38.28 -4.15	42.43
Basic Enclosed Van	43.88 -0.08	43.96 -6.41	50.37	46.58 -0.52	47.10 -0.65	47.75	43.57 -7.37	50.94 2.14	48.80	43.97 -4.34	48.31 0.94	47.37
Pole and Logging Truck	52.73 1.56	51.17 -2.10	53.27	52.26 -0.26	52.52 -1.59	54.11	57.59 -1.37	58.96 -12.67	71.63	*	*	*
Automobile Transporter	*	*	*	39.01 0.91	38.10 -2.60	40.70	*	*	*	*	*	*
Grain Body	50.15 -2.75	52.90 0.56	52.34	51.58 -0.39	51.97 -0.71	52.68	57.50 5.66	51.84 -2.70	54.54	55.34 -1.96	57.30 1.86	55.44
Dump Truck	38.81 -5.01	43.82 -2.22	46.04	47.53 -0.12	47.65 -1.07	48.72	53.43 0.41	53.02 1.77	51.25	*	*	*
Tank Truck For Liquids or Gas	50.87 -1.18	52.05 -0.32	52.37	49.34 -0.52	49.86 -0.43	50.29	57.21 -3.28	60.49 1.82	58.67	*	*	*
Tank Truck For Dry Bulk	*	*	*	50.41 -1.31	51.72 -0.64	52.36	*	*	*	*	*	*

Source: Appendix G

* Indicates very small sample size for the cell

Note: Changes in kips from 1987 to 1992 are indicated below each 1992 entry. Changes from 1992 to 1997 are indicated below each 1997 entry.

Figure 7.5.3-5

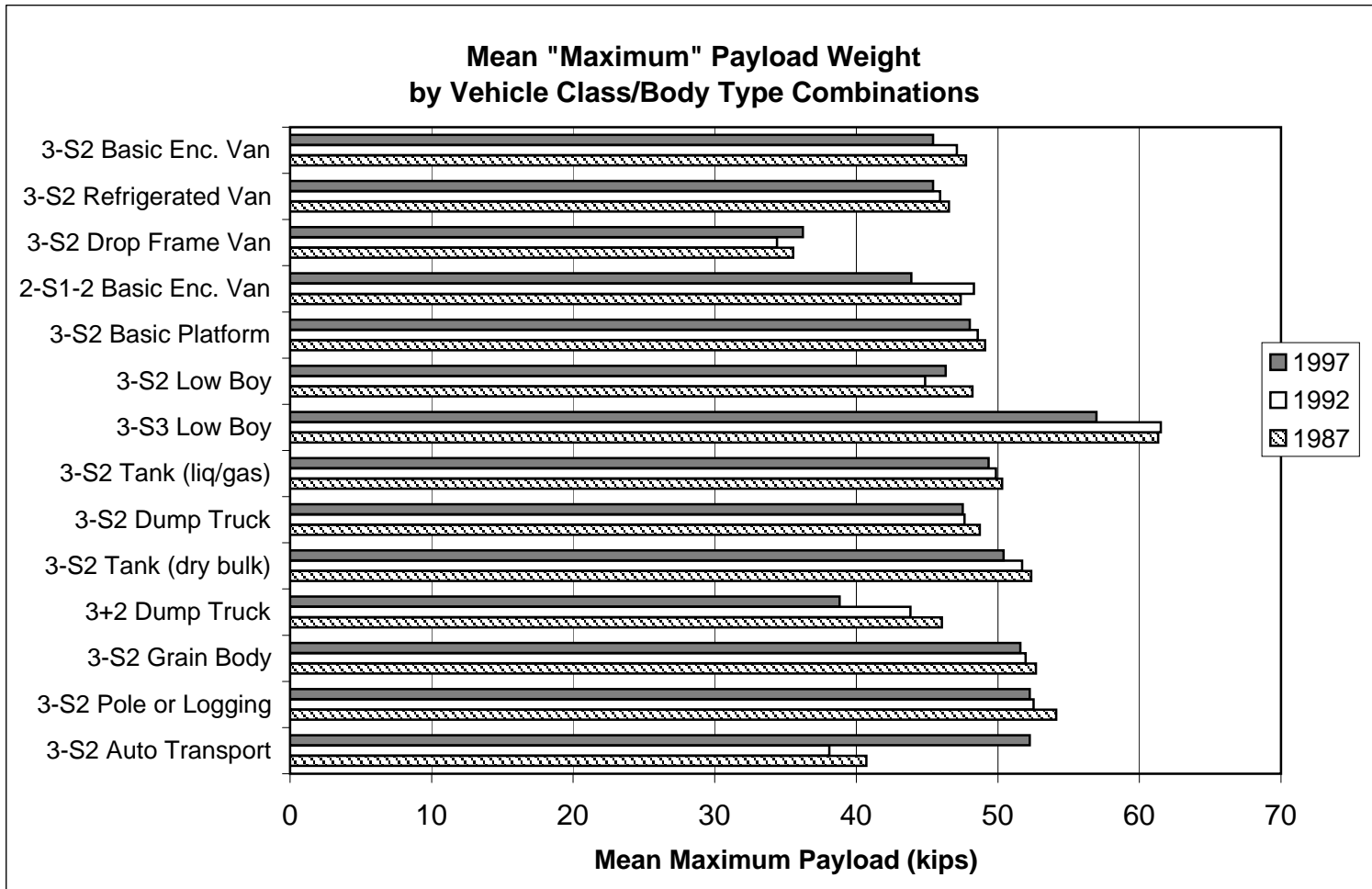


Table 7.5.3-5

**Comparison of Mean "Average" Payload Weight
by Vehicle Class/Body Type Combination (in kips)**

Body Type	Vehicle Type											
	3+2			3-S2			3-S3			2-S1-2		
	1997	1992	1987	1997	1992	1987	1997	1992	1987	1997	1992	1987
Low Boy Platform	27.82	28.22	33.63	35.04	33.29	37.10	40.47	43.58	41.33	*	*	*
	-0.40	-5.41		1.75	-3.81		-3.11	2.25				
Basic Platform	35.98	33.21	41.54	40.19	40.27	42.30	41.51	43.58	46.18	47.86	45.33	40.33
	2.77	-8.33		-0.08	-2.03		-2.07	-2.60		2.53	5.00	
Livestock Truck	*	*	*	43.09	40.88	45.23	*	*	*	*	*	*
				2.21	-4.35							
Insulated Non-Refrigerated	*	*	*	29.46	37.50	40.47	*	*	*	*	*	*
				-8.04	-2.97							
Insulated Refrigerated	*	*	*	38.71	38.99	40.84	39.62	38.90	44.58	*	*	*
				-0.28	-1.85		0.72	-5.68				
Drop Frame Van	*	*	*	25.07	24.91	24.00	*	*	*	39.29	28.98	32.53
				0.16	0.91					10.31	-3.55	
Basic Enclosed Van	26.23	34.89	37.00	35.84	36.20	37.53	27.08	39.81	38.09	31.06	38.89	40.64
	-8.66	-2.11		-0.36	-1.33		-12.73	1.72		-7.83	-1.75	
Pole and Logging Truck	50.50	45.85	50.66	47.14	48.41	49.91	53.54	51.70	52.43	*	*	*
	4.65	-4.81		-1.27	-1.50		1.84	-0.73				
Automobile Transporter	*	*	*	34.81	33.59	36.00	*	*	*	*	*	*
				1.22	-2.41							
Grain Body	4.17	48.97	50.21	47.96	48.03	48.95	54.92	47.45	52.39	49.71	56.38	51.89
	-44.80	-1.24		-0.07	-0.92		7.47	-4.94		-6.67	4.49	
Dump Truck	32.68	34.76	42.58	42.93	42.58	45.53	48.82	46.37	48.31	*	*	*
	-2.08	-7.82		0.35	-2.95		2.45	-1.94				
Tank Truck For Liquids or Gas	49.22	47.98	51.07	45.85	45.20	47.26	52.80	53.44	55.46	*	*	*
	1.24	-3.09		0.65	-2.06		-0.64	-2.02				
Tank Truck For Dry Bulk	*	*	*	44.05	47.62	48.68	*	*	*	*	*	*
				-3.57	-1.06							

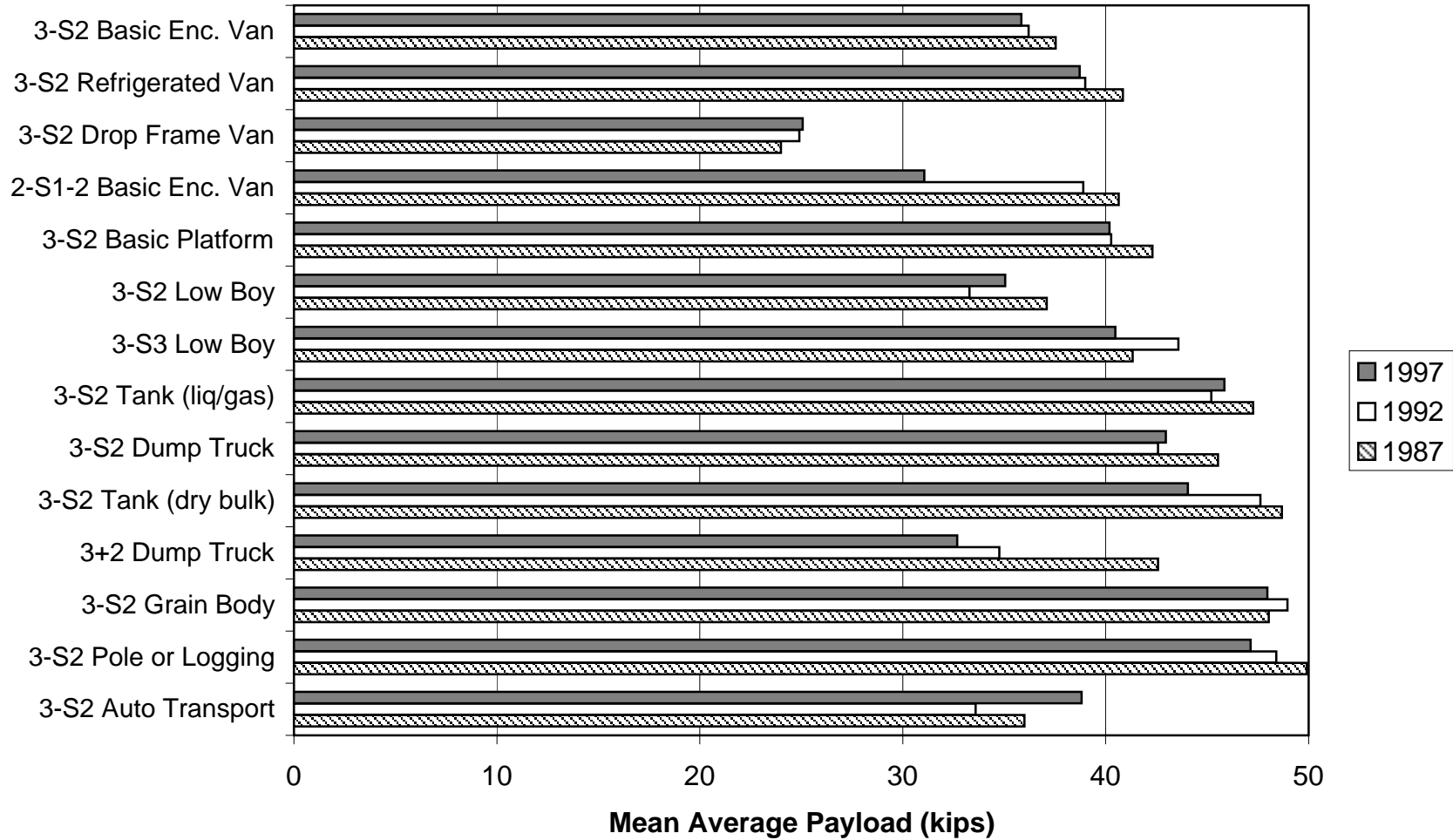
Source: Appendix G

* Indicates very small sample size for the cell

Note: Changes in kips from 1987 to 1992 are indicated below each 1992 entry. Changes from 1992 to 1997 are indicated below each 1997 entry.

Figure 7.5.3-6

Mean "Average" Payload Weight
by Vehicle Class/Body Type Combinations



8.0 Analysis of Vehicle Miles of Travel of the 5-Axles or More Truck Fleet

This section provides a comparison of the mean vehicle miles of travel (VMT) for 5-axles or more trucks.

8.1 Analysis Structure

The vehicle miles of travel (VMT) analysis evaluated the mean VMT for 5-axles or more trucks

8 vehicle groups (See Section 2.2)

11 major body type groups (collapsed from the 26 detailed body types) :

- platform (which consists of low boys and basic platform types)
- van (which includes multi-stop, basic enclosed, drop frame, insulated non-refrigerated, insulated refrigerated, and open top types)
- auto transport
- dump truck
- grain bodies
- garbage truck
- livestock truck
- pole, logging truck
- tank truck, dry bulk
- tank truck, liquids or gas
- other (includes platforms with devices permanently mounted, beverage truck, utility truck, winch or crane truck, wrecker, service truck, yard tractor, oilfield truck, concrete mixer, and other)

8.2 Mean Annual VMT by Major Truck Configuration

Figure 8.2-1 shows a comparison of the mean annual VMT for the 8 major vehicle groups for 1987, 1992 and 1997. Table 8.2-1 provides a summary of the means for the vehicle groups, the 11 body types, and various vehicle group/body type combinations. Caution should be used in interpreting this data because of the small samples analyzed for given cases. Table 8.2-2 summarizes the number of sample records used to generate the different cell means. Statisticians have a basic rule that if the sample size is less than 30, no statements can be made. We also feel that caution should be used in interpreting means based on a sample size of less than 100 given the large population this sample represents.

NATIONWIDE - 1997

- # The mean annual VMT for the 5-axles or more fleet was 45,686 miles per truck.
- # Vehicles with the largest mean annual VMT in the fleet are doubles with 6-axles or more which have mean annual VMT of 59,488 miles per truck.
- # Vehicles with the smallest mean annual VMT in the fleet are triples with 15,469 miles per truck.
- # 3-S2s have an mean annual VMT of 58,735 miles per truck. 4-S1/S2s have an mean annual VMT of 61,676 miles per truck. Tridem axle semitrailers have an mean annual VMT of 56,374 miles per truck.

CHANGES BETWEEN 1992 AND 1997

- # The mean annual VMT for the 5-axles or more fleet experienced a 17% decrease of 18,314 miles from 64,000 miles/truck in 1992 to 45,686 miles/truck in 1997.
- # The mean annual VMT increased for truck+trailer with 5-axles, tridem axle semitrailers.
- # The mean annual VMT for 4S1/S2 did not change.
- # The mean annual VMT for triples appears to have decreased. However, given that only a small sample of triples were surveyed (178 in 1997 and 38 in 1992), this may be a statistical anomaly.

8.3 Annual VMT by Major Truck Configuration by Body Type

NATIONWIDE - 1997

- # Vans have the largest mean annual VMT (80,000 miles/truck). Tank trucks for liquid or gases have the next largest mean annual VMT (54,000 miles/truck), and tank trucks hauling bulk goods has a slightly lower mean VMT (49,000 miles/truck). Dump trucks, auto transporters, and grain bodies have low mean VMT (<40,000 miles/truck).

CHANGES BETWEEN 1992 AND 1997

Figure 8.3-1 compares, for 1987, 1992 and 1997, the mean annual VMT for particular body type/truck configurations. Figure 8.3-2 compares regionally the mean VMT for 3-S2s for selected body types.

- # The mean annual VMT for most body types did not vary significantly between the years.
- # 3-S2 Drop frame vans and 2-S1-2 basic enclosed vans have changed dramatically over the 3 periods. This may be an issue with changing definitions on the survey form.
- # Several body types experienced a decrease in their mean VMT, 3-S2 basic enclosed van, 3-S2 drop frame van, 3-S2 basic platform, and 3-S2 liquid/gas tank.

Table 8.2-1

Mean Annual VMT Major Body Type, by Vehicle Group

1997 Truck Fleet

Major Body Type	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axles or more	3-S2	Tridem Axle Semitrailer	4S1/S2	STAA	Doubles @ 6 axles or more	Triples	Total Mean
Platform	22,799	23,186	56,232	39,551	50,030	58,360	66,970	13,603	41,341
Van	46,633	47,662	87,244	79,833	75,529	93,687	101,875	103,297	79,470
Auto Transport	81,942	0	69,179	75,736	73,597	0	8,000	0	38,557
Dump Truck	22,090	29,391	47,783	49,666	44,707	57,125	59,034	28,259	42,257
Grain Bodies	13,644	71,404	35,519	27,328	30,871	39,811	52,496	0	33,884
Garbage Truck	44,180	13,473	48,878	54,417	62,231	120,000	0	0	42,897
Livestock Truck	30,943	400	69,997	70,517	71,055	5,727	74,451	0	40,386
Logging	45,798	49,044	51,638	55,343	50,479	0	82,334	25,000	44,955
Tank Truck, Dry Bulk	36,427	20,115	70,277	60,474	93,856	56,944	57,888	0	49,498
Tank Truck, Liquid or Gas	60,222	71,435	73,417	70,441	70,068	0	92,314	0	54,737
Other	15,465	23,982	35,923	36,809	56,018	49,291	59,001	0	34,561
Total Mean	38,195	31,827	58,735	56,374	61,676	43,722	59,488	15,469	45,686

Note: Some means are based on very small sample data. Accompanying table gives sample size.

Figure 8.2-1

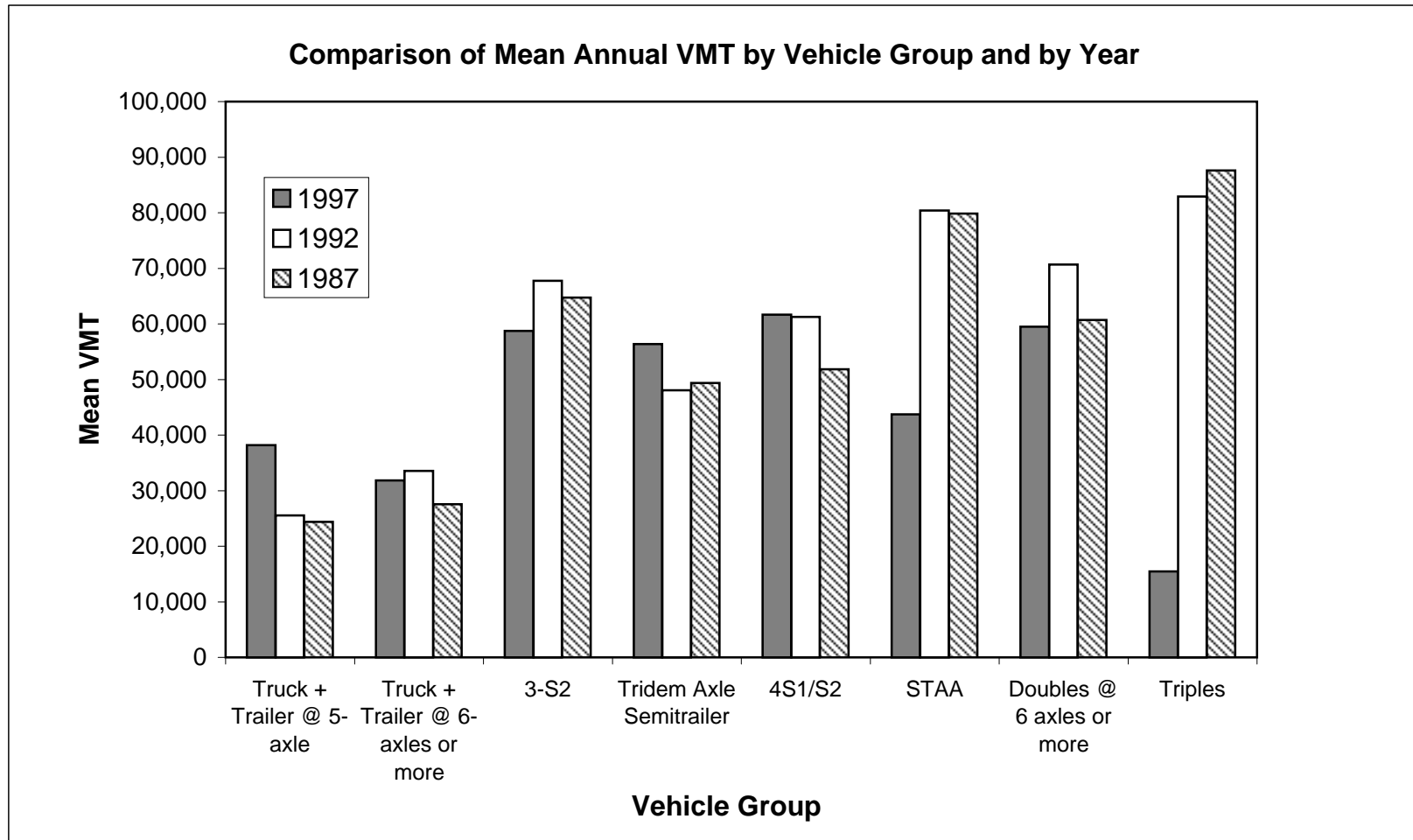


Table 8.2-2

Sample Sizes for Body Type, by Vehicle Group

1997 Truck Fleet

Major Body Type	Truck + Trailer @ 5 axle	Truck + Trailer @ 6-axles or more	3-S2	Tridem Axle Semitrailer	4S1/S2	STAA	Doubles @ 6 axles or more	Triples	Total
Platform	1,164	430	18,519	2,667	608	569	923	89	24,969
Van	282	75	4,020	766	148	41	151	5	5,488
Auto Transport	72	17	9,026	927	148	504	421	81	11,196
Dump Truck	14	0	139	9	9	0	1	0	172
Grain Bodies	402	184	1,286	366	103	8	154	2	2,505
Garbage Truck	67	12	1,029	67	41	6	57	0	1,279
Livestock Truck	7	3	100	16	7	1	0	0	134
Logging	10	1	261	28	14	2	6	0	322
Tank Truck, Dry Bulk	95	34	562	125	54	0	19	1	890
Tank Truck, Liquid or Gas	10	1	359	22	7	6	21	0	426
Other	81	59	1,341	120	54	0	82	0	1,737
Total	2,204	816	36,642	5,113	1,193	1,137	1,835	178	49,118

Figure 8.3-1

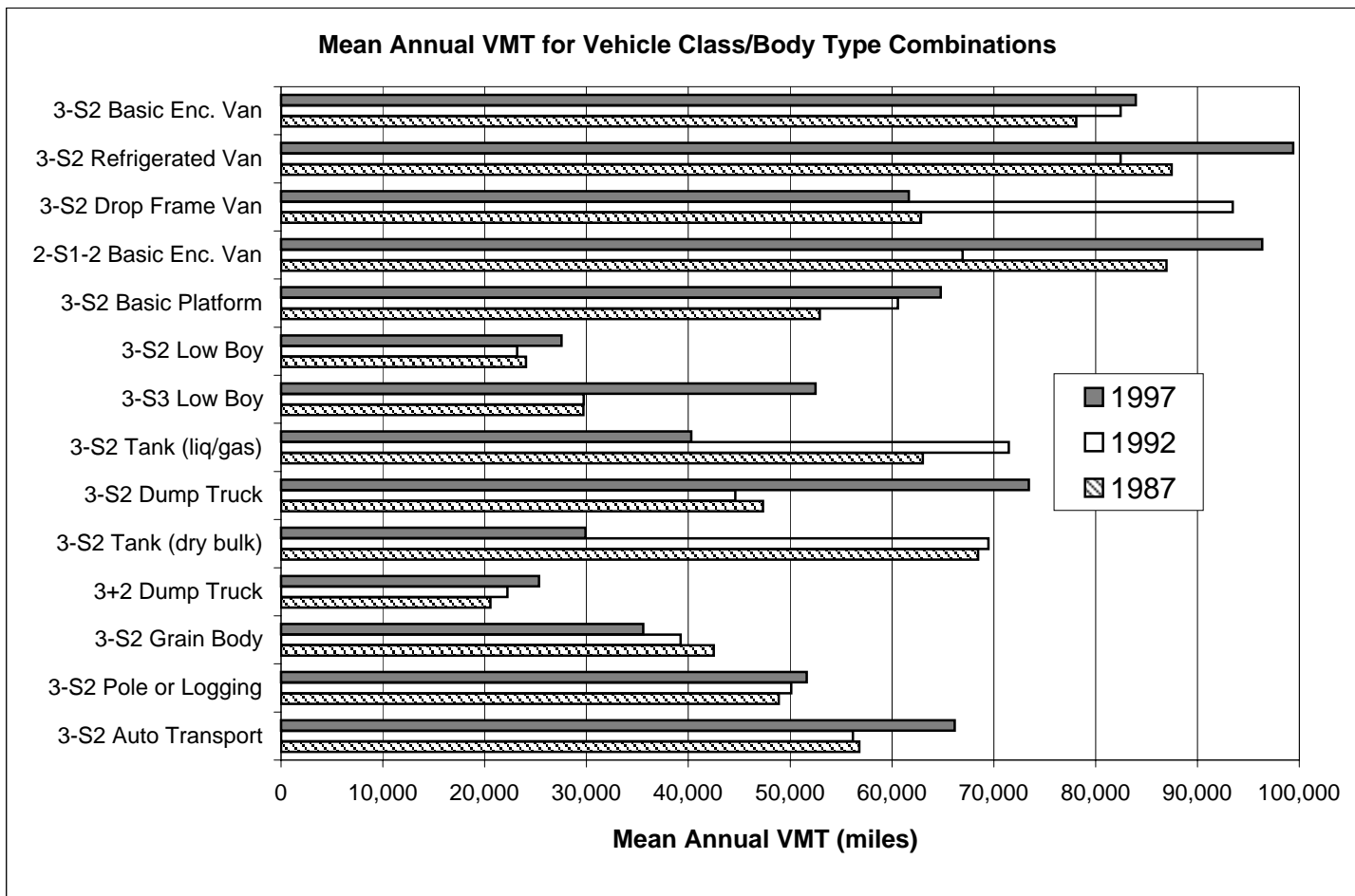
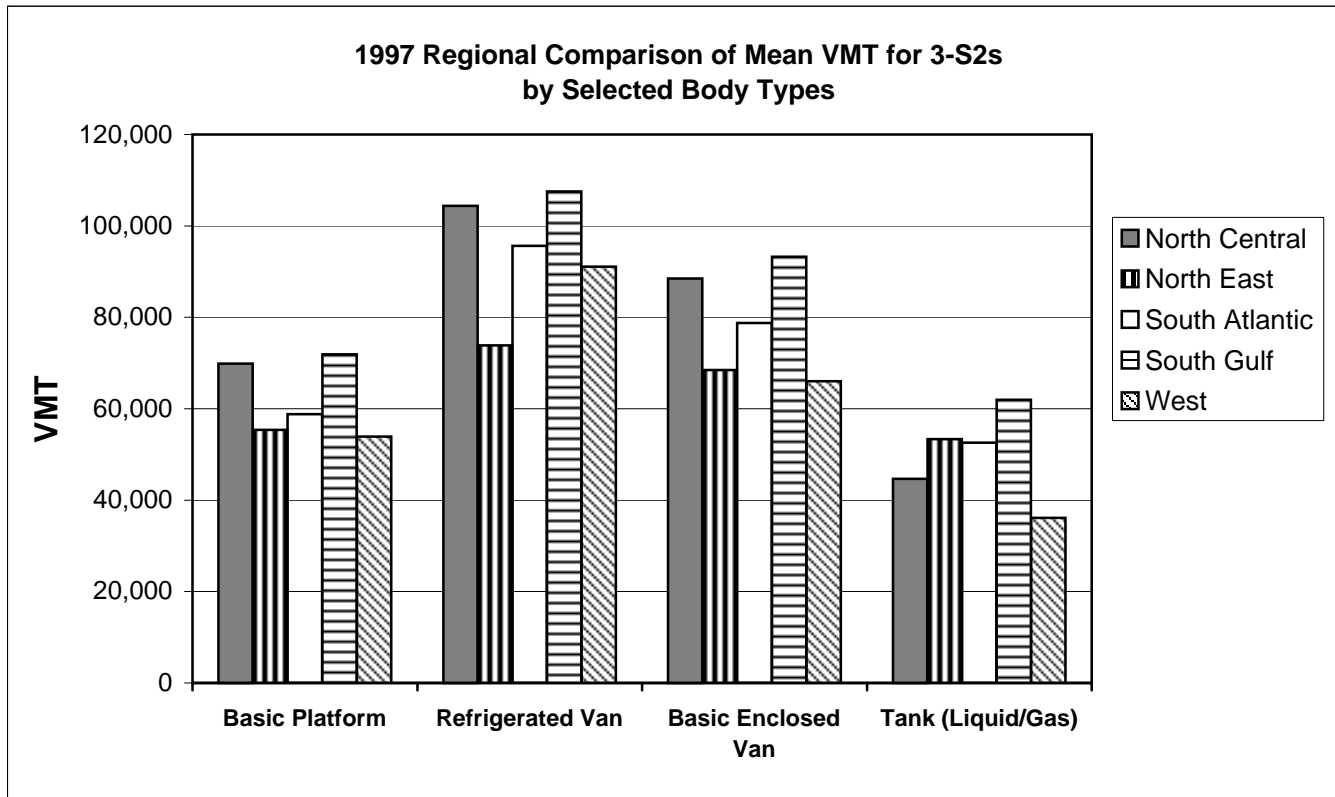


Figure 8.3-2



Appendix A

Regional Distributions of The Total Truck Fleet

1997 Truck Fleet
Traffic Region: North Central

Straight Truck				
State	2-axle	3-axle	4-axle	Total
Illinois	108,655	22,636	2,200	133,490
Indiana	75,220	12,266	6,324	93,811
Iowa	41,417	14,194	1,691	57,301
Kansas	57,870	15,221	1,475	74,565
Michigan	74,101	11,966	6,067	92,134
Minnesota	51,035	19,887	4,810	75,733
Missouri	57,401	14,908	1,793	74,101
Nebraska	32,780	10,241	1,359	44,379
North Dakota	26,974	10,563	1,965	39,502
Ohio	114,448	13,714	8,024	136,186
South Dakota	21,343	5,778	847	27,968
Wisconsin	55,766	9,461	8,884	74,111
Total	717,009	160,834	45,438	923,281

Truck + Trailer							
State	2+2	2+3	3+2	3+3	*4+2	*4+3	Total
Illinois	5,098	0	508	0	0	0	5,606
Indiana	4,609	72	372	0	0	0	5,053
Iowa	2,794	264	773	81	234	81	4,227
Kansas	2,009	210	637	40	80	40	3,015
Michigan	4,394	809	735	433	458	680	7,509
Minnesota	4,680	368	1,396	103	411	103	7,061
Missouri	3,593	197	199	50	0	0	4,039
Nebraska	928	199	229	37	272	533	2,198
North Dakota	1,040	242	816	97	120	72	2,387
Ohio	4,223	826	1,626	100	102	100	6,978
South Dakota	269	63	372	0	17	50	771
Wisconsin	2,895	1,222	53	53	107	0	4,332
Total	36,532	4,471	7,718	995	1,799	1,660	53,175

Tractor + Semitrailer										
State	2-S1	2-S2	2-S3	3-S1	3-S2	3-S3	4-S1	4-S2	4-S3	Total
Illinois	2,524	10,826	0	505	104,025	4,378	0	2,376	673	125,308
Indiana	1,661	4,436	1,227	217	40,504	2,744	0	434	144	51,367
Iowa	1,055	3,045	457	162	37,179	1,929	0	731	487	45,045
Kansas	1,180	1,368	200	450	15,122	1,123	0	771	160	20,375
Michigan	1,366	2,563	285	284	19,397	9,628	0	626	968	35,117
Minnesota	1,183	2,051	256	0	23,488	3,115	0	1,080	512	31,685
Missouri	1,839	2,635	496	500	28,719	2,245	0	500	100	37,033
Nebraska	859	1,842	269	115	22,869	1,188	0	609	381	28,131
North Dakota	409	705	120	185	6,704	871	0	362	243	9,598
Ohio	2,740	5,861	102	715	40,868	5,524	0	1,005	202	57,017
South Dakota	88	906	70	51	7,593	523	0	154	262	9,646
Wisconsin	1,419	4,426	0	171	31,670	2,162	0	890	228	40,966
Total	16,323	40,664	3,483	3,355	378,137	35,429	0	9,538	4,359	491,288

Tractor + Doubles											
State	2-S1-2	3-S1-2	2-S2-2	3-S2-2	*Other 7-axle	3-S2-3	*Other 8-axle	3-S2-4	*Other 9-axle	*Other 10-axle	Total
Illinois	16,157	1,683	2,524	1,178	168	168	0	0	0	0	21,879
Indiana	72	72	0	0	0	0	0	72	0	0	217
Iowa	0	0	0	0	0	0	0	0	0	0	0
Kansas	200	40	0	0	0	0	0	0	0	0	240
Michigan	0	171	57	718	0	114	57	2,825	0	285	4,227
Minnesota	0	0	0	0	0	103	0	0	0	0	103
Missouri	0	50	0	0	0	0	0	0	0	0	50
Nebraska	154	76	0	0	0	0	0	0	0	0	229
North Dakota	24	167	0	143	149	0	0	24	0	0	506
Ohio	714	0	0	201	0	100	0	0	0	0	1,015
South Dakota	35	18	18	139	0	0	18	70	17	35	349
Wisconsin	281	57	0	0	0	0	0	0	0	0	338
Total	17,636	2,333	2,599	2,379	317	485	75	2,992	17	320	29,151

Tractor + Triples				
State	2-S1-2-2	3-S1-2-2	Other	Total
Illinois	0	0	337	337
Indiana	0	0	0	0
Iowa	0	0	0	0
Kansas	0	0	0	0
Michigan	0	57	0	57
Minnesota	0	0	0	0
Missouri	0	0	0	0
Nebraska	0	0	0	0
North Dakota	0	0	0	0
Ohio	0	0	0	0
South Dakota	0	0	0	0
Wisconsin	0	0	0	0
Total	0	57	337	394

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet

Traffic Region: North East

Straight Truck				
State	2-axle	3-axle	4-axle	Total
Connecticut	27,773	3,715	2,888	34,376
Maine	14,119	4,061	1,009	19,188
Massachusetts	46,838	7,287	1,989	56,114
New Hampshire	14,688	3,400	568	18,656
New Jersey	56,814	9,627	1,866	68,308
New York	105,734	21,611	3,468	130,813
Pennsylvania	92,476	13,982	11,744	118,201
Rhode Island	6,278	905	188	7,371
Vermont	7,901	2,538	202	10,641
Total	372,622	67,126	23,922	463,669

Truck +Trailer							
State	2+2	2+*3	3+2	3+*3	*4+2	*4+*3	Total
Connecticut	767	128	89	45	31	29	1,089
Maine	882	83	98	87	11	0	1,160
Massachusetts	1,410	27	663	27	27	0	2,153
New Hampshire	724	34	158	69	22	0	1,007
New Jersey	1,760	302	886	246	50	0	3,245
New York	4,891	789	651	428	326	0	7,085
Pennsylvania	5,150	930	1,270	91	182	91	7,713
Rhode Island	432	31	54	35	9	9	570
Vermont	172	0	29	17	29	0	247
Total	16,187	2,324	3,899	1,044	687	129	24,270

Truck + Semitrailer										
State	2-S1	2-S2	2-S3	3-S1	3-S2	3-*S3	4-S1	4-S2	4*S3	Total
Connecticut	131	1,096	58	73	2,954	444	0	231	44	5,030
Maine	44	339	105	22	2,444	1,494	0	77	87	4,612
Massachusetts	753	1,572	176	107	7,593	1,312	0	295	134	11,943
New Hampshire	93	409	35	70	2,465	923	0	199	0	4,195
New Jersey	454	3,872	0	0	20,994	1,459	0	653	101	27,532
New York	1,038	3,937	390	390	15,518	3,268	0	325	390	25,256
Pennsylvania	1,511	5,046	454	182	36,994	3,272	0	1,272	363	49,094
Rhode Island	58	423	9	5	1,154	123	0	23	9	1,805
Vermont	29	162	12	6	1,941	226	0	93	29	2,498
Total	4,112	16,858	1,240	853	92,057	12,523	0	3,166	1,157	131,966

Tractor + Doubles											
State	2-S1-2	3-S1-2	2-S2-2	3-S2-2	*Other 7-axle	3-S2-3	*Other 8-axle	3-*S2-*4	*Other 9-axle	*Other 9-axle	Total
Connecticut	15	29	0	0	0	0	0	16	0	0	59
Maine	11	22	0	11	0	0	0	0	0	0	44
Massachusetts	27	0	0	0	0	0	0	27	0	0	54
New Hampshire	0	23	0	0	0	0	0	0	0	0	23
New Jersey	50	0	0	0	0	0	0	0	0	0	50
New York	363	0	0	649	0	130	65	195	0	0	1,401
Pennsylvania	91	91	0	0	0	0	0	0	0	0	182
Rhode Island	0	9	0	0	0	0	0	0	0	0	9
Vermont	0	0	0	12	0	0	6	0	0	0	17
Total	556	174	0	671	0	130	71	237	0	0	1,840

Tractor + Triples				
State	2-S1-2-2	3-S1-2-2	Other	Total
Connecticut	0	0	0	0
Maine	0	0	0	0
Massachusetts	0	0	0	0
New Hampshire	0	0	0	0
New Jersey	0	0	49	49
New York	0	65	0	65
Pennsylvania	0	0	0	0
Rhode Island	0	0	0	0
Vermont	0	0	0	0
Total	0	65	49	114

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet
Traffic Region: South Atlantic

<i>Straight Truck</i>				
State	2-axle	3-axle	4-axle	Total
Delaware	8,255	1,445	294	9,994
District of Columbia	1,171	151	15	1,337
Florida	101,910	17,607	3,704	123,221
Georgia	70,402	14,971	178	85,551
Maryland	43,611	7,257	1,125	51,993
North Carolina	82,388	14,221	4,852	101,462
South Carolina	32,130	4,297	1,758	38,185
Virginia	63,573	12,118	2,983	78,674
West Virginia	19,221	3,964	2,060	25,245
Total	422,662	76,032	16,969	515,663

<i>Truck + Trailer</i>							
State	2+2	2+*3	3+2	3+*3	*4+2	*4+*3	Total
Delaware	93	251	6	18	0	0	369
District of Columbia	24	0	4	0	0	0	28
Florida	4,262	1,895	166	82	0	82	6,486
Georgia	3,864	56	1,250	288	0	56	5,514
Maryland	1,132	38	38	36	0	0	1,243
North Carolina	4,559	489	1,035	225	221	0	6,529
South Carolina	1,940	271	207	0	51	26	2,495
Virginia	2,229	222	542	187	0	0	3,180
West Virginia	221	111	130	67	32	0	560
Total	18,325	3,333	3,377	902	303	164	26,404

<i>Truck + Semitrailer</i>										
State	2-S1	2-S2	2-S3	3-S1	3-S2	3-*S3	4-S1	4-S2	4*S3	Total
Delaware	37	438	41	0	2,473	80	0	68	0	3,138
District of Columbia	5	2	0	5	59	0	0	0	0	71
Florida	3,221	9,547	753	336	35,119	2,997	84	1,655	663	54,374
Georgia	2,080	3,001	169	367	26,913	3,682	0	922	231	37,364
Maryland	729	1,928	141	336	10,304	971	0	149	0	14,558
North Carolina	2,435	5,247	146	583	34,863	2,486	73	1,022	512	47,365
South Carolina	765	1,938	233	78	10,811	1,454	0	417	78	15,773
Virginia	1,310	2,141	335	37	15,445	1,397	0	849	257	21,771
West Virginia	304	564	81	34	3,714	638	0	269	50	5,654
Total	10,884	24,807	1,899	1,775	139,700	13,706	157	5,349	1,791	200,068

<i>Tractor + Doubles</i>											
State	2-S1-2	3-S1-2	2-S2-2	3-S2-2	*Other 7-axle	3-S2-3	*Other 8-axle	3-*S2-*4	*Other 9-axle	*Other 10-axle	Total
Delaware	0	29	0	0	0	0	0	0	0	0	29
District of Columbia	2	0	0	0	0	0	0	0	0	0	2
Florida	1,251	166	84	168	0	0	0	0	0	0	1,668
Georgia	56	0	94	206	0	56	0	0	0	0	413
Maryland	75	0	0	0	0	0	0	0	0	0	75
North Carolina	1,175	877	1,819	0	0	0	0	0	0	0	3,871
South Carolina	26	0	0	26	0	0	25	0	0	0	78
Virginia	37	0	0	0	37	0	0	0	0	0	74
West Virginia	0	17	0	17	0	0	0	0	0	0	34
Total	2,622	1,089	1,997	417	37	56	25	0	0	0	6,244

<i>Tractor + Triples</i>				
State	2-S1-2-2	3-S1-2-2	Other	Total
Delaware	0	0	0	0
District of Columbia	0	0	0	0
Florida	0	0	0	0
Georgia	0	0	0	0
Maryland	0	0	0	0
North Carolina	0	73	0	73
South Carolina	0	0	0	0
Virginia	0	0	0	0
West Virginia	0	0	0	0
Total	0	73	0	73

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet
Traffic Region: South Gulf

Straight Truck				
State	2-axle	3-axle	4-axle	Total
Alabama	41,806	7,907	2,402	52,115
Arkansas	5,925	319	76	6,321
Kentucky	65,533	8,202	2,897	76,632
Louisiana	22,069	7,702	657	30,428
Mississippi	11,455	2,234	103	13,793
Oklahoma	47,015	12,163	2,214	61,391
Tennessee	44,336	6,769	2,492	53,597
Texas	128,743	28,124	311	157,178
Total	366,882	73,421	11,153	451,455

Truck + Trailer							
State	2+2	2+*3	3+2	3+*3	*4+2	*4+*3	Total
Alabama	3,188	100	1,608	100	51	51	5098
Arkansas	97	62	6	17	0	0	182
Kentucky	185	0	66	145	0	0	396
Louisiana	1,907	97	700	199	78	26	3008
Mississippi	733	71	1,010	116	100	16	2045
Oklahoma	3,566	344	784	231	324	81	5331
Tennessee	1,626	476	772	0	211	0	3085
Texas	3,600	0	672	112	0	112	4496
Total	14,903	1,149	5,619	920	763	286	23,640

Truck + Semitrailer										
State	2-S1	2-S2	2-S3	3-S1	3-S2	3-*S3	4-S1	4-S2	4*S3	Total
Alabama	1,305	3,098	469	101	25,978	2,619	0	556	100	34228
Arkansas	9	66	2	2	229	45	0	25	0	378
Kentucky	1,912	2,732	631	203	10,337	2,142	0	260	58	18274
Louisiana	950	2,103	236	498	10,205	1,887	0	639	411	16927
Mississippi	299	1,049	132	100	9,000	711	0	215	33	11537
Oklahoma	1,961	8,417	1,014	649	72,812	10,105	0	1,126	392	96475
Tennessee	4,276	4,398	418	285	43,718	3,493	0	999	285	57871
Texas	5,413	11,163	1,907	2,349	62,646	5,972	0	784	224	90459
Total	16,124	33,026	4,809	4,186	234,925	26,973	0	4,604	1,503	326,149

Tractor + Doubles											
State	2-S1-2	3-S1-2	2-S2-2	3-S2-2	*Other 7-axle	3-S2-3	*Other 8-axle	3-*S2-*4	*Other 9-axle	*Other 10-axle	Total
Alabama	101	50	0	354	0	0	0	0	0	0	505
Arkansas	0	0	0	0	0	0	0	0	0	0	0
Kentucky	0	29	0	0	0	0	0	0	0	0	29
Louisiana	53	737	0	0	26	25	25	0	0	0	866
Mississippi	33	0	0	0	0	0	0	0	0	0	33
Oklahoma	541	5,676	0	460	0	0	0	230	0	0	6907
Tennessee	3,210	143	0	71	571	71	0	0	0	0	4066
Texas	336	336	0	0	0	0	0	0	0	0	672
Total	4,274	6,971	0	885	597	96	25	230	0	0	13,078

Tractor + Triples				
State	2-S1-2-2	3-S1-2-2	Other	Total
Alabama	0	0	0	0
Arkansas	0	0	0	0
Kentucky	0	0	0	0
Louisiana	0	0	0	0
Mississippi	0	0	0	0
Oklahoma	0	2,108	0	2,108
Tennessee	0	0	0	0
Texas	0	0	0	0
Total	0	2,108	0	2,108

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet
Traffic Region: West

Straight Truck				
State	2-axle	3-axle	4-axle	Total
Alaska	5,783	2,257	46	8,086
Arizona	35,418	4,355	1,854	41,627
California	201,642	33,698	6,266	241,606
Colorado	45,273	11,454	457	57,184
Hawaii	8,444	1,501	173	10,118
Idaho	17,369	7,388	289	25,046
Montana	19,264	5,469	573	25,305
Nevada	13,048	2,824	662	16,535
New Mexico	17,181	4,139	361	21,681
Oregon	41,032	7,134	494	48,660
Utah	13,530	3,203	592	17,325
Washington	52,318	10,545	1,767	64,630
Wyoming	11,936	3,578	230	15,744
Total	194,121	45,781	5,141	245,044

Truck + Trailer							
State	2+2	2+*3	3+2	3+*3	*4+2	*4+*3	Total
Alaska	171	0	107	77	0	0	356
Arizona	2,138	25	1,126	0	180	0	3,469
California	7,928	284	12,472	1,096	284	0	22,064
Colorado	2,532	370	1,125	0	32	0	4,059
Hawaii	284	27	225	43	0	0	579
Idaho	829	28	1,075	157	57	404	2,550
Montana	809	0	755	162	108	144	1,978
Nevada	263	92	836	34	69	11	1,306
New Mexico	1,151	1,500	882	19	36	14	3,602
Oregon	944	871	403	223	0	46	2,487
Utah	774	96	871	214	230	253	2,438
Washington	2,276	323	3,043	741	289	1,454	8,125
Wyoming	663	35	384	22	88	33	1,225
Total	7,992	2,971	8,475	1,617	877	2,358	24,290

Truck + Semitrailer										
State	2-S1	2-S2	2-S3	3-S1	3-S2	3-S3	4-S1	4-S2	4-S3	Total
Alaska	32	152	6	43	1,371	247	0	161	49	2,062
Arizona	850	954	104	130	8,172	494	0	182	0	10,886
California	9,367	17,976	284	1,419	65,346	5,643	0	1,987	284	102,307
Colorado	793	1,100	95	222	8,810	698	0	347	95	12,159
Hawaii	91	225	11	43	1,044	123	0	48	5	1,591
Idaho	274	474	199	57	3,005	491	0	129	298	4,926
Montana	266	277	18	54	6,687	452	0	324	438	8,515
Nevada	241	413	57	138	2,843	149	0	92	34	3,966
New Mexico	520	1,091	168	108	6,841	920	0	212	36	9,896
Oregon	1,592	3,175	135	178	17,110	1,417	0	853	1,024	25,483
Utah	730	881	20	110	10,995	451	22	227	41	13,477
Washington	628	825	83	124	10,213	1,403	41	989	1,003	15,308
Wyoming	136	401	55	33	3,265	552	0	166	110	4,719
Total	4,477	7,762	746	845	62,002	5,958	63	3,039	2,989	87,881

Tractor + Doubles											
State	2-S1-2	3-S1-2	2-S2-2	3-S2-2	*Other 7-axle	3-S2-3	*Other 8-axle	3-S2-4	*Other 9-axle	*Other 10-axle	Total
Alaska	0	0	0	67	0	0	0	74	0	0	141
Arizona	416	883	130	1,129	26	52	0	0	0	0	2,636
California	13,302	284	1,703	568	0	0	284	0	0	0	16,141
Colorado	63	32	0	127	0	0	0	0	0	0	222
Hawaii	5	21	0	0	0	5	0	0	11	0	43
Idaho	14	14	0	356	0	43	43	43	0	0	512
Montana	36	72	79	523	0	162	36	217	108	0	1,233
Nevada	103	69	23	298	11	34	23	149	0	0	711
New Mexico	18	54	18	18	0	0	0	0	0	0	108
Oregon	12,606	1,236	0	574	0	575	88	0	0	0	15,080
Utah	143	130	61	496	20	82	82	512	0	102	1,628
Washington	339	536	248	908	41	1,238	165	124	124	289	4,012
Wyoming	0	11	11	408	11	155	44	44	0	100	785
Total	13,265	2,144	440	3,581	84	2,294	481	1,089	243	491	24,112

Tractor + Triples				
State	2-S1-2-2	3-S1-2-2	Other	Total
Alaska	0	0	0	0
Arizona	26	364	973	1,363
California	0	0	0	0
Colorado	0	0	0	0
Hawaii	0	0	0	0
Idaho	0	0	0	0
Montana	0	0	0	0
Nevada	0	11	23	34
New Mexico	0	0	0	0
Oregon	206	88	0	295
Utah	0	82	0	82
Washington	0	0	0	0
Wyoming	0	0	22	22
Total	206	182	45	433

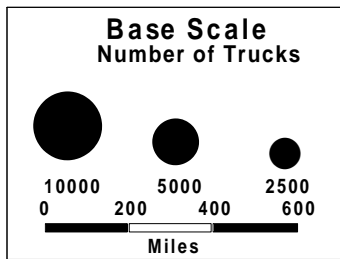
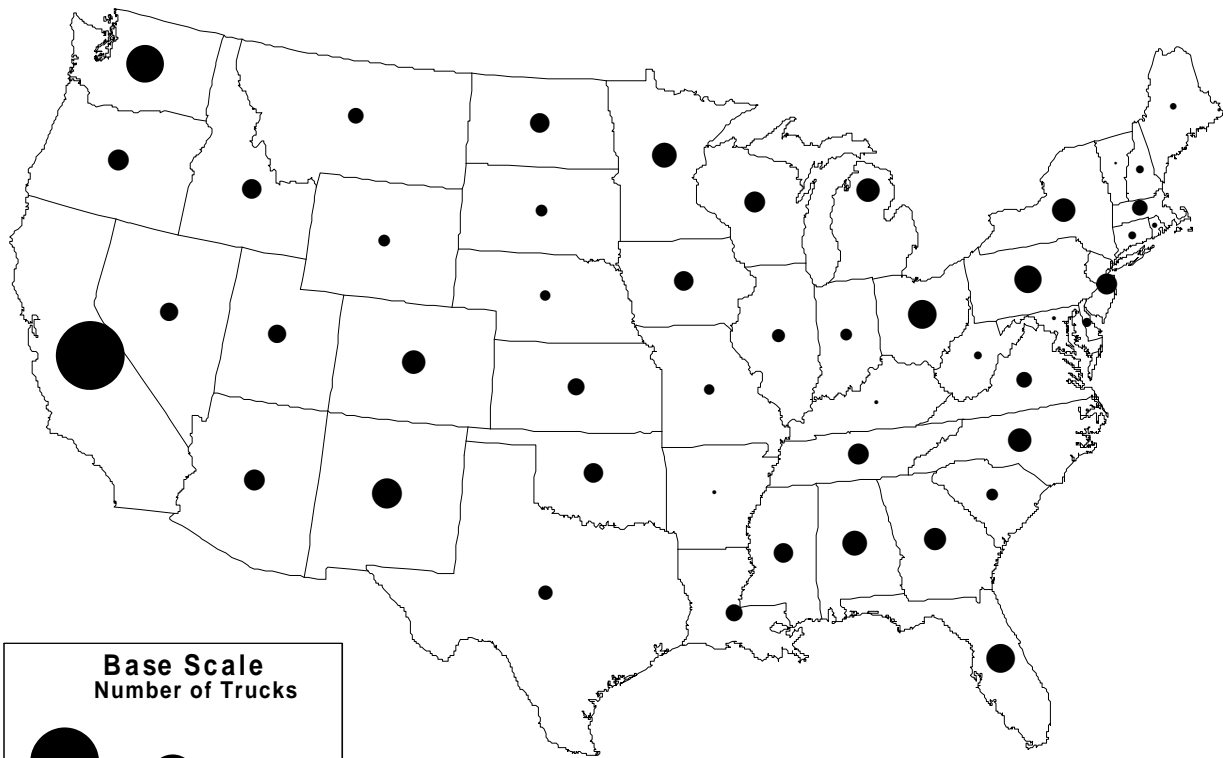
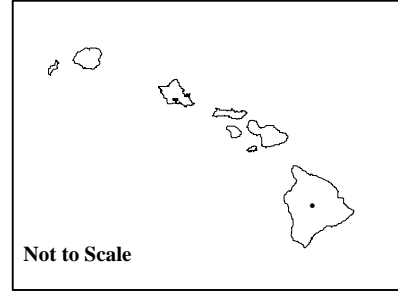
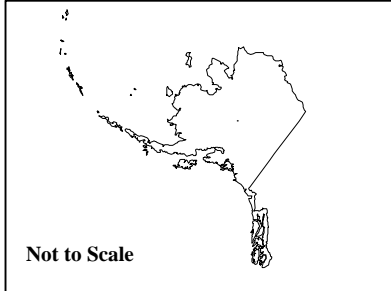
* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

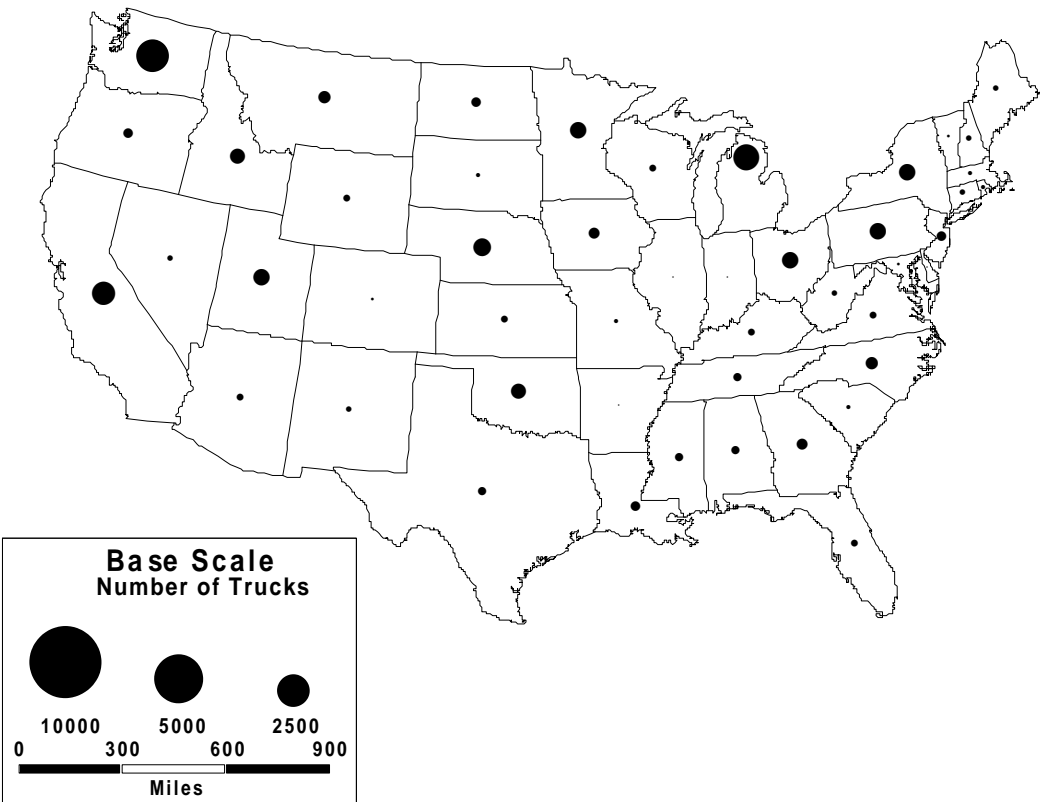
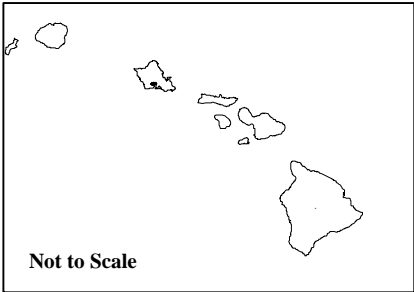
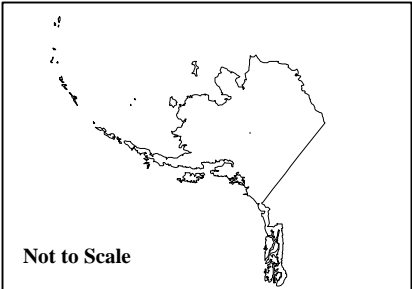
Appendix B

Regional Distributions of The 5-Axles or More Truck Fleet

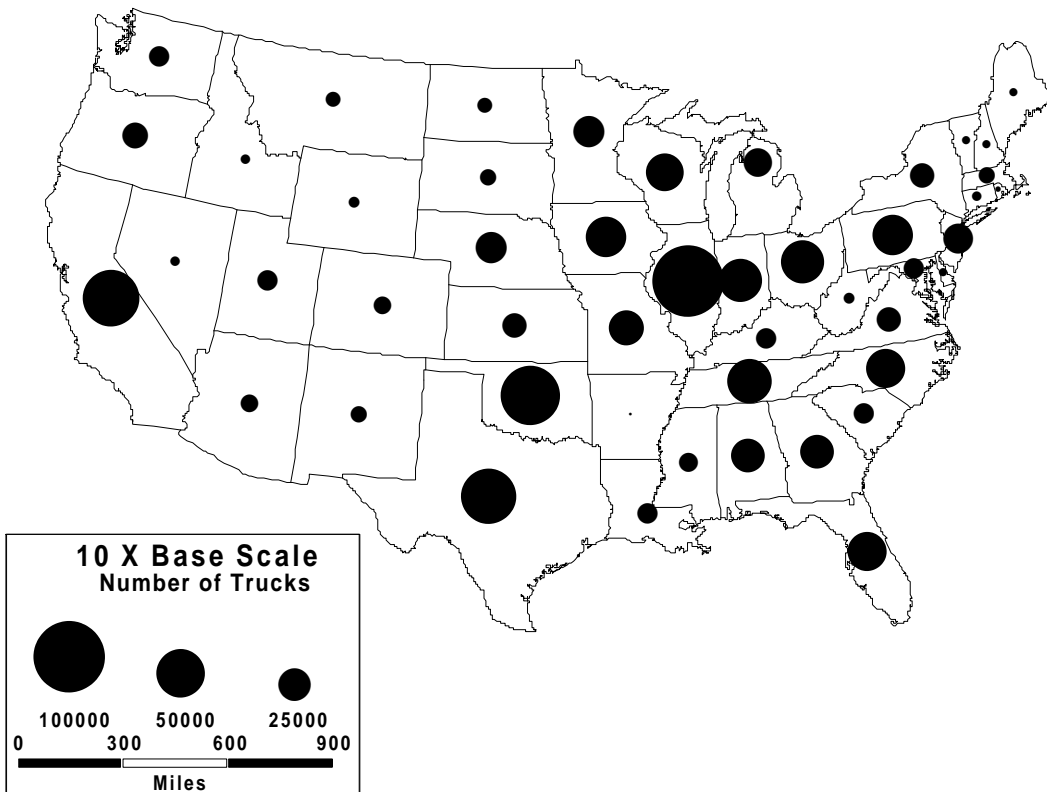
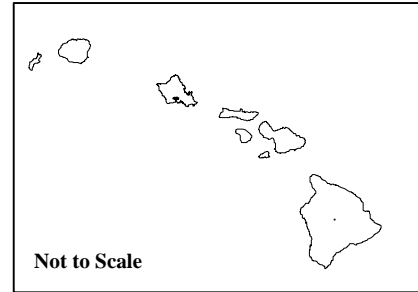
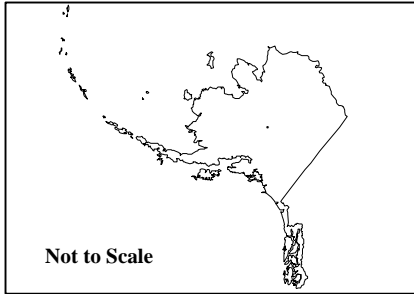
Truck + Trailer @ 5-Axle-1997



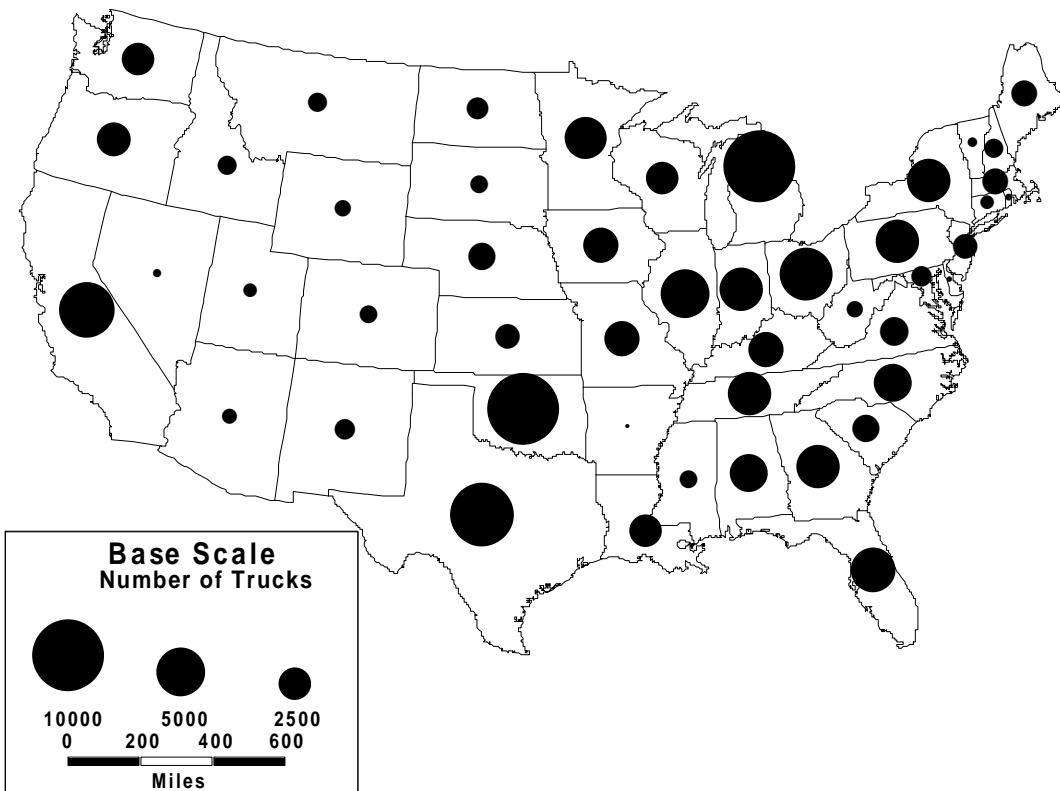
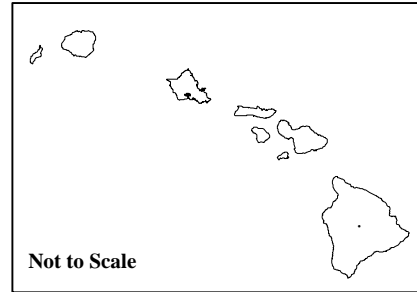
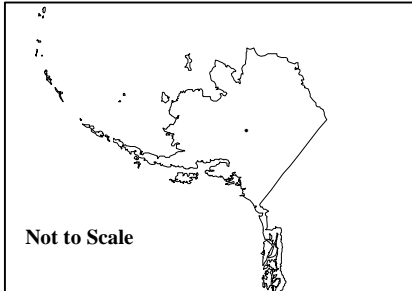
Truck + Trailer @ 6 or more Axle – 1997



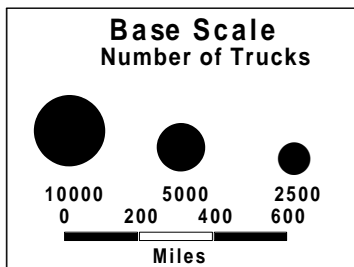
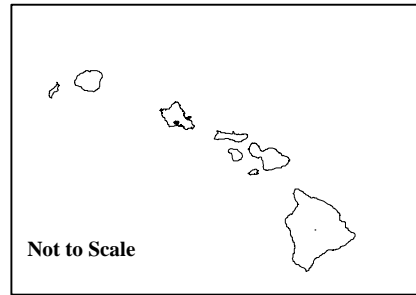
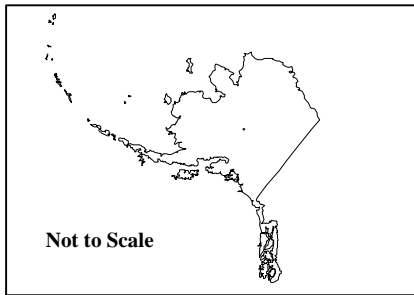
3 – S2 Tractor-Semitrailer – 1997



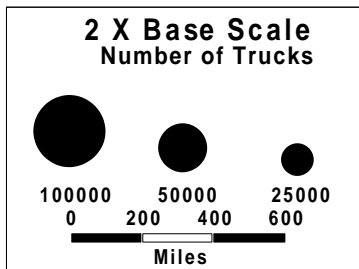
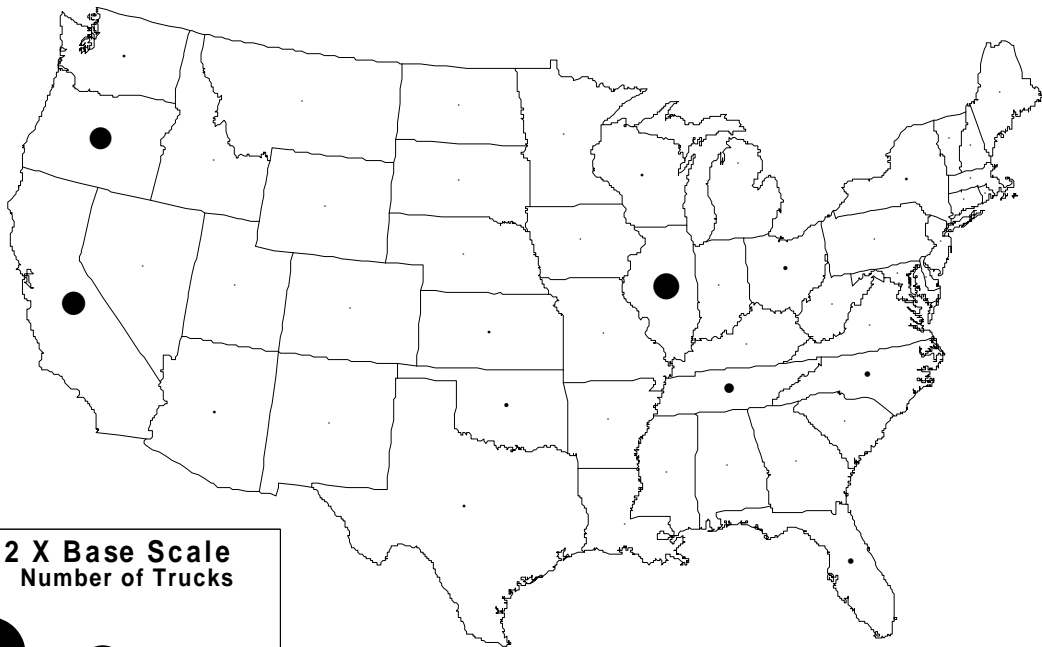
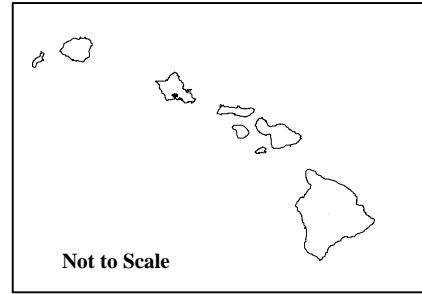
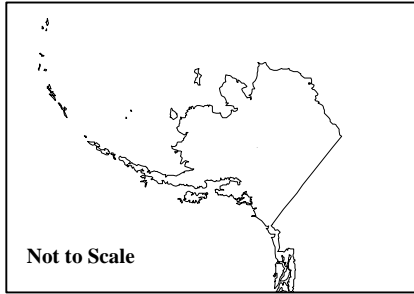
Tridem Axle Tractor Semitrailer – 1997



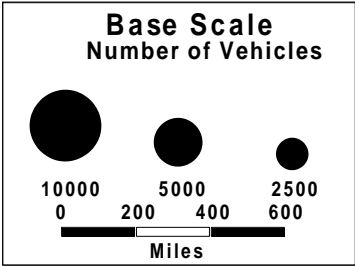
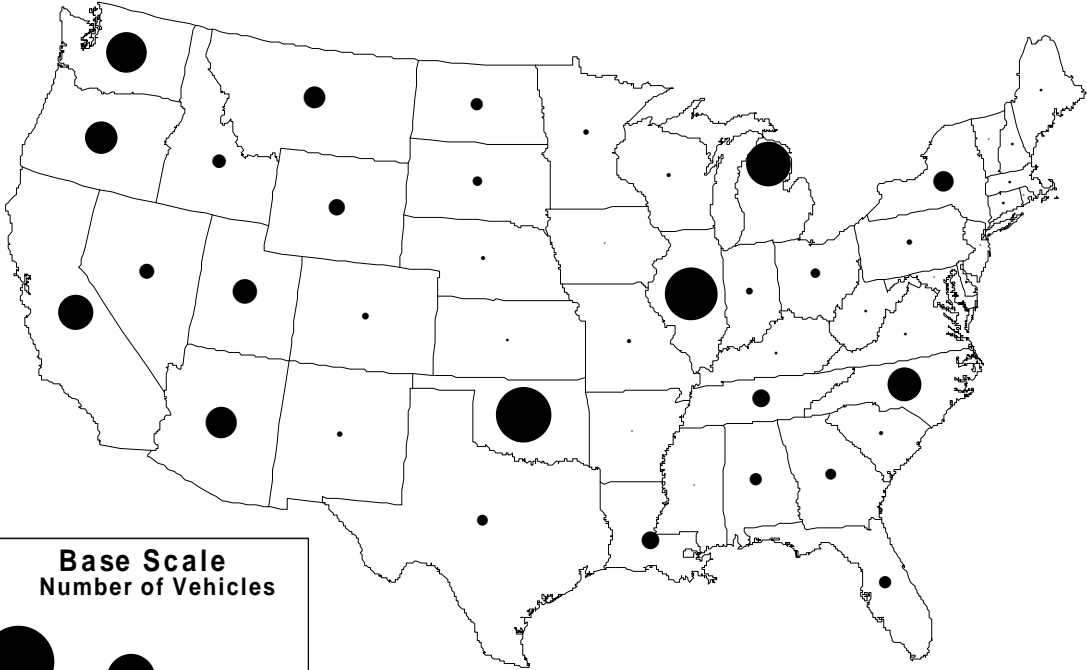
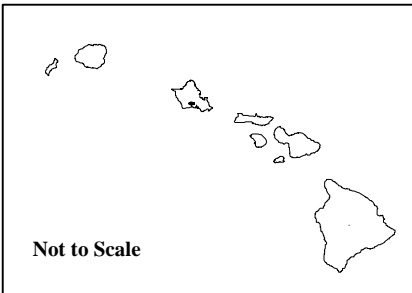
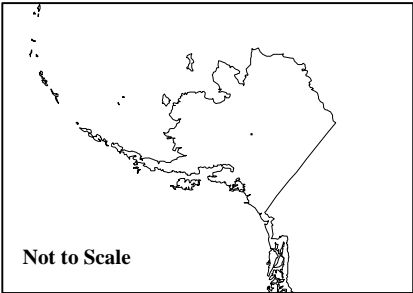
4S1/S2 Tractor – Semitrailer - 1997



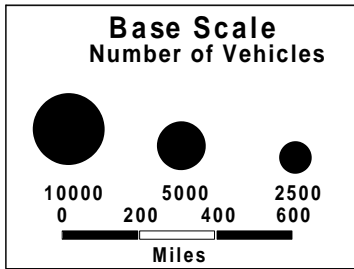
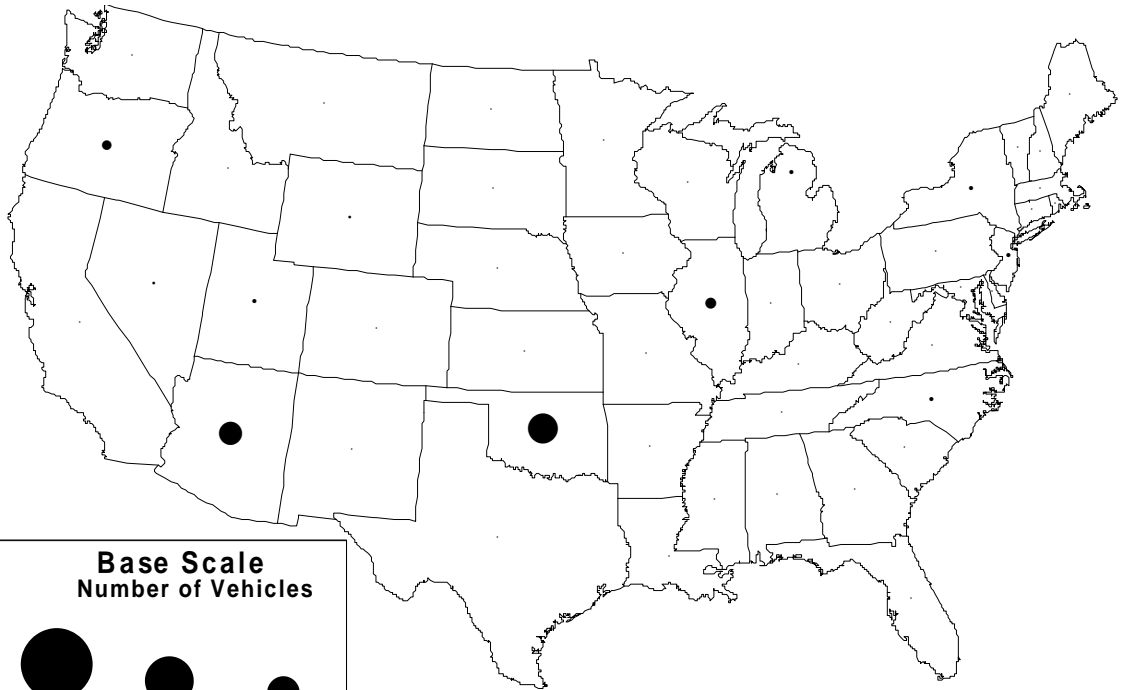
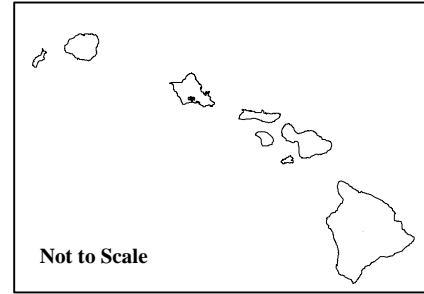
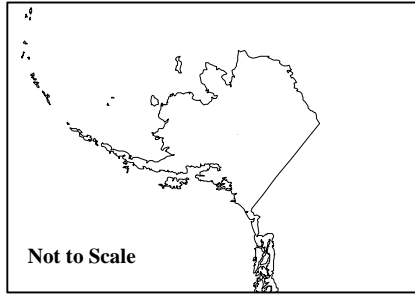
2-S1-2 STAA Tractor + Double Trailers – 1997



Tractor + Double Trailers @ 6 or more Axle – 1997



Tractor + Triple Trailers – 1997



1997 Truck Fleet (@ 5-axes or more)

Traffic Region: North Central

<i>Truck+Trailer</i>						
States	2+*3	3+2	3+*3	*4+2	*4+*3	Total
Illinois	0	508	0	0	0	508
Indiana	72	372	0	0	0	445
Iowa	264	773	81	234	81	1,433
Kansas	210	637	40	80	40	1,006
Michigan	809	735	433	458	680	3,114
Minnesota	368	1,396	103	411	103	2,381
Missouri	197	199	50	0	0	446
Nebraska	199	229	37	272	533	1,271
North Dakota	242	816	97	120	72	1,347
Ohio	826	1,626	100	102	100	2,755
South Dakota	63	372	0	17	50	502
Wisconsin	1,222	53	53	107	0	1,436
Total	4,471	7,718	995	1,799	1,660	16,643

<i>Tractor+Semitrailer</i>							
States	2-*S3	3-S2	3-*S3	4-S1	4-S2	4-*S3	Total
Illinois	0	104,025	4,378	0	2,376	673	111,452
Indiana	1,227	40,504	2,744	0	434	144	45,054
Iowa	457	37,179	1,929	0	731	487	40,782
Kansas	200	15,122	1,123	0	771	160	17,376
Michigan	285	19,397	9,628	0	626	968	30,904
Minnesota	256	23,488	3,115	0	1,080	512	28,451
Missouri	496	28,719	2,245	0	500	100	32,059
Nebraska	269	22,869	1,188	0	609	381	25,316
North Dakota	120	6,704	871	0	362	243	8,300
Ohio	102	40,868	5,524	0	1,005	202	47,701
South Dakota	70	7,593	523	0	154	262	8,601
Wisconsin	0	31,670	2,162	0	890	228	34,950
Total	3,483	378,137	35,429	0	9,538	4,359	430,946

<i>Tractor + Doubles</i>												
States	Other					Other		Other		Other		Total
	2-S1-2	3-S1-2	2-S2-2	3-S2-2	7-axle	3-S2-3	8-axle	3-*S2-*4	9-axle	10-axle		
Illinois	16,157	1,683	2,524	1,178	168	168	0	0	0	0	21,879	
Indiana	72	72	0	0	0	0	0	72	0	0	217	
Iowa	0	0	0	0	0	0	0	0	0	0	0	
Kansas	200	40	0	0	0	0	0	0	0	0	240	
Michigan	0	171	57	718	0	114	57	2,825	0	285	4,227	
Minnesota	0	0	0	0	0	103	0	0	0	0	103	
Missouri	0	50	0	0	0	0	0	0	0	0	50	
Nebraska	154	76	0	0	0	0	0	0	0	0	229	
North Dakota	24	167	0	143	149	0	0	24	0	0	506	
Ohio	714	0	0	201	0	100	0	0	0	0	1,015	
South Dakota	35	18	18	139	0	0	18	70	17	35	349	
Wisconsin	281	57	0	0	0	0	0	0	0	0	338	
Total	17,636	2,333	2,599	2,379	317	485	75	2,992	17	320	29,151	

<i>Tractor+Triples</i>				
States	2-S1-2-2	3-S1-2-2	Other	Total
Illinois	0	0	337	337
Indiana	0	0	0	0
Iowa	0	0	0	0
Kansas	0	0	0	0
Michigan	0	57	0	57
Minnesota	0	0	0	0
Missouri	0	0	0	0
Nebraska	0	0	0	0
North Dakota	0	0	0	0
Ohio	0	0	0	0
South Dakota	0	0	0	0
Wisconsin	0	0	0	0
Total	0	57	337	394

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet (@ 5-axes or more)

Traffic Region: Northeast

<i>Truck+Trailer</i>						
States	2+3*	3+2	3+*3	*4+2	*4+*3	Total
Connecticut	128	89	45	31	29	322
Maine	83	98	87	11	0	278
Massachusetts	27	663	27	27	0	743
New Hampshire	34	158	69	22	0	283
New Jersey	302	886	246	50	0	1,485
New York	789	651	428	326	0	2,194
Pennsylvania	930	1,270	91	182	91	2,564
Rhode Island	31	54	35	9	9	138
Vermont	0	29	17	29	0	75
Total	2,324	3,899	1,044	687	129	8,083

<i>Tractor+Semitrailer</i>							
States	2-*S3	3-S2	3-*S3	4-S1	4-S2	4-*S3	Total
Connecticut	58	2,954	444	0	231	44	3,730
Maine	105	2,444	1,494	0	77	87	4,208
Massachusetts	176	7,593	1,312	0	295	134	9,510
New Hampshire	35	2,465	923	0	199	0	3,622
New Jersey	0	20,994	1,459	0	653	101	23,206
New York	390	15,518	3,268	0	325	390	19,890
Pennsylvania	454	36,994	3,272	0	1,272	363	42,356
Rhode Island	9	1,154	123	0	23	9	1,318
Vermont	12	1,941	226	0	93	29	2,301
Total	1,240	92,057	12,523	0	3,166	1,157	110,143

<i>Tractor + Doubles</i>											
States	2-S1-2	3-S1-2	2-S2-2	3-S2-2	Other 7-axle	3-S2-3	Other 8-axle	3-*S2-*4	Other 9-axle	Other 10-axle	Total
Connecticut	0	0	0	0	15	0	29	0	0	16	59
Maine	0	0	0	0	11	0	22	11	0	0	44
Massachusetts	0	0	0	0	27	0	0	0	0	27	54
New Hampshire	0	0	0	0	0	0	23	0	0	0	23
New Jersey	0	0	0	0	50	0	0	0	0	0	50
New York	0	65	0	0	363	0	0	649	130	195	1,401
Pennsylvania	0	0	0	0	91	0	91	0	0	0	182
Rhode Island	0	0	0	0	0	0	9	0	0	0	9
Vermont	0	6	0	0	0	0	0	12	0	0	17
Total	0	71	0	0	556	0	174	671	130	237	1,840

<i>Tractor+Triples</i>				
States	2-S1-2-2	3-S1-2-2	Other	Total
Connecticut	0	0	0	0
Maine	0	0	0	0
Massachusetts	0	0	0	0
New Hampshire	0	0	0	0
New Jersey	0	0	49	49
New York	0	65	0	65
Pennsylvania	0	0	0	0
Rhode Island	0	0	0	0
Vermont	0	0	0	0
Total	0	65	49	114

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet (@ 5-axles or more)

Traffic Region: South Atlantic

<i>Truck+Trailer</i>						
States	2+*3	3+2	3+*3	*4+2	*4+3*	Total
Delaware	251	6	18	0	0	275
District of Columbia	0	4	0	0	0	4
Florida	1,895	166	82	0	82	2,224
Georgia	56	1,250	288	0	56	1,650
Maryland	38	38	36	0	0	111
North Carolina	489	1,035	225	221	0	1,970
South Carolina	271	207	0	51	26	555
Virginia	222	542	187	0	0	951
West Virginia	111	130	67	32	0	339
Total	3,333	3,377	902	303	164	8,079

<i>Tractor-Semitrailer</i>							
States	2-*S3	3-S2	3-*S3	4-S1	4-S2	4-*S3	Total
Delaware	41	2,473	80	0	68	0	2,663
District of Columbia	0	59	0	0	0	0	59
Florida	753	35,119	2,997	84	1,655	663	41,271
Georgia	169	26,913	3,682	0	922	231	31,917
Maryland	141	10,304	971	0	149	0	11,565
North Carolina	146	34,863	2,486	73	1,022	512	39,100
South Carolina	233	10,811	1,454	0	417	78	12,993
Virginia	335	15,445	1,397	0	849	257	18,282
West Virginia	81	3,714	638	0	269	50	4,752
Total	1,899	139,700	13,706	157	5,349	1,791	162,602

<i>Tractor + Doubles</i>											
States	2-S1-2	3-S1-2	2-S2-2	3-S2-2	Other 7-axle	3-S2-3	Other 8-axle	3-*S2-*4	Other 9-axle	Other 10-axle	Total
Delaware	0	29	0	0	0	0	0	0	0	0	29
District of Columbia	2	0	0	0	0	0	0	0	0	0	2
Florida	1,251	166	84	168	0	0	0	0	0	0	1,668
Georgia	56	0	94	206	0	56	0	0	0	0	413
Maryland	75	0	0	0	0	0	0	0	0	0	75
North Carolina	1,175	877	1,819	0	0	0	0	0	0	0	3,871
South Carolina	26	0	0	26	0	0	25	0	0	0	78
Virginia	37	0	0	0	37	0	0	0	0	0	74
West Virginia	0	17	0	17	0	0	0	0	0	0	34
Total	2,622	1,089	1,997	417	37	56	25	0	0	0	6,244

<i>Tractor+Triples</i>				
States	2-S1-2-2	3-S1-2-2	Other	Total
Delaware	0	0	0	0
District of Columbia	0	0	0	0
Florida	0	0	0	0
Georgia	0	0	0	0
Maryland	0	0	0	0
North Carolina	0	73	0	73
South Carolina	0	0	0	0
Virginia	0	0	0	0
West Virginia	0	0	0	0
Total	0	73	0	73

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet (@ 5-axes or more)

Traffic Region: South Gulf

<i>Truck+Trailer</i>						
States	2+*3	3+2	3+*3	*4+2	*4+3*	Total
Alabama	100	1,608	100	51	51	1,909
Arkansas	62	6	17	0	0	86
Kentucky	0	66	145	0	0	211
Louisiana	97	700	199	78	26	1,100
Mississippi	71	1,010	116	100	16	1,312
Oklahoma	344	784	231	324	81	1,764
Tennessee	476	772	0	211	0	1,459
Texas	0	672	112	0	112	896
Total	1,149	5,619	920	763	286	8,738

<i>Tractor-Semitrailer</i>							
States	2-*S3	3-S2	3-*S3	4-S1	4-S2	4-*S3	Total
Alabama	469	25,978	2,619	0	556	100	29,723
Arkansas	2	229	45	0	25	0	301
Kentucky	631	10,337	2,142	0	260	58	13,427
Louisiana	236	10,205	1,887	0	639	411	13,377
Mississippi	132	9,000	711	0	215	33	10,090
Oklahoma	1,014	72,812	10,105	0	1,126	392	85,449
Tennessee	418	43,718	3,493	0	999	285	48,912
Texas	1,907	62,646	5,972	0	784	224	71,533
Total	4,809	234,925	26,973	0	4,604	1,503	272,814

<i>Tractor + Doubles</i>											
States	Other		Other		Other		Other		Other		Total
	2-S1-2	3-S1-2	2-S2-2	3-S2-2	7-axle	3-S2-3	8-axle	3-*S2-*4	9-axle	10-axle	
Alabama	101	50	0	354	0	0	0	0	0	0	505
Arkansas	0	0	0	0	0	0	0	0	0	0	0
Kentucky	0	29	0	0	0	0	0	0	0	0	29
Louisiana	53	737	0	0	26	25	25	0	0	0	866
Mississippi	33	0	0	0	0	0	0	0	0	0	33
Oklahoma	541	5,676	0	460	0	0	0	230	0	0	6,907
Tennessee	3,210	143	0	71	571	71	0	0	0	0	4,066
Texas	336	336	0	0	0	0	0	0	0	0	672
Total	4,274	6,971	0	885	597	96	25	230	0	0	13,078

<i>Tractor+Triples</i>				
States	2-S1-2-2	3-S1-2-2	Other	Total
Alabama	0	0	0	0
Arkansas	0	0	0	0
Kentucky	0	0	0	0
Louisiana	0	0	0	0
Mississippi	0	0	0	0
Oklahoma	0	2,108	0	2,108
Tennessee	0	0	0	0
Texas	0	0	0	0
Total	0	2,108	0	2,108

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

1997 Truck Fleet (@ 5-axes or more)

Traffic Region: West

<i>Truck+Trailer</i>						
States	2+*3	3+2	3+*3	*4+2	*4+3*	Total
Alaska	0	107	77	0	0	185
Arizona	25	1,126	0	180	0	1,331
California	284	12,472	1,096	284	0	14,136
Colorado	370	1,125	0	32	0	1,527
Hawaii	27	225	43	0	0	295
Idaho	28	1,075	157	57	404	1,721
Montana	0	755	162	108	144	1,169
Nevada	92	836	34	69	11	1,043
New Mexico	1,500	882	19	36	14	2,451
Oregon	871	403	223	0	46	1,543
Utah	96	871	214	230	253	1,664
Washington	323	3,043	741	289	1,454	5,849
Wyoming	35	384	22	88	33	563
Total	3,650	23,306	2,790	1,372	2,358	33,476

<i>Tractor-Semitrailer</i>							
States	2-*S3	3-S2	3-*S3	4-S1	4-S2	4-*S3	Total
Alaska	6	1,371	247	0	161	49	1,835
Arizona	104	8,172	494	0	182	0	8,951
California	284	65,346	5,643	0	1,987	284	73,544
Colorado	95	8,810	698	0	347	95	10,044
Hawaii	11	1,044	123	0	48	5	1,232
Idaho	199	3,005	491	0	129	298	4,121
Montana	18	6,687	452	0	324	438	7,918
Nevada	57	2,843	149	0	92	34	3,175
New Mexico	168	6,841	920	0	212	36	8,177
Oregon	135	17,110	1,417	0	853	1,024	20,538
Utah	20	10,995	451	22	227	41	11,756
Washington	83	10,213	1,403	41	989	1,003	13,732
Wyoming	55	3,265	552	0	166	110	4,149
Total	1,235	145,702	13,039	63	5,716	3,417	169,173

<i>Tractor + Doubles</i>											
States	2-S1-2	3-S1-2	2-S2-2	3-S2-2	Other 7-axle	3-S2-3	Other 8-axle	3-*S2-*4	Other 9-axle	Other 10-axle	Total
Alaska	0	0	0	67	0	0	0	74	0	0	141
Arizona	416	883	130	1,129	26	52	0	0	0	0	2,636
California	13,302	284	1,703	568	0	0	284	0	0	0	16,141
Colorado	63	32	0	127	0	0	0	0	0	0	222
Hawaii	5	21	0	0	0	5	0	0	11	0	43
Idaho	14	14	0	356	0	43	43	43	0	0	512
Montana	36	72	79	523	0	162	36	217	108	0	1,233
Nevada	103	69	23	298	11	34	23	149	0	0	711
New Mexico	18	54	18	18	0	0	0	0	0	0	108
Oregon	12,606	1,236	0	574	0	575	88	0	0	0	15,080
Utah	143	130	61	496	20	82	82	512	0	102	1,628
Washington	339	536	248	908	41	1,238	165	124	124	289	4,012
Wyoming	0	11	11	408	11	155	44	44	0	100	785
Total	27,046	3,343	2,273	5,472	110	2,346	765	1,162	243	491	43,251

<i>Tractor+Triples</i>				
States	2-S1-2-2	3-S1-2-2	Other	Total
Alaska	0	0	0	0
Arizona	26	364	973	1363
California	0	0	0	0
Colorado	0	0	0	0
Hawaii	0	0	0	0
Idaho	0	0	0	0
Montana	0	0	0	0
Nevada	0	11	23	34
New Mexico	0	0	0	0
Oregon	206	88	0	295
Utah	0	82	0	82
Washington	0	0	0	0
Wyoming	0	0	22	22
Total	25,979	375	996	1,796

* Number of axles equal to or more than specified number

** Excludes pickups, mini-vans, sports utility vehicles, station wagons, trucks or truck-tractors with 4-tires, and trucks pulling 1-axle utility trailer.

Appendix C

Detailed Body Type Analysis by the 5 Regions For the 5-Axles or More Truck Fleet

1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Body Type by Vehicle Group
At the National Level

Body Type	Vehicle Group								
	Truck + Trailer @ 5-axle	Truck + Trailer @ 6-axles or more	3-S2	Tridem Axle Semitrailer	4S1/S2	STAA (2-S1-2)	Doubles @ 6 axles or more	Triples	Total
Multistop or Step Van	202	0	1,017	599	15	0	11	0	1,844
Platform with Devices	2,478	1,485	8,203	1,944	546	0	150	0	14,805
Low Boy Platform	4,738	1,110	45,088	20,148	1,951	772	251	211	74,269
Basic Platform	11,409	1,768	152,407	13,993	4,069	6,409	6,001	23	196,079
Livestock Truck	420	18	10,147	859	329	178	93	0	12,044
Insulated Non-refrigerated Van	11	0	21,364	528	157	0	402	0	22,462
Insulated Refrigerated Van	1,473	215	126,091	4,398	3,553	581	1,360	0	137,671
Drop Frame Van	172	284	18,425	1,478	181	4,059	937	0	25,536
Open Top Van	707	52	10,051	1,837	155	0	209	0	13,010
Basic Inclosed Van	1,967	323	353,987	44,331	5,569	35,637	22,339	4,163	468,314
Beverage Truck	420	284	2,223	357	186	0	11	0	3,481
Utility Truck	1,459	82	217	59	0	0	0	0	1,817
Winch or Crane Truck	805	251	1,711	914	36	0	0	0	3,715
Wrecker	0	0	109	51	0	0	26	0	185
Pole, Logging Truck	3,526	1,207	24,958	2,368	2,056	0	577	65	34,757
Auto Transport	234	0	9,072	333	377	0	18	0	10,035
Service Truck	226	18	11	0	0	0	0	0	255
Yard Tractor	50	0	2,931	597	0	0	41	0	3,620
Oilfield Truck	1,145	59	2,896	1,019	18	0	11	0	5,148
Grain Bodies	2,868	330	44,687	2,781	1,938	1,420	1,711	0	55,734
Garbage Truck	160	92	3,679	666	331	284	0	0	5,212
Dump Truck	16,332	7,112	60,396	14,275	4,343	1,331	4,679	23	108,490
Tank Truck For Liquid or Gases	4,146	1,788	69,945	4,961	2,420	0	1,816	0	85,077
Tank Truck For Dry Bulk	502	18	20,357	971	279	1,179	726	0	24,031
Concrete Mixer	171	25	168	289	69	284	41	0	1,048
Other	2,211	670	382	6,805	17	0	18	0	10,103
Total	57,830	17,189	990,521	126,563	28,593	52,134	41,429	4,484	1,318,744

1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Body Type by Vehicle Group
Traffic Region: North Central

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Multistop or Step Van	0	0	495	534	0	0	0	0	1,030
Platform with Devices	1,076	445	1,995	944	250	18	0	0	4,727
Low Boy Platform	771	228	16,465	7,100	869	109	337	0	25,878
Basic Platform	2,578	672	49,084	5,847	1,009	1,770	400	0	61,359
Livestock Truck	107	0	5,208	386	147	18	167	0	6,033
Insulated Non-refrigerated Van	0	0	13,967	225	0	168	0	0	14,360
Insulated Refrigerated Van	17	51	48,728	1,136	991	867	373	0	52,162
Drop Frame Van	0	0	9,077	841	149	374	3,534	0	13,975
Open Top Van	0	0	1,740	59	138	0	0	0	1,937
Basic Inclosed Van	201	81	138,817	11,198	1,456	4,515	12,785	394	169,447
Beverage Truck	0	0	507	0	90	0	0	0	597
Utility Truck	52	0	50	0	0	0	0	0	102
Winch or Crane Truck	229	137	532	493	0	0	0	0	1,390
Wrecker	0	0	0	0	0	0	0	0	0
Pole, Logging Truck	124	212	2,380	393	51	0	0	0	3,160
Auto Transport	0	0	3,072	120	57	0	0	0	3,248
Service Truck	0	0	0	0	0	0	0	0	0
Yard Tractor	0	0	810	172	0	0	0	0	983
Oilfield Truck	353	48	236	0	0	0	0	0	636
Grain Bodies	1,301	198	30,269	2,062	1,450	335	40	0	35,656
Garbage Truck	52	0	1,464	408	151	0	0	0	2,075
Dump Truck	3,223	2,430	20,988	7,431	1,810	2,668	0	0	38,548
Tank Truck For Liquid or Gases	927	389	23,377	1,447	741	406	0	0	27,288
Tank Truck For Dry Bulk	0	0	8,768	419	179	269	0	0	9,635
Concrete Mixer	0	0	0	52	0	0	0	0	52
Other	545	197	111	2,004	0	0	0	0	2,857
Total	11,555	5,088	378,137	43,271	9,538	11,515	17,636	394	477,134

1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Body Type by Vehicle Group
Traffic Region: North East

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6- axles or more	STAA (2-S1-2)	Triples	Total
Multistop or Step Van	186	0	55	65	15	0	0	0	320
Platform with Devices	69	179	1,171	100	91	0	0	0	1,609
Low Boy Platform	810	65	5,166	2,632	200	0	0	0	8,874
Basic Platform	990	280	14,779	1,421	629	227	0	49	18,376
Livestock Truck	0	0	103	0	12	0	0	0	114
Insulated Non-refrigerated Van	0	0	1,950	50	0	0	0	0	2,000
Insulated Refrigerated Van	156	0	8,037	534	643	195	0	0	9,565
Drop Frame Van	0	0	1,829	0	0	29	0	0	1,858
Open Top Van	5	11	494	343	0	0	0	0	853
Basic Inclosed Van	118	50	36,562	4,920	677	715	556	0	43,598
Beverage Truck	0	0	352	0	0	0	0	0	352
Utility Truck	0	0	49	0	0	0	0	0	49
Winch or Crane Truck	186	27	172	0	0	0	0	0	384
Wrecker	0	0	0	0	0	0	0	0	0
Pole, Logging Truck	76	176	585	955	75	37	0	0	1,904
Auto Transport	27	0	992	71	23	0	0	65	1,179
Service Truck	0	0	0	0	0	0	0	0	0
Yard Tractor	50	0	408	74	0	0	0	0	532
Oilfield Truck	0	0	0	0	0	0	0	0	0
Grain Bodies	65	0	785	91	0	0	0	0	940
Garbage Truck	0	17	804	68	173	0	0	0	1,062
Dump Truck	3,157	1,044	6,348	2,125	331	10	0	0	13,014
Tank Truck For Liquid or Gases	0	11	9,347	888	297	6	0	0	10,549
Tank Truck For Dry Bulk	0	0	1,980	22	0	65	0	0	2,067
Concrete Mixer	0	0	0	0	0	0	0	0	0
Other	0	329	91	560	0	0	0	0	980
Total	5,894	2,189	92,057	14,919	3,166	1,283	556	114	120,179

1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Body Type by Vehicle Group
Traffic Region: South Atlantic

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Multistop or Step Van	0	0	84	0	0	0	0	0	84
Platform with Devices	402	0	1,038	209	51	0	29	0	1,729
Low Boy Platform	554	270	8,114	2,847	279	2	0	0	12,067
Basic Platform	2,087	17	22,784	1,683	1,009	73	155	0	27,808
Livestock Truck	0	0	1,104	0	0	0	0	0	1,104
Insulated Non-refrigerated Van	0	0	949	73	157	0	73	0	1,251
Insulated Refrigerated Van	0	0	16,524	782	439	73	0	0	17,818
Drop Frame Van	146	0	2,952	109	0	0	121	0	3,327
Open Top Van	129	0	2,924	398	0	0	0	0	3,451
Basic Inclosed Van	221	82	50,372	6,804	1,258	2,474	2,710	73	63,994
Beverage Truck	420	0	525	149	0	0	0	0	1,094
Utility Truck	739	82	0	59	0	0	0	0	881
Winch or Crane Truck	0	0	56	26	0	0	0	0	82
Wrecker	0	0	56	0	0	0	0	0	56
Pole, Logging Truck	184	290	6,931	331	612	0	143	0	8,491
Auto Transport	26	0	1,565	26	157	0	0	0	1,774
Service Truck	82	0	0	0	0	0	0	0	82
Yard Tractor	0	0	565	17	0	0	0	0	582
Oilfield Truck	56	0	281	0	0	0	0	0	337
Grain Bodies	155	59	2,405	38	161	0	0	0	2,818
Garbage Truck	1	75	940	0	6	0	0	0	1,023
Dump Truck	1,262	402	7,743	1,145	688	0	25	0	11,265
Tank Truck For Liquid or Gases	171	0	8,816	1,186	626	0	364	0	11,163
Tank Truck For Dry Bulk	56	0	2,946	200	38	0	0	0	3,240
Concrete Mixer	0	0	26	238	26	0	0	0	290
Other	0	109	0	1,077	0	0	0	0	1,186
Total	6,693	1,386	139,700	17,396	5,506	2,622	3,622	73	176,998

1997 Truck Fleet (@ 5-axles or more)
Number of Vehicles by Body Type by Vehicle Group
Traffic Region: South Gulf

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Multistop or Step Van	29	0	0	0	0	0	17	0	46
Platform with Devices	2,644	0	0	0	0	570	261	264	3,739
Low Boy Platform	6,189	153	149	25	162	5,411	763	270	13,122
Basic Platform	41,097	835	26	452	0	2,114	1,212	468	46,205
Livestock Truck	1,772	0	0	0	0	243	215	0	2,230
Insulated Non-refrigerated Van	1,963	0	0	149	0	141	0	0	2,253
Insulated Refrigerated Van	27,865	539	84	81	0	1,165	241	33	30,007
Drop Frame Van	2,111	0	152	0	0	112	26	0	2,402
Open Top Van	3,471	17	0	0	0	55	0	0	3,543
Basic Inclosed Van	91,257	1,290	3,781	7,913	1,946	15,409	240	0	121,836
Beverage Truck	552	97	0	0	0	81	0	0	730
Utility Truck	112	0	0	0	0	0	198	0	310
Winch or Crane Truck	579	0	0	0	0	329	137	25	1,071
Wrecker	26	0	0	0	0	51	0	0	77
Pole, Logging Truck	7,265	245	0	74	0	342	958	119	9,003
Auto Transport	1,399	88	0	0	0	90	16	0	1,593
Service Truck	0	0	0	0	0	0	16	0	16
Yard Tractor	709	0	0	0	0	334	0	0	1,043
Oilfield Truck	1,987	0	0	0	0	905	0	0	2,892
Grain Bodies	7,498	260	0	110	0	116	417	0	8,401
Garbage Truck	372	0	0	0	0	0	0	0	372
Dump Truck	11,261	732	81	0	0	2,216	1,510	466	16,266
Tank Truck For Liquid or Gases	19,908	306	0	0	0	731	269	307	21,522
Tank Truck For Dry Bulk	4,641	26	0	0	0	200	17	0	4,884
Concrete Mixer	69	0	0	0	0	0	0	0	69
Other	149	17	0	0	0	2,670	257	17	3,108
Total	234,925	4,604	4,274	8,804	2,108	33,285	6,768	1,970	296,737

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Body Type by Vehicle Group

Traffic Region: West

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Multistop or Step Van	0	0	354	0	0	0	11	0	365
Platform with Devices	670	597	1,355	121	154	0	103	0	3,000
Low Boy Platform	1,839	277	9,154	2,158	450	284	118	0	14,280
Basic Platform	4,542	331	24,663	2,928	588	5,910	3,397	23	42,381
Livestock Truck	97	18	1,962	229	170	11	75	0	2,563
Insulated Non-refrigerated Van	11	0	2,536	39	0	0	12	0	2,597
Insulated Refrigerated Van	1,060	131	24,937	781	941	52	218	0	28,120
Drop Frame Van	0	284	2,456	416	32	372	413	0	3,974
Open Top Van	573	41	1,421	981	0	0	209	0	3,226
Basic Inclosed Van	1,188	109	36,978	6,001	888	16,039	6,486	1,750	69,440
Beverage Truck	0	284	287	127	0	0	11	0	708
Utility Truck	470	0	6	0	0	0	0	0	476
Winch or Crane Truck	253	61	372	66	36	0	0	0	788
Wrecker	0	0	26	0	0	0	26	0	52
Pole, Logging Truck	2,183	409	7,798	348	1,073	0	322	0	12,134
Auto Transport	165	0	2,045	26	52	0	18	0	2,306
Service Truck	129	18	11	0	0	0	0	0	157
Yard Tractor	0	0	439	0	0	0	41	0	481
Oilfield Truck	736	11	392	115	18	0	11	0	1,283
Grain Bodies	929	72	3,730	474	66	1,380	1,266	0	7,919
Garbage Truck	107	0	100	190	0	284	0	0	681
Dump Truck	7,180	2,771	14,057	1,359	782	1,250	1,975	23	29,397
Tank Truck For Liquid or Gases	2,779	1,080	8,498	708	450	0	1,040	0	14,555
Tank Truck For Dry Bulk	429	18	2,021	130	36	1,179	392	0	4,206
Concrete Mixer	171	25	73	0	43	284	41	0	638
Other	1,409	18	32	495	0	0	18	0	1,972
Total	26,920	6,556	145,702	17,692	5,779	27,046	16,205	1,796	247,696

Appendix D

Major Body Type Analysis by the 5 Regions For the 5-Axles or More Truck Fleet

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type by Vehicle Group

At the National Level

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Platform	15,025	2,213	44,606	16,137	2,507	6,393	1,610	534	89,025
Van	130,675	2,686	408,339	44,433	9,729	42,755	28,009	2,250	668,876
Auto Transport	1,617	88	7,674	243	289	90	34	65	10,100
Dump Truck	26,083	7,379	49,216	12,059	3,610	6,143	3,511	488	108,490
Grain Bodies	9,949	590	37,189	2,774	1,678	1,831	1,723	0	55,734
Garbage Truck	532	92	3,308	666	331	284	0	0	5,212
Livestock Truck	1,977	18	8,375	616	329	272	457	0	12,044
Logging	9,832	1,333	17,694	2,101	1,811	379	1,424	119	34,692
Tank Truck, Dry Bulk	5,127	44	15,716	771	252	1,713	408	0	24,031
Tank Truck, Liquid or Gas	23,785	1,786	50,038	4,230	2,115	1,143	1,674	307	85,077
Other	61,386	3,594	117,717	18,053	3,448	14,747	5,937	582	225,463
Total	285,987	19,823	759,870	102,082	26,098	75,752	44,786	4,346	1,318,744

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type by Vehicle Group

Traffic Region: North Central

Body Type	Vehicle Group								
	Truck + Trailer @ 5-axle	Truck + Trailer @ 6-axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Platform	1,847	673	18,459	8,044	1,119	126	337	0	30,605
Van	217	132	212,824	13,994	2,734	5,924	16,692	394	252,911
Auto Transport	0	0	3,072	120	57	0	0	0	3,248
Dump Truck	3,223	2,430	20,988	7,431	1,810	2,668	0	0	38,548
Grain Bodies	1,301	198	30,269	2,062	1,450	335	40	0	35,656
Garbage Truck	52	0	1,464	408	151	0	0	0	2,075
Livestock Truck	107	0	5,208	386	147	18	167	0	6,033
Logging	124	212	2,380	393	51	0	0	0	3,160
Tank Truck, Dry Bulk	0	0	8,768	419	179	269	0	0	9,635
Tank Truck, Liquid or Gas	927	389	23,377	1,447	741	406	0	0	27,288
Other	3,756	1,054	51,329	8,568	1,098	1,770	400	0	67,974
Total	11,555	5,088	378,137	43,271	9,538	11,515	17,636	394	477,134

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type by Vehicle Group

Traffic Region: North East

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semi- trailer	4S1/S2	Doubles @ 6-axles or more	STAA (2-S1-2)	Triples	Total
Platform	880	244	6,337	2,732	291	0	0	0	10,483
Van	464	61	48,927	5,912	1,335	939	556	0	58,194
Auto Transport	27	0	992	71	23	0	0	65	1,179
Dump Truck	3,157	1,044	6,348	2,125	331	10	0	0	13,014
Grain Bodies	65	0	785	91	0	0	0	0	940
Garbage Truck	0	17	804	68	173	0	0	0	1,062
Livestock Truck	0	0	103	0	12	0	0	0	114
Logging	76	176	585	955	75	37	0	0	1,904
Tank Truck, Dry Bulk	0	0	1,980	22	0	65	0	0	2,067
Tank Truck, Liquid or Gas	0	11	9,347	888	297	6	0	0	10,549
Other	1,226	636	15,851	2,055	629	227	0	49	20,673
Total	5,894	2,189	92,057	14,919	3,166	1,283	556	114	120,179

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type by Vehicle Group

Traffic Region: South Atlantic

Body Type	Vehicle Group								
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6- axles or more	STAA (2-S1-2)	Triples	Total
Platform	956	270	9,152	3,056	330	2	29	0	13,797
Van	496	82	73,804	8,166	1,853	2,547	2,904	73	89,924
Auto Transport	26	0	1,565	26	157	0	0	0	1,774
Dump Truck	1,262	402	7,743	1,145	688	0	25	0	11,265
Grain Bodies	155	59	2,405	38	161	0	0	0	2,818
Garbage Truck	1	75	940	0	6	0	0	0	1,023
Livestock Truck	0	0	1,104	0	0	0	0	0	1,104
Logging	184	290	6,931	331	612	0	143	0	8,491
Tank Truck, Dry Bulk	56	0	2,946	200	38	0	0	0	3,240
Tank Truck, Liquid or Gas	171	0	8,816	1,186	626	0	364	0	11,163
Other	3,385	208	24,294	3,248	1,035	73	155	0	32,399
Total	6,693	1,386	139,700	17,396	5,506	2,622	3,622	73	176,998

1997 Truck Fleet (@ 5-axes or more)

Number of Vehicles by Major Body Type by Vehicle Group

Traffic Region: South Gulf

Body Type	Vehicle Group								
	Truck + Trailer @ 5-axle	Truck + Trailer @ 6-axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6 axles or more	STAA (2-S1-2)	Triples	Total
Platform	8,833	153	149	25	162	5,980	1,024	534	16,861
Van	126,667	1,845	4,101	8,143	1,946	16,882	507	33	160,125
Auto Transport	1,399	88	0	0	0	90	16	0	1,593
Dump Truck	11,261	732	81	0	0	2,216	1,510	466	16,266
Grain Bodies	7,498	260	0	110	0	116	417	0	8,401
Garbage Truck	372	0	0	0	0	0	0	0	372
Livestock Truck	1,772	0	0	0	0	243	215	0	2,230
Logging	7,265	245	0	74	0	342	958	119	9,003
Tank Truck, Dry Bulk	4,641	26	0	0	0	200	17	0	4,884
Tank Truck, Liquid or Gas	19,908	306	0	0	0	731	269	307	21,522
Other	45,309	948	-58	452	0	6,484	1,836	510	55,482
Total	234,925	4,604	4,274	8,804	2,108	33,285	6,768	1,970	296,737

1997 Truck Fleet (@ 5-axles or more)

Number of Vehicles by Major Body Type by Vehicle Group

Traffic Region: West

Body Type	Vehicle Group								Total
	Truck + Trailer @ 5- axle	Truck + Trailer @ 6- axle +	3-S2	Tridem axle Semitrailer	4S1/S2	Doubles @ 6 axles or more	STAA (2-S1-2)	Triples	
Platform	2,509	874	10,508	2,280	604	284	221	0	17,280
Van	2,831	566	68,682	8,218	1,861	16,464	7,350	1,750	107,721
Auto Transport	165	0	2,045	26	52	0	18	0	2,306
Dump Truck	7,180	2,771	14,057	1,359	782	1,250	1,975	23	29,397
Grain Bodies	929	72	3,730	474	66	1,380	1,266	0	7,919
Garbage Truck	107	0	100	190	0	284	0	0	681
Livestock Truck	97	18	1,962	229	170	11	75	0	2,563
Logging	2,183	409	7,798	348	1,073	0	322	0	12,134
Tank Truck, Dry Bulk	429	18	2,021	130	36	1,179	392	0	4,206
Tank Truck, Liquid or Gas	2,779	1,080	8,498	708	450	0	1,040	0	14,555
Other	7,709	748	26,300	3,730	685	6,194	3,545	23	48,935
Total	26,920	6,556	145,702	17,692	5,779	27,046	16,205	1,796	247,696

Appendix E

Weights, Dimensions, and Operating Characteristics Plots and Means For the 5-Axles or More Truck Fleet

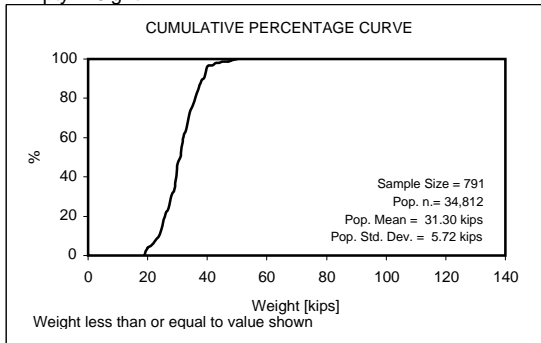
**Ratio of Sample Size to Population Size
by Vehicle Configuration/Body Type Combinations**

1997 Fleet

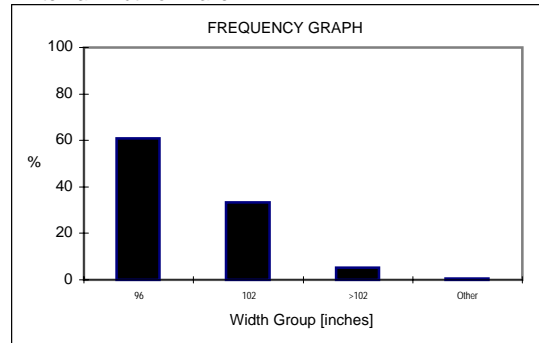
Pop. N / Sample N	3+2	3-S2	3-S3	2-S1-2
Low Boy	3,298 / 61	44,598 / 997	11,239 / 349	
Basic Platform	7,134 / 167	150,926 / 3,031	11,239 / 230	6,384 / 36
Livestock Truck		10,053 / 261		
Insulated Non-Refrigerated		21,170 / 436		
Insulated Refrigerated		124,948 / 2,355	3,656 / 59	
Drop Frame Van		18,242 / 376		4,051 / 26
Basic Enclosed	1,721 / 35	351,183 / 5,637	41,929 / 711	35,496 / 466
Pole Logging	3,475 / 94	24,708 / 562	1,799 / 104	
Auto Transport		8,994 / 139		
Grain Bodies	2,813 / 66	44,247 / 1,029	2,379 / 56	1,416 / 6
Dump Truck	13,553 / 359	69,324 / 1,286	12,143 / 310	
Tank Truck For Liquid	3,956 / 80	20,190 / 1,341	3,869 / 100	
Tank Truck For Dry Bulk		13,725 / 359		

VEHICLE TYPE: 3-S2
BODY TYPE: LOW BOY PLATFORM
POPULATION SIZE: 44,598 SAMPLE SIZE: 997

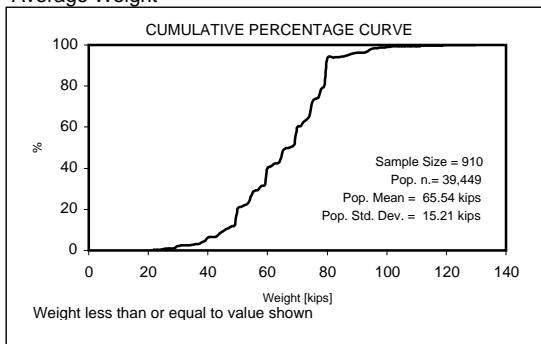
Empty Weight



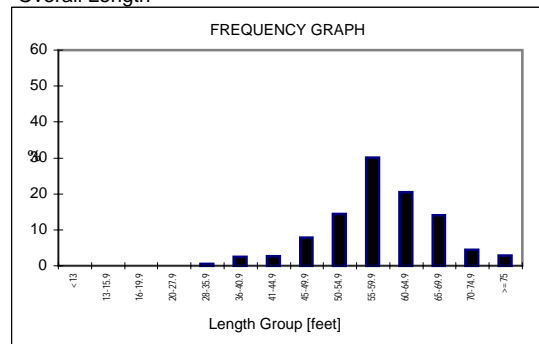
External Width of Trailer



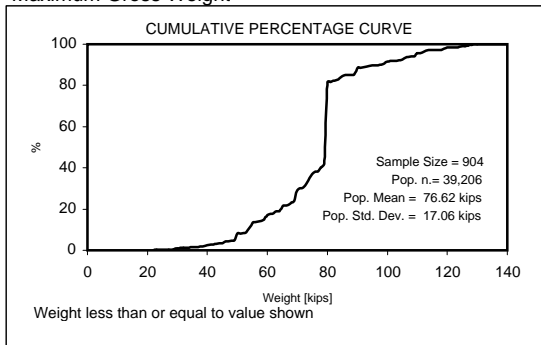
Average Weight



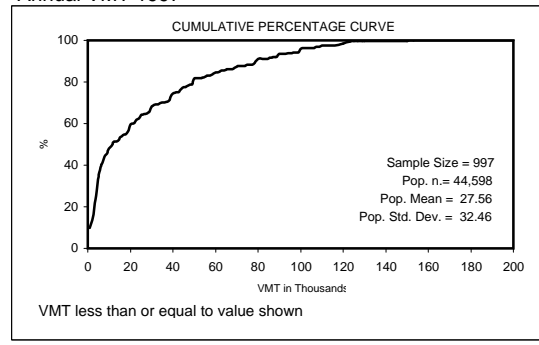
Overall Length



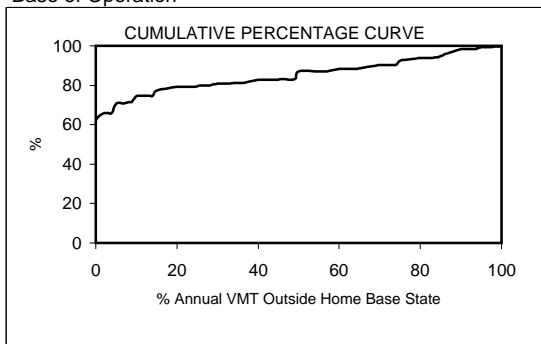
Maximum Gross Weight



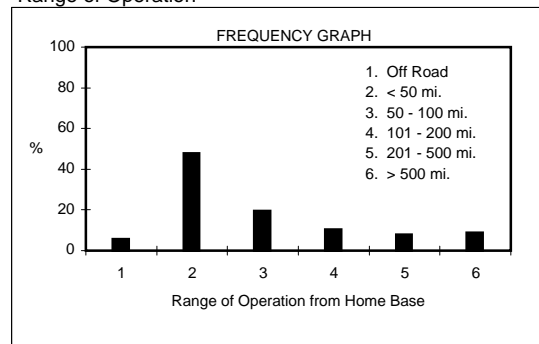
Annual VMT 1997



Base of Operation

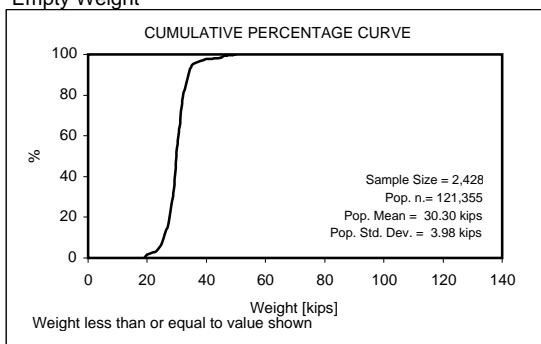


Range of Operation

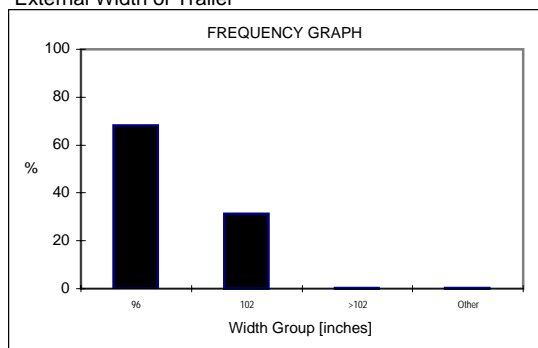


VEHICLE TYPE: 3-S2
BODY TYPE: BASIC PLATFORM
POPULATION SIZE: 150,926 SAMPLE SIZE: 3,021

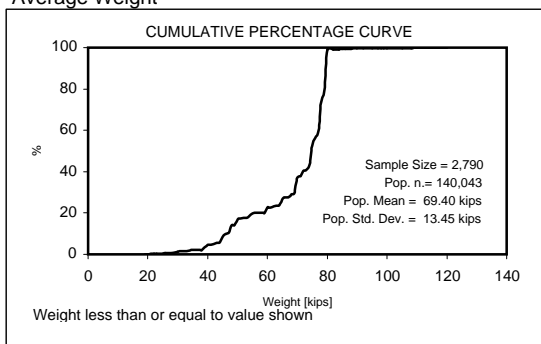
Empty Weight



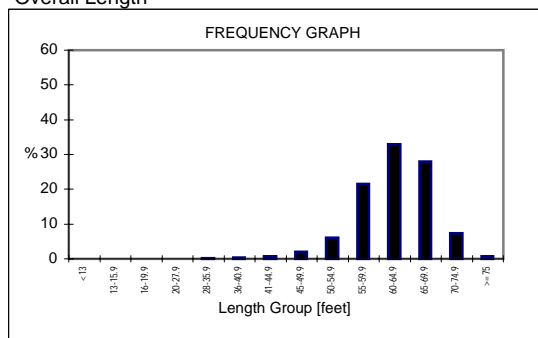
External Width of Trailer



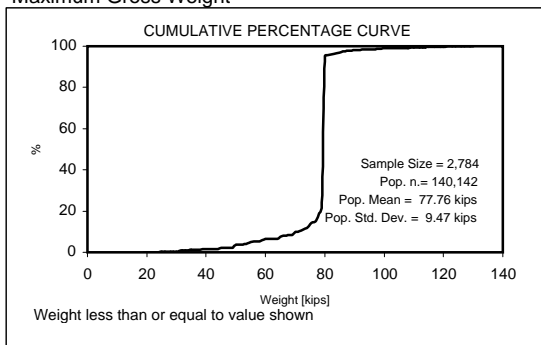
Average Weight



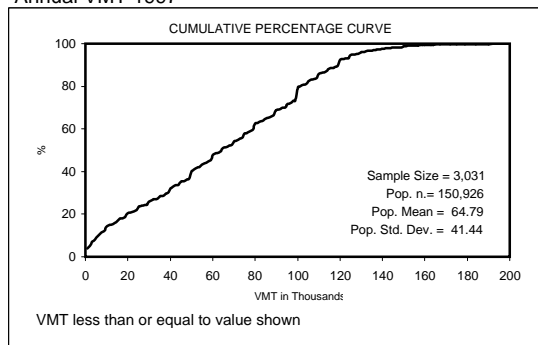
Overall Length



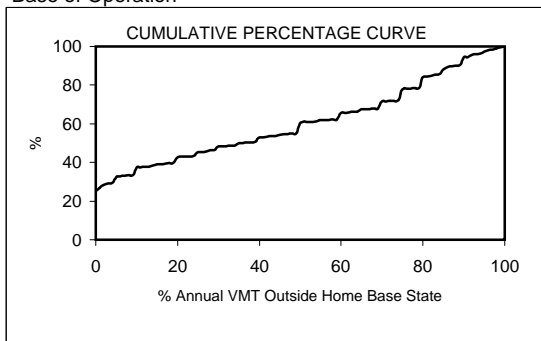
Maximum Gross Weight



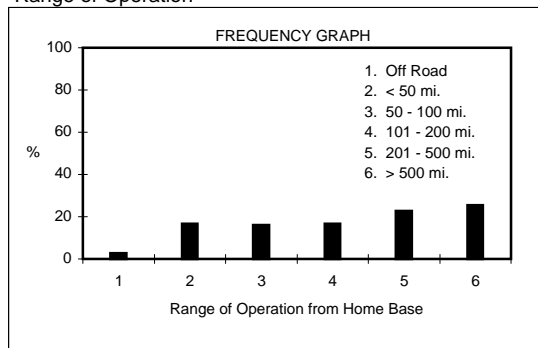
Annual VMT 1997



Base of Operation

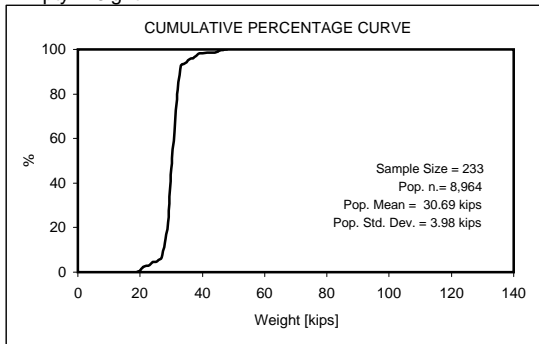


Range of Operation

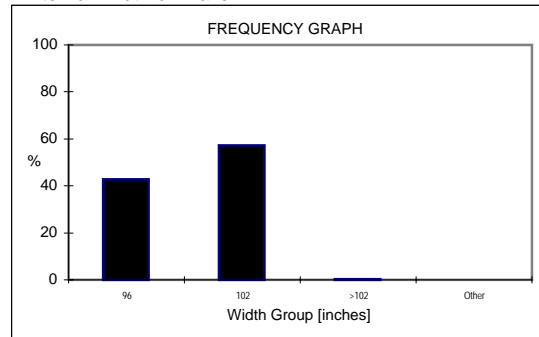


VEHICLE TYPE: 3-S2
BODY TYPE: LIVESTOCK
POPULATION SIZE: 10,053 SAMPLE SIZE: 261

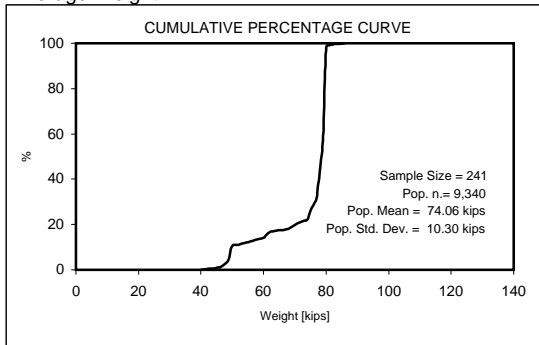
Empty Weight



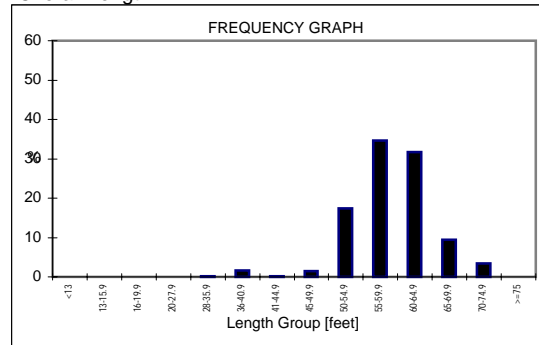
External Width of Trailer



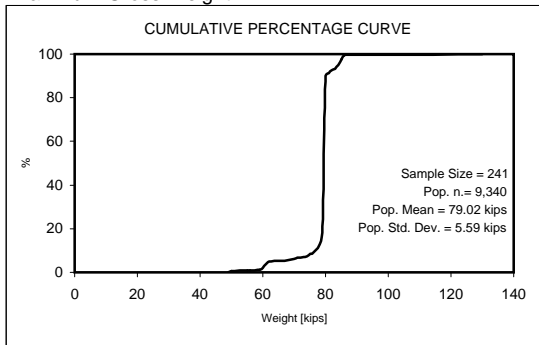
Average Weight



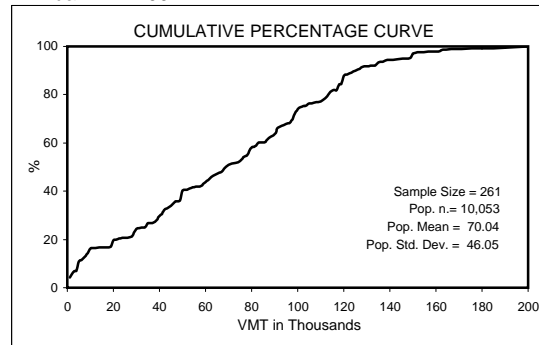
Overall Length



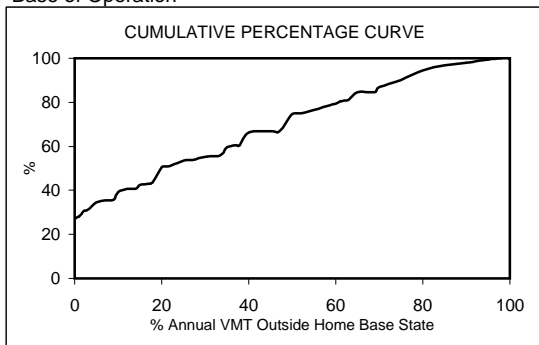
Maximum Gross Weight



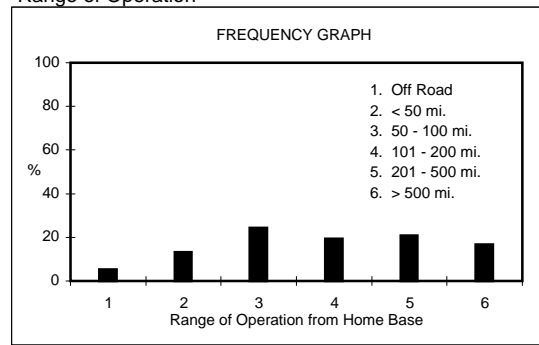
Annual VMT 1997



Base of Operation

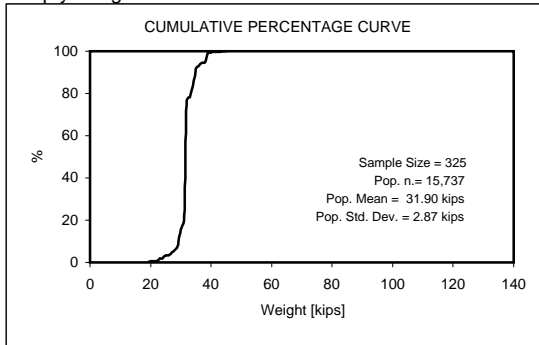


Range of Operation

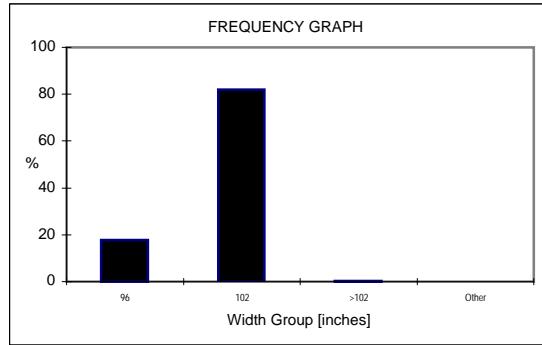


VEHICLE TYPE: 3-S2
BODY TYPE: INSULATED NON-REFRIGERATED
POPULATION SIZE: 21,170 SAMPLE SIZE: 436

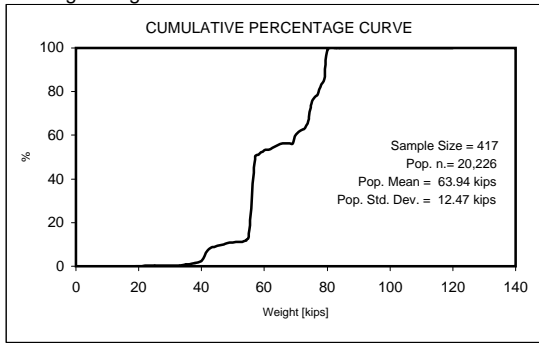
Empty Weight



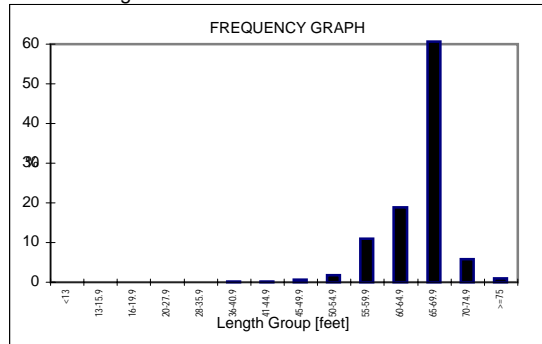
External Width of Trailer



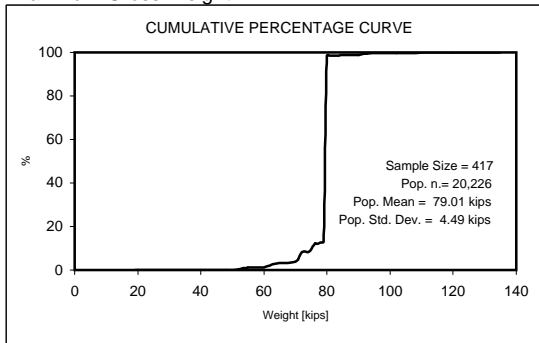
Average Weight



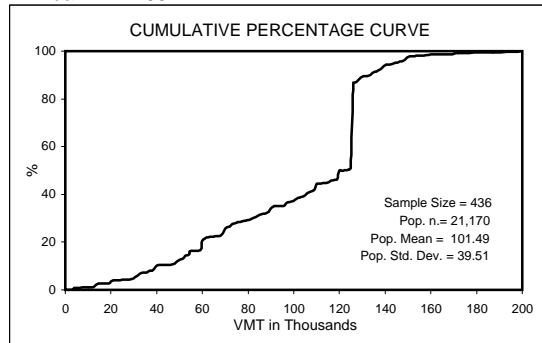
Overall Length



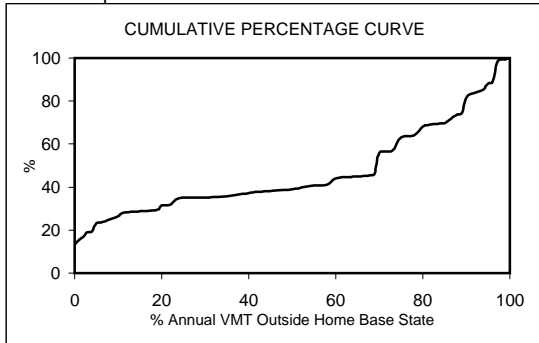
Maximum Gross Weight



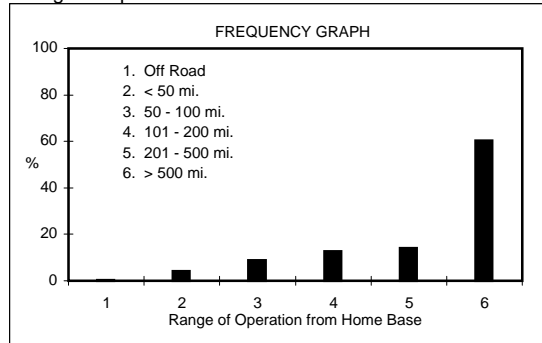
Annual VMT 1997



Base of Operation

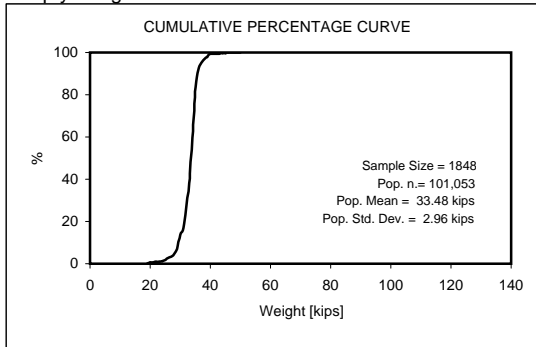


Range of Operation

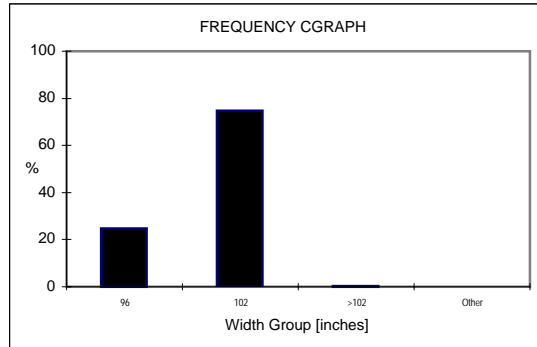


VEHICLE TYPE: 3-S2
BODY TYPE: INSULATED REFRIGERATED
POPULATION SIZE: 124,948 **SAMPLE SIZE: 2,355**

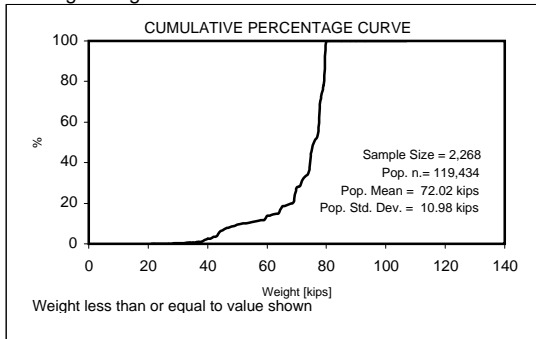
Empty Weight



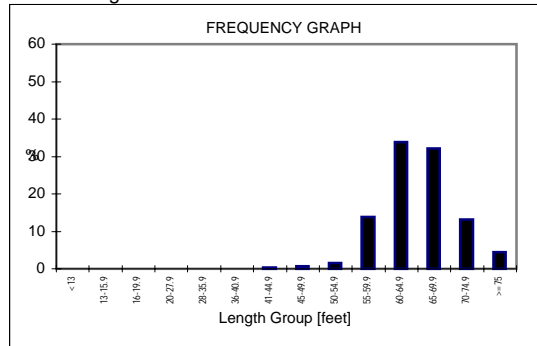
External Width of Trailer



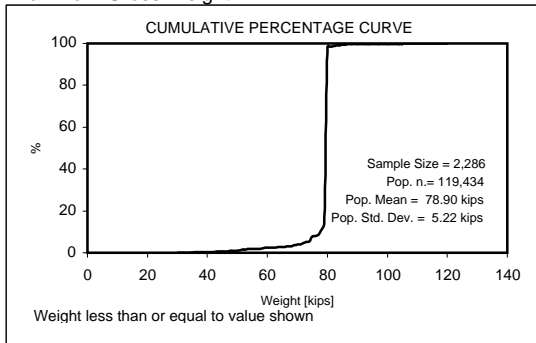
Average Weight



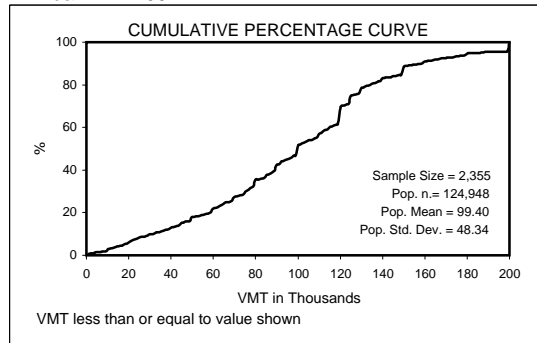
Overall Legth



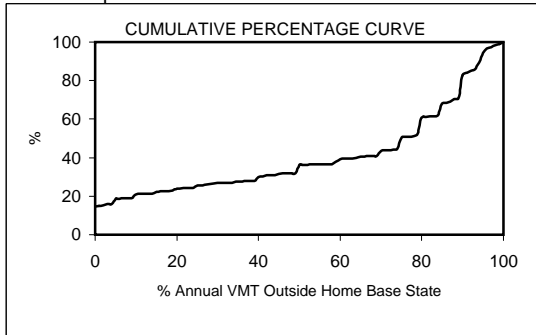
Maximum Gross Weight



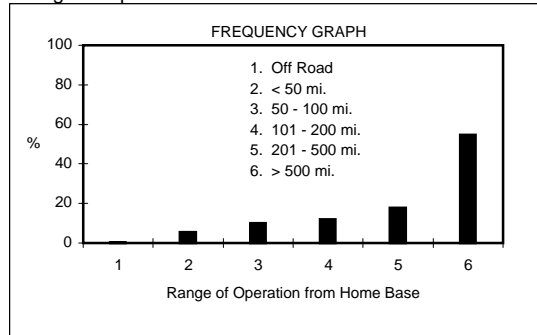
Annual VMT 1997



Base of Operation

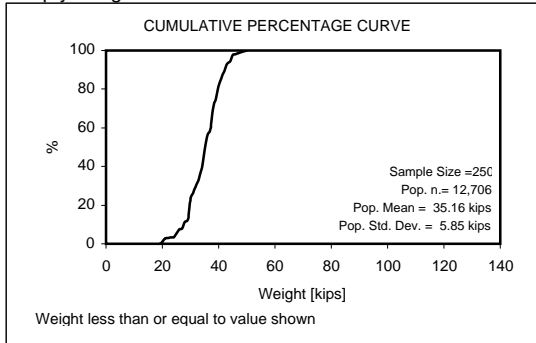


Range of Operation

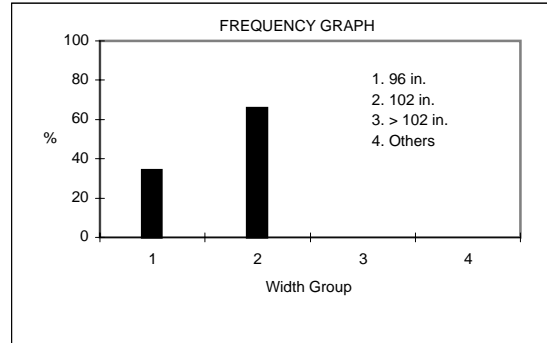


VEHICLE TYPE: 3-S2
BODY TYPE: DROP FRAME VAN
POPULATION SIZE: 18,242 **SAMPLE SIZE: 376**

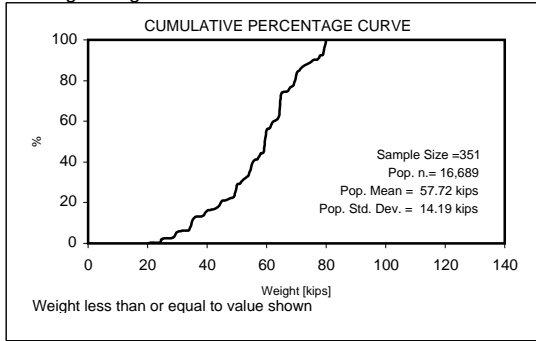
Empty Weight



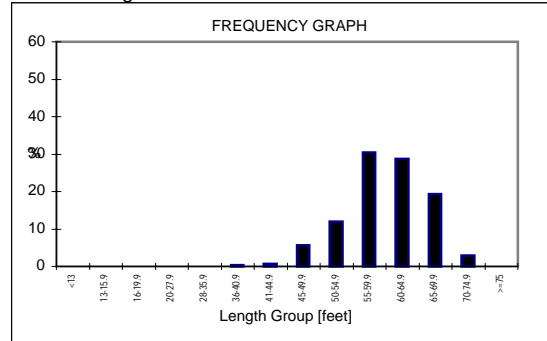
External Width of Trailer



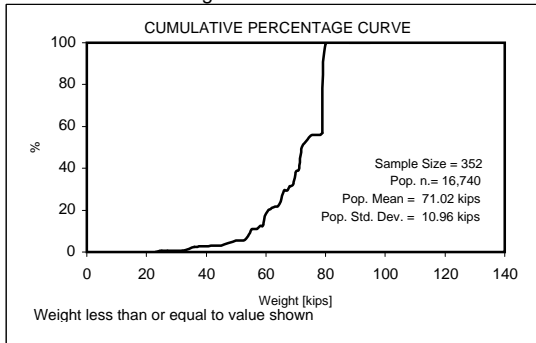
Average Weight



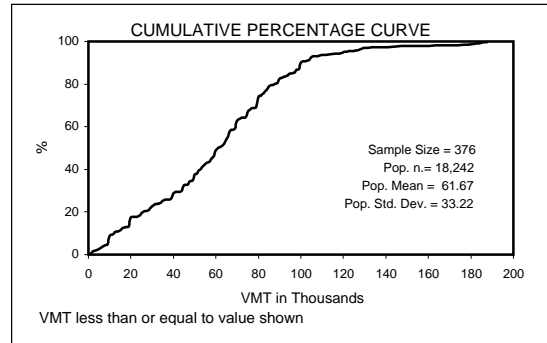
Overall Length



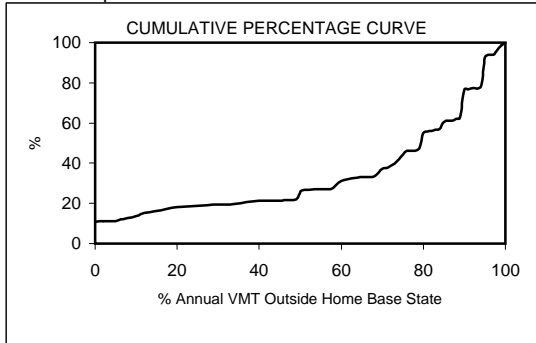
Maximum Gross Weight



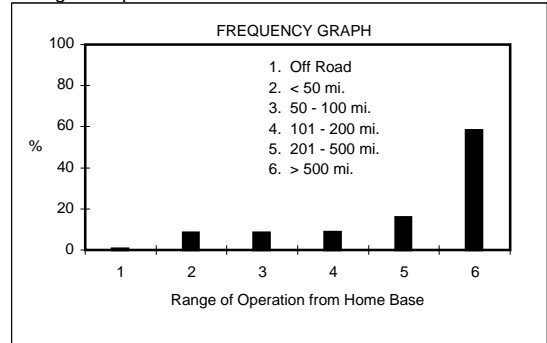
Annual VMT 1997



Base of Operation

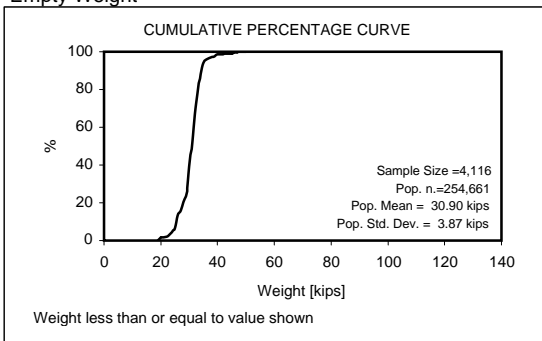


Range of Operation

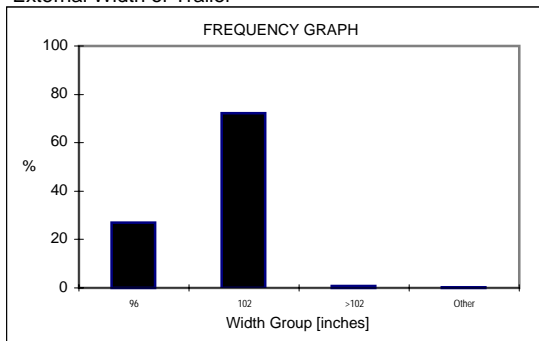


VEHICLE TYPE: 3-S2
BODY TYPE: BASIC ENCLOSED VAN
POPULATION SIZE: 351,183 SAMPLE SIZE: 5,637

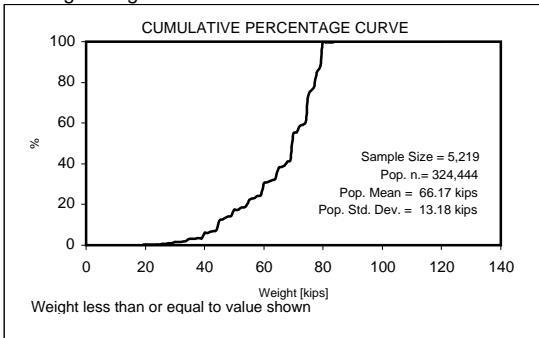
Empty Weight



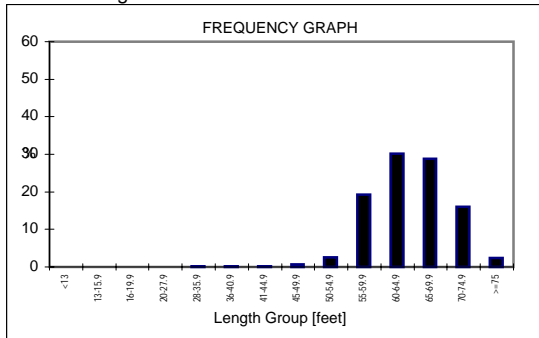
External Width of Trailer



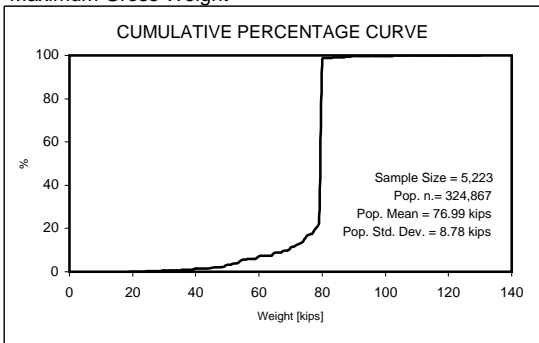
Average Weight



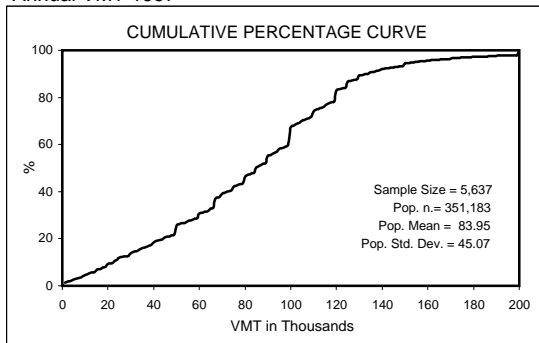
Overall Length



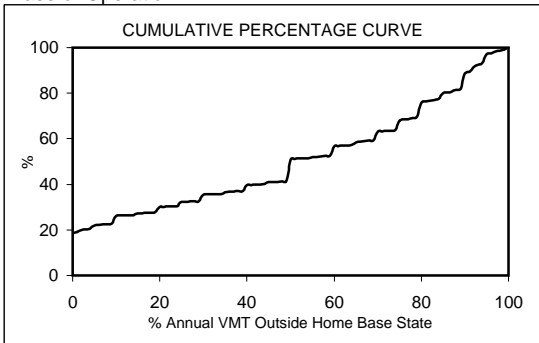
Maximum Gross Weight



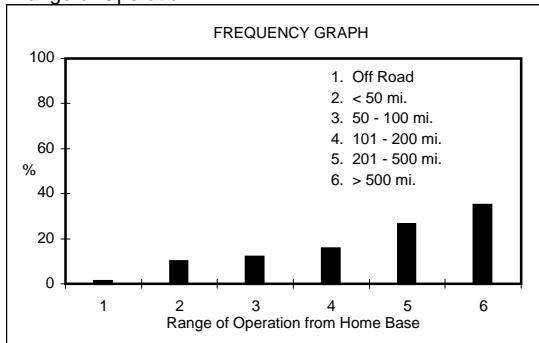
Annual VMT 1997



Base of Operation

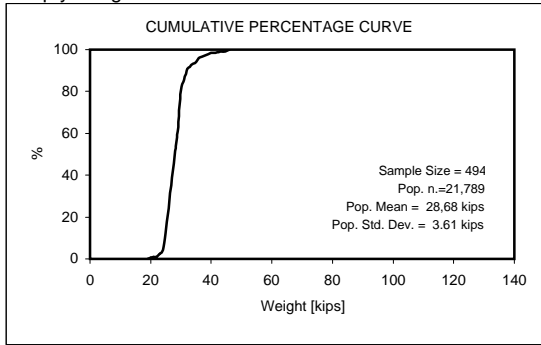


Range of Operation

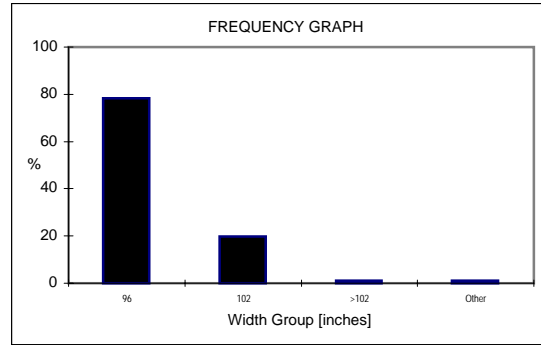


VEHICLE TYPE: 3-S2
BODY TYPE: POLE LOGGING TRUCK
POPULATION SIZE: 24,708 **SAMPLE SIZE: 562**

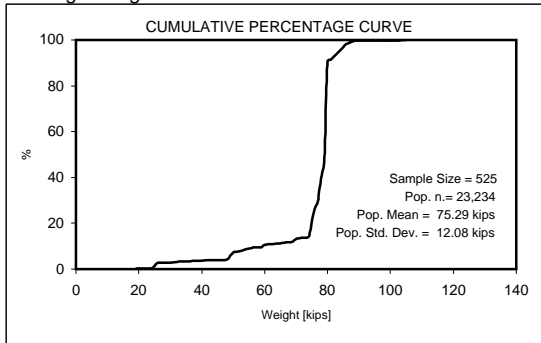
Empty Weight



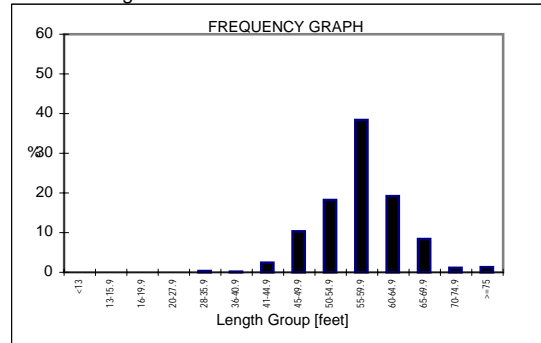
External Width of Trailer



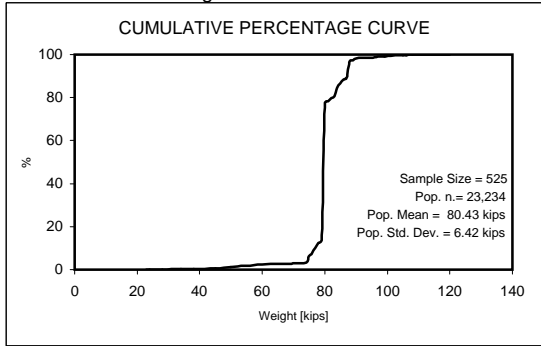
Average Weight



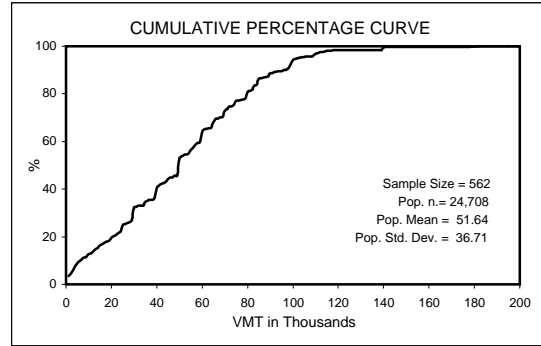
Overall Length



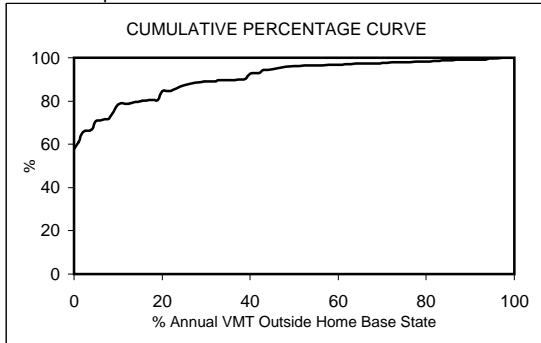
Maximum Gross Weight



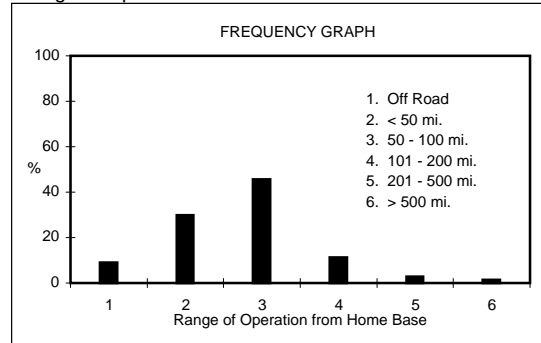
Annual VMT 1997



Base of Operation

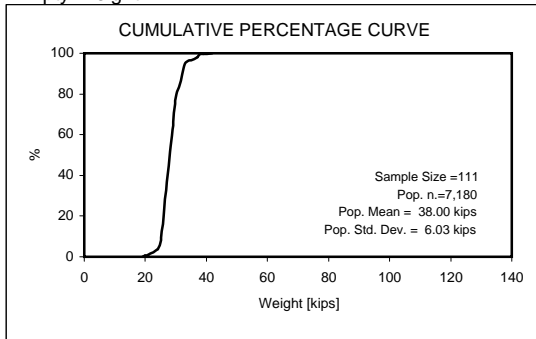


Range of Operation

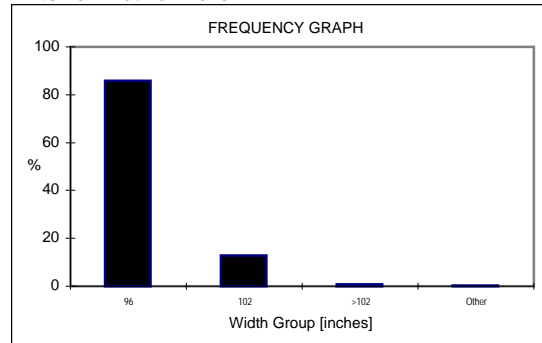


VEHICLE TYPE: 3-S2
BODY TYPE: AUTOMOBILE TRANSPORT
POPULATION SIZE: 8,994 SAMPLE SIZE: 139

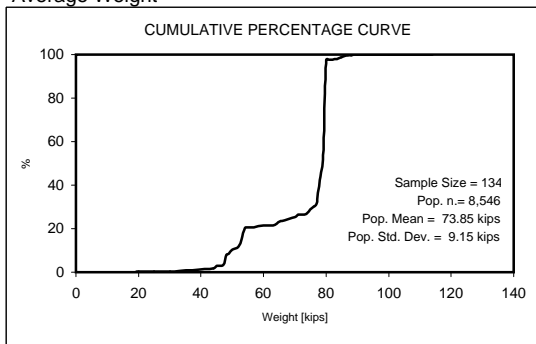
Empty Weight



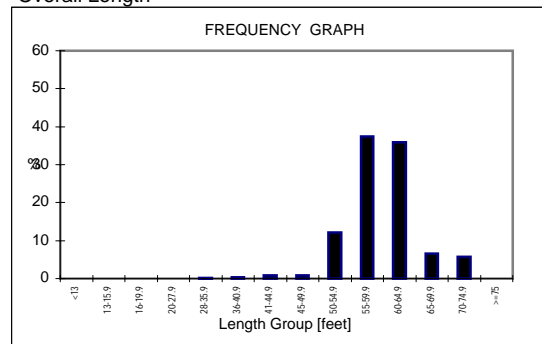
External Width of Trailer



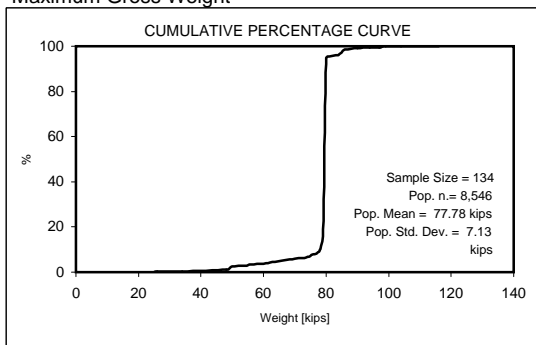
Average Weight



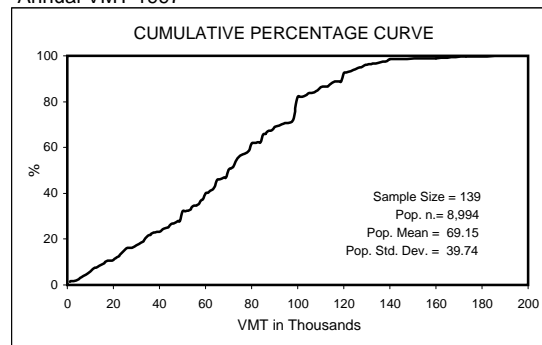
Overall Length



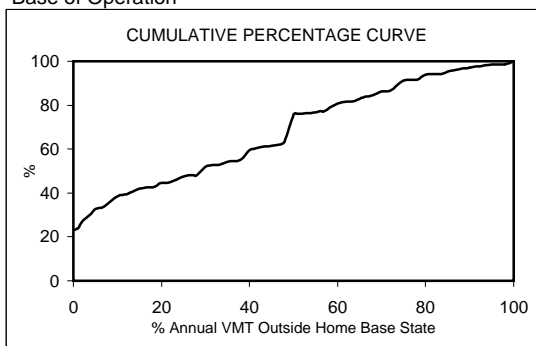
Maximum Gross Weight



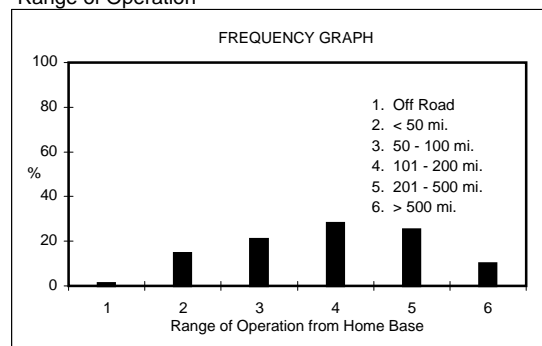
Annual VMT 1997



Base of Operation

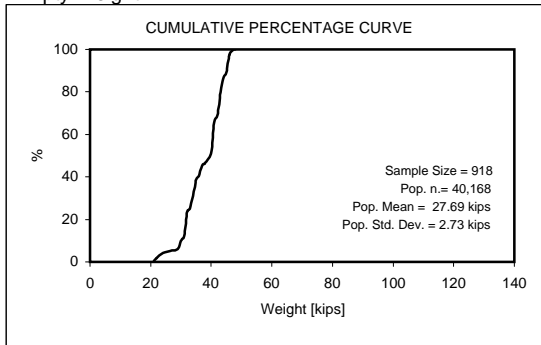


Range of Operation

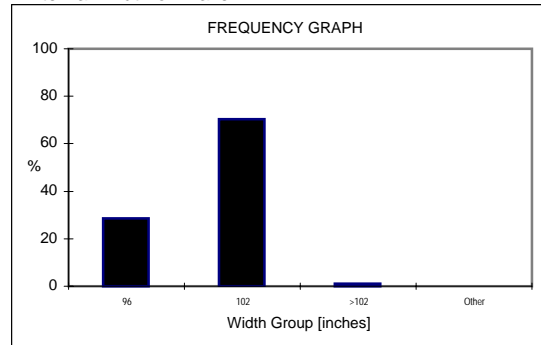


VEHICLE TYPE: 3-S2
BODY TYPE: GRAIN BODIES
POPULATION SIZE: 44,247 SAMPLE SIZE: 1,029

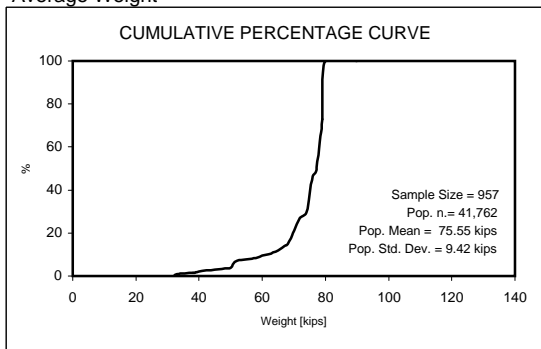
Empty Weight



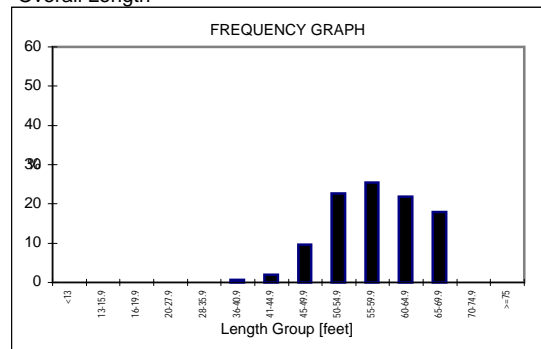
External Width of Trailer



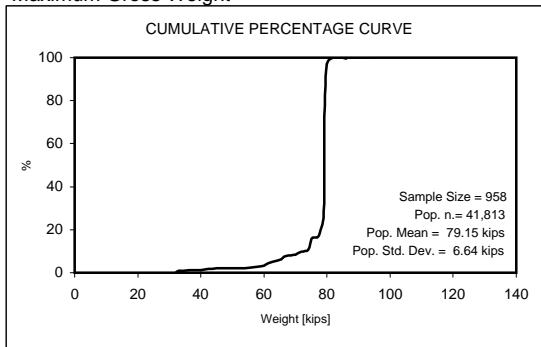
Average Weight



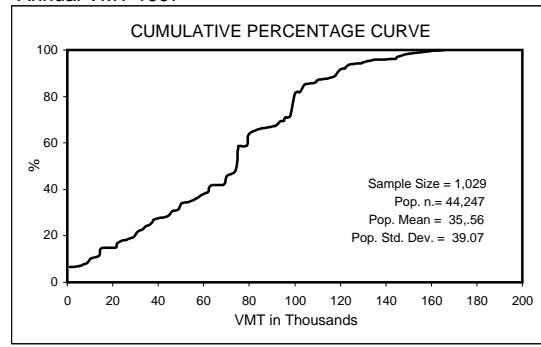
Overall Length



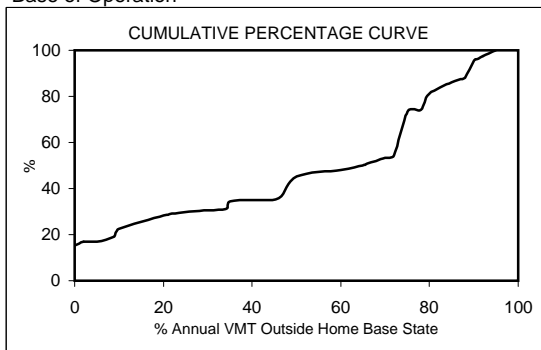
Maximum Gross Weight



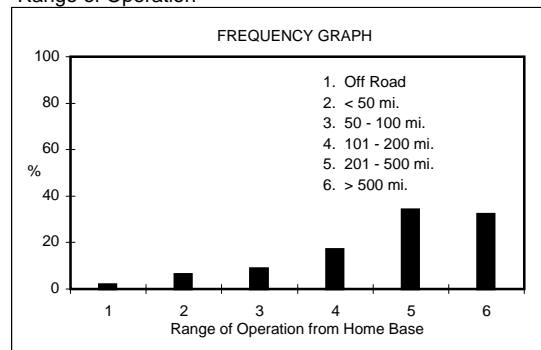
Annual VMT 1997



Base of Operation

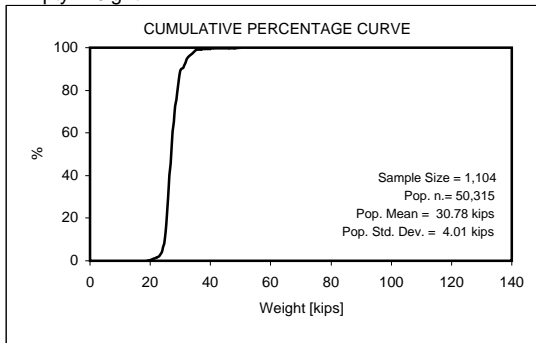


Range of Operation

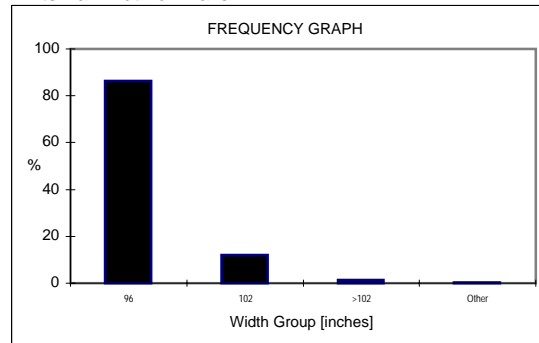


VEHICLE TYPE: 3-S2
BODY TYPE: DUMP TRUCK
POPULATION SIZE: 69,324 SAMPLE SIZE: 1,286

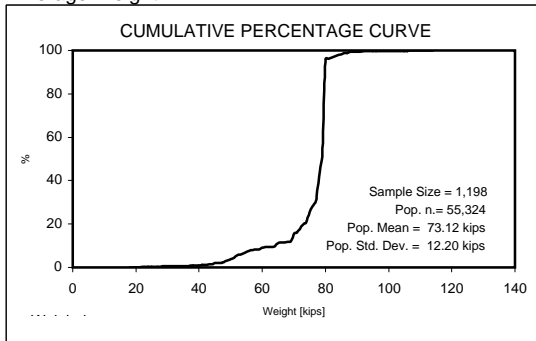
Empty Weight



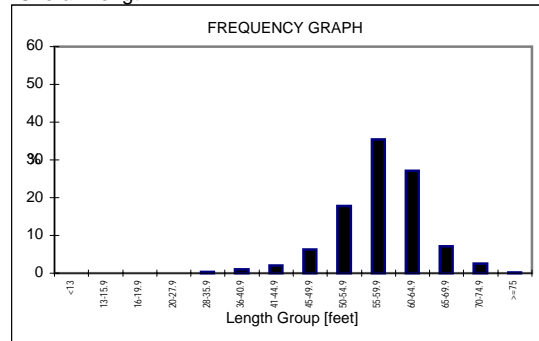
External Width of Trailer



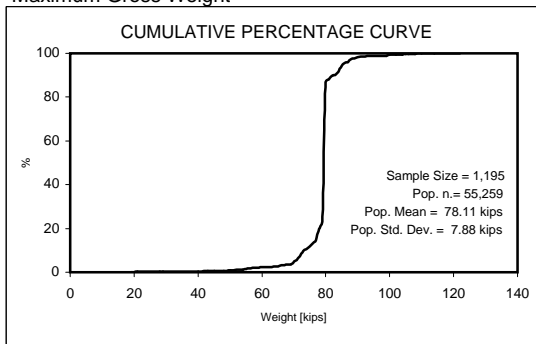
Average Weight



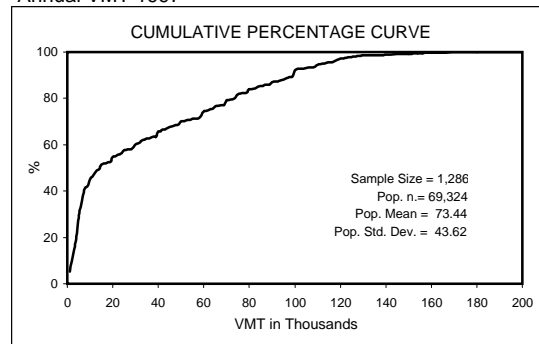
Overall Length



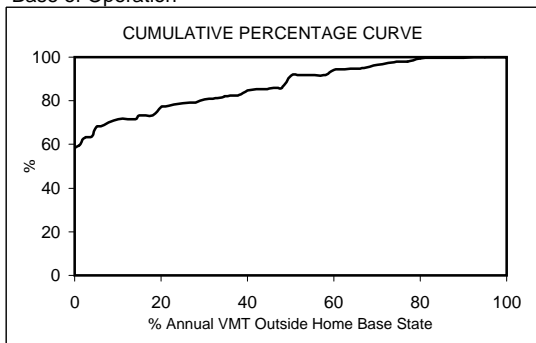
Maximum Gross Weight



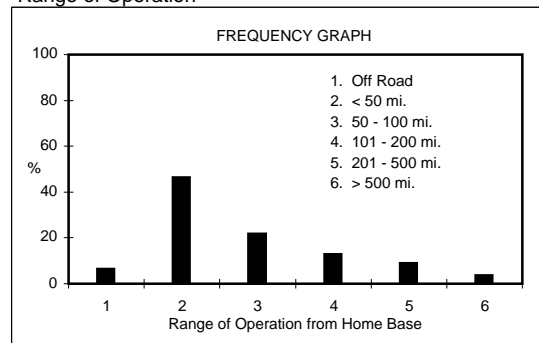
Annual VMT 1997



Base of Operation

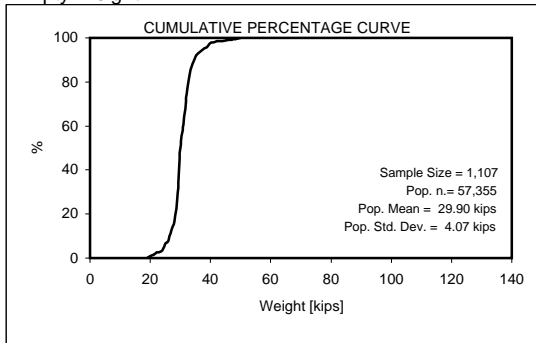


Range of Operation

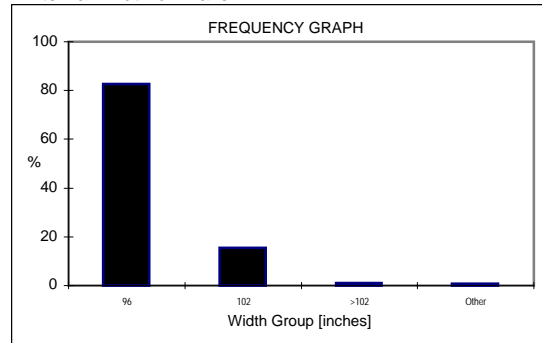


VEHICLE TYPE: 3-S2
BODY TYPE: TANK TRUCKS FOR LIQUIDS OR GASES
POPULATION SIZE: 20,190 SAMPLE SIZE: 1,341

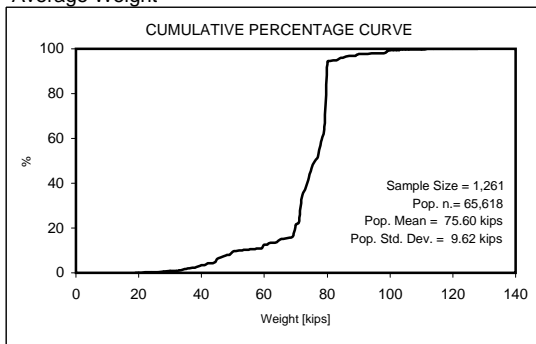
Empty Weight



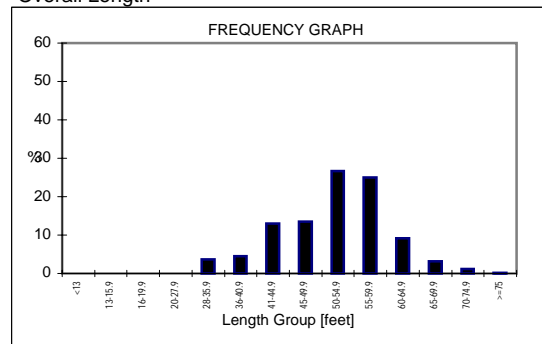
External Width of Trailer



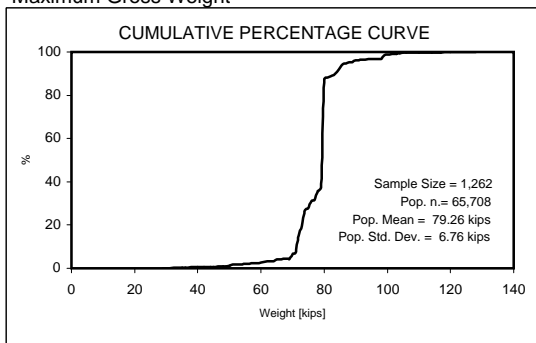
Average Weight



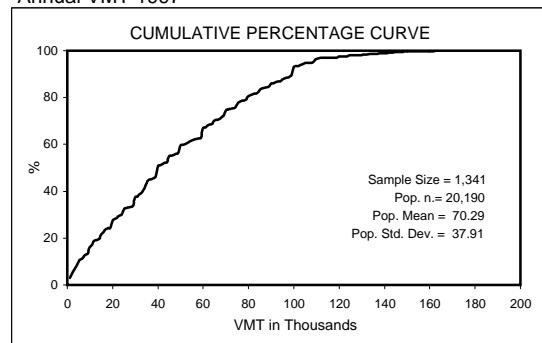
Overall Length



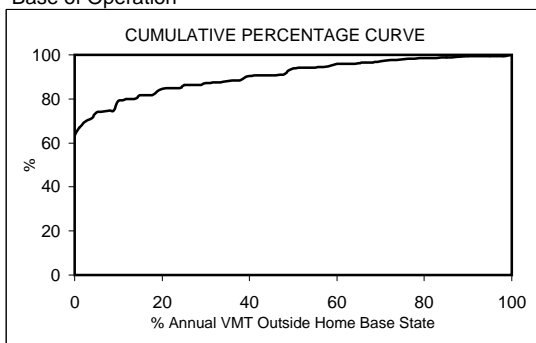
Maximum Gross Weight



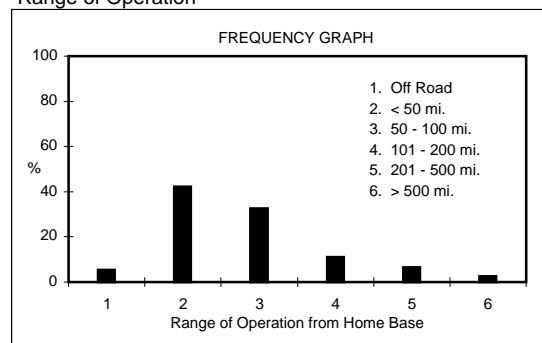
Annual VMT 1997



Base of Operation

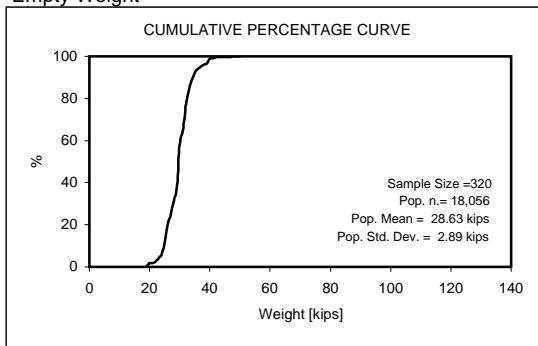


Range of Operation

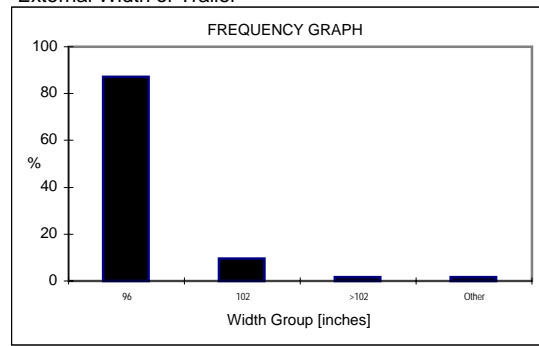


VEHICLE TYPE: 3-S2
BODY TYPE:TANK TRUCKS FOR DRY BULK
POPULATION SIZE: 13,725 SAMPLE SIZE: 359

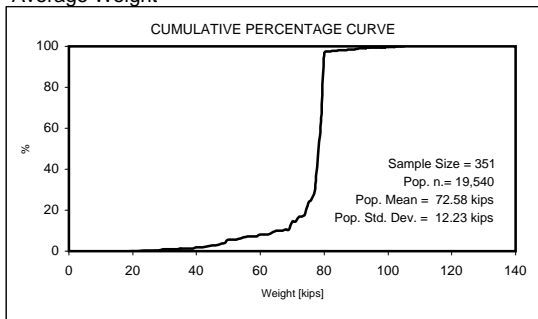
Empty Weight



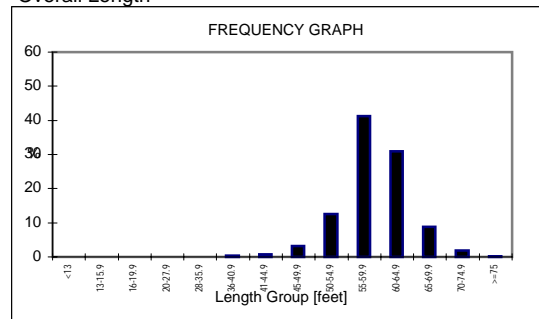
External Width of Trailer



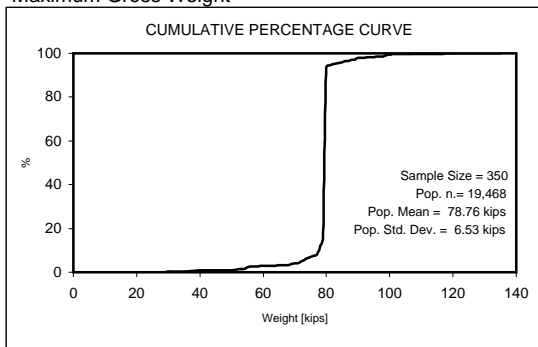
Average Weight



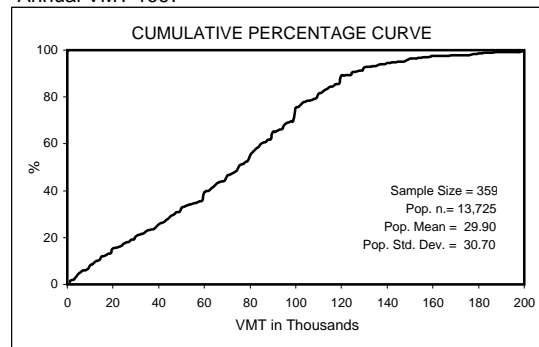
Overall Length



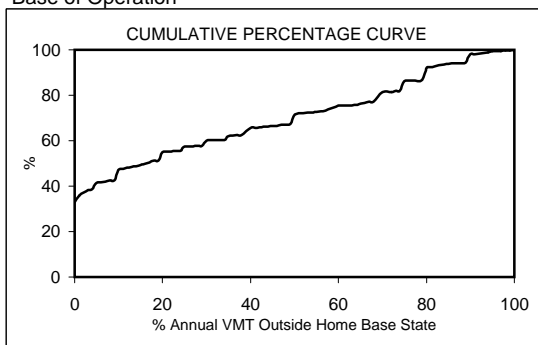
Maximum Gross Weight



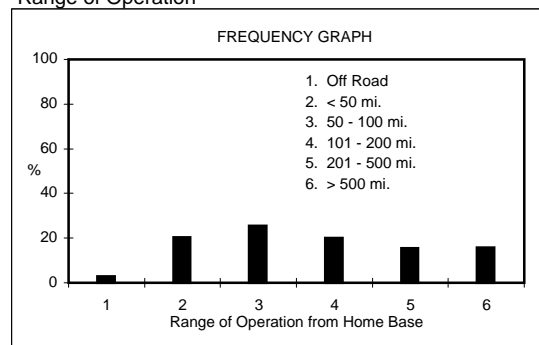
Annual VMT 1997



Base of Operation

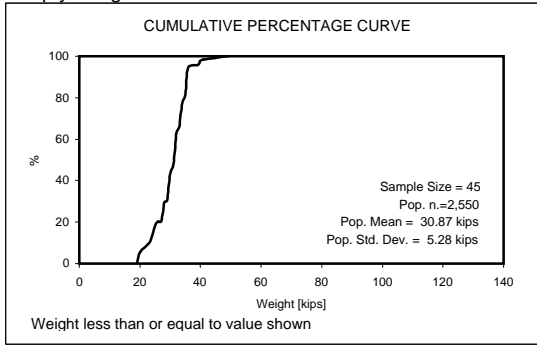


Range of Operation

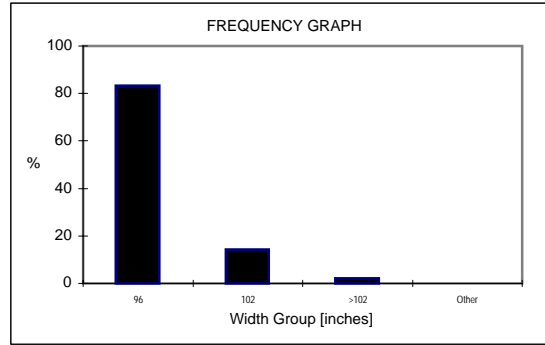


VEHICLE TYPE: 3+2
BODY TYPE: LOW BOY PLATFORM
POPULATION SIZE: 3,298 SAMPLE SIZE: 61

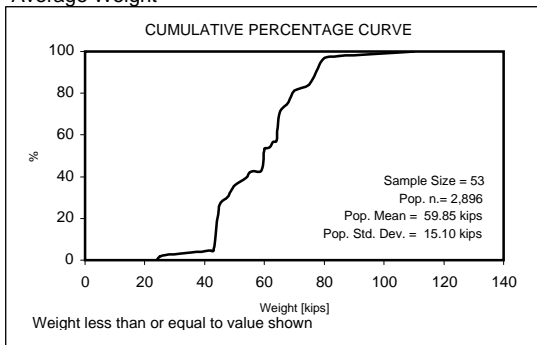
Empty Weight



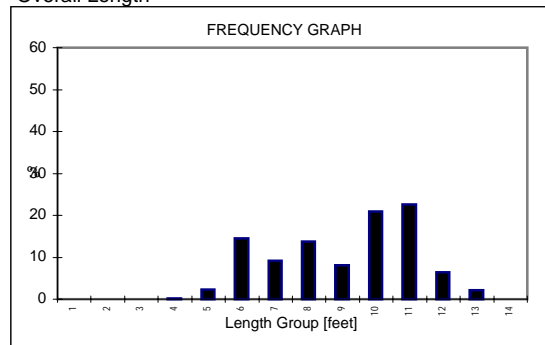
External Width of Trailer



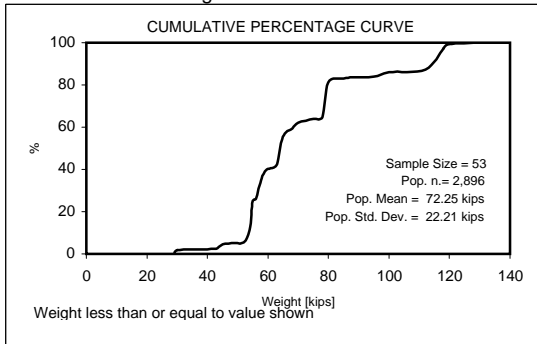
Average Weight



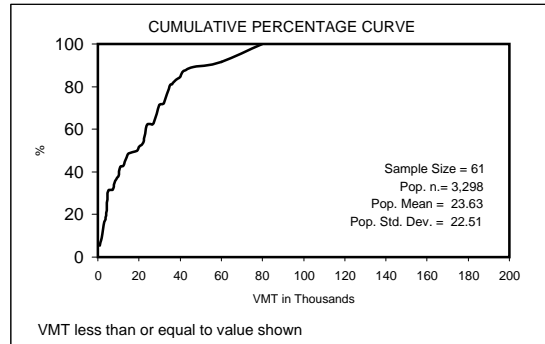
Overall Length



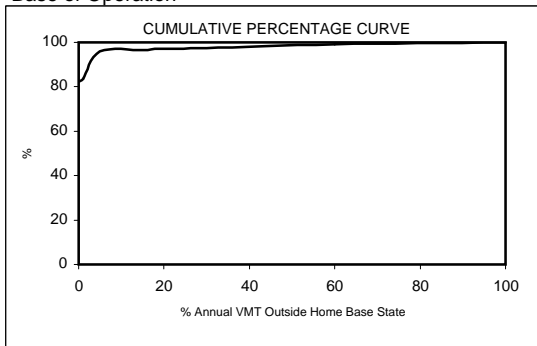
Maximum Gross Weight



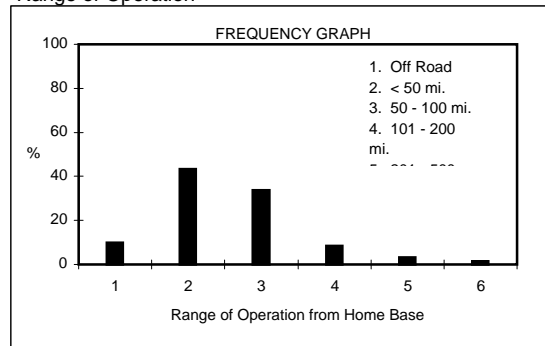
Annual VMT 1997



Base of Operation

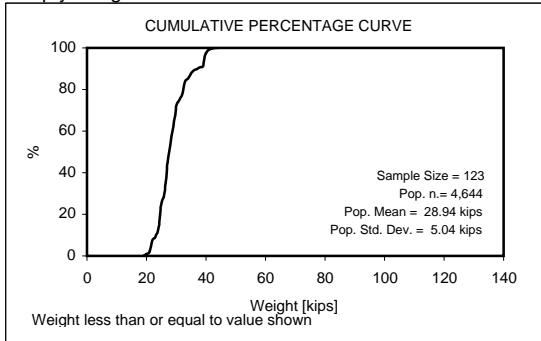


Range of Operation

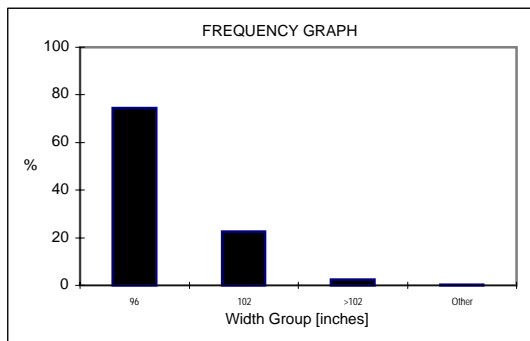


VEHICLE TYPE: 3+2
BODY TYPE: BASIC PLATFORM
POPULATION SIZE: 7,134 SAMPLE SIZE: 167

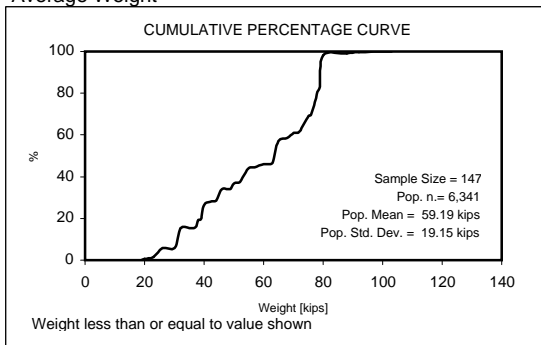
Empty Weight



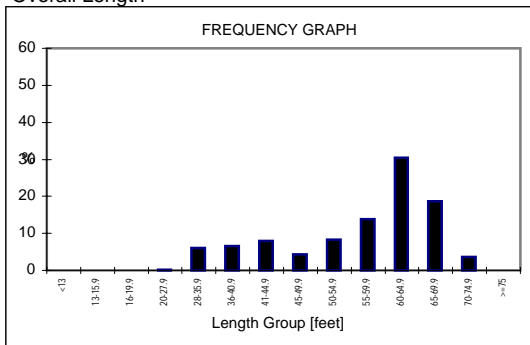
External Width of Trailer



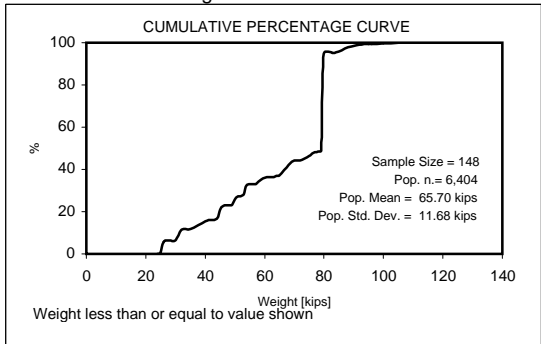
Average Weight



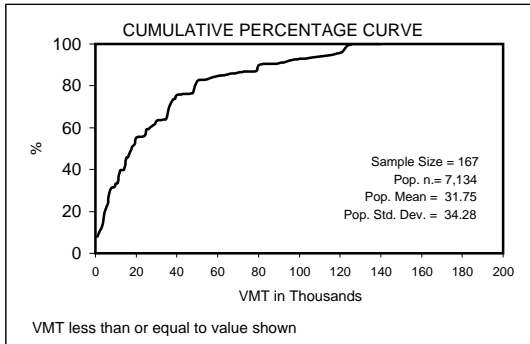
Overall Length



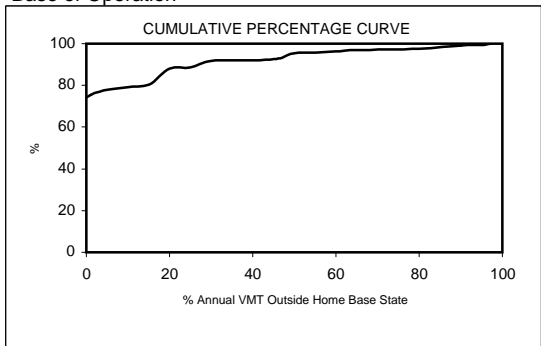
Maximum Gross Weight



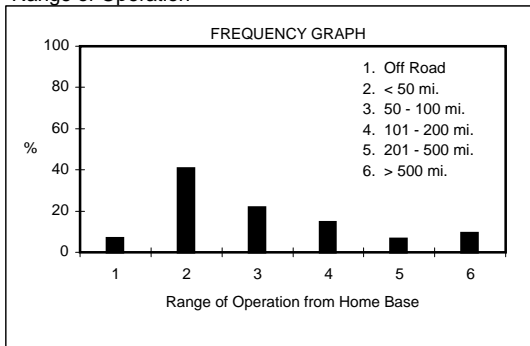
Annual VMT 1997



Base of Operation

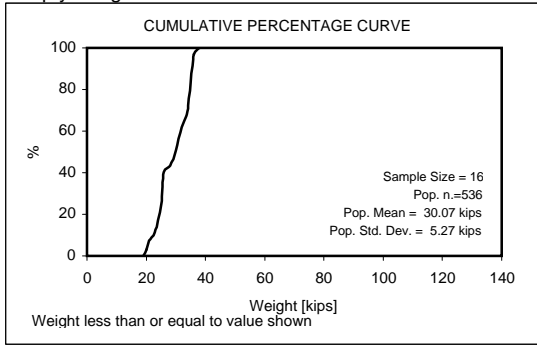


Range of Operation

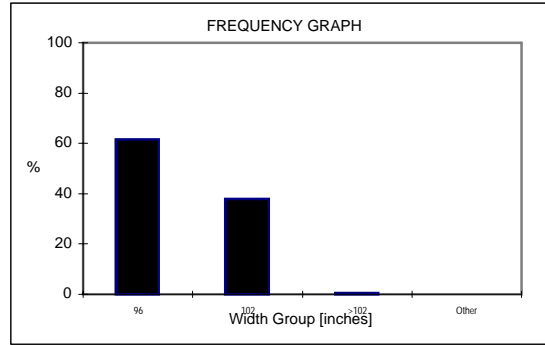


VEHICLE TYPE: 3+2
BODY TYPE: BASIC ENCLOSED VAN
POPULATION SIZE: 1,721 SAMPLE SIZE: 35

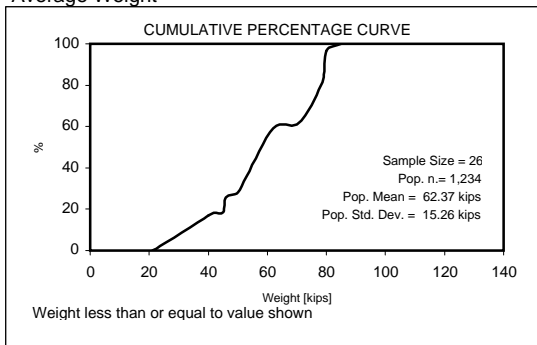
Empty Weight



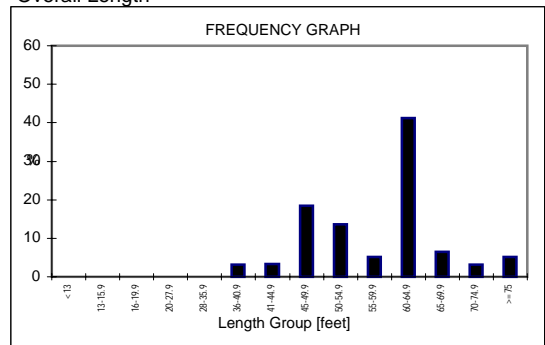
External Width of Trailer



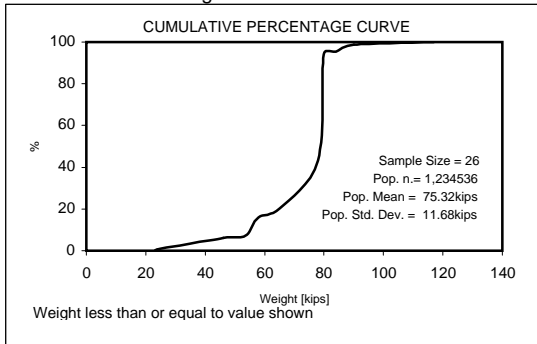
Average Weight



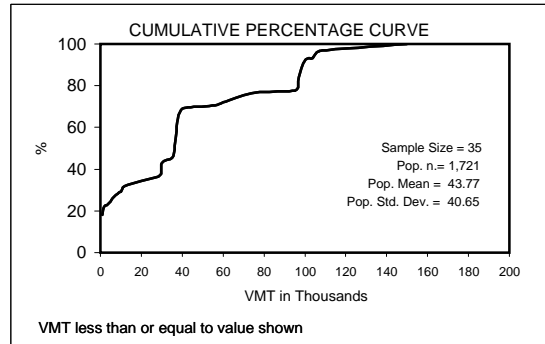
Overall Length



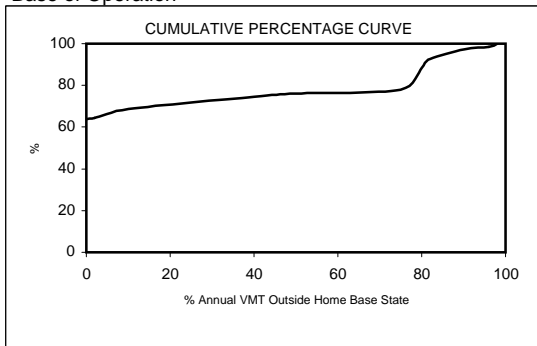
Maximum Gross Weight



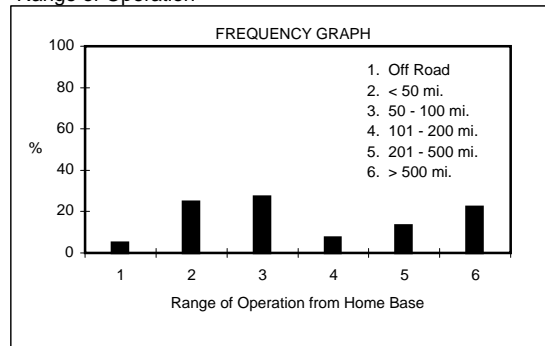
Annual VMT 1997



Base of Operation

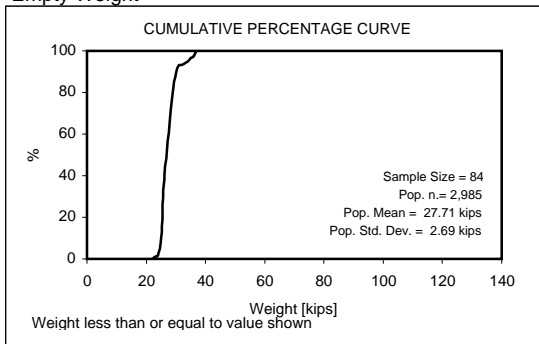


Range of Operation

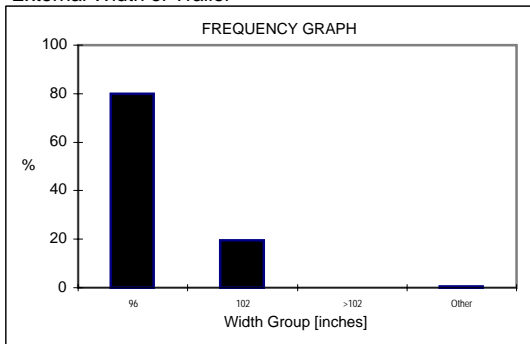


VEHICLE TYPE: 3+2
BODY TYPE: POLE LOGGING TRUCK
POPULATION SIZE: 3,475 SAMPLE SIZE: 94

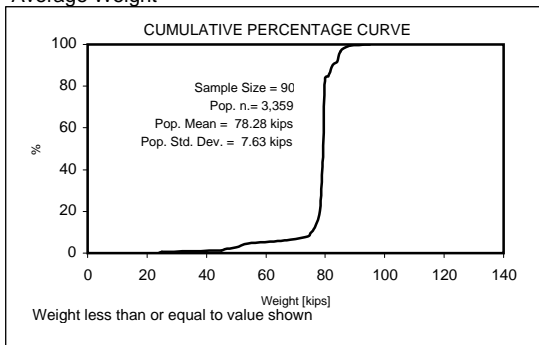
Empty Weight



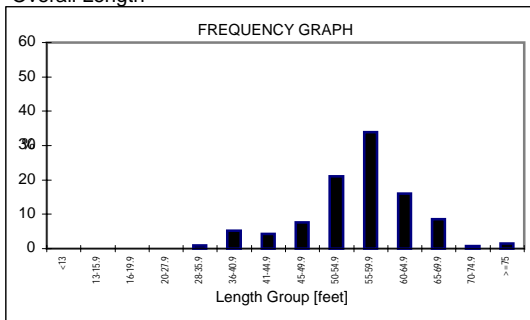
External Width of Trailer



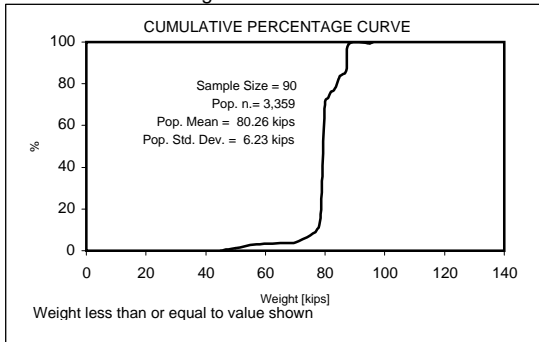
Average Weight



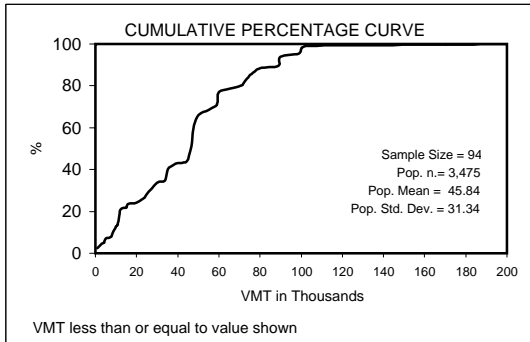
Overall Length



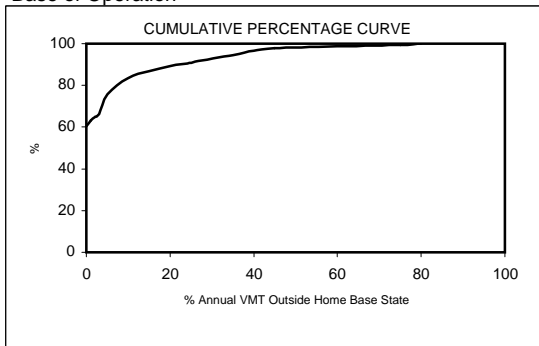
Maximum Gross Weight



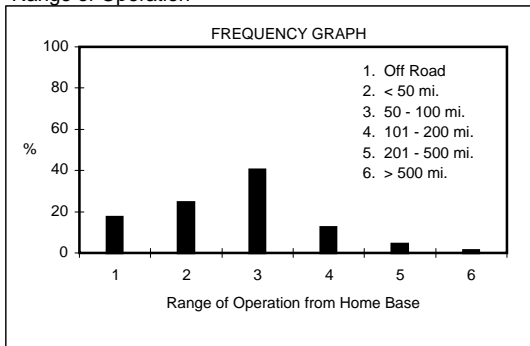
Annual VMT 1997



Base of Operation

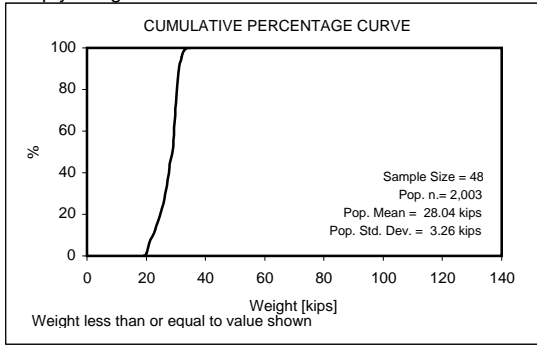


Range of Operation

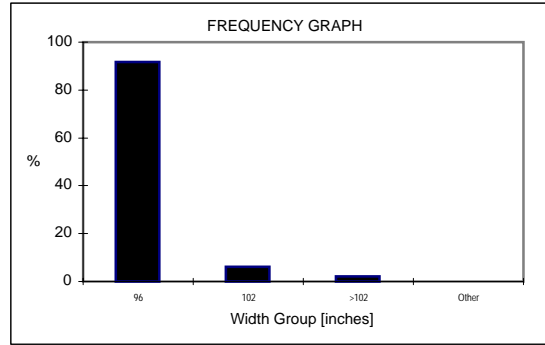


VEHICLE TYPE: 3+2
BODY TYPE: GRAIN BODIES
POPULATION SIZE: 2,813 SAMPLE SIZE: 66

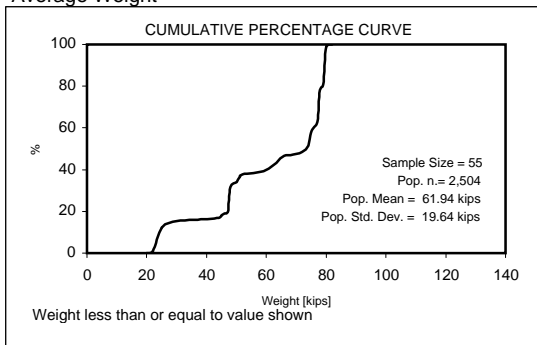
Empty Weight



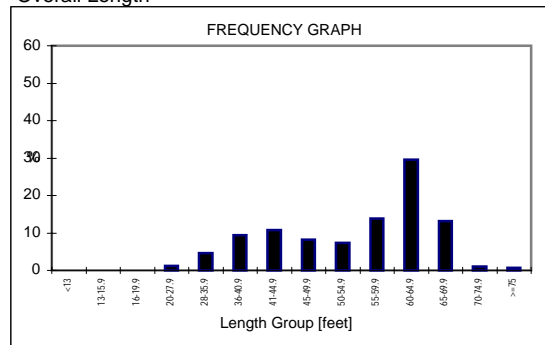
External Width of Trailer



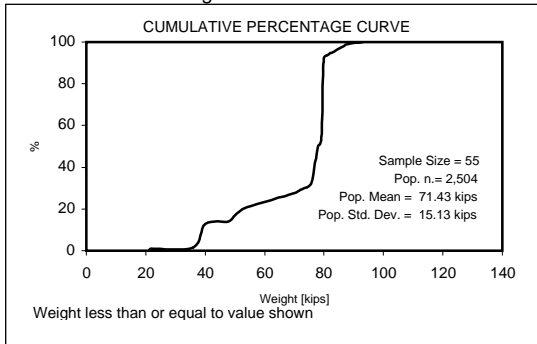
Average Weight



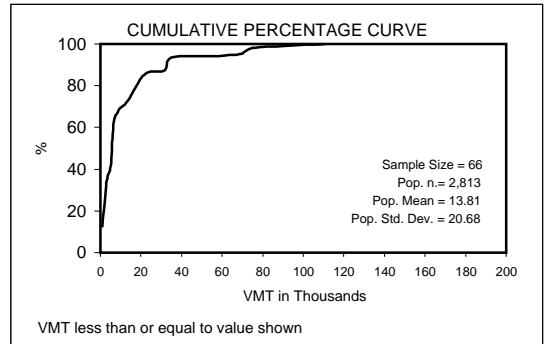
Overall Length



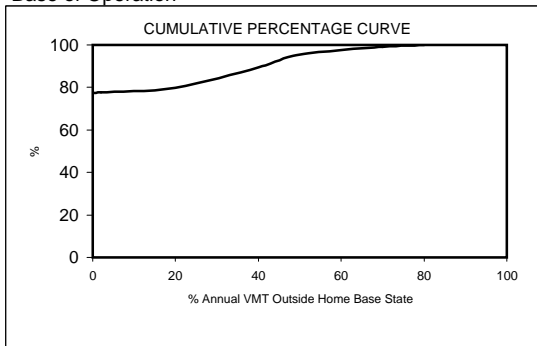
Maximum Gross Weight



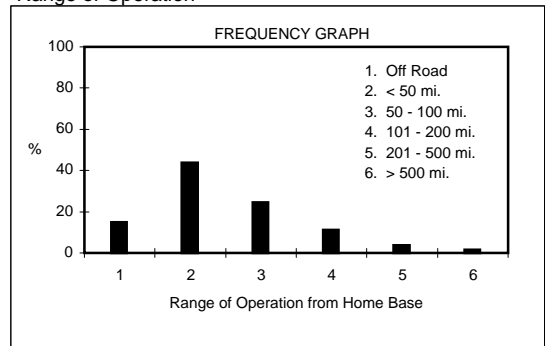
Annual VMT 1997



Base of Operation

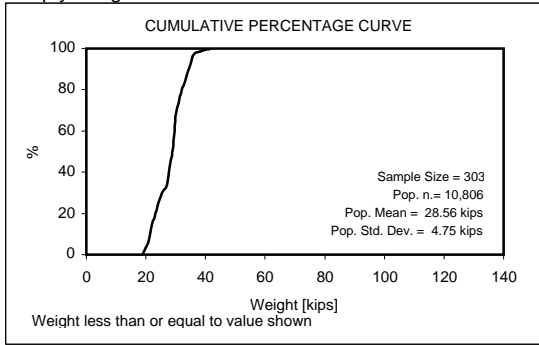


Range of Operation

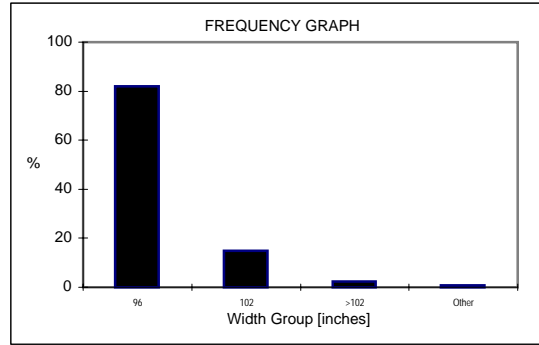


VEHICLE TYPE: 3+2
BODY TYPE: DUMP TRUCK
POPULATION SIZE: 13,553 SAMPLE SIZE: 359

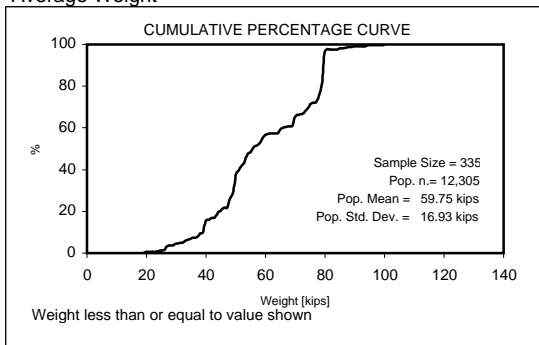
Empty Weight



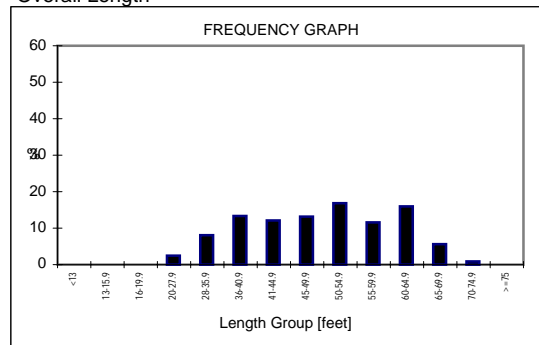
External Width of Trailer



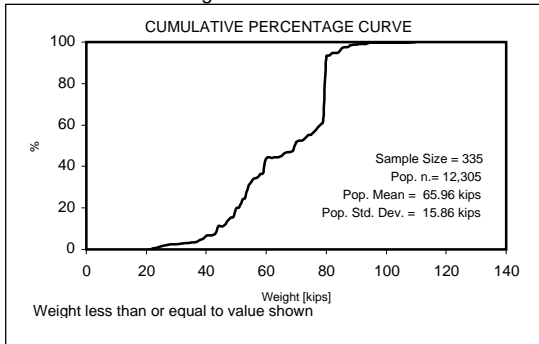
Average Weight



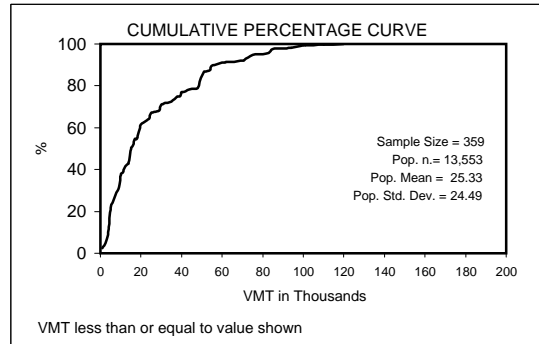
Overall Length



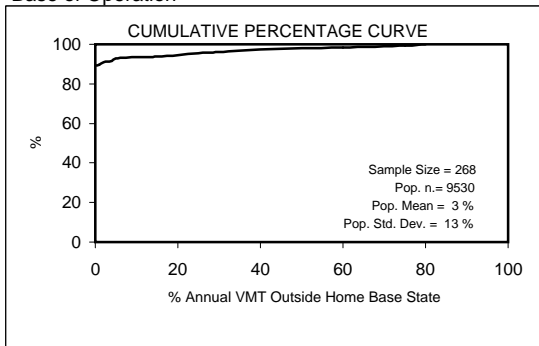
Maximum Gross Weight



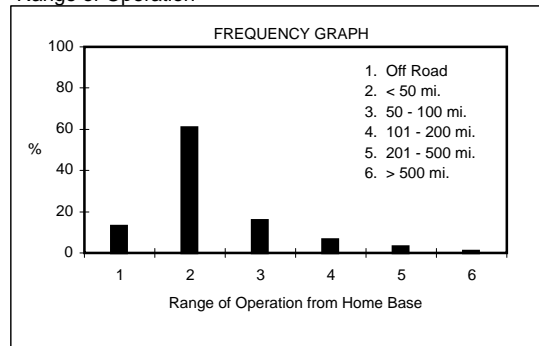
Annual VMT 1997



Base of Operation

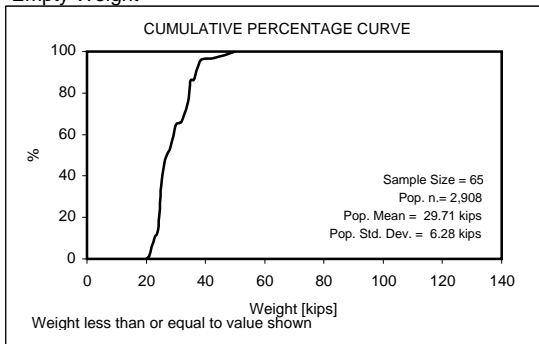


Range of Operation

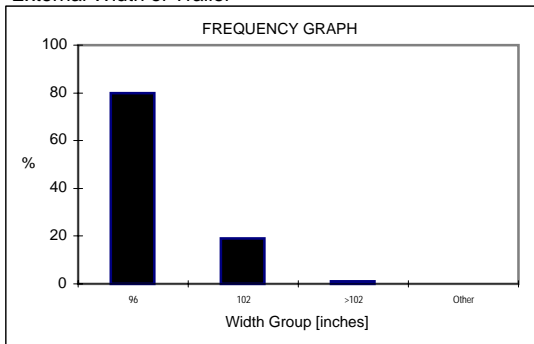


VEHICLE TYPE: 3+2
BODY TYPE: TANK TRUCKS FOR LIQUIDS OR GASES
POPULATION SIZE: 3,956 SAMPLE SIZE: 80

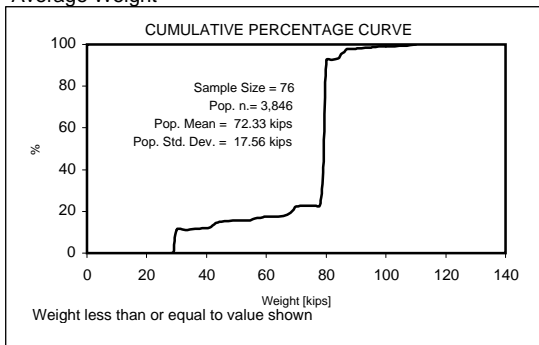
Empty Weight



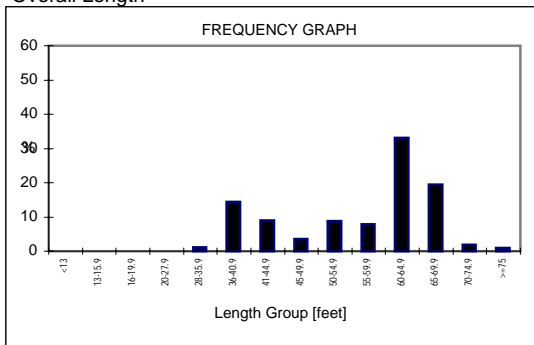
External Width of Trailer



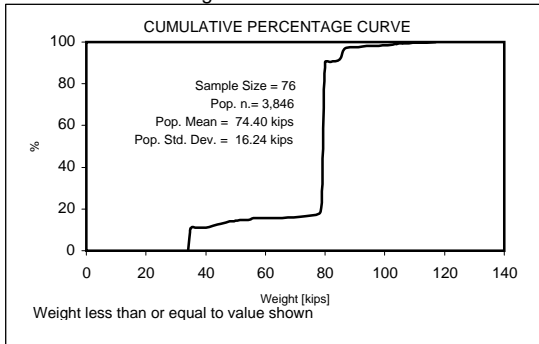
Average Weight



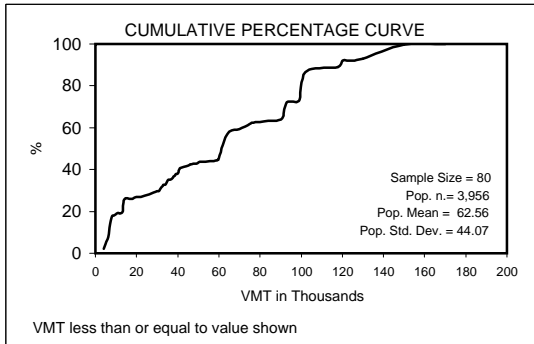
Overall Length



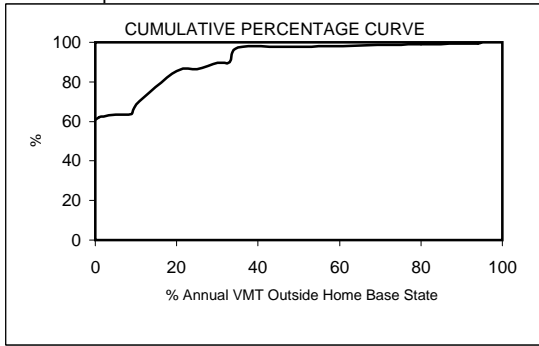
Maximum Gross Weight



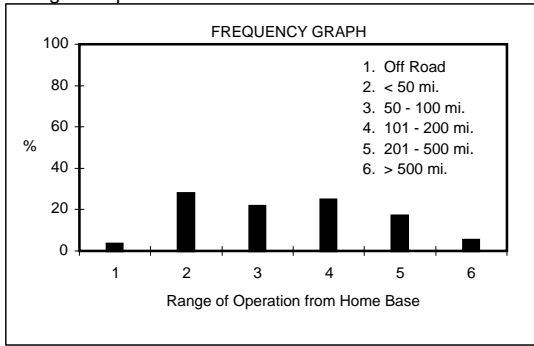
Annual VMT 1997



Base of Operation

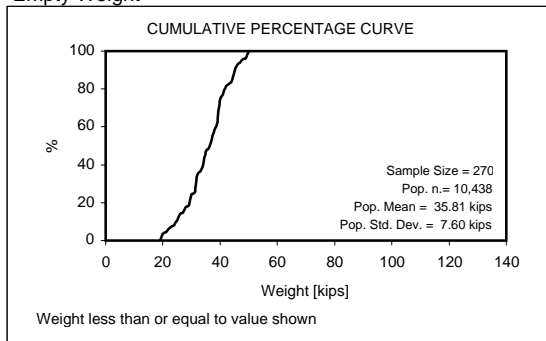


Range of Operation

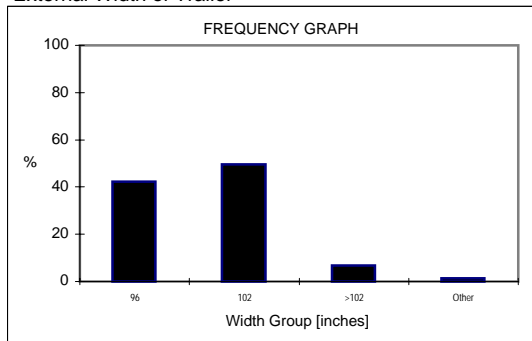


**VEHICLE TYPE: 3-S3
 BODY TYPE: LOW BOY PLATFORM
 POPULATION SIZE: 11,239 SAMPLE SIZE: 349**

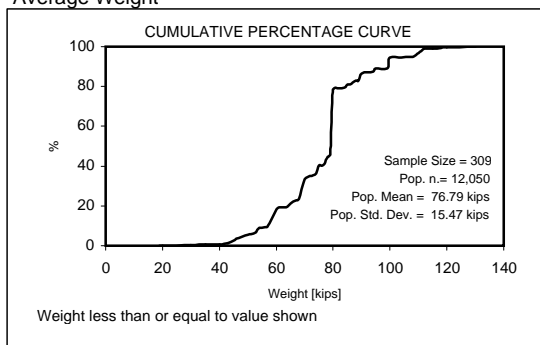
Empty Weight



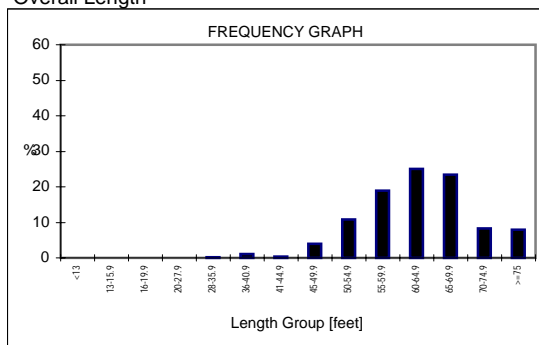
External Width of Trailer



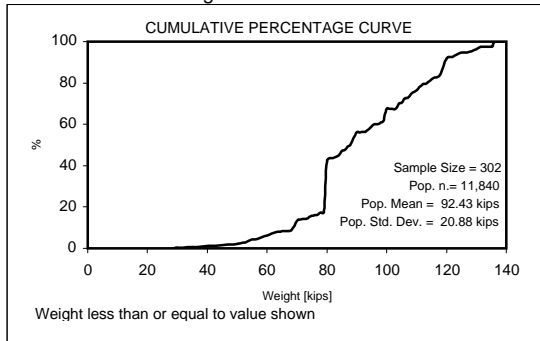
Average Weight



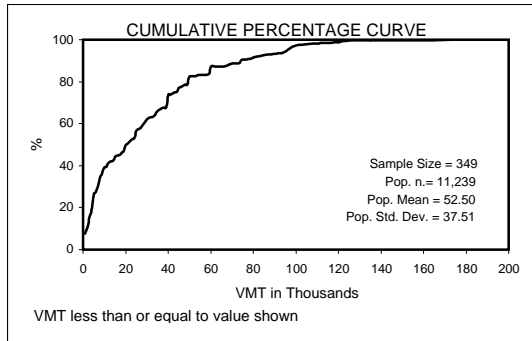
Overall Length



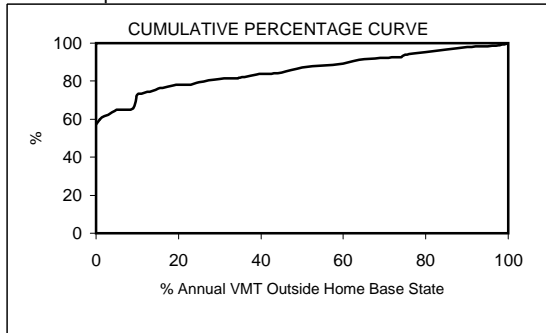
Maximum Gross Weight



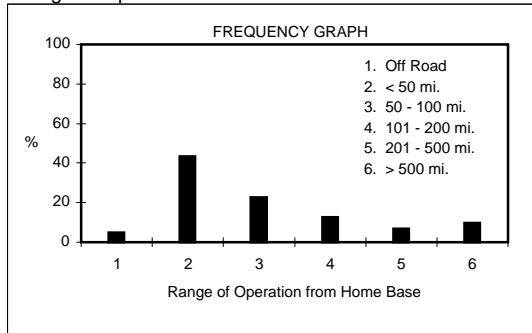
Annual VMT 1997



Base of Operation

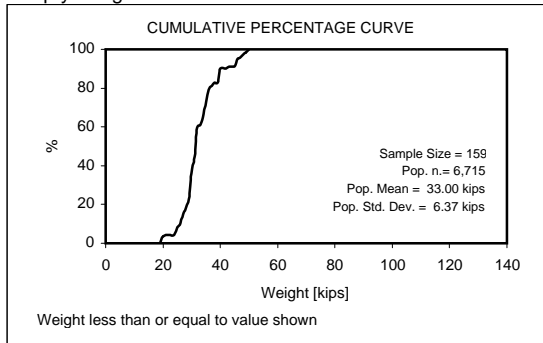


Range of Operation

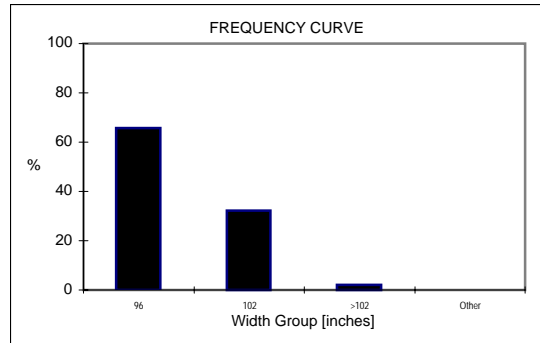


VEHICLE TYPE: 3-S3
BODY TYPE: BASIC PLATFORM
POPULATION SIZE: 11,239 SAMPLE SIZE: 230

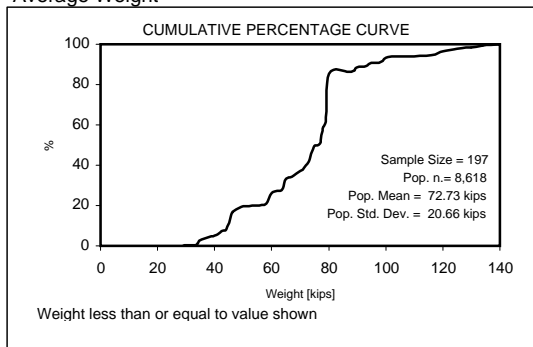
Empty Weight



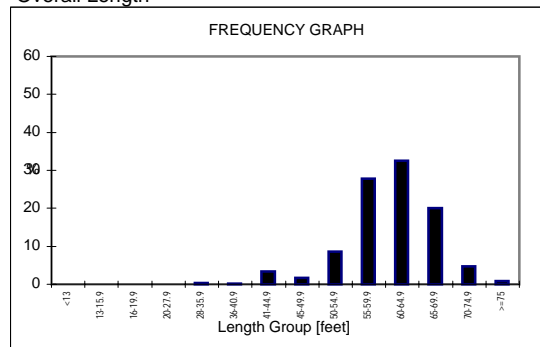
External Width of Trailer



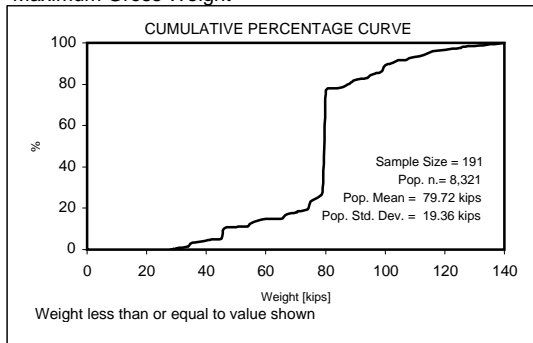
Average Weight



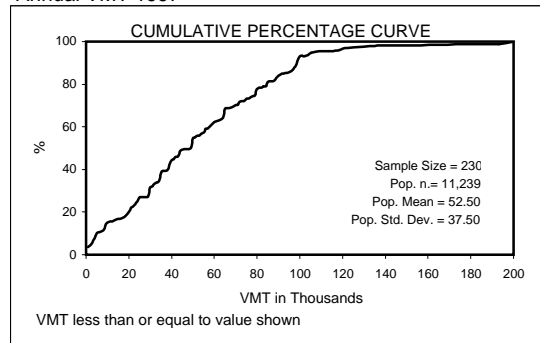
Overall Length



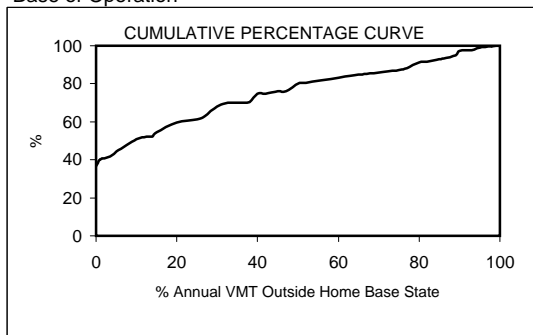
Maximum Gross Weight



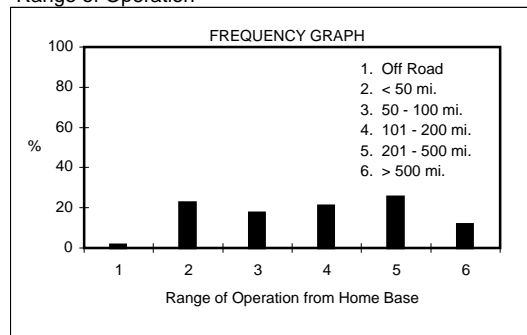
Annual VMT 1997



Base of Operation

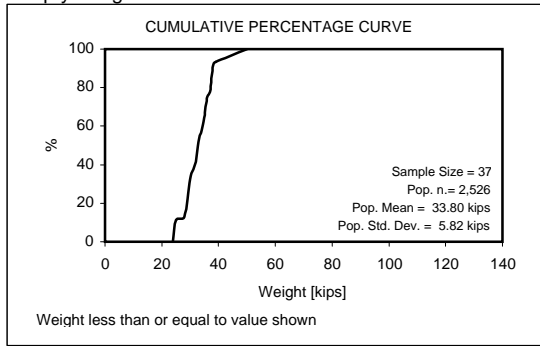


Range of Operation

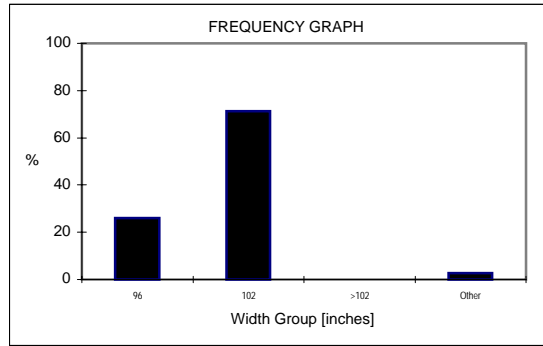


VEHICLE TYPE: 3-S3
BODY TYPE: INSULATED REFRIGERATED
POPULATION SIZE: 3,656 **SAMPLE SIZE: 59**

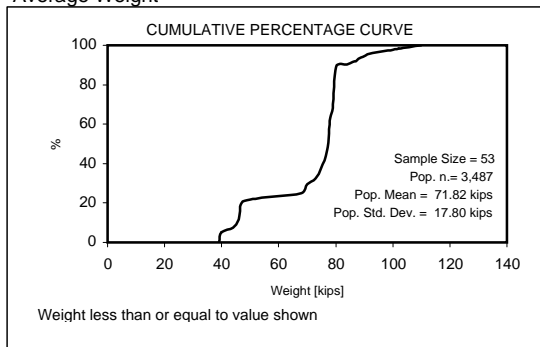
Empty Weight



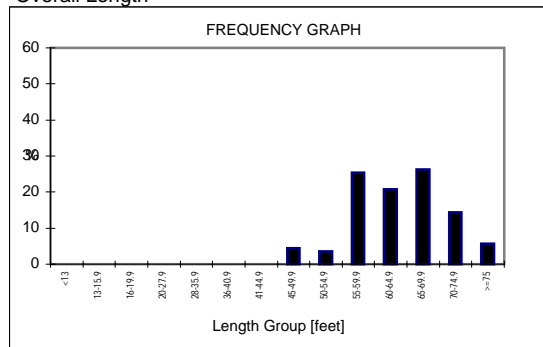
External Width of Trailer



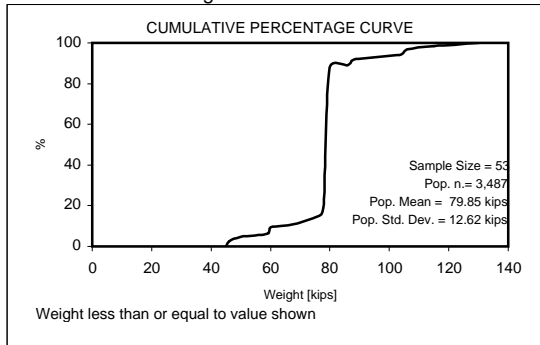
Average Weight



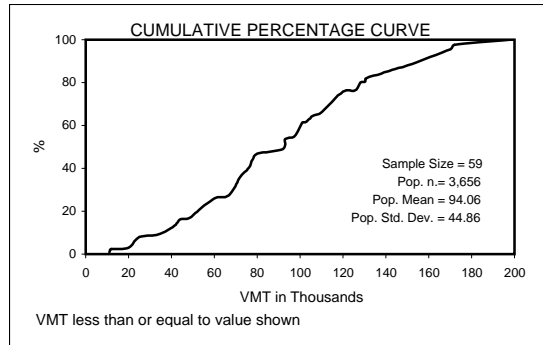
Overall Length



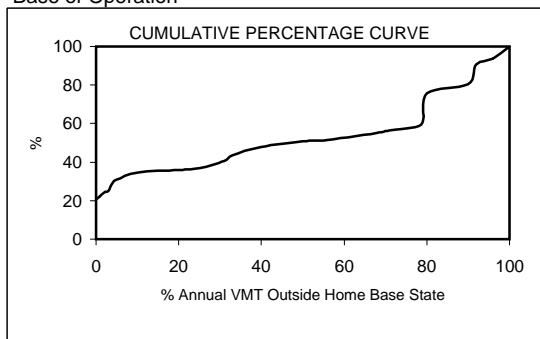
Maximum Gross Weight



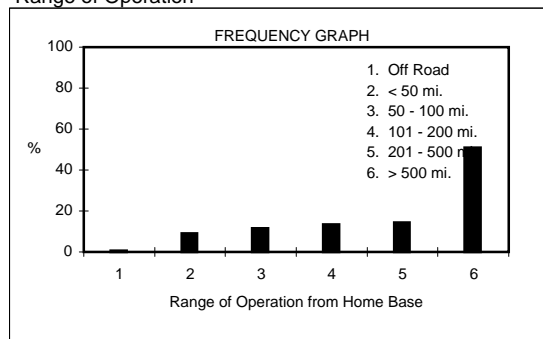
Annual VMT 1997



Base of Operation

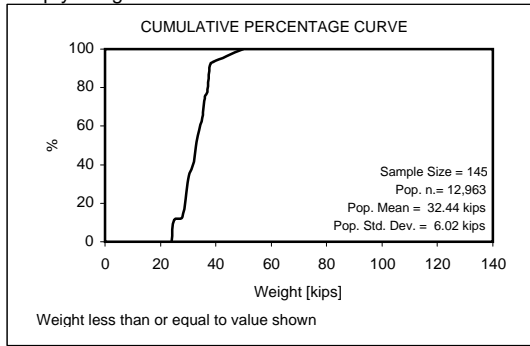


Range of Operation

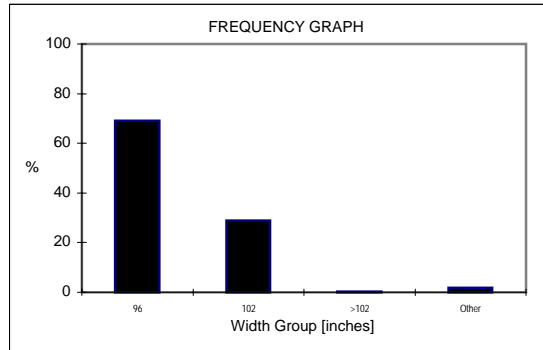


VEHICLE TYPE: 3-S3
BODY TYPE: BASIC ENCLOSED VAN
POPULATION SIZE: 41,929 SAMPLE SIZE: 711

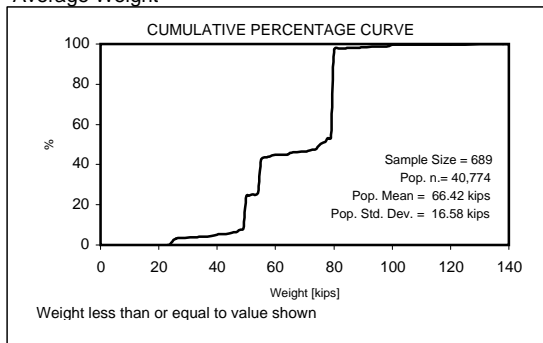
Empty Weight



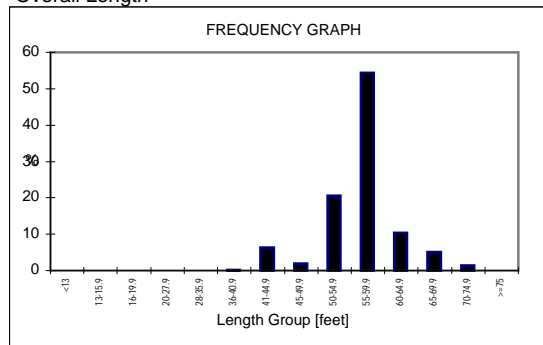
External Width of Trailer



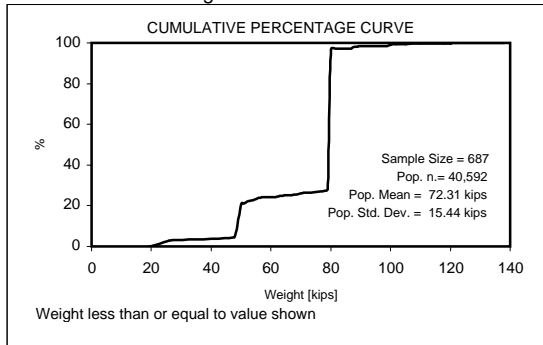
Average Weight



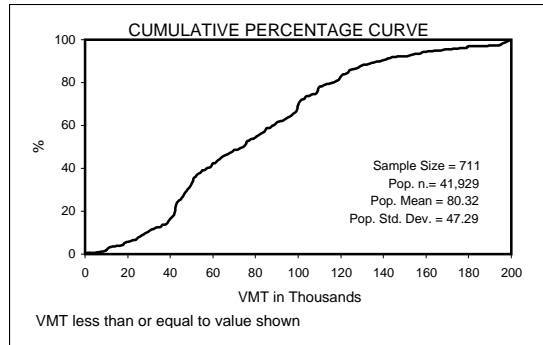
Overall Length



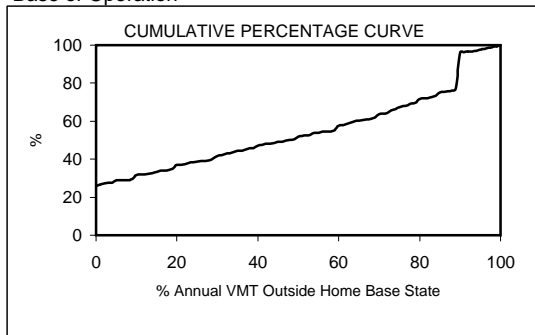
Maximum Gross Weight



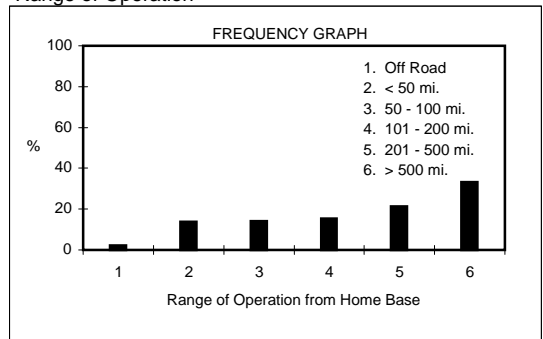
Annual VMT 1997



Base of Operation

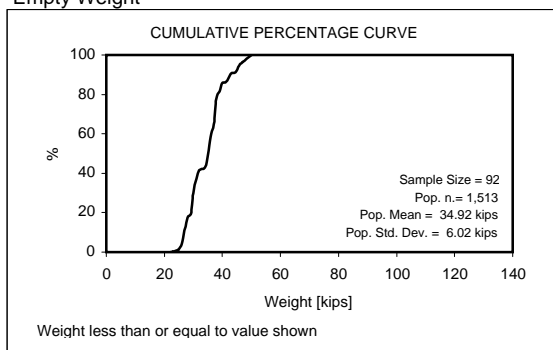


Range of Operation

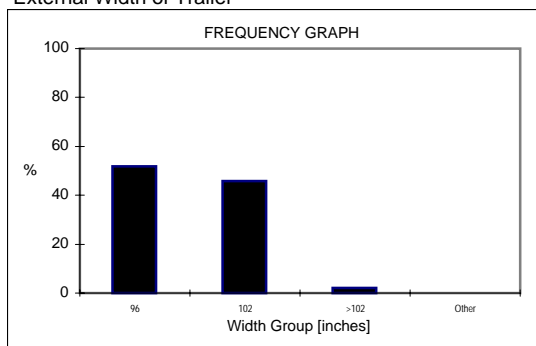


VEHICLE TYPE: 3-S3
BODY TYPE: POLE LOGGING TRUCK
POPULATION SIZE: 1,799 SAMPLE SIZE: 104

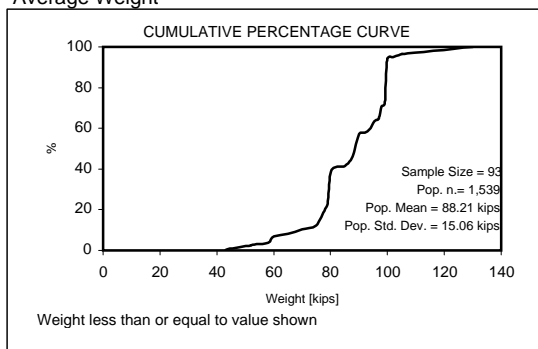
Empty Weight



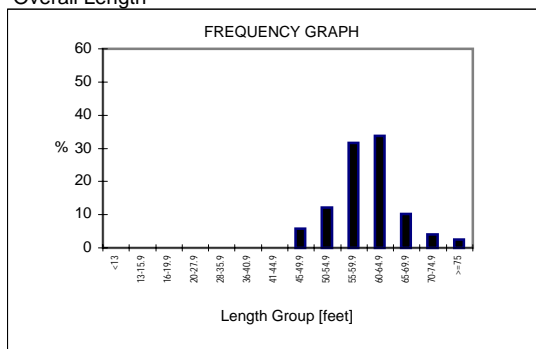
External Width of Trailer



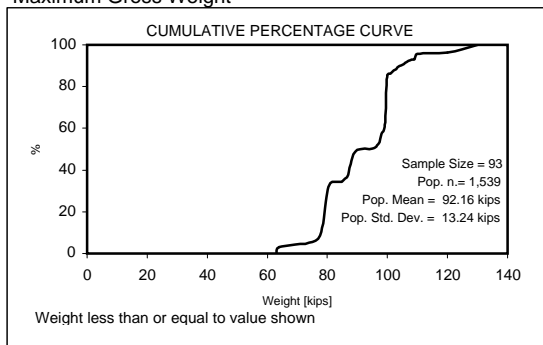
Average Weight



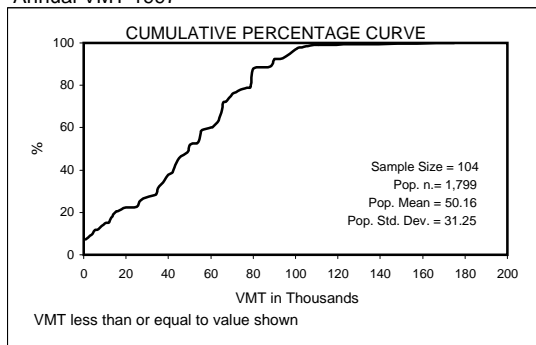
Overall Length



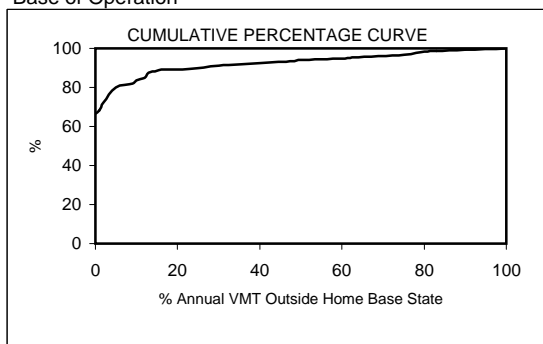
Maximum Gross Weight



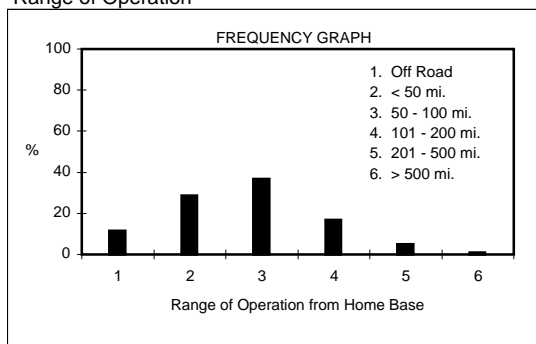
Annual VMT 1997



Base of Operation

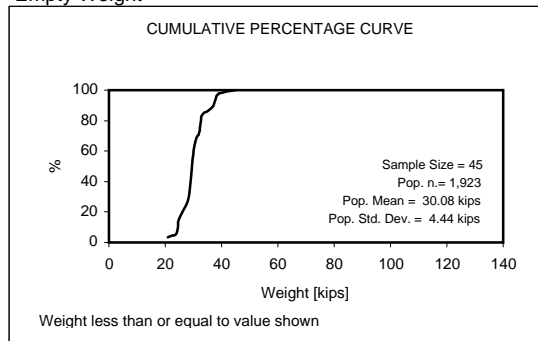


Range of Operation

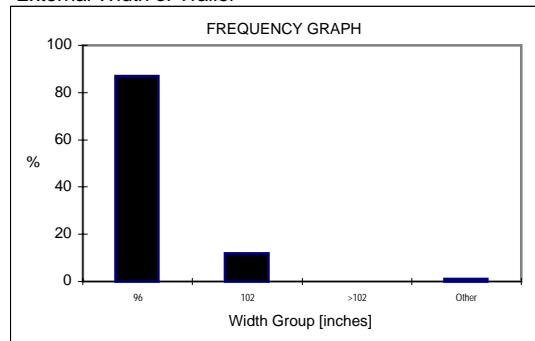


VEHICLE TYPE: 3-S3
BODY TYPE: GRAIN BODIES
POPULATION SIZE: 2,379 SAMPLE SIZE: 56

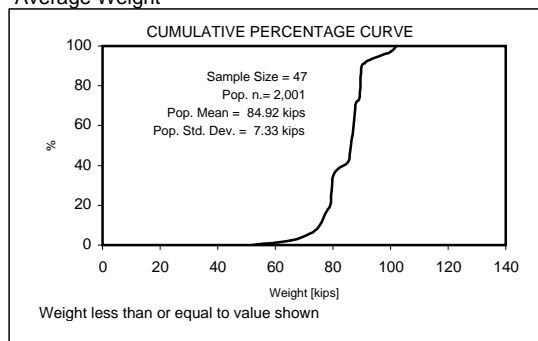
Empty Weight



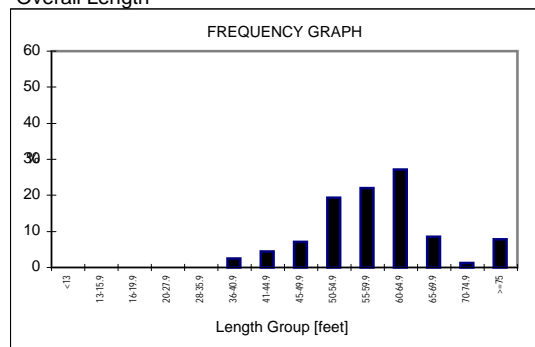
External Width of Trailer



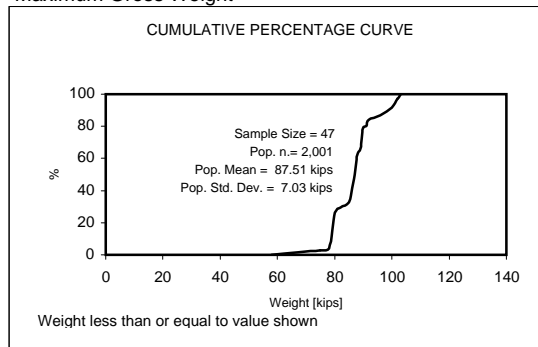
Average Weight



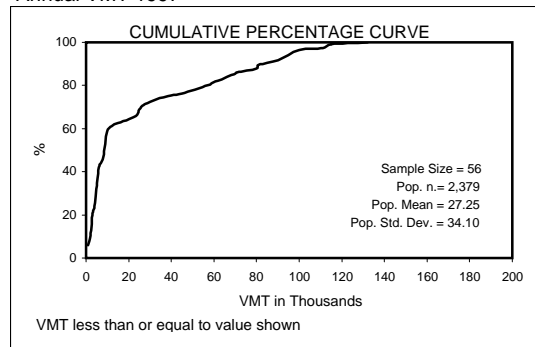
Overall Length



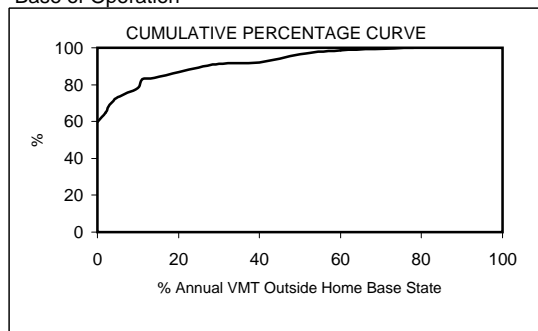
Maximum Gross Weight



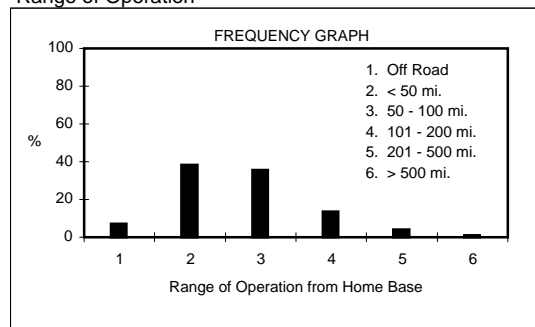
Annual VMT 1997



Base of Operation

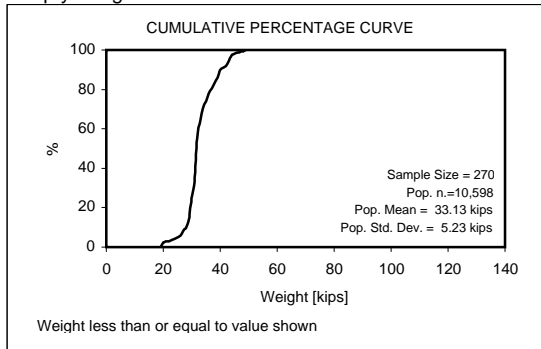


Range of Operation

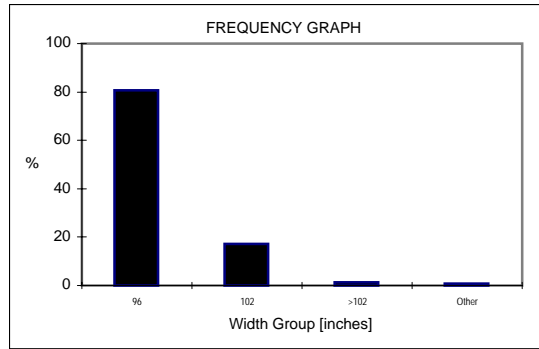


VEHICLE TYPE: 3-S3
BODY TYPE: DUMP TRUCK
POPULATION SIZE: 12,143 **SAMPLE SIZE: 310**

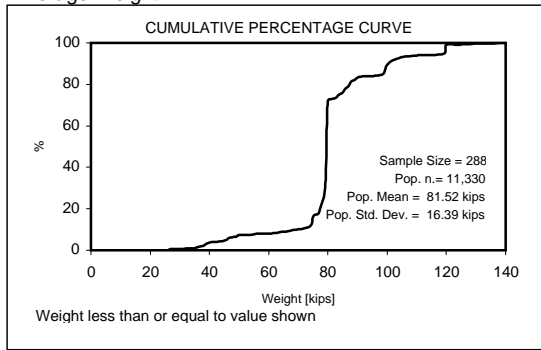
Empty Weight



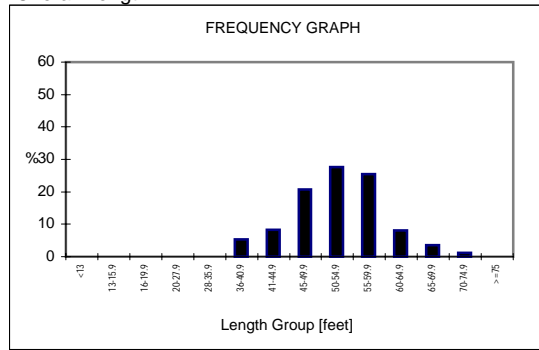
External Width of Trailer



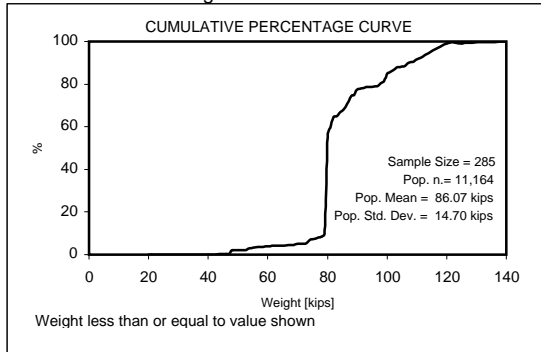
Average Weight



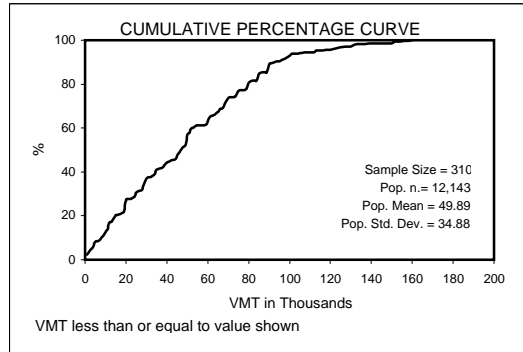
Overall Length



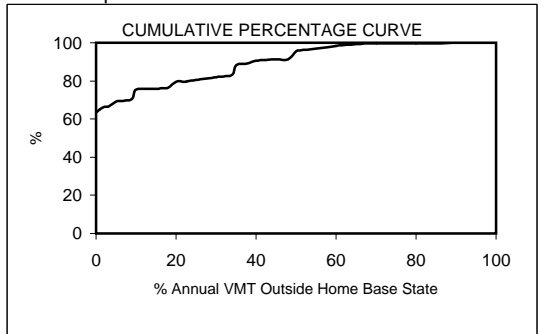
Maximum Gross Weight



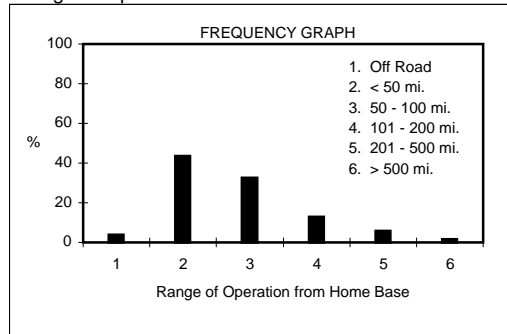
Annual VMT 1997



Base of Operation

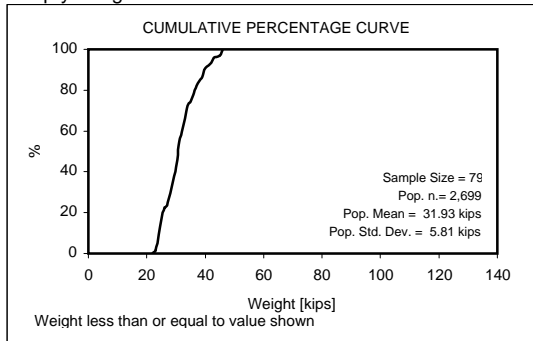


Range of Operation

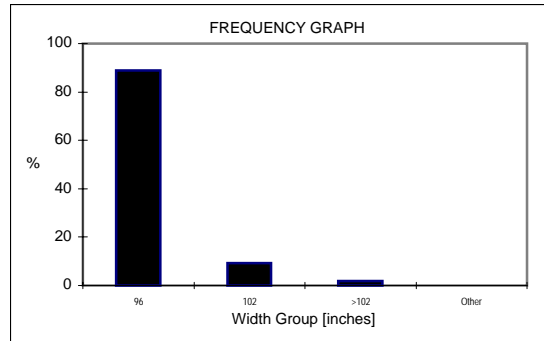


VEHICLE TYPE: 3-S3
BODY TYPE: TANK TRUCKS FOR LIQUIDS OR GASES
POPULATION SIZE: 3,869 SAMPLE SIZE: 100

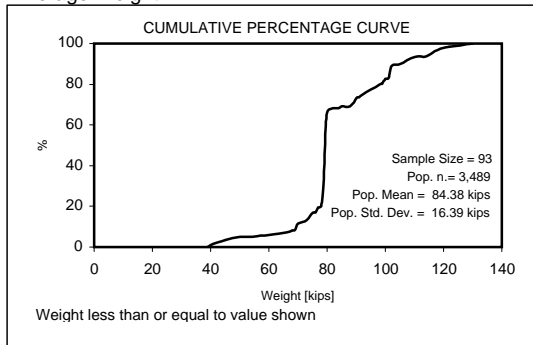
Empty Weight



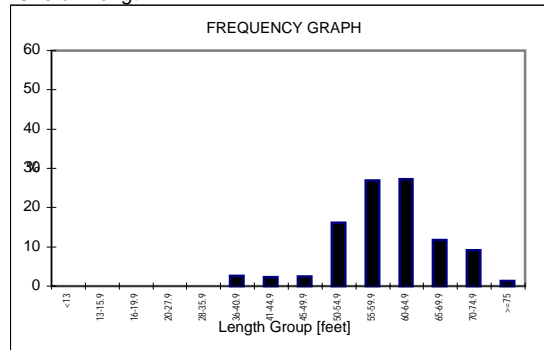
External Width of Trailer



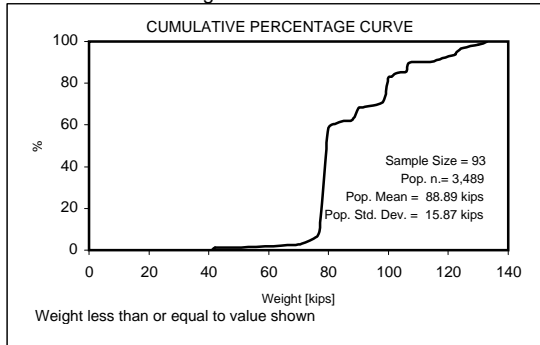
Average Weight



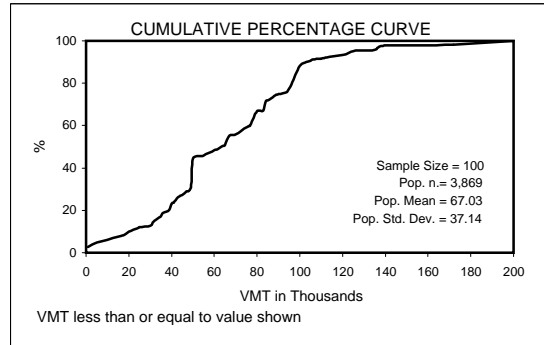
Overall Length



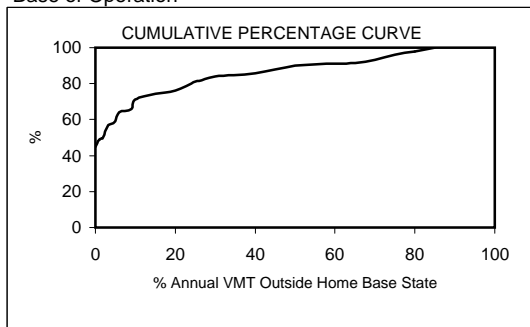
Maximum Gross Weight



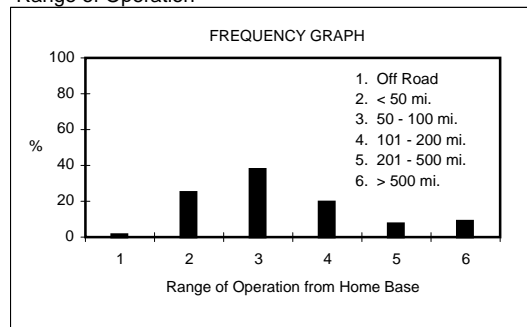
Annual VMT 1997



Base of Operation

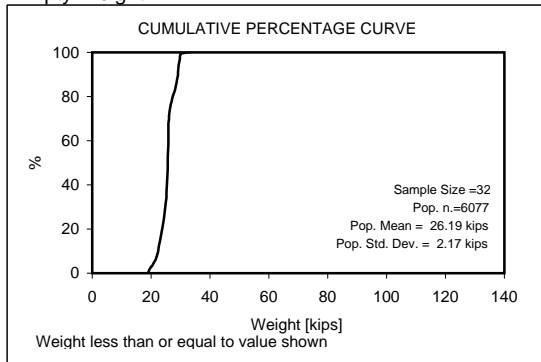


Range of Operation

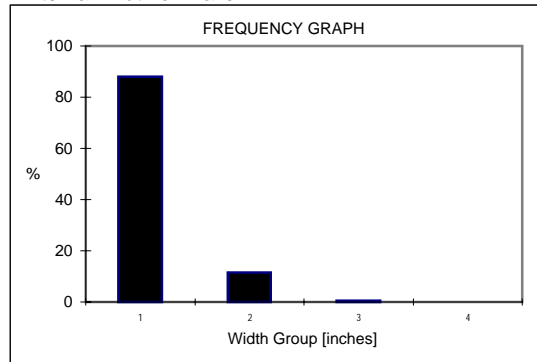


VEHICLE TYPE: 2-S1-2
BODY TYPE: BASIC PLATFORM
POPULATION SIZE: 6,384 SAMPLE SIZE: 36

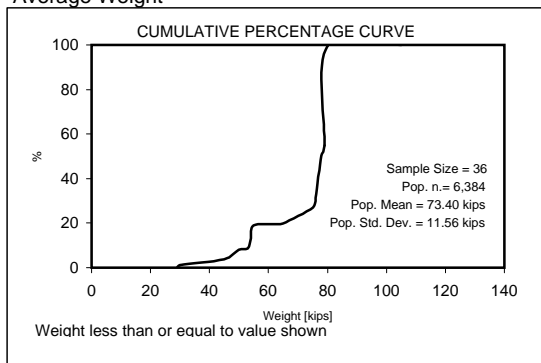
Empty Weight



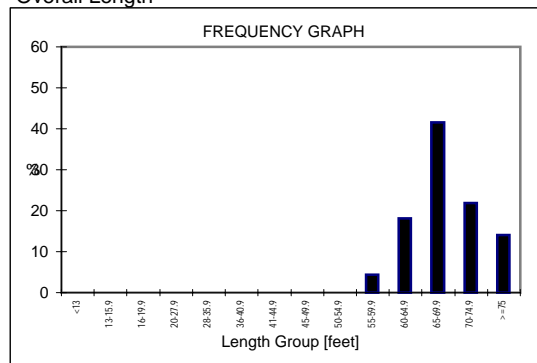
External Width of Trailer



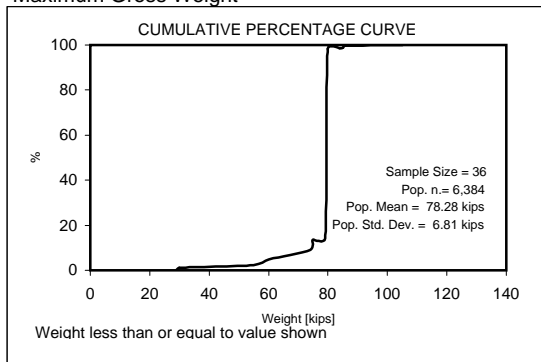
Average Weight



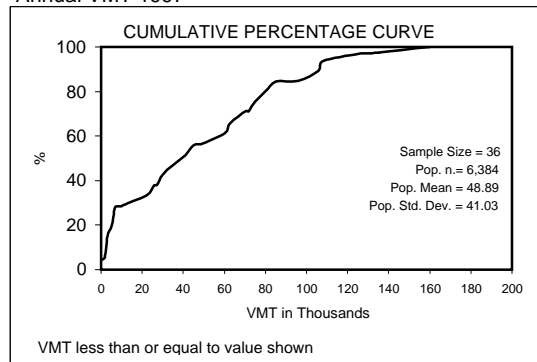
Overall Length



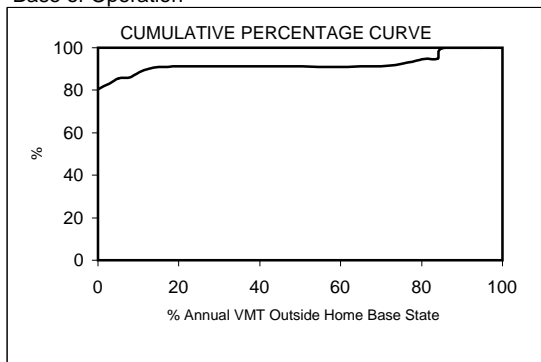
Maximum Gross Weight



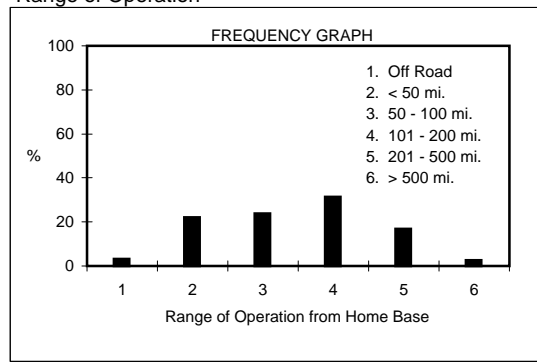
Annual VMT 1997



Base of Operation

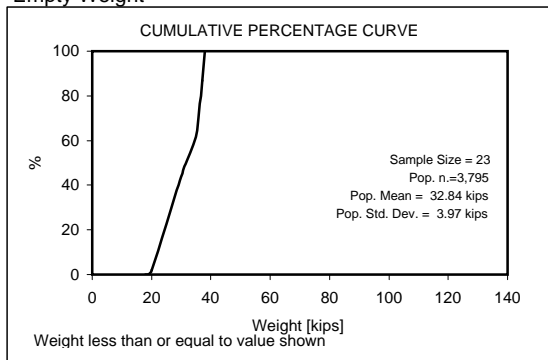


Range of Operation

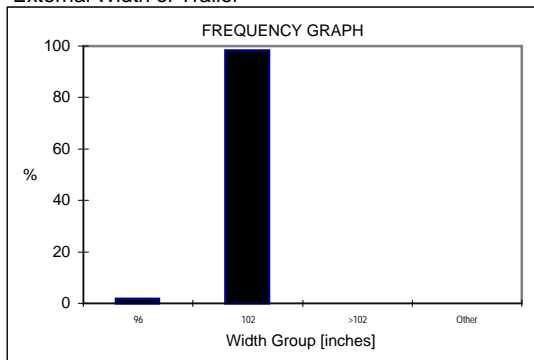


VEHICLE TYPE: 2-S1-2
 BODY TYPE: DROP FRAME VAN
 POPULATION SIZE: 4,051 SAMPLE SIZE: 26

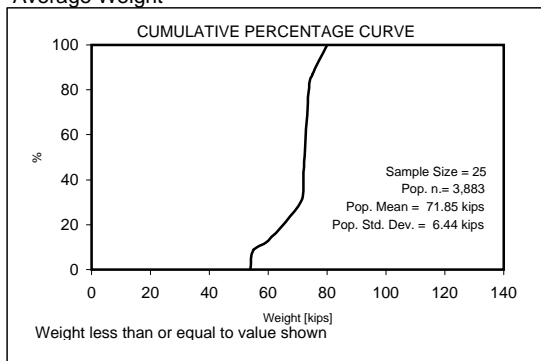
Empty Weight



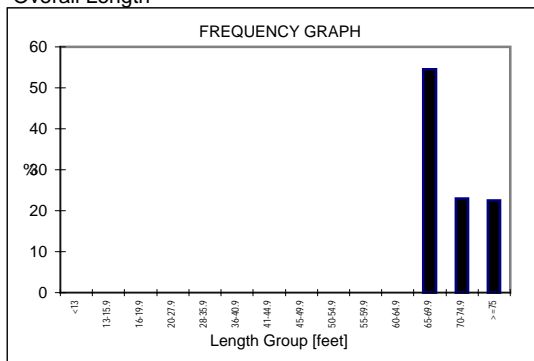
External Width of Trailer



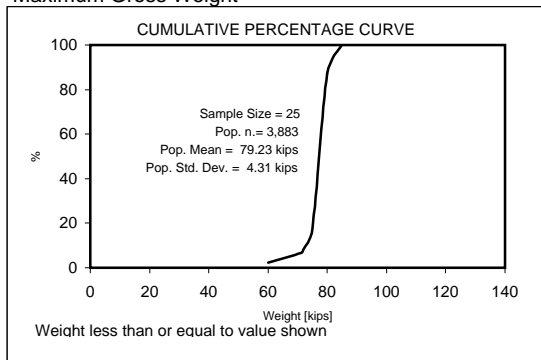
Average Weight



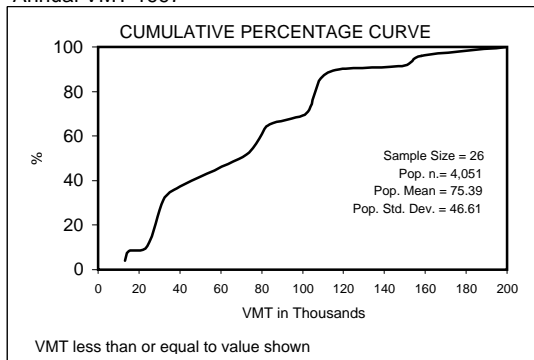
Overall Length



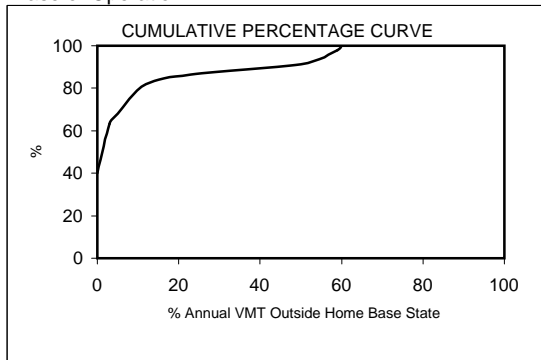
Maximum Gross Weight



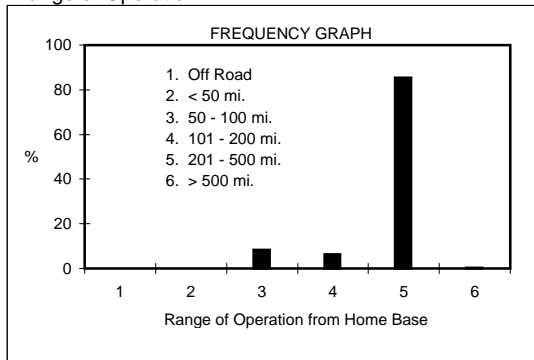
Annual VMT 1997



Base of Operation

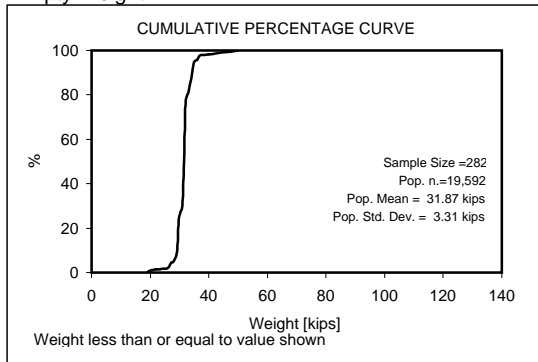


Range of Operation

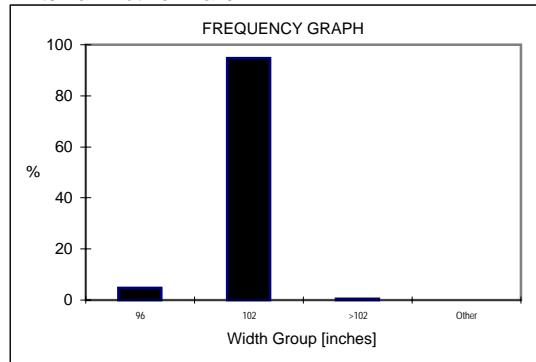


VEHICLE TYPE: 2-S1-2
BODY TYPE: BASIC ENCLOSED VAN
POPULATION SIZE: 35,496 SAMPLE SIZE: 466

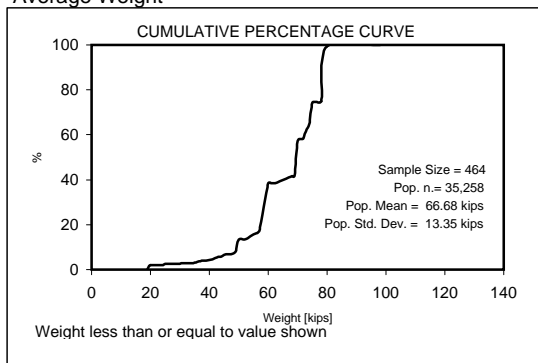
Empty Weight



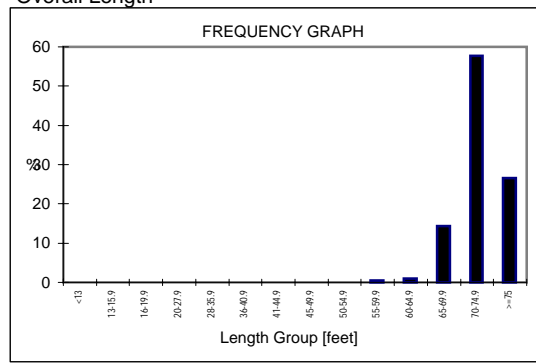
External Width of Trailer



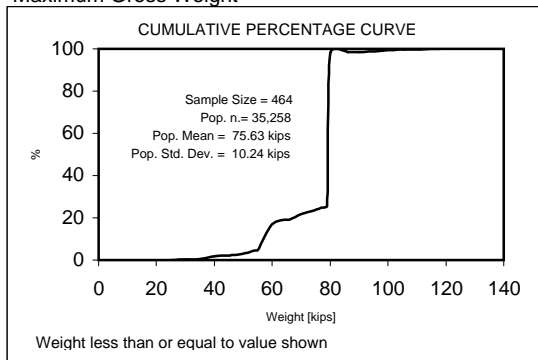
Average Weight



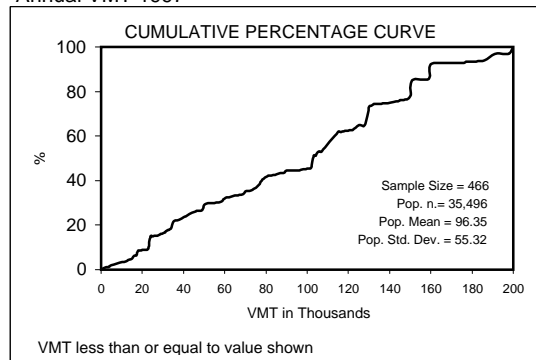
Overall Length



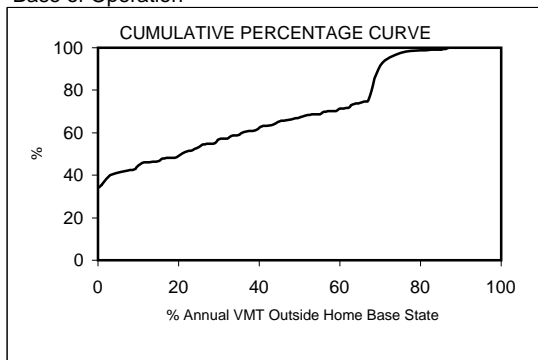
Maximum Gross Weight



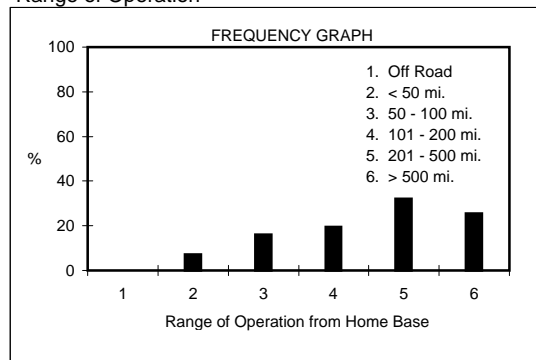
Annual VMT 1997



Base of Operation

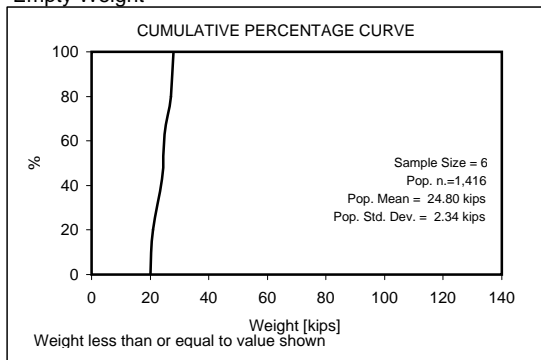


Range of Operation

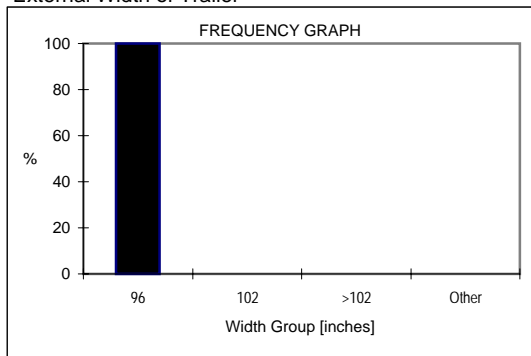


VEHICLE TYPE: 2-S1-2
BODY TYPE: GRAIN BODIES
POPULATION SIZE: 1,416 SAMPLE SIZE: 6

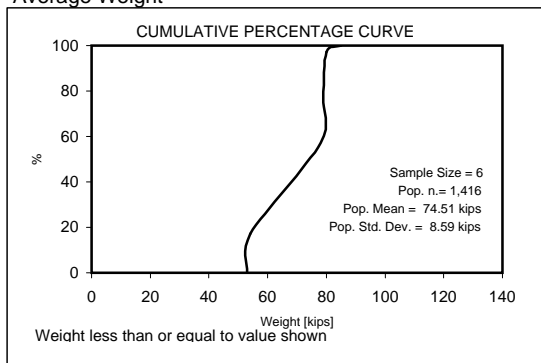
Empty Weight



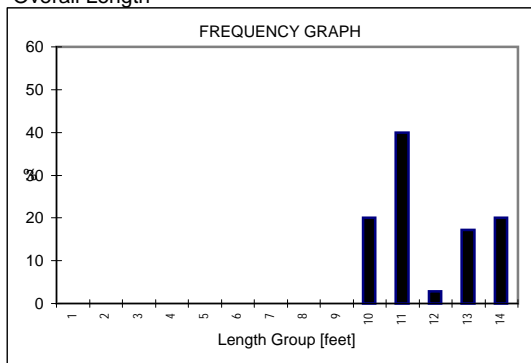
External Width of Trailer



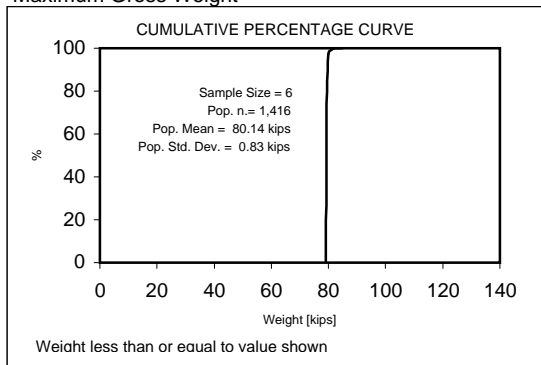
Average Weight



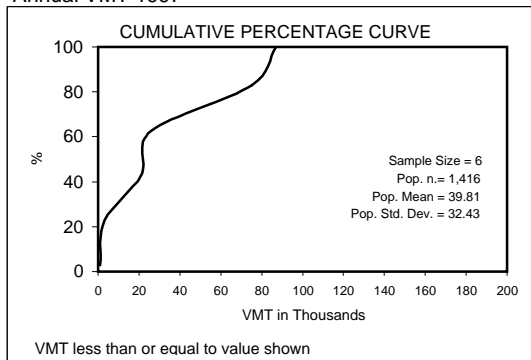
Overall Length



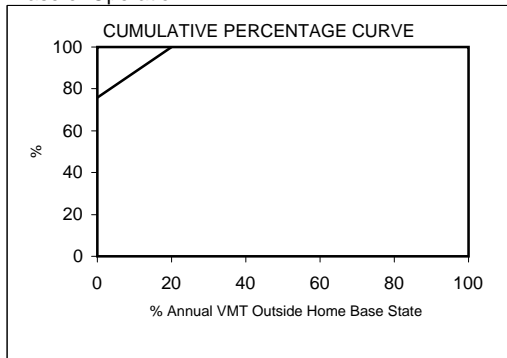
Maximum Gross Weight



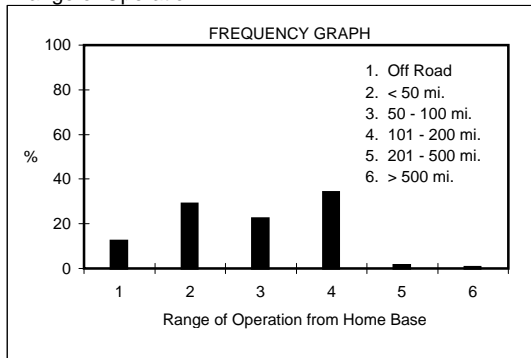
Annual VMT 1997



Base of Operation



Range of Operation

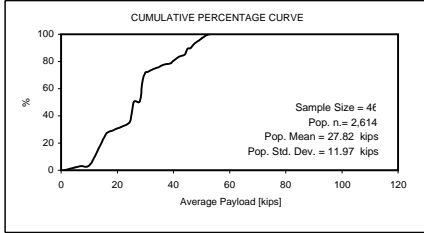


Appendix F

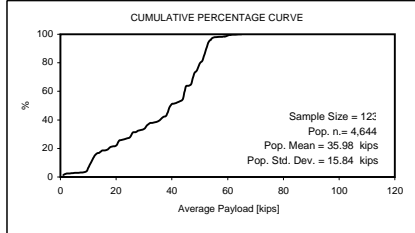
Average Payload Weights and Maximum Payload Weights For the 5-Axles or More Truck Fleet

**VEHICLE TYPE:3+2
AVERAGE PAYLOAD**

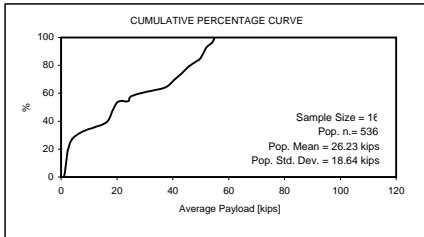
LOW BOY PLATFORM



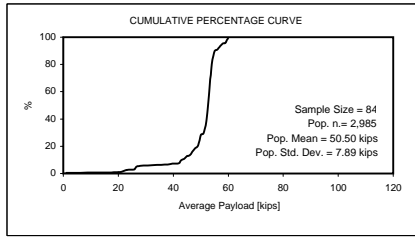
BASIC PLATFORM



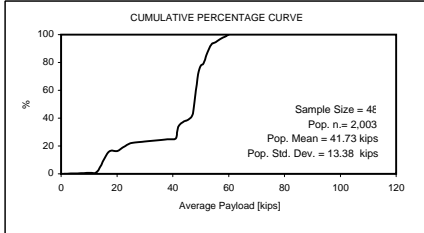
BASIC ENCLOSED VAN



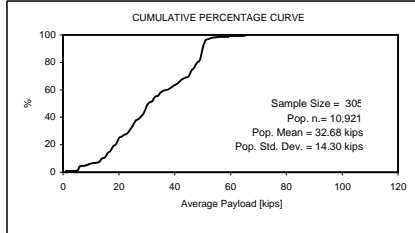
POLE LOGGING TRUCK



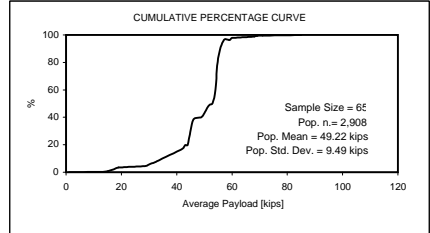
GRAIN BODIES



DUMP TRUCK

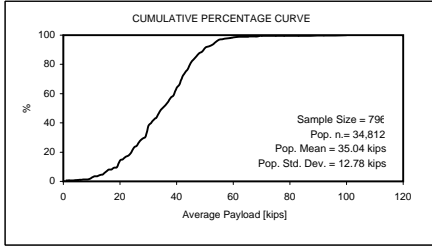


TANK TRUCK FOR LIQUIDS OR GASES

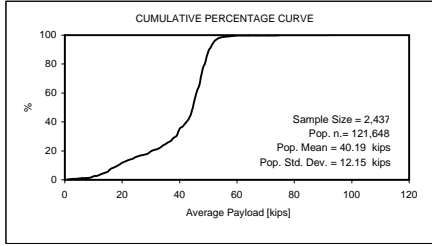


**VEHICLE TYPE: 3-S2
AVERAGE PAYLOAD**

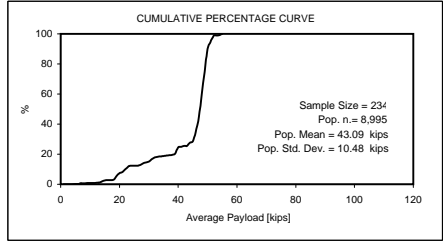
LOW BOY PLATFORM



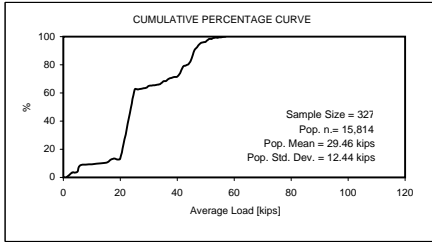
BASIC PLATFORM



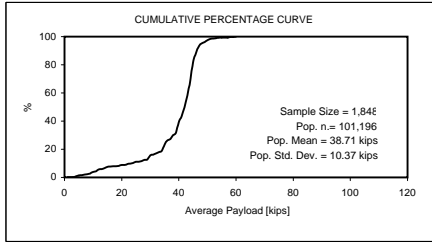
LIVESTOCK



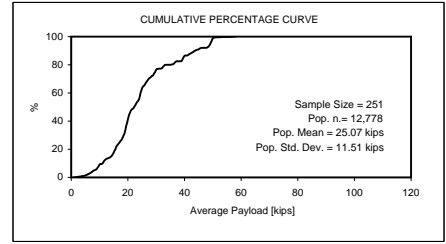
INSULATED NON-REFRIGERATED



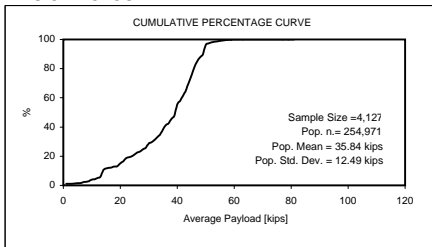
INSULATED REFRIGERATED



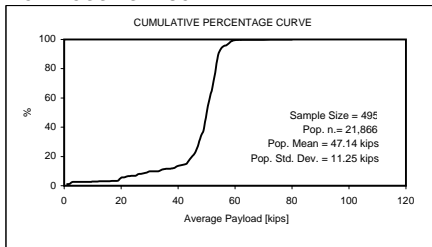
DROP FRAME VAN



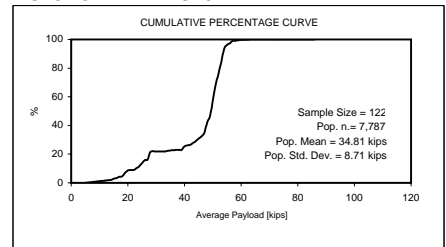
BASIC ENCLOSED VAN



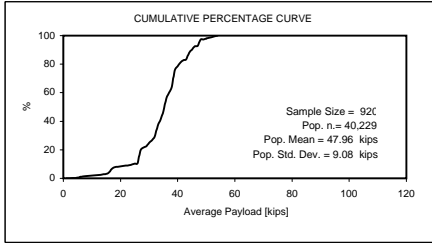
POLE LOGGING TRUCK



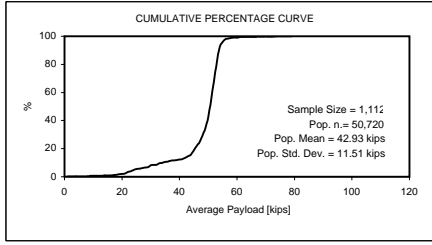
AUTOMOBILE TRANSPORT



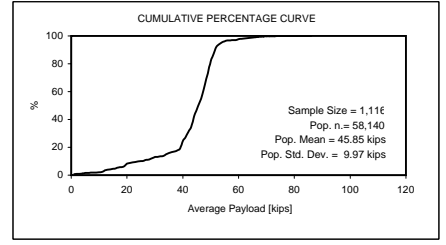
GRAIN BODIES



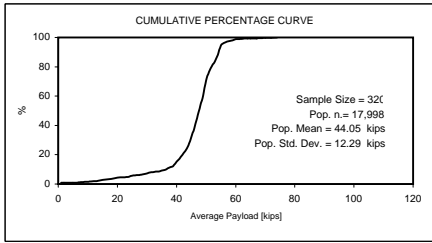
DUMP TRUCK



TANK TRUCK FOR LIQUID OR GASES

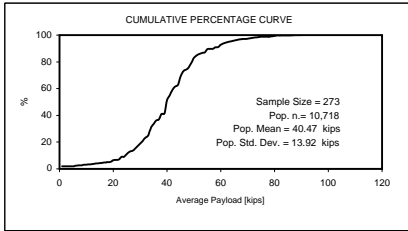


TANK TRUCK FOR DRY BULK

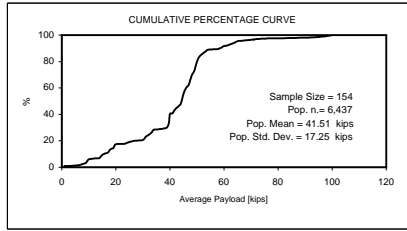


**VEHICLE TYPE:3-S3
AVERAGE LOAD**

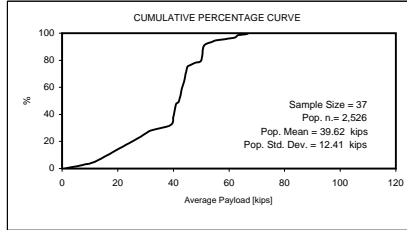
LOW BOY PLATFORM



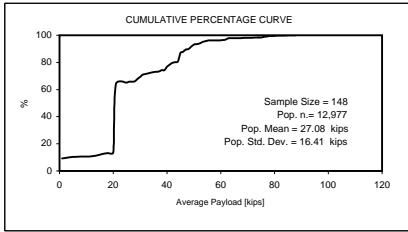
BASIC PLATFORM



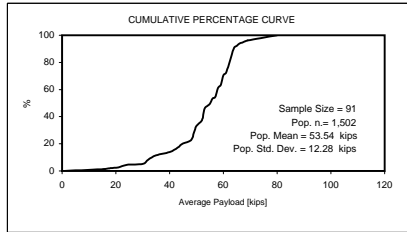
INSULATED REFRIGERATED



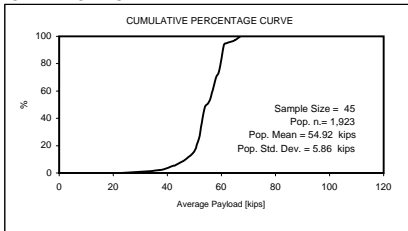
BASIC ENCLOSED VAN



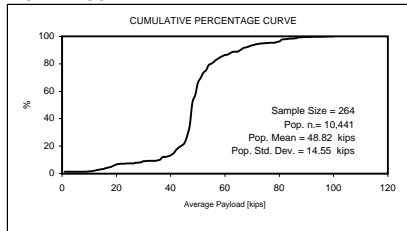
POLE LOGGING



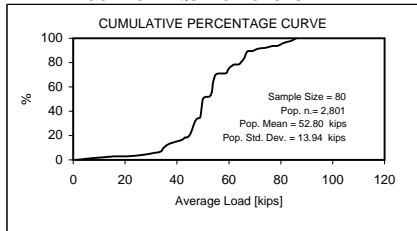
GRAIN BODIES



DUMP TRUCK

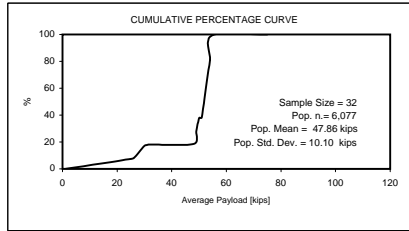


TANK TRUCK FOR LIQUID OR GASES

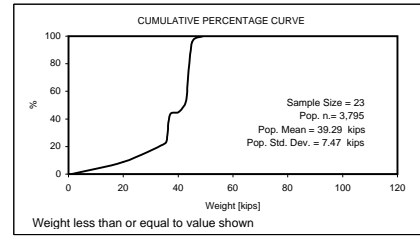


**VEHICLE TYPE: STAA (2-S1-2)
AVERAGE LOAD**

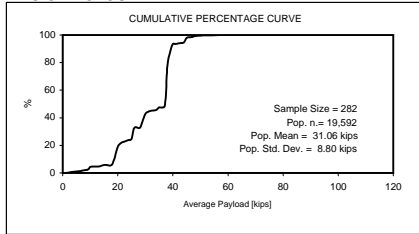
BASIC PLATFORM



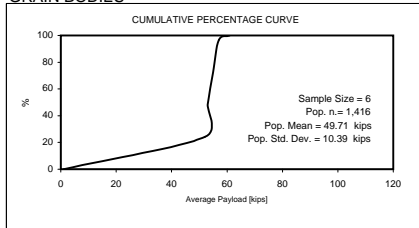
DROP FRAME VAN



BASIC ENCLOSED VAN

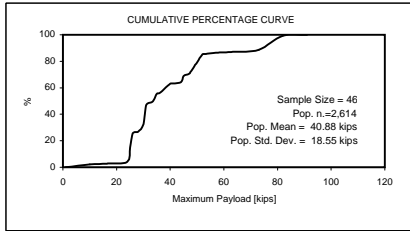


GRAIN BODIES

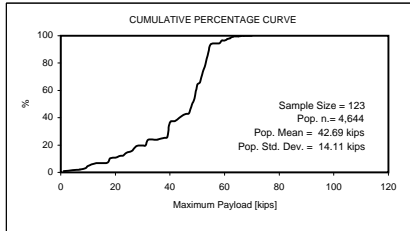


**VEHICLE TYPE:3+2
MAXIMUM PAYLOAD**

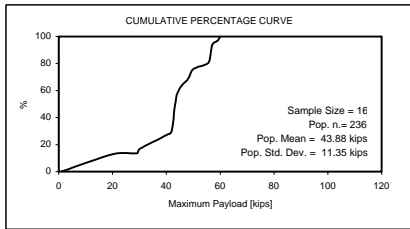
LOW BOY PLATFORM



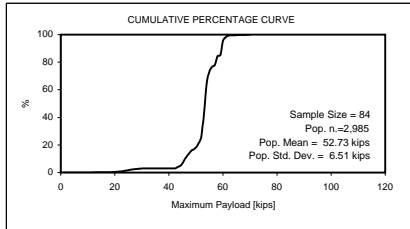
BASIC PLATFORM



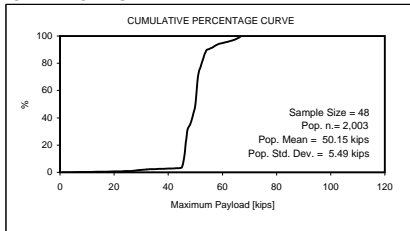
BASIC ENCLOSED VAN



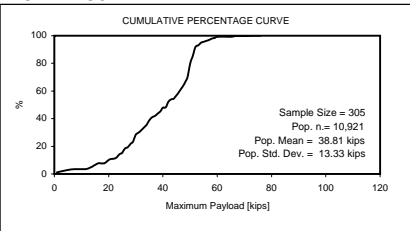
POLE LOGGING TRUCK



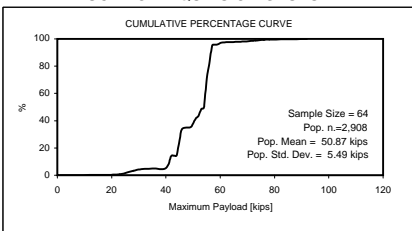
GRAIN BODIES



DUMP TRUCK

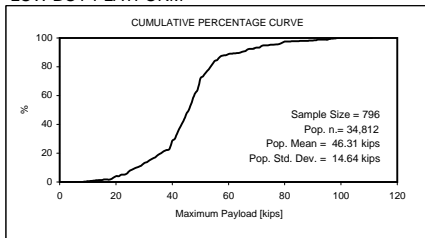


TANK TRUCK FOR LIQUIDS OR GASES

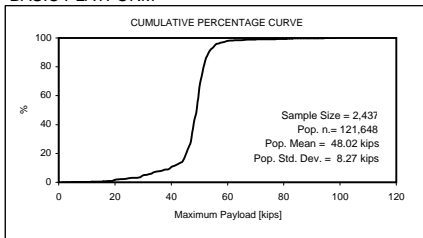


**VEHICLE TYPE: 3-S2
MAXIMUM PAYLOAD**

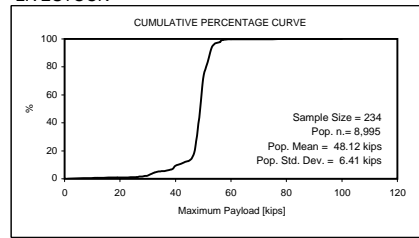
LOW BOY PLATFORM



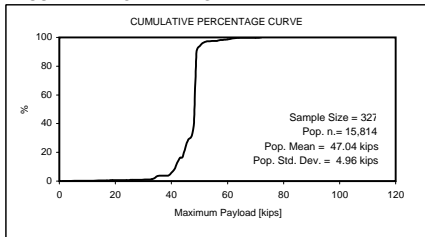
BASIC PLATFORM



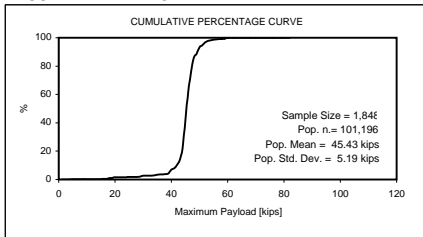
LIVESTOCK



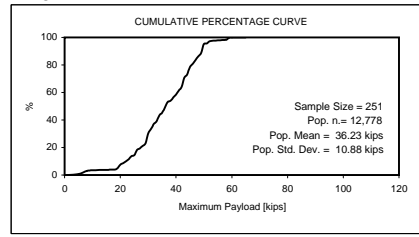
INSULATED NON-REFRIGERATED



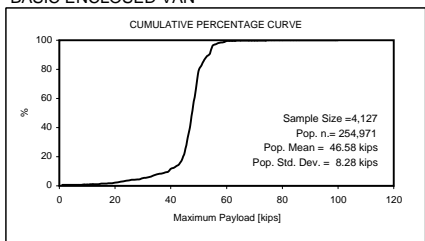
INSULATED REFRIGERATED



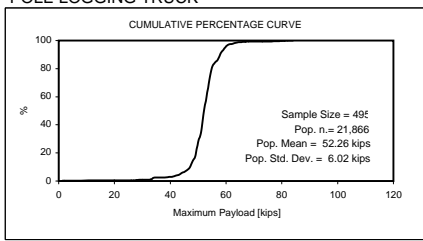
DROP FRAME VAN



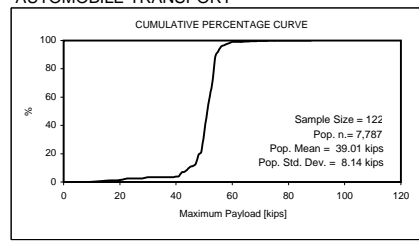
BASIC ENCLOSED VAN



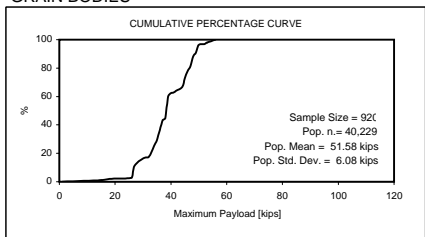
POLE LOGGING TRUCK



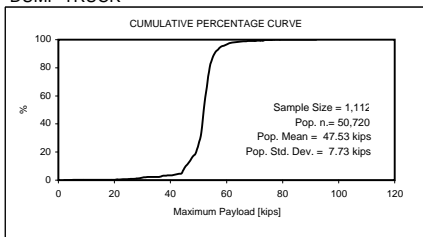
AUTOMOBILE TRANSPORT



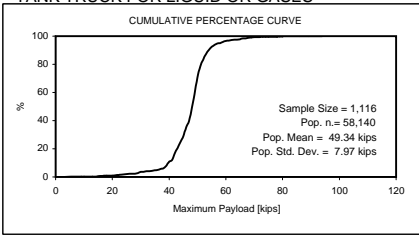
GRAIN BODIES



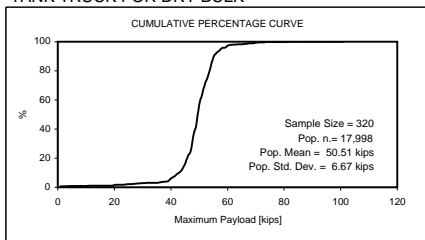
DUMP TRUCK



TANK TRUCK FOR LIQUID OR GASES

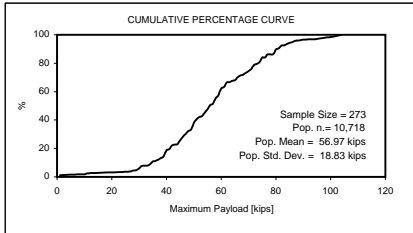


TANK TRUCK FOR DRY BULK

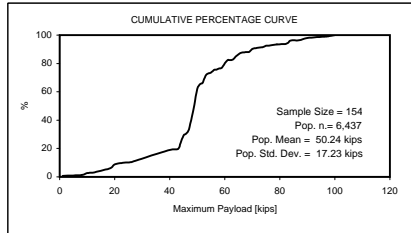


**VEHICLE TYPE:3-S3
MAXIMUM PAYLOAD**

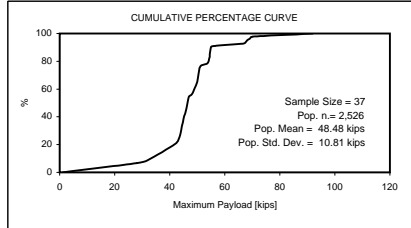
LOW BOY PLATFORM



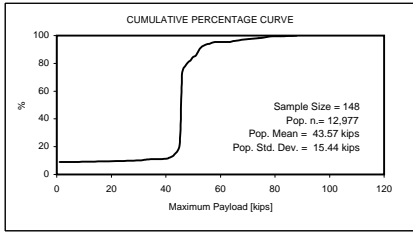
BASIC PLATFORM



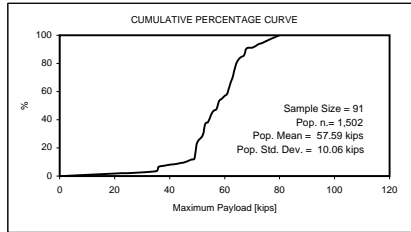
INSULATED REFRIGERATED



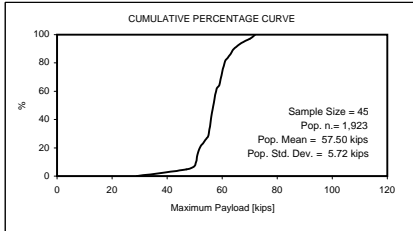
BASIC ENCLOSED VAN



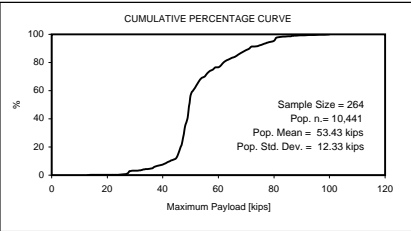
POLE LOGGING



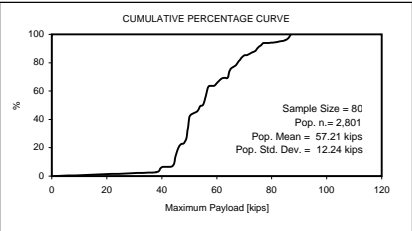
GRAIN BODIES



DUMP TRUCK

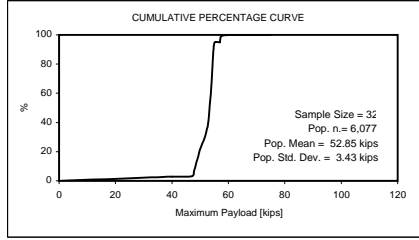


TANK TRUCK FOR LIQUID OR GASES

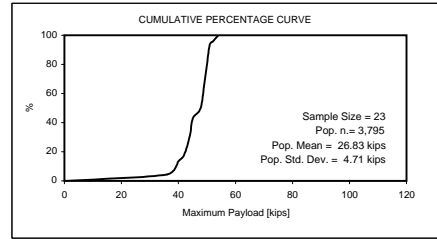


VEHICLE TYPE: STAA (2-S1-2)
MAXIMUM PAYLOAD

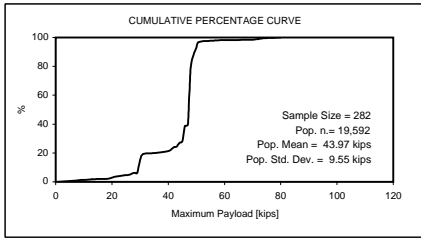
BASIC PLATFORM



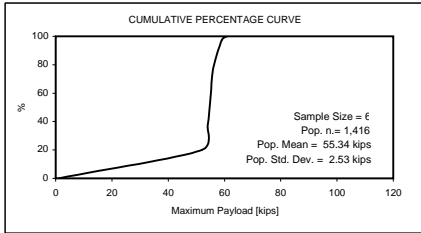
DROP FRAME VAN



BASIC ENCLOSED VAN



GRAIN BODIES



Appendix G

Regional Distributions of Weights, Dimensions, and Operating Characteristics

**Sample Size in Regional Comparison of Mean Tare (Empty) Weights
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	7	8	4	6	3	4	18	5	6	14	10	9	8	13	22
3+2 Basic Platform	27	12	13	15	10	8	13	9	10	39	30	19	94	78	73
3+2 Basic Enclosed	15	4	3	1	4	1	2	6	1	14	14	7	10	5	8
3+2 Pole Logging	2	10	23	1	4		13	9	3	20	39	27	105	96	50
3+2 Grain Bodies	18	22	35	.	1	45	.	1	1	5	16	7	16	16	17
3+2 Dump Truck	41	49	7	30	60	.	16	8	20	28	29	33	138	230	170
3+2 Tank-Liquid	14	6	202	3	9	147	.	6	1	7	2	5	41	58	52
3-S2 Low Boy	235	260	586	200	225	321	187	207	139	140	148	98	234	286	205
3-S2 Basic Platform	1,020	1,004	109	555	548	2	595	637	402	684	750	551	841	1,125	568
3-S2 Livestock	170	200	241	7	13	28	18	33	23	59	49	19	78	148	80
3-S2 Ins. Non-ref	132	98	692	36	39	177	48	43	13	40	31	19	66	34	24
3-S2 Ins. Ref	848	1,130	72	214	403	35	329	487	275	333	404	266	363	810	435
3-S2 Drop Frame	150	154	1265	60	87	694	39	47	46	42	55	30	30	77	67
3-S2 Basic Enclosed	1,522	2,402	33	845	1,279	15	866	1,249	782	1,143	1,260	888	451	598	487
3-S2 Pole Logging	13	46	28	25	39	16	116	242	135	128	247	166	297	318	145
3-S2 Auto Transport	73	118	595	30	20	16	66	27	17	40	44	21	23	33	29
3-S2 Grain Bodies	418	707	221	13	19	167	25	76	62	137	223	136	133	178	109
3-S2 Dump Truck	215	295	275	225	322	230	193	287	165	271	337	184	416	631	367
3-S2 Tank-Liquid	397	500	91	284	462	44	272	338	180	299	426	242	228	310	180
3-S2 Tank-Dry	85	134	65	54	71	47	82	120	67	59	102	65	52	58	53
3-S3 Low Boy	99	108	56	44	55	44	44	45	30	61	88	64	60	112	64
3-S3 Basic Platform	68	66	8	27	62	4	18	16	17	27	11	14	34	22	28
3-S3 Ins. Ref	12	9	28	6	4	14	9	5	8	3	7	6	19	9	11
3-S3 Basic Enclosed	29	33	4	19	21	72	26	22	10	31	13	58	28	19	35
3-S3 Pole Logging	2	10	32	32	82	1	.	8	4	3	5	6	3	19	6
3-S3 Grain Bodies	18	20	96	1	.	48	1	2	.	1	2	1	9	8	11
3-S3 Dump Truck	79	167	12	37	64	31	29	67	29	36	60	56	23	48	41
3-S3 Tank-Liquid	22	22	3	7	28		8	6	8	2	15	15	17	45	13
2-S1-2 Basic Platform	2	2	20	.	1		.	.	.	1	.	2	33	53	29
2-S1-2 Drop Frame	10	7	26	.	6	1	.	10	.	1	3	48	4	7	1
2-S1-2 Basic Enclosed	76	61	1	17	14		12	22	17	25	37	.	81	55	190
2-S1-2 Grain Bodies	3	7		.	.		.	.	.	.	.	.	19	11	5

**Sample Size in Regional Comparison of Mean Average Loaded Weights
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	7	12	5	6	5	7	18	10	8	14	12	10	8	20	23
3+2 Basic Platform	27	18	16	15	15	10	13	13	12	39	42	21	94	98	88
3+2 Basic Enclosed	15	5	2	1	5	1	2	8	2	14	19	8	10	8	13
3+2 Pole Logging	2	13	3	1	4	1	13	11	3	20	46	28	105	103	55
3+2 Grain Bodies	18	35	27	.	1	1	.	1	1	5	22	7	16	19	19
3+2 Dump Truck	41	66	38	30	79	54	16	25	22	28	41	38	138	264	183
3+2 Tank-Liquid	14	8	8	3	10		.	7	3	7	4	6	41	71	59
3-S2 Low Boy	235	348	231	200	290	171	187	269	170	140	207	111	234	348	227
3-S2 Basic Platform	1,020	1,176	665	555	700	372	595	759	470	684	887	626	841	1,306	657
3-S2 Livestock	170	213	110	7	13	2	19	33	23	59	57	21	78	163	85
3-S2 Ins. Non-ref	132	112	256	36	47	35	48	47	17	40	58	27	66	180	82
3-S2 Ins. Ref	848	1,269	770	214	475	205	329	565	314	333	469	322	363	1,033	657
3-S2 Drop Frame	150	190	104	62	105	43	39	58	48	42	72	36	30	88	120
3-S2 Basic Enclosed	1,522	2,907	1,669	845	1,680	839	866	1,585	963	1,143	1,675	1,113	451	813	635
3-S2 Pole Logging	13	49	35	25	42	15	116	270	151	128	271	174	297	326	150
3-S2 Auto Transport	73	127	37	30	21	18	66	30	24	40	47	22	23	37	33
3-S2 Grain Bodies	418	750	615	13	20	16	25	81	67	137	248	143	133	199	116
3-S2 Dump Truck	215	310	235	225	354	177	193	311	180	271	359	198	416	715	408
3-S2 Tank-Liquid	397	566	306	284	515	254	272	390	200	299	511	291	228	358	210
3-S2 Tank-Dry	85	149	99	54	76	48	82	125	73	59	119	69	52	65	62
3-S3 Low Boy	100	128	71	44	73	54	44	54	37	61	120	73	60	141	74
3-S3 Basic Platform	68	72	61	27	73	51	18	19	24	27	20	23	34	44	38
3-S3 Ins. Ref	12	17	11	6	8	5	9	7	12	3	8	12	19	27	13
3-S3 Basic Enclosed	29	47	150	19	40	144	26	36	133	31	27	174	28	49	88
3-S3 Pole Logging	2	10	4	32	88	72	.	10	5	3	7	6	3	22	6
3-S3 Grain Bodies	18	24	34	1	.	1	1	2	.	1	3	1	9	8	11
3-S3 Dump Truck	80	179	105	37	75	51	29	74	30	36	72	56	23	69	46
3-S3 Tank-Liquid	22	33	18	7	31	32	8	7	12	2	26	16	17	54	15
2-S1-2 Basic Platform	2	2	4	.	6	.	.	.	1	1	.	1	33	56	30
2-S1-2 Drop Frame	10	12	20	.	9	.	11	10	.	9	8	2	4	9	3
2-S1-2 Basic Enclosed	76	71	81	17	44	7	12	30	28	25	58	50	81	114	298
2-S1-2 Grain Bodies	3	8	1	.	.	.	.	.	.	.	.	.	19	11	5

**Regional Comparison of Percent of Trucks
Whose Overall Length is 65 Feet or More
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	0.00	20.17	28.60	0.00	80.07	.	0.00	0.00	20.00	0.00	17.45	8.30	9.25	5.56	12.50
3+2 Basic Platform	0.00	0.00	16.70	4.33	0.77	20.00	0.00	0.00	7.70	17.29	16.17	11.50	24.89	18.54	31.60
3+2 Basic Enclosed	41.65	0.00	9.40	0.00	42.27	.	0.00	20.86	50.00	24.64	40.69	37.50	4.72	23.35	16.70
3+2 Pole Logging	0.00	0.00	2.40	0.00	0.00	.	0.00	0.00	.	1.38	4.52	3.30	16.15	19.14	5.40
3+2 Grain Bodies	0.00	5.63	11.10	.	0.00	.	.	0.00	.	0.00	0.00	.	12.48	24.06	20.80
3+2 Dump Truck	4.47	0.28	19.70	0.00	0.25	.	0.00	0.00	.	15.54	4.81	.	5.20	5.29	9.00
3+2 Tank-Liquid	14.14	0.00	43.50	0.00	0.00	.	.	20.50	25.00	0.00	0.00	.	42.26	30.74	33.30
3-S2 Low Boy	6.49	22.53	46.60	4.24	8.51	14.70	8.22	10.96	19.50	12.58	12.72	21.10	21.07	16.54	28.70
3-S2 Basic Platform	14.04	24.98	89.90	7.41	13.53	25.30	6.33	10.26	20.20	15.71	23.84	37.60	20.07	21.57	35.40
3-S2 Basic Enclosed	21.11	37.06	61.00	9.06	14.69	50.00	7.65	22.83	26.10	19.32	28.84	50.00	29.07	23.99	51.10
3-S2 Livestock	14.60	25.07	51.70	27.48	22.25	40.00	11.67	14.83	55.60	37.04	38.90	46.90	27.45	23.00	63.80
3-S2 Ins. Non-ref	25.45	37.33	56.60	2.95	10.00	35.50	1.83	19.89	40.20	24.60	31.04	49.10	56.33	79.22	40.00
3-S2 Ins. Ref	29.15	38.60	12.80	9.23	23.31	42.20	15.13	30.80	64.20	19.21	39.25	38.50	28.14	39.04	55.30
3-S2 Drop Frame	17.60	31.79	51.40	22.77	13.37	28.50	26.20	31.23	40.80	23.74	26.90	47.00	27.62	41.44	41.20
3-S2 Basic Enclosed	1.55	0.00	10.40	1.58	9.39	55.00	5.65	6.84	9.60	8.09	9.65	4.20	16.78	7.95	11.00
3-S2 Pole Logging	1.55	0.00	4.10	1.58	9.39	3.30	5.65	6.84	75.00	8.09	9.65	62.50	16.78	7.95	61.80
3-S2 Auto Transport	79.77	94.32	11.50	16.80	63.09	13.70	28.72	79.64	10.80	79.72	93.23	4.40	92.57	93.10	12.60
3-S2 Grain Bodies	4.78	5.86	10.80	0.00	1.30	4.20	3.07	4.33	5.10	2.77	8.40	3.20	28.84	19.35	11.40
3-S2 Dump Truck	0.24	3.23	28.20	0.10	1.42	37.70	0.91	3.69	6.60	0.19	3.05	14.50	8.13	7.47	16.70
3-S2 Tank-Liquid	2.65	5.87	23.70	2.54	4.22	22.20	0.84	4.55	18.90	6.80	10.58	8.50	31.63	9.84	17.20
3-S2 Tank-Dry	8.05	7.51	33.30	0.22	6.69	60.00	0.00	6.53	40.00	8.10	9.69	45.20	32.97	6.31	44.20
3-S3 Low Boy	18.13	27.11	20.50	39.90	41.13	2.80	12.70	30.48	3.60	28.18	40.58	30.80	30.07	53.05	54.30
3-S3 Basic Platform	15.08	22.12	20.00	15.63	12.51	28.90	17.05	16.89	60.00	0.00	24.37	38.50	41.71	38.51	57.10
3-S3 Ins. Ref	9.61	76.73	10.30	37.16	23.07	.	10.77	10.29	23.00	68.59	40.20	16.80	0.90	34.12	25.30
3-S3 Basic Enclosed	27.70	45.26	6.40	21.72	40.72	.	10.98	15.53	16.70	5.67	21.44	.	35.92	32.34	11.10
3-S3 Pole Logging	0.00	8.04	9.50	20.75	17.97	.	.	4.28	.	0.00	5.11	.	40.83	58.31	66.70
3-S3 Grain Bodies	12.21	8.13	100.00	0.00	0.00	1.90	0.00	34.68	2.80	0.00	0.00	1.60	30.90	50.25	19.10
3-S3 Dump Truck	2.39	2.02	100.00	0.00	5.68	12.10	4.51	12.08	16.70	2.54	4.61	12.50	17.17	20.50	66.70
3-S3 Tank-Liquid	4.94	13.12	100.00	.	4.65	.	0.00	0.00	100.00	0.00	13.54	.	77.04	61.31	83.30
2-S1-2 Basic Platform	16.88	0.00	100.00	.	100.00	.	.	.	.	0.00	.	100.00	84.49	56.93	100.00
2-S1-2 Drop Frame	70.54	90.69	.	.	100.00	87.50	100.00	100.00	96.40	100.00	100.00	100.00	100.00	49.68	99.30
2-S1-2 Basic Enclosed	78.29	65.75	.	88.17	93.16	.	78.79	95.76	.	43.45	92.91	.	57.01	99.54	40.00
2-S1-2 Grain Bodies	66.67	22.43	.	.	.	.	.	.	.	.	.	.	60.84	35.07	.

Note: Some cells are based on a very small sample of data. Accompanying table gives cell sample sizes.

**Sample Size in Regional Comparison of Percent of Trucks
Whose Overall Length is 65 Feet or More
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	7	12	2	6	5	.	18	11	2	14	12	1	8	20	3
3+2 Basic Platform	27	19	3	15	18	3	.	14	1	5	44	3	94	102	30
3+2 Basic Enclosed	15	5	3	1	6	.	2	8	2	14	20	3	10	10	3
3+2 Pole Logging	2	13	1	1	4	.	13	11	.	20	46	1	105	103	3
3+2 Grain Bodies	18	35	1	.	1	.	.	1	.	5	22	.	16	19	5
3+2 Dump Truck	41	67	51	30	79	.	16	26	.	28	41	.	138	266	18
3+2 Tank-Liquid	14	8	307	3	10	.	.	7	1	7	4	.	41	71	20
3-S2 Low Boy	235	351	55	200	291	26	187	273	36	140	211	28	234	353	70
3-S2 Basic Platform	1020	1181	231	555	701	99	595	762	105	684	892	259	841	1317	253
3-S2 Livestock	170	213	481	7	13	1	19	33	6	59	58	13	78	163	47
3-S2 Ins. Non-ref	132	112	60	36	47	14	48	47	10	40	60	15	66	180	60
3-S2 Ins. Ref	848	1273	980	214	476	75	329	568	134	333	470	168	363	1036	272
3-S2 Drop Frame	150	190	5	62	105	19	39	58	34	42	72	15	30	88	68
3-S2 Basic Enclosed	1522	2912	19	845	1689	260	866	1596	420	1143	1688	603	451	821	280
3-S2 Pole Logging	13	49	67	25	42	11	116	272	15	128	272	8	297	326	17
3-S2 Auto Transport	73	127	10	30	21	6	66	30	18	40	47	15	23	37	21
3-S2 Grain Bodies	418	752	37	13	20	36	25	81	8	137	251	7	133	200	17
3-S2 Dump Truck	215	310	11	225	354	2	193	313	10	271	361	7	416	721	51
3-S2 Tank-Liquid	397	569	22	284	516	23	272	392	14	299	512	46	228	361	38
3-S2 Tank-Dry	85	149	18	54	76	12	82	125	14	59	119	6	52	65	11
3-S3 Low Boy	100	128	4	44	73	3	44	55	16	61	121	38	60	150	38
3-S3 Basic Platform	68	81	31	27	73	4	18	19	1	27	20	8	34	44	25
3-S3 Ins. Ref	12	17	1	6	.	22	9	7	9	3	8	5	19	28	8
3-S3 Basic Enclosed	29	47	4	19	41	.	26	37	32	31	27	31	28	49	23
3-S3 Pole Logging	2	11	7	32	88	.	.	10	1	3	7	.	3	22	1
3-S3 Grain Bodies	18	24	2	1	3	.	1	3	.	1	3	.	9	8	8
3-S3 Dump Truck	80	180	4	37	75	1	11	74	1	9	72	1	4	69	9
3-S3 Tank-Liquid	22	36	21	7	31	4	8	7	2	2	27	2	17	57	12
2-S1-2 Basic Platform	2	2	81	.	6	.	.	.	1	1	.	.	33	58	25
2-S1-2 Drop Frame	10	12	1	.	9	.	11	10	.	9	8	2	4	9	3
2-S1-2 Basic Enclosed	76	71	.	17	44	7	12	30	27	25	58	51	81	114	296
2-S1-2 Grain Bodies	3	8	.	.	.	.	.	.	.	.	.	.	19	11	2

**Regional Comparison of Percent of Trucks
Whose Trailer Width is 102 inches or More
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	0.00	27.99	26.90	0.00	14.18	11.40	0.00	0.00	15.20	25.69	0.00	20.50	14.07	32.10	14.60
3+2 Basic Platform	13.75	2.69	15.60	8.09	8.76	30.90	13.52	3.71	13.20	10.34	9.64	32.70	0.23	8.12	27.90
3+2 Basic Enclosed	69.56	31.94	.	0.00	50.89	.	0.00	22.72	100.00	24.65	69.89	46.90	10.40	56.91	28.70
3+2 Pole Logging	0.00	40.75	41.20	.	0.00	.	0.00	10.23	.	0.00	31.59	31.80	0.00	31.27	14.60
3+2 Grain Bodies	0.00	25.68	13.00	.	0.00	.	.	.	.	0.00	16.12	6.70	0.00	15.24	3.50
3+2 Dump Truck	0.00	15.03	30.30	0.00	13.62	19.20	0.00	0.00	39.90	0.00	17.72	21.00	0.51	2.64	9.30
3+2 Tank-Liquid	0.00	0.00	6.50	0.00	0.00	.	.	0.00	.	0.00	0.00	14.00	0.00	1.20	24.50
3-S2 Low Boy	3.73	17.65	45.20	10.67	22.74	31.70	11.37	20.14	29.00	10.55	14.67	30.60	13.96	22.69	44.40
3-S2 Basic Platform	10.41	23.54	36.20	7.84	13.83	28.60	9.15	14.83	22.70	7.32	13.90	34.30	12.12	16.05	27.40
3-S2 Livestock	14.87	37.91	64.30	0.00	20.45	100.00	0.00	0.00	57.70	37.44	55.63	46.80	6.90	30.52	43.10
3-S2 Ins. Non-ref	48.24	58.60	83.00	3.57	21.72	73.40	30.04	27.07	70.20	60.30	66.02	89.80	54.47	73.69	82.20
3-S2 Ins. Ref	44.51	62.42	80.80	12.22	40.78	41.60	26.46	51.57	61.50	34.64	55.87	85.90	31.06	56.55	72.30
3-S2 Drop Frame	55.42	72.50	86.00	41.87	65.77	84.80	46.58	46.39	74.80	35.42	65.81	72.50	25.75	47.49	61.80
3-S2 Basic Enclosed	51.78	76.50	83.30	22.37	40.78	56.90	31.16	52.37	61.90	36.38	64.30	77.70	27.00	47.09	56.20
3-S2 Pole Logging	0.00	9.40	18.50	7.08	10.65	33.60	2.32	8.00	19.20	2.33	5.29	22.60	5.80	9.97	20.10
3-S2 Auto Transport	17.98	84.43	90.10	14.40	33.40	47.80	7.38	53.31	62.60	2.71	44.33	75.60	0.70	61.46	56.20
3-S2 Grain Bodies	1.14	7.16	11.00	0.00	1.30	22.50	4.88	3.08	9.50	10.41	17.21	23.40	0.79	5.96	14.30
3-S2 Dump Truck	0.90	12.04	15.00	1.35	6.76	4.30	0.57	2.92	14.20	1.83	20.54	29.10	4.41	14.65	15.70
3-S2 Tank-Liquid	2.58	9.52	11.30	1.59	3.96	10.00	5.19	8.48	11.40	3.56	10.44	11.70	3.43	5.70	10.50
3-S2 Tank-Dry	1.28	8.56	21.20	0.00	1.61	2.60	36.20	4.82	3.90	14.62	8.19	14.40	0.00	11.85	8.10
3-S3 Low Boy	5.85	41.39	46.50	18.15	49.39	59.40	1.80	43.19	52.90	16.04	32.63	64.90	13.51	32.23	62.70
3-S3 Basic Platform	0.00	21.41	30.70	11.06	19.33	60.60	17.53	6.33	16.20	0.87	39.69	49.50	5.81	29.67	19.30
3-S3 Ins. Ref	6.54	86.11	79.70	0.00	0.00	60.00	73.61	29.60	72.80	100.00	74.84	72.80	73.95	15.85	61.70
3-S3 Basic Enclosed	28.96	77.78	22.00	58.53	28.91	7.90	41.02	37.24	8.20	17.58	63.31	55.50	37.62	44.06	12.70
3-S3 Pole Logging	50.00	34.03	51.30	31.53	45.04	69.10	.	36.21	39.10	0.00	49.39	.	0.00	38.62	29.50
3-S3 Grain Bodies	0.00	2.87	11.70	0.00	.	.	0.00	0.00	.	.	0.00	.	0.00	10.12	20.50
3-S3 Dump Truck	0.00	9.88	18.90	4.36	7.71	5.60	0.00	38.07	20.40	18.04	13.48	31.20	6.71	8.84	17.40
3-S3 Tank-Liquid	11.83	11.62	15.40	0.00	23.40	9.00	0.00	0.00	.	0.00	8.68	8.80	4.33	5.99	24.70
2-S1-2 Basic Platform	0.00	100.00	84.20	.	82.26	.	.	.	100.00	0.00	.	100.00	15.78	13.43	5.50
2-S1-2 Drop Frame	48.91	63.01	100.00	.	100.00	.	50.07	100.00	.	100.00	78.16	53.20	100.00	67.80	100.00
2-S1-2 Basic Enclosed	78.68	92.30	98.20	100.00	59.41	86.10	100.00	92.65	97.10	82.59	75.63	95.20	72.79	92.88	93.00
2-S1-2 Grain Bodies	0.00	0.00	.	.	.	.	.	.	.	.	.	.	0.00	15.22	.

Note: Some cells are based on a very small sample of data. Accompanying table gives cell sample sizes.

**Sample Size in Regional Comparison of Percent of Trucks
Whose Trailer Width is 102 inches or More
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	4	11	2	3	4	1	10	9	1	8	11	2	5	19	11
3+2 Basic Platform	13	16	3	6	13	3	9	12	1	19	36	6	62	91	17
3+2 Basic Enclosed	7	4	.	1	6	.	.	8	2	5	17	3	6	8	7
3+2 Pole Logging	1	11	1	.	4	.	5	8	.	13	34	7	59	94	13
3+2 Grain Bodies	9	32	4	.	1	.	.	.	.	2	19	1	12	19	2
3+2 Dump Truck	25	57	7	17	62	12	6	20	5	15	31	6	84	250	24
3+2 Tank-Liquid	13	7	1	2	9	.	.	6	.	4	2	2	34	64	6
3-S2 Low Boy	162	322	98	120	279	62	110	251	40	88	184	37	153	324	98
3-S2 Basic Platform	829	1104	214	447	646	114	462	697	81	528	813	184	668	1248	166
3-S2 Livestock	138	199	62	6	13	2	17	33	12	47	54	13	67	152	41
3-S2 Ins. Non-ref	112	106	234	33	46	18	41	43	10	38	58	24	61	179	64
3-S2 Ins. Ref	763	1213	604	189	459	106	296	541	166	298	445	253	324	989	487
3-S2 Drop Frame	138	168	80	52	98	34	26	54	37	38	69	23	29	83	65
3-S2 Basic Enclosed	1304	2816	1229	684	1587	485	724	1501	532	1002	1510	785	333	775	294
3-S2 Pole Logging	10	45	7	13	40	5	63	238	20	79	228	35	208	298	39
3-S2 Auto Transport	66	125	31	27	21	8	61	28	13	34	47	18	16	34	21
3-S2 Grain Bodies	329	671	58	11	20	3	19	78	5	98	220	21	98	176	17
3-S2 Dump Truck	165	288	39	157	326	12	141	286	20	185	318	40	282	671	55
3-S2 Tank-Liquid	315	525	31	204	488	27	185	357	17	219	436	29	183	332	31
3-S2 Tank-Dry	72	137	14	46	72	1	69	121	2	51	109	8	41	50	7
3-S3 Low Boy	61	121	28	21	66	35	26	48	17	41	105	35	37	138	43
3-S3 Basic Platform	54	77	21	13	68	30	12	13	4	13	11	9	24	42	13
3-S3 Ins. Ref	9	17	6	4	7	3	6	7	8	2	8	7	18	22	6
3-S3 Basic Enclosed	20	40	29	11	.	10	21	33	9	26	16	59	22	42	19
3-S3 Pole Logging	2	11	2	20	84	46	.	7	1	1	5	.	1	21	2
3-S3 Grain Bodies	10	21	5	1	.	.	1	3	.	.	2	.	7	7	1
3-S3 Dump Truck	56	167	19	26	69	5	23	69	7	20	57	15	14	45	6
3-S3 Tank-Liquid	10	34	3	6	27	5	11	5	.	9	22	2	4	54	3
2-S1-2 Basic Platform	2	2	2	.	6	.	.	.	1	1	.	1	31	56	3
2-S1-2 Drop Frame	4	12	21	.	9	.	11	10	.	9	8	1	3	9	3
2-S1-2 Basic Enclosed	74	70	79	17	44	6	12	29	27	25	50	49	80	114	285
2-S1-2 Grain Bodies	2	8	.	.	.	.	.	.	.	.	.	.	17	11	.

**Sample Size in Regional Comparison of the Mean Annual VMT
by Vehicle Class/Body Type Combinations**

Conf	Body Type	North Central			North East			South Atlantic			South Gulf			West		
		1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2	Low Boy	7	12	7	6	5	8	18	11	10	14	12	12	8	20	24
3+2	Basic Platform	27	19	18	15	18	15	13	14	13	39	44	26	93	102	95
3+2	Basic Enclosed	15	5	2	1	6	3	2	8	4	14	20	8	10	10	18
3+2	Pole Logging	2	13	3	1	4	1	13	11	4	20	46	30	105	103	56
3+2	Grain Bodies	18	35	31	.	1	1	.	1	3	5	22	7	16	19	24
3+2	Dump Truck	41	67	41	30	79	54	16	26	24	28	41	40	138	266	200
3+2	Tank-Liquid	14	8	9	3	10		.	7	4	7	4	7	41	71	60
3-S2	Low Boy	235	351	259	200	291	176	187	273	185	140	211	133	234	353	244
3-S2	Basic Platform	1,020	1,181	705	555	701	392	595	762	521	684	892	689	841	1,317	714
3-S2	Livestock	170	213	118	7	13	2	19	33	23	59	58	26	78	163	92
3-S2	Ins. Non-ref	132	112	257	36	47	35	48	47	18	40	60	32	66	180	94
3-S2	Ins. Ref	848	1,273	789	214	476	211	329	568	333	333	470	342	363	1,036	680
3-S2	Drop Frame	150	190	116	62	105	45	39	58	53	42	72	39	30	88	123
3-S2	Basic Enclosed	1,522	2,912	1,732	845	1,689	913	866	1,596	1,030	1,142	1,688	1,282	451	821	680
3-S2	Pole Logging	13	49	39	25	42	21	116	272	156	128	272	192	297	326	154
3-S2	Auto Transport	73	127	37	30	21	20	66	30	24	40	47	24	23	37	34
3-S2	Grain Bodies	418	752	645	13	20	17	25	81	74	137	251	158	133	200	135
3-S2	Dump Truck	215	310	243	225	354	181	193	313	198	271	361	218	416	721	446
3-S2	Tank-Liquid	397	569	322	284	516	262	272	392	211	299	512	318	228	361	228
3-S2	Tank-Dry	85	149	102	54	76	48	82	125	74	59	119	71	52	65	64
3-S3	Low Boy	100	128	78	44	73	61	44	55	40	61	121	84	60	150	86
3-S3	Basic Platform	68	81	76	27	73	54	18	19	28	27	20	26	34	44	46
3-S3	Ins. Ref	12	17	12	6	8	5	9	7	15	3	8	13	19	28	14
3-S3	Basic Enclosed	29	47	151	19	41	145	26	37	139	31	27	185	28	49	91
3-S3	Pole Logging	2	11	5	32	88	76	.	10	6	3	7	8	3	22	9
3-S3	Grain Bodies	18	24	39	1	.	1	1	3	1	1	3	3	9	8	12
3-S3	Dump Truck	80	180	110	37	75	53	29	74	36	36	72	64	23	69	47
3-S3	Tank-Liquid	22	36	21	7	31	33	8	7	12	2	27	16	17	57	18
2-S1-	Basic Platform	2	2	4	.	6	.	.	.	1	1	.	1	33	58	30
2-S1-	Drop Frame	10	12	21	.	9	.	11	10		9	8	2	4	9	3
2-S1-	Basic Enclosed	76	71	81	17	44	8	12	30	28	25	58	51	81	114	298
2-S1-	Grain Bodies	3	8	1	.	.	.	.	.		.	.		19	11	5

**Sample Size in Regional Comparison of the Percent of VMT Driven on Trips
Whose Length are 200 Miles or More
by Vehicle Class/Body Type Combinations**

Config. Body Type	North Central			North East			South Atlantic			South Gulf			West		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
3+2 Low Boy	6	12	7	6	5	8	18	11	10	13	12	12	8	20	0
3+2 Basic Platform	27	19	18	14	18	15	13	14	13	39	44	26	92	102	24
3+2 Basic Enclosed	15	5	2	1	6	3	.	8	4	5	20	8	10	10	95
3+2 Pole Logging	2	13	3	1	4	1	12	11	4	20	46	30	105	103	18
3+2 Grain Bodies	18	35	32	.	1	1	.	1	3	5	22	7	16	19	56
3+2 Dump Truck	41	67	41	30	79	54	16	26	24	28	41	40	137	266	24
3+2 Tank-Liquid	14	8	9	2	10		.	7	4	7	4	7	41	71	200
3-S2 Low Boy	232	351	259	199	291	177	184	273	185	137	211	133	232	353	60
3-S2 Basic Platform	1,016	1,181	706	551	701	392	589	762	521	680	892	689	827	1,317	244
3-S2 Livestock	170	213	118	7	13	2	19	33	23	59	58	26	78	163	714
3-S2 Ins. Non-ref	132	112	257	36	47	35	48	47	18	40	60	32	66	180	92
3-S2 Ins. Ref	846	1,273	789	214	476	211	327	568	333	331	470	342	363	1,036	94
3-S2 Drop Frame	150	190	116	61	105	45	38	58	53	42	72	39	30	88	680
3-S2 Basic Enclosed	1,515	2,912	1,732	833	1,689	913	854	1,596	1,030	1,134	1,688	1,282	447	821	123
3-S2 Pole Logging	13	49	39	25	42	21	116	272	156	127	272	192	296	326	680
3-S2 Auto Transport	71	127	37	30	21	20	66	30	24	39	47	24	23	37	154
3-S2 Grain Bodies	415	752	645	13	20	17	25	81	74	135	251	158	133	200	34
3-S2 Dump Truck	215	310	243	224	354	181	190	313	198	270	361	218	413	721	135
3-S2 Tank-Liquid	396	569	322	283	516	262	267	392	211	297	512	318	227	361	446
3-S2 Tank-Dry	85	149	102	54	76	48	82	125	74	59	119	71	52	65	228
3-S3 Low Boy	99	128	78	44	73	61	44	55	40	61	121	84	59	150	64
3-S3 Basic Platform	68	81	76	27	73	54	18	19	28	26	20	26	34	44	86
3-S3 Ins. Ref	12	17	12	6	8	5	8	7	15	3	8	13	19	28	46
3-S3 Basic Enclosed	29	47	151	19	.	145	26	37	139	31	27	185	28	49	14
3-S3 Pole Logging	2	11	5	32	88	76	.	10	6	3	7	8	3	22	91
3-S3 Grain Bodies	18	24	39	1	3	1	1	3	1	1	3	3	9	8	9
3-S3 Dump Truck	80	180	110	37	75	53	29	74	36	36	72	64	23	69	12
3-S3 Tank-Liquid	22	36	21	7	31	33	11	7	12	9	27	16	4	57	47
2-S1-2 Basic Platform	2	2	4	.	6		.	.	1	1	.	1	33	58	18
2-S1-2 Drop Frame	10	12	21	.	9		11	10		9	8	2	4	9	30
2-S1-2 Basic Enclosed	76	71	81	17	44	8	12	30	28	25	58	51	80	114	3
2-S1-2 Grain Bodies	3	8	1	.	.		.	.		.	.		18	11	298

Appendix H

Data Analysis Methodology

Creating External Subset Databases

In analyzing the 1987 and 1992 TIUS data, two databases were created because the original the *tuis87.data* and *ti92mdf.dat* data sets contained vehicles that were not of interest to the analysis. One of the data bases was called *bigtruck.dat* and contained the total fleet of large vehicles. The other data base, called *vehgrp.dat*, contained only 5-axles or more truck fleet.

In 1997 analysis, only one database was created from the original *mdf.txt* data set. This database, called *vius97.dat*, contains the total fleet of all large vehicles. This approach was adopted in order to simplify the analytical process since the *vehgrp.dat* database is a subset of *bigtruck.dat* database. As explained in the following sections, new a variable, VG, is introduced that allows analysis of vehicles with 5-axles or more only from the *vius97.data* database.

Total Fleet Database VIUS97.DAT

The total fleet database was a subset of the original VIUS data set; however, it excluded vehicles with 2-axles and 4-tires (i.e., VIUS variable NAXLE=1), or vehicles with the following body types: pickup (BODTYP=1), sport utility (BODTYP=24), station wagon (BODTYP=25), and mini-van (BODTYP=26). In distributing the total truck fleet into various configuration classes, the VIUS axle recode variable, AXLRE, was used to determine the class a vehicle should be placed in. The AXLRE variable was a variable created by the Bureau of the Census, based on survey data, to identify the configuration in which a vehicle travels most often in.

Configuration Classes and their Associated AXLRE Levels

<u>Configuration</u>	<u>AXLRE Code 1997</u>
<i>Truck</i>	
2-axle	02
3-axle	03
4-axle	04
<i>Truck + Trailer</i>	
2+2	09, 20
2+*3	10, 21
3+2	12, 23
3+*3	13, 24, 25
*4+2	15, 26
*4+*3	16, 27, 28
<i>Tractor - Semitrailer</i>	
2-S1	32
2-S2	33
2-*S3	34
3-S1	35
3-S2	36
3-*S3	37

<u>Configuration</u>	<u>AXLRE Code 1997</u>
4-S1	38
4-S2	39
4-*S3	40
<i>Tractor - Doubles</i>	
2-S1-2	45
3-S1-2	49
2-S2-2	46
3-S2-2	50
Other @ *7-axle	47, 53
3-2S-3	51
Other @ *8-axle	48, 54
3-S2-4	52
Other @ *9-axle	55
Other @ *10-axle	56
<i>Tractor - Triples</i>	
2-S1-2-2	61
3-S1-2-2	65
Other	62-64, 66-72

Notes: Configuration names: The first number indicates the number of axles on the straight truck or tractor truck. The second number indicates the number of axles on first trailer, while the third and fourth numbers represent number of axles on second and third trailers respectively.

The * next to a number indicates that the number of axles is equal to or greater than this number (e.g., *4+2 is the group for 4-axles or more straight trucks pulling one trailer with 2 axles.)

5-AXLE OR MORE FLEET – VIUS97.DAT

The 5-axles or more fleet is a subset of the total fleet data set (*vius97.dat*). This fleet excluded vehicles whose total number of axles was less than 5 and straight trucks that hauled 1-axle utility trailers or 1-axle trailers (i.e., *4+1). In creating the *vius97.dat* database, a new variable, VG, was added to the variable list to define the vehicle group that a registered vehicle belong to. Eight vehicle groups were defined: (1) Truck + Trailer at 5-axles, (2) Truck + Trailer at 6-axles, (3) 3-S2, (4) Tridem axle Semitrailer, (5) 4S1/S2, (6) STAA (2-S1-2), (7) Doubles at 6-axles or more, (8) Triples. The following table shows the vehicle group codes (VG) that allow extraction of vehicles with 5 or more axles only and the axle recode variable.

Vehicle Groups and their Associated AXLRE

<u>Vehicle Groups</u>	<u>VG Codes</u>	<u>AXLRE Code 1997</u>
Truck + Trailer with 5-axles	1	10, 12, 21, 23
Truck + Trailer with 6-axles or more	2	24-28, 13, 15, 16, 22
3-S2	3	36
Tractor-Semitrailer with Tridem Axles	4	34, 37, 40
4-S1/S2	5	38, 39
STAA (2-S1-2)	6	45
Doubles @ 6-axles or more	7	46-56
Tractor – Triples	8	61-72

VIUS Variables of Interest

Vehicle Body Type

Each surveyed truck identified the body type that they traveled most often in. There were 27 body types to choose from as identified in the VIUS data dictionary.

<u>Code #</u>	<u>Body Type Description</u>
02	- van other than mini-van
03	- multi-stop or step van (including hi-cube or cutaway)
04	- platform with devices permanently mounted on bed of truck
05	- low boy (goose neck)—platform with depressed center
06	- basic platform—including flatbed, stake, etc.
07	- livestock truck (including livestock drop frame)
08	- insulated, non-refrigerated van
09	- insulated, refrigerated van
10	- drop frame van (including furniture van, etc.)
11	- open top van (including fruit)
12	- basic enclosed van (dry cargo)
13	- beverage truck
14	- utility truck—used in public utility operations
15	- winch or crane truck—lifting equipment (including roll-on, roll-off)
16	- wrecker—for motor vehicle towing or lifting
17	- pole, logging, pulpwood or pipe truck
18	- automobile transport
22	- service truck or craftsman's vehicle
23	- yard tractor—cab and chassis only used to spot trailers
27	- oilfield truck—service equipment permanently mounted on vehicle
29	- grain bodies (including low-side grain and hoppers, etc.)
30	- garbage truck
40	- dump truck (including belly or bottom dump)
50	- tank truck for liquids or gases
60	- tank truck for dry bulk
70	- concrete mixer
80	- other (trucks whose body type was not one of the previous types)

Vehicle Class and Body Type Combinations (5-axles or more only)

For 1997, a new variable VBG is added to the variable list. This variable is used to analyze the weights, dimensions, and operating characteristics for the 5-axle or more fleet only using the vuis97.dat database. There are thirty two vehicle class and body type combinations and defined as follows:

<u>Code #</u>	<u>Vehicle Class/Body Type Description</u>
1	3+2 Low Boy
2	3+2 Basic Platform
3	3+2 Basic Enclosed
4	3+2 Pole Logging
5	3+2 Grain Bodies
6	3+2 Dump Truck
7	3+2 Tank-Liquid
8	3-S2 Low Boy
9	3-S2 Basic Platform
10	3-S2 Livestock
11	3-S2 Ins. Non-ref.
12	3-S2 Ins. Ref.
13	3-S2 Drop Frame
14	3-S2 Basic Enclosed
15	3-S2 Pole Logging
16	3-S2 Auto Transport
17	3-S2 Grain Bodies
18	3-S2 Dump Truck
19	3-S2 Tank-Liquid
20	3-S2 Tank-Dry
21	3-S2 Low Boy
22	3-S3 Basic Platform
23	3-S3 Ins. Ref.
24	3-S3 Basic Enclosed
25	3-S3 Pole Logging
26	3-S3 Grain Bodies
27	3-S3 Dump Truck
28	3-S3 Tank-Liquid
29	2-S1-2 Basic Platform
30	2-S1-2 Drop Frame
31	2-S1-2 Basic Enclosed
32	2-S1-2 Grain Bodies

Major Body Type Groups and their Associated Body Types

Similar to 1987 and 1992 analyses, the 27 body types were grouped into 11 major body type groups. The reason in part was due to the small sample of data available on vehicles with certain body types. The other category contains mostly body types, which have small sample sizes.

Major Body Type	BODTYP Code 1997
Platform	05, 06
Van	03, 08-12
Auto Transport	18
Dump Truck	40
Grain Bodies	29
Garbage Truck	30
Livestock Truck	07
Pole, Logging Truck	17
Tank Truck for Dry Bulk	60
Tank Truck for Liquid or Gases	50
Other	04, 13-16, 22, 23, 27, 70, 80

Note: BODTYP=02 which is a van other than mini-van did not appear in the 5-axles or more fleet, so this body type was not placed into a major body type group.

Traffic Regions and Their Associated FIPST States

The traffic region definitions in 1997 are the same as those for the 1987 and 1992 analyses. The VIUS database did not contain a region variable, so this variable was created based on the registration state (VIUS variable FIPST) given on the survey. The new variable is REGION.

North Central		North East		South Atlantic		South Gulf		West	
STATE	FIPST	STATE	FIPST	STATE	FIPST	STATE	FIPST	STATE	FIPST
Illinois	17	Connecticut	09	Delaware	10	Alabama	01	Alaska	02
Indiana	18	Maine	23	Dist. of Columbia	11	Arkansas	05	Arizona	04
Iowa	19	Massachusetts	25	Florida	12	Kentucky	21	California	06
Kansas	20	New Hampshire	33	Georgia	13	Louisiana	22	Hawaii	15
Michigan	26	Rhode Island	44	Maryland	24	Mississippi	28	Montana	30
Minnesota	27	Vermont	50	North Carolina	37	Oklahoma	40	Nevada	32
Missouri	29	New Jersey	34	South Carolina	45	Tennessee	47	Utah	49
Nebraska	31	New York	36	Virginia	51	Texas	48	Washington	53
North Dakota	38	Pennsylvania	42	West Virginia	54			Wyoming	56
Ohio	39							Idaho	16
South Dakota	46							New Mexico	35
Wisconsin	55							Oregon	41
								Colorado	08

Annual Vehicle Miles Traveled (VMT)

Each surveyed truck indicated their estimated annual vehicle miles traveled (i.e., VMT) for the year. Its variable name in the VIUS database was ANNMIL.

Trailer Width

Each combination vehicle was asked to report the width of the trailer most often attached to it. The 1997 WIDTH variable levels were (1) 96 inches, (2) 102 inches, (3) More than 102 inches, or (4) Other.

Vehicle Length

Each vehicle was asked to report the overall length of their vehicle as it was most often operated. For 1997, the respondents had 14 length categories from which to choose. This variable is called TOTLEN.

% of VMT Outside Home Base State

Each vehicle was asked to report the percent of the year's mileage that was driven outside of the home base state where home base state refers to the state where the vehicle was usually parked when it was not on the road. (Note: Home base state and state of registration are not always the same.) In the database, this variable was called POBAST.

This analysis, was primarily interested in the number of vehicles who reported that all of their VMT was driven inside the home base state. Therefore, the home base graphs referred to in section 7 of the report and presented in Appendix E are counts of the number of vehicles at different levels of % of VMT outside of home base state. The most important information on these plots is the number of vehicles who report all their VMT is driven within their home base state. This is obtained by looking at the value plotted at 0% of VMT outside of home base state.

Range of Operation

Each vehicle was asked to report the percent of the year's mileage that was driven on various lengths of trips. In 1997, there were 6 trip range levels. The following table gives the ranges, and the VIUS variable associated with each range.

Range	Off Road	0-50 Miles	50-100 Miles	100-200 Miles	200-500 Miles	> 500 Miles
1997	POFFRD	PLOCAL	PSHORT	PSMED	PLMED	PLONG

Before analyzing the data, it was insured that the total % of VMT distributed across the various range levels totaled to 100% for each record. Data that totaled to 0 were ignored in the analysis. No correction was necessary for the 1997 because the Bureau of Census had already done corrections to the records such that they totaled to 100%.

Since the analysis was focused on the distribution of a vehicle group's VMT across the various trip range levels, it was necessary to convert the % of VMT units to VMT. This process involved dividing the % of VMT for a range by 100 to get a proportion of the VMT accounted for by this type of trip, then multiplying this value by annual miles traveled (e.g., for a given record, the VMT spent on a local trip would be calculated by the following formula:

$$\text{VMT}(\text{local}) = (\text{PLOCAL} * \text{ANNMIL} / 100).$$

Vehicle Weight

The mean empty, average, and maximum weights were calculated for various vehicle configurations. In deriving the means, some weight data was excluded from the analysis because it was felt to be invalid data based on our knowledge of general operational characteristics of the commercial vehicles. The restrictions are mentioned below.

VIUS Weight Variables.

Weight Variable	Variable Name 1997
Empty (tare) Weight	EMPWT
Average Weight	AVGWT
Maximum Weight	MAXWT

Restrictions on Weight Variables:

Weight Variable	Lower limit
Empty (tare) Weight	Exclude 20,000 and below
Average Weight	Exclude 20,000 and below
Maximum Weight	Exclude 20,000 and below

Payload Weight

In addition to the evaluation of the overall weight of a vehicle, the analysis was focused on the weight of the load carried by a vehicle configuration. Since there was no question on the survey that directly addressed this issue, we derived an estimate of the average payload weight by subtracting the empty weight of the vehicle from its average weight. In addition, subtracting the empty weight of the vehicle from its maximum weight derived maximum payload weight. The previously mentioned restrictions on the weight variables applied in this analysis with an added condition that the reported empty weight had to be less than the reported average or maximum weight.

Commodities Hauled

Each respondent on the survey indicated the percent of their VMT that a particular commodity was hauled or that no commodities were hauled. The sum of the commodities should total to 100%. To evaluate the commodity data, the analysis has to be based on the actual VMT because % of VMT is not a valid unit of measure for analysis (i.e., 1% of VMT is not a common unit because each vehicle has a different annual VMT. For example, one vehicle's annual VMT may be 100,000 miles which means 1% of their VMT is 1,000 miles, while another vehicle's annual VMT is 30,000 miles which means 1% of their VMT is 300 miles).

Commodity Description	Variable 1997
No load — vehicle empty	PNOLOD
Live animals	LVANML
Fresh farm products	FARMPD
Processed foods and tobacco products	PRFOOD
Animal feed	ANFEED
Mining products	MINPRO
Building materials (gravel, sand, concrete, flat glass, etc.—except cut lumber)	BLDGMA
Logs and other forest products	LOGPRO
Lumber and fabricated wood products—except furniture	LUMBER
Paper and paper products	PAPER
Chemicals and/or drugs (including fertilizers, pesticides, cosmetics, paints, etc.)	CHEM
Petroleum and petroleum products (including paving and roofing materials)	PETROL
Plastics and/or and rubber products	PLASTK
Primary metal products—pipes, ingots, billets, sheets, etc.	PRIMTL
Fabricated metal products	FABMTL
Machinery—electrical or non-electrical and electronic	MACHNE
Transportation equipment (including complete vehicles) and parts	TEQUIP
Furniture (wood and non-wood) and/or hardware—not involved in household moving	FURN
Glass products	GLASS
Textiles and apparels—fibers, leather goods, carpets, clothing, etc.	TEXTIL
Miscellaneous products of manufacturing	MSCMFG
Moving of household and office furniture	MOVING
Craftsman's equipment - miscellaneous tools and/or parts for specialized use	TOOLS
Mixed cargo (including the delivery of small packages)	MXDCAR
Scrap (not for recycling), garbage, trash, septic tank waste	REFUSE

Industrial "waste" water	INDWTR
Hazardous waste (EPA manifest)	HAZEPA
Hazardous waste (non-EPA manifest)	HAXNEPA
Recyclable products	RECYCLE
Other	OTHPROD

Principal Product Hauled

Since no question on the survey directly asked the respondent what their principal product was that they hauled, the Bureau of the Census derived a truck's principal product (VIUS variable PRNPRO) from the commodities data. For each surveyed truck, they identified the commodity that was hauled the most in comparison to the other commodities, and then they defined this commodity as the truck's principal product.

When using the principal product variable, there are some issues that one should be aware of. One cannot assume that the identified principal product accounts for a majority (over 50%) of the vehicle's VMT. If a truck hauls a number of commodities, the principal product identified with it may be hauled for only 30% of the vehicle's VMT. Another issue has to do with the decision rule that the Bureau decided on to determine the principal product when a tie existed between a number of commodities. For example, if there was a tie between Processed Foods and Mixed Cargo, their rule may state that Processed Foods will be listed as the principal product. Depending on how these ties are decided upon, you can get very different results in your final analyses. For this reason, it is discouraged to use this variable except for possibly a preliminary examination of the commodity data.

Creating External Subset Databases

Because the original VIUS data set, *mdf.txt*, contained vehicles that were not of interest to this study, a new database which is a subset (Vius97.dat) of the original VIUS 1997 data was created for analysis. This dataset contained the *total fleet* of large vehicles (which was called bigtruck.dat in 1992 analysis) and the two new variables of VG and VBG. The variable VG represents the *5-axles or more truck fleet* which was called vehgrp.dat in the 1987 and 1992 analyses and VBG represents the vehicle and major body type groups for the analysis of weights, dimensions, and operating characteristics for the 5-axle or more fleet only.

Loading the External Databases

The information in the VIUS database is in ASCII format. The variables are column defined. The Data Dictionary that was provided with the VIUS documentation defines which variables are associated with which columns. This information is used to write the data input format statement used by SAS to read in the data.

Section I and II give the SAS code used to read in the different databases. Note that the computer pathnames will differ depending on where the files are located on your PC. After reading in a database, this database is stored in the working memory of the computer. Various procedures can be performed on this data set such as creating temporary subsets of the data for analysis, creating or redefining a variable, or generating statistics on the data.

Creating SAS Internal Subsets

During the analysis, temporary subsets of the data were created for each analysis variable. Examples of temporary dataset SAS program is included (Section III): a data set which defined the region that a vehicle was registered in or a data set containing only information on 3-S2s. By creating temporary data sets, one insures that nonrelevant data are not included. It simplifies the SAS procedure statements, which are written to perform different analyses. In addition, if you are running SAS for the PC, creating subsets will increase the processing time.

Expansion Factor

The VIUS database is just a statistical sample of the entire truck population. This small sample tries to characterize the larger population, thus statistics based on this sample are just estimates of the larger population characteristics. In order draw conclusions about the entire truck population based on this sample; each surveyed truck in the sample is associated with *n*-number of vehicles in the population. This is called the weighting factor or expansion factor, EXPANF, for a record. This EXPANF is not a constant number. The EXPANF differs by state and vehicle type.

Simple Statistics

In this analysis, the focus was on determining the number of vehicles in a particular category of characteristics and on obtaining means of such characteristics as weight and VMT. Frequency tables were generated to indicate the number of vehicles in a category. Some of these frequency tables were imported into Microsoft's Excel program, and the data was plotted.

VIUS Analysis Program

In addition to SAS programming codes, a number of cross-tabulation analyses of 1997 truck fleet were carried out using the VIUS analysis program included in the VIUS data CD. These are:

- 1997 total truck fleet
- 1997 truck fleet of 5-axle or more
- 5-axle truck fleet by major body type
- Regional distribution of 5-axle truck fleet

These results were then compared with the results obtained from SAS analysis to confirm the validity of the subsequent analysis of 1997 truck fleet characteristics.

I. SAS Program to Create Truck Fleet Database of Interest

* Comment - This program creates an external subset database, vius97.dat, from the original 1997 VIUS database, mdf.txt. This subset database excludes 2-axle 4-tire vehicles (NAXLES=1), and vehicles with the following body types: pick-up (BODTYP=1), sport utility (BODTYP=24), station wagon (BODTYP=25), and mini-van (BODTYP=26). ;

* Comment - The decimal specifications for the variables EXPANF and MPG were removed in the formatting information for copying purposes only. ;

```
DATA VIUS;
INFILE 'd:\vius\MDF.TXT' LRECL=648 MISSEVER;
INPUT FIPST 12-13 EXPANF 15-22 BODTYP 59-60 NAXLE 61-61 LIFTAX 62-62
VEHTYP 64-64 TOTLEN 65-66 PCNTNR 79-81 PPIGY 82-84 WIDTH 92-92 EMPWT 94-99
AVGWT 101-106 MAXWT 107-112 ANNMIL 158-163 BASTATE 177-178 POBAST 181-183 POFFRD 184-
186
PLOCAL 187-189 PSHORT 190-192 PSMED 193-195 PLMED 196-198 PLONG 199-201 OPCALS 202-202
JURISD 228-228 TYPSE 248-248 PNOLOD 257-259 PASSEN 260-262 LVANML 263-265 FARMPD 266-
268 PRFOOD 269-271 ANFEED 272-274 MNPRO 275-277 BLDGMA 278-280 LOGPRO 281-283 LUMBER
284-286 PAPER 287-289 CHEM 290-292 PETROL 293-295 PLASTK 296-298 PRIMTL 299-301 FABMTL
302-304 MACHNE 305-307 TEQUIP 308-310 FURN 311-313 GLASS 314-316 TEXTIL 317-319 MSCMFG
320-322 MOVING 323-325 TOOLS 326-328 MXDCAR 329-331 REFUSE 332-334 INDWTR 335-337
HAZEPA 338-340 HAZNEPA 341-343 RECYCLE 344-346 OTHPROD 347-349 FLTSZE 417-418 AXLR
419-420
PRNPRO 421-422 VEHSZE 433-433 WANNMIL 629-641;

FILE VIUS97;

IF NAXLE=1 THEN DELETE;
IF (BODTYP=1) OR (24<=BODTYP<=26) THEN DELETE;
```

```

IF AXLRE=10 OR AXLRE=12 OR AXLRE=21 OR AXLRE=23 THEN VG=1;
IF (24<=AXLRE<=28) OR AXLRE=13 OR AXLRE=15 OR AXLRE=16 OR AXLRE=22 THEN VG=2;
IF AXLRE=36 THEN VG=3;
IF AXLRE=34 OR AXLRE=37 OR AXLRE=40 THEN VG=4;
IF AXLRE=38 OR AXLRE=39 THEN VG=5;
IF AXLRE=45 THEN VG=6;
IF 46<=AXLRE<=56 THEN VG=7;
IF 61<=AXLRE<=72 THEN VG=8;

IF BODTYP=05 AND (AXLRE=12 OR AXLRE=23) THEN VBG=1;
IF BODTYP=06 AND (AXLRE=12 OR AXLRE=23) THEN VBG=2;
IF BODTYP=12 AND (AXLRE=12 OR AXLRE=23) THEN VBG=3;
IF BODTYP=17 AND (AXLRE=12 OR AXLRE=23) THEN VBG=4;
IF BODTYP=29 AND (AXLRE=12 OR AXLRE=23) THEN VBG=5;
IF BODTYP=40 AND (AXLRE=12 OR AXLRE=23) THEN VBG=6;
IF BODTYP=50 AND (AXLRE=12 OR AXLRE=23) THEN VBG=7;
IF BODTYP=05 AND AXLRE=36 THEN VBG=8;
IF BODTYP=06 AND AXLRE=36 THEN VBG=9;
IF BODTYP=07 AND AXLRE=36 THEN VBG=10;
IF BODTYP=08 AND AXLRE=36 THEN VBG=11;
IF BODTYP=09 AND AXLRE=36 THEN VBG=12;
IF BODTYP=10 AND AXLRE=36 THEN VBG=13;
IF BODTYP=12 AND AXLRE=36 THEN VBG=14;
IF BODTYP=17 AND AXLRE=36 THEN VBG=15;
IF BODTYP=18 AND AXLRE=36 THEN VBG=16;
IF BODTYP=29 AND AXLRE=36 THEN VBG=17;
IF BODTYP=40 AND AXLRE=36 THEN VBG=18;
IF BODTYP=50 AND AXLRE=36 THEN VBG=19;
IF BODTYP=60 AND AXLRE=36 THEN VBG=20;
IF BODTYP=05 AND AXLRE=37 THEN VBG=21;
IF BODTYP=06 AND AXLRE=37 THEN VBG=22;
IF BODTYP=09 AND AXLRE=37 THEN VBG=23;
IF BODTYP=12 AND AXLRE=37 THEN VBG=24;
IF BODTYP=17 AND AXLRE=37 THEN VBG=25;
IF BODTYP=29 AND AXLRE=37 THEN VBG=26;
IF BODTYP=40 AND AXLRE=37 THEN VBG=27;
IF BODTYP=50 AND AXLRE=37 THEN VBG=28;
IF BODTYP=06 AND AXLRE=45 THEN VBG=29;
IF BODTYP=10 AND AXLRE=45 THEN VBG=30;
IF BODTYP=12 AND AXLRE=45 THEN VBG=31;
IF BODTYP=29 AND AXLRE=45 THEN VBG=32;

IF 17<=FIPST<=20 OR FIPST=26 OR FIPST=27 OR FIPST=29 OR FIPST=31 OR FIPST=38 OR
FIPST=39 OR FIPST=46 OR FIPST=55 THEN REGION='NC';
IF FIPST=9 OR FIPST=23 OR FIPST=25 OR FIPST=33 OR FIPST=44 OR FIPST=50 OR FIPST=34
OR FIPST=36 OR FIPST=42 THEN REGION='NE';
IF 10<=FIPST<=13 OR FIPST=24 OR FIPST=37 OR FIPST=45 OR FIPST=51 OR FIPST=54 THEN
REGION='SA';
IF FIPST=1 OR FIPST=5 OR FIPST=21 OR FIPST=22 OR FIPST=28 OR FIPST=40 OR FIPST=47 OR
FIPST=48 THEN REGION='SG';
IF FIPST=2 OR FIPST=4 OR FIPST=6 OR FIPST=15 OR FIPST=30 OR FIPST=32 OR FIPST=49 OR
FIPST=53 OR FIPST=56 OR FIPST=16 OR FIPST=35 OR FIPST=41 OR FIPST=8 THEN REGION='WE';

PUT FIPST 1-2 EXPANF 3-10 BODTYP 11-12 NAXLE 13-13 LIFTAX 14-14 VEHTYP 15-15
TOTLEN 16-17 PCNTNR 18-20 PPIGY 21-23 WIDTH 24-24 EMPWT 25-30 AVGW 31-36
ANNMIL 37-42 POBAST 43-45 POFPRD 46-48 PLOCAL 49-51 PSHORT 52-54 PSMED 55-57
PLMED 58-60 PLONG 61-63 OPCALS 64-64 JURISD 65-65
TYPSEY 66-66 PNOLOD 67-69 PASSEN 70-72 LVANML 73-75 FARMPD 76-78
PRFOOD 79-81 ANFEED 82-84 MNPRO 85-87 BLDGMA 88-90 LOGPRO 91-93 LUMBER 94-96
PAPER 97-99 CHEM 100-102 PETROL 103-105 PLASTK 106-108 PRIMTL 109-111 FABMTL 112-114
MACHNE 115-117 TEQUIP 118-120 FURN 121-123 GLASS 124-126 TEXTIL 127-129 MSCMFG 130-132
MOVING 133-135 TOOLS 136-138 MXDCAR 139-141 REFUSE 142-144 INDWTR 145-147 HAZNEPA 148-
150
HAZNEPA 151-153 RECYCLE 154-156 OTHPROD 157-159 FLTSZE 160-162 AXLRE 162-163

```



```

PRNPRO 164-165 WANNMIL 166-178 VG 179-180 VBG 181-182 REGION $ 183-185 MAXWT 186-191;
CARDS;
RUN;

```

II. SAS Program to load VIUS97.dat dataset for the subsequent analyses

```

DATA VIUS;
INFILE 'C:\SAS\VIUS97.DAT' LRECL=648 MISSEVER;
INPUT FIPST 1-2 EXPANF 3-10 BODTYP 11-12 NAXLE 13-13 LIFTAX 14-14 VEHTYP 15-15
TOTLEN 16-17 PCNTNR 18-20 PPIGY 21-23 WIDTH 24-24 EMPWT 25-30 AVGWT 31-36
ANNMIL 37-42 POBAST 43-45 POFFRD 46-48 PLOCAL 49-51 PSHORT 52-54 PSMED 55-57
PLMED 58-60 PLONG 61-63 OPCALS 64-64 JURISD 65-65 TYPSE 66-66 PNOLOD 67-69
PASSEN 70-72 LVANML 73-75 FARMPD 76-78 PRFOOD 79-81 ANFEED 82-84 MNPRO 85-87
BLDGMA 88-90 LOGPRO 91-93 LUMBER 94-96 PAPER 97-99 CHEM 100-102 PETROL 103-105
PLASTK 106-108 PRIMTL 109-111 FABMTL 112-114 MACHNE 115-117 TEQUIP 118-120
FURN 121-123 GLASS 124-126 TEXTIL 127-129 MSCMFG 130-132 MOVING 133-135 TOOLS
136-138 MXDCAR 139-141 REFUSE 142-144 INDWTR 145-147 HAZEPA 148-150 HAZNEPA
151-153 RECYCLE 154-156 OTHPROD 157-159 FLTSZE 160-162 AXLRE 162-163 PRNPRO
164-165 WANNMIL 166-178 VG 179-180 VBG 181-182 REGION $ 183-185 MAXWT 186-191;

EXPANF=EXPANF/1000;
CARDS;
RUN;

```

III. SAS Code Used to Create Frequency Tables and to Generate Means

Frequency Tables for Population

Frequency tables were generated in our analysis to determine the number of vehicles in a particular category. For example, a table, which gives the number of vehicles in the nation that, are in each of the 8 vehicle groups can be generated by using the frequency procedure in SAS.

General Format

```

Proc freq data=dataset name;
  Table Variable1*Variable2*Variable3;
  Weight Variable;
Run;

```

Example of SAS Code to Generate Table of Number of Vehicles in Each Vehicle Group for Each Region

```

Proc freq data=Regions;
  Table VG*REGION;
  Weight EXPANF;
Run;

```

Frequency Tables for Sample

Frequency tables were also derived to determine the number of data records available for a particular category. The SAS code is similar to the previous description; however, the 'Weight EXPANF' statement, which indicates the number of vehicles in the population that one record represents, is removed. For example, if we wanted to know the number of records used to derive the table of the number of vehicles in the nation that are in each of the 8 vehicle

groups for each region, we would generate a frequency table based on the unexpanded sample data.

Example of SAS Code to Generate Table of Number of Sample Records in each Vehicle Group for Each Region

```
Proc freq data=Regions;  
  Table VG*REGION;  
Run;
```

Means and Standard Deviation

In summarizing the general characteristics of a certain vehicle type in the truck population, the mean and standard deviation are useful measures. There are two procedures in SAS for generating means: the Proc Means and the Proc GLM procedures. In each procedure, the 'Freq EXPANF' statement is added in order to weight the sample data in order to reflect the population. For example, if a record has 40,000 miles as its annual miles traveled and its EXPANF=10, then this record states that 10 vehicles in the population have annual VMTs of 40,000 miles. Proc Means is used for 1997 VIUS analysis

One should be aware that in both these procedures the 'Freq EXPANF' statement will only accept integer values. If a real number is given, the procedure will only use the integer part of the number. EXPANF is a real number with values out to the two decimal places. In our analysis, we did not want the EXPANF to be truncated, so we multiplied the EXPANF for every record by 100, in order to shift the information in the two decimal places over into the integer part of the number. Then we generated the means using this new EXPANF. In the results, the population sizes associated with the means will be off by a factor of 100. Dividing the population sizes by 100 will give the true sizes.

General Format for Proc Sort Before running the Proc Means procedure, the Proc Sort procedure may have to be used to reorganize the data for analysis.

```
Proc Sort data=dataset name;  
  By Variable list;  
Run;
```

General Format for Proc Means

```
Proc Means data=dataset name;  
  Var Variable list;  
  By Variable list;  
  Freq Variable;  
Run;
```

Example of Proc Means procedure to Generate Mean VMT for Each Body Type Group

```
Proc Sort data=VIUS;  
  By BODTYP;  
Proc Means data=VIUS;  
  Variable ANNMIL;  
  By BODTYP;  
  Freq EXPANF;  
Run;
```

General Format for Proc GLM

```

Proc GLM data=dataset name;
Class Variables;
Model Dependent-Variable = Independent-Variables;
Means Variables;
Freq Variable;
Run;

```

Example of Proc GLM procedure to Generate Mean VMT for Each Body Type Group

```

Proc GLM data=VIUS;
Class BODTYP;
Model ANNMIL = BODTYP;
Means BODTYP;
Freq EXPANF;
Run;

```

III. Examples of temporary dataset SAS program

This temporary SAS program and dataset is used to estimate the VMT by commodity hauled.

```

DATA VIUS;
INFILE 'C:\SAS\VIUS97.DAT' LRECL=648 MISSEVER;
INPUT FIPST 1-2 EXPANF 3-10 BODTYP 11-12 NAXLE 13-13 LIFTAX 14-14 VEHTYP 15-15
TOTLEN 16-17 PCNTNR 18-20 PPIGY 21-23 WIDTH 24-24 EMPWT 25-30 AVGWT 31-36
ANNMIL 37-42 POBAST 43-45 POFFRD 46-48 PLOCAL 49-51 PSHORT 52-54 PSMED 55-57
PLMED 58-60 PLONG 61-63 OPCALS 64-64 JURISD 65-65
TYPSE 66-66 PNOLOD 67-69 PASSEN 70-72 LVANML 73-75 FARMPD 76-78
PRFOOD 79-81 ANFEED 82-84 MNPRO 85-87 BLDGMA 88-90 LOGPRO 91-93 LUMBER 94-96
PAPER 97-99 CHEM 100-102 PETROL 103-105 PLASTK 106-108 PRIMTL 109-111 FABMTL
112-114
MACHNE 115-117 TEQUIP 118-120 FURN 121-123 GLASS 124-126 TEXTIL 127-129 MSCMFG
130-132
MOVING 133-135 TOOLS 136-138 MXDCAR 139-141 REFUSE 142-144 INDWTR 145-147
HAZEPA 148-150
HAZNEPA 151-153 RECYCLE 154-156 OTHPROD 157-159 FLTSZE 160-162 AXLRE 162-163
PRNPRO 164-165
WANNMIL 166-178 VG 179-180 VBG 181-182 REGION $ 183-185 MAXWT 186-191;

EXPANF=EXPANF/1000;

if annmil=. then annmil=0;
if pno lod=. then pno lod=0;
if passen=. then passen=0;
if lvanml=. then lvanml=0;
if farm pd=. then farm pd=0;
if pr food=. then pr food=0;
if an feed=. then an feed=0;
if mn pro=. then mn pro=0;
if bld gma=. then bld gma=0;
if log pro=. then log pro=0;
if lum ber=. then lum ber=0;
if pap er=. then pap er=0;
if chem=. then chem=0;
if pet rol=. then pet rol=0;
if plas tk=. then plas tk=0;

```

```

if printl=. then printl=0;
if fabmtl=. then fabmtl=0;
if machne=. then machne=0;
if tequip=. then tequip=0;
if furn=. then furn=0;
if glass=. then glass=0;
if textil=. then textil=0;
if mscmfg=. then mscmfg=0;
if moving=. then moving=0;
if tools=. then tools=0;
if mxdcar=. then mxdcar=0;
if refuse=. then refuse=0;
if indwtr=. then indwtr=0;
if hazepa=. then hazepa=0;
if haznepa=. then haznepa=0;
if recycle=. then recycle=0;
if othprod=. then othprod=0;

vpnlod=annmil*pnlod/100;
vpassen=annmil*passen/100;
vlvanml=annmil*lvannml/100;
vfarmpd=annmil*farmpd/100;
vprfood=annmil*prfood/100;
vanfeed=annmil*anfeed/100;
vmnpro=annmil*mnpro/100;
vbldgma=annmil*bldgma/100;
vlogpro=annmil*logpro/100;
vlumber=annmil*lumber/100;
vpaper=annmil*paper/100;
vchem=annmil*chem/100;
vpetrol=annmil*petrol/100;
vplastk=annmil*plastk/100;
vprintl=annmil*printl/100;
vfabmtl=annmil*fabmtl/100;
vmachne=annmil*machne/100;
vtequip=annmil*tequip/100;
vfurn=annmil*furn/100;
vglass=annmil*glass/100;
vtextil=annmil*textil/100;
vmscmfg=annmil*mscmfg/100;
vmoving=annmil*moving/100;
vtools=annmil*tools/100;
vmxdcar=annmil*mxdcar/100;
vrefuse=annmil*refuse/100;
vindwtr=annmil*indwtr/100;
vhazepa=annmil*hazepa/100;
vhaznepa=annmil*haznepa/100;
vrecycle=annmil*recycle/100;
vothprod=annmil*othprod/100;
CARDS;
RUN;
PROC SORT DATA=A; BY vg; RUN;
PROC MEANS DATA=A; VAR VPNOLOD VPASSEN VLVANML VFARMPD VPRFOOD VANFEED VMNPRO
VBLDGMA VLOGPRO
VLUMBER VPAPER VCHEM VPETROL VPLASTK VPRINTL VFABMTL VMACHNE VTEQUIP VFURN
VGLASS VTEXTIL
VMSCMFG VMOVING VTOOLS VMXDCAR VREFUSE VINDWTR VHAZEPa VHAZNEPA VRECYCLE
VOTHPROD; BY vg;
FREQ expandf;

```

RUN;

Appendix I
1997 VIUS Surveys



U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

FORM
TC-9502

1997 CENSUS OF TRANSPORTATION VEHICLE INVENTORY AND USE SURVEY

OMB No. 0607-0830: Approval Expires 10/31/99

CENSUS USE									
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<p>▶ DUE DATE: 30 DAYS AFTER RECEIPT OF FORM</p>	
<p>REGISTRATION INFORMATION</p>	
<p>Make of vehicle 101</p>	<p>Year of model 102</p>
<p>State 103</p>	<p>License number 104</p>
<p>Vehicle Identification Number (VIN) 105</p>	
<p><i>See Survey Coverage below if you have questions about completing this report.</i></p>	
<p>Please return completed form to: BUREAU OF THE CENSUS 1201 East Tenth Street Jeffersonville, IN 47132-0001</p>	

(Please correct any errors in name, address, and ZIP Code.)

SURVEY COVERAGE

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses, organizations, and residents that receive this questionnaire to answer the questions for the vehicle identified in the registration information section above and return the questionnaire to the Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by sworn Census Bureau employees and may be used only for statistical purposes.

The term "Truck" includes all pickups, panel trucks, vans, minivans, sport utility vehicles, jeeps, station wagons built on truck chassis, single-unit light, single-unit heavy, and truck tractors.

If you have questions about completing this report, please call or write the Census Bureau. In any communication be sure to refer to the 11-digit Census File Number (CFN) printed in the label above. Toll-free assistance is available, 8:00 a.m. to 5:00 p.m., Eastern Standard Time, Monday through Friday: 1-800-772-7851.

IMPORTANT NOTICE: All questions on this form refer to the vehicle described in the registration information section and its use during calendar year 1997, unless the vehicle was disposed of on or after July 1, 1996 and prior to January 1, 1997. If the vehicle was disposed of on or after July 1, 1996 and prior to January 1, 1997, please complete entire questionnaire, answering each item according to the vehicle's use during calendar year 1996. If the vehicle was disposed of prior to July 1, 1996, please complete items 1a, 1b, and 32 only.

It is very important that you read the instructions as you answer the questions. If exact figures are not available for all items, carefully prepared estimates are acceptable.

PLEASE NOTE – There may be errors in the registration information. If there are errors in the VIN, make, and model year registration information, or if the vehicle identified never was in your possession, do not complete the questionnaire. Return it to the Census Bureau, along with a note correcting the errors in the registration information. (For statistical reasons, we cannot accept any substitution for the sampled vehicle.)

NOTICE

Respondents are not required to respond to any information collection unless it displays a valid approval number from the Office of Management and Budget (OMB). The OMB 8-digit number appears in the upper right corner of this questionnaire. Public reporting burden for this collection of information is estimated to average between 40 and 60 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Associate Director for Administration, Attn: Paperwork Reduction Project 0607-0830, Room 3104, Federal Building 3, Bureau of the Census, Washington, DC 20233-0001.

ITEM 1

a. Is the vehicle identified in the Registration Information section (cover page) still in your possession?

- 110 1 Yes - Are you the - 111 1 owner? } GO to item 2 and continue with questionnaire
 2 lessee?
 2 No - Continue with item 1b

b. Did you dispose of this vehicle prior to July 1, 1996?

- 112 1 Yes - Complete item 32 and return questionnaire
 2 No - Continue with items 1c, 1d, and the remainder of the questionnaire

c. When did you dispose of this vehicle? Enter figures only
 (Example: If June 1997 - enter 06 97)

Month	Year
113	114 19 ____

NOTE - If you disposed of this vehicle prior to January 1, 1997, answer each remaining item according to how the vehicle was used during calendar year 1996. If you disposed of this vehicle during calendar year 1997, answer each remaining item according to how the vehicle was used during calendar year 1997.

d. How did you dispose of this vehicle?

- 115 1 Sold, traded, or gave it away 3 Returned to leasing company
 2 Junked, scrapped, or otherwise destroyed

ITEM 2

When did you obtain this vehicle? Enter figures only
 (Example: If June 1990 - enter 06 90)

Month	Year
116	117 19 ____

ITEM 3

a. How did you obtain this vehicle?

- 118 1 Purchased it new - GO to item 4a 3 Leased or rented it FROM someone else -
 2 Purchased it used (or otherwise acquired) - GO to item 4a Continue with items 3b and 3c

b. How was this vehicle leased or rented?

- 119 1 Without a driver
 2 With a driver other than an owner-operator
 3 With an owner-operator as driver

c. Was the agreement for 12 months or more?

- 120 2 No
 1 Yes - Which of the following did the leasing agreement include? Mark (X) all that apply.
- | | |
|--|--|
| 121 <input type="checkbox"/> Financing only (Do not mark if installment sales contract.) | 124 <input type="checkbox"/> Payment of taxes |
| 122 <input type="checkbox"/> Full maintenance | 125 <input type="checkbox"/> Obtaining licenses and permits |
| 123 <input type="checkbox"/> Maintenance on specified parts only | 126 <input type="checkbox"/> Recordkeeping for leased trucks |
| | 127 <input type="checkbox"/> Other - Please specify _____ |

ITEM 4

a. Did you lease or rent this vehicle TO anyone else?

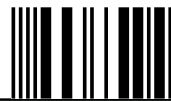
- 128 1 Yes - Continue with items 4b and 4c
 2 No - GO to item 5

b. How was it leased or rented?

- 129 1 Without a driver
 2 With a driver other than an owner-operator
 3 With an owner-operator as driver

c. Was the agreement for 12 months or more?

- 130 2 No
 1 Yes - Which of the following did the leasing agreement include? Mark (X) all that apply.
- | | |
|--|--|
| 131 <input type="checkbox"/> Financing only (Do not mark if installment sales contract.) | 134 <input type="checkbox"/> Payment of taxes |
| 132 <input type="checkbox"/> Full maintenance | 135 <input type="checkbox"/> Obtaining licenses and permits |
| 133 <input type="checkbox"/> Maintenance on specified parts only | 136 <input type="checkbox"/> Recordkeeping for leased trucks |
| | 137 <input type="checkbox"/> Other - Please specify _____ |



ITEM 5

Which best describes this vehicle as it was MOST OFTEN operated?

NOTE – A **straight truck**, also called a **single-unit truck**, is a complete unit, cab area and body. A **truck tractor** is a cab and chassis that is usually used for pulling trailers. (If the vehicle is a pickup, compact van, minivan, or panel truck, enter body type on the "Other" line.)

- 200 1 Straight truck not pulling trailer – **GO to item 9**
- 2 Straight truck pulling trailer – *Continue with item 6a*
- 3 Truck tractor (power unit) pulling trailer(s) – **GO to item 6b**
- 4 Other – *Please specify* _____

ITEM 6

a. If you indicated in item 5 that this vehicle is a straight truck pulling trailer(s), indicate below the kind of trailer(s) this vehicle MOST OFTEN PULLED. *Mark (X) ONE box only.*

Utility and other trailers less than 20 feet most often pulled by this straight truck.

- 201 1 One axle on trailer
- 2 Two axles on trailer
- 3 Three axles or more on trailer

One full trailer (or semi-trailer with converter dolly) most often pulled by this straight truck.

- 4 Two axles on trailer
- 5 Three axles on trailer
- 6 Four axles or more on trailer

b. (1) If you indicated in item 5 that this vehicle is a truck tractor (power unit) pulling trailer(s), indicate below the kind of trailer(s) this vehicle MOST OFTEN PULLED. *Mark (X) ONE box only.*

One semi-trailer most often pulled by this truck tractor (power unit).

- 202 01 One axle on trailer
- 02 Two axles on trailer
- 03 Three axles or more on trailer

Two trailers, one semi- and one full (or semi-trailer with converter dolly) most often pulled by this truck tractor (power unit).

- 04 Three axles on two trailers
- 05 Four axles on two trailers
- 06 Five axles on two trailers
- 07 Six axles or more on two trailers

Three trailers, one semi- and two full (or semi-trailers with converter dollies) most often pulled by this truck tractor (power unit).

- 08 Five axles on three trailers
- 09 Six axles on three trailers
- 10 Seven axles on three trailers
- 11 Eight axles or more on three trailers

12 Other – *Please describe in detail the number of trailers and the number of axles on those trailers most often pulled by this vehicle if not mentioned above.*

(2) What percent of 1997 mileage was NO trailer pulled by this vehicle (i.e., bobtail)?

	Percent
203	%

ITEM 7

What approximate percent of 1997 mileage was the trailer/axle configuration, identified in item 6a or 6b(1) above, MOST OFTEN PULLED by this vehicle?

	Percent
204	%

ITEM 8

What approximate percent of 1997 mileage pulling trailers did this vehicle haul –

- a. Railroad, maritime, or domestic containers?
- b. Piggyback trailers?
- c. Conventional trailers?

	Percent
205	%
206	%
207	%

TOTAL (a, b, and c should add to 100%) →

100%

ITEM 9

Please indicate the body type which most closely resembles this vehicle or the trailer MOST OFTEN ATTACHED to it if the power unit is a truck tractor.

If the vehicle is a straight truck, mark (X) the box that best describes the body of the truck (the area behind the cab).

Mark (X) ONE box only.

PLATFORM TYPES

- 300 05 Low boy (gooseneck) – platform with depressed center
- 06 Basic platform (including flatbed, stake, etc.)
- 04 Platform with devices permanently mounted on bed of truck – such as high lift, lift gate, hoist, etc.

VAN TYPES

- 03 Multistop or step van (including hi-cube or cutaway)
- 12 Basic enclosed van (dry cargo)
- 10 Drop frame van (including furniture van, etc.)
- 08 Insulated, nonrefrigerated van
- 09 Insulated, refrigerated van
- 11 Open top van (including fruit)

SPECIALIZED USE TRUCKS

- 18 Automobile carrier
- 13 Beverage truck
- 70 Concrete mixer
- 40 Dump truck (including belly or bottom dump)
- 29 Grain bodies (including low-side grain and hoppers, etc.)
- 30 Garbage, trash, or recycling truck
- 07 Livestock truck (including livestock drop frame)
- 27 Oil field truck – service equipment permanently mounted on vehicle
- 17 Pole, logging, pulpwood, or pipe truck
- 22 Service truck or "craftsman's vehicle" – body equipped for mobile repair and service
- 60 Tank truck for dry bulk
- 50 Tank truck for liquids or gases
- 14 Utility truck – used in public utility operations (telephone line truck, etc.), body equipped for major repair (may have aerial lift, derrick, etc.)
- 15 Winch or crane truck – lifting equipment (including roll on, roll off) permanently mounted on vehicle
- 16 Wrecker – for motor vehicle towing or lifting
- 23 Yard tractor – cab and chassis ONLY, used to spot trailers

NOTE – *If none of the above descriptions match the body type of this vehicle, or the trailer usually attached to it, mark (X) the "Other" box below and specify body type.*

80 Other – Please specify

ITEM 10

a. What is the total number of axles on this truck or truck tractor (power unit) including front and rear axles? *Do not include axles on any trailers pulled.*

- 301 1 Two axles (each axle has 2 tires)
- 2 Two axles (front axle has 2 tires, rear axle has 4 tires)
- 3 Three axles
- 4 Four axles or more

How many, IF ANY, of this vehicle's axles are liftable?

Number
302

b. How many of the axles on this truck or truck tractor (power unit) are driving (powered) axles?

- 303 1 One driving axle
- 2 Two driving axles
- 3 Three driving axles or more



ITEM 11

What type of cab does this vehicle have?

- 307 1 Cab forward of engine
- 2 Cab over engine
- 3 Conventional cab
- 4 Cab beside engine
- 5 Other – Please specify _____

ITEM 12

a. What was the overall length of this vehicle or vehicle and trailer(s) as it was MOST OFTEN OPERATED? *An estimate is acceptable.*

NOTE – Report distance from front bumper to rear of vehicle or trailer(s), whichever is applicable.

Mark (X) ONE box only.

- 308 01 Less than 13.0 feet
- 02 13.0 to 15.9 feet
- 03 16.0 to 19.9 feet
- 04 20.0 to 27.9 feet
- 05 28.0 to 35.9 feet
- 06 36.0 to 40.9 feet
- 07 41.0 to 44.9 feet
- 08 45.0 to 49.9 feet
- 09 50.0 to 54.9 feet
- 10 55.0 to 59.9 feet
- 11 60.0 to 64.9 feet
- 12 65.0 to 69.9 feet
- 13 70.0 to 74.9 feet
- 14 75.0 feet or more

b. What was the exterior length of the individual trailer(s) included in the overall length above?

NOTE – If more than one trailer was most often pulled, please give the length of those trailers pulled. (Example: If double trailers, complete for 1st and 2nd trailer.)

	1st trailer	2nd trailer	3rd trailer
One trailer	309		
Two trailers	309	310	
Three trailers	309	310	311

c. If this is a combination vehicle, what was the exterior width of the trailer MOST OFTEN ATTACHED to the truck or power unit?

If more than one trailer was most often pulled, give the WIDTH of the widest trailer pulled. An estimate is acceptable.

Mark (X) ONE box only.

- 312 1 96 inches
- 2 102 inches
- 3 More than 102 inches _____ inches
- 4 Other – Please specify _____ inches

ITEM 13

Pounds
Estimates are acceptable.

a. What was the EMPTY weight of this vehicle or vehicle/trailer combination as it was usually operated?

314

b. What was the AVERAGE weight (vehicle weight plus cargo weight) of the vehicle or vehicle/trailer combination when carrying a typical payload during 1997?

316

c. What was the GROSS weight (maximum) at which this vehicle or vehicle/trailer combination operated during 1997?

317

ITEM 14

How many weeks during 1997 was this vehicle operated? *An estimate is acceptable.*

NOTE - *If vehicle was disposed of on or after July 1, 1996, but prior to January 1, 1997, check number of weeks operated during 1996.*

Mark (X) ONE box only.

- 400 01 49 to 52 weeks
- 02 45 to 48 weeks
- 03 41 to 44 weeks
- 04 37 to 40 weeks
- 05 33 to 36 weeks
- 06 29 to 32 weeks
- 07 25 to 28 weeks
- 08 21 to 24 weeks
- 09 17 to 20 weeks
- 10 13 to 16 weeks
- 11 9 to 12 weeks
- 12 5 to 8 weeks
- 13 1 to 4 weeks
- 14 Less than 1 week

ITEM 15

Miles

401

How many miles was this vehicle driven during 1997? *An estimate is acceptable.*

NOTE - *If vehicle was disposed of during 1997, only enter mileage driven during 1997. If vehicle was disposed of on or after July 1, 1996, but prior to January 1, 1997, enter mileage driven during 1996.*

ITEM 16

Miles

402

How many miles has this vehicle been driven since it was manufactured?

NOTE - *If it is no longer in your possession, please estimate the total lifetime mileage at the time you last operated it. If the odometer/speedometer is broken, please give your best estimate. If the odometer has turned over (100,000+ miles), please enter the total figure. (Example: If a 100,000 mile odometer has turned over twice and the odometer reads 18,522, then the value is 218,522.)*

ITEM 17

a. Was this vehicle or vehicle/trailer(s) combination used ONLY for consumer one-way truck rental or as an over-the-road truck tractor that DOES NOT operate from a home base location?

NOTE - *"Home base" is the location where the vehicle was usually parked when it was not on the road.*

- 403 1 Yes - GO to item 19
- 2 No - Continue with items 17b and 17c

b. Where was the home base of this vehicle on July 1, 1997?

NOTE - *"Home base" is the location where the vehicle was usually parked when it was not on the road. If this vehicle was put into service after July 1, 1997, enter current home base.*

City 404		
County 405	State 406	ZIP Code 407

c. What was the type of home base?

Mark (X) ONE box only.

- 408 1 Residential or farm - Location is a private residence.
- 2 Terminal and administrative location - Private, business or commercial trucking operations, and administrative duties and functions (i.e., accounting, payroll, etc.) are conducted at this location.
- 3 Terminal and maintenance facilities for business, private, or commercial freight transportation - Location is engaged in the usual business operations of terminal facilities used by highway-type property carrying vehicles. Administrative duties and functions (i.e., accounting, payroll, etc.) are not conducted at this location.
- 4 Corporate headquarters - Location conducts administrative duties and functions ONLY. This location does not conduct usual business, private or commercial trucking operations, or related activities of that business.
- 5 Other - Please specify



ITEM 18	Percent
What percent of 1997 mileage was driven OUTSIDE the home base State? <i>An estimate is acceptable. (If none, enter zero.)</i>	409 %
NOTE – "Home base State" is the State where the vehicle was usually parked when it was not on the road.	

ITEM 19	
What approximate PERCENT of this vehicle's 1997 mileage was accounted for by the type of trips listed below? <i>If all trips were within one range, enter 100%. If more than one range applies, please make sure percents total 100%.</i>	
NOTE – <i>If this vehicle is used for consumer one-way truck rental or is a long-haul truck tractor that does not operate from a home base, report average range of operation.</i>	
	Percent
Trips off-the-road, little travel on public roads	410 %
Trips less than 50 miles from vehicle's home base	411 %
Trips between 50 and 100 miles from vehicle's home base	412 %
Trips between 100 and 200 miles from vehicle's home base	413 %
Trips between 200 and 500 miles from vehicle's home base	414 %
Trips beyond 500 miles of vehicle's home base	415 %
TOTAL →	100%

ITEM 20	Miles	Tenths
How many miles-per-gallon (MPG) did this vehicle average during 1997? <i>Provide tenths, if available. An estimate is acceptable.</i>	416	.

ITEM 21
What kind of fuel does this vehicle use? <i>Mark (X) ONE box only.</i>
418 1 <input type="checkbox"/> Leaded gasoline
2 <input type="checkbox"/> Unleaded gasoline
3 <input type="checkbox"/> Diesel
4 <input type="checkbox"/> Liquefied gas (Petroleum (LPG) or Natural (LNG))
5 <input type="checkbox"/> Other – <i>Please specify</i> _____

ITEM 22
Where was this vehicle primarily refueled during 1997? <i>Mark (X) ONE box only.</i>
419 1 <input type="checkbox"/> Central company-owned fueling facility
2 <input type="checkbox"/> Single contract fueling facility located off-site
3 <input type="checkbox"/> Public fueling stations _____
4 <input type="checkbox"/> Other – <i>Please specify</i> _____

ITEM 23
What type of brakes does this truck or truck tractor (power unit) have?
420 1 <input type="checkbox"/> Hydraulic (standard)
2 <input type="checkbox"/> Hydraulic with power assist
3 <input type="checkbox"/> Air _____
4 <input type="checkbox"/> Other – <i>Please specify</i> _____

ITEM 24

Does this vehicle have any of the following?

Mark (X) all that apply.

- 421 Radial tires
- 422 Power steering
- 423 Air-conditioning in cab
- 424 Trip recorders/on-board computer
- 425 Antilock brake system
- 426 Aerodynamic features
- 427 Axle or drive ratio to maximize fuel efficiency
- 428 Fuel economy engine with low RPM, high torque rise, turbo-charge, etc.
- 429 Variable fan drives
- 430 Other fuel conservation features
- 431 Reflective materials (in addition to those required by law)
- 432 Electronic vehicle management system
- 433 Electronic vehicle identification device (transponder), etc.
- 434 Road speed governor
- 435 Navigational systems
- 436 Engine retarder
- 517 Air bag(s)

ITEM 25

Who performed the general maintenance and major overhauls on this vehicle?

Mark (X) all that apply.

	General maintenance	Major overhauls
Yourself	440 <input type="checkbox"/>	448 <input type="checkbox"/>
Your company's own maintenance facilities	441 <input type="checkbox"/>	449 <input type="checkbox"/>
Dealership's service department	442 <input type="checkbox"/>	450 <input type="checkbox"/>
Leasing company	443 <input type="checkbox"/>	451 <input type="checkbox"/>
Independent garage or private mechanic (includes gasoline or service stations)	444 <input type="checkbox"/>	452 <input type="checkbox"/>
Component distributorship (engine, transmission, etc.)	445 <input type="checkbox"/>	453 <input type="checkbox"/>
No one	446 <input type="checkbox"/>	454 <input type="checkbox"/>
Other - Please specify 	447 <input type="checkbox"/>	455 <input type="checkbox"/>

ITEM 26

a. Which of the following best describes the way this vehicle was MOST OFTEN USED?

Mark (X) ONE box only.

Note - If this vehicle was operated for business use and personal transportation, please check MIXED and indicate approximately what percent was business and what percent was personal transportation. If this vehicle was operated as a private carrier with for-hire authorization (i.e., backhauls, trip leasing), please check MIXED and indicate approximately what percent was business use and what percent was for-hire.

- 500 1 Business use - Operated by and for a private business (including self-employers) or a company; used in related activities of that business (including transportation of employees) - GO to item 27
- 2 Personal transportation - Operated as a personal-use vehicle for pleasure driving, travel to work, carpool, etc. (NO BUSINESS USE) - GO to item 31 (Remarks)
- 3 For-hire - Continue with item 26b
- 4 Daily rental (Not motor carrier) - GO to item 27

5 <input type="checkbox"/> Mixed	Percent business use	501	Percent
	Percent personal use	502	%
	Percent for-hire (includes private carriage with for-hire authorization, i.e., backhauls, trip leasing) (Please complete 26b(1).)	503	%
TOTAL →			100%



b. If this vehicle was FOR-HIRE, indicate below the type of for-hire operation.
 Enter percent of 1997 mileage for each category. An estimate is acceptable.

(1) Operation type

- MOTOR CARRIER – Operated by a company whose primary business is to provide transportation services, carrying freight belonging to others, for a fee
- OWNER OPERATOR – Operated by an independent trucker who drives vehicle for himself or on lease to a company –
 - as an independent
 - leased to a company
- PRIVATE FLEET – Operated by and for a private business to transport company-owned freight, which also maintains for-hire authority (i.e., backhauls, trip leasing) –
 - as private carrier
 - as for-hire operator

Percent	
504	%
505	%
506	%
507	%
508	%
TOTAL → 100%	

(2) Jurisdiction served (Private Fleet Operation – GO to Item 27)

- INTERSTATE – Operating in more than one State, usually under Interstate Commerce Commission (ICC) authority
- INTRASTATE – Operating within one State
- LOCAL – In a single municipality, contiguous municipalities, and its suburban area

509	%
510	%
511	%
TOTAL → 100%	

(3) Kinds of carrier

- CONTRACT – Offered transportation service to certain shippers under specific contracts
- COMMON – Offered transportation service to general public over regular and irregular routes
- EXEMPT – Transported commodities or provided types of service that were exempt from Federal regulations, or operated within commercial zones

512	%
513	%
514	%
TOTAL → 100%	

(4) Kinds of service

- TRUCKLOAD – Usually defined as cargo of a single shipper carried on an individual trip
- LESS-THAN-TRUCKLOAD – Usually defined as cargo of multiple shippers carried on an individual trip

515	%
516	%
TOTAL → 100%	

ITEM 27

Which of the following best describes your business (or the part of your business in which the vehicle was used)? If vehicle was leased, indicate business of lessee.
 Mark (X) ONE box only.

- 518 01 Agricultural or farming activities (including fisheries)
- 02 Forestry or lumbering activities
- 03 Construction work – Buildings, homes, roads, structures, etc.
- 04 Contractor activities or special trades – Painting, plumbing, electrical work, masonry, carpentry, etc.
- 05 Manufacturing, refining, or processing activities
- 06 Wholesale trade
- 07 Retail trade
- 08 Business and personal services – Used to assist in such services as lodging operations, landscaping, repair (except plumbing, electrical work, etc. – See “Contractor Activities”), laundry, advertising, entertainment, etc.
- 09 Utilities – Used to assist in operation or service of public utilities (telephone, gas, electric, cable television, etc.)
- 10 Mining or quarry activities (includes well drilling) – Used to assist in the extraction of natural resources or in hauling to processors
- 11 Daily rental – Rented out, without a driver, to someone else on a daily or short-term basis
- 16 One-way rental
- 13 Not in use – Vehicle idle, wrecked, awaiting repair, etc., for more than 6 months
- 14 For-hire transportation – Including small package delivery
- 15 Other – Please describe in detail.

ITEM 28

From the following list of products, materials, and equipment, indicate which item or items this vehicle carried. Write in the percent of the vehicle's 1997 mileage that was accounted for while carrying loads and while empty including backhauls, trip leasing, etc. Please make sure percents total 100%.

NOTE - If you carried only one product, type of equipment, etc., during 1997, enter the percent of mileage while carrying this item.

If you carried more than one product, enter the percents beside the appropriate items. You can use round figures (10%, 25%, etc.). You DO NOT need to account for every single item the vehicle carried during 1997, just include those that accounted for at least 5% of the mileage.

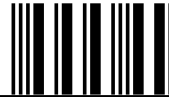
If the vehicle is involved in some kind of business use, but does not carry any products or equipment, enter 100% in NO LOAD, item 28a.

Please be sure to account for miles driven empty in item 28a below.

	Percent
a. NO LOAD - Vehicle empty	519 %
b. PRODUCTS, EQUIPMENT, MATERIALS, ETC.	521
(1) Agricultural and food products	
(a) Live animals - Cattle, horses, poultry, hogs, live seafood, insects, etc.	%
(b) Fresh farm products - Grain, crops, eggs, flowers, nursery stock, raw milk, raw tobacco, etc.	522 %
(c) Processed foods and tobacco products - Canned goods, prepared meats, frozen foods, beverages, bottled water, dairy products, cigarettes, etc.	523 %
(d) Animal feed - Prepared feed and feed ingredients for animals	524 %
(2) Mining products - Crude oil, coal, metal ores	525 %
(3) Building materials - Gravel, sand, concrete, flat glass, etc. (except cut lumber - See "Lumber")	526 %
(4) Forestry, wood, and paper products	527
(a) Logs and forest products - Except cut lumber and fabricated wood products (See below.)	%
(b) Lumber and fabricated wood products - Except furniture (See (7) below.)	528 %
(c) Paper and paper products	529 %
(5) Chemicals, petroleum, and allied products (Placard carriers - also complete item 29a)	530
(a) Chemicals and/or drugs (including fertilizers, pesticides, cosmetics, paints, etc.)	%
(b) Petroleum and petroleum products (including paving and roofing materials)	531 %
(c) Plastics and/or rubber products	532 %
(6) Metals and metal products	533
(a) Primary metal products - Pipes, ingots, billets, sheets, etc.	%
(b) Fabricated metal products - Except machinery or transportation equipment (See below.)	534 %
(c) Machinery - Electrical or non-electrical and electronic	535 %
(d) Transportation equipment (including complete vehicles) and parts	536 %
(7) Other manufactured products	537
(a) Furniture (wood and nonwood) and/or hardware - Not involved in household moving	%
(b) Glass products	538 %
(c) Textiles and apparel - Fibers, leather goods, carpets, clothing, etc.	539 %
(d) Miscellaneous products of manufacturing - Including photographic goods, watches, clocks, jewelry, and toys	540 %
(8) Miscellaneous and mixed cargo	541
(a) Moving of household and office furniture - From home, offices, etc., under contract	%
(b) Miscellaneous tools and/or parts for specialized use, as in a craftsman's vehicle - Traveling workshop for plumbers, carpenters, road service crews, etc.	542 %
(c) Mixed cargo (including the delivery of small packages)	543 %
(d) Scrap (not for recycling), garbage, trash, septic tank waste	544 %
(e) Industrial "waste" water	545 %
(f) Hazardous waste (EPA manifest)	546 %
(g) Hazardous waste (non-EPA manifest)	547 %
(h) Recyclable products	548 %
(9) Other (not elsewhere classified) - Please describe in detail.	549 %

TOTAL - No load plus products carried should total 100%

100%

**ITEM 29**

a. At any time during 1997 was this vehicle (or combination) used to haul hazardous materials in quantities large enough to require a hazmat placard on the vehicle due to Title 49, CFR 177.823, Transportation?

550 1 Yes - Continue with item 29b 2 No - GO to item 30

b. What type(s) of hazardous materials were carried by this vehicle? Write in the approximate percent of the vehicle's 1997 mileage which accounted for each hazardous material carried.

NOTE - Indicate only percents for those hazardous materials carried in quantities large enough to require a hazmat placard placed on the vehicle.

Placard name	Former placard name (if different)	Percent	Placard name	Former placard name (if different)	Percent
Explosives 1.1	Explosives A	551 %	Flammable solid		562 %
Explosives 1.2	Explosives A	552 %	Spontaneously combustible	Flammable solid	563 %
Explosives 1.3	Explosives B	553 %	Dangerous when wet	Flammable solid W	564 %
Explosives 1.4	Dangerous	554 %	Oxidizer		565 %
Explosives 1.5	Blasting agents	555 %	Oxygen		566 %
Explosives 1.6	Dangerous	556 %	Organic peroxide		567 %
Flammable gas		557 %	Poison		568 %
Nonflammable gas		558 %	Keep away from food	(none required)	569 %
Poisonous gas		559 %	Radioactive		570 %
Flammable		560 %	Corrosive		571 %
Combustible		561 %	Class 9	(none required)	572 %

ITEM 30

Please indicate below the total number of trucks, truck tractors (power units), and trailers owned and/or operated by you or your company.

NOTE - Trucks refer to pickups, small vans (including minivans), and straight trucks. Trailers refer to semi and/or full trailers. Do not include utility trailers. Subsidiaries of companies should report fleet size for the respective subsidiary only.

Mark (X) ONE box only.

600 01 1 03 6 to 9 05 25 to 99 07 500 to 999 09 5,000 to 9,999
 02 2 to 5 04 10 to 24 06 100 to 499 08 1,000 to 4,999 10 10,000 or more

ITEM 31

Remarks - Please use this space for any explanations that may be important in understanding your reported data.

ITEM 32 Contact Information

a. Name of person to contact regarding this report		b. Address (Number and street)			
c. City			d. State	e. ZIP Code	
f. Daytime telephone number →	Area code	Number	Extension (If any)	g. If this vehicle has a fleet number, please enter it here	
h. Signature of authorized person			i. Title		j. Date