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FEDERAL HIGHWAY ADMINISTRATION

**1990 NPTS DATABOOK  
VOLUMES I AND II**

BASED ON DATA FROM THE  
1990 NATIONWIDE PERSONAL TRANSPORTATION SURVEY (NPTS)

PREPARED BY:

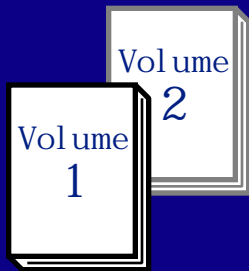
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1990 NPTS Publications Series:

User's Guide for the Public Use Tape  
(for tape or diskette users)

Summary of Travel Trends

Travel Behavior Issues in the 90's

1990 NPTS Databook

NPTS Urban Travel Patterns

NPTS Special Subject Reports

Abbreviations used in this report:

MSA—metropolitan statistical area

NPTS—Nationwide Personal Transportation Survey

PMT—person miles of travel

POV—personally operated vehicle/privately owned vehicle

VMT— vehicle miles of travel

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16. Abstract  This report presents data on the amount, nature and characteristics of personal (non-commercial) travel by all modes of transportation in the U.S. The data is from a survey of individuals conducted throughout 1990. A large number of data relationships are presented and, therefore, the report is printed in two volumes.  Volume I contains information on the survey itself, a comparison of estimates of miles of travel taken from different portions of the survey, data on households, drivers and vehicles, and an extensive chapter on person trips and person miles of travel by all modes of transportation.  Volume II includes data on vehicle trips and vehicle miles of travel, journey-to-work trips, vehicle occupancy, long trips, commercial driving and highway accidents.  To the degree possible, each chapter within the report is organized to present results in the order of:					
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# 1990 NPTS Data book Volume I

Based on Data from the  
1990 Nationwide Personal Transportation Survey (NPTS)

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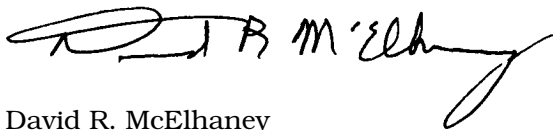


## Foreword

**T**HE 1990 Nationwide Personal Transportation Survey (NPTS) provides a comprehensive look at personal travel in the U. S. The 1990 survey and the three earlier surveys in the NPTS series yield important data on the travel behavior of the American population. The NPTS series provides data to examine the relationship among social and demographic change, land development patterns, and transportation. This series is an essential tool for those seriously interested in understanding travel behavior and transportation planning issues.

The NPTS data is intended to address a number of issues in transportation, ranging in scope from the impacts of gas tax changes to trip generation rates needed to calibrate travel demand models. Along the way there are a number of issues that relate to how we, as a nation, are evolving — the changing roles of women and men within the family structure, the growth and increased mobility of the older driver population, the continued increase in vehicle ownership, and the continued decentralization of our metropolitan areas. This Databook presents the 1990 survey findings we believe to be most useful in analyzing these issues. Despite the volume and coverage of this Databook, the contents only touch on the data potential of the NPTS series.

We hope that this Databook and the other publications in the NPTS report series contribute to a better understanding of the complex relationships associated with America's travel behavior. Even as these data are published, FHWA, in a cooperative effort with other Department of Transportation agencies, is planning an update of this data series during calendar year 1995.



David R. McElhaney  
Director, Office of Highway Information Management

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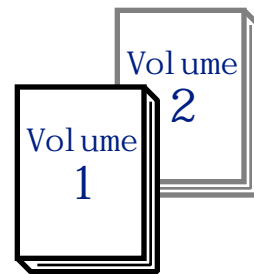
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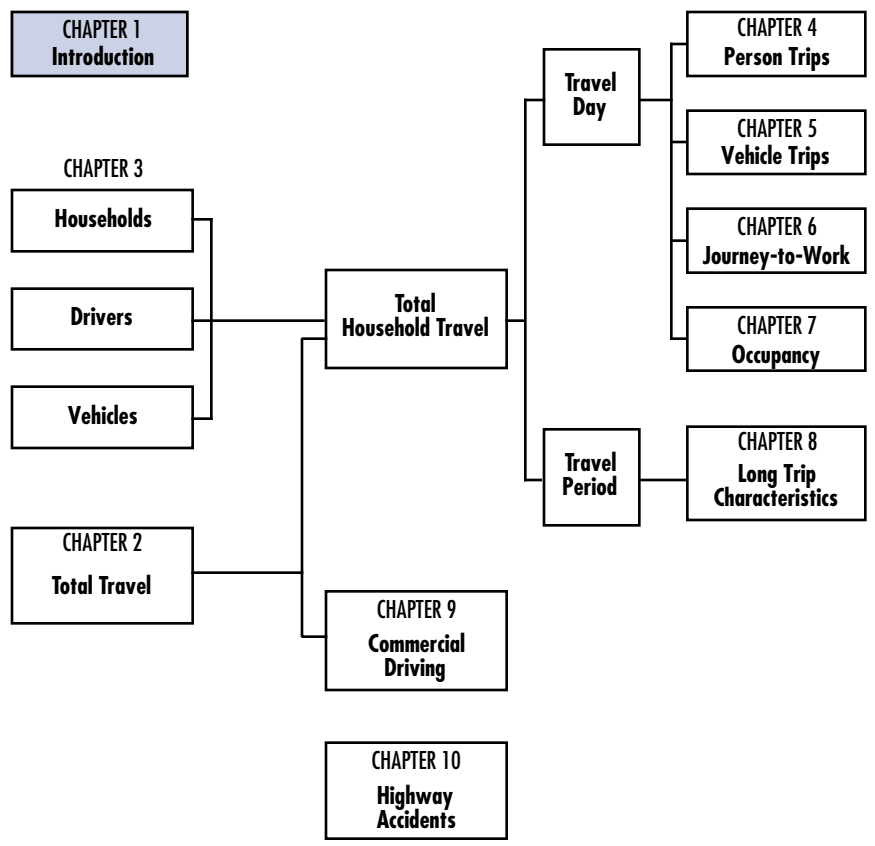
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# Chapter 1

## Introduction







# Chapter 1 Introduction

## 1. History of the Survey

Policymakers rely on transportation statistics, including data on personal travel behavior, to formulate strategic transportation policies, and to improve the safety and efficiency of the U.S. transportation system. Data on personal travel trends are needed to examine the reliability, efficiency, capacity, and flexibility of the Nation's transportation system to meet current demands and accommodate future demands; to assess the feasibility and efficiency of alternative congestion-alleviating technologies (e.g., high-speed rail, magnetically levitated trains, intelligent vehicle and highway systems); to evaluate the merits of alternative transportation investment programs; and to assess the energy-use and air-quality impacts of various policies.

To address these data needs, the Department of Transportation (DOT) initiated an effort in 1969 to collect detailed data on personal travel. The 1969 survey was the first Nationwide Personal Transportation Survey (NPTS). The survey was conducted again in 1977, 1983, and 1990. The 1990 survey was co-sponsored by five DOT agencies: Federal Highway Administration (FHWA), Federal Transit Administration (FTA), National Highway Traffic Safety Administration (NHTSA), Office of the Secretary of Transportation (OST), and Federal Railroad Administration (FRA). The primary objective of the survey was to collect trip-based data on the nature and characteristics of personal travel. Commercial and institutional travel were not part of the survey.

## 2. Brief Description of the Survey Method

The target population for the 1990 NPTS consisted of all persons 5 years and older who resided in the 50 States and the

District of Columbia during the data collection period (March 1990 to March 1991). The survey design was based on a stratified two-stage cluster sampling plan. All counties in the United States were stratified into geographic areas based on (1) the nine U.S. Bureau of the Census divisions, (2) presence or absence of a subway or an elevated-rail public transportation system, and (3) three metropolitan size categories. To capture seasonal variation in travel, the sample was further stratified into four strata over a 12-month period. The sampling was also controlled by day of the week to capture the variation in personal travel during the course of a week.

The survey was conducted by telephone, using a computer-assisted telephone interviewing system (CATI). The advantages of CATI for the NPTS are that it

- allows the interviewers to enter data as the respondent is speaking;
- allows for a certain amount of on-line checking for data consistency (e.g., the respondent says that she made a trip in the pickup truck she owns; however, there is no pickup truck recorded as a household vehicle for this household);
- allows a number of edits, such as range checks, to be performed while the interview is in progress, thereby giving the interviewer the opportunity to correct problems while still on the phone with the respondent.

Households included in the NPTS sample were identified by random-digit-dialing procedures. Of more than 73,000 randomly selected telephone numbers, a total of 26,172 households were eligible to be included in the sample. From these, a total of 21,869 household interviews were completed, for a response rate of 84 percent.

A set of basic information on demographics, household composition, household vehicles, availability of public transportation, household location, and household income was first obtained to provide a general profile of American households. Data were then collected from each person, including education, driver information, typical travel activities, and accident experience, as well as data on all travel during the sampled day. From 54,313 eligible household residents, 47,499 personal interviews were completed, for a within-household response rate of 87 percent.

As in the previous surveys, in the 1990 survey everyone 14 years or older in the household was asked to report detailed information, such as mode and purpose, on every trip taken during the sampled day. This designated sampled day was referred to as the travel day.

Because longer trips are a rare event, the NPTS survey sponsors decided that trip data on a one-day sample would not be sufficient to adequately represent longer trips (defined in the NPTS as trips of 75 miles or more one way). Therefore, the recall period for longer trips was extended to 2 weeks and was referred to as the travel period.

Questions about trips taken by household members between the ages of 5 and 13 were answered by an adult household member serving as a proxy, or substitute, for the respondent. However, unlike the previous NPTS surveys, proxy interviews were allowed in the 1990 survey for household members 14 years or older under certain circumstances: if the person was (1) unavailable during the entire period allowed for interviewing the household; or (2) not contacted for interview after

repeated attempts. Proxy interviews for persons 14 and older occurred in approximately 17 percent of the cases in the 1990 survey. Trips and travel reported by proxies accounted for 11.8 percent of total vehicle trips and 15.1 percent of total vehicle miles of travel.

### 3. Data Editing Procedures

A number of quality control measures were used during data collection. In addition to on-site supervision to assist in problem solving, the interview process was monitored by a “silent” audiovisual system. Neither the interviewer nor the respondent was aware that the interview was being monitored. The monitoring system allowed the monitor to hear the interview and observe a copy of the interviewer’s computer screen to see how the responses were entered. The monitoring ensured that all data collection procedures were followed and that interviewing standards were met and also identified problems with the questionnaire or with the interview procedures.

In addition, a built-in real-time data editing procedure was used during the interview to perform range checks and logic and consistency checks. These checks allowed interviewers to correct erroneous data while the respondent was still on the phone and minimized the amount of imputation and estimation needed after data were collected. Postprocessing edits were also performed on all files (e.g., household, person, travel day). A more detailed description of the sample design and survey procedures is available in a Research Triangle Institute report.<sup>1</sup>

<sup>1</sup> Research Triangle Institute, *1990 Nationwide Personal Transportation Survey: Report of Survey Operations*, RTI/256-4334-11. Research Triangle Park, North Carolina. October 1991.

#### 4. Differences Among NPTS Surveys and Data Compatibility

Changes in travel behavior and characteristics can be determined by comparing NPTS data for 4 survey years: 1969, 1977, 1983, and 1990. However, to properly compare NPTS data over time, differences in survey methodology and terminology must be clearly identified and evaluated.

Unfortunately, changes in travel that may actually be a result of differences in methodology and terminology cannot be quantified without further detailed analysis.

The main differences in methodology and terminology between the 1990 NPTS and earlier surveys can be summarized as follows:

- The 1990 survey was a telephone survey, while the earlier surveys used in-person home interviews. Limiting the sample framework to households with telephones may result in an undercount of lower income households. Data from the 1990 Census indicate that 4.7 percent of U.S. households do not have telephones, and those households are largely found in the South and West.
- The 1990 survey allowed another household member (proxy) to report an individual's trips if the individual (14 and older) could not be contacted after several attempts, while the earlier surveys did not allow such proxy interviews. This type of proxy interviews, which occurred in approximately 17 percent of the cases in the 1990 survey, may contribute to a greater number of trips being reported than in earlier surveys. However, the increased tripmaking reported in the 1990 NPTS still falls short of trip generation rates in some urban travel surveys, even after the NPTS sample and procedures are adjusted to be comparable to the urban travel surveys. In terms of miles of travel, the percentage of total travel reported by proxy cannot be quantified unless a procedure is developed to

reweight the survey data without data reported by proxy.

- In the 1969 survey, "vehicles" were automobiles, station wagons, and passenger vans. In later surveys, vehicles also included pickup trucks, other light trucks, utility vehicles, motorcycles, and mopeds. Footnotes have been added throughout this publication to remind readers of this difference.
- Other terminology differences between the 1990 NPTS and earlier surveys are in the coverage of geographical boundaries, such as metropolitan statistical area and central city. Some tables in this Databook show considerable growth in households and workers in the central city between 1983 and 1990. This growth is primarily a result of a change in the definition of "central city" between the two survey years. See Appendix B for definitions of geographical boundaries used in the 1983 and 1990 surveys.
- The 1990 survey data were edited by CATI during the data collection process, while data from the earlier surveys were edited manually after the interview. The advantage of CATI over conventional home interviews is that many data inconsistencies and data quality problems can be immediately identified and corrected.
- The sample size of the surveys varied considerably: 15,000 households for the 1969 survey, 18,000 for 1977, 6,500 for 1983, and 22,000 for 1990. The small sample size in the 1983 survey (less than one-third that of 1990) contributed to a larger sampling error.

Recognition of the differences between the 1990 NPTS and earlier surveys are important because NPTS data show that the number of miles driven for personal travel increased by 50 percent between 1983 and 1990. This 50 percent increase reflects a combination of typical daily tripmaking

TABLE 1.1

PERSONAL VMT ESTIMATES, 1983 AND 1990  
(MILLIONS)

	Highway Statistics <sup>1</sup>	NPTS <sup>2</sup>	Percent NPTS of Highway Statistics Estimate
1983	1,403,696	1,076,169	77%
1990	1,864,386	1,613,153	87%
Percent increase	33%	50%	
<sup>1</sup> The sum of VMT for personal passenger vehicles (automobiles and motorcycles) and part of VMT for 2-axle 4-tire trucks as reported in Table VM-1. Based on data from the 1982 and 1987 Truck Inventory and Use		Surveys, the percentages of travel that pickups were used for personal transportation are extrapolated at 60.1% in 1983 and 73.3% in 1990.	
		<sup>2</sup> Includes travel period trips (75 miles or longer).	

(from travel day) and longer, intercity trips (from travel period). The NPTS data were compared with data reported in FHWA's annual publication, Highway Statistics, which show an increase of only 33 percent during the same period. The Highway Statistics data are based on traffic counts, and therefore some definitional differences exist between the NPTS and Highway Statistics.<sup>2</sup>

One possible explanation for the large increase in personal vehicle miles of travel (VMT) between 1983 and 1990 is that the 1983 NPTS underestimated VMT because of its smaller sample size and less well-controlled survey implementation. Table

1.1 shows 1983 and 1990 personal VMT estimates by NPTS and by Highway Statistics. Data in Table 1.1 confirm the possibility that the 1983 NPTS underestimated VMT. The 1983 NPTS estimated VMT is 77 percent of that in Highway Statistics, while the 1990 NPTS is 87 percent of the corresponding Highway Statistics estimate.

<sup>2</sup> Highway Statistics data include travel by all vehicles on the road, whereas NPTS data from travel day and travel period exclude "commercial driving" done by cab drivers, truck drivers, delivery persons, and others.

## 5. Limitations of Data on Transit

The NPTS dataset permits analysis of user characteristics, such as demographic and socio-economic characteristics, by various modes of transportation. These data are rarely available, especially on a national level, outside of NPTS. However, the reader is cautioned that the sample of transit trips in the 1990 NPTS may not be sufficient to draw specific conclusions regarding transit use, particularly assumptions regarding policy and funding of transit programs. The remainder of this section provides further information on issues that may contribute to the differences in transit use between NPTS and the Section 15 reporting system of the Federal Transit Administration (FTA).

### Transit Trip Data

The NPTS data on transit use are based on information from 2,872 transit trips on travel day that were collected in the survey. The breakout of these trips is:

- 1,909 by bus,
- 639 by subway or elevated rail,
- 294 by commuter rail, and
- 30 by streetcar or trolley.

Using these 2,872 trips, the NPTS results differ considerably from data in the Section 15 reporting system. The reader is cautioned that differences in the way the data are generated between NPTS and Section 15 make direct comparisons difficult. The Section 15 data are based on reports submitted by each transit operator to the FTA as part of the requirements for receiving Federal funding. Transit operators generally obtain the Section 15 information using a combination of farebox receipts and on-board surveys. The Section 15 data do not include demographic or socio-economic characteristics of transit users or trip purpose, distance,

travel time or other trip attributes available from the NPTS. The basic NPTS/Section 15 comparisons for unlinked trips in 1990 are:

Unlinked Transit Trips (millions)			
	NPTS	Sec. 15	NPTS as % of Sec.15
Bus	4,352	4,576	95.1%
Rail/Subway	1,889	2,675	70.6%
Total Transit	6,241	7,250	86.1%

This table uses unlinked transit trips as a basis of comparison because the Section 15 data are reported as unlinked trips. An unlinked trip is basically defined as a boarding. For example, you take a bus and a subway to work; this is one linked trip and two unlinked trips ( i.e., the bus boarding and the subway boarding). In NPTS, unlinked trips were collected only if one portion of the trip was on transit. Thus the NPTS data for modes other than transit are presented as linked trips. The data on person trips in Chapters 4 and 6 of this Databook uses the linked trips so that a comparable trip definition is used across modes.

These comparisons show that NPTS data report 6.24 billion unlinked transit trips, while Section 15 data report 7.25 billion unlinked trips, for a difference 1.01 billion unlinked trips. A likely explanation for this difference is that travel data collected by memory recall often result in an undercount. For example, the vehicle miles of travel generated from NPTS trip level data are 13% lower than the comparable vehicle miles estimate based on traffic counts. (See Section 4 of this Chapter on NPTS Data Comparability.)

This discussion has used the unlinked trip definition in order to seek comparability between NPTS and Section 15. However, the transit data presented in the remainder of this Databook are for linked trips. The following comparison of linked and unlinked transit trips in NPTS is provided to show how the two relate:

NPTS Transit Trip Counts (millions)			
	Unlinked	Linked	Ratio Unlinked/ Linked
Bus	4,352	3,543	1.23
Rail/Subway	1,889	1,349	1.40
Total Transit	6,241	4,892	1.28

Another issue regarding NPTS transit trips is that there clearly appears to be confusion on the part of the survey respondents between commuter rail and subway/elevated rail. Data from the 25 largest urbanized areas show that many trips were coded as commuter rail trips in an area where there was a subway/elevated rail system, but no commuter rail, such as Atlanta or Cleveland. Additionally, in areas that had both commuter rail and subway/elevated rail, the NPTS data show considerably more commuter rail trips than Section 15 and considerably fewer subway trips. This occurred most notably in New York, which has a sufficient proportion of the nation's transit trips to skew the national totals if subway/elevated rail trips are misclassified as commuter rail. Because of this confusion between commuter rail and subway, the transit trip data are categorized as:

Bus - which includes bus & streetcar,  
and

Rail/Subway - which includes commuter  
rail, subway and elevated rail.

Trips made by Amtrak are not considered to be public transit trips and are included in the "Other Modes" category, rather than the "Rail/Subway" category.

### Coverage of Low-Income Households

There is concern that the NPTS data collection resulted in an undercount of low-income households. As a result, there may have been an undercount of transit use in NPTS. The reader should be aware of the differences in the numbers of households between the NPTS estimates and the 1990 Decennial Census, shown in Table 1.2.

The income distributions in Table 1.2 indicate that the NPTS may have undersampled very low-income households. The potential for an undercount of low-income households cannot be clearly defined because 28 percent of all households interviewed for the NPTS refused to report household income. There is a strong possibility that those who refused to provide income data were lower income households, but this cannot be proved. A comparison of the household characteristics did not identify any significant differences between those that did and those that did not report income (see Appendix F).

It should also be noted that when the weighting factors were developed for the 1990 NPTS, the 1990 Decennial Census data were not yet available. Thus, the NPTS sample was expanded using the Current Population Survey projections. The sample was expanded based on: Census Region, household size, MSA status, race (Black, nonblack), and ethnicity (Hispanic, nonhispanic). The sample was not expanded based on household income.

### Transit Tripmaking by Size of Area

Table 1.3 shows the number of transit trips by urbanized area population size. A rather clear trend emerges in that the largest areas show a smaller ratio of NPTS to Section 15 trips and the smaller areas

**TABLE 1.2**  
**COMPARISON OF NUMBER OF HOUSEHOLDS BY HOUSEHOLD INCOME, RACE, AND ETHNICITY**  
**NPTS & CENSUS**

Household Income	1990 NPTS Weighted(000)	1990 Census (000)	NPTS as a % of Census
<b>All Households</b>			
Less than \$5,000	2,757	5,685	48.5
\$5,000-9,999	6,495	8,530	76.1
\$10,000-14,999	6,331	8,133	77.8
\$15,000-24,999	12,398	16,124	76.9
\$25,000-34,999	12,361	14,575	84.8
\$35,000-49,999	12,489	16,428	76.0
\$50,000 and over	14,754	22,519	65.5
<b>Total</b>	<b>67,585</b>	<b>91,994</b>	<b>73.4</b>
<b>White Households</b>			
Less than \$5,000	1,785	3,727	47.9
\$ 5,000- 9,999	4,851	6,611	73.4
\$10,000-14,999	4,843	6,540	74.1
\$15,000-24,999	10,020	13,295	75.4
\$25,000-34,999	10,180	12,375	82.3
\$35,000-49,999	10,730	14,274	75.2
\$50,000 and over	13,030	20,086	64.9
<b>Total</b>	<b>55,439</b>	<b>76,908</b>	<b>72.1</b>
<b>Black Households</b>			
Less than \$5,000	662	1,514	43.7
\$ 5,000- 9,999	1,098	1,412	77.8
\$10,000-14,999	789	1,090	72.4
\$15,000-24,999	1,495	1,878	79.6
\$25,000-34,999	1,318	1,408	93.6
\$35,000-49,999	951	1,324	71.8
\$50,000 and over	909	1,316	69.1
<b>Total</b>	<b>7,222</b>	<b>9,942</b>	<b>72.6</b>
<b>Hispanic Households</b>			
Less than \$5,000	318	520	61.2
\$ 5,000- 9,999	532	653	81.5
\$10,000-14,999	637	644	98.9
\$15,000-24,999	945	1,205	78.4
\$25,000-34,999	633	963	65.7
\$35,000-49,999	747	937	79.7
\$50,000 and over	569	949	60.0
<b>Total</b>	<b>4,381</b>	<b>5,871</b>	<b>74.6</b>

TABLE 1.3

**COMPARISON OF PERSON TRIPS IN NPTS AND SECTION 15  
BY URBANIZED AREA SIZE**

Urbanized Area Size	Unlinked Trips (000)		NPTS as a% of Sec. 15
	1990 NPTS	Section 15	
<b>All Trips</b>			
Group 1 <sup>1</sup>	2,779,125	4,006,132	69.4
Group 2 <sup>2</sup>	1,431,043	1,754,642	81.6
Group 3 <sup>3</sup>	852,520	1,031,252	82.7
Group 4 <sup>4</sup>	788,120	458,185	172.0
<b>Total</b>	<b>5,850,809<sup>5</sup></b>	<b>7,250,211</b>	<b>80.7</b>
<b>Bus Trips</b>			
Group 1 <sup>1</sup>	1,501,340	2,030,054	74.0
Group 2 <sup>2</sup>	1,011,716	1,095,421	92.4
Group 3 <sup>3</sup>	807,995	991,884	81.5
Group 4 <sup>4</sup>	780,721	458,163	170.4
<b>Total</b>	<b>4,101,772</b>	<b>4,575,522</b>	<b>89.6</b>
<b>Rail/Subway Trips</b>			
Group 1 <sup>1</sup>	1,277,785	1,976,078	64.7
Group 2 <sup>2</sup>	419,327	659,221	63.6
Group 3 <sup>3</sup>	44,525	39,368	113.1
Group 4 <sup>4</sup>	7,399	22	33631.8
<b>Total</b>	<b>1,749,037</b>	<b>2,674,689</b>	<b>65.4</b>
<sup>1</sup> Group 1 represents New York, Los Angeles and Chicago.		<sup>4</sup> Group 4 represents all urbanized areas with populations between 200,000 and 1 million.	
<sup>2</sup> Group 2 represents the next 9 largest urbanized areas - Philadelphia, Detroit, San Francisco, Washington D.C., Dallas, Houston, Boston, San Diego & Atlanta.		<sup>5</sup> Does not include 390,000 transit trips made by persons residing outside urbanized areas of 200,000 or more.	
<sup>3</sup> Group 3 represents the 21 remaining urbanized areas of 1 million or more population.			



show a larger ratio. It appears that the NPTS sampling captured less transit trips in the largest urbanized areas than Section 15. This would affect not only the total number of trips, but also the specific modes used. If fewer trips were reported by residents of the largest urbanized areas, the number of subway trips would be lower relative to Section 15. In fact, this is where the largest discrepancy occurs between the two datasets.

The reader should be aware of another distinction between Section 15 and NPTS. In NPTS, the only locational data known about the respondent is his area of residence. In analyzing NPTS data, there is no way of knowing which trips on travel day were outside of the area of the respondent's residence. Therefore, all of the respondent's travel is attributed to his place of residence. By contrast, the Section 15 data are collected at the point of tripmaking and would reflect the actual location of the travel. There is no way to quantify the impact of this difference between the NPTS and Section 15 datasets.

## 6. Key NPTS Data Terms

Appendix A of this Databook contains a full glossary of terms used in this report; however, a few basic terms and concepts need to be introduced before data are presented.

Person Trip is used to describe and quantify travel for all modes of transportation. The definition of person trip—a trip by one person in any mode of transportation—is versatile enough to allow this measure to be applied to any mode. Unless otherwise specified, the tables on person trips contain all travel data collected in the NPTS by all modes (private vehicle, public transportation, walking, bicycle, airplane, etc.). A person trip is counted regardless of whether the person is a driver or a passenger. Two people travelling together in one car are counted as 2 person trips.

Person Miles are the number of miles travelled by each person on a trip. A 3-mile vehicle trip made by 2 people travelling together would count as 6 person miles.

Vehicle Trip is a trip by a single privately owned vehicle (POV), regardless of the number of persons in the vehicle. The trip defined above (two people travelling together in one vehicle) would be considered 1 vehicle trip. To be counted as a vehicle trip in the NPTS reports, a trip must be made in a POV and the driver must be a member of a household in the NPTS sample. The 1969 survey was not constrained this way and included all vehicle trips reported by the surveyed household, even those in which the driver was not a household member. Although there are vehicle trips made by modes other than POV, such as bus and streetcar, these are excluded in the NPTS because the survey traces individuals' movements throughout a day, rather than vehicle movements. The distinction among person trip, person miles of travel, vehicle trip and vehicle miles of travel is better illustrated in Figure 1.1.

Travel Day and Travel Period sections refer to two sections of the NPTS questionnaire designed to complement each other. In the travel day section, the respondent is asked to report all trips of any length by any mode of travel during a 24-hour period. This reporting provides data on the types of trips made on a daily basis, such as trips to work, to stores, running errands, and visiting friends. Because most people make out-of-town trips less frequently, respondents are asked to report any long trips (defined as 75 miles or more one way) for a 2-week period. This is known as the travel period and includes the travel day as well as the preceding 13 days (Figure 1.2).

Chapter 2 contains a more complete description of travel day and travel period data and presents the estimates of travel generated from each. The purpose of this

discussion is to alert the reader that the great majority of tables in this Databook are based on travel day data only. Thus, the longer trips are not fully represented in those tables. See Chapter 2, “Estimates of Travel”, for more information on combined estimates from travel day and travel period data, and Chapter 8, “Characteristics of Longer Trips”, for more information on travel period trips.

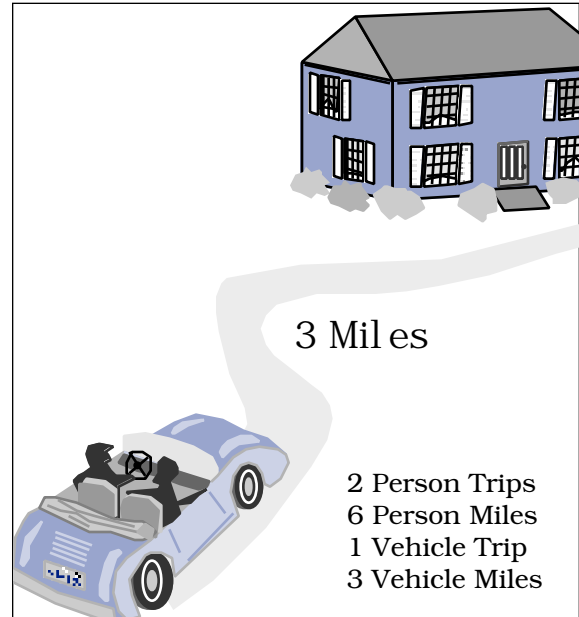
**Commercial Driving.** The focus of the NPTS is to obtain a profile of personal travel as opposed to commercial travel. For NPTS purposes, personal travel is defined as travel made for all purposes except

- driving a commercial vehicle, such as a bus, airplane, or train;
- driving a car or truck when delivering goods or passengers for hire;
- working at a job that involves too much driving to report on a trip-by-trip basis (e.g., a police officer on patrol duty).

These types of driving are considered “commercial driving” in the NPTS and are not included in travel day or travel period estimates because a significant burden would have been placed on the respondent to report detailed information on each such trip. Instead, respondents were asked to provide separate estimates of the number of miles driven in a typical day and the number of days per week that commercial driving was done. NPTS data on commercial driving are in Chapter 9. Because commercial driving is not included in travel day or travel period sections, there are consistent differences between NPTS data from travel day and travel period sections and data from other sources, particularly traffic count data.

The reader should note that it is beyond the scope of the NPTS project to obtain a fully representative sample of commercial drivers and/or commercial driving. It is highly likely that the estimate of commercial driving in the NPTS is underestimated.

**FIGURE 1.1**  
**DISTINCTION BETWEEN PERSON TRIP, PERSON MILES OF TRAVEL, VEHICLE TRIP, AND VEHICLE MILES OF TRAVEL**



**FIGURE 1.2**  
**DISTINCTION BETWEEN TRAVEL DAY AND TRAVEL PERIOD**

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

The table shows a 5x7 grid of days. Dashed lines separate the grid into three horizontal sections. In the first section, a dashed arrow points from cell 3 to cell 2. In the second section, a solid grey bar covers cells 10 and 11. In the third section, a dashed arrow points from cell 16 to cell 17.

Estimates of Total Travel. Chapter 2 includes an estimate of total travel from all three sections combined — travel day, travel period, and commercial driving sections. When data from all three sources are combined, travel day trips account for 66 percent of total VMT; travel period trips for 18 percent; and commercial travel for 16 percent. As discussed in Chapter 2, combining data from travel day with data from travel period is not straightforward and one should not add the number of trips reported in the travel day section to those reported in the travel period section, as the definition of a “trip” was not the same in the two sections.

## 7. Data Considerations

Data considerations in comparing 1983 data and earlier survey data are carefully described in the 1983 report series. Nevertheless, to maintain the self-contained nature of this report, pertinent data considerations are repeated here. Also included are data considerations regarding the 1990 survey that users of this publication are advised to bear in mind when using or comparing data from different NPTS surveys

### Workers

“Workers” in this survey series include part-time workers. For consistency, 1977 data have been revised to include part-time workers, and therefore differ from those reported in the 1977 report series.

### Number of drivers per household

A total of 22,317 households completed interviews in 1990. However,

- In 101 households with more than one member, only one household member was interviewed.
- In 6,983 households, not all members were interviewed.
- In 3,479 households, not all adult members were interviewed.

The impact of not interviewing all household members is that not all licensed drivers were enumerated in the survey; thus, the number of licensed drivers on a per household basis is misleading and is not reported in this publication. However, weighting factors at the individual level were developed to take this nonresponse into account; thus, the statistics on the total number of licensed drivers are valid.

### Number of persons by household composition

In this publication, the number of one-person households does not equal the total number of persons in one-person households because different weighting schemes were used to develop the weighting factors at the household level and at the person level.

### Income

Historically, income information was collected by income categories, and these categories varied from one survey to the next. To group income categories into consistent categories between surveys and to accurately reflect inflation, a mathematical procedure was developed to aggregate income categories and compare 1983 and 1990 data by income category. This procedure is described in Appendix E.

### Work trips

Questions on the journey to work were asked in two different sections of the 1990 questionnaire. In one section the respondent was asked about the typical or usual trip to work during the week preceding the interview. In that section, only information on the modes that were usually used for work trips and the mode used for the longest distance were identified. In travel day section, more information was collected on work trips that actually occurred during the designated sampled day (travel day), such as trip duration, trip length, and travel modes used. The statistics on

work trips in this report were primarily based on data in the travel day section. Any tabulations from the usual work trip section are so identified.

### Segmented trips

Certain trips reported in the travel day section were given “segmented” treatment (broken into components) to get improved data on transit use. A trip was segmented when more than one mode was used on that trip and one of the modes was public transit (bus, subway, elevated rail, commuter train, or streetcar). A trip was also segmented when there was a transfer on the same public transit mode (e.g., bus to bus). When a trip was given segmented treatment, certain data, such as mode and travel time, were collected for each segment. For a complete discussion of segmented trips, see the material preceding Table 4.29 in Chapter 4.

### Trip purpose

The 1977 survey collected much more detail than the other surveys on trip purpose - 21 purposes in 1977 compared with 11 in other surveys. For trip purposes that are not easily coded—such as the return home portion of a trip that had several purposes—a procedure was developed to classify those trips based on the purposes of trips that immediately preceded them.

### Vehicle age

Vehicle age in this publication is calculated as the difference between the model year and the survey year. For example, if the model year of a vehicle is 1986, this vehicle was 4 years old for the 1990 survey. If the difference between the model year of a vehicle and the survey year was less than zero, the vehicle age was categorized as “1 year old or younger.” All earlier data related to vehicle age were revised by this approach and therefore may not agree with data published earlier.

### Accident experience

Information on accident experience was collected only for the most recent highway crash that resulted in property damage or personal injury; thus, accident data reported in the 1990 NPTS do not reflect all highway crashes. Chapter 10 contains the accident data collected as part of the NPTS interview.

## 8. Report Organization

The primary purpose of this Databook is to serve as a statistical compendium of the 1990 NPTS.

In Chapter 2, different approaches to estimate annual travel data from the 1990 NPTS are discussed. For example, one can estimate the average annual miles driven per driver by “annualizing” the total number of miles driven on the travel days or by using the self-reported estimate on the total number of miles driven (this information was asked at the person section of the questionnaire). Chapter 2 outlines justifications for and comparisons of these different approaches.

Chapter 3 contains demographic characteristics and household vehicle ownership patterns that shape travel activities at the individual and the household level. The remainder of the Databook consists of the following:

- Chapter 4 discusses data on person trips and travel.
- Chapter 5 includes analysis of vehicle travel, in terms of the number of vehicle trips and VMT.
- Chapter 6 presents data on journey-to-work and work-related trips.
- Chapter 7 reports on ride-sharing and vehicle occupancy distributions.
- Chapter 8 reports characteristics of trips at least 75 miles long that occurred during the travel period.

- Chapter 9 presents trends in commercial driving.
- Chapter 10 focuses on highway accidents that occurred during the five-year period prior to the 1990 NPTS and on the differences between reported and unreported accidents.

The appendices contain material needed by the NPTS data users, as follows:

- Appendix A: Glossary
- Appendix B: Differences in Geographical Definitions, 1983 to 1990
- Appendix C: Weighting Procedures
- Appendix D: Estimated Standard Errors of Key Statistics
- Appendix E: Procedures for Adjusting Income Categories over Time
- Appendix F: Comparison of Households Not Reporting Income with Those Reporting Income

Because of the size of this Databook, it is published in two volumes: Chapters 1 through 4 are in Volume 1, Chapters 5 through 10 and the appendices are in Volume 2.

Each chapter has a similar format. Within each chapter the reader will find the following elements:

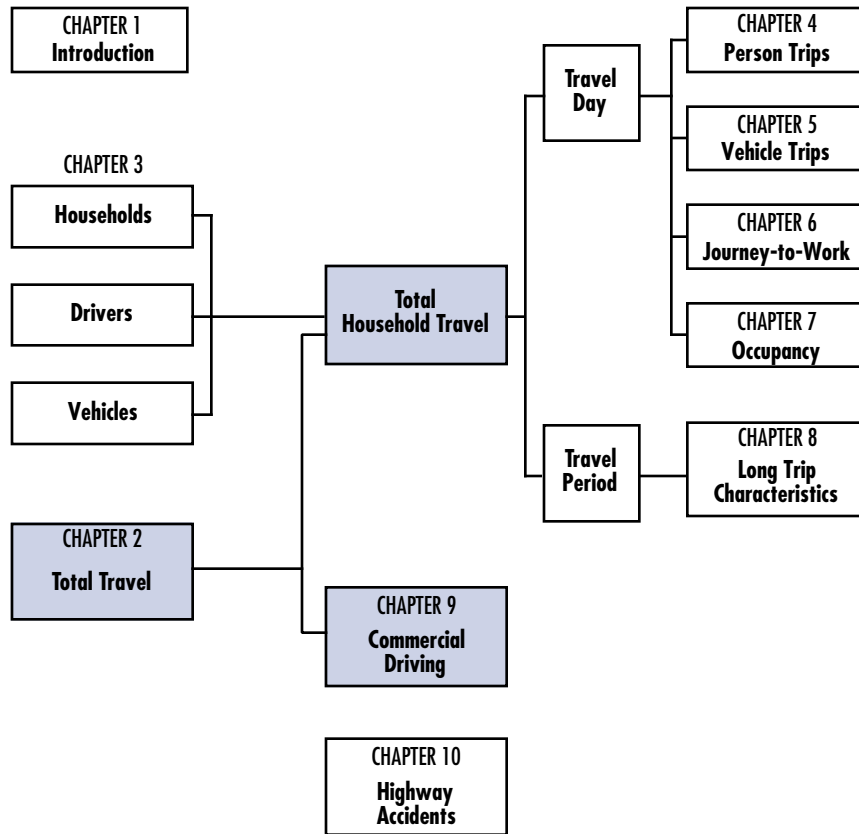
- A diagram identifies the main subject of the chapter in the context of all NPTS data. Among other things, the diagram informs the reader of the source of the data presented in the chapter (e.g., travel day trips or another source).
- Key statistics are displayed in a tree format. For example, the chapter on person trips and person miles has two trees—one by trip purpose and the other by mode.

- A chapter table of contents, list of tables, and list of figures are next. Because of the number of tables and figures in the Databook, they are listed at the chapter level.
- Tables, figures, and accompanying analysis are presented, in subsections of each chapter, following the order below (as much as possible):

- Person characteristics (e.g., age, sex, driver license status)
- Household characteristics (e.g., income, place of residence)
- Trip characteristics (e.g., mode, purpose, length)
- Temporal patterns (e.g., time of day, day of week).

Totals in some tables may not add due to rounding.

The title of the chapter and the subsections within each chapter are indicated on the edge of each page alongside the thumb tab. The chapter title is in black, and the subsection title is in blue.



# Chapter 2

## Estimates of Total Travel







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# Chapter 2 Estimates of Total Travel

## 1. Introduction

**T**RAVEL estimates are among the most important information that can be generated from the NPTS data. Data on travel are needed to analyze and describe the use of each mode of transportation and to plan for future infrastructure investment in that mode. In the NPTS interviews, all respondents were asked about trips they had taken on the sampled day (designated travel day), longer trips they had taken over a two-week period prior to the sample day (designated travel period), how much they drove in a year, and how much their household vehicles were driven in a year. In addition, if respondents drove as part of their work, they were asked for a weekly estimate of this type of driving. Because these five data items measure travel somewhat differently, various estimates of total person miles or total vehicle miles of travel may be generated from the 1990 NPTS.

The survey was designed to produce differing estimates because having more than one source for travel data reduces imputation of missing data. For instance, if people did not report on each travel day or travel period trip, the estimate of annual miles driven provides an independent estimate of driving. Another benefit of having several estimates is for validation purposes. The user of this Databook should be aware of the various travel estimates and how these estimates differ from each other.

Travel data were collected in two ways in the NPTS interview:

- Trip level data collected for
  - travel day, and
  - travel period.
- Aggregate estimates of driving collected for:
  - annual estimate for each household driver,
  - annual estimate for each household vehicle, and
  - commercial driving.

## 2. Trip Level Data

In the 1990 NPTS questionnaire, two sections contain questions on individual trips. These sections and the relevant data are:

### 2.1 Travel Day Section

For the NPTS, data were collected from each respondent on the trips taken on a specific day (which, once designated, remained the travel day for all members of the household). The travel day for each household encompassed a 24-hour period from 4 a.m. of the designated day until 3:59 a.m. of the following day.

NPTS follows other travel surveys, which have historically relied upon collecting data from all respondents on one or two designated days' worth of their travel. While the travel on that day may not be representative of an individual respondent's typical travel, the aggregation of travel reported by a number of respondents provides a representative look at overall travel behavior.

Data on all trips taken on the designated travel day were collected, including trips of all lengths, all modes, and all purposes. Of course, the trips most often taken on travel day were short trips for purposes such as going to work, to school, to the store, and to visit a friend. For each trip on the designated travel day, a wide variety of characteristics were collected, including trip purpose, mode used, time of day, trip length (miles), trip duration (minutes), vehicle used, number of people on the trip, and identity of the driver.

Data on travel day trips were collected for each household member aged 5 and older. Those aged 14 and older reported the trips for themselves, while an adult household member reported trips for those aged 5 to 13. In the 1990 survey, data for approximately 150,000 travel day trips were collected. Given the amount and richness of the data, the travel day section forms the core of the NPTS dataset. Another reason that travel day data are the most widely used estimates from NPTS is primarily because of the high degree of interest in average daily travel and because trip data on travel day come closest to replicating the data in urban travel surveys.

Consequently, there is a heavy reliance on travel day data throughout the Databook. Of the eight remaining chapters in this Databook, four rely exclusively on travel day data. Travel day data estimate:

- 1,409,600 million annual national vehicle miles of travel, and
- 2,315,300 million annual national person miles of travel.

Converting these figures to a per person basis, the average American drove 8,650 miles in household-based vehicles in 1990 and travelled 9,670 person miles by all modes of transportation (including private vehicles).

## 2.2 Travel Period Section

In addition to the trips reported on travel day, NPTS included separate questions on long trips (defined as trips of 75 miles or more one-way) over a two-week period. The two weeks were the thirteen days preceding the travel day plus the travel day. This is called travel period data. The purpose of reporting longer trips over this extended period is to identify intercity trips that occur infrequently.

## 2.3 Combining Travel Day Data and Travel Period Data

If a long trip occurred on the travel day, it was reported in both the travel day and the travel period sections. Trips reported in both sections are referred to as the travel day-travel period overlap. When data from travel day are used in combination with data from the travel period, those overlap trips are removed from the travel day estimates to avoid double-counting. The tables in this Databook that present travel day data with the overlap trips removed are labeled “Travel Day Adjusted.”

Data from travel day and travel period sections are combined to generate estimates of total person miles of travel and total vehicle miles of travel. However, one should not add the number of trips reported for travel day to those reported for travel period, since the definition of a “trip” was not the same in these two sections. In the travel day section, a trip was defined as any one-way travel from one place (address) to another by any means of transportation. When travel was to more than one destination, a separate trip was generated each time the purpose for one destination was different from that of another or when the travel time between two destinations exceeded five minutes. In the travel period section, a trip is defined as travel to a destination at least 75 miles from home, with the return trip within the two-week travel period.

### 3. Aggregate Estimates of Travel

Three different aggregate estimates of driving collected in the 1990 NPTS are described as follows:

#### 3.1 Annual Estimate of the Miles Driven by Each Licensed Driver

In addition to the trip-level data, an annual estimate of miles driven was obtained for each household driver. For the driver, the estimate should include driving done in all vehicles, whether the vehicles belong to the household or not. The sum of all annual estimates of driving should be comparable to total vehicle miles travelled (VMT) estimates from other sources. Based on annual estimates made by individual drivers, the 1990 NPTS estimates the annual national vehicle miles of travel at 2,139,700,000, while the estimate based on traffic counts submitted by the State highway agencies to the Federal Highway Administration (FHWA) as reported in its publication *Highway Statistics*, Table VM-1 was 2,144,360,000 miles, which is within 1 percent of the NPTS estimate. Note that the annual estimates by each driver include any commercial driving that the driver did and is closer to the *Highway Statistics* estimate than any other data in the NPTS survey. Table 1.1 compares NPTS data to *Highway Statistics* estimates and shows a 15 percent difference in total personal VMT. Notice that the Chapter 1 comparison is based on NPTS travel day and travel period data, which excludes commercial driving. On the other hand, the comparison in this chapter uses annual driving estimates made by each driver, which include commercial driving.

Some data users believe that data collected on a single day may undercount actual travel, and that an annual estimate, particularly if presented by driver characteristics such as age and sex, serves as an important cross-check on travel day data. Likewise, where data from earlier NPTS surveys are derived from the annual estimates, they would be compared to the annual estimate from the 1990 data.

#### 3.2 Annual Estimate of Miles Driven in Each Household Vehicle

The annual estimate of miles driven in each vehicle owned by or available to the household was obtained by asking for all miles driven in that vehicle, whether driven by household members or not. If a vehicle had been owned less than a year, the respondent was asked to estimate the miles driven from the time the vehicle was acquired by this household and to provide the number of months since it was acquired. Thus, an annual estimate was generated for those vehicles acquired within the past year.

As with the driver's estimate, an estimate of vehicle use may be derived from travel day data or travel day plus travel period data. However, it should be emphasized that the basic approach in NPTS is to track people movement, not vehicle movement. Therefore, any use of the vehicle by people outside the surveyed household would not be collected in the travel day section or the travel period section.

#### 3.3 Commercial Driving

For people who drive as an essential part of their work (e.g., truck drivers, bus drivers, delivery persons, and police assigned to patrol duty), it is unreasonable to expect them to remember and list the individual trips they have made in their commercial driving. Instead, they were asked to estimate total miles driven as part of their work during an average week. The other data collected on commercial driving included the type of vehicle used and the number of days in a typical week that this type of driving was done. All of the mileage estimates reported for commercial driving are for work-related travel. For their other travel, such as trips to the store, picking up children from school, going to a movie, or commuting between home and their place of work, they were asked to report information for each individual trip.

Using multiple approaches to the question of miles travelled permits a clearer analysis of the impact of long, infrequent trips

and commercial travel relative to usual daily travel. For example, while trips of 75 miles or more account for a small proportion of all vehicle trips, they comprise 18 percent of the total vehicle miles. Likewise, when all three sources of vehicle miles are considered, commercial travel accounts for nearly 16 percent of the total driving.

The combined estimates from travel day data plus travel period data plus commercial driving are used most often when comparing NPTS data to sources that are designed to reflect the full universe of travel, such as the total VMT estimate in [Highway Statistics](#). They are also used when the longer-trip component of travel is a critical element of the travel inventory.

## 4. Estimate of Total Travel

### 4.1 Calculation of Person Miles of Travel (PMT)

Total person miles of travel may be estimated from the individual trip data — travel day data, or travel day data adjusted (i.e., without the overlap trips) combined with travel period data. However, person miles of travel for commercial driving can not be estimated since information on the average number of persons on a typical trip is unavailable.

### 4.2 Calculation of Vehicle Miles of Travel (VMT)

As discussed earlier, five sections of the NPTS questionnaire contain questions on the number of vehicle miles travelled. If the respondent was a driver on a trip reported in the travel day or travel period section, then an estimate of VMT could be calculated by annualizing the individual trip data. In addition, the 1990 NPTS collected aggregate estimates of driving from three different sections— the driver section, the vehicle section, and the commercial driving portion of the driver section.

These three estimates do not provide travel estimates at the individual trip level.

The chart at the top of the facing page identifies the sections of the NPTS questionnaire from which data can be used to estimate person miles and vehicle miles travelled.

## 5. Data Sources

As mentioned earlier, data reported in the travel day section serve as the core data source of the Databook simply because the high degree of interest in average daily travel patterns and the level of detail on individual trips. However, in some instances, a given data source is used for the convenience of comparing 1990 data with those from earlier NPTS surveys. Table 2.1 lists the main data sources of material in each chapter. In the remainder of this chapter, estimated total travel using data from different sections is presented.

Section of the 1990 NPTS Questionnaire	Person Miles	Vehicle Miles
Travel Day	X	X
Travel Period	X	X
Travel Day Adjusted plus Travel Period	X	X
Commercial Driving		X
Travel Day Adjusted plus Travel Period plus Commercial Driving		X
Annual Miles Driven Estimated by Driver		X
Estimated Annual Miles Driven per Vehicle		X

**TABLE 2.1**

**DATA SOURCES FOR EACH CHAPTER OF THIS DATABOOK**

	Travel Day Section	Travel Period Section	Driver Section	Vehicle Section	Commercial Driving Section
Chapter 2	X	X	X	X	X
Chapter 3			X	X	
Chapter 4	X				
Chapter 5	X				
Chapter 6	X				
Chapter 7	X				
Chapter 8		X			
Chapter 9					X

Table 2.2 provides an order-of-magnitude comparison of person miles and vehicle miles of travel, which are estimated by using data from different sections of the questionnaire. Note that the information on commercial driving was collected only as vehicle

miles travelled. Since no information was collected on the average number of persons on a typical commercial trip, the total person miles travelled for commercial driving could not be estimated.

**TABLE 2.2**

**TRAVEL SUMMARY STATISTICS BY DATA SOURCE  
1990 NPTS  
(MILLIONS)**

	Estimate of Annual Miles Based on Various Data Sources				Driver Section	Vehicle Section
	Travel Day Section Adjusted <sup>1</sup>	Travel Period Section	Commercial Driving Section	TOTAL		
Person Miles Travelled (PMT)	1,982,068 (333,205)	886,235	**	<b>2,868,303</b>	**	**
PMT/Person	8,279 (1,392)	3,701	**	<b>11,980</b>	**	**
Vehicle Miles Travelled (VMT)	1,275,792 (133,784)	337,332	302,824	<b>1,915,948</b>	2,139,703	2,058,323
VMT/Driver	7,826 (821)	2,069	13,625 <sup>2</sup>	<b>11,754</b>	13,125	12,626

<sup>1</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips is referred to as the "Travel Day Section Adjusted".

<sup>2</sup> Denominator includes the number of commercial drivers only.  
\*\* Indicates no data available.



Table 2.3 reports two sets of estimates of person miles of travel by trip purpose using data from different sections of the questionnaire — the travel day section, and the travel period section. As expected, the area that shows the largest impact by including data from the travel period section is social and recreational travel, vacation travel in particular. More than 80 percent of the total vaca-

tion travel is accounted for by trips that are 75 miles or longer, with an increase of 168 million miles (calculated as 218,567 miles that represent the total vacation travel for travel period minus 50,450 miles that were collected in both the travel day and travel period sections) which would not have been counted if data from only the travel day section were considered.

**FIGURE 2.1**

**DISTRIBUTION OF PERSON MILES OF TRAVEL BY DATA SOURCE AND TRIP PURPOSE  
1990 NPTS**

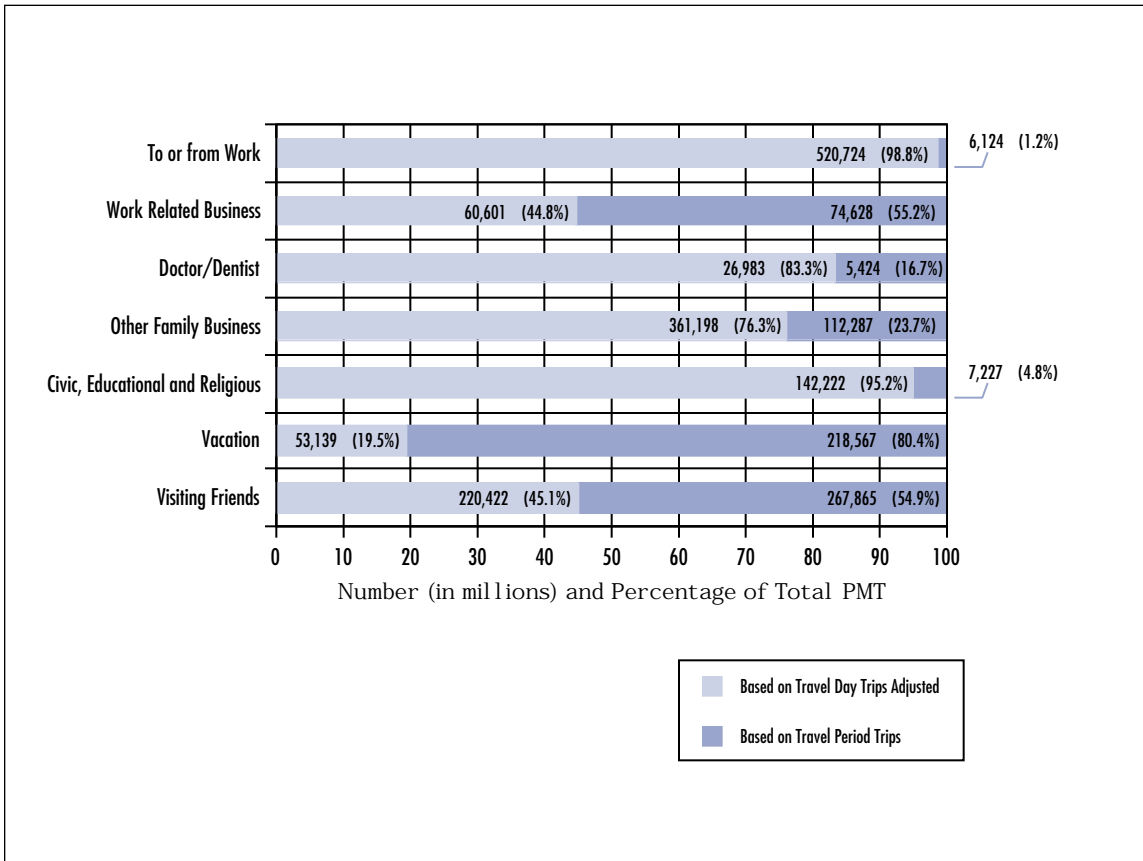


TABLE 2.3

**NUMBER OF TOTAL PERSON MILES OF TRAVEL BY DATA SOURCE AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

Purpose	Travel Day Section Adjusted <sup>1</sup>	Travel Period Section	TOTAL
<b>Earning a Living</b>			
To or from Work	520,724 (5,432)	6,124	<b>526,848</b>
Work Related Business	60,601 (36,779)	74,628	<b>135,229</b>
Subtotal	<b>581,325</b> (42,211)	<b>80,752</b>	<b>662,077</b>
<b>Family and Personal Business</b>			
Shopping	237,146 (12,475)	11,342	<b>248,488</b>
Doctor/Dentist	26,983 (1,330)	5,424	<b>32,407</b>
Other Family Business	361,198 (84,980)	112,287	<b>473,485</b>
Subtotal	<b>625,327</b> (98,785)	<b>129,053</b>	<b>754,380</b>
<b>Civic, Educational, and Religious</b>			
Subtotal	142,222 (7,050)	7,227	<b>149,449</b>
<b>Social and Recreational</b>			
Vacation	53,139 (50,450)	218,567	<b>271,706</b>
Visiting Friends	220,422 (58,634)	267,865	<b>488,287</b>
Pleasure Driving	14,436 (2,784)	12,105	<b>26,541</b>
Other Social/Recreational	329,791 (70,019)	161,894	<b>491,685</b>
Subtotal	<b>617,788</b> (181,887)	<b>660,431</b>	<b>1,278,219</b>
<b>Other<sup>2</sup></b>			
Subtotal	15,406 (3,273)	8,772	<b>24,178</b>
<b>TOTAL</b>	<b>1,982,068</b> (333,205)	<b>886,235</b>	<b>2,868,303</b>
<b>Percent</b>	69.1%	30.9%	100.0%

<sup>1</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips is referred to as the "Travel Day Section Adjusted".

<sup>2</sup> Includes miles of travel where trip purpose was unreported.

As a survey design issue, it is important to include data on long-distance travel so as to account for travel on many commonly used intercity modes (such as airplane, train, and bus). For example, data on person miles collected in the travel period section of the

questionnaire accounted for 76.9% of all passenger miles by air, 56.4% of all Amtrak passenger miles, and 22.0% of all bus passenger miles (including local bus service).

TABLE 2.4

**NUMBER OF TOTAL PERSON MILES OF TRAVEL BY DATA SOURCE AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Travel Day Section Adjusted <sup>2</sup>	Travel Period Section	TOTAL
<b>Private Vehicles</b>			
Auto	1,397,810 (190,993)	460,471	<b>1,858,281</b>
Van	119,130 (29,138)	84,267	<b>203,397</b>
Truck	262,907 (26,029)	64,421	<b>327,328</b>
Other POV	8,454 (5,520)	15,241	<b>23,695</b>
<b>Subtotal</b>	<b>1,788,301 (251,680)</b>	<b>624,400</b>	<b>2,412,701</b>
<b>Public Transportation</b>			
Bus, Streetcar	28,151 (7,038)	7,937	<b>36,088</b>
Rail/Subway <sup>3</sup>	17,681 (177)	416	<b>18,097</b>
<b>Subtotal</b>	<b>45,832 (7,215)</b>	<b>8,353</b>	<b>54,185</b>
<b>Other Means</b>			
Amtrak	4,300 (808)	5,552	<b>9,852</b>
Airplane	72,878 (72,016)	242,198	<b>315,076</b>
Bike	3,413 (58)	4	<b>3,417</b>
Walk	11,328 (90)	**	<b>11,328</b>
School Bus	33,060 (382)	877	<b>33,937</b>
Other	22,955 (956)	4,851	<b>27,806</b>
<b>Subtotal</b>	<b>147,934 (74,310)</b>	<b>253,482</b>	<b>401,416</b>
<b>TOTAL<sup>4</sup></b>	<b>1,982,068 (333,205)</b>	<b>886,235</b>	<b>2,868,303</b>
<b>Percent</b>	69.1%	30.9%	100.0%

<sup>1</sup> Estimates of transit use are based on approximately 3000 travel day and travel period trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

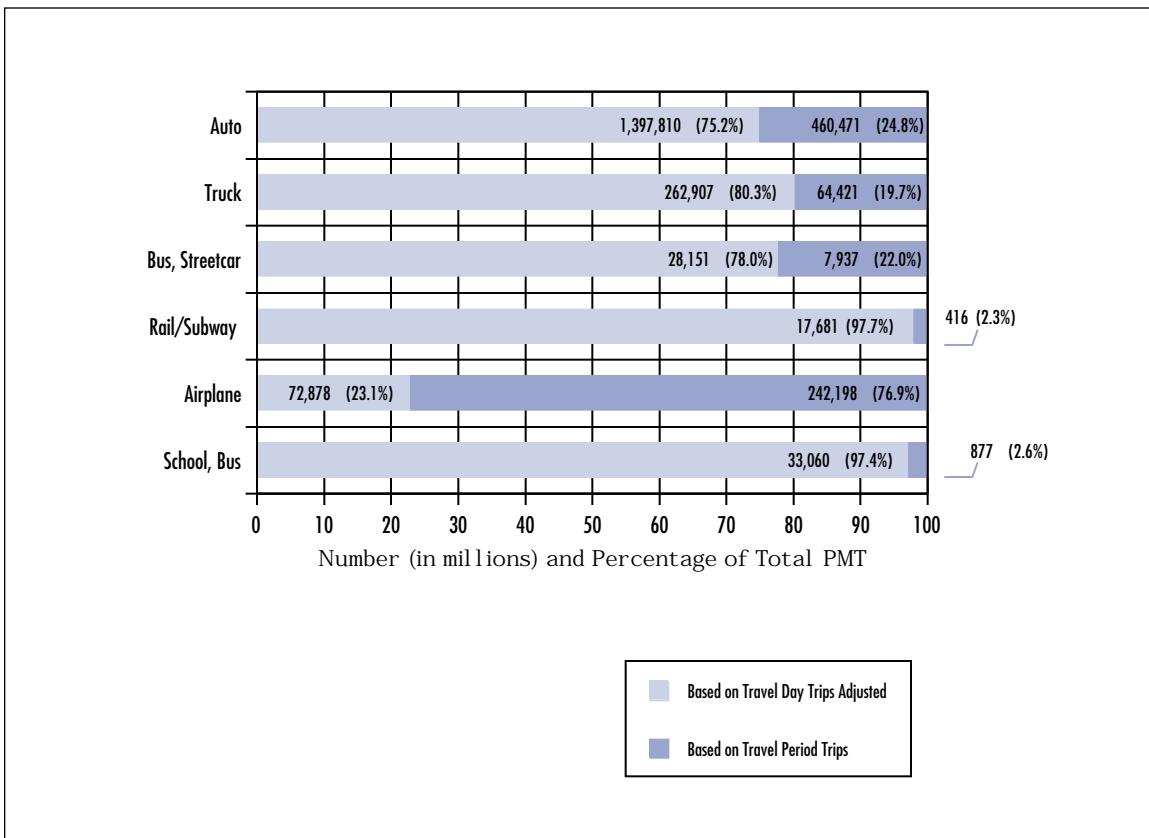
<sup>2</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips is referred to as the "Travel Day Section Adjusted".

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where mode of transportation was unreported.

\*\* Indicates no data reported.

**FIGURE 2.2**  
**DISTRIBUTION OF PERSON MILES OF TRAVEL BY DATA SOURCE AND MODE OF TRANSPORTATION**  
**1990 NPTS**



**D**ATA from the travel period section of the survey account for over 30% of all person miles of travel, or 886 billion person miles. Tables 2.5 and 2.6 examine the impacts of including longer trips on the overall estimate of travel. By far the greatest impact of including longer trips is on estimates of non-vacation social and recreational travel by private vehicles — 188,257 million miles as the drivers of the vehicles and 161,410 million miles as the passengers of the vehicles (Table 2.5).

As expected, longer trips dominated the use of Amtrak, with 56% of all person miles travelled in longer trips; and air travel, with 77% of all person miles travelled in longer trips. Social and recreational travel was the central purpose for these two modes. Travel period trips

comprise 68% of all social and recreational person miles on Amtrak and 78% of all social and recreational miles by air (Table 2.5).

Table 2.6 presents the number of person miles of travel, categorized by mode of transportation and trip length. Separate estimates are reported for the travel day section and for the travel period section. By definition, travel period trips must be 75 miles or more one-way. Thus, there are no data for travel period trips in the trip-length categories of 50 miles or less. Travel-period trips accounted for 78% of all trips over 100 miles long. Ninety-eight percent of these trips were private vehicle trips and airplane trips estimated from data in the travel period section.

TABLE 2.5

**NUMBER OF PERSON MILES OF TRAVEL BY DATA SOURCE, MODE OF TRANSPORTATION AND TRIP PURPOSE  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Private Vehicle- Driver	Private Vehicle- Passenger	Amtrak	Commuter Train	Other Public Transit <sup>2</sup>	Airplane	Other <sup>3</sup>	TOTAL <sup>4</sup>
<b>To Or From Work</b>								
Travel Day Adjusted <sup>5</sup>	448,337	45,197	1,166	5,645	16,288	**	3,987	<b>520,724</b>
Travel Period	5,206	669	145	104	**	**	**	<b>6,124</b>
<b>Work Related Business</b>								
Travel Day Adjusted	34,257	5,088	673	371	406	18,885	703	<b>60,601</b>
Travel Period	17,802	5,975	540	5	281	49,655	355	<b>74,628</b>
<b>Family And Personal Business</b>								
Travel Day Adjusted	419,048	183,862	295	398	6,113	8,542	7,039	<b>625,327</b>
Travel Period	61,283	40,037	247	4	510	26,851	122	<b>129,053</b>
<b>Civic, Educational And Religious</b>								
Travel Day Adjusted	59,169	43,127	**	250	7,075	**	32,425	<b>142,222</b>
Travel Period	4,141	2,124	**	3	722	59	178	<b>7,227</b>
<b>Vacation</b>								
Travel Day Adjusted	6,835	6,921	2,135	1,340	**	23,716	12,192	<b>53,139</b>
Travel Period	57,237	73,747	2,325	14	975	82,002	1,758	<b>218,567</b>
<b>Other Social And Recreational<sup>6</sup></b>								
Travel Day Adjusted	299,439	222,592	32	578	6,770	21,736	13,174	<b>564,649</b>
Travel Period	188,257	161,410	2,294	286	5,373	81,710	2,425	<b>441,864</b>
<b>TOTAL<sup>7</sup></b>								
<b>Travel Day Adjusted</b>	<b>1,275,553</b>	<b>512,748</b>	<b>4,300</b>	<b>8,581</b>	<b>37,251</b>	<b>72,878</b>	<b>69,896</b>	<b>1,982,068</b>
<b>Travel Period</b>	<b>337,332</b>	<b>287,068</b>	<b>5,552</b>	<b>416</b>	<b>7,937</b>	<b>242,198</b>	<b>5,100</b>	<b>886,235</b>

<sup>1</sup> Estimates of transit use are based on approximately 3000 travel day and travel period trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes bus, streetcar/trolley and elevated rail/subway.

<sup>3</sup> Includes taxi, bicycle, walk, school bus and other.

<sup>4</sup> Includes miles of travel where mode of transportation was unreported.

<sup>5</sup> Travel day estimates without overlap trips are referred to as "Travel Day Adjusted".

<sup>6</sup> Includes visiting friends or relatives, pleasure driving and other social or recreational activities.

<sup>7</sup> Includes the other category and miles of travel where trip purpose was unreported.

\*\* Indicates no data available.

TABLE 2.6

NUMBER OF PERSON MILES OF TRAVEL BY DATA SOURCE, MODE OF TRANSPORTATION AND TRIP LENGTH  
1990 NPTS (MILLIONS)

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Private Vehicle- Driver	Private Vehicle- Passenger	Amtrak	Commuter Train	Other Public Transit <sup>2</sup>	Airplane	Other <sup>3</sup>	TOTAL <sup>4</sup>
<b>5 Miles Or less</b>								
Travel Day Adjusted <sup>5</sup>	216,690	77,451	25	243	5,551	**	23,779	<b>323,833</b>
Travel Period	**	**	**	**	**	**	**	**
<b>6 - 10 Miles</b>								
Travel Day Adjusted	232,123	80,537	12	323	6,741	**	11,528	<b>331,269</b>
Travel Period	**	**	**	**	**	**	**	**
<b>11 - 20 Miles</b>								
Travel Day Adjusted	322,637	112,438	271	922	8,413	**	11,299	<b>456,266</b>
Travel Period	**	**	**	**	**	**	**	**
<b>21 - 30 Miles</b>								
Travel Day Adjusted	174,713	63,797	60	1,554	3,723	45	2,126	<b>246,112</b>
Travel Period	**	**	**	**	**	**	**	**
<b>31 - 50 Miles</b>								
Travel Day Adjusted	198,150	94,427	149	3,686	4,979	**	2,635	<b>304,025</b>
Travel Period	**	**	**	**	**	**	**	**
<b>51 - 100 Miles</b>								
Travel Day Adjusted	61,761	29,234	433	512	1,798	**	951	<b>94,954</b>
Travel Period	49,552	34,747	507	189	873	113	528	<b>86,549</b>
<b>Over 100 Miles</b>								
Travel Day Adjusted	69,480	54,864	3,352	1,340	6,046	72,834	17,577	<b>225,608</b>
Travel Period	287,780	252,321	5,045	227	7,064	242,085	4,571	<b>799,686</b>
<b>TOTAL</b>								
Travel Day Adjusted	<b>1,275,553</b>	<b>512,748</b>	<b>4,300</b>	<b>8,581</b>	<b>37,251</b>	<b>72,878</b>	<b>69,896</b>	<b>1,982,068</b>
Travel Period	<b>337,332</b>	<b>287,068</b>	<b>5,552</b>	<b>416</b>	<b>7,937</b>	<b>242,198</b>	<b>5,100</b>	<b>886,235</b>
<sup>1</sup> Estimates of transit use are based on approximately 3000 travel day and travel period trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.					<sup>4</sup> Includes miles of travel where mode of transportation was unreported.			
<sup>2</sup> Includes bus, streetcar/trolley and elevated rail/subway.					<sup>5</sup> Travel day estimates without overlap trips are referred to as "Travel Day Adjusted".			
<sup>3</sup> Includes taxi, bicycle, walk, school bus and other.								

Table 2.7 shows the impacts of including longer trips (travel period trips) and commercial driving on the estimate of total annual miles driven. The impact of longer trips on vehicle miles is somewhat similar to the pattern shown on person miles — with relatively large increases in the amount of driving for other family and personal business and social and recreational travel. The impact

of including driving that is an essential part of work is entirely on travel for work-related business. By definition, all commercial travel is categorized as work-related. An increase of almost tenfold in the amount of driving in the work-related business category was due to longer trips and commercial driving.

**FIGURE 2.3**

**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY DATA SOURCE AND TRIP PURPOSE  
1990 NPTS**

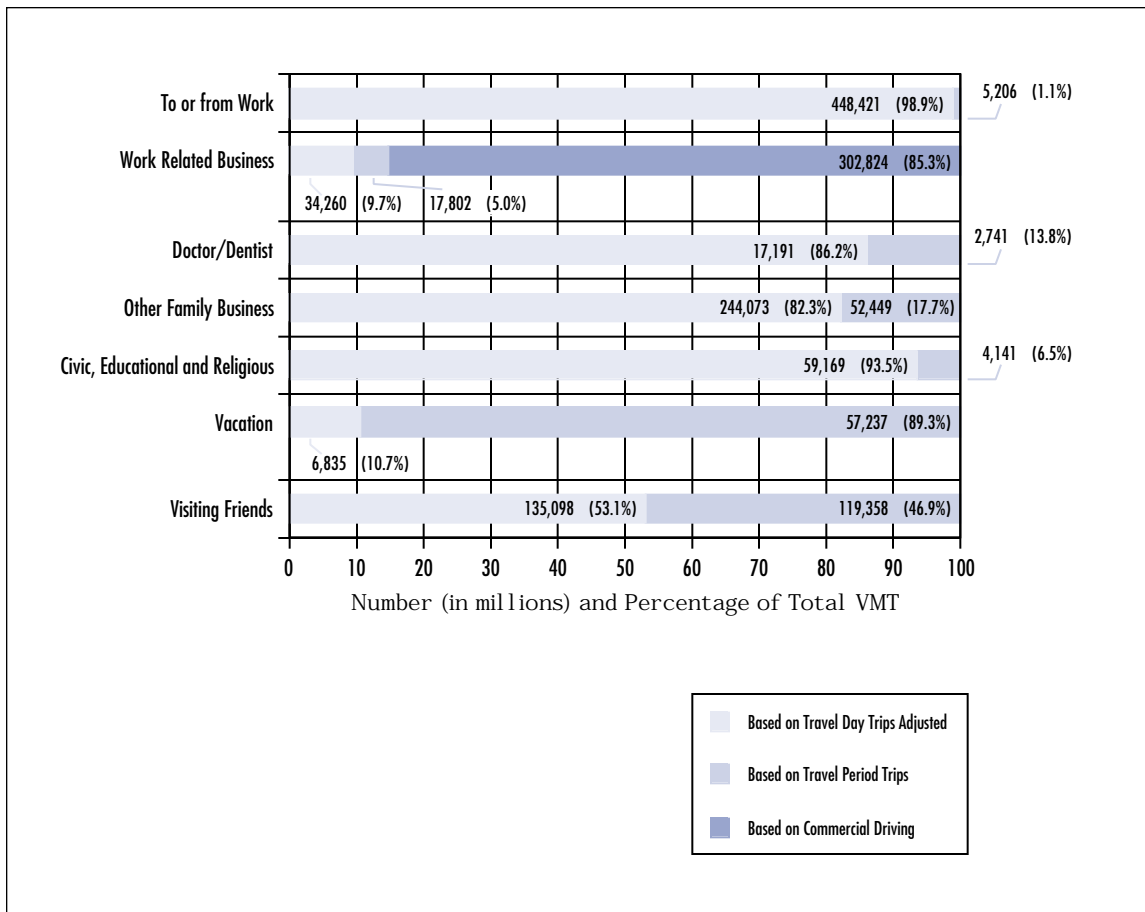




TABLE 2.7

NUMBER OF TOTAL VEHICLE MILES OF TRAVEL BY DATA SOURCE AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)

Purpose	Travel Day Section Adjusted <sup>1</sup>	Travel Period Section	Commercial Driving Section	TOTAL
<b>Earning a Living</b>				
To or from Work	448,421 (4,621)	5,206	**	<b>453,627</b>
Work Related Business	34,260 (8,075)	17,802	302,824	<b>354,886</b>
<b>Subtotal</b>	<b>482,681</b> (12,696)	<b>23,008</b>	<b>302,824</b>	<b>808,513</b>
<b>Family and Personal Business</b>				
Shopping	157,801 (4,866)	6,092	**	<b>163,893</b>
Doctor/Dentist	17,191 (618)	2,741	**	<b>19,932</b>
Other Family Business	244,073 (37,317)	52,449	**	<b>296,522</b>
<b>Subtotal</b>	<b>419,065</b> (42,801)	<b>61,282</b>	<b>**</b>	<b>480,347</b>
<b>Civic, Educational, and Religious</b>				
<b>Subtotal</b>	<b>59,169</b> (3,032)	<b>4,141</b>	<b>**</b>	<b>63,310</b>
<b>Social and Recreational</b>				
Vacation	6,835 (13,696)	57,237	**	<b>64,072</b>
Visiting Friends	135,098 (28,882)	119,358	**	<b>254,456</b>
Pleasure Driving	7,692 (1,474)	6,905	**	<b>14,597</b>
Other Social/Recreational	156,783 (28,528)	61,993	**	<b>18,776</b>
<b>Subtotal</b>	<b>306,408</b> (72,580)	<b>245,493</b>	<b>**</b>	<b>551,901</b>
<b>Other<sup>2</sup></b>				
<b>Subtotal</b>	<b>8,469</b> (2,674)	<b>3,408</b>	<b>**</b>	<b>11,877</b>
<b>TOTAL</b>	<b>1,275,792</b> (133,784)	<b>337,332</b>	<b>302,824</b>	<b>1,915,948</b>
<b>Percent</b>	66.6%	17.6%	15.8%	100.0%

<sup>1</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips are referred to as the "Travel Day Section Adjusted".

<sup>2</sup> Includes miles of travel where trip purpose was unreported.

\*\* Indicates no data reported.

If the NPTS was limited to collecting data on trips taken on travel day, total vehicle miles of travel (VMT) would be 1,409,600 million miles. However, with the inclusion of travel period trips and commercial driving, total vehicle miles of travel reached 1,915,900 million miles (Table 2.8). Travel period trips and commercial driving have considerable impacts on VMT estimates for all vehicle types. For example, 27% of all vehicle miles by automobiles were in longer trips and commercial driving. The corresponding rate for vans was 47%.

As expected, commercial driving comprises a significant amount of total truck travel, 37% or 150 million miles. Note that trucks used

in travel day travel and travel period travel probably were pickup trucks and other light trucks. However, trucks used for commercial driving were more likely to be heavier trucks, generally defined as those with gross vehicle weight over 10,000 pounds.

The inclusion of travel period trips is particularly important for estimates of the number of longer trips, especially trips more than 100 miles. More than 210 billion miles of driving would have been overlooked if travel period data on trips more than 100 miles were not collected (Table 2.9).

TABLE 2.8

**NUMBER OF TOTAL VEHICLE MILES OF TRAVEL BY DATA SOURCE AND MODE OF TRANSPORTATION  
1990 NPTS  
(MILLIONS)**

Mode	Travel Day Section Adjusted <sup>1</sup>	Travel Period Section	Commercial Driving Section	TOTAL
Auto	988,445 (102,408)	257,834	110,605	<b>1,356,884</b>
Van	68,578 (12,597)	32,789	28,004	<b>129,371</b>
Truck	211,506 (16,899)	39,225	149,641	<b>400,372</b>
Other Private Vehicle	7,024 (1,880)	7,484	604	<b>15,112</b>
Other <sup>2</sup>	0 (0)	0	13,891	<b>13,891</b>
<b>TOTAL<sup>3</sup></b>	<b>1,275,792</b> (133,784)	<b>337,332</b>	<b>302,824</b>	<b>1,915,948</b>
<b>Percent</b>	66.6%	17.6%	15.8%	100.0%

<sup>1</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips are referred to as the "Travel Day Section Adjusted".

<sup>2</sup> Includes bus, school bus and other.

<sup>3</sup> Includes miles of travel where mode of transportation was unreported.

TABLE 2.9

**NUMBER OF VEHICLE MILES OF TRAVEL BY DATA SOURCE<sup>1</sup> AND TRIP LENGTH  
1990 NPTS  
(MILLIONS)**

Trip Length	Vehicle Miles of Travel	
<b>5 Miles Or Less</b>		
Travel Day Adjusted	216,733	(1,084) <sup>2</sup>
Travel Period		**
<b>6 - 10 Miles</b>		
Travel Day Adjusted	232,124	(1,448)
Travel Period		**
<b>11 - 20 Miles</b>		
Travel Day Adjusted	322,718	(2,375)
Travel Period		**
<b>21 - 30 Miles</b>		
Travel Day Adjusted	174,713	(2,494)
Travel Period		**
<b>31 - 50 Miles</b>		
Travel Day Adjusted	198,150	(7,289)
Travel Period		**
<b>51 - 100 Miles</b>		
Travel Day Adjusted	61,761	(40,681)
Travel Period	49,552	
<b>Over 100 Miles</b>		
Travel Day Adjusted	69,594	(78,413)
Travel Period	287,780	
<b>Total</b>		
<b>Travel Day Adjusted</b>	<b>1,275,792 (133,784)</b>	
<b>Travel Period</b>	<b>337,332</b>	

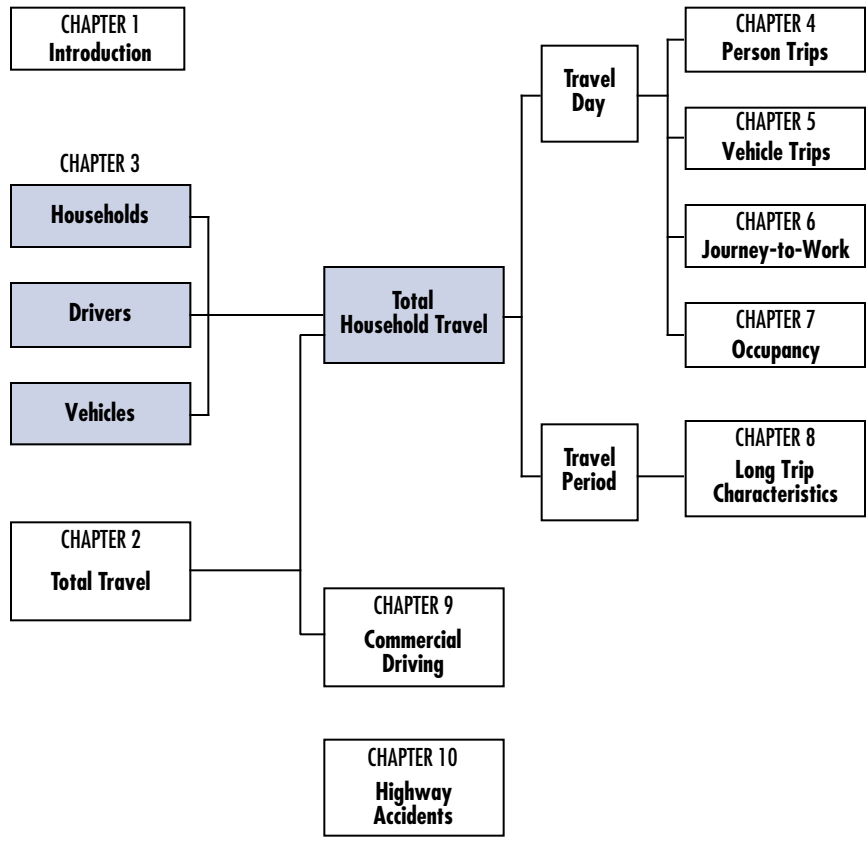
<sup>1</sup> The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips are referred to as the "Travel Day Section Adjusted". Vehicle miles in commercial driving cannot be shown on this table because individual trip lengths were not collected for commercial driving data.

<sup>2</sup> Includes linking trips that are part of a travel-period trip. For example, an airplane trip from Washington, DC to Oak Ridge, TN taken on the

travel day, plus ground transportation to and from the airports are considered one trip in the travel period section. However, due to definitional differences, these trips are three separate trips recorded in the travel day section. All of the three trips are referred to as "overlap trips". Consequently, there are overlap trips recorded in the travel day section which are less than 75 miles long.

\*\* Indicates no data available.





# Chapter 3

## Determinants of Travel : Drivers, Households and Vehicles

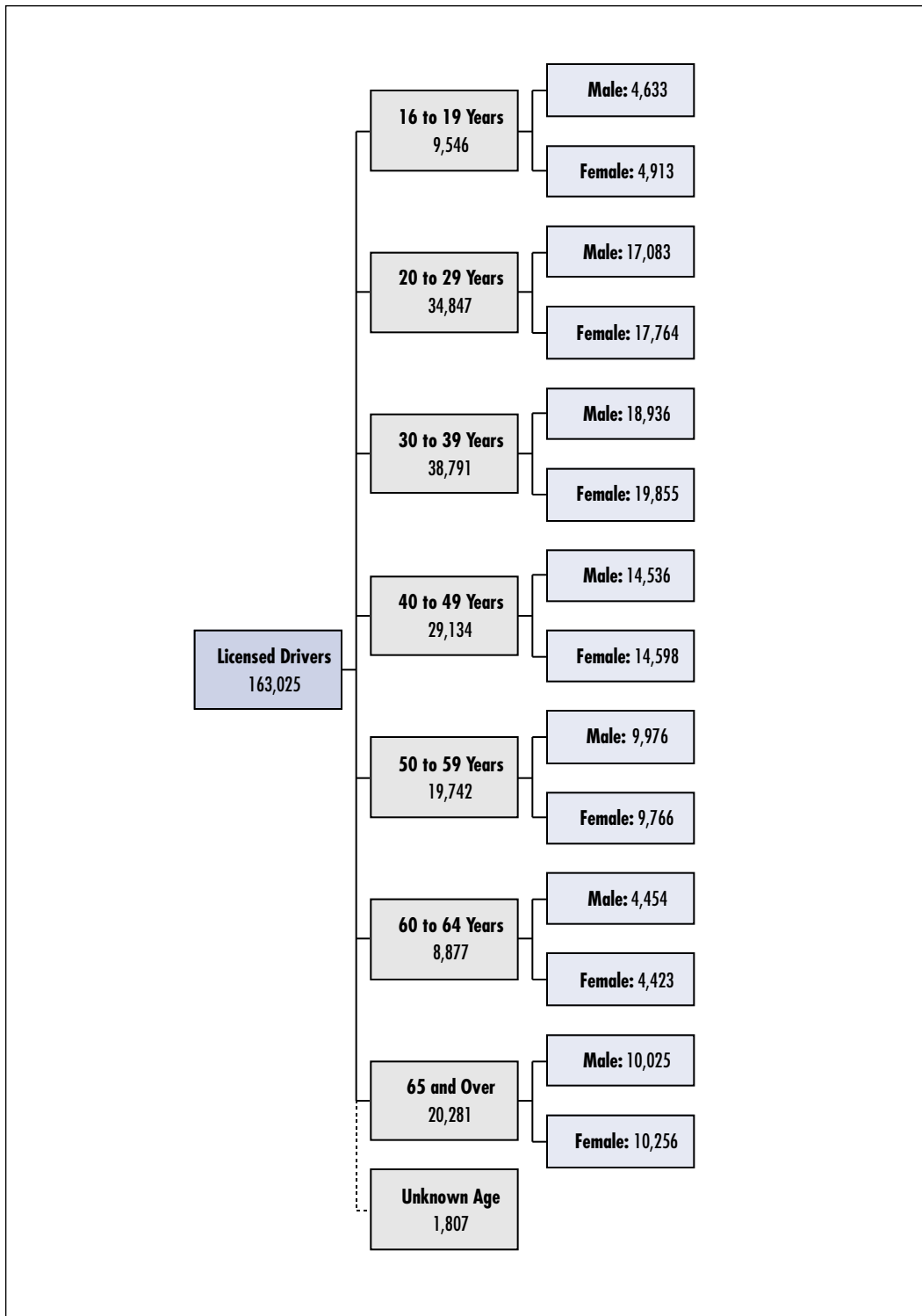


Between 1969 and 1990:

- There was a 58% (60 million) increase in the number of licensed drivers, 38 million of which were women.
- In 1990, women drove 76% more on average than they did in 1969. However, women still drove 7,000 miles less on average than men in a year.
- More vehicles per household and more licensed drivers per household contributed to the increase in total travel. By 1990 the number of household-based vehicles was greater than the number of licensed drivers.

1990 LICENSED DRIVERS BY AGE AND SEX

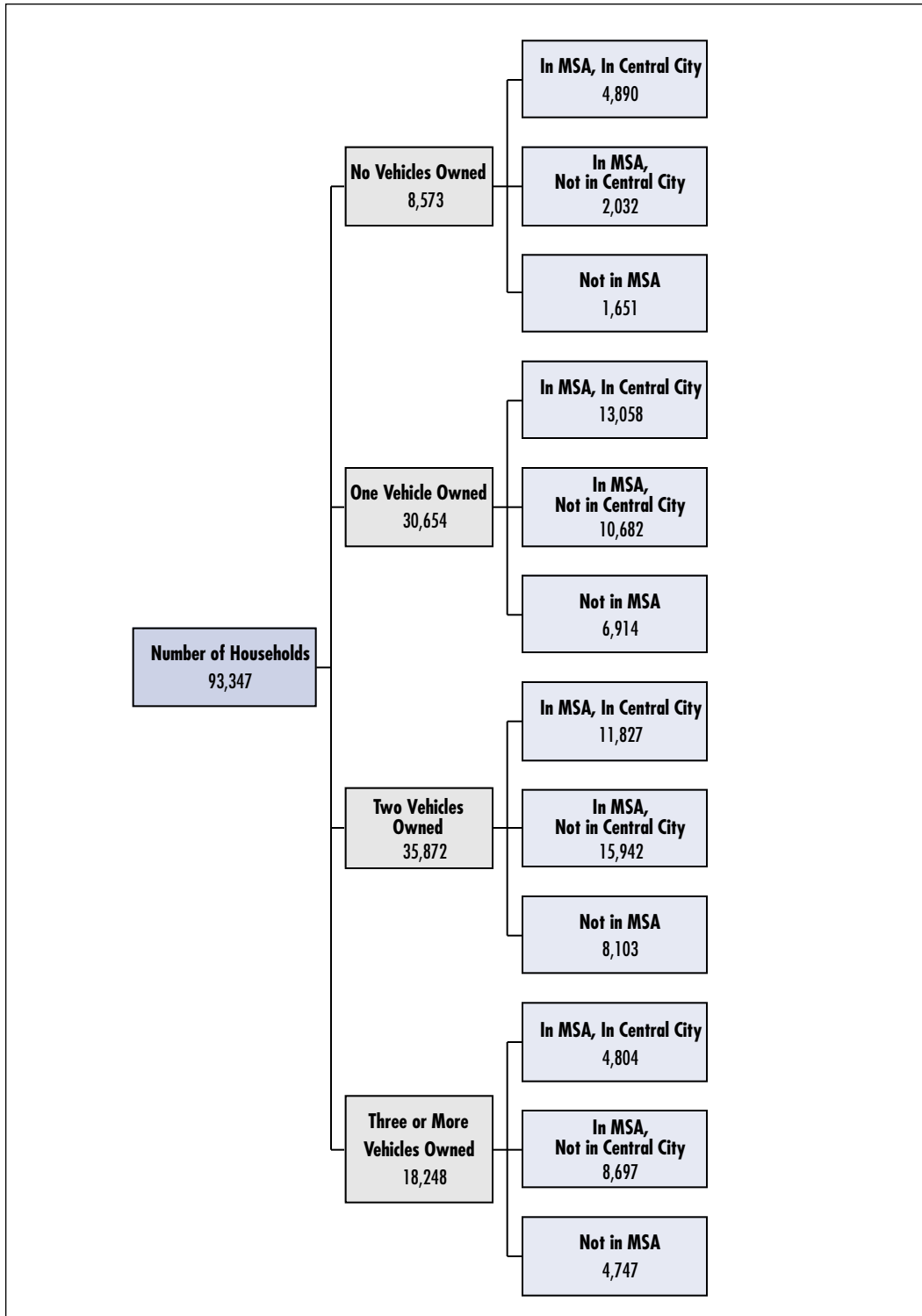
(THOUSANDS)





1990 HOUSEHOLDS BY NUMBER OF VEHICLES OWNED AND PLACE OF RESIDENCE

(THOUSANDS)



1990 VEHICLES BY VEHICLE TYPE

(THOUSANDS)

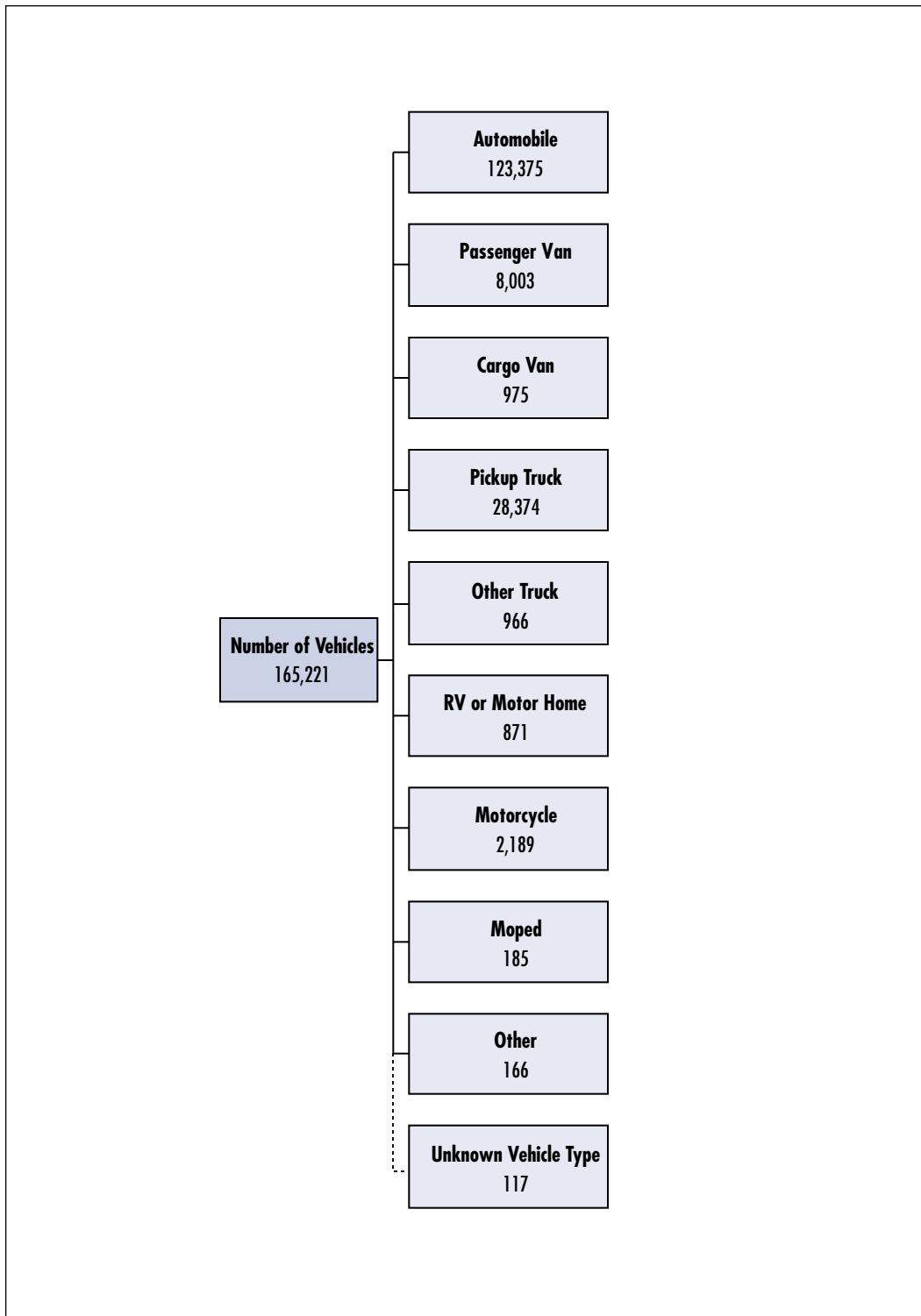


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## Chapter 3 Determinants Of Travel

**T**RAVEL behavior is the result of a complex synthesis of cultural, technological, demographic, economic, and geographic factors. Demographic characteristics of the population bear particularly strong relationships to travel behavior because of the strong associations between demographics and lifecycle stage, roles and functions in society, and resulting activity patterns. Because almost all persons of driving age in the U.S. hold drivers' licenses, the population's age structure is directly related to levels of vehicle ownership and vehicle use. Other factors intervene in important ways. Location (whether in rural, suburban, or central city) determines the proximity of possible destinations and the travel mode options available. Income not only serves as a constraint on travel expenditures, but strongly influences locational choices. In this section we explore the relationships among demographics, income, location, vehicle ownership and travel behavior.

### Persons

One of the major demographic trends in the last two decades was the aging of the American population. The percentage in the younger age groups (under 19 years old) decreased, especially for the group 16 years or younger. Conversely, the percentage in the middle age groups (over 35 years old) increased, reflecting the aging of the baby-boom generation. These changes resulted in an increase in the number of licensed drivers.

Another significant demographic change in the past two decades was the increased number of women in the labor force. The proportion of employed women 16 years or older increased by more than 50% between 1969 and 1990 — from 37.1% of the female population 16 years or older being

employed in 1969 to 56.4% in 1990. On the other hand, the employment rate in the male population 16 years or older remained relatively stable (about 73-74%). The increase in female workers contributed to the increase in the number of female drivers. While 61.2% of women 16 years or older were licensed drivers in 1969, this percentage increased to 85.8% in 1990.

### Drivers and average annual miles driven

The increases in both female drivers and female workers from 1969 to 1990 contributed to the increase of 76% in driving by women, from 5,411 annual miles per female driver in 1969 to 9,528 miles in 1990. Male drivers also increased their driving but not as dramatically as female drivers. The amount of annual travel increased for all age groups, both female and male, with the largest increase being for drivers between 16 and 19 years old. Households with an annual income less than \$10,000 showed the largest percentage increase in annual miles per licensed driver.

### Households

On average, the number of licensed drivers per household decreased, reflecting the decrease in household size. The percentage of households without a vehicle also dropped from 20.6% in 1969 to 9.2% in 1990, while the percentage of households that have three or more household-based vehicles quadrupled. In NPTS, household-based vehicles refer to those that were owned by or available on a regular basis to the household.

### Vehicles and average annual miles per vehicle

The total number of household-based vehicles more than doubled between 1969 and 1990, from 72,500,000 vehicles in 1969 to 165,221,000 in 1990. The rate of increase in the number of vehicles surpassed the rate of increase in the number of households, resulting in an increased number of vehicles per household. There were 1.15 vehicles per household in 1969 and 1.77 vehicles per household in 1990.

Vehicles were driven more in 1990 than they were in earlier survey years — 11,600 miles per year in 1969 and 12,458 miles

in 1990. The use of vehicles 10 years and older increased by 41% from 1969 to 1990, the largest increase among all vehicle age groups.

Figure 3.1 better illustrates some of the changes in demographic characteristics and travel activities. Table 3.1 presents the summary statistics on demographic characteristics and on total travel during NPTS survey years (1969, 1977, 1983, and 1990).

FIGURE 3.1

CHANGES IN SUMMARY DEMOGRAPHIC AND TRAVEL PATTERNS  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>

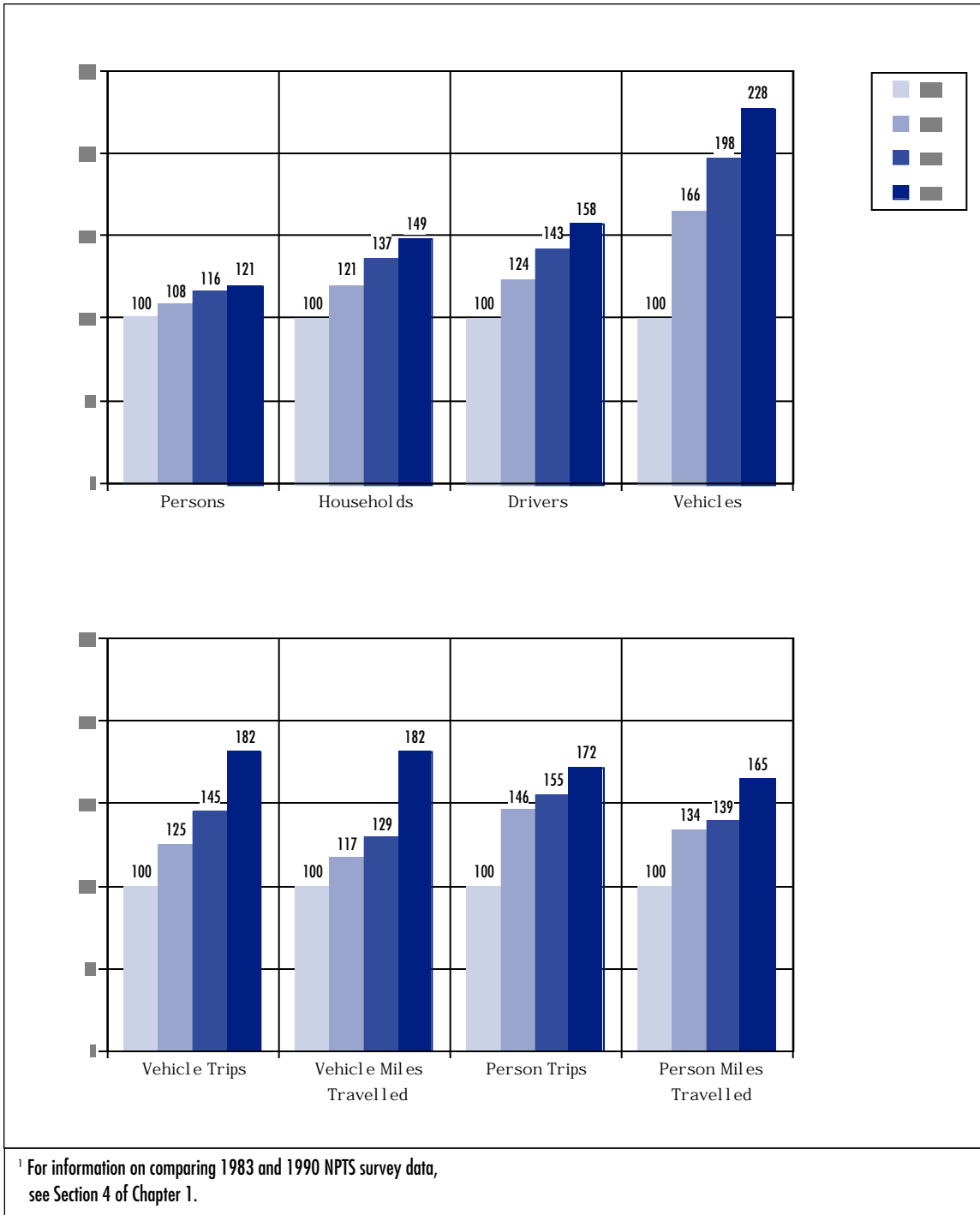


TABLE 3.1

SUMMARY STATISTICS ON DEMOGRAPHIC CHARACTERISTICS AND TOTAL TRAVEL  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>

	1969	1977	1983	1990	Percent Change (69-90)	
					Annual Rate <sup>2</sup>	Total Change <sup>3</sup>
<b>HOUSEHOLDS (000)</b>						
All	62,504	75,412	85,371	93,347	1.9	49
1 person	10,980	16,214	19,354	22,999	3.6	109
2 persons	18,448	22,925	27,169	30,114	2.4	63
3 persons	10,746	13,046	14,756	16,128	2.0	50
4+ persons	22,330	23,227	24,092	24,106	0.4	8
<b>PERSONS (000)</b>						
All	197,213	213,141	229,453	239,416 <sup>4</sup>	0.9	21
Under 16	60,100	54,958	53,682	54,303	-0.5	-10
16-19	14,598	16,552	15,268	13,851	-0.2	-5
20-34	40,060	52,252	60,788	59,517	1.9	49
35-64	62,982	66,988	75,353	82,480	1.3	31
65+	19,473	22,391	24,362	26,955	1.6	38
All Male	94,465	102,521	111,514	114,441	0.8	21
All Male - 16 and older	66,652	74,542	83,645	86,432	1.1	30
All Female	102,748	110,620	117,939	124,975	0.8	22
All Female - 16 and older	73,526	83,721	92,080	96,371	1.1	31
All - 5 and older	NA	198,434	212,932	222,101	0.9 <sup>5</sup>	12 <sup>5</sup>
<b>LICENSED DRIVERS (000)</b>						
All	102,986	127,552	147,015	163,025 <sup>4</sup>	2.2	58
Male	57,981	66,199	75,639	80,289	1.6	38
Female	45,005	61,353	71,376	82,707	2.9	84
<b>WORKERS (000)</b>						
All	75,758	93,019	103,244	118,343 <sup>4</sup>	2.1	56
Male	48,487	55,625	58,849	63,996	1.3	32
Female	27,271	37,394	44,395	54,334	3.3	99
<b>HOUSEHOLD VEHICLES<sup>6</sup> (000)</b>						
	72,500	120,098	143,714	165,221	4.0	128
<b>HOUSEHOLD VEHICLE TRIPS<sup>7</sup> (000,000)</b>						
	87,284	108,826	126,874	158,927	2.9	82
<b>HOUSEHOLD VMT<sup>7</sup> (000,000)</b>						
	775,940	907,603	1,002,139	1,409,600	2.9	82
<b>PERSON TRIPS<sup>7,8</sup> (000,000)</b>						
	145,146	211,778	224,385	249,562	2.6	72
<b>PERSON MILES OF TRAVEL<sup>7</sup> (000,000)</b>						
	1,404,137	1,879,215	1,946,662	2,315,300	2.4	65

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Compounded annual rate of percentage change.

<sup>3</sup> Percentage change for period.

<sup>4</sup> Includes "don't know" and "refusals".

<sup>5</sup> For years 1977 to 1990.

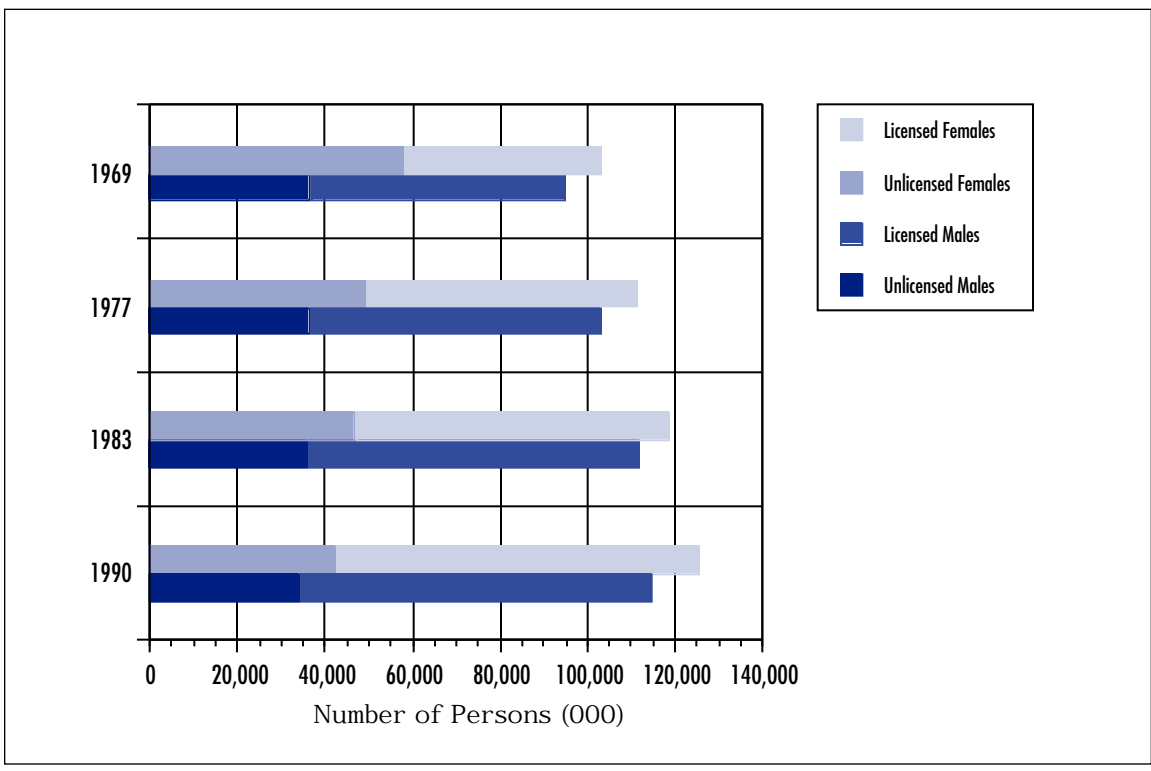
<sup>6</sup> The 1969 survey includes only automobiles, station wagons, vans, and minibuses as household vehicles.

<sup>7</sup> Includes trips and travel on sampled travel day only. See Chapter 2 for explanation.

<sup>8</sup> The 1969 survey does not include walk and bicycle trips.

**FIGURE 3.2**

**NUMBER OF PERSONS AND NUMBER OF LICENSED DRIVERS BY SEX  
1969, 1977, 1983 AND 1990 NPTS  
(THOUSANDS)**



This table provides background demographic information by age and sex. The proportion of individuals younger than 30 years old decreased from 43.8% in 1983 to 40.5% in 1990. The proportion of people 65 years or

older increased from 11.4% in 1983 to 12.3% in 1990. These data reflect the aging of the American population. The ratio of male population to female population remained about the same.

**TABLE 3.2**

**NUMBER OF PERSONS BY AGE AND SEX  
 1983 AND 1990 NPTS<sup>1</sup>  
 (THOUSANDS)**

	5-15	16-19	20-29	30-39	40-49	50-59	60-64	65+	TOTAL <sup>2</sup>
<b>1983</b>									
Male	18,994	7,733	20,266	17,219	12,325	10,990	5,397	9,802	<b>102,726</b>
Female	18,177	7,640	20,347	18,805	12,226	12,644	5,846	14,520	<b>110,205</b>
<b>TOTAL</b>	<b>37,171</b>	<b>15,373</b>	<b>40,613</b>	<b>36,024</b>	<b>24,551</b>	<b>23,634</b>	<b>11,243</b>	<b>24,322</b>	212,931
	(17.5%)	(7.2%)	(19.1%)	(16.9%)	(11.5%)	(11.1%)	(5.3%)	(11.4%)	(100.0%)
<b>1990</b>									
Male	18,997	6,727	18,471	19,821	15,035	10,400	4,649	11,325	<b>105,425</b>
Female	17,973	7,124	19,851	21,337	15,734	11,221	5,479	15,615	<b>114,334</b>
<b>TOTAL</b>	<b>36,970</b>	<b>13,851</b>	<b>38,322</b>	<b>41,158</b>	<b>30,769</b>	<b>21,621</b>	<b>10,128</b>	<b>26,940</b>	<b>219,759</b>
	(16.8%)	(6.3%)	(17.4%)	(18.7%)	(14.0%)	(9.8%)	(4.6%)	(12.3%)	(100.0%)
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.					<sup>2</sup> Does not include persons whose age and sex were unreported.				

**TABLE 3.3**

**NUMBER OF PERSONS BY PLACE OF RESIDENCE, 1983 AND 1990 NPTS'  
(THOUSANDS)**

	MSA, Central City <sup>2</sup>	MSA, Non-Central City <sup>2</sup>	Non-MSA	TOTAL
<b>1983</b>	64,225 (30.2%)	88,422 (41.5%)	52,819 (24.8%)	<b>212,932<sup>3</sup></b> (100.0%)
<b>1990</b>	80,030 (36.0%)	92,251 (41.5%)	49,820 (22.4%)	<b>222,101</b> (100.0%)
<b>Percent Change</b>	<b>24.6</b>	<b>4.3</b>	<b>-5.7</b>	<b>4.3</b>

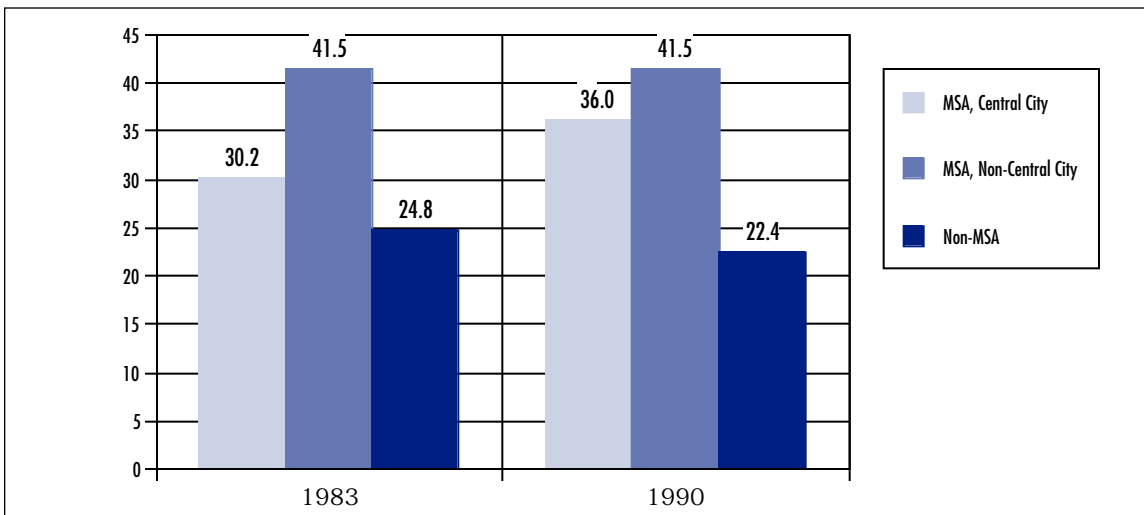
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> The definition for Central City has changed from the 1983 data to the 1990 data. See Appendix B for details.

<sup>3</sup> Includes 3.5% of persons who live in MSA's, but the location in MSA is unknown.

**FIGURE 3.3**

**DISTRIBUTION OF PERSONS BY PLACE OF RESIDENCE, 1983 AND 1990 NPTS  
(THOUSANDS)**



**TABLE 3.4**

**NUMBER OF PERSONS IN MSA BY MSA SIZE  
 1983 AND 1990 NPTS'  
 (THOUSANDS)**

	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000 and Over	TOTAL
<b>1983</b>	23,624 (14.8%)	21,655 (13.5%)	20,456 (12.8%)	45,633 (28.5%)	37,815 (23.6%)	<b>160,113<sup>2</sup></b> <b>(100.0%)</b>
<b>1990</b>	21,048 (12.2%)	18,851 (10.9%)	20,429 (11.9%)	43,693 (25.4%)	68,260 (39.6%)	<b>172,281</b> <b>(100.0%)</b>
<b>Percent Change</b>	-10.9	-12.9	-0.1	-4.3	80.5	7.6

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.
 <sup>2</sup> Includes 6.8% of persons living in MSA's, but MSA size is unknown.

**FIGURE 3.4**

**DISTRIBUTION OF PERSONS BY MSA SIZE  
 1983 AND 1990 NPTS**

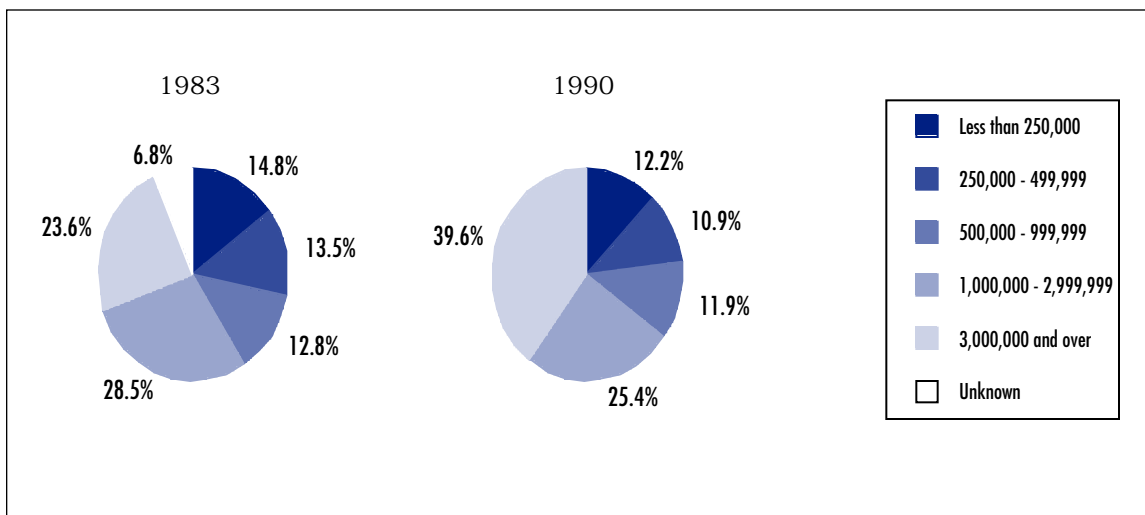




TABLE 3.5

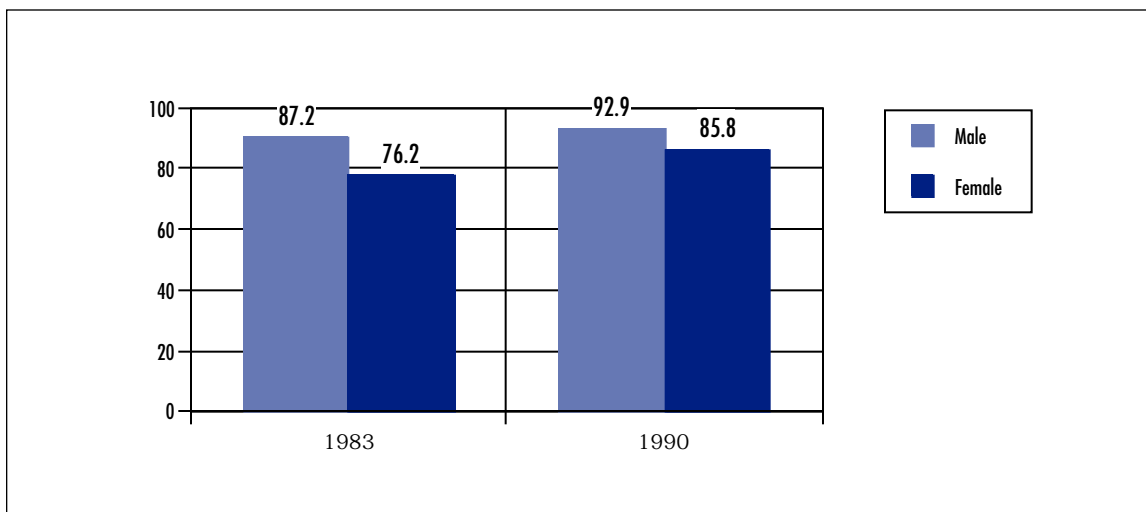
NUMBER OF ADULTS AND LICENSED DRIVERS BY SEX  
1967, 1977, 1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)

	Male			Female			All		
	Adults	Licensed Drivers	%	Adults	Licensed Drivers	%	Adults	Licensed Drivers	%
1969	66,652	57,981	87.0	73,526	45,005	61.2	140,178	102,986	73.5
1977	74,542	66,199	88.8	83,721	61,353	73.3	158,263	127,552	80.6
1983	83,831	73,079	87.2	92,135	70,201	76.2	175,966	143,280	81.4
1990	86,432	80,289 <sup>2</sup>	92.9	96,371	82,707 <sup>2</sup>	85.8	182,803	163,025 <sup>2</sup>	89.2

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.      <sup>2</sup> Includes licensed drivers whose age, sex, or both were unreported.

FIGURE 3.5

PERCENT OF ADULTS HOLDING A DRIVER'S LICENSE BY SEX  
1983 AND 1990 NPTS



**TABLE 3.6**

**NUMBER OF ADULTS AND LICENSED DRIVERS BY EMPLOYMENT STATUS AND SEX  
1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Employment Status	1983			1990		
	Adults	Licensed Drivers	% Licensed Drivers	Adults	Licensed Drivers	% Licensed Drivers
<b>Employed Full Time or Part Time</b>						
Male	58,406 (56.5%)	56,010 (57.8%)	95.9	63,590 (54.2%)	61,240 (54.7%)	96.3
Female	44,884 (43.5%)	40,878 (42.2%)	91.1	53,660 (45.8%)	50,710 (45.3%)	93.5
<b>TOTAL</b>	<b>103,290</b> (100.0%)	<b>96,888</b> (100.0%)	<b>93.8</b>	<b>117,255<sup>2</sup></b> (100.0%)	<b>111,960<sup>2</sup></b> (100.0%)	<b>95.5</b>
<b>Not employed</b>						
Male	25,425 (35.0%)	17,069 (36.8%)	67.1	22,839 (34.8%)	19,050 (37.3%)	83.4
Female	47,251 (65.0%)	29,323 (63.2%)	62.1	42,709 (65.2%)	32,000 (62.7%)	74.9
<b>TOTAL</b>	<b>72,676</b> (100.0%)	<b>46,392</b> (100.0%)	<b>63.8</b>	<b>65,548</b> (100.0%)	<b>51,064<sup>2</sup></b> (100.0%)	<b>77.9</b>
<b>TOTAL ADULTS</b>	<b>175,966</b>	<b>143,280</b>	<b>81.4</b>	<b>182,803</b>	<b>163,025</b>	<b>89.2</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

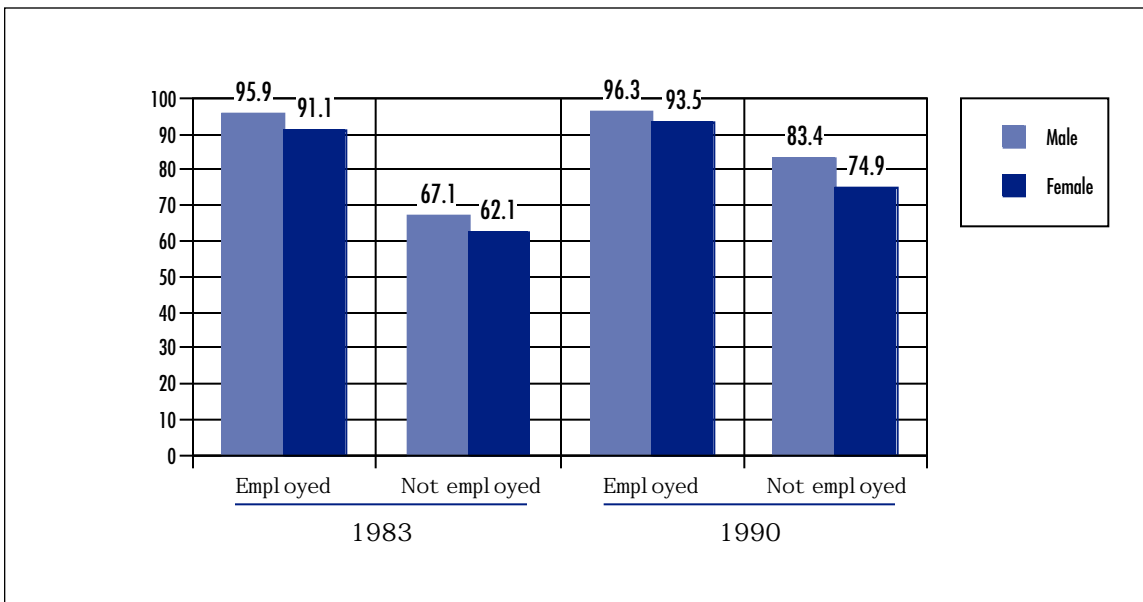
<sup>2</sup> Includes adults or licensed drivers whose sex was unreported.

A higher percentage of employed adults had a driver's license than those not employed. Between 1983 and 1990, the proportion of adults not employed having a driver's license

increased more prominently (from 63.8% in 1983 to 77.9% in 1990) than the increase in the proportion of employed adults having a driver's license (from 93.8% to 95.5%).

**FIGURE 3.6**

**DISTRIBUTION OF ADULTS POSSESSING DRIVERS' LICENSES BY SEX AND EMPLOYMENT STATUS 1983 AND 1990 NPTS**



The number of adults increased 3.9% from 176 million in 1983 to more than 182 million in 1990, while the number of licensed drivers increased by 13.8%. A significantly higher proportion of adults had drivers' licenses in 1990 than in 1983, 89% compared to 81%. Furthermore, a larger percentage of adults who lived outside the central city of an MSA or in non-MSA areas had

drivers' licenses than those who lived inside the central city of an MSA. This pattern may reflect the fact that distances between housing and work places, stores and services often allow central city residents to be less vehicle-dependent. Also, there is more public transportation available inside the central city, making drivers' licenses less essential.

**TABLE 3.7**

**NUMBER OF ADULTS AND LICENSED DRIVERS BY PLACE OF RESIDENCE  
1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Place of Residence	1983			1990		
	Adults	Licensed Drivers	% Licensed Drivers	Adults	Licensed Drivers	% Licensed Drivers
MSA, Central City	53,499 (30.4%)	39,331 (27.5%)	73.5	66,126 (36.2%)	56,180 (34.5%)	85.0
MSA, Non-Central City	72,554 (41.2%)	61,893 (43.2%)	85.3	76,080 (41.6%)	70,103 (43.0%)	92.1
Non-MSA	43,710 (24.8%)	36,704 (25.6%)	84.0	40,597 (22.2%)	36,742 (22.5%)	90.5
<b>TOTAL</b>	<b>175,966<sup>2</sup></b> (100.0%)	<b>143,280<sup>3</sup></b> (100.0%)	<b>81.4</b>	<b>182,803</b> (100.0%)	<b>163,025</b> (100.0%)	<b>89.2</b>

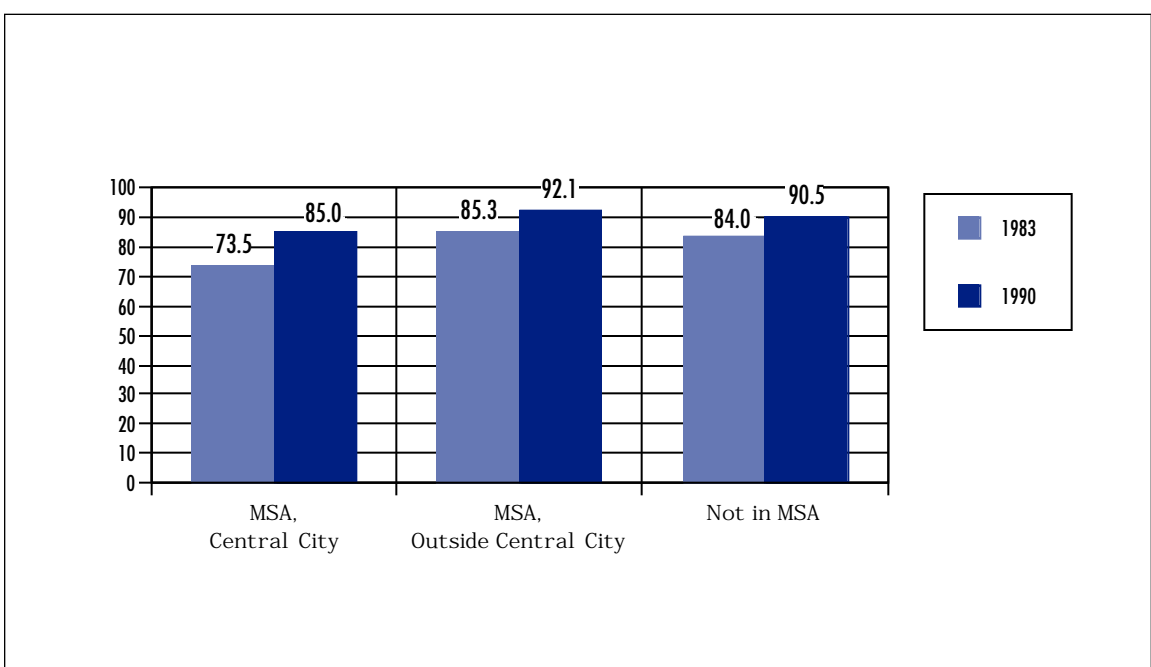
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 3.6% of adults living in MSA's but location unknown.

<sup>3</sup> Includes 3.7% of licensed drivers living in MSA's but location unknown.

FIGURE 3.7

DISTRIBUTION OF ADULTS POSSESSING DRIVERS' LICENSES BY PLACE OF RESIDENCE  
1983 AND 1990 NPTS



**TABLE 3.8**

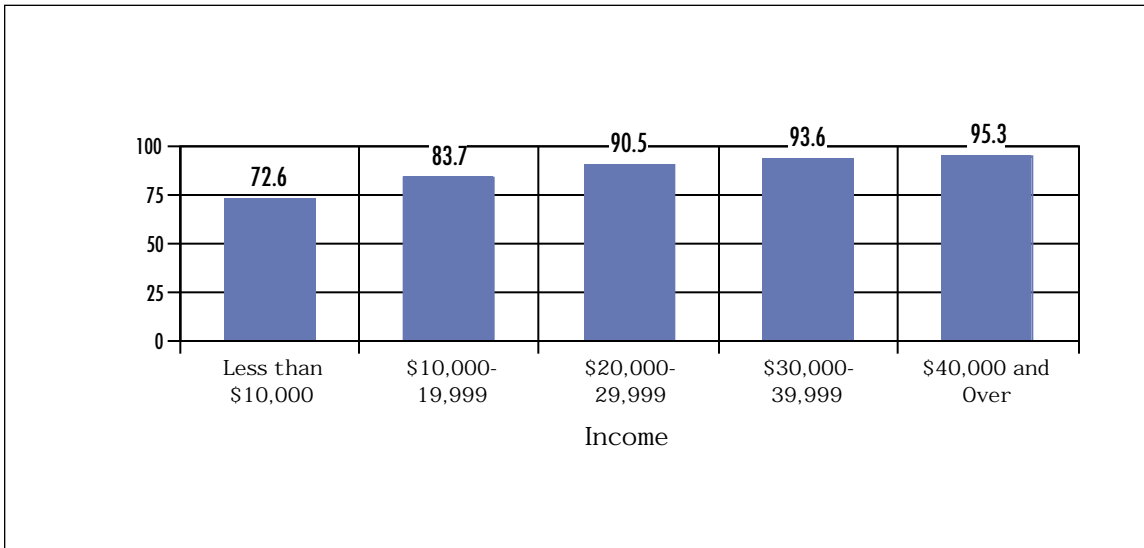
**NUMBER OF ADULTS AND LICENSED DRIVERS BY HOUSEHOLD INCOME  
1990 NPTS  
(THOUSANDS)**

Annual Household Income (1990 Dollars)	1990		
	Adults	Licensed Drivers	% Licensed Drivers
Less than \$10,000	14,181 (7.8%)	10,300 (6.3%)	72.6
\$10,000 - \$19,999	22,950 (12.6%)	19,199 (11.8%)	83.7
\$20,000 - \$29,999	23,899 (13.1%)	21,628 (13.3%)	90.5
\$30,000 - \$39,999	23,611 (27.7%)	22,102 (13.6%)	93.6
\$40,000 and over	50,700 (12.9%)	48,296 (29.6%)	95.3
Unreported Income	47,462 (25.9%)	41,500 (25.4%)	87.4
<b>TOTAL</b>	<b>182,803</b> (100.0%)	<b>163,025</b> (100.0%)	<b>89.2</b>

On average, 89% of adults had a driver's license in 1990. The percentage of licensed drivers in the adult population increased as household income increased. For example, 95.3% of the adults in households with

income of more than \$40,000 had a driver's license, while only 72.6% of the adults in households with income less than \$10,000 had a driver's license.

**FIGURE 3.8**  
**DISTRIBUTION OF ADULTS POSSESSING DRIVERS' LICENSES BY HOUSEHOLD INCOME**  
**1990 NPTS**



**TABLE 3.9**

**NUMBER OF LICENSED DRIVERS BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Age Group	Male			Female			All		
	Adults	Licensed Drivers	% Licensed Drivers	Adults	Licensed Drivers	% Licensed Drivers	Adults	Licensed Drivers	% Licensed Drivers
<b>1983</b>									
16 - 19	7,691	5,175	67.3	7,592	4,336	57.1	15,283	9,511	62.2
20 - 34	29,928	26,803	89.6	30,918	26,438	85.5	60,846	53,241	87.5
35 - 54	25,191	22,802	90.5	26,504	22,741	85.8	51,695	45,543	88.1
55 - 64	11,191	10,403	93.0	12,564	9,656	76.9	23,755	20,059	84.4
65+	9,830	7,896	80.3	14,556	7,030	48.3	24,387	14,926	61.2
<b>TOTAL</b>	<b>83,831</b>	<b>73,079</b>	<b>87.2</b>	<b>92,135</b>	<b>70,201</b>	<b>76.2</b>	<b>175,966</b>	<b>143,280</b>	<b>81.4</b>
<b>1990</b>									
16 - 19	6,727	4,633	68.9	7,124	4,913	69.0	13,851	9,546	68.9
20 - 34	28,563	26,727	93.6	30,954	28,021	90.5	59,517	54,748	92.0
35 - 54	30,168	29,029	96.2	31,782	29,328	92.3	61,950	58,357	94.2
55 - 64	9,645	9,229	95.7	10,885	9,057	83.2	20,530	18,285	89.1
65+	11,329	10,025	88.5	15,626	10,255	65.6	26,955	20,281	75.2
<b>TOTAL</b>	<b>86,432</b>	<b>80,289<sup>2,3</sup></b>	<b>92.9</b>	<b>96,371</b>	<b>82,707<sup>2,3</sup></b>	<b>85.8</b>	<b>182,803</b>	<b>163,025<sup>2,3</sup></b>	<b>89.2</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes licensed drivers whose age, sex, or both were unreported.

<sup>3</sup> Figures are different from those reported in *Highway Statistics*. *Highway Statistics* reported 85,792,450 male drivers and 81,222,800 female drivers, resulting in a total of 167,015,250 drivers in 1990.

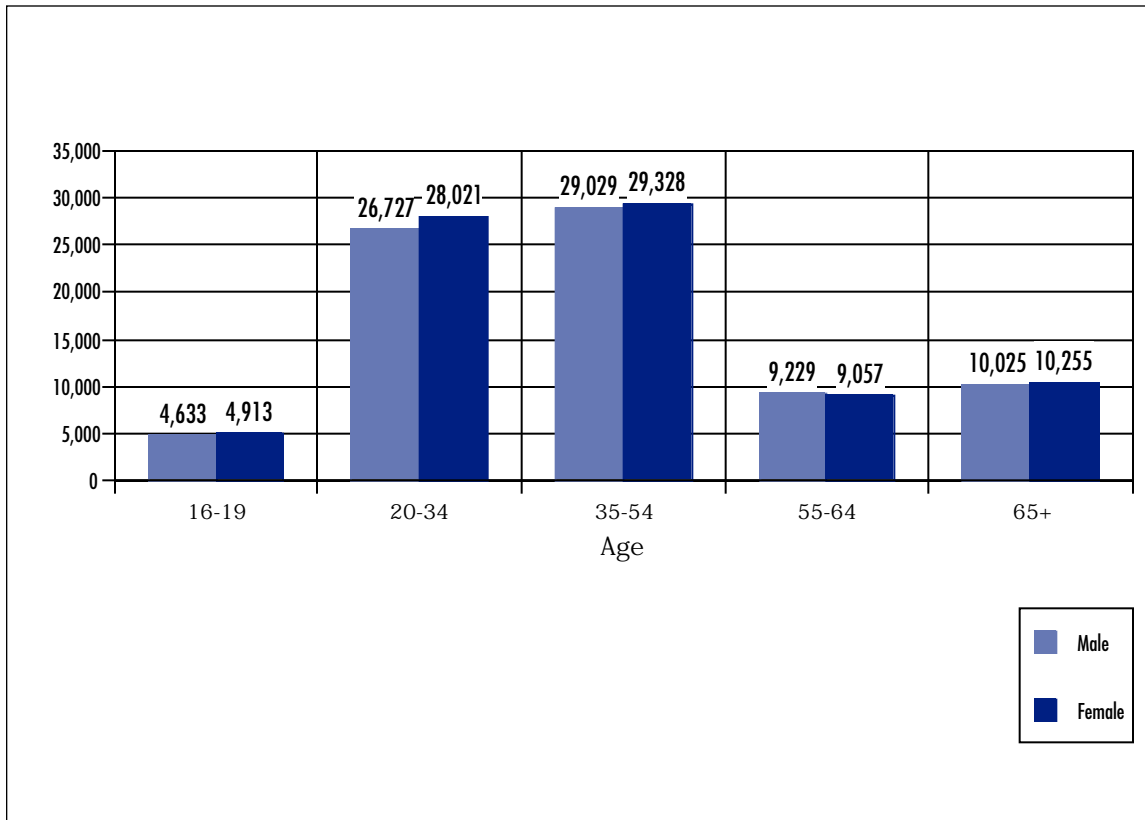


The number of females licensed to drive continues to expand over time. Between 1983 and 1990 the number of female drivers grew by 12.5 million while the comparable number for male drivers was 7.2 million. The percentage

of female adults licensed to drive grew from 76.2% in 1983 to 85.8% in 1990. For males, the corresponding data show only modest growth — from 87.2% licensed to drive in 1983 to 92.9% in 1990.

**FIGURE 3.9**

**NUMBER OF LICENSED DRIVERS BY DRIVER'S AGE AND SEX  
1990 NPTS**



From 1969 to 1990, travel by women increased greatly, from 5,411 annual miles per female driver in 1969 to 9,528 miles in 1990 - a 76% increase. This increase can be explained partially by the increases in female workers during the same period. Male drivers also increased their driving but not as dra-

matically as female drivers. The amount of annual travel increased for all age groups, both females and males, with the largest increase being for drivers between 16 and 19 years old.

**TABLE 3.10**

**AVERAGE ANNUAL MILES PER LICENSED DRIVER BY DRIVER'S AGE AND SEX  
1969, 1977, 1983, AND 1990 NPTS'  
(MILES)**

Age	1969	1977	1983	1990	Percent Change 69-90	
					Annual Rate <sup>2</sup>	Total Change <sup>3</sup>
<b>Male</b>						
16-19	5,461	7,045	5,908	9,543	2.7	75
20-34	13,133	15,222	15,844	18,310	1.6	39
35-54	12,841	16,097	17,808	18,871	1.9	47
55-64	10,696	12,455	13,431	15,224	1.7	42
65+	5,919	6,795	7,198	9,162	2.1	55
<b>Average</b>	<b>11,352</b>	<b>13,397</b>	<b>13,962</b>	<b>16,536</b>	<b>1.8</b>	<b>46</b>
<b>Female</b>						
16-19	3,586	4,036	3,874	7,387	3.5	106
20-34	5,512	6,571	7,121	11,174	3.4	103
35-54	6,003	6,534	7,347	10,539	2.7	76
55-64	5,375	5,097	5,432	7,211	1.4	34
65+	3,664	3,572	3,308	4,750	1.2	30
<b>Average</b>	<b>5,411</b>	<b>5,940</b>	<b>6,382</b>	<b>9,528</b>	<b>2.7</b>	<b>76</b>

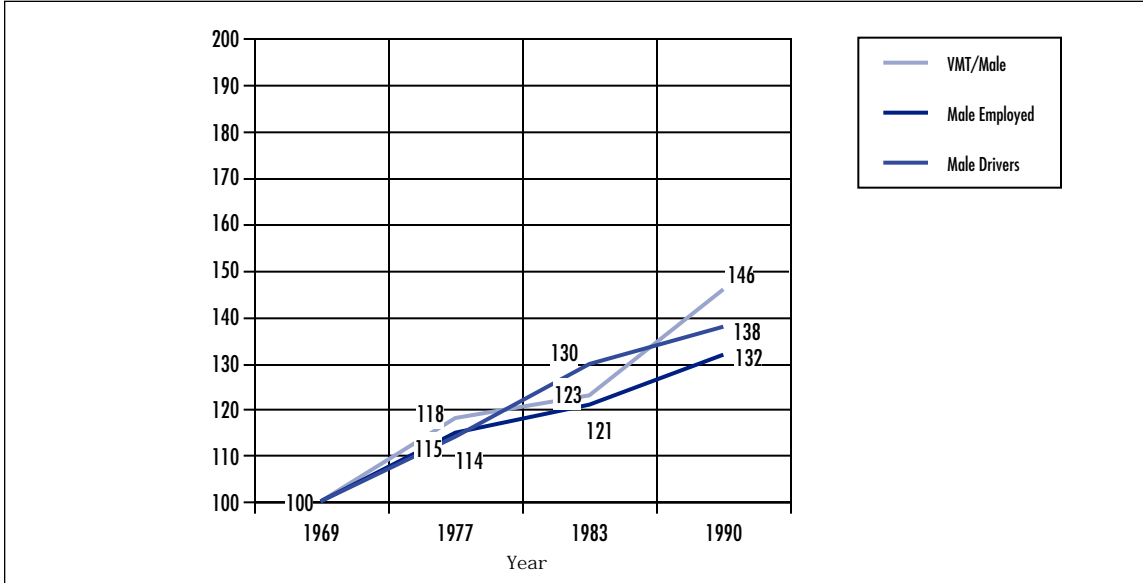
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Compounded annual rate of percentage change.

<sup>3</sup> Percentage change for period.

FIGURE 3.10

CHANGES IN ANNUAL MILES OF TRAVEL PER MALE DRIVER, NUMBER OF MALE LICENSED DRIVERS, AND NUMBER OF MALE WORKERS, 1969, 1977, 1983, AND 1990 NPTS



LICENSED DRIVERS DETERMINANTS OF TRAVEL

FIGURE 3.11

CHANGES IN ANNUAL MILES OF TRAVEL PER FEMALE DRIVER, NUMBER OF FEMALE LICENSED DRIVERS, AND NUMBER OF FEMALE WORKERS, 1969, 1977, 1983, AND 1990 NPTS

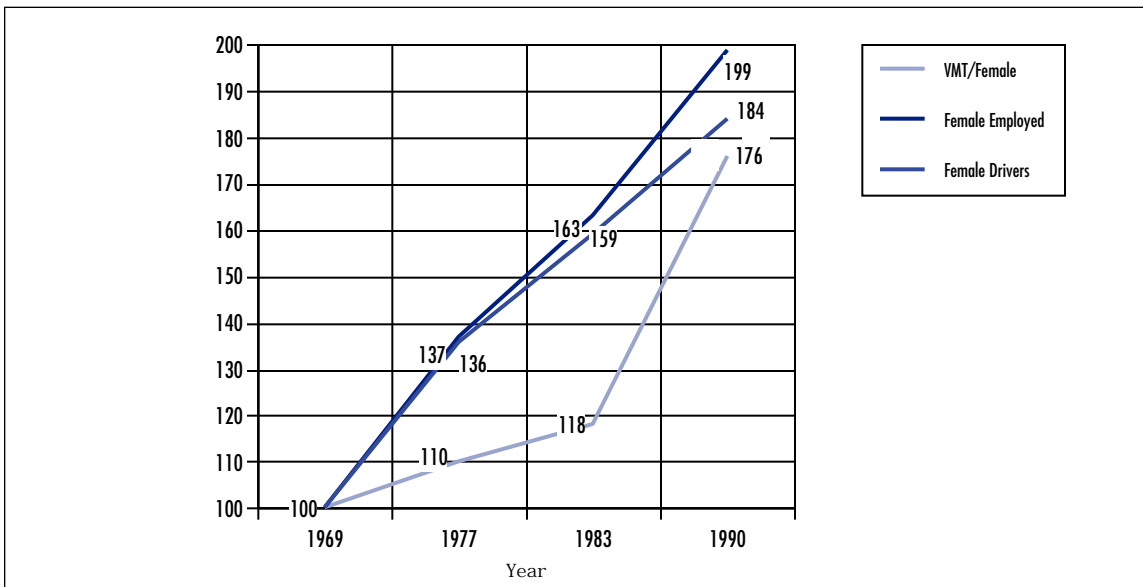


TABLE 3.11

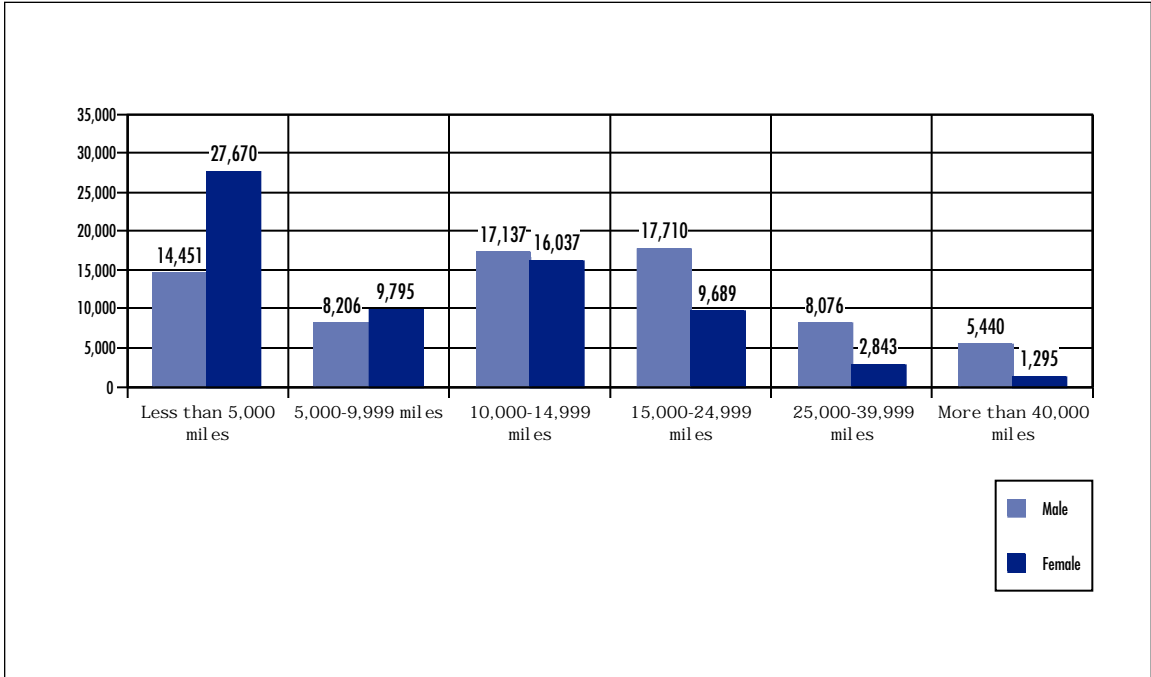
**NUMBER OF LICENSED DRIVERS BY DRIVER'S AGE, SEX, AND ANNUAL MILES DRIVEN  
1990 NPTS  
(THOUSANDS)**

AGE	Annual Miles Driven						TOTAL <sup>1</sup>
	Less than 5,000	5,000 - 9,999	10,000 - 14,999	15,000 - 24,999	25,000 - 39,999	40,000 and Above	
<b>Male</b>							
16-19	2,035 (43.9%)	401 (8.7%)	517 (11.2%)	465 (10.0%)	159 (3.4%)	209 (4.5%)	<b>4,633</b> (100.0%)
20-34	4,015 (15.0%)	2,160 (8.1%)	5,909 (22.1%)	6,329 (23.7%)	3,348 (12.5%)	2,165 (8.1%)	<b>26,728</b> (100.0%)
35-54	3,277 (11.3%)	2,833 (9.8%)	6,467 (22.3%)	7,429 (25.6%)	3,436 (11.8%)	2,492 (8.6%)	<b>29,030</b> (100.0%)
55-64	1,607 (17.4%)	1,097 (11.9%)	2,196 (23.8%)	1,989 (21.6%)	805 (8.7%)	439 (4.8%)	<b>9,229</b> (100.0%)
65+	3,376 (33.7%)	1,640 (16.4%)	1,967 (19.6%)	1,316 (13.1%)	293 (2.9%)	108 (1.1%)	<b>10,027</b> (100.0%)
<b>TOTAL<sup>1</sup></b>	<b>14,451</b> (18.0%)	<b>8,206</b> (10.2%)	<b>17,137</b> (21.3%)	<b>17,710</b> (22.1%)	<b>8,076</b> (10.1%)	<b>5,440</b> (6.8%)	<b>80,289<sup>2</sup></b> (100.0%)
<b>Female</b>							
16-19	2,240 (45.6%)	229 (4.7%)	616 (12.5%)	375 (7.6%)	100 (2.0%)	89 (1.8%)	<b>4,913</b> (100.0%)
20-34	7,572 (27.0%)	3,190 (11.4%)	6,548 (23.4%)	4,392 (15.7%)	1,243 (4.4%)	533 (1.9%)	<b>28,021</b> (100.0%)
35-54	8,400 (28.6%)	3,983 (13.6%)	6,298 (21.5%)	3,820 (13.0%)	1,286 (4.4%)	567 (1.9%)	<b>29,328</b> (100.0%)
55-64	3,745 (41.4%)	1,212 (13.4%)	1,426 (15.8%)	674 (7.5%)	164 (1.8%)	69 (0.8%)	<b>9,057</b> (100.0%)
65+	5,318 (51.9%)	1,059 (10.3%)	967 (9.4%)	337 (3.3%)	28 (0.3%)	33 (0.3%)	<b>10,255</b> (100.0%)
<b>TOTAL<sup>1</sup></b>	<b>27,670</b> (33.5%)	<b>9,795</b> (11.8%)	<b>16,037</b> (19.4%)	<b>9,689</b> (11.7%)	<b>2,843</b> (3.4%)	<b>1,295</b> (1.6%)	<b>82,707<sup>2</sup></b> (100.0%)
<sup>1</sup> Includes licensed drivers whose age, annual miles driven, or both were unreported.				<sup>2</sup> Figures are different from those reported in Highway Statistics. Highway Statistics reported 85,792,450 male drivers and 81,222,800 female drivers, resulting in a total of 167,015,250 drivers in 1990.			

About a third (30%) of men and of women drive between 5,000 and 15,000 miles per year. However, the difference in the amount of driving between men and women becomes significantly noticeable at both ends of the annual mile distribution. Almost 40% of all men drove more than 15,000 miles per year, but only 17% of women drove that much. Conversely, driving less than 5,000 miles a year was the norm for women in all age groups; however, only most of the “youngest” and the “oldest” male drivers drove less than 5,000 miles a year (Table 3.11).

FIGURE 3.12

DISTRIBUTION OF LICENSED DRIVERS BY SEX AND ANNUAL MILES DRIVEN 1990 NPTS



**TABLE 3.12**

**DISTRIBUTION OF LICENSED DRIVERS BY DRIVER'S AGE, SEX, AND ANNUAL MILES DRIVEN  
1990 NPTS  
(PERCENT)**

AGE	Annual Miles Driven						TOTAL <sup>1</sup>
	Less than 5,000	5,000 - 9,999	10,000 - 14,999	15,000 - 24,999	25,000 - 39,999	40,000 and Above	
<b>Male</b>							
16-19	14.1	4.9	3.0	2.6	2.0	3.8	<b>5.8</b>
20-34	27.8	26.3	34.5	35.7	41.5	39.8	<b>33.3</b>
35-54	22.7	34.5	37.7	42.0	42.5	45.8	<b>36.2</b>
55-64	11.1	13.4	12.8	11.2	10.0	8.1	<b>11.5</b>
65+	23.4	20.0	11.5	7.4	3.6	2.0	<b>12.5</b>
<b>TOTAL<sup>1</sup></b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Female</b>							
16-19	8.1	2.3	3.8	3.9	3.5	6.9	<b>5.9</b>
20-34	27.4	32.6	40.8	45.3	43.7	41.1	<b>33.9</b>
35-54	30.4	40.7	39.3	39.4	45.2	43.8	<b>35.5</b>
55-64	13.5	12.4	8.9	7.0	5.8	5.3	<b>11.0</b>
65+	19.2	10.8	6.0	3.5	1.0	2.5	<b>12.4</b>
<b>TOTAL<sup>1</sup></b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<sup>1</sup> Includes licensed drivers whose age, annual miles driven, or both were unreported.							

As expected, employment status has a significant influence in the number of miles driven annually. In 1990, employed men drove 8,400 miles more than those not employed. Likewise, employed women drove

4,500 miles more than their not employed counterparts. In spite of increases in women's driving over time, note that women still drove 7,000 miles less per year than men (Table 3.10).

**TABLE 3.13**  
**ESTIMATED AVERAGE ANNUAL MILES PER LICENSED DRIVER BY SEX AND EMPLOYMENT STATUS**  
**1983 AND 1990 NPTS<sup>1</sup>**

Employment Status	1983	1990	Percent Change
<b>Employed Full Time or Part Time</b>			
Male	15,882	18,461	16.2
Female	7,738	11,180	44.5
<b>TOTAL</b>	<b>12,480</b>	<b>15,280</b>	<b>22.4</b>
<b>Not Employed</b>			
Male	7,654	10,090	31.8
Female	4,473	6,712	50.1
<b>TOTAL</b>	<b>5,663</b>	<b>8,048</b>	<b>42.1</b>
<b>TOTAL DRIVERS</b>	<b>10,288</b>	<b>13,125</b>	<b>27.6</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**TABLE 3.14**

**ESTIMATED AVERAGE ANNUAL MILES DRIVEN PER LICENSED DRIVER BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS<sup>1</sup>  
(INCOME IN 1990 DOLLARS)**

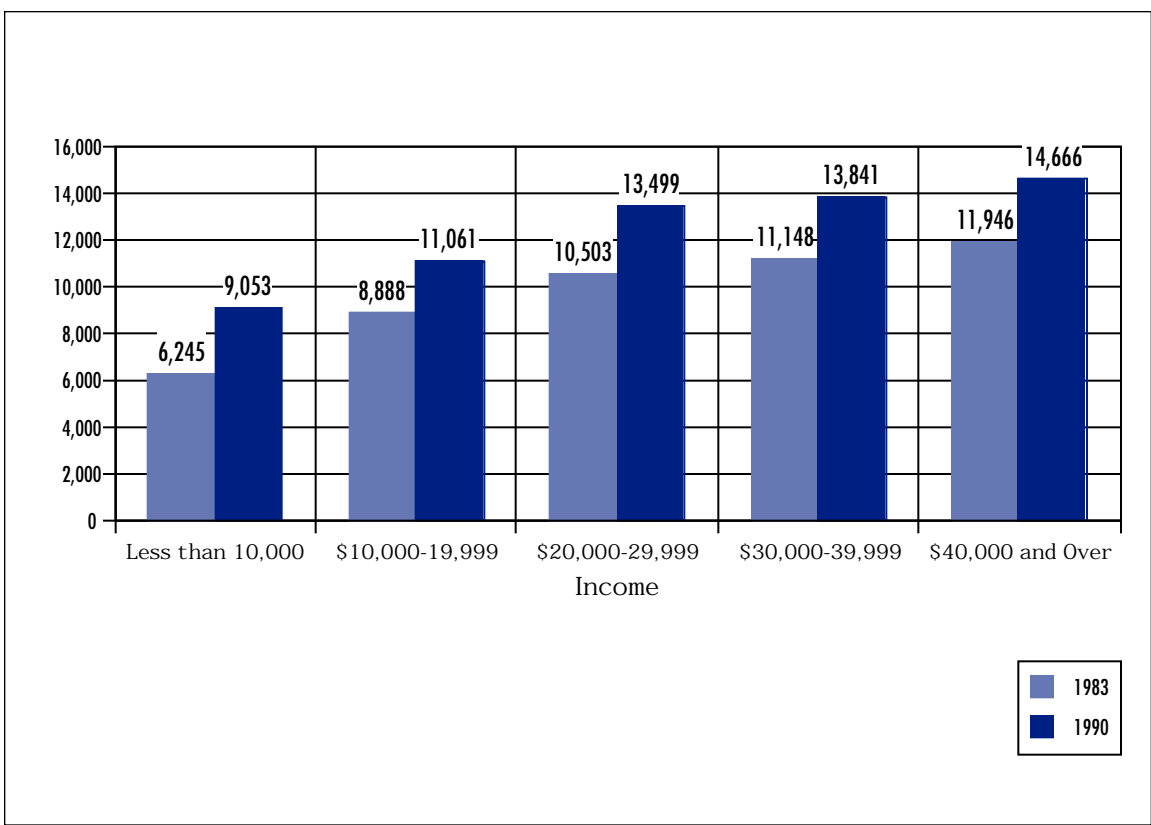
Annual Income (1990 Dollars)	1983	1990	Percent Change
Under \$10,000	6,245	9,053	45.0
\$10,000 - \$19,999	8,888	11,061	24.4
\$20,000 - \$29,999	10,503	13,499	28.5
\$30,000 - \$39,999	11,148	13,841	24.2
\$40,000 and over	11,946	14,666	22.8
<b>TOTAL HOUSEHOLDS</b>	<b>10,288</b>	<b>13,125</b>	<b>27.6</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.



**FIGURE 3.13**

**ESTIMATED AVERAGE ANNUAL MILES DRIVEN PER LICENSED DRIVER BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS  
(INCOME IN 1990 DOLLARS)**



Over the 1969 to 1990 period, the total number of households increased by 49% while the number of household vehicles increased by 128%. The number of house-

holds without a vehicle declined by 4 million over this time, while the number of households with three or more vehicles grew by 15 million.

TABLE 3.15

HOUSEHOLD VEHICLE OWNERSHIP<sup>1</sup>  
1969, 1977, 1983, AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)

Number of Household-based Vehicles	1969 <sup>3</sup>	1977	1983	1990	Percent Change 69-90	
					Annual Rate <sup>4</sup>	Total Change <sup>5</sup>
No vehicle	12,876 (20.6%)	11,538 (15.3%)	11,548 (13.5%)	8,573 (9.2%)	-1.9	-33
One vehicle	30,252 (48.4%)	26,092 (34.6%)	28,780 (33.7%)	30,654 (32.8%)	0.1	1
Two vehicles	16,501 (26.4%)	25,942 (34.4%)	28,632 (33.5%)	35,872 (38.4%)	3.8	117
Three or more vehicles	2,875 (4.6%)	11,840 (15.7%)	16,411 (19.2%)	18,248 (19.5%)	9.2	535
<b>Total Households</b>	<b>62,504</b>	<b>75,412</b>	<b>85,371</b>	<b>93,347</b>	<b>1.9</b>	<b>49</b>
<b>Total Household Vehicles</b>	<b>72,500</b>	<b>120,098</b>	<b>143,714</b>	<b>165,221</b>	<b>4.0</b>	<b>128</b>
<b>Vehicles Per Household</b>	<b>1.16</b>	<b>1.59</b>	<b>1.68</b>	<b>1.77</b>	<b>2.0</b>	<b>53</b>

<sup>1</sup> Includes all vehicles owned by or available on a regular basis to the household.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

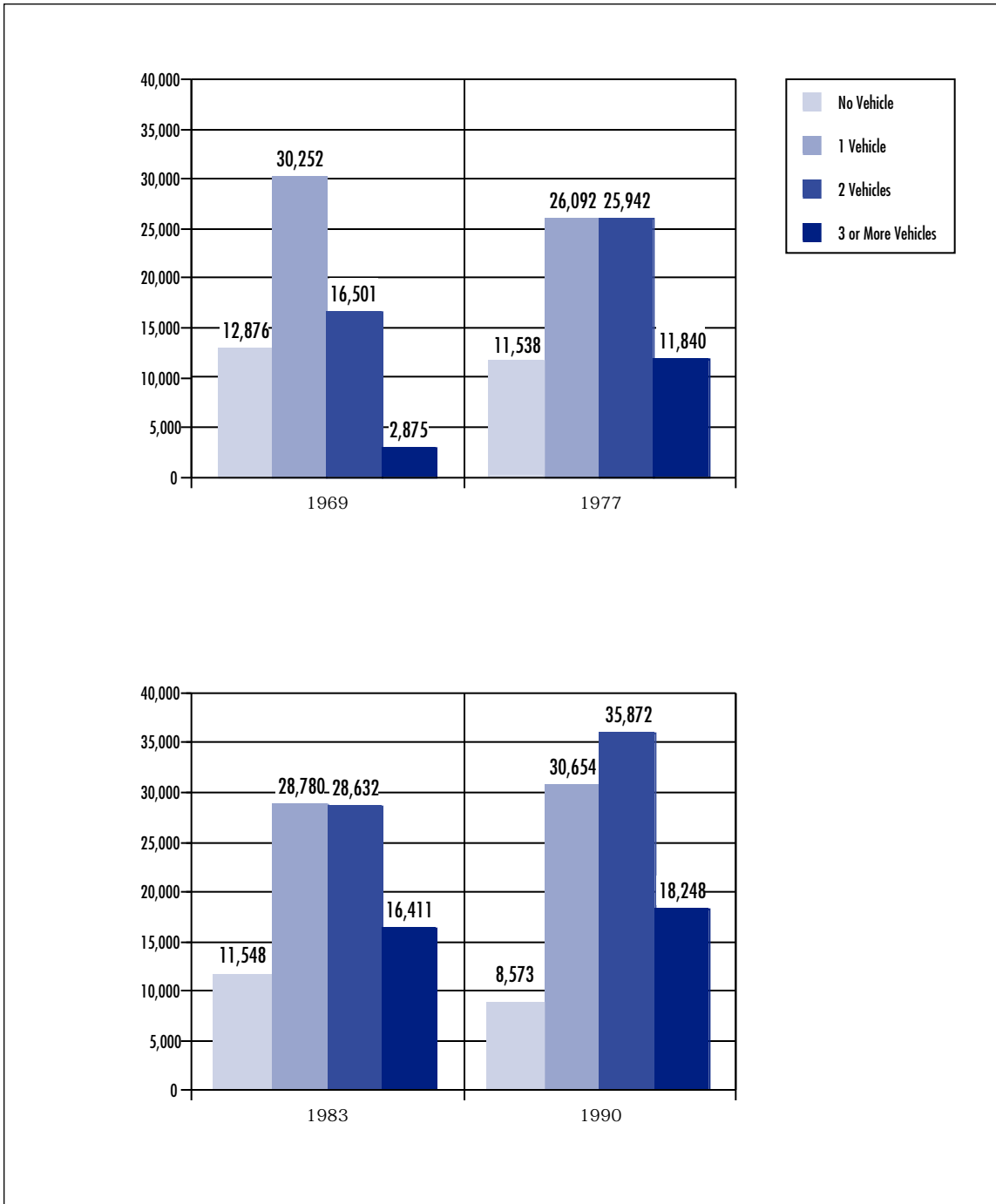
<sup>3</sup> The 1969 survey does not include pickups or other light trucks as household vehicles.

<sup>4</sup> Compounded annual rate of percentage change.

<sup>5</sup> Percentage change for period.

FIGURE 3.14

HOUSEHOLD VEHICLE OWNERSHIP  
1969, 1977, 1983, AND 1990 NPTS



Household vehicle ownership keeps increasing as household size declines. By 1983, the majority of households had at least one vehicle per adult. For example, in 1969,

30.3% of the two-adult households had two or more vehicles, but by 1983 this percentage increased to 65%, and by 1990 it reached 76%.

TABLE 3.16

DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF ADULTS AND  
NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup>  
1969, 1977, 1983, AND 1990 NPTS<sup>2</sup>  
(PERCENTAGE)

	1969 <sup>3</sup>	1977	1983	1990
<b>One-Adult Households</b>				
No vehicle	56.2	39.2	34.0	21.4
One vehicle	42.3	53.2	57.1	63.7
Two vehicles	1.5	5.7	7.1	11.4
Three or more vehicles	.0	1.9	1.8	3.5
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>No. of Households (000)</b>	<b>NA</b>	<b>19,381</b>	<b>23,360</b>	<b>28,045</b>
<b>Two-Adult Households</b>				
No vehicle	12.4	7.5	5.8	3.6
One vehicle	57.3	33.1	29.2	20.4
Two vehicles	29.1	48.2	49.7	54.8
Three or more vehicles	1.2	11.2	15.3	21.2
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>No. of Households (000)</b>	<b>NA</b>	<b>40,270</b>	<b>45,065</b>	<b>53,407</b>
<b>Three- or More Adult Households</b>				
No vehicle	8.2	5.9	5.6	4.7
One vehicle	32.2	15.9	13.4	14.3
Two vehicles	42.6	34.4	27.1	28.5
Three or more vehicles	17.0	43.8	53.9	52.5
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>No. of Households (000)</b>	<b>NA</b>	<b>15,761</b>	<b>16,914</b>	<b>11,119</b>
<b>ALL HOUSEHOLDS (000)</b>	<b>62,504</b>	<b>75,412</b>	<b>85,371<sup>4</sup></b>	<b>93,347<sup>4</sup></b>

<sup>1</sup> See Footnote 1 of Table 3.15.

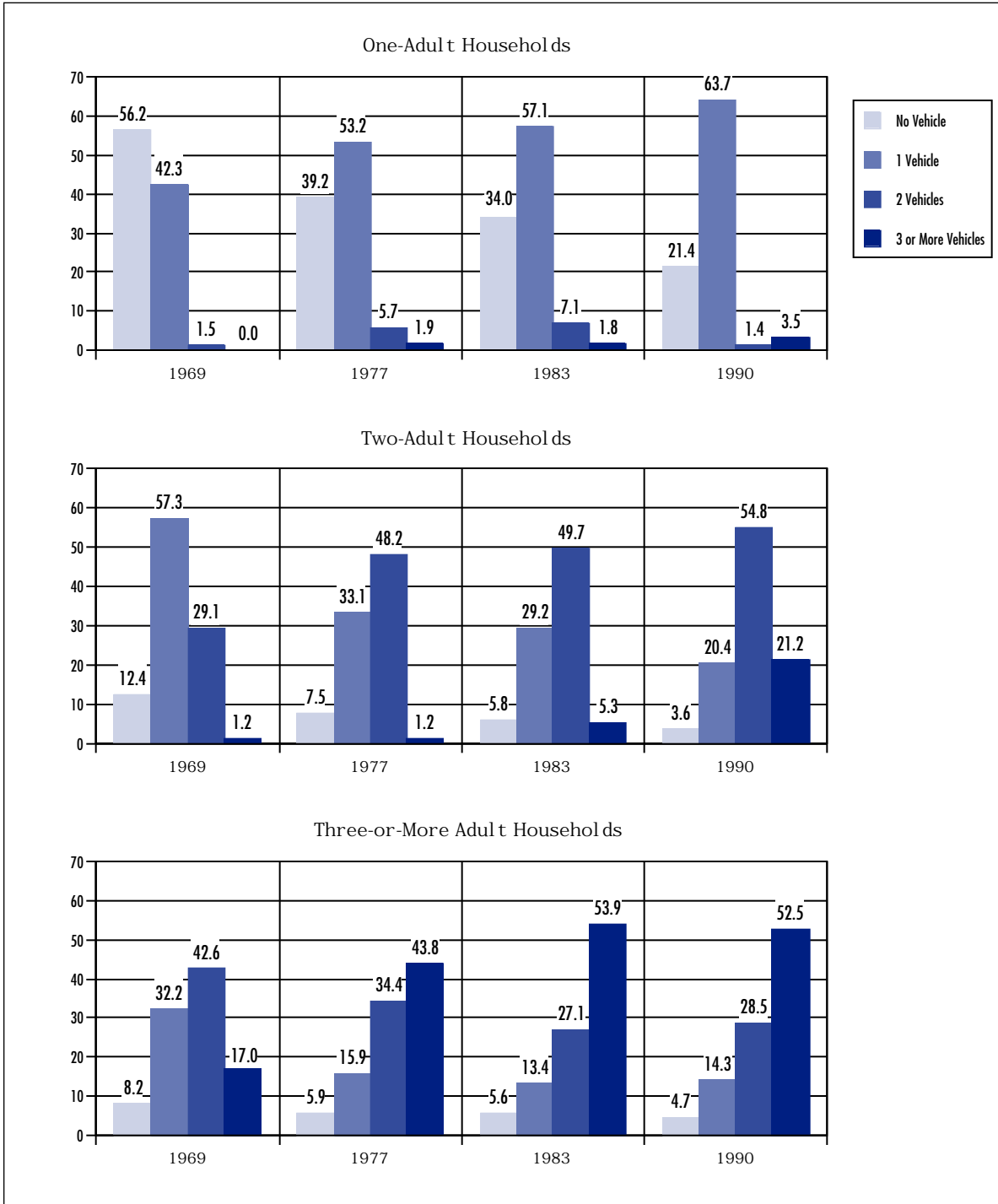
<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> The 1969 survey does not include pickups or other light trucks as household vehicles.

<sup>4</sup> Includes households where no household adults were reported.

FIGURE 3.15

DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF ADULTS AND NUMBER OF HOUSEHOLD-BASED VEHICLES 1969, 1977, 1983, AND 1990 NPTS



While 9.2% of American households were without any vehicle, households owned an average of 1.77 vehicles in 1990. In the

majority of one-person and two-person households, there was at least one vehicle available per household member.

**TABLE 3.17**

**DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF HOUSEHOLD MEMBERS AND  
 NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup>  
 1990 NPTS  
 (PERCENT)**

No. of Household-based Vehicles	No. of Household Members							TOTAL
	One	Two	Three	Four	Five	Six-Seven	Eight-Ten	
None	22.2	5.5	5.3	3.1	4.6	6.4	7.3	<b>9.2</b>
One	65.7	27.8	21.5	15.4	16.0	13.4	19.6	<b>32.8</b>
Two	9.4	52.1	42.7	48.8	44.2	39.7	32.9	<b>38.4</b>
Three +	2.7	14.6	30.5	32.7	35.2	40.5	40.2	<b>19.6</b>
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>No. of Households (000)</b>	<b>22,999</b>	<b>30,114</b>	<b>16,128</b>	<b>14,069</b>	<b>6,742</b>	<b>2,831</b>	<b>464</b>	<b>93,347</b>
<b>Vehicles per Household</b>	<b>0.94</b>	<b>1.81</b>	<b>2.07</b>	<b>2.29</b>	<b>2.29</b>	<b>2.49</b>	<b>2.48</b>	<b>1.77</b>

<sup>1</sup> See Footnote 1 of Table 3.15.

In 1990, of the households that reported income, about one-third had incomes of \$20,000 or less. Another third made between \$20,000 and \$40,000, and the final third made over \$40,000. The number of

vehicles per household increased as household income increased. The average number of vehicles per household increased from 1.7 vehicles in 1983 to 1.8 in 1990.

TABLE 3.18

NUMBER OF HOUSEHOLDS AND NUMBER OF VEHICLES PER HOUSEHOLD BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS<sup>1</sup>  
(INCOME IN 1990 DOLLARS)

	1983		1990	
	Number of Households (000)	Number of Vehicles per Household	Number of Households (000)	Number of Vehicles per Household
Under \$10,000	18,016 (21.1%)	0.8	9,252 (9.9%)	1.0
\$10,000 - \$19,999	18,437 (21.6%)	1.4	13,011 (13.9%)	1.4
\$20,000 - \$29,999	15,694 (18.4%)	1.8	12,294 (13.2%)	1.7
\$30,000 - \$39,999	12,065 (14.1%)	2.1	11,323 (12.1%)	2.0
\$40,000 and over	21,167 (24.8%)	2.4	21,704 (23.3%)	2.3
Unreported	NA <sup>2</sup>	NA <sup>2</sup>	25,762 (27.6%)	1.7
<b>TOTAL</b>	<b>85,371</b> (100.0%)	<b>1.7</b>	<b>93,347</b> (100.0%)	<b>1.8</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 6.8% of persons living in MSA's, but MSA size is unknown.

**TABLE 3.19**

**NUMBER OF HOUSEHOLDS BY HOUSEHOLD COMPOSITION  
1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Household Composition	1983	1990
Single Adult, No Children	16,955 (19.9%)	15,505 (16.6%)
Two or More Adults, No Children	22,629 (26.5%)	24,182 (25.9%)
Single Adult, Youngest Child Under 6	1,942 (2.2%)	1,698 (1.8%)
Two or More Adults, Youngest Child Under 6	13,776 (16.1%)	13,791 (14.8%)
Single Adult, Youngest Child 6-15	3,394 (4.0%)	2,382 (2.6%)
Two or More Adults, Youngest Child 6-15	12,277 (14.4%)	12,332 (13.2%)
Single Adult, Youngest Child 16 or Older	838 (1.0%)	819 (0.9%)
Two or More Adults, Youngest Child 16 or Older	4,618 (5.4%)	4,444 (4.8%)
Single Adult, Retired, No Children	2,400 (2.8%)	7,642 (8.2%)
Two or More Adults, Retired, No Children	6,546 (7.7%)	9,777 (10.5%)
<b>TOTAL</b>	<b>85,375</b> (100.0%)	<b>93,347<sup>2</sup></b> (100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 775 households for which household composition was unreported.

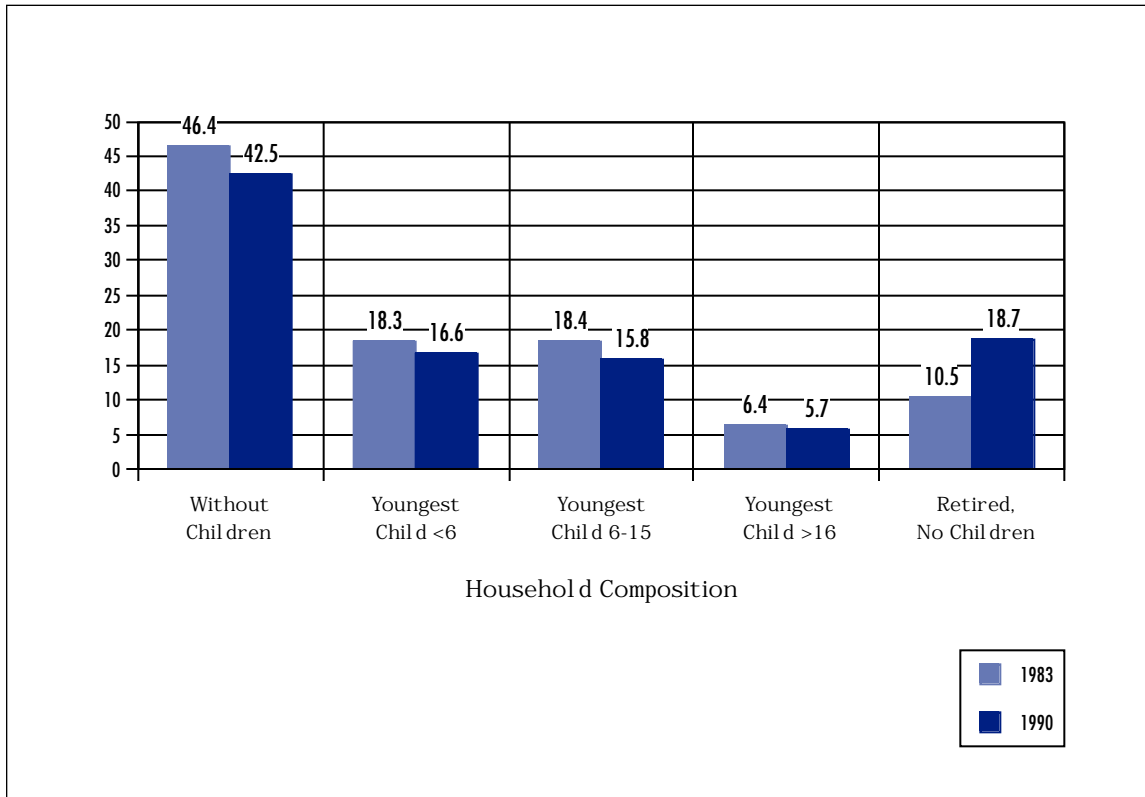


There were more than 93,000 households in 1990, an increase of 9% from 1983. Households with retired adults and no children increased from 10.5% of all households in 1983 to 18.7% in 1990. In general, households with a single non-retired adult

decreased between 1983 and 1990 both in number of households and in relative percent. However, households with two or more non-retired adults increased slightly in the number of households, but decreased in relative percent.

**FIGURE 3.16**

**DISTRIBUTION OF HOUSEHOLDS BY HOUSEHOLD COMPOSITION 1983 AND 1990 NPTS**



In 1990, approximately 50% of American households were located in metropolitan areas with a population of more than

1 million. Twenty-three percent of the households were outside metropolitan areas.

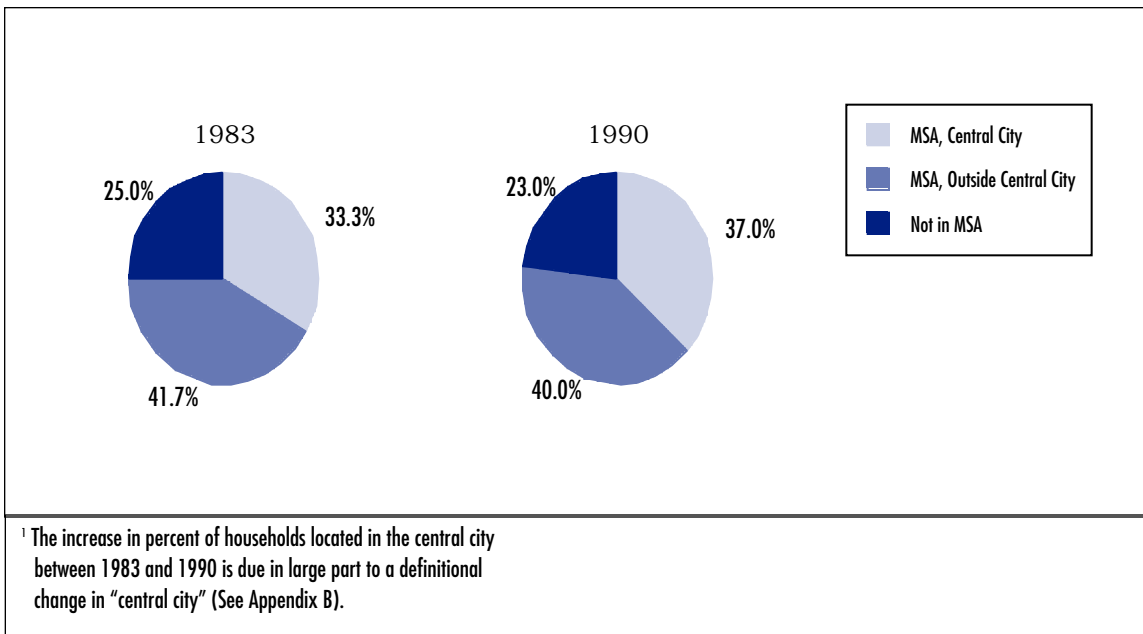
**TABLE 3.20**

**NUMBER OF HOUSEHOLDS BY PLACE OF RESIDENCE AND MSA SIZE  
1990 NPTS  
(THOUSANDS)**

MSA Size	Place of Residence			TOTAL
	MSA, Central City	MSA, Non-Central City	Non-MSA	
Less than 250,000	5,083 (56.4%)	3,922 (43.6%)	0	9,005 (100%)
250,000-499,999	3,942 (49.7%)	3,997 (50.3%)	0	7,939 (100%)
500,000-999,999	4,599 (52.1%)	4,221 (47.9%)	0	8,820 (100%)
1,000,000-2,999,999	8,783 (48.3%)	9,413 (51.7%)	0	18,196 (100%)
3,000,000 or more	12,172 (43.5%)	15,800 (56.5%)	0	27,972 (100%)
Not in MSA	0 (0%)	0 (0%)	21,415 (100%)	21,415 (100%)
<b>TOTAL</b>	<b>34,579</b> (37.0%)	<b>37,353</b> (40.0%)	<b>21,415</b> (23.0%)	<b>93,347</b> (100%)

**FIGURE 3.17**

**DISTRIBUTION OF HOUSEHOLDS BY PLACE OF RESIDENCE<sup>1</sup>  
1983 AND 1990 NPTS**



More than half of American households were located in areas where public transportation was available. As expected, most central cities within MSA's had public transportation available. Note that in NPTS, availability of public transportation is based on the

respondent's perception. It may be that household members indicating that public transportation was not available may not be aware of its existence because they did not use it.

**TABLE 3.21**  
**NUMBER OF HOUSEHOLDS BY PLACE OF RESIDENCE AND AVAILABILITY OF PUBLIC TRANSPORTATION<sup>1</sup>**  
**1990 NPTS**  
**(THOUSANDS)**

Public Transportation Available	Place of Residence			TOTAL
	MSA, Central City	MSA, Non-Central City	Non-MSA	
Yes	28,700 (83.0%)	21,220 (56.8%)	4,472 (20.9%)	54,392 (58.3%)
No	5,471 (15.8%)	15,670 (42.0%)	16,770 (78.3%)	37,911 (40.6%)
Other <sup>2</sup>	408 (1.2%)	463 (1.2%)	173 (0.8%)	1,044 (1.1%)
<b>TOTAL</b>	<b>34,579</b> (100.0%)	<b>37,353</b> (100.0%)	<b>21,415</b> (100.0%)	<b>93,347</b> (100.0%)

<sup>1</sup> Availability of public transportation means that there is a stop or station for bus, subway, elevated rail, commuter train or streetcar within 2 miles of the respondent's residence.

<sup>2</sup> Includes households where availability of public transportation was unreported.

From 1977 to 1990, households located outside the central city of an MSA or in non-MSA areas tended to own more vehicles than households located inside the central city of

an MSA. Among the many reasons contributing to this difference is the greater use of walking, bicycling and public transit in the central city.

TABLE 3.22

AVERAGE NUMBER OF VEHICLES PER HOUSEHOLD BY PLACE OF RESIDENCE  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>

	1969 <sup>2</sup>	1977	1983	1990
MSA, Central City	1.0	1.3	1.3	1.5
MSA, Non-Central City	1.5	1.7	1.9	1.9
Non-MSA	1.2	1.7	1.9	1.9
<b>TOTAL</b>	<b>1.2</b>	<b>1.6</b>	<b>1.7</b>	<b>1.8</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> The 1969 survey does not include pickups and other light trucks as household vehicles. The 1977, 1983 and 1990 surveys include pickup trucks and other trucks, motorcycles, etc.

The number of household vehicles increased at a compounded annual rate of 2.5% during the period from 1977 to 1990. While the majority of household vehicles were automob-

iles, the share of household vehicles that were trucks or vans increased from 16.9% in 1977 to 23.3% in 1990, with significant increases in minivans and pickup trucks.

**TABLE 3.23**

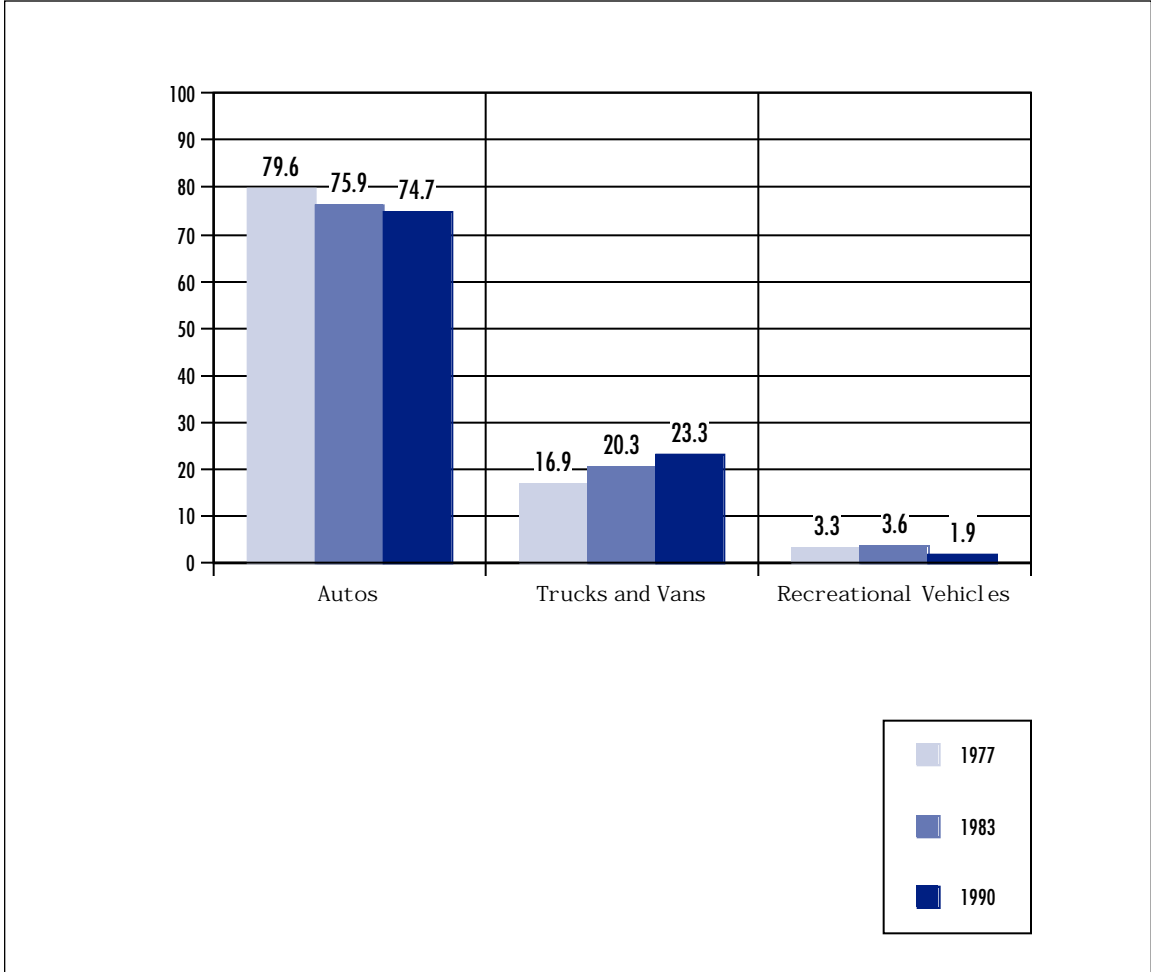
**NUMBER OF HOUSEHOLD VEHICLES BY VEHICLE TYPE  
1977, 1983, AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Vehicle Type	1977	1983	1990
<b>Autos</b>			
	95,598	109,079	123,420
	(79.6%)	(75.9%)	(74.7%)
<b>Trucks And Vans</b>			
Van/Minibus	2,402	3,305	8,096
	(2.0%)	(2.3%)	(4.9%)
Other Van	961	1,868	991
	(0.8%)	(1.3%)	(0.6%)
Pickup	15,373	21,845	28,418
	(12.8%)	(15.2%)	(17.2%)
Other Truck	1,561	2,156	991
	(1.3%)	(1.5%)	(0.6%)
<b>Subtotal</b>	<b>20,297</b>	<b>29,174</b>	<b>38,496</b>
	(16.9%)	(20.3%)	(23.3%)
<b>Recreational Vehicles</b>			
RV/Motor Home	480	719	826
	(0.4%)	(0.5%)	(0.5%)
Motorcycle	3,243	3,593	2,148
	(2.7%)	(2.5%)	(1.3%)
Moped	240	862	165
	(0.2%)	(0.6%)	(0.1%)
<b>Subtotal</b>	<b>3,963</b>	<b>5,174</b>	<b>3,139</b>
	(3.3%)	(3.6%)	(1.9%)
<b>Other Vehicles</b>			
	240	287	166
	(0.2%)	(0.2%)	(0.1%)
<b>TOTAL</b>	<b>120,098</b>	<b>143,714</b>	<b>165,221</b>
	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**FIGURE 3.18**

**DISTRIBUTION OF VEHICLES BY VEHICLE TYPE  
1977, 1983, AND 1990 NPTS**



While 31.4% of household automobiles in 1969 were less than two years old, this percentage decreased to 15.6% in 1990. American households continued to keep

their cars and trucks for a longer period of time. The percentage of household automobiles that were 10 or more years old increased from 10.8 in 1969 to 29.9 by 1990.

**TABLE 3.24**

**DISTRIBUTION OF VEHICLES BY VEHICLE AGE  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>  
(PERCENTAGE)**

Vehicle Age (years)	1969 <sup>2</sup>	1977			1983			1990		
	TOTAL	Auto	Truck/Van <sup>3</sup>	TOTAL	Auto	Truck/Van <sup>3</sup>	TOTAL	Auto	Truck/Van <sup>3</sup>	TOTAL
0-2	<b>31.4</b>	27.3	29.9	<b>27.8</b>	19.9	16.2	<b>19.0</b>	15.6	19.7	<b>16.6</b>
3-5	<b>33.2</b>	30.4	25.6	<b>29.6</b>	27.8	26.0	<b>27.3</b>	27.7	27.2	<b>27.5</b>
6-9	<b>24.6</b>	26.7	21.1	<b>25.7</b>	27.1	24.5	<b>26.8</b>	26.8	20.9	<b>25.3</b>
10 or more	<b>10.8</b>	15.6	23.4	<b>16.9</b>	25.1	33.2	<b>26.9</b>	29.9	32.2	<b>30.6</b>
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Average Age (years)</b>	<b>5.1</b>	<b>5.5</b>	<b>6.4</b>	<b>5.6</b>	<b>7.2</b>	<b>8.8</b>	<b>7.6</b>	<b>7.6</b>	<b>8.0</b>	<b>7.7</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Includes pickups with camper.

<sup>2</sup> The 1969 survey does not include pickups and other light trucks as household vehicles.



FIGURE 3.19

DISTRIBUTION OF HOUSEHOLD-BASED AUTOMOBILES BY VEHICLE AGE  
1977, 1983, AND 1990 NPTS

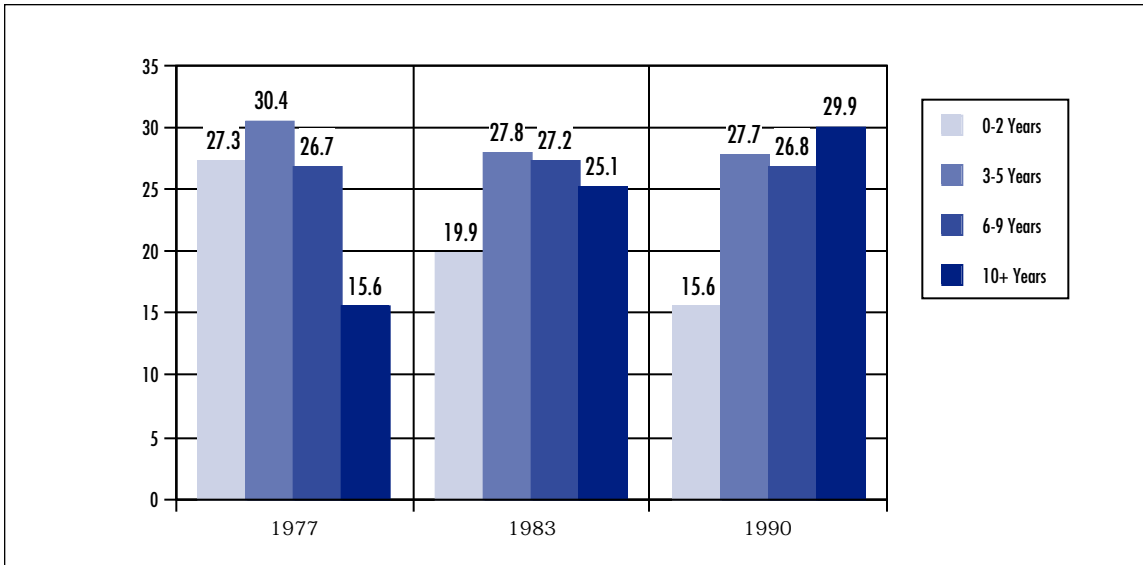
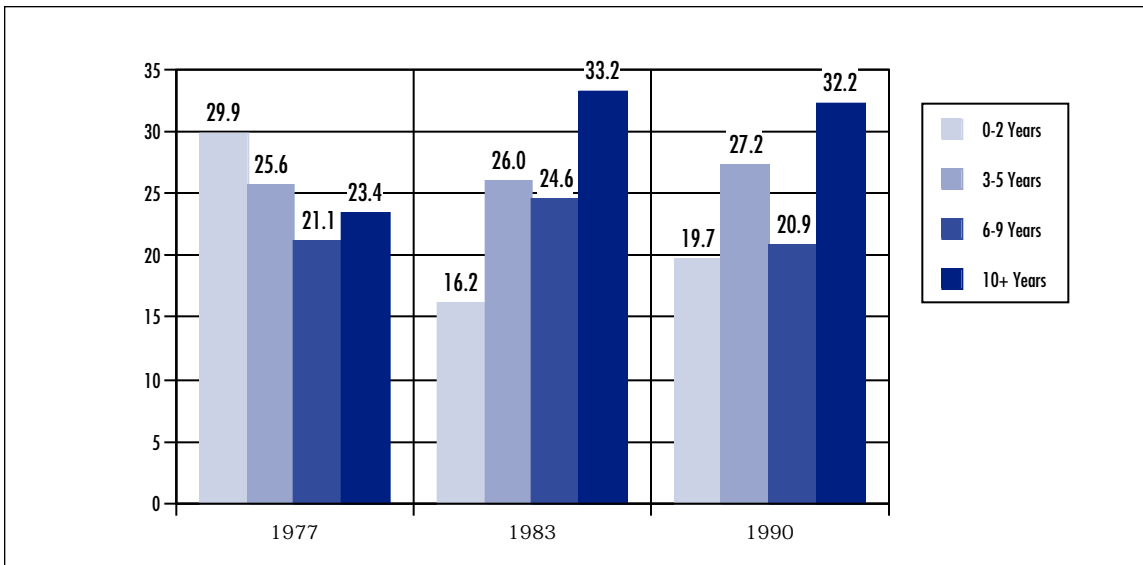


FIGURE 3.20

DISTRIBUTION OF HOUSEHOLD-BASED TRUCKS BY VEHICLE AGE  
1977, 1983, AND 1990 NPTS



**TABLE 3.25**

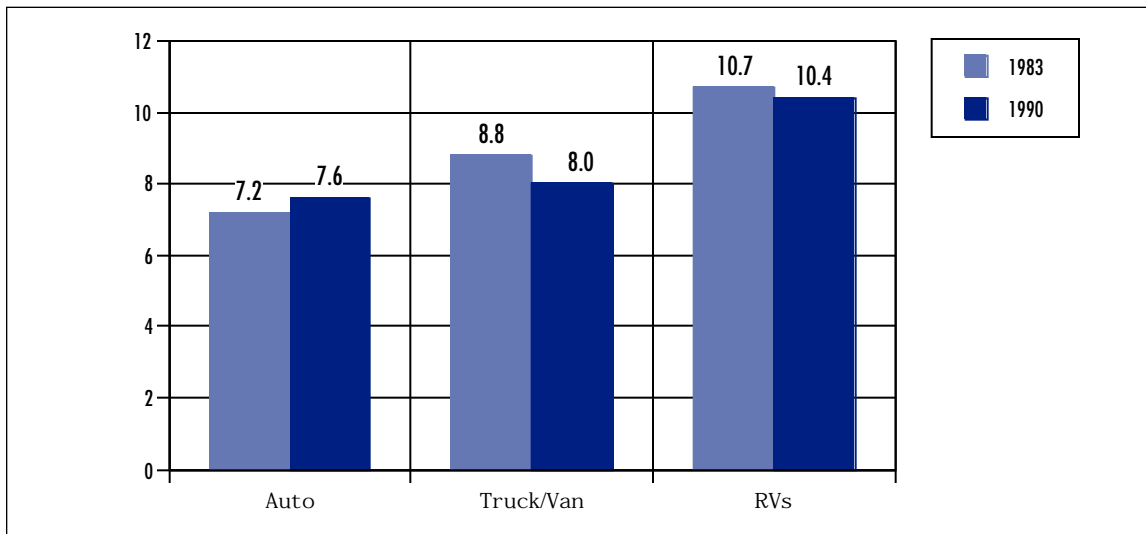
**DISTRIBUTION OF HOUSEHOLD VEHICLES BY VEHICLE AGE AND VEHICLE TYPE  
1983 AND 1990 NPTS<sup>1</sup>  
(PERCENT)**

Vehicle Age (years)	1983				1990			
	Autos	Truck/Van <sup>2</sup>	RVs	TOTAL <sup>3</sup>	Autos	Truck/Van <sup>2</sup>	RVs	TOTAL
≤1	12.2	10.6	3.2	11.8	6.4	8.8	11.6	7.0
2	7.7	5.6	1.6	7.2	9.2	10.9	4.8	9.6
3	8.2	6.5	0.0	7.8	8.9	9.7	5.8	9.1
4	9.7	9.7	12.3	9.7	9.1	9.1	2.3	9.0
5	9.9	9.8	8.2	9.8	9.7	8.4	3.1	9.4
6	8.1	7.7	3.8	8.0	9.0	7.5	6.1	8.6
7	7.8	6.2	16.8	7.6	7.9	6.3	5.7	7.5
8	5.3	5.0	6.1	5.2	5.2	3.8	4.5	4.9
9	6.0	5.7	12.5	6.0	4.6	3.3	1.2	4.3
≥10	25.1	33.2	35.4	26.9	30.0	32.2	54.9	30.6
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>No. of Vehicles (000)</b>	<b>109,094</b>	<b>29,069</b>	<b>650</b>	<b>143,714<sup>4</sup></b>	<b>120,712</b>	<b>37,110</b>	<b>821</b>	<b>158,643</b>
<b>Average Age (Years)</b>	<b>7.2</b>	<b>8.8</b>	<b>10.7</b>	<b>7.6</b>	<b>7.6</b>	<b>8.0</b>	<b>10.4</b>	<b>7.7</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1. <sup>3</sup> Includes others.  
<sup>2</sup> Includes pickups with camper. <sup>4</sup> Includes vehicles where vehicle type is unknown.

**FIGURE 3.21**

**AVERAGE AGE OF HOUSEHOLD VEHICLES BY VEHICLE TYPE  
1983 AND 1990 NPTS**



In 1990, vehicles of all ages were driven more than they were in earlier survey years. The increased usage of older vehicles is particularly noteworthy. The increase in miles

per vehicle was broadly reflected in all ownership groups and all number of adult groups (Tables 3.27 and 3.28).

**TABLE 3.26**

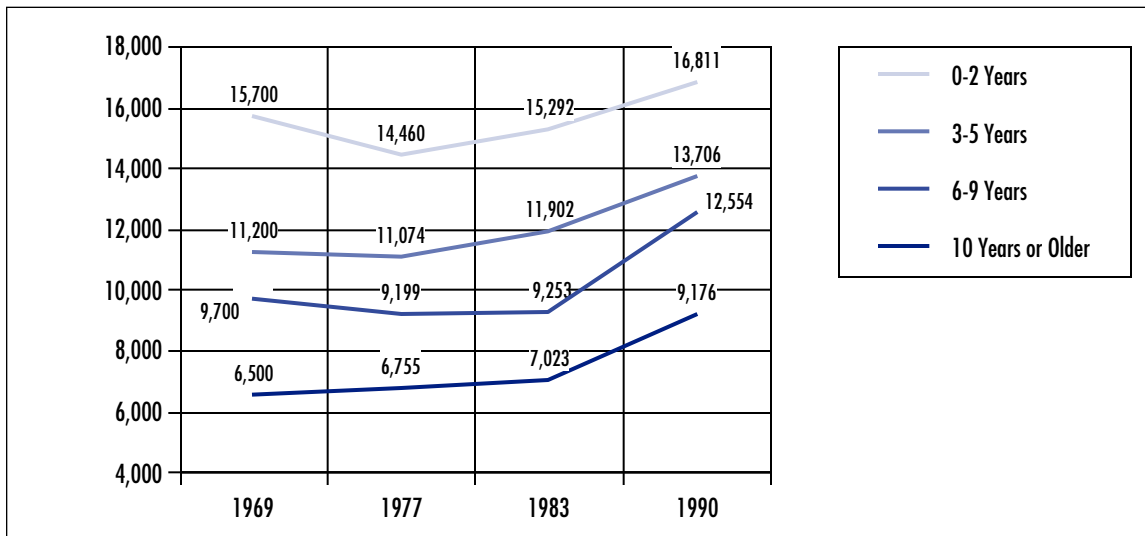
**AVERAGE ANNUAL MILES PER VEHICLE BY VEHICLE AGE 1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>**

Vehicle Age (years)	1969	1977	1983	1990	Percent Change 69-90	
					Annual Rate <sup>2</sup>	Total Change <sup>3</sup>
0-2	15,700	14,460	15,292	16,811	0.3	7
3-5	11,200	11,074	11,902	13,706	1.0	22
6-9	9,700	9,199	9,253	12,554	1.2	29
10 or more	6,500	6,755	7,023	9,176	1.7	41
<b>Average<sup>4</sup></b>	<b>11,600</b>	<b>10,679</b>	<b>10,315</b>	<b>12,458</b>	<b>0.3</b>	<b>7</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1. <sup>3</sup> Percentage change for period.  
<sup>2</sup> Compounded annual rate of percentage change. <sup>4</sup> Includes miles where vehicle age was unreported.

**FIGURE 3.22**

**AVERAGE ANNUAL MILES PER VEHICLE BY VEHICLE AGE 1969, 1977, 1983, AND 1990 NPTS**



**TABLE 3.27**

**AVERAGE ANNUAL MILES PER VEHICLE BY NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup>  
1969, 1977, 1983, AND 1990 NPTS<sup>2</sup>**

Number of Vehicles	1969 <sup>3</sup>	1977	1983	1990	Percent Change	
					69-90 <sup>4</sup>	69-90 <sup>5</sup>
One	10,800	10,051	10,257	12,125	0.6	12
Two	12,000	10,874	10,854	12,978	0.4	8
Three or more	12,800	10,791	9,793	11,972	-0.3	-6
<b>TOTAL</b>	<b>11,600</b>	<b>10,679</b>	<b>10,315</b>	<b>12,458</b>	<b>0.3</b>	<b>7</b>

<sup>1</sup> See Footnote 1 of Table 3.15.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> The 1969 survey does not include pickups or other light trucks as household vehicles.

<sup>4</sup> Compounded annual rate of percentage change.

<sup>5</sup> Percentage change for period.

**FIGURE 3.23**

**AVERAGE ANNUAL MILES PER VEHICLE BY NUMBER OF HOUSEHOLD-BASED VEHICLES  
1969, 1977, 1983, AND 1990 NPTS**

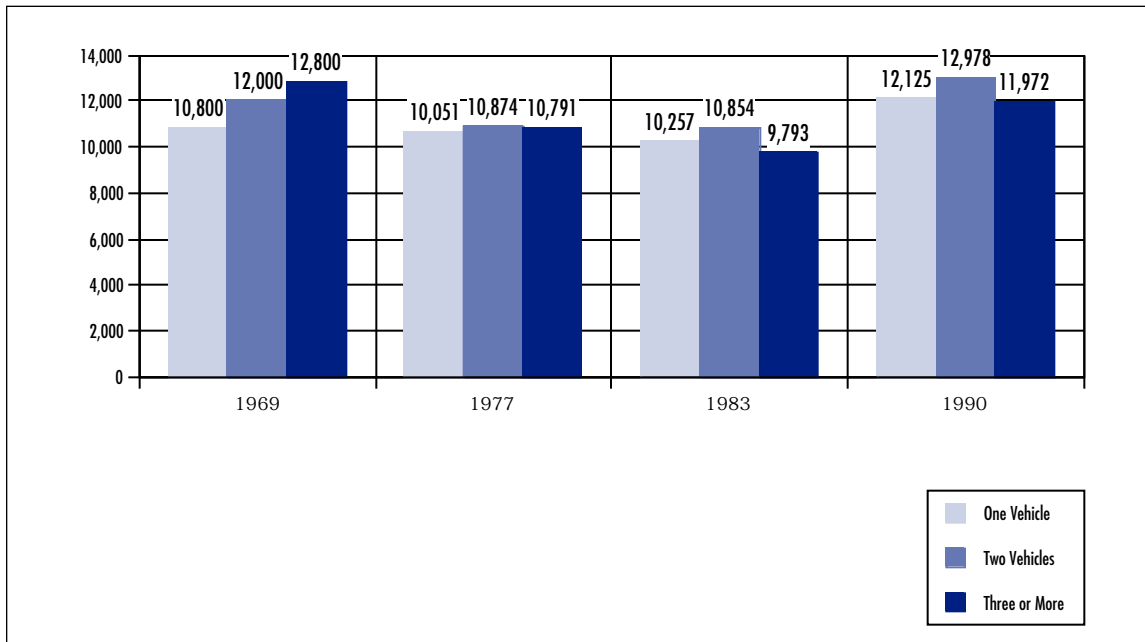
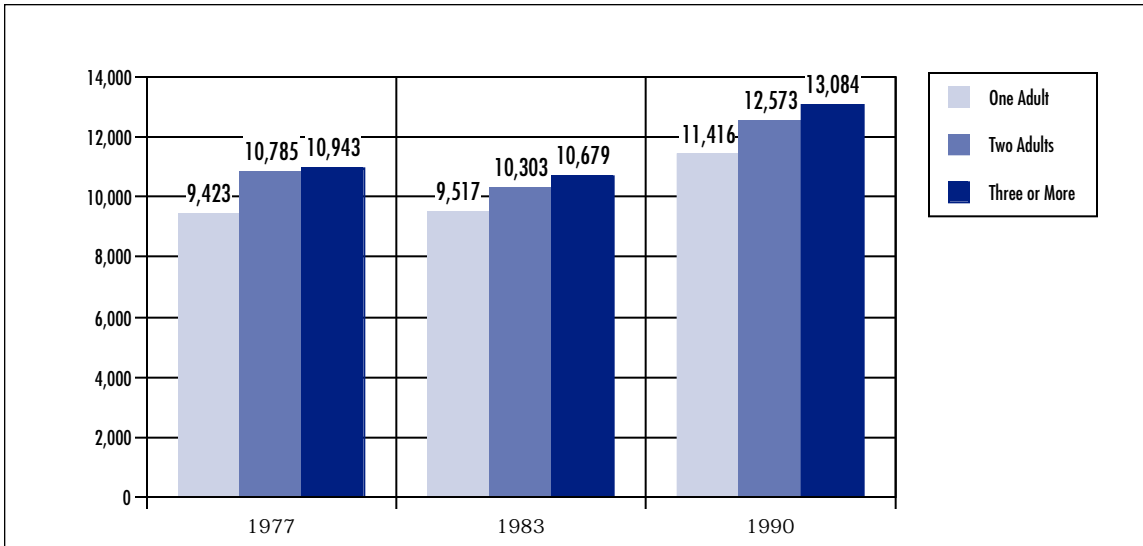


FIGURE 3.24

AVERAGE ANNUAL MILES PER VEHICLE BY NUMBER OF ADULTS IN HOUSEHOLD  
1977, 1983, AND 1990 NPTS



VEHICLES DETERMINANTS OF TRAVEL

TABLE 3.28

AVERAGE ANNUAL MILES PER VEHICLE BY NUMBER OF ADULTS IN HOUSEHOLD  
1977, 1983, AND 1990 NPTS<sup>1</sup>

Number of Adults	1977	1983	1990	Percent Change 77-90	
				Annual Rate <sup>2</sup>	Total Change <sup>3</sup>
One	9,423	9,517	11,416	1.5	21
Two	10,785	10,303	12,573	1.2	17
Three or more	10,943	10,679	13,084	1.4	20
<b>TOTAL</b>	<b>10,679</b>	<b>10,315</b>	<b>12,458</b>	<b>1.2</b>	<b>17</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.      <sup>2</sup> Compounded annual rate of percentage change.  
<sup>3</sup> Percentage change for period.

**TABLE 3.29**

**AVERAGE ANNUAL MILES PER VEHICLE BY NUMBER OF ADULTS IN HOUSEHOLD AND NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup> 1983 AND 1990 NPTS<sup>2</sup>**

Household	1983	1990	<u>Percent Change</u> 83-90
<b>One Adult</b>			
One vehicle	9,617	11,692	22
Two vehicles	10,195	11,108	9
Three or more vehicles	7,212	10,386	44
<b>TOTAL</b>	<b>9,517</b>	<b>11,416</b>	<b>20</b>
<b>Two Adults</b>			
One vehicle	10,790	12,543	16
Two vehicles	10,999	13,126	19
Three or more vehicles	9,044	11,640	29
<b>TOTAL</b>	<b>10,303</b>	<b>12,573</b>	<b>22</b>
<b>Three Adults</b>			
One vehicle	10,636	15,473	45
Two vehicles	11,466	13,263	16
Three or more vehicles	10,244	12,660	24
<b>TOTAL</b>	<b>10,597</b>	<b>12,961</b>	<b>22</b>
<b>Four or More Adults</b>			
One vehicle	12,294	14,456	18
Two vehicles	11,205	14,871	33
Three or more vehicles	10,955	13,074	19
<b>TOTAL</b>	<b>11,034</b>	<b>13,378</b>	<b>21</b>
<b>Average</b>	<b>10,315</b>	<b>12,458</b>	<b>21</b>

<sup>1</sup> Includes all vehicles owned by or available on a regular basis to the household.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**T**HE following five tables present data based on the principal driver's characteristics. In the 1990 NPTS, the household member who used a particular household vehicle more often than other household members was identified. This type of data provides a link between driver characteristics and vehicle attributes. As expected, autos and vans comprised the great majority (95%) of all vehicles in which women were identified as principal drivers.

In contrast, pickups accounted for a significant portion (28.6%) of all vehicles in which men were the principal drivers (Table 3.31). In households with a woman and a man driver and two vehicles, the woman tends to drive the newer vehicle. Principal drivers between the ages of 30 and 65 were more likely to drive pickup trucks than drivers in other age groups.

**TABLE 3.30**

**NUMBER OF VEHICLES BY PRINCIPAL DRIVER'S AGE AND VEHICLE TYPE  
1990 NPTS  
(THOUSANDS)**

Principal Driver's Age <sup>1</sup>	Auto, Van	Pickup	Other POV	TOTAL <sup>2</sup>
<b>16-19</b>	<b>4,266</b>	<b>562</b>	<b>51</b>	<b>4,884</b>
	(87.4%)	(11.5%)	(1.1%)	(100.0%)
	(4.1%)	(2.5%)	(1.6%)	(3.8%)
<b>20-29</b>	<b>21,160</b>	<b>3,946</b>	<b>589</b>	<b>25,700</b>
	(82.3%)	(15.4%)	(2.3%)	(100.0%)
	(20.4%)	(17.5%)	(17.9%)	(19.8%)
<b>30-39</b>	<b>25,691</b>	<b>5,825</b>	<b>973</b>	<b>32,489</b>
	(79.1%)	(17.9%)	(3.0%)	(100.0%)
	(24.7%)	(25.9%)	(29.6%)	(25.0%)
<b>40-49</b>	<b>19,290</b>	<b>4,612</b>	<b>668</b>	<b>24,578</b>
	(78.5%)	(18.8%)	(2.7%)	(100.0%)
	(18.6%)	(20.5%)	(20.3%)	(18.9%)
<b>50-59</b>	<b>12,690</b>	<b>3,463</b>	<b>465</b>	<b>16,618</b>
	(76.4%)	(20.8%)	(2.8%)	(100.0%)
	(12.2%)	(15.4%)	(14.1%)	(12.8%)
<b>60-64</b>	<b>5,639</b>	<b>1,383</b>	<b>138</b>	<b>7,160</b>
	(78.8%)	(19.3%)	(1.9%)	(100.0%)
	(5.4%)	(6.1%)	(4.2%)	(5.5%)
<b>65+</b>	<b>14,040</b>	<b>2,583</b>	<b>346</b>	<b>16,969</b>
	(82.7%)	(15.2%)	(2.0%)	(100.0%)
	(13.5%)	(11.5%)	(10.5%)	(13.1%)
<b>TOTAL<sup>2</sup></b>	<b>103,972</b>	<b>22,529</b>	<b>3,288</b>	<b>129,842</b>
	(80.1%)	(17.1%)	(2.7%)	(100.0%)
	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Information based only on records where principal driver is known.

<sup>2</sup> Includes vehicles where principal driver age, vehicle type or both were unreported.



**FIGURE 3.25**  
**DISTRIBUTION OF VEHICLES BY PRINCIPAL DRIVER'S AGE AND VEHICLE TYPE**  
**1990 NPTS**

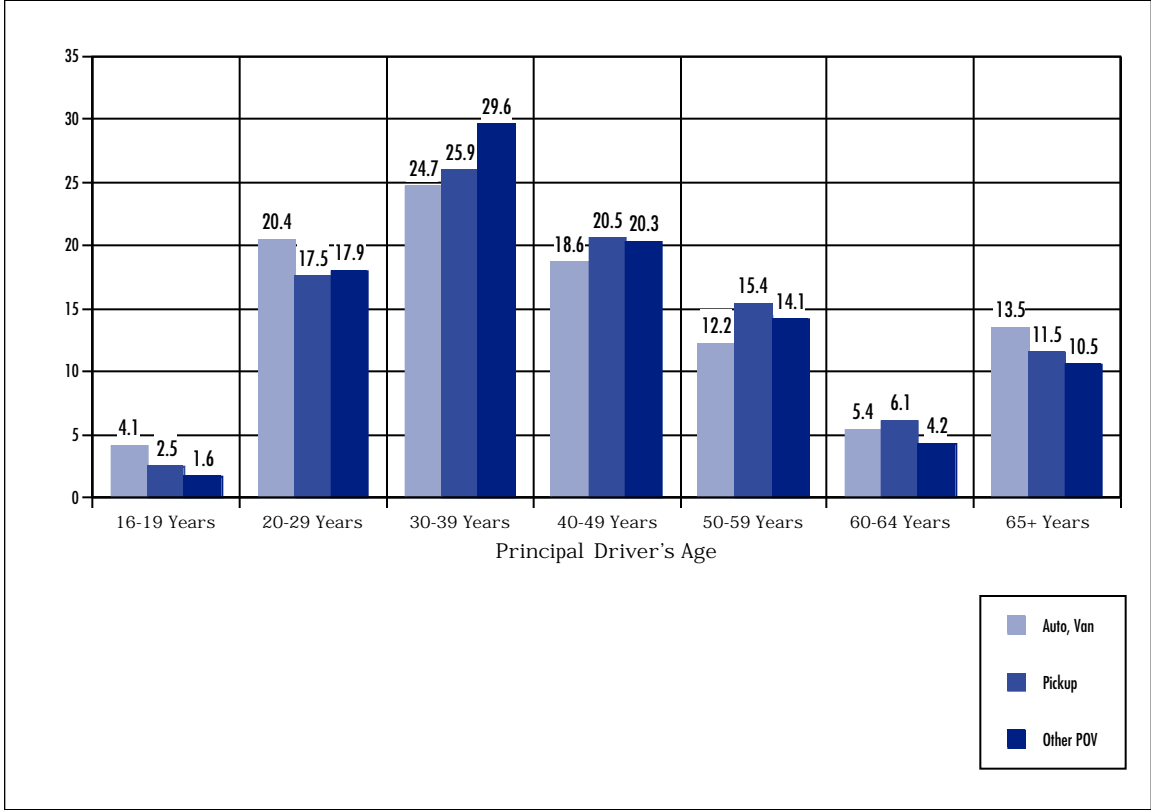


TABLE 3.31

**NUMBER OF VEHICLES BY PRINCIPAL DRIVER'S SEX, VEHICLE AGE AND VEHICLE TYPE  
1990 NPTS  
(THOUSANDS)**

Vehicle Type	Vehicle Age	Principal Driver <sup>1</sup>		TOTAL <sup>2</sup>
		Male	Female	
<b>Auto, Van</b>				
	0-2	7,093 (10.3%)	9,645 (15.8%)	16,740 (12.9%)
	3-6	14,844 (21.5%)	23,483 (38.6%)	38,330 (29.5%)
	7+	23,294 (33.8%)	23,882 (39.2%)	47,180 (36.3%)
	<b>Subtotal<sup>2</sup></b>	<b>46,145</b> (66.9%)	<b>57,814</b> (95.0%)	<b>103,975</b> (80.1%)
<b>Pickup</b>				
	0-2	3,489 (5.1%)	433 (0.7%)	3,922 (3.0%)
	3-6	6,111 (8.9%)	1,152 (1.9%)	7,264 (5.6%)
	7+	9,599 (13.9%)	1,189 (2.0%)	10,788 (8.3%)
	<b>Subtotal<sup>2</sup></b>	<b>19,722</b> (28.6%)	<b>2,807</b> (4.6%)	<b>22,530</b> (17.4%)
<b>Other POV</b>				
	0-2	131 (0.2%)	19 (0.0%)	150 (0.1%)
	3-6	215 (0.3%)	10 (0.0%)	225 (0.2%)
	7+	823 (1.1%)	63 (0.1%)	886 (0.7%)
	<b>Subtotal<sup>2</sup></b>	<b>3,048</b> (4.4%)	<b>240</b> (0.4%)	<b>3,288</b> (2.5%)
	<b>TOTAL<sup>2</sup></b>	<b>68,943</b> (100.0%)	<b>60,879</b> (100.0%)	<b>129,842</b> (100.0%)
<sup>1</sup> Information based only on records where principal driver is known.		<sup>2</sup> Includes vehicles where principal driver age, vehicle type or both were unreported.		

FIGURE 3.26

DISTRIBUTION OF VEHICLES BY VEHICLE AGE AND TYPE  
1990 NPTS

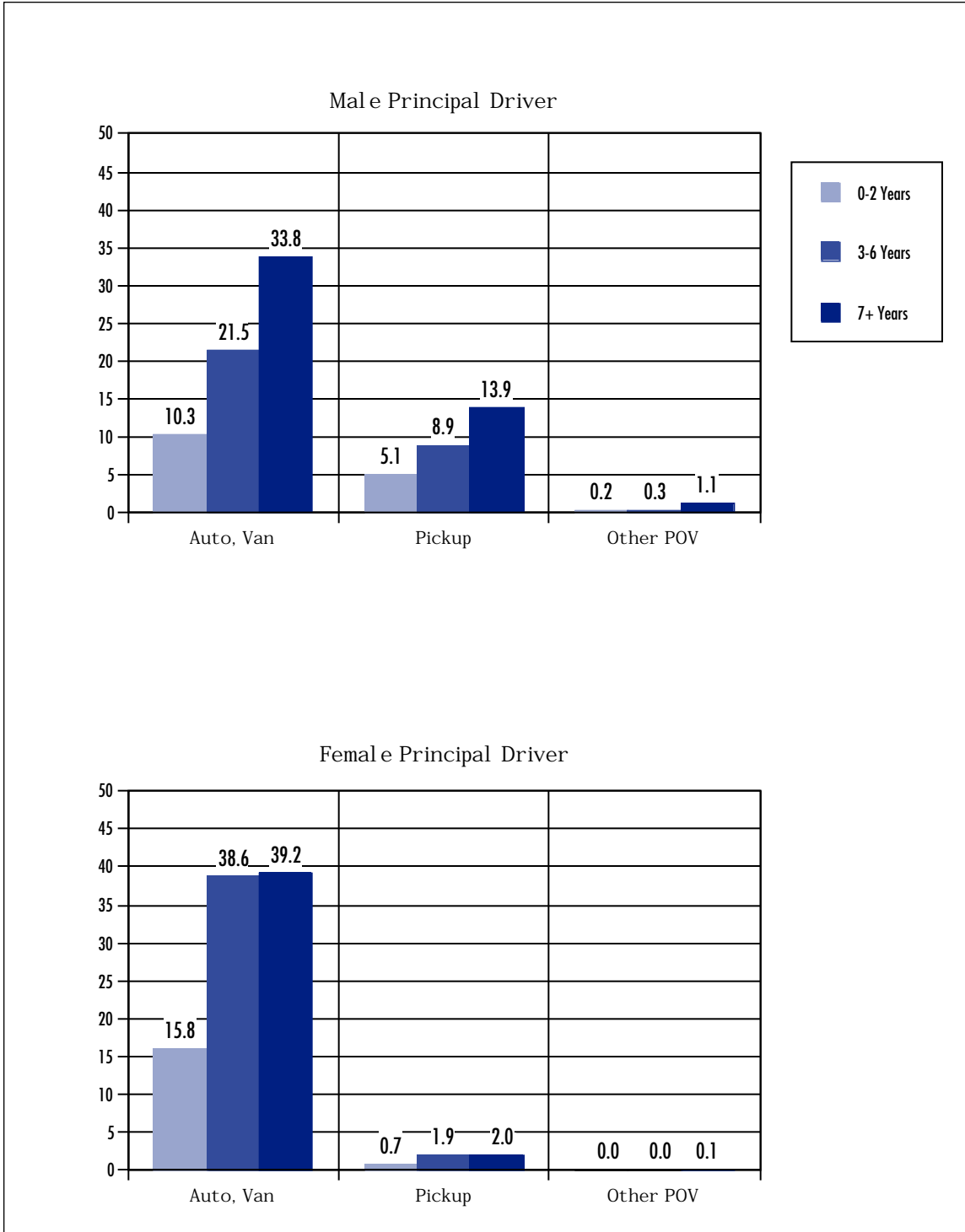


TABLE 3.32

**NUMBER OF VEHICLES BY PRINCIPAL DRIVER'S EMPLOYMENT STATUS,  
VEHICLE AGE AND VEHICLE TYPE  
1990 NPTS  
(THOUSANDS)**

Vehicle Type	Vehicle Age	Principal Driver <sup>1</sup>		TOTAL
		Employed Full Time or Part Time	Not Employed	
<b>Auto, Van</b>				
	0-2	12,480 (13.4%)	4,260 (11.5%)	16,740 (12.9%)
	3-6	27,280 (29.4%)	11,050 (29.9%)	38,330 (29.5%)
	7+	31,450 (33.9%)	15,730 (42.6%)	47,180 (36.3%)
<b>Subtotal<sup>2</sup></b>		<b>72,390</b> (78.0%)	<b>31,585</b> (85.4%)	<b>103,975</b> (80.1%)
<b>Pickup</b>				
	0-2	3,199 (3.4%)	723 (2.0%)	3,922 (3.0%)
	3-6	6,007 (6.5%)	1,257 (3.4%)	7,264 (5.6%)
	7+	8,236 (8.9%)	2,552 (6.9%)	10,788 (8.3%)
<b>Subtotal<sup>2</sup></b>		<b>17,866</b> (19.2%)	<b>4,664</b> (12.6%)	<b>22,530</b> (17.4%)
<b>Other POV</b>				
	0-2	135 (0.2%)	15 (0.0%)	150 (0.1%)
	3-6	171 (0.2%)	54 (0.2%)	225 (0.2%)
	7+	568 (0.6%)	318 (0.9%)	886 (0.7%)
<b>Subtotal<sup>2</sup></b>		<b>2,602</b> (2.8%)	<b>686</b> (1.9%)	<b>3,288</b> (2.5%)
<b>TOTAL<sup>2</sup></b>		<b>92,864</b> (100.0%)	<b>36,978</b> (100.0%)	<b>129,842</b> (100.0%)

<sup>1</sup> Information based only on records where principal driver is known.      <sup>2</sup> Includes vehicles where principal driver age, vehicle type or both were unreported.

A group of households was selected to test a public perception that women drive the “newer” vehicles in households. Households with two vehicles and exactly one male and one female driver were selected. Data in Table 3.33 show that indeed female drivers

are more likely to drive the “newer” household vehicle. On average, vehicles primarily driven by women were 1.5 years younger, as a group, than those driven by men.

TABLE 3.33

NUMBER OF VEHICLES BY VEHICLE AGE AND PRINCIPAL DRIVER'S SEX<sup>1</sup>, FOR HOUSEHOLDS<sup>2</sup> WITH ONE MALE AND ONE FEMALE DRIVER AND TWO HOUSEHOLD VEHICLES<sup>3</sup>  
1990 NPTS  
(THOUSANDS)

Vehicle Age	Male	Female	TOTAL
0-2	3,005 (17.5%)	3,463 (20.2%)	6,468 (18.8%)
3-6	6,119 (35.6%)	7,918 (46.1%)	14,037 (40.9%)
7 or above	7,637 (44.5%)	5,652 (32.9%)	13,289 (38.7%)
<b>TOTAL<sup>4</sup></b>	<b>17,179</b> (100.0%)	<b>17,179</b> (100.0%)	<b>34,358</b> (100.0%)
<b>Average Vehicle Age</b>	<b>7.23</b>	<b>5.85</b>	<b>6.53</b>

<sup>1</sup> Information based only on records where principal driver is known.      <sup>3</sup> Information based only on households where exactly two vehicles are owned.

<sup>2</sup> Information based only on households where there are exactly one male and one female driver.      <sup>4</sup> Includes vehicles where vehicle age is unknown.

A subgroup of households was selected to examine how vehicle selection, in terms of vehicle type, was made within households. These households owned two vehicles, one automobile and one non-automobile, and had two drivers, one male and one female. The purpose of selecting this subgroup of households was to limit the number of vehicle and driver combinations. In these

households, the female drivers are the principal drivers of either the automobile or the non-automobile vehicle. The 1990 NPTS data show that female drivers were more likely to drive automobiles and male drivers were more likely to drive non-automobile vehicles.

**TABLE 3.34**

**NUMBER OF VEHICLES BY VEHICLE TYPE AND PRINCIPAL DRIVER'S SEX<sup>1</sup> FOR HOUSEHOLDS<sup>2</sup> WITH ONE MALE AND ONE FEMALE DRIVER AND TWO HOUSEHOLD VEHICLES<sup>3</sup>  
1990 NPTS  
(THOUSANDS)**

Vehicle type	Male	Female	TOTAL	Average Vehicle Age
<b>Auto</b>	<b>1,185</b> (15.2%)	<b>6,589</b> (84.7%)	<b>7,774</b> (50.0%)	<b>6.25</b>
<b>Van</b>	<b>866</b> (11.1%)	<b>855</b> (11.0%)	<b>1,721</b> (11.1%)	<b>4.51</b>
<b>Pickup</b>	<b>5,560</b> (71.5%)	<b>319</b> (4.1%)	<b>5,879</b> (37.8%)	<b>7.29</b>
<b>Other Private Vehicles</b>	<b>152</b> (2.0%)	<b>12</b> (0.2%)	<b>164</b> (1.1%)	<b>6.57</b>
<b>TOTAL<sup>4</sup></b>	<b>7,775</b> (100.0%)	<b>7,775</b> (100.0%)	<b>15,550</b> (100.0%)	<b>6.45</b>

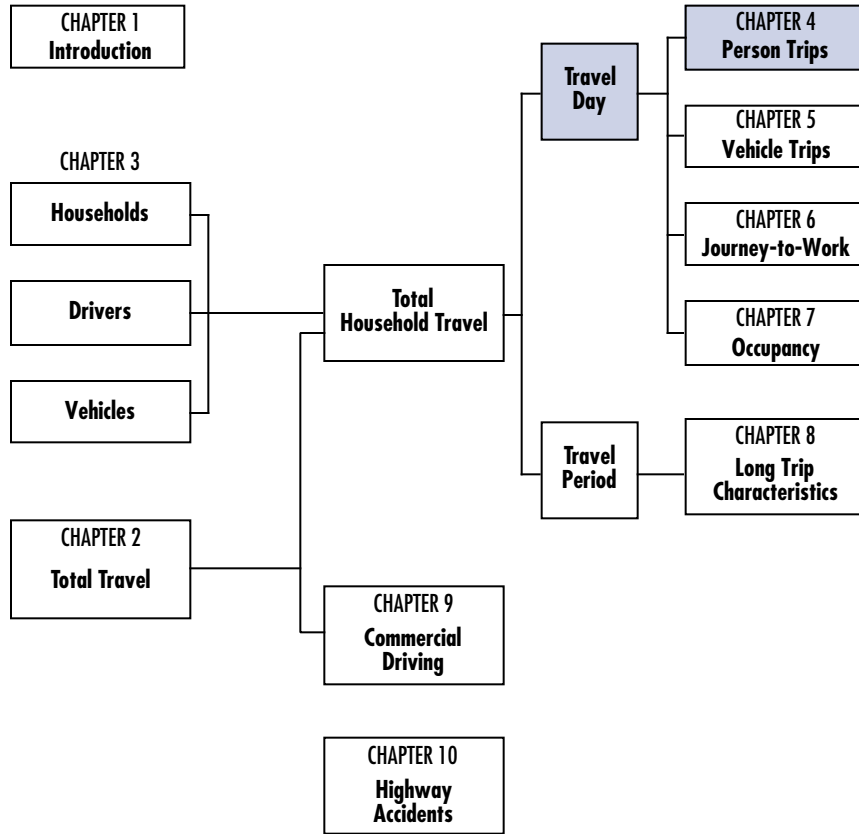
<sup>1</sup> Information based only on records where data on the principal driver are known.

<sup>2</sup> Information based only on households where there are exactly one male and one female driver.

<sup>3</sup> Information based only on households where exactly two vehicles are owned. One of these vehicles is an automobile while the other is not.

<sup>4</sup> Includes vehicles where vehicle type is unknown.







# Chapter 4

## Person Trips and Person Miles of Travel

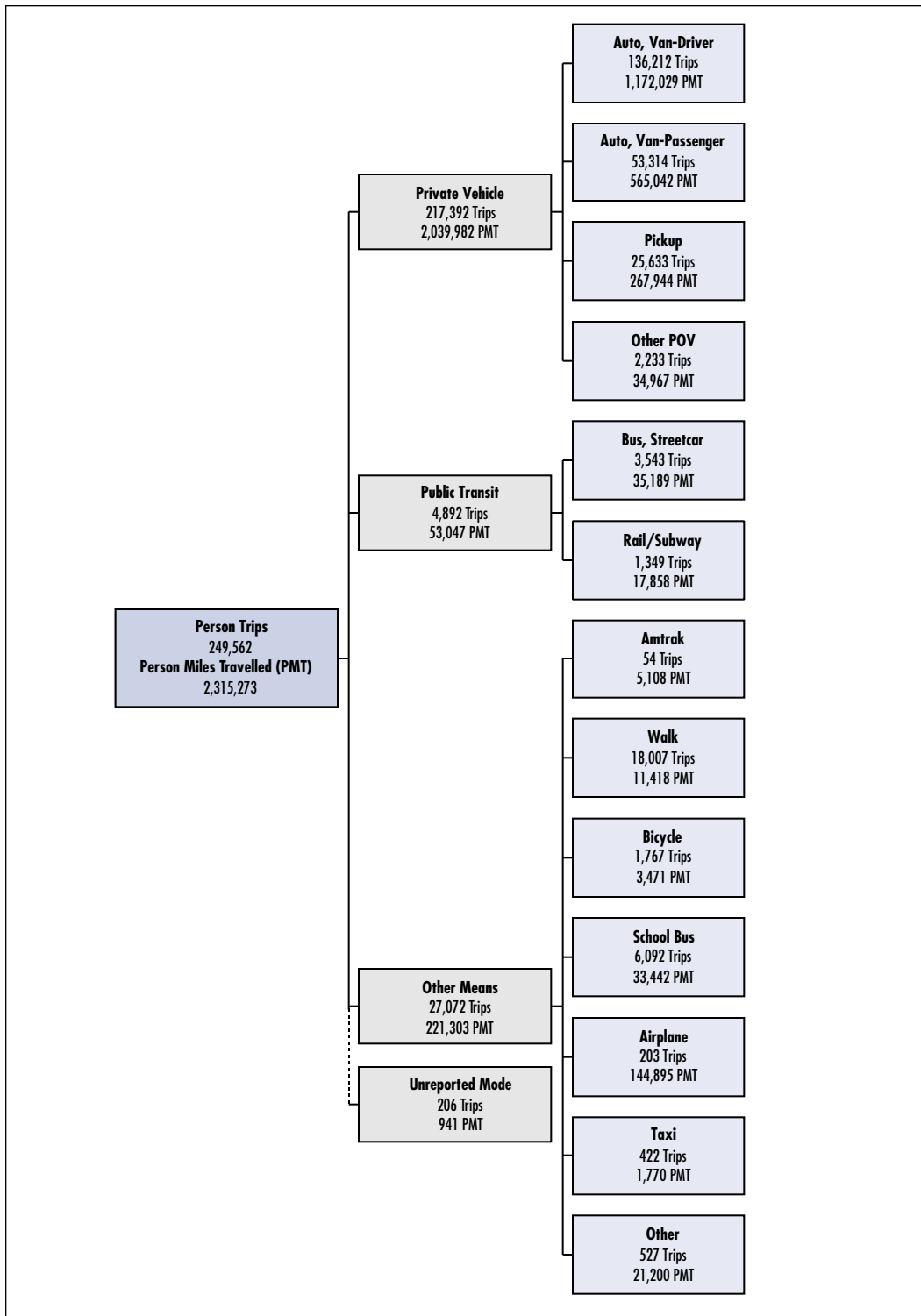


Over the Past Two Decades:

- Person trips increased by more than three times the population increase.
- On a person basis, trip making increased by...
  - 40% for everyone,
  - 25% for men,
  - 58% for women,
  - 46% for individuals over 65.
- Although there were 20% fewer persons per household, each household travelled 10% more.
- Less than half of the person trips made during the hours of 6 a.m. to 9 a.m. were for commuting to work.

1990 PERSON TRIPS AND PERSON MILES BY MODE

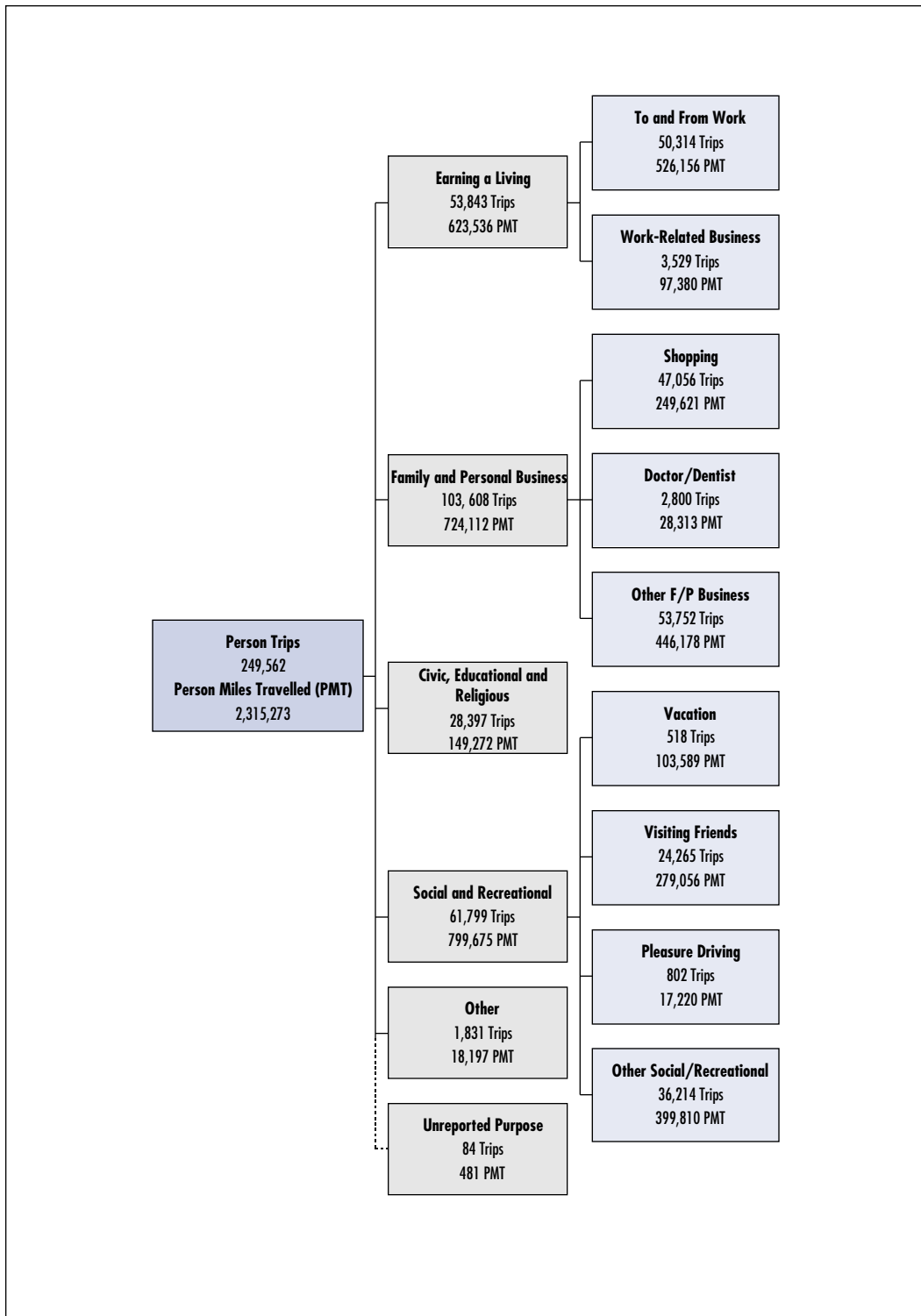
(MILLIONS)



1. PERSON TRIPS AND PERSON MILES TRAVELLED

1990 PERSON TRIPS AND PERSON MILES BY PURPOSE

(MILLIONS)



PERSON TRIPS AND PERSON MILES OF TRAVEL



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# Chapter 4 Person Trips and Person Miles of Travel

**T**HIS chapter reports statistics on person trips and person miles of travel (PMT) based on data from the 1990 NPTS. In this survey, a person trip is defined as a trip by one or more persons using any mode of transportation. If more than one person is on the same trip, each person is credited with one person trip. For example, four persons travelling together in one vehicle amount to four person trips. When four people travel five miles in the same vehicle, 20 person miles of travel result.

## Trips per person

While the population increased by 21 percent from 1969 to 1990, the total number of person trips increased by 72 percent during the same period. The difference between these growth rates reflected an increase of 42 percent in the number of trips an individual took per year. In 1969, on average an individual took 736 trips per year. By 1990, an individual took an average of more than 1,000 trips per year. This increase in the number of trips an individual took per year contributed to an increase of 65 percent in the number of person miles of travel from 1969 to 1990.

## Difference in person travel between men and women

In 1983, men took more trips than women. However, this trend was reversed in 1990 — women took more trips than men. On average, a man took 1,110 person trips per year in 1990 and a woman 1,143 trips. Men travelled more than women for the purpose of earning a living; and travelled less than women for family and personal matters.

## Difference in person travel between age groups

Purposes of travel varied by age. Trips taken by individuals younger than 20 years old or older than 60 years old were mainly for family and personal matters and for social and recreational purposes. However, individuals between the ages of 20 and 60 took trips mainly for family and personal matters and for earning a living.

## Difference in person travel between drivers and non-drivers

Individuals without a driver's license took 46 percent fewer trips by all modes and 36 percent shorter trips than those with a driver's license. As a result, individuals without a driver's license travelled only a third as much as individuals with a driver's license.

## Household structure

Despite the decrease in household size between 1969 and 1990, a household, on average, took 16 percent more person trips per year and travelled 68 percent more person miles in 1990. Trips taken by households with two or more adults and without children or with the youngest child younger than 15 years old accounted for more than 67 percent of all person trips in 1990. On average, a person trip in 1990 was estimated to be 9.45 miles. Trips taken by families with a single adult and with the youngest child between 6 and 15 years old were the shortest.

### Household income

As expected, households with an income greater than \$40,000 took more trips and travelled longer distances than other households. The percentage of trips for earning a living in households with an annual income greater than \$40,000 was the highest compared to other households. Lower income households used public transportation or walked more often than higher income households.

### Transportation modes

Privately owned vehicles were by far the most common mode of transportation in 1990. On average, trips by privately owned vehicles accounted for 88 percent of the person miles of travel. Public transportation was used more for commuting to work than for any other trip purpose. Trip lengths were shorter for individuals residing in places where public transportation was available. More trips were taken by public transportation when the distance to the nearest public transportation was less than 1/4 mile. Consequently, the percentage of trips by privately owned vehicles decreased as distance to the nearest public transportation decreased.

Note that the NPTS data on transit use is based on a sample of 2870 person trips. Because the sample size is small, the estimates of transit use have a higher margin of error. See Chapter 1, Section 5 entitled "Limitations of Data on Transit."

### Difference in trips among seasons

More trips took place in warmer months than in other months of the year. There was not a significant difference in seasonal variation between 1983 and 1990. However, trips were longer in 1990 than in 1983 in all seasons, except for spring. Winter trips were shorter than trips during other seasons. There were more walking trips in spring than in other seasons of the year.

### Trips by day of week, and time of day

Based on the NPTS survey results, only 47 percent of all person trips during the morning peak period (from 6 a.m. to 9 a.m.) were for commuting to work or for work-related business. This finding is contrary to the common public perception that commuting is the major reason for morning congestion. Instead of distinct morning and afternoon peak periods that have traditionally been associated with commuting trips, the peak period has engulfed the midday and expanded to a 10-hour period (from 9 a.m. to 7 p.m.). This midday peak period was dominated by trips for family and personal business.



This table presents summary statistics on personal travel. Compared to the increase in the total number of persons from 1969 to 1990, the percentage increases in the number of person trips and in the total person miles of travel were considerably higher. While the total population grew by 21% over

this period, the rate of increase in the total number of person trips was three times the rate of increase in population, indicating that individuals took significantly more trips on a per-person basis in 1990 than in 1969.

**TABLE 4.1**

**SUMMARY OF NATIONAL ESTIMATES  
1969, 1977, 1983 AND 1990 NPTS<sup>1</sup>**

	1969	1977	1983	1990	Percent Change 69-90
Persons (000)	197,213	213,141	229,453	239,416	21
Annual Person Trips (000)	145,146,000	211,778,000	224,385,000	249,562,000	72
Annual Person Miles of Travel (000)	1,404,137,000	1,879,215,000	1,946,662,000	2,315,273,000	65
Number of Person Trips per Person	736	994	978	1,042	42
Annual Person Miles of Travel per Person (miles)	7,120	8,817	8,484	9,671	36
Average Person Trip Length (miles)	9.67	8.87	8.68	9.45 <sup>2</sup>	-4

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.      <sup>2</sup> Information based only on observations with valid trip length data.



**FIGURE 4.1**

**SUMMARY OF NATIONAL ESTIMATES  
1969, 1977, 1983, AND 1990 NPTS**

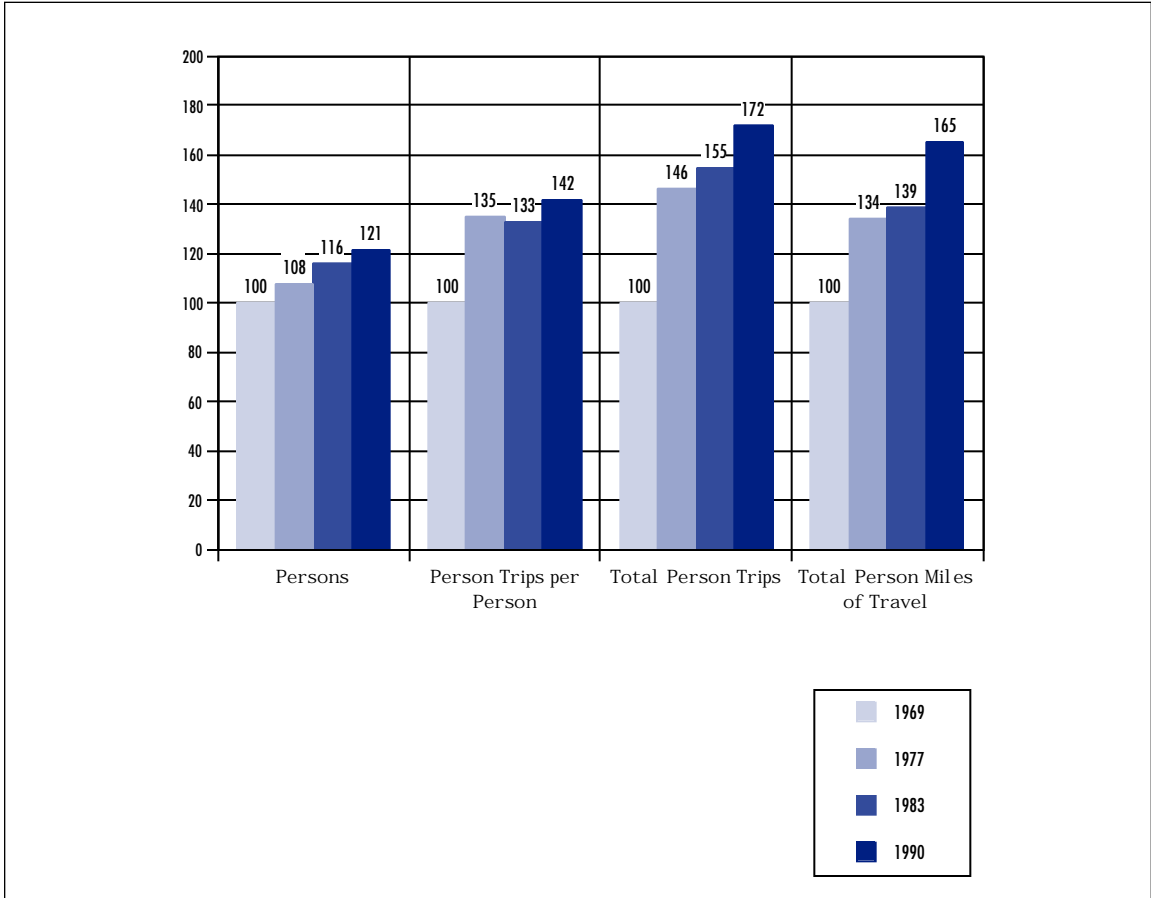


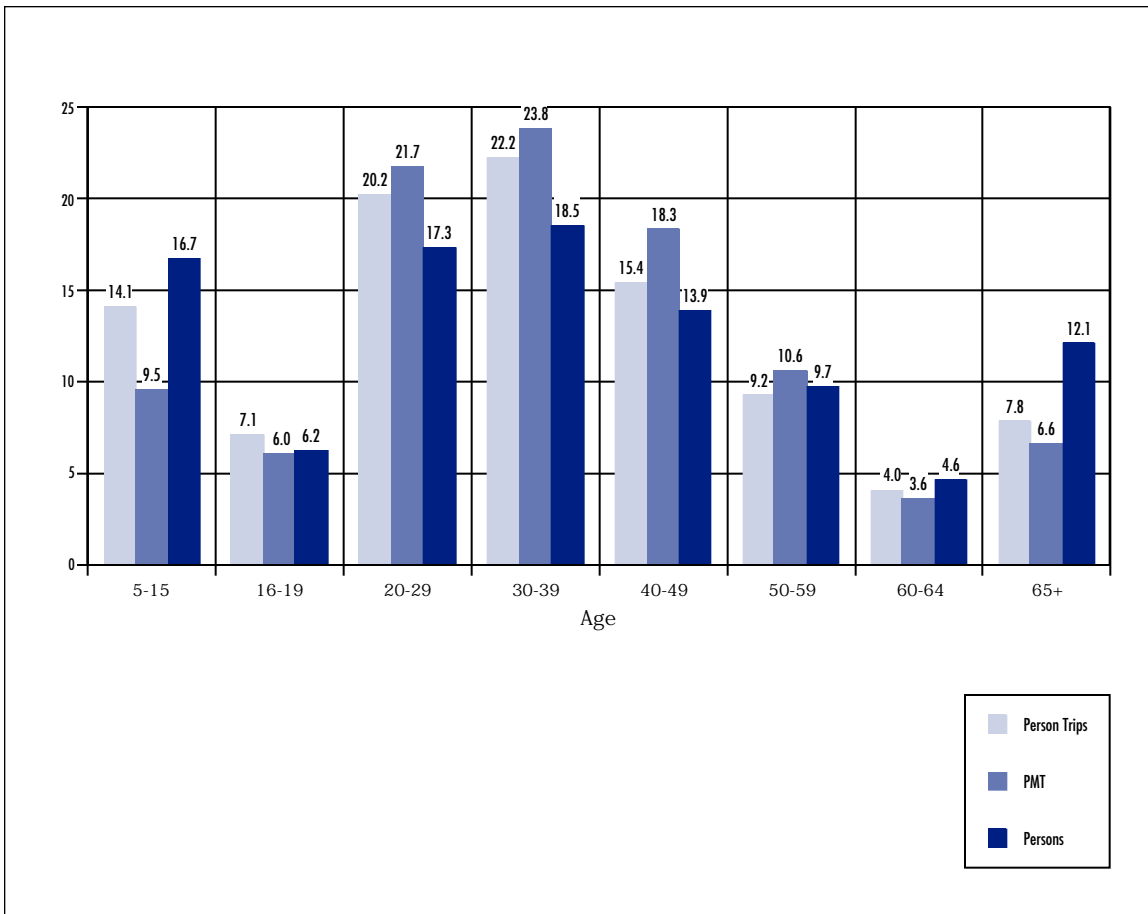
TABLE 4.2

**NUMBER OF PERSON TRIPS BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>  
(MILLIONS)**

Age	1983			1990 <sup>2</sup>		
	Male	Female	TOTAL	Male	Female	TOTAL
5-15	15,622 (14.3%)	15,496 (13.5%)	<b>31,118</b> (13.9%)	17,700 (15.1%)	17,200 (13.2%)	<b>34,900</b> (14.1%)
16-19	9,150 (8.4%)	9,430 (8.2%)	<b>18,580</b> (8.3%)	8,547 (7.3%)	8,967 (6.9%)	<b>17,514</b> (7.1%)
20-29	25,837 (23.6%)	25,033 (21.8%)	<b>50,870</b> (22.7%)	23,900 (20.4%)	26,200 (20.0%)	<b>50,100</b> (20.2%)
30-39	20,614 (18.8%)	25,028 (21.8%)	<b>45,642</b> (20.3%)	24,400 (20.9%)	30,600 (23.4%)	<b>55,000</b> (22.2%)
40-49	13,710 (12.5%)	14,258 (12.4%)	<b>27,968</b> (12.5%)	17,300 (14.8%)	20,900 (16.0%)	<b>38,200</b> (15.4%)
50-59	11,383 (10.4%)	12,796 (11.1%)	<b>24,179</b> (10.8%)	11,000 (9.4%)	11,800 (9.0%)	<b>22,800</b> (9.2%)
60-64	5,280 (4.8%)	4,543 (4.0%)	<b>9,823</b> (4.4%)	4,869 (4.2%)	5,048 (3.9%)	<b>9,917</b> (4.0%)
65+	7,940 (7.2%)	8,265 (7.2%)	<b>16,205</b> (7.2%)	9,255 (7.9%)	9,978 (7.6%)	<b>19,233</b> (7.8%)
<b>TOTAL</b>	<b>109,536</b> (100.0%)	<b>114,849</b> (100.0%)	<b>224,385</b> (100.0%)	<b>116,971</b> (100.0%)	<b>130,693</b> (100.0%)	<b>247,664</b> (100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.      <sup>2</sup> Does not include trips where age, sex, or both were unreported.

**FIGURE 4.2**  
**DISTRIBUTION OF PERSON TRIPS AND PERSON MILES OF TRAVEL BY AGE**  
**1990 NPTS**



This table shows the average annual person trips per person by age and sex. In 1990, for people aged 30 through 49, women took approximately 200 more trips per year than their male counterparts. For the elderly (those 60 and older), this situation was

reversed with men taking about 150 more trips per year than women. For both survey years, 1983 and 1990, the gap in trip making between men and women was the greatest for those 65 and over.

TABLE 4.3

NUMBER OF ANNUAL PERSON TRIPS PER PERSON BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>

Age	1983				1990			
	Male	Female	% Difference, Male vs. Female	All Persons	Male	Female	% Difference, Male vs. Female	All Persons
5-15	822	853	-3.6%	<b>837</b>	932	957	-2.6%	<b>944</b>
16-19	1,183	1,234	-4.1%	<b>1,209</b>	1,271	1,259	1.0%	<b>1,264</b>
20-29	1,275	1,229	3.7%	<b>1,252</b>	1,294	1,320	-2.0%	<b>1,307</b>
30-39	1,197	1,331	-10.1%	<b>1,267</b>	1,231	1,434	-14.2%	<b>1,336</b>
40-49	1,112	1,166	-4.6%	<b>1,139</b>	1,151	1,328	-13.3%	<b>1,242</b>
50-59	1,036	1,012	2.4%	<b>1,023</b>	1,058	1,052	0.6%	<b>1,055</b>
60-64	978	777	25.9%	<b>874</b>	1,047	921	13.7%	<b>979</b>
65+	810	569	42.4%	<b>666</b>	817	639	27.9%	<b>714</b>
<b>ALL AGES</b>	<b>1,066</b>	<b>1,042</b>	2.3%	<b>1,054</b>	<b>1,110</b>	<b>1,143</b>	-2.9%	<b>1,127</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

TABLE 4.4

**NUMBER OF PERSON MILES OF TRAVEL BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>  
(MILLIONS)**

Age	1983			1990 <sup>2</sup>		
	Male	Female	TOTAL	Male	Female	TOTAL
5-15	116,680 (11.3%)	102,422 (11.3%)	<b>219,102</b> (11.3%)	113,297 (9.3%)	105,438 (9.7%)	<b>218,735</b> (9.5%)
16-19	61,819 (6.0%)	57,591 (6.3%)	<b>119,410</b> (6.1%)	73,084 (6.0%)	64,531 (6.0%)	<b>137,615</b> (6.0%)
20-29	240,015 (23.1%)	219,766 (24.2%)	<b>459,781</b> (23.6%)	267,542 (22.0%)	231,467 (21.4%)	<b>499,009</b> (21.7%)
30-39	221,708 (21.4%)	192,126 (21.1%)	<b>413,834</b> (21.3%)	285,982 (23.5%)	260,900 (24.1%)	<b>546,882</b> (23.8%)
40-49	171,835 (16.6%)	139,558 (15.3%)	<b>311,393</b> (16.0%)	221,823 (18.3%)	198,947 (18.4%)	<b>420,770</b> (18.3%)
50-59	120,362 (11.6%)	97,601 (10.7%)	<b>217,963</b> (11.2%)	133,039 (10.9%)	109,647 (10.1%)	<b>242,686</b> (10.6%)
60-64	52,206 (5.0%)	44,558 (4.9%)	<b>96,764</b> (5.0%)	45,564 (3.7%)	37,180 (3.4%)	<b>82,744</b> (3.6%)
65+	52,491 (5.1%)	55,924 (6.1%)	<b>108,415</b> (5.6%)	75,006 (6.2%)	75,846 (7.0%)	<b>150,852</b> (6.6%)
<b>TOTAL</b>	<b>1,037,116</b> (100.0%)	<b>909,546</b> (100.0%)	<b>1,946,662</b> (100.0%)	<b>1,215,337</b> (100.0%)	<b>1,083,956</b> (100.0%)	<b>2,299,293</b> (100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Does not include miles of travel where age, sex, or both were unreported.

This table shows the average annual number of person miles travelled per person by age and sex. While women took more trips than men, on average, men travelled more miles in a year than women. This pattern was

apparent across all age groups in 1990. The greatest difference between men and women in terms of the number of miles travelled was for the 60-to-64 age group.

TABLE 4.5

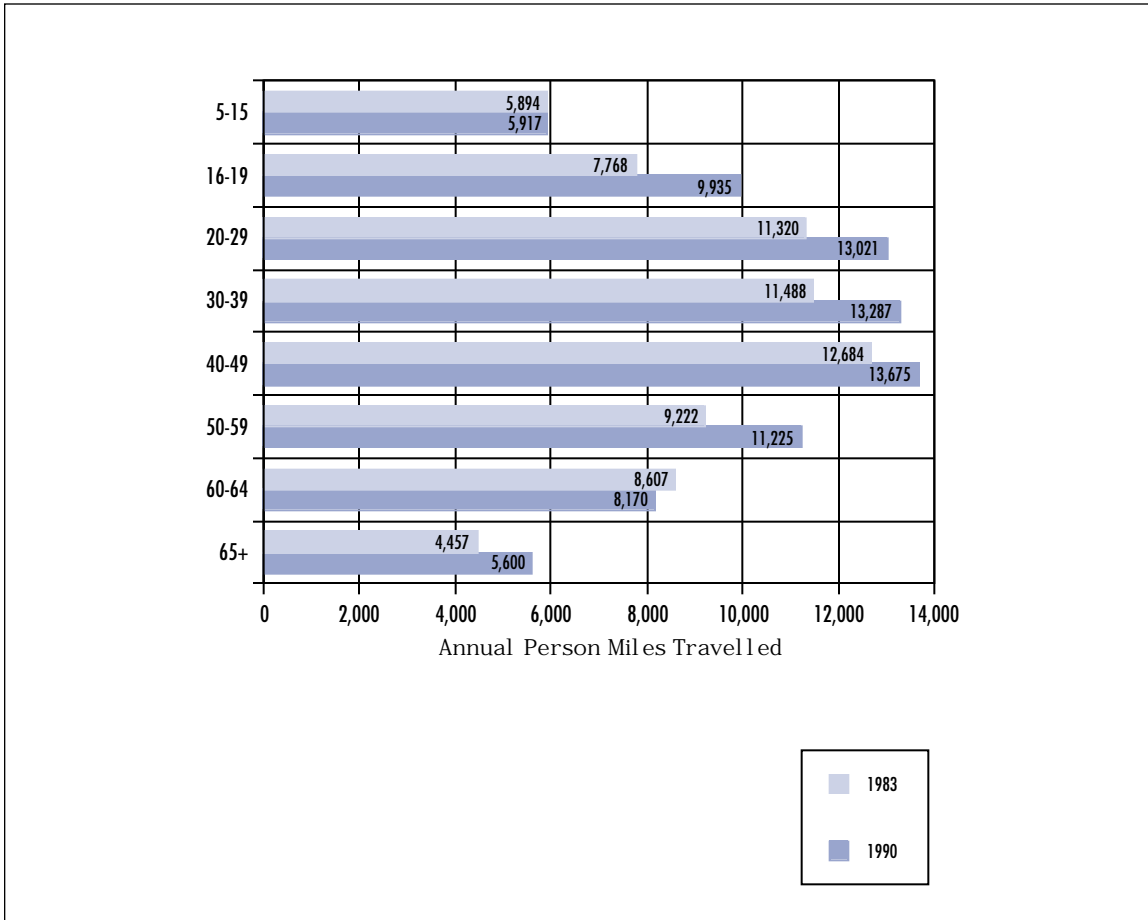
NUMBER OF ANNUAL PERSON MILES PER PERSON BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>

Age	1983				1990			
	Male	Female	% Difference, Male vs. Female	All Persons	Male	Female	% Difference, Male vs. Female	All Persons
5-15	6,143	5,636	9.0%	<b>5,894</b>	5,964	5,866	1.7%	<b>5,917</b>
16-19	7,994	7,538	6.0%	<b>7,768</b>	10,864	9,058	19.9%	<b>9,935</b>
20-29	11,843	10,790	9.8%	<b>11,320</b>	14,484	11,660	24.2%	<b>13,021</b>
30-39	12,876	10,217	26.0%	<b>11,488</b>	14,428	12,228	18.0%	<b>13,287</b>
40-49	13,942	11,415	22.1%	<b>12,684</b>	14,754	12,644	16.7%	<b>13,675</b>
50-59	10,952	7,719	41.9%	<b>9,222</b>	12,792	9,772	30.9%	<b>11,225</b>
60-64	9,673	7,622	26.9%	<b>8,607</b>	9,801	6,786	44.4%	<b>8,170</b>
65+	5,355	3,852	39.0%	<b>4,457</b>	6,623	4,857	36.4%	<b>5,600</b>
<b>AVERAGE FOR ALL PERSONS</b>	<b>10,096</b>	<b>8,253</b>	22.3%	<b>9,142</b>	<b>11,528</b>	<b>9,481</b>	21.6%	<b>10,463</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**FIGURE 4.3**

**NUMBER OF ANNUAL PERSON MILES OF TRAVEL PER PERSON BY AGE  
1983 AND 1990 NPTS**



In 1990, women between the ages of 20 and 50 took more person trips per day than their male counterparts. In the age group 60 years and over, men took more daily person trips than women.

**TABLE 4.6**

**AVERAGE DAILY PERSON TRIPS BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>**

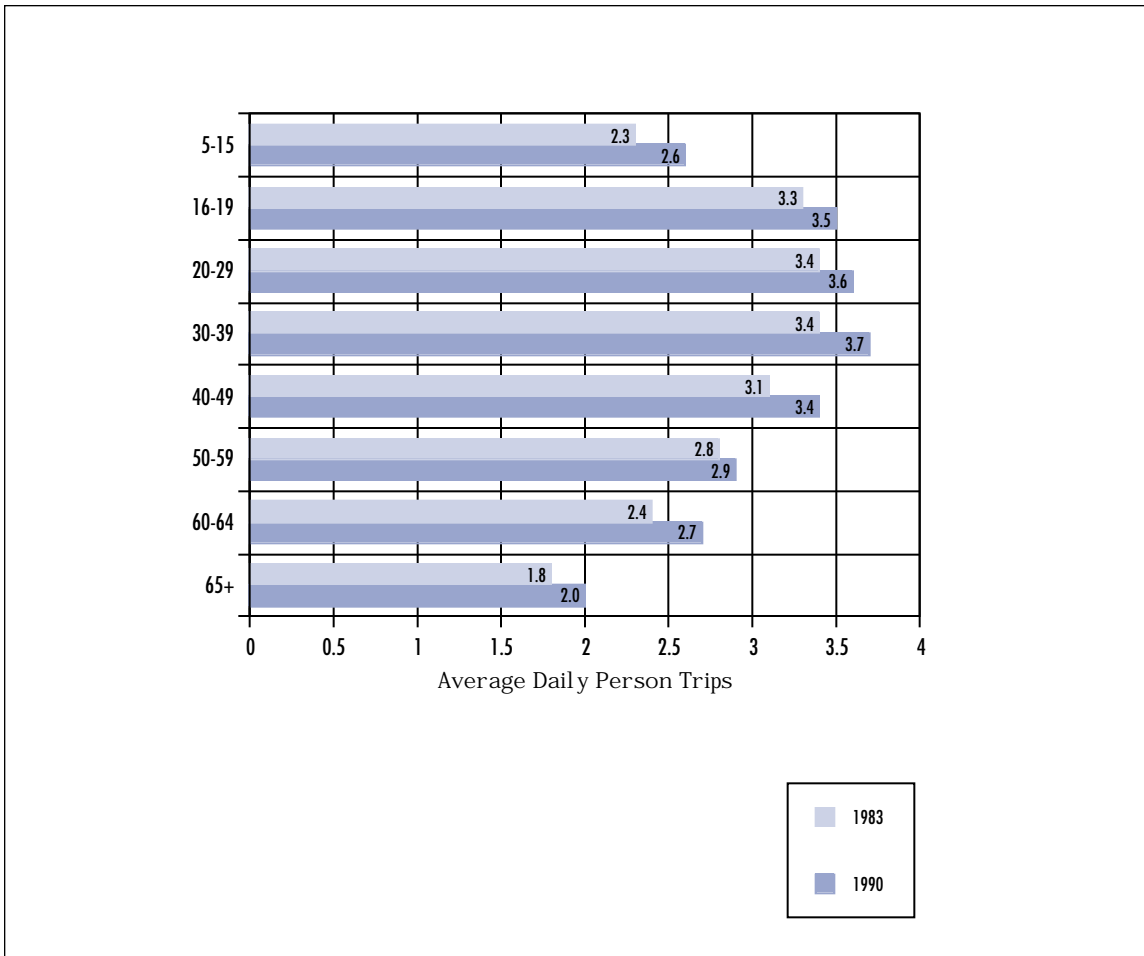
Age	1983			1990		
	Male	Female	ALL	Male	Female	ALL
5-15	2.25	2.34	<b>2.29</b>	2.55	2.62	<b>2.59</b>
16-19	3.24	3.38	<b>3.31</b>	3.48	3.45	<b>3.46</b>
20-29	3.49	3.37	<b>3.43</b>	3.54	3.62	<b>3.58</b>
30-39	3.28	3.65	<b>3.47</b>	3.37	3.93	<b>3.66</b>
40-49	3.05	3.20	<b>3.12</b>	3.15	3.64	<b>3.40</b>
50-59	2.84	2.77	<b>2.80</b>	2.91	2.88	<b>2.89</b>
60-64	2.68	2.13	<b>2.39</b>	2.87	2.52	<b>2.68</b>
65+	2.22	1.56	<b>1.83</b>	2.24	1.75	<b>1.95</b>
<b>ALL</b>	<b>2.92</b>	<b>2.86</b>	<b>2.89</b>	<b>3.03</b>	<b>3.12</b>	<b>3.08</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.



FIGURE 4.4

AVERAGE DAILY PERSON TRIPS BY AGE  
1983 AND 1990 NPTS



Both the 1983 and 1990 NPTS data showed that Americans travelled more miles per day as their ages increased, up to the age of 50.

After age 50, the average daily person miles per person decreased.

**TABLE 4.7**

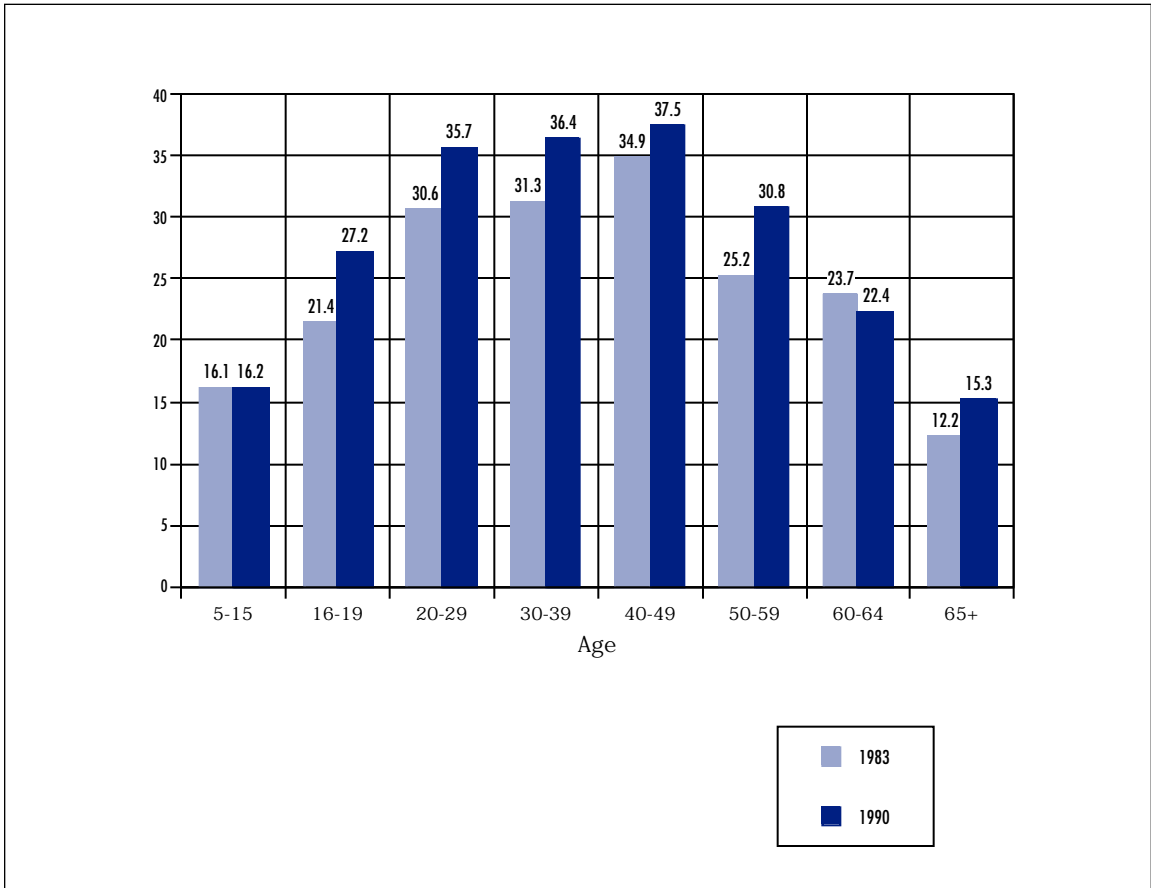
**AVERAGE DAILY PERSON MILES OF TRAVEL BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>**

Age	1983			1990		
	Male	Female	ALL	Male	Female	ALL
5-15	16.8	15.4	<b>16.1</b>	16.3	16.1	<b>16.2</b>
16-19	22.0	20.8	<b>21.4</b>	29.8	24.8	<b>27.2</b>
20-29	32.4	29.6	<b>30.6</b>	39.7	32.0	<b>35.7</b>
30-39	35.1	27.8	<b>31.3</b>	39.5	33.5	<b>36.4</b>
40-49	38.4	31.4	<b>34.9</b>	40.4	34.6	<b>37.5</b>
50-59	29.9	21.1	<b>25.2</b>	35.1	26.8	<b>30.8</b>
60-64	26.6	20.9	<b>23.7</b>	26.9	18.6	<b>22.4</b>
65+	14.6	10.5	<b>12.2</b>	18.2	13.3	<b>15.3</b>
<b>ALL</b>	<b>25.5</b>	<b>21.1</b>	<b>23.2</b>	<b>31.6</b>	<b>26.0</b>	<b>28.7</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**FIGURE 4.5**

**AVERAGE DAILY PERSON MILES OF TRAVEL BY AGE  
1983 AND 1990 NPTS**



Between 1983 and 1990, average trip length increased for both men and women, with men continuing to take longer trips.

**TABLE 4.8**

**AVERAGE LENGTH OF PERSON TRIPS BY AGE AND SEX  
1983 AND 1990 NPTS<sup>1</sup>  
(MILES)**

Age	1983			1990		
	Male	Female	ALL	Male	Female	ALL
5-15	7.5	6.6	<b>7.0</b>	6.6	6.3	<b>6.4</b>
16-19	6.8	6.1	<b>6.4</b>	8.7	7.5	<b>8.1</b>
20-29	9.3	8.8	<b>9.0</b>	11.3	9.1	<b>10.2</b>
30-39	10.8	7.7	<b>9.1</b>	11.9	8.7	<b>10.1</b>
40-49	12.5	9.8	<b>11.1</b>	13.0	9.7	<b>11.2</b>
50-59	10.6	7.6	<b>9.0</b>	12.2	9.5	<b>10.8</b>
60-64	9.9	9.8	<b>9.8</b>	9.4	7.5	<b>8.5</b>
65+	6.6	6.8	<b>6.7</b>	8.2	7.8	<b>8.0</b>
<b>ALL</b>	<b>9.5</b>	<b>7.9</b>	<b>8.7</b>	<b>10.5</b>	<b>8.5</b>	<b>9.5</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

**FIGURE 4.6**

**AVERAGE LENGTH OF PERSON TRIPS BY AGE  
1983 AND 1990 NPTS**

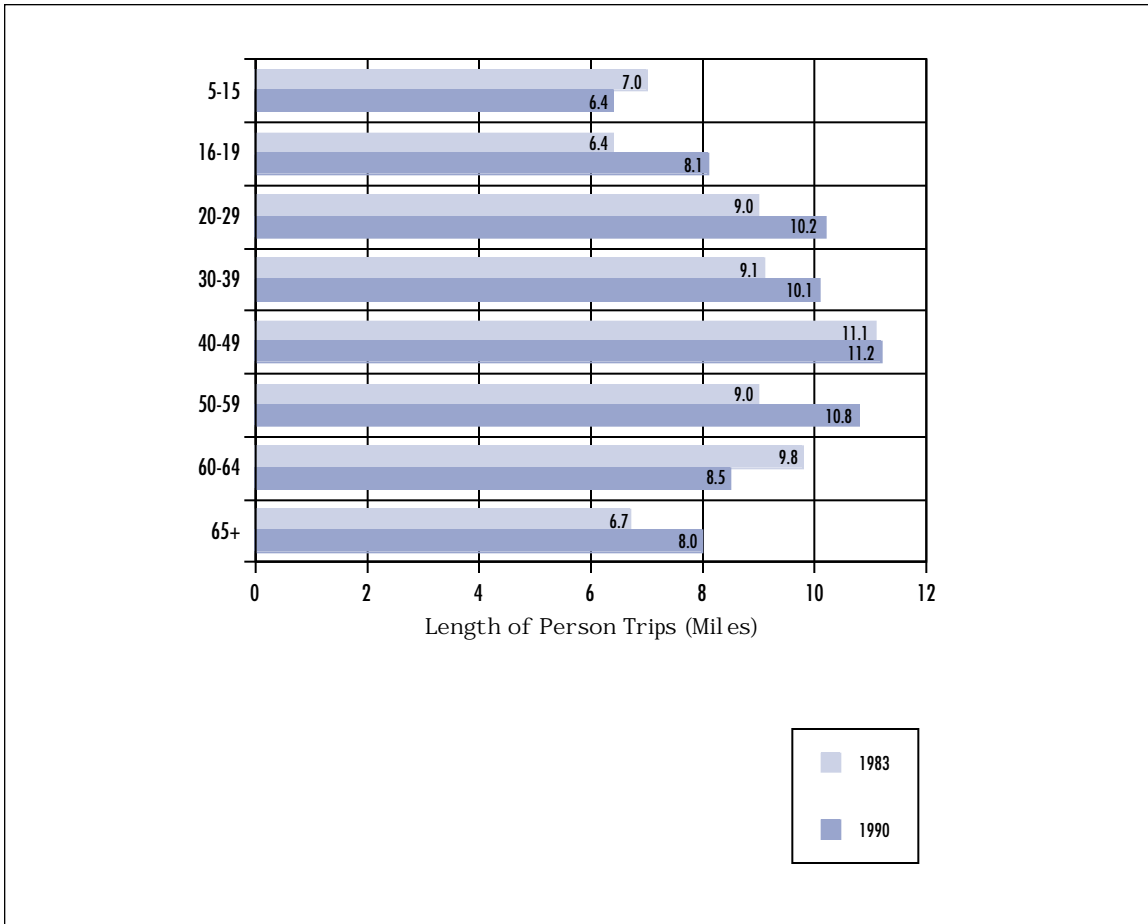


TABLE 4.9

AVERAGE DAILY PERSON TRIPS, TRAVEL PER PERSON, AND PERSON TRIP LENGTH BY SEX, DRIVER'S LICENSE STATUS, AND TRIP PURPOSE  
1990 NPTS

Purpose	Male		Female		ALL PERSONS	
	With Driver's License	Without	With Driver's License	Without	With Driver's License	Without
<b>Average Daily Person Trips</b>						
Earning a Living	1.0	0.4	0.7	0.3	0.9	0.3
Family & Personal Business	1.3	0.7	1.7	0.7	1.5	0.7
Civic, Education, & Religious	0.2	0.3	0.2	0.2	0.2	0.3
Social & Recreational	0.8	0.7	0.8	0.4	0.8	0.5
Other	0.1	0.1	0.1	0.1	0.1	0.1
<b>TOTAL</b>	<b>3.4</b>	<b>2.2</b>	<b>3.5</b>	<b>1.7</b>	<b>3.5</b>	<b>1.9</b>
<b>Average Daily Person Miles of Travel</b>						
Earning a Living	13.4	5.0	6.9	1.4	10.1	2.5
Family & Personal Business	10.0	3.2	11.3	3.2	10.7	3.2
Civic, Educational & Religious	1.3	1.3	1.5	0.9	1.4	1.0
Social & Recreational	11.6	5.2	10.9	4.0	11.3	4.3
Other	0.3	0.1	0.2	0.1	0.3	0.1
<b>TOTAL</b>	<b>36.6</b>	<b>14.8</b>	<b>30.8</b>	<b>9.6</b>	<b>33.8</b>	<b>11.1</b>
<b>Average Person Trip Length (Miles)<sup>1</sup></b>						
Earning a Living	14.0	12.2	9.4	6.1	12.0	8.7
Family & Personal Business	8.0	5.0	6.8	5.0	7.3	5.0
Civic, Educational, & Religious	7.3	4.0	6.7	4.1	7.0	4.1
Social & Recreational	14.7	8.0	13.9	10.3	14.3	9.3
Other	12.8	9.0	10.3	2.0	11.5	3.9
<b>ALL PURPOSES</b>	<b>11.5</b>	<b>6.7</b>	<b>9.0</b>	<b>6.3</b>	<b>10.2</b>	<b>6.5</b>

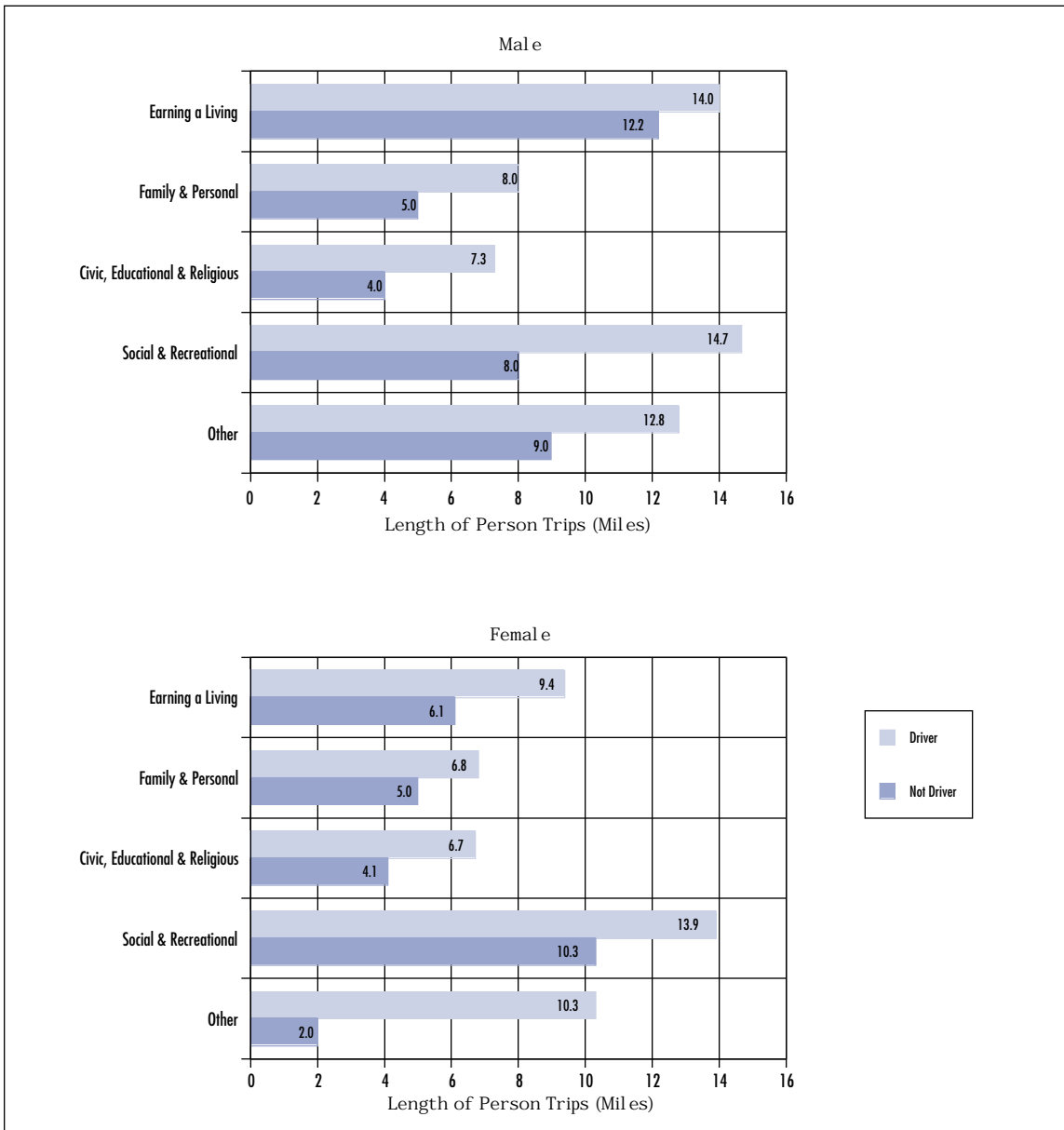
<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.

Individuals without a driver's license took 46% fewer person trips by all modes and 36% shorter trips than those with a driver's license. As a result, individuals without a

driver's license travelled only a third of what licensed drivers did. This pattern was true for both men and women, regardless of trip purpose.

**FIGURE 4.7**

**AVERAGE PERSON TRIP LENGTH BY TRIP PURPOSE, DRIVER'S LICENSE STATUS AND SEX 1990 NPTS**



**TABLE 4.10**

**NUMBER OF PERSON TRIPS BY AGE AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

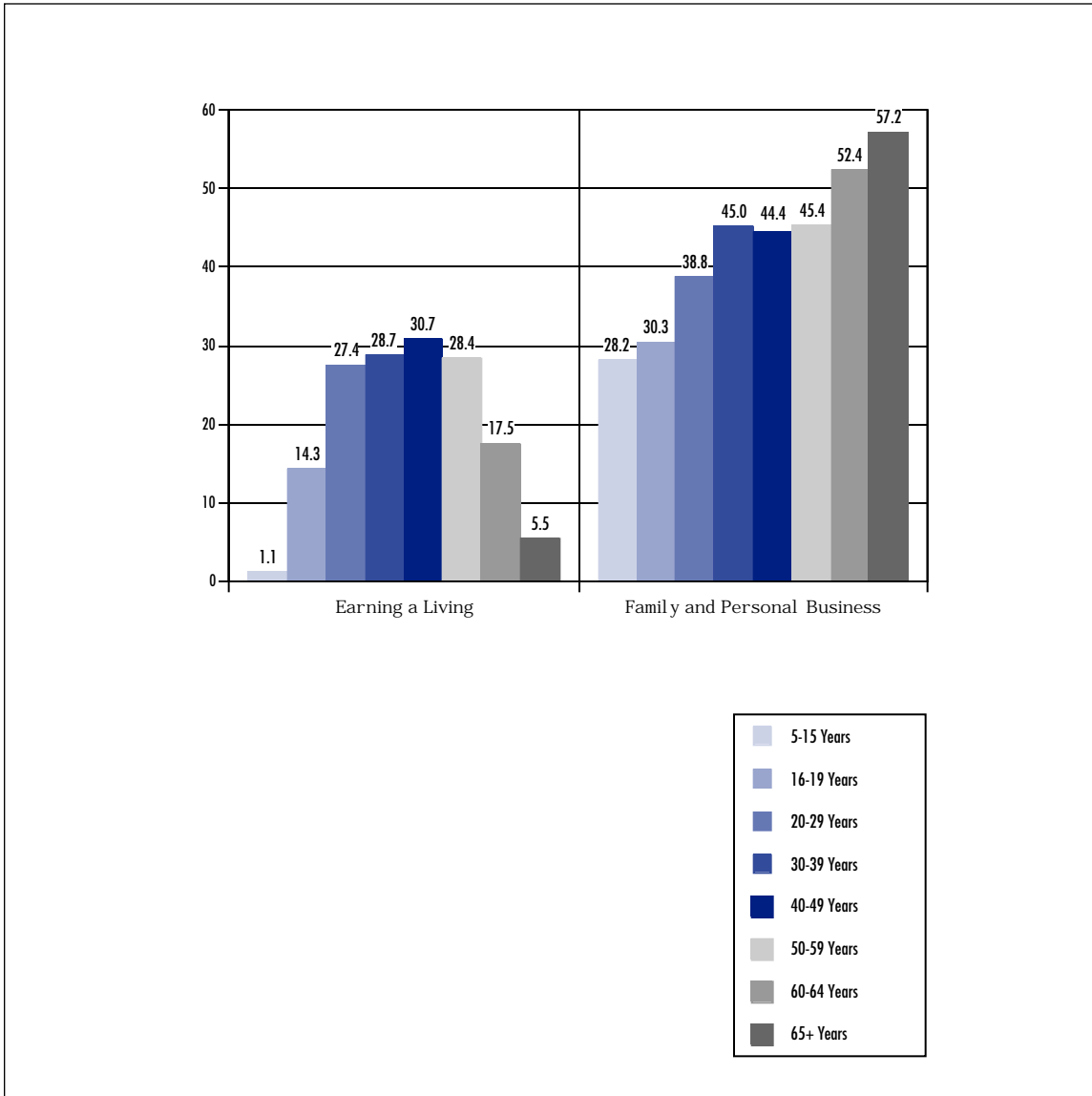
Age	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
5-15	392 (1.1%)	9,847 (28.2%)	14,027 (40.2%)	10,343 (29.6%)	274 (0.7%)	<b>34,901</b> (100.0%)
16-19	2,500 (14.3%)	5,322 (30.3%)	3,979 (22.7%)	5,571 (31.8%)	142 (0.8%)	<b>17,514</b> (100.0%)
20-29	13,710 (27.4%)	19,422 (38.8%)	2,771 (5.6%)	13,851 (27.7%)	308 (0.6%)	<b>50,076</b> (100.0)
30-39	15,812 (28.7%)	24,767 (45.0%)	2,530 (4.6%)	11,575 (21.0%)	320 (0.6%)	<b>55,026</b> (100.0%)
40-49	11,705 (30.7%)	16,936 (44.4%)	1,648 (4.3%)	7,635 (20.0%)	233 (0.6%)	<b>38,176</b> (100.0%)
50-59	6,472 (28.4%)	10,354 (45.4%)	1,028 (4.5%)	4,764 (20.9%)	190 (0.8%)	<b>22,813</b> (100.0%)
60-64	1,738 (17.5%)	5,195 (52.4%)	559 (5.6%)	2,351 (23.7%)	72 (0.7%)	<b>9,917</b> (100.0%)
65+	1,058 (5.5%)	11,005 (57.2%)	1,631 (8.5%)	5,255 (27.3%)	279 (1.5%)	<b>19,233</b> (100.0%)
<b>TOTAL<sup>1</sup></b>	<b>53,843</b> (21.6%)	<b>103,608</b> (41.5%)	<b>28,397</b> (11.4%)	<b>61,799</b> (24.8%)	<b>1,831</b> (0.7%)	<b>249,562</b> (100.0%)

<sup>1</sup> Includes trips where age, trip purpose, or both were unreported.



FIGURE 4.8

DISTRIBUTION OF PERSON TRIPS BY SELECTED TRIP PURPOSE AND DRIVER'S AGE  
1990 NPTS  
(WITHIN AGE GROUP)



**T**HE shares of trips taken for different purposes varied by age. On the average, approximately 42% of the person trips were taken for family and personal reasons. The percent of trips taken for earning a living peaked in the 40 to 49 age group, then declined.

The major reasons for taking trips also varied by sex. The most noteworthy differences between men and women were the proportions of trips taken for family and personal reasons and for earning a living. While 25.3% of the person trips taken by men were for earning a living, this percentage was only 18.3% for women (Tables 4.11 and 4.12). While 45.5% of the trips taken by women

were for family and personal reasons, this percentage was only 37% for men.

On a per-person basis, men took fewer trips than women — 1,110 vs. 1,143 trips per year. When compared by age group, women between the ages of 30 and 50 took significantly more trips per year than those in the corresponding male cohort. The most noteworthy difference between men and women in these age groups was that almost half of the total trips taken by women between 30 and 50 years old were for family and personal reasons while this percentage was 38% for men in the same age groups. On average, women 50 years of age or older took fewer trips than their male counterparts.

**TABLE 4.11**  
**NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY MEN CATEGORIZED BY AGE AND TRIP PURPOSE**  
**1990 NPTS**  
**(MILLIONS)**

Age	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5-15	198 (1.1%)	4,852 (27.4%)	7,123 (40.3%)	5,350 (30.3%)	154 (0.9%)	<b>17,684</b> (100.0%)
16-19	1,349 (15.8%)	2,179 (25.5%)	2,008 (23.5%)	2,951 (34.5%)	59 (0.7%)	<b>8,547</b> (100.0%)
20-29	7,376 (30.9%)	8,156 (34.2%)	1,150 (4.8%)	7,016 (29.4%)	165 (0.7%)	<b>23,870</b> (100.0%)
30-39	8,804 (36.1%)	9,278 (38.0%)	890 (3.6%)	5,288 (21.7%)	116 (0.5%)	<b>24,391</b> (100.0%)
40-49	6,388 (37.0%)	6,687 (38.7%)	550 (3.2%)	3,528 (20.4%)	108 (0.6%)	<b>17,274</b> (100.0%)
50-59	3,785 (34.3%)	4,569 (41.4%)	403 (3.7%)	2,177 (19.7%)	101 (0.9%)	<b>11,038</b> (100.0%)
60-64	967 (19.9%)	2,426 (49.8%)	245 (5.0%)	1,192 (24.5%)	38 (0.8%)	<b>4,869</b> (100.0%)
65+	651 (7.0%)	5,197 (56.2%)	633 (6.8%)	2,644 (28.6%)	130 (1.4%)	<b>9,255</b> (100.0%)
<b>TOTAL<sup>2</sup></b>	<b>29,690</b> (25.3%)	<b>43,553</b> (37.0%)	<b>13,073</b> (11.1%)	<b>30,334</b> (25.8%)	<b>871</b> (0.7%)	<b>117,565</b> (100.0%)

<sup>1</sup> Does not include trips where respondent's sex was unreported.      <sup>2</sup> Includes trips where age, trip purpose, or both were unreported.

**TABLE 4.12**

**NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY WOMEN CATEGORIZED BY AGE AND TRIP PURPOSE  
 1990 NPTS  
 (MILLIONS)**

Age	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5-15	194 (1.1%)	4,995 (29.0%)	6,905 (40.1%)	4,993 (29.0%)	115 (0.7%)	<b>17,211</b> (100.0%)
16-19	1,150 (12.8%)	3,143 (35.1%)	1,971 (22.0%)	2,620 (29.2%)	83 (0.9%)	<b>8,967</b> (100.0%)
20-29	6,333 (24.2%)	11,266 (43.0%)	1,622 (6.2%)	6,835 (26.1%)	143 (0.5%)	<b>26,206</b> (100.0%)
30-39	7,008 (22.9%)	15,489 (50.6%)	1,640 (5.4%)	6,286 (20.5%)	204 (0.7%)	<b>30,635</b> (100.0%)
40-49	5,317 (25.4%)	10,249 (49.0%)	1,099 (5.3%)	4,107 (19.6%)	125 (0.6%)	<b>20,902</b> (100.0%)
50-59	2,687 (22.8%)	5,785 (49.1%)	626 (5.3%)	2,587 (22.0%)	89 (0.8%)	<b>11,775</b> (100.0%)
60-64	771 (15.3%)	2,769 (54.9%)	314 (6.2%)	1,159 (23.0%)	34 (0.7%)	<b>5,048</b> (100.0%)
65+	407 (4.1%)	5,807 (58.2%)	999 (10.0%)	2,611 (26.2%)	149 (1.5%)	<b>9,978</b> (100.0%)
<b>TOTAL<sup>2</sup></b>	<b>24,149</b> (18.3%)	<b>60,042</b> (45.5%)	<b>15,315</b> (11.6%)	<b>31,462</b> (23.8%)	<b>952</b> (0.7%)	<b>131,960</b> (100.0%)

<sup>1</sup> Does not include trips where respondent's sex was unreported.     
 <sup>2</sup> Includes trips where age, trip purpose, or both were unreported.

**FIGURE 4.9**  
**DISTRIBUTION OF PERSON TRIPS BY TRIP PURPOSE AND SEX**  
**1990 NPTS**

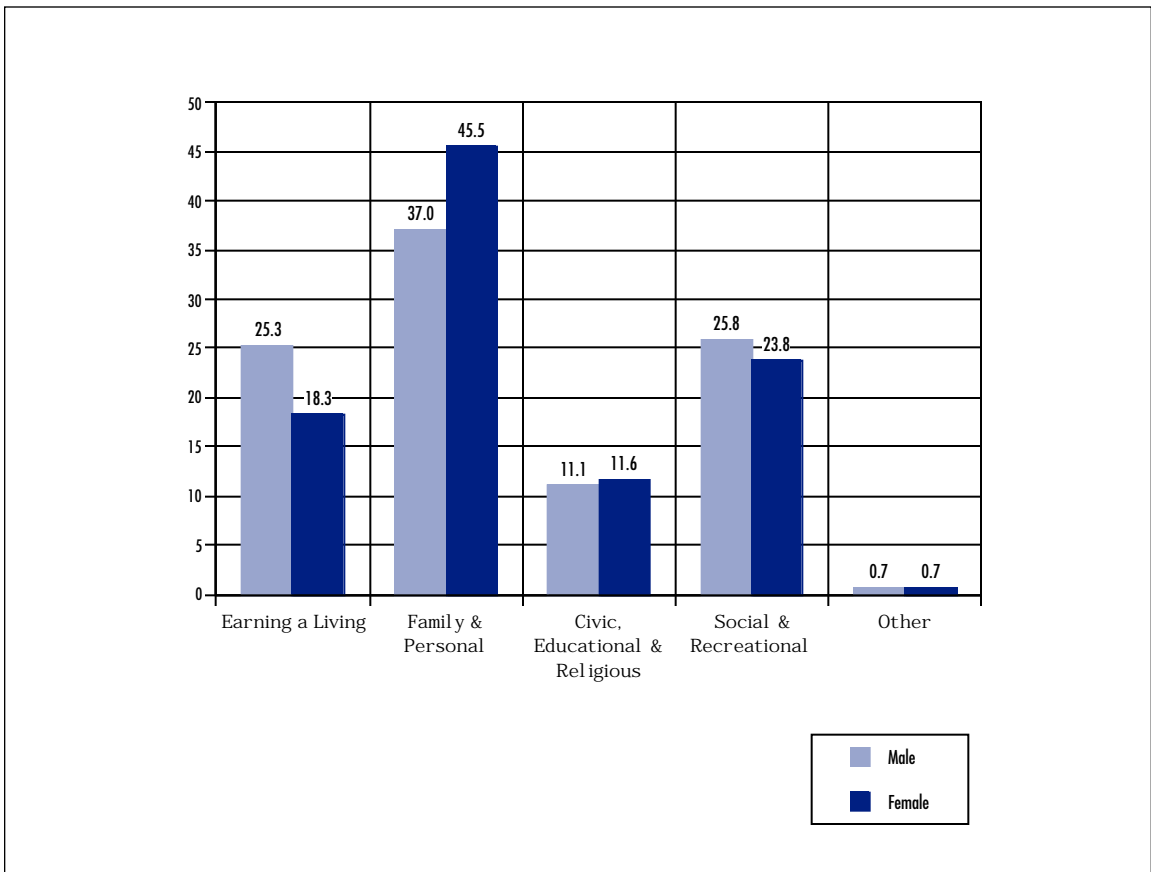


TABLE 4.13

NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY MEN CATEGORIZED BY AGE AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

	Private Vehicle	Public Transportation		Other				TOTAL <sup>4</sup>
		Bus, Streetcar	Rail, Subway <sup>3</sup>	Amtrak	Bike	Walk	Other	
5 - 15	11,299 (11.1%)	317 (20.8%)	19 (2.7%)	2 (6.5%)	536 (42.3%)	2,681 (31.7%)	2,794 (76.0%)	17,684 (15.0%)
16 - 19	6,678 (6.6%)	197 (12.9%)	31 (4.4%)	4 (12.6%)	134 (10.6%)	1,123 (13.3%)	377 (10.3%)	8,547 (7.3%)
20 - 29	21,196 (20.8%)	316 (20.7%)	267 (38.1%)	18 (54.3%)	303 (23.9%)	1,593 (18.9%)	159 (4.3%)	23,870 (20.3%)
30 - 39	22,525 (22.1%)	225 (14.7%)	204 (29.1%)	0 (0.0%)	160 (12.6%)	1,183 (14.0%)	74 (2.0%)	24,391 (20.7%)
40 - 49	16,245 (16.0%)	200 (13.1%)	71 (10.1%)	6 (17.5%)	34 (2.7%)	626 (7.4%)	88 (2.4%)	17,274 (14.7%)
50 - 59	10,268 (10.1%)	100 (6.5%)	61 (8.8%)	2 (5.0%)	10 (0.8%)	511 (6.1%)	75 (2.0%)	11,038 (9.4%)
60 - 64	4,593 (4.5%)	38 (2.5%)	16 (2.2%)	** (0.0%)	18 (1.4%)	193 (2.3%)	10 (0.3%)	4,869 (4.1%)
65+	8,500 (8.3%)	113 (7.4%)	23 (3.3%)	1 (2.8%)	71 (5.6%)	470 (5.6%)	74 (2.0%)	9,255 (7.9%)
<b>TOTAL<sup>4</sup></b>	<b>101,819</b> (100.0%)	<b>1,527</b> (100.0%)	<b>700</b> (100.0%)	<b>34</b> (100.0%)	<b>1,266</b> (100.0%)	<b>8,446</b> (100.0%)	<b>3,675</b> (100.0%)	<b>117,565</b> (100.0%)

\*\* Indicates no data reported.

<sup>1</sup> Does not include trips where respondent's sex was unreported.

<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where age, mode of transportation, or both were unreported.

TABLE 4.14

NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY WOMEN  
CATEGORIZED BY AGE AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

	Private Vehicle	Public Transportation		Other				TOTAL <sup>4</sup>
		Bus, Streetcar	Rail, Subway <sup>3</sup>	Amtrak	Bike	Walk	Other	
5 - 15	11,589 (10.0%)	363 (18.0%)	15 (2.2%)	4 (17.0%)	259 (51.8%)	2,237 (23.4%)	2,729 (76.5%)	17,211 (13.0%)
16 - 19	7,108 (6.2%)	261 (12.9%)	60 (9.2%)	** (0.0%)	11 (2.2%)	1,208 (12.6%)	312 (8.7%)	8,967 (6.8%)
20 - 29	23,366 (20.2%)	441 (21.9%)	239 (36.8%)	6 (31.0%)	105 (21.0%)	1,934 (20.2%)	87 (2.4%)	26,206 (19.9%)
30 - 39	28,444 (24.6%)	322 (16.0%)	152 (23.4%)	5 (25.8%)	72 (14.4%)	1,505 (15.7%)	105 (2.9%)	30,635 (23.2%)
40 - 49	19,588 (17.0%)	189 (9.4%)	94 (14.5%)	3 (13.3%)	37 (7.4%)	843 (8.8%)	143 (4.0%)	20,902 (15.8%)
50 - 59	10,921 (9.5%)	120 (6.0%)	46 (7.1%)	** (0.0%)	6 (1.2%)	618 (6.5%)	57 (1.6%)	11,775 (8.9%)
60 - 64	4,610 (4.0%)	80 (4.0%)	15 (2.2%)	** (0.0%)	0 (0.0%)	318 (3.3%)	23 (0.6%)	5,048 (3.8%)
65+	8,847 (7.7%)	190 (9.4%)	22 (3.4%)	3 (13.0%)	8 (1.6%)	803 (8.4%)	92 (2.6%)	9,978 (7.6%)
<b>TOTAL<sup>4</sup></b>	<b>115,536</b> (100.0%)	<b>2,016</b> (100.0%)	<b>649</b> (100.0%)	<b>21</b> (100.0%)	<b>500</b> (100.0%)	<b>9,561</b> (100.0%)	<b>3,569</b> (100.0%)	<b>131,960</b> (100.0%)

\*\* Indicates no data reported.

<sup>1</sup> Does not include trips where respondent's sex was unreported.

<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where age, mode of transportation, or both were unreported.

PERSON CHARACTERISTICS PERSON TRIPS AND PERSON MILES OF TRAVEL

Individuals 65 and older took a greater percentage of their trips on weekends than individuals under 65 years old.

On a per-person basis, individuals 65 or older took 34% fewer trips than individuals under 65 years of age.

**TABLE 4.15**

**NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65  
CATEGORIZED BY DAY OF WEEK  
1990 NPTS  
(THOUSANDS)**

Day of Week	65 or Older	Under 65
Sunday	2,960,704 (15.4%)	30,232,641 (13.2%)
Monday	2,605,209 (13.5%)	34,213,468 (15.0%)
Tuesday	2,870,703 (14.9%)	35,497,162 (15.5%)
Wednesday	3,125,111 (16.2%)	32,213,651 (14.1%)
Thursday	2,456,871 (12.8%)	35,493,240 (15.5%)
Friday	2,515,693 (13.1%)	30,530,550 (13.4%)
Saturday	2,698,375 (14.0%)	30,240,989 (13.2%)
<b>TOTAL</b>	<b>19,232,666</b> (100.0%)	<b>228,421,701</b> (100.0%)
NUMBER OF PERSONS (000)	26,955	210,151
NUMBER OF ANNUAL TRIPS PER PERSON	714	1,087

<sup>1</sup> Does not include trips where respondent's age was unreported.



**FIGURE 4.10**  
**DISTRIBUTION OF PERSON TRIPS TAKEN BY AGE CATEGORY AND DAY OF WEEK**  
**1990 NPTS**

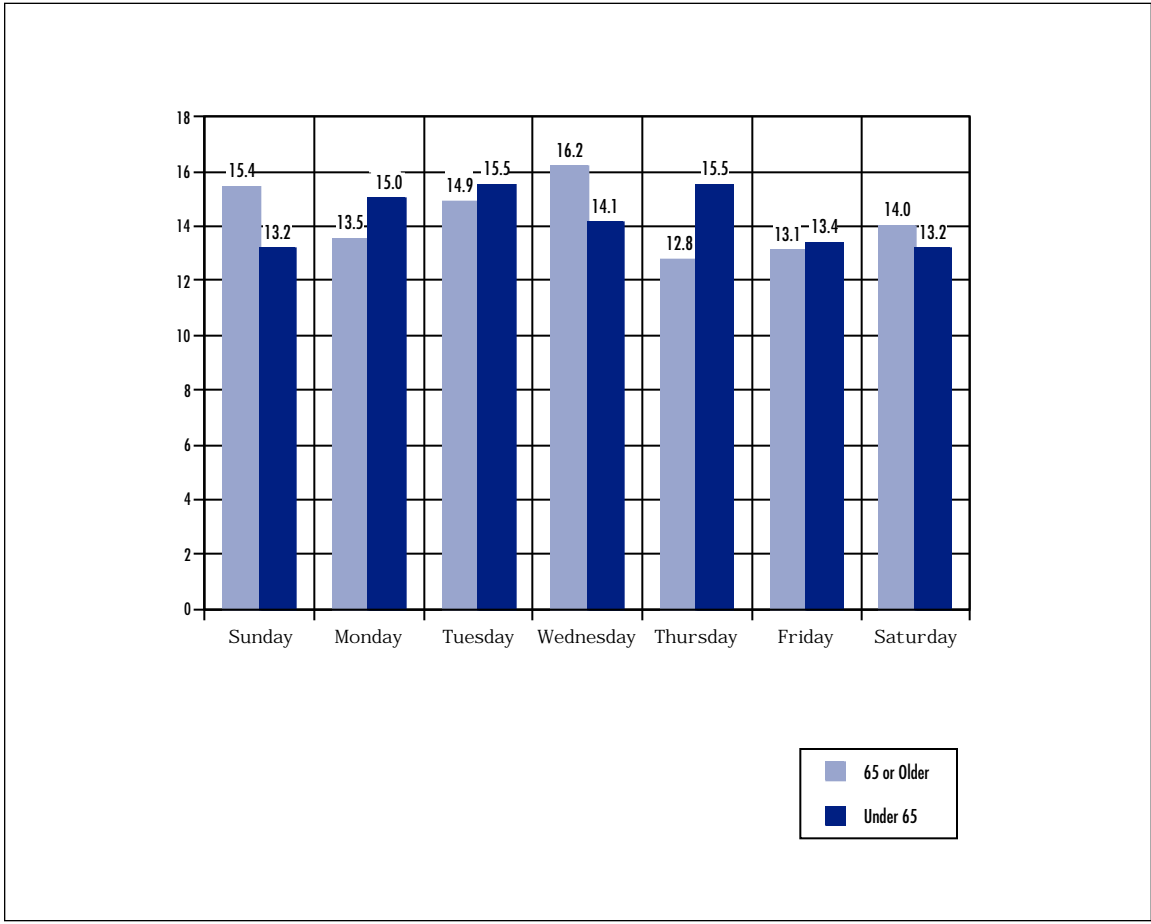


TABLE 4.16

**NUMBER OF PERSON TRIPS<sup>1</sup> TAKEN BY INDIVIDUALS 65 AND OLDER  
BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

Mode	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>PRIVATE VEHICLE</b>						
Auto, Van—Driver	692 (65.4%)	7,312 (66.5%)	880 (53.9%)	2,796 (53.3%)	147 (52.9%)	11,827 (61.5%)
Auto, Van—Passenger	77 (7.2%)	1,882 (17.1%)	604 (37.0%)	1,335 (25.4%)	45 (16.0%)	3,943 (20.5%)
Pickup	148 (14.0%)	947 (8.6%)	62 (3.8%)	366 (7.0%)	6 (2.1%)	1,529 (8.0%)
Other Private Vehicle	6 (0.6%)	16 (0.1%)	** (0.0%)	28 (0.5%)	** (0.0%)	50 (0.3%)
<b>Subtotal—Private</b>	<b>923</b> (87.2%)	<b>10,157</b> (92.3%)	<b>1,546</b> (94.7%)	<b>4,525</b> (86.2%)	<b>198</b> (71.0%)	<b>17,349</b> (90.3%)
<b>PUBLIC TRANSPORTATION</b>						
Bus, Streetcar	56 (5.3%)	146 (1.3%)	11 (0.7%)	86 (1.6%)	4 (1.3%)	303 (1.6%)
Rail/Subway <sup>3</sup>	21 (2.0%)	20 (0.2%)	** (0.0%)	4 (0.1%)	** (0.0%)	45 (0.2%)
<b>Subtotal—Public</b>	<b>77</b> (7.3%)	<b>166</b> (1.5%)	<b>11</b> (0.7%)	<b>90</b> (1.7%)	<b>4</b> (1.3%)	<b>348</b> (1.8%)
<b>OTHER MEANS</b>						
Amtrak	** (0.0%)	1 (0.0%)	** (0.0%)	3 (0.0%)	** (0.0%)	4 (0.0%)
Walk	38 (3.6%)	574 (5.2%)	70 (4.3%)	520 (9.9%)	70 (25.3%)	1,272 (6.6%)
Bike	6 (0.5%)	26 (0.2%)	** (0.0%)	41 (0.8%)	7 (2.4%)	80 (0.4%)
School Bus	5 (0.5%)	3 (0.0%)	** (0.0%)	1 (0.0%)	** (0.0%)	9 (0.0%)
Airplane	4 (0.4%)	0.1 (0.0%)	** (0.0%)	16 (0.3%)	** (0.0%)	20 (0.1%)
Other	5 (0.5%)	75 (0.7%)	5 (0.3%)	52 (1.0%)	** (0.0%)	137 (0.7%)
<b>Subtotal—Other</b>	<b>58</b> (5.5%)	<b>679</b> (6.2%)	<b>75</b> (4.6%)	<b>632</b> (12.0%)	<b>77</b> (27.7%)	<b>1,522</b> (7.9%)
<b>TOTAL</b>	<b>1,058</b> (100.0%)	<b>11,003</b> (100.0%)	<b>1,632</b> (100.0%)	<b>5,247</b> (100.0%)	<b>279</b> (100.0%)	<b>19,233<sup>4</sup></b> (100.0%)
<b>Avg. Trip Length (Miles)<sup>5</sup></b>	<b>8.84</b>	<b>5.75</b>	<b>4.04</b>	<b>13.92</b>	<b>4.98</b>	<b>7.99</b>

\*\* Indicates no data reported.

<sup>1</sup> Does not include trips where respondent's age was unreported.

<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where both mode and purpose were unreported.

<sup>5</sup> Calculated using only those records with valid data on trip length.

The trip distribution by trip purpose differed between individuals 65 years of age and older and those under 65. While 23% of the trips by individuals under 65 were for earning a living, this percentage was only 5.5% for individuals 65 and older. On the other

hand, while 40.2% of the trips by individuals under 65 were for family and personal reasons, this percent was 57.3% for individuals 65 and older. Privately owned vehicles were the most common mode of transportation for all age groups.

**FIGURE 4.11**

**DISTRIBUTION OF PERSON TRIPS TAKEN BY AGE CATEGORY AND TRIP PURPOSE  
1990 NPTS**

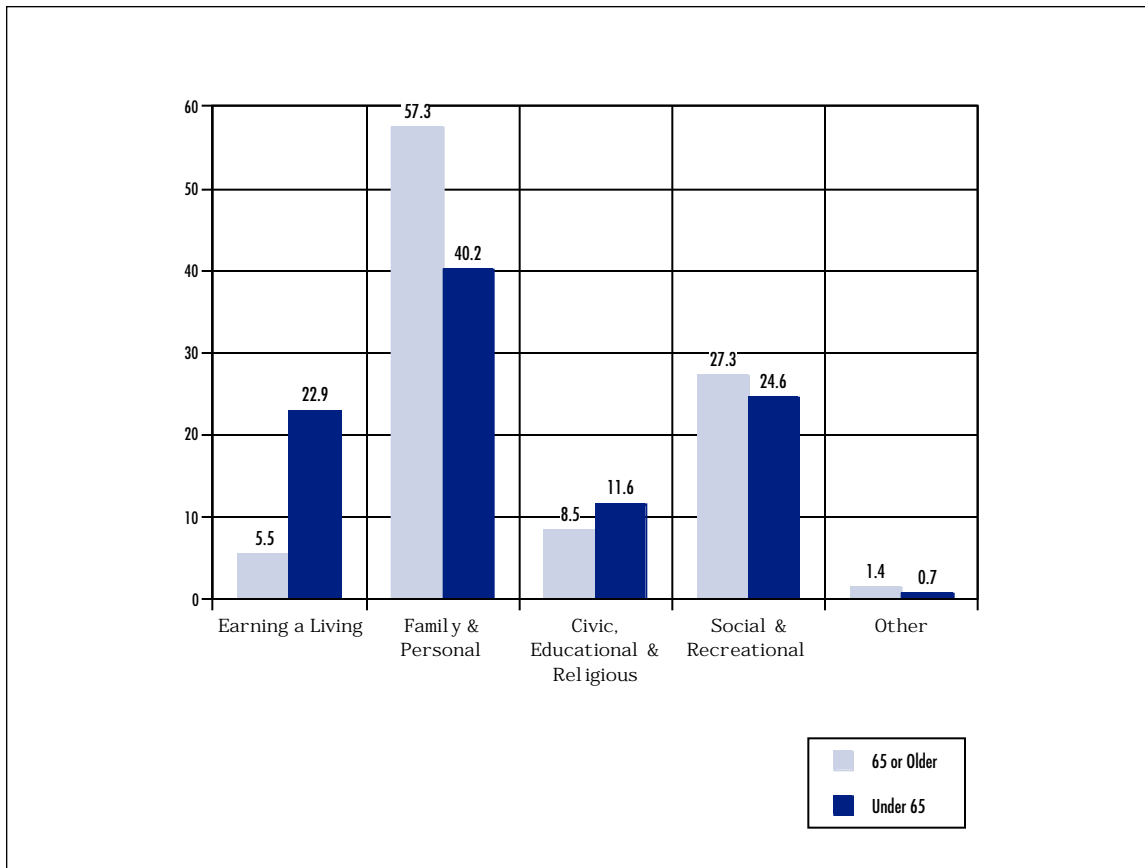


TABLE 4.17

**NUMBER OF HOUSEHOLDS AND NUMBER OF PERSONS BY HOUSEHOLD COMPOSITION  
1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)**

Household Composition	1983		1990	
	No. of Households	No. of Persons	No. of Households	No. of Persons
Single Adult, No Children	16,955 <sup>2</sup> (19.9%)	16,149 <sup>2</sup> (7.6%)	15,505 <sup>2</sup> (16.6%)	17,264 <sup>2</sup> (7.8%)
Two or More Adults, No Children	22,629 (26.5%)	47,756 (22.4%)	24,182 (25.9%)	51,917 (23.4%)
Single Adult, Youngest Child Under 6	1,942 (2.2%)	5,947 (2.8%)	1,698 (1.8%)	3,753 (1.7%)
Two or More Adults, Youngest Child Under 6	13,776 (16.1%)	54,369 (25.5%)	13,791 (14.8%)	43,436 (19.6%)
Single Adult, Youngest Child 6-15	3,394 (4.0%)	8,966 (4.2%)	2,382 (2.6%)	6,952 (5.1%)
Two or More Adults, Youngest Child 6-15	12,277 (14.4%)	46,378 (21.8%)	12,332 (13.2%)	50,276 (22.6%)
Single Adult, Youngest Child 16 or Older	838 (1.0%)	1,866 (0.9%)	819 (0.9%)	1,892 (0.9%)
Two or More Adults, Youngest Child 16 or Older	4,618 (5.4%)	15,734 (7.4%)	4,444 (4.8%)	14,599 (6.6%)
Single Adult, Retired - No Children	2,400 <sup>2</sup> (2.8%)	2,069 <sup>2</sup> (1.0%)	7,642 <sup>2</sup> (8.2%)	8,340 <sup>2</sup> (3.8%)
Two or More Adults, Retired - No Children	6,546 (7.7%)	13,698 (6.4%)	9,777 (10.5%)	22,502 (10.1%)
<b>TOTAL</b>	<b>85,375</b> (100.0%)	<b>212,932</b> (100.0%)	<b>93,347<sup>3</sup></b> (100.0%)	<b>222,101<sup>3</sup></b> (100.0%)

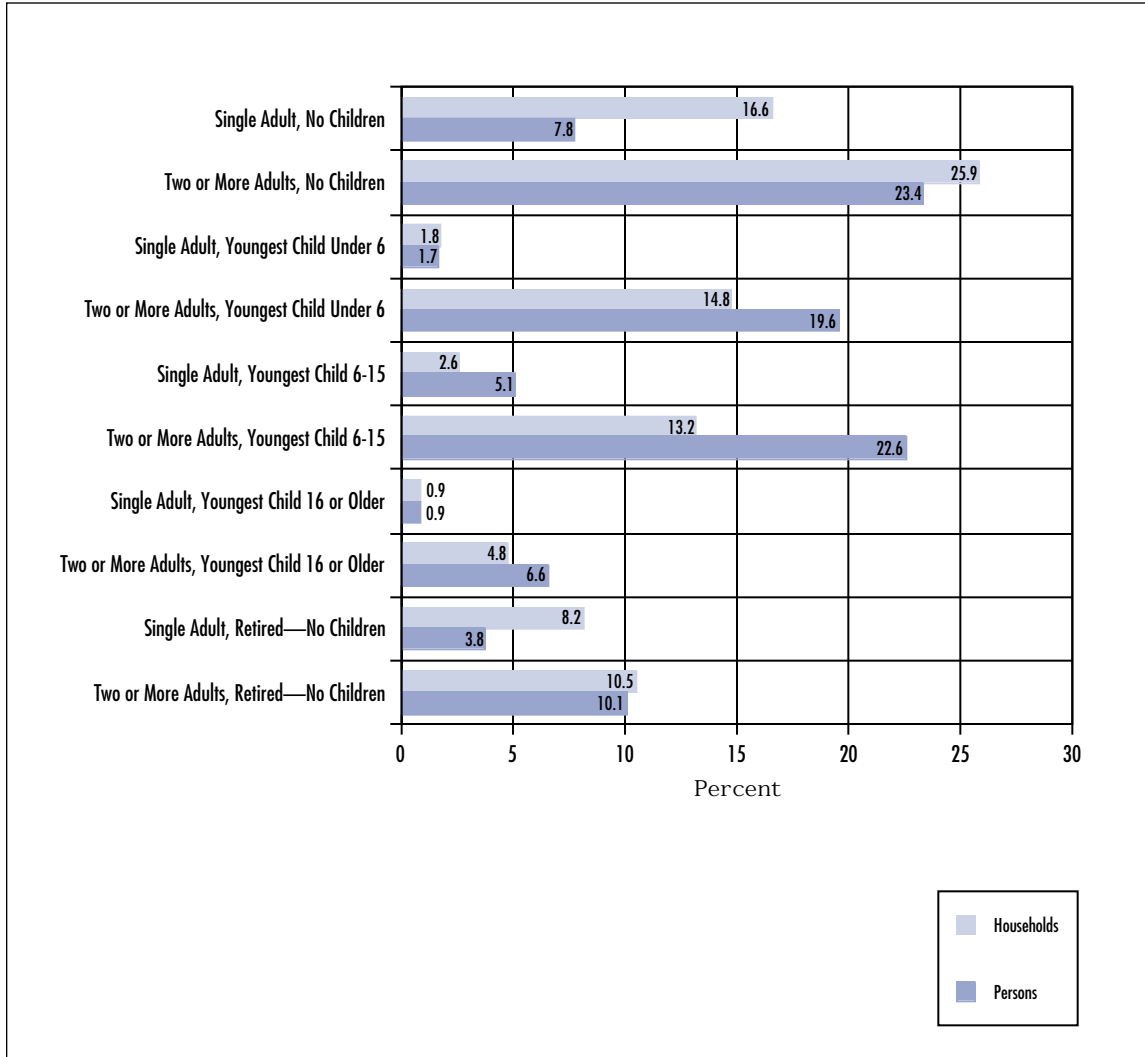
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Different expansion factors contribute to the difference between the number of households and the number of persons for one-person households.

<sup>3</sup> Includes households or persons where household composition was unreported.

FIGURE 4.12

DISTRIBUTION OF HOUSEHOLDS AND PERSONS BY HOUSEHOLD COMPOSITION  
1990 NPTS



Trips taken by households with two or more adults without children or with the youngest child less than 16 years of age accounted for more than 68% of all person trips in 1990.

Trips taken by families with a single adult with the youngest child between the ages of 6 and 15 were the shortest.

TABLE 4.18

STATISTICS ON PERSON TRIPS AND TRAVEL BY HOUSEHOLD COMPOSITION  
1990 NPTS

Household Composition	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length (Miles) <sup>1</sup>
Single Adult, No Children	21,522,319 (8.6%)	195,955,789 (8.5%)	9.26
Two or More Adults, No Children	61,501,816 (24.6%)	673,967,245 (29.1%)	11.14
Single Adult, Youngest Child Under 6	4,103,874 (1.6%)	26,801,823 (1.2%)	6.92
Two or More Adults, Youngest Child Under 6	49,693,690 (19.9%)	449,300,157 (19.4%)	9.20
Single Adult, Youngest Child 6-15	8,567,514 (3.4%)	54,659,054 (2.4%)	6.63
Two or More Adults, Youngest Child 6-15	58,125,754 (23.3%)	483,562,538 (20.9%)	8.46
Single Adult, Youngest Child 16-21	2,428,849 (1.0%)	17,179,089 (0.7%)	7.33
Two or More Adults, Youngest Child 16-21	17,778,447 (7.1%)	200,510,823 (8.7%)	11.53
Single Adult, Retired, No Children	6,038,763 (2.4%)	40,408,849 (1.8%)	6.90
Two or More Adults, Retired, No Children	18,680,833 (7.5%)	165,636,087 (7.2%)	8.98
<b>TOTAL<sup>2</sup></b>	<b>249,562,297</b> (100.0%)	<b>2,315,300,000</b> (100.0%)	<b>9.45</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>2</sup> Includes travel where household composition was unreported.

Figure 4.13 graphically presents the impact of the presence of two or more adults on the amount of travel by the household unit. Tables 4.19 and 4.20 present data on personal travel per household by purpose and household composition. On average, a household took 2,700 trips per year and travelled more than 24,000 miles in 1990.

On a per-household basis, the majority of trips were taken for family and personal business. Households with a single retired adult and without children travelled by far the least per household compared to other households, both in terms of number of trips and miles.

**FIGURE 4.13**

**DISTRIBUTION OF PERSON TRIPS AND HOUSEHOLDS BY HOUSEHOLD COMPOSITION 1990 NPTS**

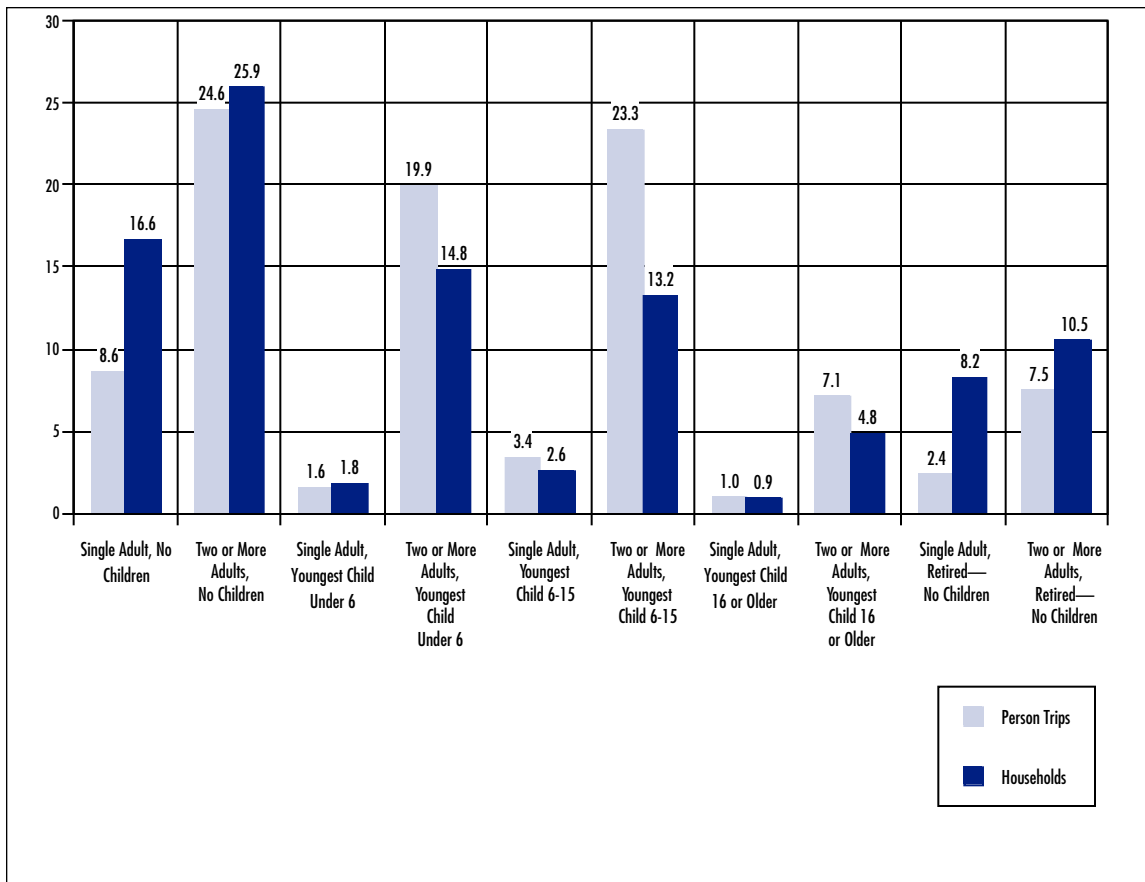


TABLE 4.19

ANNUAL PERSON TRIPS PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD COMPOSITION  
1990 NPTS

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL
Single Adult, No Children	371	578	61	369	9	1,388
Two Adults, No Children	748	995	145	637	18	2,543
Single Adult, Youngest Child Under 6	297	1,042	405	637	35	2,416
Two Adults, Youngest Child Under 6	753	1,587	473	771	19	3,603
Single Adult, Youngest Child 6-15	473	1,384	739	982	18	3,596
Two Adults, Youngest Child 6-15	872	1,777	885	1,140	36	4,710
Single Adult, Youngest Child 16 or Older	556	1,103	359	942	6	2,966
Two Adults, Youngest Child 16 or Older	1,062	1,508	398	1,009	21	3,998
Single Adult, Retired - No Children	12	463	65	234	16	790
Two Adults, Retired - No Children	174	1,037	136	541	22	1,910
<b>AVERAGE FOR ALL HOUSEHOLDS</b>	<b>577</b>	<b>1,110</b>	<b>304</b>	<b>662</b>	<b>20</b>	<b>2,673</b>



TABLE 4.20

ANNUAL PERSON MILES OF TRAVEL PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD COMPOSITION  
1990 NPTS

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL
Single Adult, No Children	3,598	3,556	433	4,882	169	12,638
Two Adults, No Children	8,822	7,998	893	9,947	199	27,859
Single Adult, Youngest Child Under 6	1,885	6,757	1,305	5,613	220	15,780
Two Adults, Youngest Child Under 6	9,435	11,400	2,458	9,125	154	32,572
Single Adult, Youngest Child 6-15	4,896	7,238	3,476	7,264	73	22,947
Two Adults, Youngest Child 6-15	10,425	11,789	4,406	12,239	349	39,208
Single Adult, Youngest Child 16 or Older	5,212	7,452	2,031	6,188	102	20,985
Two Adults, Youngest Child 16 or Older	12,999	12,433	2,852	16,595	235	45,114
Single Adult, Retired - No Children	77	1,943	243	2,947	78	5,288
Two Adults, Retired - No Children	1,627	6,705	540	7,886	182	16,940
<b>AVERAGE FOR ALL HOUSEHOLDS</b>	<b>6,679</b>	<b>7,757</b>	<b>1,599</b>	<b>8,567</b>	<b>195</b>	<b>24,803</b>

This table presents demographic and travel statistics by place of residence. On average, 77% of American households were located in metropolitan areas. Americans who lived in metropolitan areas, but outside the central

city, took more trips and longer trips than others. Individuals who lived inside the central city of metropolitan areas walked twice as often as the others.

TABLE 4.21

DEMOGRAPHIC AND PERSONAL TRAVEL STATISTICS BY PLACE OF RESIDENCE  
1990 NPTS

	In MSA, Central City	In MSA, Non-Central City	Non-MSA	TOTAL
<b>Population (000)</b>	<b>80,030</b>	<b>92,251</b>	<b>49,820</b>	<b>222,101</b>
	(36.0%)	(41.5%)	(22.4%)	(100.0%)
<b>Total No. of Households (000)</b>	<b>34,579</b>	<b>37,353</b>	<b>21,415</b>	<b>93,347</b>
	(37.0%)	(40.0%)	(23.0%)	(100.0%)
<b>Average Household Size</b>	<b>2.57</b>	<b>2.69</b>	<b>2.52</b>	<b>2.61</b>
<b>Person Trips (000,000)</b>	<b>88,530</b>	<b>105,781</b>	<b>55,251</b>	<b>249,562</b>
	(35.5%)	(42.4%)	(22.1%)	(100.0%)
<b>Person Trips per Person</b>	<b>1,106</b>	<b>1,147</b>	<b>1,109</b>	<b>1,124</b>
<b>Person Miles of Travel (PMT) (000,000)</b>	<b>705,454</b>	<b>1,072,689</b>	<b>537,130</b>	<b>2,315,273</b>
	(30.5%)	(46.3%)	(23.2%)	(100.0%)
<b>PMT per Person</b>	<b>8,815</b>	<b>11,628</b>	<b>10,781</b>	<b>10,424</b>
<b>Average Trip Length (miles)<sup>1</sup></b>	<b>8.2</b>	<b>10.3</b>	<b>9.8</b>	<b>9.5</b>
<b>% Person Trips<sup>2</sup> by</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
- Privately Owned Vehicles (POV)	82.5%	89.8%	89.4%	87.1%
- Public Transportation	3.8%	1.2%	0.5%	2.0%
- Walk	10.4%	5.4%	5.6%	7.2%
<b>% PMT<sup>2</sup> by</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
- POV	84.1%	87.9%	93.8%	88.1%
- Public Transportation	4.0%	2.1%	1.4%	2.5%
- Walk	0.9%	0.3%	0.4%	0.5%
<sup>1</sup> Average person trip length is calculated using only those records with trip mile information present.		<sup>2</sup> Includes trips by modes not shown on table.		

TABLE 4.22

**NUMBER OF PERSON TRIPS BY PUBLIC TRANSPORTATION VS. ALL OTHER MODES, TRIP PURPOSE  
AND PLACE OF RESIDENCE  
1990 NPTS (THOUSANDS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	MSA, Central City <sup>2</sup>	MSA, Non-Central City <sup>2</sup>	New York CMSA <sup>3</sup>	Not in MSA	TOTAL
<b>Public Transportation Trips</b>					
Earning a Living	849,394 (38.1%)	364,019 (42.2%)	824,269 (54.0%)	46,259 (16.6%)	<b>2,083,941</b> (42.6%)
Family and Personal Business	535,564 (24.1%)	174,808 (20.3%)	227,352 (14.9%)	45,021 (16.2%)	<b>982,745</b> (20.1%)
Civic, Educational, and Religious	525,260 (23.6%)	186,413 (21.6%)	211,816 (13.9%)	152,482 (54.8%)	<b>1,075,970</b> (22.0%)
Social and Recreational	310,239 (13.9%)	122,401 (14.2%)	253,670 (16.6%)	30,546 (11.0%)	<b>716,856</b> (14.7%)
Other	6,397 (0.3%)	14,783 (1.7%)	6,887 (0.5%)	3,762 (1.4%)	<b>31,829</b> (0.7%)
<b>TOTAL<sup>4</sup></b>	<b>2,226,853</b> (100.0%)	<b>862,423</b> (100.0%)	<b>1,525,112</b> (100.0%)	<b>278,071</b> (100.0%)	<b>4,892,460</b> (100.0%)
<b>All Other Modes</b>					
Earning a Living	16,745,996 (20.9%)	20,397,066 (21.7%)	3,388,576 (21.8%)	11,227,355 (20.4%)	<b>51,758,993</b> (21.2%)
Family and Personal Business	33,477,749 (41.9%)	39,308,196 (41.7%)	6,547,798 (42.1%)	23,291,805 (42.4%)	<b>102,625,548</b> (41.9%)
Civic, Educational, and Religious	8,789,733 (11.0%)	9,984,285 (10.6%)	1,665,121 (10.7%)	6,881,968 (12.5%)	<b>27,321,106</b> (11.2%)
Social and Recreational	20,386,262 (25.5%)	23,727,587 (25.2%)	3,850,716 (24.7%)	13,117,794 (23.9%)	<b>61,082,359</b> (25.0%)
Other	532,947 (0.7%)	717,369 (0.8%)	110,250 (0.7%)	438,406 (0.8%)	<b>1,798,973</b> (0.7%)
<b>TOTAL<sup>4</sup></b>	<b>79,953,318</b> (100.0%)	<b>94,175,641</b> (100.0%)	<b>15,567,847</b> (100.0%)	<b>54,973,031</b> (100.0%)	<b>244,669,837</b> (100.0%)
<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.			<sup>3</sup> The New York CMSA is displayed separately on this table because almost 1/3 of all public transportation trips in the U.S. are made in the New York area.		
<sup>2</sup> Excluding New York CMSA.			<sup>4</sup> Includes trips where trip purpose was unreported.		

**T**HE percentage of person trips taken by public transportation was the highest in metropolitan areas with population greater than 3 million (Table 4.23). The distribution of trips by mode of transportation in non-MSA areas was very similar to that in smaller metropolitan areas. Of the trips taken by automobiles and vans, 72% of these were taken by individuals who were the drivers of the vehicles. As mentioned in previous tables, walking was more common in larger metropolitan areas than in other areas.

Table 4.24 presents the average lengths of person trips. Trip lengths increased from 1983 to 1990 for all trip purposes. The length of social and recreational trips remained the longest compared to others.

TABLE 4.23

**NUMBER OF PERSON TRIPS BY MSA SIZE AND MODE OF TRANSPORTATION  
1990 NPTS (THOUSANDS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Less Than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000 and Above	Not in MSA	TOTAL
<b>PRIVATE VEHICLE</b>							
Auto, Van— Driver	13,780,928	12,335,189	13,257,401	28,524,259	40,009,047	28,305,183	<b>136,212,007</b>
Auto, Van— Passenger	5,569,358	4,653,953	5,296,377	11,020,654	15,129,980	11,644,147	<b>53,314,469</b>
Pickup	2,995,132	2,218,763	2,539,930	4,279,064	4,727,610	8,872,593	<b>25,633,090</b>
Other Private Vehicle	239,663	328,563	187,850	383,893	540,598	552,879	<b>2,233,446</b>
<b>Subtotal— Private</b>	<b>22,583,081</b> (89.1%)	<b>19,536,468</b> (89.8%)	<b>21,281,558</b> (90.5%)	<b>44,207,870</b> (88.8%)	<b>60,407,235</b> (81.8%)	<b>49,374,802</b> (89.4%)	<b>217,393,012</b> (87.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	242,629	149,618	248,579	779,265	1,875,492	247,606	<b>3,543,188</b>
Rail/Subway <sup>2</sup>	**	4,071	1,761	56,890	1,256,083	30,465	<b>1,349,271</b>
<b>Subtotal— Public</b>	<b>242,629</b> (1.0%)	<b>153,689</b> (0.7%)	<b>250,340</b> (1.1%)	<b>836,155</b> (1.7%)	<b>3,131,575</b> (4.2%)	<b>278,071</b> (0.5%)	<b>4,892,460</b> (2.0%)
<b>OTHER MEANS</b>							
Amtrak	2,668	3,835	808	0	45,320	1,682	<b>54,313</b>
Walk	1,550,305	1,309,140	1,162,694	3,100,137	7,766,578	3,117,906	<b>18,006,760</b>
Bike	235,442	160,103	145,326	311,116	578,683	335,844	<b>1,766,513</b>
School Bus	639,331	513,024	596,804	1,050,897	1,418,301	1,873,851	<b>6,092,208</b>
Airplane	21,852	3,022	7,959	64,019	83,746	22,255	<b>202,853</b>
Taxi	31,055	26,330	13,191	49,671	234,864	66,478	<b>421,589</b>
Other	39,368	36,058	46,646	137,002	127,395	140,476	<b>526,945</b>
<b>Subtotal— Other</b>	<b>2,520,022</b> (9.9%)	<b>2,051,512</b> (9.4%)	<b>1,973,427</b> (8.4%)	<b>4,712,842</b> (9.5%)	<b>10,254,888</b> (13.9%)	<b>5,558,491</b> (10.1%)	<b>27,071,182</b> (10.8%)
<b>TOTAL<sup>3</sup></b>	<b>25,359,683</b> (100.0%)	<b>21,758,484</b> (100.0%)	<b>23,521,157</b> (100.0%)	<b>49,793,560</b> (100.0%)	<b>73,878,311</b> (100.0%)	<b>55,251,102</b> (100.0%)	<b>249,562,297</b> (100.0%)

\*\* Indicates no data reported.

<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Includes trips where mode of transportation was unreported.

TABLE 4.24

**AVERAGE PERSON TRIP LENGTH<sup>1</sup> BY MSA SIZE AND TRIP PURPOSE  
1983 AND 1990 NPTS<sup>2</sup>**

Purpose	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000- and Over	All MSA's	ALL AREAS
<b>1983</b>							
Earning a Living	7.4	8.9	10.2	11.1	11.5	10.0	<b>9.9</b>
Family and Personal Business	5.7	6.2	5.4	6.3	5.5	5.9	<b>6.3</b>
Civic, Educational and Religious	3.3	5.3	4.0	4.9	3.9	4.5	<b>4.9</b>
Social and Recreational	9.0	12.8	21.6	12.5	10.5	12.7	<b>12.3</b>
Other	5.8	5.2	3.9	8.5	4.4	5.9	<b>8.0</b>
<b>ALL PURPOSES</b>	<b>6.7</b>	<b>8.6</b>	<b>10.5</b>	<b>9.1</b>	<b>8.0</b>	<b>8.5</b>	<b>8.7</b>
<b>1990</b>							
Earning a Living	9.8	9.8	10.5	12.1	13.5	11.9	<b>11.8</b>
Family and Personal Business	7.1	6.5	7.1	6.8	6.5	6.7	<b>7.1</b>
Civic, Educational, and Religious	4.9	5.4	5.5	5.1	5.1	5.1	<b>5.4</b>
Social and Recreational	13.8	11.8	11.4	14.3	13.2	13.2	<b>13.2</b>
Other	7.9	4.1	9.5	11.1	15.4	10.9	<b>10.3</b>
<b>ALL PURPOSES</b>	<b>9.2</b>	<b>8.4</b>	<b>8.7</b>	<b>9.7</b>	<b>9.7</b>	<b>9.3</b>	<b>9.5</b>

<sup>1</sup> Calculated using only those records with valid data on trip length.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

TABLE 4.25

**AVERAGE DAILY PERSON MILES OF TRAVEL BY TRIP PURPOSE AND MSA SIZE  
1983 AND 1990 NPTS<sup>1</sup>**

Purpose	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000- and Over	All MSA's	<b>ALL AREAS</b>
<b>1983</b>							
Earning a Living	4.5	6.0	5.9	6.7	6.8	5.9	<b>6.1</b>
Family and Personal Business	5.4	6.3	5.8	5.7	4.7	7.4	<b>6.0</b>
Civic, Educational and Religious	1.4	1.6	1.4	1.4	1.1	2.0	<b>1.6</b>
Social and Recreational	8.0	10.5	16.2	8.7	6.2	8.8	<b>9.1</b>
Other	0.5	0.3	0.2	0.5	0.2	0.9	<b>0.5</b>
<b>ALL PURPOSES</b>	<b>19.8</b>	<b>24.6</b>	<b>29.6</b>	<b>23.1</b>	<b>19.1</b>	<b>25.0</b>	<b>23.2</b>
<b>1990</b>							
Earning a Living	6.5	6.4	7.2	8.2	8.8	7.0	<b>7.7</b>
Family and Personal Business	9.5	8.5	9.3	8.7	7.7	10.6	<b>8.9</b>
Civic, Educational, and Religious	1.8	1.8	2.0	1.6	1.6	2.3	<b>1.8</b>
Social and Recreational	12.0	9.5	8.2	10.8	9.5	9.4	<b>9.9</b>
Other	0.2	0.1	0.3	0.3	0.2	0.2	<b>0.2</b>
<b>ALL PURPOSES</b>	<b>29.9</b>	<b>26.4</b>	<b>27.0</b>	<b>29.6</b>	<b>27.8</b>	<b>29.5</b>	<b>28.6</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

The following five tables present person travel activities categorized by the size of the urbanized area of residence (see below). More than 62% of Americans lived in urbanized areas in 1990 and they took 62.6% of all

person trips. On average, individuals residing in urbanized areas took shorter trips than those living outside urbanized areas.

TABLE 4.26

STATISTICS ON PERSON TRAVEL BY URBANIZED AREA SIZE<sup>1</sup>  
1990 NPTS

Urbanized Area Size	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>2</sup> (miles)	Number of Persons (000)	Number of Households (000)	Number of Trips per Person
50,000 - 199,999	22,513,064 (9.0%)	173,225,762 (7.5%)	7.80	18,545 (8.4%)	8,188 (8.8%)	1,214
200,000 - 499,999	17,096,063 (6.9%)	127,862,307 (5.5%)	7.61	14,732 (6.6%)	6,570 (7.0%)	1,160
500,000 - 999,999	16,333,733 (6.5%)	132,892,434 (5.7%)	8.29	14,228 (6.4%)	6,150 (6.6%)	1,148
1,000,000 or more without rail/subway	49,974,714 (20.0%)	443,535,384 (19.2%)	9.05	44,045 (19.8%)	18,505 (19.8%)	1,135
1,000,000 or more with rail/subway	50,221,864 (20.1%)	468,013,000 (20.2%)	9.65	47,360 (21.3%)	19,564 (21.0%)	1,060
Not in urbanized area	93,422,859 (37.4%)	969,744,478 (41.9%)	10.50	83,191 (37.5%)	34,370 (36.8%)	1,123
<b>TOTAL</b>	<b>249,562,297</b> (100.0%)	<b>2,315,273,365</b> (100.0%)	<b>9.45</b>	<b>222,101</b> (100.0%)	<b>93,347</b> (100.0%)	<b>1,124</b>

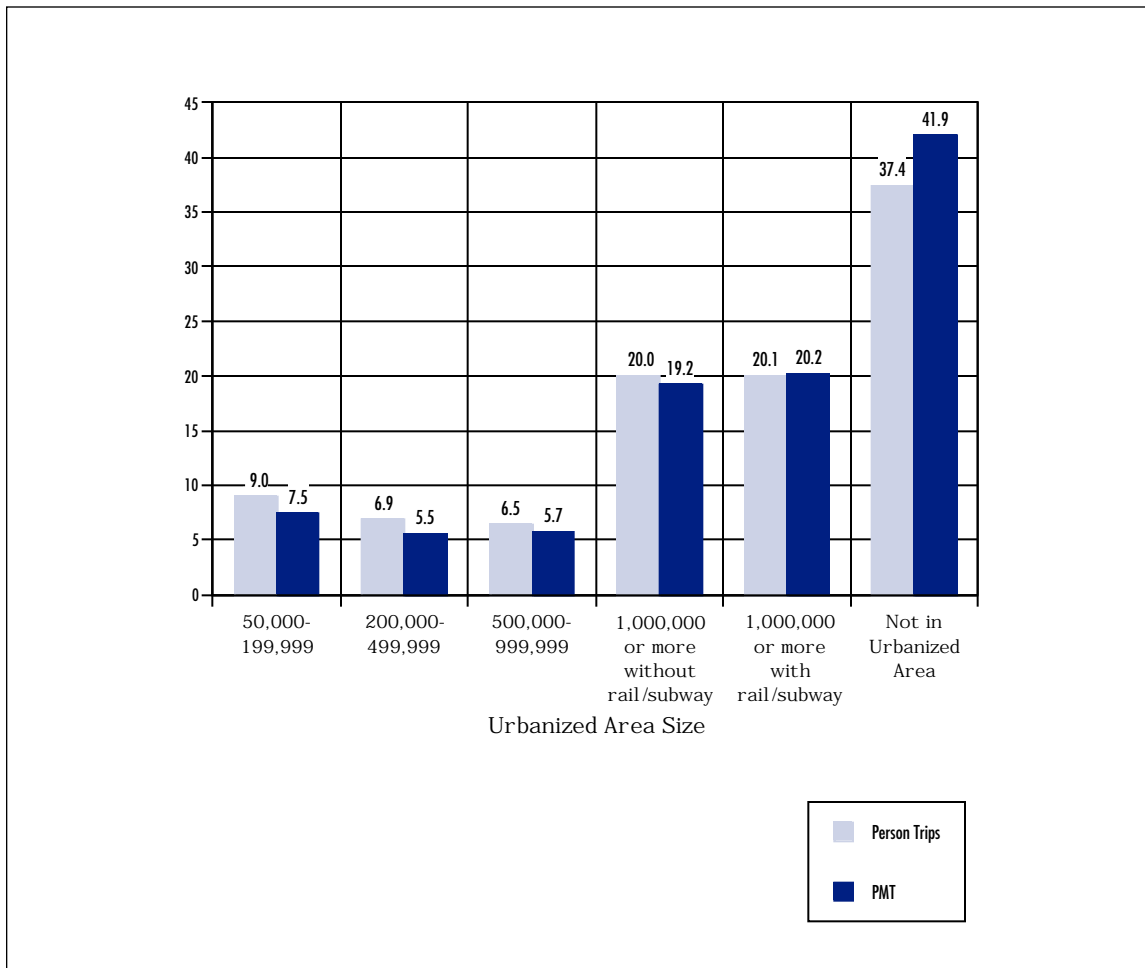
<sup>1</sup> An urbanized area is different from an MSA in that the urbanized area is the more densely developed area of a metropolitan area, whereas MSA's follow county lines. (See Glossary, Appendix A)

<sup>2</sup> Average trip length is calculated using only those records with trip mile information present.



FIGURE 4.14

**DISTRIBUTION OF PERSON TRIPS AND TRAVEL BY URBANIZED AREA SIZE  
1990 NPTS**



The most noteworthy difference in average trip length was in Amtrak trips. Those taken by individuals residing in large urban areas with subway/rail facilities averaged 45 miles, whereas those by individuals residing outside urban areas averaged 159 miles. This differ-

ence may be due to the fact that individuals residing inside larger urban areas used Amtrak for daily intra-urban commuting while those residing outside urban areas used Amtrak for intercity travel.

TABLE 4.27

AVERAGE PERSON TRIP LENGTH<sup>1</sup>  
BY SELECTED MODE OF TRANSPORTATION AND URBANIZED AREA SIZE  
1990 NPTS (MILES)

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

	Urbanized Area Size						TOTAL
	50,000 - 199,999	200,000 - 499,999	500,000 - 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway	Not in Urbanized Area	
<b>PRIVATE VEHICLE</b>	7.98	7.92	8.62	8.76	9.33	10.85	<b>9.53</b>
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	4.33	6.45	12.28	12.79	8.18	24.49	<b>11.04</b>
Rail/Subway <sup>3</sup>	*	*	*	6.04	16.48	8.28	<b>16.17</b>
<b>OTHER MODE</b>							
Amtrak	*	**	**	**	45.12	159.24	<b>106.54</b>
Walk	0.58	0.71	0.77	0.67	0.66	0.58	<b>0.64</b>
Bike	1.41	1.65	4.22	1.65	1.85	2.45	<b>1.99</b>
School Bus	5.52	4.56	4.07	4.73	3.54	6.93	<b>5.68</b>
<b>TOTAL</b>	<b>7.80</b>	<b>7.61</b>	<b>8.29</b>	<b>9.05</b>	<b>9.65</b>	<b>10.50</b>	<b>9.45</b>

\* Indicates that there were insufficient data reported.  
\*\* Indicates no data were reported.  
<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.  
<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.  
<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

FIGURE 4.15

AVERAGE PERSON TRIP LENGTH BY SELECTED MODE OF TRANSPORTATION  
AND SELECTED URBANIZED AREA SIZE  
1990 NPTS

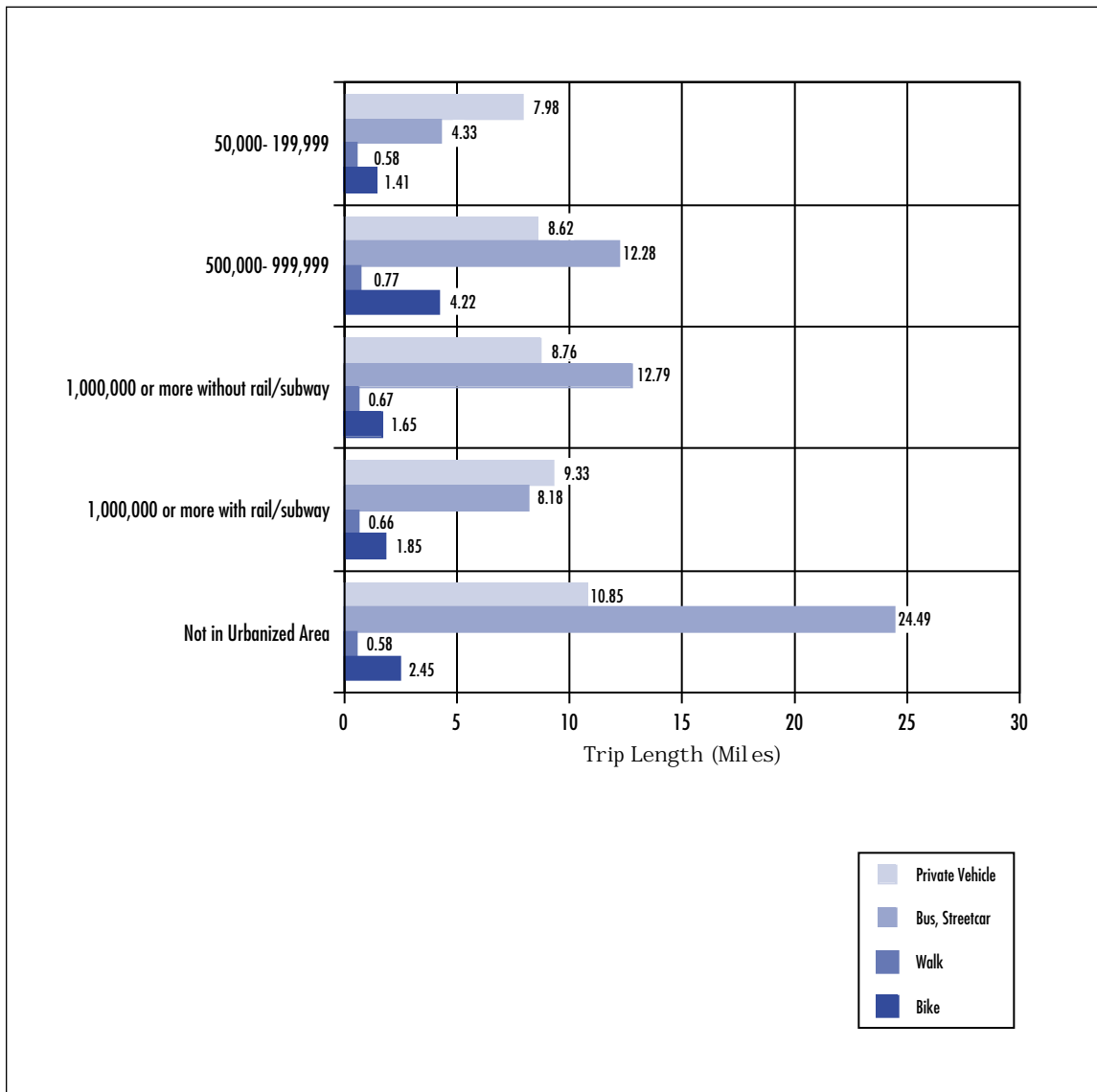


TABLE 4.28

**NUMBER OF PERSON TRIPS BY URBANIZED AREA SIZE AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

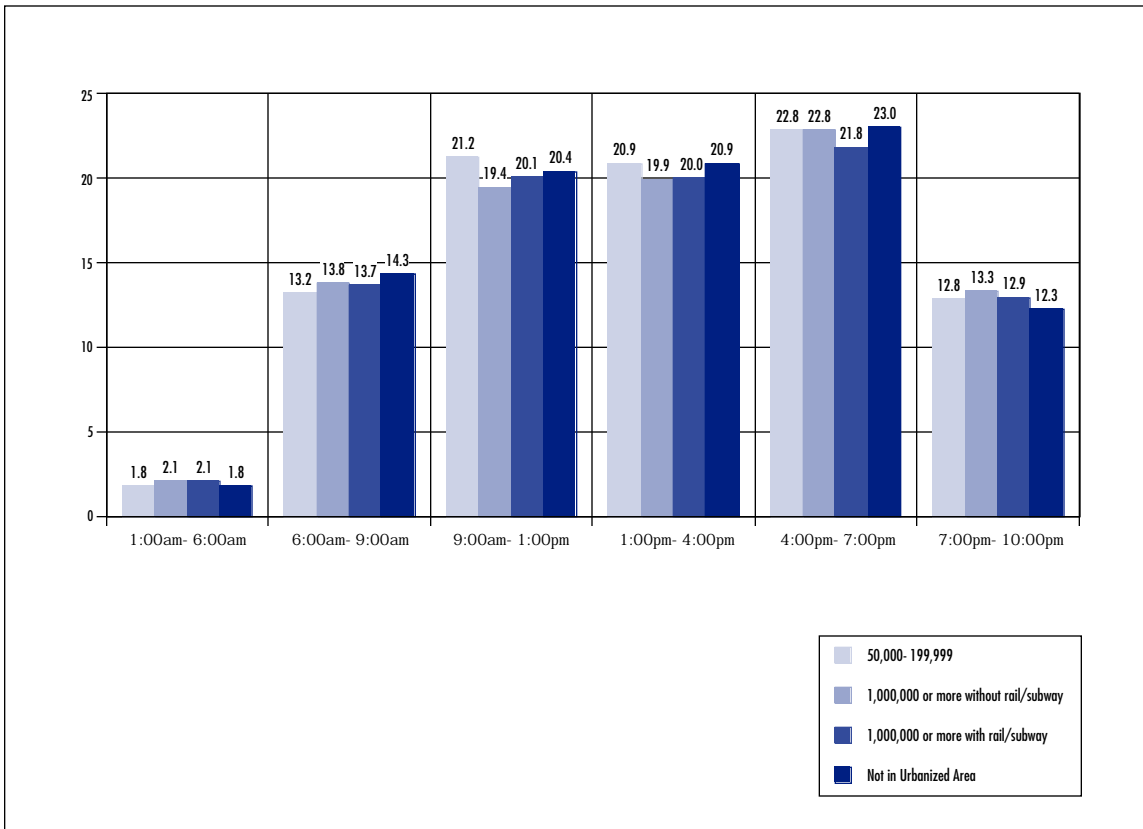
	50,000 - 199,999	200,000 - 499,999	500,000 - 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway	Not in Urbanized Area	<b>TOTAL</b>
1:00 a.m. - 6:00 a.m.	410,151 (1.8%)	313,842 (1.8%)	306,392 (1.9%)	1,052,707 (2.1%)	1,047,519 (2.1%)	1,706,508 (1.8%)	<b>4,837,119</b> (1.9%)
6:00 a.m. - 9:00 a.m.	2,970,704 (13.2%)	2,308,624 (13.5%)	2,197,154 (13.5%)	6,905,807 (13.8%)	6,877,651 (13.7%)	13,354,202 (14.3%)	<b>34,614,142</b> (13.9%)
9:00 a.m. - 1:00 p.m.	4,766,422 (21.2%)	3,279,152 (19.2%)	3,151,683 (19.3%)	9,696,295 (19.4%)	10,069,544 (20.1%)	19,100,978 (20.4%)	<b>50,064,074</b> (20.1%)
1:00 p.m. - 4:00 p.m.	4,699,527 (20.9%)	3,562,894 (20.8%)	3,279,810 (20.1%)	9,927,154 (19.9%)	10,026,861 (20.0%)	19,487,639 (20.9%)	<b>50,983,855</b> (20.4%)
4:00 p.m. - 7:00 p.m.	5,127,299 (22.8%)	4,117,596 (24.1%)	3,906,228 (23.9%)	11,381,937 (22.8%)	10,968,944 (21.8%)	21,454,200 (23.0%)	<b>56,956,204</b> (22.8%)
7:00 p.m. - 10:00 p.m.	2,881,846 (12.8%)	2,115,407 (12.4%)	2,264,388 (13.9%)	6,643,361 (13.3%)	6,497,030 (12.9%)	11,530,656 (12.3%)	<b>31,932,688</b> (12.8%)
10:00 p.m. - 1:00 a.m.	882,580 (3.9%)	758,593 (4.4%)	643,160 (3.9%)	2,112,613 (4.2%)	2,281,916 (4.5%)	3,248,327 (3.5%)	<b>9,927,189</b> (4.0%)
<b>TOTAL<sup>1</sup></b>	<b>22,513,064</b> (100.0%)	<b>17,096,063</b> (100.0%)	<b>16,333,733</b> (100.0%)	<b>49,974,714</b> (100.0%)	<b>50,221,864</b> (100.0%)	<b>93,422,859</b> (100.0%)	<b>249,562,297</b> (100.0%)

<sup>1</sup> Includes trips where start time of trip was unreported.

There was no significant difference in the time travel occurred among people living in different types of urban areas.

**FIGURE 4.16**

**DISTRIBUTION OF PERSON TRIPS BY SELECTED TIME OF DAY AND SELECTED URBANIZED AREA SIZE  
1990 NPTS**



## Segmented Trips in NPTS

### What

In the 1990 NPTS, certain trips were given “segmented” treatment, that is, they were broken into component parts. A trip was given segmented treatment if both of the following conditions occurred:

- there was a change of vehicle or a change of mode on the trip, AND
- one of the modes used was a public transportation mode (bus, subway, elevated rail, commuter train, streetcar or trolley).

### Why

Transportation planners and researchers have a high degree of interest in multi-modal trips, and the data from segmented trips can help in answering questions such as “What access modes are used to get to the bus, subway and commuter train?” or “How does travel time of segmented trips compare with non-segmented?” Certain trips were given segmented treatment in order to get more complete data on multi-modal trips and on the use of public transportation. In earlier NPTS surveys, if more than one mode was used on a trip, the entire trip was considered to be made on the mode that was used for the longest distance. However, this procedure had the effect of undercounting the use of transit. For example, if you walked to the bus stop, took the bus to a subway station, and took the subway to work, the entire trip would have been considered a subway trip (assuming this was the longest segment) and the walk and bus portions would have been ignored.

### How

If a trip met the two conditions above, it would be given segmented treatment. First, characteristics of the trip as a whole would be collected, such as purpose, number of people on the trip, starting time of the trip, whether it was a home-based trip, etc. Second, each time there was a change of mode (e.g. auto to commuter train) or a change of vehicle (e.g. one bus to another), it would be considered a segment.

Certain information was collected on each segment, namely, the mode used, the starting time of the segment, the length of the segment in minutes and, if the segment was on transit, the waiting time and whether the respondent sat or stood on the segment.

### In this report

A limited number of data relationships are presented comparing segmented and non-segmented trips. Note that, in each case, it is the entire trip, from origin to destination, that is being presented.

### For more detailed information...

A public use dataset is available on 9-track tape and on diskettes. The NPTS dataset contains a record for each trip made by a survey respondent. For each segmented trip, a separate file contains information collected at the individual segment level.

### Caveat

In spite of giving certain trips “segmented treatment”, the number of transit trips reported in NPTS is 20% lower than the Federal Transit Administration’s Section 15 reporting system. See Limitations of Data on Transit in Chapter 1, Section 5 for a comparison.

Of all person trips, only 0.8% were segmented. There were significantly more segmented trips by individuals residing in urbanized areas with population more than 1 million and with rail and/or subway facilities than

by other individuals, 2.8% vs. 0.3%. On average, segmented trips were longer than non-segmented trips, 13.6 miles vs. 9.4 miles.

TABLE 4.29

STATISTICS OF SEGMENTED PERSON TRAVEL BY URBANIZED AREA SIZE  
1990 NPTS

Urbanized Area Size	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>1</sup> (miles)
50,000 - 199,999	89,894 (4.7%)	382,315 (1.7%)	4.61
200,000 - 499,999	40,844 (2.1%)	398,033 (1.8%)	10.96
500,000 - 999,999	66,500 (3.5%)	777,465 (3.4%)	12.59
1,000,000 or more without rail/subway	233,821 (12.2%)	1,794,736 (8.0%)	8.40
1,000,000 or more with rail/subway	1,381,463 (71.9%)	15,913,025 (70.4%)	13.77
Not in urbanized area	107,417 (5.6%)	3,308,708 (14.7%)	31.50
<b>TOTAL</b>	<b>1,919,939</b> (100.0%)	<b>22,574,282</b> (100.0%)	<b>13.63</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.

TABLE 4.30

STATISTICS OF NON-SEGMENTED PERSON TRAVEL BY URBANIZED AREA SIZE  
1990 NPTS

Urbanized Area Size	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>1</sup> (miles)
50,000 - 199,999	22,423,171 (9.0%)	172,843,447 (7.5%)	7.82
200,000 - 499,999	17,055,218 (6.9%)	127,464,274 (5.6%)	7.60
500,000 - 999,999	16,267,233 (6.6%)	132,114,968 (5.8%)	8.27
1,000,000 or more without rail/subway	49,740,893 (20.1%)	441,740,648 (19.3%)	9.05
1,000,000 or more with rail/subway	48,840,401 (19.7%)	452,099,975 (19.7%)	9.55
Not in urbanized area	93,315,442 (37.7%)	966,435,770 (42.1%)	10.48
<b>TOTAL</b>	<b>247,642,358</b> (100.0%)	<b>2,292,699,082</b> (100.0%)	<b>9.43</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.



FIGURE 4.17

**AVERAGE PERSON TRIP LENGTH FOR SEGMENTED VS. NON-SEGMENTED TRIPS BY URBANIZED AREA SIZE  
1990 NPTS**

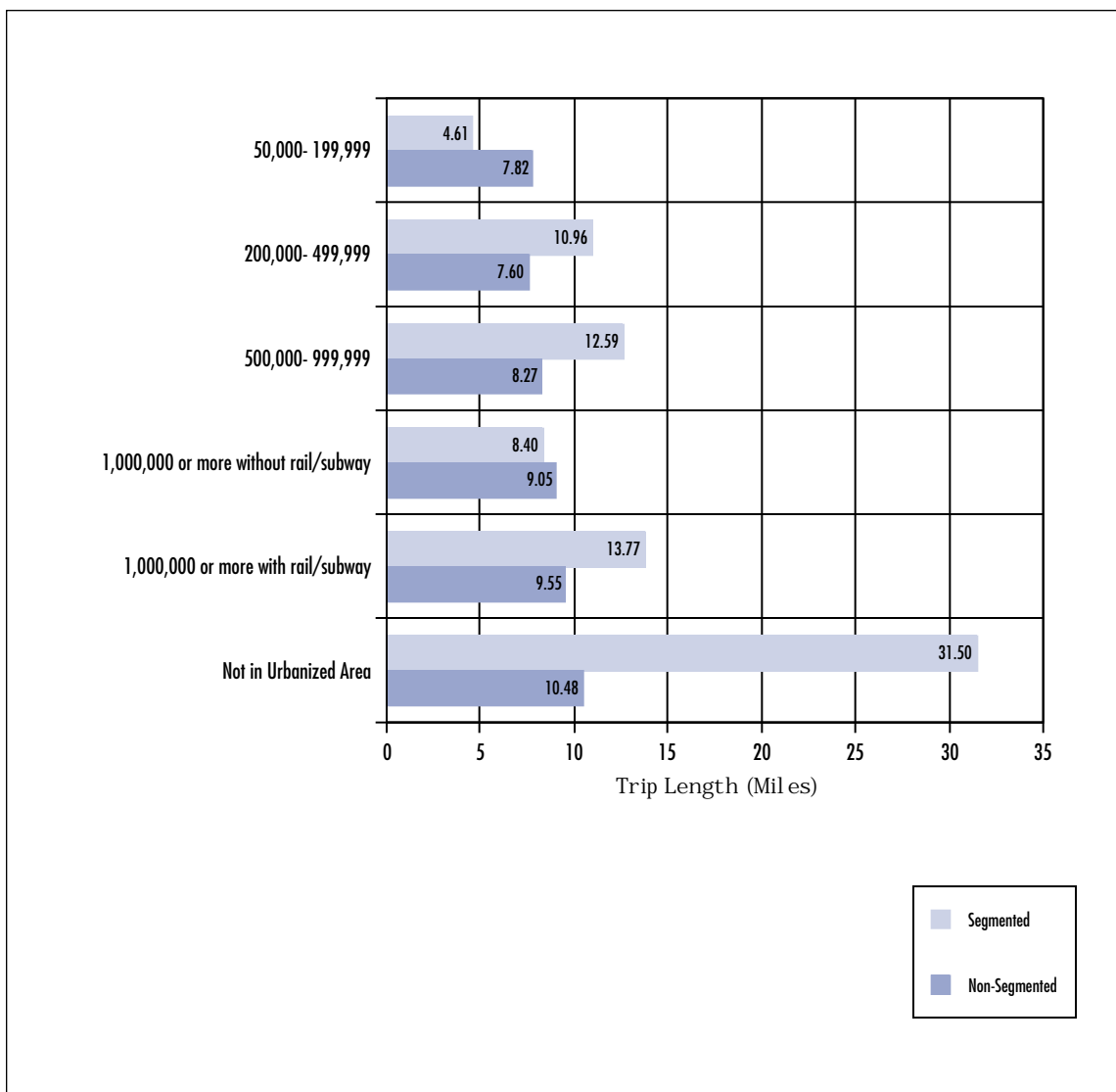


Table 4.31 presents data on person miles of travel by household income and trip purpose. Part 1 of the table presents 1990 data and Part 2, 1983 data. In 1990, households earning more than \$40,000 a year travelled 3.7 times what households with an annual income less than \$10,000 did. Furthermore,

higher-income households tended to travel more for earning a living than households in lower income groups. Similar patterns are shown in 1983 data (see Part 2).

**TABLE 4.31 (PART 1)**

**NUMBER OF PERSON MILES OF TRAVEL BY HOUSEHOLD INCOME AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

Purpose	Under \$10,000	\$10,000-\$19,999	\$20,000-\$29,999	\$30,000-\$39,999	\$40,000 or more	Unreported Income	TOTAL
Earning a Living	19,003 (19.2%)	55,027 (22.9%)	67,894 (23.7%)	86,364 (25.4%)	257,799 (30.1%)	137,449 (27.9%)	<b>623,536</b> (26.9%)
Family & Personal Business	37,849 (38.3%)	77,719 (32.3%)	101,718 (35.5%)	102,409 (30.1%)	242,105 (28.3%)	162,312 (32.9%)	<b>724,112</b> (31.3%)
Civic, Educational, & Religious	9,474 (9.6%)	18,919 (7.9%)	19,295 (6.7%)	22,420 (6.6%)	47,487 (5.6%)	31,677 (6.4%)	<b>149,272</b> (6.4%)
Social & Recreational	31,589 (31.9%)	87,671 (36.5%)	93,384 (32.6%)	127,428 (37.4%)	301,507 (35.2%)	158,096 (32.1%)	<b>799,675</b> (34.5%)
Other	1,012 (1.0%)	1,023 (0.4%)	4,412 (1.5%)	1,713 (0.5%)	6,990 (0.8%)	3,047 (0.6%)	<b>18,197</b> (0.8%)
<b>TOTAL<sup>1</sup></b>	<b>98,927</b> (100.0%)	<b>240,395</b> (100.0%)	<b>286,722</b> (100.0%)	<b>340,376</b> (100.0%)	<b>856,002</b> (100.0%)	<b>492,851</b> (100.0%)	<b>2,315,273</b> (100.0%)
<b>NUMBER OF HOUSEHOLDS (000)</b>	<b>9,252</b> (9.9%)	<b>13,011</b> (13.9%)	<b>12,294</b> (13.2%)	<b>11,323</b> (12.1%)	<b>21,704</b> (23.3%)	<b>25,763</b> (27.6%)	<b>93,347</b> (100.0%)
<b>PERSON MILES PER HOUSEHOLD</b>	<b>10,692</b>	<b>18,473</b>	<b>23,321</b>	<b>30,057</b>	<b>39,435</b>	<b>19,130</b>	<b>24,803</b>

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

TABLE 4.31 (PART 2)

**NUMBER OF PERSON MILES OF TRAVEL BY HOUSEHOLD INCOME<sup>1</sup> AND TRIP PURPOSE  
1983 NPTS<sup>2</sup>  
(MILLIONS)**

Purpose	Under \$10,000	\$10,000- \$19,999	\$20,000- \$29,999	\$30,000- \$39,999	\$40,000 or more	TOTAL
Earning a Living	29,756 (15.5%)	80,329 (26.3%)	102,429 (29.0%)	93,821 (28.6%)	205,058 (26.7%)	511,393 (26.3%)
Family and Personal Business	55,289 (28.8%)	89,797 (29.4%)	92,892 (26.3%)	77,419 (23.6%)	168,961 (22.0%)	484,358 (24.9%)
Civic, Educational, and Religious	14,590 (7.6%)	21,075 (6.9%)	23,312 (6.6%)	17,058 (5.2%)	54,528 (7.1%)	130,563 (6.7%)
Social and Recreational	84,662 (44.1%)	107,817 (35.3%)	128,919 (36.5%)	134,499 (41.0%)	322,562 (42.0%)	778,459 (40.0%)
Other	7,679 (4.0%)	6,414 (2.1%)	5,651 (1.6%)	5,249 (1.6%)	16,896 (2.2%)	41,889 (2.1%)
<b>TOTAL</b>	<b>191,976</b> (100.0%)	<b>305,432</b> (100.0%)	<b>353,203</b> (100.0%)	<b>328,046</b> (100.0%)	<b>768,005</b> (100.0%)	<b>1,946,662</b> (100.0%)
<b>NUMBER OF HOUSEHOLDS<sup>3</sup> (000)</b>	<b>18,016</b> (21.1%)	<b>18,437</b> (21.6%)	<b>15,694</b> (18.4%)	<b>12,065</b> (14.1%)	<b>21,167</b> (24.8%)	<b>85,371</b> (100.0%)
<b>PERSON MILES PER HOUSEHOLD</b>	<b>10,656</b>	<b>16,566</b>	<b>22,506</b>	<b>27,190</b>	<b>36,283</b>	<b>22,802</b>

<sup>1</sup> Incomes are in 1990 dollars.

<sup>3</sup> In the 1983 survey, income was imputed where not reported.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

TABLE 4.32

**AVERAGE DAILY PERSON TRIPS, PERSON TRAVEL, AND PERSON TRIP LENGTH  
BY HOUSEHOLD INCOME AND TRIP PURPOSE  
1990 NPTS**

Purpose	Under \$10,000	\$10,000- \$19,999	\$20,000- \$29,999	\$30,000- \$39,999	\$40,000 and More
<b>Average Daily Person Trips</b>					
Earning a Living	0.3	0.6	0.7	0.7	0.8
Family and Personal Business	1.1	1.2	1.4	1.4	1.4
Civic, Educational, and Religious	0.4	0.3	0.3	0.4	0.4
Social and Recreational	0.7	0.7	0.8	0.8	0.9
Other	0.1	0.1	0.1	0.1	0.1
<b>TOTAL</b>	<b>2.6</b>	<b>2.9</b>	<b>3.3</b>	<b>3.4</b>	<b>3.6</b>
<b>Average Daily Person Miles of Travel</b>					
Earning a Living	3.1	5.5	6.4	8.1	11.4
Family and Personal Business	6.1	7.7	9.7	9.6	10.7
Civic, Educational, and Religious	1.5	1.9	1.8	2.1	2.1
Social and Recreational	5.1	8.7	8.9	11.9	13.3
Other	0.2	0.1	0.4	0.2	0.3
<b>TOTAL</b>	<b>16.0</b>	<b>23.9</b>	<b>27.2</b>	<b>31.9</b>	<b>37.8</b>
<b>Average Person Trip Length (miles)<sup>1</sup></b>					
Earning a Living	9.3	10.0	9.6	11.0	13.9
Family and Personal Business	5.5	6.4	6.9	6.9	7.5
Civic, Educational, and Religious	3.6	6.0	5.5	5.7	5.8
Social and Recreational	7.4	12.5	11.2	14.8	15.1
Other	5.8	6.1	17.1	7.9	11.6
<b>ALL PURPOSES</b>	<b>6.2</b>	<b>8.6</b>	<b>8.5</b>	<b>9.6</b>	<b>10.8</b>
<sup>1</sup> Average trip length is calculated only for records where trip mile information is present.					

Lower income households used public transportation or walked to their destinations more often than higher income households (Table 4.34). Household members in households earning less than \$10,000 a year took

25% fewer trips per person than those in households with an annual income more than \$40,000—967 trips vs. 1,293 trips per year.

TABLE 4.33

**SUMMARY OF PERSON TRIPS BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Under \$10,000	\$10,000- 19,999	\$20,000- 29,999	\$30,000- 39,999	\$40,000- and More	Unreported Income	TOTAL
<b>PRIVATE VEHICLE</b>							
Subtotal—Private	11,520 (70.0%)	24,180 (84.6%)	30,143 (87.6%)	31,839 (88.7%)	73,073 (90.9%)	46,637 (86.6%)	<b>217,392</b> (87.1%)
<b>PUBLIC TRANSPORTATION</b>							
Subtotal—Public	605 (3.7%)	795 (2.8%)	689 (2.0%)	461 (1.3%)	986 (1.2%)	1,358 (2.5%)	<b>4,892</b> (2.0%)
<b>OTHER MEANS</b>							
Subtotal—Other	4,311 (26.2%)	3,548 (12.4%)	3,575 (10.4%)	3,588 (10.0%)	6,241 (7.8%)	5,808 (10.8%)	<b>27,071</b> (10.8%)
<b>TOTAL<sup>2</sup></b>	<b>16,456</b> (100.0%)	<b>28,568</b> (100.0%)	<b>34,426</b> (100.0%)	<b>35,915</b> (100.0%)	<b>80,345</b> (100.0%)	<b>53,852</b> (100.0%)	<b>249,562</b> (100.0%)
<b>NUMBER OF HOUSEHOLDS (000)</b>	9,252 (9.9%)	13,011 (13.9%)	12,294 (13.2%)	11,323 (12.1%)	21,704 (23.3%)	25,763 (27.6%)	<b>93,347</b> (100.0%)
<b>PERSONS PER HOUSEHOLD</b>	1.84	2.12	2.35	2.59	2.86	2.22	<b>2.38</b>
<b>NUMBER OF PERSON TRIPS PER HOUSEHOLD</b>	1,779	2,196	2,800	3,172	3,702	2,090	<b>2,673</b>
<b>NUMBER OF PERSON TRIPS PER PERSON</b>	967	1,038	1,193	1,225	1,293	941	<b>1,124</b>
<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.				<sup>2</sup> Includes trips where mode of transportation was unreported.			

TABLE 4.34

**NUMBER OF PERSON TRIPS BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Under \$10,000	\$10,000- 19,999	\$20,000- 29,999	\$30,000- 39,999	\$40,000- and More	Unreported Income	TOTAL
<b>PRIVATE VEHICLE</b>							
Auto, Van—Driver	6,850 (41.6%)	15,043 (52.6%)	18,567 (53.9%)	19,495 (54.3%)	46,675 (58.1%)	29,582 (54.9%)	<b>136,212</b> (54.6%)
Auto, Van—Passenger	3,465 (21.0%)	5,911 (20.7%)	7,277 (21.1%)	7,475 (20.8%)	17,594 (21.9%)	11,592 (21.5%)	<b>53,314</b> (21.4%)
Pickup	1,145 (7.0%)	2,939 (10.3%)	3,981 (11.6%)	4,460 (12.4%)	8,064 (10.0%)	5,043 (9.4%)	<b>25,633</b> (10.3%)
Other Private Vehicle	60 (0.4%)	287 (1.0%)	318 (0.9%)	409 (1.1%)	740 (0.9%)	420 (0.8%)	<b>2,233</b> (0.9%)
<b>Subtotal—Private</b>	<b>11,520</b> (70.0%)	<b>24,180</b> (84.6%)	<b>30,143</b> (87.6%)	<b>31,839</b> (88.7%)	<b>73,073</b> (90.9%)	<b>46,637</b> (86.6%)	<b>217,392</b> (87.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	556 (3.4%)	666 (2.3%)	490 (1.4%)	315 (0.9%)	537 (0.7%)	979 (1.8%)	<b>3,543</b> (1.4%)
Rail/Subway <sup>2</sup>	49 (0.3%)	129 (0.4%)	199 (0.6%)	146 (0.4%)	448 (0.6%)	379 (0.7%)	<b>1,349</b> (0.5%)
<b>Subtotal—Public</b>	<b>605</b> (3.7%)	<b>795</b> (2.8%)	<b>689</b> (2.0%)	<b>461</b> (1.3%)	<b>986</b> (1.2%)	<b>1,358</b> (2.5%)	<b>4,892</b> (2.0%)
<b>OTHER MEANS</b>							
Amtrak	20 (0.1%)	7 (0.0%)	** (0.0%)	3 (0.0%)	24 (0.0%)	1 (0.0%)	<b>54</b> (0.0%)
Walk	3,513 (21.3%)	2,440 (8.5%)	2,442 (7.1%)	2,142 (6.0%)	3,669 (4.6%)	3,802 (7.1%)	<b>18,007</b> (7.2%)
Bike	186 (1.1%)	205 (0.7%)	292 (0.8%)	329 (0.9%)	477 (0.6%)	278 (0.5%)	<b>1,767</b> (0.7%)
School Bus	489 (3.0%)	757 (2.7%)	748 (2.2%)	954 (2.7%)	1,708 (2.1%)	1,437 (2.7%)	<b>6,092</b> (2.4%)
Airplane	2 (0.0%)	27 (0.1%)	7 (0.0%)	32 (0.1%)	86 (0.1%)	48 (0.1%)	<b>203</b> (0.1%)
Taxi	81 (0.5%)	20 (0.1%)	45 (0.1%)	47 (0.1%)	118 (0.1%)	110 (0.2%)	<b>422</b> (0.2%)
Other	21 (0.1%)	94 (0.3%)	41 (0.1%)	80 (0.2%)	159 (0.2%)	132 (0.2%)	<b>527</b> (0.2%)
<b>Subtotal—Other</b>	<b>4,311</b> (26.2%)	<b>3,550</b> (12.4%)	<b>3,575</b> (10.4%)	<b>3,588</b> (10.0%)	<b>6,241</b> (7.8%)	<b>5,808</b> (10.8%)	<b>27,071</b> (10.8%)
<b>TOTAL<sup>3</sup></b>	<b>16,456</b> (100.0%)	<b>28,568</b> (100.0%)	<b>34,426</b> (100.0%)	<b>35,915</b> (100.0%)	<b>80,345</b> (100.0%)	<b>53,851</b> (100.0%)	<b>249,562</b> (100.0%)

\*\* Indicates no data reported.

<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Includes trips where mode of transportation was unreported.

FIGURE 4.18

**DISTRIBUTION OF PERSON TRIPS BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS  
(WITHIN INCOME GROUP)**

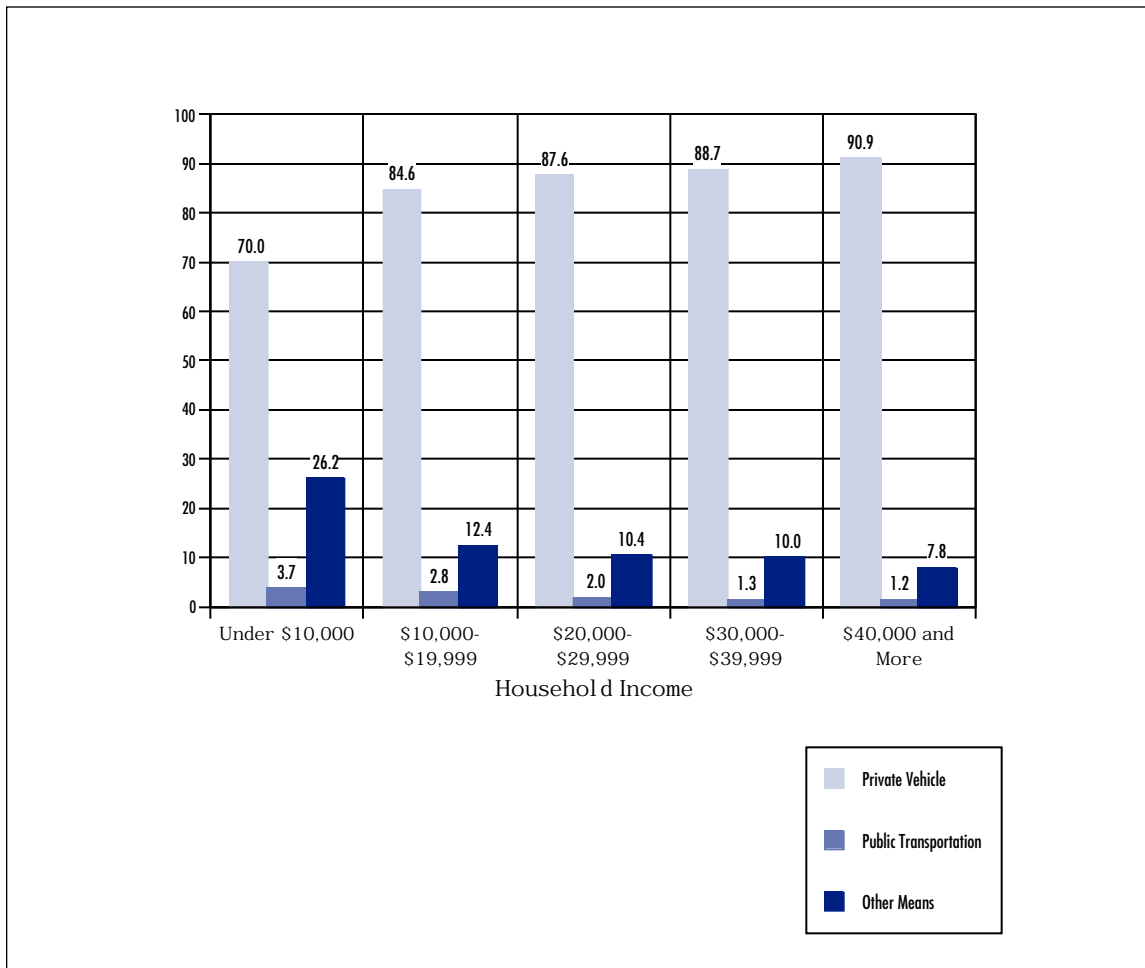


TABLE 4.35

**NUMBER OF PERSON MILES OF TRAVEL BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Under \$10,000	\$10,000- 19,999	\$20,000- 29,999	\$30,000- 39,999	\$40,000- and More	Unreported Income	TOTAL
<b>PRIVATE VEHICLE</b>							
Auto, Van—Driver	47,583 (48.1%)	105,658 (44.0%)	151,974 (53.0%)	173,167 (50.9%)	443,224 (51.8%)	250,423 (50.8%)	1,172,029 (50.6%)
Auto, Van—Passenger	30,889 (31.2%)	62,280 (25.9%)	69,171 (24.1%)	78,653 (23.1%)	206,949 (24.2%)	117,100 (23.7%)	565,042 (24.4%)
Pickup	11,536 (11.7%)	27,615 (11.5%)	42,612 (14.9%)	45,281 (13.3%)	89,289 (10.4%)	51,612 (10.5%)	267,944 (11.6%)
Other Private Vehicle	232 (0.2%)	5,156 (2.1%)	5,260 (1.8%)	7,996 (2.3%)	10,646 (1.2%)	5,677 (1.2%)	34,967 (1.5%)
<b>Subtotal</b>	<b>90,240</b> (91.2%)	<b>200,709</b> (83.5%)	<b>269,017</b> (93.8%)	<b>305,097</b> (89.6%)	<b>750,108</b> (87.6%)	<b>424,812</b> (86.2%)	<b>2,039,982</b> (88.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	3,066 (3.1%)	8,590 (3.6%)	3,396 (1.2%)	3,950 (1.2%)	7,081 (0.8%)	9,106 (1.8%)	35,189 (1.5%)
Rail/Subway <sup>2</sup>	497 (0.5%)	1,216 (0.5%)	2,454 (0.9%)	2,703 (0.8%)	6,930 (0.8%)	4,058 (0.8%)	17,858 (0.8%)
<b>Subtotal</b>	<b>3,563</b> (3.6%)	<b>9,806</b> (4.1%)	<b>5,850</b> (2.0%)	<b>6,653</b> (2.0%)	<b>14,011</b> (1.6%)	<b>13,164</b> (2.7%)	<b>53,047</b> (2.3%)
<b>OTHER MEANS</b>							
Amtrak	233 (0.2%)	2,156 (0.9%)	** (0.0%)	45 (0.0%)	2,653 (0.3%)	21 (0.0%)	5,108 (0.2%)
Walk	1,798 (1.8%)	1,591 (0.7%)	1,518 (0.5%)	1,251 (0.4%)	2,554 (0.3%)	2,705 (0.5%)	11,418 (0.5%)
Bike	347 (0.4%)	373 (0.1%)	357 (0.1%)	678 (0.2%)	1,127 (0.1%)	589 (0.1%)	3,471 (0.1%)
School Bus	2,111 (2.1%)	4,437 (1.8%)	5,087 (1.8%)	5,198 (1.5%)	9,723 (1.1%)	6,886 (1.4%)	33,442 (1.4%)
Airplane	** (0.0%)	20,614 (8.6%)	4,553 (1.6%)	20,504 (6.0%)	71,323 (8.3%)	27,901 (5.7%)	144,895 (6.3%)
Taxi	366 (0.4%)	137 (0.1%)	54 (0.0%)	259 (0.1%)	661 (0.1%)	293 (0.1%)	1,770 (0.1%)
Other	265 (0.3%)	413 (0.2%)	281 (0.1%)	615 (0.2%)	3,569 (0.4%)	16,057 (3.2%)	21,200 (0.9%)
<b>Subtotal</b>	<b>5,120</b> (5.2%)	<b>29,720</b> (12.4%)	<b>11,850</b> (4.1%)	<b>28,550</b> (8.4%)	<b>91,610</b> (10.7%)	<b>54,452</b> (11.0%)	<b>221,303</b> (9.6%)
<b>TOTAL<sup>3</sup></b>	<b>98,927</b> (100%)	<b>240,395</b> (100%)	<b>286,722</b> (100%)	<b>340,376</b> (100%)	<b>856,002</b> (100%)	<b>492,850</b> (100%)	<b>2,315,273</b> (100%)

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

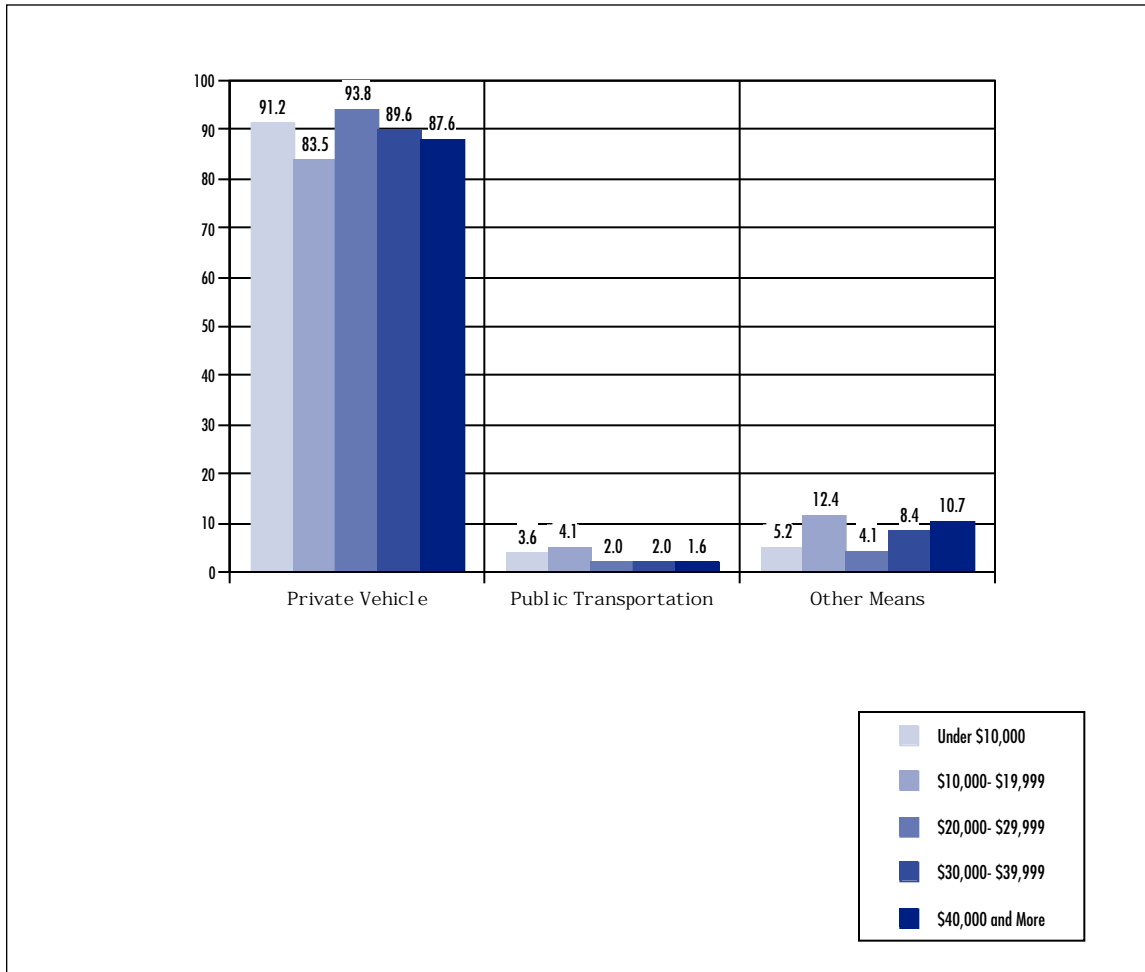
<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>3</sup> Includes miles of travel where mode of transportation is unreported.



FIGURE 4.19

**DISTRIBUTION OF PERSON MILES OF TRAVEL BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS**



The following three tables present data on travel by households that did not own any vehicles. These households walked more than

five times as often as other households and used public transit almost ten times as often.

TABLE 4.36

NUMBER OF PERSON TRIPS TAKEN BY HOUSEHOLDS WITHOUT ANY VEHICLES  
BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Under \$10,000	\$10,000- 19,999	\$20,000- 29,999	\$30,000- 39,999	\$40,000- and More	Unreported Income	TOTAL
<b>PRIVATE VEHICLE</b>	<b>867</b>	<b>563</b>	<b>248</b>	<b>84</b>	<b>125</b>	<b>1,037</b>	<b>2,924</b>
	(27.6%)	(28.8%)	(25.1%)	(17.0%)	(20.4%)	(36.7%)	(29.2%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	401	311	125	90	52	432	1,411
	(12.8%)	(15.9%)	(12.6%)	(18.3%)	(8.5%)	(15.3%)	(14.1%)
Rail/Subway <sup>2</sup>	33	90	94	59	73	145	493
	(1.0%)	(4.6%)	(9.5%)	(11.9%)	(11.9%)	(5.1%)	(4.9%)
<b>Subtotal</b>	<b>433</b>	<b>401</b>	<b>219</b>	<b>149</b>	<b>124</b>	<b>577</b>	<b>1,904</b>
	(13.8%)	(20.5%)	(22.2%)	(30.2%)	(20.4%)	(20.4%)	(19.0%)
<b>OTHER MEANS</b>							
Amtrak	20	4	**	**	**	**	24
	(0.6%)	(0.2%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.2%)
Bicycle	22	48	45	7	**	50	172
	(0.7%)	(2.4%)	(4.6%)	(1.3%)	(0.0%)	(1.8%)	(1.7%)
Walk	1,567	880	434	231	334	990	4,436
	(49.9%)	(45.0%)	(44.1%)	(46.9%)	(54.6%)	(35.0%)	(44.3%)
Taxi	68	8	32	19	24	87	238
	(2.2%)	(0.4%)	(3.2%)	(3.9%)	(4.0%)	(3.1%)	(2.4%)
Other	158	52	8	4	4	74	300
	(5.0%)	(2.6%)	(0.8%)	(0.7%)	(0.7%)	(2.6%)	(3.0%)
<b>Subtotal</b>	<b>1,834</b>	<b>991</b>	<b>520</b>	<b>261</b>	<b>362</b>	<b>1,202</b>	<b>5,169</b>
	(58.4%)	(50.7%)	(52.7%)	(52.8%)	(59.2%)	(42.5%)	(51.6%)
<b>TOTAL<sup>3</sup></b>	<b>3,140</b>	<b>1,956</b>	<b>985</b>	<b>494</b>	<b>611</b>	<b>2,826</b>	<b>10,012</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

\*\* Indicates no data reported.

<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Includes trips where mode of transportation was unreported.

**FIGURE 4.20**

**PERSON TRIP COMPARISON BETWEEN HOUSEHOLDS WITHOUT ANY VEHICLES AND HOUSEHOLDS WITH VEHICLES BY MODE OF TRANSPORTATION  
1990 NPTS**

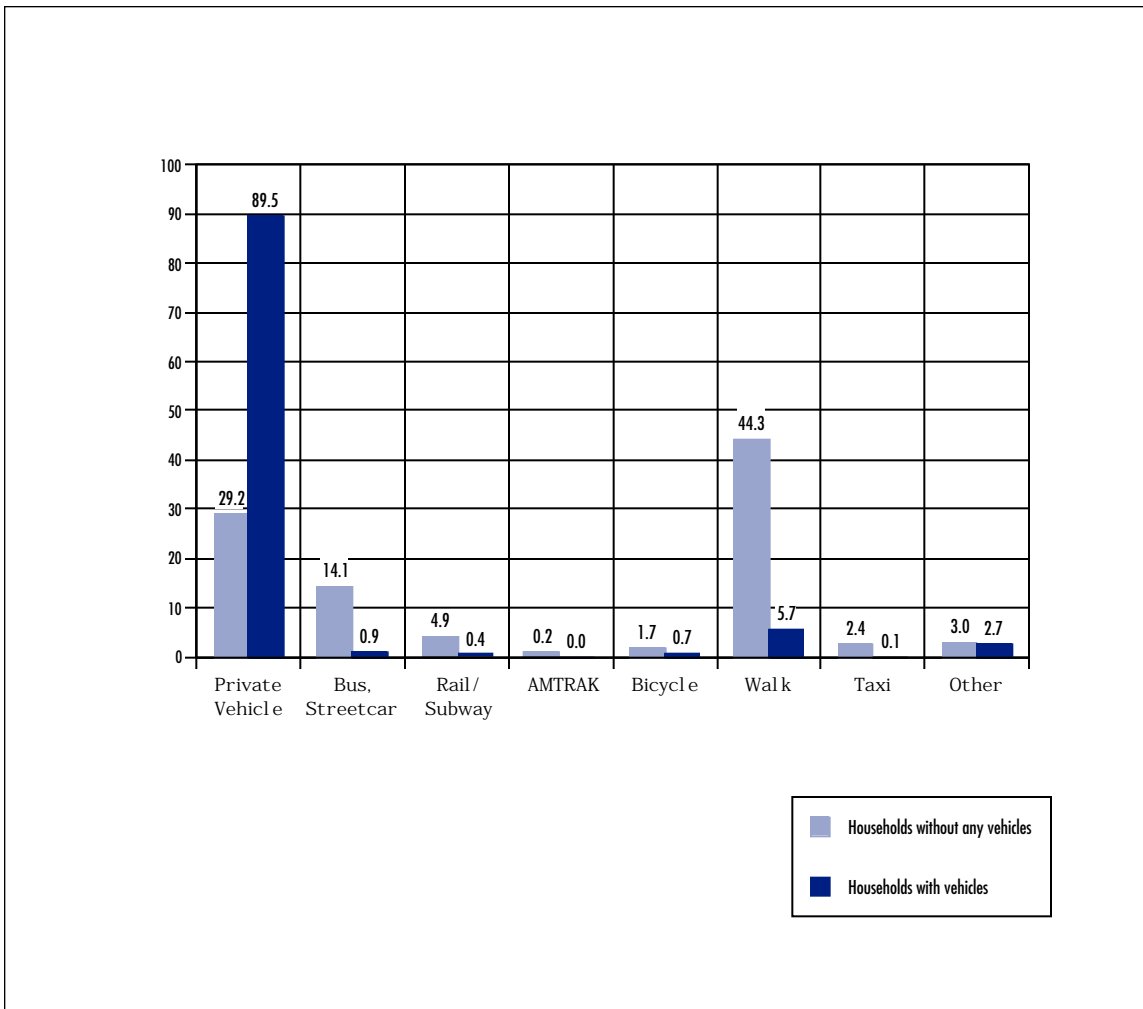


TABLE 4.37

**NUMBER OF PERSON TRIPS TAKEN BY HOUSEHOLDS WITHOUT ANY VEHICLES  
BY HOUSEHOLD INCOME AND URBANIZED AREA SIZE  
1990 NPTS  
(THOUSANDS)**

URBANIZED AREA	Under \$10,000	\$10,000- \$19,999	\$20,000- \$29,999	\$30,000- \$39,999	\$40,000 and More	Unreported Income	TOTAL	Number of Households Without Vehicles
50,000 - 199,999	357,570 (11.4%)	168,647 (8.6%)	152,819 (15.5%)	7,100 (1.4%)	556 (0.1%)	304,964 (10.8%)	991,656 (9.9%)	834
200,000 - 499,999	174,415 (5.6%)	132,236 (6.8%)	17,734 (1.8%)	10,415 (2.1%)	** (0.0%)	175,751 (6.2%)	510,552 (5.1%)	534
500,000 - 999,999	190,795 (6.1%)	127,281 (6.5%)	23,100 (2.3%)	6,804 (1.4%)	1,036 (0.2%)	185,525 (6.6%)	534,540 (5.3%)	524
1,000,000 or more without rail/subway	326,329 (10.4%)	378,023 (19.3%)	155,877 (15.8%)	41,005 (8.3%)	17,282 (2.8%)	480,058 (17.0%)	1,398,574 (14.0%)	1,343
1,000,000 or more with rail/subway <sup>1</sup>	971,131 (30.9%)	716,339 (36.6%)	445,720 (45.2%)	364,315 (73.8%)	298,330 (48.8%)	1,139,207 (40.3%)	3,935,042 (39.3%)	2,719
Manhattan Area <sup>2</sup>	71,562 (2.3%)	110,155 (5.6%)	121,618 (12.3%)	56,134 (11.4%)	242,129 (39.6%)	138,340 (4.9%)	739,938 (7.4%)	471
Not in Urbanized Area	1,047,761 (33.4%)	323,367 (16.5%)	68,566 (7.0%)	7,878 (1.6%)	51,946 (8.5%)	401,741 (14.2%)	1,901,259 (19.0%)	2,148
<b>TOTAL</b>	<b>3,139,563</b> (100.0%)	<b>1,956,048</b> (100.0%)	<b>985,434</b> (100.0%)	<b>493,651</b> (100.0%)	<b>611,279</b> (100.0%)	<b>2,825,586</b> (100.0%)	<b>10,011,561</b> (100.0%)	<b>8,573</b>
<b>NUMBER OF HOUSEHOLDS WITHOUT VEHICLES</b>	<b>2,800</b>	<b>1,517</b>	<b>525</b>	<b>301</b>	<b>317</b>	<b>3,113</b>	<b>8,573</b>	

<sup>\*\*</sup> Indicates no data reported.

<sup>1</sup> Does not include the Manhattan area.

<sup>2</sup> Manhattan is singled out because it is the one area where significant number of higher income households choose not to own a vehicle. Manhattan refers to Manhattan only, not the NY metropolitan area.

Table 4.37 shows that among households that did not own any vehicles, those that lived in large urban areas with subway/elevated rail took almost 30% more trips per household than those that lived in large

urban areas without subway/elevated rail. Households without a vehicle that lived in non-urbanized areas took the least number of trips.

FIGURE 4.21

**PERSON TRIP COMPARISON BETWEEN HOUSEHOLDS WITHOUT ANY VEHICLES  
AND HOUSEHOLDS WITH VEHICLES BY HOUSEHOLD INCOME  
1990 NPTS  
(WITHIN VEHICLE OWNERSHIP CATEGORY)**

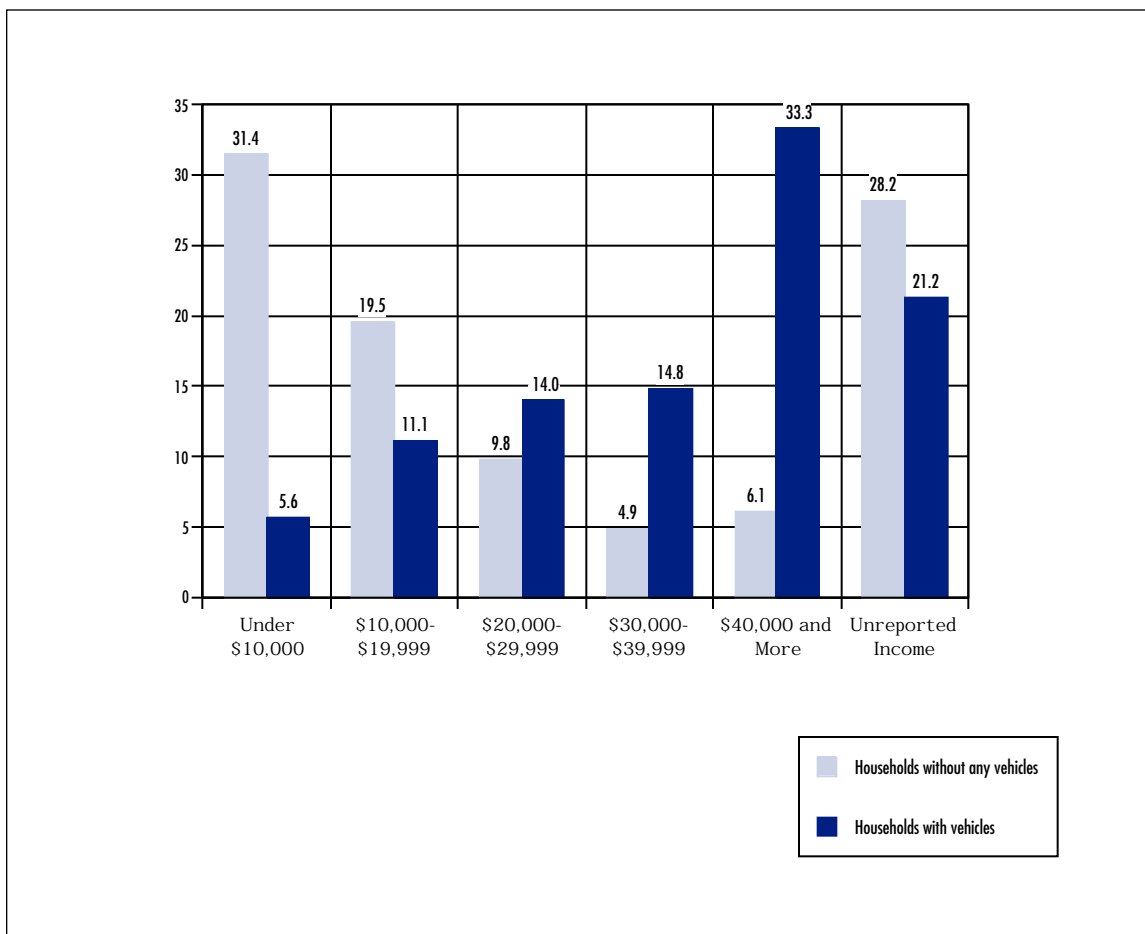


TABLE 4.38

**NUMBER OF PERSON TRIPS TAKEN BY HOUSEHOLDS WITHOUT ANY VEHICLES  
AND LOCATED WHERE PUBLIC TRANSPORTATION IS AVAILABLE<sup>1</sup>  
BY MODE OF TRANSPORTATION AND URBANIZED AREA SIZE  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

	50,000 - 199,999	200,000 - 499,999	500,000 - 999,999	1,000,000+ without rail/subway	1,000,000+ with rail/subway <sup>3</sup>	Manhattan Area <sup>4</sup>	Not in Urbanized Area	TOTAL
<b>PRIVATE VEHICLE</b>	<b>299</b>	<b>213</b>	<b>225</b>	<b>442</b>	<b>687</b>	<b>112</b>	<b>233</b>	<b>2,211</b>
	(35.0%)	(43.1%)	(48.6%)	(34.5%)	(18.3%)	(15.7%)	(22.7%)	(25.8%)
<b>PUBLIC TRANSPORTATION</b>								
Bus, Streetcar	123	57	76	278	673	97	43	1,346
	(14.4%)	(11.6%)	(16.4%)	(21.7%)	(17.9%)	(13.6%)	(4.1%)	(15.7%)
Rail/Subway <sup>5</sup>	**	4	0	**	325	126	8	463
	(0.0%)	(0.8%)	(0.0%)	(0.0%)	(8.7%)	(17.7%)	(0.8%)	(5.4%)
<b>Subtotal</b>	<b>123</b>	<b>61</b>	<b>76</b>	<b>278</b>	<b>998</b>	<b>222</b>	<b>51</b>	<b>1,809</b>
	(14.4%)	(12.4%)	(16.4%)	(21.7%)	(26.6%)	(31.3%)	(5.0%)	(21.1%)
<b>OTHER MEANS</b>								
Amtrak	**	**	**	**	24	**	**	24
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.6%)	(0.0%)	(0.0%)	(0.3%)
Bicycle	35	7	12	14	28	12	39	147
	(4.1%)	(1.4%)	(2.6%)	(1.1%)	(0.7%)	(1.7%)	(3.8%)	(1.7%)
Walk	341	169	127	507	1,865	329	635	3,972
	(39.9%)	(34.2%)	(27.4%)	(39.6%)	(49.7%)	(46.3%)	(61.9%)	(46.3%)
Taxi	22	7	0	26	101	29	30	215
	(2.6%)	(1.3%)	(0.0%)	(2.0%)	(2.7%)	(4.1%)	(2.9%)	(2.5%)
Other	33	37	23	13	42	6	36	191
	(3.9%)	(7.6%)	(4.9%)	(1.0%)	(1.1%)	(0.9%)	(3.5%)	(2.2%)
<b>Subtotal</b>	<b>431</b>	<b>220</b>	<b>162</b>	<b>560</b>	<b>2,060</b>	<b>376</b>	<b>740</b>	<b>4,549</b>
	(50.5%)	(44.5%)	(34.9%)	(43.8%)	(54.8%)	(52.9%)	(72.1%)	(53.0%)
<b>TOTAL<sup>6</sup></b>	<b>854</b>	<b>493</b>	<b>463</b>	<b>1,280</b>	<b>3,755</b>	<b>710</b>	<b>1,027</b>	<b>8,583</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

\*\* Indicates data not reported.

<sup>1</sup> The availability of public transportation applies only to the place of residence; therefore, people who report no public transportation available can still make non-home-based trips using public transportation.

<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Does not include the Manhattan area.

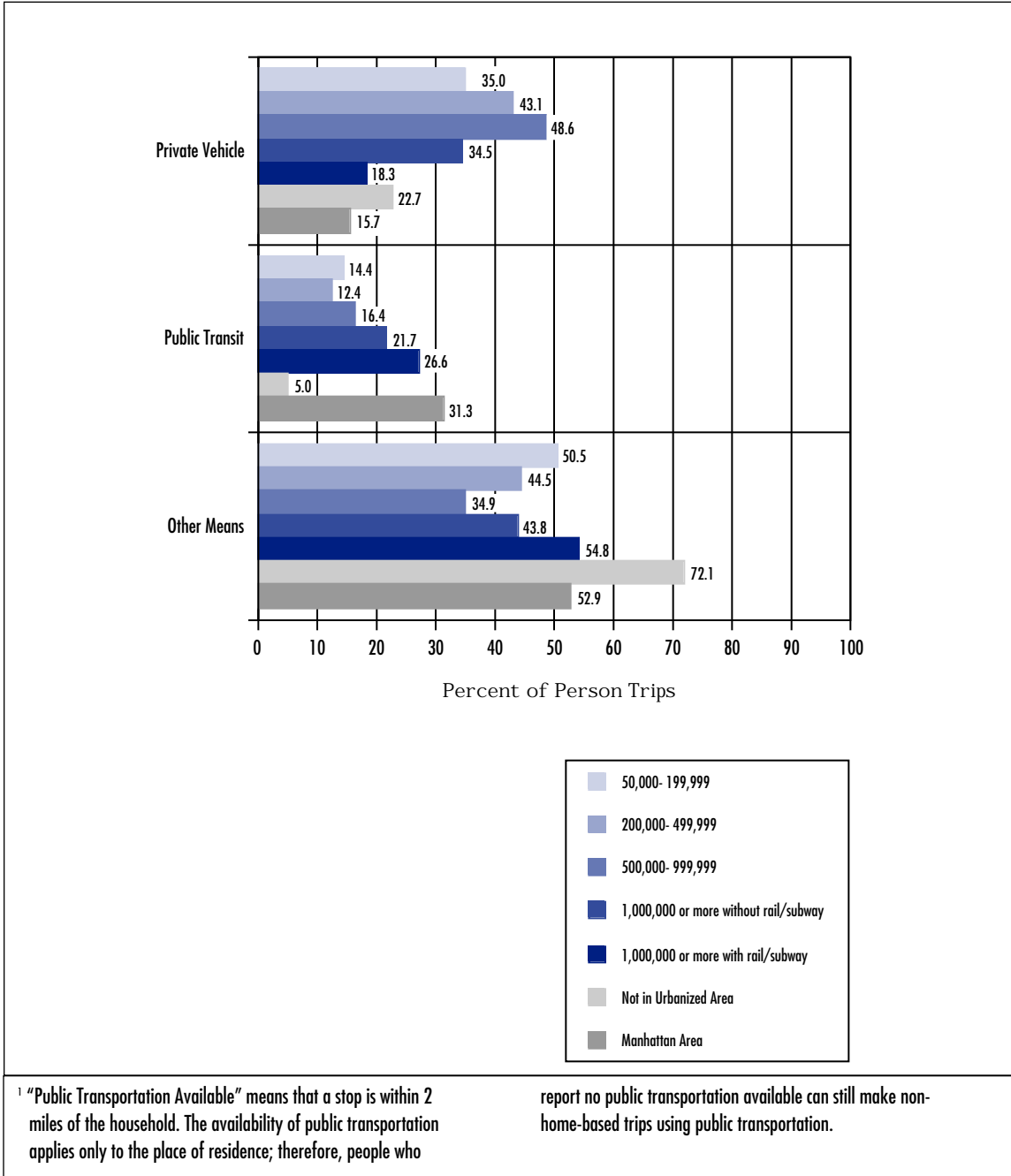
<sup>4</sup> Manhattan is singled out because it is the one area where significant number of higher income households choose not to own a vehicle. Manhattan refers to Manhattan only, not the NY metropolitan area.

<sup>5</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>6</sup> Includes some trips where mode of transportation was unreported.

FIGURE 4.22

DISTRIBUTION OF PERSON TRIPS BY MODE OF TRANSPORTATION AND URBANIZED AREA SIZE TAKEN BY HOUSEHOLDS WITHOUT ANY VEHICLES AND LOCATED WHERE PUBLIC TRANSPORTATION IS AVAILABLE<sup>1</sup> 1990 NPTS



HOUSEHOLD CHARACTERISTICS PERSON TRIPS AND PERSON MILES OF TRAVEL

TABLE 4.39

**NUMBER OF PERSON TRIPS BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

Mode	Earning a Living	Family & Personal Business	Civic, Educational & Religious	Social & Recreational	Other	TOTAL <sup>2</sup>
<b>PRIVATE VEHICLE</b>						
Auto, Van—Driver	36,289 (67.4%)	63,044 (60.8%)	7,798 (27.5%)	28,136 (45.5%)	910 (49.7%)	136,212 (54.6%)
Auto, Van—Passenger	3,865 (7.2%)	21,630 (20.9%)	8,550 (30.1%)	18,828 (30.5%)	414 (22.6%)	53,314 (21.4%)
Pickup	8,244 (15.3%)	10,426 (10.1%)	1,144 (4.0%)	5,670 (9.2%)	143 (7.8%)	25,633 (10.3%)
Other Private Vehicle	637 (1.2%)	843 (0.8%)	54 (0.2%)	686 (1.1%)	14 (0.8%)	2,233 (0.9%)
<b>Subtotal—Private</b>	<b>49,035</b> (91.1%)	<b>95,943</b> (92.6%)	<b>17,546</b> (61.8%)	<b>53,320</b> (86.3%)	<b>1,480</b> (80.8%)	<b>217,392</b> (87.1%)
<b>PUBLIC TRANSPORTATION</b>						
Bus, Streetcar	1,228 (2.3%)	809 (0.8%)	942 (3.3%)	536 (0.9%)	29 (1.6%)	3,543 (1.4%)
Rail/Subway <sup>3</sup>	856 (1.6%)	173 (0.2%)	134 (0.5%)	181 (0.3%)	3 (0.2%)	1,349 (0.5%)
<b>Subtotal—Public</b>	<b>2,084</b> (3.9%)	<b>983</b> (0.9%)	<b>1,076</b> (3.8%)	<b>717</b> (1.2%)	<b>32</b> (1.7%)	<b>4,892</b> (2.0%)
<b>OTHER MEANS</b>						
Amtrak	22 (0.0%)	26 (0.0%)	** (0.0%)	5 (0.0%)	2 (0.1%)	54 (0.0%)
Walk	2,153 (4.0%)	5,835 (5.6%)	3,650 (12.9%)	6,128 (9.9%)	241 (13.2%)	18,007 (7.2%)
Bike	174 (0.3%)	347 (0.3%)	249 (0.9%)	979 (1.6%)	17 (0.9%)	1,767 (0.7%)
School Bus	64 (0.1%)	155 (0.2%)	5,748 (20.2%)	104 (0.2%)	21 (1.1%)	6,092 (2.4%)
Airplane	52 (0.1%)	42 (0.0%)	6 (0.0%)	92 (0.1%)	11 (0.6%)	203 (0.1%)
Taxi	107 (0.2%)	133 (0.1%)	30 (0.1%)	152 (0.2%)	** (0.0%)	422 (0.2%)
Other	104 (0.2%)	97 (0.1%)	53 (0.2%)	257 (0.4%)	16 (0.9%)	527 (0.2%)
<b>Subtotal—Other</b>	<b>2,676</b> (5.0%)	<b>6,635</b> (6.4%)	<b>9,735</b> (34.3%)	<b>7,718</b> (12.5%)	<b>307</b> (16.8%)	<b>27,071</b> (10.8%)
<b>TOTAL<sup>2</sup></b>	<b>53,843</b> (100.0%)	<b>103,608</b> (100.0%)	<b>28,397</b> (100.0%)	<b>61,799</b> (100.0%)	<b>1,831</b> (100.0%)	<b>249,562</b> (100.0%)
<b>Avg. Trip Length (Miles)<sup>4</sup></b>	<b>11.8</b>	<b>7.1</b>	<b>5.4</b>	<b>13.2</b>	<b>10.3</b>	<b>9.5</b>

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

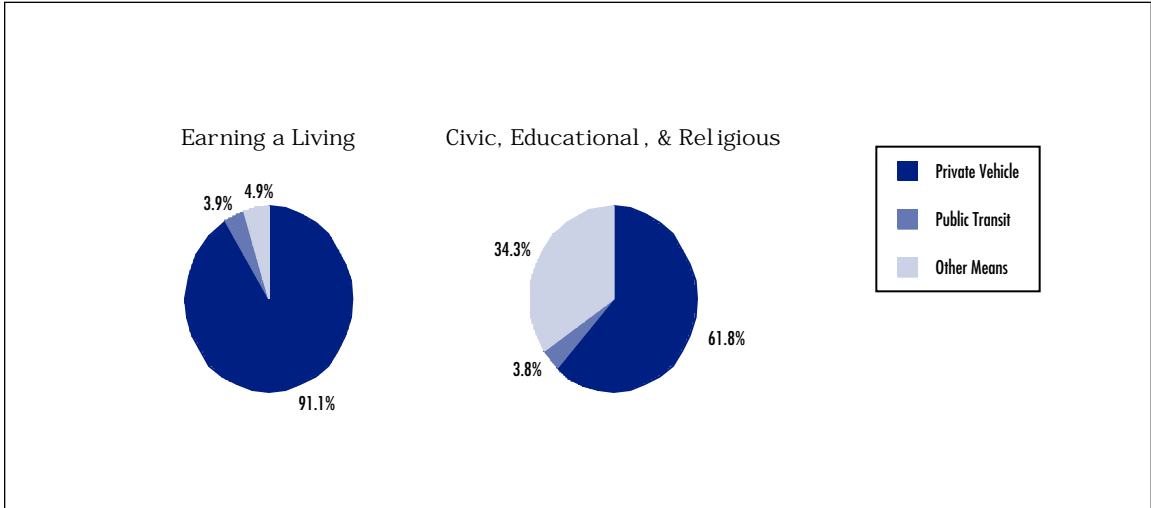
<sup>2</sup> Includes trips where mode of transportation, trip purpose, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Information based only on observations with valid trip length data.



**FIGURE 4.23**  
**DISTRIBUTION OF PERSON TRIPS BY MODE OF TRANSPORTATION AND SELECTED TRIP PURPOSE**  
**1990 NPTS**



As expected, the majority of person trips were taken in privately owned vehicles. Only 1.7 percent of all trips were on public transportation. However, 3.9% of all trips for earning a living and 3.8% of trips for civic, education, and religious purposes used public transportation. In terms of trips across modes, over one third of trips to school,

church or civic functions were by other modes, which include school buses, walking and bicycling.

In terms of trips within mode, of all trips taken by privately owned vehicles, 44% were for family and personal purposes. Of all trips taken by public transportation, 43% were for earning a living.

**TABLE 4.40**

**DISTRIBUTION OF PERSON TRIPS BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
1990 NPTS**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

Purpose	Private Transportation	Public Transportation	Other	TOTAL
<b>ACROSS MODES</b>				
Earning a Living	91.2%	3.9%	5.0%	100.0%
Family & Personal Business	92.6%	0.9%	6.4%	100.0%
Civic, Education, & Religious	61.9%	3.8%	34.3%	100.0%
Social & Recreational	86.3%	1.2%	12.5%	100.0%
Other	81.4%	1.7%	16.8%	100.0%
<b>ALL PURPOSES</b>	<b>87.2%</b>	<b>2.0%</b>	<b>10.8%</b>	<b>100.0%</b>
<b>WITHIN MODES</b>				
Earning a Living	22.6%	42.6%	9.9%	21.6%
Family & Personal Business	44.2%	20.1%	24.5%	41.5%
Civic, Education, & Religious	8.1%	22.0%	36.0%	11.4%
Social & Recreational	24.5%	14.7%	28.5%	24.8%
Other	0.7%	0.7%	1.1%	0.7%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

FIGURE 4.24

**DISTRIBUTION OF PERSON TRIPS BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
(WITHIN MODE)  
1990 NPTS**

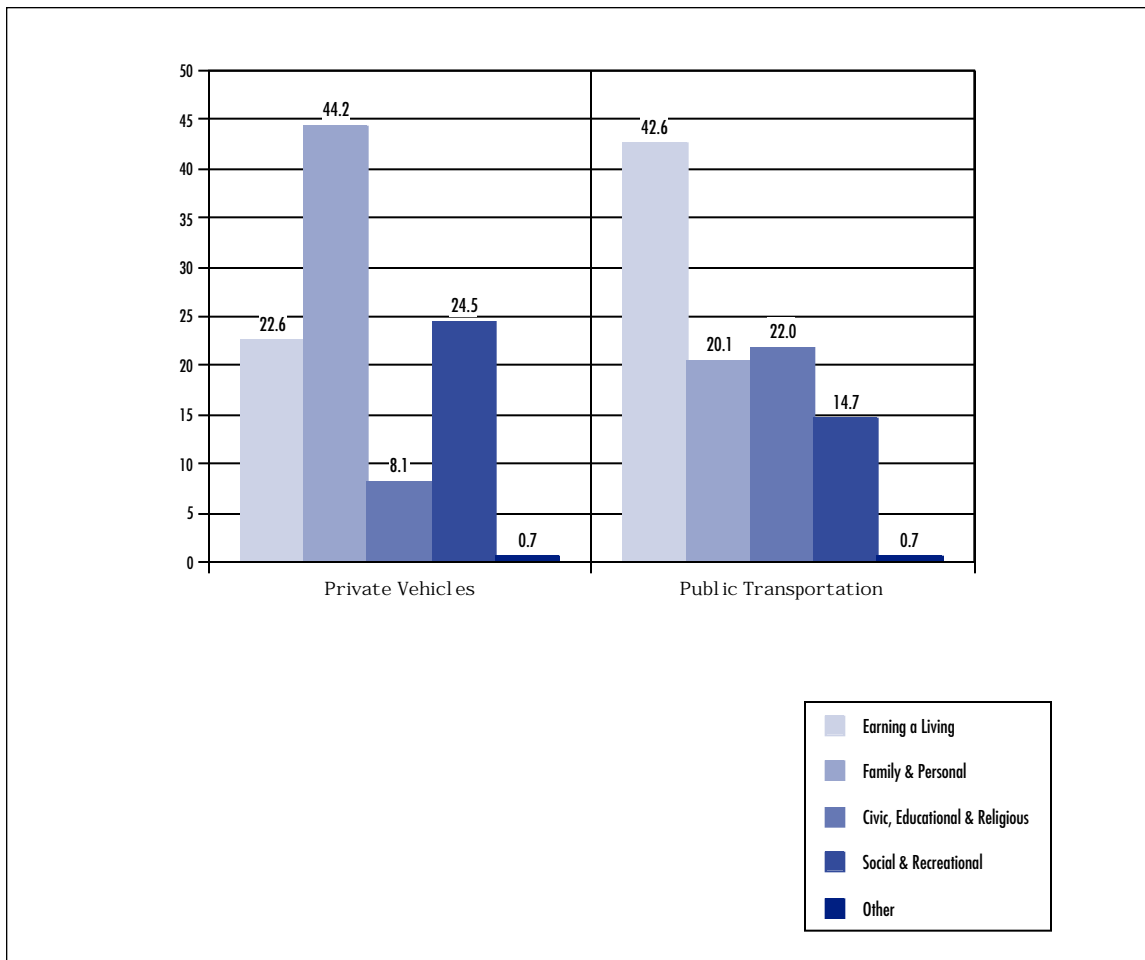


TABLE 4.41

STATISTICS OF PERSON TRIPS AND TRAVEL BY TRIP PURPOSE  
1990 NPTS

	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>1</sup> (miles)
<b>EARNING A LIVING</b>			
To or From Work	50,314,271	526,155,669	10.65
	(20.2%)	(22.7%)	
Work-Related Business	3,528,663	97,379,907	28.20
	(1.4%)	(4.2%)	
<b>Subtotal</b>	<b>53,842,934</b>	<b>623,535,576</b>	<b>11.80</b>
	(21.6%)	(26.9%)	
<b>FAMILY AND PERSONAL BUSINESS</b>			
Shopping	47,056,740	249,620,633	5.38
	(18.9%)	(10.8%)	
Doctor/Dentist	2,799,748	28,313,659	10.59
	(1.1%)	(1.2%)	
Other Family or Personal Business	53,751,804	446,177,987	8.44
	(21.5%)	(19.3%)	
<b>Subtotal</b>	<b>103,608,292</b>	<b>724,112,279</b>	<b>7.11</b>
	(41.5%)	(31.3%)	
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>			
<b>Subtotal</b>	<b>28,397,077</b>	<b>149,271,747</b>	<b>5.39</b>
	(11.4%)	(6.4%)	
<b>SOCIAL AND RECREATIONAL</b>			
Vacation	518,325	103,588,730	218.22
	(0.2%)	(4.5%)	
Visiting Friends/Relatives	24,265,233	279,056,307	11.73
	(9.7%)	(12.1%)	
Pleasure Driving	801,704	17,219,736	22.21
	(0.3%)	(0.7%)	
Other Social/Recreational	36,213,953	399,810,024	11.23
	(14.5%)	(17.3%)	
<b>Subtotal</b>	<b>61,799,215</b>	<b>799,674,797</b>	<b>13.19</b>
	(24.8%)	(34.6%)	
<b>OTHER</b>			
<b>Subtotal</b>	<b>1,830,801</b>	<b>18,197,298</b>	<b>10.30</b>
	(0.7%)	(0.8%)	
<b>TOTAL<sup>2</sup></b>	<b>249,562,297</b>	<b>2,315,273,365</b>	<b>9.45</b>
	(100.0%)	(100.0%)	

<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>2</sup> Includes trips or miles of travel where trip purpose was unreported.

TABLE 4.42

**STATISTICS OF SEGMENTED<sup>1</sup> PERSON TRIPS AND TRAVEL BY TRIP PURPOSE  
1990 NPTS**

	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>2</sup> (miles)
<b>EARNING A LIVING</b>			
To or From Work	1,034,307 (53.9%)	15,677,528 (69.4%)	17.12
Work-Related Business	38,131 (2.0%)	969,859 (4.3%)	25.98
<b>Subtotal</b>	<b>1,072,438</b> (55.9%)	<b>16,647,387</b> (73.7%)	<b>17.47</b>
<b>FAMILY AND PERSONAL BUSINESS</b>			
Shopping	143,793 (7.5%)	711,862 (3.2%)	6.59
Doctor/Dentist	30,510 (1.6%)	348,118 (1.5%)	12.56
Other Family or Personal Business	136,077 (7.1%)	1,209,782 (5.4%)	10.79
<b>Subtotal</b>	<b>310,380</b> (16.2%)	<b>2,269,762</b> (10.1%)	<b>9.16</b>
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>			
<b>Subtotal</b>	<b>292,038</b> (15.2%)	<b>1,499,815</b> (6.6%)	<b>6.05</b>
<b>SOCIAL AND RECREATIONAL</b>			
Vacation	** (0.0%)	** (0.0%)	**
Visiting Friends/Relatives	142,503 (7.4%)	1,527,184 (6.8%)	12.89
Pleasure Driving	** (0.0%)	** (0.0%)	**
Other Social/Recreational	96,230 (5.0%)	605,305 (2.7%)	7.19
<b>Subtotal</b>	<b>238,733</b> (12.4%)	<b>2,132,489</b> (9.5%)	<b>10.52</b>
<b>OTHER</b>			
<b>Subtotal</b>	<b>6,350</b> (0.3%)	<b>24,829</b> (0.1%)	<b>5.55</b>
<b>TOTAL<sup>3</sup></b>	<b>1,919,939</b> <b>(100.0%)</b>	<b>22,574,282</b> <b>(100.0%)</b>	<b>13.63</b>

\*\* Indicates no data reported.

<sup>1</sup> See page 4-50 for explanation of segmented and non-segmented trips.

<sup>2</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>3</sup> Includes trips or miles of travel where trip purpose was unreported.

TABLE 4.43

STATISTICS OF NON-SEGMENTED<sup>1</sup> PERSON TRIPS AND TRAVEL BY TRIP PURPOSE  
1990 NPTS

	Number of Person Trips (000)	Number of Person Miles (000)	Average Trip Length <sup>2</sup> (miles)
<b>EARNING A LIVING</b>			
To or From Work	49,279,963 (19.9%)	510,478,140 (22.3%)	10.53
Work-Related Business	3,490,532 (1.4%)	96,410,048 (4.2%)	28.22
<b>Subtotal</b>	<b>52,770,495</b> (21.3%)	<b>606,888,188</b> (26.5%)	<b>11.69</b>
<b>FAMILY AND PERSONAL BUSINESS</b>			
Shopping	46,912,947 (18.9%)	248,908,770 (10.9%)	5.38
Doctor/Dentist	2,769,238 (1.1%)	27,965,540 (1.2%)	10.57
Other Family or Personal Business	53,615,728 (21.7%)	444,968,205 (19.4%)	8.44
<b>Subtotal</b>	<b>103,297,913</b> (41.7%)	<b>721,842,515</b> (31.5%)	<b>7.10</b>
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>			
<b>Subtotal</b>	<b>28,105,039</b> (11.3%)	<b>147,771,932</b> (6.4%)	<b>5.38</b>
<b>SOCIAL AND RECREATIONAL</b>			
Vacation	518,325 (0.2%)	103,588,730 (4.5%)	218.22
Visiting Friends/Relatives	24,122,730 (9.7%)	277,529,123 (12.1%)	11.73
Pleasure Driving	801,704 (0.3%)	17,219,736 (0.8%)	22.21
Other Social/Recreational	36,117,723 (14.6%)	399,204,719 (17.4%)	11.24
<b>Subtotal</b>	<b>61,560,482</b> (24.9%)	<b>797,542,308</b> (34.8%)	<b>13.20</b>
<b>OTHER</b>			
<b>Subtotal</b>	<b>1,824,451</b> (0.7%)	<b>18,172,469</b> (0.8%)	<b>10.31</b>
<b>TOTAL<sup>3</sup></b>	<b>247,642,358</b> (100.0%)	<b>2,292,699,082</b> (100.0%)	<b>9.43</b>

<sup>1</sup> See page 4-50 for explanation of segmented and non-segmented trips.<sup>3</sup> Includes trips or miles of travel where trip purpose was unreported.<sup>2</sup> Average trip length is calculated using only those records with trip mile information present.

TABLE 4.44

**NUMBER OF PERSON MILES OF TRAVEL BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

Mode	Earning a Living	Family & Personal Business	Civic, Educational & Religious	Social & Recreational	Other	TOTAL <sup>2</sup>
<b>PRIVATE VEHICLE</b>						
Auto, Van—Driver	390,512 (62.6%)	393,349 (54.3%)	57,160 (38.3%)	321,045 (40.1%)	9,828 (54.0%)	1,172,029 (50.6%)
Auto, Van—Passenger	44,160 (7.1%)	196,326 (27.1%)	42,209 (28.3%)	276,552 (34.6%)	5,722 (31.4%)	565,042 (24.4%)
Pickup	102,568 (16.4%)	83,720 (11.6%)	7,076 (4.7%)	72,753 (9.1%)	1,556 (8.6%)	267,944 (11.6%)
Other Private Vehicle	12,738 (2.1%)	9,099 (1.3%)	288 (0.2%)	12,725 (1.6%)	116 (0.6%)	34,967 (1.5%)
<b>Subtotal—Private</b>	<b>549,978</b> (88.2%)	<b>682,493</b> (94.3%)	<b>106,734</b> (71.5%)	<b>683,075</b> (85.4%)	<b>17,221</b> (94.6%)	<b>2,039,982</b> (88.1%)
<b>PUBLIC TRANSPORTATION</b>						
Bus, Streetcar	10,721 (1.7%)	7,087 (1.0%)	8,851 (5.9%)	7,933 (1.0%)	597 (3.3%)	35,189 (1.5%)
Rail/Subway <sup>3</sup>	12,172 (2.0%)	1,306 (0.2%)	1,086 (0.7%)	3,292 (0.4%)	2 (0.0%)	17,858 (0.8%)
<b>Subtotal—Public</b>	<b>22,893</b> (3.7%)	<b>8,393</b> (1.2%)	<b>9,937</b> (6.7%)	<b>11,225</b> (1.4%)	<b>599</b> (3.3%)	<b>53,047</b> (2.3%)
<b>OTHER MEANS</b>						
Amtrak	1,839 (0.3%)	724 (0.1%)	** (0.0%)	2,546 (0.3%)	** (0.0%)	5,108 (0.2%)
Walk	1,743 (0.3%)	3,164 (0.4%)	2,057 (1.4%)	4,205 (0.5%)	249 (1.4%)	11,418 (0.5%)
Bike	356 (0.0%)	527 (0.1%)	226 (0.2%)	2,324 (0.3%)	38 (0.2%)	3,471 (0.1%)
School Bus	563 (0.1%)	802 (0.1%)	29,766 (19.9%)	2,229 (0.3%)	83 (0.5%)	33,442 (1.4%)
Airplane	43,534 (7.0%)	25,116 (3.5%)	** (0.0%)	76,245 (9.5%)	** (0.0%)	144,895 (6.3%)
Taxi	375 (0.1%)	488 (0.1%)	196 (0.1%)	711 (0.1%)	** (0.0%)	1,770 (0.1%)
Other	1,890 (0.3%)	2,334 (0.3%)	181 (0.1%)	16,787 (2.1%)	7 (0.0%)	21,200 (0.9%)
<b>Subtotal—Other</b>	<b>50,300</b> (8.1%)	<b>33,154</b> (4.6%)	<b>32,425</b> (21.7%)	<b>105,047</b> (13.1%)	<b>377</b> (2.1%)	<b>221,304</b> (9.6%)
<b>TOTAL<sup>2</sup></b>	<b>623,536</b> (100.0%)	<b>724,112</b> (100.0%)	<b>149,272</b> (100.0%)	<b>799,675</b> (100.0%)	<b>18,197</b> (100.0%)	<b>2,315,273</b> (100.0%)
<b>Avg. Trip Length (Miles)<sup>4</sup></b>	<b>11.8</b>	<b>7.1</b>	<b>5.4</b>	<b>13.2</b>	<b>10.3</b>	<b>9.5</b>

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes miles of travel where mode of transportation, trip purpose, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Average trip length is calculated using only those records with trip mile information present.

TABLE 4.45

**NUMBER OF PERSON TRIPS<sup>1</sup> BY MODE OF TRANSPORTATION AND TRIP PURPOSE  
AND AVAILABILITY OF PUBLIC TRANSPORTATION  
1990 NPTS (THOUSANDS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

Mode	Earning a Living	Family & Personal Business	Civic, Educational & Religious	Social & Recreational	Other	TOTAL <sup>3</sup>
<b>Where Public Transportation is Available</b>						
Private	27,679,038 (87.4%)	53,710,873 (89.7%)	9,357,772 (59.1%)	30,628,414 (83.4%)	886,601 (76.2%)	122,308,391 (84.2%)
Public	1,956,429 (6.2%)	949,925 (1.6%)	842,434 (5.3%)	673,155 (1.8%)	31,829 (2.7%)	4,454,889 (3.1%)
Other	1,986,497 (6.3%)	5,197,841 (8.7%)	5,629,329 (35.5%)	5,394,212 (14.7%)	238,991 (20.6%)	18,446,870 (12.7%)
<b>TOTAL<sup>3</sup></b>	<b>31,653,116</b> (100.0%)	<b>59,889,701</b> (100.0%)	<b>15,846,647</b> (100.0%)	<b>36,718,891</b> (100.0%)	<b>1,162,944</b> (100.0%)	<b>145,324,821</b> (100.0%)
<b>Average Trip Length (miles)<sup>4</sup></b>	<b>11.2</b>	<b>6.0</b>	<b>4.7</b>	<b>11.9</b>	<b>11.5</b>	<b>8.5</b>
<b>Where Public Transportation is NOT Available</b>						
Private	20,731,913 (96.2%)	41,076,056 (96.5%)	8,041,388 (65.2%)	21,897,970 (90.3%)	588,368 (88.8%)	92,360,009 (91.1%)
Public	121,699 (0.6%)	32,820 (0.1%)	233,537 (1.9%)	43,702 (0.2%)	** (0.0%)	431,757 (0.4%)
Other	678,785 (3.2%)	1,420,471 (3.3%)	4,035,457 (32.7%)	2,277,707 (9.4%)	68,354 (10.3%)	8,480,976 (8.4%)
<b>TOTAL<sup>3</sup></b>	<b>21,543,439</b> (100.0%)	<b>42,544,187</b> (100.0%)	<b>12,334,511</b> (100.0%)	<b>24,240,976</b> (100.0%)	<b>662,343</b> (100.0%)	<b>101,355,913</b> (100.0%)
<b>Average Trip Length (miles)<sup>4</sup></b>	<b>12.6</b>	<b>8.6</b>	<b>6.3</b>	<b>15.0</b>	<b>8.3</b>	<b>10.7</b>
<sup>1</sup> Data on the availability of public transportation were missing for approximately 2.88 million person trips.			<sup>3</sup> Includes trips where mode of transportation, trip purpose, or both were unreported.			
<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.			<sup>4</sup> Average trip length is calculated using only those records with trip mile information present.			



**A**VAILABILITY of public transportation means that there is a stop or station for bus, subway, elevated rail, commuter rail or streetcar within 2 miles of the respondent's residence. Where public transportation was available, trip lengths were shorter than those in places without public transportation (Table 4.45). This difference was apparent across all major trip purposes. This pattern probably indicates that building and population density are more concentrated in places with public trans-

portation than those without public transportation. Note that people who reported that public transportation is not available to them at their residence can still make trips using public transportation. The availability of public transportation applies only to the place of residence, so that non-home-based trips could very well be made using public transportation.

Almost three-fourths of all public transit trips were made by people living within 1/4 mile of the nearest transit stop. As expected,

the percentage of trips by privately owned vehicles increased as the distance to the nearest public transportation increased.

**TABLE 4.46**

**NUMBER OF PERSON TRIPS<sup>1</sup> BY MODE OF TRANSPORTATION AND DISTANCE TO THE NEAREST PUBLIC TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>2</sup> IN CHAPTER 1, SECTION 5

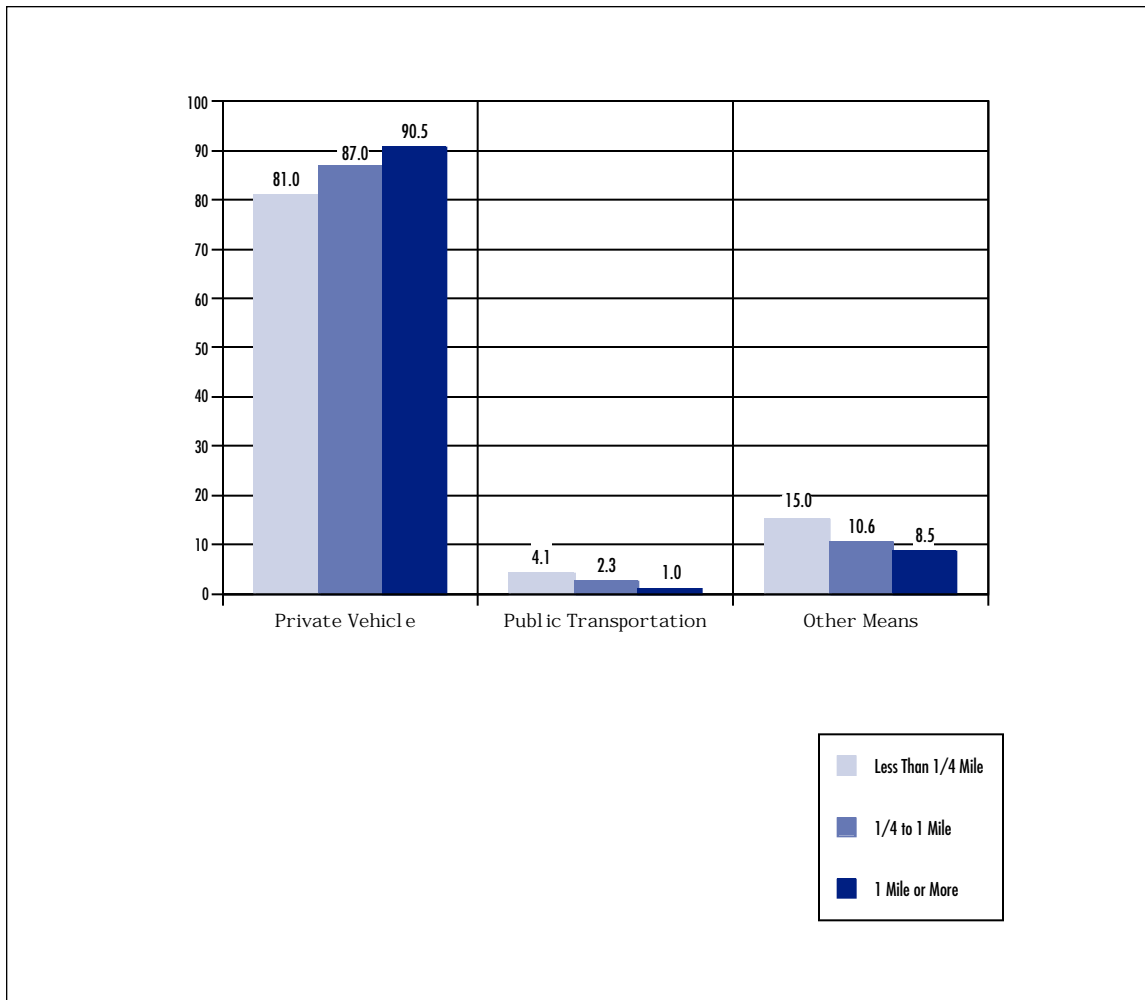
Mode	Distance to Nearest Public Transportation					TOTAL <sup>3</sup>
	Less than 1/4 mile	1/4 to 1/2 mile	1/2 to 1 mile	1 to 2 miles	2 or more miles	
Private	65,910 (81.0%)	24,793 (86.6%)	10,936 (88.1%)	8,412 (91.1%)	9,401 (90.0%)	119,453 (84.0%)
Public	3,311 (4.1%)	729 (2.5%)	217 (1.8%)	104 (1.1%)	85 (0.8%)	4,447 (3.1%)
Other	12,190 (15.0%)	3,104 (10.8%)	1,266 (10.2%)	719 (7.8%)	956 (9.2%)	18,236 (12.8%)
<b>TOTAL<sup>3</sup></b>	<b>81,412</b> (100.0%)	<b>28,626</b> (100.0%)	<b>12,419</b> (100.0%)	<b>9,235</b> (100.0%)	<b>10,443</b> (100.0%)	<b>142,135</b> (100.0%)
<b>All Modes</b>	57.3%	20.1%	8.7%	6.5%	7.3%	100.0%

<sup>1</sup> Only includes trips that were taken by persons living in places where public transportation was available.

<sup>2</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Does not include trips where mode of transportation or distance to the nearest public transportation was unreported.

FIGURE 4.25

**DISTRIBUTION OF PERSON TRIPS BY MODE OF TRANSPORTATION AND DISTANCE TO THE NEAREST PUBLIC TRANSPORTATION  
1990 NPTS**

**T**HE following six tables present data on personal travel by travel time. More than 70% of the person trips were less than 20 minutes long, and only 4.5% were more than 50 minutes long (Table 4.48). Almost half of the shorter trips (20 miles or less) were for family and personal business, while most of the trips lasting 50 minutes or longer were for social and recreational purposes (Table 4.47). Although trips of more than 50 minutes long accounted for less than 5% of the total person trips, they amounted to more than 35% of the total person miles of travel (Table 4.49), reflecting the longer distance of trips more than 50 minutes long.

For trips less than 30 minutes (Table 4.51), private vehicle was the most common mode, followed by walking. As expected, trips on public transportation tended to take longer than those by other modes. Trips by public transportation comprised 2% of all person trips, but accounted for 10.4% of all trips taking 50 minutes or more. Likewise, in other long trips (more than 50 minutes long), airplane trips accounted for only 1.6% of the total long trips but accounted for more than 16% of the total person miles of travel in long trips (Table 4.52).

TABLE 4.47

**NUMBER OF PERSON TRIPS BY TRAVEL TIME CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	Travel Time						TOTAL <sup>1</sup>
	0 - 9 Min.	10 - 19 Min.	20 - 29 Min.	30 - 39 Min.	40 - 49 Min.	50+ Min.	
<b>EARNING A LIVING</b>							
To or From Work	12,787 (13.5%)	16,462 (20.4%)	8,996 (28.9%)	5,445 (30.0%)	2,960 (34.5%)	2,923 (26.1%)	50,314 (20.2%)
Work-Related Business	1,292 (1.4%)	960 (1.2%)	427 (1.4%)	232 (1.3%)	154 (1.8%)	395 (3.5%)	3,529 (1.4%)
<b>Subtotal</b>	<b>14,079</b> (14.9%)	<b>17,422</b> (21.6%)	<b>9,423</b> (30.2%)	<b>5,677</b> (31.3%)	<b>3,114</b> (36.3%)	<b>3,318</b> (29.7%)	<b>53,843</b> (21.6%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	22,929 (24.3%)	15,140 (18.7%)	4,231 (13.6%)	2,093 (11.5%)	818 (9.5%)	738 (6.6%)	47,057 (18.9%)
Doctor/Dentist	565 (0.6%)	1,004 (1.2%)	524 (1.7%)	324 (1.8%)	158 (1.8%)	124 (1.1%)	2,800 (1.1%)
Other Family or Personal Business	24,234 (25.7%)	17,046 (21.1%)	5,421 (17.4%)	2,969 (16.3%)	1,273 (14.8%)	1,904 (17.0%)	53,752 (21.5%)
<b>Subtotal</b>	<b>47,728</b> (50.6%)	<b>33,190</b> (41.1%)	<b>10,176</b> (32.7%)	<b>5,386</b> (29.7%)	<b>2,249</b> (26.2%)	<b>2,766</b> (24.7%)	<b>103,609</b> (41.5%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>10,203</b> (10.8%)	<b>9,946</b> (12.3%)	<b>3,620</b> (11.6%)	<b>2,017</b> (11.1%)	<b>878</b> (10.2%)	<b>708</b> (6.3%)	<b>28,397</b> (11.4%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	43 (0.0%)	42 (0.1%)	34 (0.1%)	33 (0.2%)	23 (0.3%)	281 (2.5%)	518 (0.2%)
Visiting Friends/Relatives	9,046 (9.6%)	7,308 (9.0%)	3,150 (10.1%)	1,895 (10.4%)	818 (9.5%)	1,519 (13.6%)	24,265 (9.7%)
Pleasure Driving	79 (0.1%)	170 (0.2%)	97 (0.3%)	135 (0.7%)	66 (0.8%)	206 (1.8%)	802 (0.3%)
Other Social/Recreational	12,499 (13.3%)	12,065 (14.9%)	4,432 (14.2%)	2,902 (16.0%)	1,379 (16.1%)	2,262 (20.2%)	36,214 (14.5%)
<b>Subtotal</b>	<b>21,667</b> (23.0%)	<b>19,585</b> (24.2%)	<b>7,713</b> (24.8%)	<b>4,965</b> (27.3%)	<b>2,286</b> (26.6%)	<b>4,268</b> (38.2%)	<b>61,799</b> (24.8%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>624</b> (0.7%)	<b>623</b> (0.8%)	<b>220</b> (0.7%)	<b>109</b> (0.6%)	<b>59</b> (0.7%)	<b>120</b> (1.1%)	<b>1,831</b> (0.7%)
<b>TOTAL<sup>1</sup></b>	<b>94,321</b> (100.0%)	<b>80,777</b> (100.0%)	<b>31,154</b> (100.0%)	<b>18,159</b> (100.0%)	<b>8,588</b> (100.0%)	<b>11,186</b> (100.0%)	<b>249,562</b> (100.0%)

<sup>1</sup> Includes trips where travel time, trip purpose, or both were unreported.

**TABLE 4.48**

**DISTRIBUTION OF PERSON TRIPS BY TRAVEL TIME CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(ACROSS TRAVEL TIME)**

	Travel Time						TOTAL <sup>1</sup>
	0 - 9 Min.	10 - 19 Min.	20 - 29 Min.	30 - 39 Min.	40 - 49 Min.	50+ Min.	
<b>EARNING A LIVING</b>							
To or From Work	25.4%	32.7%	17.9%	10.8%	5.9%	5.8%	100.0%
Work-Related Business	36.6%	27.2%	12.1%	6.6%	4.4%	11.2%	100.0%
<b>Subtotal</b>	<b>26.1%</b>	<b>32.4%</b>	<b>17.5%</b>	<b>10.5%</b>	<b>5.8%</b>	<b>6.2%</b>	<b>100.0%</b>
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	48.7%	32.2%	9.0%	4.4%	1.7%	1.6%	100.0%
Doctor/Dentist	20.2%	35.9%	18.7%	11.6%	5.6%	4.4%	100.0%
Other Family or Personal Business	45.1%	31.7%	10.1%	5.5%	2.4%	3.5%	100.0%
<b>Subtotal</b>	<b>46.1%</b>	<b>32.0%</b>	<b>9.8%</b>	<b>5.2%</b>	<b>2.2%</b>	<b>2.7%</b>	<b>100.0%</b>
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>35.9%</b>	<b>35.0%</b>	<b>12.7%</b>	<b>7.1%</b>	<b>3.1%</b>	<b>2.5%</b>	<b>100.0%</b>
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	8.3%	8.1%	6.6%	6.4%	4.4%	54.2%	100.0%
Visiting Friends/Relatives	37.3%	30.1%	13.0%	7.8%	3.4%	6.3%	100.0%
Pleasure Driving	9.9%	21.2%	12.1%	16.8%	8.2%	25.7%	100.0%
Other Social/Recreational	34.5%	33.3%	12.2%	8.0%	3.8%	6.2%	100.0%
<b>Subtotal</b>	<b>35.1%</b>	<b>31.7%</b>	<b>12.5%</b>	<b>8.0%</b>	<b>3.7%</b>	<b>6.9%</b>	<b>100.0%</b>
<b>OTHER</b>							
<b>Subtotal</b>	<b>34.1%</b>	<b>34.0%</b>	<b>12.0%</b>	<b>6.0%</b>	<b>3.2%</b>	<b>6.6%</b>	<b>100.0%</b>
<b>TOTAL<sup>1</sup></b>	<b>37.8%</b>	<b>32.4%</b>	<b>12.5%</b>	<b>7.3%</b>	<b>3.4%</b>	<b>4.5%</b>	<b>100.0%</b>

<sup>1</sup> Includes trips where travel time, trip purpose, or both were unreported.

TABLE 4.49

**DISTRIBUTION OF PERSON MILES OF TRAVEL BY TRAVEL TIME CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	Travel Time						TOTAL <sup>1</sup>
	0 - 9 Min.	10 - 19 Min.	20 - 29 Min.	30 - 39 Min.	40 - 49 Min.	50+ Min.	
<b>EARNING A LIVING</b>							
To or From Work	25,146 (15.9%)	98,776 (23.3%)	105,490 (30.9%)	95,153 (32.1%)	72,289 (35.4%)	118,848 (14.5%)	<b>526,156</b> (22.7%)
Work-Related Business	2,323 (1.5%)	5,423 (1.3%)	4,909 (1.4%)	4,309 (1.4%)	4,302 (2.1%)	68,017 (8.3%)	<b>97,380</b> (4.2%)
<b>Subtotal</b>	<b>27,469</b> (17.4%)	<b>104,199</b> (24.6%)	<b>110,399</b> (32.3%)	<b>99,462</b> (33.5%)	<b>76,591</b> (37.5%)	<b>186,865</b> (22.9%)	<b>623,536</b> (26.9%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	35,844 (22.6%)	72,241 (17.2%)	44,232 (12.9%)	33,364 (11.2%)	21,235 (10.4%)	36,719 (4.5%)	<b>249,621</b> (10.8%)
Doctor/Dentist	1,145 (0.7%)	5,713 (1.3%)	5,643 (1.7%)	5,338 (1.8%)	4,373 (2.1%)	5,561 (0.7%)	<b>28,314</b> (1.2%)
Other Family or Personal Business	40,490 (25.6%)	89,600 (21.1%)	61,446 (18.0%)	50,966 (17.2%)	32,995 (16.1%)	163,860 (20.0%)	<b>446,178</b> (19.3%)
<b>Subtotal</b>	<b>77,479</b> (49.0%)	<b>168,054</b> (39.6%)	<b>111,321</b> (32.6%)	<b>89,668</b> (30.2%)	<b>58,603</b> (28.7%)	<b>206,140</b> (25.2%)	<b>724,113</b> (31.3%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>16,071</b> (10.2%)	<b>41,497</b> (9.8%)	<b>29,321</b> (8.6%)	<b>20,527</b> (6.9%)	<b>12,726</b> (6.2%)	<b>24,161</b> (3.0%)	<b>149,272</b> (6.4%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	113 (0.1%)	331 (0.1%)	447 (0.1%)	659 (0.2%)	2,119 (1.0%)	81,063 (9.9%)	<b>103,589</b> (4.5%)
Visiting Friends/Relatives	14,127 (8.9%)	41,153 (9.7%)	36,698 (10.7%)	35,911 (12.1%)	19,313 (9.4%)	124,486 (15.2%)	<b>279,056</b> (12.0%)
Pleasure Driving	204 (0.1%)	948 (0.2%)	1,216 (0.4%)	2,244 (0.8%)	1,544 (0.8%)	10,009 (1.2%)	<b>17,220</b> (0.7%)
Other Social/Recreational	21,642 (13.7%)	64,733 (15.3%)	49,968 (14.6%)	46,578 (15.7%)	32,604 (15.9%)	175,556 (21.5%)	<b>399,810</b> (17.3%)
<b>Subtotal</b>	<b>36,086</b> (22.8%)	<b>107,165</b> (25.3%)	<b>88,329</b> (25.8%)	<b>85,392</b> (28.8%)	<b>55,580</b> (27.2%)	<b>391,114</b> (47.8%)	<b>799,675</b> (34.5%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>1,133</b> (0.7%)	<b>3,100</b> (0.7%)	<b>2,477</b> (0.7%)	<b>1,368</b> (0.5%)	<b>965</b> (0.5%)	<b>8,985</b> (1.1%)	<b>18,197</b> (0.8%)
<b>TOTAL<sup>1</sup></b>	<b>158,281</b> (100.0%)	<b>424,082</b> (100.0%)	<b>341,861</b> (100.0%)	<b>296,492</b> (100.0%)	<b>204,484</b> (100.0%)	<b>817,527</b> (100.0%)	<b>2,315,273</b> (100.0%)

<sup>1</sup> Includes miles of travel where travel time, trip purpose, or both were unreported.

**TABLE 4.50**

**DISTRIBUTION OF PERSON MILES OF TRAVEL BY TRAVEL TIME CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(ACROSS TRAVEL TIME)**

	Travel Time						TOTAL <sup>1</sup>
	0 - 9 Min.	10 - 19 Min.	20 - 29 Min.	30 - 39 Min.	40 - 49 Min.	50+ Min.	
<b>EARNING A LIVING</b>							
To or From Work	4.8%	18.8%	20.0%	18.1%	13.7%	22.6%	100.0%
Work-Related Business	2.4%	5.6%	5.0%	4.4%	4.4%	69.8%	100.0%
<b>Subtotal</b>	<b>4.4%</b>	<b>16.7%</b>	<b>17.7%</b>	<b>16.0%</b>	<b>12.3%</b>	<b>30.0%</b>	<b>100.0%</b>
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	14.4%	28.9%	17.7%	13.4%	8.5%	14.7%	100.0%
Doctor/Dentist	4.0%	20.2%	19.9%	18.9%	15.4%	19.6%	100.0%
Other Family or Personal Business	9.1%	20.1%	13.8%	11.4%	7.4%	36.7%	100.0%
<b>Subtotal</b>	<b>10.7%</b>	<b>23.2%</b>	<b>15.4%</b>	<b>12.4%</b>	<b>8.1%</b>	<b>28.5%</b>	<b>100.0%</b>
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>10.8%</b>	<b>27.8%</b>	<b>19.6%</b>	<b>13.8%</b>	<b>8.5%</b>	<b>16.2%</b>	<b>100.0%</b>
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	0.1%	0.3%	0.4%	0.6%	2.0%	78.3%	100.0%
Visiting Friends/Relatives	5.1%	14.7%	13.2%	12.9%	6.9%	44.6%	100.0%
Pleasure Driving	1.2%	5.5%	7.1%	13.0%	9.0%	58.1%	100.0%
Other Social/Recreational	5.4%	16.2%	12.5%	11.7%	8.2%	43.9%	100.0%
<b>Subtotal</b>	<b>4.5%</b>	<b>13.4%</b>	<b>11.0%</b>	<b>10.7%</b>	<b>7.0%</b>	<b>48.9%</b>	<b>100.0%</b>
<b>OTHER</b>							
<b>Subtotal</b>	<b>6.2%</b>	<b>17.0%</b>	<b>13.6%</b>	<b>7.5%</b>	<b>5.3%</b>	<b>49.4%</b>	<b>100.0%</b>
<b>TOTAL<sup>1</sup></b>	<b>6.8%</b>	<b>18.3%</b>	<b>14.8%</b>	<b>12.8%</b>	<b>8.8%</b>	<b>35.3%</b>	<b>100.0%</b>

<sup>1</sup> Includes miles of travel where travel time, trip purpose, or both were unreported.



TABLE 4.51

**NUMBER OF PERSON TRIPS BY TRAVEL TIME CATEGORY AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Travel Time						TOTAL <sup>2</sup>
	0 - 9 Min.	10 - 19 Min.	20 - 29 Min.	30 - 39 Min.	40 - 49 Min.	50+ Min.	
<b>PRIVATE VEHICLE</b>	<b>82,552</b>	<b>72,275</b>	<b>27,568</b>	<b>15,340</b>	<b>7,177</b>	<b>9,091</b>	<b>217,393</b>
	(87.5%)	(89.5%)	(88.5%)	(84.5%)	(83.6%)	(81.3%)	(87.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	296	785	710	588	325	668	3,543
	(0.3%)	(1.0%)	(2.3%)	(3.2%)	(3.8%)	(6.0%)	(1.4%)
Rail/Subway <sup>3</sup>	29	123	168	241	234	498	1,349
	(0.0%)	(0.2%)	(0.5%)	(1.3%)	(2.7%)	(4.5%)	(0.5%)
<b>Subtotal</b>	<b>325</b>	<b>908</b>	<b>878</b>	<b>829</b>	<b>559</b>	<b>1,166</b>	<b>4,892</b>
	(0.3%)	(1.1%)	(2.8%)	(4.6%)	(6.5%)	(10.4%)	(2.0%)
<b>OTHER MEANS</b>							
Amtrak	4	6	2	17	1	23	54
	(0.0%)	(0.0%)	(0.0%)	(0.1%)	(0.0%)	(0.2%)	(0.0%)
Bike	879	445	146	140	55	42	1,767
	(0.9%)	(0.5%)	(0.5%)	(0.8%)	(0.6%)	(0.4%)	(0.7%)
Walk	9,672	4,754	1,243	833	254	248	18,007
	(10.3%)	(5.9%)	(4.0%)	(4.6%)	(3.0%)	(2.2%)	(7.2%)
School Bus	616	2,077	1,206	925	477	304	6,092
	(0.7%)	(2.6%)	(3.9%)	(5.1%)	(5.6%)	(2.7%)	(2.4%)
Airplane	**	**	1	4	9	176	203
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.1%)	(1.6%)	(0.1%)
Other	244	301	102	54	54	129	949
	(0.2%)	(0.4%)	(0.3%)	(0.3%)	(0.6%)	(1.1%)	(0.4%)
<b>Subtotal</b>	<b>11,415</b>	<b>7,583</b>	<b>2,700</b>	<b>1,973</b>	<b>850</b>	<b>922</b>	<b>27,072</b>
	(12.1%)	(9.4%)	(8.7%)	(10.9%)	(9.9%)	(8.2%)	(10.8%)
<b>TOTAL<sup>2</sup></b>	<b>94,321</b>	<b>80,777</b>	<b>31,154</b>	<b>18,159</b>	<b>8,588</b>	<b>11,186</b>	<b>249,562</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes trips where travel time, mode of transportation, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

TABLE 4.52

**NUMBER OF PERSON MILES OF TRAVEL BY TRAVEL TIME CATEGORY AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Travel Time						TOTAL <sup>2</sup>
	0-9 Min.	10-19 Min.	20-29 Min.	30-39 Min.	40-49 Min.	50+ Min.	
<b>PRIVATE VEHICLE</b>	<b>153,071</b>	<b>409,487</b>	<b>328,020</b>	<b>280,667</b>	<b>190,206</b>	<b>634,126</b>	<b>2,039,982</b>
	(96.7%)	(96.6%)	(96.0%)	(94.7%)	(93.0%)	(77.6%)	(88.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	411	2,870	3,472	4,286	2,697	19,756	35,189
	(0.3%)	(0.7%)	(1.0%)	(1.5%)	(1.3%)	(2.4%)	(1.5%)
Rail/Subway <sup>3</sup>	70	469	804	2,276	2,125	10,074	17,858
	(0.0%)	(0.1%)	(0.2%)	(0.8%)	(1.0%)	(1.2%)	(0.8%)
<b>Subtotal</b>	<b>482</b>	<b>3,339</b>	<b>4,276</b>	<b>6,562</b>	<b>4,822</b>	<b>29,829</b>	<b>53,047</b>
	(0.3%)	(0.8%)	(1.3%)	(2.2%)	(2.4%)	(3.6%)	(2.3%)
<b>OTHER MEANS</b>							
Amtrak	7	53	12	235	34	4,767	5,108
	(0.0%)	(0.0%)	(0.0%)	(0.1%)	(0.0%)	(0.6%)	(0.2%)
Bike	543	712	569	547	385	414	3,471
	(0.3%)	(0.2%)	(0.2%)	(0.2%)	(0.2%)	(0.1%)	(0.1%)
Walk	2,863	2,542	1,383	1,247	578	582	11,418
	(1.8%)	(0.6%)	(0.4%)	(0.4%)	(0.3%)	(0.1%)	(0.5%)
School Bus	973	7,034	6,803	6,195	5,085	5,104	33,442
	(0.6%)	(1.6%)	(2.0%)	(2.1%)	(2.5%)	(0.6%)	(1.4%)
Airplane	**	**	**	264	2,560	134,983	144,895
	(0.0%)	(0.0%)	(0.0%)	(0.1%)	(1.2%)	(16.5%)	(6.3%)
Other	299	881	711	537	773	7,410	22,969
	(0.2%)	(0.2%)	(0.2%)	(0.2%)	(0.4%)	(0.9%)	(1.0%)
<b>Subtotal</b>	<b>4,686</b>	<b>11,222</b>	<b>9,478</b>	<b>9,025</b>	<b>9,415</b>	<b>153,260</b>	<b>221,303</b>
	(3.0%)	(2.6%)	(2.8%)	(3.0%)	(4.6%)	(18.7%)	(9.6%)
<b>TOTAL<sup>2</sup></b>	<b>158,281</b>	<b>424,082</b>	<b>341,861</b>	<b>296,492</b>	<b>204,484</b>	<b>817,527</b>	<b>2,315,273</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

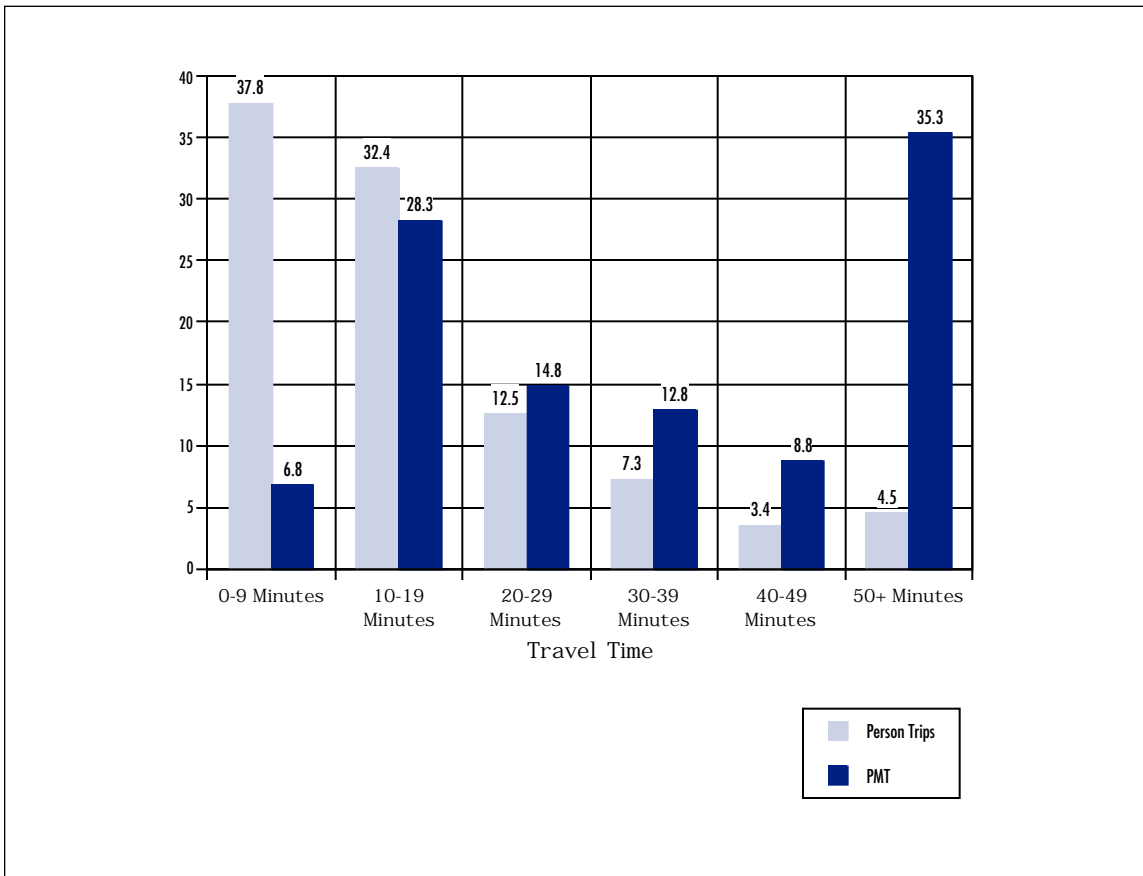
\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes miles of travel where travel time, mode of transportation, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

**FIGURE 4.26**  
**DISTRIBUTION OF PERSON TRIPS AND TRAVEL BY TRAVEL TIME CATEGORY**  
**1990 NPTS**



**T**HE number of trips decreased as trip length increased. More than 60% of the person trips were to places less than 5 miles away and only 4.5% were to places more than 30 miles away. As trips got longer than 30 miles, use of privately owned vehicles decreased, and use of trains and airplanes increased.

As expected, people travelled shorter distances for family and personal trips and for civic, educational or religious purposes compared to other trips; and longer distances for recreational purposes. Tables 4.53 through 4.58 present data on person travel by trip length based on the 1990 NPTS data.

TABLE 4.53

**NUMBER OF PERSON TRIPS BY TRIP LENGTH CATEGORY AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	TOTAL <sup>2</sup>
<b>PRIVATE VEHICLE</b>	<b>127,224</b>	<b>38,682</b>	<b>18,270</b>	<b>10,048</b>	<b>9,192</b>	<b>10,583</b>	<b>217,393</b>
	(82.8%)	(94.3%)	(95.1%)	(95.8%)	(97.0%)	(94.9%)	(87.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	1,927	647	237	153	89	133	3,543
	(1.2%)	(1.6%)	(1.2%)	(1.5%)	(0.9%)	(1.2%)	(1.4%)
Rail/Subway <sup>3</sup>	427	231	89	92	103	164	1,349
	(0.3%)	(0.6%)	(0.5%)	(0.9%)	(1.1%)	(1.5%)	(0.5%)
<b>Subtotal</b>	<b>2,354</b>	<b>878</b>	<b>326</b>	<b>245</b>	<b>192</b>	<b>297</b>	<b>4,892</b>
	(1.5%)	(2.1%)	(1.7%)	(2.3%)	(2.0%)	(2.7%)	(2.0%)
<b>OTHER MEANS</b>							
Amtrak	6	2	18	0	2	19	54
	(0.0%)	(0.0%)	(0.1%)	(0.0%)	(0.0%)	(0.2%)	(0.0%)
Bike	1,611	88	26	7	7	3	1,767
	(1.0%)	(0.2%)	(0.1%)	(0.1%)	(0.1%)	(0.0%)	(0.7%)
Walk	17,722	82	17	18	1	*	18,007 <sup>4</sup>
	(11.5%)	(0.2%)	(0.1%)	(0.2%)	(0.0%)	(0.0%)	(7.2%)
School Bus	3,997	1,159	484	148	48	46	6,092
	(2.6%)	(2.8%)	(2.5%)	(1.4%)	(0.5%)	(0.4%)	(2.4%)
Airplane	**	**	**	**	2	131	203
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(1.2%)	(0.1%)
Other	607	116	43	19	26	66	949
	(0.4%)	(0.3%)	(0.2%)	(0.2%)	(0.3%)	(0.6%)	(0.4%)
<b>Subtotal</b>	<b>23,943</b>	<b>1,447</b>	<b>588</b>	<b>192</b>	<b>86</b>	<b>268<sup>4</sup></b>	<b>27,072</b>
	(15.6%)	(3.5%)	(3.1%)	(1.8%)	(0.9%)	(2.4%)	(10.8%)
<b>TOTAL<sup>2</sup></b>	<b>153,570</b>	<b>41,007</b>	<b>19,205</b>	<b>10,486</b>	<b>9,475</b>	<b>11,153</b>	<b>249,562</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

\* Indicates insufficient data reported.

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes trips where trip length, mode of transportation, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes records where insufficient data were reported in other cells.

TABLE 4.54

**NUMBER OF PERSON MILES OF TRAVEL BY TRIP LENGTH CATEGORY AND MODE OF TRANSPORTATION  
1990 NPTS (MILLIONS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	TOTAL
<b>PRIVATE VEHICLE</b>	<b>296,289</b>	<b>315,566</b>	<b>248,892</b>	<b>190,993</b>	<b>243,550</b>	<b>744,691</b>	<b>2,039,982</b>
	(90.8%)	(94.4%)	(95.1%)	(95.7%)	(97.0%)	(79.0%)	(88.1%)
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	4,687	5,135	3,317	2,951	2,509	16,591	35,189
	(1.4%)	(1.5%)	(1.3%)	(1.5%)	(1.0%)	(1.8%)	(1.5%)
Rail/Subway <sup>2</sup>	1,155	1,929	1,260	1,808	2,768	8,939	17,858
	(0.4%)	(0.6%)	(0.5%)	(0.9%)	(1.1%)	(0.9%)	(0.8%)
<b>Subtotal</b>	<b>5,842</b>	<b>7,064</b>	<b>4,576</b>	<b>4,759</b>	<b>5,277</b>	<b>25,529</b>	<b>53,047</b>
	(1.8%)	(2.1%)	(1.7%)	(2.4%)	(2.1%)	(2.7%)	(2.3%)
<b>OTHER MEANS</b>							
Amtrak	25	12	268	3	60	4,741	5,108
	(0.0%)	(0.0%)	(0.1%)	(0.0%)	(0.0%)	(0.5%)	(0.2%)
Bike	2,007	689	362	116	159	137	3,471
	(0.6%)	(0.2%)	(0.1%)	(0.1%)	(0.1%)	(0.0%)	(0.1%)
Walk	10,058	624	248	346	30	*	11,418 <sup>3</sup>
	(3.1%)	(0.2%)	(0.1%)	(0.2%)	(0.0%)	(0.0%)	(0.5%)
School Bus	10,696	9,268	6,586	2,856	1,235	2,801	33,442
	(3.3%)	(2.8%)	(2.5%)	(1.4%)	(0.5%)	(0.3%)	(1.4%)
Airplane	**	**	**	**	45	144,850	144,895
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(15.4%)	(6.3%)
Other	1,125	993	591	366	705	19,189	22,969
	(0.3%)	(0.3%)	(0.2%)	(0.2%)	(0.3%)	(2.0%)	(1.0%)
<b>Subtotal</b>	<b>23,911</b>	<b>11,585</b>	<b>8,055</b>	<b>3,687</b>	<b>2,235</b>	<b>171,830<sup>3</sup></b>	<b>221,303</b>
	(7.3%)	(3.5%)	(3.1%)	(1.8%)	(0.9%)	(18.2%)	(9.6%)
<b>TOTAL<sup>4</sup></b>	<b>326,135</b>	<b>334,221</b>	<b>261,770</b>	<b>199,479</b>	<b>251,197</b>	<b>942,471</b>	<b>2,315,273</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

\* Indicates insufficient data reported.

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>3</sup> Includes records where insufficient data were reported in other cells.

<sup>4</sup> Includes miles of travel where mode of transportation was unreported.

FIGURE 4.27

DISTRIBUTION OF PERSON MILES OF TRAVEL BY TRIP LENGTH CATEGORY  
AND MODE OF TRANSPORTATION  
(WITHIN TRIP LENGTH CATEGORY)  
1990 NPTS

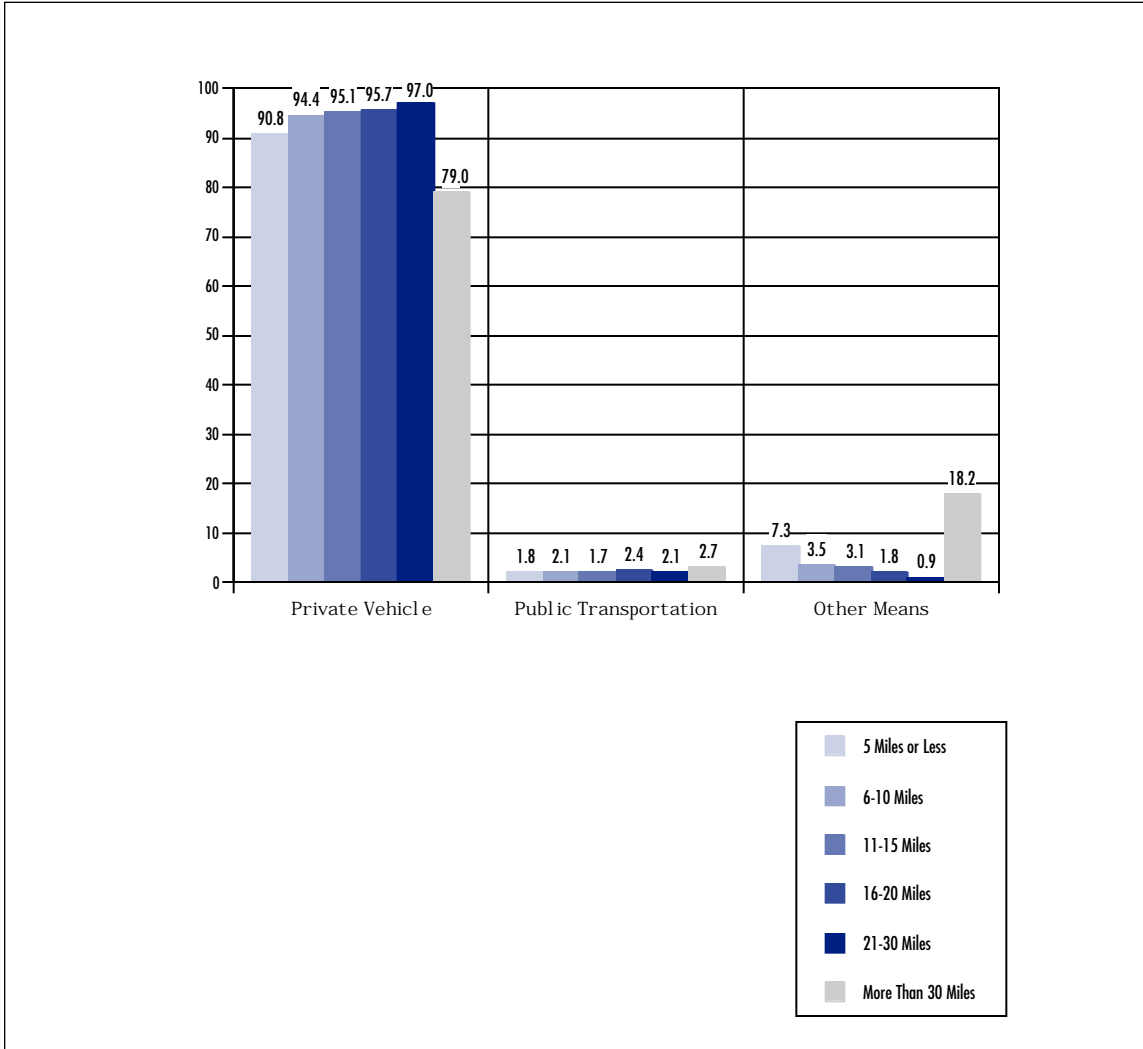


TABLE 4.55

**DISTRIBUTION OF PERSON TRIPS AND TRAVEL BY TRIP LENGTH CATEGORY AND MODE OF TRANSPORTATION  
1990 NPTS (WITHIN MODE)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

	Person Trips						TOTAL <sup>2</sup>
	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	
<b>PRIVATE VEHICLE</b>	58.5%	17.8%	8.4%	4.6%	4.2%	4.9%	100.0%
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	54.4%	18.3%	6.7%	4.3%	2.5%	3.8%	100.0%
Rail/Subway <sup>3</sup>	31.6%	17.1%	6.6%	6.8%	7.6%	12.1%	100.0%
<b>Subtotal</b>	48.1%	17.9%	6.7%	5.0%	3.9%	6.1%	100.0%
<b>OTHER MEANS</b>							
Amtrak	11.1%	3.7%	33.3%	0.0%	3.7%	35.2%	100.0%
Bike	91.2%	5.0%	1.5%	0.4%	0.4%	0.2%	100.0%
Walk	98.4%	0.5%	0.1%	0.1%	0.0%	0.0%	100.0%
School Bus	65.6%	19.0%	7.9%	2.4%	0.8%	0.8%	100.0%
Airplane	**	**	**	**	1.0%	64.5%	100.0%
Other	64.0%	12.2%	4.5%	2.0%	2.7%	7.0%	100.0%
<b>Subtotal</b>	88.5%	5.3%	2.2%	0.7%	0.3%	1.0%	100.0%
<b>TOTAL<sup>2</sup></b>	61.5%	16.4%	7.7%	4.2%	3.8%	4.5%	100.0%
	Person Miles of Travel						
<b>PRIVATE VEHICLE</b>	14.5%	15.5%	12.2%	9.4%	11.9%	36.5%	100.0%
<b>PUBLIC TRANSPORTATION</b>							
Bus, Streetcar	13.3%	14.6%	9.4%	8.4%	7.1%	47.1%	100.0%
Rail/Subway <sup>3</sup>	6.5%	10.8%	7.1%	10.1%	15.5%	50.1%	100.0%
<b>Subtotal</b>	11.0%	13.3%	8.6%	9.0%	9.9%	48.1%	100.0%
<b>OTHER MEANS</b>							
Amtrak	0.5%	0.2%	5.2%	0.1%	1.2%	92.8%	100.0%
Bike	57.8%	19.9%	10.4%	3.3%	4.6%	3.9%	100.0%
Walk	88.1%	5.5%	2.2%	3.0%	0.3%	1.0%	100.0%
School Bus	32.0%	27.7%	19.7%	8.5%	3.7%	8.4%	100.0%
Airplane	**	**	**	**	0.0%	100.0%	100.0%
Other	4.9%	4.3%	2.6%	1.6%	3.1%	83.5%	100.0%
<b>Subtotal</b>	10.8%	5.2%	3.6%	1.7%	1.0%	77.6%	100.0%
<b>TOTAL<sup>2</sup></b>	14.1%	14.4%	11.3%	8.6%	10.8%	40.7%	100.0%

\*\* Indicates no data reported.

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes trips or miles of travel where trip length, mode of transportation, or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.



FIGURE 4.28

DISTRIBUTION OF PERSON MILES OF TRAVEL BY TRIP LENGTH CATEGORY  
AND SELECTED MODE OF TRANSPORTATION  
1990 NPTS  
(WITHIN MODE)

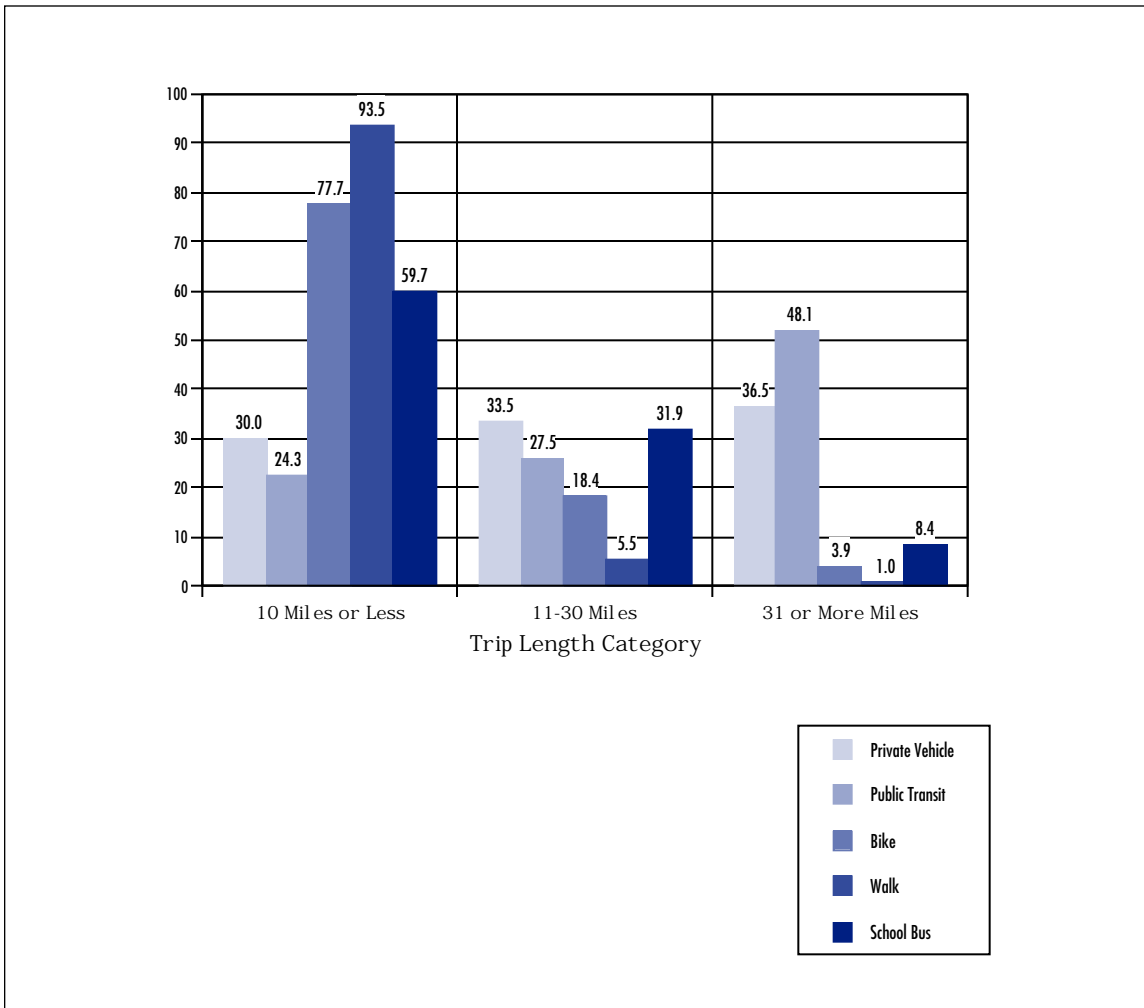


TABLE 4.56

**NUMBER OF PERSON TRIPS BY TRIP LENGTH CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	TOTAL <sup>1</sup>
<b>EARNING A LIVING</b>							
To or From Work	22,937 (14.9%)	10,610 (25.9%)	6,104 (31.8%)	3,511 (33.5%)	3,332 (35.2%)	2,903 (26.0%)	50,314 (20.2%)
Work-Related Business	1,886 (1.2%)	598 (1.4%)	288 (1.5%)	113 (1.1%)	140 (1.5%)	427 (3.8%)	3,529 (1.4%)
<b>Subtotal</b>	<b>24,825</b> (16.2%)	<b>11,208</b> (27.3%)	<b>6,392</b> (33.3%)	<b>3,624</b> (34.6%)	<b>3,472</b> (36.6%)	<b>3,330</b> (29.9%)	<b>53,843</b> (21.6%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	34,698 (22.6%)	6,172 (15.1%)	2,446 (12.7%)	1,193 (11.4%)	996 (10.5%)	883 (7.9%)	47,057 (18.9%)
Doctor/Dentist	1,261 (0.8%)	614 (1.5%)	286 (1.5%)	158 (1.5%)	215 (2.3%)	140 (1.3%)	2,800 (1.1%)
Other Family or Personal Business	35,923 (23.4%)	8,120 (19.8%)	3,307 (17.2%)	1,895 (18.1%)	1,566 (16.5%)	2,025 (18.1%)	53,752 (21.5%)
<b>Subtotal</b>	<b>71,882</b> (46.8%)	<b>14,906</b> (36.4%)	<b>6,039</b> (31.4%)	<b>3,246</b> (31.0%)	<b>2,777</b> (29.3%)	<b>3,048</b> (27.3%)	<b>103,609</b> (41.5%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>20,059</b> (13.1%)	<b>4,392</b> (10.7%)	<b>1,735</b> (9.0%)	<b>736</b> (7.0%)	<b>404</b> (4.3%)	<b>382</b> (3.4%)	<b>28,397</b> (11.4%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	53 (0.0%)	31 (0.1%)	41 (0.2%)	23 (0.2%)	25 (0.3%)	302 (2.7%)	518 (0.2%)
Visiting Friends/Relatives	13,893 (9.1%)	4,006 (9.8%)	1,963 (10.2%)	1,209 (11.5%)	1,086 (11.4%)	1,631 (14.6%)	24,265 (9.7%)
Pleasure Driving	201 (0.1%)	150 (0.4%)	116 (0.6%)	60 (0.6%)	93 (1.0%)	115 (1.4%)	802 (0.3%)
Other Social/Recreational	21,470 (14.0%)	6,043 (14.7%)	2,766 (14.4%)	1,528 (14.6%)	1,582 (16.7%)	2,203 (19.8%)	36,214 (14.5%)
<b>Subtotal</b>	<b>35,617</b> (23.2%)	<b>10,230</b> (25.0%)	<b>4,886</b> (25.4%)	<b>2,820</b> (26.9%)	<b>2,786</b> (29.4%)	<b>4,291</b> (38.5%)	<b>61,799</b> (24.8%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>1,160</b> (0.8%)	<b>266</b> (0.6%)	<b>146</b> (0.8%)	<b>61</b> (0.6%)	<b>35</b> (0.4%)	<b>99</b> (0.9%)	<b>1,831</b> (0.7%)
<b>TOTAL<sup>1</sup></b>	<b>153,570</b> (100.0%)	<b>41,007</b> (100.0%)	<b>19,205</b> (100.0%)	<b>10,487</b> (100.0%)	<b>9,475</b> (100.0%)	<b>11,153</b> (100.0%)	<b>249,562</b> (100.0%)

<sup>1</sup> Includes trips where trip length, trip purpose, or both were unreported.

Almost 62% of all person trips are to places less than five miles from the origin. The number of trips decreases as the destination is further away from the origin, up to 30 miles away. The increase in the number of

trips to places more than 30 miles away from the origin might be attributed to longer vacationing trips. More than half of all vacationing trips are to places more than 30 miles away from home.

TABLE 4.57

DISTRIBUTION OF PERSON TRIPS BY TRIP LENGTH CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(ACROSS TRIP LENGTH CATEGORY)

	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	TOTAL <sup>1</sup>
<b>EARNING A LIVING</b>							
To or From Work	45.6%	21.1%	12.1%	7.0%	6.6%	5.8%	100.0%
Work-Related Business	53.4%	16.9%	8.2%	3.2%	4.0%	12.1%	100.0%
<b>Subtotal</b>	<b>46.1%</b>	<b>20.8%</b>	<b>11.9%</b>	<b>6.7%</b>	<b>6.4%</b>	<b>6.2%</b>	<b>100.0%</b>
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	73.7%	13.1%	5.2%	2.5%	2.1%	1.9%	100.0%
Doctor/Dentist	45.0%	21.9%	10.2%	5.6%	7.7%	5.0%	100.0%
Other Family or Personal Business	66.8%	15.1%	6.2%	3.5%	2.9%	3.8%	100.0%
<b>Subtotal</b>	<b>69.4%</b>	<b>14.4%</b>	<b>5.8%</b>	<b>3.1%</b>	<b>2.7%</b>	<b>2.9%</b>	<b>100.0%</b>
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>70.6%</b>	<b>15.5%</b>	<b>6.1%</b>	<b>2.6%</b>	<b>1.4%</b>	<b>1.3%</b>	<b>100.0%</b>
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	10.2%	6.0%	7.9%	4.4%	4.8%	58.3%	100.0%
Visiting Friends/Relatives	57.3%	16.5%	8.1%	5.0%	4.5%	6.7%	100.0%
Pleasure Driving	25.1%	18.7%	14.5%	7.5%	11.6%	14.3%	100.0%
Other Social/Recreational	59.3%	16.7%	7.6%	4.2%	4.4%	6.1%	100.0%
<b>Subtotal</b>	<b>57.6%</b>	<b>16.6%</b>	<b>7.9%</b>	<b>4.6%</b>	<b>4.5%</b>	<b>6.9%</b>	<b>100.0%</b>
<b>OTHER</b>							
<b>Subtotal</b>	<b>63.3%</b>	<b>14.5%</b>	<b>8.0%</b>	<b>3.3%</b>	<b>1.9%</b>	<b>5.4%</b>	<b>100.0%</b>
<b>TOTAL<sup>1</sup></b>	<b>61.5%</b>	<b>16.4%</b>	<b>7.7%</b>	<b>4.2%</b>	<b>3.8%</b>	<b>4.5%</b>	<b>100.0%</b>

<sup>1</sup> Includes trips where trip length, trip purpose, or both were unreported.

TABLE 4.58

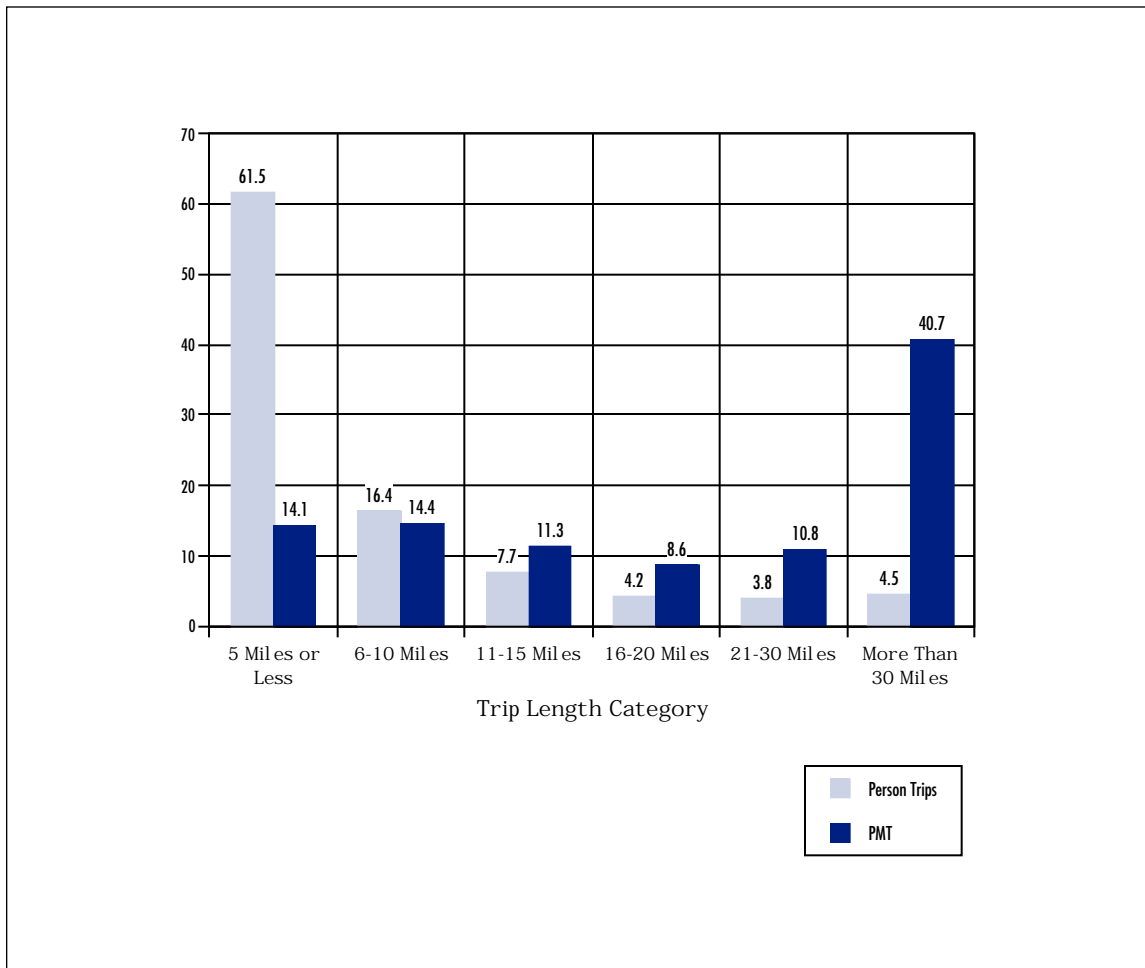
**NUMBER OF PERSON MILES OF TRAVEL BY TRIP LENGTH CATEGORY AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	5 miles or less	6 - 10 miles	11 - 15 miles	16 - 20 miles	21 - 30 miles	> 30 miles	TOTAL
<b>EARNING A LIVING</b>							
To or From Work	56,843 (17.4%)	87,350 (26.1%)	82,452 (31.5%)	65,850 (33.0%)	87,222 (34.7%)	146,439 (15.5%)	<b>526,156</b> (22.7%)
Work-Related Business	4,180 (1.3%)	4,840 (1.5%)	3,959 (1.5%)	2,115 (1.1%)	3,703 (1.5%)	78,584 (8.3%)	<b>97,380</b> (4.2%)
<b>Subtotal</b>	<b>61,023</b> (18.7%)	<b>92,190</b> (27.6%)	<b>86,411</b> (33.0%)	<b>67,965</b> (34.1%)	<b>90,925</b> (36.2%)	<b>225,023</b> (23.9%)	<b>623,536</b> (26.9%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	68,085 (20.9%)	49,988 (15.0%)	33,440 (12.8%)	22,742 (11.4%)	26,829 (10.7%)	48,537 (5.2%)	<b>249,621</b> (10.8%)
Doctor/Dentist	3,266 (1.0%)	5,137 (1.5%)	3,849 (1.5%)	3,035 (1.5%)	5,730 (2.3%)	7,296 (0.8%)	<b>28,314</b> (1.2%)
Other Family or Personal Business	75,220 (23.1%)	65,758 (19.7%)	45,131 (17.2%)	36,303 (18.2%)	41,424 (16.5%)	182,341 (19.3%)	<b>446,178</b> (19.3%)
<b>Subtotal</b>	<b>146,571</b> (44.9%)	<b>120,883</b> (36.2%)	<b>82,420</b> (31.5%)	<b>62,080</b> (31.1%)	<b>73,983</b> (29.5%)	<b>238,174</b> (25.3%)	<b>724,113</b> (31.3%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>40,428</b> (12.4%)	<b>34,802</b> (10.4%)	<b>23,722</b> (9.1%)	<b>14,061</b> (7.0%)	<b>10,658</b> (4.2%)	<b>25,600</b> (2.7%)	<b>149,272</b> (6.4%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	98 (0.0%)	261 (0.1%)	558 (0.2%)	422 (0.2%)	693 (0.3%)	101,558 (10.8%)	<b>103,589</b> (4.5%)
Visiting Friends/Relatives	27,940 (8.6%)	32,963 (9.9%)	26,775 (10.2%)	23,103 (11.6%)	28,967 (11.5%)	139,308 (14.8%)	<b>279,056</b> (12.0%)
Pleasure Driving	549 (0.2%)	1,234 (0.4%)	1,590 (0.6%)	1,182 (0.6%)	2,540 (1.0%)	10,125 (1.1%)	<b>17,220</b> (0.7%)
Other Social/Recreational	46,989 (14.4%)	49,704 (14.9%)	38,193 (14.6%)	29,496 (14.8%)	42,440 (16.9%)	192,987 (20.5%)	<b>399,810</b> (17.3%)
<b>Subtotal</b>	<b>75,576</b> (23.2%)	<b>84,162</b> (25.2%)	<b>67,116</b> (25.6%)	<b>54,203</b> (27.2%)	<b>74,640</b> (29.7%)	<b>443,978</b> (47.1%)	<b>799,675</b> (34.5%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>2,471</b> (0.8%)	<b>2,155</b> (0.6%)	<b>2,006</b> (0.8%)	<b>1,169</b> (0.6%)	<b>962</b> (0.4%)	<b>9,433</b> (1.0%)	<b>18,197</b> (0.8%)
<b>TOTAL<sup>1</sup></b>	<b>326,135</b> (100.0%)	<b>334,221</b> (100.0%)	<b>261,770</b> (100.0%)	<b>199,479</b> (100.0%)	<b>251,197</b> (100.0%)	<b>942,471</b> (100.0%)	<b>2,315,273</b> (100.0%)

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

FIGURE 4.29

**DISTRIBUTION OF PERSON TRIPS AND TRAVEL BY TRIP LENGTH CATEGORY  
1990 NPTS**



Contrary to popular perception, the greatest number of person trips and person miles of travel did not take place in the summer. Both person trips and person miles of travel in the spring slightly exceeded that of the summer. This seasonal pattern is probably

due to the decline in trips to work and school over the summer. As expected, winter trips had the shortest average distance compared to trips taken in other seasons. Trip lengths for all seasons increased from 1983 to 1990, except for trips in spring.

TABLE 4.59

STATISTICS ON PERSON TRIPS AND TRAVEL BY SEASONAL VARIATION  
1983 AND 1990 NPTS<sup>1</sup>

Season	Person Trips (000)		Person Miles (000)		Average Trip Length <sup>2</sup> (miles)	
	1983	1990	1983	1990	1983	1990
Winter (Dec - Feb)	53,911,920 (24.0%)	60,384,449 (24.2%)	426,073,942 (21.9%)	537,867,945 (23.2%)	7.9	9.1
Spring (Mar - May)	58,708,838 (26.2%)	68,942,319 (27.6%)	543,010,477 (27.9%)	628,158,333 (27.1%)	9.3	9.3
Summer (June - Aug)	56,750,784 (25.3%)	61,087,922 (24.5%)	533,670,482 (27.4%)	617,551,500 (26.7%)	9.4	10.3
Fall (Sept - Nov)	54,536,414 (24.3%)	59,147,607 (23.7%)	441,223,931 (22.7%)	531,695,586 (23.0%)	8.1	9.2
<b>TOTAL</b>	<b>224,385,000</b> (100.0%)	<b>249,562,297</b> (100.0%)	<b>1,946,661,966<sup>3</sup></b> (100.0%)	<b>2,315,273,365</b> (100.0%)	<b>8.7</b>	<b>9.5</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Includes miles of travel where season was unreported.

<sup>2</sup> Average trip is calculated only for records where trip mile information is present.

FIGURE 4.30

AVERAGE LENGTH OF PERSON TRIPS BY SEASONAL VARIATION  
1983 AND 1990 NPTS

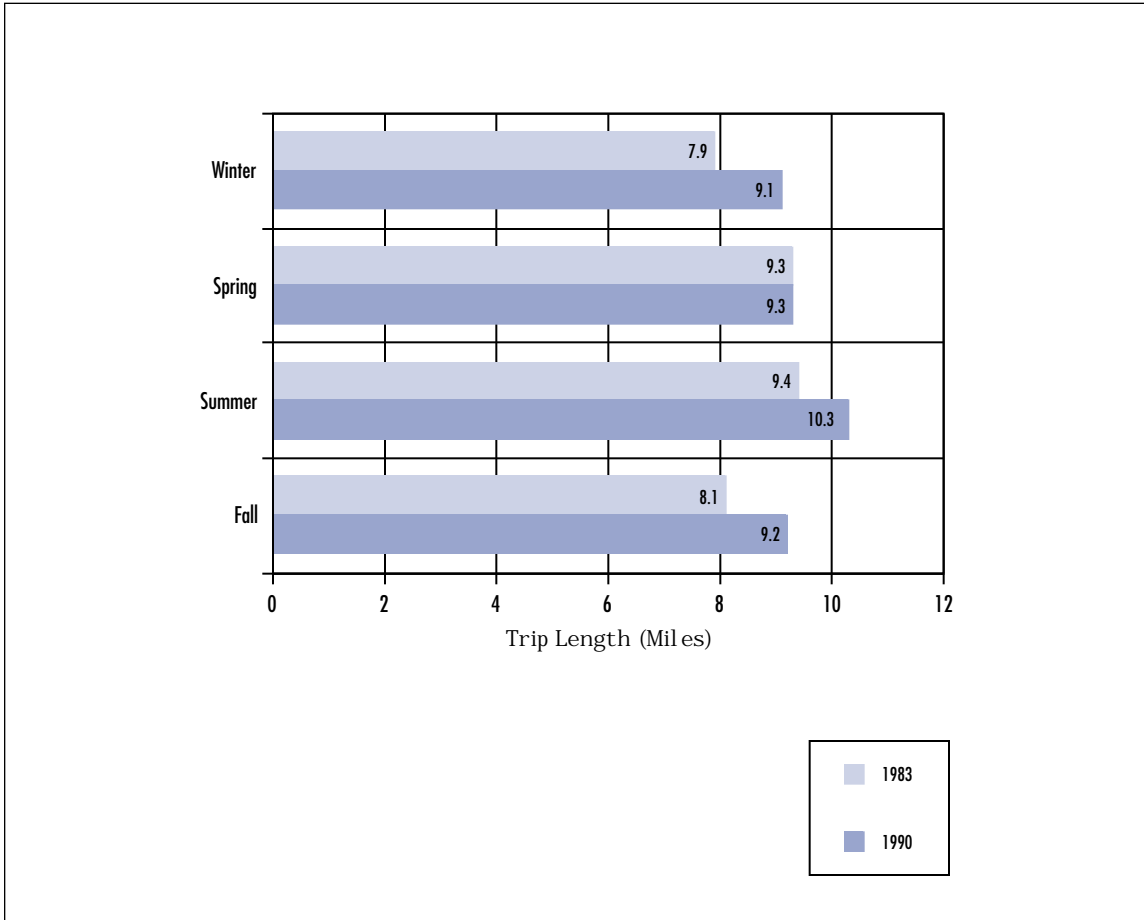


TABLE 4.60

**NUMBER OF PERSON TRIPS BY SEASONAL VARIATION AND MODE OF TRANSPORTATION  
1990 NPTS (THOUSANDS)**

NOTE: SEE LIMITATIONS OF DATA ON TRANSIT<sup>1</sup> IN CHAPTER 1, SECTION 5

Mode	Winter	Spring	Summer	Fall
<b>PRIVATE VEHICLE</b>				
Auto, Van - Driver	33,300,000 (55.1%)	37,900,000 (55.0%)	32,600,000 (53.4%)	32,300,000 (54.6%)
Auto, Van - Passenger	12,938,020 (21.4%)	13,954,340 (20.2%)	14,259,580 (23.3%)	12,226,680 (20.6%)
Pickup Truck	6,144,000 (10.2%)	6,777,000 (9.8%)	6,823,000 (11.2%)	5,889,000 (10.0%)
Other Private Vehicle	468,200 (0.8%)	530,000 (0.8%)	839,200 (1.4%)	396,100 (0.7%)
<b>Subtotal - Private</b>	<b>52,850,220</b> (87.5%)	<b>59,161,340</b> (85.8%)	<b>54,521,780</b> (89.3%)	<b>50,811,780</b> (85.9%)
<b>PUBLIC TRANSPORTATION</b>				
Bus, Streetcar	764,085 (1.3%)	1,230,728 (1.8%)	771,474 (1.3%)	776,901 (1.3%)
Rail/Subway <sup>2</sup>	362,197 (0.6%)	372,066 (0.5%)	349,935 (0.6%)	265,073 (0.4%)
<b>Subtotal - Public</b>	<b>1,126,283</b> (1.9%)	<b>1,602,794</b> (2.3%)	<b>1,121,409</b> (1.8%)	<b>1,041,974</b> (1.8%)
<b>OTHER MEANS</b>				
Amtrak	1,930 (0.0%)	17,275 (0.0%)	5,999 (0.0%)	29,110 (0.0%)
Walk	4,026,000 (6.7%)	5,434,000 (7.9%)	4,020,000 (6.6%)	4,527,000 (7.7%)
Bike	168,400 (0.3%)	495,200 (0.7%)	562,000 (0.9%)	540,900 (0.9%)
School Bus	1,948,000 (3.2%)	1,879,000 (2.7%)	420,300 (0.7%)	1,845,000 (3.1%)
Airplane	43,160 (0.1%)	38,770 (0.1%)	64,570 (0.1%)	56,350 (0.1%)
Other	185,050 (0.3%)	218,250 (0.3%)	317,400 (0.5%)	227,800 (0.4%)
<b>Subtotal - Other</b>	<b>6,372,540</b> (10.6%)	<b>8,082,495</b> (11.7%)	<b>5,390,269</b> (8.8%)	<b>7,226,160</b> (12.2%)
<b>TOTAL<sup>3</sup></b>	<b>60,384,449</b> (100.0%)	<b>68,942,319</b> (100.0%)	<b>61,087,922</b> (100.0%)	<b>59,147,607</b> (100.0%)
<b>ALL MODES</b>	24.2%	27.6%	24.5%	23.7%

<sup>1</sup> Estimates of transit use are based on a total of 2870 travel day trips on transit in the NPTS sample. The NPTS estimate of transit trips is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>3</sup> Includes trips where mode of transportation was unreported.



**T**ABLE 4.60 presents the seasonal distribution of person trips by mode. There is little difference among seasons in number of trips Americans take, except slightly more trips take place in the spring. There are more trips in summer taken as the passengers of automobiles or vans than in other seasons, perhaps reflecting the

increase in vacation trips during summer. There are more trips in summer by the mode labeled as “other private vehicle,” which includes recreational vehicles and motor homes. As expected, the proportion of bike trips in winter is less than one third of that in the other three seasons, and spring and fall see more walking trips.

TABLE 4.61

PERSON TRIPS AND PERSON MILES OF TRAVEL BY DAY OF WEEK  
1983 AND 1990 NPTS<sup>1</sup>

Day	Person Trips (000)		Person Miles (000)		Average Trip Length <sup>2</sup> (miles)	
	1983	1990	1983	1990	1983	1990
Sunday	28,336,695 (12.6%)	33,478,741 (13.4%)	313,174,252 (16.1%)	398,512,009 (17.2%)	11.1	12.1
Monday	32,549,817 (14.5%)	37,040,514 (14.8%)	273,462,065 (14.0%)	344,493,846 (14.9%)	8.4	9.5
Tuesday	31,724,352 (14.1%)	38,675,871 (15.5%)	245,833,182 (12.6%)	325,792,319 (14.1%)	7.8	8.6
Wednesday	32,872,904 (14.7%)	35,617,883 (14.3%)	244,761,980 (12.6%)	315,697,412 (13.6%)	7.5	9.1
Thursday	33,137,767 (14.8%)	38,200,175 (15.3%)	299,844,148 (15.4%)	300,537,714 (13.0%)	9.1	8.0
Friday	35,261,534 (15.7%)	33,296,806 (13.3%)	279,781,446 (14.4%)	290,550,850 (12.5%)	7.9	8.9
Saturday	30,501,931 (13.6%)	33,252,307 (13.3%)	289,804,893 (14.9%)	339,689,215 (14.7%)	9.5	10.4
<b>TOTAL</b>	<b>224,385,000</b> (100.0%)	<b>249,562,297</b> (100.0%)	<b>1,946,661,966</b> (100.0%)	<b>2,315,273,365</b> (100.0%)	<b>8.7</b>	<b>9.5</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

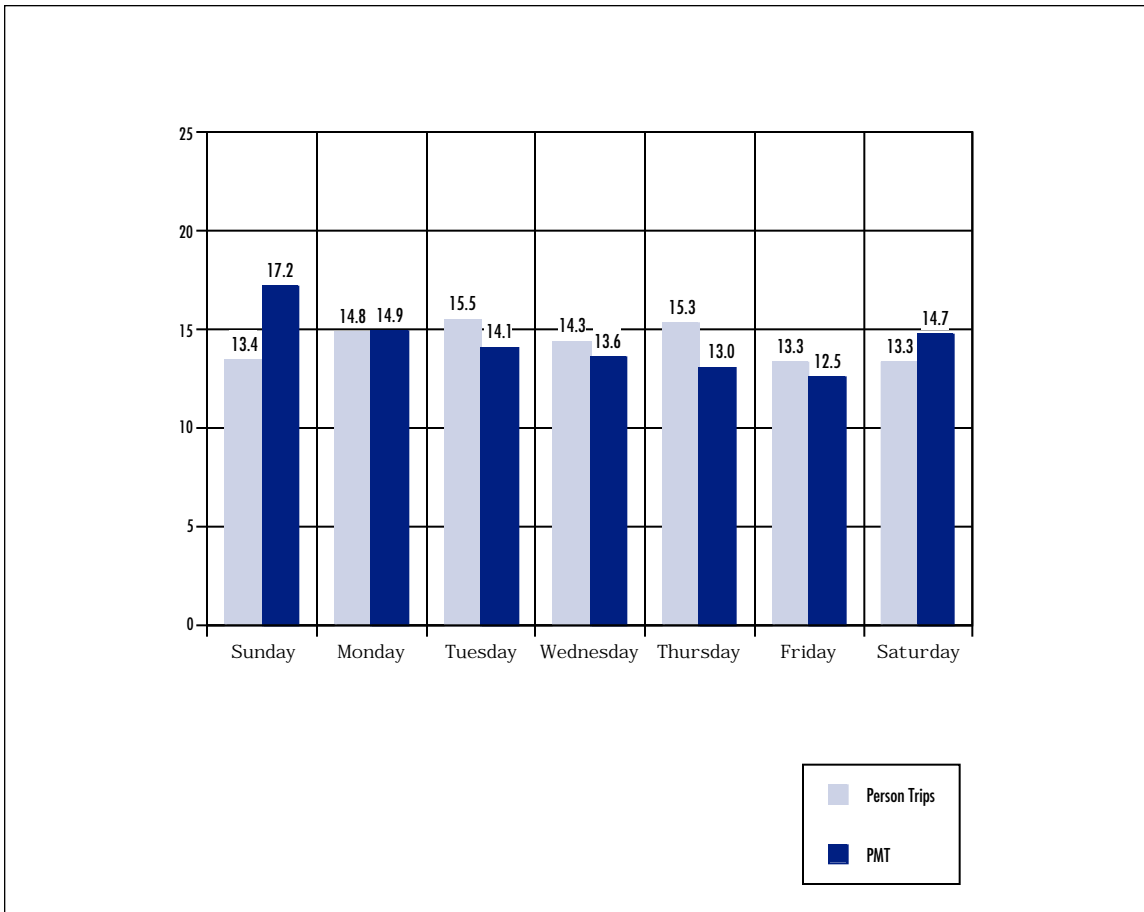
<sup>2</sup> Average trip length is calculated using only those records with trip mile information present.

Although Americans did not take as many trips on Sundays as on other days of the week, Sunday trips accounted for more person miles of travel than trips taken on other

days of the week, indicating Sunday trips were the longest. Trip lengths generally increased from 1983 to 1990 regardless of the day of the week.

**FIGURE 4.31**

**DISTRIBUTION OF PERSON TRAVEL BY DAY OF WEEK  
1990 NPTS**



1. NATIONAL PERSONAL TRANSPORTATION SURVEY  
 2. TRIP PURPOSE  
 3. NUMBER OF PERSON TRIPS BY DAY OF WEEK AND TRIP PURPOSE  
 4. 1990 NPTS  
 5. (THOUSANDS)

**TABLE 4.62**  
**NUMBER OF PERSON TRIPS BY DAY OF WEEK AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

Purpose	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Earning a Living</b>	<b>2,301,300</b> (6.9%)	<b>9,764,200</b> (26.4%)	<b>10,350,400</b> (26.8%)	<b>9,683,400</b> (27.2%)	<b>10,157,200</b> (26.6%)	<b>8,164,700</b> (24.5%)	<b>3,422,500</b> (10.3%)
<b>Family &amp; Personal Business</b>	<b>12,244,340</b> (36.6%)	<b>15,494,400</b> (41.8%)	<b>15,937,000</b> (41.2%)	<b>14,203,800</b> (39.8%)	<b>15,521,700</b> (40.6%)	<b>14,072,500</b> (42.3%)	<b>16,131,000</b> (48.5%)
<b>Civic, Educational &amp; Religious</b>	<b>6,318,000</b> (18.9%)	<b>4,316,000</b> (11.6%)	<b>4,833,000</b> (12.5%)	<b>4,512,000</b> (12.7%)	<b>4,819,000</b> (12.6%)	<b>2,801,000</b> (8.4%)	<b>797,300</b> (2.4%)
<b>Social and Recreational</b>	<b>12,348,800</b> (36.9%)	<b>7,155,990</b> (19.3%)	<b>7,287,050</b> (18.8%)	<b>6,942,640</b> (19.5%)	<b>7,363,090</b> (19.3%)	<b>8,070,140</b> (24.2%)	<b>12,632,260</b> (38.0%)
<b>Other</b>	<b>223,000</b> (0.7%)	<b>300,900</b> (0.8%)	<b>259,100</b> (0.7%)	<b>271,400</b> (0.8%)	<b>328,900</b> (0.9%)	<b>187,800</b> (0.6%)	<b>259,800</b> (0.8%)
<b>TOTAL<sup>1</sup></b>	<b>33,478,741</b> (100.0%)	<b>37,040,514</b> (100.0%)	<b>38,675,871</b> (100.0%)	<b>35,617,883</b> (100.0%)	<b>38,200,175</b> (100.0%)	<b>33,296,806</b> (100.0%)	<b>33,252,307</b> (100.0%)

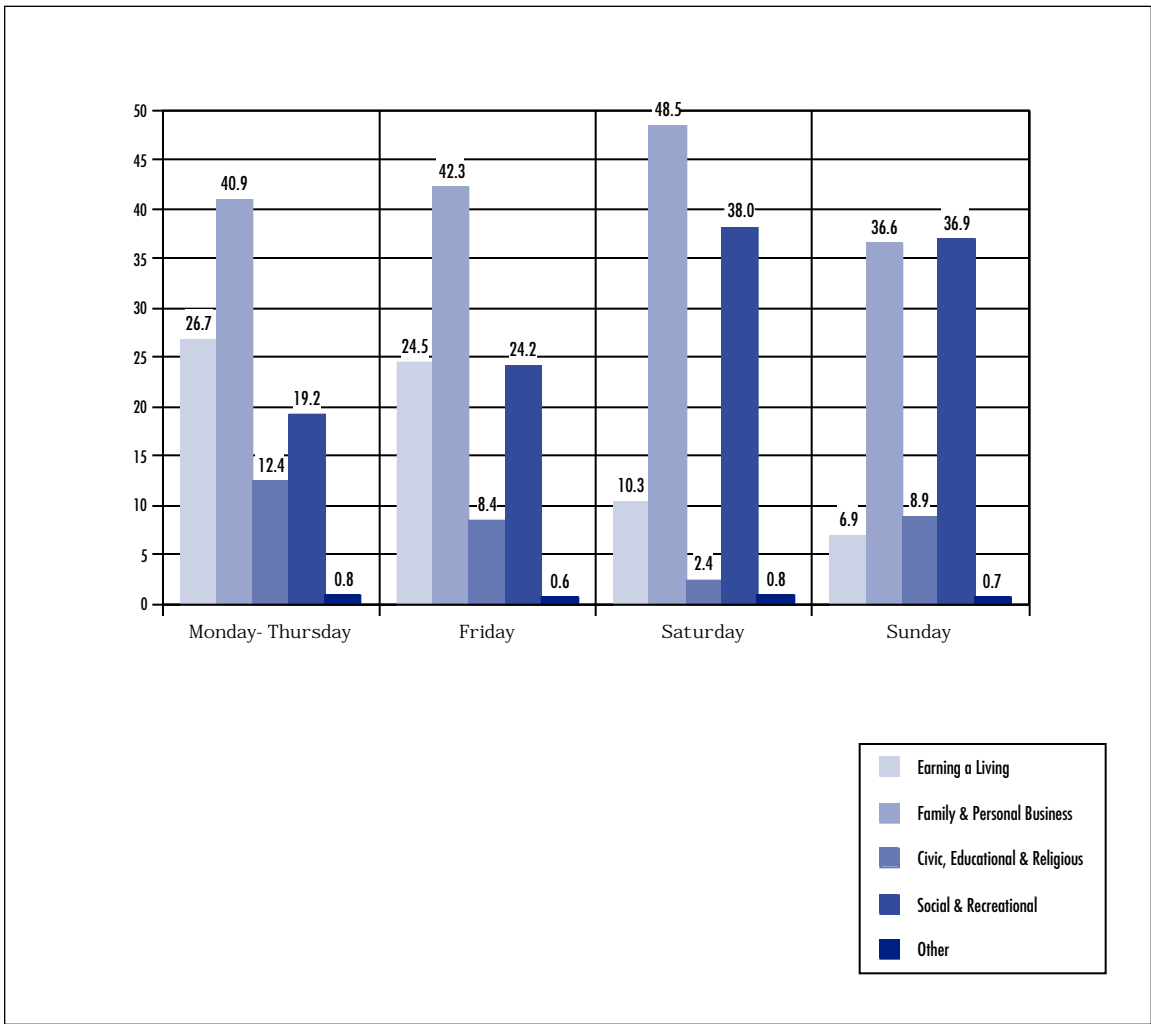
<sup>1</sup> Includes trips where trip purpose was unreported.

Family and personal business was the most common reason for travel regardless of the day of the week. During the weekdays, earning a living was the second most com-

mon reason to travel. However, the second most common reason to travel on Saturday and Sunday was for social and recreational purposes.

**FIGURE 4.32**

**DISTRIBUTION OF PERSON TRIPS BY DAY OF WEEK AND TRIP PURPOSE  
1990 NPTS**



As expected, the shares of all trips for earning a living were considerably higher from Mondays through Thursdays than those for Fridays and weekends. In contrast to earning-a-living trips, social and recreational

trips peaked on weekends. The Sunday share of civic, education or religious trips was almost one-and-a-half times greater than those on other days of the week.

**TABLE 4.63**  
**DISTRIBUTION OF PERSON TRIPS BY DAY OF WEEK AND TRIP PURPOSE**  
**1990 NPTS**  
**(WITHIN PURPOSE)**

Purpose	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL
Earning a Living	4.3%	18.1%	19.2%	18.0%	18.9%	15.2%	6.4%	100.0%
Family & Personal Business	11.8%	15.0%	15.4%	13.7%	15.0%	13.6%	15.6%	100.0%
Civic, Educational & Religious	22.2%	15.2%	17.0%	15.9%	17.0%	9.9%	2.8%	100.0%
Social and Recreational	20.0%	11.6%	11.8%	11.2%	11.9%	13.1%	20.4%	100.0%
Other	12.2%	16.4%	14.2%	14.8%	18.0%	10.3%	14.2%	100.0%
<b>ALL PURPOSES</b>	13.4%	14.8%	15.5%	14.3%	15.3%	13.3%	13.3%	100.0%

The distribution of person trips by time of day shows that the “peak period” has widened to a ten-hour span, from nine o'clock in the morning to seven o'clock at night. Furthermore, the NPTS data show, contrary to much of public opinion, that only 47% of all trips were for commuting to work or work-related travel during the morning “peak period” from 6 to 9 a.m. These data suggest that the traditional concept of “peak

period” may no longer be appropriate. In the morning period from 6 to 9 a.m., commuting to work and work-related travel still accounted for the majority of the morning travel. However, trips for family and personal business, perhaps in an attempt to avoid the morning traffic congestion, have altered the traditional morning and afternoon peaks to a 10-hour “peak.”

**TABLE 4.64**  
**NUMBER OF PERSON TRIPS BY TIME OF DAY AND TRIP PURPOSE**  
**1990 NPTS**  
**(MILLION)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>1</sup>
<b>Earning a Living</b>	2,902 (60.0%)	16,410 (47.4%)	5,765 (11.5%)	7,437 (14.6%)	14,189 (24.9%)	3,823 (12.0%)	2,209 (22.2%)	<b>53,843</b> (21.6%)
<b>Family and Personal Business</b>	679 (14.0%)	6,986 (20.2%)	27,856 (55.6%)	25,234 (49.5%)	23,091 (40.5%)	11,383 (35.6%)	2,453 (24.7%)	<b>103,608</b> (41.5%)
<b>Civic, Educational, &amp; Religious</b>	50 (1.0%)	8,831 (25.5%)	5,736 (11.5%)	7,165 (14.1%)	3,277 (5.8%)	2,395 (7.5%)	394 (4.0%)	<b>28,397</b> (11.4%)
<b>Social and Recreational</b>	1,183 (24.5%)	2,168 (6.3%)	10,255 (20.5%)	10,726 (21.0%)	16,023 (28.1%)	14,129 (44.2%)	4,789 (48.2%)	<b>61,799</b> (24.8%)
<b>Other</b>	23 (0.5%)	212 (0.6%)	448 (0.9%)	413 (0.8%)	367 (0.6%)	199 (0.6%)	73 (0.7%)	<b>1,831</b> (0.7%)
<b>TOTAL<sup>1</sup></b>	<b>4,837</b> (100.0%)	<b>34,614</b> (100.0%)	<b>50,064</b> (100.0%)	<b>50,984</b> (100.0%)	<b>56,956</b> (100.0%)	<b>31,933</b> (100.0%)	<b>9,927</b> (100.0%)	<b>249,562</b> (100.0%)
<b>ALL PURPOSES</b>	1.9%	13.9%	20.1%	20.4%	22.8%	12.8%	4.0%	100.0%

<sup>1</sup> Includes trips where trip purpose, time of day, or both were unreported.

**TABLE 4.65**

**NUMBER OF WEEKDAY<sup>1</sup> PERSON TRIPS<sup>2</sup> BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>3</sup></b>
<b>Earning a Living</b>	2,556 (67.5%)	15,212 (50.1%)	4,675 (14.9%)	6,467 (17.8%)	12,584 (30.7%)	2,777 (14.5%)	1,600 (29.9%)	<b>46,667</b> (27.0%)
<b>Family and Personal Business</b>	503 (13.3%)	5,699 (18.8%)	19,153 (60.9%)	17,663 (48.7%)	16,691 (40.8%)	7,192 (37.6%)	1,319 (24.6%)	<b>71,329</b> (41.3%)
<b>Civic, Educational, and Religious</b>	39 (1.0%)	8,081 (26.6%)	1,943 (6.2%)	6,481 (17.9%)	2,283 (5.6%)	1,610 (8.4%)	213 (4.0%)	<b>20,967</b> (12.1%)
<b>Social and Recreational</b>	676 (17.8%)	1,231 (4.1%)	5,397 (17.2%)	5,367 (14.8%)	9,065 (22.1%)	7,411 (38.7%)	2,175 (40.6%)	<b>32,502</b> (18.8%)
<b>Other</b>	15 (0.4%)	161 (0.5%)	289 (0.9%)	278 (0.8%)	297 (0.7%)	158 (0.8%)	45 (0.8%)	<b>1,306</b> (0.8%)
<b>TOTAL<sup>3</sup></b>	<b>3,789</b> (100.0%)	<b>30,390</b> (100.0%)	<b>31,459</b> (100.0%)	<b>36,262</b> (100.0%)	<b>40,924</b> (100.0%)	<b>19,150</b> (100.0%)	<b>5,351</b> (100.0%)	<b>172,803</b> (100.0%)
<b>ALL PURPOSES</b>	2.2%	17.6%	18.2%	21.0%	23.7%	11.1%	3.1%	100.0%

<sup>1</sup> "Weekday" is defined as the time from 12:01 a.m. Monday until 6:00 p.m. Friday.

<sup>2</sup> Does not include trips where weekday/weekend status is unknown.

<sup>3</sup> Includes trips where trip purpose, start time of trip, or both were unreported.



TABLE 4.66

 NUMBER OF WEEKEND<sup>1</sup> PERSON TRIPS<sup>2</sup> BY TIME OF DAY AND TRIP PURPOSE  
 1990 NPTS  
 (MILLIONS)

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>3</sup>
Earning a Living	346 (33.0%)	1,199 (28.4%)	1,090 (5.9%)	970 (6.6%)	1,605 (10.0%)	1,046 (8.2%)	608 (13.3%)	<b>7,012</b> (9.3%)
Family and Personal Business	176 (16.8%)	1,287 (30.5%)	8,703 (46.8%)	7,570 (51.4%)	6,400 (39.9%)	4,191 (32.8%)	1,134 (24.8%)	<b>31,302</b> (41.7%)
Civic, Educational, & Religious	11 (1.0%)	750 (17.8%)	3,793 (20.4%)	684 (4.6%)	995 (6.2%)	785 (6.1%)	182 (4.0%)	<b>7,352</b> (9.8%)
Social and Recreational	507 (48.4%)	937 (22.2%)	4,858 (26.1%)	5,359 (36.4%)	6,959 (43.4%)	6,718 (52.6%)	2,615 (57.1%)	<b>28,861</b> (38.4%)
Other	8 (0.7%)	51 (1.2%)	159 (0.9%)	135 (0.9%)	70 (0.4%)	41 (0.3%)	28 (0.6%)	<b>525</b> (0.7%)
<b>TOTAL<sup>3</sup></b>	<b>1,049</b> (100.0%)	<b>4,224</b> (100.0%)	<b>18,605</b> (100.0%)	<b>14,722</b> (100.0%)	<b>16,032</b> (100.0%)	<b>12,783</b> (100.0%)	<b>4,576</b> (100.0%)	<b>75,104</b> (100.0%)
<b>ALL PURPOSES</b>	1.4%	5.6%	24.8%	19.6%	21.3%	17.0%	6.1%	100.0%

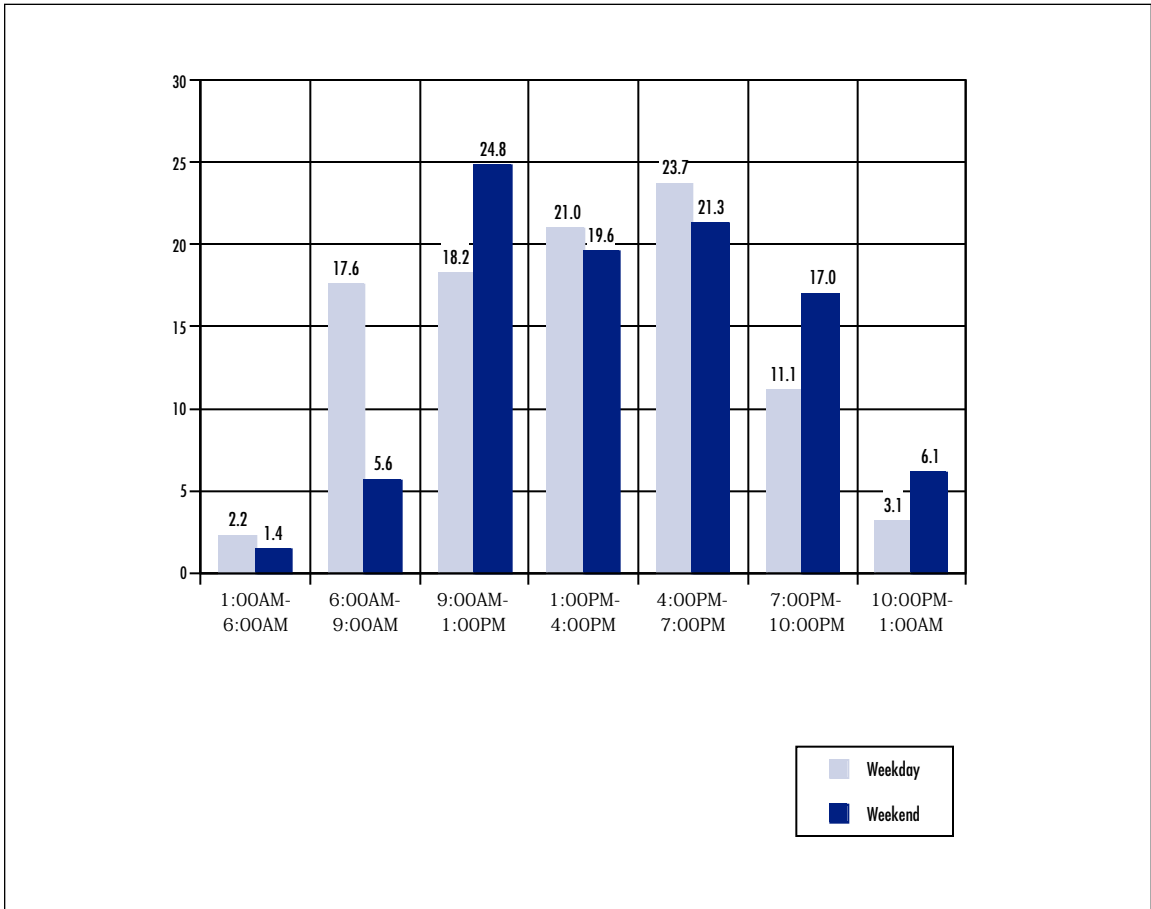
<sup>1</sup> "Weekend" is defined as the time between 6:00 p.m. Friday and midnight Sunday.

<sup>2</sup> Does not include trips where weekday/weekend status is unknown.

<sup>3</sup> Includes trips where trip purpose, start time of trip, or both were unreported.

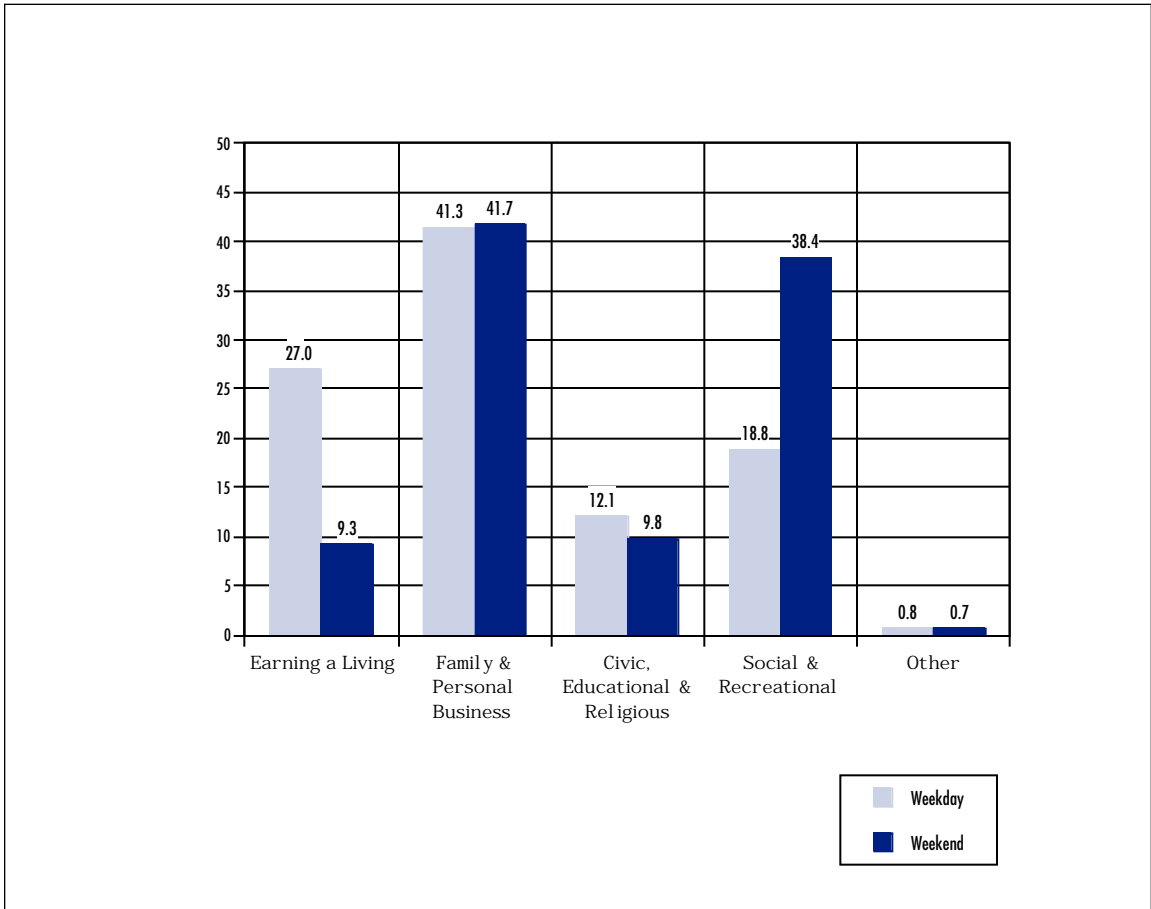
FIGURE 4.33

**DISTRIBUTION OF PERSON TRIPS BY DAY OF WEEK AND TIME OF DAY  
1990 NPTS**



**FIGURE 4.34**

**DISTRIBUTION OF PERSON TRIPS BY DAY OF WEEK AND TRIP PURPOSE  
1990 NPTS**





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Chapters belonging to Volume 1 appear dimmed.

1990 NPTS Publications Series:

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Summary of Travel Trends

Travel Behavior Issues in the 90's

1990 NPTS Databook

NPTS Urban Travel Patterns

NPTS Special Subject Reports

Abbreviations used in this report:

MSA—metropolitan statistical area

NPTS—Nationwide Personal Transportation Survey

PMT—person miles of travel

POV—personally operated vehicle/private owned vehicle

VMT— vehicle miles of travel

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16. Abstract  This report presents data on the amount, nature and characteristics of personal (non-commercial) travel by all modes of transportation in the U.S. The data is from a survey of individuals conducted throughout 1990. A large number of data relationships are presented and, therefore, the report is printed in two volumes.  Volume I contains information on the survey itself, a comparison of estimates of miles of travel taken from different portions of the survey, data on households, drivers and vehicles, and an extensive chapter on person trips and person miles of travel by all modes of transportation.  Volume II includes data on vehicle trips and vehicle miles of travel, journey-to-work trips, vehicle occupancy, long trips, commercial driving and highway accidents.  To the degree possible, each chapter within the report is organized to present results in the order of:					
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U.S. Department of Transportation  
Federal Highway Administration

# 1990 NPTS Data book Volume II

Based on Data from the  
1990 Nationwide Personal Transportation Survey (NPTS)

Prepared by:  
Oak Ridge National Laboratory  
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Office of Highway Information Management, HPM-40  
(202) 366-0160, fax (202) 366-7742

October 1994



1	Introduction	■
2	Estimates of Total Travel	■
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4	Person Trips and Person Miles of Travel	■
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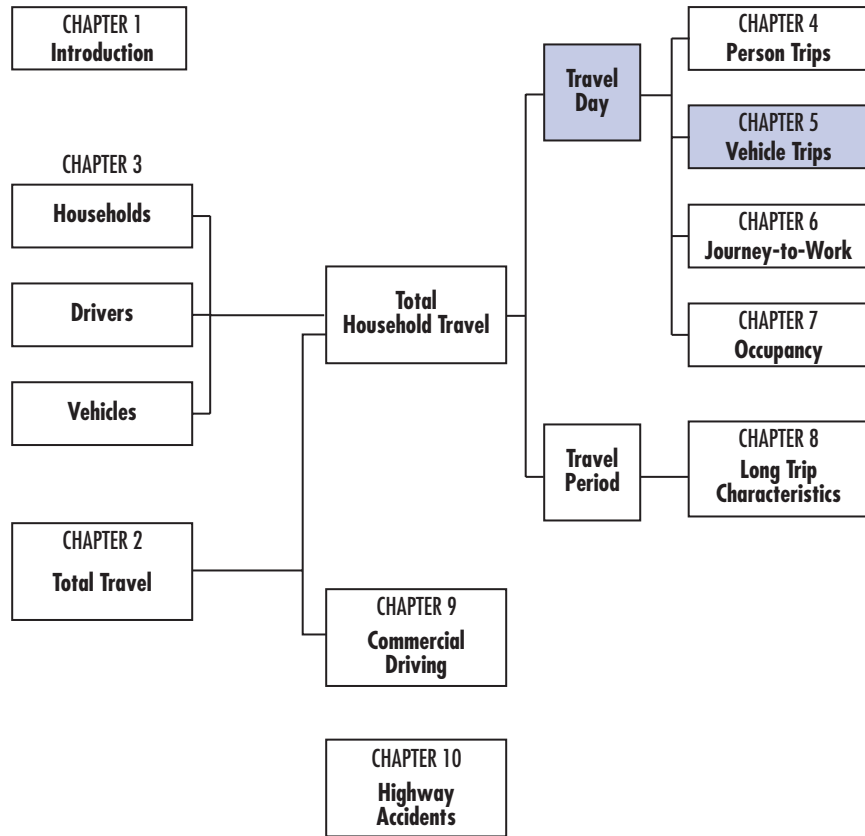
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# Chapter 5

## Vehicle Trips and Vehicle Miles of Travel



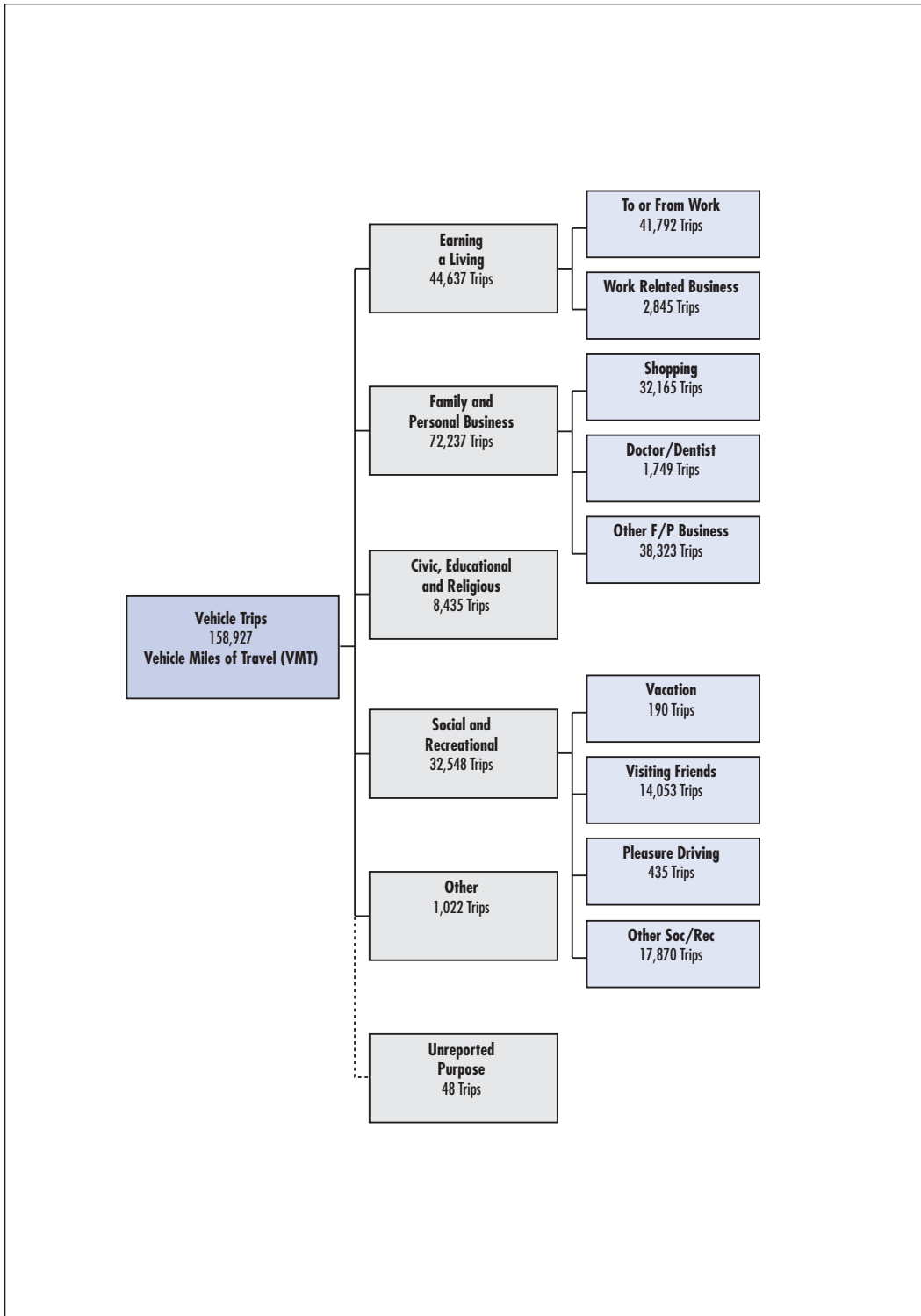
From 1969 to 1990, vehicle miles of travel (VMT) increased by 82% due to the following factors:

- **More vehicles:** The increase in household vehicles outpaced the increase in drivers, resulting in more vehicles than drivers.
- **More women employed:** The percent of women in the labor force doubled.
- **More woman drivers:** There was a 84% increase in women with a driver's license.
- **More mobile:** Every age cohort drove at least 30% more.
- **More elderly licensed to drive:** The proportion of individuals 65 years or older licensed to drive grew from 44% to 75%.



1990 VEHICLE TRIPS AND VEHICLE MILES BY PURPOSE

(MILLIONS)



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# Chapter 5 Vehicle Trips and Vehicle Miles of Travel

Statistics on vehicle trips and vehicle miles of travel (VMT) are presented in this chapter. A vehicle trip is a trip by a single vehicle regardless of the number of people in the vehicle. The number of vehicle trips increased 82 percent from 87,284 million in 1969 to 158,927 million in 1990. Although average length of vehicle trips was the same in 1990 as it had been in 1969, the increase in the number of trips resulted in an 82 percent increase in the number of vehicle miles of travel during the same period. The changes in demographic characteristics and vehicle travel are as shown below.

## Person Characteristics

In 1983, drivers in the age group 20 to 29 took more vehicle trips than drivers in other age groups. With the population getting older, the number of individuals between 20 and 29 years old in 1990 decreased by 6 percent and the number of individuals between 30 and 39 years old

increased. Consequently, the percentage of vehicle trips by drivers between 30 and 39 years old in 1990 became the highest compared to other age groups.

Men in all age groups took longer trips than women in the comparable age groups, except for the age group under 16. Although men took, on average, more vehicle trips than women, women between 30 and 50 years old took more vehicle trips than men in the same age group. The increased participation of women in the labor force contributed to increased driving by women. However, women still drove more for family and personal matters than men, and less for earning a living.

## Household Characteristics

In 1990, households took an average of more than 1,700 vehicle trips per year — an increase of 15 percent from 1983. Households with two or more adults and with the youngest child 16 years or older took more vehicle trips per household

	1969	1977	1983	1990	Percent Change 69-90
<b>LICENSED DRIVERS (000)</b>					
TOTAL	102,986	127,552	147,015	163,025	58
Male	57,981	66,199	75,639	80,289	38
Female	45,005	61,353	71,376	82,707	84
<b>HOUSEHOLD VEHICLES (000)</b>					
	72,500	120,098	143,714	165,221	128
<b>HOUSEHOLD VEHICLE TRIPS (000,000)</b>					
	87,284	108,826	126,874	158,927	82
<b>HOUSEHOLD VMT (000,000)</b>					
	775,940	907,603	1,002,139	1,409,600	82

than any other type of household. This might be due to the fact that with children over 16 years old, these households were more likely to have more drivers available.

The percentage of vehicle trips by various household income groups increased as household income increased. On a per-household basis, an average household in 1983 with an income greater than \$40,000 took two and a half times more vehicle trips than an average household with an income less than \$10,000. Comparing the proportion of trips taken for earning a living, households with an annual income greater than \$40,000 showed 30 percent of their trips for this purpose, while the corresponding percentage for households with an income less than \$10,000 was only 17 percent. Not only did the number of vehicle trips per household increase with household income, annual vehicle miles of travel per household increased as well. On average, a household drove 15,100 miles per year in 1990 — an increase of 29 percent from 1983.

### Trip Characteristics

In 1969, earning a living was the major reason to travel. However, since 1977 family and personal matters became the major reason to travel; and trips for these purposes continued to increase. Trips that were classified as for “family and personal reasons” included shopping trips, trips for medical treatment, and trips for errand-running, including the purchase of services such as dry-cleaning, haircut and banking. From 1969 to 1983, shopping trips accounted for most of the trips that were classified as for family and personal reasons. By 1990, errand-running trips accounted for most of the family and personal business trips.

TABLE 5.1

**NUMBER OF VEHICLE TRIPS, VEHICLE MILES OF TRAVEL, AND AVERAGE TRIP LENGTH  
BY DRIVER'S AGE AND SEX, 1990 NPTS**

Age	% Licensed Drivers	Vehicle Trips (000)		Vehicle Miles of Travel (000)		Average Trip Length <sup>1</sup> (miles)
<b>Under 16<sup>2</sup></b>						
Male	0.0	97,600	(0.0%)	469,066	(0.0%)	4.9
Female	0.0	99,510	(0.1%)	831,853	(0.1%)	8.5
<b>SUBTOTAL</b>	<b>0.0</b>	<b>197,110</b>	<b>(0.1%)</b>	<b>1,300,919</b>	<b>(0.1%)</b>	<b>6.7</b>
<b>16-19</b>						
Male	2.9	4,550,000	(2.8%)	38,204,999	(2.7%)	8.5
Female	3.0	4,098,000	(2.6%)	28,580,092	(2.0%)	7.2
<b>SUBTOTAL</b>	<b>5.9</b>	<b>8,648,000</b>	<b>(5.4%)</b>	<b>66,785,091</b>	<b>(4.7%)</b>	<b>7.9</b>
<b>20-29</b>						
Male	10.5	18,600,000	(11.7%)	200,714,982	(14.3%)	10.9
Female	10.9	17,600,000	(11.1%)	146,814,723	(10.4%)	8.5
<b>SUBTOTAL</b>	<b>21.4</b>	<b>36,200,000</b>	<b>(22.8%)</b>	<b>347,529,705</b>	<b>(24.7%)</b>	<b>9.7</b>
<b>30-39</b>						
Male	11.6	20,900,000	(13.1%)	230,882,297	(16.4%)	11.2
Female	12.2	23,000,000	(14.5%)	166,372,246	(11.8%)	7.3
<b>SUBTOTAL</b>	<b>23.8</b>	<b>43,900,000</b>	<b>(27.6%)</b>	<b>397,254,543</b>	<b>(28.2%)</b>	<b>9.2</b>
<b>40-49</b>						
Male	8.9	15,200,000	(9.5%)	174,278,583	(12.4%)	11.6
Female	9.0	15,700,000	(9.9%)	109,071,273	(7.7%)	7.0
<b>SUBTOTAL</b>	<b>17.9</b>	<b>30,900,000</b>	<b>(19.4%)</b>	<b>283,369,856</b>	<b>(20.1%)</b>	<b>9.3</b>
<b>50-59</b>						
Male	6.1	9,539,000	(6.0%)	102,464,054	(7.3%)	10.8
Female	6.0	7,750,000	(4.9%)	56,612,741	(4.0%)	7.4
<b>SUBTOTAL</b>	<b>12.1</b>	<b>17,289,000</b>	<b>(10.9%)</b>	<b>159,076,795</b>	<b>(11.3%)</b>	<b>9.3</b>
<b>60-64</b>						
Male	2.7	4,229,000	(2.7%)	38,070,561	(2.7%)	9.1
Female	2.7	3,184,000	(2.0%)	19,391,855	(1.4%)	6.2
<b>SUBTOTAL</b>	<b>5.4</b>	<b>7,413,000</b>	<b>(4.7%)</b>	<b>57,462,416</b>	<b>(4.1%)</b>	<b>7.8</b>
<b>65+</b>						
Male	6.1	7,618,000	(4.8%)	58,109,760	(4.1%)	7.7
Female	6.3	5,542,000	(3.5%)	27,010,986	(1.9%)	5.0
<b>SUBTOTAL</b>	<b>12.4</b>	<b>13,160,000</b>	<b>(8.3%)</b>	<b>85,120,746</b>	<b>(6.0%)</b>	<b>6.6</b>
<b>TOTAL MALE<sup>3</sup></b>	<b>49.2</b>	<b>81,079,165</b>	<b>(51.0%)</b>	<b>849,621,708</b>	<b>(60.3%)</b>	<b>10.7</b>
<b>TOTAL FEMALE<sup>3</sup></b>	<b>50.7</b>	<b>77,831,823</b>	<b>(49.0%)</b>	<b>559,868,442</b>	<b>(39.7%)</b>	<b>7.3</b>
<b>TOTAL</b>	<b>100.0</b>	<b>158,927,000</b>	<b>(100.0%)</b>	<b>1,409,576,000</b>	<b>(100.0%)</b>	<b>9.0</b>

<sup>1</sup> Average trip length is calculated using only those trips where trip mileage information is available.

<sup>2</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

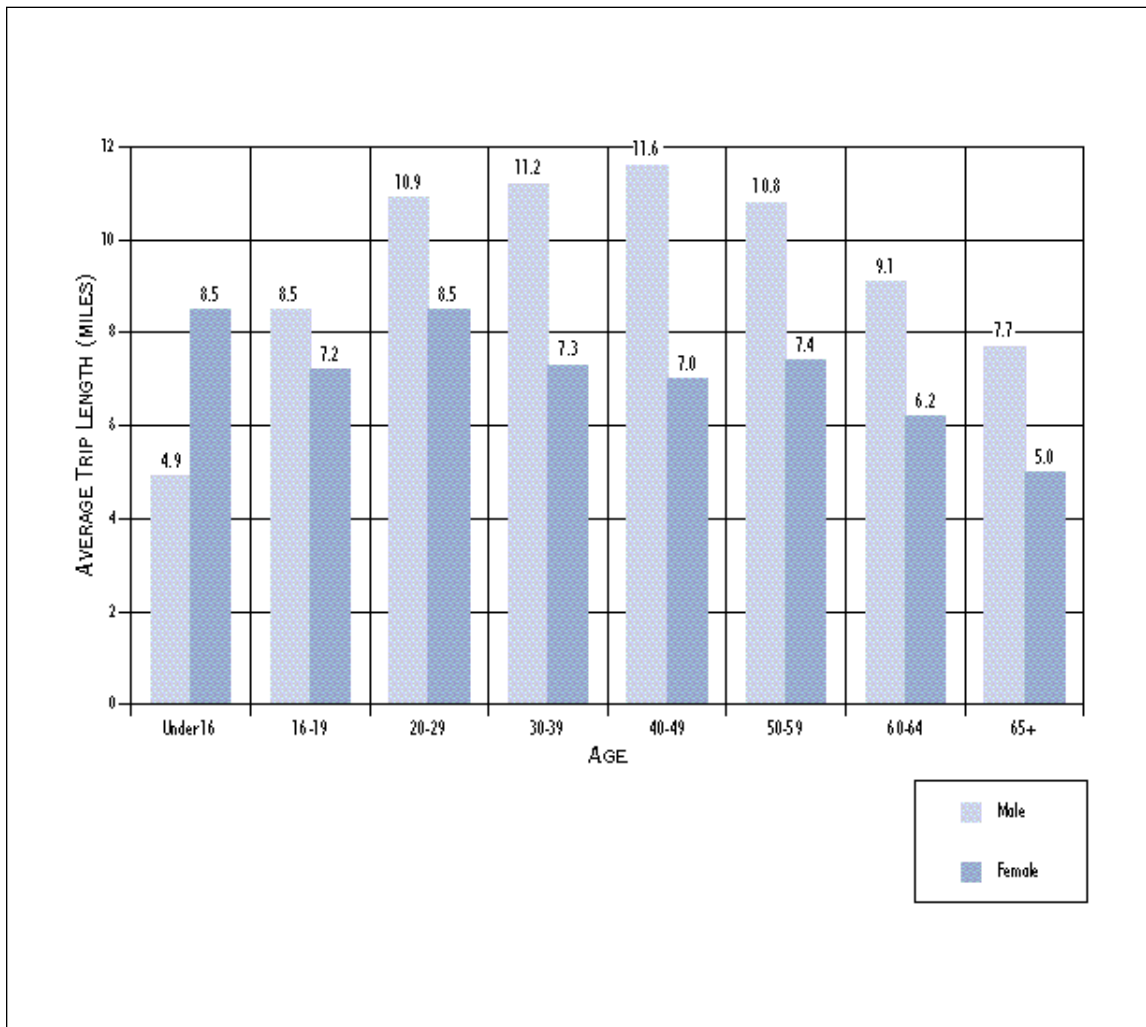
<sup>3</sup> Includes travel or drivers where age, sex, or both were unreported.

On a per-trip basis, men in all age groups took longer trips than women in comparable age groups, except for the age group younger

than 16. The difference in the length of trips taken by men and women was the greatest for the age group between 40 and 49.

FIGURE 5.1

AVERAGE VEHICLE TRIP LENGTH BY DRIVER'S SEX AND AGE  
1990 NPTS



The 1983 NPTS estimated that drivers in the age group 20 to 29 took more vehicle trips than drivers in other age groups. However, by 1990 drivers in the age group 20 to 29 reduced their share of trips from 1983, while drivers in the age groups 30 to 39 and 40 to 49 increased their share of trips during the

same period. This probably reflects the aging of the baby boomers over this time. These changes resulted in the percentage of vehicle trips by drivers between the ages of 30 to 39 being the highest among all age groups. There was also growth in trip making in the 65 and older group.

TABLE 5.2

**DISTRIBUTION OF DRIVERS AND VEHICLE TRIPS BY DRIVER'S AGE  
1983 AND 1990 NPTS'  
(PERCENTAGE)**

Age	1983		1990	
	Vehicle Trips	Drivers	Vehicle Trips	Drivers
Under 16 <sup>2</sup>	1.4	0.0	0.1	0.0
16-19	6.0	6.6	5.4	5.9
20-29	25.6	24.6	22.8	21.4
30-39	25.2	22.7	27.6	23.8
40-49	15.9	15.1	19.4	17.9
50-59	13.1	14.0	10.9	12.1
60-64	5.3	6.6	4.7	5.4
65+	7.4	10.4	8.3	12.4
Unreported Age	0.0	0.0	0.8	1.1
<b>TOTAL</b>	100.0	100.0	100.0	100.0

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

**TABLE 5.3**

**NUMBER OF VEHICLE TRIPS BY DRIVER'S AGE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Age	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
<b>Under 16<sup>1</sup></b>	<b>13,272</b>	<b>56,951</b>	<b>52,972</b>	<b>63,955</b>	<b>9,965</b>	<b>197,116</b>
	(0.7%)	(28.9%)	(26.9%)	(32.4%)	(5.1%)	(100.0%)
<b>16-19</b>	<b>1,684,696</b>	<b>2,787,707</b>	<b>1,496,029</b>	<b>2,604,084</b>	<b>75,563</b>	<b>8,648,269</b>
	(19.5%)	(32.2%)	(17.3%)	(30.1%)	(0.9%)	(100.0%)
<b>20-29</b>	<b>11,052,537</b>	<b>14,372,835</b>	<b>1,681,783</b>	<b>8,858,549</b>	<b>240,240</b>	<b>36,218,344</b>
	(30.5%)	(39.7%)	(4.6%)	(24.5%)	(0.7%)	(100.0%)
<b>30-39</b>	<b>13,523,033</b>	<b>20,299,284</b>	<b>1,919,720</b>	<b>7,877,922</b>	<b>215,445</b>	<b>43,851,583</b>
	(30.8%)	(46.3%)	(4.4%)	(18.0%)	(0.5%)	(100.0%)
<b>40-49</b>	<b>10,201,754</b>	<b>14,101,919</b>	<b>1,240,709</b>	<b>5,170,568</b>	<b>146,449</b>	<b>30,874,580</b>
	(33.0%)	(45.7%)	(4.0%)	(16.7%)	(0.5%)	(100.0%)
<b>50-59</b>	<b>5,485,214</b>	<b>7,962,657</b>	<b>676,937</b>	<b>3,039,590</b>	<b>121,666</b>	<b>17,288,642</b>
	(31.7%)	(46.1%)	(3.9%)	(17.6%)	(0.7%)	(100.0%)
<b>60-64</b>	<b>1,452,803</b>	<b>3,964,847</b>	<b>378,431</b>	<b>1,566,411</b>	<b>51,202</b>	<b>7,413,801</b>
	(19.6%)	(53.5%)	(5.1%)	(21.1%)	(0.7%)	(100.0%)
<b>65+</b>	<b>837,029</b>	<b>8,137,421</b>	<b>914,233</b>	<b>3,114,021</b>	<b>153,028</b>	<b>13,160,483</b>
	(6.4%)	(61.8%)	(6.9%)	(23.7%)	(1.2%)	(100.0%)
<b>TOTAL<sup>2</sup></b>	<b>44,637,479</b>	<b>72,236,579</b>	<b>8,434,633</b>	<b>32,547,726</b>	<b>1,021,713</b>	<b>158,927,467</b>
	(28.1%)	(45.5%)	(5.3%)	(20.5%)	(0.6%)	(100.0%)

<sup>1</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

<sup>2</sup> Includes trips where driver's age, trip purpose, or both were unreported.

For drivers between the ages of 20 and 59, the percentage of earning a living and civic, educational and religious trips remained basically similar across age categories, while

the percentage of family and personal business trips rose with the driver's age and the percentage of social and recreational trips decreased.

**FIGURE 5.2**

**DISTRIBUTION OF VEHICLE TRIPS BY TRIP PURPOSE AND DRIVER'S AGE  
1990 NPTS**

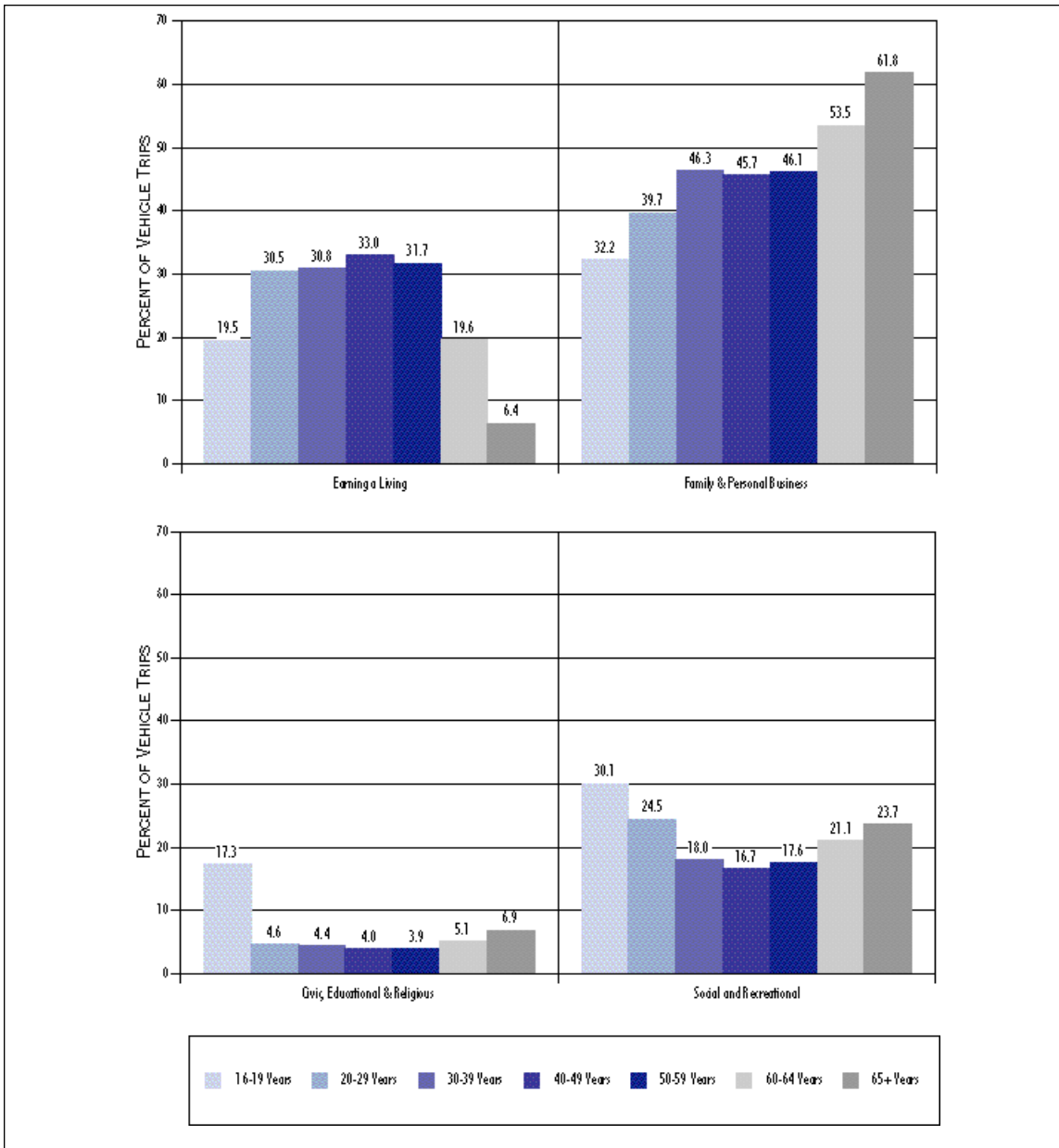




TABLE 5.4

**NUMBER OF VEHICLE TRIPS TAKEN BY WOMEN<sup>1</sup> CATEGORIZED BY DRIVER'S AGE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Age	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>3</sup>
<b>Under 16<sup>2</sup></b>	<b>5,843</b> (5.9%)	<b>26,170</b> (26.3%)	<b>24,073</b> (24.2%)	<b>33,463</b> (33.6%)	<b>9,965</b> (10.0%)	<b>99,514</b> (100.0%)
<b>16-19</b>	<b>760,012</b> (18.5%)	<b>1,509,339</b> (36.8%)	<b>688,323</b> (16.8%)	<b>1,111,229</b> (27.1%)	<b>29,484</b> (0.7%)	<b>4,098,387</b> (100.0%)
<b>20-29</b>	<b>5,030,193</b> (28.5%)	<b>7,844,279</b> (44.5%)	<b>918,195</b> (5.2%)	<b>3,727,976</b> (21.1%)	<b>106,241</b> (0.6%)	<b>17,633,880</b> (100.0%)
<b>30-39</b>	<b>5,849,807</b> (25.4%)	<b>12,227,659</b> (53.2%)	<b>1,129,417</b> (4.9%)	<b>3,664,367</b> (15.9%)	<b>122,059</b> (0.5%)	<b>22,995,910</b> (100.0%)
<b>40-49</b>	<b>4,514,290</b> (28.8%)	<b>8,194,034</b> (52.1%)	<b>736,342</b> (4.7%)	<b>2,198,310</b> (14.0%)	<b>69,470</b> (0.4%)	<b>15,714,897</b> (100.0%)
<b>50-59</b>	<b>2,123,216</b> (27.4%)	<b>3,998,361</b> (51.6%)	<b>324,795</b> (4.2%)	<b>1,245,338</b> (16.1%)	<b>58,082</b> (0.7%)	<b>7,749,793</b> (100.0%)
<b>60-64</b>	<b>580,447</b> (18.2%)	<b>1,840,172</b> (57.8%)	<b>158,212</b> (5.0%)	<b>586,469</b> (18.4%)	<b>19,192</b> (0.6%)	<b>3,184,492</b> (100.0%)
<b>65+</b>	<b>284,123</b> (5.1%)	<b>3,624,456</b> (65.4%)	<b>436,069</b> (7.9%)	<b>1,100,568</b> (19.9%)	<b>92,400</b> (1.7%)	<b>5,542,367</b> (100.0%)
<b>TOTAL<sup>3</sup></b>	<b>19,375,935</b> (24.9%)	<b>39,642,779</b> (50.9%)	<b>4,465,174</b> (5.7%)	<b>13,816,136</b> (17.8%)	<b>514,997</b> (0.7%)	<b>77,831,823</b> (100.0%)

<sup>1</sup> Does not include trips where driver's sex was unreported.

<sup>2</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

<sup>3</sup> Includes trips where driver's age, trip purpose, or both were unreported.

**TABLE 5.5**  
**NUMBER OF VEHICLE TRIPS TAKEN BY MEN<sup>1</sup> CATEGORIZED BY DRIVER'S AGE AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

Age	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>3</sup>
Under 16 <sup>2</sup>	7,429 (7.6%)	30,782 (31.5%)	28,899 (29.6%)	30,492 (31.2%)	0 (0.0%)	97,602 (100.0%)
16-19	924,684 (20.3%)	1,278,368 (28.1%)	807,706 (17.8%)	1,492,855 (32.8%)	46,079 (1.0%)	4,549,882 (100.0%)
20-29	6,022,344 (32.4%)	6,528,556 (35.1%)	763,588 (4.1%)	5,130,574 (27.6%)	133,999 (0.7%)	18,584,463 (100.0%)
30-39	7,673,226 (36.8%)	8,071,625 (38.7%)	790,303 (3.8%)	4,213,555 (20.2%)	93,386 (0.4%)	20,855,673 (100.0%)
40-49	5,687,464 (37.5%)	5,907,885 (39.0%)	504,367 (3.3%)	2,972,258 (19.6%)	77,029 (0.5%)	15,159,683 (100.0%)
50-59	3,361,997 (35.2%)	3,964,296 (41.6%)	352,142 (3.7%)	1,794,252 (18.8%)	63,584 (0.7%)	9,538,849 (100.0%)
60-64	872,356 (20.6%)	2,124,675 (50.2%)	220,219 (5.2%)	979,942 (23.2%)	32,010 (0.8%)	4,229,310 (100.0%)
65+	552,906 (7.3%)	4,512,965 (59.2%)	478,165 (6.3%)	2,013,453 (26.4%)	60,628 (0.8%)	7,618,116 (100.0%)
<b>TOTAL<sup>3</sup></b>	<b>25,257,225</b> (31.2%)	<b>32,583,973</b> (40.2%)	<b>3,967,126</b> (4.9%)	<b>18,731,590</b> (23.1%)	<b>506,716</b> (0.6%)	<b>81,079,165</b> (100.0%)

<sup>1</sup> Does not include trips where driver's sex was unreported.

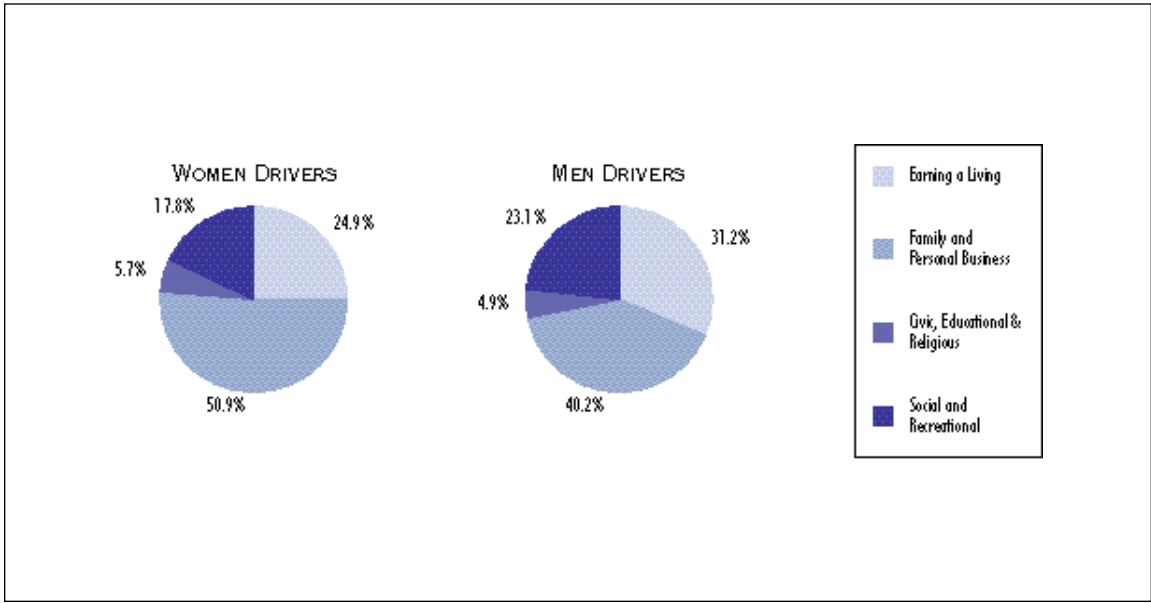
<sup>2</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

<sup>3</sup> Includes trips where driver's age, trip purpose, or both were unreported.

The percentage of vehicle trips for family and personal business by women drivers was significantly higher than for men drivers. On the other hand, the percentage of vehicle trips for earning a living and for social and recreational purposes by men drivers was significantly

higher than the percentage by women drivers. The difference in the percentage of family and personal trips between men and women was most prominent for the age groups from 30 to 50 (Table 5.5).

**FIGURE 5.3**  
**TRIP PURPOSE COMPARISON BETWEEN WOMEN DRIVERS AND MEN DRIVERS**  
**1990 NPTS**



As expected, an obvious difference was observed between drivers 65 years and older and those younger than 65—older drivers

drove predominantly for family and personal business, while younger drivers drove mainly for earning a living.

TABLE 5.6

NUMBER OF VEHICLE MILES OF TRAVEL DRIVEN BY  
INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65 AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)

Purpose	Individuals under 65 years	Individuals 65 years or older	TOTAL <sup>1</sup>
Earning a Living	485,564 (37.0%)	6,950 (8.2%)	495,378 (35.1%)
Family and Personal Business	413,954 (31.5%)	42,300 (49.7%)	461,866 (32.8%)
Civic, Educational, and Religious	58,100 (4.4%)	3,713 (4.4%)	62,201 (4.4%)
Social and Recreational	344,696 (26.3%)	31,496 (37.0%)	378,988 (26.9%)
Other	10,320 (0.8%)	657 (0.7%)	10,996 (0.7%)
<b>TOTAL<sup>1</sup></b>	<b>1,312,779</b> (100.0%)	<b>85,121</b> (100.0%)	<b>1,409,600</b> (100.0%)
<b>Number of Drivers (000)</b>	<b>140,937</b> (86.5%)	<b>20,281</b> (12.4%)	<b>163,025</b> (100.0%)

<sup>1</sup> Includes VMT or drivers where trip purpose, age, or both were unreported.

TABLE 5.7

**VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL BY HOUSEHOLD COMPOSITION  
1990 NPTS**

Household Composition	Number of Households (000)	Vehicle Trips (000)	Vehicle Miles (000)	Average Trip Length <sup>1</sup> (miles)
Single Adult, No Children	15,505 (16.6%)	16,418,589 (10.3%)	148,191,387 (10.5%)	9.1
Two or More Adults, No Children	24,182 (25.9%)	44,612,626 (28.1%)	436,160,614 (30.9%)	9.9
Single Adult, Youngest Child under 6	1,698 (1.8%)	1,993,716 (1.3%)	12,581,271 (0.9%)	6.5
Two or More Adults, Youngest Child under 6	13,791 (14.8%)	29,965,811 (18.9%)	272,453,225 (19.3%)	9.2
Single Adult, Youngest Child 6-15	2,382 (2.6%)	3,729,570 (2.4%)	26,458,688 (1.9%)	7.3
Two or More Adults, Youngest Child 6-15	12,332 (13.2%)	30,378,025 (19.1%)	259,491,800 (18.4%)	8.6
Single Adult, Youngest Child 16 or Older	819 (0.9%)	1,650,114 (1.0%)	12,274,831 (0.9%)	7.6
Two or More Adults, Youngest Child 16 or Older	4,444 (4.8%)	12,591,251 (7.9%)	116,409,238 (8.3%)	9.4
Single Adult, Retired, No Children	7,642 (8.2%)	4,260,045 (2.7%)	21,820,300 (1.6%)	5.2
Two or More Adults, Retired, No Children	9,777 (10.5%)	12,527,002 (7.9%)	97,542,590 (6.9%)	7.9
<b>TOTAL<sup>2</sup></b>	<b>93,347</b> (100.0%)	<b>158,927,466</b> (100.0%)	<b>1,409,600,000</b> (100.0%)	<b>9.0</b>
<sup>1</sup> Average trip length is calculated using only those records where trip mile information is available.		<sup>2</sup> Includes travel where household composition was unreported.		

Compared with other groups, households with two or more adults and no children took the greatest number of vehicle trips. This group also took the longest trips.

**FIGURE 5.4**

**DISTRIBUTION OF VEHICLE TRIPS AND LICENSED DRIVERS BY HOUSEHOLD COMPOSITION  
1990 NPTS**

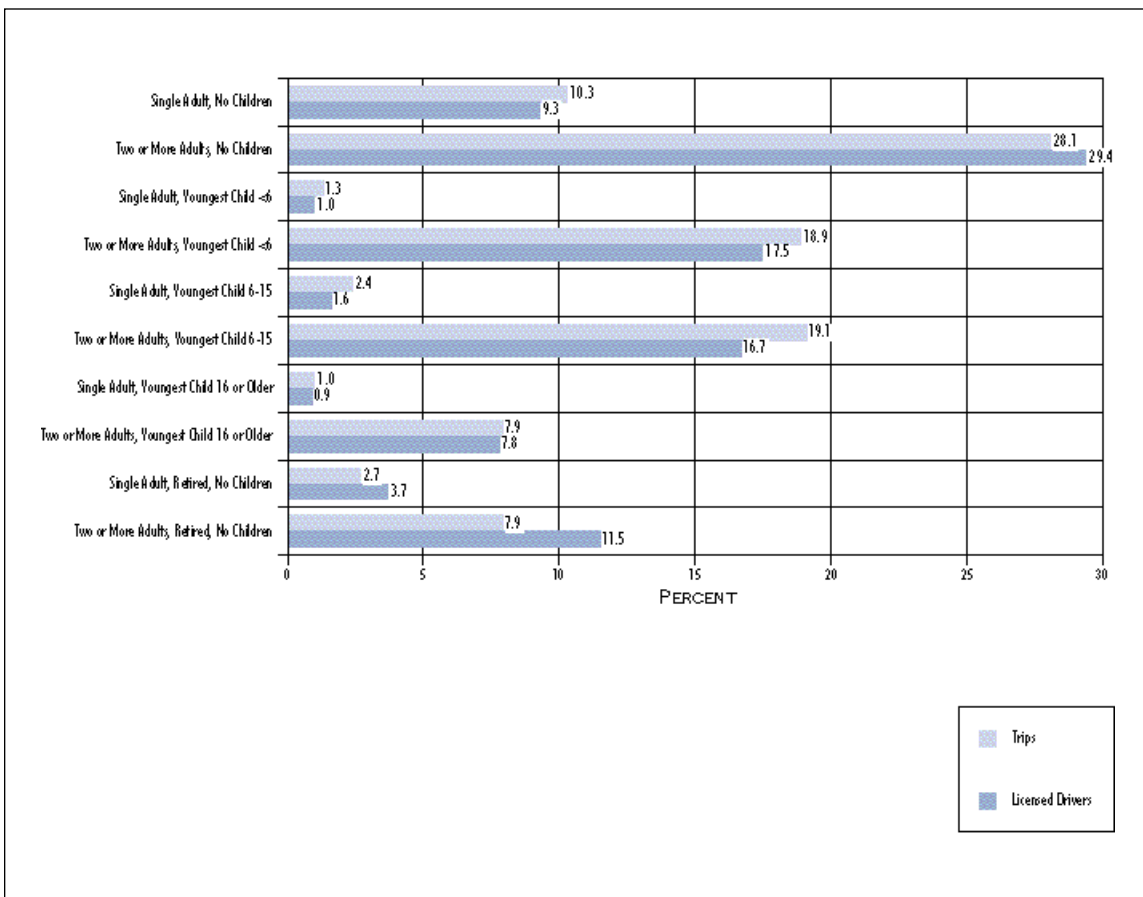


TABLE 5.8

ANNUAL VEHICLE TRIPS PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD COMPOSITION  
1990 NPTS

Household Composition	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL
Single Adult, No Children	299	448	35	271	6	1,059
Two or More Adults, No Children	623	741	80	389	12	1,845
Single Adult, Youngest Child under 6	216	610	75	257	16	1,174
Two or More Adults, Youngest Child under 6	643	1,070	104	346	10	2,173
Single Adult, Youngest Child 6-15	365	788	88	322	3	1,566
Two or More Adults, Youngest Child 6-15	726	1,125	158	435	18	2,462
Single Adult, Youngest Child 16 or Older	448	821	183	557	6	2,015
Two or More Adults, Youngest Child 16 or Older	882	1,084	228	627	12	2,833
Single Adult, Retired, No Children	9	355	42	144	8	558
Two or More Adults, Retired, No Children	133	742	75	317	13	1,280
<b>ALL HOUSEHOLDS</b>	<b>478</b>	<b>774</b>	<b>90</b>	<b>349</b>	<b>11</b>	<b>1,702</b>

In 1990, households took an average of more than 1,700 vehicle trips per year. Households with two or more adults and with the youngest child 16 years or older took the greatest number of vehicle trips per year.

This might be attributable to the fact that households with children over 16 years were more likely to have more drivers than other households.

**FIGURE 5.5**

**ANNUAL VEHICLE TRIPS PER HOUSEHOLD BY HOUSEHOLD COMPOSITION 1990 NPTS**

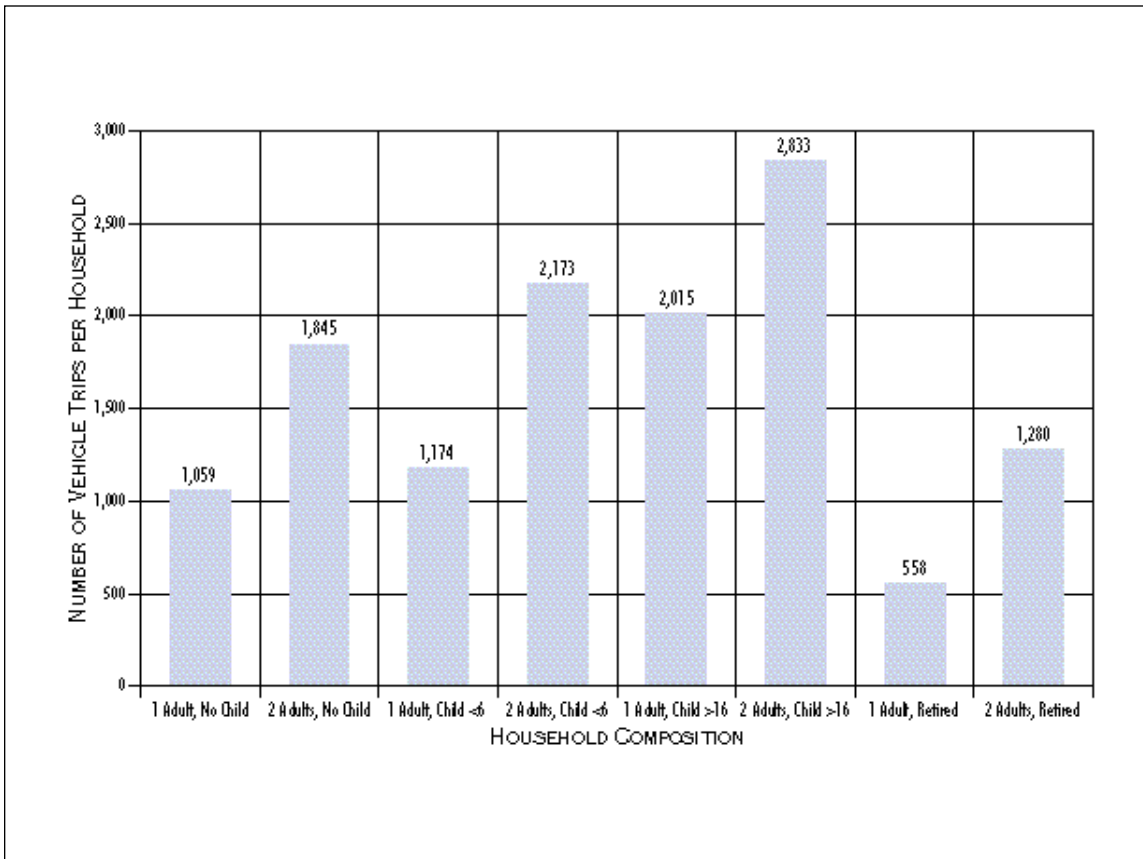




TABLE 5.9

ANNUAL VEHICLE MILES OF TRAVEL PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD COMPOSITION  
1990 NPTS

Household Composition	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL
Single Adult, No Children	2,912	2,786	384	3,319	157	9,558
Two or More Adults, No Children	6,998	5,292	623	4,977	145	18,035
Single Adult, Youngest Child under 6	1,470	3,453	364	2,023	101	7,411
Two or More Adults, Youngest Child under 6	7,825	6,823	683	4,326	95	19,752
Single Adult, Youngest Child 6-15	3,127	4,413	825	2,726	17	11,108
Two or More Adults, Youngest Child 6-15	8,392	6,843	1,256	4,435	113	21,039
Single Adult, Youngest Child 16 or Older	4,576	5,466	965	3,885	102	14,994
Two or More Adults, Youngest Child 16 or Older	9,293	7,864	1,983	6,945	104	26,189
Single Adult, Retired, No Children	59	1,636	119	1,015	25	2,854
Two or More Adults, Retired, No Children	1,229	4,269	295	4,070	113	9,976
<b>ALL HOUSEHOLDS</b>	<b>5,307</b>	<b>4,958</b>	<b>666</b>	<b>4,060</b>	<b>118</b>	<b>15,101</b>

TABLE 5.10

**VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL BY PLACE OF RESIDENCE AND TRIP PURPOSE  
1990 NPTS**

	<u>MSA, Within Central City</u>		<u>MSA, Not in Central City</u>		<u>Not in MSA</u>		<u>TOTAL</u>	
	Vehicle Trip (000)	VMT (000,000)	Vehicle Trip (000)	VMT (000,000)	Vehicle Trip (000)	VMT (000,000)	Vehicle Trip (000)	VMT (000,000)
<b>Earning a Living</b>	<b>14,679,857</b>	<b>136,656</b>	<b>20,314,471</b>	<b>247,320</b>	<b>9,643,150</b>	<b>111,400</b>	<b>44,637,478</b>	<b>495,378</b>
	(27.7%)	(33.7%)	(29.0%)	(37.4%)	(26.9%)	(32.5%)	(28.1%)	(35.1%)
<b>Family and Personal Business</b>	<b>24,079,845</b>	<b>130,272</b>	<b>31,508,523</b>	<b>212,545</b>	<b>16,648,211</b>	<b>119,049</b>	<b>72,236,579</b>	<b>461,866</b>
	(45.4%)	(32.1%)	(45.0%)	(32.1%)	(46.4%)	(34.8%)	(45.5%)	(32.8%)
<b>Civic, Educational, and Religious</b>	<b>2,846,803</b>	<b>17,716</b>	<b>3,488,735</b>	<b>27,253</b>	<b>2,099,095</b>	<b>17,232</b>	<b>8,434,633</b>	<b>62,201</b>
	(5.4%)	(4.4%)	(5.0%)	(4.1%)	(5.8%)	(5.0%)	(5.3%)	(4.4%)
<b>Social and Recreational</b>	<b>11,108,919</b>	<b>115,203</b>	<b>14,199,580</b>	<b>170,856</b>	<b>7,239,227</b>	<b>92,929</b>	<b>32,547,726</b>	<b>378,988</b>
	(20.9%)	(28.4%)	(20.3%)	(25.8%)	(20.2%)	(27.1%)	(20.5%)	(26.9%)
<b>Other</b>	<b>319,999</b>	<b>5,384</b>	<b>441,111</b>	<b>3,758</b>	<b>260,603</b>	<b>1,855</b>	<b>1,021,713</b>	<b>10,996</b>
	(0.6%)	(1.3%)	(0.6%)	(0.6%)	(0.7%)	(0.5%)	(0.6%)	(0.8%)
<b>TOTAL<sup>1</sup></b>	<b>53,053,726</b>	<b>405,278</b>	<b>69,973,368</b>	<b>661,826</b>	<b>35,900,373</b>	<b>342,472</b>	<b>158,927,467</b>	<b>1,409,576</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<sup>1</sup> Includes trips where trip purpose was unreported.								

Drivers residing inside the central city boundary of metropolitan areas accounted for 33.4% of the total vehicle trips but only

28.7% of the total vehicle miles of travel, indicating their trips tended to be shorter than those by other drivers.

FIGURE 5.6

DISTRIBUTION OF VEHICLE TRAVEL BY PLACE OF RESIDENCE  
1990 NPTS

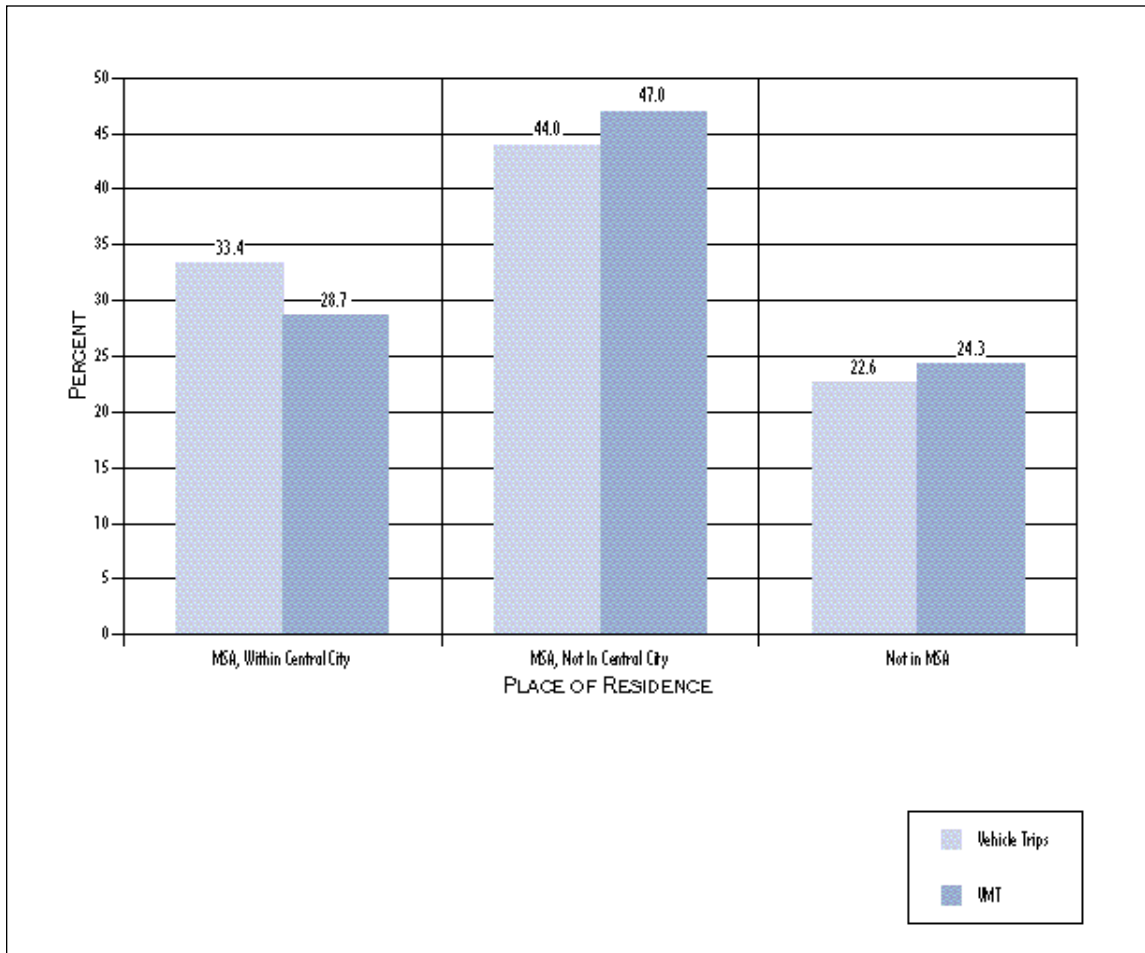


TABLE 5.11

**ANNUAL VEHICLE TRIPS, VEHICLE MILES OF TRAVEL, AND AVERAGE TRIP LENGTH PER HOUSEHOLD  
BY TRIP PURPOSE AND PLACE OF RESIDENCE  
1990 NPTS**

	<u>MSA, Within Central City</u>	<u>MSA, Not in Central City</u>	<u>Not in MSA</u>	<u>TOTAL</u>
<b>Vehicle Trips</b>				
Earning a Living	425	544	450	<b>478</b>
Family and Personal Business	696	844	777	<b>774</b>
Civic, Educational, and Religious	82	93	98	<b>90</b>
Social and Recreational	321	380	338	<b>349</b>
Other	9	12	12	<b>11</b>
<b>TOTAL</b>	<b>1,533</b>	<b>1,873</b>	<b>1,675</b>	<b>1,702</b>
<b>Vehicle Miles of Travel</b>				
Earning a Living	3,592	6,621	5,202	<b>5,307</b>
Family and Personal Business	3,767	5,690	5,559	<b>4,948</b>
Civic, Educational, and Religious	512	730	805	<b>666</b>
Social and Recreational	3,332	4,574	4,339	<b>4,060</b>
Other	156	101	86	<b>118</b>
<b>TOTAL</b>	<b>11,359</b>	<b>17,716</b>	<b>15,991</b>	<b>15,100</b>
<b>Average Trip Length<sup>1</sup> (miles)</b>				
Earning a Living	9.5	12.3	11.6	<b>11.2</b>
Family and Personal Business	5.5	6.8	7.2	<b>6.5</b>
Civic, Educational, and Religious	6.4	7.9	8.3	<b>7.5</b>
Social and Recreational	10.6	12.2	12.9	<b>11.8</b>
Other	16.8	8.5	7.2	<b>10.8</b>
<b>ALL</b>	<b>7.8</b>	<b>9.6</b>	<b>9.6</b>	<b>9.0</b>
<b>Number of Households (000)</b>	<b>34,579</b>	<b>37,353</b>	<b>21,415</b>	<b>93,347</b>

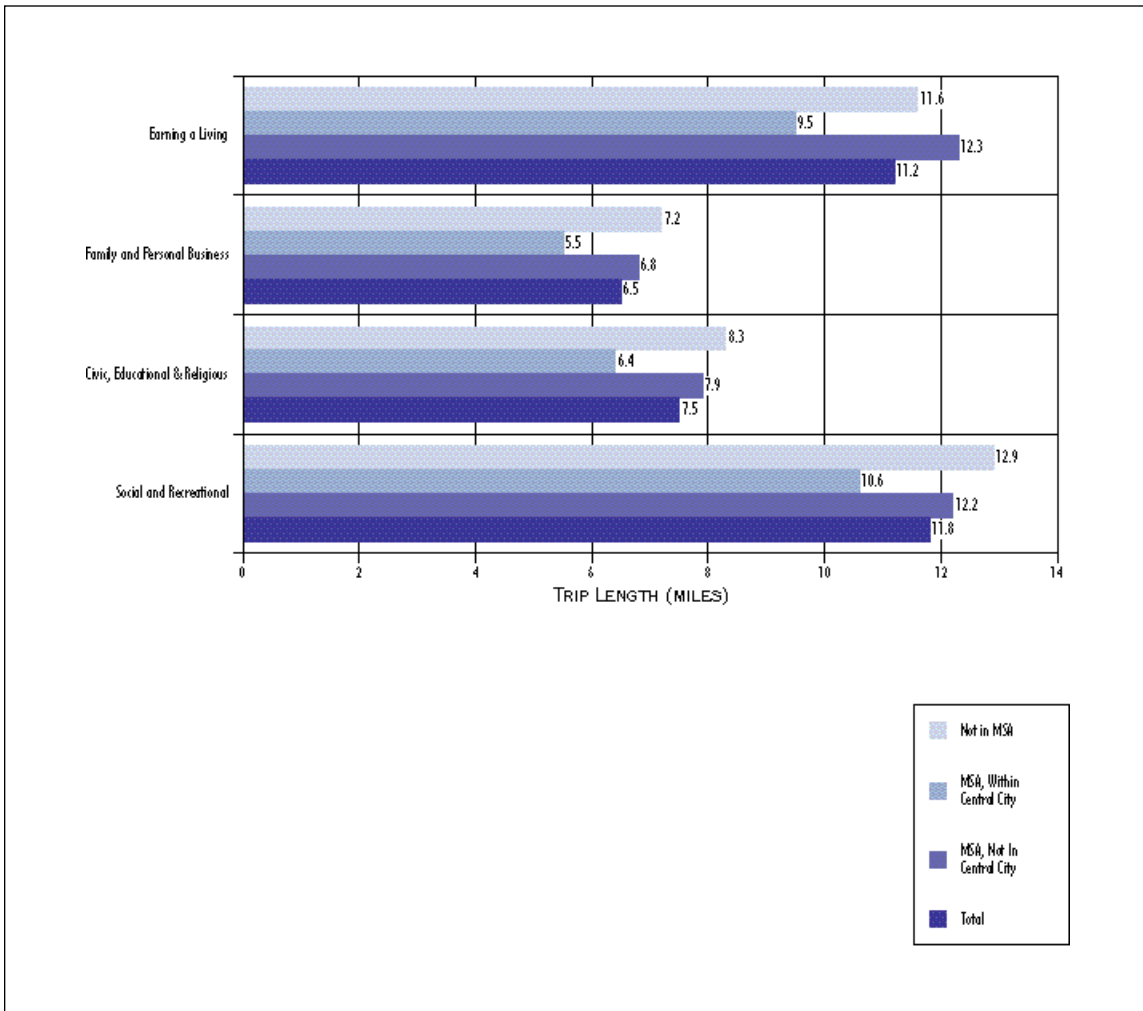
<sup>1</sup> Average trip length is calculated using only those records where trip mileage information is available.

In 1990, the average trip length was about nine miles. Trips for earning a living and for social and recreational purposes were longer on average. Trips for other purposes were sig-

nificantly shorter than the average. Trip lengths were much shorter for residents inside the central city of metropolitan areas, compared with trips taken by other residents.

FIGURE 5.7

AVERAGE LENGTH OF VEHICLE TRIPS PER HOUSEHOLD BY TRIP PURPOSE AND PLACE OF RESIDENCE  
1990 NPTS



The traditional morning and late afternoon peak periods of traffic were not as prominent as one might expect.

**TABLE 5.12**  
**NUMBER OF VEHICLE TRIPS BY PLACE OF RESIDENCE AND TIME OF DAY**  
**1990 NPTS**  
**(THOUSANDS)**

	MSA, Within Central City	MSA, Not in Central City	Not in MSA	TOTAL
1:00 a.m. - 6:00 a.m.	1,295,508 (2.4%)	1,625,568 (2.3%)	713,426 (2.0%)	<b>3,634,502</b> (2.3%)
6:00 a.m. - 9:00 a.m.	7,280,336 (13.7%)	10,041,440 (14.4%)	5,136,747 (14.3%)	<b>22,458,523</b> (14.1%)
9:00 a.m. - 1:00 p.m.	10,799,990 (20.4%)	14,658,219 (20.9%)	7,891,374 (22.0%)	<b>33,349,583</b> (21.0%)
1:00 p.m. - 4:00 p.m.	10,202,020 (19.2%)	13,237,963 (18.9%)	7,230,428 (20.1%)	<b>30,670,411</b> (19.3%)
4:00 p.m. - 7:00 p.m.	12,270,461 (23.1%)	16,600,193 (23.7%)	8,306,354 (23.1%)	<b>37,177,009</b> (23.4%)
7:00 p.m. - 10:00 p.m.	6,538,526 (12.3%)	8,579,150 (12.3%)	3,939,018 (11.0%)	<b>19,056,694</b> (12.0%)
10:00 p.m. - 1:00 a.m.	2,339,014 (4.4%)	2,772,899 (4.0%)	1,319,440 (3.7%)	<b>6,431,353</b> (4.0%)
<b>TOTAL<sup>1</sup></b>	<b>53,053,726</b> (100.0%)	<b>69,973,368</b> (100.0%)	<b>35,900,373</b> (100.0%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> Includes trips where start time of the trip was unreported.

FIGURE 5.8

**DISTRIBUTION OF VEHICLE TRIPS BY PLACE OF RESIDENCE AND TIME OF DAY  
1990 NPTS**

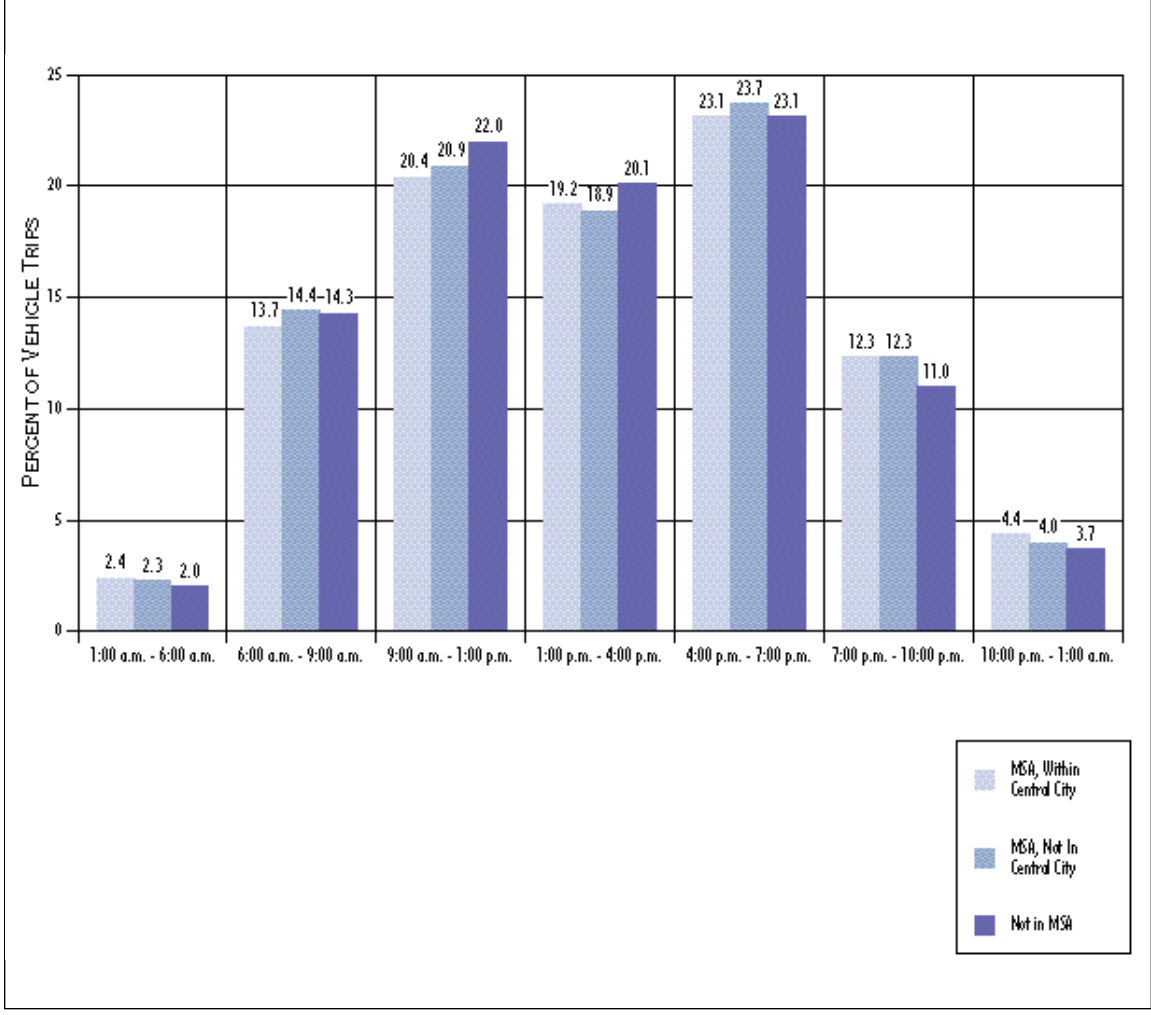


TABLE 5.13

**NUMBER OF VEHICLE MILES OF TRAVEL BY PLACE OF RESIDENCE AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

	MSA, Within Central City	MSA, Not in Central City	Not in MSA	TOTAL
1:00 a.m. - 6:00 a.m.	14,111,979 (3.5%)	28,222,434 (4.3%)	14,758,140 (4.3%)	<b>57,092,553</b> (4.1%)
6:00 a.m. - 9:00 a.m.	62,815,378 (15.5%)	117,859,551 (17.8%)	59,094,846 (17.3%)	<b>239,769,775</b> (17.0%)
9:00 a.m. - 1:00 p.m.	80,179,731 (19.8%)	117,629,219 (17.8%)	64,157,491 (18.7%)	<b>261,966,441</b> (18.6%)
1:00 p.m. - 4:00 p.m.	74,660,583 (18.4%)	120,290,780 (18.2%)	66,359,461 (19.4%)	<b>261,310,824</b> (18.5%)
4:00 p.m. - 7:00 p.m.	92,950,153 (22.9%)	155,390,208 (23.5%)	75,195,507 (22.0%)	<b>323,535,868</b> (23.0%)
7:00 p.m. - 10:00 p.m.	48,816,994 (12.0%)	74,775,667 (11.3%)	37,864,376 (11.1%)	<b>161,457,037</b> (11.5%)
10:00 p.m. - 1:00 a.m.	19,335,130 (4.8%)	30,354,157 (4.6%)	14,802,796 (4.3%)	<b>64,492,083</b> (4.6%)
<b>TOTAL<sup>1</sup></b>	<b>405,277,854</b> (100.0%)	<b>661,826,323</b> (100.0%)	<b>342,472,170</b> (100.0%)	<b>1,409,576,347</b> (100.0%)
<sup>1</sup> Includes miles of travel where start time of the trip was unreported.				



Almost 60% of vehicle trips were less than five miles long. People living outside the central city of metropolitan areas tend to take longer trips than those inside the central city.

TABLE 5.14

NUMBER OF VEHICLE TRIPS BY PLACE OF RESIDENCE AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)

	MSA, Within Central City	MSA, Not in Central City	Not in MSA	TOTAL
5 miles or less	33,411,853 (63.0%)	38,595,614 (55.2%)	21,804,799 (60.7%)	93,812,266 (59.0%)
6 to 10 miles	9,704,585 (18.3%)	13,366,573 (19.1%)	5,526,648 (15.4%)	28,597,806 (18.0%)
11 to 15 miles	3,992,878 (7.5%)	6,690,568 (9.6%)	3,006,301 (8.4%)	13,689,747 (8.6%)
16 to 20 miles	1,792,770 (3.4%)	3,917,227 (5.6%)	1,635,702 (4.6%)	7,345,699 (4.6%)
21 to 30 miles	1,643,136 (3.1%)	3,471,394 (5.0%)	1,597,026 (4.4%)	6,711,556 (4.2%)
31 miles and over	1,630,082 (3.1%)	3,183,411 (4.5%)	2,042,593 (5.7%)	6,856,086 (4.3%)
<b>TOTAL<sup>1</sup></b>	<b>53,053,726</b> (100.0%)	<b>69,973,368</b> (100.0%)	<b>35,900,373</b> (100.0%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> Includes trips where trip length was unreported.

TABLE 5.15

**NUMBER OF VEHICLE MILES OF TRAVEL BY PLACE OF RESIDENCE AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)**

	MSA, Within Central City	MSA, Not in Central City	Not in MSA	<b>TOTAL</b>
<b>5 miles or less</b>	<b>77,884,410</b>	<b>93,371,631</b>	<b>46,561,715</b>	<b>217,817,756</b>
	(19.2%)	(14.1%)	(13.6%)	(15.5%)
<b>6 to 10 miles</b>	<b>79,759,044</b>	<b>109,063,077</b>	<b>44,749,732</b>	<b>233,571,853</b>
	(19.7%)	(16.5%)	(13.1%)	(16.6%)
<b>11 to 15 miles</b>	<b>54,682,277</b>	<b>90,841,875</b>	<b>40,374,236</b>	<b>185,898,388</b>
	(13.5%)	(13.7%)	(11.8%)	(13.2%)
<b>16 to 20 miles</b>	<b>34,223,144</b>	<b>74,406,482</b>	<b>30,565,087</b>	<b>139,194,713</b>
	(8.4%)	(11.2%)	(8.9%)	(9.9%)
<b>21 to 30 miles</b>	<b>43,515,964</b>	<b>91,368,665</b>	<b>42,321,952</b>	<b>177,206,581</b>
	(10.7%)	(13.8%)	(12.4%)	(12.6%)
<b>31 miles and over</b>	<b>115,213,014</b>	<b>202,774,592</b>	<b>137,899,449</b>	<b>455,887,055</b>
	(28.4%)	(30.6%)	(40.3%)	(32.3%)
<b>TOTAL</b>	<b>405,277,854</b>	<b>661,826,323</b>	<b>342,472,170</b>	<b>1,409,576,347</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)

**FIGURE 5.9**  
**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY PLACE OF RESIDENCE AND TRIP LENGTH**  
**1990 NPTS**

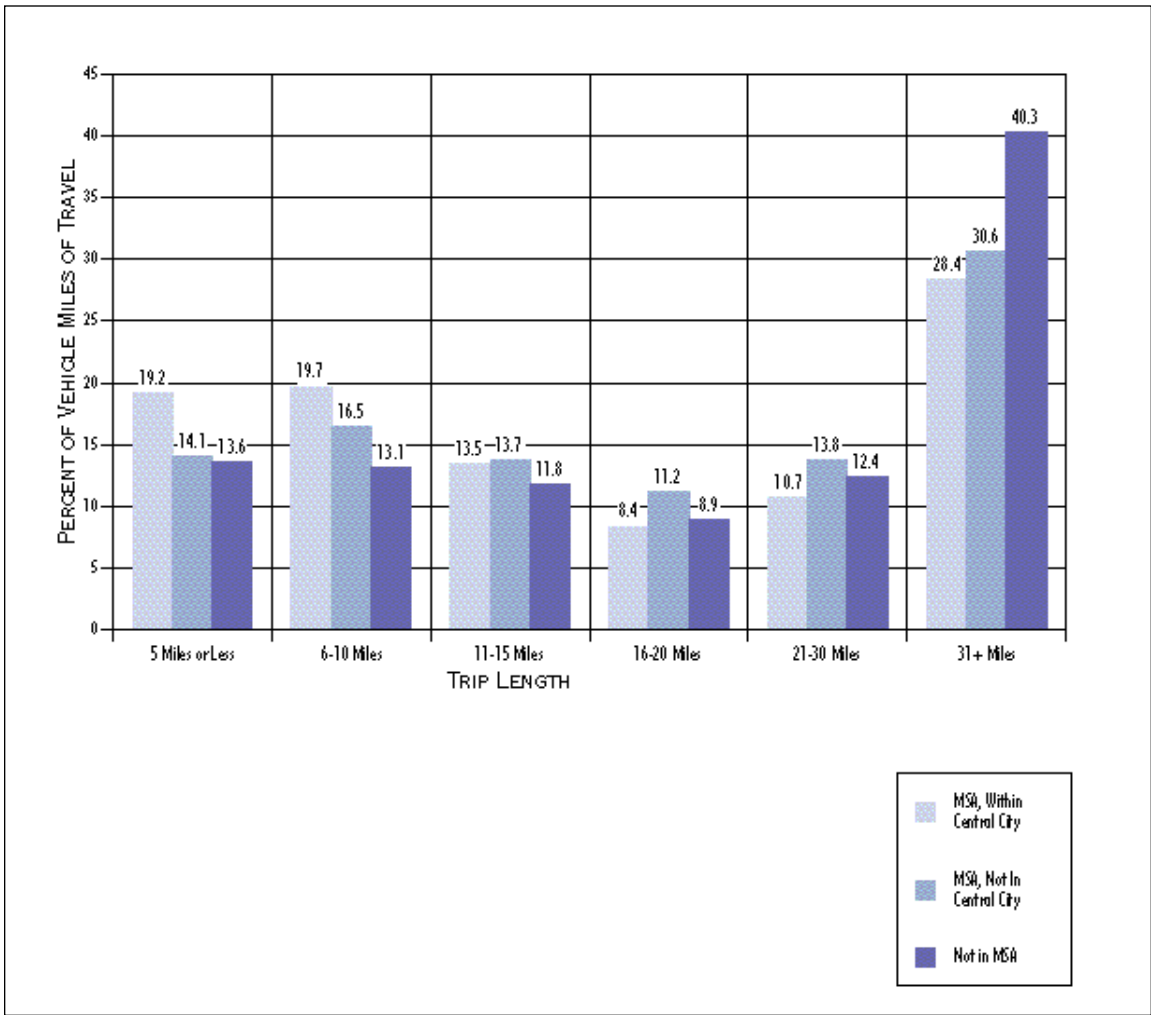


TABLE 5.16

**NUMBER OF VEHICLE TRIPS BY MSA SIZE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000 499,999	500,000 - 999,999	1,000,000 - 2,999,999	3,000,000 and over		
<b>Earning a Living</b>	<b>4,509,994</b>	<b>4,061,861</b>	<b>4,486,340</b>	<b>9,273,891</b>	<b>12,662,242</b>	<b>9,643,150</b>	<b>44,637,478</b>
	(27.4%)	(28.1%)	(29.0%)	(28.6%)	(28.6%)	(26.9%)	(28.1%)
<b>Family &amp; Personal Business</b>	<b>7,346,569</b>	<b>6,577,814</b>	<b>6,999,236</b>	<b>14,686,688</b>	<b>19,978,061</b>	<b>16,648,211</b>	<b>72,236,579</b>
	(44.6%)	(45.5%)	(45.3%)	(45.2%)	(45.2%)	(46.4%)	(45.5%)
<b>Civic, Educational, &amp; Religious</b>	<b>944,663</b>	<b>750,993</b>	<b>900,455</b>	<b>1,569,858</b>	<b>2,169,569</b>	<b>2,099,095</b>	<b>8,434,633</b>
	(5.7%)	(5.2%)	(5.8%)	(4.8%)	(4.9%)	(5.8%)	(5.3%)
<b>Social and Recreational</b>	<b>3,559,298</b>	<b>2,994,146</b>	<b>2,892,829</b>	<b>6,678,024</b>	<b>9,184,202</b>	<b>7,239,227</b>	<b>32,547,726</b>
	(21.6%)	(20.7%)	(18.7%)	(20.6%)	(20.8%)	(20.2%)	(20.5%)
<b>Other</b>	<b>83,464</b>	<b>59,849</b>	<b>167,377</b>	<b>242,796</b>	<b>207,624</b>	<b>260,603</b>	<b>1,021,713</b>
	(0.5%)	(0.4%)	(1.1%)	(0.7%)	(0.5%)	(0.7%)	(0.6%)
<b>TOTAL<sup>1</sup></b>	<b>16,452,475</b>	<b>14,446,454</b>	<b>15,446,435</b>	<b>32,463,690</b>	<b>44,218,040</b>	<b>35,900,373</b>	<b>158,927,467</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>No. of Persons (000)</b>	<b>21,048</b>	<b>18,851</b>	<b>20,429</b>	<b>43,693</b>	<b>68,260</b>	<b>67,135</b>	<b>239,416</b>
	(8.8%)	(7.9%)	(8.5%)	(18.3%)	(28.5%)	(28.0%)	(100.0%)

<sup>1</sup> Includes trips where trip purpose was unreported.

**TABLE 5.17**  
**NUMBER OF VEHICLE MILES OF TRAVEL BY MSA SIZE AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

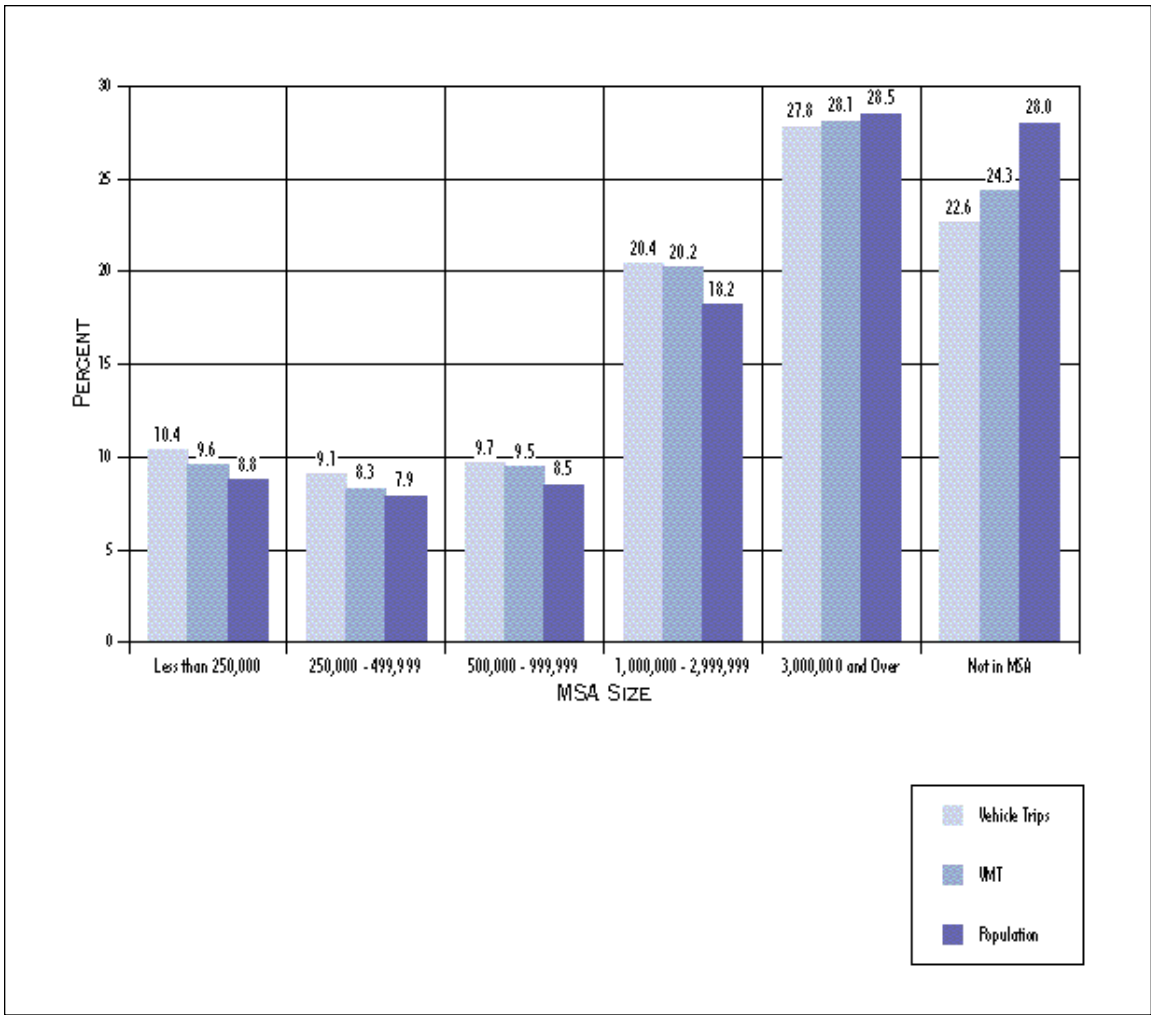
	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000 - 499,999	500,000 - 999,999	1,000,000 - 2,999,999	3,000,000 and over		
<b>Earning a Living</b>	<b>43,893,605</b>	<b>40,137,245</b>	<b>48,284,181</b>	<b>99,683,037</b>	<b>151,979,904</b>	<b>111,399,688</b>	<b>495,377,660</b>
	(32.6%)	(34.2%)	(35.9%)	(35.1%)	(38.3%)	(32.5%)	(35.1%)
<b>Family &amp; Personal Business</b>	<b>42,452,827</b>	<b>39,463,294</b>	<b>46,136,789</b>	<b>92,106,655</b>	<b>122,657,493</b>	<b>119,048,885</b>	<b>461,865,943</b>
	(31.5%)	(33.7%)	(34.4%)	(32.4%)	(30.9%)	(34.8%)	(32.8%)
<b>Civic, Educational, &amp; Religious</b>	<b>5,542,790</b>	<b>5,279,414</b>	<b>6,518,341</b>	<b>11,049,637</b>	<b>16,578,774</b>	<b>17,232,245</b>	<b>62,201,201</b>
	(4.1%)	(4.5%)	(4.9%)	(3.9%)	(4.2%)	(5.0%)	(4.4%)
<b>Social and Recreational</b>	<b>42,258,546</b>	<b>32,089,257</b>	<b>31,590,847</b>	<b>78,953,550</b>	<b>101,167,407</b>	<b>92,928,615</b>	<b>378,988,222</b>
	(31.3%)	(27.4%)	(23.5%)	(27.8%)	(25.5%)	(27.1%)	(26.9%)
<b>Other</b>	<b>640,879</b>	<b>251,612</b>	<b>1,772,769</b>	<b>2,165,612</b>	<b>4,310,806</b>	<b>1,854,623</b>	<b>10,996,301</b>
	(0.5%)	(0.2%)	(1.3%)	(0.8%)	(1.1%)	(0.5%)	(0.8%)
<b>TOTAL<sup>1</sup></b>	<b>134,826,750</b>	<b>117,224,403</b>	<b>134,305,892</b>	<b>283,996,460</b>	<b>396,750,671</b>	<b>342,472,170</b>	<b>1,409,576,346</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>No. of Persons (000)</b>	<b>21,048</b>	<b>18,851</b>	<b>20,429</b>	<b>43,693</b>	<b>68,260</b>	<b>67,135</b>	<b>239,416</b>
	(8.8%)	(7.9%)	(8.5%)	(18.3%)	(28.5%)	(28.0%)	(100.0%)

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

On a per person basis, people living in metropolitan areas with a population of more than three million and those in non-MSA areas took fewer vehicle trips than people living in other areas. Their trips also tended to be longer than those by people living in other areas.

**FIGURE 5.10**

**DISTRIBUTION OF POPULATION AND VEHICLE TRAVEL BY MSA SIZE  
1990 NPTS**



**TABLE 5.18**  
**NUMBER OF VEHICLE TRIPS BY MSA SIZE AND TRIP LENGTH**  
**1990 NPTS**  
**(THOUSANDS)**

	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000 - 499,999	500,000 - 999,999	1,000,000 - 2,999,999	3,000,000 and over		
<b>5 miles or less</b>	<b>10,566,578</b>	<b>8,788,986</b>	<b>8,832,594</b>	<b>18,131,094</b>	<b>25,688,216</b>	<b>21,804,798</b>	<b>93,812,266</b>
	(64.2%)	(60.8%)	(57.2%)	(55.9%)	(58.1%)	(60.7%)	(59.0%)
<b>6 to 10 miles</b>	<b>2,984,378</b>	<b>2,830,147</b>	<b>2,960,046</b>	<b>6,388,703</b>	<b>7,907,884</b>	<b>5,526,648</b>	<b>28,597,806</b>
	(18.1%)	(19.6%)	(19.2%)	(19.7%)	(17.9%)	(15.4%)	(18.0%)
<b>11 to 15 miles</b>	<b>1,076,728</b>	<b>1,208,841</b>	<b>1,532,043</b>	<b>3,230,042</b>	<b>3,635,791</b>	<b>3,006,302</b>	<b>13,689,747</b>
	(6.5%)	(8.4%)	(9.9%)	(9.9%)	(8.2%)	(8.4%)	(8.6%)
<b>16 to 20 miles</b>	<b>495,103</b>	<b>590,048</b>	<b>721,093</b>	<b>1,741,643</b>	<b>2,162,110</b>	<b>1,635,702</b>	<b>7,345,699</b>
	(3.0%)	(4.1%)	(4.7%)	(5.4%)	(4.9%)	(4.6%)	(4.6%)
<b>21 to 30 miles</b>	<b>455,152</b>	<b>471,110</b>	<b>619,518</b>	<b>1,403,604</b>	<b>2,165,146</b>	<b>1,597,026</b>	<b>6,711,556</b>
	(2.8%)	(3.3%)	(4.0%)	(4.3%)	(4.9%)	(4.4%)	(4.2%)
<b>31 miles and over</b>	<b>695,994</b>	<b>470,864</b>	<b>589,073</b>	<b>1,123,618</b>	<b>1,933,944</b>	<b>2,042,593</b>	<b>6,856,086</b>
	(4.2%)	(3.3%)	(3.8%)	(3.5%)	(4.4%)	(5.7%)	(4.3%)
<b>TOTAL<sup>1</sup></b>	<b>16,452,475</b>	<b>14,446,454</b>	<b>15,446,435</b>	<b>32,463,690</b>	<b>44,218,040</b>	<b>35,900,373</b>	<b>158,927,467</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes trips where trip length was unreported.

**TABLE 5.19**  
**NUMBER OF VEHICLE MILES OF TRAVEL BY MSA SIZE AND TRIP LENGTH**  
**1990 NPTS**  
**(THOUSANDS)**

	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000 - 499,999	500,000 - 999,999	1,000,000 - 2,999,999	3,000,000 and over		
5 miles or less	25,175,835 (18.7%)	21,239,735 (18.1%)	21,547,211 (16.0%)	43,148,802 (15.2%)	60,144,458 (15.2%)	46,561,715 (13.6%)	217,817,756 (15.5%)
6 to 10 miles	23,719,460 (17.6%)	22,861,580 (19.5%)	24,196,973 (18.0%)	52,689,501 (18.6%)	65,354,607 (16.5%)	44,749,732 (13.1%)	233,571,853 (16.6%)
11 to 15 miles	14,586,896 (10.8%)	16,380,919 (14.0%)	20,737,530 (15.4%)	44,118,052 (15.5%)	49,700,755 (12.5%)	40,374,236 (11.8%)	185,898,388 (13.2%)
16 to 20 miles	9,361,657 (6.9%)	11,237,693 (9.6%)	13,547,776 (10.1%)	33,275,389 (11.7%)	41,207,111 (10.4%)	30,565,087 (8.9%)	139,194,713 (9.9%)
21 to 30 miles	12,100,346 (9.0%)	12,552,940 (10.7%)	16,173,196 (12.0%)	36,746,675 (12.9%)	57,311,472 (14.4%)	42,321,952 (12.4%)	177,206,581 (12.6%)
31 miles and over	49,882,556 (37.0%)	32,951,537 (28.1%)	38,103,206 (28.4%)	74,018,040 (26.1%)	123,032,267 (31.0%)	137,899,449 (40.3%)	455,887,055 (32.3%)
<b>TOTAL</b>	<b>134,826,750</b> (100.0%)	<b>117,224,403</b> (100.0%)	<b>134,305,892</b> (100.0%)	<b>283,996,460</b> (100.0%)	<b>396,750,671</b> (100.0%)	<b>342,472,170</b> (100.0%)	<b>1,409,576,347</b> (100.0%)



**TABLE 5.20**  
**NUMBER OF VEHICLE TRIPS BY URBANIZED AREA SIZE AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

	Urbanized Area Size <sup>1</sup>					Not in Urbanized Area	<b>TOTAL</b>
	50,000- 199,999	200,000- 499,999	500,000- 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway		
<b>Earning a Living</b>	<b>3,897,300</b>	<b>3,165,700</b>	<b>3,055,201</b>	<b>9,395,233</b>	<b>8,241,504</b>	<b>16,882,540</b>	<b>44,637,478</b>
	(26.7%)	(27.4%)	(28.6%)	(28.7%)	(28.7%)	(27.8%)	(28.1%)
<b>Family &amp; Personal Business</b>	<b>6,516,034</b>	<b>5,144,553</b>	<b>4,736,328</b>	<b>14,885,337</b>	<b>12,718,522</b>	<b>28,235,805</b>	<b>72,236,579</b>
	(44.7%)	(44.6%)	(44.4%)	(45.5%)	(44.3%)	(46.5%)	(45.5%)
<b>Civic, Educational, &amp; Religious</b>	<b>905,015</b>	<b>621,212</b>	<b>618,409</b>	<b>1,622,368</b>	<b>1,394,579</b>	<b>3,273,050</b>	<b>8,434,633</b>
	(6.2%)	(5.4%)	(5.8%)	(5.0%)	(4.9%)	(5.4%)	(5.3%)
<b>Social and Recreational</b>	<b>3,183,577</b>	<b>2,521,805</b>	<b>2,170,525</b>	<b>6,551,182</b>	<b>6,229,753</b>	<b>11,890,884</b>	<b>32,547,726</b>
	(21.8%)	(21.8%)	(20.3%)	(20.0%)	(21.7%)	(19.6%)	(20.5%)
<b>Other</b>	<b>84,818</b>	<b>88,253</b>	<b>91,913</b>	<b>237,508</b>	<b>115,417</b>	<b>403,804</b>	<b>1,021,713</b>
	(0.6%)	(0.8%)	(0.9%)	(0.7%)	(0.4%)	(0.7%)	(0.6%)
<b>TOTAL<sup>2</sup></b>	<b>14,591,495</b>	<b>11,543,315</b>	<b>10,672,563</b>	<b>32,706,962</b>	<b>28,705,127</b>	<b>60,708,005</b>	<b>158,927,467</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>No. of Persons (000)</b>	<b>18,544</b>	<b>14,733</b>	<b>14,228</b>	<b>44,045</b>	<b>47,360</b>	<b>83,191</b>	<b>222,101</b>
	(8.3%)	(6.6%)	(6.4%)	(19.8%)	(21.3%)	(37.5%)	(100.0%)

<sup>1</sup> An urbanized area is different from an MSA in that the urbanized area is the more densely developed area of a metropolitan area, whereas MSA's follow county lines. (See Glossary, Appendix A)

<sup>2</sup> Includes trips where trip purpose was unreported.

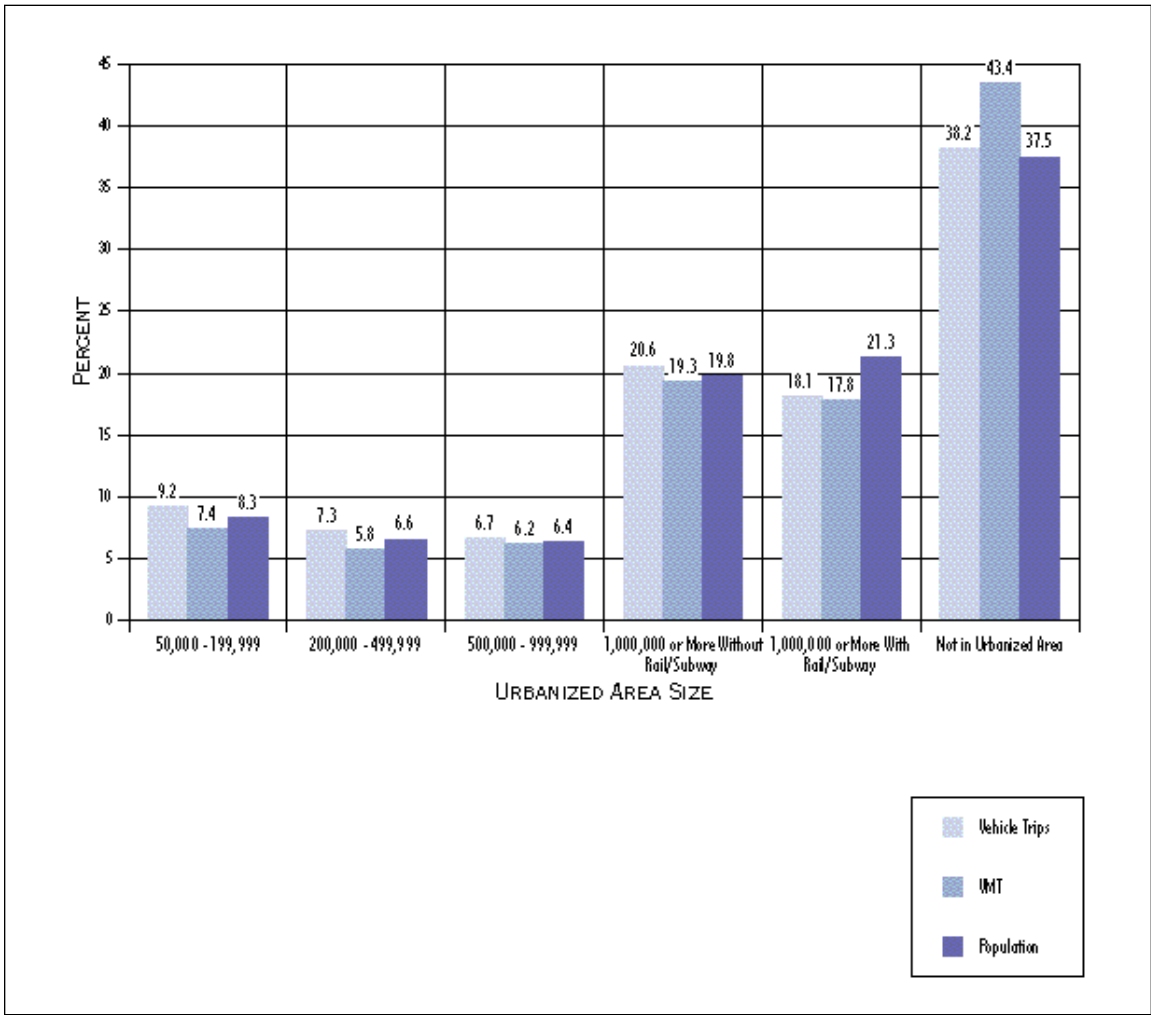
**TABLE 5.21**  
**NUMBER OF VEHICLE MILES OF TRAVEL BY URBANIZED AREA SIZE AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

	Urbanized Area Size <sup>1</sup>						TOTAL
	50,000-199,999	200,000-499,999	500,000-999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway	Not in Urbanized Area	
<b>Earning a Living</b>	<b>31,438,054</b>	<b>28,248,223</b>	<b>28,528,095</b>	<b>100,262,105</b>	<b>95,815,456</b>	<b>211,085,727</b>	<b>495,377,660</b>
	(30.2%)	(34.5%)	(32.6%)	(36.8%)	(38.1%)	(34.5%)	(35.1%)
<b>Family &amp; Personal Business</b>	<b>32,405,626</b>	<b>26,960,474</b>	<b>27,781,444</b>	<b>87,459,888</b>	<b>72,723,489</b>	<b>214,535,022</b>	<b>461,865,943</b>
	(31.2%)	(32.9%)	(31.8%)	(32.1%)	(28.9%)	(35.0%)	(32.8%)
<b>Civic, Educational, &amp; Religious</b>	<b>4,564,436</b>	<b>3,342,136</b>	<b>4,908,630</b>	<b>11,337,747</b>	<b>10,580,330</b>	<b>27,467,922</b>	<b>62,201,201</b>
	(4.4%)	(4.1%)	(5.6%)	(4.2%)	(4.2%)	(4.5%)	(4.4%)
<b>Social and Recreational</b>	<b>34,778,618</b>	<b>22,627,968</b>	<b>25,424,047</b>	<b>69,442,313</b>	<b>70,590,782</b>	<b>156,124,494</b>	<b>378,988,222</b>
	(33.4%)	(27.6%)	(29.1%)	(25.5%)	(28.1%)	(25.5%)	(26.9%)
<b>Other</b>	<b>788,916</b>	<b>739,705</b>	<b>806,028</b>	<b>3,924,213</b>	<b>1,718,948</b>	<b>3,018,491</b>	<b>10,996,301</b>
	(0.8%)	(0.9%)	(0.9%)	(1.4%)	(0.7%)	(0.5%)	(0.8%)
<b>TOTAL<sup>2</sup></b>	<b>103,977,562</b>	<b>81,922,087</b>	<b>87,450,251</b>	<b>272,438,523</b>	<b>251,485,293</b>	<b>612,302,631</b>	<b>1,409,576,347</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>No. of Persons (000)</b>	<b>18,544</b>	<b>14,733</b>	<b>14,228</b>	<b>44,045</b>	<b>47,360</b>	<b>83,191</b>	<b>222,101</b>
	(8.3%)	(6.6%)	(6.4%)	(19.8%)	(21.3%)	(37.5%)	(100.0%)

<sup>1</sup> An urbanized area is different from an MSA in that the urbanized area is the more densely developed area of a metropolitan area, whereas MSA's follow county lines. (See Glossary, Appendix A)

<sup>2</sup> Includes miles of travel where trip purpose was unreported.

**FIGURE 5.11**  
**DISTRIBUTION OF POPULATION AND VEHICLE TRAVEL BY URBANIZED AREA SIZE**  
**1990 NPTS**



Residents in large metropolitan areas with rail/subway services took more trips shorter than five miles and more trips greater than 30 miles than did those residing in areas of similar size but without rail/subway facilities. Otherwise, there is no significant differ-

ence in trip length between trips by these two groups of people. Compared with other people, those in non-urbanized areas took more than the average share of trips longer than 15 miles.

TABLE 5.22

**NUMBER OF VEHICLE TRIPS BY URBANIZED AREA SIZE AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)**

	Urbanized Area Size <sup>1</sup>					Not in Urbanized Area	TOTAL
	50,000- 199,999	200,000- 499,999	500,000- 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway		
5 miles or less	10,099,032 (69.2%)	7,348,273 (63.7%)	6,269,358 (58.7%)	18,932,970 (57.9%)	16,772,270 (58.4%)	34,390,363 (56.6%)	<b>93,812,266</b> (59.0%)
6 to 10 miles	2,491,631 (17.1%)	2,347,199 (20.3%)	2,172,855 (20.4%)	6,185,924 (18.9%)	5,193,037 (18.1%)	10,207,160 (16.8%)	<b>28,597,806</b> (18.0%)
11 to 15 miles	795,202 (5.4%)	851,961 (7.4%)	1,015,701 (9.5%)	3,084,082 (9.4%)	2,377,391 (8.3%)	5,565,410 (9.2%)	<b>13,689,747</b> (8.6%)
16 to 20 miles	315,768 (2.2%)	307,342 (2.7%)	456,569 (4.3%)	1,635,495 (5.0%)	1,330,350 (4.6%)	3,300,175 (5.4%)	<b>7,345,699</b> (4.6%)
21 to 30 miles	276,757 (1.9%)	287,425 (2.5%)	276,165 (2.6%)	1,466,631 (4.5%)	1,269,195 (4.4%)	3,135,383 (5.2%)	<b>6,711,556</b> (4.2%)
31 miles and over	475,208 (3.3%)	292,671 (2.5%)	325,433 (3.0%)	989,605 (3.0%)	1,203,760 (4.2%)	3,569,409 (5.9%)	<b>6,856,086</b> (4.3%)
<b>TOTAL<sup>2</sup></b>	<b>14,591,495</b> (100.0%)	<b>11,543,315</b> (100.0%)	<b>10,672,563</b> (100.0%)	<b>32,706,962</b> (100.0%)	<b>28,705,127</b> (100.0%)	<b>60,708,005</b> (100.0%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> An urbanized area is different from an MSA in that the urbanized area is the more densely developed area of a metropolitan area, whereas MSA's follow county lines. (See Glossary, Appendix A)

<sup>2</sup> Includes trips where trip length was unreported.

**TABLE 5.23**  
**NUMBER OF VEHICLE MILES OF TRAVEL BY URBANIZED AREA SIZE AND TRIP LENGTH**  
**1990 NPTS**  
**(THOUSANDS)**

	Urbanized Area Size <sup>1</sup>						TOTAL
	50,000-199,999	200,000-499,999	500,000-999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway	Not in Urbanized Area	
5 miles or less	23,621,524 (22.7%)	18,209,766 (22.2%)	15,239,923 (17.4%)	44,628,572 (16.4%)	38,790,113 (15.4%)	77,327,858 (12.6%)	<b>217,817,756</b> (15.5%)
6 to 10 miles	19,804,802 (19.0%)	19,093,858 (23.3%)	17,978,912 (20.6%)	51,022,990 (18.7%)	42,849,016 (17.0%)	82,822,276 (13.5%)	<b>233,571,853</b> (16.6%)
11 to 15 miles	10,705,331 (10.3%)	11,520,245 (14.1%)	13,803,150 (15.8%)	42,311,479 (15.5%)	32,538,474 (12.9%)	75,019,709 (12.3%)	<b>185,898,388</b> (13.2%)
16 to 20 miles	6,102,084 (5.9%)	5,806,800 (7.1%)	8,646,587 (9.9%)	31,069,449 (11.4%)	25,455,107 (10.1%)	62,114,685 (10.1%)	<b>139,194,713</b> (9.9%)
21 to 30 miles	7,399,864 (7.1%)	7,507,752 (9.2%)	7,144,654 (8.2%)	38,857,810 (14.3%)	33,456,635 (13.3%)	82,839,866 (13.5%)	<b>177,206,581</b> (12.6%)
31 miles and over	36,343,957 (35.0%)	19,783,666 (24.1%)	24,637,025 (28.2%)	64,548,223 (23.7%)	78,395,947 (31.2%)	232,178,237 (37.9%)	<b>455,887,055</b> (32.3%)
<b>TOTAL<sup>2</sup></b>	<b>103,977,562</b> (100.0%)	<b>81,922,087</b> (100.0%)	<b>87,450,251</b> (100.0%)	<b>272,438,523</b> (100.0%)	<b>251,485,293</b> (100.0%)	<b>612,302,631</b> (100.0%)	<b>1,409,576,347</b> (100.0%)

<sup>1</sup> An urbanized area is different from an MSA in that the urbanized area is the more densely developed area of a metropolitan area, whereas MSA's follow county lines. (See Glossary, Appendix A)

<sup>2</sup> Includes miles of travel where trip length was unreported.

As expected, the number of vehicle trips increased as household income increased. The proportion of trips for earning a living taken by households with an income greater than \$40,000 was almost twice that of those with incomes less than \$10,000, probably

because the former group is much more likely to have two or more workers. Regardless of income, most households made 45%-50% of their vehicle trips for family and personal business, and another 20% for social and recreational purposes.

TABLE 5.24

NUMBER OF VEHICLE TRIPS BY TRIP PURPOSE AND HOUSEHOLD INCOME  
1990 NPTS  
(THOUSANDS)

Purpose	Under \$10,000	\$10,000- 19,999	\$20,000- 29,999	\$30,000- 39,000	\$40,000 and Over	Unreported	TOTAL
Earning a Living	1,312,838 (16.9%)	4,381,329 (25.0%)	5,982,095 (27.2%)	6,783,102 (29.0%)	16,285,535 (30.1%)	9,892,580 (28.9%)	44,637,479 (28.1%)
Family & Personal Business	3,979,038 (51.2%)	8,294,965 (47.3%)	10,075,426 (45.8%)	10,790,899 (46.1%)	23,803,177 (44.1%)	15,293,075 (44.8%)	72,236,579 (45.5%)
Civic, Educational, & Religious	650,183 (8.4%)	1,023,161 (5.8%)	1,069,596 (4.9%)	1,071,359 (4.6%)	2,677,040 (5.0%)	1,943,294 (5.7%)	8,434,633 (5.3%)
Social & Recreational	1,770,595 (22.8%)	3,747,565 (21.4%)	4,703,833 (21.4%)	4,643,894 (19.8%)	10,880,494 (20.1%)	6,801,344 (19.9%)	32,547,726 (20.5)
Other	52,804 (0.7%)	94,461 (0.5%)	159,082 (0.7%)	120,826 (0.5%)	362,774 (0.8%)	231,765 (0.7%)	1,021,713 (0.6%)
<b>TOTAL<sup>1</sup></b>	<b>7,768,401</b> (100.0%)	<b>17,552,482</b> (100.0%)	<b>22,002,187</b> (100.0%)	<b>23,410,160</b> (100.0%)	<b>54,023,181</b> (100.0%)	<b>34,171,056</b> (100.0%)	<b>158,927,467</b> (100.0%)
<b>ALL PURPOSES</b>	(4.9%)	(11.0%)	(13.8%)	(14.7%)	(34.0%)	(21.5%)	(100.0%)

<sup>1</sup> Includes trips where trip purpose was unreported.

**TABLE 5.25**

**NUMBER OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE AND HOUSEHOLD INCOME  
1990 NPTS  
(THOUSANDS)**

Purpose	Under \$10,000	\$10,000-19,999	\$20,000-29,999	\$30,000-39,000	\$40,000 and Over	Unreported	TOTAL
<b>Earning a Living</b>	<b>12,324,190</b>	<b>40,087,097</b>	<b>59,122,496</b>	<b>75,589,201</b>	<b>203,290,341</b>	<b>104,964,335</b>	<b>495,377,660</b>
	(22.2%)	(31.0%)	(31.2%)	(35.1%)	(38.7%)	(35.6%)	(35.1%)
<b>Family &amp; Personal Business</b>	<b>21,814,580</b>	<b>45,265,975</b>	<b>65,721,885</b>	<b>70,060,343</b>	<b>158,542,380</b>	<b>100,460,781</b>	<b>461,865,944</b>
	(39.2%)	(35.1%)	(34.7%)	(32.5%)	(30.2%)	(34.0%)	(32.8%)
<b>Civic, Educational, &amp; Religious</b>	<b>4,062,432</b>	<b>6,304,259</b>	<b>8,285,051</b>	<b>9,123,265</b>	<b>19,902,460</b>	<b>14,523,734</b>	<b>62,201,201</b>
	(7.3%)	(4.9%)	(4.4%)	(4.2%)	(3.8%)	(4.9%)	(4.4%)
<b>Social &amp; Recreational</b>	<b>16,955,335</b>	<b>36,699,587</b>	<b>52,887,933</b>	<b>59,425,626</b>	<b>140,437,821</b>	<b>72,581,920</b>	<b>378,988,222</b>
	(30.5%)	(28.4%)	(27.9%)	(27.6%)	(26.8%)	(24.6%)	(26.9%)
<b>Other</b>	<b>426,379</b>	<b>724,268</b>	<b>3,567,583</b>	<b>1,072,033</b>	<b>2,586,359</b>	<b>2,619,679</b>	<b>10,996,301</b>
	(0.8%)	(0.6%)	(1.9%)	(0.5%)	(0.5%)	(0.9%)	(0.8%)
<b>TOTAL<sup>1</sup></b>	<b>55,583,914</b>	<b>129,118,263</b>	<b>189,604,626</b>	<b>215,272,474</b>	<b>524,842,286</b>	<b>295,154,737</b>	<b>1,409,576,300</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>ALL PURPOSES</b>	(3.9%)	(9.2%)	(13.5%)	(15.3%)	(37.2%)	(20.9%)	(100.0%)

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

The number of trips per household made for the purpose of earning a living decreased in every income group between 1983 and 1990.

On the other hand, the number of trips for family and personal business increased over the same period for every income group.

TABLE 5.26

ANNUAL NUMBER OF VEHICLE TRIPS PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD INCOME  
1983 AND 1990 NPTS<sup>1</sup>  
(INCOME IN 1990 DOLLARS)

Purpose	Under \$10,000	\$10,000-19,999	\$20,000-39,999	\$40,000 and over	TOTAL
<b>1983</b>					
Earning a Living	152	404	639	763	<b>514</b>
Family & Personal Business	241	422	587	747	<b>520</b>
Civic, Educational, & Religious	51	80	123	171	<b>109</b>
Social & Recreational	159	286	362	464	<b>330</b>
Other	6	9	15	22	<b>13</b>
<b>TOTAL</b>	<b>609</b>	<b>1,201</b>	<b>1,726</b>	<b>2,167</b>	<b>1,486</b>
<b>NO. OF HOUSEHOLDS (000)</b>	<b>18,014</b>	<b>18,435</b>	<b>27,757</b>	<b>21,165</b>	<b>85,371</b>
<b>PERCENT OF HOUSEHOLDS</b>	21.1	21.6	32.5	24.8	100.0
<b>1990</b>					
Earning a Living	142	337	540	750	<b>478</b>
Family & Personal Business	430	638	883	1,096	<b>774</b>
Civic, Educational, & Religious	70	79	91	123	<b>90</b>
Social & Recreational	191	288	396	501	<b>349</b>
Other	6	7	12	17	<b>11</b>
<b>TOTAL</b>	<b>839</b>	<b>1,349</b>	<b>1,922</b>	<b>2,487</b>	<b>1,702</b>
<b>NO. OF HOUSEHOLDS (000)</b>	<b>9,252</b>	<b>13,011</b>	<b>23,618</b>	<b>21,704</b>	<b>93,347<sup>2</sup></b>
<b>PERCENT OF HOUSEHOLDS</b>	9.9	13.9	25.3	23.3	100.0 <sup>2</sup>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 25,762 thousand (27.6%) households where household income was unreported.

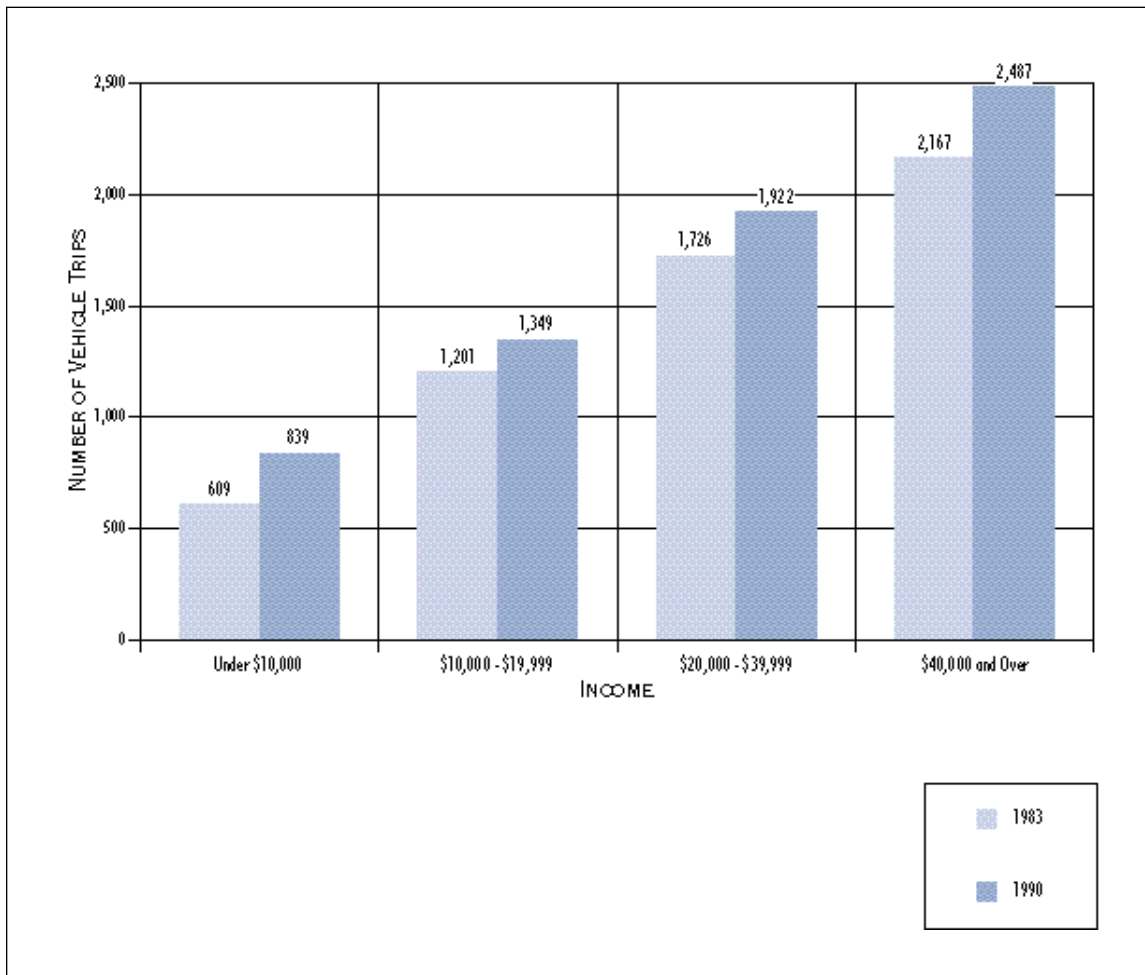


On a per-household basis, a household in 1983 with an annual income greater than \$40,000 took an average of 256% more vehicle trips than a household with an income less than \$10,000. The gap in the number of vehicle trips per year between households in

the highest income category and those in the lowest narrowed in 1990. Highest-income households only took an average of 196% more vehicle trips than lowest-income households in 1990.

FIGURE 5.12

ANNUAL NUMBER OF VEHICLE TRIPS PER HOUSEHOLD BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS  
(INCOME IN 1990 DOLLARS)



VEHICLE TRIPS AND TRIPPER MILES OF TRAVEL: HOUSEHOLD VEHICLE TRIPS

TABLE 5.27

**ANNUAL VEHICLE MILES OF TRAVEL PER HOUSEHOLD BY TRIP PURPOSE AND HOUSEHOLD INCOME  
1983 AND 1990 NPTS<sup>1</sup>  
(INCOME IN 1990 DOLLARS)**

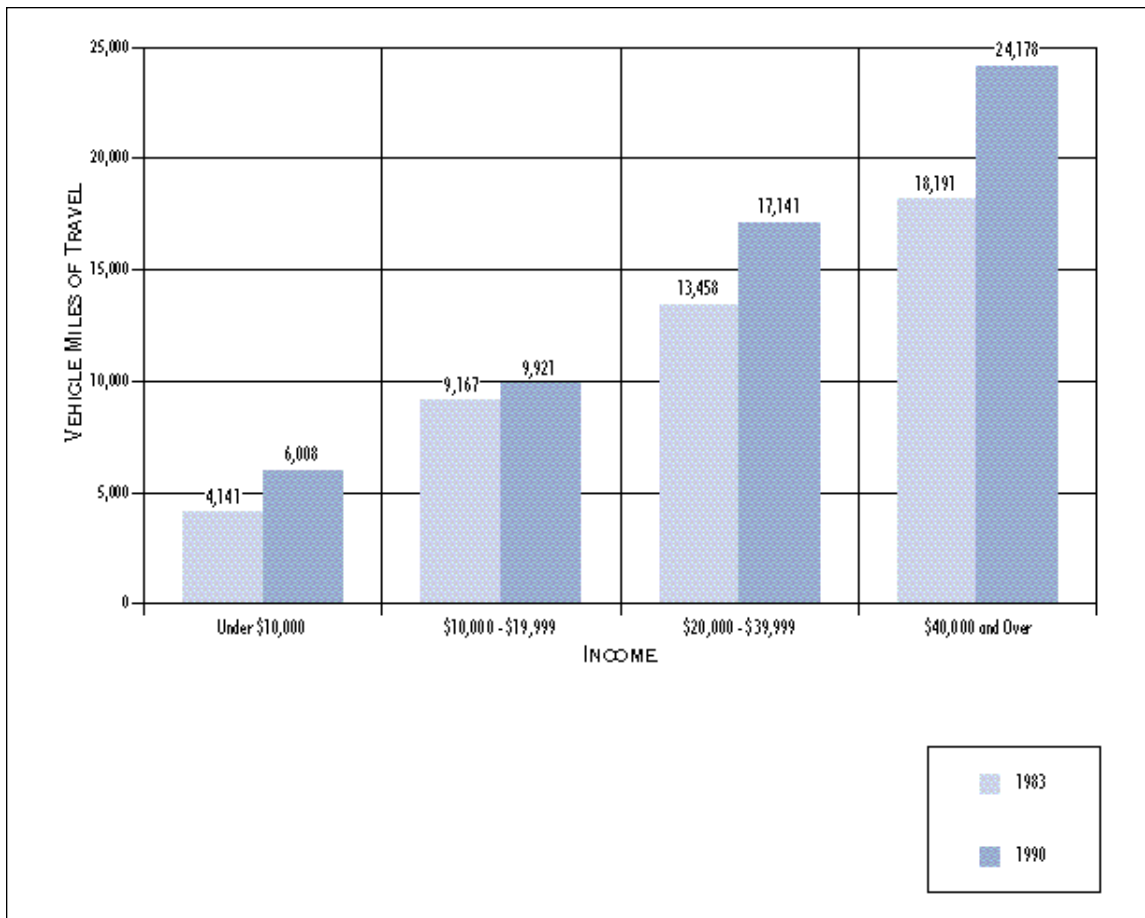
Purpose	Under \$10,000	\$10,000- 19,999	\$20,000- 39,999	\$40,000 and over	TOTAL
<b>1983</b>					
Earning a Living	1,135	3,392	5,666	7,385	<b>4,613</b>
Family & Personal Business	1,263	2,365	3,189	4,457	<b>2,923</b>
Civic, Educational, & Religious	248	495	646	1,019	<b>611</b>
Social & Recreational	1,425	2,558	3,459	4,893	<b>3,205</b>
Other	70	357	498	437	<b>387</b>
<b>TOTAL</b>	<b>4,141</b>	<b>9,167</b>	<b>13,458</b>	<b>18,191</b>	<b>11,739</b>
<b>NO. OF HOUSEHOLDS (000)</b>	<b>18,014</b>	<b>18,435</b>	<b>27,757</b>	<b>21,165</b>	<b>85,371</b>
<b>PERCENT OF HOUSEHOLDS</b>	21.1	21.6	32.5	24.8	100.0
<b>1990</b>					
Earning a Living	1,332	3,081	5,704	9,366	<b>4,182</b>
Family & Personal Business	2,358	3,479	5,749	7,305	<b>3,872</b>
Civic, Educational, & Religious	439	485	737	917	<b>511</b>
Social & Recreational	1,833	2,820	4,755	6,471	<b>3,282</b>
Other	46	56	196	119	<b>90</b>
<b>TOTAL</b>	<b>6,008</b>	<b>9,921</b>	<b>17,141</b>	<b>24,178</b>	<b>15,100</b>
<b>NO. OF HOUSEHOLDS (000)</b>	<b>9,252</b>	<b>13,011</b>	<b>23,618</b>	<b>21,704</b>	<b>93,347<sup>2</sup></b>
<b>PERCENT OF HOUSEHOLDS</b>	9.9	13.9	25.3	23.3	100.0 <sup>2</sup>
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.			<sup>2</sup> Includes 25,762 thousand (27.6%) households where household income was unreported.		

In analyzing data using household income, the reader should be aware that in 1990, only 72.4% of all surveyed households reported annual income. Thus, caution should be used in interpreting data displayed by income. A comparable percentage is not available for 1983 because income was imputed when it was not reported. Based on data from those households that reported income, annual

vehicle miles of travel per household increased as household income increased. In 1990, highest-income households drove 302% more than lowest-income households. However, this is less than the difference of 339% in the amount of driving per household between highest-income households and lowest-income households in 1983.

**FIGURE 5.13**

**ANNUAL VEHICLE MILES OF TRAVEL PER HOUSEHOLD BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS  
(INCOME IN 1990 DOLLARS)**



Between 20% and 26% of all vehicle trips were taken in vehicles 10 years or older, regardless of the number of vehicles available to the household. In general, the relative use of newer and older vehicles did not change

much as household vehicle availability increased. This has implications for energy consumption and air quality issues, and the introduction of recent safety features into the household vehicle fleet.

TABLE 5.28

ANNUAL VEHICLE TRIPS BY NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup> AND AGE OF VEHICLE  
1990 NPTS  
(MILLIONS)

Vehicle Age <sup>2</sup>	1 Vehicle	2 Vehicles	3 or More Vehicles	TOTAL
1 Year or Less	2,334 (6.6%)	5,876 (8.4%)	3,716 (8.2%)	11,926 (7.5%)
2 Years	3,399 (9.6%)	8,608 (12.3%)	4,755 (10.4%)	16,762 (10.5%)
3 Years	3,227 (9.1%)	8,064 (11.5%)	4,532 (10.0%)	15,823 (10.0%)
4 Years	4,021 (11.4%)	7,490 (10.7%)	4,067 (8.9%)	15,578 (9.8%)
5 Years	3,806 (10.7%)	7,600 (10.8%)	4,559 (10.0%)	15,965 (10.0%)
6 Years	3,222 (9.1%)	6,451 (9.2%)	4,074 (9.0%)	13,747 (8.7%)
7 Years	2,913 (8.2%)	5,600 (8.0%)	3,860 (8.5%)	12,373 (7.8%)
8 Years	1,813 (5.1%)	3,274 (4.6%)	2,463 (5.4%)	7,550 (4.8%)
9 Years	1,433 (4.0%)	2,710 (3.8%)	1,983 (4.3%)	6,126 (3.9%)
10 or More Years	9,267 (26.2%)	14,600 (20.7%)	11,500 (25.3%)	35,367 (22.3%)
<b>TOTAL</b>	<b>35,435</b> (100.0%)	<b>70,273</b> (100.0%)	<b>45,509</b> (100.0%)	<b>158,927<sup>3</sup></b> (100.0%)
<b>ALL AGES</b>	23.3%	46.0%	30.4%	100.0%
<b>Number of Households (000)</b>	<b>30,654</b> (36.3%)	<b>35,872</b> (42.3%)	<b>18,248</b> (21.5%)	<b>84,774<sup>4</sup></b> (100.0%)

<sup>1</sup> Includes all vehicles owned by or available on a regular basis to the household.

<sup>2</sup> For vehicle distribution by vehicle age, see Table 3.25.

<sup>3</sup> Includes trips where age of vehicle was unreported.

<sup>4</sup> Does not include 8,573,000 households without a vehicle.

TABLE 5.29

**ANNUAL VEHICLE MILES OF TRAVEL AND AVERAGE TRIP LENGTH  
BY NUMBER OF HOUSEHOLD-BASED VEHICLES<sup>1</sup> AND AGE OF VEHICLE  
1990 NPTS  
(THOUSANDS)**

Vehicle Age <sup>2</sup>	1 Vehicle	2 Vehicles	3 or More Vehicles	TOTAL	Average Trip Length (miles)
1 Year or Less	21,851,363 (8.6%)	57,920,864 (9.4%)	41,480,178 (9.2%)	121,252,405 (8.6%)	10.3
2 Years	26,954,431 (10.6%)	84,861,128 (13.7%)	53,402,111 (11.9%)	165,217,670 (11.7%)	10.0
3 Years	24,431,017 (9.6%)	78,790,575 (12.7%)	44,183,617 (9.8%)	147,405,209 (10.5%)	9.4
4 Years	32,487,350 (12.8%)	69,019,068 (11.1%)	44,815,042 (10.0%)	146,321,460 (10.4%)	9.5
5 Years	28,543,060 (11.3%)	73,299,703 (11.8%)	42,945,416 (9.5%)	144,788,179 (10.3%)	9.2
6 Years	23,999,328 (9.5%)	53,813,494 (8.7%)	40,967,370 (9.1%)	118,780,192 (8.4%)	8.7
7 Years	20,680,399 (8.2%)	43,816,420 (7.1%)	34,931,657 (7.8%)	99,428,476 (7.1%)	8.2
8 Years	12,920,140 (5.1%)	26,084,857 (4.2%)	21,410,426 (4.7%)	60,415,423 (4.3%)	8.1
9 Years	8,099,912 (3.2%)	20,972,446 (3.4%)	19,705,775 (4.4%)	48,778,133 (3.5%)	8.1
10 or More Years	53,552,100 (21.1%)	110,543,948 (17.9%)	106,007,933 (23.6%)	270,103,981 (19.2%)	7.7
<b>TOTAL</b>	<b>253,519,100</b> (100.0%)	<b>619,122,503</b> (100.0%)	<b>449,849,525</b> (100.0%)	<b>1,409,576,300<sup>3</sup></b> (100.0%)	<b>9.0</b>
<b>Average Trip Length (miles)</b>	<b>7.3</b>	<b>8.9</b>	<b>10.0</b>	<b>9.0</b>	

<sup>1</sup> Includes all vehicles owned by or available on a regular basis to the household.

<sup>2</sup> For vehicle distribution by vehicle age, see Table 3.25.

<sup>3</sup> Includes miles of travel where age of vehicle was unreported.

Based on the 1990 NPTS, older vehicles were used more for shorter trips than newer vehicles. The average vehicle trip length in 1990 was about nine miles, and vehicles less than six years old were used more for longer trips.

FIGURE 5.14

AVERAGE VEHICLE TRIP LENGTH BY AGE OF VEHICLE  
1990 NPTS

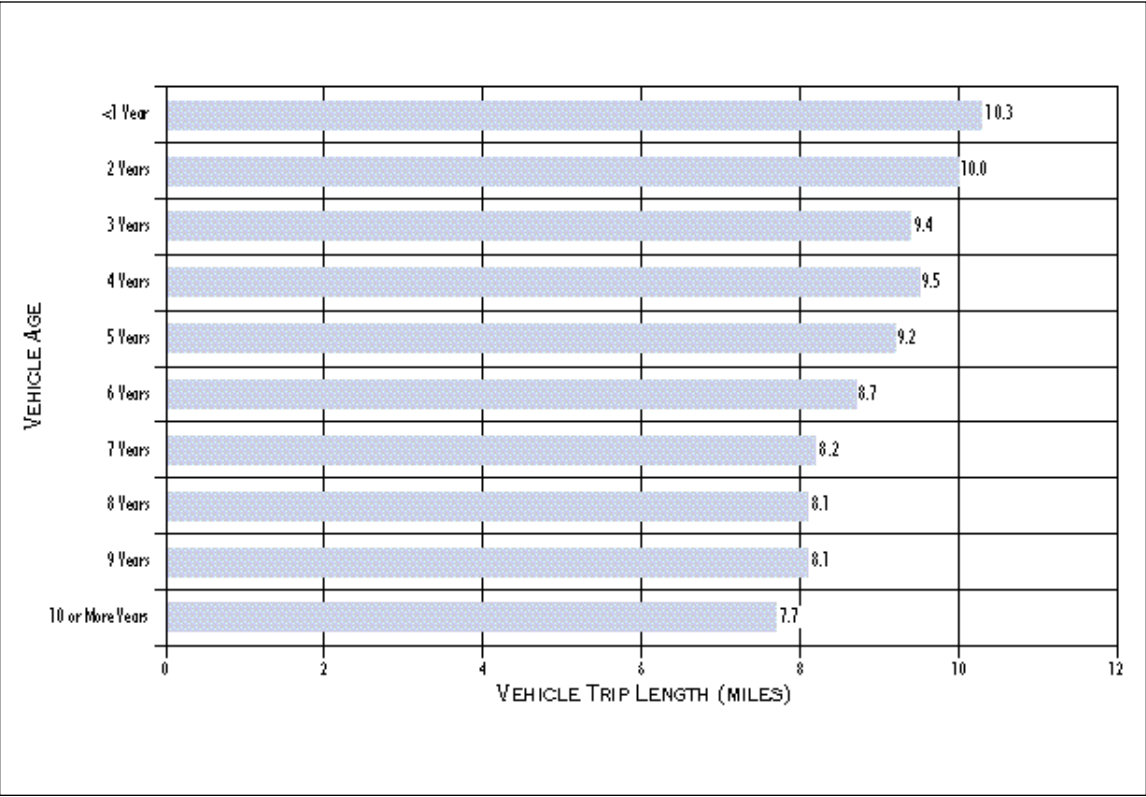


TABLE 5.30

**NUMBER OF VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>  
(MILLIONS)**

	Vehicle Trips				Vehicle Miles of Travel			
	1969	1977	1983	1990	1969	1977	1983	1990
<b>Earning A Living</b>								
To or From Work	27,844	31,886	35,271	41,792	260,716	287,710	301,644	453,052
Work-Related Business	3,840	5,768	3,679	2,845	61,299	68,978	42,090	42,336
<b>Subtotal</b>	<b>31,684</b>	<b>37,654</b>	<b>38,950</b>	<b>44,637</b>	<b>322,015</b>	<b>356,688</b>	<b>343,734</b>	<b>495,378</b>
<b>Family &amp; Personal Business</b>								
Shopping	13,354	20,242	25,375	32,165	58,196	100,744	134,287	162,668
Doctor/Dentist	1,484	1,632	1,522	1,749	12,415	16,337	15,032	17,809
Other Family/Personal	12,220	16,215	23,218	38,323	79,146	108,912	155,332	281,390
<b>Subtotal</b>	<b>27,058</b>	<b>38,089</b>	<b>50,115</b>	<b>72,237</b>	<b>149,757</b>	<b>225,993</b>	<b>304,650</b>	<b>461,867</b>
<b>Civic, Educational &amp; Religious</b>								
<b>Subtotal</b>	<b>8,117</b>	<b>7,944</b>	<b>7,485</b>	<b>8,435</b>	<b>38,021</b>	<b>47,195</b>	<b>41,088</b>	<b>62,201</b>
<b>Social &amp; Recreational</b>								
Vacation	0	109	254	190	20,174	5,446	21,045	20,531
Visit Friends/ Relatives	7,855	10,121	12,561	14,053	93,889	109,820	135,289	163,980
Pleasure Driving	1,222	544	507	435	24,054	8,168	11,024	9,166
Other Social/ Recreational	10,387	13,386	15,352	17,870	118,719	124,342	133,284	185,311
<b>Subtotal</b>	<b>19,464</b>	<b>24,159</b>	<b>28,674</b>	<b>32,548</b>	<b>256,836</b>	<b>247,776</b>	<b>300,642</b>	<b>378,988</b>
<b>OTHER<sup>2</sup></b>								
<b>Subtotal</b>	<b>960</b>	<b>979</b>	<b>1,649</b>	<b>1,070</b>	<b>9,311</b>	<b>29,951</b>	<b>12,026</b>	<b>11,166</b>
<b>TOTAL</b>	<b>87,284</b>	<b>108,826</b>	<b>126,874</b>	<b>158,927</b>	<b>775,940</b>	<b>907,603</b>	<b>1,002,139</b>	<b>1,409,600</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes travel where trip purpose was unreported.

FIGURE 5.15

NUMBER OF VEHICLE TRIPS BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS

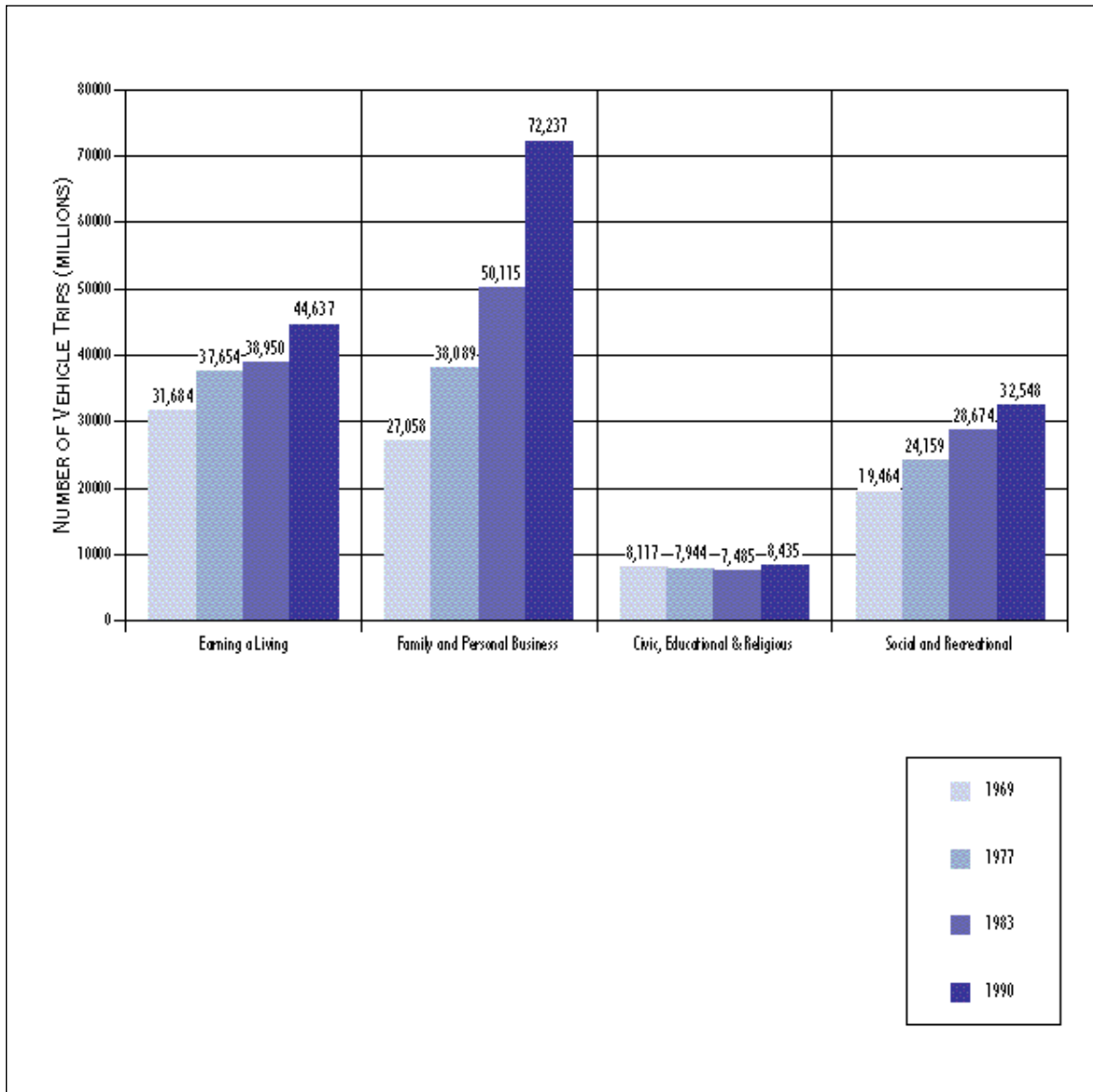




TABLE 5.31

DISTRIBUTION OF VEHICLE TRIPS, VEHICLE MILES OF TRAVEL, AND AVERAGE TRIP LENGTH  
BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>

	Vehicle Trips (Percentage)				Vehicle Miles of Travel (Percentage)				Trip Length (Miles)			
	1969	1977	1983	1990	1969	1977	1983	1990	1969	1977	1983	1990
<b>Earning A Living</b>												
To or From Work	31.9	29.3	27.8	26.3	33.6	31.7	30.1	32.1	9.4	9.1	8.5	11.0
Work-Related Business	4.4	5.3	2.9	1.8	7.9	7.6	4.2	3.0	16.1	11.9	11.4	15.1
<b>Subtotal</b>	<b>36.3</b>	<b>34.6</b>	<b>30.7</b>	<b>28.1</b>	<b>41.5</b>	<b>39.3</b>	<b>34.3</b>	<b>35.1</b>	<b>10.2</b>	<b>9.5</b>	<b>8.8</b>	<b>11.2</b>
<b>Family &amp; Personal Business</b>												
Shopping	15.3	18.6	20.0	20.3	7.5	11.1	13.4	11.5	4.4	5.0	5.3	5.1
Doctor/Dentist	1.7	1.5	1.2	1.1	1.6	1.8	1.5	1.3	8.4	10.3	9.7	10.5
Other Family/Personal	14.0	14.9	18.3	24.1	10.2	12.0	15.5	20.0	6.5	6.8	6.7	7.4
<b>Subtotal</b>	<b>31.0</b>	<b>35.0</b>	<b>39.5</b>	<b>45.5</b>	<b>19.3</b>	<b>24.9</b>	<b>30.4</b>	<b>32.8</b>	<b>5.6</b>	<b>6.0</b>	<b>6.1</b>	<b>6.5</b>
<b>Civic, Educational &amp; Religious</b>												
<b>Subtotal</b>	<b>9.3</b>	<b>7.3</b>	<b>5.9</b>	<b>5.3</b>	<b>4.9</b>	<b>5.2</b>	<b>4.1</b>	<b>4.4</b>	<b>4.7</b>	<b>5.9</b>	<b>5.5</b>	<b>7.5</b>
<b>Social &amp; Recreational</b>												
Vacation	0.0	0.1	0.2	0.1	2.6	0.6	2.1	1.5	160.0	77.9	113.9	114.9
Visit Friends/ Relatives	9.0	9.3	9.9	8.8	12.1	12.1	13.5	11.6	12.0	10.9	10.8	11.8
Pleasure Driving	1.4	0.5	0.4	0.3	3.1	0.9	1.1	0.6	20.0	14.1	22.7	21.9
Other Social/ Recreational	11.9	12.3	12.1	11.3	15.3	13.7	13.3	13.2	11.4	9.3	8.7	10.5
<b>Subtotal</b>	<b>22.3</b>	<b>22.2</b>	<b>22.6</b>	<b>20.5</b>	<b>33.1</b>	<b>27.3</b>	<b>30.0</b>	<b>26.9</b>	<b>13.1</b>	<b>10.3</b>	<b>10.5</b>	<b>11.8</b>
<b>OTHER<sup>2</sup></b>												
<b>Subtotal</b>	<b>1.1</b>	<b>0.9</b>	<b>1.3</b>	<b>0.6</b>	<b>1.2</b>	<b>3.3</b>	<b>1.2</b>	<b>0.8</b>	<b>9.4</b>	<b>29.3</b>	<b>7.2</b>	<b>10.8</b>
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>8.9</b>	<b>8.4</b>	<b>7.9</b>	<b>9.0</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes travel where trip purpose was unreported.

Although the number of vehicle trips for earning a living increased, the proportion has declined steadily, from 36.3% in 1969 to 28.1% in 1990. On the other hand, trips for family and personal business have continued to increase both in number and share. Not

only did the total number of vehicle trips increase for these purposes, these trips were also longer. Overall, more trips and slightly longer trip lengths contributed to an increase of 82% in the vehicle miles of travel from 1969 to 1990 (Tables 5.30 and 5.31).

**FIGURE 5.16**

**AVERAGE VEHICLE TRIP LENGTH BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS**

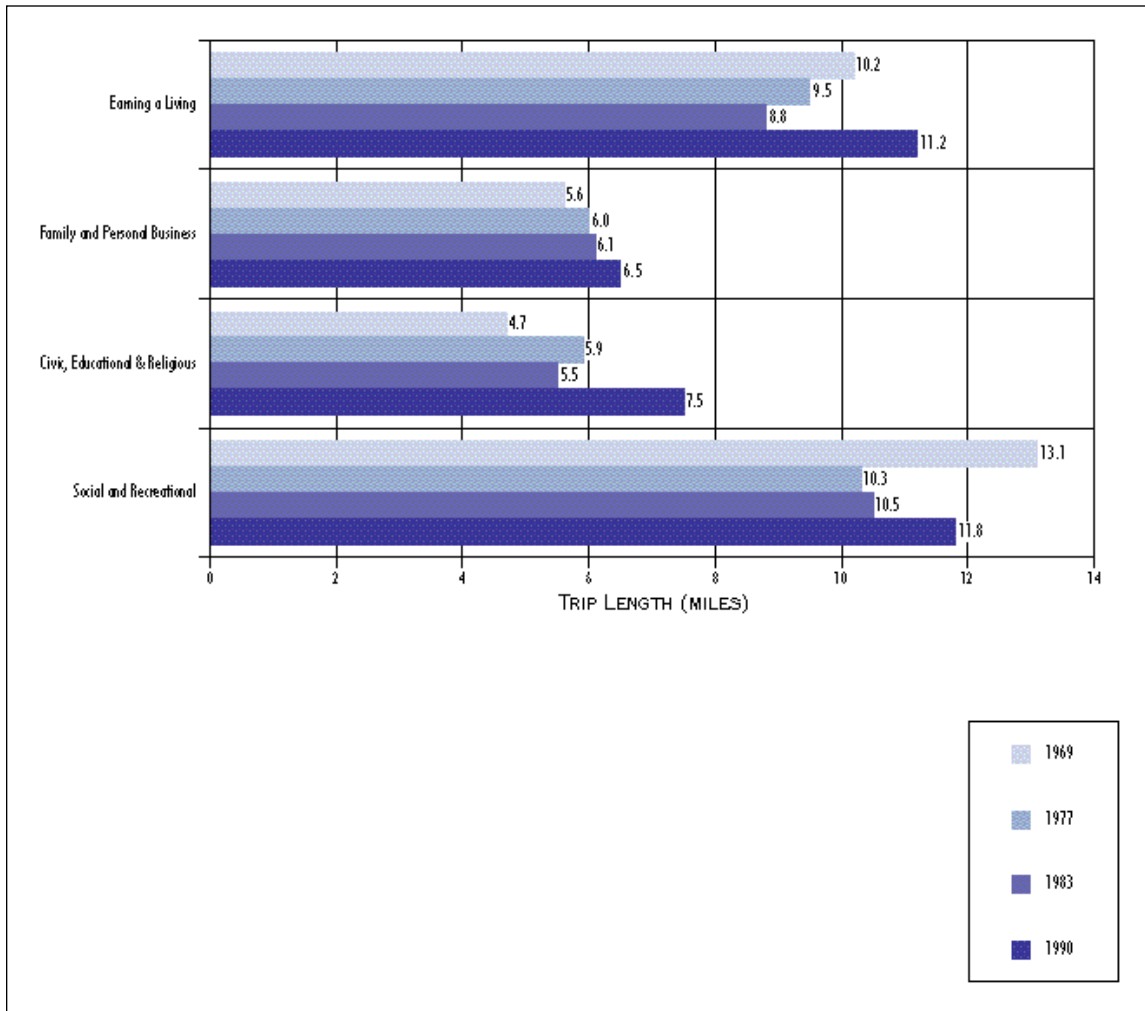


TABLE 5.32

ANNUAL VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL PER HOUSEHOLD BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS<sup>1</sup>

	Vehicle Trips				Vehicle Miles of Travel			
	1969	1977	1983	1990	1969	1977	1983	1990
<b>Earning A Living</b>								
To or From Work	445	423	414	447	4,183	3,815	3,538	4,853
Work-Related Business	62	76	43	30	986	915	495	454
<b>Subtotal</b>	<b>507</b>	<b>499</b>	<b>457</b>	<b>477</b>	<b>5,169</b>	<b>4,730</b>	<b>4,033</b>	<b>5,307</b>
<b>Family &amp; Personal Business</b>								
Shopping	213	268	297	345	929	1,336	1,567	1,743
Doctor/Dentist	24	22	18	19	204	217	172	191
Other Family/Personal	195	215	272	411	1,270	1,444	1,816	3,014
<b>Subtotal</b>	<b>432</b>	<b>505</b>	<b>587</b>	<b>775</b>	<b>2,403</b>	<b>2,997</b>	<b>3,555</b>	<b>4,948</b>
<b>Civic, Educational &amp; Religious</b>								
<b>Subtotal</b>	<b>130</b>	<b>105</b>	<b>88</b>	<b>90</b>	<b>608</b>	<b>626</b>	<b>481</b>	<b>666</b>
<b>Social &amp; Recreational</b>								
Vacation	0	1	3	2	321	72	250	220
Visit Friends/ Relatives	126	134	147	151	1,499	1,456	1,590	1,757
Pleasure Driving	20	7	6	5	382	108	132	98
Other Social/ Recreational	166	178	179	191	1,892	1,650	1,562	1,985
<b>Subtotal</b>	<b>312</b>	<b>320</b>	<b>335</b>	<b>349</b>	<b>4,094</b>	<b>3,286</b>	<b>3,534</b>	<b>4,062</b>
<b>OTHER</b>								
<b>Subtotal</b>	<b>15</b>	<b>13</b>	<b>19</b>	<b>11</b>	<b>149</b>	<b>397</b>	<b>136</b>	<b>118</b>
<b>TOTAL</b>	<b>1,396</b>	<b>1,442</b>	<b>1,486</b>	<b>1,702</b>	<b>12,423</b>	<b>12,036</b>	<b>11,739</b>	<b>15,101</b>

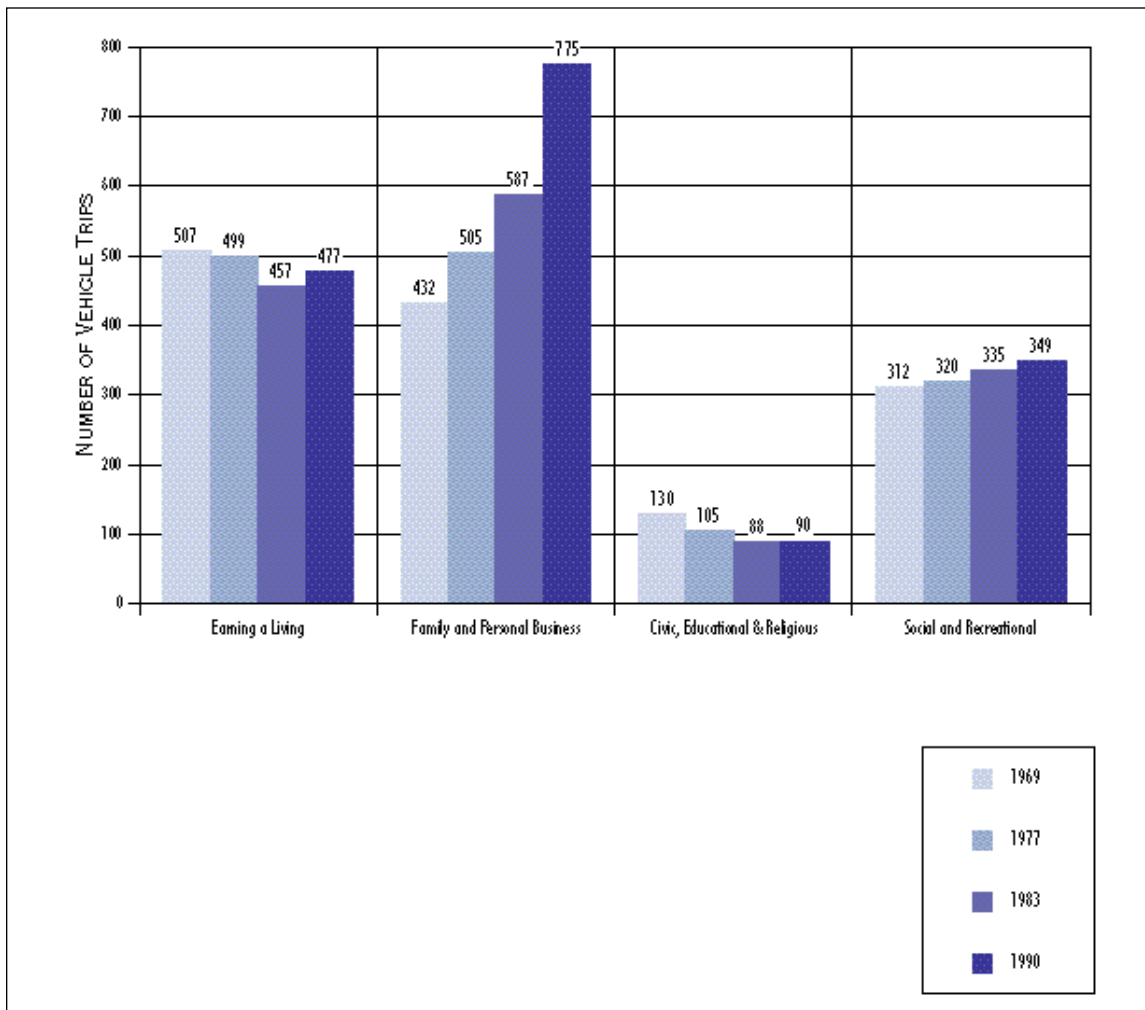
<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

In 1969, trips for earning a living accounted for more household trips than any other purpose. However, by 1977 more vehicle trips were for family and personal business. This

was still true in 1990. Furthermore, trips taken for family and personal business continued to account for an increasing share of total vehicle travel.

FIGURE 5.17

ANNUAL VEHICLE TRIPS PER HOUSEHOLD BY TRIP PURPOSE  
1969, 1977, 1983, AND 1990 NPTS



**TABLE 5.33**

**NUMBER OF VEHICLE TRIPS BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Vehicle Type	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>	% of Household Vehicles
<b>Auto</b>	<b>34,179,986</b> (76.6%)	<b>58,762,763</b> (81.3%)	<b>7,394,619</b> (87.7%)	<b>26,512,946</b> (81.5%)	<b>815,344</b> (79.8%)	<b>127,693,762</b> (80.3%)	74.7
<b>Passenger Van</b>	<b>1,789,346</b> (4.0%)	<b>4,038,928</b> (5.6%)	<b>391,176</b> (4.6%)	<b>1,497,921</b> (4.6%)	<b>94,423</b> (9.2%)	<b>7,819,697</b> (4.9%)	4.8
<b>Cargo Van</b>	<b>319,494</b> (0.7%)	<b>242,140</b> (0.3%)	<b>11,850</b> (0.1%)	<b>124,967</b> (0.4%)	<b>96</b> (0.0%)	<b>698,548</b> (0.4%)	0.6
<b>Pickup Truck</b>	<b>7,732,470</b> (17.3%)	<b>8,559,797</b> (11.9%)	<b>611,910</b> (7.3%)	<b>3,932,239</b> (12.1%)	<b>105,223</b> (10.3%)	<b>20,945,765</b> (13.2%)	17.2
<b>Other Truck</b>	<b>451,089</b> (1.0%)	<b>375,435</b> (0.5%)	<b>5,575</b> (0.1%)	<b>155,993</b> (0.5%)	<b>0</b> (0.0%)	<b>988,091</b> (0.6%)	0.6
<b>RV/Motor Home</b>	<b>9,055</b> (0.0%)	<b>63,254</b> (0.1%)	<b>0</b> (0.0%)	<b>30,107</b> (0.1%)	<b>0</b> (0.0%)	<b>102,416</b> (0.1%)	0.5
<b>Motorcycle</b>	<b>117,232</b> (0.3%)	<b>127,559</b> (0.2%)	<b>9,203</b> (0.1%)	<b>232,783</b> (0.7%)	<b>0</b> (0.0%)	<b>486,777</b> (0.3%)	1.3
<b>Moped</b>	<b>24,111</b> (0.1%)	<b>17,828</b> (0.0%)	<b>8,914</b> (0.1%)	<b>31,686</b> (0.1%)	<b>0</b> (0.0%)	<b>82,538</b> (0.1%)	0.1
<b>Other POV</b>	<b>328</b> (0.0%)	<b>38,153</b> (0.1%)	<b>0</b> (0.0%)	<b>10,723</b> (0.0%)	<b>6,627</b> (0.6%)	<b>55,831</b> (0.0%)	0.1
<b>TOTAL</b>	<b>44,623,111</b> (100.0%)	<b>72,225,857</b> (100.0%)	<b>8,433,247</b> (100.0%)	<b>32,529,365</b> (100.0%)	<b>1,021,713</b> (100.0%)	<b>158,927,467</b> (100.0%)	100.0 <sup>2</sup>

<sup>1</sup> Includes trips where trip purpose was unreported. <sup>2</sup> Includes 0.1% of vehicles with unknown vehicle types.

Cargo vans, pickup trucks and other types of trucks were frequently used for earning a living. This reflects the common use of these

vehicles for commuting to work, service calls, construction activities or cargo delivery activities.

TABLE 5.34

**DISTRIBUTION OF VEHICLE TRIPS BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(PERCENT)  
(WITHIN VEHICLE TYPE)**

Vehicle Type	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
Auto	26.8	46.0	5.8	20.8	0.6	100.0
Passenger Van	22.9	51.7	5.0	19.2	1.2	100.0
Cargo Van	45.7	34.7	1.7	17.9	0.0	100.0
Pickup Truck	36.9	40.9	2.9	18.8	0.5	100.0
Other Truck	45.7	38.0	0.6	15.8	0.0	100.0
RV/Motor Home	8.8	61.8	0.0	29.4	0.0	100.0
Motorcycle	24.1	26.2	1.9	47.8	0.0	100.0
Moped	29.2	21.6	10.8	38.4	0.0	100.0
Other POV	0.6	68.3	0.0	19.2	11.9	100.0
<b>TOTAL</b>	28.1	45.4	5.3	20.5	0.6	100.0

<sup>1</sup> Includes trips where trip purpose was unreported.

TABLE 5.35

**NUMBER OF VEHICLE MILES OF TRAVEL BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Vehicle Type	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>Auto</b>	<b>366,164,393</b>	<b>362,044,815</b>	<b>54,985,549</b>	<b>298,159,397</b>	<b>9,388,469</b>	<b>1,090,853,204</b>
	(73.9%)	(78.3%)	(88.4%)	(78.7%)	(85.4%)	(77.4%)
<b>Passenger Van</b>	<b>18,765,518</b>	<b>29,011,256</b>	<b>2,004,705</b>	<b>21,039,630</b>	<b>438,535</b>	<b>71,283,350</b>
	(3.8%)	(6.3%)	(3.2%)	(5.6%)	(4.0%)	(5.1%)
<b>Cargo Van</b>	<b>5,582,212</b>	<b>2,293,239</b>	<b>170,135</b>	<b>1,845,635</b>	<b>958</b>	<b>9,892,178</b>
	(1.1%)	(0.5%)	(0.3%)	(0.5%)	(0.0%)	(0.7%)
<b>Pickup Truck</b>	<b>93,014,514</b>	<b>63,047,551</b>	<b>4,961,843</b>	<b>51,171,212</b>	<b>1,114,002</b>	<b>213,320,291</b>
	(18.8%)	(13.7%)	(8.0%)	(13.5%)	(10.1%)	(15.1%)
<b>Other Truck</b>	<b>10,825,614</b>	<b>3,138,237</b>	<b>11,004</b>	<b>1,109,387</b>	<b>0</b>	<b>15,084,241</b>
	(2.2%)	(0.7%)	(0.0%)	(0.3%)	(0.0%)	(1.1%)
<b>RV/Motor Home</b>	<b>14,715</b>	<b>740,206</b>	<b>0</b>	<b>1,783,828</b>	<b>0</b>	<b>2,538,749</b>
	(0.0%)	(0.2%)	(0.0%)	(0.5%)	(0.0%)	(0.2%)
<b>Motorcycle</b>	<b>715,496</b>	<b>998,874</b>	<b>60,310</b>	<b>3,592,691</b>	<b>0</b>	<b>5,367,371</b>
	(0.1%)	(0.2%)	(0.1%)	(0.9%)	(0.0%)	(0.4%)
<b>Moped</b>	<b>207,820</b>	<b>35,809</b>	<b>7,656</b>	<b>65,498</b>	<b>0</b>	<b>316,784</b>
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
<b>Other POV</b>	<b>82</b>	<b>539,074</b>	<b>0</b>	<b>87,215</b>	<b>54,337</b>	<b>680,709</b>
	(0.0%)	(0.1%)	(0.0%)	(0.0%)	(0.5%)	(0.0%)
<b>TOTAL<sup>1</sup></b>	<b>495,377,660</b>	<b>461,865,944</b>	<b>62,201,202</b>	<b>378,988,222</b>	<b>10,996,301</b>	<b>1,409,576,300</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes miles of travel where trip purpose, vehicle type, or both were unreported.

TABLE 5.36

**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(PERCENTAGE)  
(WITHIN VEHICLE TYPE)**

Vehicle Type	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	<b>TOTAL</b>
Auto	33.6	33.2	5.0	27.3	0.9	100.0
Passenger Van	26.3	40.7	2.8	29.5	0.6	100.0
Cargo Van	56.4	23.2	1.7	18.7	0.0	100.0
Pickup Truck	43.6	29.6	2.3	24.0	0.5	100.0
Other Truck	71.8	20.8	0.1	7.4	0.0	100.0
RV/Motor Home	0.6	29.2	0.0	70.3	0.0	100.0
Motorcycle	13.3	18.6	1.1	66.9	0.0	100.0
Moped	65.6	11.3	2.4	20.7	0.0	100.0
Other POV	0.0	79.2	0.0	12.8	8.0	100.0
<b>TOTAL</b>	35.1	32.8	4.4	26.9	0.8	100.0



Although roughly 75% of all vehicles were automobiles, they were used in more than 80% of the vehicle trips, demonstrating that they were used more frequently than other

types of vehicles. However, trips by automobiles amounted to only 77% of all miles travelled, indicating that trips by automobiles were slightly shorter than the average.

**FIGURE 5.18**

**DISTRIBUTION OF VEHICLES AND VEHICLE TRAVEL BY SELECTED VEHICLE TYPE  
1990 NPTS**

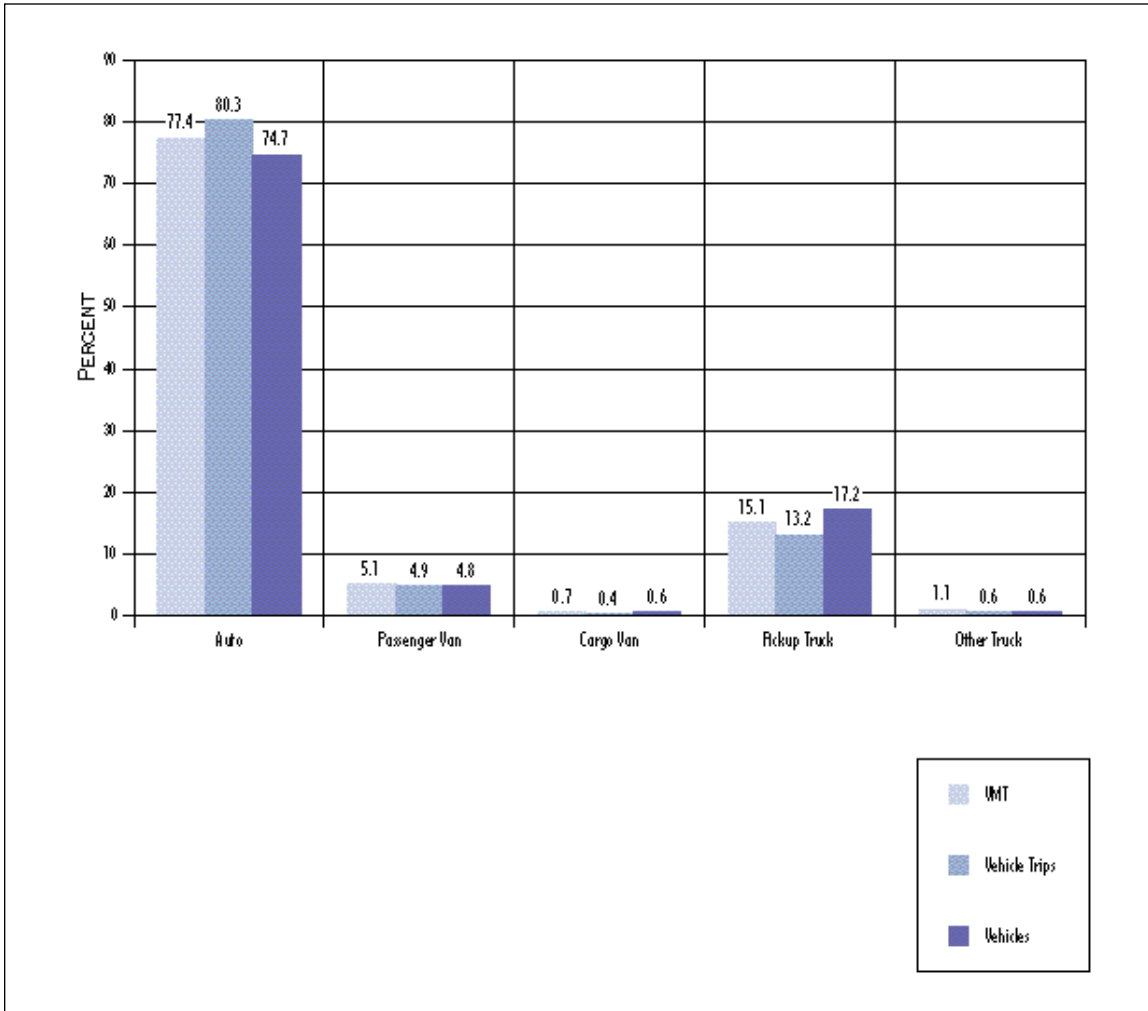
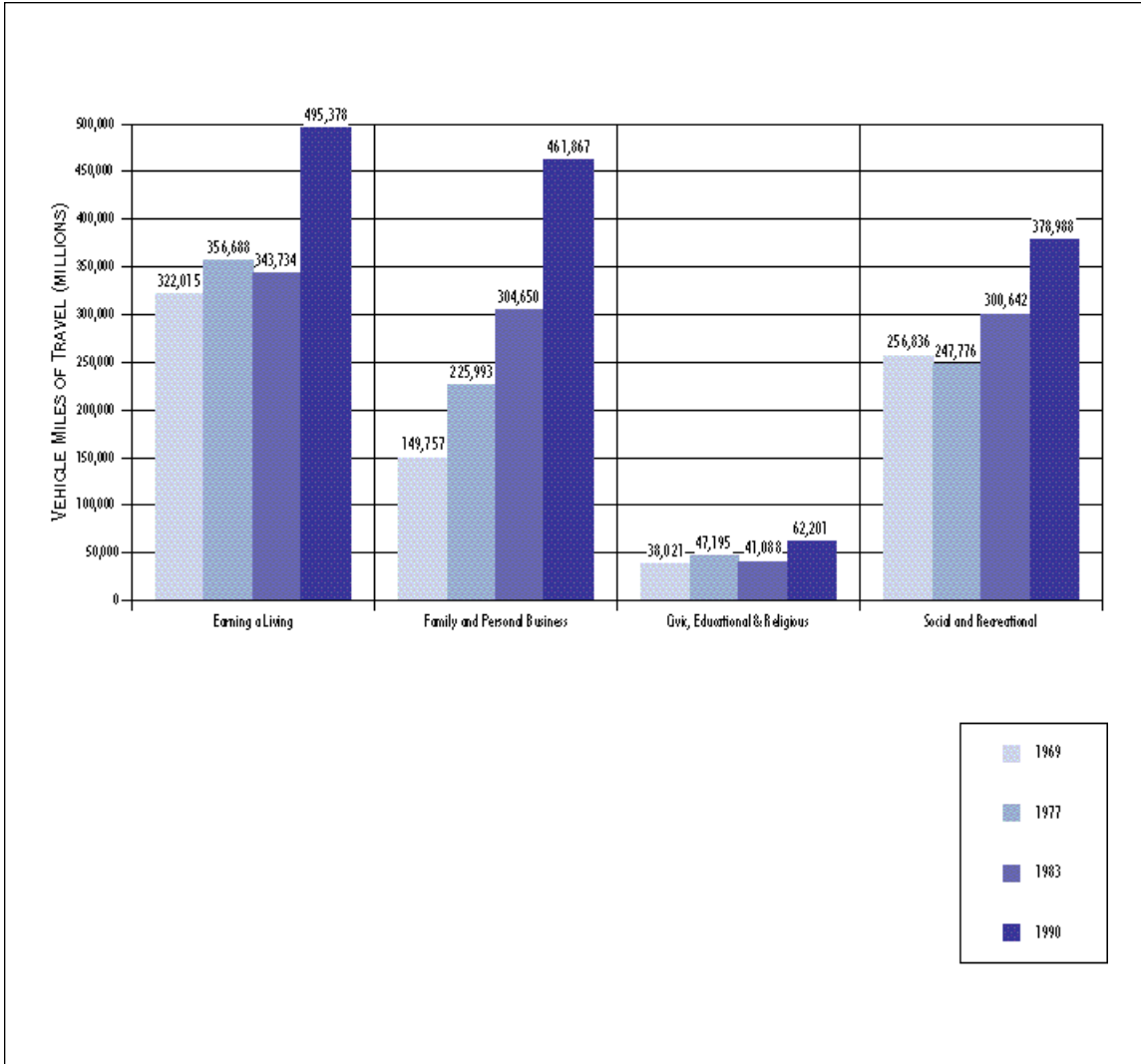


FIGURE 5.19

NUMBER OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE  
1969, 1977, 1983 AND 1990 NPTS



While earning a living and family and personal matters were the most common reasons to drive for those under 65 years old, individu-

als 65 years or older drove mostly for family and personal matters and for social and recreational reasons.

**FIGURE 5.20**  
**COMPARISON OF VEHICLE TRIPS TAKEN BY INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65**  
**CATEGORIZED BY TRIP PURPOSE**  
**1990 NPTS**

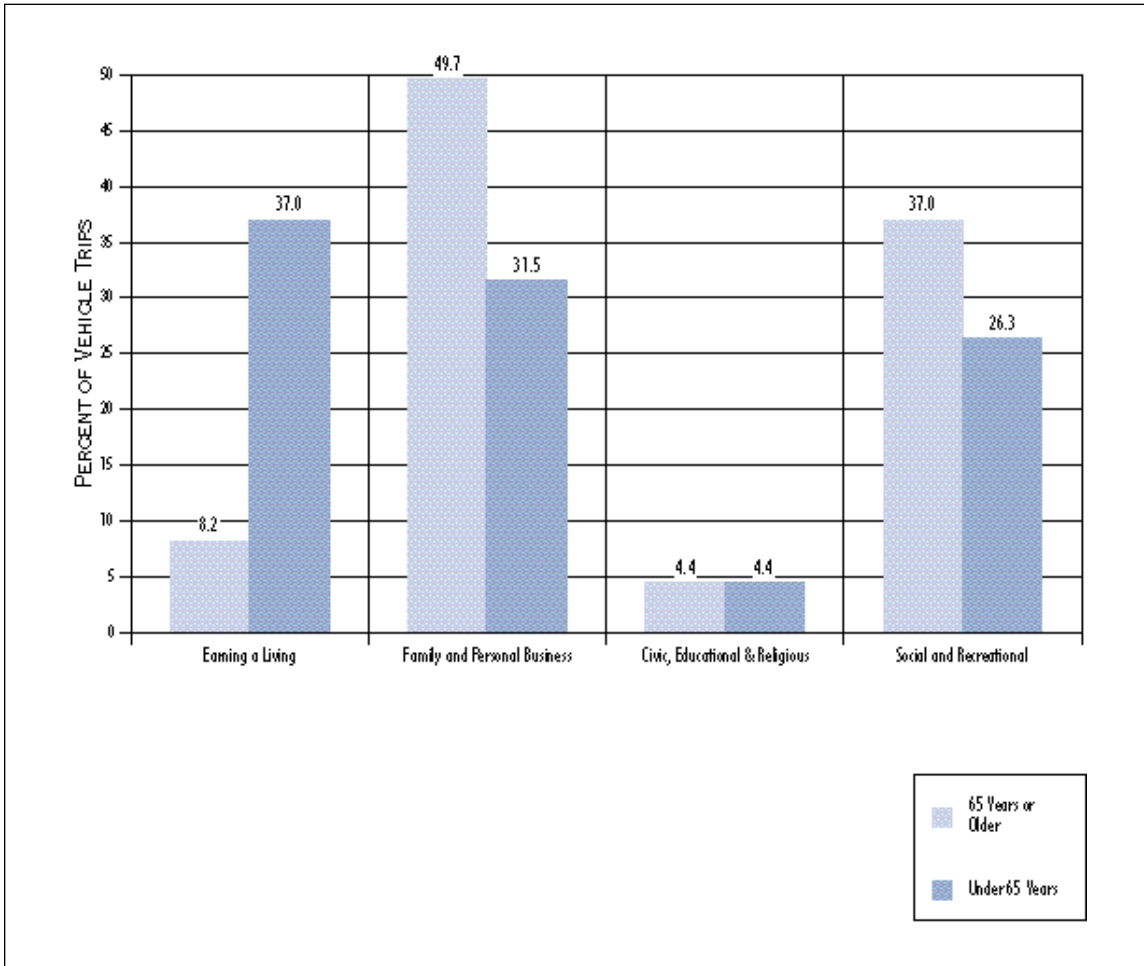


TABLE 5.37

**AVERAGE VEHICLE TRIP LENGTH<sup>1</sup> BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(MILES)**

Vehicle Type	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	ALL
Auto	10.9	6.2	7.5	11.4	11.5	8.7
Passenger Van	10.6	7.2	5.1	14.1	4.6	9.2
Cargo Van	17.6	9.5	14.4	14.8	10.0	14.2
Pickup Truck	12.1	7.4	8.1	13.1	10.6	10.3
Other Truck	25.0	8.6	2.0	7.8	**	15.9
RV/Motor Home	1.6	11.7	**	59.3	**	24.8
Motorcycle	6.2	8.1	6.6	15.5	**	11.2
Moped	8.6	2.0	0.9	2.1	**	3.8
Other POV	0.3	14.1	**	8.1	8.2	12.2
<b>ALL</b>	11.2	6.5	7.5	11.8	10.8	9.0
<sup>1</sup> Information based on observations that had valid trip mile information.			** Indicates no data reported.			

For all trip purposes, individuals 65 years or older took shorter trips compared with those under 65 years old. For individuals 65 years

or older, trips for civic, educational and religious purposes were the shortest among all trip purposes.

TABLE 5.38

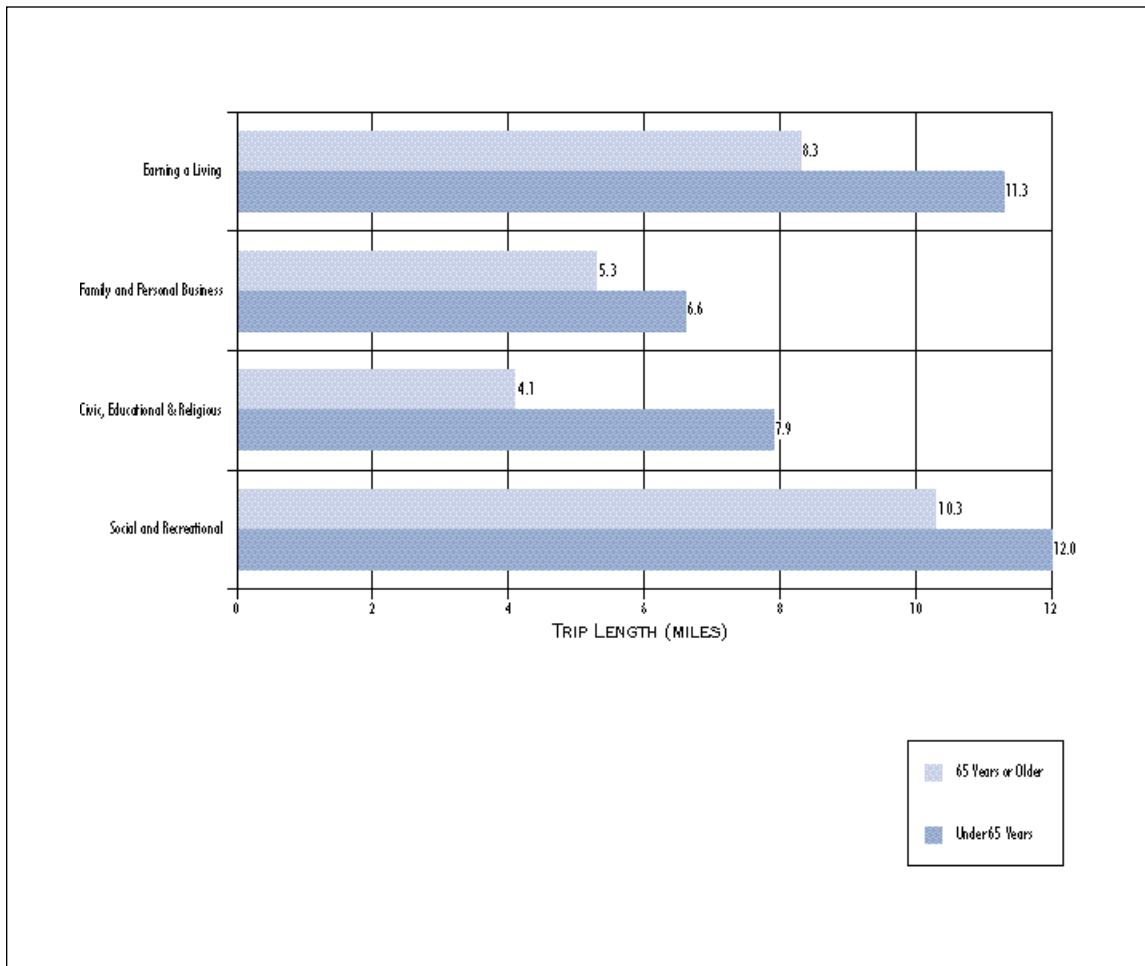
**AVERAGE LENGTH<sup>1</sup> OF VEHICLE TRIPS BY INDIVIDUALS 65 OR OLDER  
VS. INDIVIDUALS UNDER 65 AND BY TRIP PURPOSE  
1990 NPTS  
(MILES)**

Purpose	Individuals under 65 years	Individuals 65 years or older	TOTAL
Earning a Living	11.3	8.3	11.2
Family and Personal Business	6.6	5.3	6.5
Civic, Educational, and Religious	7.9	4.1	7.5
Social and Recreational	12.0	10.3	11.8
Other	12.0	4.3	5.1
<b>TOTAL</b>	<b>9.2</b>	<b>6.6</b>	<b>9.0</b>

<sup>1</sup> Information based on observations that had valid trip mile information.

FIGURE 5.21

**AVERAGE LENGTH OF VEHICLE TRIPS BY INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65 AND BY TRIP PURPOSE  
1990 NPTS**



TABLES 5.39 through Table 5.41 present data on vehicle travel in terms of trip purpose and season of the year. Data in Table 5.39 show that there was almost no seasonal variation for some trip purposes, such as other family and personal business (errand-running). However, for some trip purposes, there was significant variation as to when driving took place, such as vacationing and pleasure driving. Compared with the overall distribution of vehicle trips by trip

purpose, driving to and from work had a slightly smaller share in winter months (25.2%) than in other months (Table 5.40). Conversely, the share of driving for shopping in winter (21.4%) was higher than the average share (20.2%). Both observations likely reflect different travel activities due to the holiday seasons. More driving took place in spring months than in other months of the year (Figure 5.22). However, summer trips were the longest (Table 5.39).

TABLE 5.39

**NUMBER OF VEHICLE TRIPS BY TRIP PURPOSE AND SEASON<sup>1</sup>**  
**1990 NPTS**  
**(MILLIONS)**

Purpose	Winter	Spring	Summer	Fall	TOTAL
<b>Earning a Living</b>					
To or From Work	9,756 (23.3%)	11,964 (28.6%)	10,200 (24.4%)	9,872 (23.6%)	<b>41,792</b> (100.0%)
Work-Related Business	515 (18.1%)	1,104 (38.8%)	638 (22.4%)	588 (20.7%)	<b>2,845</b> (100.0%)
<b>Subtotal</b>	<b>10,271</b> (23.0%)	<b>13,068</b> (29.3%)	<b>10,838</b> (24.3%)	<b>10,460</b> (23.4%)	<b>44,637</b> (100.0%)
<b>Family and Personal Business</b>					
Shopping	8,278 (25.7%)	8,468 (26.3%)	7,634 (23.7%)	7,784 (24.2%)	<b>32,164</b> (100.0%)
Doctor/Dentist	451 (25.8%)	509 (29.1%)	390 (22.3%)	399 (22.8%)	<b>1,749</b> (100.0%)
Other Family Business	10,191 (26.6%)	9,825 (25.6%)	9,191 (24.0%)	9,116 (23.8%)	<b>38,323</b> (100.0%)
<b>Subtotal</b>	<b>18,920</b> (26.2%)	<b>18,802</b> (26.0%)	<b>17,215</b> (23.8%)	<b>17,299</b> (23.9%)	<b>72,236</b> (100.0%)
<b>Civic, Educational, and Religious</b>					
<b>Subtotal</b>	<b>2,042</b> (24.4%)	<b>2,699</b> (32.0%)	<b>1,409</b> (16.7%)	<b>2,285</b> (27.1%)	<b>8,435</b> (100.0%)
<b>Social and Recreational</b>					
Vacation	9 (4.8%)	46 (24.3%)	98 (51.9%)	36 (19.0%)	<b>189</b> (100.0%)
Visiting Friends	3,504 (24.9%)	3,797 (27.0%)	3,461 (24.6%)	3,291 (23.4%)	<b>14,053</b> (100.0%)
Pleasure Driving	87 (20.0%)	139 (32.0%)	132 (30.3%)	77 (17.7%)	<b>435</b> (100.0%)
Other Social/Recreational	3,611 (20.2%)	4,999 (28.0%)	5,264 (29.5%)	3,996 (22.4%)	<b>17,870</b> (100.0%)
<b>Subtotal</b>	<b>7,211</b> (22.2%)	<b>8,981</b> (27.6%)	<b>8,955</b> (27.5%)	<b>7,400</b> (22.7%)	<b>32,547</b> (100.0%)
<b>Other</b>					
<b>Subtotal</b>	<b>236</b> (23.1%)	<b>419</b> (41.0%)	<b>215</b> (21.0%)	<b>152</b> (14.9%)	<b>1,022</b> (100.0%)
<b>TOTAL<sup>2</sup></b>	<b>38,703</b> (24.2%)	<b>43,979</b> (27.7%)	<b>38,643</b> (24.3%)	<b>37,602</b> (23.7%)	<b>158,927</b> (100.0%)
Average trip length (miles)	8.72	8.91	9.37	8.92	<b>8.98</b>

<sup>1</sup> Season: Winter = Dec-Feb, Spring = Mar-May, Summer = June-Aug, Fall = Sept-Nov.

<sup>2</sup> Includes vehicle trips where trip purpose was unreported.



TABLE 5.40

**DISTRIBUTION OF VEHICLE TRIPS BY TRIP PURPOSE AND SEASON  
1990 NPTS  
(PERCENTAGE)  
(WITHIN SEASON)**

Purpose	Winter	Spring	Summer	Fall	TOTAL
<b>Earning a Living</b>					
To or From Work	25.2	27.2	26.4	26.2	26.3
Work-Related Business	1.3	2.5	1.6	1.6	1.8
<b>Subtotal</b>	26.5	29.7	28.0	27.8	28.1
<b>Family and Personal Business</b>					
Shopping	21.4	19.3	19.8	20.7	20.2
Doctor/Dentist	1.2	1.2	1.0	1.1	1.1
Other Family Business	26.3	22.3	23.8	24.2	24.1
<b>Subtotal</b>	48.9	42.8	44.6	46.0	45.4
<b>Civic, Educational, and Religious</b>					
<b>Subtotal</b>	5.3	6.1	3.6	6.1	5.3
<b>Social and Recreational</b>					
Vacation	0.0	0.1	0.3	0.1	0.1
Visiting Friends	9.1	8.6	9.0	8.8	8.8
Pleasure Driving	0.2	0.3	0.3	0.2	0.3
Other Social/Recreational	9.3	11.4	13.6	10.6	11.2
<b>Subtotal</b>	18.6	20.4	23.2	19.7	20.5
<b>Other</b>					
<b>Subtotal</b>	0.6	1.0	0.5	0.4	0.6
<b>TOTAL<sup>1</sup></b>	100.0	100.0	100.0	100.0	100.0

<sup>1</sup> Includes vehicle trips where trip purpose was unreported.

TABLE 5.41

**NUMBER OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE AND SEASON  
1990 NPTS  
(MILLIONS)**

Purpose	Winter	Spring	Summer	Fall	TOTAL
<b>Earning a Living</b>					
To or From Work	103,431	128,941	114,311	106,359	<b>453,042</b>
	(22.8%)	(28.5%)	(25.2%)	(23.5%)	(100.0%)
Work-Related Business	6,630	19,510	9,249	6,947	<b>42,336</b>
	(15.7%)	(46.1%)	(21.8%)	(16.4%)	(100.0%)
<b>Subtotal</b>	<b>110,061</b>	<b>148,451</b>	<b>123,560</b>	<b>113,306</b>	<b>495,378</b>
	(22.2%)	(30.0%)	(24.9%)	(22.9%)	(100.0%)
<b>Family and Personal Business</b>					
Shopping	44,301	41,139	38,005	39,222	<b>162,667</b>
	(27.2%)	(25.3%)	(23.4%)	(24.1%)	(100.0%)
Doctor/Dentist	4,919	4,484	4,229	4,177	<b>17,809</b>
	(27.6%)	(25.2%)	(23.7%)	(23.5%)	(100.0%)
Other Family Business	73,598	67,650	70,985	69,157	<b>281,390</b>
	(26.2%)	(24.0%)	(25.2%)	(24.6%)	(100.0%)
<b>Subtotal</b>	<b>122,818</b>	<b>113,273</b>	<b>113,219</b>	<b>112,556</b>	<b>461,866</b>
	(26.6%)	(24.5%)	(24.5%)	(24.4%)	(100.0%)
<b>Civic, Educational, and Religious</b>					
<b>Subtotal</b>	<b>14,716</b>	<b>20,306</b>	<b>11,256</b>	<b>15,923</b>	<b>62,201</b>
	(23.7%)	(32.6%)	(18.1%)	(25.6%)	(100.0%)
<b>Social and Recreational</b>					
Vacation	1,490	3,889	11,869	3,284	<b>20,532</b>
	(7.3%)	(18.9%)	(57.8%)	(16.0%)	(100.0%)
Visiting Friends	40,245	45,020	39,757	38,958	<b>163,980</b>
	(24.5%)	(27.5%)	(24.2%)	(23.8%)	(100.0%)
Pleasure Driving	1,984	2,506	3,194	1,482	<b>9,166</b>
	(21.6%)	(27.3%)	(34.8%)	(16.2%)	(100.0%)
Other Social/Recreational	40,516	48,631	51,768	44,396	<b>185,311</b>
	(21.9%)	(26.2%)	(27.9%)	(24.0%)	(100.0%)
<b>Subtotal</b>	<b>84,235</b>	<b>100,046</b>	<b>106,588</b>	<b>88,120</b>	<b>378,989</b>
	(22.2%)	(26.4%)	(28.1%)	(23.3%)	(100.0%)
<b>Other</b>					
<b>Subtotal</b>	<b>1,858</b>	<b>5,746</b>	<b>2,654</b>	<b>738</b>	<b>10,996</b>
	(16.9%)	(52.3%)	(24.1%)	(6.7%)	(100.0%)
<b>TOTAL<sup>1</sup></b>	<b>333,756</b>	<b>387,824</b>	<b>357,306</b>	<b>330,690</b>	<b>1,409,576</b>
	(23.7%)	(27.5%)	(25.3%)	(23.5%)	(100.0%)

<sup>1</sup> Includes vehicle miles of travel where trip purpose was unreported.

TABLE 5.42

**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE AND SEASON  
1990 NPTS  
(PERCENTAGE)  
(WITHIN SEASON)**

Purpose	Winter	Spring	Summer	Fall	TOTAL
<b>Earning a Living</b>					
To or From Work	31.0	33.3	32.0	32.2	32.1
Work-Related Business	2.0	5.0	2.6	2.1	3.0
<b>Subtotal</b>	<b>33.0</b>	<b>38.3</b>	<b>34.6</b>	<b>34.3</b>	<b>35.1</b>
<b>Family and Personal Business</b>					
Shopping	13.3	10.6	10.6	11.9	11.5
Doctor/Dentist	1.5	1.2	1.2	1.3	1.3
Other Family Business	22.0	17.4	19.9	20.9	20.0
<b>Subtotal</b>	<b>36.8</b>	<b>29.2</b>	<b>31.7</b>	<b>34.1</b>	<b>32.8</b>
<b>Civic, Educational, and Religious</b>					
<b>Subtotal</b>	<b>4.4</b>	<b>5.2</b>	<b>3.2</b>	<b>4.8</b>	<b>4.4</b>
<b>Social and Recreational</b>					
Vacation	0.4	1.0	3.3	1.0	1.5
Visiting Friends	12.1	11.6	11.1	11.8	11.6
Pleasure Driving	0.6	0.7	0.9	0.4	0.7
Other Social/Recreational	12.1	12.5	14.5	13.4	13.1
<b>Subtotal</b>	<b>25.2</b>	<b>25.8</b>	<b>29.8</b>	<b>26.6</b>	<b>26.9</b>
<b>Other</b>					
<b>Subtotal</b>	<b>0.6</b>	<b>1.5</b>	<b>0.7</b>	<b>0.2</b>	<b>0.8</b>
<b>TOTAL<sup>1</sup></b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<sup>1</sup> Includes vehicle miles of travel where trip purpose was unreported.					

FIGURE 5.22

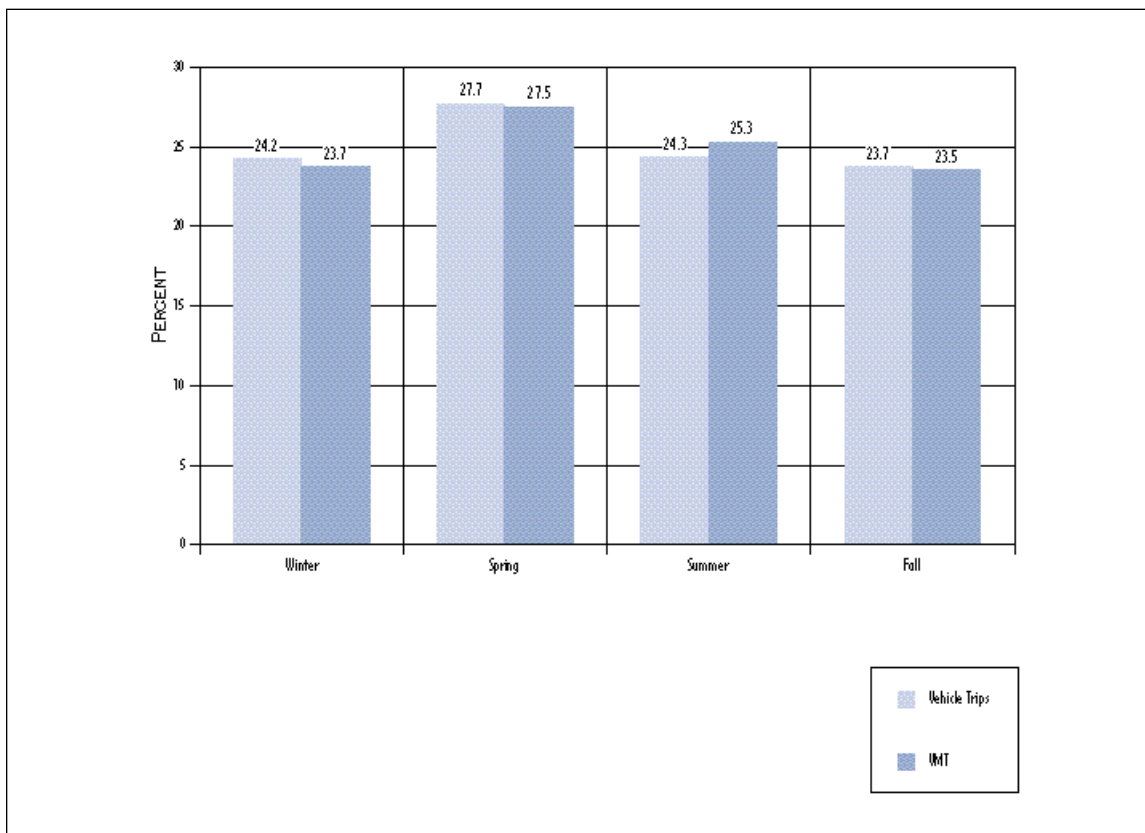
DISTRIBUTION OF VEHICLE TRAVEL BY SEASON  
1990 NPTS

TABLE 5.43

**DISTRIBUTION OF VEHICLE TRIPS BY DAY OF WEEK AND TRIP PURPOSE  
1990 NPTS  
(WITHIN DAY OF WEEK)**

Purpose	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Earning a Living</b>							
To or From Work	9.0	31.4	31.3	33.2	32.1	29.2	12.2
Work-Related Business	0.7	2.0	2.4	1.8	2.0	1.9	1.5
<b>Subtotal</b>	<b>9.7</b>	<b>33.4</b>	<b>33.7</b>	<b>35.0</b>	<b>34.1</b>	<b>31.1</b>	<b>13.7</b>
<b>Family and Personal Business</b>							
Shopping	22.7	18.5	18.0	17.4	17.5	18.4	31.3
Doctor/Dentist	0.1	1.5	1.4	1.4	1.3	1.2	0.4
Other Family Business	18.0	25.9	26.2	24.8	25.5	25.8	20.9
<b>Subtotal</b>	<b>40.8</b>	<b>45.9</b>	<b>45.6</b>	<b>43.6</b>	<b>44.3</b>	<b>45.4</b>	<b>52.6</b>
<b>Civic, Educational, and Religious</b>							
<b>Subtotal</b>	<b>16.7</b>	<b>4.2</b>	<b>4.7</b>	<b>4.8</b>	<b>4.4</b>	<b>2.6</b>	<b>1.4</b>
<b>Social and Recreational</b>							
Vacation	0.4	0.1	0.1	0.1	0	0.1	0.2
Visiting Friends	15.9	6.5	6.9	6.6	7.2	8.6	12.3
Pleasure Driving	0.6	0.3	0.1	0.3	0.2	0.2	0.3
Other Social/Recreational	15.3	9.0	8.3	9.0	9.1	11.5	18.7
<b>Subtotal</b>	<b>32.2</b>	<b>15.9</b>	<b>15.4</b>	<b>16.0</b>	<b>16.5</b>	<b>20.4</b>	<b>31.5</b>
<b>Other</b>							
<b>Subtotal</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>	<b>0.5</b>	<b>0.8</b>
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Avg. Trip Length <sup>1</sup> (miles)	<b>10.37</b>	<b>8.81</b>	<b>8.72</b>	<b>8.71</b>	<b>8.24</b>	<b>9.04</b>	<b>9.32</b>
No. of Trips (000,000)	<b>19,000</b>	<b>24,300</b>	<b>25,300</b>	<b>23,200</b>	<b>24,800</b>	<b>21,700</b>	<b>20,700</b>
Distribution of Trips	11.9%	15.3%	15.9%	14.6%	15.6%	13.6%	13.0%

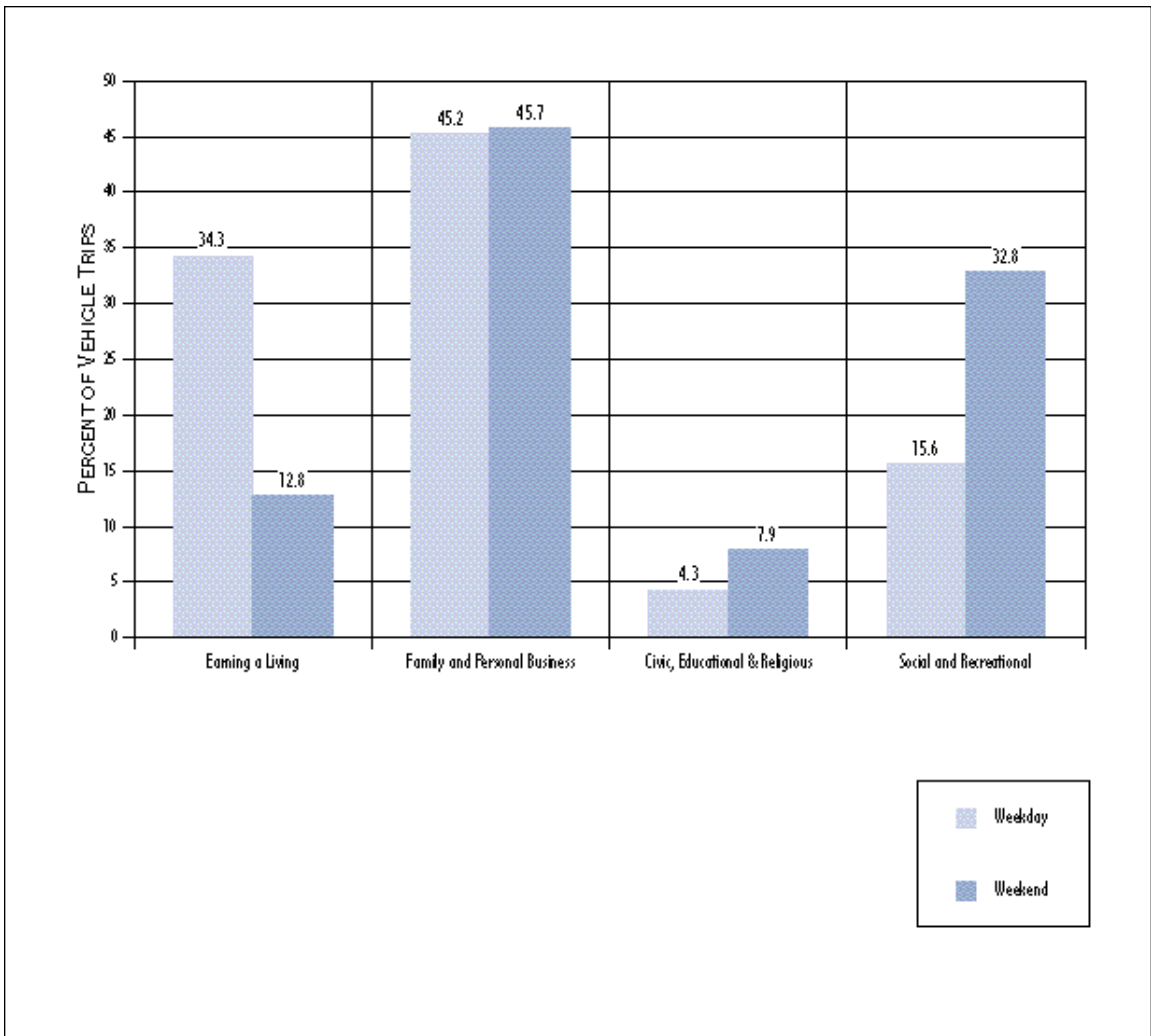
<sup>1</sup> Information based on observations with valid data on the trip length.

Vehicle trips were fairly evenly distributed among days of the week, with 75% of all trips made on weekdays and 25% on weekends. Family and personal business was the most common reason for travel on each day of the

week (Table 5.43). As expected, earning a living was the second most common reason to travel during weekdays, while social and recreational purposes were the second most common reason for travel during weekends.

**FIGURE 5.23**

**DISTRIBUTION OF VEHICLE TRIPS BY WEEKDAY<sup>1</sup> VS. WEEKEND<sup>2</sup> AND TRIP PURPOSE  
1990 NPTS**



<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.

<sup>2</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.

TEMPORAL CHARACTERISTICS: VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL

**TABLE 5.44**

**DISTRIBUTION OF VEHICLE TRIPS BY DAY OF WEEK AND TRIP PURPOSE  
1990 NPTS  
(ACROSS DAY OF WEEK)  
(PERCENTAGE)**

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL
Earning a Living	4.1	18.2	19.1	18.2	18.9	15.1	6.4	100.0
Family and Personal Business	10.7	15.4	16.0	14.0	15.2	13.6	15.1	100.0
Civic, Educational, & Religious	37.5	12.2	14.1	13.2	12.9	6.6	3.5	100.0
Social & Recreational	18.7	11.8	11.9	11.3	12.5	13.9	19.9	100.0
Other	12.0	14.9	15.6	12.9	17.9	10.6	16.1	100.0
<b>TOTAL</b>	12.0	15.3	15.9	14.6	15.6	13.6	13.0	100.0
<b>No. of Trips (000,000)</b>	<b>19,003</b>	<b>24,331</b>	<b>25,311</b>	<b>23,181</b>	<b>24,767</b>	<b>21,665</b>	<b>20,669</b>	<b>158,927</b>

Driving by those 65 years or older was fairly evenly spread among the days of the week, while those younger than 65 years old drove

less during the weekends. Older individuals drove more during the mid-week (Tuesday and Wednesday) than on other days of the week.

TABLE 5.45

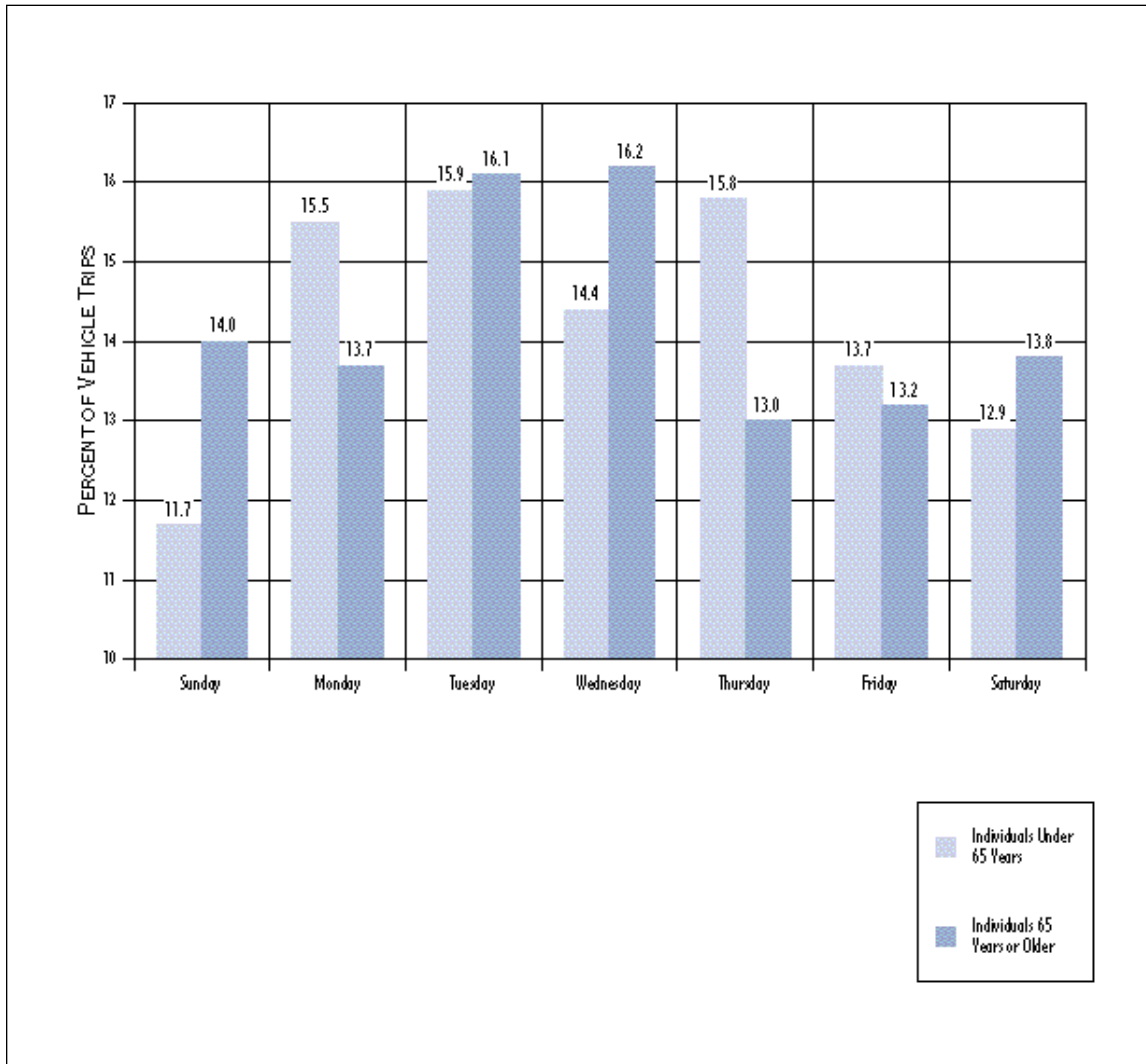
NUMBER OF VEHICLE TRIPS TAKEN BY INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65  
CATEGORIZED BY DAY OF WEEK  
1990 NPTS  
(THOUSANDS)

Day	Individuals under 65 years	Individuals 65 years or older
Sunday	16,976,964 (11.7%)	1,847,705 (14.0%)
Monday	22,382,068 (15.5%)	1,801,068 (13.7%)
Tuesday	23,007,186 (15.9%)	2,124,025 (16.1%)
Wednesday	20,874,174 (14.4%)	2,128,413 (16.2%)
Thursday	22,897,940 (15.8%)	1,705,234 (13.0%)
Friday	19,740,032 (13.7%)	1,743,283 (13.2%)
Saturday	18,613,971 (12.9%)	1,810,755 (13.8%)
<b>TOTAL</b>	<b>144,492,336</b> (100.0%)	<b>13,160,483</b> (100.0%)



**FIGURE 5.24**

**DISTRIBUTION OF VEHICLE TRIPS TAKEN BY INDIVIDUALS 65 OR OLDER VS. INDIVIDUALS UNDER 65 YEARS OF AGE CATEGORIZED BY DAY OF WEEK  
1990 NPTS**



**TABLE 5.46**  
**NUMBER OF VEHICLE MILES OF TRAVEL BY DAY OF WEEK**  
**1983 AND 1990 NPTS<sup>1</sup>**  
**(MILLIONS)**

Day	1983	1990
Sunday	134,301 (13.4%)	194,255 (13.8%)
Monday	147,323 (14.7%)	212,423 (15.1%)
Tuesday	141,126 (14.1%)	218,511 (15.5%)
Wednesday	144,131 (14.4%)	199,069 (14.1%)
Thursday	150,880 (15.0%)	201,730 (14.3%)
Friday	150,450 (15.0%)	193,383 (13.7%)
Saturday	133,928 (13.4%)	190,205 (13.5%)
<b>TOTAL</b>	<b>1,002,139</b> (100.0%)	<b>1,409,576</b> (100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

FIGURE 5.25

DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY DAY OF WEEK  
1983 AND 1990 NPTS

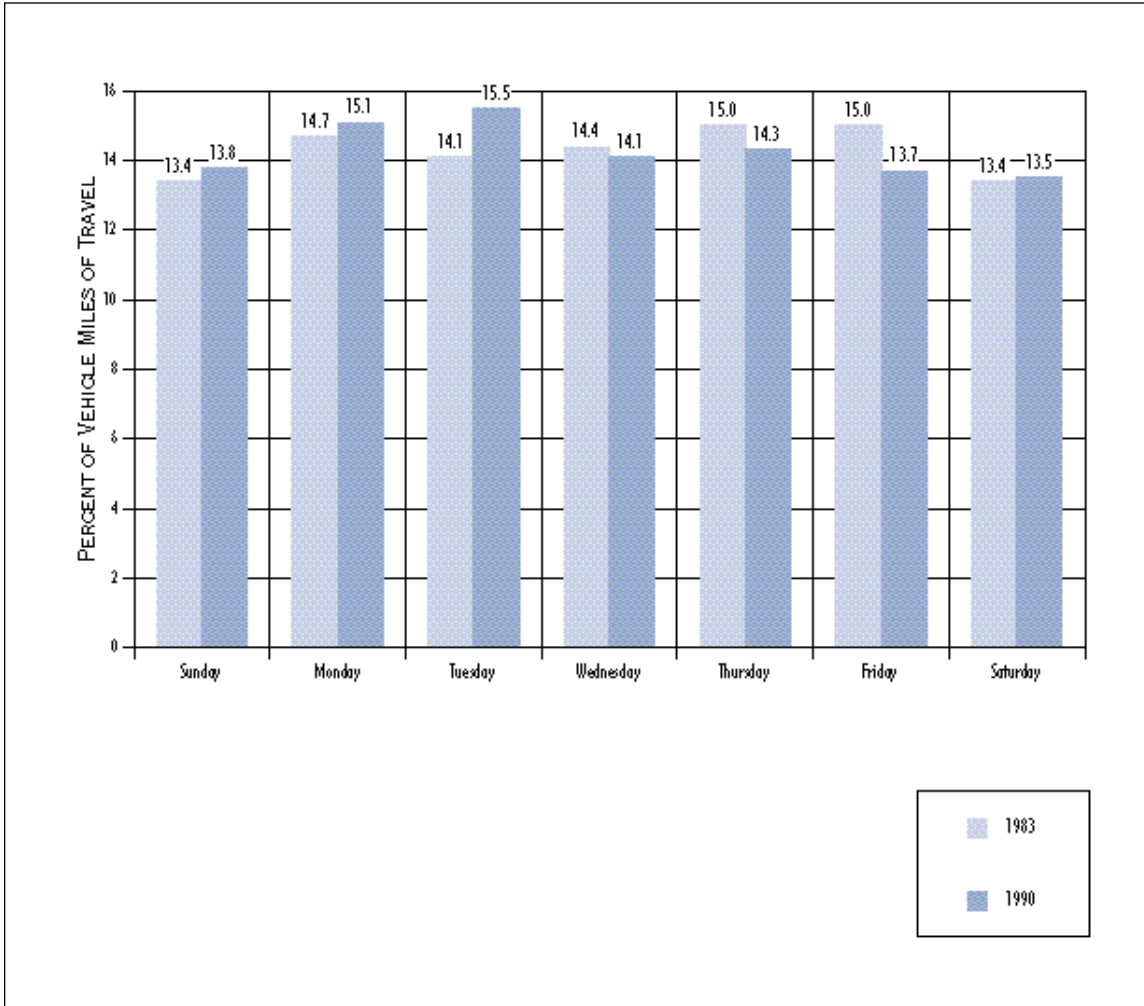


TABLE 5.47

**NUMBER OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE AND DAY OF WEEK  
1990 NPTS  
(MILLIONS)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>Sunday</b>	<b>19,760</b>	<b>57,520</b>	<b>18,869</b>	<b>96,940</b>	<b>1,143</b>	<b>194,255</b>
	(10.2%)	(29.6%)	(9.7%)	(49.9%)	(0.6%)	(100.0%)
<b>Monday</b>	<b>93,114</b>	<b>68,870</b>	<b>7,884</b>	<b>41,393</b>	<b>1,149</b>	<b>212,423</b>
	(43.8%)	(32.4%)	(3.7%)	(19.5%)	(0.5%)	(100.0%)
<b>Tuesday</b>	<b>95,702</b>	<b>71,037</b>	<b>10,735</b>	<b>38,223</b>	<b>2,804</b>	<b>218,511</b>
	(43.8%)	(32.5%)	(4.9%)	(17.5%)	(1.3%)	(100.0%)
<b>Wednesday</b>	<b>90,460</b>	<b>60,592</b>	<b>8,582</b>	<b>37,559</b>	<b>1,842</b>	<b>199,069</b>
	(45.4%)	(30.4%)	(4.3%)	(18.9%)	(0.9%)	(100.0%)
<b>Thursday</b>	<b>91,458</b>	<b>62,710</b>	<b>10,076</b>	<b>35,664</b>	<b>1,807</b>	<b>201,730</b>
	(45.3%)	(31.1%)	(5.0%)	(17.7%)	(0.9%)	(100.0%)
<b>Friday</b>	<b>77,304</b>	<b>66,760</b>	<b>4,333</b>	<b>44,261</b>	<b>725</b>	<b>193,383</b>
	(40.0%)	(34.5%)	(2.2%)	(22.9%)	(0.4%)	(100.0%)
<b>Saturday</b>	<b>27,580</b>	<b>74,377</b>	<b>1,722</b>	<b>84,948</b>	<b>1,526</b>	<b>190,205</b>
	(14.5%)	(39.1%)	(0.9%)	(44.7%)	(0.8%)	(100.0%)
<b>TOTAL</b>	<b>495,378</b>	<b>461,866</b>	<b>62,201</b>	<b>378,988</b>	<b>10,996</b>	<b>1,409,576</b>
	(35.1%)	(32.8%)	(4.4%)	(26.9%)	(0.8%)	(100.0%)

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

**FIGURE 5.26**

**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY WEEKDAY VS. WEEKEND, TIME OF DAY AND TRIP PURPOSE  
1990 NPTS**

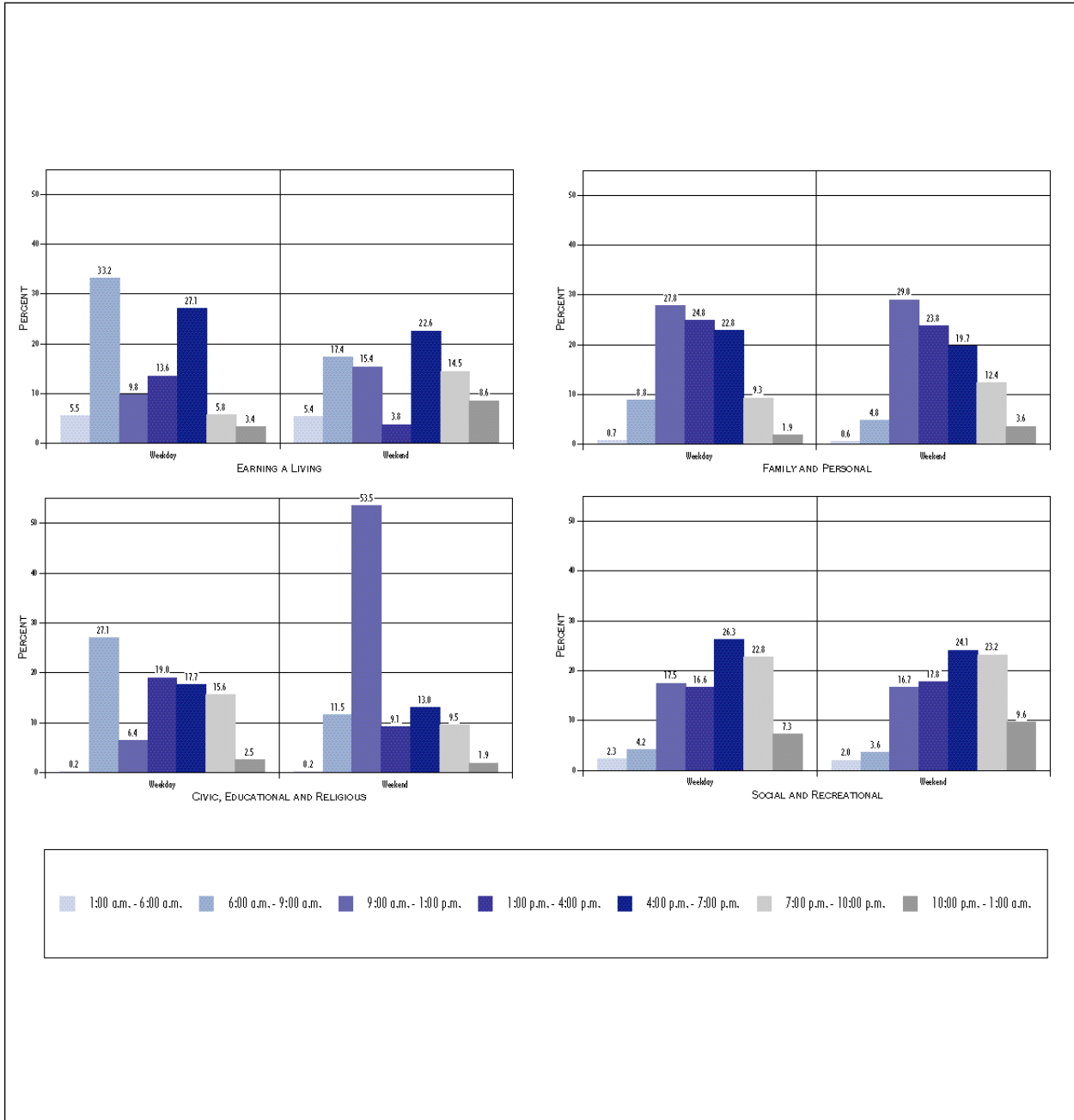


TABLE 5.48

**DISTRIBUTION OF VEHICLE MILES OF TRAVEL BY TRIP PURPOSE AND DAY OF WEEK  
 1990 NPTS  
 (PERCENTAGE)  
 (ACROSS DAY OF WEEK)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	<b>TOTAL<sup>1</sup></b>
Sunday	4.0	12.5	30.3	25.6	10.4	13.8
Monday	18.8	14.9	12.7	10.9	10.4	15.1
Tuesday	19.3	15.4	17.3	10.1	25.5	15.5
Wednesday	18.3	13.1	13.8	9.9	16.8	14.1
Thursday	18.5	13.6	16.2	9.4	16.4	14.3
Friday	15.6	14.5	7.0	11.7	6.6	13.7
Saturday	5.6	16.1	2.8	22.4	13.9	13.5
<b>TOTAL</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>% VMT</b>	35.1	32.8	4.4	26.9	0.8	100.0

<sup>1</sup> Includes miles of travel where trip purpose was unreported.

**TABLE 5.49**

**NUMBER OF VEHICLE TRIPS BY URBANIZED AREA SIZE AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

	Urbanized Area Size					Not in Urbanized Area	<b>TOTAL</b>
	50,000 199,999	200,000 499,999	500,000- 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway		
<b>1:00 a.m. - 6:00 a.m.</b>	<b>302,162</b>	<b>256,352</b>	<b>216,139</b>	<b>833,390</b>	<b>677,125</b>	<b>1,349,333</b>	<b>3,634,502</b>
	(2.1%)	(2.2%)	(2.0%)	(2.5%)	(2.4%)	(2.2%)	(2.3%)
<b>6:00 a.m. - 9:00 a.m.</b>	<b>1,968,716</b>	<b>1,670,666</b>	<b>1,504,035</b>	<b>4,651,286</b>	<b>3,844,569</b>	<b>8,819,250</b>	<b>22,458,523</b>
	(13.5%)	(14.5%)	(14.1%)	(14.2%)	(13.4%)	(14.5%)	(14.1%)
<b>9:00 a.m. - 1:00 p.m.</b>	<b>3,195,523</b>	<b>2,270,605</b>	<b>2,160,095</b>	<b>6,645,980</b>	<b>6,110,739</b>	<b>12,966,641</b>	<b>33,349,583</b>
	(21.9%)	(19.7%)	(20.2%)	(20.3%)	(21.3%)	(21.4%)	(21.0%)
<b>1:00 p.m. - 4:00 p.m.</b>	<b>2,960,688</b>	<b>2,256,193</b>	<b>2,015,168</b>	<b>6,102,518</b>	<b>5,312,674</b>	<b>12,023,169</b>	<b>30,670,411</b>
	(20.3%)	(19.5%)	(18.9%)	(18.7%)	(18.5%)	(19.8%)	(19.3%)
<b>4:00 p.m. - 7:00 p.m.</b>	<b>3,370,765</b>	<b>2,831,623</b>	<b>2,586,008</b>	<b>7,558,132</b>	<b>6,580,639</b>	<b>14,249,842</b>	<b>37,177,009</b>
	(23.1%)	(24.5%)	(24.2%)	(23.1%)	(22.9%)	(23.5%)	(23.4%)
<b>7:00 p.m. - 10:00 p.m.</b>	<b>1,742,890</b>	<b>1,354,759</b>	<b>1,392,926</b>	<b>4,171,238</b>	<b>3,568,410</b>	<b>6,826,471</b>	<b>19,056,694</b>
	(11.9%)	(11.7%)	(13.1%)	(12.8%)	(12.4%)	(11.2%)	(12.0%)
<b>10:00 p.m. - 1:00 a.m.</b>	<b>588,526</b>	<b>489,379</b>	<b>424,856</b>	<b>1,430,099</b>	<b>1,318,071</b>	<b>2,180,421</b>	<b>6,431,353</b>
	(4.0%)	(4.2%)	(4.0%)	(4.4%)	(4.6%)	(3.6%)	(4.0%)
<b>TOTAL<sup>1</sup></b>	<b>14,591,495</b>	<b>11,543,315</b>	<b>10,672,563</b>	<b>32,706,962</b>	<b>28,705,127</b>	<b>60,708,005</b>	<b>158,927,467</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes trips where start time of the trip was unreported.

TABLE 5.50

**NUMBER OF VEHICLE MILES OF TRAVEL BY URBANIZED AREA SIZE AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

	Urbanized Area Size					Not in Urbanized Area	<b>TOTAL</b>
	50,000- 199,999	200,000- 499,999	500,000- 999,999	1,000,000 or more without rail/subway	1,000,000 or more with rail/subway		
<b>1:00 a.m. - 6:00 a.m.</b>	<b>2,800,649</b>	<b>2,251,979</b>	<b>2,315,688</b>	<b>10,316,830</b>	<b>11,547,736</b>	<b>27,859,671</b>	<b>57,092,553</b>
	(2.7%)	(2.7%)	(2.6%)	(3.8%)	(4.6%)	(4.5%)	(4.1%)
<b>6:00 a.m. - 9:00 a.m.</b>	<b>15,033,702</b>	<b>14,229,771</b>	<b>14,619,779</b>	<b>45,724,891</b>	<b>42,168,258</b>	<b>107,993,374</b>	<b>239,769,775</b>
	(14.5%)	(17.4%)	(16.7%)	(16.8%)	(16.8%)	(17.6%)	(17.0%)
<b>9:00 a.m. - 1:00 p.m.</b>	<b>23,252,362</b>	<b>15,895,277</b>	<b>14,162,125</b>	<b>49,762,967</b>	<b>46,038,380</b>	<b>112,855,329</b>	<b>261,966,441</b>
	(22.4%)	(19.4%)	(16.2%)	(18.3%)	(18.3%)	(18.4%)	(18.6%)
<b>1:00 p.m. - 4:00 p.m.</b>	<b>20,021,459</b>	<b>14,859,302</b>	<b>17,422,871</b>	<b>48,979,319</b>	<b>44,556,331</b>	<b>115,471,542</b>	<b>261,310,824</b>
	(19.3%)	(18.1%)	(19.9%)	(18.0%)	(17.7%)	(18.9%)	(18.5%)
<b>4:00 p.m. - 7:00 p.m.</b>	<b>23,271,294</b>	<b>19,954,927</b>	<b>23,083,191</b>	<b>64,169,754</b>	<b>56,793,447</b>	<b>136,263,255</b>	<b>323,535,868</b>
	(22.4%)	(24.4%)	(26.4%)	(23.6%)	(22.6%)	(22.3%)	(23.0%)
<b>7:00 p.m. - 10:00 p.m.</b>	<b>12,688,573</b>	<b>8,964,208</b>	<b>9,547,031</b>	<b>31,778,907</b>	<b>30,745,650</b>	<b>67,732,668</b>	<b>161,457,037</b>
	(12.2%)	(10.9%)	(10.9%)	(11.7%)	(12.2%)	(11.1%)	(11.5%)
<b>10:00 p.m. - 1:00 a.m.</b>	<b>4,951,933</b>	<b>4,041,302</b>	<b>3,961,877</b>	<b>13,032,656</b>	<b>13,175,839</b>	<b>25,328,476</b>	<b>64,492,083</b>
	(4.8%)	(4.9%)	(4.5%)	(4.8%)	(5.2%)	(4.1%)	(4.6%)
<b>TOTAL<sup>1</sup></b>	<b>103,977,562</b>	<b>81,922,087</b>	<b>87,450,251</b>	<b>272,438,523</b>	<b>251,485,293</b>	<b>612,302,631</b>	<b>1,409,576,347</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes miles of travel where start time of the trip was unreported.



**TABLE 5.51**

**NUMBER OF VEHICLE TRIPS BY MSA SIZE AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000 and over		
1:00 a.m. - 6:00 a.m.	346,926 (2.1%)	338,566 (2.3%)	365,113 (2.4%)	716,567 (2.2%)	1,153,903 (2.6%)	713,426 (2.0%)	<b>3,634,502</b> (2.3%)
6:00 a.m. - 9:00 a.m.	2,301,275 (14.0%)	2,156,792 (14.9%)	2,225,043 (14.4%)	4,629,149 (14.3%)	6,009,516 (13.6%)	5,136,747 (14.3%)	<b>22,458,523</b> (14.1%)
9:00 a.m. - 1:00 p.m.	3,485,122 (21.2%)	2,982,844 (20.6%)	3,001,756 (19.4%)	6,720,420 (20.7%)	9,268,067 (21.0%)	7,891,374 (22.0%)	<b>33,349,583</b> (21.0%)
1:00 p.m. - 4:00 p.m.	3,219,505 (19.6%)	2,759,924 (19.1%)	3,047,100 (19.7%)	5,942,457 (18.3%)	8,470,996 (19.2%)	7,230,428 (20.1%)	<b>30,670,411</b> (19.3%)
4:00 p.m. - 7:00 p.m.	3,886,742 (23.6%)	3,472,690 (24.0%)	3,784,043 (24.5%)	7,592,458 (23.4%)	10,134,721 (22.9%)	8,306,354 (23.1%)	<b>37,177,009</b> (23.4%)
7:00 p.m. - 10:00 p.m.	1,968,417 (12.0%)	1,733,678 (12.0%)	1,838,328 (11.9%)	4,131,023 (12.7%)	5,446,230 (12.3%)	3,939,018 (11.0%)	<b>19,056,694</b> (12.0%)
10:00 p.m. - 1:00 a.m.	665,036 (4.0%)	534,087 (3.7%)	586,196 (3.8%)	1,451,428 (4.5%)	1,875,166 (4.2%)	1,319,440 (3.7%)	<b>6,431,353</b> (4.0%)
<b>TOTAL<sup>1</sup></b>	<b>16,452,475</b> (100.0%)	<b>14,446,454</b> (100.0%)	<b>15,446,435</b> (100.0%)	<b>32,463,690</b> (100.0%)	<b>44,218,040</b> (100.0%)	<b>35,900,373</b> (100.0%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> Includes trips where the start time of the trip was unreported.

TABLE 5.52

 NUMBER OF VEHICLE MILES OF TRAVEL BY MSA SIZE AND TIME OF DAY  
 1990 NPTS  
 (THOUSANDS)

	MSA Size					Not in MSA	TOTAL
	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000 and over		
1:00 a.m. - 6:00 a.m.	4,537,768 (3.4%)	4,407,103 (3.8%)	4,824,837 (3.6%)	9,239,026 (3.3%)	19,325,679 (4.9%)	14,758,140 (4.3%)	<b>57,092,553</b> (4.1%)
6:00 a.m. - 9:00 a.m.	20,851,460 (15.5%)	19,742,425 (16.8%)	23,291,058 (17.3%)	50,049,774 (17.6%)	66,740,212 (16.8%)	59,094,846 (17.3%)	<b>239,769,775</b> (17.0%)
9:00 a.m. - 1:00 p.m.	28,802,832 (21.4%)	24,310,360 (20.7%)	20,802,248 (15.5%)	54,003,465 (19.0%)	69,890,045 (17.6%)	64,157,491 (18.7%)	<b>261,966,441</b> (18.6%)
1:00 p.m. - 4:00 p.m.	24,321,140 (18.0%)	21,182,541 (18.1%)	27,843,008 (20.7%)	48,916,448 (17.2%)	72,688,227 (18.3%)	66,359,461 (19.4%)	<b>261,310,825</b> (18.5%)
4:00 p.m. - 7:00 p.m.	32,499,612 (24.1%)	25,333,251 (21.6%)	33,717,591 (25.1%)	66,572,905 (23.4%)	90,217,002 (22.7%)	75,195,507 (22.0%)	<b>323,535,868</b> (23.0%)
7:00 p.m. - 10:00 p.m.	15,791,946 (11.7%)	13,710,723 (11.7%)	14,685,059 (10.9%)	32,782,347 (11.5%)	46,622,586 (11.8%)	37,864,376 (11.1%)	<b>161,457,037</b> (11.5%)
10:00 p.m. - 1:00 a.m.	5,661,784 (4.2%)	5,373,472 (4.6%)	5,828,027 (4.3%)	13,661,385 (4.8%)	19,164,619 (4.8%)	14,802,796 (4.3%)	<b>64,492,083</b> (4.6%)
<b>TOTAL<sup>1</sup></b>	<b>134,826,750</b> (100.0%)	<b>117,224,403</b> (100.0%)	<b>134,305,892</b> (100.0%)	<b>283,996,460</b> (100.0%)	<b>396,750,671</b> (100.0%)	<b>342,472,170</b> (100.0%)	<b>1,409,576,346</b> (100.0%)

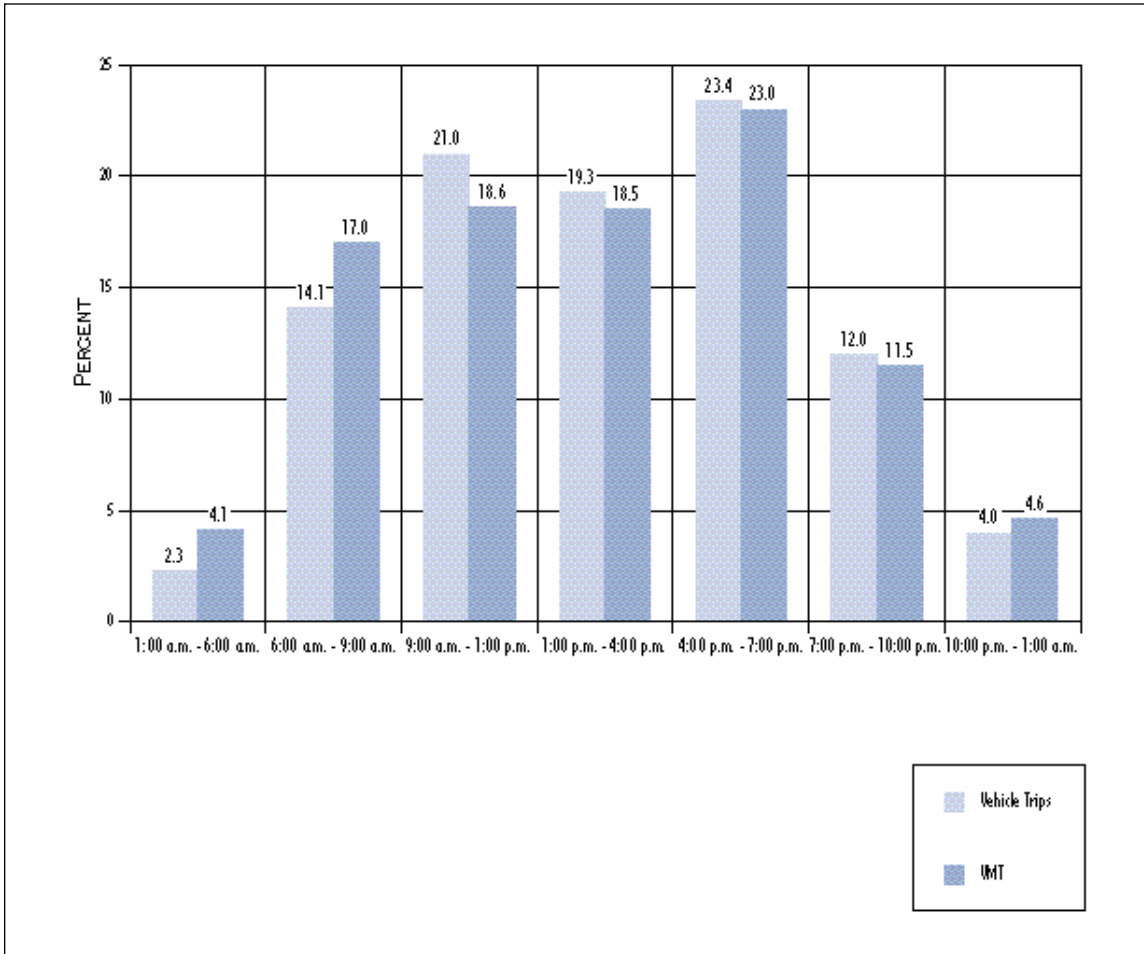
<sup>1</sup> Includes miles of travel where start time of the trip was unreported.

More than 63% of vehicle trips took place between 9 a.m. and 7 p.m. However, these trips amounted to only 60% of the total vehicle miles of travel, indicating trips slightly

shorter than the average. Longer vehicle trips usually took place when there was less traffic on the road.

**FIGURE 5.27**

**DISTRIBUTION OF VEHICLE TRIPS AND TRAVEL BY TIME OF DAY  
1990 NPTS**



**T**HE following seven tables present driving by trip purpose and time of day (Tables 5.53 through 5.59). Overall, trips for earning a living (to and from work and work-related trips) accounted for more than 60% of early morning traffic (before 9 a.m.), while mid-day traffic (from 9 a.m. to 4 p.m.) was primarily for family and personal business (Table 5.53). As expected, the purpose and the time at which trips are made vary between weekdays and weekends. The most distinctive difference between weekday

and weekend driving can be observed in trips made for earning a living and for social and recreational purposes. While 34.3% of all weekday driving was for earning a living, the corresponding percentage was 12.8% during weekends (Tables 5.55 and 5.57). Conversely, while only 15.6% of all weekday driving was for social and recreational purposes, almost one third of the total weekend driving was for that purpose. Regardless of the time of the day, weekend trips were longer than weekday trips (Table 5.58).

**TABLE 5.53**

**NUMBER OF VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
<b>Earning a Living</b>	<b>2,430,391</b>	<b>13,873,772</b>	<b>4,668,434</b>	<b>6,073,584</b>	<b>11,810,848</b>	<b>3,099,341</b>	<b>1,811,933</b>	<b>44,637,479</b>
	(66.9%)	(61.8%)	(14.0%)	(19.8%)	(31.8%)	(16.3%)	(28.2%)	(28.1%)
<b>Family and Personal Business</b>	<b>496,364</b>	<b>5,468,945</b>	<b>20,167,045</b>	<b>17,539,909</b>	<b>15,678,138</b>	<b>7,312,715</b>	<b>1,697,280</b>	<b>72,236,580</b>
	(13.7%)	(24.3%)	(60.5%)	(57.2%)	(42.2%)	(38.4%)	(26.4%)	(45.5%)
<b>Civic, Educational, &amp; Religious</b>	<b>17,877</b>	<b>1,728,099</b>	<b>2,692,138</b>	<b>1,250,241</b>	<b>1,322,278</b>	<b>1,096,366</b>	<b>189,546</b>	<b>8,434,633</b>
	(0.5%)	(7.7%)	(8.1%)	(4.1%)	(3.5%)	(5.7%)	(2.9%)	(5.3%)
<b>Social &amp; Recreational</b>	<b>684,309</b>	<b>1,269,465</b>	<b>5,544,781</b>	<b>5,543,789</b>	<b>8,184,488</b>	<b>7,422,003</b>	<b>2,689,705</b>	<b>32,547,726</b>
	(18.8%)	(5.7%)	(16.6%)	(18.1%)	(22.0%)	(38.9%)	(41.8%)	(20.5%)
<b>Other</b>	<b>5,346</b>	<b>113,811</b>	<b>275,550</b>	<b>256,844</b>	<b>174,369</b>	<b>125,566</b>	<b>34,986</b>	<b>1,021,713</b>
	(0.1%)	(0.5%)	(0.8%)	(0.8%)	(0.5%)	(0.7%)	(0.5%)	(0.6%)
<b>TOTAL<sup>1</sup></b>	<b>3,634,502</b>	<b>22,458,523</b>	<b>33,349,583</b>	<b>30,670,411</b>	<b>37,177,009</b>	<b>19,056,694</b>	<b>6,431,353</b>	<b>158,927,467</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<sup>1</sup> Includes trips where start time of the trip, trip purpose or both were unreported.								

TABLE 5.54

**DISTRIBUTION OF VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(ACROSS TIME OF DAY)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
Earning a Living	5.4	31.1	10.5	13.6	26.5	6.9	4.1	100.0
Family and Personal Business	0.7	7.6	27.9	24.3	21.7	10.1	2.3	100.0
Civic, Educational, & Religious	0.2	20.5	31.9	14.8	15.7	13.0	2.2	100.0
Social & Recreational	2.1	3.9	17.0	17.0	25.1	22.8	8.3	100.0
Other	0.5	11.1	27.0	25.1	17.1	12.3	3.4	100.0
<b>TOTAL<sup>1</sup></b>	2.3	14.1	21.0	19.3	23.4	12.0	4.0	100.0

<sup>1</sup> Includes trips where trip purpose, time of day, or both were unreported.

**TABLE 5.55**  
**NUMBER OF WEEKDAY VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
<b>Earning a Living</b>	<b>2,123,094</b>	<b>12,876,705</b>	<b>3,785,758</b>	<b>5,280,441</b>	<b>10,514,439</b>	<b>2,266,201</b>	<b>1,321,181</b>	<b>38,794,232</b>
	(73.0%)	(66.0%)	(17.1%)	(24.0%)	(37.8%)	(19.0%)	(35.5%)	(34.3%)
<b>Family and Personal Business</b>	<b>377,048</b>	<b>4,482,801</b>	<b>14,231,868</b>	<b>12,663,460</b>	<b>11,646,400</b>	<b>4,771,020</b>	<b>967,263</b>	<b>51,157,578</b>
	(13.0%)	(23.0%)	(64.5%)	(57.6%)	(41.9%)	(40.0%)	(26.0%)	(45.2%)
<b>Civic, Educational, &amp; Religious</b>	<b>9,099</b>	<b>1,321,890</b>	<b>799,110</b>	<b>929,779</b>	<b>863,599</b>	<b>760,388</b>	<b>121,018</b>	<b>4,881,598</b>
	(0.3%)	(6.8%)	(3.6%)	(4.2%)	(3.1%)	(6.4%)	(3.3%)	(4.3%)
<b>Social &amp; Recreational</b>	<b>397,721</b>	<b>743,063</b>	<b>3,093,419</b>	<b>2,930,116</b>	<b>4,649,866</b>	<b>4,026,654</b>	<b>1,289,146</b>	<b>17,656,963</b>
	(13.7%)	(3.8%)	(14.0%)	(13.3%)	(16.7%)	(33.8%)	(34.7%)	(15.6%)
<b>Other</b>	<b>274</b>	<b>86,419</b>	<b>169,477</b>	<b>173,156</b>	<b>138,323</b>	<b>101,758</b>	<b>19,532</b>	<b>706,998</b>
	(0.0%)	(0.4%)	(0.8%)	(0.8%)	(0.5%)	(0.9%)	(0.5%)	(0.6%)
<b>TOTAL<sup>1</sup></b>	<b>2,907,451</b>	<b>19,515,310</b>	<b>22,081,266</b>	<b>21,981,890</b>	<b>27,815,843</b>	<b>11,926,725</b>	<b>3,718,141</b>	<b>113,221,187</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes trips where time of day, trip purpose or both were unreported.

TABLE 5.56

**DISTRIBUTION OF WEEKDAY VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(PERCENTAGE)  
(ACROSS TIME OF DAY)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
Earning a Living	5.5	33.2	9.8	13.6	27.1	5.8	3.4	100.0
Family and Personal Business	0.7	8.8	27.8	24.8	22.8	9.3	1.9	100.0
Civic, Educational, & Religious	0.2	27.1	16.4	19.0	17.7	15.6	2.5	100.0
Social & Recreational	2.3	4.2	17.5	16.6	26.3	22.8	7.3	100.0
Other	0.0	12.2	24.0	24.5	19.6	14.4	2.8	100.0
<b>TOTAL<sup>1</sup></b>	2.6	17.2	19.5	19.4	24.6	10.5	3.3	100.0
<sup>1</sup> Includes trips where time of day, trip purpose or both were unreported.								



**TABLE 5.57**

**NUMBER OF WEEKEND VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
<b>Earning a Living</b>	<b>307,297</b>	<b>997,067</b>	<b>882,676</b>	<b>793,143</b>	<b>1,296,408</b>	<b>833,140</b>	<b>490,752</b>	<b>5,730,924</b>
	(42.3%)	(33.9%)	(7.8%)	(9.1%)	(13.8%)	(11.7%)	(18.1%)	(12.8%)
<b>Family and Personal Business</b>	<b>119,316</b>	<b>986,144</b>	<b>5,935,178</b>	<b>4,876,449</b>	<b>4,031,737</b>	<b>2,541,695</b>	<b>730,016</b>	<b>20,463,833</b>
	(16.4%)	(33.5%)	(52.7%)	(56.1%)	(43.1%)	(35.6%)	(26.9%)	(45.7%)
<b>Civic, Educational, &amp; Religious</b>	<b>8,778</b>	<b>406,209</b>	<b>1,893,028</b>	<b>320,462</b>	<b>458,679</b>	<b>335,977</b>	<b>68,529</b>	<b>3,539,984</b>
	(1.2%)	(13.8%)	(16.8%)	(3.7%)	(4.9%)	(4.7%)	(2.5%)	(7.9%)
<b>Social &amp; Recreational</b>	<b>286,588</b>	<b>526,401</b>	<b>2,451,362</b>	<b>2,613,672</b>	<b>3,534,622</b>	<b>3,395,349</b>	<b>1,400,559</b>	<b>14,662,509</b>
	(39.4%)	(17.9%)	(21.8%)	(30.1%)	(37.8%)	(47.6%)	(51.6%)	(32.8%)
<b>Other</b>	<b>5,071</b>	<b>27,392</b>	<b>106,073</b>	<b>83,688</b>	<b>36,046</b>	<b>23,808</b>	<b>15,454</b>	<b>314,715</b>
	(0.7%)	(0.9%)	(0.9%)	(1.0%)	(0.4%)	(0.3%)	(0.6%)	(0.7%)
<b>TOTAL<sup>1</sup></b>	<b>727,051</b>	<b>2,943,213</b>	<b>11,268,317</b>	<b>8,688,521</b>	<b>9,361,165</b>	<b>7,129,969</b>	<b>2,713,212</b>	<b>44,737,485</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes trips where trip purpose, time of day, or both were unreported.

TABLE 5.58

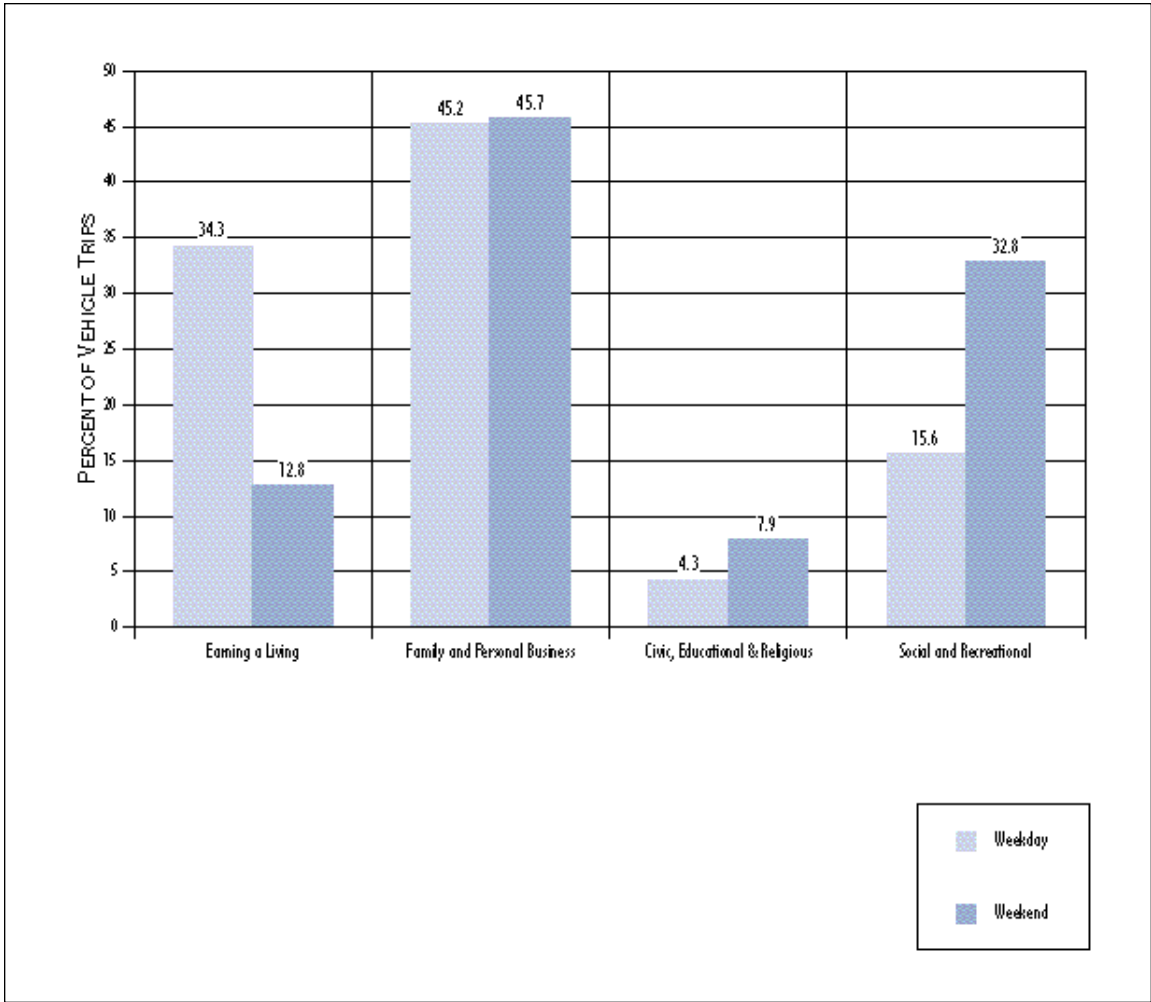
**DISTRIBUTION OF WEEKEND VEHICLE TRIPS BY TIME OF DAY AND TRIP PURPOSE  
1990 NPTS  
(PERCENTAGE)  
(ACROSS TIME OF DAY)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	<b>TOTAL<sup>1</sup></b>
Earning a Living	5.4	17.4	15.4	13.8	22.6	14.5	8.6	100.0
Family and Personal Business	0.6	4.8	29.0	23.8	19.7	12.4	3.6	100.0
Civic, Educational, & Religious	0.2	11.5	53.5	9.1	13.0	9.5	1.9	100.0
Social & Recreational	2.0	3.6	16.7	17.8	24.1	23.2	9.6	100.0
Other	1.6	8.7	33.7	26.6	11.5	7.6	4.9	100.0
<b>TOTAL<sup>1</sup></b>	1.6	6.6	25.2	19.4	20.9	15.9	6.1	100.0

<sup>1</sup> Includes trips where trip purpose and time of day were unreported.

**FIGURE 5.28**

**DISTRIBUTION OF VEHICLE TRIPS BY WEEKDAY VS. WEEKEND AND BY TRIP PURPOSE  
1990 NPTS**



According to the 1990 NPTS data, weekday traffic begins around 6 a.m. and peaks between 4 p.m. and 7 p.m. Very little traffic begins before 9 a.m. during weekends; traf-

fic peaks between 9 a.m. and 1 p.m.; continues until 10 p.m.; and diminishes considerably thereafter.

FIGURE 5.29

DISTRIBUTION OF VEHICLE TRIPS BY WEEKDAY VS. WEEKEND AND TIME OF DAY  
1990 NPTS

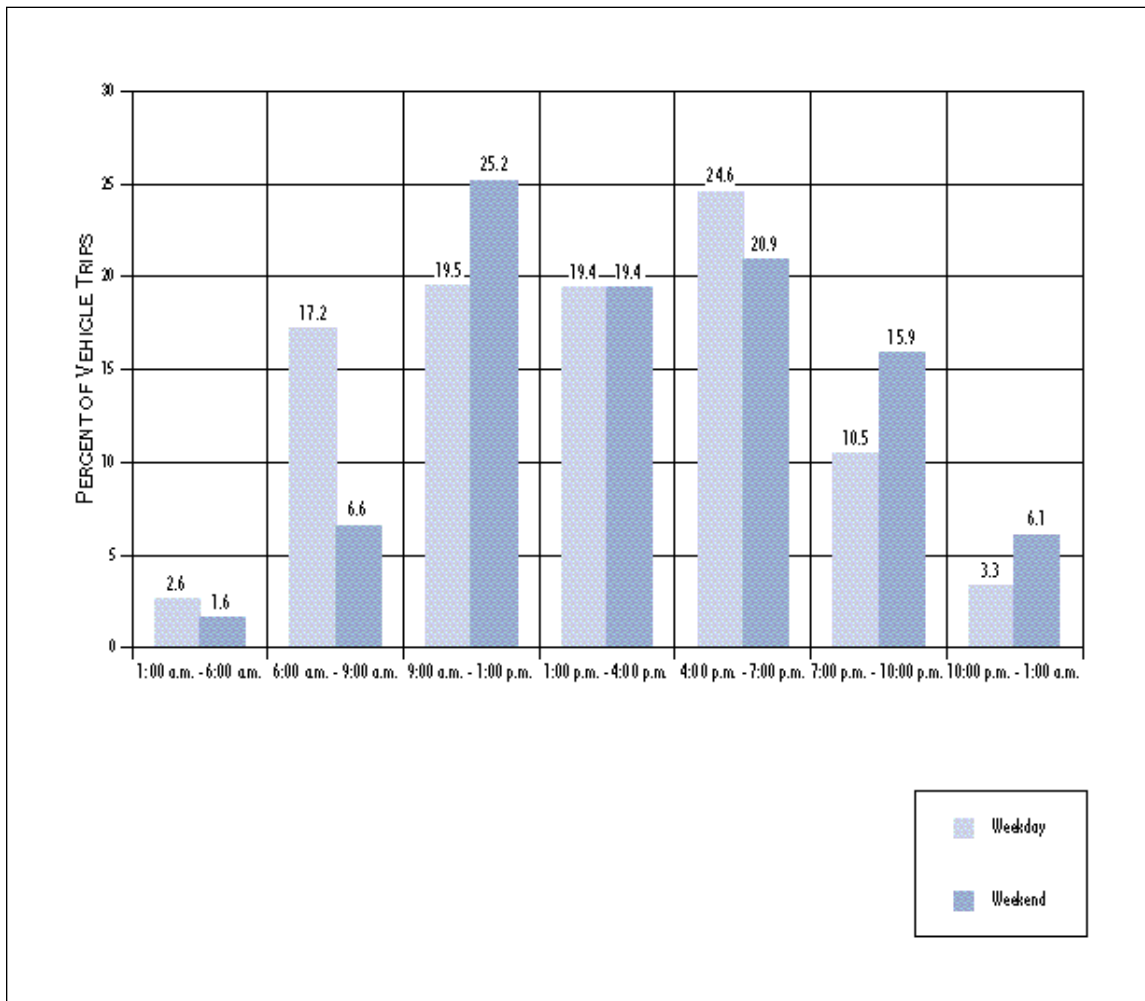


TABLE 5.59

**AVERAGE VEHICLE TRIP LENGTH<sup>1</sup> BY TIME OF DAY, WEEKDAY VS. WEEKEND AND TRIP PURPOSE  
1990 NPTS  
(MILES)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL
<b>Weekday</b>						
1:00 a.m. - 6:00 a.m.	16.5	11.2	31.6	15.9	*	15.8
6:00 a.m. - 9:00 a.m.	11.8	6.7	8.1	17.0	7.1	10.5
9:00 a.m. - 1:00 p.m.	9.5	5.8	8.9	11.6	17.0	7.5
1:00 p.m. - 4:00 p.m.	11.0	6.3	8.3	10.9	12.2	8.2
4:00 p.m. - 7:00 p.m.	10.4	6.5	8.4	9.0	8.1	8.5
7:00 p.m. - 10:00 p.m.	11.7	5.7	7.3	8.4	11.4	7.9
10:00 p.m. - 1:00 a.m.	11.2	6.7	15.4	9.2	4.2	9.5
<b>TOTAL</b>	<b>11.3</b>	<b>6.2</b>	<b>8.5</b>	<b>10.2</b>	<b>11.4</b>	<b>8.7</b>
<b>Weekend</b>						
1:00 a.m. - 6:00 a.m.	14.1	23.6	*	13.4	*	16.2
6:00 a.m. - 9:00 a.m.	10.0	9.0	6.6	27.4	10.9	12.3
9:00 a.m. - 1:00 p.m.	10.1	6.3	5.1	17.4	7.2	8.8
1:00 p.m. - 4:00 p.m.	10.2	6.9	7.3	14.7	12.2	9.6
4:00 p.m. - 7:00 p.m.	10.2	7.4	5.7	12.7	11.0	9.7
7:00 p.m. - 10:00 p.m.	11.5	8.0	8.7	10.6	7.4	9.7
10:00 p.m. - 1:00 a.m.	11.5	9.1	7.7	12.2	10.2	11.1
<b>TOTAL</b>	<b>10.6</b>	<b>7.2</b>	<b>6.1</b>	<b>13.8</b>	<b>9.3</b>	<b>9.8</b>
<sup>1</sup> Information based only on observations that had valid trip mile information. * Indicates insufficient data reported.						

Regardless of the time of day, weekend trips were longer than weekday trips. Trips were longer during the hours when there was less traffic (before 6 a.m. on weekdays and before 9 a.m. on weekends).

**FIGURE 5.30**

**AVERAGE VEHICLE TRIP LENGTH BY WEEKDAY VS. WEEKEND AND TIME OF DAY  
1990 NPTS**

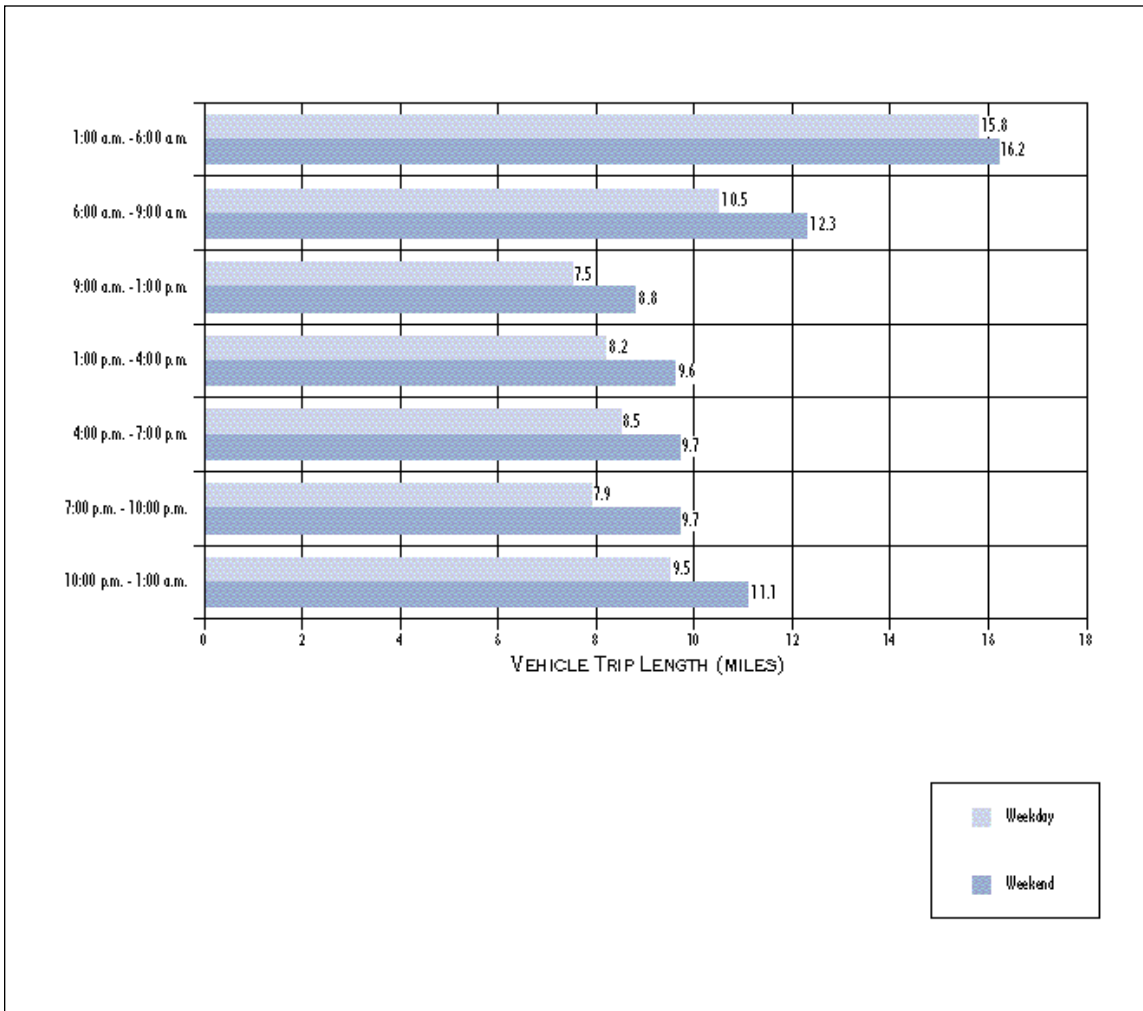


TABLE 5.60

**NUMBER OF WEEKDAY<sup>1</sup> VEHICLE TRIPS BY TIME OF DAY AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)**

	5 miles or less	6-10 miles	11-15 miles	16-20 miles	21-30 miles	30 or more miles	TOTAL <sup>2</sup>
1:00 a.m. - 6:00 a.m.	1,089,488 (1.6%)	584,278 (2.8%)	317,070 (3.1%)	253,424 (4.9%)	297,416 (6.1%)	340,353 (7.4%)	2,907,451 (2.6%)
6:00 a.m. - 9:00 a.m.	9,379,939 (14.1%)	4,192,028 (20.4%)	2,316,196 (22.9%)	1,224,905 (23.7%)	1,255,636 (25.6%)	985,840 (21.4%)	19,515,310 (17.2%)
9:00 a.m. - 1:00 p.m.	14,955,827 (22.4%)	3,430,271 (16.7%)	1,488,086 (14.7%)	698,345 (13.5%)	658,128 (13.4%)	698,659 (15.1%)	22,081,266 (19.5%)
1:00 p.m. - 4:00 p.m.	13,863,354 (20.8%)	3,672,204 (17.9%)	1,753,408 (17.4%)	835,176 (16.2%)	847,346 (17.3%)	835,647 (18.1%)	21,981,890 (19.4%)
4:00 p.m. - 7:00 p.m.	15,922,908 (23.9%)	5,392,582 (26.2%)	2,612,092 (25.9%)	1,328,110 (25.7%)	1,243,505 (25.4%)	1,071,482 (23.2%)	27,815,843 (24.6%)
7:00 p.m. - 10:00 p.m.	7,382,956 (11.1%)	2,175,306 (10.6%)	980,056 (9.7%)	535,913 (10.4%)	341,900 (7.0%)	415,869 (9.0%)	11,926,725 (10.5%)
10:00 p.m. - 1:00 a.m.	1,931,464 (2.9%)	739,419 (3.6%)	439,949 (4.4%)	195,853 (3.8%)	182,768 (3.7%)	180,661 (3.9%)	3,718,141 (3.3%)
<b>TOTAL<sup>2</sup></b>	<b>66,666,173</b> (100.0%)	<b>20,572,515</b> (100.0%)	<b>10,093,510</b> (100.0%)	<b>5,169,949</b> (100.0%)	<b>4,895,777</b> (100.0%)	<b>4,612,930</b> (100.0%)	<b>113,221,187</b> (100.0%)
	(58.9%)	(18.2%)	(8.9%)	(4.6%)	(4.3%)	(4.1%)	(100.0%)
<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.				<sup>2</sup> Includes trips where start time of trip, trip length, or both were unreported.			

FIGURE 5.31

DISTRIBUTION OF WEEKDAY VEHICLE TRIPS BY SELECTED TIME OF DAY AND SELECTED TRIP LENGTH  
1990 NPTS

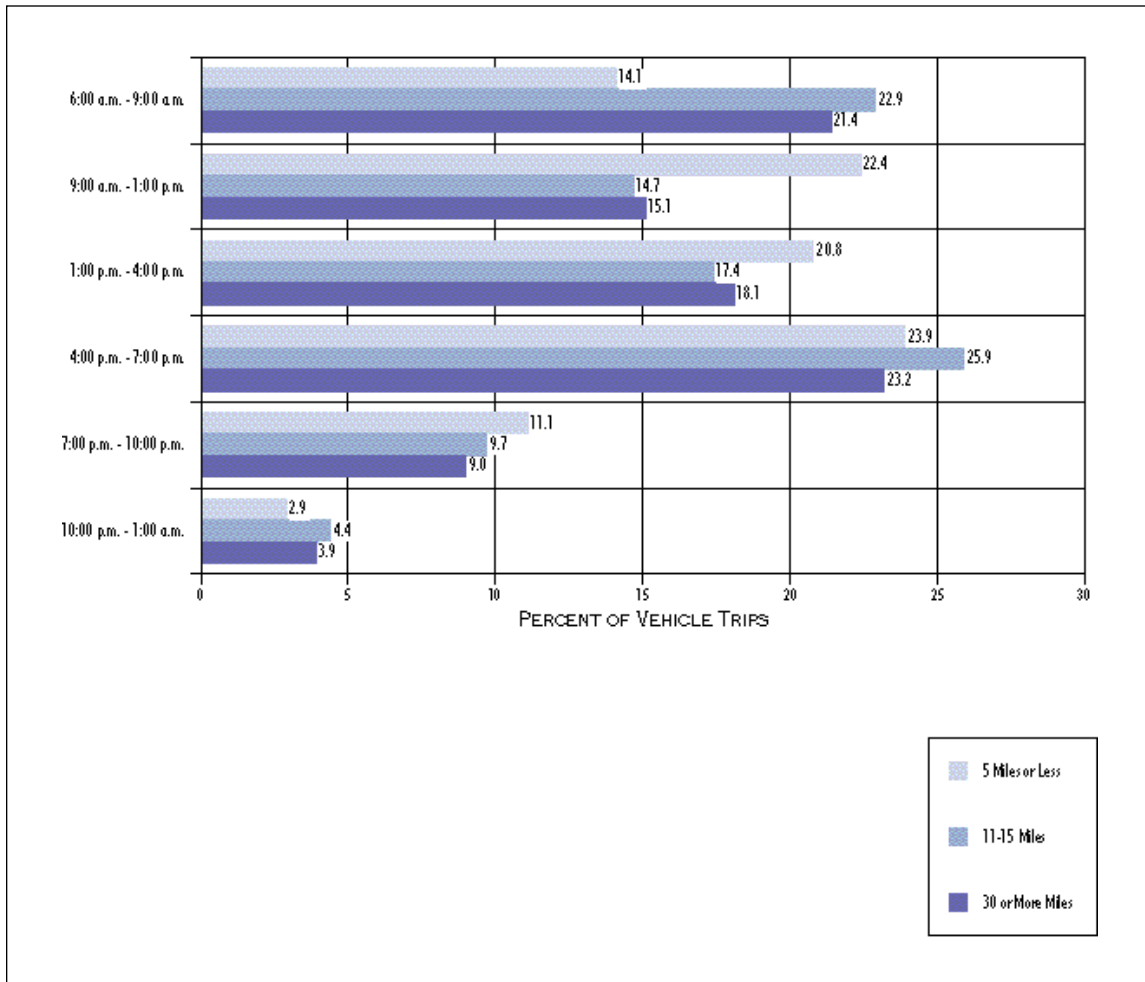




TABLE 5.61

**NUMBER OF WEEKEND<sup>1</sup> VEHICLE TRIPS BY TIME OF DAY AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)**

	5 miles or less	6-10 miles	11-15 miles	16-20 miles	21-30 miles	30 or more miles	TOTAL <sup>2</sup>
1:00 a.m. - 6:00 a.m.	287,809 (1.1%)	155,849 (2.0%)	67,584 (1.9%)	60,688 (2.8%)	56,712 (3.2%)	89,950 (4.1%)	727,051 (1.6%)
6:00 a.m. - 9:00 a.m.	1,684,407 (6.3%)	543,954 (6.9%)	197,159 (5.5%)	172,166 (8.1%)	127,270 (7.1%)	184,273 (8.4%)	2,943,213 (6.6%)
9:00 a.m. - 1:00 p.m.	7,318,189 (27.6%)	1,813,364 (22.9%)	750,900 (21.1%)	452,510 (21.2%)	361,370 (20.1%)	479,971 (21.8%)	11,268,317 (25.2%)
1:00 p.m. - 4:00 p.m.	5,177,316 (19.5%)	1,534,940 (19.4%)	774,460 (21.8%)	356,726 (16.7%)	386,263 (21.5%)	386,818 (17.6%)	8,688,521 (19.4%)
4:00 p.m. - 7:00 p.m.	5,400,950 (20.4%)	1,741,277 (22.0%)	767,526 (21.6%)	494,288 (23.2%)	367,303 (20.4%)	498,111 (22.6%)	9,361,165 (20.9%)
7:00 p.m. - 10:00 p.m.	4,064,638 (15.3%)	1,381,784 (17.4%)	599,244 (16.9%)	362,611 (17.0%)	297,150 (16.5%)	334,874 (15.2%)	7,129,969 (15.9%)
10:00 p.m. - 1:00 a.m.	1,360,568 (5.1%)	524,764 (6.6%)	306,351 (8.6%)	154,617 (7.2%)	170,337 (9.5%)	169,707 (7.7%)	2,713,212 (6.1%)
<b>TOTAL<sup>2</sup></b>	<b>26,526,929</b> (100.0%)	<b>7,923,432</b> (100.0%)	<b>3,553,575</b> (100.0%)	<b>2,134,482</b> (100.0%)	<b>1,800,096</b> (100.0%)	<b>2,201,388</b> (100.0%)	<b>44,737,485</b> (100.0%)
<sup>1</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.				<sup>2</sup> Includes trips where start time of trip, trip length, or both were unreported.			

FIGURE 5.32

DISTRIBUTION OF WEEKEND VEHICLE TRIPS BY SELECTED TIME OF DAY AND SELECTED TRIP LENGTH  
1990 NPTS

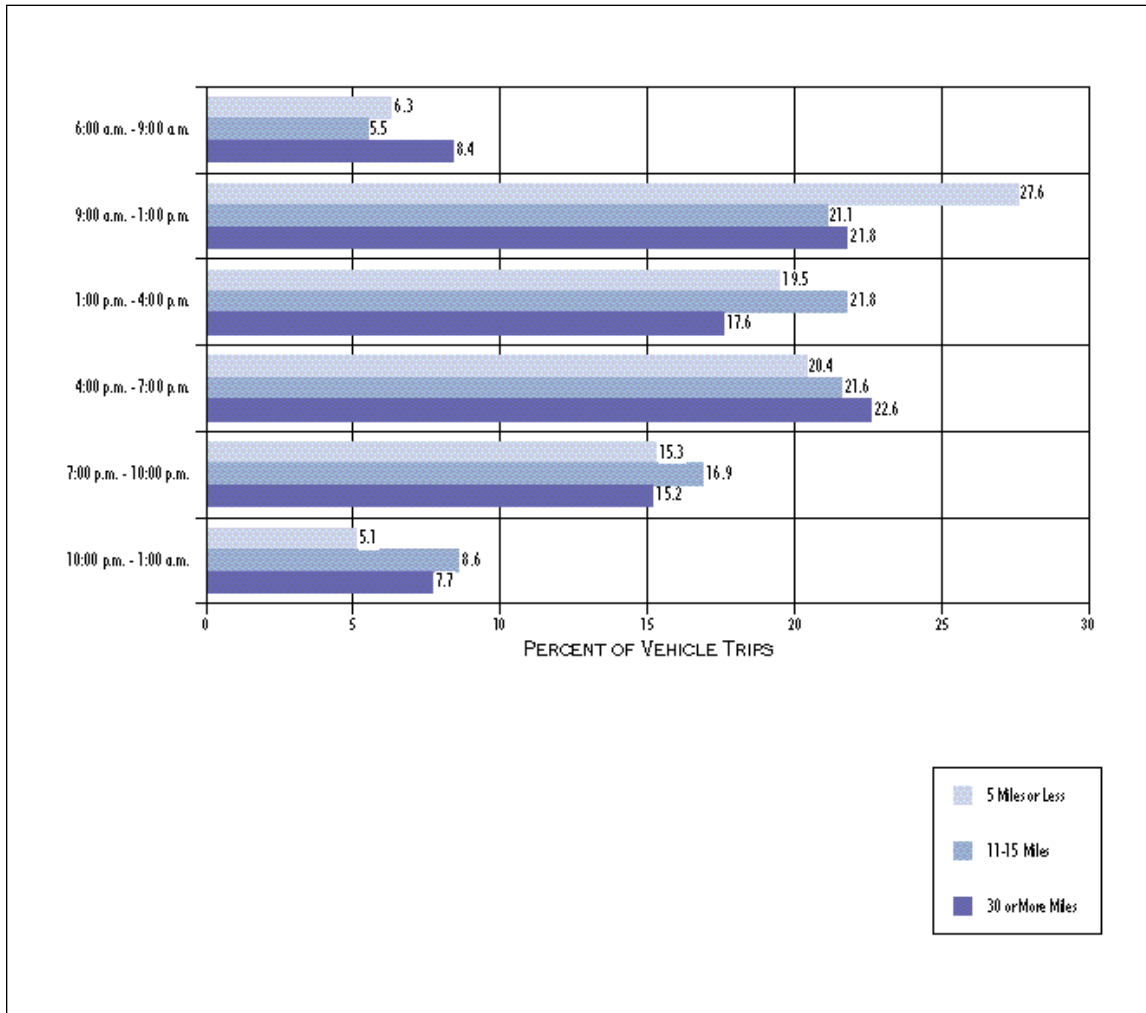


TABLE 5.62

**NUMBER OF WEEKDAY<sup>1</sup> VEHICLE TRIPS BY TRIP LENGTH AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Miles	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5 or less	16,691,443 (43.0%)	36,176,070 (70.7%)	2,839,234 (58.2%)	10,506,181 (59.5%)	438,353 (62.0%)	<b>66,666,173</b> (58.9%)
6-10	8,738,762 (22.5%)	7,581,431 (14.8%)	915,010 (18.7%)	3,208,338 (18.2%)	128,974 (18.2%)	<b>20,572,515</b> (18.2%)
11-15	5,005,275 (12.9%)	3,155,393 (6.2%)	447,091 (9.2%)	1,432,593 (8.1%)	50,887 (7.2%)	<b>10,093,510</b> (8.9%)
16-20	2,785,040 (7.2%)	1,364,583 (2.7%)	273,459 (5.6%)	711,442 (4.0%)	35,424 (5.0%)	<b>5,169,949</b> (4.6%)
21-30	2,756,174 (7.1%)	1,242,366 (2.4%)	184,558 (3.8%)	702,274 (4.0%)	10,324 (1.5%)	<b>4,895,776</b> (4.3%)
31 or more	2,374,212 (6.1%)	1,105,136 (2.2%)	166,905 (3.4%)	923,972 (5.2%)	42,706 (6.0%)	<b>4,612,930</b> (4.1%)
<b>TOTAL<sup>2</sup></b>	<b>38,794,232</b> (100.0%)	<b>51,157,578</b> (100.0%)	<b>4,881,598</b> (100.0%)	<b>17,656,963</b> (100.0%)	<b>706,998</b> (100.0%)	<b>113,221,187</b> (100.0%)

<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.      <sup>2</sup> Includes trips where trip length, trip purpose or both were unreported.

TABLE 5.63

**NUMBER OF WEEKEND<sup>1</sup> VEHICLE TRIPS BY TRIP LENGTH AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Miles	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5 or less	2,703,955 (47.2%)	13,968,653 (68.3%)	2,391,790 (67.6%)	7,254,886 (49.5%)	198,453 (63.1%)	<b>26,526,929</b> (59.3%)
6-10	1,217,072 (21.2%)	3,151,814 (15.4%)	648,995 (18.3%)	2,860,800 (19.5%)	44,752 (14.2%)	<b>7,923,432</b> (17.7%)
11-15	701,413 (12.2%)	1,173,937 (5.7%)	234,562 (6.6%)	1,411,592 (9.6%)	30,584 (9.7%)	<b>3,553,575</b> (7.9%)
16-20	432,709 (7.6%)	747,294 (3.7%)	93,580 (2.6%)	847,564 (5.8%)	13,334 (4.2%)	<b>2,134,482</b> (4.8%)
21-30	287,349 (5.0%)	560,322 (2.7%)	71,706 (2.0%)	870,251 (5.9%)	9,559 (3.0%)	<b>1,800,096</b> (4.0%)
31 or more	308,190 (5.4%)	614,167 (3.0%)	61,087 (1.7%)	1,201,177 (8.2%)	16,767 (5.3%)	<b>2,201,388</b> (4.9%)
<b>TOTAL<sup>2</sup></b>	<b>5,730,924</b> (100.0%)	<b>20,463,833</b> (100.0%)	<b>3,539,984</b> (100.0%)	<b>14,662,509</b> (100.0%)	<b>314,715</b> (100.0%)	<b>44,737,485</b> (100.0%)

<sup>1</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.      <sup>2</sup> Includes trips where trip length, trip purpose or both were unreported.

TABLE 5.64

**NUMBER OF VEHICLE MILES DRIVEN DURING WEEKDAY<sup>1</sup> BY TRIP LENGTH AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

Miles	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5 or less	44,136,754 (10.2%)	77,202,646 (24.7%)	6,953,641 (17.1%)	25,232,832 (14.2%)	1,078,988 (13.4%)	<b>154,642,226</b> (15.9%)
6-10	71,877,457 (16.5%)	61,586,792 (19.7%)	7,260,651 (17.8%)	26,215,182 (14.8%)	1,028,389 (12.7%)	<b>167,968,471</b> (17.3%)
11-15	67,486,791 (15.5%)	42,826,325 (13.7%)	6,085,495 (14.9%)	19,600,048 (11.0%)	680,512 (8.4%)	<b>136,710,967</b> (14.0%)
16-20	52,081,868 (12.0%)	26,048,670 (8.3%)	5,272,157 (12.9%)	13,526,544 (7.6%)	695,700 (8.6%)	<b>97,624,940</b> (10.0%)
21-30	71,994,412 (16.6%)	32,916,718 (10.5%)	4,886,502 (12.0%)	18,858,414 (10.6%)	285,097 (3.5%)	<b>128,943,149</b> (13.2%)
31 or more	126,936,807 (29.2%)	72,030,563 (23.0%)	10,319,682 (25.3%)	73,954,811 (41.7%)	4,302,255 (53.5%)	<b>287,544,118</b> (29.5%)
<b>TOTAL</b>	<b>434,514,089</b> (100.0%)	<b>312,611,714</b> (100.0%)	<b>40,778,128</b> (100.0%)	<b>177,387,832</b> (100.0%)	<b>8,070,941</b> (100.0%)	<b>973,433,871</b> (100.0%)

<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.      <sup>2</sup> Includes miles of travel where trip purpose was unreported.

**TABLE 5.65**  
**NUMBER OF VEHICLE MILES DRIVEN DURING WEEKEND<sup>1</sup> BY TRIP LENGTH AND TRIP PURPOSE**  
**1990 NPTS**  
**(THOUSANDS)**

Miles	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
5 or less	7,221,187 (12.0%)	30,021,012 (20.6%)	5,593,470 (26.1%)	18,561,732 (9.3%)	509,882 (17.4%)	<b>61,933,568</b> (14.4%)
6-10	10,143,281 (16.9%)	25,639,352 (17.6%)	5,065,660 (23.7%)	23,545,984 (11.8%)	361,625 (12.4%)	<b>64,755,902</b> (15.1%)
11-15	9,477,436 (15.8%)	16,058,612 (11.0%)	3,228,221 (15.1%)	19,383,152 (9.7%)	432,117 (14.8%)	<b>48,601,843</b> (11.3%)
16-20	8,169,928 (13.6%)	14,260,520 (9.8%)	1,752,260 (8.2%)	16,322,114 (8.2%)	252,678 (8.6%)	<b>40,757,500</b> (9.5%)
21-30	7,511,540 (12.5%)	14,971,931 (10.3%)	1,895,792 (8.9%)	23,210,805 (11.6%)	265,248 (9.1%)	<b>47,882,580</b> (11.1%)
31 or more	17,441,237 (29.1%)	45,026,973 (30.8%)	3,868,965 (18.1%)	98,797,981 (49.4%)	1,103,811 (37.7%)	<b>166,238,966</b> (38.6%)
<b>TOTAL</b>	<b>59,964,609</b> (100.0%)	<b>145,978,400</b> (100.0%)	<b>21,404,370</b> (100.0%)	<b>199,821,767</b> (100.0%)	<b>2,925,360</b> (100.0%)	<b>430,170,359</b> (100.0%)
<sup>1</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday. <span style="float: right;"><sup>2</sup> Includes miles of travel where trip purpose was unreported.</span>						

**FIGURE 5.33**

**DISTRIBUTION OF WEEKDAY VEHICLE TRAVEL BY TRIP LENGTH  
1990 NPTS**

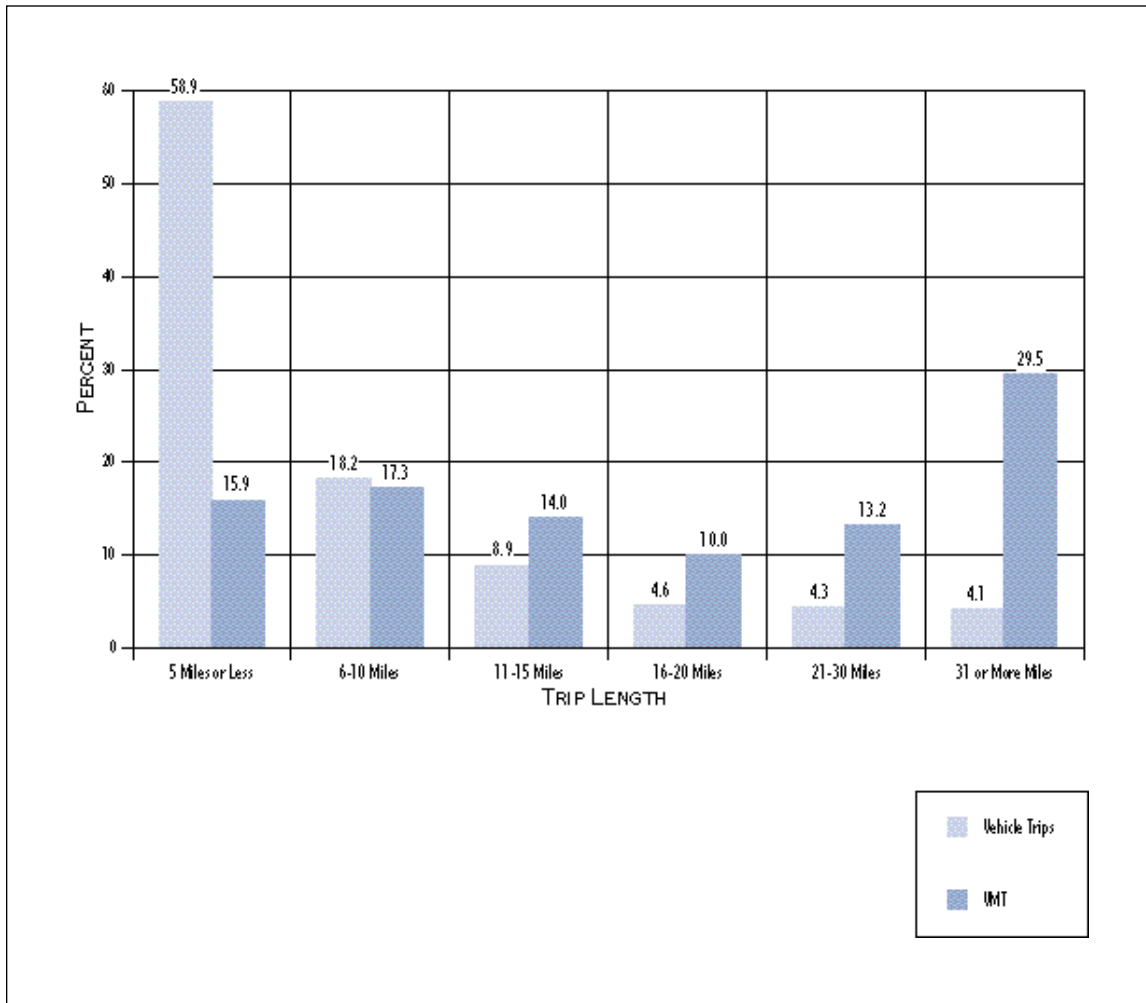
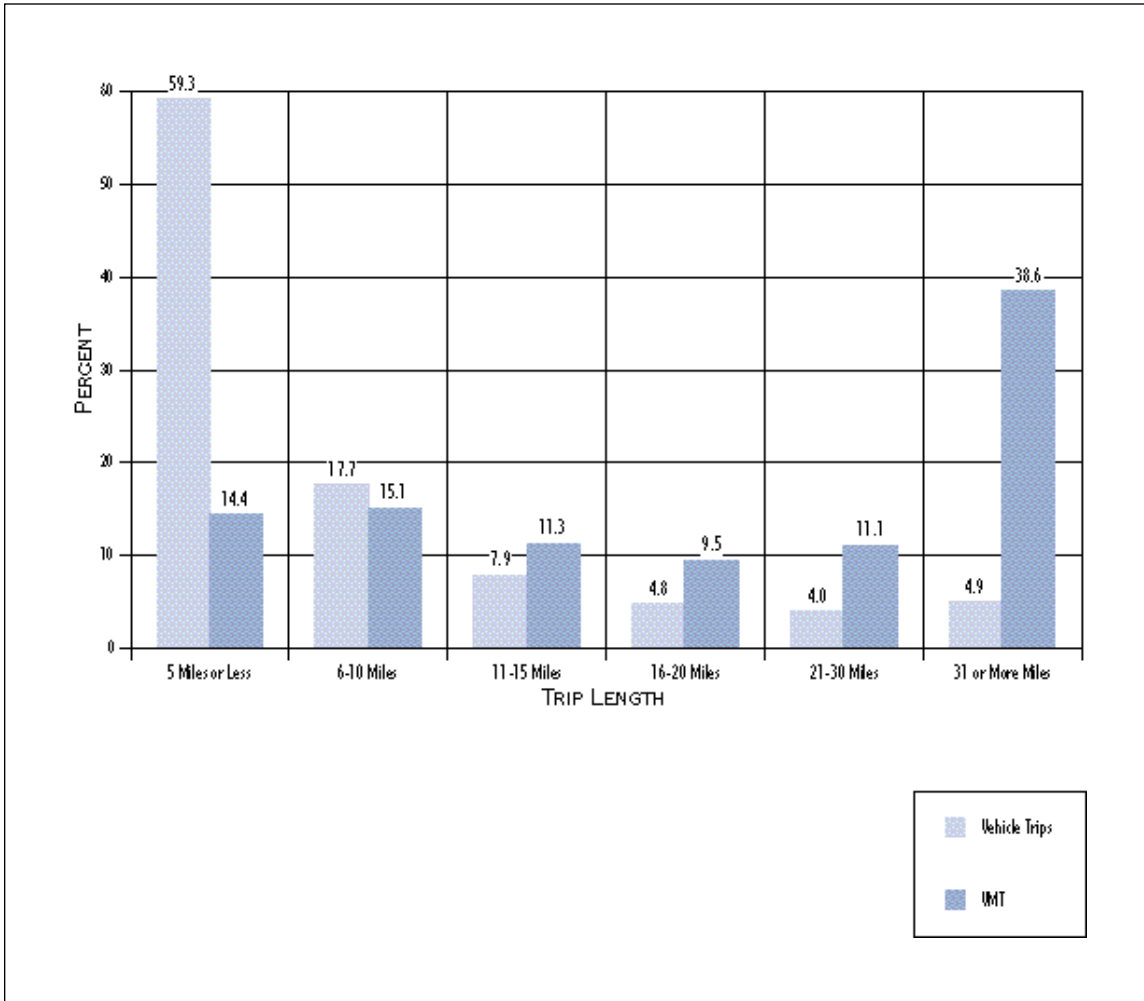


FIGURE 5.34

DISTRIBUTION OF WEEKEND VEHICLE TRAVEL BY TRIP LENGTH  
1990 NPTS





Tables 5.66 through 5.68 provide data on the amount of time drivers spend behind the wheel. On average, a driver spent almost one hour a day driving; however, this varied depending on the driver's age and gender. The gender difference in driving behavior was also observed in the amount of time

spent driving a private vehicle — male drivers spent 22% more time driving a private vehicle than female drivers. The gender difference is most prevalent for drivers between the ages of 60 and 64.

TABLE 5.66

AVERAGE TIME SPENT DRIVING A PRIVATE VEHICLE IN A TYPICAL DAY<sup>1</sup> BY DRIVERS' AGE AND SEX  
1990 NPTS  
(MINUTES)

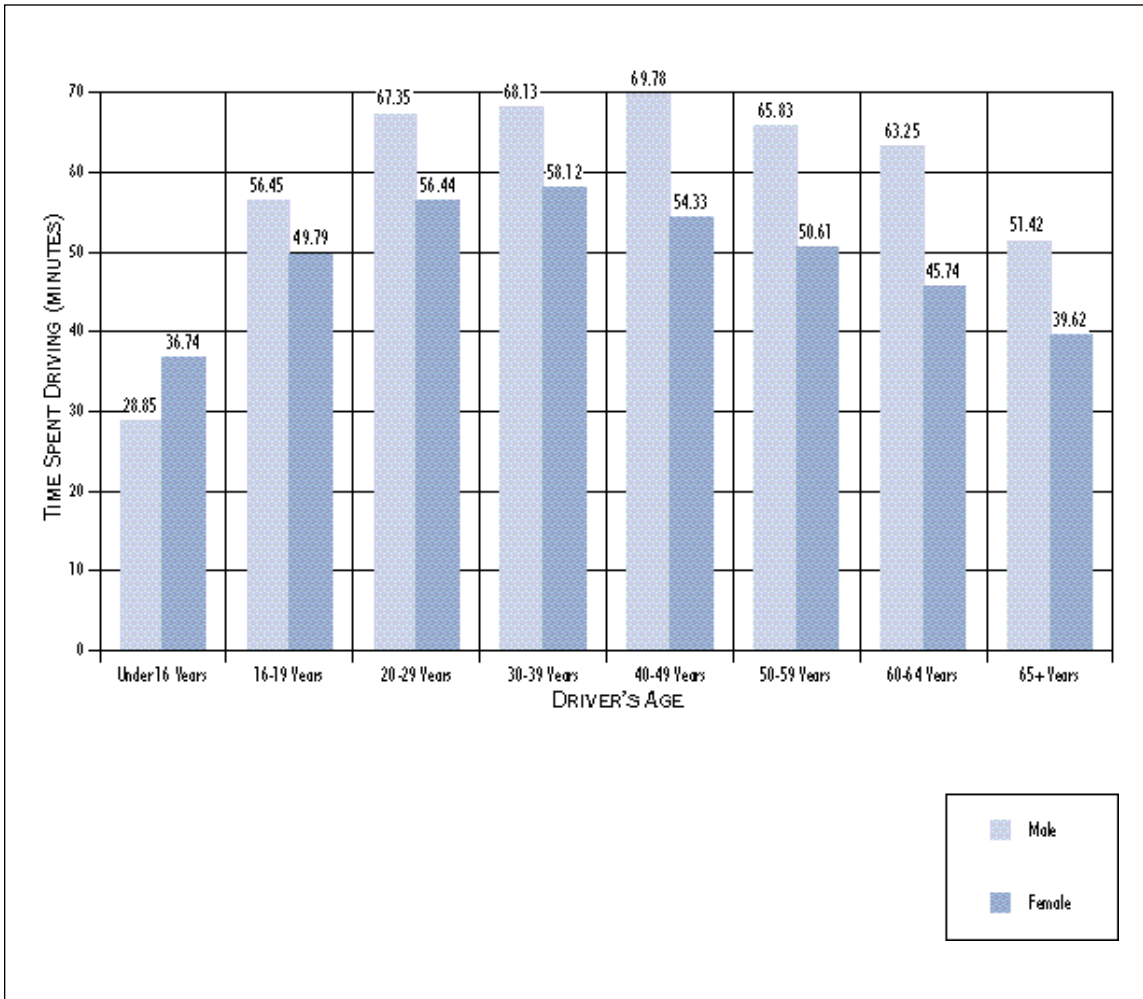
Age	Male	Female	ALL
Under 16 <sup>2</sup>	28.85	36.74	33.11
16-19	56.45	49.79	53.23
20-29	67.35	56.44	62.06
30-39	68.13	58.12	63.22
40-49	69.78	54.33	62.32
50-59	65.83	50.61	59.03
60-64	63.25	45.74	55.56
65+	51.42	39.62	46.32
<b>ALL</b>	<b>65.35</b>	<b>53.46</b>	<b>59.69</b>

<sup>1</sup> Does not include persons who did not drive a private vehicle on the day in which the household was interviewed. Does not include any driving done in a segmented trip. Also excludes driving done as an "essential part of work" (see Chapter 9, Commercial Driving).

<sup>2</sup> Some states issue learner permits to individuals at age 14 or 15. The "under 16" category reflects these drivers.

FIGURE 5.35

AVERAGE TIME SPENT DRIVING A PRIVATE VEHICLE IN A TYPICAL DAY BY DRIVER'S AGE AND SEX  
1990 NPTS



The impact of employment status on the amount of time spent driving a private vehicle is smaller in female drivers than in male drivers. Employed female drivers spent 15% more time driving a private vehicle than unemployed female drivers, while the corre-

sponding percentage for male drivers is 23%. Furthermore, employment status affects the gender difference - 22% between employed male and female drivers vs. 14% in unemployed drivers.

**TABLE 5.67**

**AVERAGE TIME SPENT DRIVING A PRIVATE VEHICLE IN A TYPICAL DAY<sup>1</sup>  
BY EMPLOYMENT STATUS AND SEX  
1990 NPTS  
(MINUTES)**

Employment Status	Male	Female	ALL
Employed Full Time or Part Time	67.72	55.61	<b>62.40</b>
Not Employed	54.97	48.34	<b>51.05</b>
<b>ALL</b>	<b>65.35</b>	<b>53.46</b>	<b>59.69</b>

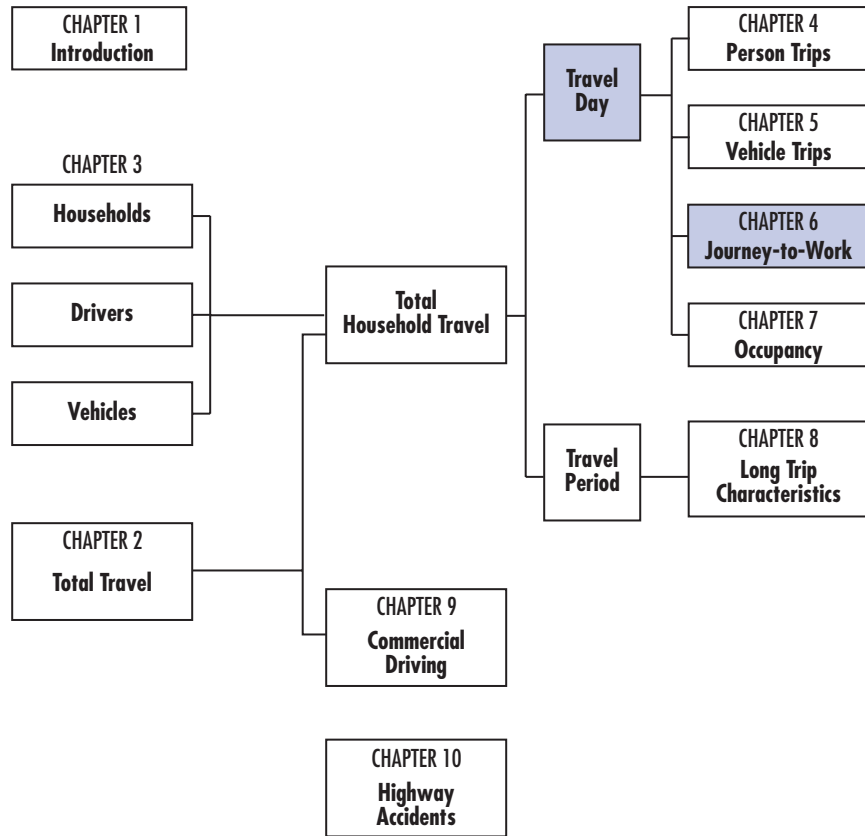
<sup>1</sup> Does not include persons who did not drive a private vehicle on the day in which the household was interviewed. Does not include any driving

done in a segmented trip. Also excludes driving done as an "essential part of work" (see Chapter 9, Commercial Driving).

In a typical day, people living in larger MSA's spent more time driving a private vehicle than those living in smaller areas. The difference in the amount of time spent driving becomes negligible for areas with a population greater than 500,000.

**TABLE 5.68**  
**AVERAGE TIME AND AVERAGE MILES SPENT DRIVING A PRIVATE VEHICLE IN A TYPICAL DAY<sup>1</sup>**  
**BY URBANIZED AREA SIZE**  
**1990 NPTS**  
**(MINUTES)**

Urbanized Area Size	Average Time Spent Driving a Vehicle
50,000-199,999	52.96
200,000-499,999	53.97
500,000-999,999	58.12
1,000,000 or more without rail/subway	59.50
1,000,000 or more with rail/subway	62.35
Not in Urbanized Area	61.35
<b>ALL</b>	<b>59.69</b>
<sup>1</sup> Does not include persons who did not drive a private vehicle on the day in which the household was interviewed. Does not include any driving done in a segmented trip. Also excludes driving done as an "essential part of work" (see Chapter 9, Commercial Driving).	



# Chapter 6

## Journey To Work and Work-Related Trips



Between 1969 and 1990:

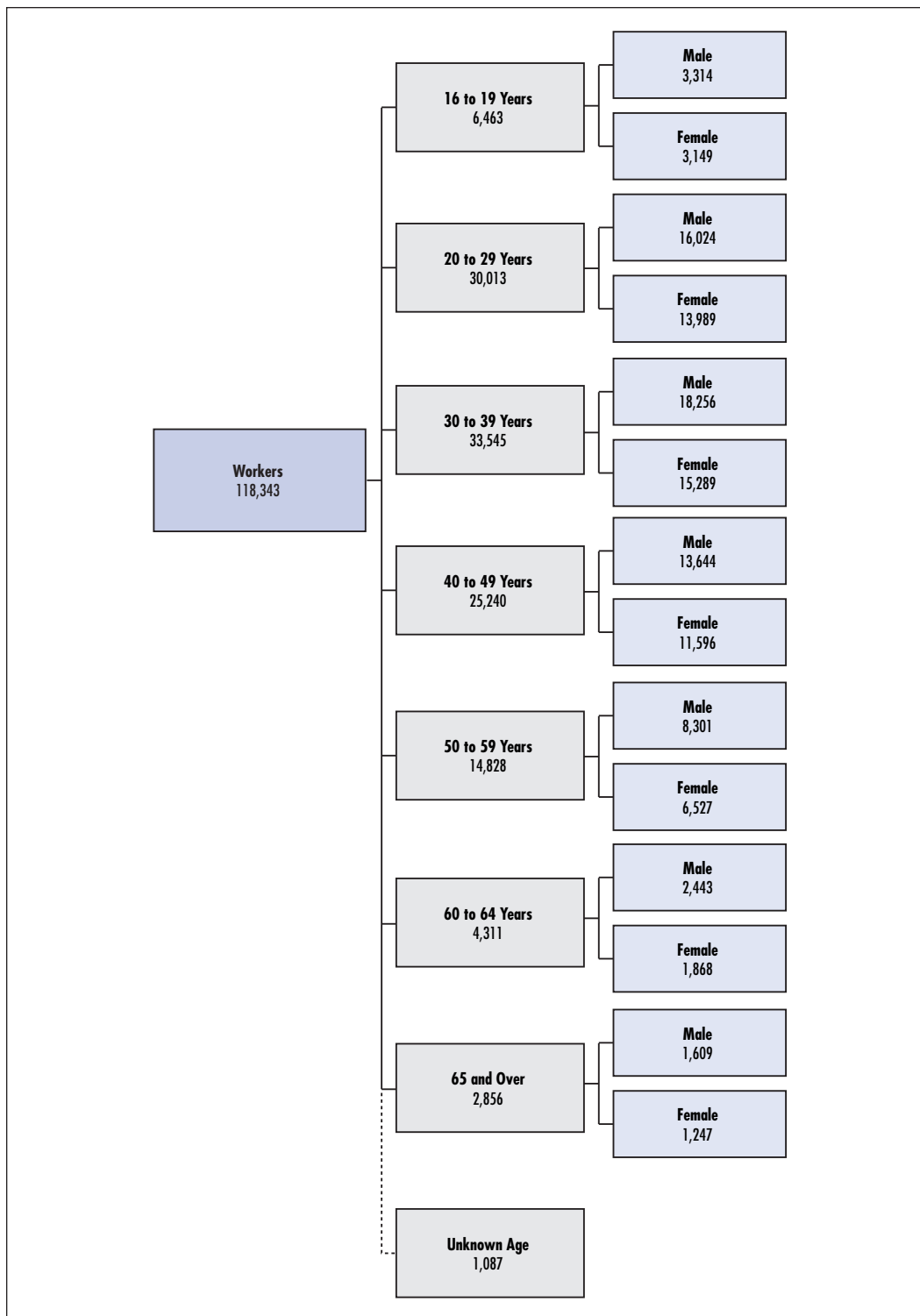
- Workers increased by 56%, while the population only increased by 21%.
- There were 42 million new workers, with 36% of them men and 64% of them women.

In 1990:

- The average trip to work was 10.7 miles (26% longer than 1983 trips) and the average travel time was 20 minutes (about the same as in 1983).
- Eighty-three percent of all workers travelled to work by private vehicle, with 71% driving alone and 12% carpooling.
- Two-thirds of all work trips were 10 miles or less and only 12% of trips to work were more than 20 miles.

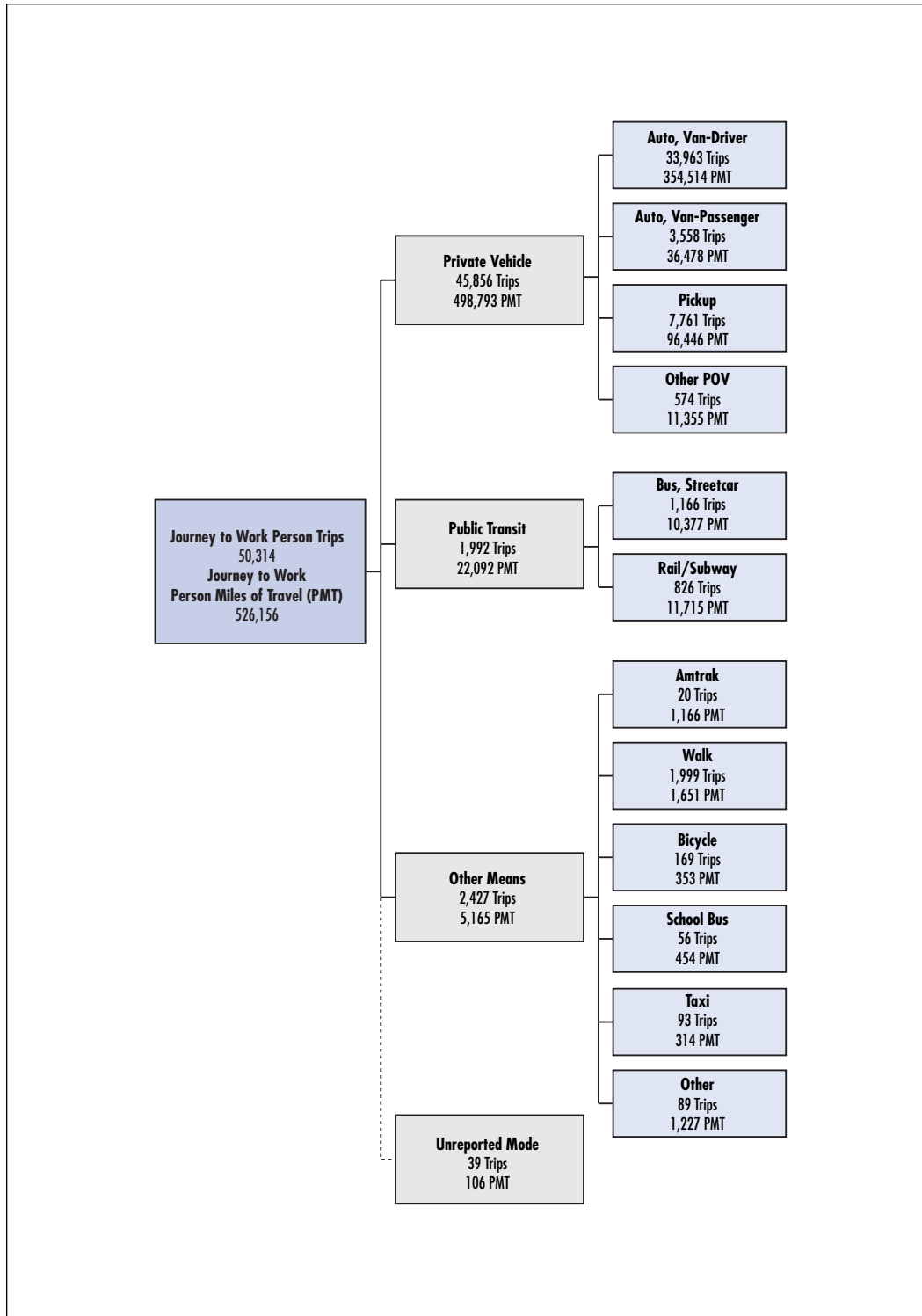
1990 WORKERS BY AGE AND SEX

(THOUSANDS)



1990 JOURNEY TO WORK PERSON TRIPS AND MILES OF TRAVEL BY MODE

(MILLIONS)



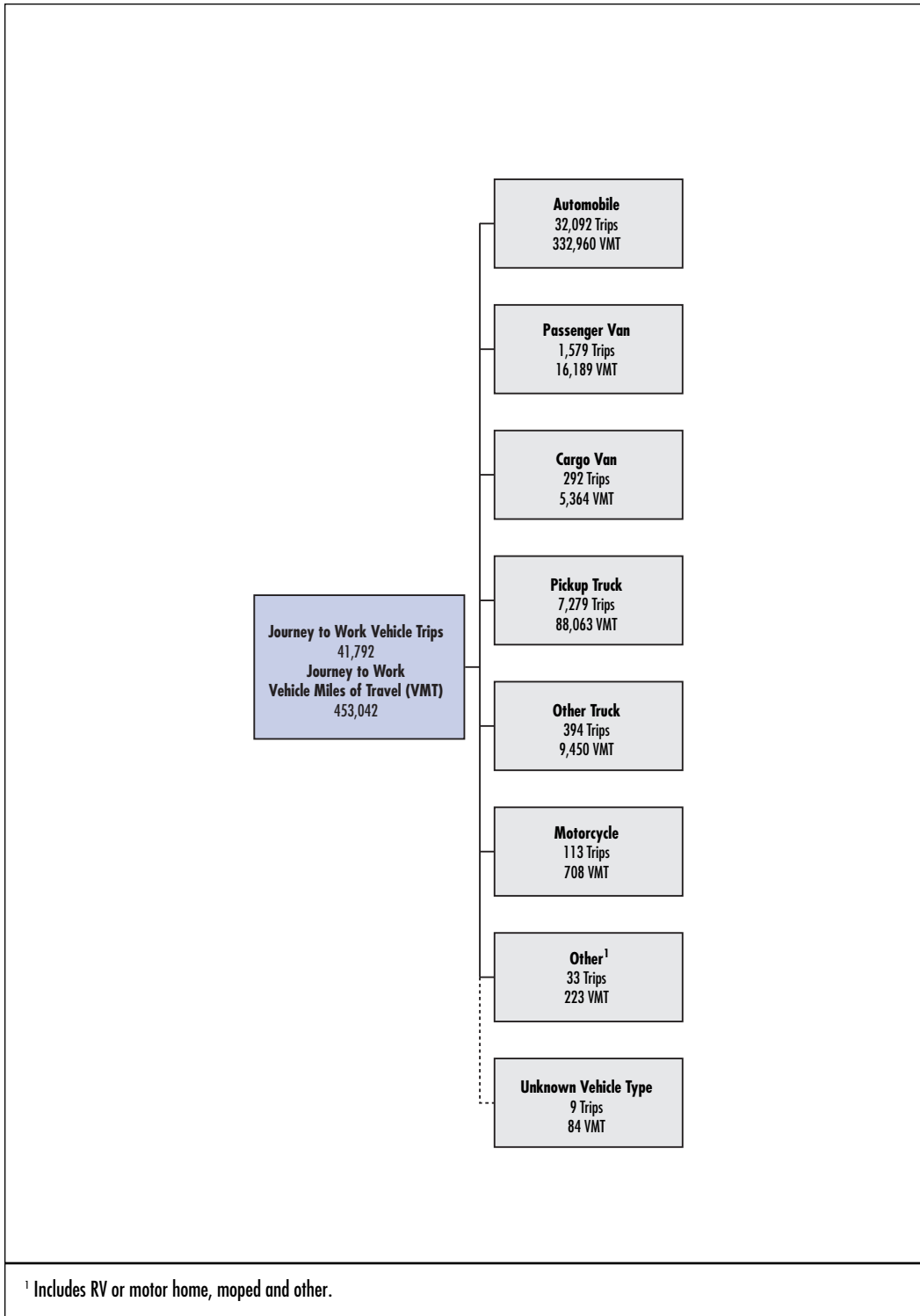
JOURNEY TO WORK AND WORK-RELATED TRIPS



1990 JOURNEY TO WORK VEHICLE TRIPS AND MILES OF TRAVEL BY VEHICLE TYPE

(MILLIONS)

JOURNEY TO WORK AND WORK-RELATED TRIPS



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## Chapter 6 Journey To Work and Work-Related Trips

**S**TATISTICS on journey to work and work-related trips are presented in this chapter. Journey to work refers to a one-way trip from one's home to a place where one reports to work, or from work back to home. Work-related trips are not considered journey to work trips. Trips related to business activities, such as trips to attend a meeting, a professional convention or to purchase supplies, are referred to as work-related trips. A person is considered employed, or a worker, if he/she worked for pay, either full time or part time, during the week before the interview.

Questions on journey to work trips were asked in two different sections of the 1990 NPTS questionnaire. First, an individual was asked how he/she usually travelled to and from work during the previous week. This information is on the typical or usual travel mode. The same individual was then asked to report all trips taken during the sampled day (travel day). If that individual went to work that day, then information was recorded on trips travelling to and from work that day. If the individual used a different mode travelling to and from work on the sampled day than what he/she would usually use, then the mode actually used for the journey to work trip on the sampled day was different from the so-called usual mode for the journey to work trip. Throughout this chapter, the term "usual mode" will be used to distinguish statistics based on data on the usual mode from those based on data on actual mode.

### Increase in number of workers

From 1969 to 1990, the number of workers increased by 56 percent, which was two and a half times the 21 percent increase in the total population. This difference reflects, in part, the increase of working-age individuals in the population and the increased participation by women in the labor force. While 37 percent of all females 16 years or older were employed in 1969, the corresponding percentage in 1990 increased to 56 percent. In contrast, the percentage of males employed remained stable from 1969 to 1990, about 75 percent.

### Magnitude of journey to work and work-related travel

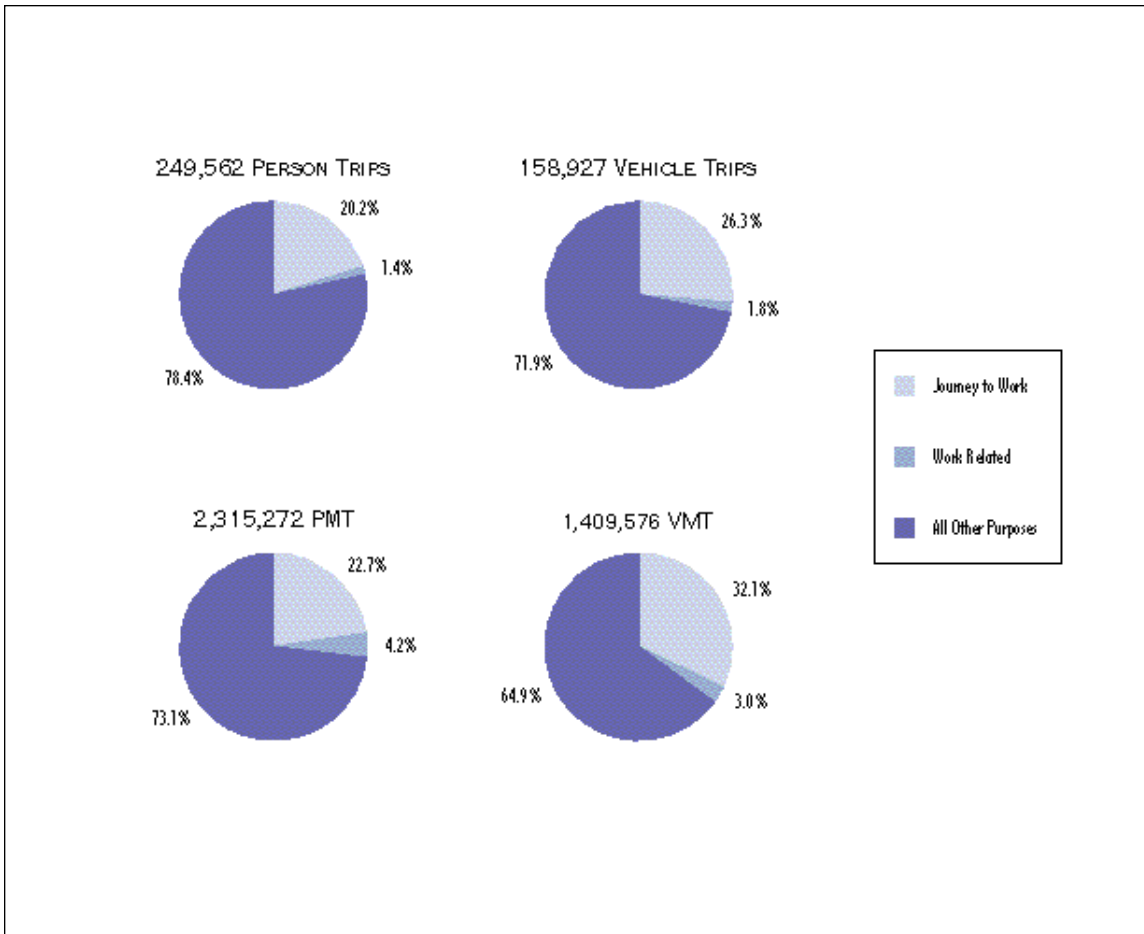
The 1990 NPTS estimated that there were 50 billion journey to work trips in 1990, which amounted to more than 526 billion person miles of travel (23 percent of total person miles) and 453 billion vehicle miles of travel (32 percent of total vehicle miles) (Figure 6.1). Journey to work and work-related travel accounted for 27 percent of the total number of person trips on weekdays. However, the corresponding percentage on weekends is only one-tenth of the percentage on weekdays (2.8 percent).

The proportion of journey to work trips increased as household income increased. On average, there were 500 journey to work trips per household; and more than 420 journey to work trips per worker per year. For lower income households (less than \$10,000 a year), 12 percent of their annual person trips were for travelling to and from work, while 21 percent of total trips by households with income greater than \$40,000 were for travelling to and from work.



FIGURE 6.1

STATISTICS ON TRAVEL BY TRIP PURPOSE  
1990 NPTS  
(MILLIONS)



## Mode preference for travelling to and from work

The great majority of workers commuted to work using privately-owned vehicles (POV). Female workers used public transportation slightly more than male workers and they also travelled to and from work as passengers in privately owned vehicles more than males. Workers 60 years or older were more likely to commute using public transit and other means of transportation, including walking, than younger workers. Public transit and means of travel other than POV were also common among the youngest workers (20 years or younger).

The percentage of workers who commuted using public transportation increased as the population size of a metropolitan area increased.

## Commuting patterns

The average length of journey to work trips was 10.7 miles, with segmented trips<sup>1</sup> longer than non-segmented trips. Workers residing inside the central city of a Metropolitan Statistical Area (MSA) took a significantly greater number of segmented trips than workers residing elsewhere.

Journey to work trips by public transit were the longest, both in miles and in minutes, when compared to trips by other modes of transportation. On average, commute speed increased from 1983 to 1990 with the increase by privately owned vehicles being the most notable.

Improvement in commute speed was partially a result of the continued development of suburban and exurban residential areas which allowed travelling to and from

work at faster speeds. The improved speeds contributed to a slightly shorter commute time although the commuting distance increased from 8.5 miles in 1983 to 10.7 miles in 1990. In addition, mode shifts from carpooling and public transit to single-occupant vehicles also played a role in the decline in commute time.

## Temporal patterns of commuting

Weekday journey to work trips peaked between 6 and 9 a.m. and between 4 and 7 p.m., but diminished considerably after 7 p.m. Journey to work trips on weekends, on the other hand, peaked around 4 p.m. and remained fairly high until 1 a.m.

More than half of weekday morning travel before 9 a.m. was for journey to work trips. However, journey to work trips were, as expected, considerably less prevalent in morning traffic during weekends. Between 85 percent to 95 percent of weekend travel that occurred after 9 a.m. was not related to work.

<sup>1</sup> See Page 4-50 of Volume 1 of the 1990 Nationwide Personal Transportation Survey Databook for detailed explanations of segmented trips.



The number of workers increased by 56% from 1969 to 1990, while the total population increased by only 21%. This difference reflects, in part, the increase in the percentage of working-age individuals, as well as

increased participation by women in the work force. In 1969, an average worker drove 3,441 miles commuting to work that, as compared to 3,828 miles in 1990, representing an increase of 11% over the time period.

TABLE 6.1

SUMMARY STATISTICS ON JOURNEY TO WORK AND WORK-RELATED TRAVEL  
1969, 1977, 1983 AND 1990 NPTS<sup>1</sup>

	1969	1977	1983	1990
Persons (000)	197,213	213,141	229,453	239,416
Workers (000)	75,758	93,019	103,244	118,343
<b>Journey to Work Trips</b>				
Annual Person Trips (000,000)	37,638	43,767	46,493	50,314
Annual Vehicle Trips (000,000)	27,844	31,886	35,271	41,792
Annual VMT (000,000)	260,716	287,710	301,644	453,042
<b>Work-Related Trips</b>				
Annual Person Trips (000,000)	**	7,624	5,283	3,529
Annual Vehicle Trips (000,000)	3,840	5,768	3,679	2,845
Annual VMT (000,000)	61,299	68,978	42,090	42,336

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

\*\* Indicates data not available.

FIGURE 6.2

SUMMARY STATISTICS ON JOURNEY TO WORK PERSON TRIPS  
1969, 1977, 1983 AND 1990 NPTS

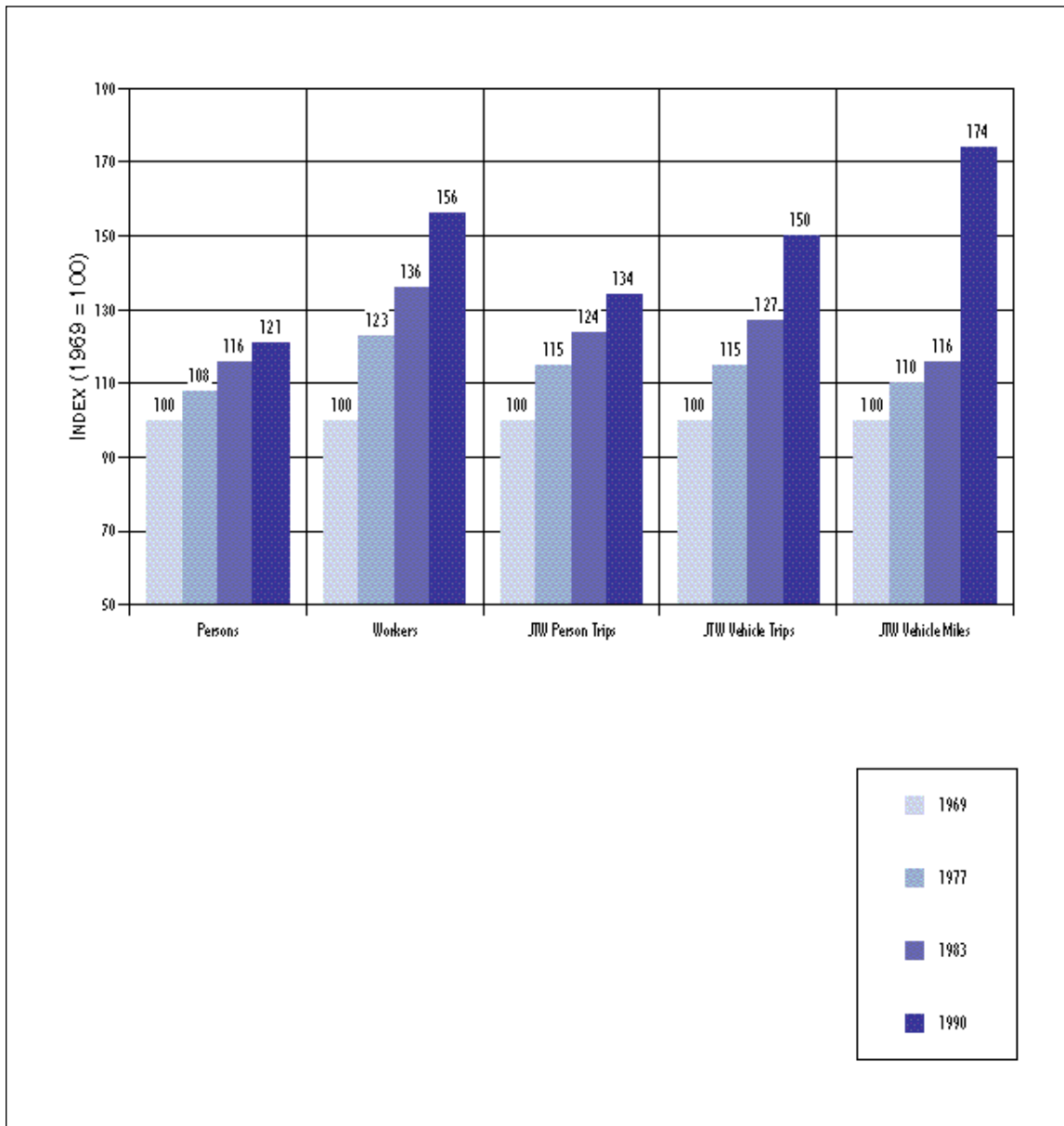


TABLE 6.2

**SUMMARY STATISTICS ON WORKERS AND THEIR TRAVEL  
1990 NPTS AND 1990 CENSUS DATA**

	1990 Census Data	1990 NPTS
<b>Number of Workers (000)</b>	<b>115,070</b>	<b>118,343</b>
% Male	54.7	54.1
% Female	45.3	45.9
<b>Workers as a Percent of Population</b>	<b>46.27</b>	<b>49.43</b>
<b>Workers per Household</b>	<b>1.25</b>	<b>1.27</b>
<b>Workers per Vehicle</b>	<b>0.76</b>	<b>0.72</b>
<b>Workers' Average Commute Time to Work (minutes)</b>	<b>22.4</b>	<b>20.0</b>
<b>Distribution of Workers by Usual Mode of Transportation to Work (000)</b>		
<b>Private Vehicle<sup>1</sup></b>	<b>99,593</b>	<b>97,838</b>
	(86.5%)	(82.7%)
% Drive Alone	73.2	70.7 <sup>2</sup>
% Carpool	13.4	12.0 <sup>2</sup>
<b>Motorcycle</b>	<b>242</b>	<b>306</b>
	(0.2%)	(0.3%)
<b>Public Transit<sup>3</sup></b>	<b>5,890</b>	<b>5,951</b>
	(5.1%)	(5.0%)
<b>Walked to Work</b>	<b>4,489</b>	<b>4,416</b>
	(3.9%)	(3.7%)
<b>Other<sup>4</sup></b>	<b>1,450</b>	<b>2,981</b>
	(1.3%)	(2.5%)
<b>Worked at Home</b>	<b>3,406</b>	<b>Unknown</b>
	(3.0%)	
<b>Unknown</b>	<b>0</b>	<b>6,851</b>
	(0.0%)	(5.8%)
<p><b>Source:</b> 1990 Census Data: U.S. Department of Transportation, Federal Highway Administration, <i>Journey-to-Work Trends in the United States and its Major Metropolitan Areas, 1960-1990, 1994</i>, Tables 2-1 &amp; 2-4, pp. 2-2 &amp; 2.6.</p> <p><sup>1</sup> Includes car, truck, jeep and van.</p> <p><sup>2</sup> This percentage is calculated based on data on the first journey to work trip taken on the respondent's sample day. This does not include 40,270,122 (41.2%) persons usually driving a private vehicle to work, whose carpooling status on the sample day is unknown.</p> <p><sup>3</sup> Includes bus, trolley, streetcar, subway, railroad and ferry.</p> <p><sup>4</sup> Includes bicycle, taxicab and other means.</p>		

The great majority of workers commuted to work using privately owned vehicles. Female workers used public transportation slightly more than male workers.

TABLE 6.3

NUMBER OF WORKERS BY SEX AND USUAL MODE OF COMMUTING<sup>1</sup>  
1990 NPTS  
(THOUSANDS)

Note: See Limitations of Data on Transit<sup>2</sup> in Chapter 1, Section 5

	Male	Female	TOTAL <sup>3</sup>
<b>Private Vehicle</b>			
Car, Truck, Jeep, and Van	53,482 (83.6%)	44,342 (81.6%)	97,838 (82.7%)
Motorcycle	306 (0.5%)	** (0.0%)	306 (0.3%)
<b>Subtotal - Private</b>	<b>53,788</b> (84.0%)	<b>44,342</b> (81.6%)	<b>98,143</b> (82.9%)
<b>Public Transportation</b>			
Bus or Trolley	1,644 (2.6%)	1,913 (3.5%)	3,557 (3.0%)
Subway/Rail	1,279 (2.0%)	1,066 (2.0%)	2,344 (2.0%)
Other Public	47 (0.1%)	* (0.0%)	50 (0.0%)
<b>Subtotal - Public</b>	<b>2,970</b> (4.6%)	<b>2,981</b> (5.5%)	<b>5,951</b> (5.0%)
<b>Other Means</b>			
Taxi	67 (0.1%)	90 (0.2%)	157 (0.1%)
Bicycle	322 (0.5%)	107 (0.2%)	429 (0.4%)
Walk	2,358 (3.7%)	2,058 (3.8%)	4,416 (3.7%)
Other	1,120 (1.8%)	1,275 (2.3%)	2,395 (2.0%)
<b>Subtotal - Other</b>	<b>3,867</b> (6.0%)	<b>3,530</b> (6.5%)	<b>7,397</b> (6.3%)
<b>TOTAL<sup>3</sup></b>	<b>63,996</b> (100.0%)	<b>54,334</b> (100.0%)	<b>118,343</b> (100.0%)
<b>ALL MODES</b>	54.1	45.9	100.0

<sup>1</sup> Mode categories were selected to conform with decennial Census categories.

<sup>2</sup> Estimates of "usual" transit use are based on 1321 workers who reported that their typical means to work was bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

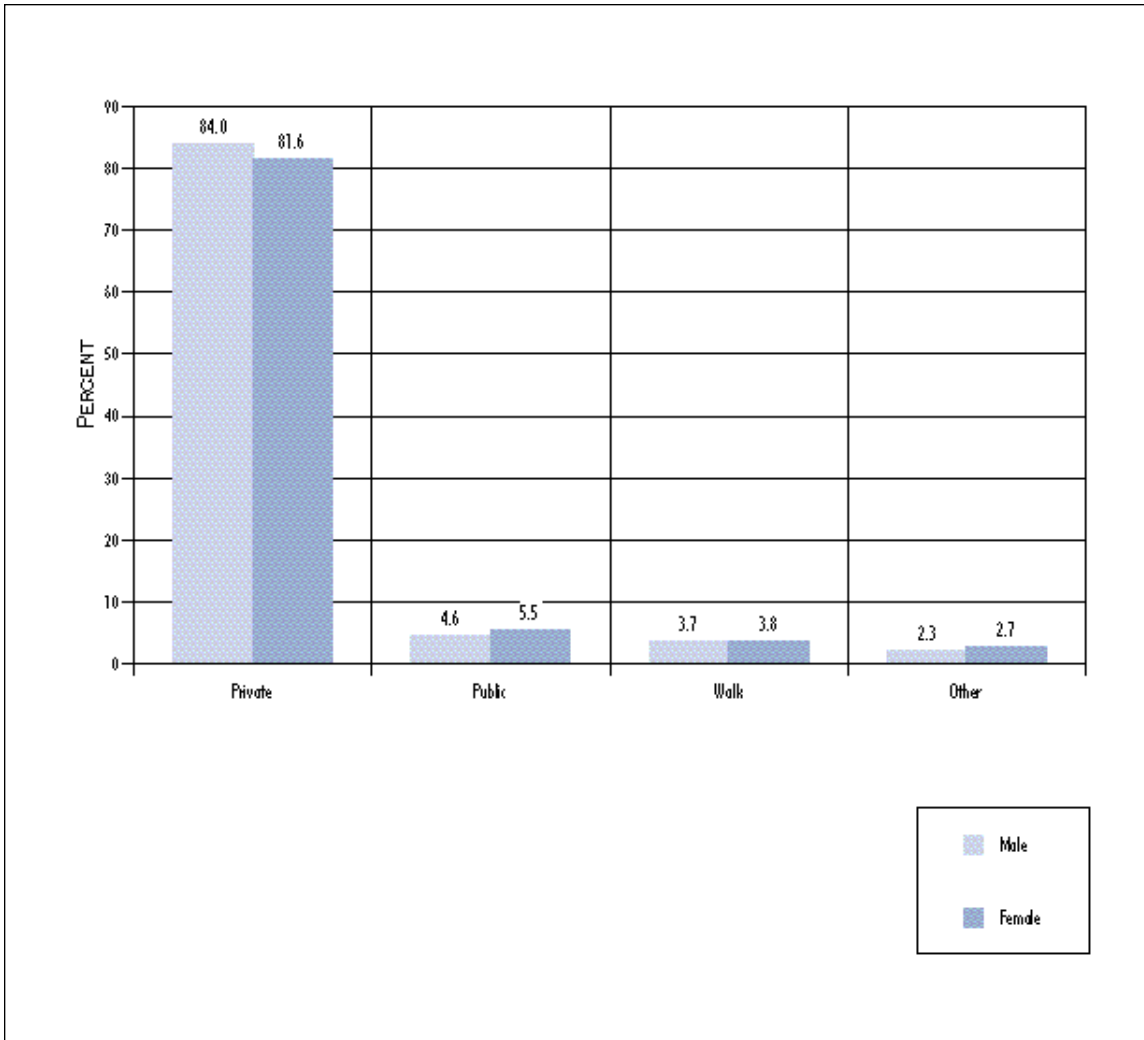
<sup>3</sup> Includes workers whose sex, usual mode of transportation or both were unreported.

\* Indicates insufficient data reported.

\*\* Indicates no data reported.

FIGURE 6.3

DISTRIBUTION OF WORKERS BY SEX AND USUAL MODE OF COMMUTING  
1990 NPTS  
(THOUSANDS)





The use of private vehicles for commuting was about the same for all age groups until workers reached the age of 60. Workers 60 years or older tended to use more public transit and other means of transportation,

including walking, than younger workers. Using public transit and other means of travel for commuting was also common among workers younger than 20 years old.

TABLE 6.4

**NUMBER OF WORKERS BY WORKER'S AGE AND USUAL MODE OF COMMUTING  
1990 NPTS  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

	16-19	20-29	30-39	40-49	50-59	60-64	65+	TOTAL <sup>2</sup>
<b>Private Vehicle</b>	<b>5,166</b>	<b>24,885</b>	<b>28,314</b>	<b>21,283</b>	<b>12,246</b>	<b>3,331</b>	<b>2,042</b>	<b>98,143</b>
	(79.9%)	(82.9%)	(84.4%)	(84.3%)	(82.6%)	(77.3%)	(71.5%)	(82.9%)
<b>Public Transportation</b>	<b>336</b>	<b>1,931</b>	<b>1,385</b>	<b>1,149</b>	<b>614</b>	<b>251</b>	<b>188</b>	<b>5,951</b>
	(5.2%)	(6.4%)	(4.1%)	(4.6%)	(4.1%)	(5.8%)	(6.6%)	(5.0%)
<b>Other Means</b>	<b>620</b>	<b>1,758</b>	<b>1,998</b>	<b>1,334</b>	<b>837</b>	<b>379</b>	<b>412</b>	<b>7,397</b>
	(9.6%)	(5.9%)	(6.0%)	(5.3%)	(5.6%)	(8.8%)	(14.4%)	(6.3%)
<b>TOTAL<sup>2</sup></b>	<b>6,463</b>	<b>30,013</b>	<b>33,545</b>	<b>25,240</b>	<b>14,827</b>	<b>4,311</b>	<b>2,856</b>	<b>118,343</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>% of Workers by Age</b>	5.5%	25.4%	28.3%	21.3%	12.5%	3.6%	2.4%	100.0%

<sup>1</sup> Estimates of "usual" transit use are based on 1321 workers who reported that their typical means to work was bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes workers whose age, usual mode of transportation or both were unreported.

Workers between the ages of 20 and 50 took more than three quarters of the estimated 50 billion annual journey to work trips. This pattern was similar for men and women. On aver-

age, male workers took slightly more journey to work trips than female workers, 429 compared to 420 trips per year, respectively.

TABLE 6.5

NUMBER OF JOURNEY TO WORK PERSON TRIPS BY WORKER'S SEX AND AGE  
1990 NPTS  
(THOUSANDS)

Age	Male	Female	TOTAL
5-15	170,841 (0.6%)	168,937 (0.7%)	339,778 (0.7%)
16-19	1,312,638 (4.8%)	1,094,891 (4.8%)	2,407,529 (4.8%)
20-29	6,988,786 (25.4%)	6,090,232 (26.7%)	13,079,018 (26.0%)
30-39	8,024,968 (29.2%)	6,586,128 (28.8%)	14,611,096 (29.0%)
40-49	5,900,358 (21.5%)	4,964,292 (21.7%)	10,864,650 (21.6%)
50-59	3,457,222 (12.6%)	2,536,644 (11.1%)	5,993,866 (11.9%)
60-64	891,144 (3.2%)	744,514 (3.3%)	1,635,658 (3.3%)
65+	565,216 (2.1%)	376,533 (1.6%)	941,749 (1.9%)
<b>TOTAL</b>	<b>27,474,321</b> (100.0%)	<b>22,835,631</b> (100.0%)	<b>50,314,271</b> (100.0%)
<b>All Ages</b>	54.6%	45.4%	100.0%
<b>No. of Workers</b>	<b>63,996</b> (54.1%)	<b>54,334</b> (45.9%)	<b>118,343</b> (100.0%)
<b>Trips per Worker</b>	<b>429</b>	<b>420</b>	<b>425</b>

<sup>1</sup> Includes trips where worker's age was unreported.

While the majority of workers, both male and female, drove themselves to work, female workers rode to work as passengers of a privately owned vehicle more frequently than

male workers. Female workers also tended to commute using public transit more than their male counterparts.

TABLE 6.6

NUMBER OF JOURNEY TO WORK PERSON TRIPS BY SEX AND ACTUAL MODE OF COMMUTING<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

Mode	Male		Female		TOTAL <sup>4</sup>	
	1983	1990	1983	1990	1983	1990
Private Vehicle - Driver	20,639,563 (75.7%)	23,366,048 (85.0%)	12,439,840 (64.7%)	18,412,617 (80.6%)	33,079,403 (71.1%)	41,782,983 (83.0%)
Private Vehicle - Passengers	3,410,565 (12.5%)	1,748,889 (6.4%)	4,151,131 (21.6%)	2,324,588 (10.2%)	7,561,696 (16.3%)	4,073,477 (8.1%)
Public Transportation	951,223 (3.5%)	1,021,843 (3.7%)	1,146,386 (6.0%)	990,044 (4.3%)	2,097,609 (4.5%)	2,011,887 (4.0%)
Walk	1,318,106 (4.8%)	1,034,708 (3.8%)	1,012,680 (5.3%)	964,587 (4.2%)	2,330,785 (5.0%)	1,999,294 (4.0%)
Other	255,864 (0.9%)	284,748 (1.0%)	160,005 (0.8%)	122,918 (0.5%)	415,869 (0.9%)	407,665 (0.8%)
<b>TOTAL<sup>4</sup></b>	<b>27,271,019</b> (100.0%)	<b>27,474,321</b> (100.0%)	<b>19,222,600</b> (100.0%)	<b>22,835,631</b> (100.0%)	<b>46,493,619</b> (100.0%)	<b>50,314,271</b> (100.0%)

<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>4</sup> Includes trips where sex, mode of transportation or both were unreported.

FIGURE 6.4

DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY MODE OF COMMUTING  
1983 AND 1990 NPTS

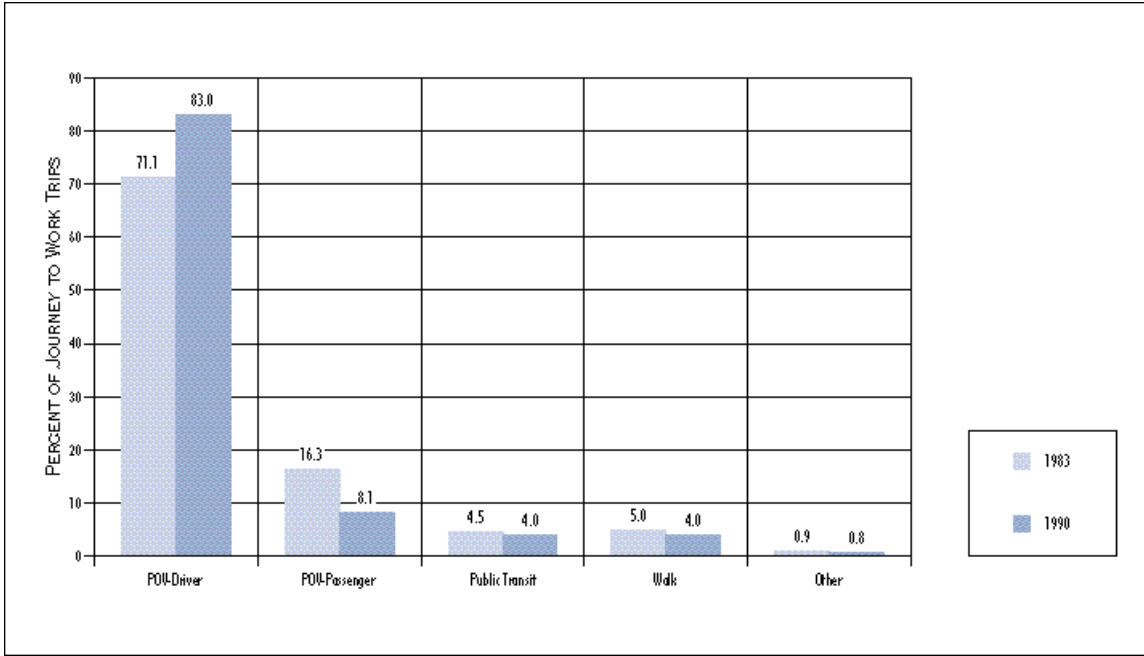
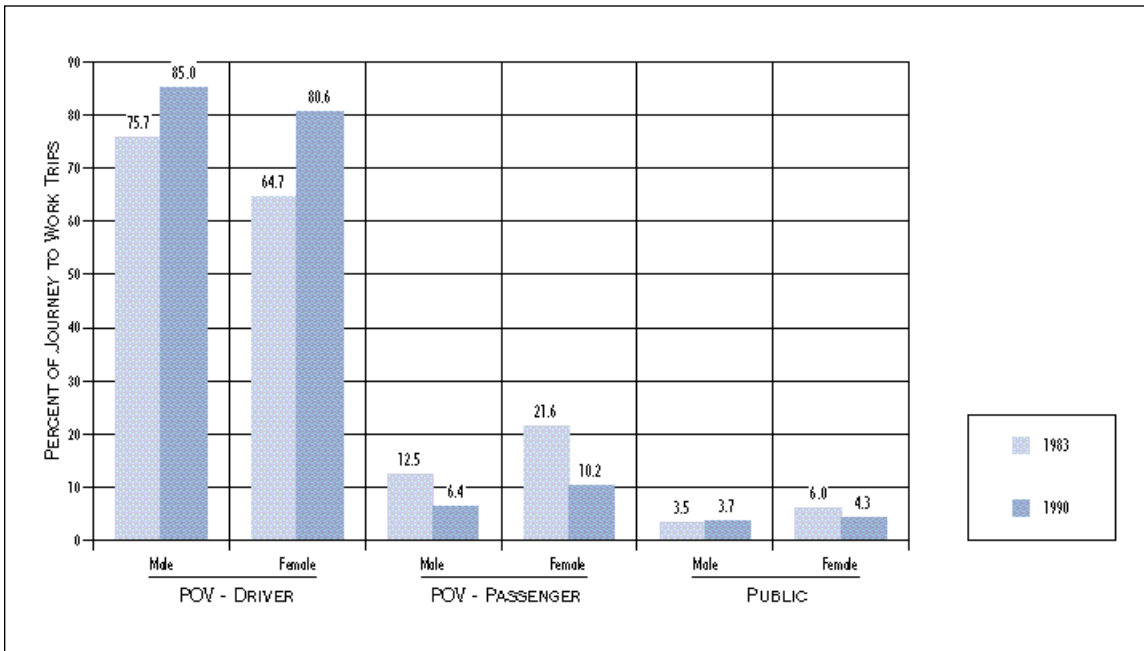


FIGURE 6.5

DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY SEX AND MODE OF COMMUTING  
1983 AND 1990 NPTS



The proportion of workers residing in MSA's with population greater than 3 million increased from 16.0% in 1977 to 32.2% in 1990. This increase indicates the growth of metropolitan areas as well as the migration of the labor force from small and non-metropoli-

tan areas to large metropolitan areas. The comparison between 1983 and 1990 data can be misleading since the definition of MSA's changed between 1983 and 1990 (see Appendix B).

**TABLE 6.7**

**NUMBER OF WORKERS BY MSA SIZE  
1977, 1983 AND 1990 NPTS'  
(THOUSANDS)**

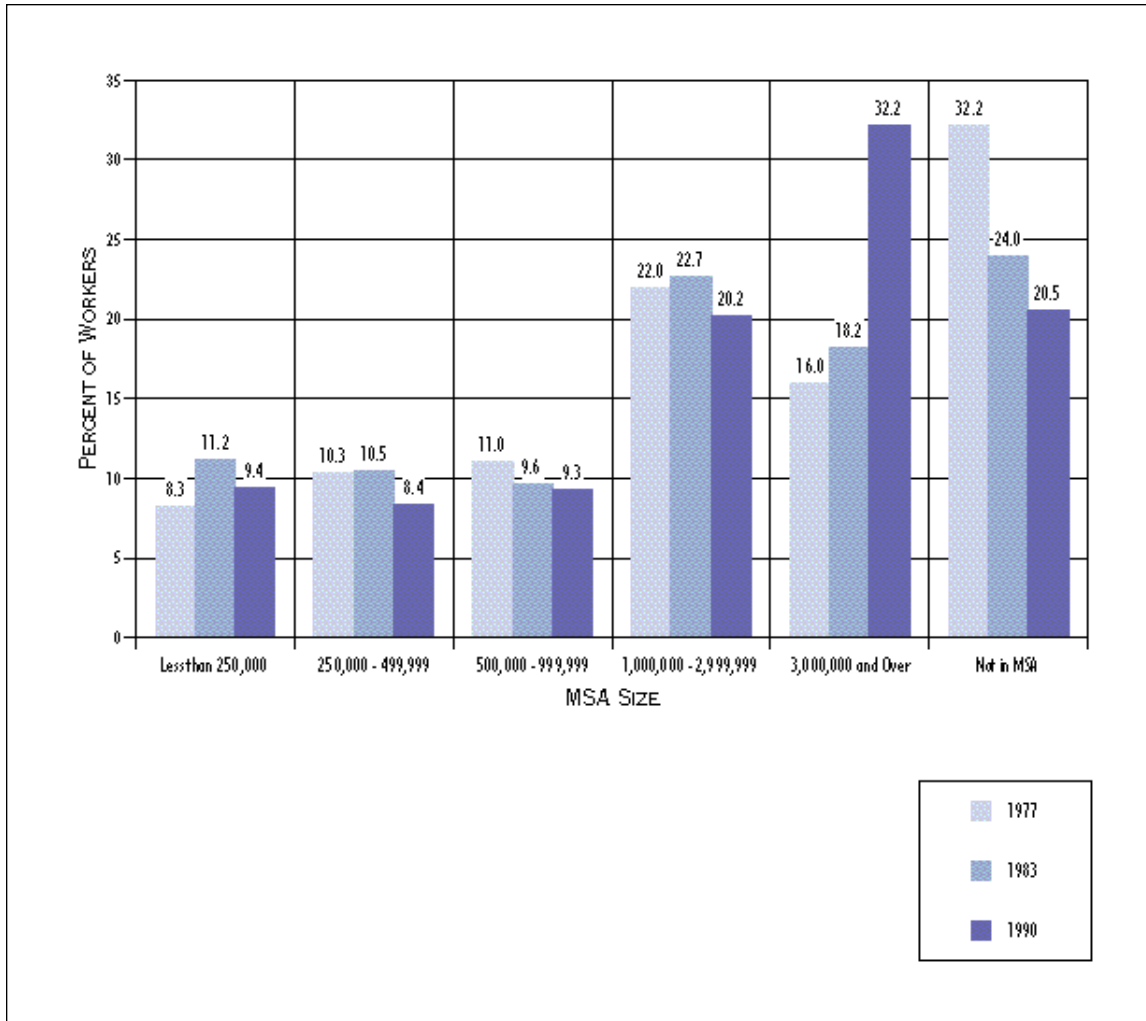
	Less than 250,000	250,000 - 499,999	500,000 - 999,999	1,000,000 - 2,999,999	3,000,000 and Over	Not in MSA	<b>TOTAL</b>
<b>1977</b>	<b>7,883</b> (8.3%)	<b>9,586</b> (10.3%)	<b>10,280</b> (11.0%)	<b>20,434</b> (22.0%)	<b>14,884</b> (16.0%)	<b>29,952</b> (32.2%)	<b>93,019</b> (100.0%)
<b>1983</b>	<b>11,612</b> (11.2%)	<b>10,812</b> (10.5%)	<b>9,931</b> (9.6%)	<b>23,465</b> (22.7%)	<b>18,740</b> (18.2%)	<b>24,774</b> (24.0%)	<b>103,244<sup>2</sup></b> (100.0%)
<b>1990</b>	<b>11,148</b> (9.4%)	<b>9,981</b> (8.4%)	<b>11,003</b> (9.3%)	<b>23,880</b> (20.2%)	<b>38,067</b> (32.2%)	<b>24,264</b> (20.5%)	<b>118,343</b> (100.0%)

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 3.8% of workers living in MSA's, but location in MSA is unknown.

FIGURE 6.6

DISTRIBUTION OF WORKERS BY MSA SIZE  
1977, 1983 AND 1990 NPTS



The percentage of workers who usually commuted using privately owned vehicles was less in larger MSA's. In other words, the percentage of workers usually using public tran-

sit for journey to work trips was greater in larger MSA's, reaching almost 11% of workers in metropolitan areas with a population greater than 3 million.

**TABLE 6.8**  
**NUMBER OF WORKERS BY MSA SIZE AND USUAL MODE OF COMMUTING**  
**1990 NPTS**  
**(THOUSANDS)**  
 Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

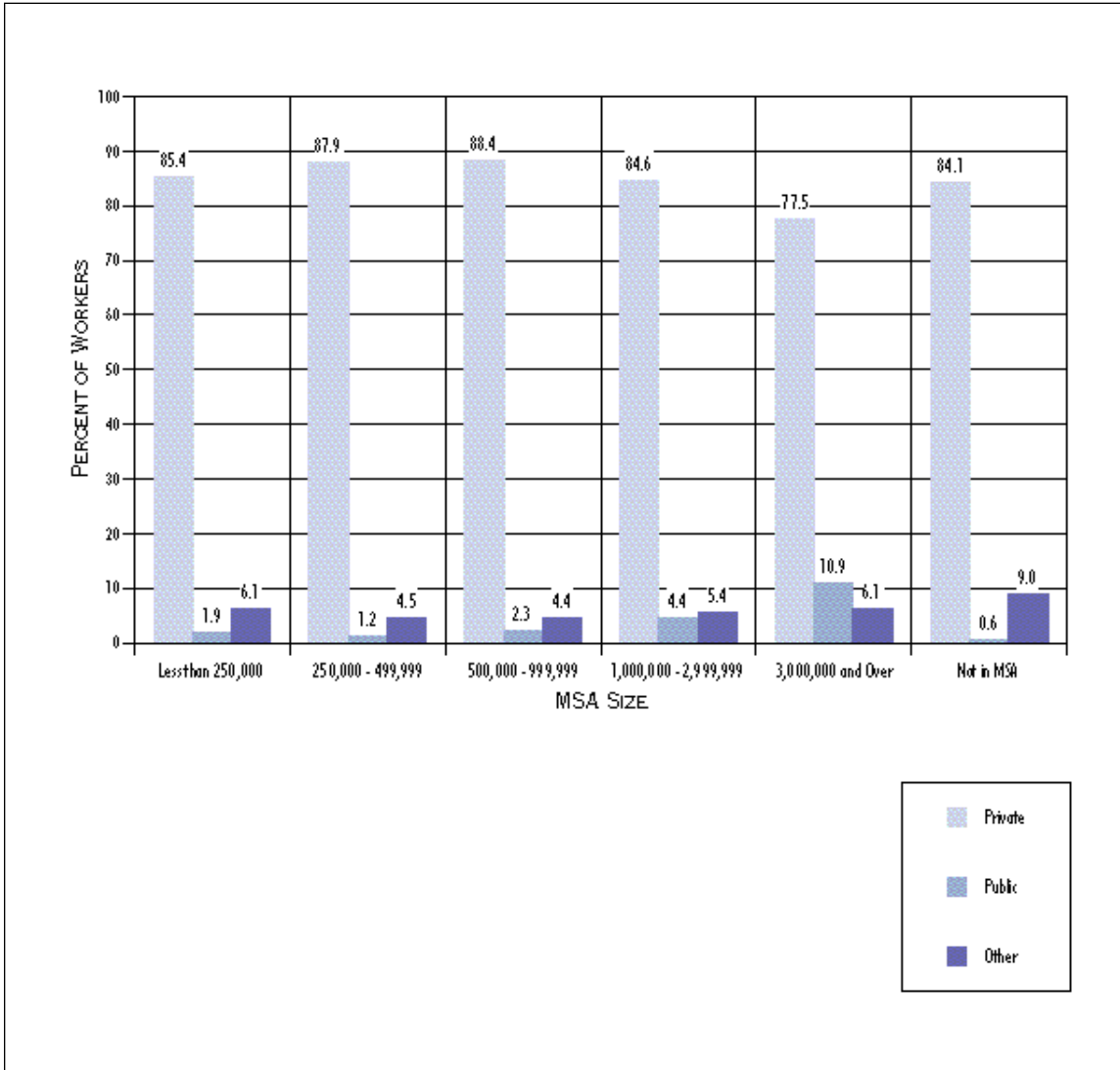
	Less than 250,000	250,000- 499,999	500,000- 999,999	1,000,000- 2,999,999	3,000,000 and Over	Not in MSA	<b>TOTAL</b>
<b>Private Vehicle</b>	<b>9,522</b>	<b>8,774</b>	<b>9,729</b>	<b>20,194</b>	<b>29,507</b>	<b>20,416</b>	<b>98,143</b>
	(85.4%)	(87.9%)	(88.4%)	(84.6%)	(77.5%)	(84.1%)	(82.9%)
<b>Public Transportation</b>	<b>216</b>	<b>118</b>	<b>248</b>	<b>1,054</b>	<b>4,165</b>	<b>149</b>	<b>5,951</b>
	(1.9%)	(1.2%)	(2.3%)	(4.4%)	(10.9%)	(0.6%)	(5.0%)
<b>Other Means</b>	<b>682</b>	<b>448</b>	<b>479</b>	<b>1,299</b>	<b>2,315</b>	<b>2,173</b>	<b>7,397</b>
	(6.1%)	(4.5%)	(4.4%)	(5.4%)	(6.1%)	(9.0%)	(6.3%)
<b>TOTAL<sup>2</sup></b>	<b>11,148</b>	<b>9,981</b>	<b>11,003</b>	<b>23,880</b>	<b>38,066</b>	<b>24,264</b>	<b>118,343</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Estimates of "usual" transit use are based on 1321 workers who reported that their typical means to work was bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes workers whose usual mode of transportation was unreported.

FIGURE 6.7

DISTRIBUTION OF WORKERS BY MSA SIZE AND USUAL MODE OF COMMUTING  
1990 NPTS





Traffic congestion is typically a more serious problem in more densely populated areas. This table presents commute distances and speeds by different population density categories. People living in the densest areas

(with at least 7,500 people per square mile) have a commute distance almost 25% shorter than those living in the least dense areas; however, their commute trips took 35% more time.

**TABLE 6.9**  
**AVERAGE TRAVEL TIME, TRIP LENGTH AND SPEED OF COMMUTE PERSON TRIPS BY POPULATION DENSITY**  
**1990 NPTS**

Population Density <sup>1</sup>	Average Commute Trip Distance (miles)	Average Commute Travel Time <sup>2</sup> (minutes)	Average Commute Speed <sup>3</sup> (miles per hour)	Percent of Person Trips	Percent of Households
Less than 2,000	11.40	18.94	36.43	63.0	61.3
2,000-3,999	9.95	19.85	30.99	14.9	14.8
4,000-7,499	9.43	20.38	29.11	12.6	12.8
7,500 or more	8.73	25.60	23.65	9.5	11.1
<b>TOTAL</b>	<b>10.65</b>	<b>19.95</b>	<b>33.32</b>	100.0	100.0
<sup>1</sup> Population density is calculated as persons per square mile for the zip code in which the household is located.			<sup>3</sup> Average commuting speed is calculated using nonsegmented trips only.		
<sup>2</sup> Includes both travel time and time spent waiting for transportation.					

The number of workers increased 27.2% from 1977 to 1990. The data show that in 1990, a greater proportion of workers resided inside the central cities of MSA's than in 1977. However, this is largely due to the difference

in the definition of central city between 1983 and 1990 (see Appendix B). Workers who resided in non-MSA areas decreased by 19% from 1977 to 1990.

TABLE 6.10

NUMBER OF HOUSEHOLDS AND WORKERS BY PLACE OF RESIDENCE  
1977, 1983 AND 1990 NPTS<sup>1</sup>  
(THOUSANDS)

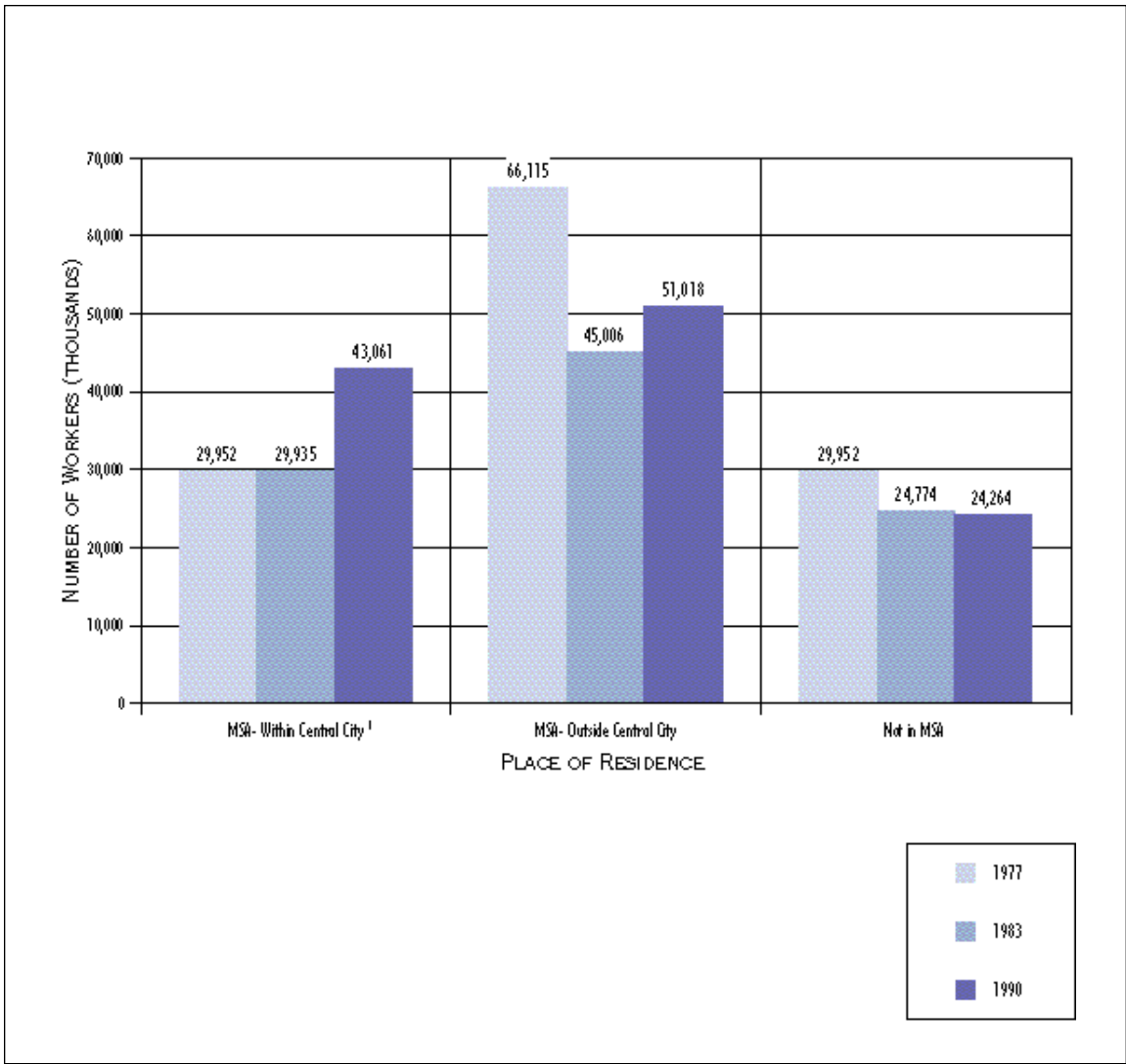
	In MSA		Not in MSA	TOTAL
	Within Central City	Outside Central City		
<b>Number of Households</b>				
1977	26,319 (34.9%)	24,433 (32.4%)	24,660 (32.7%)	75,412 (100.0%)
1983	27,438 (32.1%)	34,349 (40.2%)	20,590 (24.1%)	85,371 <sup>2</sup> (100.0%)
1990	34,579 (37.0%)	37,353 (40.0%)	21,415 (22.9%)	93,347 (100.0%)
<b>Number of Workers</b>				
1977	29,952 (32.2%)	33,115 (35.6%)	29,952 (32.2%)	93,019 (100.0%)
1983	29,935 (29.0%)	45,006 (43.6%)	24,774 (24.0%)	103,224 <sup>1</sup> (100.0%)
1990	43,061 (36.4%)	51,018 (41.1%)	24,264 (20.5%)	118,343 (100.0%)
<b>Number of Workers per Household</b>				
1977	1.14	1.36	1.21	1.23
1983	1.09	1.31	1.20	1.21
1990	1.25	1.37	1.13	1.27

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes 2,994,000 households and 3,509,000 workers where MSA status is unknown.

**FIGURE 6.8**

**NUMBER OF WORKERS BY PLACE OF RESIDENCE  
1977, 1983 AND 1990 NPTS**



<sup>1</sup> See Appendix B for change in definition of central city.

The average length of a commute trip increased by 26% from 8.5 miles in 1983 to 10.7 miles in 1990 while the commute time increased by a substantially lower rate of 10% during the same period. The increase in commute distance may partially reflect the

continued development of suburban and exurban residential areas. The resulting commutes are longer but are travelled at faster speeds. In terms of the number of miles travelled per hour, commuting speeds for all areas improved between 1983 and 1990.

TABLE 6.11

COMMUTING PATTERNS OF JOURNEY TO WORK PERSON TRIPS  
BY MODE OF TRANSPORTATION AND PLACE OF RESIDENCE  
1983 AND 1990 NPTS<sup>1</sup>

Note: See Limitations of Data on Transit<sup>2</sup> in Chapter 1, Section 5

Mode	In MSA, in Central City		In MSA, Not in Central City		Not In MSA		TOTAL	
	1983	1990	1983	1990	1983	1990	1983	1990
<b>Average Commute Trip Distance (Miles)</b>								
Auto	7.5	8.8	9.2	11.6	7.0	10.6	8.5	10.4
Truck	8.6	12.5	11.4	13.5	5.4	13.5	10.4	13.0
Bus	7.1	8.2	8.1	13.1	**	15.7	7.5	9.3
<b>TOTAL<sup>3</sup></b>	<b>7.5</b>	<b>9.0</b>	<b>9.4</b>	<b>11.9</b>	<b>6.4</b>	<b>11.0</b>	<b>8.5</b>	<b>10.7</b>
<b>Average Commute Travel Time<sup>4</sup> (Minutes)</b>								
Auto	16.8	17.2	18.4	20.3	14.3	16.3	17.2	18.4
Truck	18.1	20.0	20.8	23.3	13.0	20.0	19.1	21.4
Bus	34.3	44.0	32.7	52.7	**	58.3	33.7	46.6
<b>TOTAL<sup>3</sup></b>	<b>19.2</b>	<b>19.5</b>	<b>19.0</b>	<b>21.6</b>	<b>14.2</b>	<b>17.2</b>	<b>18.2</b>	<b>20.0</b>
<b>Average Commute Speed<sup>5</sup> (Miles per Hour)</b>								
<b>TOTAL<sup>3</sup></b>	<b>23.4</b>	<b>29.5</b>	<b>29.7</b>	<b>34.3</b>	<b>27.0</b>	<b>37.8</b>	<b>28.0</b>	<b>33.3</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Includes all modes of transportation.

<sup>4</sup> Includes both travel time and time spent waiting for transportation.

<sup>5</sup> Average commute speed is calculated using nonsegmented trips only.

\*\* Indicates no data available.

Commute distances increased as urbanized area size increased. Commute trips in non-urbanized areas were the longest in length and were travelled at higher average speeds, reflecting less congested and higher speed roads.

**TABLE 6.12**  
**AVERAGE TRAVEL TIME, TRIP LENGTH AND SPEED OF JOURNEY TO WORK PERSON TRIPS**  
**BY URBANIZED AREA SIZE**  
**1990 NPTS**

Urbanized Area Size	Average Commute Trip Distance (miles)	Average Commute Travel Time <sup>1</sup> (minutes)	Average Commute Speed <sup>2</sup> (miles per hour)
50,000-199,999	7.3	14.5	31.0
200,000-499,999	8.6	16.1	32.3
500,000-999,999	9.2	18.6	30.4
1,000,000 or more without subway/rail	10.5	20.3	31.9
1,000,000 or more with subway/rail	11.1	25.1	29.5
Not in Urbanized Area	11.9	18.8	38.0
<b>TOTAL</b>	<b>10.7</b>	<b>20.0</b>	<b>33.3</b>
<sup>1</sup> Includes both travel time and time spent waiting for transportation.		<sup>2</sup> Average commuting speed is calculated using nonsegmented trips only.	

**TABLE 6.13**

**AVERAGE WAITING TIME FOR JOURNEY TO WORK PERSON TRIPS WHEN PUBLIC TRANSPORTATION IS USED  
BY MODE OF TRANSPORTATION AND URBANIZED AREA SIZE  
1990 NPTS  
(MINUTES)**

Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

Urbanized Area Size	Bus, Streetcar or Trolley	Rail or Subway <sup>2</sup>	TOTAL
50,000-199,999	8.57	**	<b>8.57</b>
200,000-499,999	6.93	**	<b>6.93</b>
500,000-999,999	12.21	**	<b>12.21</b>
1,000,000 or more without rail/subway	10.20	*	<b>9.98</b>
1,000,000 or more with rail/subway	11.03	8.43	<b>9.54</b>
Not in Urbanized Area	8.55	*	<b>7.98</b>
<b>TOTAL</b>	<b>10.43</b>	<b>8.32</b>	<b>9.56</b>

<p><sup>1</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.</p>	<p><sup>2</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.</p> <p>* Indicates insufficient data were reported.</p> <p>** Indicates no data reported.</p>
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On average, a household took more than 500 commute trips per year. The proportion of journey to work trips increased as household income increased. For households who provided income information, those with income less than \$10,000 in 1990 took almost 73% fewer journey to work trips than households

with incomes of more than \$40,000. The corresponding percentage in 1983 was 77%, suggesting that the gap in tripmaking for journey to work between the lowest and the highest income categories narrowed slightly.

**TABLE 6.14**  
**NUMBER OF HOUSEHOLDS AND JOURNEY TO WORK PERSON TRIPS BY HOUSEHOLD INCOME**  
**(INCOME IN 1990 DOLLARS)**  
**1983 AND 1990 NPTS<sup>1</sup>**

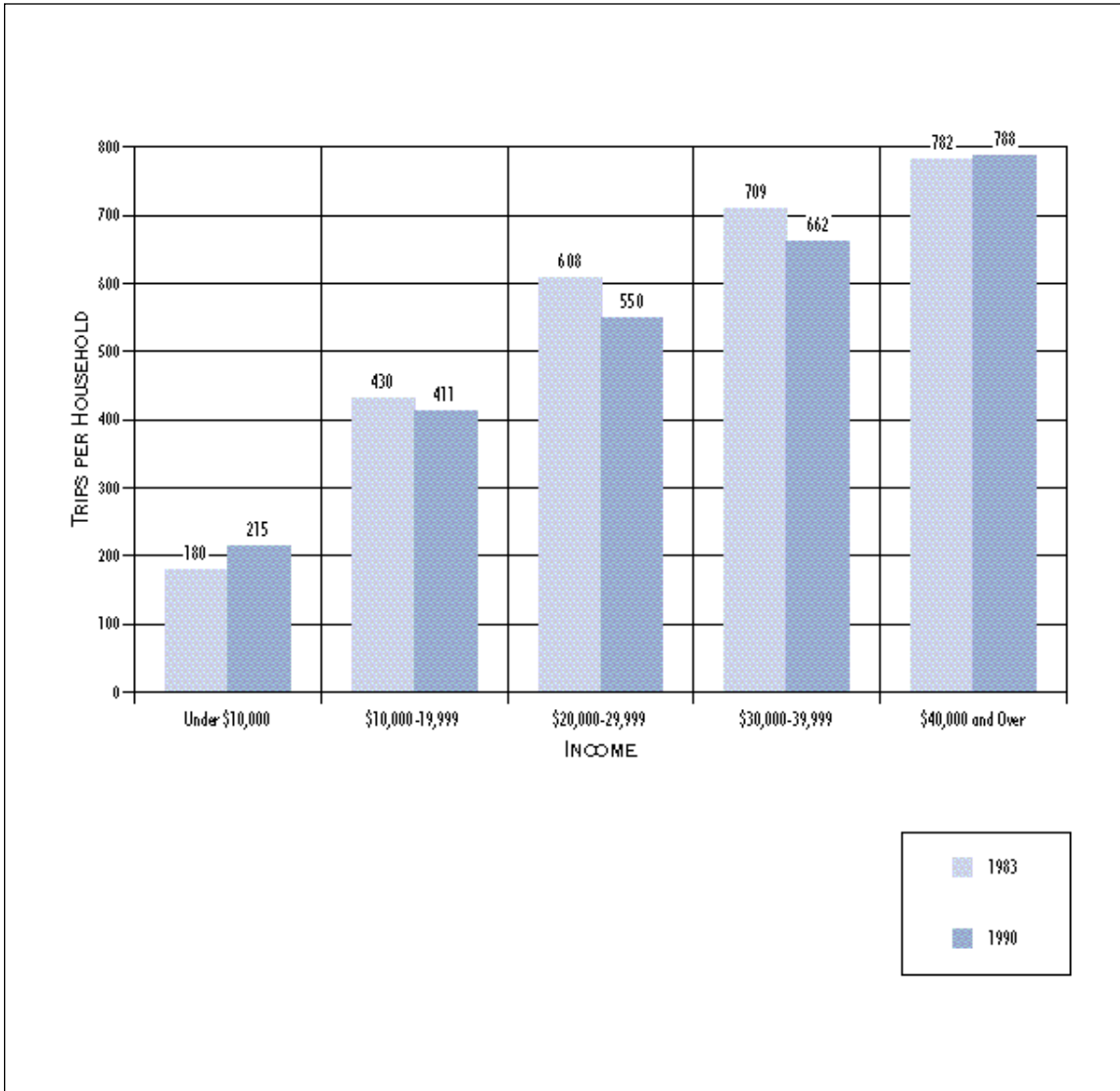
Income	1983			1990		
	Number of Households (000)	Number of Commute Person Trips (000)	Number of Commute Trips per Household	Number of Households (000)	Number of Commute Person Trips (000)	Number of Commute Trips per Household
Under \$10,000	18,016 (21.1%)	3,236,781 (7.1%)	180	9,252 (13.7%)	1,992,241 (4.0%)	215
\$10,000 - 19,999	18,437 (21.6%)	7,934,221 (17.3%)	430	13,011 (19.2%)	5,349,320 (10.6%)	411
\$20,000 - 29,999	15,694 (18.4%)	9,544,563 (20.8%)	608	12,294 (18.2%)	6,762,758 (13.4%)	550
\$30,000 - 39,999	12,065 (14.1%)	8,559,963 (18.7%)	709	11,323 (16.8%)	7,501,082 (14.9%)	662
\$40,000 or more	21,167 (24.8%)	16,557,472 (36.1%)	782	21,704 (32.1%)	17,106,573 (34.0%)	788
<b>TOTAL<sup>2</sup></b>	<b>85,371</b> (100.0%)	<b>45,833,000</b> (100.0%)	<b>537</b>	<b>93,347</b> (100.0%)	<b>50,314,271</b> (100.0%)	<b>539</b>

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Includes trips where household income was unreported.

FIGURE 6.9

NUMBER OF JOURNEY TO WORK PERSON TRIPS PER HOUSEHOLD BY HOUSEHOLD INCOME  
1983 AND 1990 NPTS





Privately owned vehicles continued to be, by far, the most common way of travelling to and from work. Journey to work trips by public transit were the longest, both in miles and in minutes, when compared to trips by

other modes of transportation. On average, commute speed improved from 1983 to 1990, with the improvement by privately owned vehicles being the most noticeable.

TABLE 6.15

WORKERS AND THEIR HOME TO WORK PERSON TRAVEL BY MODE OF TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	Private	Public	Walk	Other	TOTAL
<b>1983</b>					
Percent of workers <sup>4</sup>	86.1	5.1	4.1	4.8	100.0 <sup>5</sup>
Average trip length (miles)	8.86	11.81	0.32	7.07	8.54
Average commute time (minutes)	17.62	39.77	8.58	21.55	18.20
Average travel speed (MPH)	30.17	17.82	2.24	19.68	28.15
<b>1990</b>					
Percent of workers <sup>4</sup>	82.9	5.0	3.7	2.5	100.0 <sup>5</sup>
Average trip length (miles)	11.02	13.27	0.83	5.88	10.65
Average commute time (minutes) <sup>6</sup>	18.89	50.22	9.86	22.06	19.65
Average travel speed (MPH) <sup>7</sup>	34.71	18.00	3.27	15.10	33.34

<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983 data.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Estimates of "usual" transit use are based on 1321 workers who reported that their typical means to work was bus, subway, elevated rail or commuter train. Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>4</sup> The percentage of workers travelling by different modes of transportation is based on the worker's usual mode of transportation. The rest of the statistics in this table are based on the actual mode of transportation as reported in the sampled day (travel day).

<sup>5</sup> Includes 6% workers whose usual mode of transportation was unreported.

<sup>6</sup> Includes both travel time and time waiting for transportation.

<sup>7</sup> Average commute speed is calculated using non-segmented trips only.

TABLE 6.16

**STATISTICS ON JOURNEY TO WORK PERSON TRIPS<sup>1</sup> BY ACTUAL MODE OF TRANSPORTATION  
1990 NPTS**

Note: See Limitations of Data on Transit<sup>2</sup> in Chapter 1, Section 5

	No. of Person Trips (000)	No. of Person Miles (000)	Average Trip Length <sup>3</sup> (miles)
<b>Private Vehicles</b>			
Auto, Van - Driver	33,963,202 (67.5%)	354,514,077 (67.4%)	10.6
Auto, Van - Passenger	3,558,012 (7.1%)	36,478,537 (6.9%)	10.6
Pickup	7,761,545 (15.4%)	96,445,643 (18.3%)	12.6
Other Private Vehicles	573,710 (1.1%)	11,354,666 (2.2%)	20.7
<b>Subtotal</b>	<b>45,856,469</b> (91.1%)	<b>498,792,923</b> (94.8%)	<b>11.0</b>
<b>Public Transportation</b>			
Bus, Streetcar	1,165,799 (2.3%)	10,377,333 (2.0%)	9.8
Rail/Subway <sup>4</sup>	826,253 (1.6%)	11,715,329 (2.2%)	17.3
<b>Subtotal</b>	<b>1,992,051</b> (4.0%)	<b>22,092,661</b> (4.2%)	<b>12.8</b>
<b>Other Means</b>			
Amtrak	19,836 (0.0%)	1,165,687 (0.2%)	58.8
Taxi	93,182 (0.2%)	313,606 (0.1%)	3.5
Bike	169,380 (0.3%)	353,176 (0.1%)	2.1
Walk	1,999,298 (4.0%)	1,651,237 (0.3%)	0.8
School Bus	55,957 (0.1%)	453,668 (0.1%)	8.5
Other	89,149 (0.2%)	1,227,531 (0.2%)	13.8
<b>Subtotal</b>	<b>2,426,802</b> (4.8%)	<b>5,164,905</b> (1.0%)	<b>2.2</b>
<b>TOTAL<sup>5</sup></b>	<b>50,314,271</b> (100.0%)	<b>526,155,669</b> (100.0%)	<b>10.7</b>

<sup>1</sup> Based on journey to work data collected on the sampled day (travel day).

<sup>2</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>4</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>5</sup> Includes trips where mode of transportation was unreported.

FIGURE 6.10

DISTRIBUTION OF JOURNEY TO WORK PERSON TRAVEL BY MODE OF TRANSPORTATION  
1990 NPTS

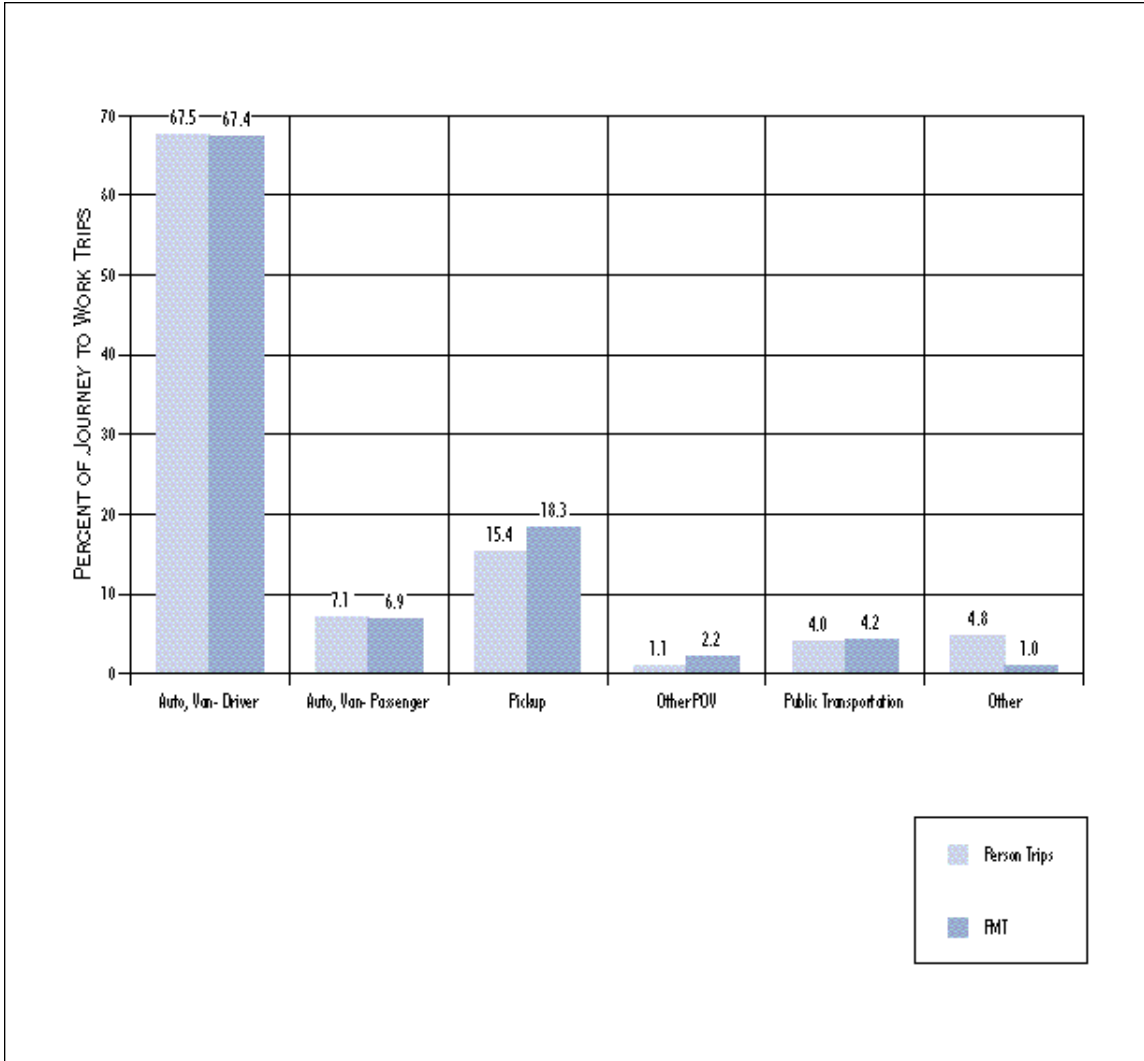


TABLE 6.17

**STATISTICS ON JOURNEY TO WORK VEHICLE TRIPS BY VEHICLE TYPE  
1990 NPTS  
(MILLIONS)**

Vehicle Type	Vehicle Trips	Vehicle Miles of Travel (VMT)
Auto	32,092 (76.8%)	332,960 (73.5%)
Passenger Van	1,579 (3.8%)	16,189 (3.6%)
Cargo Van	292 (0.7%)	5,364 (1.2%)
Pickup Truck	7,279 (17.4%)	88,063 (19.4%)
Other Truck	394 (0.9%)	9,450 (2.1%)
RV/Motor Home	9 (0.0%)	15 (0.0%)
Motorcycle	113 (0.3%)	708 (0.2%)
Moped	24 (0.1%)	208 (0.0%)
Other POV	0 (0.0%)	0 (0.0%)
<b>TOTAL<sup>1</sup></b>	<b>41,792</b> (100.0%)	<b>453,042</b> (100.0%)

<sup>1</sup> Includes trips and miles of travel where vehicle type was unreported.

In the 1990 NPTS, trips were defined as “segmented” if there is a change of vehicle (or mode) during the trip and if one of the modes involves public transportation (see Page 4-50 of Volume 1 for details). Segmented trips accounted for 2% of the journey to work trips

and 3% of the total commute travel. More than half of the segmented work-trips were taken by workers residing in the Northeast region. Land use patterns and well developed rapid transit systems contributed to the high percentage in that region.

TABLE 6.18

NUMBER OF JOURNEY TO WORK PERSON TRIPS BY SEGMENTED VS. NON-SEGMENTED TRIPS AND CENSUS REGION 1990 NPTS

Census Region	Segmented Commute Trips			Nonsegmented Commute Trips			TOTAL COMMUTE TRIPS		
	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)
Northeast	541,893 (52.4%)	9,743,185 (62.1%)	20.7	10,060,793 (20.4%)	103,659,445 (20.3%)	10.6	10,602,686 (21.1%)	113,402,631 (21.5%)	11.1
North Central	132,273 (12.8%)	1,315,667 (8.4%)	10.3	12,280,191 (24.9%)	121,976,313 (23.9%)	10.0	12,412,464 (24.7%)	123,291,980 (23.4%)	10.0
South	220,916 (21.4%)	3,134,990 (20.0%)	16.7	17,096,687 (34.7%)	181,857,246 (35.6%)	10.8	17,317,603 (34.4%)	184,992,236 (35.2%)	10.9
West	139,225 (13.5%)	1,483,687 (9.5%)	11.5	9,842,293 (20.0%)	102,985,135 (20.2%)	10.6	9,981,518 (19.8%)	104,468,822 (19.9%)	10.6
<b>TOTAL</b>	<b>1,034,307</b> (100.0%)	<b>15,677,529</b> (100.0%)	<b>17.1</b>	<b>49,279,964</b> (100.0%)	<b>510,478,140</b> (100.0%)	<b>10.5</b>	<b>50,314,271</b> (100.0%)	<b>526,155,669</b> (100.0%)	<b>10.7</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mileage information present.

Workers living inside the central city of an MSA took a significantly greater percentage of segmented trips than workers living elsewhere. This observation reflected the fact that public transportation was more accessi-

ble for workers living inside the central city of an MSA. Their trip lengths were also significantly shorter than those of workers living elsewhere.

TABLE 6.19

NUMBER OF JOURNEY TO WORK PERSON TRIPS BY SEGMENTED VS. NON-SEGMENTED TRIPS AND PLACE OF RESIDENCE  
1990 NPTS

	Segmented Commute Trips			Nonsegmented Commute Trips			TOTAL COMMUTE TRIPS		
	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)
<b>MSA</b>									
Central City	650,839 ( 3.6%)	7,738,799 ( 4.9%)	13.7	17,470,587 (96.4%)	150,901,722 (95.1%)	8.8	18,121,426 (100.0%)	158,640,521 (100.0%)	9.0
Not in Central City	358,014 ( 1.6%)	7,343,810 (2.9%)	22.6	21,397,884 (98.4%)	246,719,873 (97.1%)	11.7	21,755,898 (100.0%)	254,063,683 (100.0%)	11.9
<b>Not In MSA</b>									
	25,454 (0.2%)	594,920 (0.5%)	23.4	10,411,492 (99.8%)	112,856,545 (99.5%)	10.9	10,436,946 (100.0%)	113,451,465 (100.0%)	11.0
<b>TOTAL</b>	<b>1,034,307</b> (2.1%)	<b>15,677,529</b> (3.0%)	<b>17.1</b>	<b>49,279,963</b> ( 97.9%)	<b>510,478,140</b> (97.0%)	<b>10.5</b>	<b>50,314,271</b> (100.0%)	<b>526,155,669</b> (100.0%)	<b>10.7</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mileage information present.

TABLE 6.20

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY TRIP SEGMENTED STATUS AND MSA SIZE  
1990 NPTS**

MSA Size	Segmented Commute Trips			Nonsegmented Commute Trips			TOTAL COMMUTE TRIPS		
	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)	No. of Trips (000)	No. of Person Miles (000)	Avg. Trip Length <sup>1</sup> (miles)
Less than 250,000	24,726 (2.4%)	287,592 (1.8%)	11.6	4,735,505 (9.6%)	40,539,585 (7.9%)	8.7	4,760,231 (9.5%)	40,827,177 (7.8%)	8.7
250,000-499,999	15,244 (1.5%)	70,177 (0.5%)	5.4	4,242,636 (8.6%)	40,484,650 (7.9%)	9.6	4,257,880 (8.5%)	40,554,827 (7.7%)	9.6
500,000-999,999	29,939 (2.9%)	346,080 (2.2%)	16.0	4,770,362 (9.7%)	49,197,457 (9.6%)	10.5	4,800,301 (9.5%)	49,543,537 (9.4%)	10.5
1,000,000-2,999,999	165,159 (16.0%)	1,741,957 (11.1%)	11.4	10,067,621 (20.4%)	102,275,487 (20.0%)	10.3	10,232,780 (20.3%)	104,017,444 (19.8%)	10.3
3,000,000 and Over	773,785 (74.8%)	12,636,803 (80.6%)	18.6	15,052,318 (30.5%)	165,124,416 (32.4%)	11.3	15,826,103 (31.5%)	177,761,219 (33.8%)	11.6
Not in MSA	25,454 (2.4%)	594,920 (3.8%)	23.4	10,411,521 (21.1%)	112,856,545 (22.1%)	10.9	10,436,975 (20.7%)	113,451,465 (21.5%)	11.0
<b>TOTAL</b>	<b>1,034,307</b> (100.0%)	<b>15,677,529</b> (100.0%)	<b>17.1</b>	<b>49,279,963</b> (100.0%)	<b>510,478,140</b> (100.0%)	<b>10.5</b>	<b>50,314,271</b> (100.0%)	<b>526,155,669</b> (100.0%)	<b>10.7</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mileage information present.

TABLE 6.21

**DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY TRIP SEGMENTED STATUS  
AND PRIMARY<sup>1</sup> MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>2</sup> in Chapter 1, Section 5

Primary Mode	Non-segmented Commute Trip	Segmented Commute Trip	TOTAL COMMUTE TRIPS
<b>Private Vehicles</b>			
Auto, Van - Driver	33,957,075 (68.9%)	6,127 (0.6%)	<b>33,963,202</b> (67.5%)
Auto, Van - Passenger	3,518,652 (7.1%)	39,360 (3.8%)	<b>3,558,012</b> (7.1%)
Pickup	7,754,245 (15.7%)	7,300 (0.7%)	<b>7,761,545</b> (15.4%)
Other Private Vehicles	573,710 (1.1%)	0 (0.0%)	<b>573,710</b> (1.1%)
<b>Subtotal</b>	<b>45,803,682</b> (92.8%)	<b>52,787</b> (5.1%)	<b>45,856,469</b> (91.1%)
<b>Public Transportation</b>			
Bus, Streetcar	690,852 (1.4%)	474,900 (45.9%)	<b>1,165,752</b> (2.3%)
Rail/Subway <sup>3</sup>	393,466 (0.8%)	432,787 (41.8%)	<b>826,253</b> (1.6%)
<b>Subtotal</b>	<b>1,084,318</b> (2.2%)	<b>907,687</b> (87.8%)	1,992,005 (4.0%)
<b>Other Means</b>			
Amtrak	7,928 (0.0%)	11,908 (1.2%)	<b>19,836</b> (0.0%)
Taxi	93,182 (0.2%)	0 (0.0%)	<b>93,182</b> (0.2%)
Bike	169,380 (0.3%)	0 (0.0%)	<b>169,380</b> (0.3%)
Walk	1,948,688 (4.0%)	50,610 (4.9%)	<b>1,999,298</b> (4.0%)
School Bus	55,957 (0.1%)	0 (0.0%)	<b>55,957</b> (0.1%)
Other	77,869 (0.2%)	11,280 (1.1%)	<b>89,149</b> (0.2%)
<b>Subtotal</b>	<b>2,353,004</b> (4.8%)	<b>73,798</b> (7.1%)	<b>2,426,802</b> (4.8%)
<b>TOTAL<sup>4</sup></b>	<b>49,279,963</b> (100.0%)	<b>1,034,307</b> (100.0%)	<b>50,314,271</b> (100.0%)

<sup>1</sup> For segmented trips, primary mode refers to the mode used during the trip segment with the longest travel time in minutes.

<sup>2</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note

that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where mode of transportation was unreported.



TABLE 6.22

**DISTRIBUTION OF JOURNEY TO WORK PERSON MILES OF TRAVEL  
BY TRIP SEGMENTED STATUS AND PRIMARY<sup>1</sup> MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>2</sup> in Chapter 1, Section 5

Primary Mode	Non-segmented Commute Trip	Segmented Commute Trip	TOTAL COMMUTE TRIPS
<b>Private Vehicles</b>			
Auto, Van - Driver	354,413,801 (69.4%)	100,276 (0.6%)	<b>354,514,077</b> (67.4%)
Auto, Van - Passenger	35,395,453 (6.9%)	1,083,084 (6.9%)	<b>36,478,537</b> (6.9%)
Pickup	96,378,922 (18.9%)	66,721 (0.4%)	<b>96,445,643</b> (18.3%)
Other Private Vehicles	11,354,666 (2.2%)	0 (0.0%)	<b>11,354,666</b> (2.2%)
<b>Subtotal</b>	<b>497,542,842</b> (97.4%)	<b>1,250,081</b> (7.9%)	<b>498,792,923</b> (94.8%)
<b>Public Transportation</b>			
Bus, Streetcar	5,059,594 (1.0%)	5,317,738 (33.9%)	<b>10,377,332</b> (2.0%)
Rail/Subway <sup>3</sup>	4,401,866 (0.9%)	7,313,463 (46.6%)	<b>11,715,329</b> (2.2%)
<b>Subtotal</b>	<b>9,461,460</b> (1.9%)	<b>12,631,201</b> (80.6%)	<b>22,092,661</b> (4.2%)
<b>Other Means</b>			
Amtrak	118,945 (0.0%)	1,046,742 (6.7%)	<b>1,165,687</b> (0.2%)
Taxi	313,606 (0.1%)	0 (0.0%)	<b>313,606</b> (0.1%)
Bike	353,176 (0.1%)	0 (0.0%)	<b>353,176</b> (0.1%)
Walk	1,203,323 (0.2%)	447,914 (2.9%)	<b>1,651,237</b> (0.3%)
School Bus	453,668 (0.1%)	0 (0.0%)	<b>453,668</b> (0.1%)
Other	925,939 (0.2%)	301,592 (1.9%)	<b>1,227,531</b> (0.2%)
<b>Subtotal</b>	<b>3,368,657</b> (0.7%)	<b>1,796,248</b> (11.5%)	<b>5,164,904</b> (1.0%)
<b>TOTAL<sup>4</sup></b>	<b>510,478,140</b> (100.0%)	<b>15,677,529</b> (100.0%)	<b>526,155,669</b> (100.0%)

<sup>1</sup> For segmented trips, primary mode refers to the mode used during the trip segment with the longest travel time in minutes.

<sup>2</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note

that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where mode of transportation was unreported.

TABLE 6.23

**AVERAGE TRIP LENGTH<sup>1</sup> OF JOURNEY TO WORK PERSON TRIPS  
BY TRIP SEGMENTED STATUS AND PRIMARY<sup>2</sup> MODE OF TRANSPORTATION  
1990 NPTS  
(MILES)**

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

Primary Mode	Non-segmented Commute Trip	Segmented Commute Trip	TOTAL COMMUTE TRIPS
<b>Private Vehicles</b>			
Auto, Van - Driver	10.6	16.4	<b>10.6</b>
Auto, Van - Passenger	10.4	28.1	<b>10.6</b>
Pickup	12.6	9.1	<b>12.6</b>
Other Private Vehicle	20.7	0	<b>20.7</b>
<b>Subtotal</b>	<b>11.0</b>	<b>24.1</b>	<b>11.0</b>
<b>Public Transportation</b>			
Bus, Streetcar	8.0	12.5	<b>9.8</b>
Rail/Subway <sup>4</sup>	14.2	19.9	<b>17.3</b>
<b>Subtotal</b>	<b>10.0</b>	<b>16.0</b>	<b>12.8</b>
<b>Other Means</b>			
Amtrak	15.0	87.9	<b>58.8</b>
Taxi	3.5	0	<b>3.5</b>
Bike	2.1	0	<b>2.1</b>
Walk	0.6	9.1	<b>0.8</b>
School Bus	8.5	0	<b>8.5</b>
Other	11.9	26.7	<b>13.8</b>
<b>Subtotal</b>	<b>1.4</b>	<b>24.7</b>	<b>2.2</b>
<b>TOTAL<sup>5</sup></b>	<b>10.5</b>	<b>17.1</b>	<b>10.7</b>

<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>2</sup> For segmented trips, primary mode refers to the mode used during the trip segment with the longest travel time in minutes.

<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>4</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

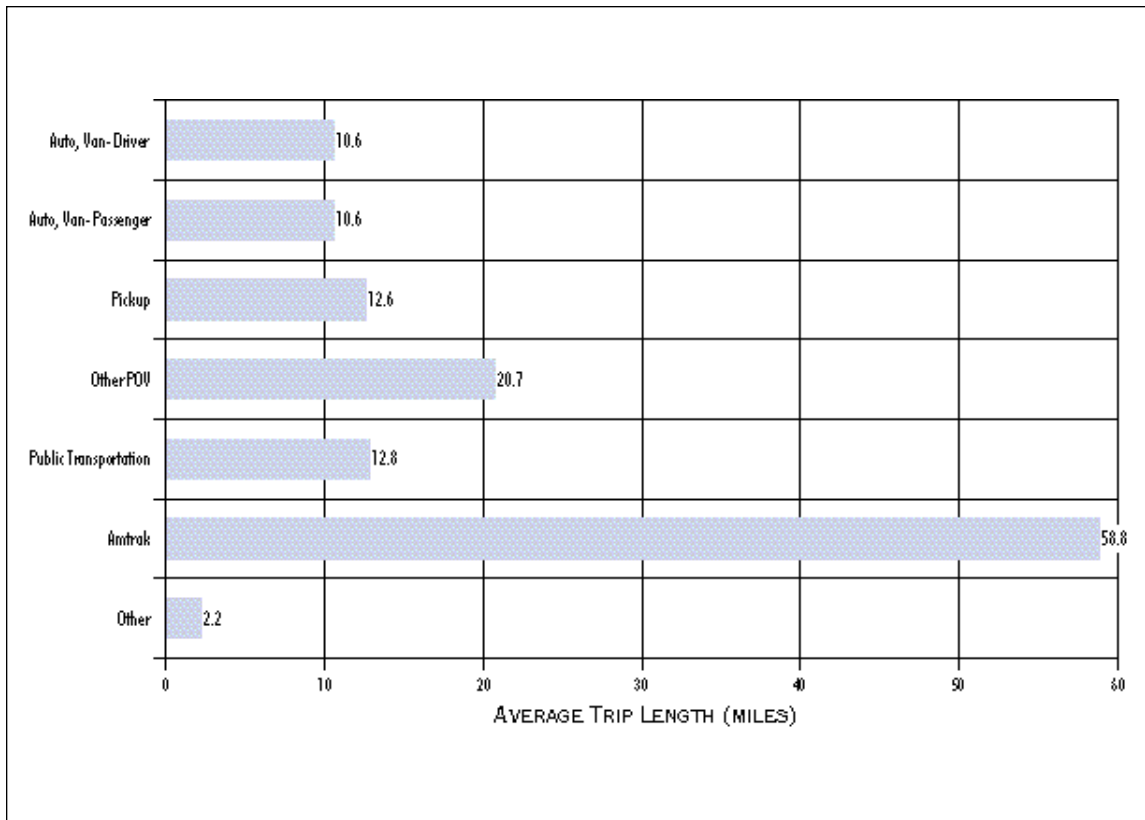
<sup>5</sup> Includes trips where mode of transportation was unreported.

The 1990 NPTS estimated that there were 50 billion journey to work trips in 1990, which amounted to more than 526 billion person miles of travel (Table 6.16). Ninety-one percent of the trips used privately-owned vehicles (Table 6.21). Of all modes, trips by

Amtrak had the longest distance of all journey to work trips. The average length of segmented journey to work trips was one and a half times longer than non-segmented trips — 17.1 miles for a segmented trip and 10.5 miles for a non-segmented trip (Table 6.23).

FIGURE 6.11

AVERAGE TRIP LENGTH OF JOURNEY TO WORK PERSON TRIPS BY MODE OF TRANSPORTATION  
1990 NPTS



In the 1990 NPTS, data were collected on a maximum of four trip segments. Segmented trips having more than four segments were assumed to be 4-segment trips. More than

80% of the segmented journey to work trips had no more than three segments; and 63% of the segmented journey to work trips included walking.

TABLE 6.24

NUMBER OF SEGMENTED JOURNEY TO WORK PERSON TRIPS BY NUMBER OF SEGMENTS TAKEN  
1990 NPTS  
(THOUSANDS)

No. of Segments	No. of Trips
Two	417,643 (40.4%)
Three	428,841 (41.5%)
Four +	187,823 (18.1%)
<b>TOTAL</b>	<b>1,034,307</b> (100.0%)
At least one segment walked	654,372 (63.3%)

**FIGURE 6.12**

**DISTRIBUTION OF SEGMENTED JOURNEY TO WORK PERSON TRIPS BY NUMBER OF SEGMENTS TAKEN  
1990 NPTS**

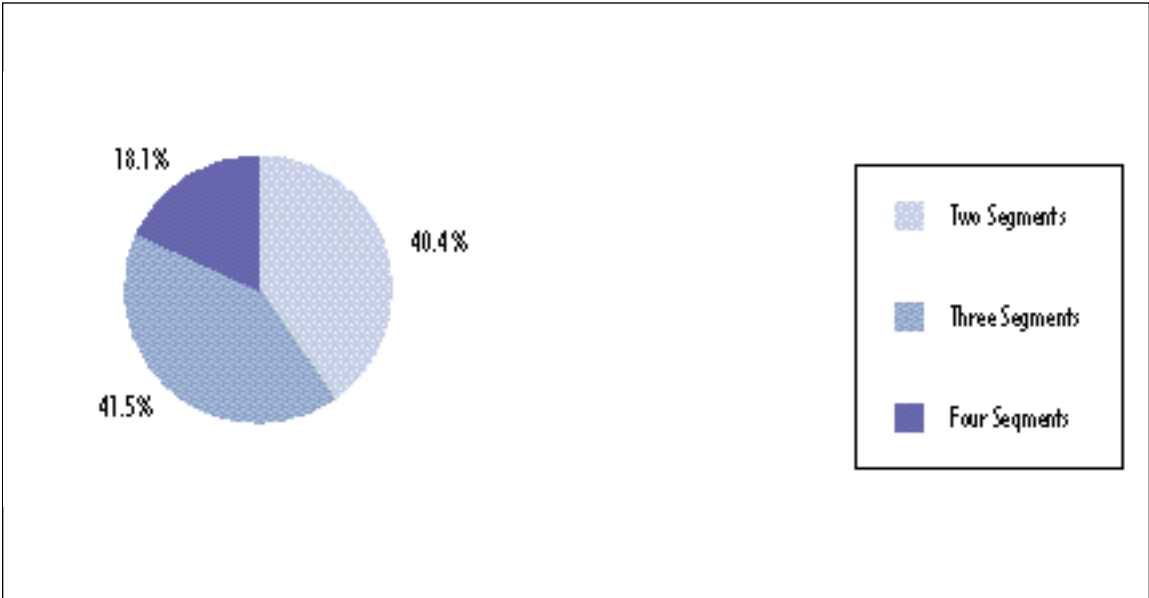


TABLE 6.25

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY TRAVEL TIME AND URBANIZED AREA SIZE  
1990 NPTS  
(MILLIONS)**

Urbanized Area Size	0-4 min.	5-9 min.	10-19 min.	20-29 min.	30-39 min.	40-49 min.	50+ min.	TOTAL <sup>1</sup>
<b>50,000-199,999</b>	<b>422</b>	<b>917</b>	<b>1,674</b>	<b>676</b>	<b>237</b>	<b>89</b>	<b>84</b>	<b>4,145</b>
	(10.2%)	(22.1%)	(40.4%)	(16.3%)	(5.7%)	(2.1%)	(2.0%)	(100.0%)
<b>200,000-499,999</b>	<b>275</b>	<b>685</b>	<b>1,357</b>	<b>673</b>	<b>260</b>	<b>104</b>	<b>70</b>	<b>3,461</b>
	(7.9%)	(19.8%)	(39.2%)	(19.4%)	(7.5%)	(3.0%)	(2.0%)	(100.0%)
<b>500,000-999,999</b>	<b>220</b>	<b>477</b>	<b>1,191</b>	<b>758</b>	<b>403</b>	<b>168</b>	<b>83</b>	<b>3,329</b>
	(6.6%)	(14.3%)	(35.8%)	(22.8%)	(12.1%)	(5.0%)	(2.5%)	(100.0%)
<b>1,000,000 or more without rail/subway</b>	<b>658</b>	<b>1,464</b>	<b>3,470</b>	<b>2,055</b>	<b>1,435</b>	<b>622</b>	<b>448</b>	<b>10,292</b>
	(6.4%)	(14.2%)	(33.7%)	(20.0%)	(13.9%)	(6.0%)	(4.4%)	(100.0%)
<b>1,000,000 or more with rail/subway</b>	<b>664</b>	<b>1,622</b>	<b>3,185</b>	<b>1,965</b>	<b>1,418</b>	<b>968</b>	<b>1,158</b>	<b>11,206</b>
	(5.9%)	(14.5%)	(28.4%)	(17.5%)	(12.7%)	(8.6%)	(10.3%)	(100.0%)
<b>Not in Urbanized Area</b>	<b>1,916</b>	<b>3,467</b>	<b>5,585</b>	<b>2,869</b>	<b>1,691</b>	<b>1,009</b>	<b>1,080</b>	<b>17,881</b>
	(10.7%)	(19.4%)	(31.2%)	(16.0%)	(9.5%)	(5.6%)	(6.0%)	(100.0%)
<b>TOTAL</b>	<b>4,155</b>	<b>8,632</b>	<b>16,462</b>	<b>8,996</b>	<b>5,445</b>	<b>2,960</b>	<b>2,923</b>	<b>50,314</b>
	(8.3%)	(17.2%)	(32.7%)	(17.9%)	(10.8%)	(5.9%)	(5.8%)	(100.0%)

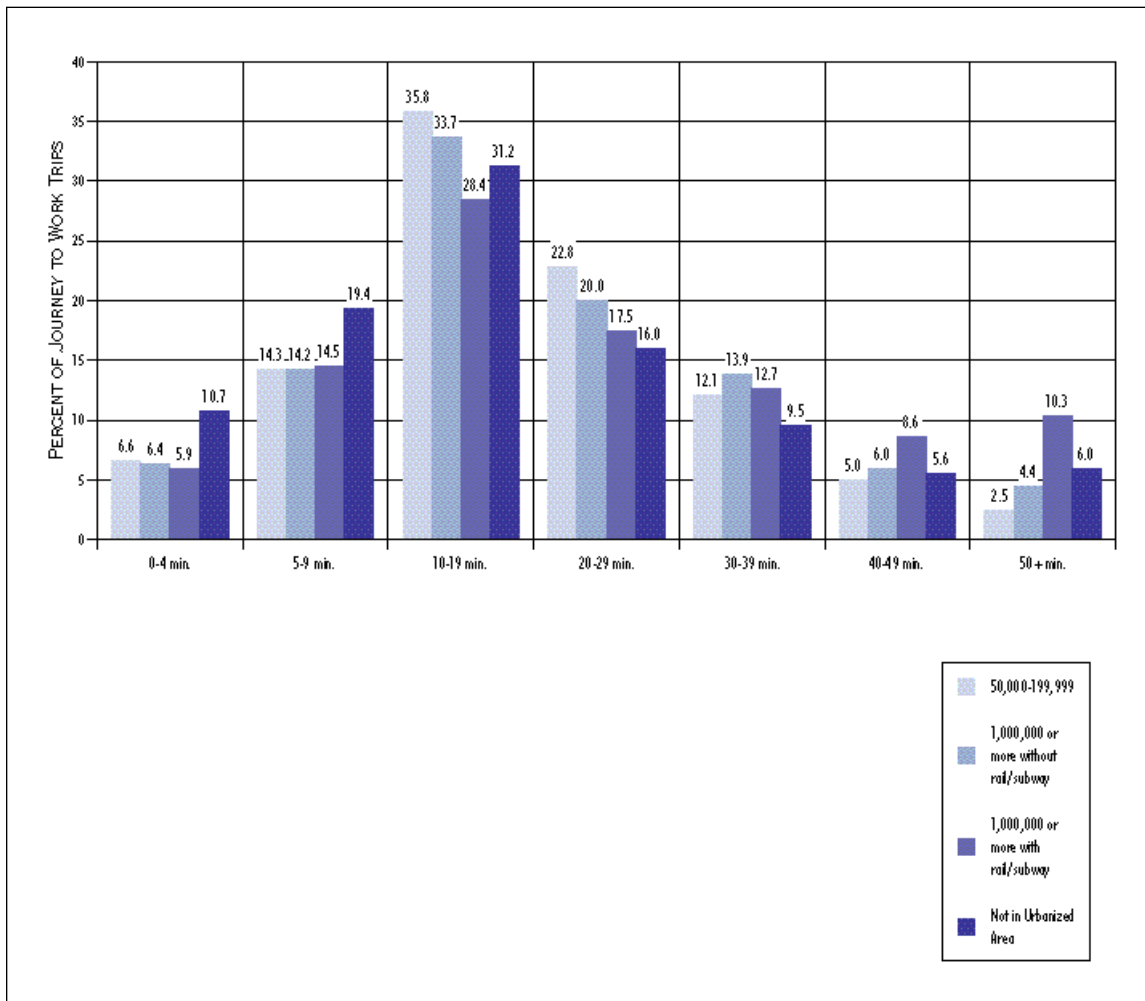
<sup>1</sup> Includes trips where travel time was unreported.

On average, most journey to work trips were 10 to 19 minutes in duration. Travel times differed depending on the size of the urban area. For example, more than 70% of journey to work trips in small urban areas (with a population less than 200 thousand) were less than 20 minutes. However, less than half of

the journey to work trips in areas with a population more than 1 million, and with rail and subway available, were less than 20 minutes. The percentage of journey to work trips lasting more than 50 minutes in larger urban areas (10.3%) was almost twice of that of the national average (5.8%).

FIGURE 6.13

DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY TRAVEL TIME AND SELECTED URBANIZED AREA SIZE  
1990 NPTS



**TABLE 6.26**

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY TRIP LENGTH AND URBANIZED AREA SIZE  
1990 NPTS  
(MILLIONS)**

Urbanized Area Size	5 miles or less	6-10 miles	11-15 miles	16-20 miles	21-30 miles	30 miles or more	TOTAL <sup>1</sup>
<b>50,000-199,999</b>	<b>2,468</b>	<b>937</b>	<b>349</b>	<b>118</b>	<b>114</b>	<b>117</b>	<b>4,145</b>
	(59.5%)	(22.6%)	(8.4%)	(2.8%)	(2.8%)	(2.8%)	(100.0%)
<b>200,000-499,999</b>	<b>1,730</b>	<b>921</b>	<b>388</b>	<b>142</b>	<b>129</b>	<b>106</b>	<b>3,461</b>
	(50.0%)	(26.6%)	(11.2%)	(4.1%)	(3.7%)	(3.1%)	(100.0%)
<b>500,000-999,999</b>	<b>1,474</b>	<b>873</b>	<b>490</b>	<b>201</b>	<b>117</b>	<b>108</b>	<b>3,329</b>
	(44.3%)	(26.2%)	(14.7%)	(6.0%)	(3.5%)	(3.2%)	(100.0%)
<b>1,000,000 or more without rail/subway</b>	<b>4,275</b>	<b>2,370</b>	<b>1,431</b>	<b>892</b>	<b>761</b>	<b>396</b>	<b>10,292</b>
	(41.5%)	(23.0%)	(13.9%)	(8.7%)	(7.4%)	(3.8%)	(100.0%)
<b>1,000,000 or more with rail/subway</b>	<b>5,007</b>	<b>2,179</b>	<b>1,281</b>	<b>765</b>	<b>805</b>	<b>745</b>	<b>11,206</b>
	(44.7%)	(19.4%)	(11.4%)	(6.8%)	(7.2%)	(6.6%)	(100.0%)
<b>Not in Urbanized Area</b>	<b>7,983</b>	<b>3,330</b>	<b>2,165</b>	<b>1,392</b>	<b>1,406</b>	<b>1,431</b>	<b>17,881</b>
	(44.6%)	(18.6%)	(12.1%)	(7.8%)	(7.9%)	(8.0%)	(100.0%)
<b>TOTAL</b>	<b>22,937</b>	<b>10,610</b>	<b>6,104</b>	<b>3,511</b>	<b>3,332</b>	<b>2,903</b>	<b>50,314</b>
	(45.6%)	(21.1%)	(12.1%)	(7.0%)	(6.6%)	(5.8%)	(100.0%)

<sup>1</sup> Includes 1.8% of total trips where trip length was unreported.



Almost half of all journey to work trips, on average, were shorter than 5 miles. Journey to work trips in small urban areas (with a population size less than 200 thousand) were significantly shorter than those in other areas. On the other hand, trips to and from

work by those residing in non-urbanized areas were longer than trips by people living in other areas; and were relatively similar to trips by people in areas with more than 1 million in population and having rail and subway available.

FIGURE 6.14

DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY TRIP LENGTH AND SELECTED URBANIZED AREA SIZE 1990 NPTS

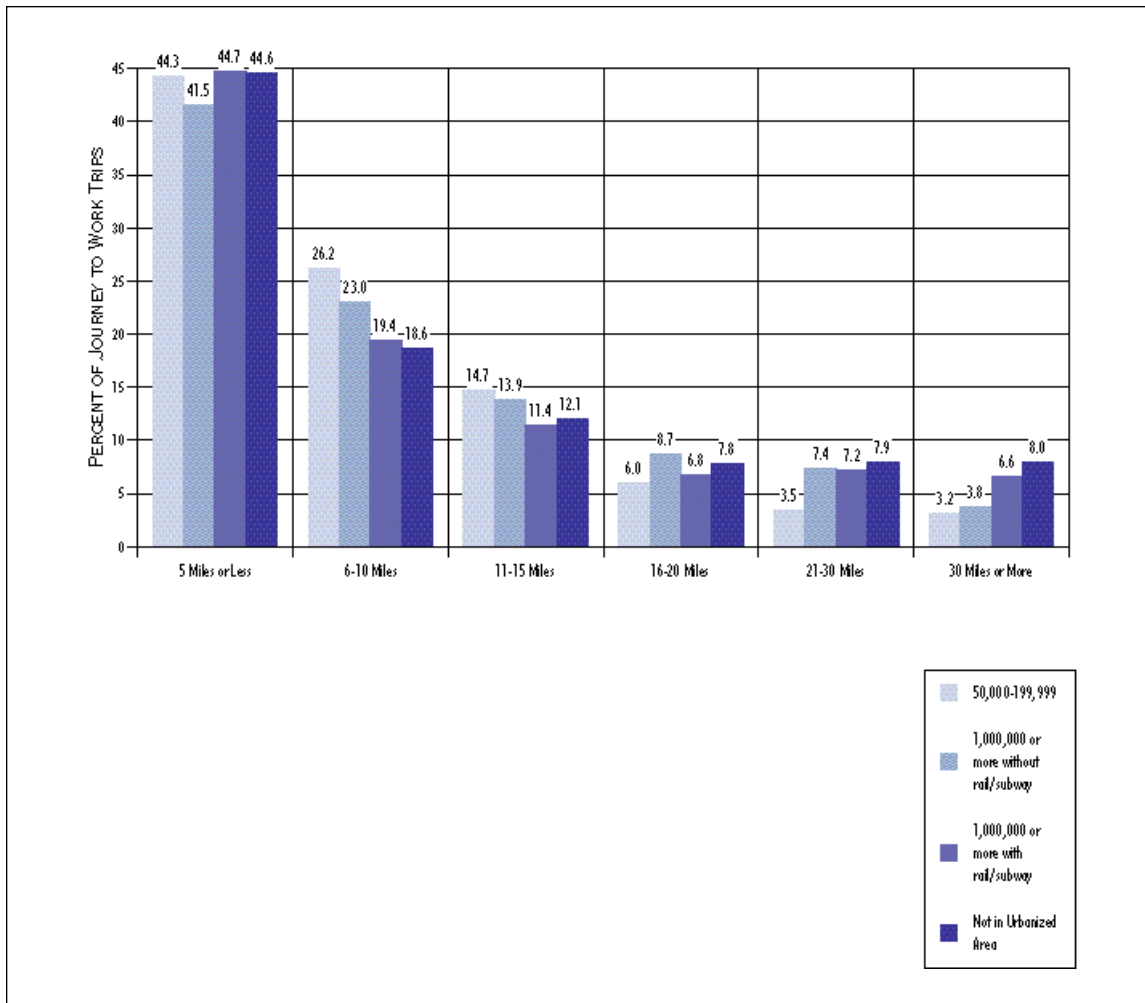


TABLE 6.27

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY MODE OF TRANSPORTATION AND TRAVEL TIME  
1990 NPTS  
(MILLIONS)**

Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

	0-4 min	5-9 min	10-19 min	20-29 min	30-39 min	40-49 min	50 + min	TOTAL <sup>2</sup>
<b>Private Vehicles</b>								
Auto, Van-Driver	2,642 (63.6%)	5,957 (92.5%)	11,778 (94.2%)	6,183 (94.2%)	3,645 (90.4%)	1,938 (88.6%)	1,458 (76.4%)	<b>33,963</b> (91.1%)
Auto, Van-Passenger	282 (6.8%)	653 (7.6%)	1,184 (7.2%)	578 (6.4%)	364 (6.7%)	182 (6.1%)	235 (8.0%)	<b>3,558</b> (7.1%)
Pickup	592 (14.2%)	1,259 (14.6%)	2,364 (14.4%)	1,597 (17.8%)	890 (16.3%)	470 (15.9%)	490 (16.8%)	<b>7,762</b> (15.4%)
Other Private Vehicles	47 (1.1%)	114 (1.3%)	177 (1.1%)	118 (1.3%)	22 (0.4%)	32 (1.1%)	49 (1.7%)	<b>574</b> (1.1%)
<b>Subtotal</b>	<b>3,563</b> (85.8%)	<b>7,983</b> (92.5%)	<b>15,503</b> (94.2%)	<b>8,476</b> (94.2%)	<b>4,921</b> (90.4%)	<b>2,622</b> (88.6%)	<b>2,232</b> (76.4%)	<b>45,857</b> (91.1%)
<b>Public Transportation</b>								
Bus, Streetcar	3 (0.1%)	34 (0.4%)	214 (1.3%)	193 (2.1%)	256 (4.7%)	152 (5.1%)	285 (9.8%)	<b>1,166</b> (2.3%)
Rail/Subway <sup>3</sup>	6 (0.1%)	11 (0.1%)	65 (0.4%)	83 (0.9%)	144 (2.6%)	143 (4.8%)	343 (11.7%)	<b>826</b> (1.6%)
<b>Subtotal</b>	<b>9</b> (0.2%)	<b>45</b> (0.5%)	<b>280</b> (1.7%)	<b>276</b> (3.1%)	<b>400</b> (7.4%)	<b>295</b> (10.0%)	<b>628</b> (21.5%)	<b>1,992</b> (4.0%)
<b>Other Means</b>								
Amtrak	** (0.0%)	** (0.0%)	4 (0.0%)	2 (0.0%)	2 (0.0%)	1 (0.0%)	10 (0.4%)	<b>20</b> (0.0%)
Taxi	1 (0.0%)	23 (0.3%)	46 (0.3%)	14 (0.2%)	2 (0.0%)	** (0.0%)	** (0.0%)	<b>93</b> (0.2%)
Bike	17 (0.4%)	26 (0.3%)	66 (0.4%)	33 (0.4%)	21 (0.4%)	7 (0.2%)	** (0.0%)	<b>169</b> (0.3%)
Walk	562 (13.5%)	540 (6.3%)	526 (3.2%)	168 (1.9%)	70 (1.3%)	29 (1.0%)	18 (0.6%)	<b>1,999</b> (4.0%)
School Bus	1 (0.0%)	4 (0.0%)	14 (0.1%)	8 (0.1%)	12 (0.2%)	** (0.0%)	15 (0.5%)	<b>56</b> (0.1%)
Other	2 (0.0%)	10 (0.1%)	22 (0.1%)	18 (0.2%)	13 (0.2%)	7 (0.2%)	18 (0.6%)	<b>89</b> (0.2%)
<b>Subtotal</b>	<b>584</b> (14.0%)	<b>602</b> (7.0%)	<b>678</b> (4.1%)	<b>243</b> (2.7%)	<b>120</b> (2.2%)	<b>44</b> (1.5%)	<b>61</b> (2.1%)	<b>2,426</b> (4.8%)
<b>TOTAL<sup>2</sup></b>	<b>4,155</b> (100.0%)	<b>8,632</b> (100.0%)	<b>16,462</b> (100.0%)	<b>8,996</b> (100.0%)	<b>5,445</b> (100.0%)	<b>2,960</b> (100.0%)	<b>2,923</b> (100.0%)	<b>50,314</b> (100.0%)

<sup>1</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes trips where mode of transportation, travel time or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

\*\* Indicates no data reported.

TABLE 6.28

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY MODE OF TRANSPORTATION AND TRIP LENGTH  
1990 NPTS  
(MILLIONS)**

Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

	5 miles or less	6-10 miles	11-15 miles	16-20 miles	21-30 miles	30 miles or more	TOTAL <sup>2,4</sup>
<b>Private Vehicles</b>							
Auto, Van-Driver	14,852 (64.8%)	7,741 (73.0%)	4,404 (72.1%)	2,452 (69.8%)	2,310 (69.3%)	1,805 (62.2%)	<b>33,963</b> (67.5%)
Auto, Van-Passenger	1,824 (8.0%)	615 (5.8%)	373 (6.1%)	194 (5.5%)	217 (6.5%)	230 (7.9%)	<b>3,558</b> (7.1%)
Pickup	3,049 (13.3%)	1,671 (15.7%)	1,008 (16.5%)	684 (19.5%)	646 (19.4%)	621 (21.4%)	<b>7,762</b> (15.4%)
Other Private Vehicles	236 (1.0%)	115 (1.1%)	98 (1.6%)	31 (0.9%)	15 (0.5%)	53 (1.8%)	<b>574</b> (1.1%)
<b>Subtotal</b>	<b>19,961</b> (87.0%)	<b>10,142</b> (95.6%)	<b>5,883</b> (96.4%)	<b>3,361</b> (95.7%)	<b>3,188</b> (95.7%)	<b>2,709</b> (93.3%)	<b>45,857</b> (91.1%)
<b>Public Transportation</b>							
Bus, Streetcar	492 (2.1%)	277 (2.6%)	124 (2.0%)	71 (2.0%)	48 (1.4%)	44 (1.5%)	<b>1,166</b> (2.3%)
Rail/Subway <sup>3</sup>	214 (0.9%)	130 (1.2%)	63 (1.0%)	65 (1.9%)	84 (2.5%)	123 (4.2%)	<b>826</b> (1.6%)
<b>Subtotal</b>	<b>706</b> (3.1%)	<b>407</b> (3.8%)	<b>187</b> (3.1%)	<b>136</b> (3.9%)	<b>132</b> (3.9%)	<b>167</b> (5.7%)	<b>1,992</b> (4.0%)
<b>Other Means</b>							
Amtrak	* (0.0%)	* (0.0%)	* (0.0%)	** (0.0%)	* (0.0%)	9 (0.3%)	<b>20</b> (0.0%)
Taxi	81 (0.4%)	4 (0.0%)	* (0.0%)	* (0.0%)	** (0.0%)	* (0.0%)	<b>93</b> (0.2%)
Bike	160 (0.7%)	7 (0.1%)	** (0.0%)	* (0.0%)	** (0.0%)	** (0.0%)	<b>169</b> (0.3%)
Walk	1,945 (8.5%)	26 (0.2%)	* (0.0%)	12 (0.3%)	* (0.0%)	* (0.0%)	<b>1,999</b> (4.0%)
School Bus	31 (0.1%)	4 (0.0%)	13 (0.2%)	** (0.0%)	* (0.0%)	* (0.0%)	<b>56</b> (0.1%)
Other	44 (0.2%)	18 (0.2%)	9 (0.1%)	** (0.0%)	5 (0.2%)	13 (0.4%)	<b>89</b> (0.2%)
<b>Subtotal</b>	<b>2,264</b> (9.9%)	<b>61</b> (0.6%)	<b>30</b> (0.5%)	<b>12</b> (0.3%)	<b>12</b> (0.4%)	<b>28</b> (1.0%)	<b>2,426</b> (4.8%)
<b>TOTAL<sup>2,4</sup></b>	<b>22,937</b> (100.0%)	<b>10,610</b> (100.0%)	<b>6,104</b> (100.0%)	<b>3,511</b> (100.0%)	<b>3,332</b> (100.0%)	<b>2,903</b> (100.0%)	<b>50,314</b> (100.0%)

<sup>1</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Includes trips where mode of transportation, trip length or both were unreported.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes records where insufficient data were reported in other cells.

\* Indicates insufficient data reported.

\*\* Indicates no data reported.

TABLE 6.29

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY DAY OF WEEK AND MODE OF TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	TOTAL
<b>1983</b>								
Private Vehicle Driver	5,826,875 (74.6%)	6,301,661 (75.3%)	6,793,185 (76.1%)	6,916,485 (75.9%)	6,035,349 (78.2%)	2,155,416 (76.0%)	1,317,705 (76.6%)	<b>35,346,676</b> (76.0%)
Private Vehicle Passenger	874,812 (11.2%)	1,062,830 (12.7%)	964,079 (10.8%)	1,038,840 (11.4%)	902,987 (11.7%)	422,575 (14.9%)	213,310 (12.4%)	<b>5,479,433</b> (11.8%)
Public Transportation	484,271 (6.2%)	401,700 (4.8%)	392,773 (4.4%)	473,857 (5.2%)	262,406 (3.4%)	82,246 (2.9%)	53,327 (3.1%)	<b>2,150,580</b> (4.6%)
Other	624,866 (8.0%)	602,549 (7.2%)	776,619 (8.7%)	683,447 (7.5%)	517,095 (6.7%)	175,837 (6.2%)	135,899 (7.9%)	<b>3,516,312</b> (7.6%)
<b>TOTAL</b>	<b>7,810,824</b> (100.0%)	<b>8,368,740</b> (100.0%)	<b>8,926,656</b> (100.0%)	<b>9,112,628</b> (100.0%)	<b>7,717,838</b> (100.0%)	<b>2,836,073</b> (100.0%)	<b>1,720,241</b> (100.0%)	<b>46,493,000</b> (100.0%)
<b>1990</b>								
Private Vehicle Driver	7,642,872 (83.2%)	7,915,188 (82.2%)	7,708,270 (84.4%)	7,945,079 (83.1%)	6,332,546 (83.3%)	2,531,139 (82.5%)	1,707,889 (80.0%)	<b>41,782,983</b> (83.0%)
Private Vehicle Passenger	768,333 (8.4%)	714,296 (7.4%)	670,646 (7.3%)	706,950 (7.4%)	646,068 (8.5%)	335,668 (10.9%)	231,516 (10.8%)	<b>4,073,477</b> (8.1%)
Public Transportation	389,447 (4.2%)	414,537 (4.3%)	320,039 (3.5%)	456,161 (4.8%)	309,441 (4.1%)	65,219 (2.1%)	57,043 (2.7%)	<b>2,011,887</b> (4.0%)
Other	373,651 (4.1%)	575,038 (6.0%)	427,686 (4.7%)	444,787 (4.6%)	313,788 (4.1%)	132,371 (4.3%)	139,637 (6.5%)	<b>2,406,959</b> (4.8%)
<b>TOTAL<sup>4</sup></b>	<b>9,183,274</b> (100.0%)	<b>9,624,933</b> (100.0%)	<b>9,128,877</b> (100.0%)	<b>9,565,503</b> (100.0%)	<b>7,605,035</b> (100.0%)	<b>3,069,020</b> (100.0%)	<b>2,137,628</b> (100.0%)	<b>50,314,271</b> (100.0%)

<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>4</sup> Includes trips where mode of transportation was unreported.

As expected, most journey to work trips occurred during the middle of the week and the fewest on the weekend. Approximately 10% of journey to work trips were on weekends.

TABLE 6.30

**DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY DAY OF WEEK AND MODE OF TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(ACROSS DAY OF WEEK)**

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	TOTAL
<b>1983</b>								
Private Vehicle Driver	16.5	17.8	19.2	19.6	17.1	6.1	3.7	100.0
Private Vehicle Passenger	16.0	19.4	17.6	19.0	16.5	7.7	3.9	100.0
Public Transportation	22.5	18.7	18.3	22.0	12.2	3.8	2.5	100.0
Other	17.8	17.1	22.1	19.4	14.7	5.0	3.9	100.0
<b>TOTAL</b>	16.8	18.0	19.2	19.6	16.6	6.1	3.7	100.0
<b>1990</b>								
Private Vehicle Driver	18.3	18.9	18.4	19.0	15.2	6.1	4.1	100.0
Private Vehicle Passenger	18.9	17.5	16.5	17.4	15.9	8.2	5.7	100.0
Public Transportation	19.4	20.6	15.9	22.7	15.4	3.2	2.8	100.0
Other	15.5	23.9	17.8	18.5	13.0	5.5	5.8	100.0
<b>TOTAL<sup>4</sup></b>	18.3	19.1	18.1	19.0	15.1	6.1	4.2	100.0

<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.

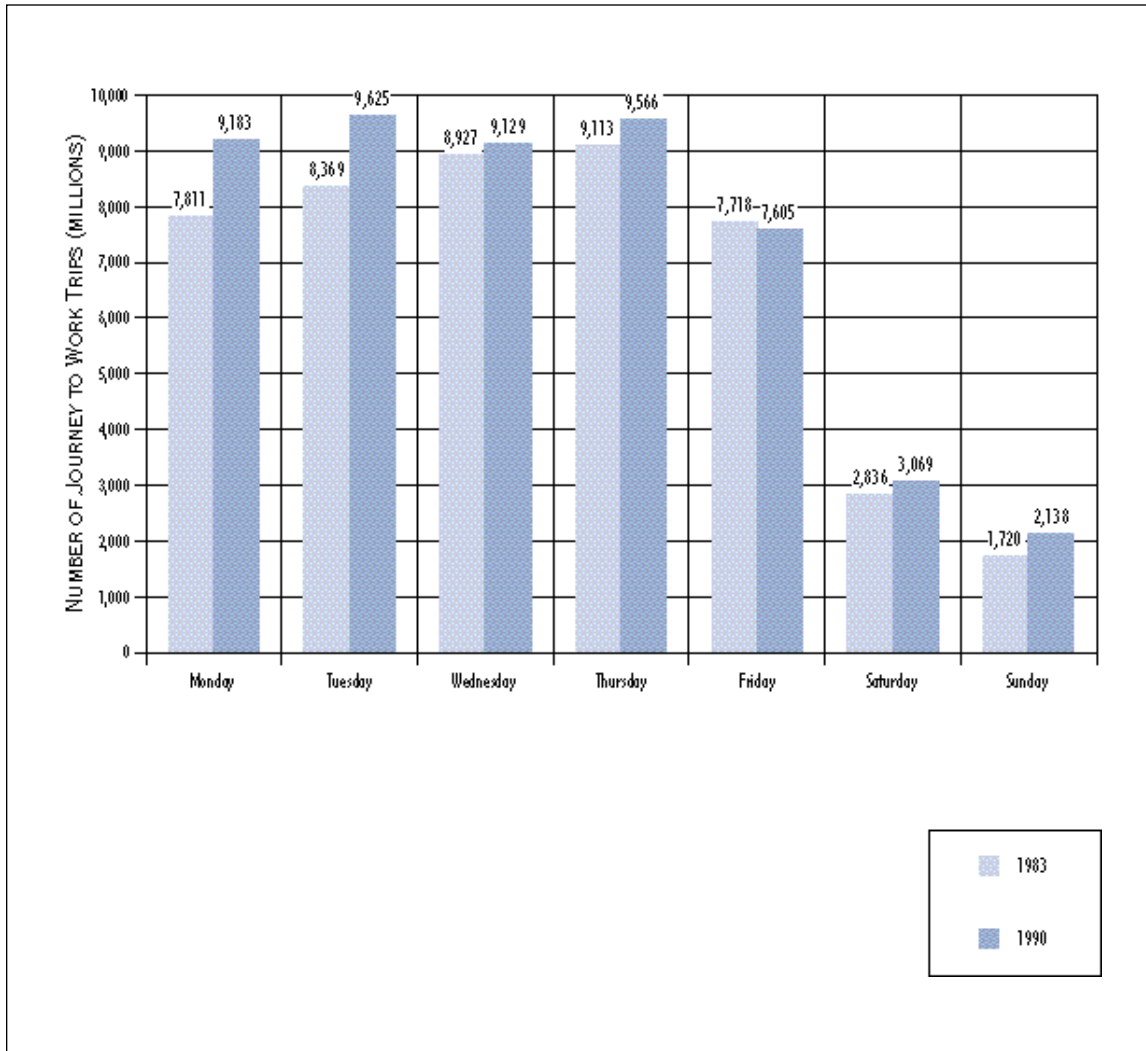
<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>4</sup> Includes trips where mode of transportation was unreported.

FIGURE 6.15

NUMBER OF JOURNEY TO WORK PERSON TRIPS BY DAY OF WEEK  
1983 AND 1990 NPTS



TEMPORAL CHARACTERISTICS: JOURNEY TO WORK AND WORK-RELATED TRIPS

TABLE 6.31

**NUMBER OF PERSON TRIPS BY WEEKDAY<sup>1</sup> VS. WEEKEND,<sup>2</sup> TRIP PURPOSE, AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

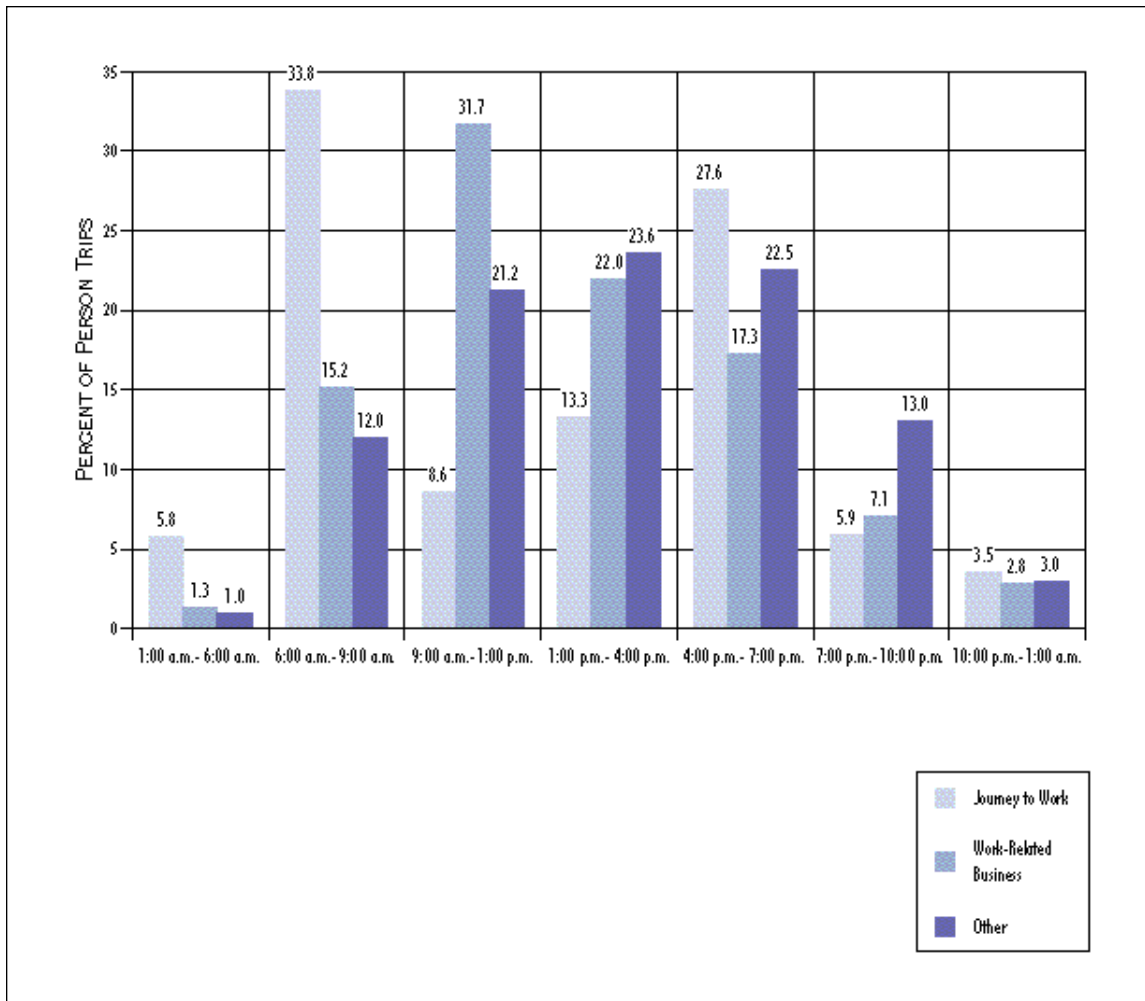
	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>3</sup>
<b>WEEKDAY</b>								
Journey to Work	2,518,485 (5.8%)	14,763,593 (33.8%)	3,742,339 (8.6%)	5,818,407 (13.3%)	12,073,582 (27.6%)	2,568,277 (5.9%)	1,519,253 (3.5%)	<b>43,726,712</b> (100.0%)
Work-Related Business	37,376 (1.3%)	448,023 (15.2%)	932,683 (31.7%)	648,132 (22.0%)	510,011 (17.3%)	208,235 (7.1%)	80,870 (2.8%)	<b>2,940,327</b> (100.0%)
Other	1,232,723 (1.0%)	15,178,765 (12.0%)	26,784,387 (21.2%)	29,795,316 (23.6%)	28,340,647 (22.5%)	16,373,119 (13.0%)	3,750,796 (3.0%)	<b>126,136,016</b> (100.0%)
<b>Subtotal</b>	<b>3,788,584</b> (2.2%)	<b>30,390,381</b> (17.6%)	<b>31,459,409</b> (18.2%)	<b>36,261,855</b> (21.0%)	<b>40,924,240</b> (23.7%)	<b>19,149,631</b> (11.1%)	<b>5,350,919</b> (3.1%)	<b>172,803,055</b> (100.0%)
<b>WEEKEND</b>								
Journey to Work	333,597 (5.2%)	1,127,697 (17.5%)	956,481 (14.9%)	863,335 (13.4%)	1,487,210 (23.1%)	971,596 (15.1%)	583,377 (9.1%)	<b>6,439,359</b> (100.0%)
Work-Related Business	12,901 (2.3%)	71,141 (12.4%)	133,556 (23.3%)	107,119 (18.7%)	117,886 (20.6%)	74,795 (13.1%)	25,085 (4.4%)	<b>572,557</b> (100.0%)
Other	702,036 (1.0%)	3,024,922 (4.4%)	17,514,628 (25.7%)	13,751,576 (20.2%)	14,426,868 (21.2%)	11,736,666 (17.2%)	3,967,808 (5.8%)	<b>68,092,253</b> (100.0%)
<b>Subtotal</b>	<b>1,048,534</b> (1.4%)	<b>4,223,760</b> (5.6%)	<b>18,604,665</b> (24.8%)	<b>14,722,030</b> (19.6%)	<b>16,031,964</b> (21.3%)	<b>12,783,057</b> (17.0%)	<b>4,576,270</b> (6.1%)	<b>75,104,169</b> (100.0%)
<b>TOTAL<sup>3</sup></b>	<b>4,837,118</b> (1.9%)	<b>34,614,141</b> (13.9%)	<b>50,064,074</b> (20.1%)	<b>50,983,885</b> (20.4%)	<b>56,956,204</b> (22.8%)	<b>31,932,688</b> (12.8%)	<b>9,927,189</b> (4.0%)	<b>249,562,297</b> (100.0%)
<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.				<sup>3</sup> Includes trips where time of day, weekday vs. weekend or both were unreported.				
<sup>2</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.								

Table 6.31 illustrates how trips for different purposes occurred at different times of the day, and how this temporal distribution varied from weekdays to weekends. Weekday journey to work trips peaked between 6 and 9 a.m. and between 4 and 7 p.m. Trips for

work-related business tended to peak between 9 a.m. and 4 p.m.. For trips that were not related to work (such as errand running), more than two-thirds of them occurred between 9 a.m. and 7 p.m..

FIGURE 6.16

DISTRIBUTION OF WEEKDAY PERSON TRIPS BY TRIP PURPOSE, AND TIME OF DAY  
1990 NPTS





This table presents the number of journey to work trips as a percentage of total person trips by time of day and by weekday versus weekend. More than two-thirds of weekday morning travel before 9 a.m. was for com-

muting to work. However, journey to work trips were, as expected, considerably less prevalent in morning traffic during weekends. Between 85% to 95% of weekend travel after 9 a.m. was for purposes other than work.

TABLE 6.32

DISTRIBUTION OF PERSON TRIPS BY WEEKDAY<sup>1</sup> VS. WEEKEND,<sup>2</sup> TRIP PURPOSE, AND TIME OF DAY  
1990 NPTS  
(WITHIN TIME OF DAY)

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL
<b>WEEKDAY</b>								
Journey to Work	66.5	48.6	11.9	16.0	29.5	13.4	28.4	25.3
Work-Related Business	1.0	1.4	3.0	1.8	1.2	1.1	1.5	1.7
Other	32.5	50.0	85.1	82.2	69.3	85.5	70.1	73.0
<b>TOTAL</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>WEEKEND</b>								
Journey to Work	31.8	26.7	5.1	5.9	9.3	7.6	12.7	8.6
Work-Related Business	1.2	1.7	0.7	0.7	0.7	0.6	0.5	0.7
Other	67.0	71.6	94.1	93.4	90.0	91.8	86.7	90.7
<b>TOTAL</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.

<sup>2</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.

FIGURE 6.17

**JOURNEY TO WORK PERSON TRIPS AS A PERCENTAGE OF TOTAL PERSON TRIPS  
BY WEEKDAY VS. WEEKEND AND TIME OF DAY  
1990 NPTS**

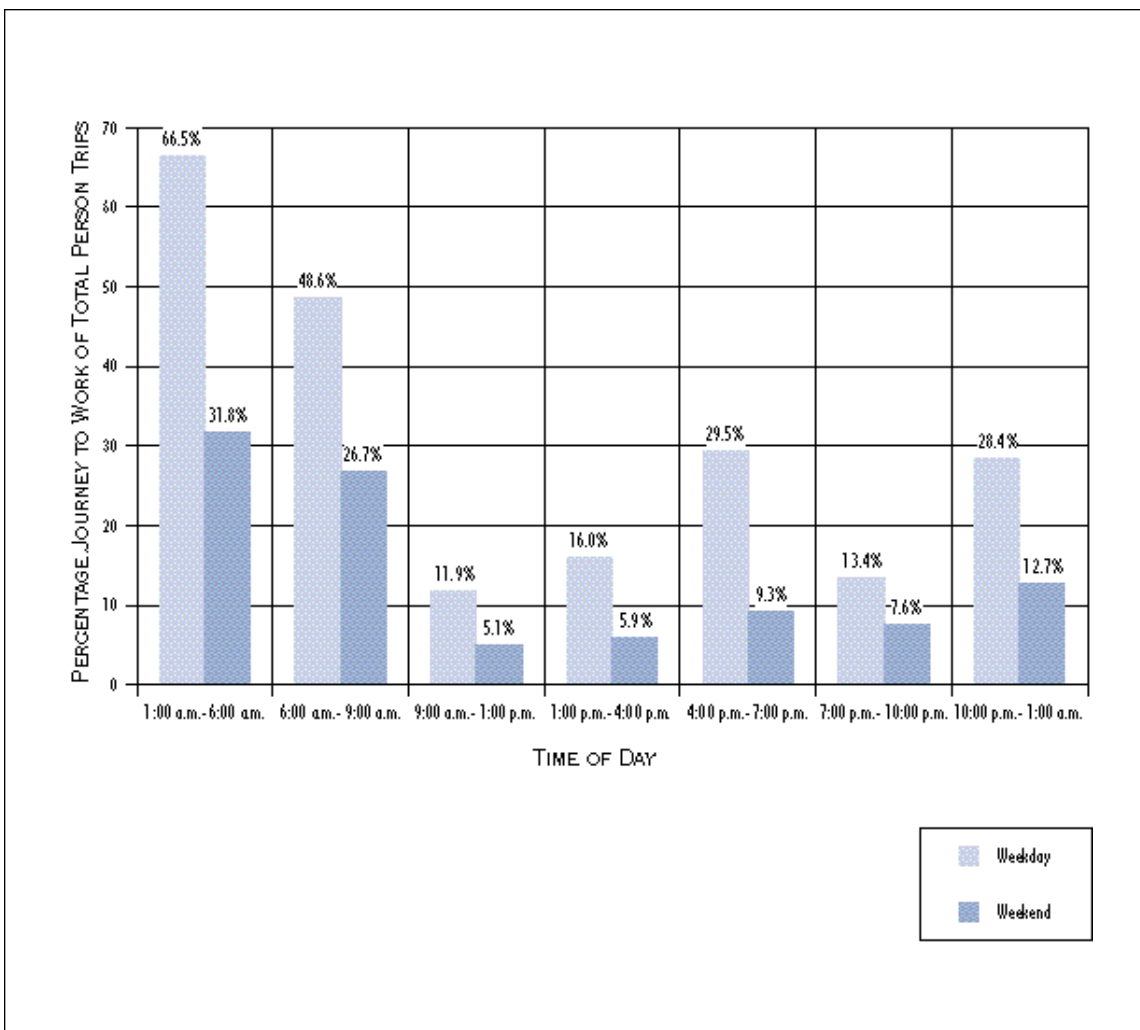


TABLE 6.33

**NUMBER OF JOURNEY TO WORK PERSON TRIPS BY TIME OF DAY AND MODE OF TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>4</sup>
<b>1983</b>								
Private Vehicle Driver	1,874,319 (69.3%)	10,876,200 (72.7%)	3,965,817 (70.9%)	4,687,357 (69.3%)	8,086,155 (69.3%)	1,969,187 (73.7%)	1,396,627 (76.5%)	<b>33,079,400</b> (71.1%)
Private Vehicle Passenger	498,846 (18.5%)	2,343,202 (15.7%)	837,638 (15.0%)	1,215,341 (18.0%)	1,964,136 (16.8%)	399,894 (15.0%)	239,305 (13.1%)	<b>7,561,696</b> (16.3%)
Public Transportation	113,781 (4.2%)	839,836 (5.6%)	150,773 (2.7%)	219,817 (3.3%)	652,198 (5.6%)	79,585 (3.0%)	34,399 (1.9%)	<b>2,097,609</b> (4.5%)
Other	128,904 (4.8%)	678,645 (4.5%)	542,313 (9.7%)	548,087 (8.1%)	617,184 (5.3%)	127,640 (4.8%)	96,820 (5.3%)	<b>2,746,654</b> (5.9%)
<b>TOTAL<sup>4</sup></b>	<b>2,702,948</b> (100.0%)	<b>14,962,800</b> (100.0%)	<b>5,594,275</b> (100.0%)	<b>6,760,033</b> (100.0%)	<b>11,667,700</b> (100.0%)	<b>2,673,124</b> (100.0%)	<b>1,825,693</b> (100.0%)	<b>46,493,000</b> (100.0%)
<b>1990</b>								
Private Vehicle Driver	2,391,287 (83.8%)	13,462,567 (84.7%)	3,771,894 (80.3%)	5,491,180 (82.2%)	11,315,524 (83.5%)	2,868,263 (81.0%)	1,719,226 (81.8%)	<b>41,782,983</b> (83.0%)
Private Vehicle Passenger	243,814 (8.6%)	1,108,742 (7.0%)	411,197 (8.8%)	599,335 (9.0%)	1,053,922 (7.8%)	337,078 (9.5%)	211,328 (10.1%)	<b>4,073,477</b> (8.1%)
Public Transportation	84,664 (3.0%)	736,865 (4.6%)	146,319 (3.1%)	213,314 (3.2%)	589,627 (4.3%)	125,510 (3.6%)	64,430 (3.0%)	<b>2,011,887</b> (4.0%)
Other	132,317 (4.6%)	581,368 (3.7%)	368,859 (7.8%)	377,912 (5.6%)	597,531 (4.4%)	209,021 (5.9%)	107,645 (5.1%)	<b>2,406,959</b> (4.8%)
<b>TOTAL<sup>4</sup></b>	<b>2,852,082</b> (100.0%)	<b>15,891,290</b> (100.0%)	<b>4,698,820</b> (100.0%)	<b>6,681,741</b> (100.0%)	<b>13,560,792</b> (100.0%)	<b>3,539,873</b> (100.0%)	<b>2,102,630</b> (100.0%)	<b>50,314,271</b> (100.0%)
<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.		<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.						
<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.		<sup>4</sup> Includes trips where mode of transportation, trip start time or both were unreported.						

TABLE 6.34

NUMBER OF WEEKDAY JOURNEY TO WORK PERSON TRIPS BY TIME OF DAY  
AND MODE OF TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>4</sup>
<b>1983</b>								
Private Vehicle-Driver	1,700,619 (69.9%)	10,076,200 (72.5%)	3,313,657 (70.2%)	4,101,577 (68.6%)	7,215,372 (69.2%)	1,459,433 (76.4%)	988,348 (75.4%)	29,024,140 (71.0%)
Private Vehicle-Passenger	463,797 (19.1%)	2,194,698 (15.8%)	690,547 (14.6%)	1,084,775 (18.1%)	1,775,461 (17.0%)	220,993 (11.6%)	173,145 (13.2%)	6,642,456 (16.2%)
Public Transportation	93,221 (3.8%)	804,682 (5.8%)	134,593 (2.9%)	181,778 (3.0%)	612,916 (5.9%)	68,754 (3.6%)	29,014 (2.2%)	1,932,179 (4.7%)
Other	107,808 (4.4%)	613,932 (4.4%)	499,727 (10.6%)	537,838 (9.0%)	539,411 (5.2%)	98,548 (5.2%)	76,400 (5.8%)	2,473,664 (6.0%)
<b>TOTAL<sup>4</sup></b>	<b>2,431,374</b> (100.0%)	<b>13,904,992</b> (100.0%)	<b>4,720,167</b> (100.0%)	<b>5,979,400</b> (100.0%)	<b>10,419,444</b> (100.0%)	<b>1,909,912</b> (100.0%)	<b>1,311,025</b> (100.0%)	<b>40,891,511</b> (100.0%)
<b>1990</b>								
Private Vehicle-Driver	2,096,667 (83.3%)	12,531,839 (84.9%)	3,000,746 (80.2%)	4,774,805 (82.1%)	10,126,123 (83.9%)	2,095,238 (81.6%)	1,253,560 (82.5%)	36,435,186 (83.3%)
Private Vehicle-Passenger	222,705 (8.8%)	991,948 (6.7%)	299,415 (8.0%)	499,749 (8.6%)	902,508 (7.5%)	235,772 (9.2%)	133,838 (8.8%)	3,353,015 (7.7%)
Public Transportation	83,282 (3.3%)	707,158 (4.8%)	126,242 (3.4%)	193,841 (3.3%)	531,160 (4.4%)	90,730 (3.5%)	51,513 (3.4%)	1,829,743 (4.2%)
Other	115,831 (4.6%)	530,896 (3.6%)	315,386 (8.4%)	350,011 (6.0%)	511,389 (4.2%)	146,537 (5.7%)	80,342 (5.3%)	2,079,162 (4.8%)
<b>TOTAL<sup>4</sup></b>	<b>2,518,485</b> (100.0%)	<b>14,763,593</b> (100.0%)	<b>3,742,339</b> (100.0%)	<b>5,818,407</b> (100.0%)	<b>12,073,582</b> (100.0%)	<b>2,568,277</b> (100.0%)	<b>1,519,253</b> (100.0%)	<b>43,726,712</b> (100.0%)
<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.		<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.						
<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.		<sup>4</sup> Includes trips where mode of transportation, trip start time or both were unreported.						

TABLE 6.35

**NUMBER OF WEEKEND JOURNEY TO WORK PERSON TRIPS BY TIME OF DAY AND MODE OF  
TRANSPORTATION<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>  
(THOUSANDS)**

Note: See Limitations of Data on Transit<sup>3</sup> in Chapter 1, Section 5

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 a.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>4</sup>
<b>1983</b>								
Private Vehicle - Driver	173,700 (64.0%)	800,038 (75.6%)	652,160 (74.6%)	585,780 (75.0%)	870,784 (69.8%)	509,754 (66.8%)	408,279 (79.3%)	<b>4,027,002</b> (72.6%)
Private Vehicle -Passenger	35,049 (12.9%)	148,504 (14.0%)	147,091 (16.8%)	130,566 (16.7%)	188,675 (15.1%)	178,902 (23.4%)	66,160 (12.9%)	<b>903,355</b> (16.3%)
Public Transportation	20,560 (7.6%)	35,154 (3.3%)	16,180 (1.9%)	38,039 (4.9%)	39,281 (3.1%)	10,831 (1.4%)	5,385 (1.0%)	<b>165,430</b> (3.0%)
Other	21,096 (7.8%)	64,713 (6.1%)	42,586 (4.9%)	10,249 (1.3%)	77,773 (6.2%)	29,093 (3.8%)	20,419 (4.0%)	<b>268,788</b> (4.8%)
<b>TOTAL<sup>4</sup></b>	<b>271,574</b> (100.0%)	<b>1,057,840</b> (100.0%)	<b>874,108</b> (100.0%)	<b>780,632</b> (100.0%)	<b>1,248,269</b> (100.0%)	<b>763,211</b> (100.0%)	<b>514,668</b> (100.0%)	<b>5,548,075</b> (100.0%)
<b>1990</b>								
Private Vehicle - Driver	294,620 (88.3%)	930,724 (82.5%)	771,148 (80.6%)	716,375 (83.0%)	1,189,404 (80.0%)	773,025 (79.6%)	465,666 (79.8%)	<b>5,243,309</b> (81.4%)
Private Vehicle -Passenger	21,109 (6.3%)	116,794 (10.4%)	111,783 (11.7%)	99,586 (11.5%)	151,414 (10.2%)	101,306 (10.4%)	77,490 (13.3%)	<b>688,727</b> (10.7%)
Public Transportation	1,382 (0.4%)	29,707 (2.6%)	20,077 (2.1%)	19,473 (2.3%)	58,468 (3.9%)	34,780 (3.6%)	12,917 (2.2%)	<b>176,804</b> (2.7%)
Other	16,486 (4.9%)	50,472 (4.5%)	53,473 (5.6%)	27,901 (3.2%)	86,142 (5.8%)	62,485 (6.4%)	27,303 (4.7%)	<b>324,353</b> (5.0%)
<b>TOTAL<sup>4</sup></b>	<b>333,597</b> (100.0%)	<b>1,127,697</b> (100.0%)	<b>956,481</b> (100.0%)	<b>863,335</b> (100.0%)	<b>1,487,210</b> (100.0%)	<b>971,596</b> (100.0%)	<b>583,377</b> (100.0%)	<b>6,439,359</b> (100.0%)
<sup>1</sup> In tables containing BOTH 1983 AND 1990 NPTS data, the category "train" (included in the public transportation category) includes both commuter rail and Amtrak. These were collected as one mode in the 1983 survey, and the 1990 data were tabulated to be comparable to the 1983.					<sup>3</sup> Estimates of "actual" transit use are based on 1240 person trips to work on travel day by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.			
<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.					<sup>4</sup> Includes trips where mode of transportation, start time of trip or both were unreported.			

From 1983 to 1990, about 87 to 88 percent of all journey to work trips occurred on weekdays. Weekday trips to work peaked from 6 a.m. to 9 a.m., and from 4 p.m. to 7 p.m.; and diminished considerably after 7 p.m.

Journey to work trips on weekends, on the other hand, peaked around 4 p.m. and remained fairly high until 1 a.m. These patterns were true in both 1983 and 1990.

TABLE 6.36

**DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY WEEKDAY<sup>1</sup> VS. WEEKEND<sup>2</sup> AND TIME OF DAY  
1983 AND 1990 NPTS<sup>3</sup>  
(ACROSS TIME OF DAY)**

	1:00 a.m. to 6:00 a.m.	6:00 a.m. to 9:00 a.m.	9:00 a.m. to 1:00 p.m.	1:00 p.m. to 4:00 p.m.	4:00 p.m. to 7:00 p.m.	7:00 p.m. to 10:00 p.m.	10:00 p.m. to 1:00 a.m.	TOTAL <sup>4</sup>
<b>1983</b>								
Weekday (%)	5.9	34.0	11.5	14.6	25.5	4.7	3.2	100.0
Weekend (%)	4.9	19.1	15.8	14.1	22.5	13.8	9.3	100.0
<b>ALL (000)</b>	<b>2,702,948</b>	<b>14,962,800</b>	<b>5,594,275</b>	<b>6,760,033</b>	<b>11,667,700</b>	<b>2,673,124</b>	<b>1,825,693</b>	<b>46,493,000</b>
	(5.8%)	(32.2%)	(12.0%)	(14.5%)	(25.1%)	(5.7%)	(3.9%)	(100.0%)
<b>1990</b>								
Weekday (%)	5.8	33.8	8.6	13.3	27.6	5.9	3.5	100.0
Weekend (%)	5.2	17.5	14.9	13.4	23.1	15.1	9.1	100.0
<b>ALL (000)</b>	<b>2,852,082</b>	<b>15,889,542</b>	<b>4,698,269</b>	<b>6,681,741</b>	<b>13,556,604</b>	<b>3,539,872</b>	<b>2,102,629</b>	<b>50,314,271</b>
	(5.7%)	(31.6%)	(9.3%)	(13.3%)	(26.9%)	(7.0%)	(4.2%)	(100.0%)

<sup>1</sup> Defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday.

<sup>2</sup> Defined as the time between 6:01 p.m. Friday and midnight Sunday.

<sup>3</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>4</sup> Includes trips where time of day was unreported.

FIGURE 6.18

DISTRIBUTION OF JOURNEY TO WORK PERSON TRIPS BY WEEKDAY VS. WEEKEND AND TIME OF DAY  
1983 AND 1990 NPTS

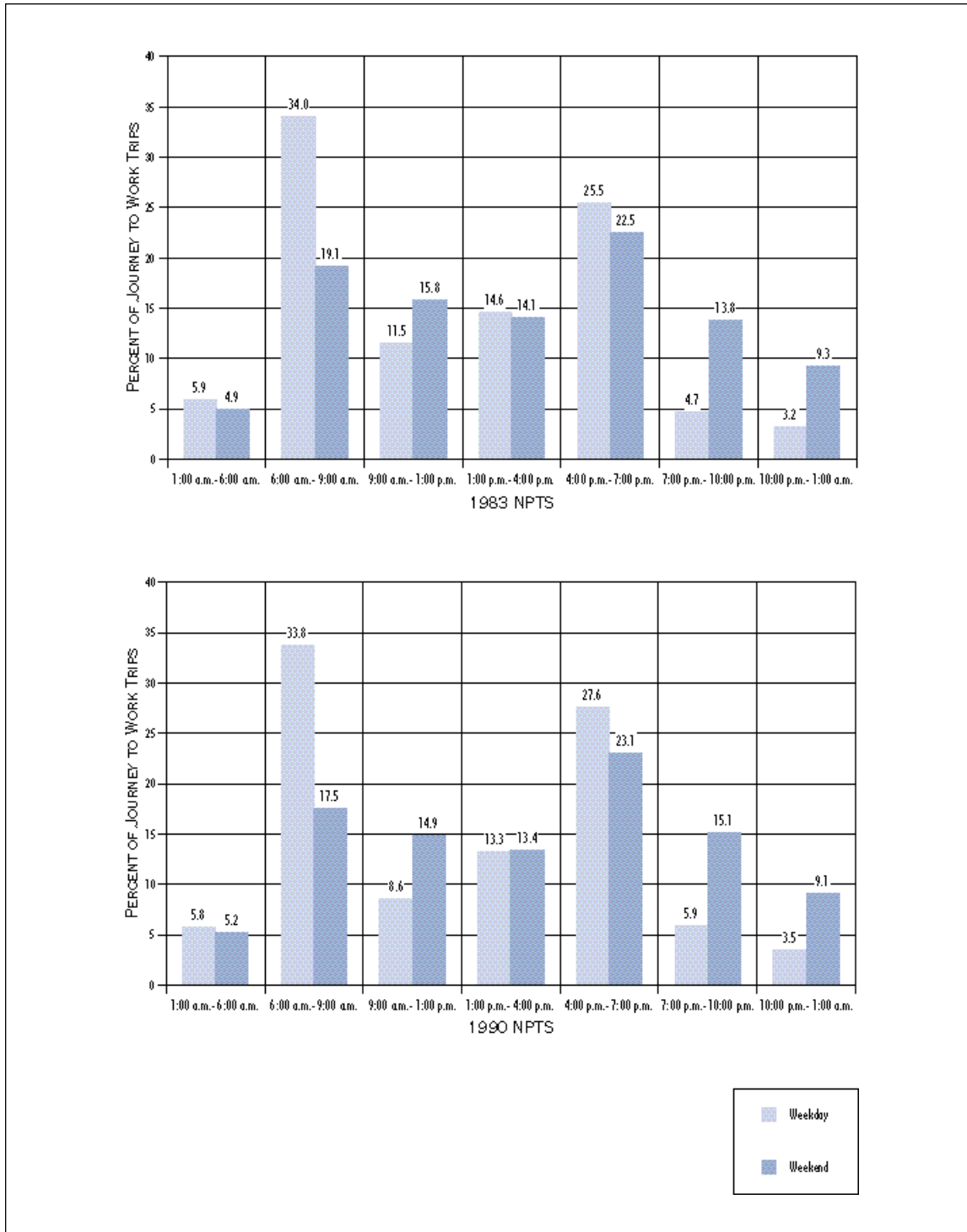


TABLE 6.37

**STATISTICS ON WORK-RELATED PERSON TRIPS BY MODE OF TRANSPORTATION  
1990 NPTS**

Note: See Limitations of Data on Transit<sup>1</sup> in Chapter 1, Section 5

	No. of Person Trips (000)	No. of Person Miles (000)	Average Trip Length <sup>2</sup> (miles)
<b>Private Vehicles</b>			
Auto, Van - Driver	2,325,639 (65.9%)	35,998,046 (37.0%)	15.8
Auto, Van - Passenger	306,574 (8.7%)	7,680,964 (7.9%)	25.6
Pickup	482,426 (13.7%)	6,122,242 (6.3%)	12.7
Other Private Vehicle	63,615 (1.8%)	1,383,741 (1.4%)	21.8
<b>Subtotal</b>	<b>3,178,254</b> (90.1%)	<b>51,184,993</b> (52.6%)	<b>16.4</b>
<b>Public Transportation</b>			
Bus, Streetcar	61,954 (1.8%)	343,578 (0.3%)	5.7
Rail/Subway <sup>3</sup>	29,935 (0.8%)	456,514 (0.5%)	15.7
<b>Subtotal</b>	<b>91,890</b> (2.6%)	<b>800,092</b> (0.8%)	<b>8.9</b>
<b>Other Means</b>			
Amtrak	1,682 (0.0%)	672,965 (0.7%)	400.0
Airplane	52,163 (1.5%)	43,534,058 (44.7%)	1074.2
Taxi	13,508 (0.4%)	60,934 (0.1%)	4.5
Bike	4,920 (0.1%)	3,151 (0.0%)	0.6
Walk	154,031 (4.4%)	92,237 (0.1%)	0.6
Other	22,732 (0.6%)	771,239 (0.8%)	44.1
<b>Subtotal</b>	<b>249,036</b> (7.1%)	<b>45,134,584</b> (46.3%)	<b>195.7</b>
<b>TOTAL<sup>4</sup></b>	<b>3,528,663</b> (100.0%)	<b>97,379,907</b> (100.0%)	<b>28.2</b>

<sup>1</sup> Estimates of "actual" transit use are based on 39 person trips for work-related travel by bus, subway, elevated rail or commuter train. Note that the NPTS estimate of transit trips for all purposes is 20% lower than the Federal Transit Administration's Section 15 reporting system.

<sup>2</sup> Average trip length is calculated using only those records with trip mile information present.

<sup>3</sup> Rail/Subway includes trips by subway, elevated rail and commuter train.

<sup>4</sup> Includes trips where mode of transportation was unreported.



TABLE 6.38

**STATISTICS ON WORK-RELATED VEHICLE TRIPS BY VEHICLE TYPE  
1990 NPTS  
(MILLIONS)**

Vehicle Type	Vehicle Trips	Vehicle Miles of Travel (VMT)
<b>Auto</b>	<b>2,088</b>	<b>33,204</b>
	(73.4%)	(78.4%)
<b>Passenger Van</b>	<b>211</b>	<b>2,576</b>
	(7.4%)	(6.1%)
<b>Cargo Van</b>	<b>27</b>	<b>218</b>
	(1.0%)	(0.5%)
<b>Pickup Truck</b>	<b>454</b>	<b>4,951</b>
	(15.9%)	(11.7%)
<b>Other Truck</b>	<b>57</b>	<b>1,375</b>
	(2.0%)	(3.3%)
<b>Motorcycle</b>	<b>4</b>	<b>8</b>
	(0.1%)	(0.0%)
<b>TOTAL<sup>1</sup></b>	<b>2,845</b>	<b>42,336</b>
	(100.0%)	(100.0%)

<sup>1</sup> Includes trips and miles of travel where vehicle type was unreported.

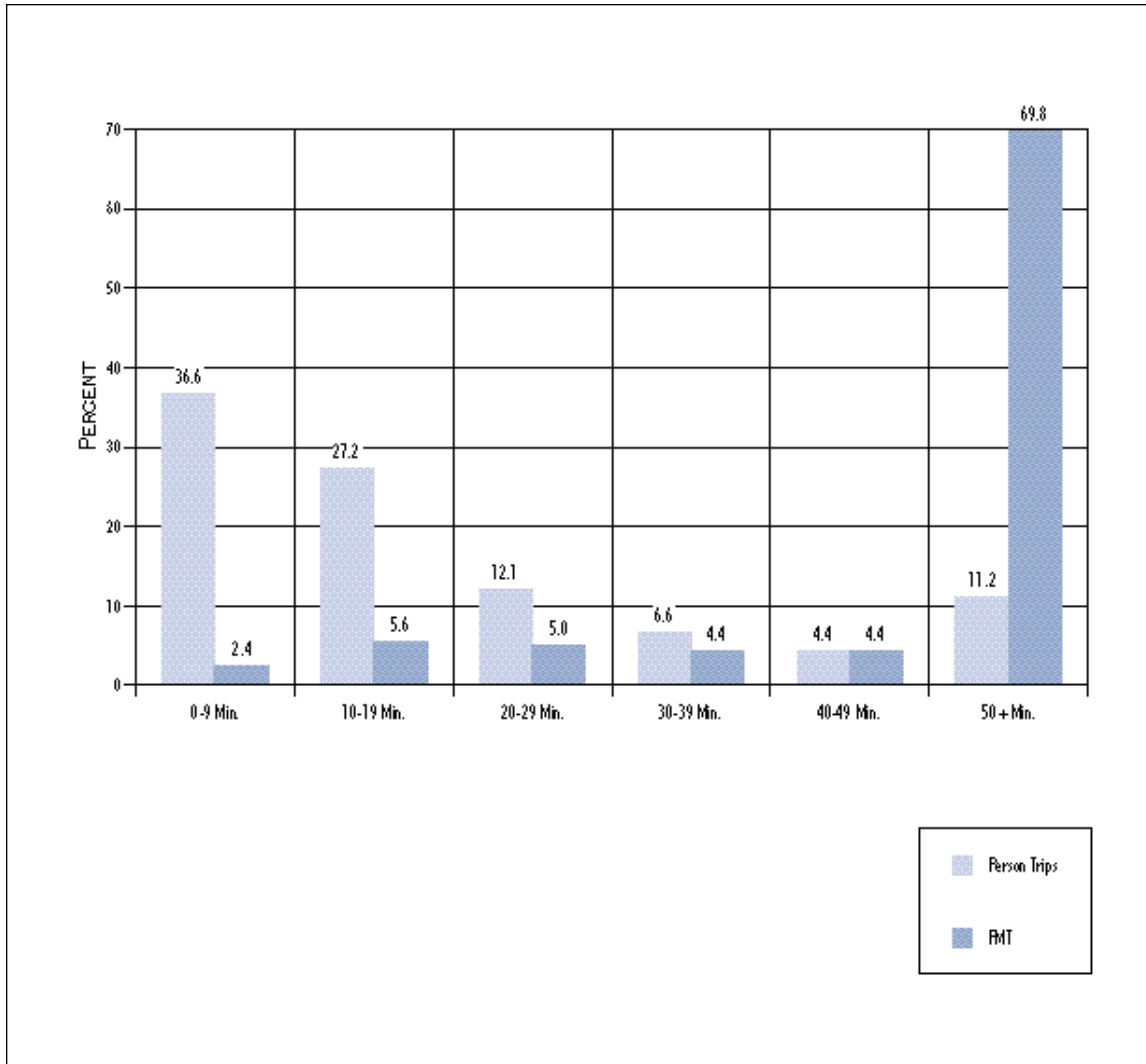
TABLE 6.39

**STATISTICS ON WORK-RELATED PERSON TRIPS BY TRAVEL TIME  
1990 NPTS**

	No. of Person Trips (000)	No. of Person Miles (000)	Average Trip Length <sup>1</sup> (miles)
0-9 min.	1,292,449 (36.6%)	2,323,477 (2.4%)	1.80
10-19 min.	959,586 (27.2%)	5,423,055 (5.6%)	5.70
20-29 min.	427,258 (12.1%)	4,909,415 (5.0%)	11.65
30-39 min.	232,330 (6.6%)	4,308,590 (4.4%)	19.21
40-49 min.	154,400 (4.4%)	4,302,402 (4.4%)	28.69
50+ min.	395,470 (11.2%)	68,017,296 (69.8%)	180.61
<b>TOTAL<sup>2</sup></b>	<b>3,528,663</b> (100.0%)	<b>97,379,907</b> (100.0%)	<b>28.20</b>
<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.		<sup>2</sup> Includes trips and miles of travel where travel time was unreported.	

FIGURE 6.19

DISTRIBUTION OF WORK-RELATED PERSON TRIPS AND MILES OF TRAVEL BY TRAVEL TIME  
1990 NPTS



Compared with journey to work trips, work-related trips were more than twice as long — 28.2 miles vs. 10.7 miles. This difference is largely due to the greater percentage of work-related trips that were 30 miles or longer.

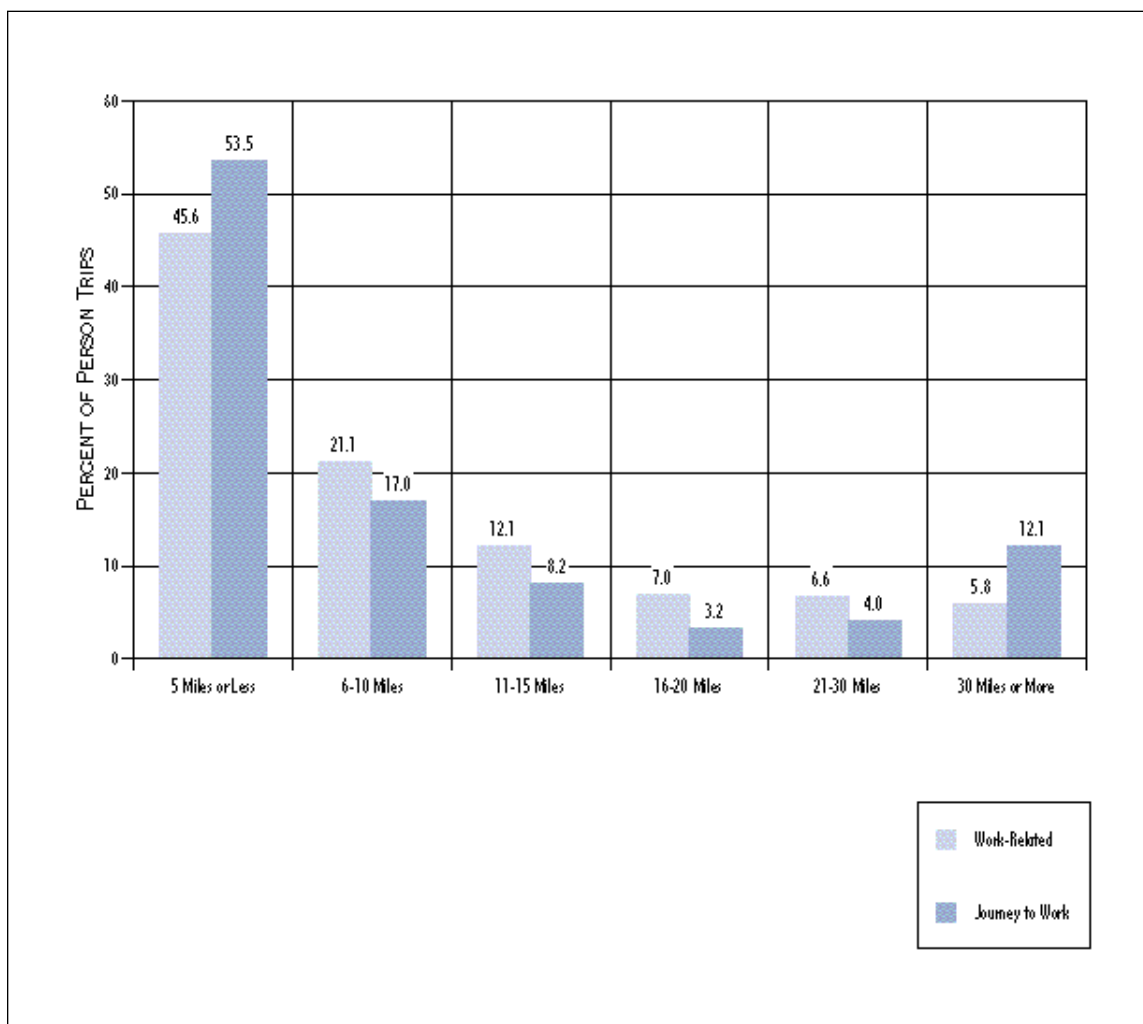
While 6% of journey to work trips were to places 30 miles or farther, the corresponding percentage was 12% for work-related trips. The average trip length for trips 30 miles or longer was 184 miles.

**TABLE 6.40**  
**STATISTICS ON WORK-RELATED PERSON TRIPS BY TRIP LENGTH**  
**1990 NPTS**

	No. of Person Trips (000)	No. of Person Miles (000)	Average Trip Length <sup>1</sup> (miles)
5 miles or less	1,886,222 (53.5%)	4,179,532 (4.3%)	2.22
6-10 miles	598,381 (17.0%)	4,839,744 (5.0%)	8.09
11-15 miles	288,326 (8.2%)	3,959,401 (4.1%)	13.73
16-20 miles	112,697 (3.2%)	2,114,630 (2.2%)	18.76
21-30 miles	140,306 (4.0%)	3,702,803 (3.8%)	26.39
31 or more miles	427,473 (12.1%)	78,583,798 (80.7%)	183.83
<b>TOTAL<sup>2</sup></b>	<b>3,528,663</b> (100.0%)	<b>97,379,907</b> (100.0%)	<b>28.20</b>
<sup>1</sup> Average trip length is calculated using only those records with trip mile information present.		<sup>2</sup> Includes trips and miles of travel where start time of the trip was unreported.	

FIGURE 6.20

COMPARISON OF JOURNEY TO WORK PERSON TRIPS AND WORK-RELATED PERSON TRIPS BY TRIP LENGTH  
1990 NPTS



JOURNEY TO WORK AND WORK-RELATED TRIPS FROM ALLERLEI TRIPS

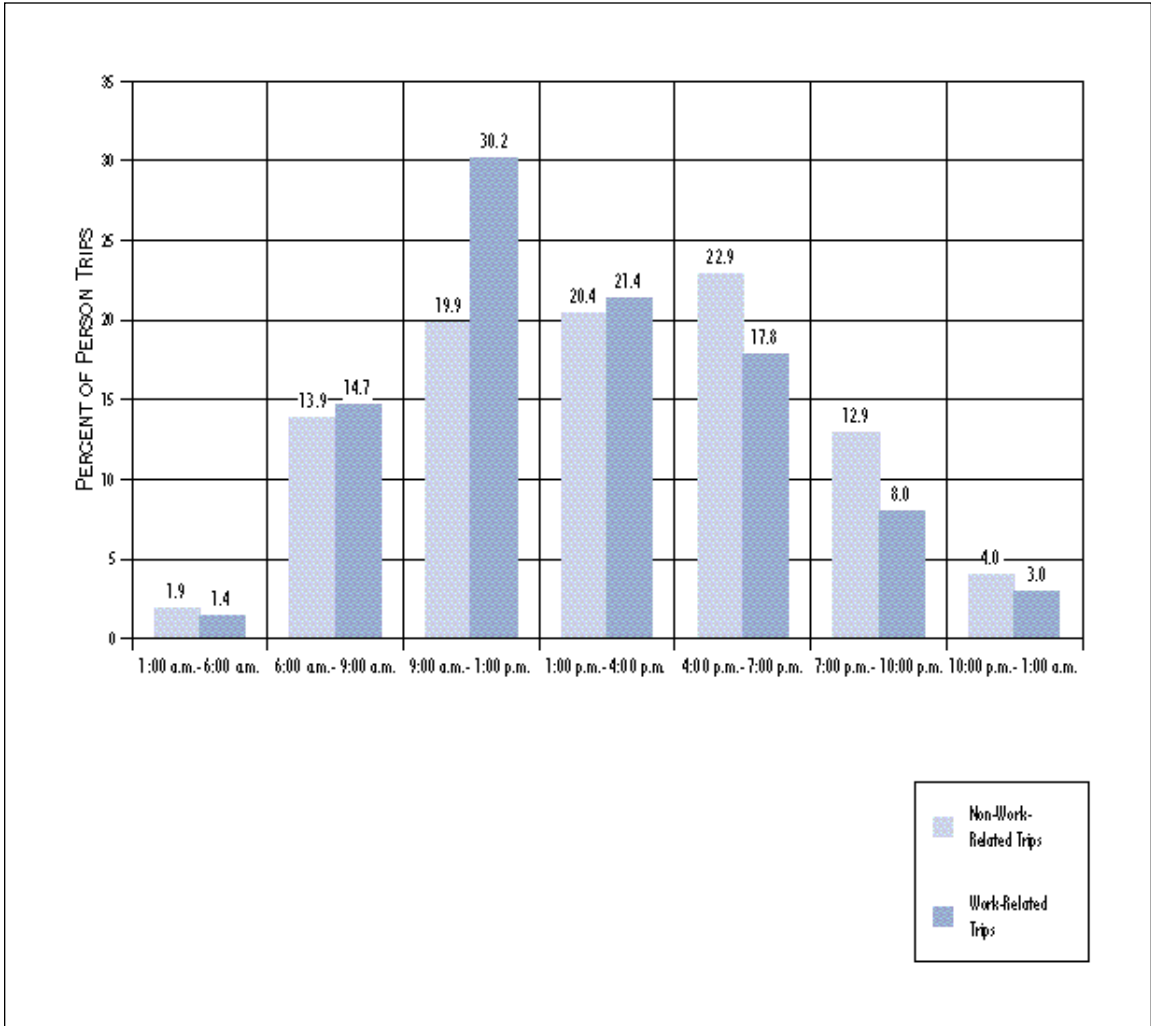
TABLE 6.41

**STATISTICS ON WORK-RELATED PERSON TRIPS BY TIME OF DAY  
1990 NPTS**

	No. of Person Trips (000)	No. of Person Miles (000)
1:00 a.m. to 6:00 a.m.	50,277 (1.4%)	1,166,391 (1.2%)
6:00 a.m. to 9:00 a.m.	519,164 (14.7%)	26,293,657 (27.0%)
9:00 a.m. to 1:00 p.m.	1,066,239 (30.2%)	22,708,524 (23.3%)
1:00 p.m. to 4:00 p.m.	755,252 (21.4%)	17,257,601 (17.7%)
4:00 p.m. to 7:00 p.m.	627,897 (17.8%)	16,687,470 (17.1%)
7:00 p.m. to 10:00 p.m.	283,030 (8.0%)	8,222,581 (8.4%)
10:00 p.m. to 1:00 a.m.	105,955 (3.0%)	1,411,024 (1.4%)
<b>TOTAL<sup>1</sup></b>	<b>3,528,663</b> (100.0%)	<b>97,379,907</b> (100.0%)
<sup>1</sup> Includes trips and miles of travel where start time of trip was unreported.		

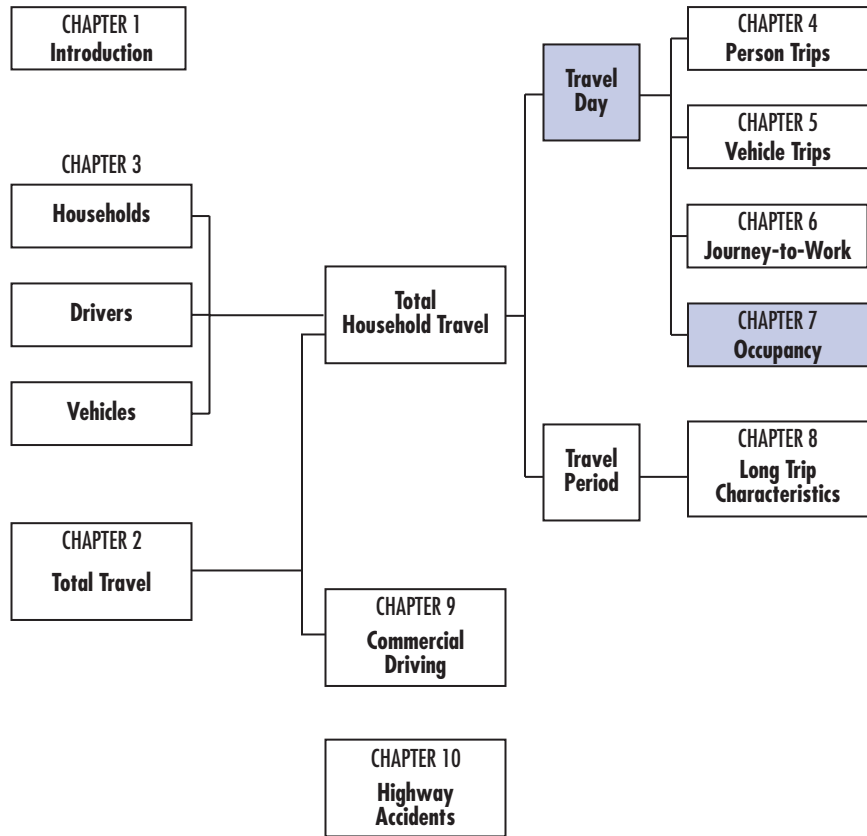
**FIGURE 6.21**

**DISTRIBUTION OF NON-WORK-RELATED PERSON TRIPS AND  
WORK-RELATED PERSON TRIPS BY TIME OF DAY  
1990 NPTS**









# Chapter 7

## Vehicle Occupancy and Ridesharing



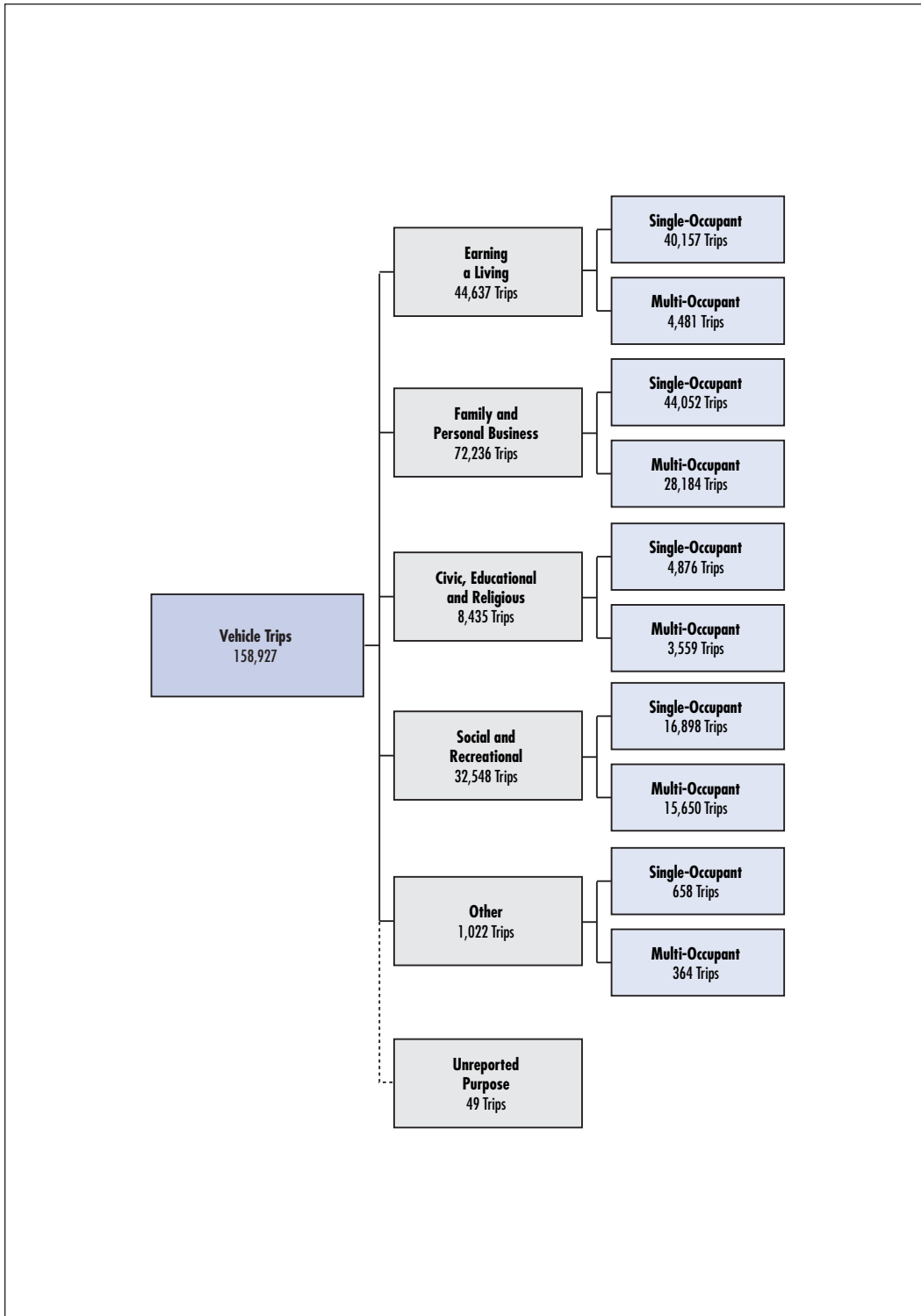
The number of single-occupant trips increased by 13% between 1977 and 1990, after accounting for the increase in total vehicle trips during the period.

Ridesharing was a function of:

- **Vehicle ownership.** There was more ridesharing in households with fewer vehicles.
- **Stage of life cycle.** There was more ridesharing in households with young children.
- **Trip purpose.** There was more ridesharing in social and recreational trips.
- **Trip length.** There was more ridesharing in longer trips.

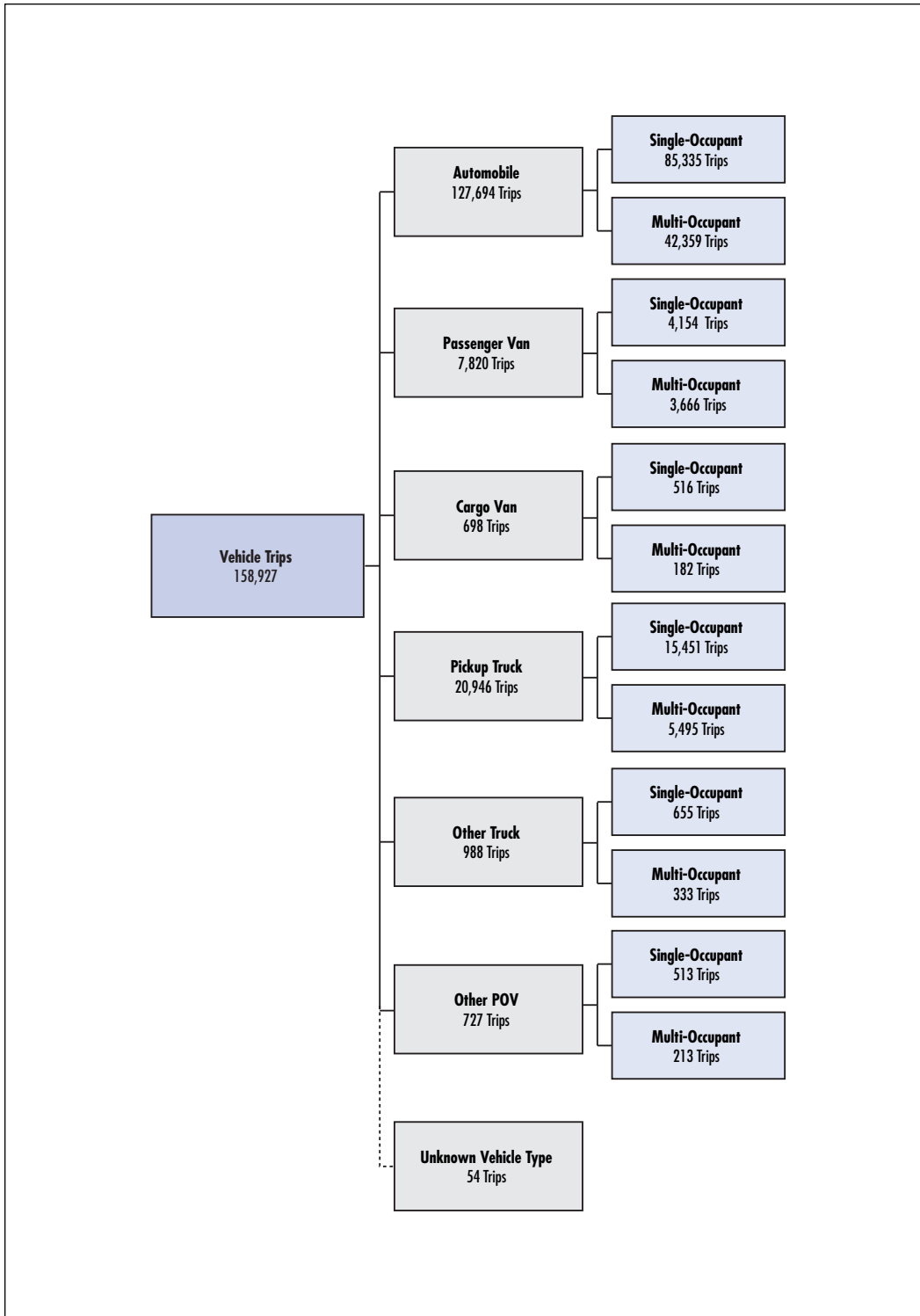
1990 VEHICLE TRIPS BY PURPOSE AND RIDESHARING STATUS

(MILLIONS)



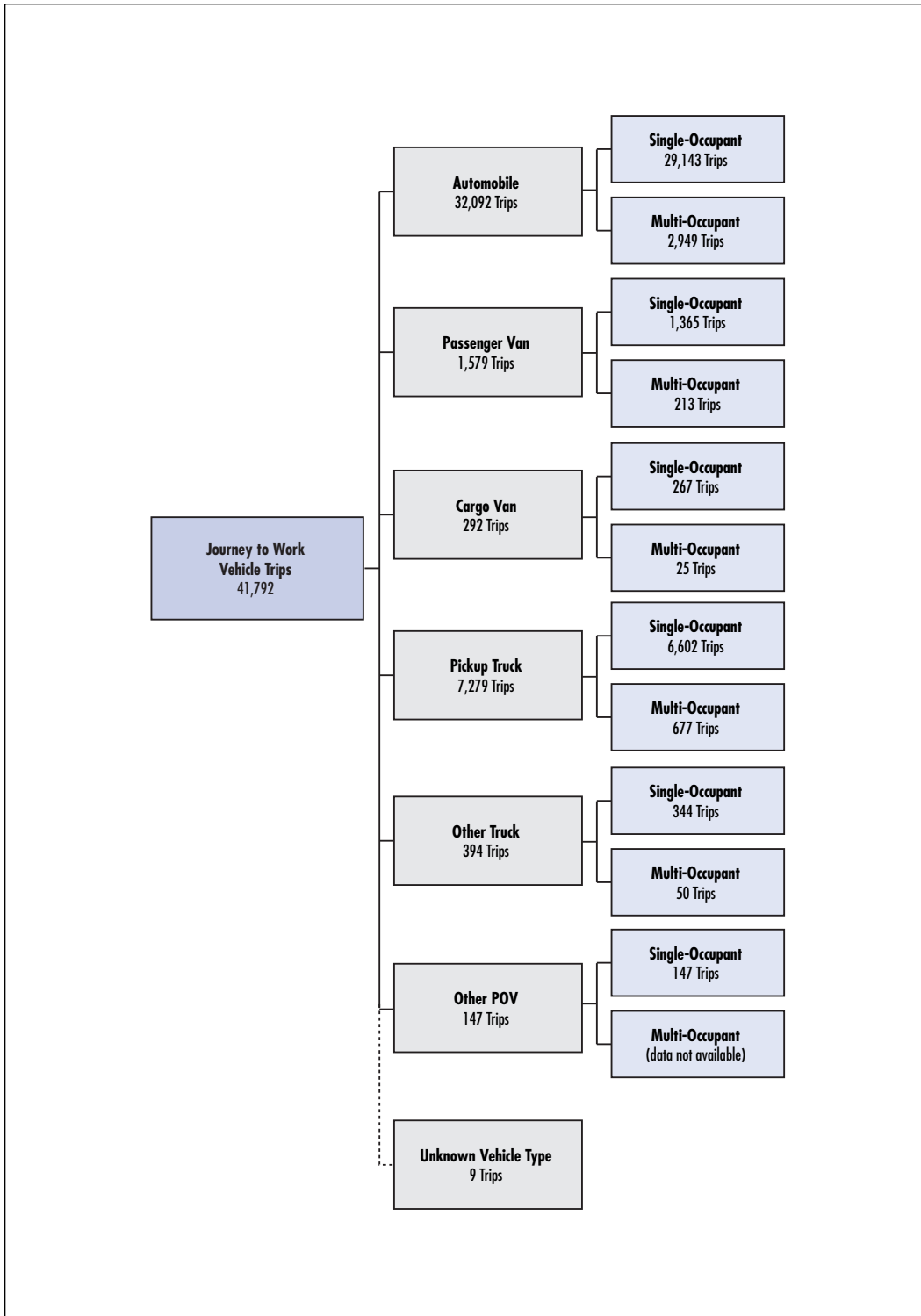
1990 VEHICLE TRIPS BY VEHICLE TYPE AND RIDESHARING STATUS

(MILLIONS)



1990 JOURNEY TO WORK VEHICLE TRIPS BY VEHICLE TYPE AND RIDESHARING STATUS

(MILLIONS)



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# Chapter 7 Vehicle Occupancy and Ridesharing

**T**HIS chapter presents trends in vehicle occupancy and ridesharing patterns. Vehicle occupancy is expressed in two different ways. One definition of vehicle occupancy is the average number of persons per vehicle trip. A second way of defining vehicle occupancy is the number of person miles of travel per vehicle mile of travel. The latter definition takes into account trip length and, therefore, may be a preferred measure for studying issues such as energy consumption and air quality. Throughout this chapter, the specific definition of vehicle occupancy being used is clearly stated on all tables.

The percentage of multi-occupant trips has declined since 1977. While 40.4 percent of the trips in 1977 were multi-occupant, this percentage was only 32.9 percent in 1990.

## Vehicle availability

For households that have at least one vehicle available per driver, the proportion of trips that were single-occupant was significantly greater than that for other households. This observation suggests that vehicle ownership affects the level of ridesharing.

## Household characteristics

Based on households that provided income information, there seems to be little evidence that sharing rides is related to household income alone. However, the likelihood of sharing rides to and from work is somewhat affected by household income. Households with income less than \$20,000 tended to share their rides to and from work more than households with higher income.

Having children in a household affects the prevalence of multi-occupant vehicle trips, particularly, if the children are very young (under 6 years old). As children grow older and more independent, the percentage of multi-occupant trips drop.

## Trip purpose

The likelihood of sharing rides differed depending on the trip purpose. Trips for social and recreational purposes were most likely to be multi-occupant, while trips for earning a living were least likely to be multi-occupant. Consequently, vehicle occupancy in journey to work and work-related trips was the lowest while vehicle occupancy in social and recreational trips was the highest.

	Single-Occupant Vehicle Trips (000)	Multi-Occupant Vehicle Trips (000)	TOTAL (000)
<b>1977</b>	<b>64,860,296</b>	<b>43,965,704</b>	<b>108,826,000</b>
	(59.6%)	(40.4%)	(100.0%)
<b>1983</b>	<b>83,356,218</b>	<b>43,517,782</b>	<b>126,874,000</b>
	(65.7%)	(34.3%)	(100.0%)
<b>1990</b>	<b>106,670,900</b>	<b>52,256,713</b>	<b>158,927,613</b>
	(67.1%)	(32.9%)	(100.0%)

Of all journey to work trips, 70 percent were single-occupant in automobiles, 16 percent were single-occupant in pickup trucks and 4 percent were single-occupant in other vehicle types. Only 10 percent of journey to work vehicle trips were multi-occupant, and more than half of those were by automobile. Sharing rides to and from work was more common as trip distance increased.

### Type of vehicle

Trips by passenger vans and recreational vehicles had the highest vehicle occupancy rate. This pattern reflects the occupant-carrying capacity of different types of vehicles. Vehicle occupancy rate increased with household size for almost all types of privately owned vehicles, except for the motorcycle and moped categories.

### Trip length

Trip length also affects the proportion of vehicle trips that were rideshared. About 66 to 67 percent of vehicle trips that were less than 30 miles long were single-occupant. However, this percentage decreased to 58 percent for trips 30 miles or longer.

There was a significantly larger percentage of single-occupant vehicle trips by households that have at least one vehicle available per driver than by households in which there are

more drivers than vehicles. This pattern suggests that vehicle ownership greatly affects the level of ridesharing.

**TABLE 7.1**  
**NUMBER OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND NUMBER OF HOUSEHOLD VEHICLES**  
**VS. NUMBER OF DRIVERS**  
**1990 NPTS**  
**(THOUSANDS)**

Household Vehicles vs. Drivers	Number of Persons on Trip						TOTAL
	1	2	3	4	5-10	11 or More	
More drivers than vehicles	12,307,402 (60.5%)	5,501,422 (27.1%)	1,478,482 (7.3%)	666,607 (3.3%)	382,182 (1.9%)	**	<b>20,336,096</b> (100.0%)
Vehicles equal to drivers	63,943,246 (67.7%)	19,857,891 (21.0%)	6,114,586 (6.5%)	2,884,608 (3.1%)	1,593,109 (1.7%)	26,702 (0.0%)	<b>94,420,143</b> (100.0%)
More vehicles than drivers	30,420,148 (68.9%)	9,044,374 (20.5%)	2,684,714 (6.1%)	1,364,796 (3.1%)	652,402 (1.5%)	4,795 (0.0%)	<b>44,171,228</b> (100.0%)
<b>TOTAL</b>	<b>106,670,797</b> (67.1%)	<b>34,403,687</b> (21.6%)	<b>10,277,782</b> (6.5%)	<b>4,916,011</b> (3.1%)	<b>2,627,693</b> (1.7%)	<b>31,497</b> (0.0%)	<b>158,927,467</b> (100.0%)

\*\* Indicates data not reported.

**FIGURE 7.1**

**DISTRIBUTION OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS,  
NUMBER OF HOUSEHOLD VEHICLES AND NUMBER OF DRIVERS  
1990 NPTS**

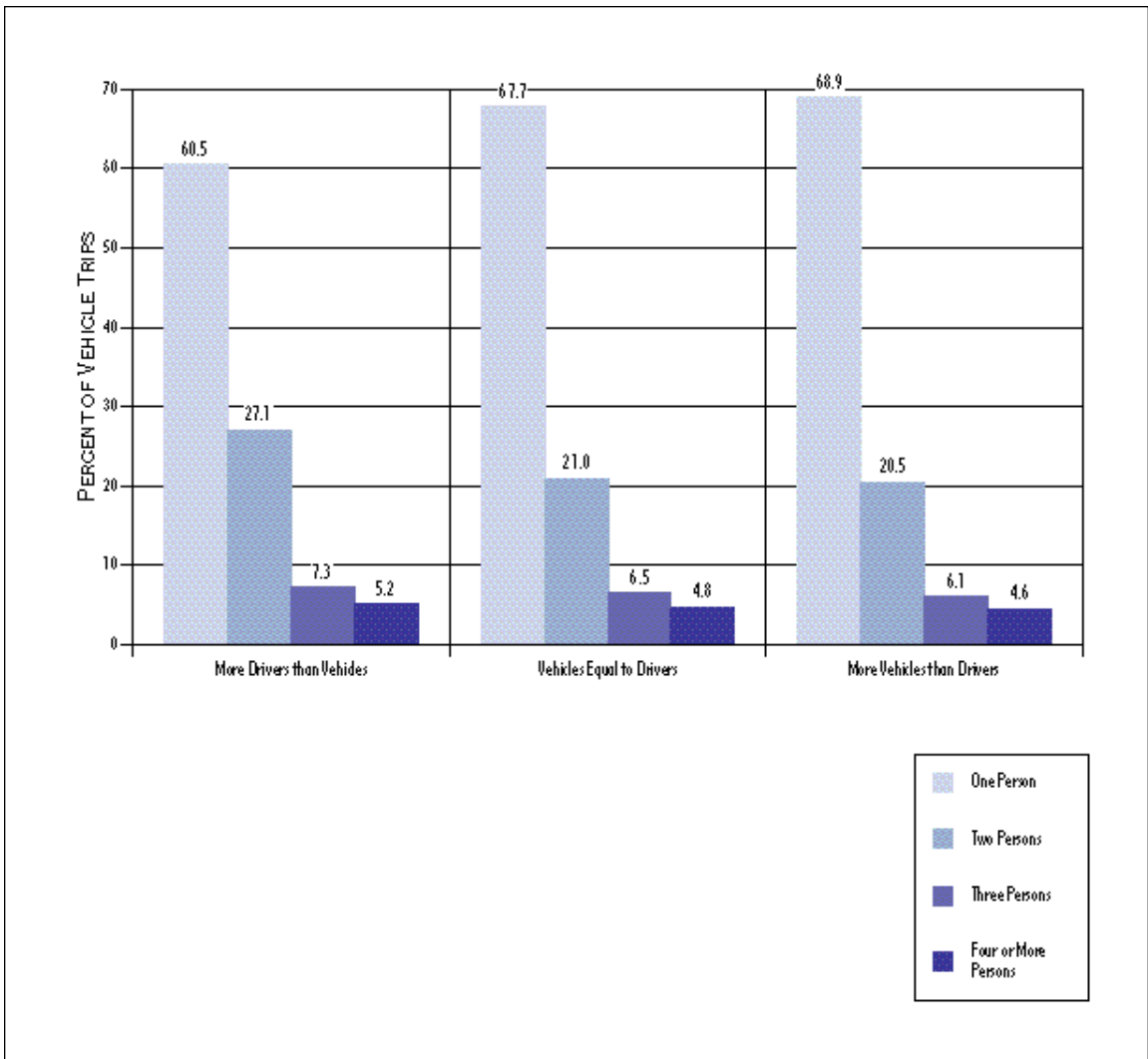




FIGURE 7.2

AVERAGE VEHICLE OCCUPANCY BY VEHICLE TYPE  
1990 NPTS

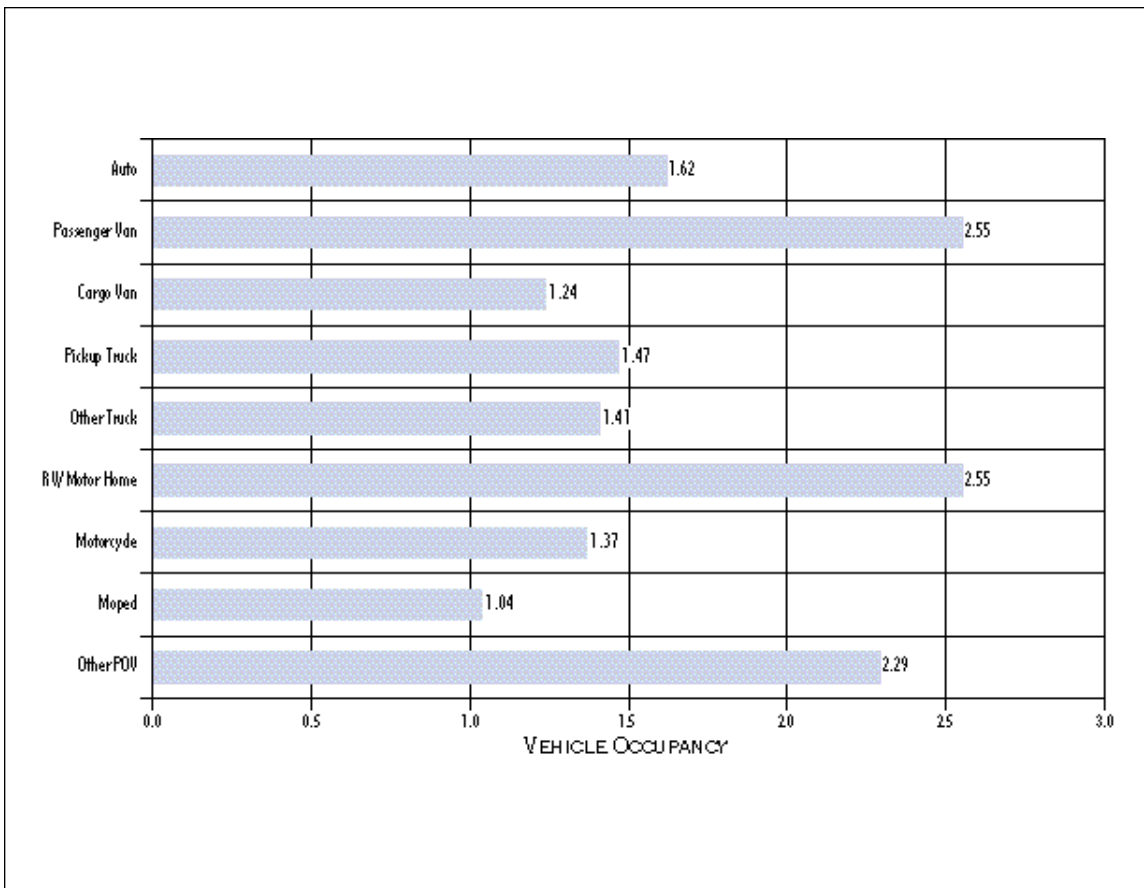


TABLE 7.3

**NUMBER OF VEHICLE TRIPS BY CENSUS DIVISION<sup>1</sup> AND RIDESHARING STATUS  
1990 NPTS  
(THOUSANDS)**

	Single-Occupant Trips	Multi-Occupant Trips	TOTAL
New England	5,757,432 (68.1%)	2,695,473 (31.9%)	<b>8,452,905</b> (100.0%)
Middle Atlantic	14,047,533 (68.3%)	6,517,040 (31.7%)	<b>20,564,573</b> (100.0%)
<b>Subtotal - Northeast</b>	<b>19,804,965</b> (68.3%)	<b>9,212,513</b> (31.7%)	<b>29,017,478</b> (100.0%)
East North Central	18,805,067 (67.3%)	9,154,376 (32.7%)	<b>27,959,443</b> (100.0%)
West North Central	8,087,290 (65.7%)	4,229,592 (34.3%)	<b>12,316,882</b> (100.0%)
<b>Subtotal - North Central</b>	<b>26,892,357</b> (66.8%)	<b>13,383,968</b> (33.2%)	<b>40,276,325</b> (100.0%)
South Atlantic	19,183,748 (68.2%)	8,942,013 (31.8%)	<b>28,125,761</b> (100.0%)
East South Central	6,550,672 (65.0%)	3,520,571 (35.0%)	<b>10,071,243</b> (100.0%)
West South Central	12,083,674 (67.3%)	5,858,298 (32.7%)	<b>17,941,972</b> (100.0%)
<b>Subtotal - South</b>	<b>37,818,094</b> (67.4%)	<b>18,320,882</b> (32.6%)	<b>56,138,976</b> (100.0%)
Mountain	6,155,061 (63.7%)	3,510,949 (36.3%)	<b>9,666,009</b> (100.0%)
Pacific	16,000,319 (67.1%)	7,828,359 (32.9%)	<b>23,828,678</b> (100.0%)
<b>Subtotal - West</b>	<b>22,155,380</b> (66.1%)	<b>11,339,308</b> (33.9%)	<b>33,494,687</b> (100.0%)
<b>TOTAL</b>	<b>106,670,797</b> (67.1%)	<b>52,256,670</b> (32.9%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> See glossary for a listing of states in each Census Division.



On average, two-thirds of vehicles trips were single-occupant. This average did not vary significantly by Census Division.

FIGURE 7.3

DISTRIBUTION OF VEHICLE TRIPS BY CENSUS DIVISION AND RIDESHARING STATUS  
1990 NPTS

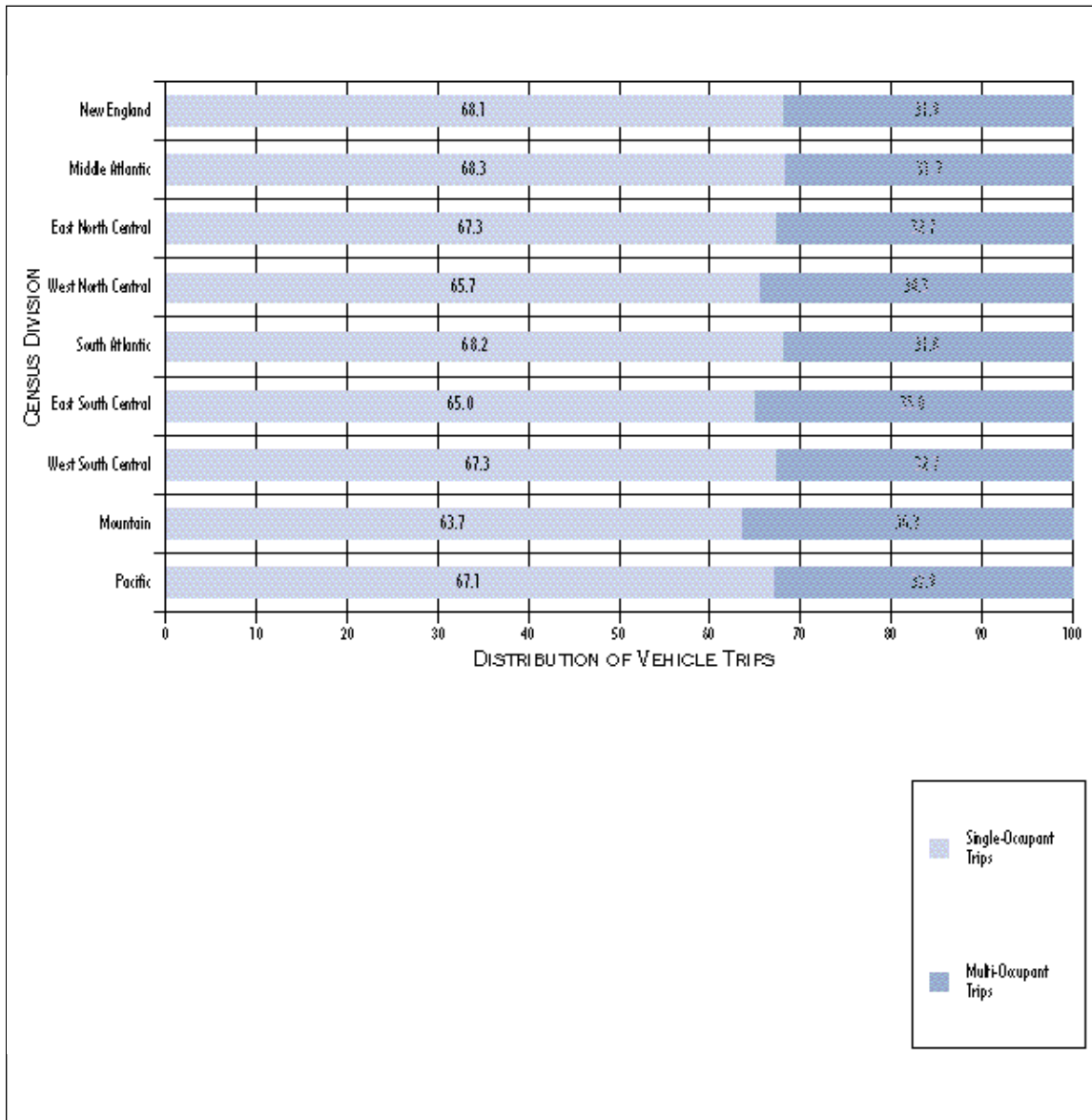


TABLE 7.4

**AVERAGE VEHICLE OCCUPANCY FOR JOURNEY TO WORK TRIPS BY CENSUS REGION AND MSA SIZE  
(PERSON MILES PER VEHICLE MILE)  
1990 NPTS**

MSA Size	Northeast	North Central	South	West	ALL
< 250,000	1.12	1.14	1.18	1.19	<b>1.16</b>
250,000-499,999	1.16	1.05	1.12	1.14	<b>1.11</b>
500,000-999,999	1.18	1.15	1.11	1.11	<b>1.12</b>
1,000,000-2,999,999	1.11	1.08	1.11	1.14	<b>1.11</b>
3,000,000 or more	1.13	1.08	1.11	1.16	<b>1.13</b>
Not in MSA	1.11	1.09	1.25	1.30	<b>1.19</b>
<b>ALL</b>	<b>1.13</b>	<b>1.09</b>	<b>1.16</b>	<b>1.18</b>	<b>1.14</b>

TABLE 7.5

**NUMBER OF VEHICLE TRIPS BY MSA SIZE, PLACE OF RESIDENCE AND RIDESHARING STATUS  
1990 NPTS  
(THOUSANDS)**

MSA Size	Single-Occupant	Multi-Occupant	TOTAL
<b>Less than 250,000</b>			
Central City	6,064,986 (55.4%)	3,002,026 (54.5%)	9,067,012 (55.1%)
Non-Central City	4,875,120 (44.6%)	2,510,342 (45.5%)	7,385,462 (44.9%)
<b>TOTAL</b>	<b>10,940,107</b> (100.0%)	<b>5,512,368</b> (100.0%)	<b>16,452,474</b> (100.0%)
<b>250,000-499,999</b>			
Central City	4,623,552 (48.1%)	2,240,255 (46.3%)	6,863,807 (47.5%)
Non-Central City	4,979,162 (51.9%)	2,603,485 (53.7%)	7,582,647 (52.5%)
<b>TOTAL</b>	<b>9,602,714</b> (100.0%)	<b>4,843,740</b> (100.0%)	<b>14,446,454</b> (100.0%)
<b>500,000-999,999</b>			
Central City	4,825,446 (47.2%)	2,383,758 (45.7%)	7,209,205 (46.7%)
Non-Central City	5,403,282 (52.8%)	2,833,949 (54.3%)	8,237,231 (53.3%)
<b>TOTAL</b>	<b>10,228,728</b> (100.0%)	<b>5,217,707</b> (100.0%)	<b>15,446,435</b> (100.0%)
<b>1,000,000-2,999,999</b>			
Central City	9,889,800 (45.4%)	4,869,971 (45.6%)	14,759,771 (45.5%)
Non-Central City	11,904,546 (54.6%)	5,799,374 (54.4%)	17,703,919 (54.5%)
<b>TOTAL</b>	<b>21,794,346</b> (100.0%)	<b>10,669,344</b> (100.0%)	<b>32,463,690</b> (100.0%)
<b>3,000,000 or more</b>			
Central City	10,521,347 (34.6%)	4,632,584 (33.4%)	15,153,931 (34.3%)
Non-Central City	19,845,514 (65.4%)	9,218,594 (66.6%)	29,064,109 (65.7%)
<b>TOTAL</b>	<b>30,366,861</b> (100.0%)	<b>13,851,178</b> (100.0%)	<b>44,218,039</b> (100.0%)

There was no large difference in ridesharing among small to medium size MSA's (with population less than three million). However, in MSA's with population more than three million, the proportion of vehicle trips that

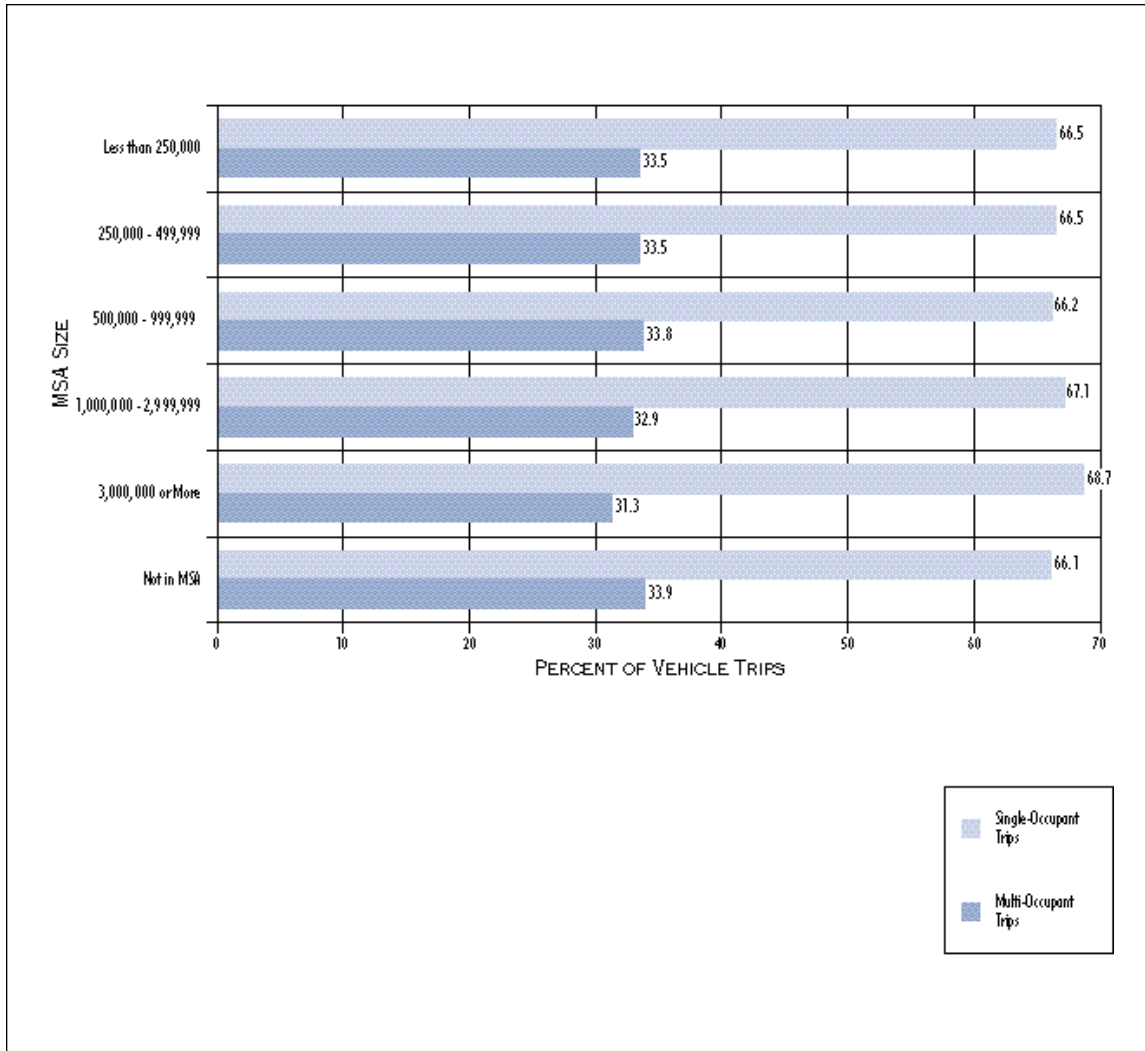
were multi-occupant decreased. People residing outside the central city tended to share rides slightly more than those residing inside the central city.

**TABLE 7.6**  
**DISTRIBUTION OF VEHICLE TRIPS BY MSA SIZE, PLACE OF RESIDENCE AND RIDESHARING STATUS**  
**1990 NPTS**  
**(WITHIN MSA SIZE)**

MSA Size	Single-Occupant	Multi-Occupant	TOTAL
<b>Less than 250,000</b>			
Central City	66.9	33.1	100.0
Non-Central City	66.0	34.0	100.0
<b>TOTAL</b>	66.5	33.5	100.0
<b>250,000-499,999</b>			
Central City	67.4	32.6	100.0
Non-Central City	65.7	34.3	100.0
<b>TOTAL</b>	66.5	33.5	100.0
<b>500,000-999,999</b>			
Central City	66.9	33.1	100.0
Non-Central City	65.6	34.4	100.0
<b>TOTAL</b>	66.2	33.8	100.0
<b>1,000,000-2,999,999</b>			
Central City	67.0	33.0	100.0
Non-Central City	67.3	32.8	100.0
<b>TOTAL</b>	67.1	32.9	100.0
<b>3,000,000 or more</b>			
Central City	69.4	30.6	100.0
Non-Central City	68.3	31.7	100.0
<b>TOTAL</b>	68.7	31.3	100.0

FIGURE 7.4

DISTRIBUTION OF VEHICLE TRIPS BY MSA SIZE AND RIDESHARING STATUS  
1990 NPTS



Vehicle occupancy rates vary with the purpose of travel. Travel to work and work related travel combined has the lowest rate of

occupancy of all personal travel, particularly for trips taken by people who live inside the central city.

TABLE 7.7

**AVERAGE VEHICLE OCCUPANCY BY PLACE OF RESIDENCE AND TRIP PURPOSE  
(PERSON MILES PER VEHICLE MILE)  
1990 NPTS**

	In MSA, in Central City		In MSA, not in Central City		Not in MSA		ALL	
	Avg. Occupancy	% of VMT	Avg. Occupancy	% of VMT	Avg. Occupancy	% of VMT	Avg. Occupancy	% of VMT
Earning a Living	1.13	33.7	1.16	37.4	1.22	32.5	<b>1.16</b>	35.1
Family & Personal Business	1.80	32.1	1.75	32.1	1.82	34.8	<b>1.78</b>	32.8
Civic, Educational, & Religious	1.58	4.4	1.72	4.1	1.67	5.0	<b>1.67</b>	4.4
Social & Recreational	1.98	28.4	2.09	25.8	2.17	27.1	<b>2.08</b>	26.9
Other	1.41	1.3	1.47	0.6	1.74	0.5	<b>1.49</b>	0.8
<b>ALL</b>	<b>1.61</b>	100.0	<b>1.62</b>	100.0	<b>1.71</b>	100.0	<b>1.64</b>	100.0

**FIGURE 7.5**

**AVERAGE VEHICLE OCCUPANCY BY PLACE OF RESIDENCE AND TRIP PURPOSE  
(PERSON MILES PER VEHICLE MILE)  
1990 NPTS**

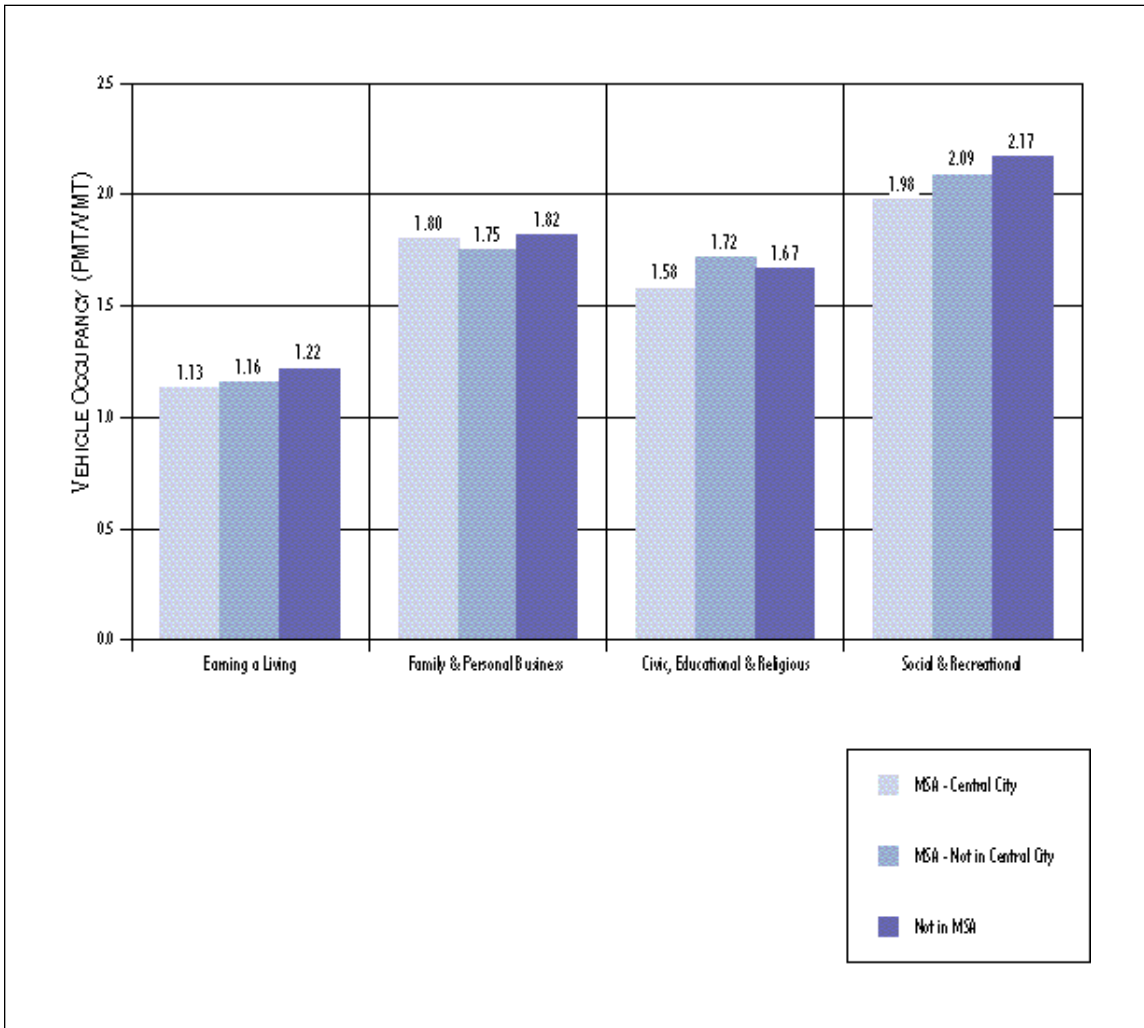


TABLE 7.8

**NUMBER OF VEHICLE TRIPS BY POPULATION DENSITY, PLACE OF RESIDENCE AND RIDESHARING STATUS  
1990 NPTS  
(THOUSANDS)**

Population Density <sup>1</sup>	Single-Occupant Trips	Multi-Occupant Trips	TOTAL
<b>In MSA, Within Central City</b>			
Less than 2,000	15,016,667 (41.8%)	7,288,361 (42.6%)	22,305,029 (42.0%)
2,000-3,999	7,990,562 (22.2%)	3,927,706 (22.9%)	11,918,267 (22.5%)
4,000-7,499	7,755,256 (21.6%)	3,498,570 (20.4%)	11,253,826 (21.2%)
7,500 or More	5,162,647 (14.4%)	2,413,957 (14.1%)	7,576,604 (14.3%)
<b>TOTAL</b>	<b>35,925,132</b> (100.0%)	<b>17,128,594</b> (100.0%)	<b>53,053,726</b> (100.0%)
<b>In MSA, Not in Central City</b>			
Less than 2,000	30,505,815 (64.9%)	15,140,571 (65.9%)	45,646,386 (65.2%)
2,000-3,999	8,473,917 (18.0%)	4,033,695 (17.6%)	12,507,613 (17.9%)
4,000-7,499	5,806,828 (12.4%)	2,778,799 (12.1%)	8,585,627 (12.3%)
7,500 or More	2,221,064 (4.7%)	1,012,678 (4.4%)	3,233,743 (4.6%)
<b>TOTAL</b>	<b>47,007,624</b> (100.0%)	<b>22,965,744</b> (100.0%)	<b>69,973,368</b> (100.0%)
<b>Not in MSA</b>			
Less than 2,000	23,329,034 (98.3%)	11,902,970 (97.9%)	35,232,003 (98.1%)
2,000-3,999	234,857 (1.0%)	128,585 (1.1%)	363,442 (1.0%)
4,000-7,499	83,571 (0.4%)	62,032 (0.5%)	145,603 (0.4%)
7,500 or More	90,579 (0.4%)	68,746 (0.6%)	159,325 (0.4%)
<b>TOTAL</b>	<b>23,738,041</b> (100.0%)	<b>12,162,333</b> (100.0%)	<b>35,900,373</b> (100.0%)

<sup>1</sup> Population Density is calculated as persons per square mile for the zip code in which the household is located.



There seems to be little correlation between the likelihood of ridesharing and household income alone.

TABLE 7.9

NUMBER OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND HOUSEHOLD INCOME  
1990 NPTS  
(THOUSANDS)

Income	Number of Persons on Trip						TOTAL
	1	2	3	4	5-10	11 or More	
Under \$10,000	5,129,160 (66.0%)	1,624,274 (20.9%)	605,084 (7.8%)	295,147 (3.8%)	98,320 (1.3%)	16,416 (0.2%)	<b>7,768,401</b> (100.0%)
\$10,000 - \$19,999	11,546,347 (65.8%)	4,087,113 (23.3%)	1,127,235 (6.4%)	528,080 (3.0%)	259,430 (1.5%)	4,277 (0.0%)	<b>17,552,482</b> (100.0%)
\$20,000 - \$29,999	14,505,479 (65.9%)	5,030,125 (22.9%)	1,445,173 (6.6%)	618,049 (2.8%)	401,379 (1.8%)	1,982 (0.0%)	<b>22,002,187</b> (100.0%)
\$30,000 - \$39,999	15,689,180 (67.0%)	4,870,579 (20.8%)	1,601,044 (6.8%)	801,627 (3.4%)	445,420 (1.9%)	2,310 (0.0%)	<b>23,410,160</b> (100.0%)
\$40,000 and over	35,932,754 (66.5%)	11,878,304 (22.0%)	3,525,902 (6.5%)	1,749,016 (3.2%)	930,694 (1.7%)	6,512 (0.0%)	<b>54,023,181</b> (100.0%)
Unreported	23,867,877 (69.8%)	6,913,292 (20.2%)	1,973,344 (5.8%)	924,093 (2.7%)	492,450 (1.4%)	**	<b>34,171,056</b> (100.0%)
<b>TOTAL</b>	<b>106,670,797</b> (67.1%)	<b>34,403,687</b> (21.6%)	<b>10,277,782</b> (6.5%)	<b>4,916,011</b> (3.1%)	<b>2,627,693</b> (1.7%)	<b>31,497</b> (0.0%)	<b>158,927,467</b> (100.0%)

\*\* Indicates data not reported.

HOUSEHOLD CHARACTERISTICS

While there was little evidence supporting the relationship between household income and the likelihood of ridesharing in general, a pattern did emerge. Households with annual income less than \$20,000 shared their rides

to and from work more than those with higher income. Among higher income households, there was very little difference in the percentage of journey to work vehicle trips that were single-occupant.

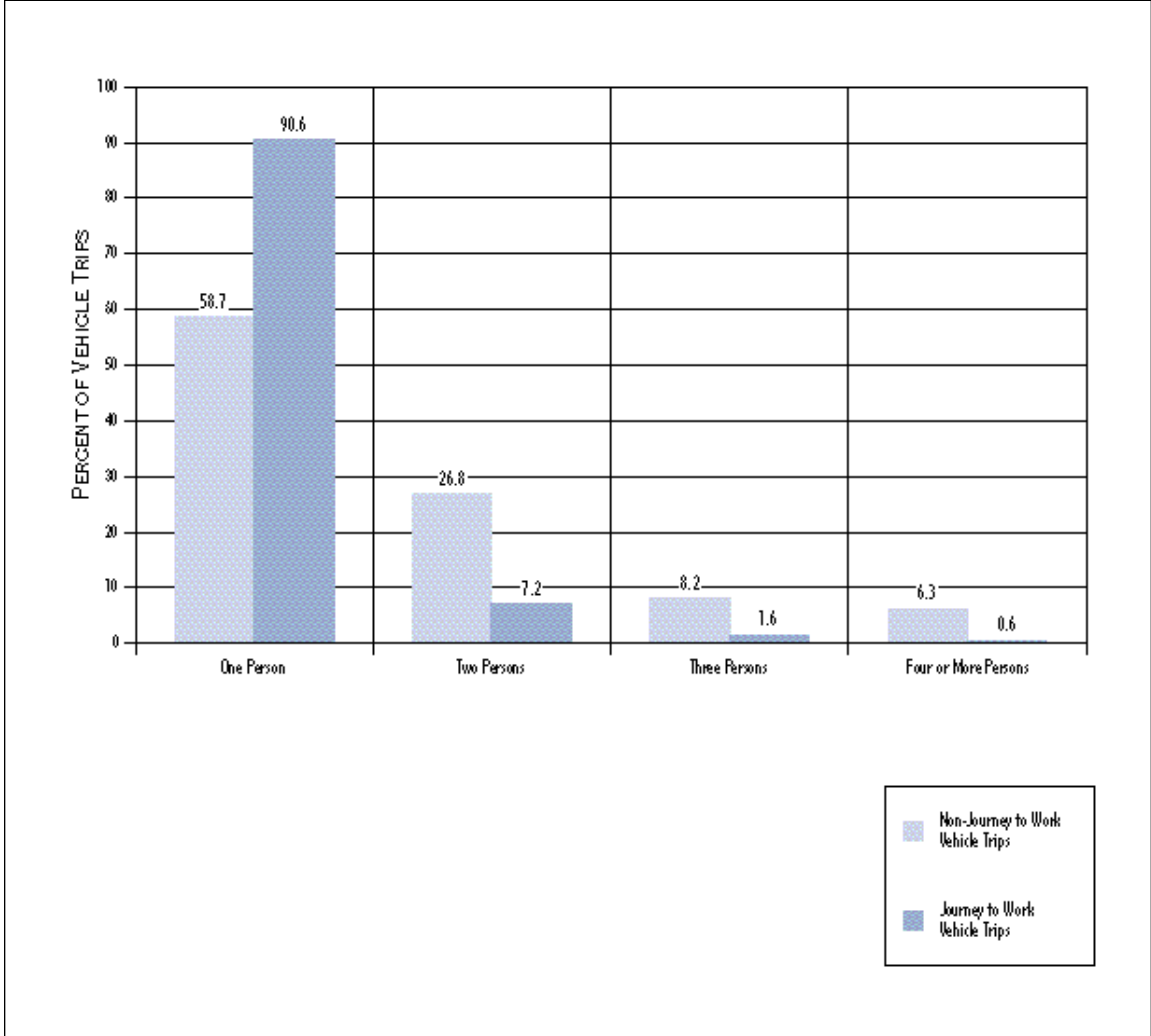
TABLE 7.10

NUMBER OF JOURNEY TO WORK VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND HOUSEHOLD INCOME  
1990 NPTS  
(THOUSANDS)

Income	Number of Persons on the Trip				TOTAL
	1	2	3	4 or More	
Under \$10,000	1,104,359 (86.7%)	122,962 (9.7%)	35,030 (2.8%)	10,739 (0.8%)	<b>1,273,090</b> (100.0%)
\$10,000 - \$19,999	3,616,610 (86.7%)	409,656 (9.8%)	100,875 (2.4%)	46,014 (1.1%)	<b>4,173,155</b> (100.0%)
\$20,000 - \$29,999	5,120,417 (91.5%)	369,802 (6.6%)	91,498 (1.6%)	16,526 (0.3%)	<b>5,598,244</b> (100.0%)
\$30,000 - \$39,999	5,810,781 (91.2%)	441,760 (6.9%)	80,984 (1.3%)	38,350 (0.6%)	<b>6,371,875</b> (100.0%)
\$40,000 and over	13,670,007 (90.9%)	1,014,540 (6.7%)	251,980 (1.7%)	95,731 (0.6%)	<b>15,032,258</b> (100.0%)
Unreported	8,554,516 (91.6%)	633,996 (6.8%)	110,925 (1.2%)	44,074 (0.5%)	<b>9,343,511</b> (100.0%)
<b>TOTAL</b>	<b>37,876,690</b> (90.6%)	<b>2,992,716</b> (7.2%)	<b>671,291</b> (1.6%)	<b>251,435</b> (0.6%)	<b>41,792,133</b> (100.0%)

FIGURE 7.6

DISTRIBUTION OF JOURNEY TO WORK VEHICLE TRIPS VS. OTHER VEHICLE TRIPS BY NUMBER OF PERSONS ON THE TRIP 1990 NPTS



Vehicle occupancy of journey to work trips has declined since 1983 across all income groups. However, trips taken by lower income

households have a slightly higher occupancy rate than those of higher income households.

TABLE 7.11

**AVERAGE JOURNEY TO WORK VEHICLE OCCUPANCY BY HOUSEHOLD INCOME  
(PERSON MILES PER VEHICLE MILE)  
1977, 1983, AND 1990 NPTS<sup>1</sup>**

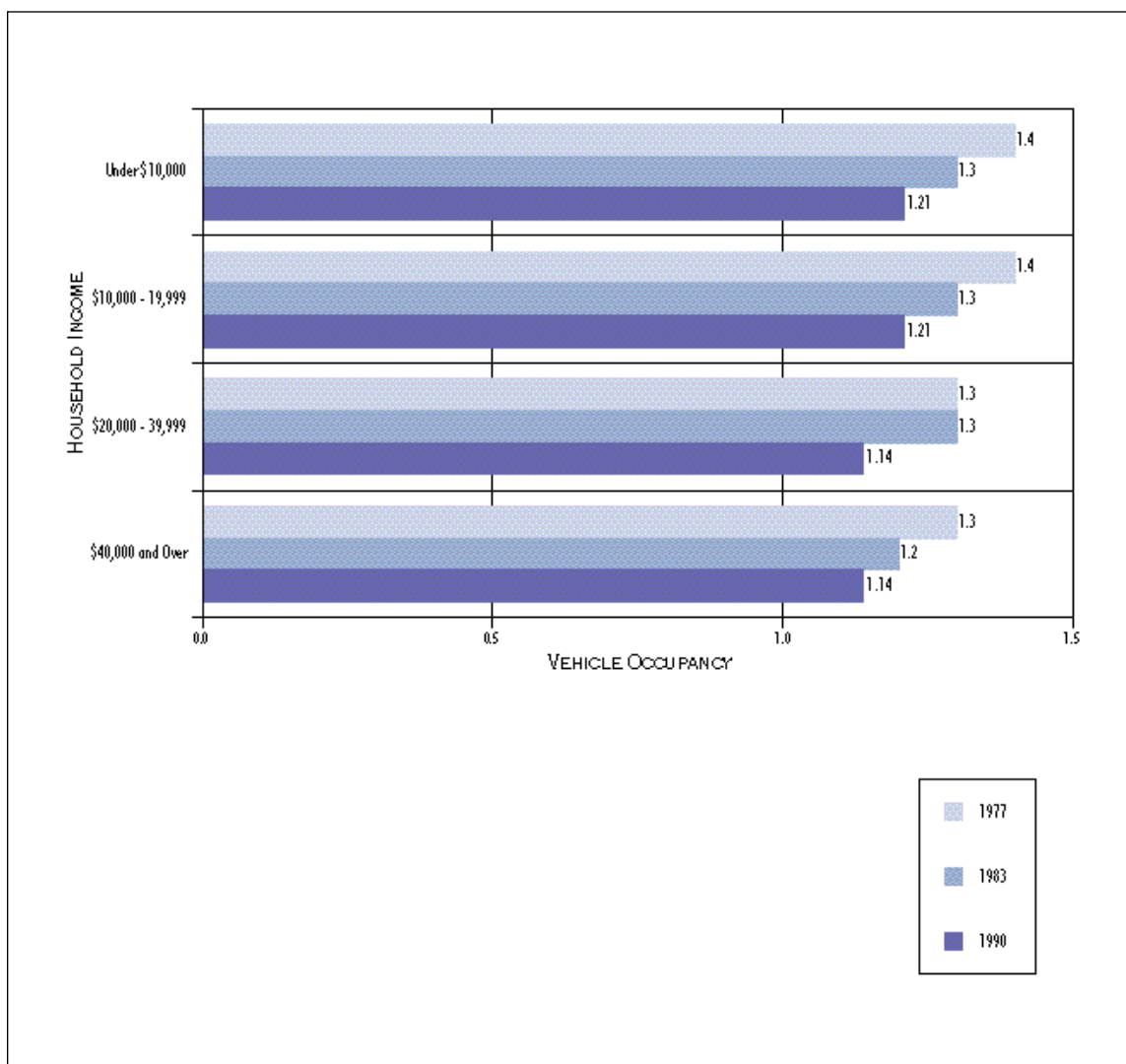
	Under \$10,000	\$10,000- 19,999	\$20,000- 39,999	\$40,000 and over	All Income Groups
1977 <sup>2</sup>	1.4	1.4	1.3	1.3	<b>1.3</b>
1983 <sup>2</sup>	1.3	1.3	1.3	1.2	<b>1.3</b>
1990	1.21	1.21	1.14	1.14	<b>1.14</b>

<sup>1</sup> For more information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Occupancy rates from 1977 and 1983 were calculated to tenths, not hundredths.

FIGURE 7.7

AVERAGE JOURNEY TO WORK VEHICLE OCCUPANCY BY HOUSEHOLD INCOME  
(PERSON MILES PER VEHICLE MILE)  
1977, 1983 AND 1990 NPTS



Having children in a household affects the prevalence of multi-occupant vehicle trips, particularly, if the children are very young

(under 6 years old). As children grow older and more independent, the percentage of multi-occupant trips drop.

**TABLE 7.12**  
**NUMBER OF VEHICLE TRIPS BY HOUSEHOLD COMPOSITION AND RIDESHARING STATUS**  
**1990 NPTS**  
**(THOUSANDS)**

Household Composition	Single-Occupant Trips	Multi-Occupant Trips	TOTAL
Single Adult, No Children	13,855,580 (84.4%)	2,563,009 (15.6%)	16,418,589 (100.0%)
Two or More Adults, No Children	32,675,966 (73.2%)	11,936,660 (26.8%)	44,612,626 (100.0%)
Single Adult, Youngest Child Under 6	858,718 (43.1%)	1,134,998 (56.9%)	1,993,716 (100.0%)
Two or More Adults, Youngest Child Under 6	16,100,621 (53.7%)	13,865,190 (46.3%)	29,965,811 (100.0%)
Single Adult, Youngest Child 6-15	2,123,436 (56.9%)	1,606,134 (43.1%)	3,729,570 (100.0%)
Two or More Adults, Youngest Child 6-15	18,736,117 (61.7%)	11,641,908 (38.3%)	30,378,025 (100.0%)
Single Adult, Youngest Child 16 or Older	1,207,615 (73.2%)	442,499 (26.8%)	1,650,114 (100.0%)
Two or More Adults, Youngest Child 16 or Older	9,009,426 (71.6%)	3,581,826 (28.4%)	12,591,251 (100.0%)
Single Adult, Retired - No Children	3,545,559 (83.2%)	714,485 (16.8%)	4,260,045 (100.0%)
Two or More Adults, Retired - No Children	7,957,608 (63.5%)	4,569,394 (36.5%)	12,527,002 (100.0%)
<b>TOTAL<sup>1</sup></b>	<b>106,670,797</b> (67.1%)	<b>52,256,670</b> (32.9%)	<b>158,927,467</b> (100.0%)

<sup>1</sup> Includes trips where household composition was unreported.

TABLE 7.13

**AVERAGE VEHICLE OCCUPANCY BY HOUSEHOLD COMPOSITION AND TRIP PURPOSE  
(PERSON MILES PER VEHICLE MILE)  
1990 NPTS**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social/Recreational	Other	ALL
Single Adult, No Children	1.07	1.40	1.36	1.54	1.06	<b>1.34</b>
Two or More Adults, No Children	1.14	1.61	1.40	1.84	1.40	<b>1.48</b>
Single Adult, Youngest Child Under 6	1.22	2.45	1.55	2.61	3.31	<b>2.22</b>
Two or More Adults, Youngest Child Under 6	1.24	2.27	2.32	2.83	1.94	<b>1.98</b>
Single Adult, Youngest Child 6-15	1.13	1.80	1.78	2.12	*	<b>1.69</b>
Two or More Adults, Youngest Child 6-15	1.18	1.92	1.84	2.66	1.95	<b>1.77</b>
Single Adult, Youngest Child 16 or Older	1.05	1.51	1.47	1.44	*	<b>1.35</b>
Two or More Adults, Youngest Child 16 or Older	1.16	1.61	1.34	1.90	1.19	<b>1.50</b>
Single Adult, Retired - No Children	1.02	1.28	1.42	1.51	1.34	<b>1.36</b>
Two or More Adults, Retired - No Children	1.11	1.58	1.61	1.86	1.38	<b>1.64</b>
<b>ALL</b>	<b>1.16</b>	<b>1.78</b>	<b>1.67</b>	<b>2.08</b>	<b>1.49</b>	<b>1.64</b>
* Indicates insufficient data reported.						

TABLE 7.14

**NUMBER OF VEHICLE TRIPS BY TRIP PURPOSE AND NUMBER OF PERSONS IN VEHICLE  
1990 NPTS  
(THOUSANDS)**

No. of Persons in Vehicle	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
1	40,156,697 (90.0%)	44,052,476 (61.0%)	4,875,928 (57.8%)	16,897,704 (51.9%)	657,635 (64.4%)	<b>106,670,797</b> (67.1%)
2	3,396,423 (7.6%)	18,987,560 (26.3%)	2,024,743 (24.0%)	9,734,911 (29.9%)	249,985 (24.5%)	<b>34,403,687</b> (21.6%)
3	761,777 (1.7%)	5,638,883 (7.8%)	801,201 (9.5%)	3,011,065 (9.3%)	62,362 (6.1%)	<b>10,277,782</b> (6.5%)
4	191,279 (0.4%)	2,387,247 (3.3%)	406,914 (4.8%)	1,885,398 (5.8%)	38,753 (3.8%)	<b>4,916,011</b> (3.1%)
5-10	123,604 (0.3%)	1,161,597 (1.6%)	324,238 (3.8%)	1,005,276 (3.1%)	12,978 (1.3%)	<b>2,627,693</b> (1.7%)
11 or More	7,698 (0.0%)	8,817 (0.0%)	1,610 (0.0%)	13,373 (0.0%)	**	<b>31,497</b> (0.0%)
<b>TOTAL</b>	<b>44,637,479</b> (100.0%)	<b>72,236,579</b> (100.0%)	8,434,633 (100.0%)	<b>32,547,726</b> (100.0%)	<b>1,021,713</b> (100.0%)	<b>158,927,467</b> (100.0%)
<b>Distribution of Trips</b>	28.1%	45.5%	5.3%	20.5%	0.6%	100.0%

<sup>1</sup> Includes trips where trip purpose was unreported.                      \*\* Indicates no data reported.



The likelihood of sharing rides differed depending on the trip purpose. While social and recreational trips were most likely to be shared (48%), trips for earning a living were

least likely to involve ridesharing (10.0%). Of all multi-occupant trips, family and personal trips accounted for more than half (54%).

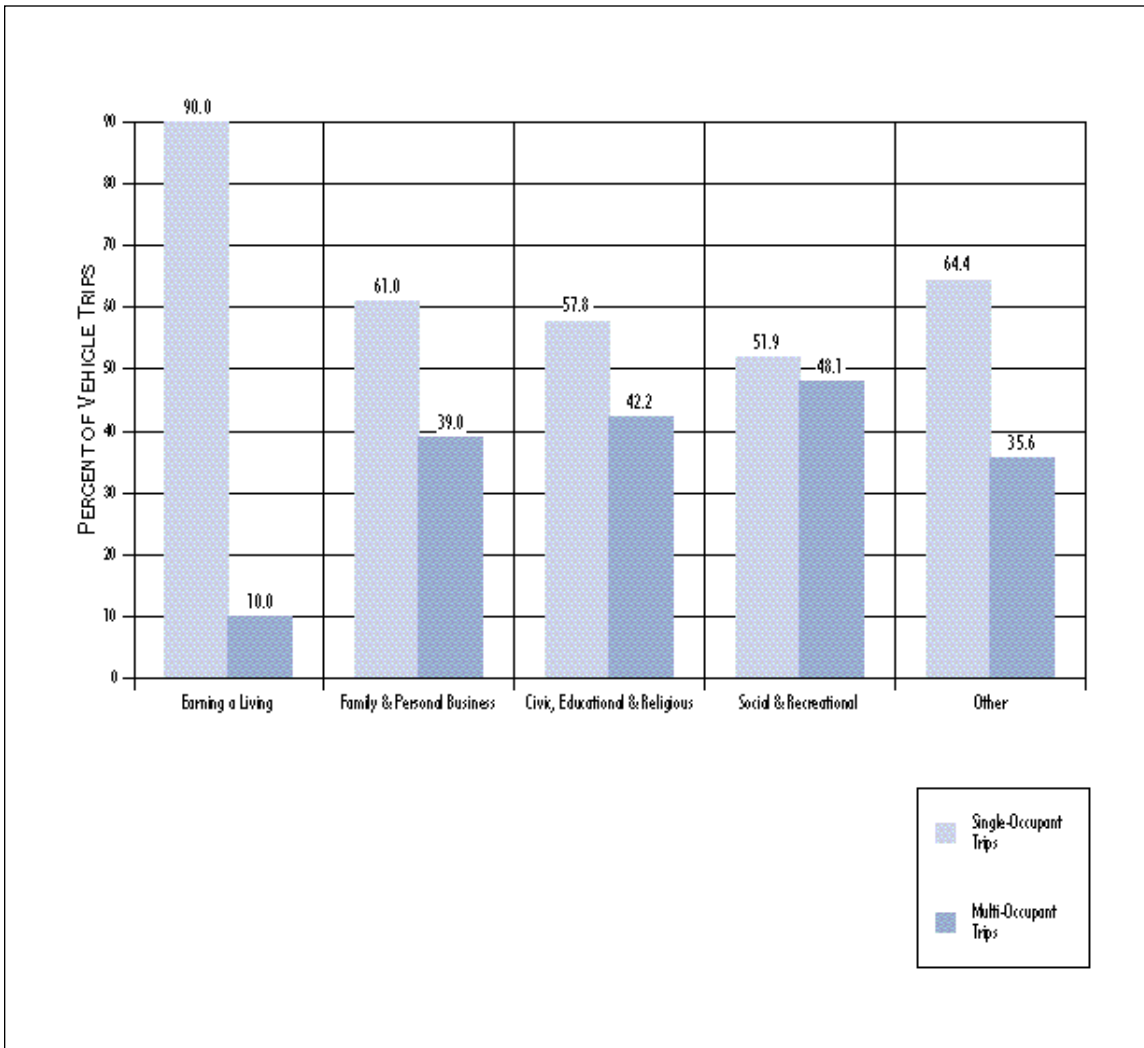
**TABLE 7.15**  
**NUMBER OF VEHICLE TRIPS BY TRIP PURPOSE AND RIDESHARING STATUS**  
**1990 NPTS**  
**(THOUSANDS)**

	Earning a Living	Family and Personal Business	Civic, Educational and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>Number of Vehicle Trips</b>						
Single-Occupant	40,156,697 (90.0%)	44,052,476 (61.0%)	4,875,928 (57.8%)	16,897,704 (51.9%)	657,635 (64.4%)	106,670,797 (67.1%)
Multi-Occupant	4,480,781 (10.0%)	28,184,104 (39.0%)	3,558,705 (42.2%)	15,650,023 (48.1%)	364,077 (35.6%)	52,256,670 (32.9%)
<b>TOTAL</b>	<b>44,637,479</b> (100.0%)	<b>72,236,579</b> (100.0%)	<b>8,434,633</b> (100.0%)	<b>32,547,726</b> (100.0%)	<b>1,021,713</b> (100.0%)	<b>158,927,467</b> (100.0%)
<b>Distribution of Vehicle Trips</b>						
Single-Occupant	(37.6%)	(41.4%)	(4.6%)	(15.8%)	(0.6%)	(100.0%)
Multi-Occupant	(8.6%)	(53.9%)	(6.8%)	(30.0%)	(0.7%)	(100.0%)
<b>TOTAL</b>	<b>(28.1%)</b>	<b>(45.5%)</b>	<b>(5.3%)</b>	<b>(20.5%)</b>	<b>(0.6%)</b>	<b>(100.0%)</b>

<sup>1</sup> Includes trips where trip purpose was unreported.

FIGURE 7.8

DISTRIBUTION OF VEHICLE TRIPS BY TRIP PURPOSE AND RIDESHARING STATUS  
1990 NPTS



Vehicle occupancy rate, calculated as person miles of travel per vehicle mile of travel, declined steadily from 1977 to 1990. This decline was evident in trips of all purposes. Trips for social and recreational purposes continued to have the highest vehicle occupancy

rate. In air quality non-attainment areas, trips to work are targeted for transportation control measures to encourage ridesharing. This is because trips to work account for about one-third of all vehicle miles of travel and have the lowest average occupancy rate (1.14).

TABLE 7.16

AVERAGE VEHICLE OCCUPANCY BY TRIP PURPOSE  
(PERSON MILES PER VEHICLE MILE)  
1977, 1983, AND 1990 NPTS<sup>1</sup>

Trip Purpose	1977		1983		1990	
	Average Occupancy	Percent of VMT	Average Occupancy	Percent of VMT	Average Occupancy	Percent of VMT
<b>EARNING A LIVING</b>	<b>1.32</b>	39.3	<b>1.32</b>	34.3	<b>1.16</b>	35.1
To or from Work	1.30	31.7	1.29	30.2	1.14	32.1
Work Related	1.39	7.6	1.57	4.2	1.42	3.0
<b>FAMILY &amp; PERSONAL BUSINESS</b>	<b>2.02</b>	24.9	<b>1.80</b>	30.4	<b>1.78</b>	32.8
Shopping	2.06	11.1	1.79	13.3	1.71	11.5
Medical/Dental	2.14	1.8	1.69	1.5	1.52	1.3
Other	1.96	12.0	1.82	15.5	1.84	20.0
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>	<b>1.95</b>	5.2	<b>2.08</b>	4.1	<b>1.67</b>	4.4
<b>SOCIAL &amp; RECREATIONAL</b>	<b>2.44</b>	27.3	<b>2.12</b>	30.0	<b>2.08</b>	26.9
Visiting Friends	2.25	12.1	2.01	13.5	1.82	11.6
Pleasure Driving	3.19	0.9	2.34	1.1	1.99	0.7
Vacation	2.68	0.6	2.52	2.1	2.38	1.5
Other	2.59	13.7	2.15	13.3	2.28	13.1
<b>OTHER &amp; UNKNOWN</b>	<b>2.20</b>	3.3	<b>1.92</b>	1.2	<b>1.49</b>	0.8
<b>ALL PURPOSES</b>	<b>1.89</b>	100.0	<b>1.75</b>	100.0	<b>1.64</b>	100.0

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

FIGURE 7.9

AVERAGE VEHICLE OCCUPANCY BY TRIP PURPOSE  
(PERSON MILES PER VEHICLE MILE)  
1977, 1983, AND 1990 NPTS

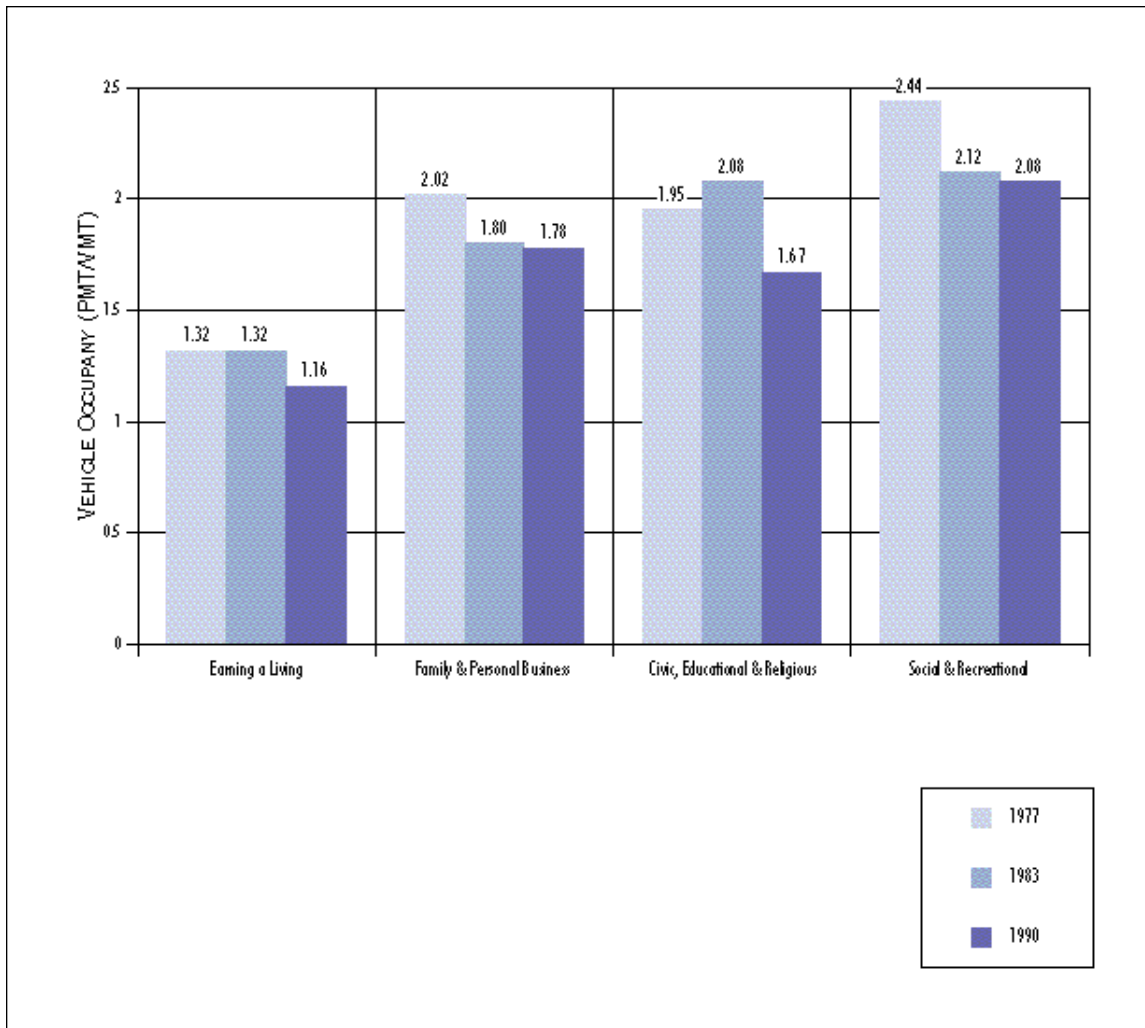


TABLE 7.17

**NUMBER OF VEHICLE TRIPS BY VEHICLE TYPE AND RIDESHARING STATUS  
1990 NPTS  
(MILLIONS)**

Vehicle Type	Single-Occupant	Multi-Occupant	TOTAL
<b>Automobile</b>	<b>85,335</b>	<b>42,359</b>	<b>127,694</b>
	(66.8%)	(33.2%)	(100.0%)
<b>Passenger Van</b>	<b>4,154</b>	<b>3,666</b>	<b>7,820</b>
	(53.1%)	(46.9%)	(100.0%)
<b>Cargo Van</b>	<b>516</b>	<b>182</b>	<b>698</b>
	(73.9%)	(26.1%)	(100.0%)
<b>Pickup Truck</b>	<b>15,451</b>	<b>5,495</b>	<b>20,946</b>
	(73.8%)	(26.2%)	(100.0%)
<b>Other Truck</b>	<b>655</b>	<b>333</b>	<b>988</b>
	(66.3%)	(33.7%)	(100.0%)
<b>RV or Motor Home</b>	<b>71</b>	<b>31</b>	<b>102</b>
	(69.6%)	(30.4%)	(100.0%)
<b>Motorcycle</b>	<b>354</b>	<b>132</b>	<b>487</b>
	(72.7%)	(27.1%)	(100.0%)
<b>Moped</b>	<b>74</b>	<b>8</b>	<b>82</b>
	(90.2%)	(9.8%)	(100.0%)
<b>Other POV</b>	<b>14</b>	<b>42</b>	<b>56</b>
	(25.0%)	(75.0%)	(100.0%)
<b>TOTAL<sup>1</sup></b>	<b>106,671</b>	<b>52,257</b>	<b>158,927</b>
	(67.1%)	(32.9%)	(100.0%)

<sup>1</sup> Includes trips where vehicle type was unreported.

TABLE 7.18

**NUMBER OF SINGLE-OCCUPANT VEHICLE TRIPS BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
<b>Auto</b>	<b>30,818,417</b> (76.7%)	<b>35,863,811</b> (81.4%)	<b>4,291,272</b> (88.0%)	<b>13,839,207</b> (81.9%)	<b>503,449</b> (76.6%)	<b>85,334,642</b> (80.0%)
<b>Passenger Van</b>	<b>1,524,547</b> (3.8%)	<b>1,890,798</b> (4.3%)	<b>143,650</b> (2.9%)	<b>523,874</b> (3.1%)	<b>71,149</b> (10.8%)	<b>4,154,018</b> (3.9%)
<b>Pickup Truck</b>	<b>6,971,275</b> (17.4%)	<b>5,765,453</b> (13.1%)	<b>419,214</b> (8.6%)	<b>2,210,392</b> (13.1%)	<b>81,615</b> (12.4%)	<b>15,450,616</b> (14.5%)
<b>Motorcycle and Moped</b>	<b>141,343</b> (0.4%)	<b>103,524</b> (0.2%)	<b>16,510</b> (0.3%)	<b>167,075</b> (1.0%)	<b>**</b> (0.0%)	<b>428,452</b> (0.4%)
<b>Other<sup>1</sup></b>	<b>689,122</b> (1.7%)	<b>419,734</b> (1.0%)	<b>3,895</b> (0.1%)	<b>142,386</b> (0.8%)	<b>1,421</b> (0.2%)	<b>1,256,558</b> (1.2%)
<b>TOTAL<sup>2</sup></b>	<b>40,156,697</b> (100.0%)	<b>44,052,476</b> (100.0%)	<b>4,875,928</b> (100.0%)	<b>16,897,704</b> (100.0%)	<b>657,635</b> (100.0%)	<b>106,670,797</b> (100.0%)

<sup>1</sup> Includes cargo van, non-pickup truck, RV/motor home and other privately owned vehicles.

<sup>2</sup> Includes trips where vehicle type, trip purpose, or both were unreported.

\*\* Indicates no data reported.

TABLE 7.19

**NUMBER OF MULTI-OCCUPANT VEHICLE TRIPS BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>2</sup>
<b>Auto</b>	<b>3,361,569</b> (75.0%)	<b>22,898,951</b> (81.2%)	<b>3,103,347</b> (87.2%)	<b>12,673,739</b> (81.0%)	<b>311,894</b> (85.7%)	<b>42,359,120</b> (81.1%)
<b>Passenger Van</b>	<b>264,800</b> (5.9%)	<b>2,148,130</b> (7.6%)	<b>247,526</b> (7.0%)	<b>974,047</b> (6.2%)	<b>23,274</b> (6.4%)	<b>3,665,679</b> (7.0%)
<b>Pickup Truck</b>	<b>761,195</b> (17.0%)	<b>2,794,344</b> (9.9%)	<b>192,695</b> (5.4%)	<b>1,721,847</b> (11.0%)	<b>23,608</b> (6.5%)	<b>5,495,148</b> (10.5%)
<b>Motorcycle and Moped</b>	<b>**</b> (0.0%)	<b>41,863</b> (0.1%)	<b>1,607</b> (0.0%)	<b>97,393</b> (0.6%)	<b>**</b> (0.0%)	<b>140,863</b> (0.3%)
<b>Other<sup>1</sup></b>	<b>90,844</b> (2.0%)	<b>299,248</b> (1.1%)	<b>13,530</b> (0.4%)	<b>179,404</b> (1.1%)	<b>5,301</b> (1.5%)	<b>588,327</b> (1.1%)
<b>TOTAL<sup>2</sup></b>	<b>4,480,781</b> (100.0%)	<b>28,184,104</b> (100.0%)	<b>3,558,705</b> (100.0%)	<b>15,650,023</b> (100.0%)	<b>364,077</b> (100.0%)	<b>52,256,670</b> (100.0%)
<sup>1</sup> Includes cargo van, non-pickup truck, RV/motor home and other privately owned vehicles.			<sup>2</sup> Includes trips where vehicle type, trip purpose, or both were unreported.			
			** Indicates no data reported.			

Among all types of privately owned vehicles, trips by pickup trucks, motorcycles or mopeds were considerably more likely to be single-occupant, reflecting the inherent occupancy

limitations of these vehicles. For example, 33.2% of automobile trips were multi-occupant whereas only 26.2% of pickup-truck trips were multi-occupant.

**TABLE 7.20**  
**DISTRIBUTION OF VEHICLE TRIPS BY TRIP PURPOSE, VEHICLE TYPE AND RIDESHARING STATUS**  
**1990 NPTS**  
**(WITHIN MODE)**

	<u>Earning a Living</u>		<u>Family and Personal Business</u>		<u>Civic, Educational, and Religious</u>		<u>Social and Recreational</u>		<u>Other</u>		<u>TOTAL<sup>2</sup></u>		
	Single	Multi	Single	Multi	Single	Multi	Single	Multi	Single	Multi	Single	Multi	ALL
Auto	24.1	2.6	28.1	17.9	3.4	2.4	10.8	9.9	0.4	0.2	66.8	33.2	100.0
Passenger Van	19.5	3.4	24.2	27.5	1.8	3.2	6.7	12.5	0.9	0.3	53.1	46.9	100.0
Pickup Truck	33.3	3.6	27.5	13.3	2.0	0.9	10.6	8.2	0.4	0.1	73.8	26.2	100.0
Motorcycle and Moped	24.8	**	18.2	7.4	2.9	0.3	29.3	17.1	**	**	75.3	24.7	100.0
Other <sup>1</sup>	37.4	4.9	22.8	16.2	0.2	0.7	7.7	9.7	0.1	0.3	68.1	31.9	100.0
<b>TOTAL<sup>2</sup></b>	25.3	2.8	27.7	17.7	3.1	2.1	10.6	9.8	0.4	0.2	67.1	32.9	100.0

<sup>1</sup> Includes cargo van, non-pickup truck, RV/motor home and other privately owned vehicles.

\*\* Indicates no data reported.

<sup>2</sup> Includes trips where vehicle type, trip purpose, or both were unreported.



**FIGURE 7.10**

**DISTRIBUTION OF VEHICLE TRIPS BY VEHICLE TYPE AND RIDESHARING STATUS  
1990 NPTS**

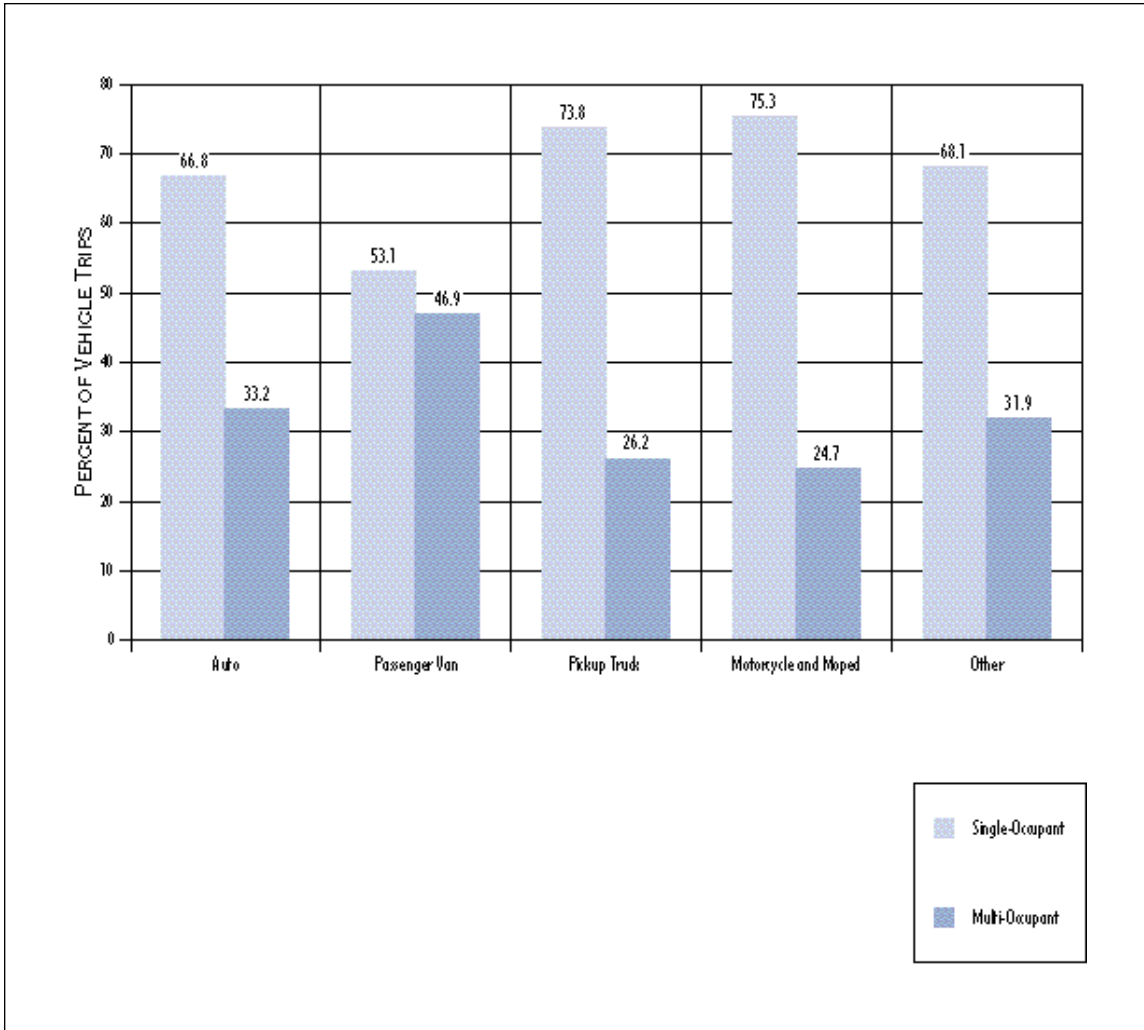


TABLE 7.21

**NUMBER OF JOURNEY TO WORK VEHICLE TRIPS BY VEHICLE TYPE AND RIDESHARING STATUS  
1990 NPTS  
(THOUSANDS)**

Vehicle Type	Single-Occupant	Multi-Occupant	TOTAL
Automobile	29,143,140 (76.9%)	2,949,237 (75.3%)	32,092,377 (76.8%)
Passenger Van	1,365,401 (3.6%)	213,331 (5.4%)	1,578,732 (3.8%)
Cargo Van	266,907 (0.7%)	25,172 (0.6%)	292,079 (0.7%)
Pickup Truck	6,601,584 (17.4%)	677,384 (17.3%)	7,278,968 (17.4%)
Other Truck	343,580 (0.9%)	50,318 (1.3%)	393,898 (0.9%)
RV or Motor Home	9,055 (0.0%)	** (0.0%)	9,055 (0.0%)
Motorcycle	113,435 (0.3%)	** (0.0%)	113,435 (0.3%)
Moped	24,111 (0.1%)	** (0.0%)	24,111 (0.1%)
Other POV	328 (0.0%)	** (0.0%)	328 (0.0%)
<b>TOTAL<sup>1</sup></b>	<b>37,876,690</b> (100.0%)	<b>3,915,443</b> (100.0%)	<b>41,792,133</b> (100.0%)

<sup>1</sup> Includes trips where vehicle type was unreported.                      \*\* Indicates no data reported.

Of all journey to work vehicle trips, 70% were single-occupant in automobiles, 16% were single-occupant in pickup trucks, and another 4% were single-occupant in other vehicle

types. About 10% of journey to work vehicle trips were multi-occupant, and more than half of those were by automobile.

TABLE 7.22

NUMBER OF JOURNEY TO WORK VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND VEHICLE TYPE  
1990 NPTS  
(THOUSANDS)

	Number of Persons on the Trip				TOTAL
	1	2	3	4+	
<b>Auto</b>	<b>29,143,140</b> (69.7%)	<b>2,245,724</b> (5.4%)	<b>524,413</b> (1.3%)	<b>179,100</b> (0.4%)	<b>32,092,377</b> (76.8%)
<b>Passenger Van</b>	<b>1,365,401</b> (3.3%)	<b>135,338</b> (0.3%)	<b>30,063</b> (0.1%)	<b>47,930</b> (0.1%)	<b>1,578,732</b> (3.8%)
<b>Pickup Truck</b>	<b>6,601,584</b> (15.8%)	<b>547,596</b> (1.3%)	<b>107,032</b> (0.3%)	<b>22,757</b> (0.0%)	<b>7,278,968</b> (17.4%)
<b>Motorcycle and Moped</b>	<b>137,546</b> (0.3%)	**	**	**	<b>137,546</b> (0.3%)
<b>Other</b>	<b>619,870</b> (1.5%)	<b>64,058</b> (0.2%)	<b>9,784</b> (0.0%)	<b>1,648</b> (0.0%)	<b>695,360</b> (1.7%)
<b>TOTAL<sup>1</sup></b>	<b>37,876,690</b> (90.6%)	<b>2,992,716</b> (7.2%)	<b>671,291</b> (1.6%)	<b>251,435</b> (0.6%)	<b>41,792,133</b> (100.0%)

<sup>1</sup> Includes trips where vehicle type was unreported.      \*\* Indicates no data reported.





FIGURE 7.11

DISTRIBUTION OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND SELECTED TRIP LENGTH  
1990 NPTS

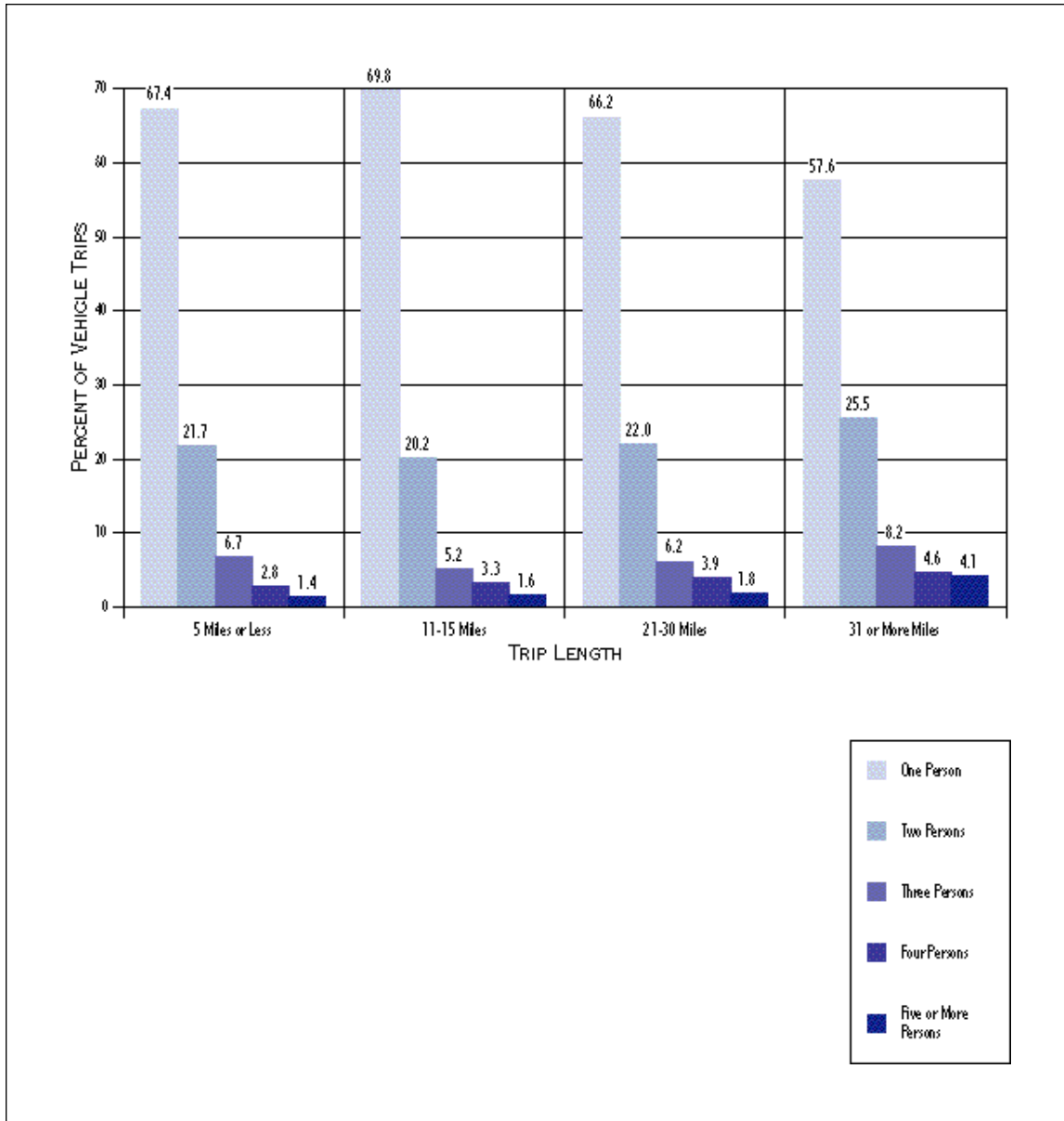


TABLE 7.25

**NUMBER OF JOURNEY TO WORK VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND TRIP LENGTH  
1990 NPTS  
(THOUSANDS)**

	Number of Persons on the Trip				TOTAL
	1	2	3	4 or More	
<b>5 miles or less</b>	<b>16,177,290</b>	<b>1,301,642</b>	<b>357,310</b>	<b>101,850</b>	<b>17,938,092</b>
	(90.2%)	(7.3%)	(2.0%)	(0.6%)	(100.0%)
<b>6-10 miles</b>	<b>8,626,772</b>	<b>636,004</b>	<b>146,277</b>	<b>38,220</b>	<b>9,447,273</b>
	(91.3%)	(6.7%)	(1.5%)	(0.4%)	(100.0%)
<b>11-15 miles</b>	<b>5,081,880</b>	<b>313,291</b>	<b>48,037</b>	<b>22,509</b>	<b>5,465,717</b>
	(93.0%)	(5.7%)	(0.9%)	(0.4%)	(100.0%)
<b>16-20 miles</b>	<b>2,825,876</b>	<b>248,655</b>	<b>40,425</b>	<b>11,664</b>	<b>3,126,621</b>
	(90.4%)	(8.0%)	(1.3%)	(0.4%)	(100.0%)
<b>21-30 miles</b>	<b>2,619,678</b>	<b>226,935</b>	<b>45,316</b>	<b>26,568</b>	<b>2,918,498</b>
	(89.8%)	(7.8%)	(1.6%)	(0.9%)	(100.0%)
<b>31 or more miles</b>	<b>2,098,265</b>	<b>229,324</b>	<b>26,999</b>	<b>46,592</b>	<b>2,401,180</b>
	(87.4%)	(9.6%)	(1.1%)	(1.9%)	(100.0%)
<b>TOTAL<sup>1</sup></b>	<b>37,876,690</b>	<b>2,992,716</b>	<b>671,291</b>	<b>251,435</b>	<b>41,792,133</b>
	(90.6%)	(7.2%)	(1.6%)	(0.6%)	(100.0%)

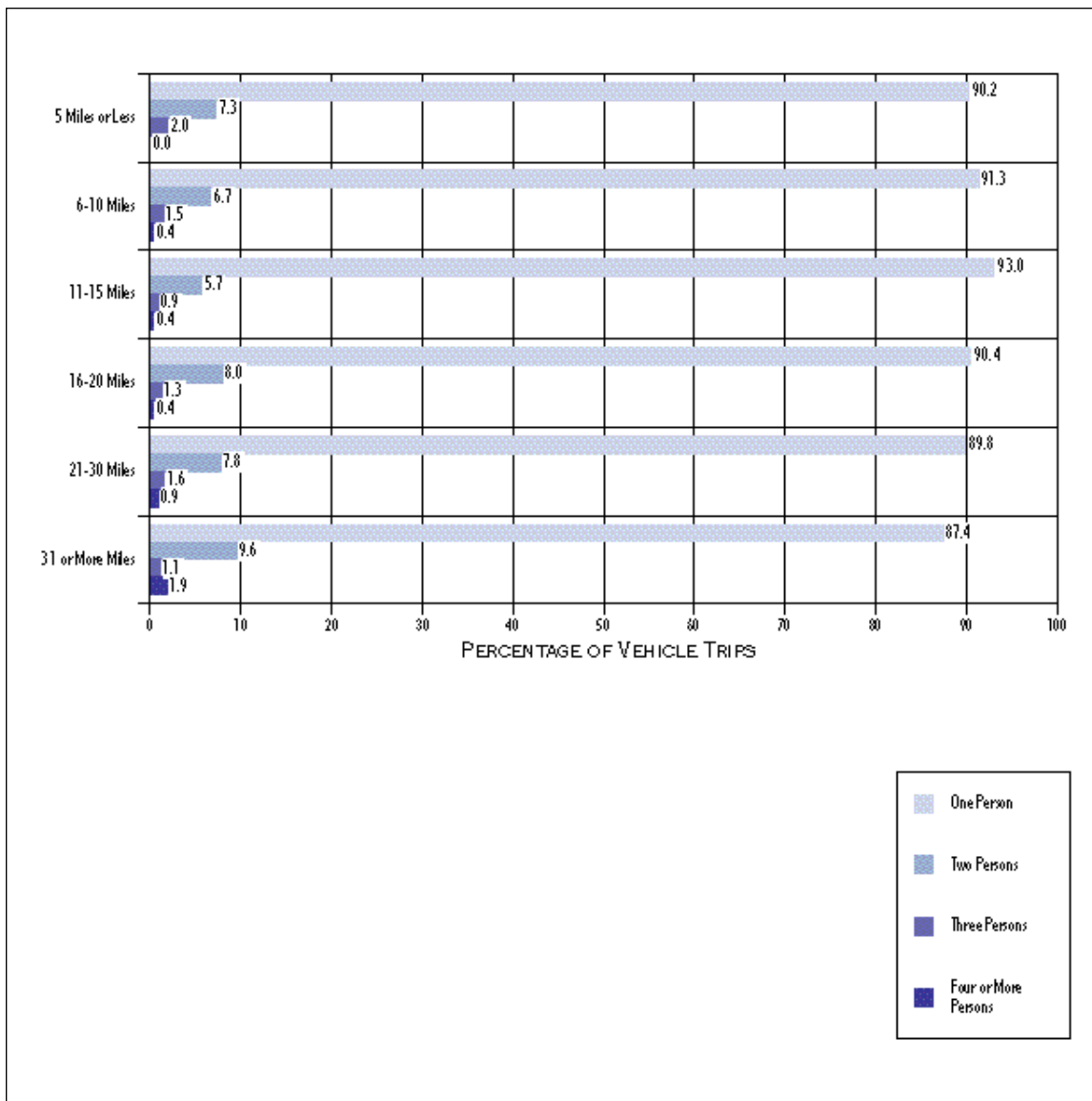
<sup>1</sup> Includes trips where trip length was unreported.

Similar to other types of trips, when journey to work trips were 30 miles or longer, the likelihood of sharing rides became considerably greater than in shorter trips. Also,

longer journey to work trips had a greater percentage of trips with more than three individuals on the trip.

FIGURE 7.12

DISTRIBUTION OF JOURNEY TO WORK VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND TRIP LENGTH 1990 NPTS





The vehicle occupancy rate of journey to work trips, expressed as the number of person trips per vehicle trip, declined from 1977 to 1990. Carpooling was more common as trip distance increased. In 1990, there were

1.1 persons for every vehicle trip that was shorter than 20 miles. For trips longer than 20 miles, the corresponding rate increased to 1.2 persons for every vehicle trip.

TABLE 7.26

AVERAGE JOURNEY TO WORK VEHICLE OCCUPANCY BY TRIP LENGTH  
(PERSON TRIP PER VEHICLE TRIP)  
1977, 1983, AND 1990 NPTS<sup>1</sup>

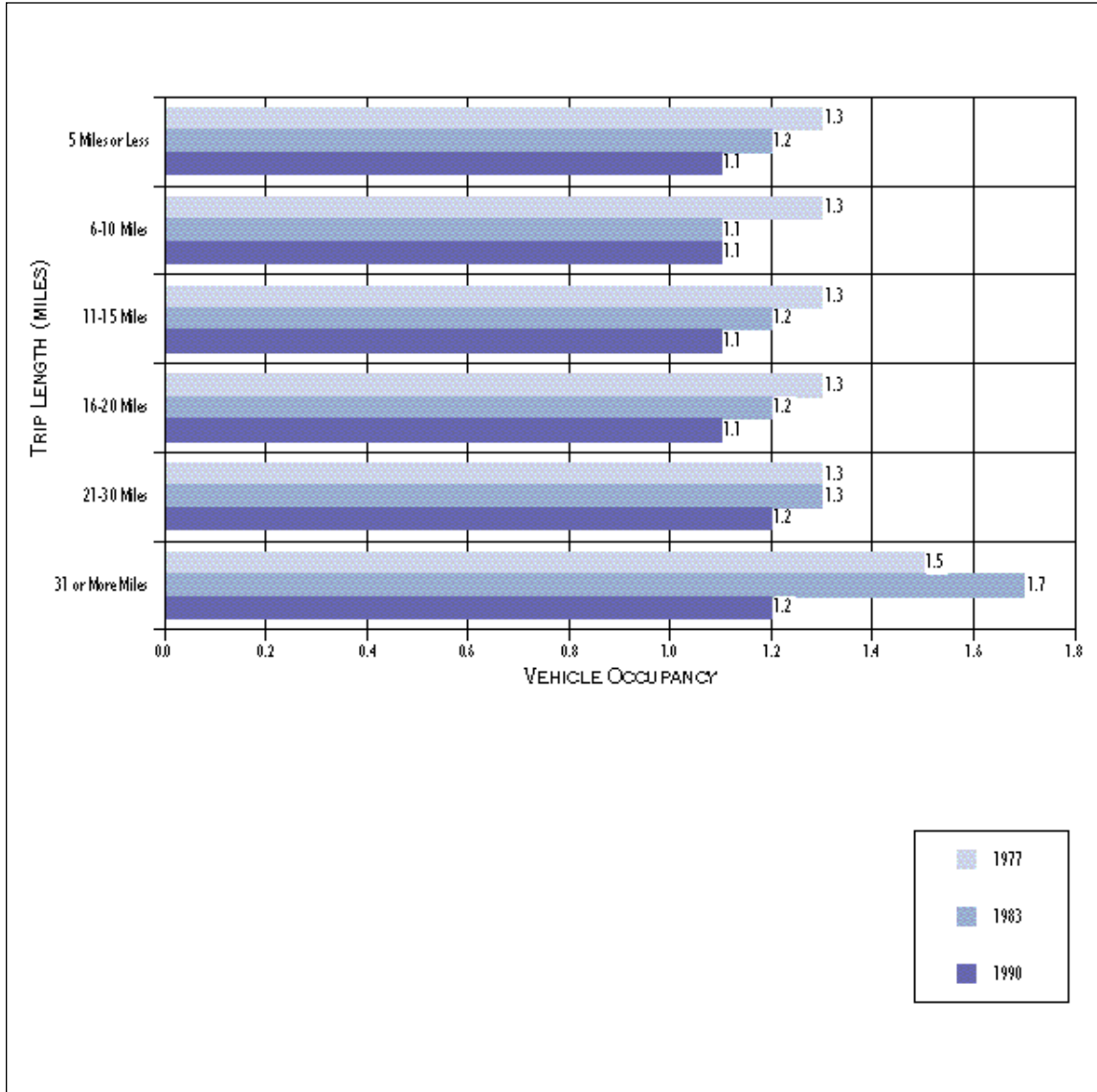
	Trip Length (Miles)						ALL
	5 or Less	6-10	11-15	16-20	21-30	31 or More	
1977 <sup>2</sup>	1.3	1.3	1.3	1.3	1.3	1.5	1.3
1983 <sup>2</sup>	1.2	1.1	1.2	1.2	1.3	1.7	1.2
1990	1.13	1.11	1.09	1.12	1.15	1.19	1.13

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Occupancy rates from 1977 and 1983 were only calculated to tenths, not hundredths.

FIGURE 7.13

AVERAGE JOURNEY TO WORK VEHICLE OCCUPANCY BY TRIP LENGTH  
(PERSON TRIP PER VEHICLE TRIP)  
1977, 1983 AND 1990 NPTS



TRIP CHARACTERISTICS VEHICLE OCCUPANCY AND RIDESHARING

Tables 7.26 and 7.27 report vehicle occupancy rates for journey to work trips. Table 7.26 defines vehicle occupancy as the number of person trips per vehicle trip. Table 7.27 defines vehicle occupancy as person miles travelled per vehicle mile travelled. As indicated earlier, vehicle occupancy rate defined

as person miles travelled per vehicle mile travelled takes into account the trip length and, therefore, is preferred for some analyses. In 1977 and 1983, vehicle occupancy increased significantly for trips over 30 miles. In 1990, there is only a slight increase in occupancy for trips over 30 miles.

TABLE 7.27

AVERAGE JOURNEY TO WORK VEHICLE OCCUPANCY BY TRIP LENGTH  
(PERSON MILES PER VEHICLE MILE)  
1977, 1983, AND 1990 NPTS<sup>1</sup>

	Trip Length (Miles)						ALL
	5 or Less	6-10	11-15	16-20	21-30	31 or More	
1977 <sup>2</sup>	1.2	1.3	1.3	1.3	1.3	1.6	1.3
1983 <sup>2</sup>	1.2	1.1	1.1	1.2	1.3	1.8	1.3
1990	1.12	1.11	1.09	1.12	1.14	1.21	1.14

<sup>1</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

<sup>2</sup> Occupancy rates from 1977 and 1983 were only calculated to tenths, not hundredths.

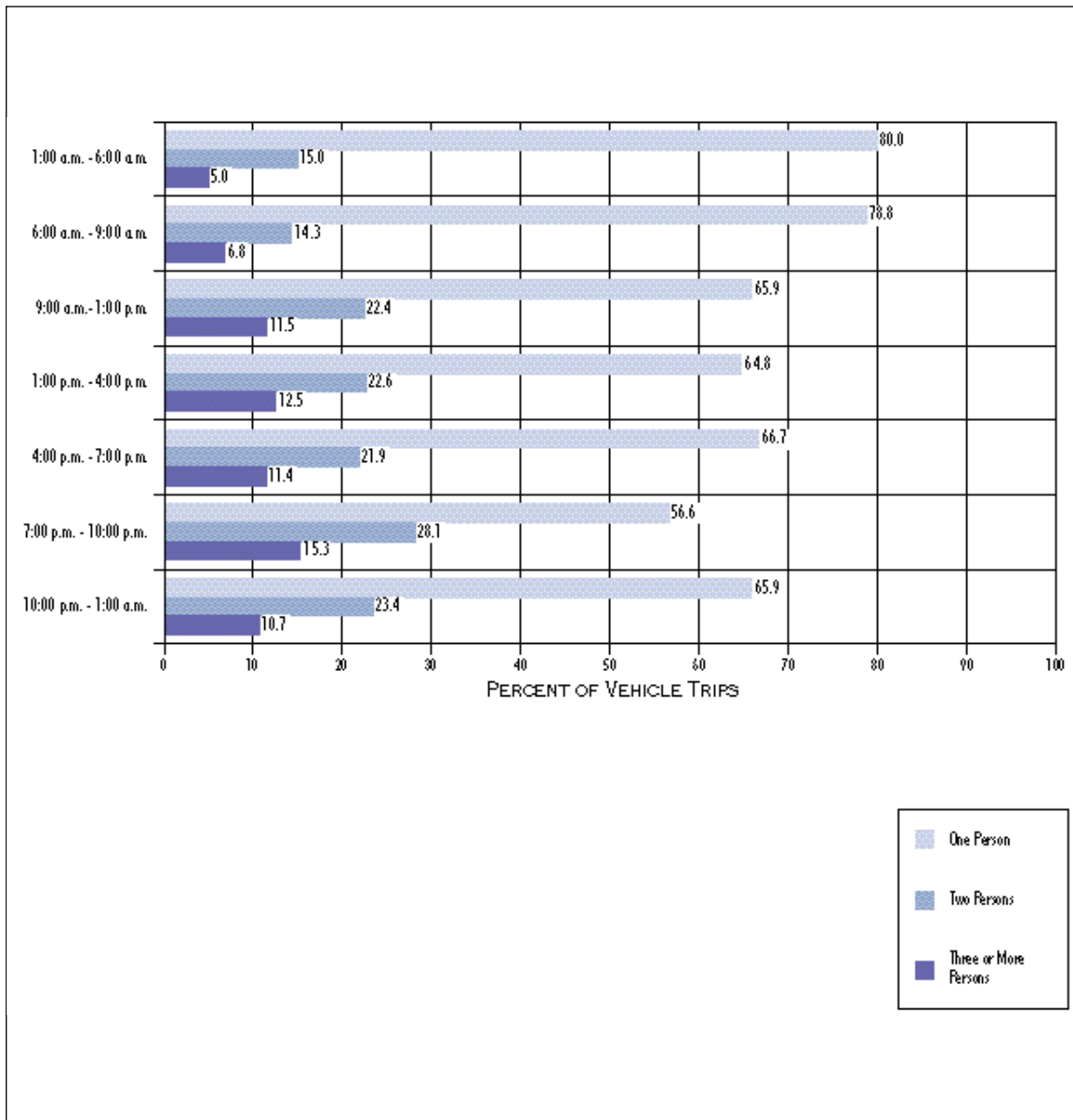
TABLE 7.28

**NUMBER OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND TIME OF DAY  
1990 NPTS  
(THOUSANDS)**

	Number of Persons on the Trip						TOTAL
	1	2	3	4	5-10	11 or More	
1:00 a.m. - 6:00 a.m.	2,906,878 (80.0%)	546,188 (15.0%)	102,076 (2.8%)	58,412 (1.6%)	20,948 (0.6%)	**	<b>3,634,502</b> (100.0%)
6:00 a.m. - 9:00 a.m.	17,687,642 (78.8%)	3,215,178 (14.3%)	1,018,291 (4.5%)	301,323 (1.3%)	230,467 (1.0%)	5,623 (0.0%)	<b>22,458,523</b> (100.0%)
9:00 a.m. - 1:00 p.m.	21,991,527 (65.9%)	7,478,494 (22.4%)	2,274,575 (6.8%)	1,048,480 (3.1%)	546,625 (1.6%)	9,883 (0.0%)	<b>33,349,583</b> (100.0%)
1:00 p.m. - 4:00 p.m.	19,885,922 (64.8%)	6,934,066 (22.6%)	2,315,363 (7.5%)	949,282 (3.1%)	578,793 (1.9%)	6,985 (0.0%)	<b>30,670,411</b> (100.0%)
4:00 p.m. - 7:00 p.m.	24,797,031 (66.7%)	8,137,953 (21.9%)	2,412,751 (6.5%)	1,201,242 (3.2%)	623,297 (1.7%)	4,734 (0.0%)	<b>37,177,009</b> (100.0%)
7:00 p.m. - 10:00 p.m.	10,782,772 (56.6%)	5,347,218 (28.1%)	1,525,619 (8.0%)	919,039 (4.8%)	477,775 (2.5%)	4,273 (0.0%)	<b>19,056,694</b> (100.0%)
10:00 p.m. - 1:00 a.m.	4,238,998 (65.9%)	1,505,184 (23.4%)	354,100 (5.5%)	255,858 (4.0%)	77,212 (1.2%)	**	<b>6,431,353</b> (100.0%)
<b>TOTAL<sup>1</sup></b>	<b>106,670,797</b> (67.1%)	<b>34,403,687</b> (21.6%)	<b>10,277,782</b> (6.5%)	<b>4,916,011</b> (3.1%)	<b>2,627,693</b> (1.7%)	<b>31,497</b> (0.0%)	<b>158,927,467</b> (100.0%)
<sup>1</sup> Includes trips where time of day was unreported.		** Indicates data not reported.					

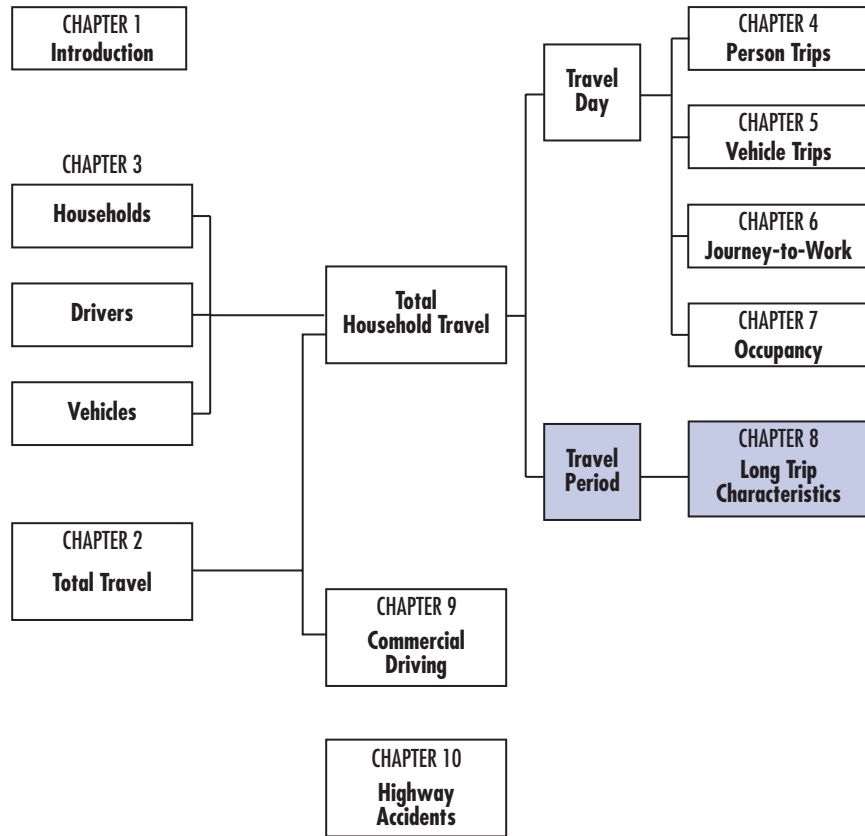
FIGURE 7.14

DISTRIBUTION OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS AND TIME OF DAY  
1990 NPTS



VEHICLE OCCUPANTS AND TRIP CHARACTERISTICS





# Chapter 8

## Characteristics of Longer Trips



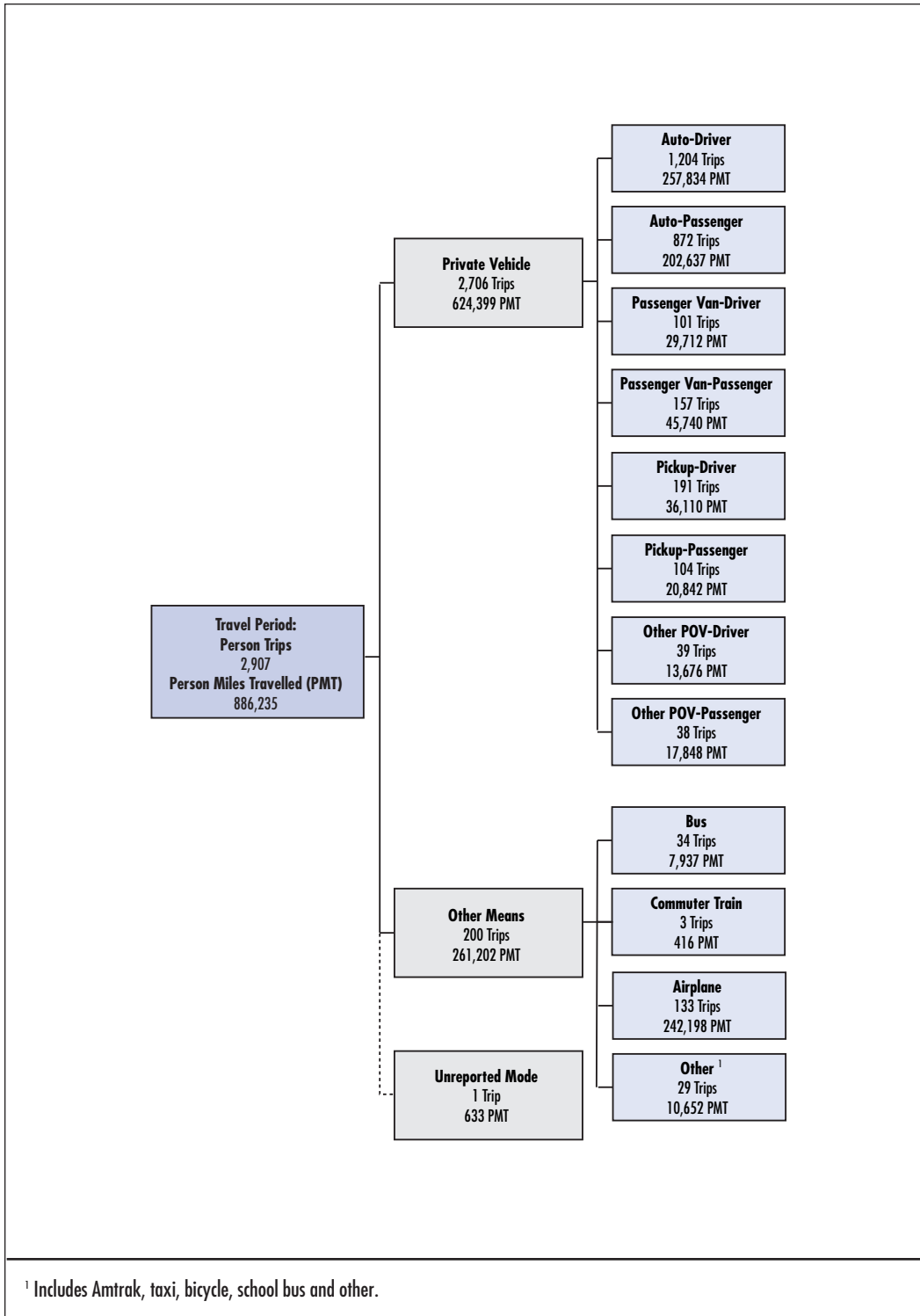
In 1990, long-distance travel accounted for 18% of the total vehicle miles of travel.

- Most were by personal vehicles for social and recreational purposes during spring and summer months.
- Increased with household income.
- Two-thirds was less than 200 miles long.
- Destinations depended on the size of the origins.



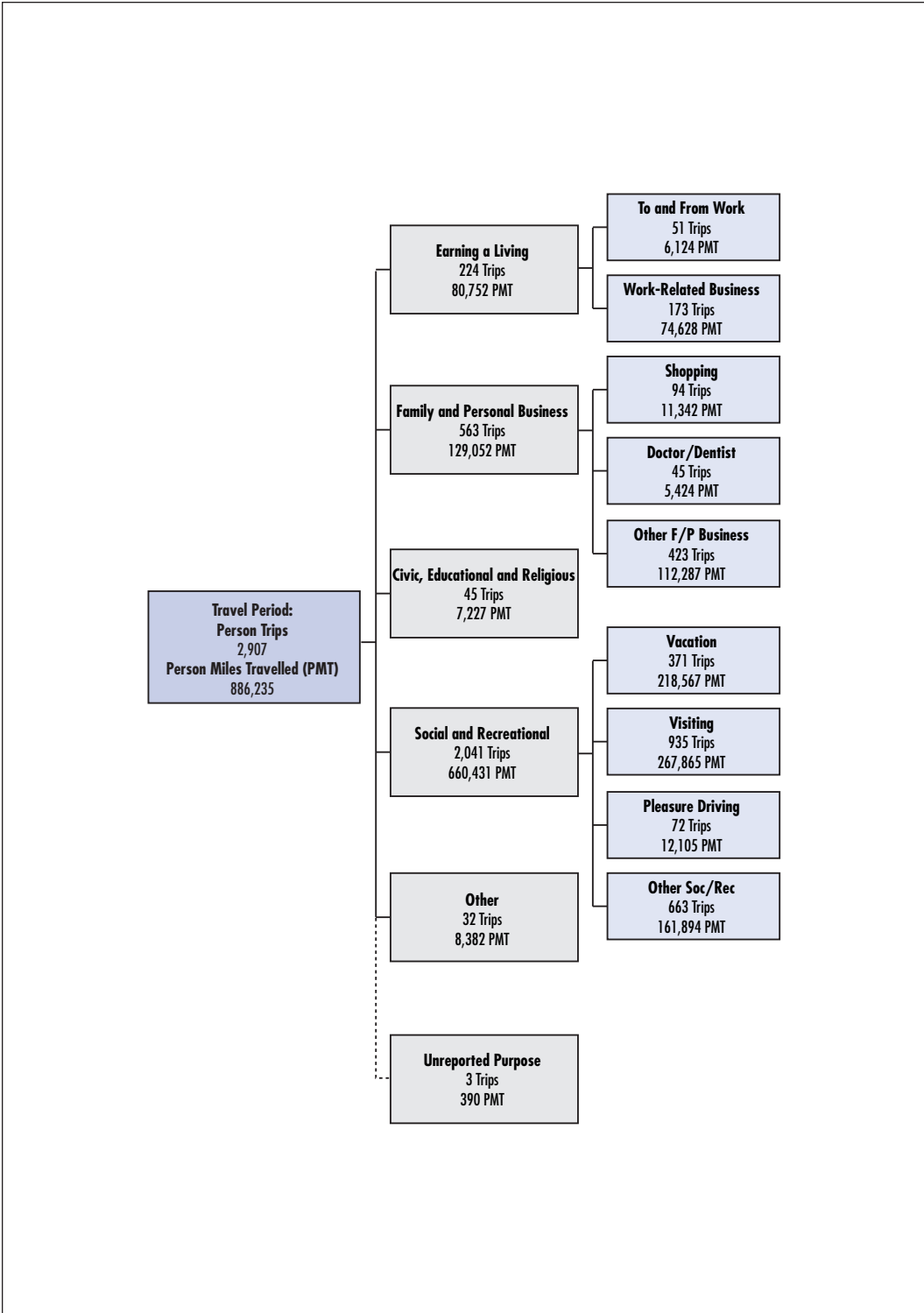
1990 TRAVEL PERIOD PERSON TRIPS/PMT BY MODE

(MILLIONS)



1990 TRAVEL PERIOD PERSON TRIPS/PMT BY PURPOSE

(MILLIONS)

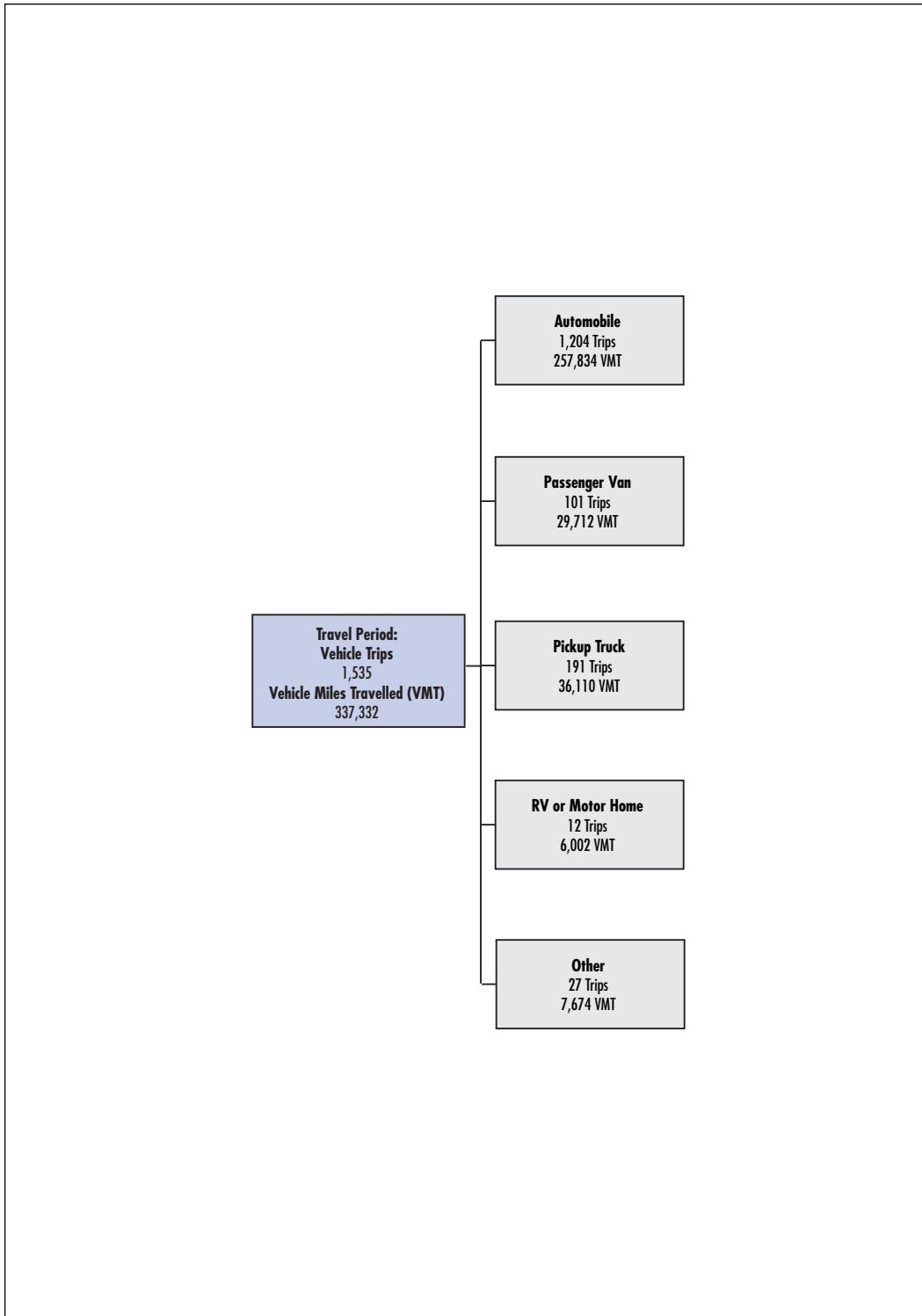


CHARACTERISTICS OF LONGER TRIPS

1990 TRAVEL PERIOD *VEHICLE TRIPS/VMT* BY VEHICLE TYPE

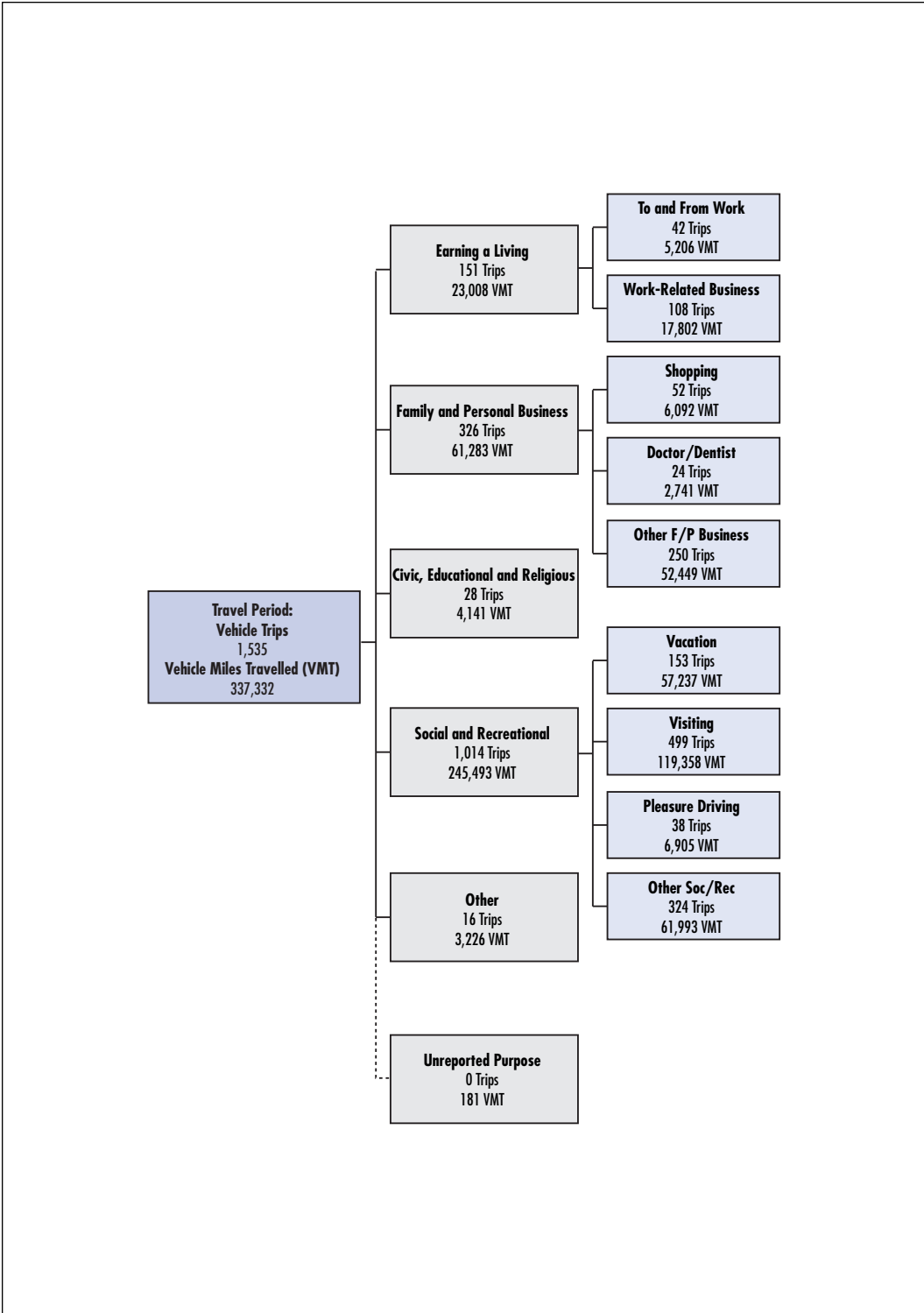
(MILLIONS)

CHARACTERISTICS OF LONGER TRIPS



1990 TRAVEL PERIOD *VEHICLE TRIPS/VMT BY PURPOSE*

(MILLIONS)



CHARACTERISTICS OF LONGER TRIPS



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## Trip Characteristics

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## Type of Trip Origin and Destination

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## Chapter 8 Characteristics of Longer Trips

**I**N one section of the 1990 NPTS questionnaire, data were collected on longer trips. A long trip is defined as a trip that meets the following two criteria: (1) the trip is 75 miles or longer one-way, and (2) the respondent returned home during the travel period (the fourteen-day period ending on the travel day). Trips collected in this section of the questionnaire are referred to as “travel period trips”. The recall period for the travel period was fourteen days in order to collect a sufficient number of long trips for analysis.

Data on travel period trips were collected for all household members 5 years or older. As noted earlier, data on household members between the ages of 5 and 13 were provided by a knowledgeable household member 14 years or older.

Furthermore, proxy interviews were allowed in the 1990 survey if household members 14 years or older could not be reached after repetitive contacts.

Information was collected on trip destination, trip purpose, main means of transportation, number of persons travelling together, number of miles driven, the household vehicle used for the trip (if a household vehicle was used), etc. Similar information was obtained for both the outgoing and return portions of each trip.

Long-distance travel is considerably less frequent than typical daily travel. Estimates of long-distance travel based on data collected in the travel period section cannot be annualized, on a per household or per capita basis, as simply as annualizing daily trips collected in the travel day section. To predict the average number of long-distance trips taken in a year based on travel patterns observed in a two-week period, one needs to take into account not only travelers’ demographics, household characteristics, and vehicle ownership patterns, but also trip purposes and sea-

sonality effects. For example, if the two-week travel period for a household was during summer months, it would be erroneous to assume that long-distance travel patterns throughout the year for this household would follow patterns similar to those collected in the summer months. Consequently, one should not estimate long-distance trip rates on a per household or per capita basis without developing a statistical procedure to accurately annualize the data.

The 1990 NPTS survey estimated that:

- There were 1.5 billion travel-period vehicle trips, and 2.9 billion travel-period person trips taken in 1990;
- These trips amounted to 337 billion vehicle miles of travel and 886 billion person miles of travel;
- Average length of a one-way travel-period vehicle trip was 220 miles;
- High income households tended to take more travel period trips and more travel period trips for work-related purposes than households in other income groups;
- Almost 90 percent of the households with a single retired adult and with no children did not take any long trips during the two-week recall period, while the corresponding percentage was 64 percent for households with two or more adults and with their youngest children between the ages 16 and 21;
- The majority of travel-period trips were by privately owned vehicles for social and recreational purposes during the spring and summer; and
- Sixty-eight percent of the travel-period trips were to places less than 200 miles from home.



Due to definitional differences, straightforward comparison cannot be made between trip estimates based on the NPTS data and trip estimates based on the 1990 National Travel Survey (NTS) conducted by the U.S. Travel Data Center. First, a trip in the NTS consists of both outgoing and return portions of the trip, while the NPTS considers the outgoing trip and the return trip as separate trips. Second, a trip in the NTS is at least 100 miles long while a trip in the NPTS's travel period section is at least 75 miles long one-way. Third, journeys to work and trips taken by students to and from school are not included in the NTS. Fourth, the trip purpose

categories used in each survey are not identical. To maximize the compatibility between these two surveys, trips recorded in the travel period section of the 1990 NPTS questionnaire are modified to be consistent as much as possible with those in the NTS -- (1) both outgoing and return portions of the trip are counted as one trip, (2) only trips 100 miles long one-way are included, and (3) journeys to work are excluded. Although Tables 8.1 and 8.2 provide some comparisons of trip estimates based on these two surveys, the reader is cautioned in interpreting these comparisons.

**TABLE 8.1**  
**COMPARISONS OF LONG-DISTANCE PERSON TRIPS BASED ON NTS DATA AND NPTS DATA BY TRIP PURPOSE**  
**1990 NPTS AND NTS**

	NTS Data <sup>1</sup>	NPTS Data <sup>2</sup>
<b>Projected Person Trips (000,000)</b>	<b>1,274.5</b>	<b>1,052.1</b>
Business	16% <sup>3</sup>	5.9% <sup>4</sup>
Civic, Educational or Religious	** <sup>5</sup>	1.1%
Social, Recreational or Pleasure	76%	73.6%
Family and Personal Business or Other	7% <sup>6</sup>	19.3%
Unreported	**	0.1%

<sup>1</sup> Source: 1990 National Travel Survey, conducted by the U.S. Travel Data Center, Washington, D.C.

<sup>2</sup> NPTS data are adjusted to conform to NTS's definition of "a trip".

<sup>3</sup> Includes any trip where the purpose of the trip is given as "business, convention, seminar or meeting".

<sup>4</sup> Includes work related trips only.

<sup>5</sup> NTS data does not include any trips taken by students to or from school.

<sup>6</sup> Includes medical, funeral, wedding and other.

\*\* Indicates no data reported.

TABLE 8.2

**COMPARISONS OF LONG-DISTANCE PERSON TRIPS BASED ON NTS DATA AND NPTS DATA  
BY MODE OF TRANSPORTATION  
1990 NPTS AND NTS**

	NTS Data <sup>1</sup>	NPTS Data <sup>2</sup>
Projected Person Trips (000,000)	1,274.5	1,052.1
<b>PRIVATE VEHICLE</b>		
Auto, Truck, RV	79% <sup>3</sup>	79.4%
Van	**	9.3%
Other Private Vehicle	**	0.3%
<b>OTHER</b>		
Airplane	17% <sup>4</sup>	6.0%
Bus	2%	1.4%
Train	1%	0.04%
Other	1%	0.8%
Unreported	**	2.8% <sup>5</sup>
<sup>1</sup> Source: 1990 National Travel Survey, conducted by the U.S. Travel Data Center, Washington, D.C.		<sup>5</sup> Includes some trips where mode was unable to be determined because a different mode was used for either the outgoing portion or the return portion of the trip.
<sup>2</sup> NPTS data are adjusted to conform to NTS's definition of "a trip".		<sup>**</sup> Indicates no data reported.
<sup>3</sup> Includes rental cars..		
<sup>4</sup> Includes any trip in which the one type of transportation used to cover most of the miles on that trip is given as "airplane".		

In order to understand longer trips in the total context of travel, Table 8.3 presents summary data showing the distribution of travel by travel day (typically daily travel),

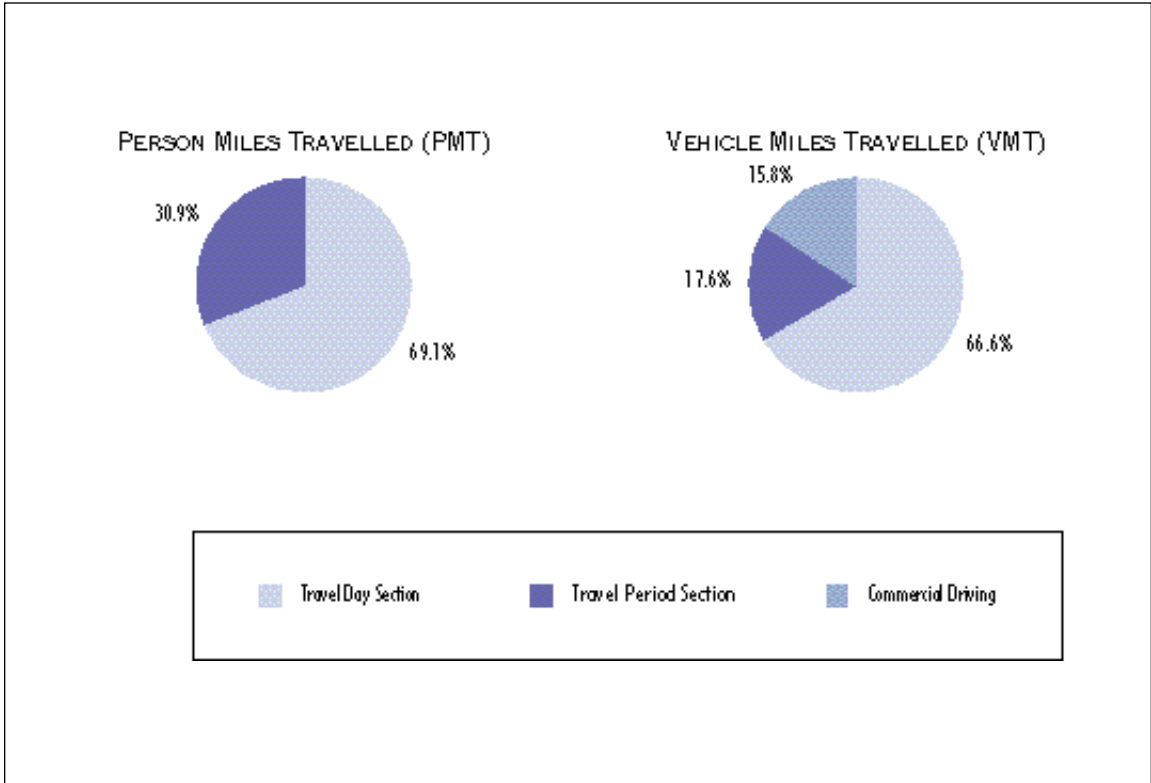
travel period (longer trips) and commercial driving (e.g. truck driver, bus driver, etc.). See Chapter 2 for a more complete discussion of total estimates of travel.

**TABLE 8.3**

**TRAVEL SUMMARY STATISTICS BY DATA SOURCE<sup>1</sup>  
1990 NPTS  
(MILLIONS)**

	Estimate of Annual Miles Based on Various Data Sources			TOTAL
	Travel Day Section Adjusted <sup>2</sup>	Travel Period Section	Commercial Driving Section	
Person Miles Travelled (PMT)	1,982,068 (333,205)	<b>886,235</b>	**	2,868,303
Vehicle Miles Travelled (VMT)	1,275,792 (133,784)	<b>337,332</b>	303,118	1,916,242
<sup>1</sup> Refer to Chapter 2 for more explanations concerning different data sources. <sup>**</sup> Indicates no data available.		<sup>2</sup> The numbers in the parentheses are the travel estimated for overlapping trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimate without overlapping trips is referred to as the "Travel Day Section Adjusted".		

**FIGURE 8.1**  
**DISTRIBUTION OF SUMMARY STATISTICS BY DATA SOURCE**  
**1990 NPTS**



Individuals between the ages of 20 and 59 took a proportionally greater number of long-distance trips. This was true for both males and females. Trip rates for long-distance travel declined for individuals 65 or older.

**TABLE 8.4**  
**NUMBER OF PERSONS AND TRAVEL PERIOD PERSON TRIPS BY AGE AND SEX**  
**1990 NPTS**  
**(THOUSANDS)**

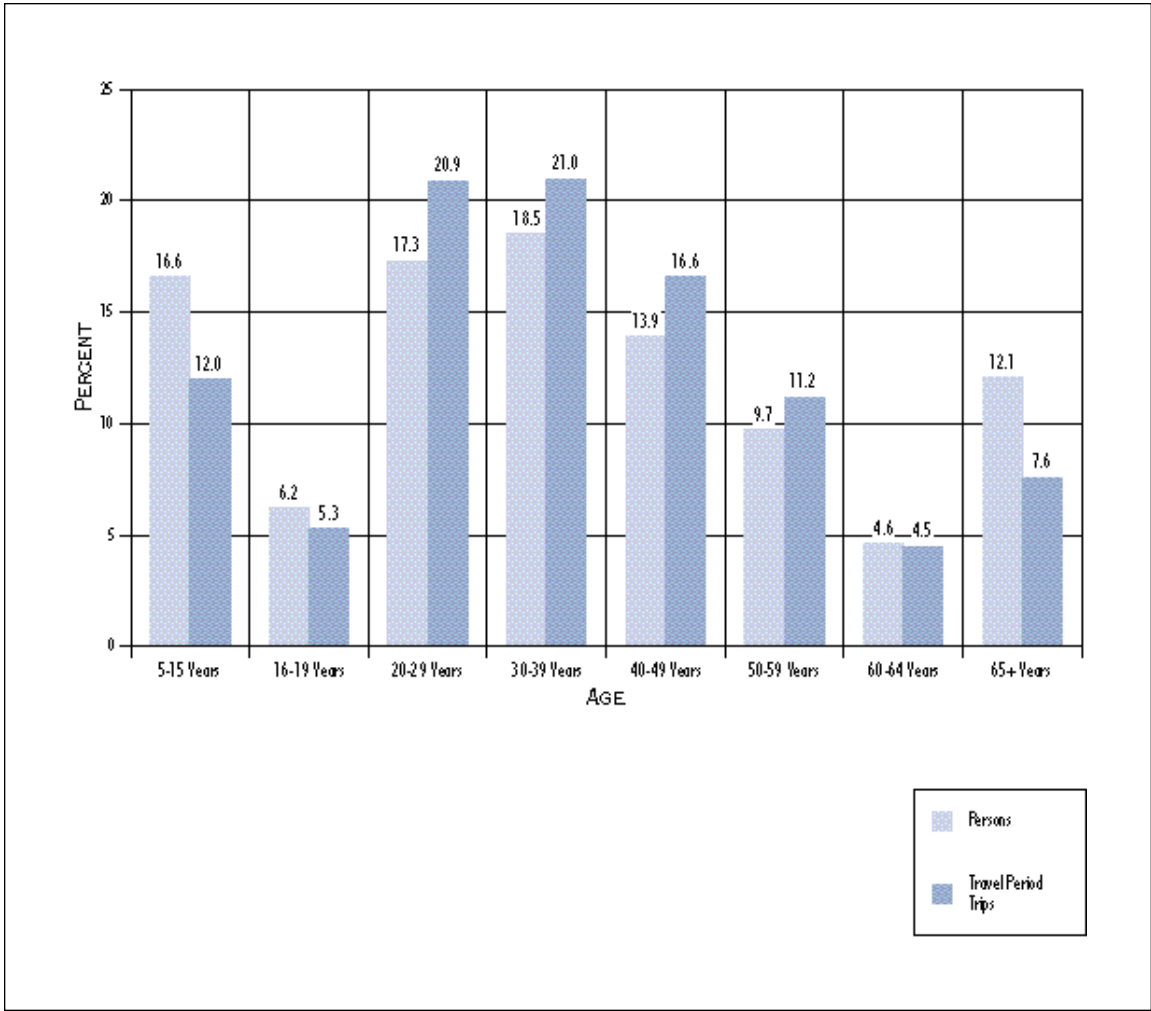
Age	Male		Female		TOTAL	
	Travel Period Trips	Persons	Travel Period Trips	Persons	Travel Period Trips	Persons
5-15	179,012 (11.6%)	18,997 (17.9%)	168,779 (12.4%)	17,973 (15.5%)	347,791 (12.0%)	36,970 (16.6%)
16-19	76,829 (5.0%)	6,727 (6.3%)	77,527 (5.7%)	7,124 (6.1%)	154,357 (5.3%)	13,851 (6.2%)
20-29	329,883 (21.3%)	18,471 (17.4%)	278,673 (20.5%)	19,851 (17.1%)	608,556 (20.9%)	38,322 (17.3%)
30-39	323,775 (20.9%)	19,821 (18.7%)	287,188 (21.1%)	21,337 (18.4%)	610,962 (21.0%)	41,158 (18.5%)
40-49	264,733 (17.1%)	15,035 (14.2%)	218,843 (16.1%)	15,734 (13.6%)	483,576 (16.6%)	30,769 (13.9%)
50-59	171,553 (11.1%)	10,400 (9.8%)	153,298 (11.3%)	11,221 (9.7%)	324,851 (11.2%)	21,621 (9.7%)
60-64	71,319 (4.6%)	4,649 (4.4%)	60,357 (4.4%)	5,479 (4.7%)	131,676 (4.5%)	10,128 (4.6%)
65+	120,390 (7.8%)	11,325 (10.7%)	99,630 (7.3%)	15,615 (13.5%)	220,020 (7.6%)	26,940 (12.1%)
Unreported	10,171 (0.6%)	739 (0.7%)	14,188 (1.0%)	1,515 (1.3%)	25,282 (0.9%)	2,342 <sup>1</sup> (1.1%)
<b>TOTAL</b>	<b>1,547,665</b> (100.0%)	<b>106,164</b> (100.0%)	<b>1,358,483</b> (100.0%)	<b>115,849</b> (100.0%)	<b>2,907,071<sup>1</sup></b> (100.0%)	<b>222,101<sup>1</sup></b> (100.0%)

<sup>1</sup> Includes persons or trips where sex is unreported.



**FIGURE 8.2**

**DISTRIBUTION OF PERSONS AND TRAVEL PERIOD PERSON TRIPS BY AGE  
1990 NPTS**



Households without children were more likely to select airplanes for their long-distance travel than households with children. Those households used privately owned vehicles

more for their long-distance travel. The cost of airfares for the entire household is one probable reason for the prevalence of POV travel in households with children.

TABLE 8.5

NUMBER OF TRAVEL PERIOD PERSON TRIPS BY HOUSEHOLD COMPOSITION AND MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)

	Private Vehicle	Bus	Airplane	Other	TOTAL <sup>1</sup>
Single adult, no children	222,647 (90.3%)	4,957 (2.0%)	15,016 (6.1%)	3,845 (1.6%)	246,464 (100.0%)
Two or more adults, no children	832,629 (92.1%)	10,015 (1.1%)	51,530 (5.7%)	9,156 (1.0%)	903,966 (100.0%)
Single adult, youngest child under 6	29,275 (94.7%)	503 (1.6%)	1,136 (3.7%)	10 (0.0%)	30,924 (100.0%)
Two or more adults, youngest child under 6	507,071 (94.9%)	3,872 (0.7%)	18,088 (3.4%)	4,863 (0.9%)	534,115 (100.0%)
Single adult, youngest child 6-15	65,658 (94.5%)	1,264 (1.8%)	1,028 (1.5%)	1,543 (2.2%)	69,507 (100.0%)
Two or more adults, youngest child 6-15	563,212 (94.1%)	6,952 (1.2%)	19,680 (3.3%)	8,787 (1.5%)	598,631 (100.0%)
Single adult, youngest child 16-21	17,807 (93.6%)	582 (3.1%)	313 (1.6%)	333 (1.7%)	19,034 (100.0%)
Two or more adults, youngest child 16-21	172,979 (94.7%)	1,736 (1.0%)	6,870 (3.8%)	934 (0.5%)	182,617 (100.0%)
Single adult, retired, no children	42,392 (86.5%)	1,937 (4.0%)	3,836 (7.8%)	815 (1.7%)	48,980 (100.0%)
Two or more adults retired, no children	235,191 (92.8%)	2,108 (0.8%)	13,447 (5.3%)	2,318 (0.9%)	253,338 (100.0%)
Unreported	17,231 (88.4%)	** (0.0%)	2,265 (11.6%)	** (0.0%)	19,496 (100.0%)
<b>TOTAL</b>	<b>2,706,091</b> (93.1%)	<b>33,926</b> (1.2%)	<b>133,208</b> (4.6%)	<b>32,603</b> (1.1%)	<b>2,907,071</b> (100.0%)

<sup>1</sup> Includes trips where mode of transportation was unreported.

\*\* Indicates no data reported.

The 1990 NPTS estimated that American households took a total of 1.5 billion vehicle trips at least 75 miles long in 1990. These long trips amounted to more than 337 billion

vehicle miles of travel. Travel by households with annual income more than \$40,000 accounted for 36% of the total long-distance driving, both in terms of trips and miles.

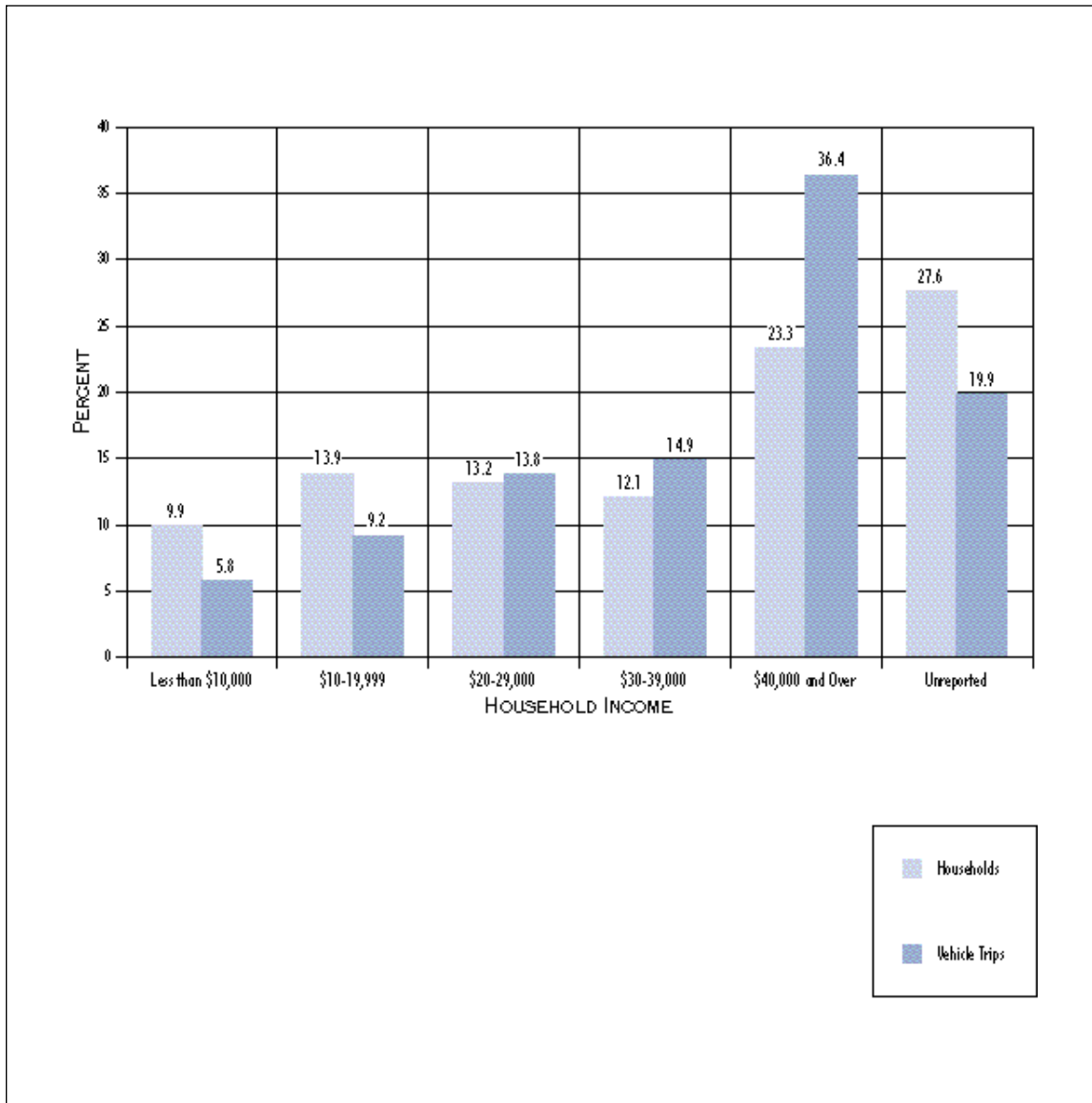
**TABLE 8.6**

**SUMMARY STATISTICS ON TRAVEL PERIOD VEHICLE TRIPS BY HOUSEHOLD INCOME  
1990 NPTS**

Family Income	Number of Households (000)		Travel Period Vehicle Trips (000)		Travel Period Vehicle Miles of Travel (000,000)		Average Travel Period Trip Lengths (miles)
Under \$10,000	9,252	(9.9%)	89,472	(5.8%)	17,734	(5.3%)	198.2
\$10,000-\$19,999	13,011	(13.9%)	141,794	(9.2%)	35,961	(10.7%)	253.6
\$20,000-\$29,999	12,294	(13.2%)	211,489	(13.8%)	39,847	(11.8%)	188.4
\$30,000-\$39,999	11,323	(12.1%)	228,192	(14.9%)	57,149	(16.9%)	250.4
>\$40,000	21,704	(23.3%)	559,525	(36.4%)	123,071	(36.5%)	220.0
Unreported	25,762	(27.6%)	304,794	(19.9%)	63,571	(18.8%)	208.6
<b>TOTAL</b>	<b>93,347</b>	<b>(100.0%)</b>	<b>1,535,265</b>	<b>(100.0%)</b>	<b>337,332</b>	<b>(100.0%)</b>	<b>219.7</b>

FIGURE 8.3

DISTRIBUTION OF HOUSEHOLDS AND TRAVEL PERIOD VEHICLE TRIPS BY HOUSEHOLD INCOME  
1990 NPTS



In terms of person trips by all modes, households with annual income greater than \$40,000 took more long-distance person trips by all modes than households in other income groups — 38% of the 2.9 billion long-distance person trips estimated in the 1990

NPTS. Social and recreational activities generated approximately 70% of total travel period person trips. High-income households took more long-distance trips for work-related business and took longer trips than households in other income groups.

TABLE 8.7

NUMBER OF TRAVEL PERIOD PERSON TRIPS BY HOUSEHOLD INCOME AND TRIP PURPOSE  
1990 NPTS

	Less than \$10,000	\$10,000- \$19,999	\$20,000- \$29,999	\$30,000- \$39,999	\$40,000 or More	Unreported	TOTAL
<b>Earning a Living</b>	<b>8,121</b>	<b>10,710</b>	<b>27,761</b>	<b>26,292</b>	<b>100,617</b>	<b>50,807</b>	<b>224,308</b>
	(4.9%)	(3.9%)	(7.3%)	(6.2%)	(9.2%)	(8.9%)	(7.7%)
<b>Family and Personal Business</b>	<b>26,955</b>	<b>60,055</b>	<b>90,796</b>	<b>67,458</b>	<b>205,665</b>	<b>111,799</b>	<b>562,728</b>
	(16.1%)	(21.7%)	(24.0%)	(15.8%)	(18.9%)	(19.7%)	(19.4%)
<b>Civic, Educational, &amp; Religious</b>	<b>4,333</b>	<b>5,795</b>	<b>4,565</b>	<b>7,152</b>	<b>16,307</b>	<b>7,282</b>	<b>45,434</b>
	(2.6%)	(2.1%)	(1.2%)	(1.7%)	(1.5%)	(1.3%)	(1.6%)
<b>Social &amp; Recreational</b>	<b>125,466</b>	<b>196,745</b>	<b>250,464</b>	<b>320,620</b>	<b>756,847</b>	<b>390,220</b>	<b>2,040,362</b>
	(75.1%)	(71.0%)	(66.2%)	(75.2%)	(69.4%)	(68.7%)	(70.2%)
<b>Other<sup>1</sup></b>	<b>2,122</b>	<b>3,780</b>	<b>4,578</b>	<b>4,937</b>	<b>10,785</b>	<b>8,037</b>	<b>34,239</b>
	(1.3%)	(1.3%)	(1.2%)	(1.1%)	(1.0%)	(1.4%)	(1.1%)
<b>TOTAL</b>	<b>166,997</b>	<b>277,085</b>	<b>378,164</b>	<b>426,459</b>	<b>1,090,221</b>	<b>568,145</b>	<b>2,907,071</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<b>Average Trip Length (Miles)</b>	<b>277</b>	<b>281</b>	<b>263</b>	<b>303</b>	<b>336</b>	<b>294</b>	<b>305</b>

<sup>1</sup> Includes trips where trip purpose was unreported.

TABLE 8.8

**NUMBER OF TRAVEL PERIOD PERSON TRIPS BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)**

Income	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
<b>Under \$10,000</b>	<b>150,974</b>	<b>4,583</b>	<b>147</b>	<b>3,226</b>	<b>6,346</b>	<b>1,409</b>	<b>166,997</b>
	(90.4%)	(2.7%)	(0.1%)	(1.9%)	(3.8%)	(0.8%)	(100.0%)
<b>\$10,000 - \$19,999</b>	<b>262,152</b>	<b>5,900</b>	<b>68</b>	<b>478</b>	<b>7,656</b>	<b>831</b>	<b>277,086</b>
	(94.6%)	(2.1%)	(0.0%)	(0.2%)	(2.8%)	(0.3%)	(100.0%)
<b>\$20,000 - \$29,999</b>	<b>360,520</b>	<b>3,623</b>	<b>**</b>	<b>259</b>	<b>12,136</b>	<b>1,614</b>	<b>378,164</b>
	(95.3%)	(1.0%)	(0.0%)	(0.1%)	(3.2%)	(0.4%)	(100.0%)
<b>\$30,000 - \$39,999</b>	<b>404,281</b>	<b>5,849</b>	<b>461</b>	<b>1,992</b>	<b>10,375</b>	<b>3,402</b>	<b>426,459</b>
	(94.8%)	(1.4%)	(0.1%)	(0.5%)	(2.4%)	(0.8%)	(100.0%)
<b>\$40,000 or More</b>	<b>1,004,337</b>	<b>7,399</b>	<b>2,081</b>	<b>5,380</b>	<b>64,533</b>	<b>5,945</b>	<b>1,090,221</b>
	(92.1%)	(0.7%)	(0.2%)	(0.5%)	(5.9%)	(0.5%)	(100.0%)
<b>Unreported</b>	<b>523,827</b>	<b>6,572</b>	<b>486</b>	<b>1,452</b>	<b>32,162</b>	<b>3,373</b>	<b>568,145</b>
	(92.2%)	(1.2%)	(0.1%)	(0.3%)	(5.7%)	(0.6%)	(100.0%)
<b>TOTAL</b>	<b>2,706,091</b>	<b>33,926</b>	<b>3,244</b>	<b>12,786</b>	<b>133,208</b>	<b>16,574</b>	<b>2,907,071</b>
	(93.1%)	(1.2%)	(0.1%)	(0.4%)	(4.6%)	(0.6%)	(100.0%)

<sup>1</sup> Includes trips where mode of transportation was unreported.

\*\* Indicates no data reported.

TABLE 8.9

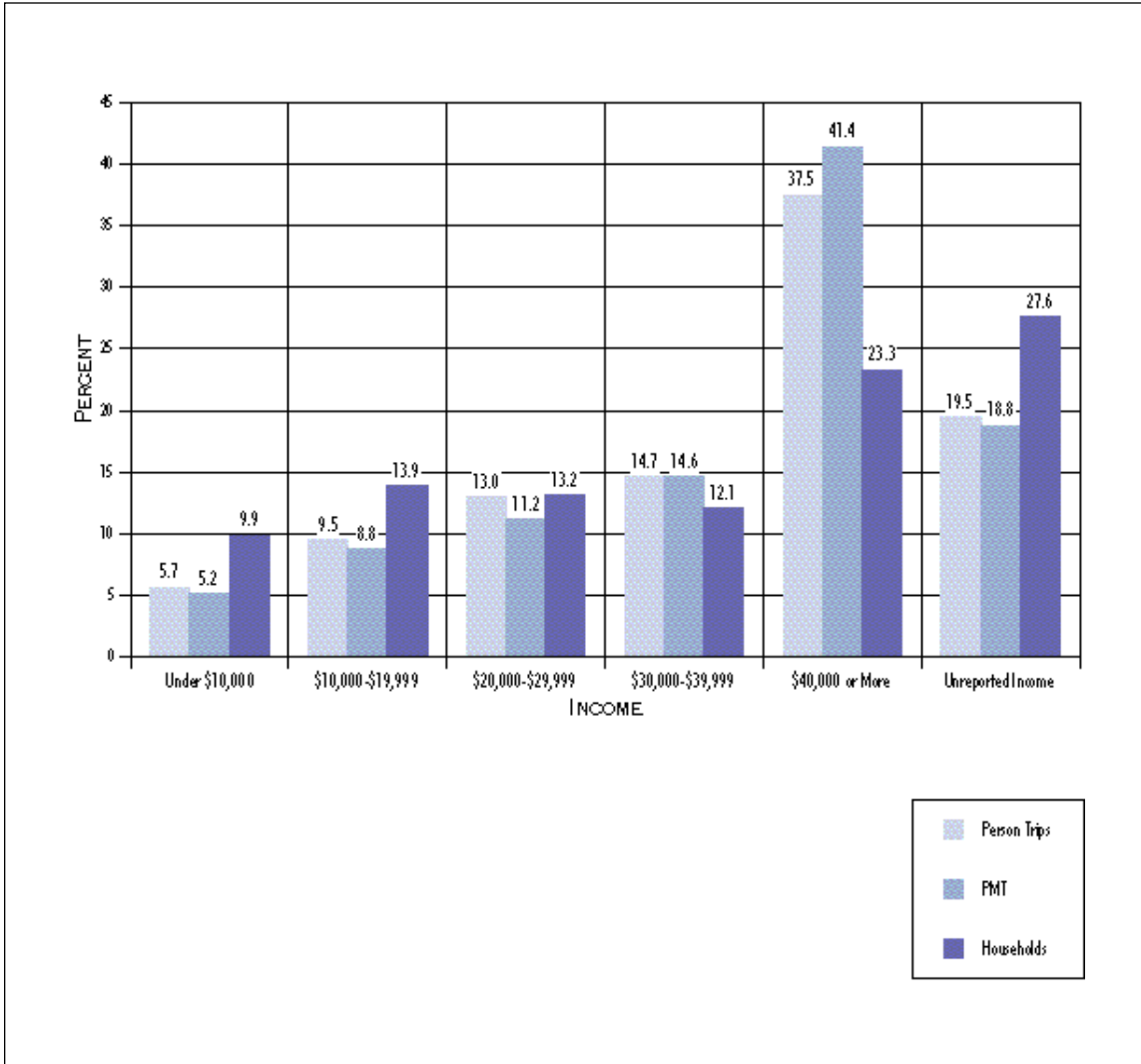
**NUMBER OF TRAVEL PERIOD PERSON MILES OF TRAVEL  
BY HOUSEHOLD INCOME AND MODE OF TRANSPORTATION  
1990 NPTS  
(MILLIONS)**

Income	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
<b>Under \$10,000</b>	<b>32,024</b>	<b>1,463</b>	<b>14</b>	<b>643</b>	<b>11,875</b>	<b>215</b>	<b>46,258</b>
	(69.2%)	(3.2%)	(0.0%)	(1.4%)	(25.7%)	(0.5%)	(100.0%)
<b>\$10,000 - \$19,999</b>	<b>61,300</b>	<b>1,309</b>	<b>7</b>	<b>77</b>	<b>15,141</b>	<b>120</b>	<b>77,953</b>
	(78.6%)	(1.7%)	(0.0%)	(0.1%)	(19.4%)	(0.2%)	(100.0%)
<b>\$20,000 - \$29,999</b>	<b>73,061</b>	<b>896</b>	<b>**</b>	<b>78</b>	<b>24,992</b>	<b>431</b>	<b>99,459</b>
	(73.5%)	(0.9%)	(0.0%)	(0.1%)	(25.1%)	(0.4%)	(100.0%)
<b>\$30,000 - \$39,999</b>	<b>108,229</b>	<b>1,194</b>	<b>133</b>	<b>373</b>	<b>18,132</b>	<b>952</b>	<b>129,042</b>
	(83.9%)	(0.9%)	(0.1%)	(0.3%)	(14.1%)	(0.7%)	(100.0%)
<b>\$40,000 or More</b>	<b>234,046</b>	<b>1,594</b>	<b>223</b>	<b>4,065</b>	<b>124,452</b>	<b>2,167</b>	<b>366,659</b>
	(63.8%)	(0.4%)	(0.1%)	(1.1%)	(33.9%)	(0.6%)	(100.0%)
<b>Unreported</b>	<b>115,740</b>	<b>1,481</b>	<b>40</b>	<b>316</b>	<b>47,607</b>	<b>1,215</b>	<b>166,865</b>
	(69.4%)	(0.9%)	(0.0%)	(0.2%)	(28.5%)	(0.7%)	(100.0%)
<b>TOTAL</b>	<b>624,400</b>	<b>7,937</b>	<b>416</b>	<b>5,552</b>	<b>242,198</b>	<b>5,100</b>	<b>886,235</b>
	(70.5%)	(0.9%)	(0.0%)	(0.6%)	(27.3%)	(0.6%)	(100.0%)

<sup>1</sup> Includes miles of travel where mode of transportation was unreported.      \*\* Indicates no data reported.

FIGURE 8.4

DISTRIBUTION OF TRAVEL PERIOD PERSON TRAVEL AND HOUSEHOLDS BY HOUSEHOLD INCOME  
1990 NPTS



HOUSEHOLD CHARACTERISTICS CHARACTERISTICS OF LONGER TRIPS



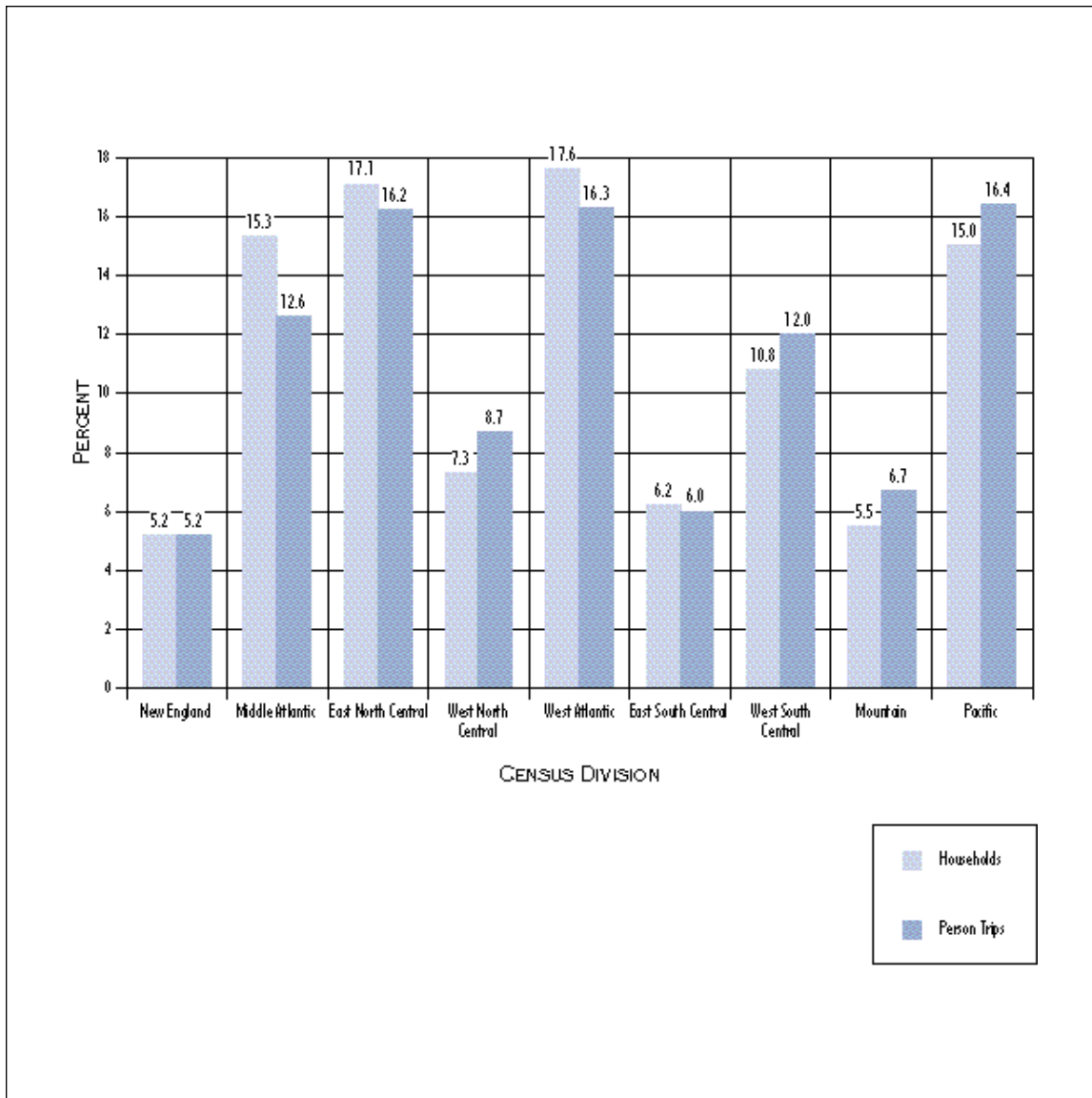
TABLE 8.10

SUMMARY STATISTICS ON TRAVEL PERIOD TRIPS BY CENSUS DIVISION<sup>1</sup>  
1990 NPTS

New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	TOTAL
<b>Number of Households (000)</b>									
4,826 (5.2%)	14,301 (15.3%)	15,961 (17.1%)	6,799 (7.3%)	16,428 (17.6%)	5,777 (6.2%)	10,057 (10.8%)	5,160 (5.5%)	14,038 (15.0%)	<b>93,347</b> (100.0%)
<b>Number of Person Trips (000)</b>									
152,362 (5.2%)	366,530 (12.6%)	469,919 (16.2%)	251,359 (8.7%)	472,526 (16.3%)	174,454 (6.0%)	349,895 (12.0%)	193,558 (6.7%)	476,468 (16.4%)	<b>2,907,071</b> (100.0%)
<b>Person Miles of Travel (000,000)</b>									
36,009 (4.1%)	108,722 (12.3%)	142,382 (16.1%)	59,436 (6.7%)	152,969 (17.3%)	39,160 (4.4%)	99,354 (11.2%)	61,415 (6.9%)	186,788 (21.1%)	<b>886,235</b> (100.0%)
<b>Number of Vehicle Trips (000)</b>									
83,313 (5.4%)	185,811 (12.1%)	249,379 (16.2%)	129,429 (8.4%)	252,637 (16.5%)	101,635 (6.6%)	191,944 (12.5%)	99,189 (6.5%)	241,927 (15.8%)	<b>1,535,265</b> (100.0%)
<b>Vehicle Miles of Travel (000,000)</b>									
14,624 (4.3%)	37,772 (11.2%)	57,810 (17.1%)	26,511 (7.9%)	62,957 (18.7%)	19,412 (5.8%)	42,861 (12.7%)	22,944 (6.8%)	52,441 (15.5%)	<b>337,332</b> (100.0%)
<sup>1</sup> See Glossary for a listing of states in each Census Division.									

FIGURE 8.5

DISTRIBUTION OF HOUSEHOLDS AND TRAVEL PERIOD PERSON TRIPS BY CENSUS DIVISION  
1990 NPTS



Most travel period trips were taken by private vehicles. Considering only person trips taken by private vehicle, 56.7% were taken as the drivers of these trips; and the remaining 43.3% were taken as passengers. Although the trips taken by private vehicles amounted

to 93% of the total travel period person trips, they only accounted for 70% of the total miles of travel. This difference was accounted for by trips taken by airplane, which comprised 4.6% of the total number of trips and yet 27.3% of the total mileage.

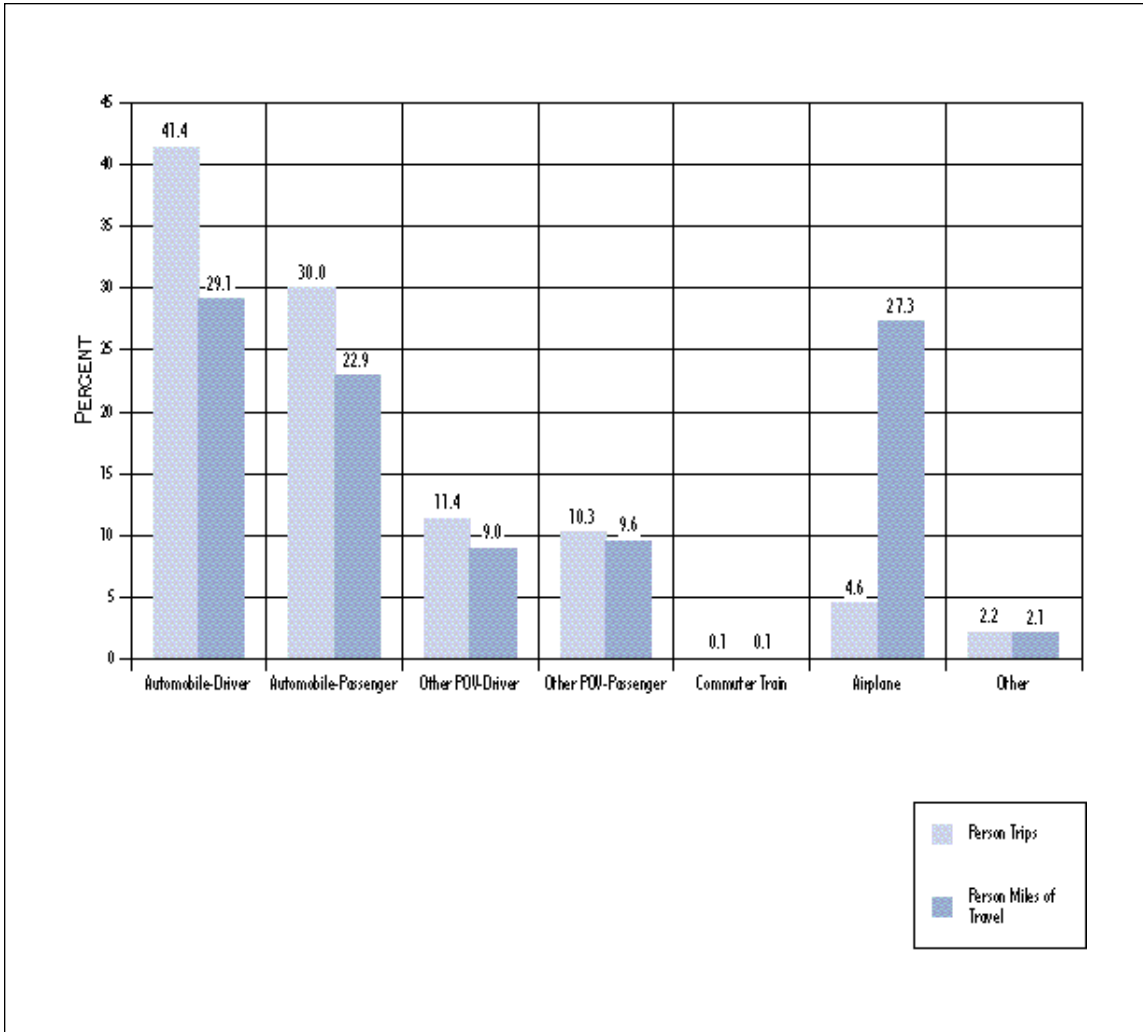
TABLE 8.11

NUMBER OF TRAVEL PERIOD PERSON TRIPS AND TRAVEL PERIOD PERSON MILES OF TRAVEL  
BY MODE OF TRANSPORTATION  
1990 NPTS

Mode	Person Trip (000)		Person Miles of Travel (000,000)	
<b>Private Vehicle</b>				
Automobile-Driver	1,204,043	(41.4%)	257,834	(29.1%)
Automobile-Passenger	872,137	(30.0%)	202,637	(22.9%)
Passenger Van-Driver	101,323	(3.5%)	29,712	(3.4%)
Passenger Van-Passenger	156,604	(5.4%)	45,740	(5.2%)
Pickup Truck-Driver	191,352	(6.6%)	36,110	(4.1%)
Pickup Truck-Passenger	104,222	(3.6%)	20,842	(2.4%)
Other POV-Driver	38,548	(1.3%)	13,676	(1.5%)
Other POV-Passenger	37,863	(1.3%)	17,848	(2.0%)
<b>Subtotal</b>	<b>2,706,092</b>	<b>(93.1%)</b>	<b>624,399</b>	<b>(70.5%)</b>
<b>Other Means</b>				
Bus	33,926	(1.2%)	7,937	(0.9%)
Commuter Train	3,244	(0.1%)	416	(0.05%)
Amtrak	12,786	(0.4%)	5,552	(0.6%)
Airplane	133,208	(4.6%)	242,198	(27.3%)
School Bus	7,817	(0.3%)	877	(0.1%)
Taxi	148	(0.01%)	44	(0.01%)
Bicycle	51	(0.00%)	4	(0.00%)
Other	8,557	(0.3%)	4,174	(0.5%)
<b>Subtotal</b>	<b>199,737</b>	<b>(6.9%)</b>	<b>261,202</b>	<b>(29.5%)</b>
<b>Unreported Mode</b>				
<b>Subtotal</b>	<b>1,243</b>	<b>(0.04%)</b>	<b>633</b>	<b>(0.07%)</b>
<b>TOTAL</b>	<b>2,907,071</b>	<b>(100.0%)</b>	<b>886,235</b>	<b>(100.0%)</b>

FIGURE 8.6

DISTRIBUTION OF TRAVEL PERIOD PERSON TRAVEL BY MODE OF TRANSPORTATION  
1990 NPTS



Unlike daily travel which was usually for work- or family and personal-related business, the great majority of long-distance trips, 70.2%, were for social and recreational

purposes. Visiting friends and relatives was the most common purpose of social and recreational trips.

TABLE 8.12

NUMBER OF TRAVEL PERIOD PERSON TRIPS AND TRAVEL PERIOD PERSON MILES OF TRAVEL  
BY TRIP PURPOSE  
1990 NPTS

	Person Trips (000)		Person Miles of Travel (000,000)	
<b>EARNING A LIVING</b>				
To or from Work	50,855	(1.7%)	6,124	(0.7%)
Work-Related Business	173,453	(6.0%)	74,628	(8.4%)
<b>Subtotal</b>	<b>224,308</b>	<b>(7.7%)</b>	<b>80,752</b>	<b>(9.1%)</b>
<b>FAMILY &amp; PERSONAL BUSINESS</b>				
Family/Personal Related	423,446	(14.6%)	112,287	(12.7%)
Shopping	93,957	(3.2%)	11,342	(1.3%)
Doctor/Dentist	45,325	(1.6%)	5,424	(0.6%)
<b>Subtotal</b>	<b>562,728</b>	<b>(19.4%)</b>	<b>129,053</b>	<b>(14.6%)</b>
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>				
<b>Subtotal</b>	<b>45,434</b>	<b>(1.6%)</b>	<b>7,227</b>	<b>(0.8%)</b>
<b>SOCIAL &amp; RECREATIONAL</b>				
Vacation	370,948	(12.8%)	218,567	(24.7%)
Visiting Friends/Relatives	934,704	(32.2%)	267,865	(30.2%)
Pleasure Driving	71,931	(2.5%)	12,105	(1.3%)
Other Social/Recreational	662,779	(22.8%)	161,894	(18.3%)
<b>Subtotal</b>	<b>2,040,362</b>	<b>(70.2%)</b>	<b>660,431</b>	<b>(74.5%)</b>
<b>OTHER<sup>1</sup></b>				
<b>Subtotal</b>	<b>34,239</b>	<b>(1.2%)</b>	<b>8,772</b>	<b>(1.0%)</b>
<b>TOTAL</b>	<b>2,907,071</b>	<b>(100.0%)</b>	<b>886,235</b>	<b>(100.0%)</b>
<sup>1</sup> Includes trips and miles of travel where trip purpose was unreported.				

FIGURE 8.7

DISTRIBUTION OF TRAVEL PERIOD PERSON TRAVEL BY TRIP PURPOSE  
1990 NPTS

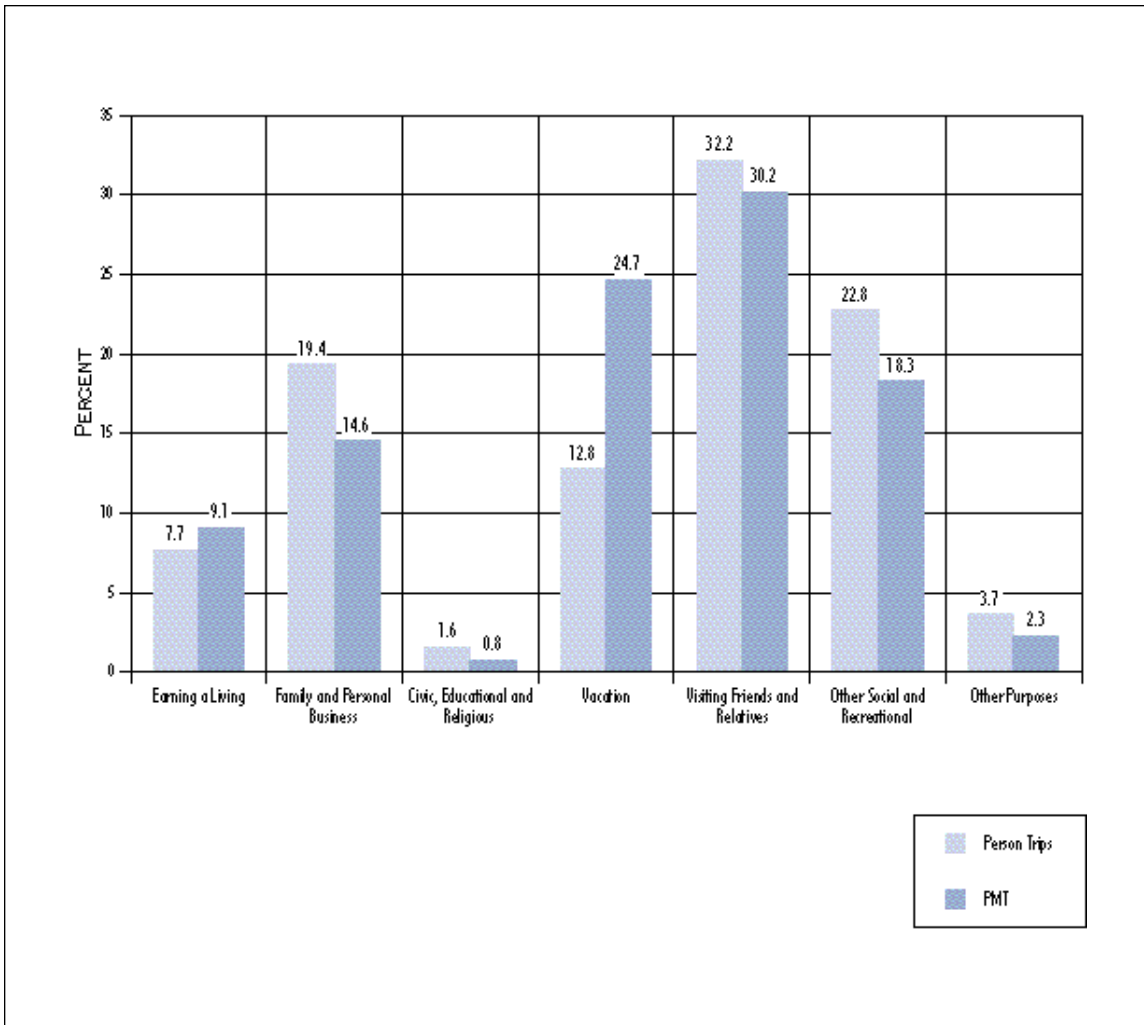


TABLE 8.13

**NUMBER OF TRAVEL PERIOD PERSON TRIPS BY TRIP PURPOSE AND MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)**

	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
<b>EARNING A LIVING</b>							
To or From Work	48,101 (1.8%)	** (0.0%)	1,302 (40.1%)	1,453 (11.4%)	** (0.0%)	** (0.0%)	50,855 (1.7%)
Work-Related Business	134,788 (5.0%)	892 (2.6%)	67 (2.1%)	1,494 (11.7%)	34,495 (25.9%)	1,561 (9.4%)	173,453 (6.0%)
<b>Subtotal</b>	<b>182,889</b> (6.8%)	<b>892</b> (2.6%)	<b>1,369</b> (42.2%)	<b>2,947</b> (23.1%)	<b>34,495</b> (25.9%)	<b>1,561</b> (9.4%)	<b>224,308</b> (7.7%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	93,800 (3.5%)	16 (0.0%)	8 (0.2%)	** (0.0%)	132 (0.1%)	** (0.0%)	93,957 (3.2%)
Doctor/Dentist	44,512 (1.6%)	805 (2.4%)	8 (0.2%)	** (0.0%)	** (0.0%)	** (0.0%)	45,325 (1.6%)
Other Family or Personal Business	405,189 (15.0%)	3,340 (9.8%)	27 (0.8%)	1,217 (9.5%)	12,872 (9.7%)	802 (4.8%)	423,446 (14.6%)
<b>Subtotal</b>	<b>543,501</b> (20.1%)	<b>4,161</b> (12.2%)	<b>43</b> (1.3%)	<b>1,217</b> (9.5%)	<b>13,004</b> (9.8%)	<b>802</b> (4.8%)	<b>562,728</b> (19.4%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>39,215</b> (1.4%)	<b>4,465</b> (13.2%)	<b>41</b> (1.3%)	<b>**</b> (0.0%)	<b>15</b> (0.0%)	<b>1,698</b> (10.2%)	<b>45,434</b> (1.6%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	322,336 (11.9%)	3,887 (11.5%)	69 (2.1%)	2,106 (16.5%)	40,048 (30.1%)	2,047 (12.4%)	370,948 (12.8%)
Visiting Friends/Relatives	893,207 (33.0%)	5,948 (17.5%)	1,267 (39.1%)	4,780 (37.4%)	28,739 (21.6%)	230 (1.4%)	934,704 (32.2%)
Pleasure Driving	71,931 (2.7%)	** (0.0%)	** (0.0%)	** (0.0%)	** (0.0%)	** (0.0%)	71,931 (2.5%)
Other Social/Recreational	622,458 (23.0%)	14,077 (41.5%)	455 (14.0%)	1,736 (13.6%)	15,425 (11.6%)	8,530 (51.5%)	662,779 (22.8%)
<b>Subtotal</b>	<b>1,909,932</b> (70.6%)	<b>23,912</b> (70.5%)	<b>1,791</b> (55.2%)	<b>8,622</b> (67.4%)	<b>84,212</b> (63.3%)	<b>10,807</b> (65.3%)	<b>2,040,362</b> (70.3%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>28,430</b> (1.1%)	<b>496</b> (1.5%)	<b>**</b> (0.0%)	<b>**</b> (0.0%)	<b>1,482</b> (1.1%)	<b>1,706</b> (10.3%)	<b>32,115</b> (1.1%)
<b>TOTAL<sup>1</sup></b>	<b>2,706,091</b> (100.0%)	<b>33,926</b> (100.0%)	<b>3,244</b> (100.0%)	<b>12,786</b> (100.0%)	<b>133,208</b> (100.0%)	<b>16,574</b> (100.0%)	<b>2,907,071</b> (100.0%)

<sup>1</sup> Includes trips where trip purpose, mode of transportation, or both were unreported.

\*\* Indicates no data available.

TABLE 8.14

**NUMBER OF TRAVEL PERIOD PERSON MILES OF TRAVEL BY TRIP PURPOSE AND MODE OF TRANSPORTATION  
1990 NPTS  
(MILLIONS)**

	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
<b>EARNING A LIVING</b>							
To or From Work	5,875 (0.9%)	** (0.0%)	104 (24.9%)	145 (2.6%)	** (0.0%)	** (0.0%)	<b>6,124</b> (0.7%)
Work-Related Business	23,777 (3.8%)	281 (3.5%)	5 (1.3%)	540 (9.7%)	49,655 (20.5%)	355 (7.0%)	<b>74,628</b> (8.4%)
<b>Subtotal</b>	<b>29,652</b> (4.7%)	<b>281</b> (3.5%)	<b>109</b> (26.2%)	<b>686</b> (12.3%)	<b>49,655</b> (20.5%)	<b>355</b> (7.0%)	<b>80,752</b> (9.1%)
<b>FAMILY AND PERSONAL BUSINESS</b>							
Shopping	10,943 (1.8%)	2 (0.0%)	1 (0.1%)	** (0.0%)	397 (0.2%)	** (0.0%)	<b>11,342</b> (1.3%)
Doctor/Dentist	5,359 (0.9%)	64 (0.8%)	1 (0.1%)	** (0.0%)	** (0.0%)	** (0.0%)	<b>5,424</b> (0.6%)
Other Family or Personal Business	85,018 (13.6%)	444 (5.6%)	3 (0.7%)	247 (4.4%)	26,454 (10.9%)	122 (2.4%)	<b>112,287</b> (12.7%)
<b>Subtotal</b>	<b>101,320</b> (16.3%)	<b>510</b> (6.4%)	<b>4</b> (0.9%)	<b>247</b> (4.4%)	<b>26,851</b> (11.1%)	<b>122</b> (2.4%)	<b>129,053</b> (14.6%)
<b>CIVIC, EDUCATIONAL AND RELIGIOUS</b>							
<b>Subtotal</b>	<b>6,265</b> (1.0%)	<b>722</b> (9.1%)	<b>3</b> (0.7%)	<b>**</b> (0.0%)	<b>59</b> (0.0%)	<b>178</b> (3.5%)	<b>7,227</b> (0.8%)
<b>SOCIAL AND RECREATIONAL</b>							
Vacation	130,984 (21.0%)	975 (12.3%)	14 (3.3%)	2,325 (41.9%)	82,002 (33.9%)	1,758 (34.5%)	<b>218,567</b> (24.7%)
Visiting Friends/Relatives	216,323 (34.6%)	1,996 (25.1%)	201 (48.3%)	1,774 (31.9%)	47,230 (19.5%)	263 (5.2%)	<b>267,865</b> (30.2%)
Pleasure Driving	12,105 (1.9%)	** (0.0%)	** (0.0%)	** (0.0%)	** (0.0%)	** (0.0%)	<b>12,105</b> (1.4%)
Other Social/Recreational	121,238 (19.4%)	3,377 (42.5%)	86 (20.5%)	521 (9.4%)	34,480 (14.2%)	2,162 (42.4%)	<b>161,894</b> (18.3%)
<b>Subtotal</b>	<b>480,650</b> (76.9%)	<b>6,348</b> (79.9%)	<b>300</b> (72.1%)	<b>4,620</b> (83.2%)	<b>163,712</b> (67.6%)	<b>4,183</b> (82.1%)	<b>660,431</b> (74.6%)
<b>OTHER</b>							
<b>Subtotal</b>	<b>6,124</b> (1.0%)	<b>75</b> (0.9%)	<b>**</b> (0.0%)	<b>**</b> (0.0%)	<b>1,922</b> (0.8%)	<b>261</b> (5.1%)	<b>8,382</b> (0.9%)
<b>TOTAL<sup>1</sup></b>	<b>624,400</b> (100.0%)	<b>7,937</b> (100.0%)	<b>416</b> (100.0%)	<b>5,552</b> (100.0%)	<b>242,198</b> (100.0%)	<b>5,100</b> (100.0%)	<b>886,235</b> (100.0%)
<sup>1</sup> Includes miles of travel where trip purpose, mode of transportation, or both were unreported.			** Indicates no data available.				



Regardless of vehicle type or trip purpose, vehicle occupancy rate was significantly higher for longer trips compared to typical daily trips.

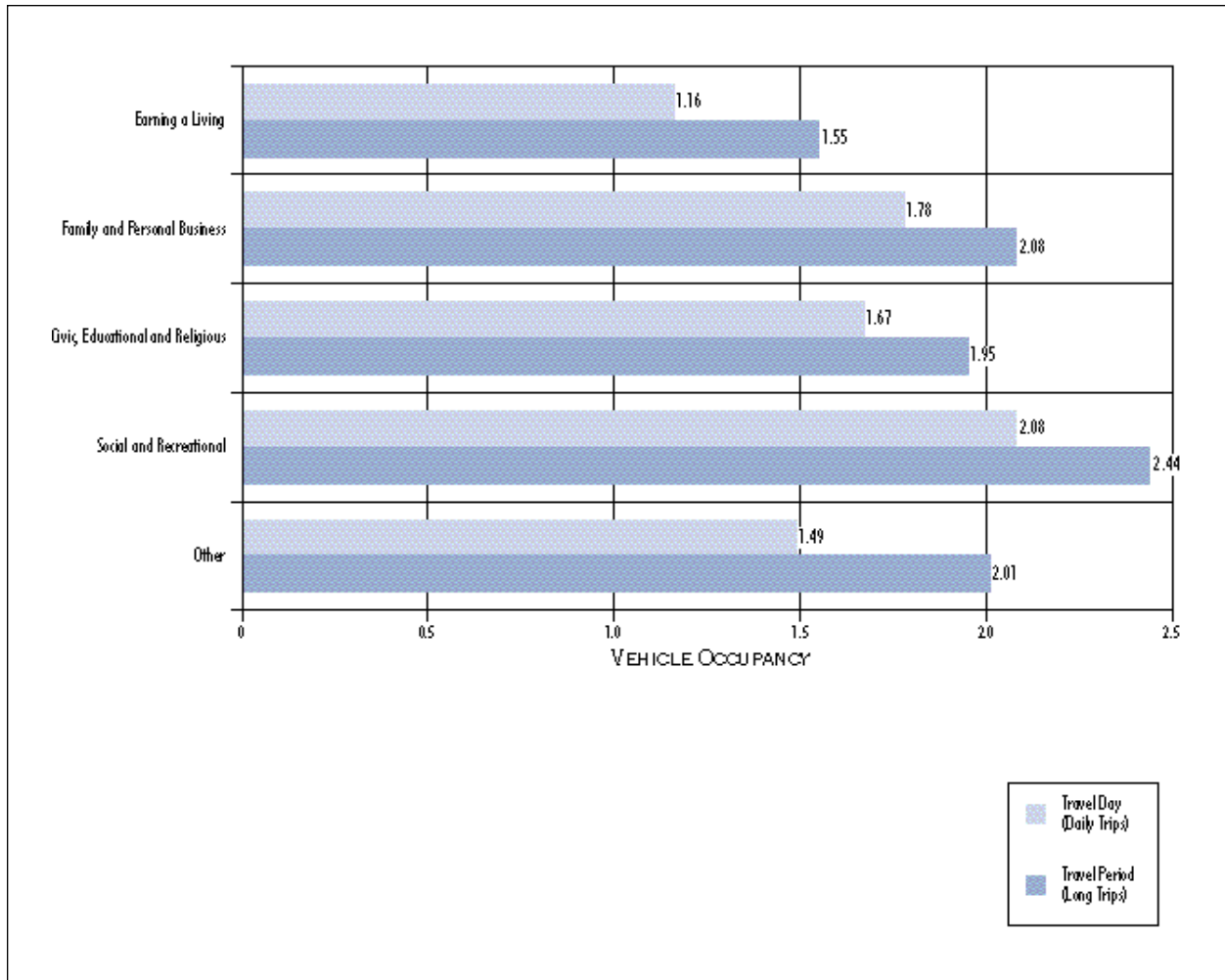
TABLE 8.15

VEHICLE OCCUPANCY OF AN AVERAGE LONG TRIP BY TRIP PURPOSE AND VEHICLE TYPE  
(PERSON MILES PER VEHICLE MILE)  
1990 NPTS

Mode	Earning a Living	Family & Personal Business	Civic, Educational & Religious	Social & Recreational	Other	ALL PURPOSES	
						Longer Trips (Travel Period)	Daily Trips (Travel Day)
Auto	1.47	2.08	1.94	2.29	1.86	2.19	1.62
Passenger Van	2.89	2.44	3.19	3.12	3.60	3.02	2.55
Cargo Van	*	*	**	*	*	*	1.24
Pickup Truck	1.40	1.92	1.08	2.30	1.70	2.09	1.47
Other Truck	1.73	1.53	*	2.76	**	1.93	1.41
RV/Motor Home	**	*	**	2.76	**	2.76	2.55
Motorcycle	**	1.58	**	1.64	*	1.63	1.37
<b>ALL</b>	<b>1.55</b>	<b>2.08</b>	<b>1.95</b>	<b>2.44</b>	<b>2.01</b>	<b>2.30</b>	<b>1.64</b>
* Indicates insufficient data available.			** Indicates no data available.				

FIGURE 8.8

COMPARISON OF AVERAGE VEHICLE OCCUPANCY BETWEEN TRAVEL DAY  
AND TRAVEL PERIOD TRIPS BY TRIP PURPOSE  
1990 NPTS



Thirty-four percent of the long-distance trips were to destinations less than 100 miles away from home, and almost an equal number of trips were to places between 100 and 200 miles from home. As expected, the num-

ber of trips declined when the distance away from home increased. In 1990, 4.5% of the estimated long trips were to places 1,000 miles away from home, but these trips accounted for 36% of person miles of travel.

TABLE 8.16

NUMBER OF TRAVEL PERIOD PERSON TRIPS AND TRAVEL PERIOD PERSON MILES OF TRAVEL  
BY TRIP DISTANCE  
1990 NPTS

Trip Distance	No. of Person Trips (000)		No. of Person Miles of Travel (000,000)	
75-100 miles	1,001,131	(34.4%)	86,549	(9.8%)
101-200 miles	981,945	(33.8%)	146,230	(16.5%)
201-400 miles	514,297	(17.7%)	150,524	(17.0%)
401-600 miles	148,409	(5.1%)	75,750	(8.5%)
601-800 miles	78,713	(2.7%)	56,645	(6.4%)
801-1,000 miles	50,729	(1.7%)	47,955	(5.4%)
1,001-2,500 miles	100,291	(3.4%)	160,493	(18.1%)
> 2,500 miles	31,556	(1.1%)	162,090	(18.3%)
<b>TOTAL</b>	<b>2,907,071</b>	<b>(100.0%)</b>	<b>886,235</b>	<b>(100.0%)</b>

TABLE 8.17

**NUMBER OF TRAVEL PERIOD PERSON TRIPS BY TRIP DISTANCE AND MODE OF TRANSPORTATION  
1990 NPTS  
(THOUSANDS)**

Trip Distance	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
75-100 miles	975,408 (36.0%)	10,158 (29.9%)	2,325 (71.7%)	5,276 (41.3%)	1,307 (1.0%)	6,190 (37.3%)	<b>1,001,131</b> (34.4%)
101-200 miles	959,564 (35.5%)	11,666 (34.4%)	341 (10.5%)	2,431 (19.0%)	3,111 (2.3%)	4,819 (29.1%)	<b>981,945</b> (33.8%)
201-400 miles	485,995 (18.0%)	9,673 (28.5%)	578 (17.8%)	1,960 (15.3%)	13,230 (9.9%)	2,372 (14.3%)	<b>514,297</b> (17.7%)
401-600 miles	134,813 (5.0%)	1,094 (3.2%)	** (0.0%)	512 (4.0%)	11,502 (8.6%)	487 (2.9%)	<b>148,409</b> (5.1%)
601-800 miles	65,677 (2.4%)	690 (2.0%)	** (0.0%)	837 (6.5%)	10,693 (8.0%)	817 (4.9%)	<b>78,713</b> (2.7%)
801-1,000 miles	34,131 (1.3%)	160 (0.5%)	** (0.0%)	240 (1.9%)	14,870 (11.2%)	1,328 (8.0%)	<b>50,729</b> (1.7%)
1,000-2,500 miles	42,919 (1.6%)	466 (1.4%)	** (0.0%)	1,269 (9.9%)	54,887 (41.2%)	477 (2.9%)	<b>100,291</b> (3.4%)
>2,500 miles	7,584 (0.3%)	18 (0.1%)	** (0.0%)	262 (2.1%)	23,607 (17.7%)	84 (0.5%)	<b>31,556</b> (1.1%)
<b>TOTAL</b>	<b>2,706,091</b> (100.0%)	<b>33,926</b> (100.0%)	<b>3,244</b> (100.0%)	<b>12,786</b> (100.0%)	<b>133,208</b> (100.0%)	<b>16,574</b> (100.0%)	<b>2,907,071</b> (100.0%)

<sup>1</sup> Includes trips where mode of transportation was unreported.                      \*\* Indicates no data reported.

**TABLE 8.18**  
**DISTRIBUTION OF TRAVEL PERIOD PERSON TRIPS BY TRIP DISTANCE AND MODE OF TRANSPORTATION**  
**1990 NPTS**  
**(PERCENT)**

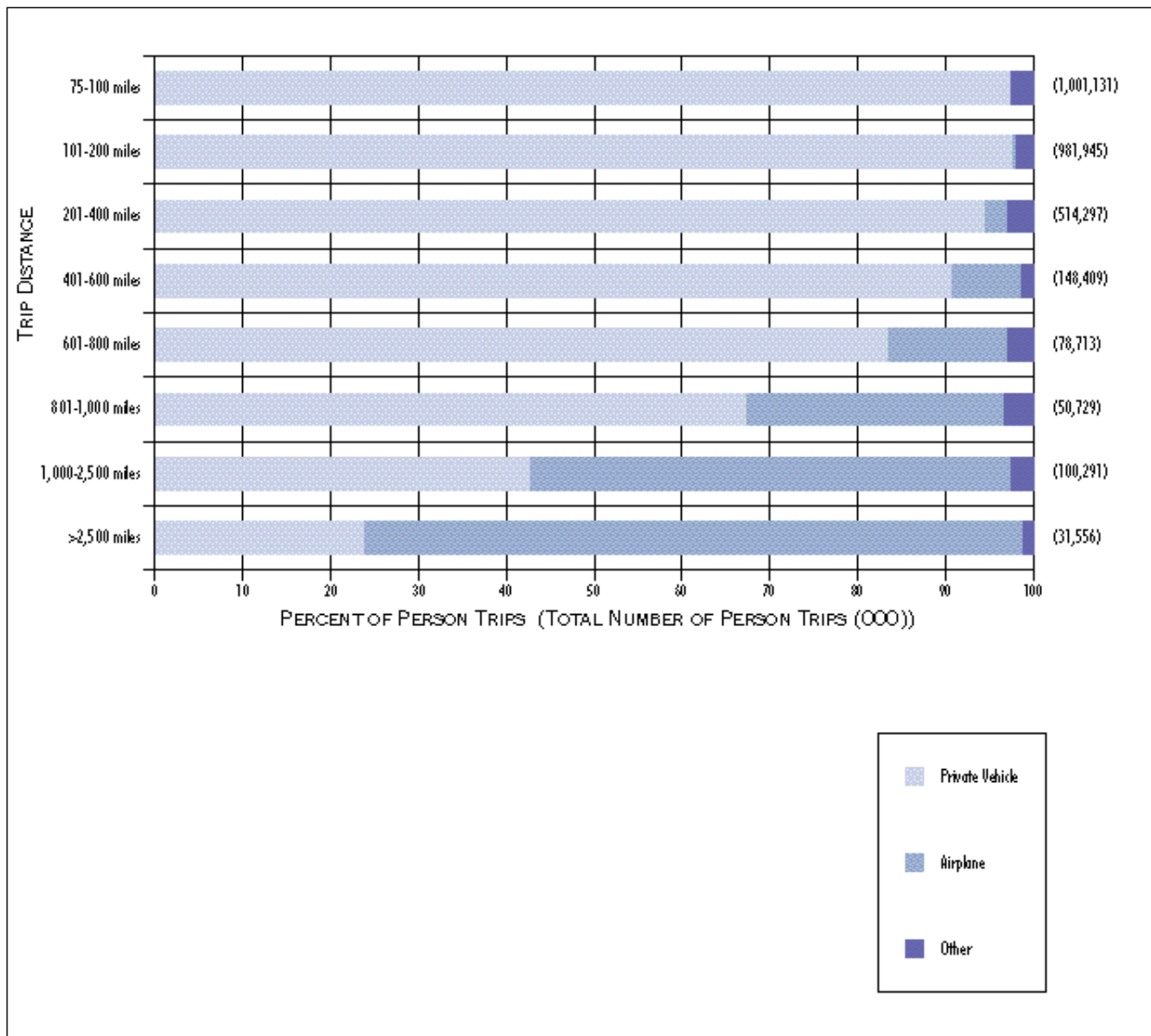
Trip Distance	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
75-100 miles	97.4%	1.0%	0.2%	0.5%	0.1%	0.6%	100.0%
101-200 miles	97.7%	1.2%	0.0%	0.2%	0.3%	0.5%	100.0%
201-400 miles	94.5%	1.9%	0.1%	0.4%	2.6%	0.5%	100.0%
401-600 miles	90.8%	0.7%	**	0.3%	7.8%	0.3%	100.0%
601-800 miles	83.4%	0.9%	**	1.1%	13.6%	1.0%	100.0%
801-1,000 miles	67.3%	0.3%	**	0.5%	29.3%	2.6%	100.0%
1,000-2,500 miles	42.8%	0.5%	**	1.3%	54.7%	0.5%	100.0%
>2,500 miles	24.0%	0.1%	**	0.8%	74.8%	0.3%	100.0%
<b>TOTAL</b>	<b>93.1%</b>	<b>1.2%</b>	<b>0.1%</b>	<b>0.4%</b>	<b>4.6%</b>	<b>0.6%</b>	<b>100.0%</b>

<sup>1</sup> Includes trips where mode of transportation was unreported.

\*\* Indicates no data reported.

FIGURE 8.9

DISTRIBUTION OF TRAVEL PERIOD PERSON TRIPS BY TRIP DISTANCE AND MODE OF TRANSPORTATION  
1990 NPTS  
(WITHIN TRIP DISTANCE)



TRIP CHARACTERISTICS CHARACTERISTICS OF LONGER TRIPS

**TABLE 8.19**

**NUMBER OF TRAVEL PERIOD PERSON MILES OF TRAVEL BY TRIP DISTANCE AND MODE OF TRANSPORTATION  
1990 NPTS  
(MILLIONS)**

Trip Distance	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
75-100 miles	84,299 (13.5%)	873 (11.0%)	189 (45.4%)	507 (9.1%)	113 (0.0%)	528 (10.4%)	86,549 (9.8%)
101-200 miles	142,597 (22.8%)	1,898 (23.9%)	48 (11.5%)	412 (7.4%)	525 (0.2%)	749 (14.7%)	146,230 (16.5%)
201-400 miles	141,692 (22.7%)	2,945 (37.1%)	179 (43.1%)	544 (9.8%)	4,324 (1.8%)	712 (14.0%)	150,524 (17.0%)
401-600 miles	68,522 (11.0%)	541 (6.8%)	** (0.0%)	262 (4.7%)	6,181 (2.6%)	244 (4.8%)	75,750 (8.5%)
601-800 miles	46,956 (7.5%)	528 (6.7%)	** (0.0%)	643 (11.6%)	7,865 (3.2%)	654 (12.8%)	56,645 (6.4%)
801-1,000 miles	31,822 (5.1%)	158 (2.0%)	** (0.0%)	240 (4.3%)	14,489 (6.0%)	1,246 (24.4%)	47,955 (5.4%)
1,000-2,500 miles	61,384 (9.8%)	940 (11.8%)	** (0.0%)	2,156 (38.8%)	94,815 (39.1%)	732 (14.4%)	160,493 (18.1%)
>2,500 miles	47,129 (7.5%)	55 (0.7%)	** (0.0%)	787 (14.2%)	113,885 (47.0%)	235 (4.6%)	162,090 (18.3%)
<b>TOTAL</b>	<b>624,400</b> (100.0%)	<b>7,937</b> (100.0%)	<b>416</b> (100.0%)	<b>5,552</b> (100.0%)	<b>242,198</b> (100.0%)	<b>5,100</b> (100.0%)	<b>886,235</b> (100.0%)

<sup>1</sup> Includes miles of travel where mode of transportation was unreported.

\*\* Indicates no data reported.

**TABLE 8.20**

**DISTRIBUTION OF TRAVEL PERIOD PERSON MILES OF TRAVEL BY TRIP DISTANCE  
AND MODE OF TRANSPORTATION  
1990 NPTS  
(PERCENT)**

Trip Distance	Private Vehicle	Bus	Commuter Train	Amtrak	Airplane	Other	TOTAL <sup>1</sup>
75-100 miles	97.4%	1.0%	0.2%	0.6%	0.1%	0.6%	100.0%
101-200 miles	97.5%	1.3%	0.0%	0.3%	0.4%	0.5%	100.0%
201-400 miles	94.1%	2.0%	0.1%	0.4%	2.9%	0.5%	100.0%
401-600 miles	90.5%	0.7%	**	0.3%	8.2%	0.3%	100.0%
601-800 miles	82.9%	0.9%	**	1.1%	13.9%	1.2%	100.0%
801-1,000 miles	66.4%	0.3%	**	0.5%	30.2%	2.6%	100.0%
1,000-2,500 miles	38.2%	0.6%	**	1.3%	59.1%	0.5%	100.0%
>2,500 miles	29.1%	0.0%	**	0.5%	70.3%	0.1%	100.0%
<b>TOTAL</b>	70.5%	0.9%	0.0%	0.6%	27.3%	0.6%	100.0%
<sup>1</sup> Includes miles of travel where mode of transportation was unreported.      ** Indicates no data reported.							



FIGURE 8.10

DISTRIBUTION OF TRAVEL PERIOD PERSON TRAVEL BY TRIP DISTANCE  
1990 NPTS

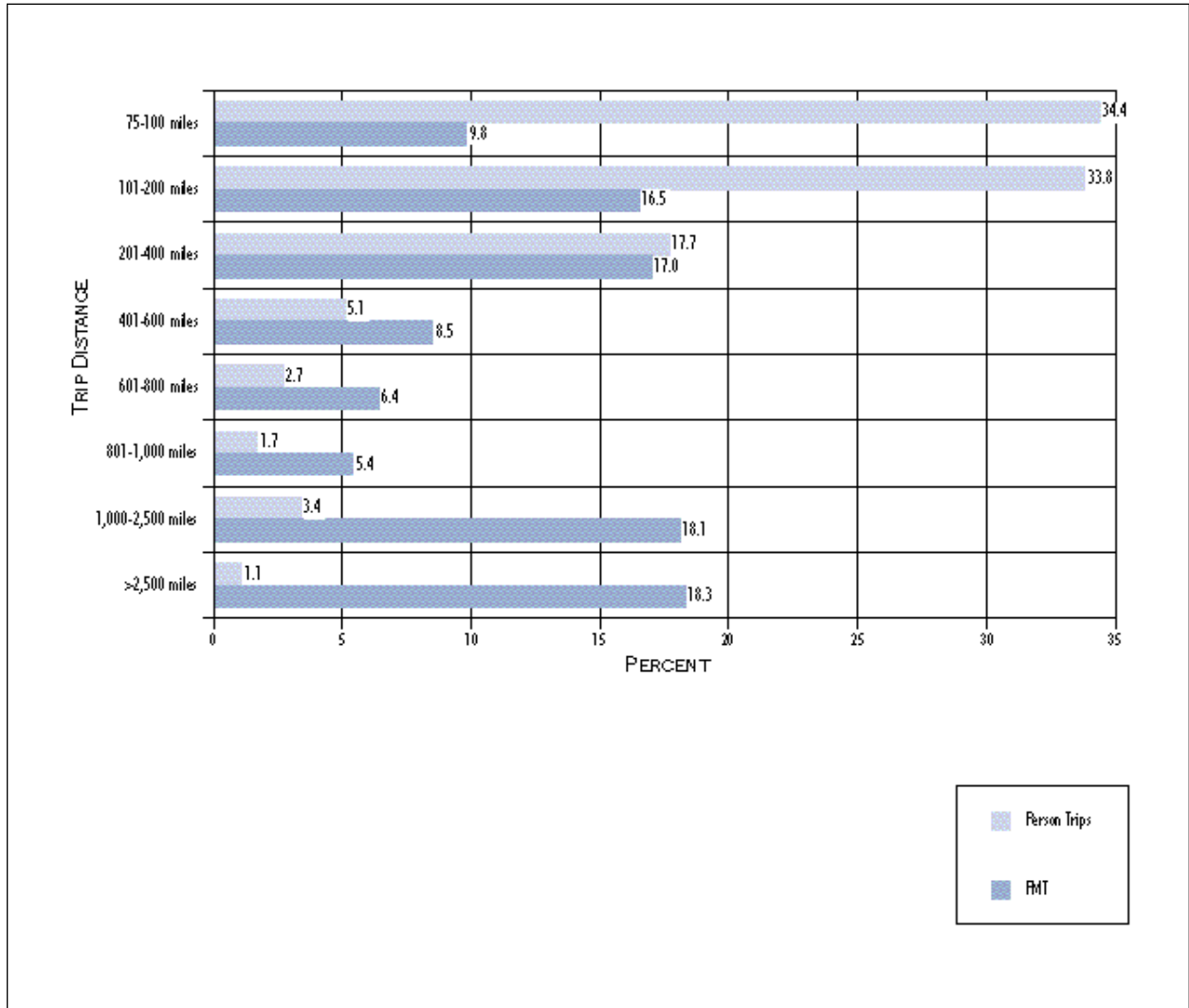
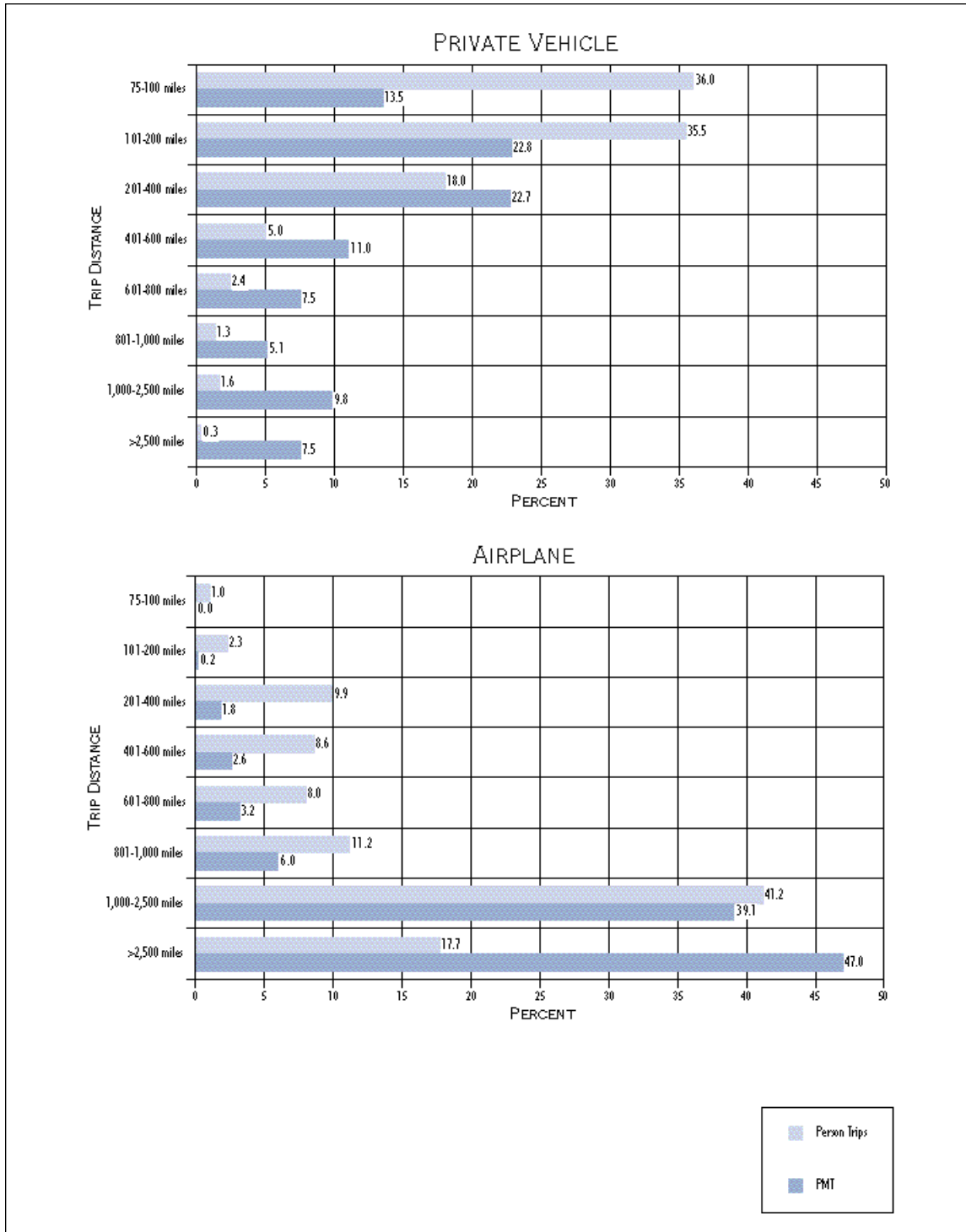


FIGURE 8.11

DISTRIBUTION OF TRAVEL PERIOD PERSON TRAVEL FOR PRIVATE VEHICLE AND AIRPLANE BY TRIP DISTANCE  
1990 NPTS



TRIP CHARACTERISTICS CHARACTERISTICS OF LONGER TRIPS

TABLE 8.21

NUMBER OF TRAVEL PERIOD PERSON TRIPS BY TRIP DISTANCE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)

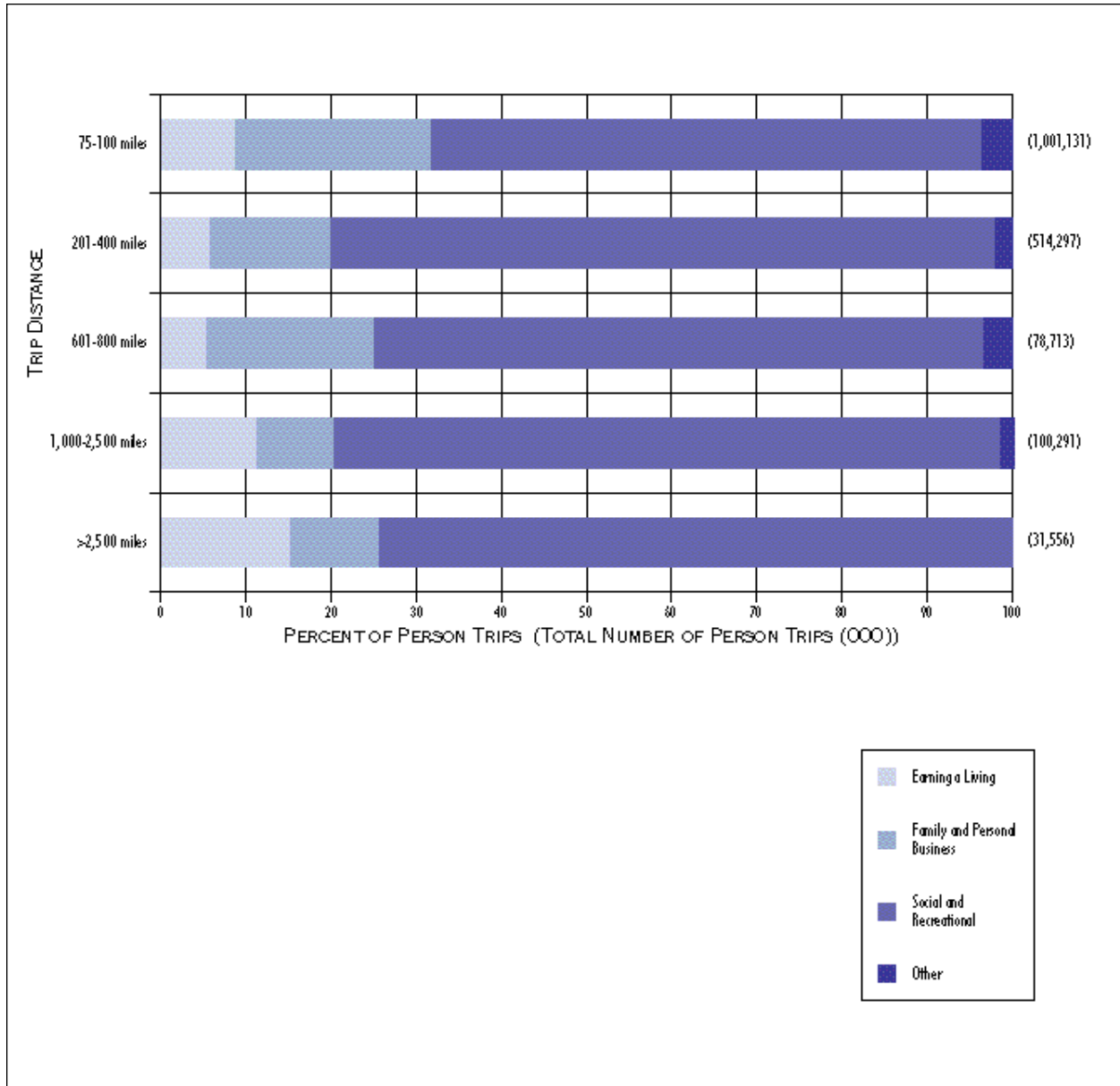
Trip Distance	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
75-100 miles	87,882 (39.2%)	231,589 (41.2%)	24,482 (53.9%)	645,737 (31.6%)	11,223 (34.9%)	1,001,131 (34.4%)
101-200 miles	69,603 (31.0%)	204,170 (36.3%)	12,782 (28.1%)	682,565 (33.5%)	11,623 (36.2%)	981,945 (33.8%)
201-400 miles	30,273 (13.5%)	72,739 (12.9%)	5,621 (12.4%)	401,563 (19.7%)	3,399 (10.6%)	514,297 (17.7%)
401-600 miles	11,525 (5.1%)	23,137 (4.1%)	898 (2.0%)	109,842 (5.4%)	3,008 (9.4%)	148,409 (5.1%)
601-800 miles	4,366 (1.9%)	15,479 (2.8%)	1,510 (3.3%)	56,286 (2.8%)	1,073 (3.3%)	78,713 (2.7%)
801-1,000 miles	4,383 (2.0%)	3,242 (0.6%)	64 (0.1%)	42,543 (2.1%)	498 (1.6%)	50,729 (1.7%)
1,000-2,500 miles	11,417 (5.1%)	9,101 (1.6%)	64 (0.1%)	78,418 (3.8%)	1,291 (4.0%)	100,291 (3.4%)
>2,500 miles	4,859 (2.2%)	3,272 (0.6%)	15 (0.0%)	23,410 (1.1%)	** (0.0%)	31,556 (1.1%)
<b>TOTAL</b>	<b>224,308</b> (100.0%)	<b>562,728</b> (100.0%)	<b>45,434</b> (100.0%)	<b>2,040,363</b> (100.0%)	<b>32,115</b> (100.0%)	<b>2,907,071</b> (100.0%)

<sup>1</sup> Includes trips where trip purpose was unreported.      \*\* Indicates no data reported.

MINNESOTA DEPARTMENT OF TRANSPORTATION

FIGURE 8.12

DISTRIBUTION OF TRAVEL PERIOD PERSON TRIPS BY SELECTED TRIP DISTANCES AND TRIP PURPOSE  
1990 NPTS



TRIP CHARACTERISTICS CHARACTERISTICS OF LONGER TRIPS

TABLE 8.22

**NUMBER OF TRAVEL PERIOD PERSON MILES OF TRAVEL BY TRIP DISTANCE AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

Trip Distance	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
75-100 miles	7,408 (9.2%)	19,910 (15.4%)	2,035 (28.2%)	56,170 (8.5%)	1,004 (12.0%)	<b>86,549</b> (9.8%)
101-200 miles	10,089 (12.5%)	29,242 (22.7%)	1,901 (26.3%)	103,175 (15.6%)	1,650 (19.7%)	<b>146,230</b> (16.5%)
201-400 miles	9,083 (11.2%)	21,149 (16.4%)	1,518 (21.0%)	117,657 (17.8%)	922 (11.0%)	<b>150,524</b> (17.0%)
401-600 miles	6,021 (7.5%)	11,787 (9.1%)	463 (6.4%)	55,934 (8.5%)	1,544 (18.4%)	<b>75,750</b> (8.5%)
601-800 miles	3,202 (4.0%)	11,056 (8.6%)	1,080 (14.9%)	40,534 (6.1%)	774 (9.2%)	<b>56,645</b> (6.4%)
801-1,000 miles	4,190 (5.2%)	3,147 (2.4%)	57 (0.8%)	40,104 (6.1%)	457 (5.5%)	<b>47,955</b> (5.4%)
1,000-2,500 miles	18,182 (22.5%)	13,999 (10.8%)	114 (1.6%)	126,167 (19.1%)	2,030 (24.2%)	<b>160,493</b> (18.1%)
>2,500 miles	22,577 (28.0%)	18,762 (14.5%)	59 (0.8%)	120,692 (18.3%)	** (0.0%)	<b>162,090</b> (18.3%)
<b>TOTAL</b>	<b>80,752</b> (100.0%)	<b>129,053</b> (100.0%)	<b>7,227</b> (100.0%)	<b>660,431</b> (100.0%)	<b>8,382</b> (100.0%)	<b>886,235</b> (100.0%)

<sup>1</sup> Includes miles of travel where trip purpose was unreported.      \*\* Indicates no data reported.

Seventy-eight percent of the long-distance trips were taken by automobiles, and 12.5% by pickup trucks. Passenger vans were used for a disproportionately high percent of long-distance trips. The average length of a long-distance vehicle trip was 220 miles in 1990.

TABLE 8.23

NUMBER OF TRAVEL PERIOD VEHICLE TRIPS AND TRAVEL PERIOD VEHICLE MILES OF TRAVEL  
BY VEHICLE TYPE  
1990 NPTS

Vehicle Type	Vehicle Trips (000)	Vehicle Miles of Travel (000,000)	Average Trip Length (miles)	Percent of Household Vehicles
Automobile	1,204,043 (78.4%)	257,834 (76.4%)	214.1	74.7
Passenger Van	101,323 (6.6%)	29,712 (8.8%)	293.2	4.8
Pickup Truck	191,352 (12.5%)	36,110 (10.7%)	188.7	17.2
RV/Motor Home	11,748 (0.8%)	6,002 (1.8%)	510.9	0.5
Motorcycle	9,833 (0.6%)	1,458 (0.4%)	148.3	1.3
Other <sup>1</sup>	16,966 (1.1%)	6,216 (1.8%)	366.4	1.3
<b>TOTAL</b>	<b>1,535,265</b> (100.0%)	<b>337,332</b> (100.0%)	<b>219.7</b>	<b>100.0</b>

<sup>1</sup> Includes cargo van, other truck and moped.

Two thirds of the long-distance vehicle trips were for social and recreational purposes, 21.2% were for family and personal business, and less than 10% were for work-related purposes. The most common reason for taking a

long trip within the social and recreational category was for visiting friends or relatives, accounting for 33% of total long-distance vehicle trips.

TABLE 8.24

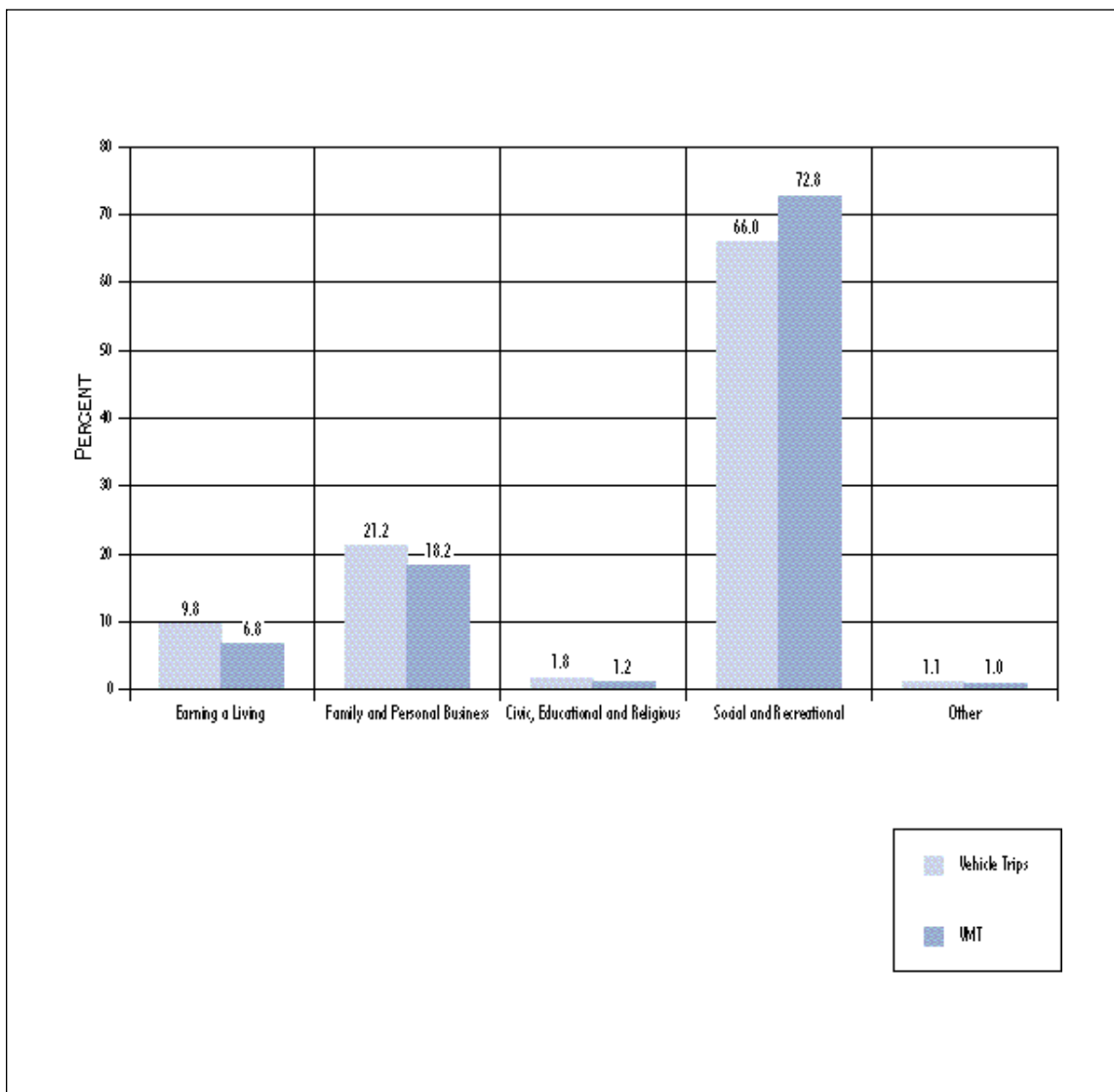
NUMBER OF TRAVEL PERIOD VEHICLE TRIPS AND TRAVEL PERIOD VEHICLE MILES OF TRAVEL  
BY TRIP PURPOSE  
1990 NPTS

	Vehicle Trips (000)		Vehicle Miles of Travel (000,000)		Average Trip Length (miles)
<b>EARNING A LIVING</b>					
To or from Work	42,352	(2.8%)	5,206	(1.5%)	122.9
Work Related Business	108,168	(7.0%)	17,802	(5.3%)	164.6
<b>Subtotal</b>	<b>150,520</b>	<b>(9.8%)</b>	<b>23,008</b>	<b>(6.8%)</b>	<b>152.9</b>
<b>FAMILY &amp; PERSONAL BUSINESS</b>					
Family/Personal Related	249,726	(16.3%)	52,449	(15.5%)	210.0
Shopping	52,448	(3.4%)	6,092	(1.8%)	116.2
Doctor/Dentist	23,698	(1.5%)	2,741	(0.8%)	115.7
<b>Subtotal</b>	<b>325,872</b>	<b>(21.2%)</b>	<b>61,283</b>	<b>(18.2%)</b>	<b>188.1</b>
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>					
<b>Subtotal</b>	<b>27,598</b>	<b>(1.8%)</b>	<b>4,141</b>	<b>(1.2%)</b>	<b>150.1</b>
<b>SOCIAL &amp; RECREATIONAL</b>					
Vacation	152,696	(9.9%)	57,237	(17.0%)	374.8
Visiting Friends/Relatives	498,897	(32.5%)	119,358	(35.4%)	239.2
Pleasure Driving	37,945	(2.5%)	6,905	(2.0%)	182.0
Other	324,419	(21.1%)	61,993	(18.4%)	191.1
<b>Subtotal</b>	<b>1,013,957</b>	<b>(66.0%)</b>	<b>245,493</b>	<b>(72.8%)</b>	<b>242.1</b>
<b>OTHER</b>					
<b>Subtotal</b>	<b>16,178</b>	<b>(1.1%)</b>	<b>3,226</b>	<b>(1.0%)</b>	<b>199.4</b>
<b>TOTAL<sup>1</sup></b>	<b>1,535,265</b>	<b>(100.0%)</b>	<b>337,332</b>	<b>(100.0%)</b>	<b>219.7</b>

<sup>1</sup> Includes trips and miles of travel where trip purpose was unreported.

FIGURE 8.13

DISTRIBUTION OF TRAVEL PERIOD VEHICLE TRAVEL BY TRIP PURPOSE  
1990 NPTS



TRIP CHARACTERISTICS CHARACTERISTICS OF LONGER TRIPS



TABLE 8.25

**NUMBER OF TRAVEL PERIOD VEHICLE TRIPS AND TRAVEL PERIOD VEHICLE MILES OF TRAVEL  
BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS**

Vehicle Type	Vehicle Trips (000)	Vehicle Miles of Travel (000,000)	Average Trip Length (miles)
<b>AUTOMOBILE</b>			
Earning a Living	110,936 (9.2%)	16,201 (6.3%)	146.0
Family & Personal Business	250,890 (20.8%)	47,351 (18.4%)	188.7
Social & Recreational	807,895 (67.1%)	188,212 (73.0%)	233.0
All Other	33,511 (2.8%)	5,930 (2.3%)	177.0
<b>Subtotal<sup>1</sup></b>	<b>1,204,043</b> (100.0%)	<b>257,834</b> (100.0%)	<b>214.1</b>
<b>VAN</b>			
Earning a Living	10,374 (9.8%)	1,565 (4.8%)	150.9
Family & Personal Business	23,859 (22.5%)	4,371 (13.3%)	183.2
Social & Recreational	69,558 (65.6%)	26,323 (80.3%)	378.4
All Other	2,204 (2.1%)	530 (1.6%)	240.4
<b>Subtotal<sup>1</sup></b>	<b>105,996</b> (100.0%)	<b>32,789</b> (100.0%)	<b>309.3</b>
<b>PICKUP TRUCK</b>			
Earning a Living	26,448 (13.8%)	3,969 (11.0%)	150.1
Family & Personal Business	46,409 (24.3%)	8,350 (23.1%)	179.9
Social & Recreational	110,478 (57.7%)	22,876 (63.4%)	207.1
All Other	7,689 (4.0%)	874 (2.4%)	113.6
<b>Subtotal<sup>1</sup></b>	<b>191,352</b> (100.0%)	<b>36,110</b> (100.0%)	<b>188.7</b>

<sup>1</sup> Includes trips or miles of travel where trip purpose was unreported.

TABLE 8.26

**NUMBER OF TRAVEL PERIOD VEHICLE TRIPS BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(THOUSANDS)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>Auto</b>	<b>110,936</b> (73.7%)	<b>250,890</b> (77.0%)	<b>21,863</b> (79.2%)	<b>807,895</b> (79.7%)	<b>11,648</b> (72.0%)	<b>1,204,043</b> (78.4%)
<b>Passenger Van</b>	<b>8,480</b> (5.6%)	<b>22,800</b> (7.0%)	<b>1,438</b> (5.2%)	<b>68,145</b> (6.7%)	<b>460</b> (2.8%)	<b>101,323</b> (6.6%)
<b>Pickup Truck</b>	<b>26,448</b> (17.6%)	<b>46,409</b> (14.2%)	<b>4,149</b> (15.0%)	<b>110,478</b> (10.9%)	<b>3,540</b> (21.9%)	<b>191,352</b> (12.5%)
<b>RV/Motor Home</b>	<b>**</b> (0.0%)	<b>72</b> (0.0%)	<b>**</b> (0.0%)	<b>11,676</b> (1.2%)	<b>**</b> (0.0%)	<b>11,748</b> (0.8%)
<b>Motorcycle</b>	<b>**</b> (0.0%)	<b>1,198</b> (0.4%)	<b>**</b> (0.0%)	<b>8,412</b> (0.8%)	<b>224</b> (1.4%)	<b>9,833</b> (0.6%)
<b>Other<sup>2</sup></b>	<b>4,657</b> (3.1%)	<b>4,504</b> (1.4%)	<b>148</b> (0.5%)	<b>7,351</b> (0.7%)	<b>306</b> (1.9%)	<b>16,966</b> (1.1%)
<b>TOTAL</b>	<b>150,520</b> (100.0%)	<b>325,872</b> (100.0%)	<b>27,598</b> (100.0%)	<b>1,013,957</b> (100.0%)	<b>16,178</b> (100.0%)	<b>1,535,265</b> (100.0%)
<sup>1</sup> Includes trips where trip purpose was unreported.			** Indicates no data reported.			
<sup>2</sup> Includes cargo van, other truck and moped.						

TABLE 8.27

**NUMBER OF TRAVEL PERIOD VEHICLE MILES OF TRAVEL BY VEHICLE TYPE AND TRIP PURPOSE  
1990 NPTS  
(MILLIONS)**

	Earning a Living	Family and Personal Business	Civic, Educational, and Religious	Social and Recreational	Other	TOTAL <sup>1</sup>
<b>Auto</b>	<b>16,201</b>	<b>47,351</b>	<b>3,539</b>	<b>188,212</b>	<b>2,392</b>	<b>257,834</b>
	(70.4%)	(77.3%)	(85.5%)	(76.7%)	(74.1%)	(76.4%)
<b>Passenger Van</b>	<b>1,241</b>	<b>4,162</b>	<b>261</b>	<b>23,850</b>	<b>198</b>	<b>29,712</b>
	(5.4%)	(6.8%)	(6.3%)	(9.7%)	(6.1%)	(8.8%)
<b>Pickup Truck</b>	<b>3,969</b>	<b>8,350</b>	<b>331</b>	<b>22,876</b>	<b>543</b>	<b>36,110</b>
	(17.2%)	(13.6%)	(8.0%)	(9.3%)	(16.8%)	(10.7%)
<b>RV/Motor Home</b>	<b>**</b>	<b>50</b>	<b>**</b>	<b>5,952</b>	<b>**</b>	<b>6,002</b>
	(0.0%)	(0.1%)	(0.0%)	(2.4%)	(0.0%)	(1.8%)
<b>Motorcycle</b>	<b>**</b>	<b>158</b>	<b>**</b>	<b>1,278</b>	<b>22</b>	<b>1,458</b>
	(0.0%)	(0.3%)	(0.0%)	(0.5%)	(0.7%)	(0.4%)
<b>Other<sup>2</sup></b>	<b>1,596</b>	<b>1,212</b>	<b>11</b>	<b>3,325</b>	<b>72</b>	<b>6,216</b>
	(6.9%)	(2.0%)	(0.3%)	(1.3%)	(2.2%)	(1.8%)
<b>TOTAL</b>	<b>23,008</b>	<b>61,283</b>	<b>4,141</b>	<b>245,493</b>	<b>3,226</b>	<b>337,332</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
<sup>1</sup> Includes miles of travel where trip purpose was unreported.			** Indicates no data reported.			
<sup>2</sup> Includes cargo van, other truck and moped.						

FIGURE 8.14

DISTRIBUTION OF TRAVEL PERIOD VEHICLE TRAVEL AND VEHICLES BY VEHICLE TYPE  
1990 NPTS

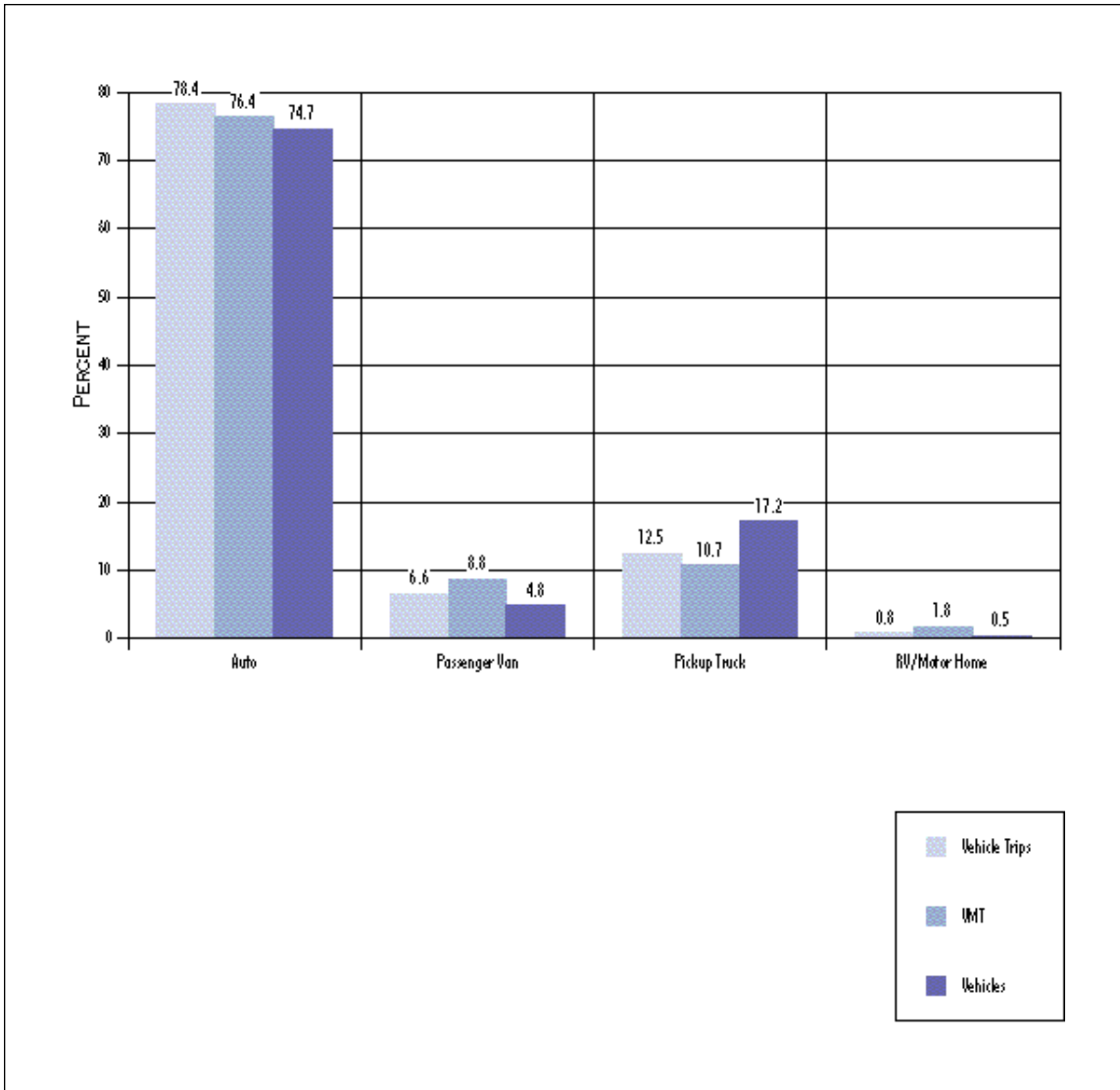


TABLE 8.28

**NUMBER OF TRAVEL PERIOD PERSON TRIPS AND TRAVEL PERIOD PERSON MILES OF TRAVEL BY SEASON<sup>1</sup>  
1983 AND 1990 NPTS<sup>2</sup>**

	Person Trips (000)		Person Miles of Travel (000,000)		Average Trip Length	
	1983	1990	1983	1990	1983	1990
Winter	428,736 (20.3%)	543,826 (18.7%)	155,367 (24.3%)	147,814 (16.7%)	362	272
Spring	523,776 (24.8%)	698,765 (24.0%)	144,498 (22.6%)	256,084 (28.9%)	276	366
Summer	618,816 (29.3%)	846,347 (29.1%)	195,009 (30.5%)	250,275 (28.2%)	315	296
Fall	534,336 (25.3%)	703,661 (24.2%)	143,219 (22.4%)	206,599 (23.3%)	218	294
Unknown	6,336 (0.3%)	114,473 (3.9%)	1,279 (0.2%)	25,463 (2.9%)	241	222
<b>TOTAL</b>	<b>2,112,000</b> (100.0%)	<b>2,907,071</b> (100.0%)	<b>639,372</b> (100.0%)	<b>886,235</b> (100.0%)	<b>303</b>	<b>305</b>

<sup>1</sup> Season: Spring = Mar-May, Summer = June-Aug, Fall = Sept-Nov, Winter = Dec-Feb.

<sup>2</sup> For information on comparing 1983 and 1990 NPTS survey data, see Section 4 of Chapter 1.

TABLE 8.29

**NUMBER OF TRAVEL PERIOD VEHICLE TRIPS BY TRIP PURPOSE AND SEASON'  
1990 NPTS  
(THOUSANDS)**

	Spring	Summer	Fall	Winter	Unreported	TOTAL
<b>EARNING A LIVING</b>						
To or from Work	8,622	6,165	19,270	6,096	2,198	<b>42,352</b>
Work Related Business	33,764	21,938	25,390	21,016	6,060	<b>108,168</b>
<b>Subtotal</b>	<b>42,386</b>	<b>28,103</b>	<b>44,660</b>	<b>27,112</b>	<b>8,259</b>	<b>150,520</b>
<b>FAMILY &amp; PERSONAL BUSINESS</b>						
Other Family/Personal Business	66,147	61,945	62,238	49,104	10,292	<b>249,726</b>
Shopping	13,720	8,761	12,766	13,147	4,054	<b>52,448</b>
Doctor/Dentist	6,243	4,706	5,092	6,342	1,315	<b>23,698</b>
<b>Subtotal</b>	<b>86,110</b>	<b>75,411</b>	<b>80,096</b>	<b>68,593</b>	<b>15,661</b>	<b>325,872</b>
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>						
<b>Subtotal</b>	<b>7,911</b>	<b>8,610</b>	<b>5,858</b>	<b>3,969</b>	<b>1,251</b>	<b>27,598</b>
<b>SOCIAL &amp; RECREATIONAL</b>						
Vacation	30,048	75,258	31,067	10,940	5,383	<b>152,696</b>
Visiting Friends/Relatives	112,967	119,037	128,008	115,456	23,429	<b>498,897</b>
Pleasure Driving	10,802	14,453	7,503	3,257	1,930	<b>37,945</b>
Other Social/Recreational	68,848	100,221	81,889	59,677	13,783	<b>324,419</b>
<b>Subtotal</b>	<b>222,665</b>	<b>308,969</b>	<b>248,466</b>	<b>189,330</b>	<b>44,525</b>	<b>1,013,957</b>
<b>OTHER</b>						
<b>Subtotal</b>	<b>4,944</b>	<b>4,668</b>	<b>3,500</b>	<b>2,660</b>	<b>406</b>	<b>16,178</b>
<b>TOTAL<sup>2</sup></b>	<b>364,179</b>	<b>425,762</b>	<b>382,580</b>	<b>292,479</b>	<b>70,264</b>	<b>1,535,265</b>
	(23.7%)	(27.7%)	(24.9%)	(19.1%)	(4.6%)	(100.0%)
<sup>1</sup> Season: Spring = Mar-May, Summer = June-Aug, Fall = Sept-Nov, Winter = Dec-Feb.			<sup>2</sup> Includes trips where trip purpose was unreported.			

**T**HE NPTS did not collect detailed geographic information on the destination and origin of long-distance trips. Instead, it contains information on the sizes of the destination (e.g., MSA or non-MSA) and the name of the foreign country if traveling abroad. If the destination was MSA's with a population greater than one million, then the specific name of the MSA was given. The outgoing trips were assumed to be home-based, and the return trips were assumed to be from the destinations of the outgoing trips. Based on this limited information on the origins and destinations of long-distance trips, the following five tables present approx-

imate estimates of long-distance passenger flow. A conservative estimate suggests that 84% of long-distance trips were intercity or international travel. This estimate was derived by subtracting from the total number of long-distance person trips (1) 301,236 thousand trips for which one cannot distinguish whether the origin and the destination were within the same area, and (2) 170,992 thousand trips for which the destinations were the same MSA's from which the trips were originated (Table 8.31).

TABLE 8.30

**NUMBER OF TRAVEL PERIOD PERSON TRIPS BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS  
(THOUSANDS)**

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	293,082 (36.5%)	275,295 (34.3%)	219,015 (27.3%)	15,700 (2.0%)	<b>803,092</b> (100.0%)
Remainder of MSA's with a population of 1,000,000+	276,178 (24.3%)	440,131 (38.7%)	411,530 (36.2%)	9,870 (0.9%)	<b>1,137,708</b> (100.0%)
MSA's with a population less than 1,000,000 or Non-MSA	219,018 (23.4%)	411,535 (44.0%)	301,236 (32.2%)	4,416 (0.5%)	<b>936,204</b> (100.0%)
Foreign Country <sup>1</sup>	15,672 (52.1%)	9,978 (33.2%)	4,416 (14.7%)	** (0.0%)	<b>30,066</b> (100.0%)
<b>TOTAL</b>	<b>803,951</b> (27.7%)	<b>1,136,939</b> (39.1%)	<b>936,196</b> (32.2%)	<b>29,986</b> (1.0%)	<b>2,907,071</b> (100.0%)

<sup>1</sup> These are return portions of trip period trips to a foreign country.      \*\* Indicates no data available.



On average, about 90% of the long-distance trips that originated in MSA's with a population greater than one million were to places outside the originating metropolitan areas. However, passenger-flow patterns were different depending on the sizes of the origins. About 20% of the long-distance trips that

were originated in the twenty largest MSA's were to destinations within the originating MSA. However, only 2.3% of the trips that were originated from the remaining MSA's with a population greater than one million travelled within the same MSA.

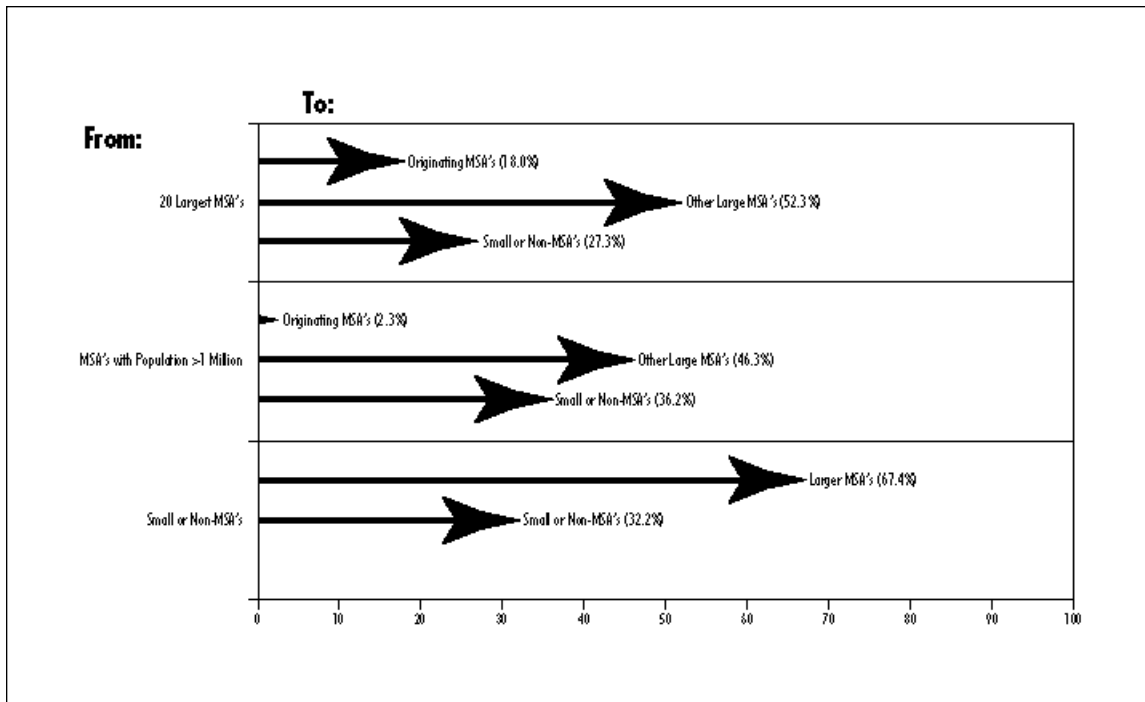
TABLE 8.31

NUMBER OF TRAVEL PERIOD PERSON TRIPS ORIGINATED FROM AN MSA WITH A POPULATION GREATER THAN ONE MILLION BY WHETHER TRAVELLED TO ANOTHER MSA  
1990 NPTS  
(THOUSANDS)

Trip Origin	Trip Destination		TOTAL
	Within Originating MSA	Outside Originating MSA	
Top 20 MSA's	144,265 (18.0%)	658,827 (82.0%)	803,092 (100.0%)
Remaining MSA's that are 1,000,000+	26,727 (2.3%)	1,110,981 (97.7%)	1,137,708 (100.0%)

FIGURE 8.15

DISTRIBUTION OF TRAVEL PERIOD PERSON TRIPS BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS



TYPE OF TRIP ORIGIN AND DESTINATION CHARACTERISTICS OF LONGER TRIPS

This table shows the percentages of long-distance trips by privately owned vehicles from a particular type of origin to a particular type of destination. For example, 86.9% of all long-distance person trips from the twenty largest MSA's to the twenty largest MSA's were by privately owned vehicles - 254,586 thousand trips out of a total of 293,082 thou-

sand trips (Table 8.30). In general, trips to MSA's with a population less than one million or to non-MSA's were taken by privately owned vehicles more frequently than trips to larger MSA's or to foreign countries. This pattern might reflect shorter-distance trips to smaller places or the destinations not being conveniently served by airports (Table 8.33).

TABLE 8.32

NUMBER OF TRAVEL PERIOD PERSON TRIPS TAKEN BY A PRIVATE VEHICLE  
BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS  
(THOUSANDS)

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	254,586	241,367	207,394	11,410	<b>714,757</b>
Remainder of MSA's with a population of 1,000,000+	243,194	411,357	401,270	5,862	<b>1,061,683</b>
MSA's with a population less than 1,000,000 or Non-MSA	206,539	401,893	296,658	3,572	<b>908,662</b>
Foreign Country	11,555	5,862	3,572	*	<b>20,989</b>
<b>TOTAL</b>	<b>715,874</b>	<b>1,060,479</b>	<b>908,894</b>	<b>20,844</b>	<b>2,706,091</b>

\*\* Indicates no data available.

TABLE 8.33

PERCENT<sup>1</sup> OF TRAVEL PERIOD PERSON TRIPS TAKEN BY A PRIVATE VEHICLE  
 BY TYPE OF ORIGIN AND DESTINATION  
 1990 NPTS  
 (PERCENT)

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	86.9%	87.7%	94.7%	72.7%	89.0%
Remainder of MSA's with a population of 1,000,000+	88.1%	93.5%	97.5%	59.4%	93.3%
MSA's with a population less than 1,000,000 or Non-MSA	94.3%	97.7%	98.5%	80.9%	97.1%
Foreign Country	73.7%	58.7%	80.9%	**	69.8%
<b>TOTAL</b>	89.0%	93.3%	97.1%	69.5%	93.1%

<sup>1</sup> These numbers are percentages of all person trips from a particular type of origin to a particular type of destination that were taken by a private vehicle.

\*\* Indicates no data available.

TABLE 8.34

NUMBER OF TRAVEL PERIOD PERSON TRIPS TAKEN BY AN AIRPLANE BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS  
(THOUSANDS)

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	27,226	23,660	6,417	3,853	61,156
Remainder of MSA's with a population of 1,000,000+	22,808	20,809	4,536	3,109	51,262
MSA's with a population less than 1,000,000 or Non-MSA	7,029	4,090	1,109	844	13,072
Foreign Country	3,680	3,194	844	**	7,718
<b>TOTAL</b>	<b>60,743</b>	<b>51,754</b>	<b>12,906</b>	<b>7,806</b>	<b>133,208</b>

\*\* Indicates no data available.

TABLE 8.35

**PERCENT<sup>1</sup> OF TRAVEL PERIOD PERSON TRIPS TAKEN BY AN AIRPLANE  
BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS  
(PERCENT)**

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	9.3%	8.6%	2.9%	24.5%	7.6%
Remainder of MSA's with a population of 1,000,000+	8.3%	4.7%	1.1%	31.5%	4.5%
MSA's with a population less than 1,000,000 or Non-MSA	3.2%	1.0%	0.4%	19.1%	1.4%
Foreign Country	23.5%	32.0%	19.1%	**	25.7%
<b>TOTAL</b>	7.6%	4.6%	1.4%	26.0%	4.6%

<sup>1</sup> These numbers are the percentages of all person trips from a particular type of origin to a particular type of destination that were taken by an airplane.

\*\* Indicates no data available.

TABLE 8.36

**NUMBER OF TRAVEL PERIOD VEHICLE TRIPS BY TYPE OF ORIGIN AND DESTINATION  
1990 NPTS  
(THOUSANDS)**

Trip Origin	Trip Destination				TOTAL
	20 Largest MSA's	Remainder of MSA's with a population of 1,000,000 +	MSA's with a population less than 1,000,000 or Non-MSA	Foreign Country	
20 Largest MSA's	154,576 (37.7%)	144,560 (35.3%)	106,529 (26.0%)	4,060 (1.0%)	<b>409,725</b> (100.0%)
Remainder of MSA's with a population of 1,000,000+	147,558 (23.8%)	246,794 (39.8%)	222,651 (35.9%)	2,380 (0.4%)	<b>619,383</b> (100.0%)
MSA's with a population less than 1,000,000 or Non-MSA	107,009 (21.4%)	224,061 (44.9%)	167,162 (33.5%)	761 (0.2%)	<b>498,994</b> (100.0%)
Foreign Country	4,135 (57.7%)	2,386 (33.3%)	643 (9.0%)	** (0.0%)	<b>7,163</b> (100.0%)
<b>TOTAL</b>	<b>413,278</b> (26.9%)	<b>617,801</b> (40.2%)	<b>496,985</b> (32.4%)	<b>7,201</b> (0.5%)	<b>1,535,265</b> (100.0%)

\*\* Indicates no data available.

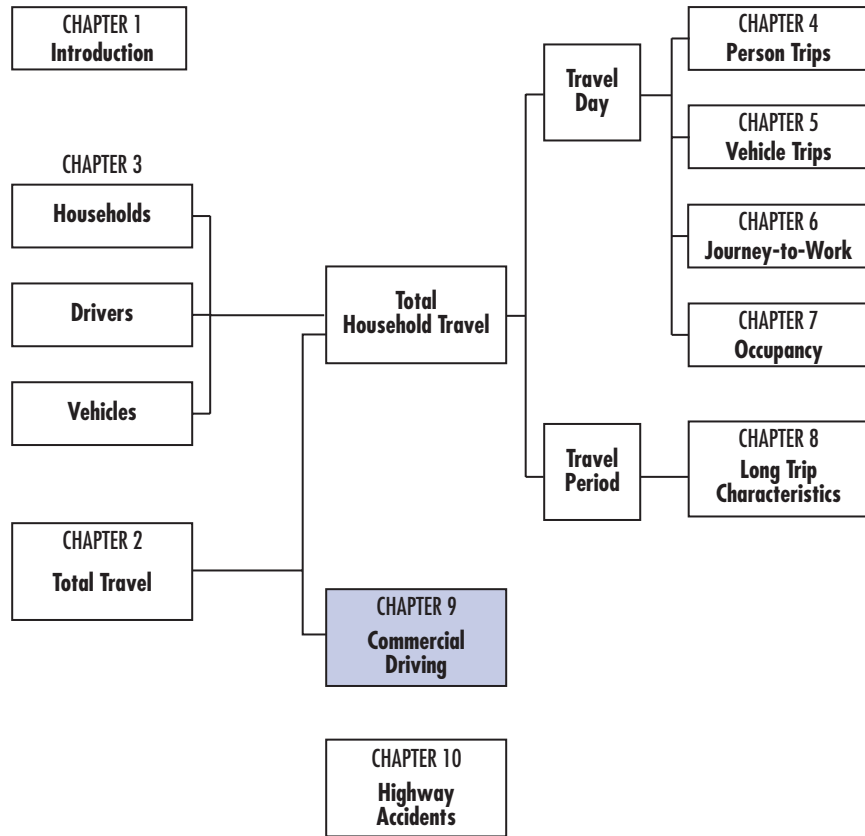
Similar to the patterns of long-distance person trips, only about 10% of long-distance vehicle trips that were originated in MSA's with a population greater than one million were travelling within the originating MSA.

Also, traffic-flow patterns differ depending on the sizes of the origins - trips that originated in a smaller MSA (with a population less than one million) were considerably more likely to go to larger MSA's.

**TABLE 8.37**  
**NUMBER OF TRAVEL PERIOD VEHICLE TRIPS ORIGINATED FROM AN MSA**  
**WITH A POPULATION GREATER THAN ONE MILLION BY WHETHER TRAVELLED TO ANOTHER MSA**  
**1990 NPTS**  
**(THOUSANDS)**

Trip Origin	Trip Destination		TOTAL
	Within Originating MSA	Outside Originating MSA	
Top 20 MSA's	81,822 (20.0%)	327,903 (80.0%)	<b>409,725</b> (100.0%)
Remaining MSA's that are 1,000,000+	17,276 (2.8%)	602,107 (97.2%)	<b>619,383</b> (100.0%)





# Chapter 9

## Commercial Travel

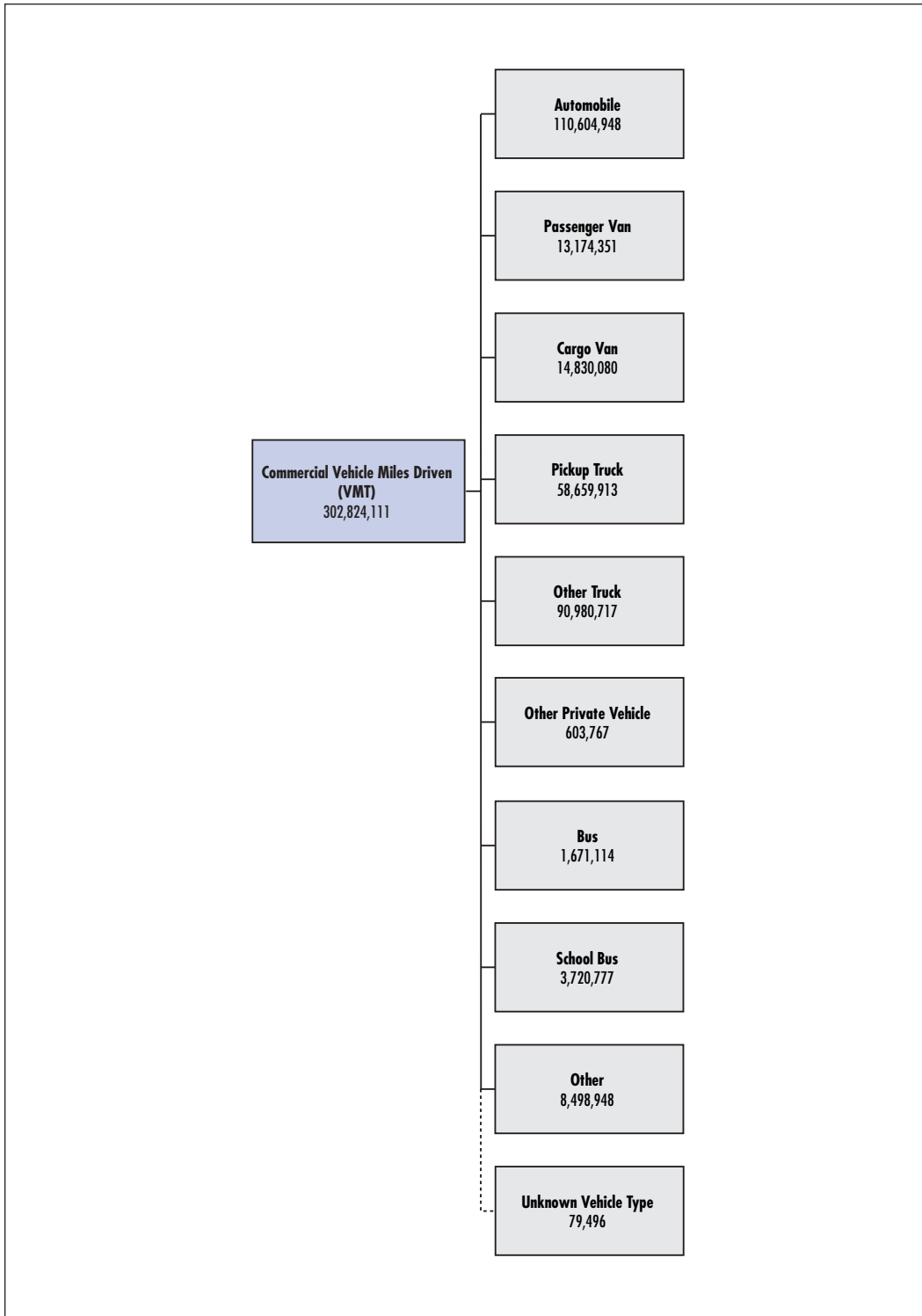


- Of the 4,800 respondents who classified themselves as “commercial drivers”, an estimated 15-20% probably do not drive enough for their work to be qualified as such.
- NPTS data show that commercial driving constitutes almost 16% of all vehicle miles of travel collected in the survey.
- About 27% of all male workers viewed themselves as commercial drivers, while only 6% of working women considered themselves in this group.
- Approximately half of all commercial miles were driven in pickups or other types of trucks.

1990 NPTS COMMERCIAL VEHICLE MILES DRIVEN BY VEHICLE TYPE

(THOUSANDS)

COMMERCIAL TRAVEL



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## Chapter 9 Commercial Driving

As mentioned in Chapter 2, three different aggregate estimates of driving were collected in the 1990 NPTS. They are:

- estimate of annual miles driven by each licensed driver,
- estimate of annual miles driven in each household vehicle, and
- commercial driving.

These estimates were collected in addition to the data on individual trips collected in the travel day and travel period sections of the survey. For individuals who drove as an essential part of their work (e.g., truck drivers, bus drivers, delivery persons, and police assigned to patrol duty), they were asked to estimate total miles driven as part of their work during an average week. This type of driving is referred to as “commercial driving” in this publication.

If the NPTS was limited to collecting data on trips taken on travel days, total vehicle miles of travel (VMT) would be 1,409,600 million miles. However, with the inclusion of travel period trips and commercial driving, total VMT reaches 1,916,000 million miles (Table 9.1). The impact of including commercial driving on the overall VMT is especially noticeable for total truck travel. Note that trucks used in travel day travel or travel period travel were probably mainly pickup trucks while trucks used for commercial driving were more likely to be heavier trucks, those with a gross vehicle weight over 10,000 pounds.

### Reasons for Including Commercial Driving-Related Questions in NPTS

The questions about commercial driving were included in the 1990 NPTS primarily to alert the interviewer that a respondent, for whom driving is an essential part of his work, may have a very large number of trips on the travel day. Because so many commercial drivers are virtually behind

the wheel all day, it would be impossible for them to list and describe each individual trip made on the travel day. Even if it were possible, the interview could take between 1 to 2 hours to complete, and thus become unworkable.

Therefore, the data user must bear in mind that the basic intent of including commercial driving-related questions was so that commercial drivers can continue to participate in the NPTS without spending 1 to 2 hours on the telephone interview, and that the basic intent was not necessarily to produce statistically robust estimates of commercial travel. Had the intent been to collect representative data to reflect commercial driving, the entire survey would have been recast as an establishment survey — collecting data from companies, individual proprietors, and public entities that move goods or perform services in which driving is a critical element.

### Commercial Driving-Related Questions

The question asked of all persons identified as both workers and licensed drivers was:

“Except for getting to or from work, do you drive a licensed motorized vehicle on a daily or regular basis as an essential part of your work?”

If there was any confusion on the part of the respondent, the interviewer added:

“We mean people such as cab drivers, truck drivers and delivery people who must drive to perform their work.”

If the respondents classified themselves as “commercial drivers”, they were asked to report an estimate of miles driven weekly for this type of driving, the number of days a week commercial driving is typically done, and the type of vehicle used.



## Issues in Collecting Data on Commercial Driving

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In terms of NPTS classifications of travel, commercial driving is actually a subset of work-related travel. Work-related travel is defined as all travel done for one's job, EXCEPT travel between one's home and place of work. The problem faced in collecting commercial driving data in the NPTS was one of defining both the degree and the nature of the respondent's work-related travel. To assist the interviewers in better identifying commercial drivers, work-related travel was further divided into:

1. Vehicle operators such as bus drivers, cab drivers, truck drivers, couriers, and mail and package delivery people;
2. People for whom driving is central to the performance of their work, but for whom their work is not driving, such as police on patrol and certain salespersons;
3. People who make regular daily trips as part of their work, such as a store manager who makes a daily cash deposit at a bank; and
4. People who make occasional trips as part of their work, such as an office worker who attends meetings across town about once a week.

In the context of the NPTS, "commercial driving" should only include driving done by people who fit the first two categories, but not by those who fit the third and the fourth. There is no definitive way to determine if that was accomplished. However, some evidence suggests that some respondents who fit the third and the fourth categories erroneously classified themselves as "commercial drivers" and their work-related travel as commercial driving. Table 9.2 and Figure 9.1 examine this phenomenon. Table 9.2 shows that over one-third of respondents who considered themselves "commercial drivers" drove less than 5,000 miles annually as an essential part of their work. One explanation is that

some of these drivers might be working part-time, which could lead to a relatively low mileage. However, the more plausible explanation is that, while the respondents considered their work-related driving as "essential", their travel fell into the third and fourth categories above, which was not termed "essential" for the NPTS classification purposes.

Another telling indication of who was captured in the "commercial driving" net is shown on Table 9.3 and Figure 9.2, which give the relationship between the driver's commercial miles and his/her total annual miles driven. Table 9.3 shows that 16 percent of the men and 22 percent of the women commercial drivers drove less than 10 percent of their annual miles for their work-related travel. This group, who drove less than 10 percent of their miles for work-related purposes, probably should not be classified as commercial drivers.

Table 9.4 provides yet another look at who chose to define themselves as commercial drivers. In that table, the great majority of drivers drove at least five days a week for their work. However, 19 percent of all commercial drivers drove three or fewer days a week for their work. This group probably includes part-time workers, or persons whose duties rotate, such as a police officer who spends three days a week on patrol in a car and another two behind a desk. But, there is a strong suspicion that this group includes drivers who should not be considered as commercial drivers.

## Caveats Regarding the Commercial Driving Data

---

Given the situation described above, the data on commercial driving should be viewed with caution because:

1. They probably include driving by persons who drove too little for work-related purposes to be labelled "commercial drivers", and

2. The number of respondents in the sample that were considered commercial drivers is not large enough to support any robust analysis. The following illustrates the numbers of respondents in the sample:

Of the 48,385 persons interviewed for the 1990 NPTS,

- 39,306 persons were adults, of which
- 35,152 persons were drivers, and
- 25,520 persons were workers, of which
- 4,789 persons were commercial drivers.

Despite these caveats, a small number of tables are presented on the commercial driving data collected in the NPTS. These tables provide NPTS data on the characteristics of commercial drivers, the total miles reported as commercial driving, and the types of vehicles used.

### Commercial Drivers

There were an estimated 22 million workers in 1990 (or about 19 percent of all workers) who reported driving as an essential part of their work. Of those workers, 22 percent were women. Female workers who drove as an essential part of their work only accounted for 9 percent of the total female labor force while the corresponding percentage for males was 27 percent.

Participation in occupations where driving is required decreased with workers' age.

### Annual Commercial Miles Driven per Worker

Not only were men more likely than women to be in occupations where driving was required, they also drove significantly more job-related miles than their female counterparts - 16,838 annual miles for males vs. 8,189 miles for females. For both men and women, the amount of driving as part of work decreased with age.

About 38% of all respondents who classified themselves as "commercial drivers" drove less than 5,000 miles a year as an essential part of their work. This is probably due to the inclusion of some workers as commercial drivers when, if more were known about their work-related travel, they probably would not have been considered commercial drivers. More than half of the female workers drove less than 5,000 miles a year as part of their work, while the corresponding percentage for male workers was less than one third (Table 9.2). At the other extreme, more than one quarter of the male workers drove 20,000 miles or more a year as part of their work while only 10 percent of the female workers drove that much in their job.

The majority of workers for whom driving is an essential part of their work reported that it contributed half of their total annual driving. Less than 10 percent of the workers reported that 90 percent of their overall driving was for their work (Table 9.3). Female workers reported a smaller proportion of their overall driving as part of their work than male workers.

### Vehicle Type

The types of vehicles used for commercial driving largely depend on the nature of commercial driving (e.g., passenger transport, freight transport or service type functions such as messenger services or pizza delivery). Although data on the nature of commercial driving were not collected in the 1990 NPTS, the amount of commercial driving by vehicle type in a year gives some indication of the type of commercial driving. Cars and pickup trucks were more commonly used for service-type functions while heavier trucks were more frequently used for freight transport. Female workers tended to use cars, passenger vans, and pickup trucks, while males used cargo vans, pickups, and heavier trucks.

TABLE 9.1

**ESTIMATES OF ANNUAL VEHICLE MILES DRIVEN BASED ON VARIOUS DATA SOURCES  
1990 NPTS  
(MILLIONS)**

Mode	Travel Day Section Adjusted <sup>1</sup>	Travel Period Section	Commercial Driving Section	TOTAL
Auto	988,445 (102,408)	257,834	110,605	<b>1,356,884</b>
Van	68,578 (12,597)	32,789	28,004	<b>129,371</b>
Truck	211,506 (16,899)	39,225	149,641	<b>400,372</b>
Other POV	7,024 (1,880)	7,484	604	<b>15,112</b>
Other <sup>2</sup>	—	—	13,891	<b>13,891</b>
<b>TOTAL<sup>3</sup></b>	<b>1,275,792</b> (133,784)	<b>337,332</b>	<b>302,824</b>	<b>1,915,948</b>
<b>Percent</b>	66.6%	17.6%	15.8%	100.0%

<sup>1</sup> The number in the parentheses is the travel estimated for overlapping trips (recorded in both the travel day section and the travel period section). This estimate is excluded from the travel day estimate to avoid double-counting. Travel day estimates without overlapping trips are referred to as the "Travel Day Section Adjusted".

<sup>2</sup> Includes bus, school bus and other. Information on vehicle miles of travel by bus, school bus and other is not collected in the travel day or travel period section. The reason is that there is no attempt to track total travel by these vehicles on travel day or travel period.

<sup>3</sup> Includes miles of travel where mode of transportation was unreported.

More than half of the female workers drove less than 5,000 miles a year as part of their work while the corresponding percentage for male workers was less than one third. However, these data need to be considered in light of respondents' possible misclassifica-

tion of themselves as commercial drivers. More than one quarter of the male workers drove 20,000 miles or more a year as part of their work while only 10% of the female workers drove that much on their jobs.

TABLE 9.2

NUMBER OF COMMERCIAL DRIVERS BY DRIVERS' SEX AND ANNUAL COMMERCIAL MILES DRIVEN PER DRIVER  
1990 NPTS  
(THOUSANDS)

Annual Commercial Miles Driven per Driver	Male Driver	Female Driver	TOTAL <sup>1</sup>
Less than 1,000	1,437 (8.3%)	880 (17.9%)	2,317 (10.4%)
1,000 - 2,999	2,089 (12.0%)	1,183 (24.1%)	3,271 (14.7%)
3,000 - 4,999	2,153 (12.4%)	657 (13.4%)	2,817 (12.7%)
5,000 - 6,999	262 (1.5%)	137 (2.8%)	399 (1.8%)
7,000 - 9,999	2,176 (12.6%)	630 (12.8%)	2,806 (12.6%)
10,000 - 14,999	1,892 (10.9%)	459 (9.4%)	2,352 (10.6%)
15,000 - 19,999	1,096 (6.3%)	211 (4.3%)	1,307 (5.9%)
20,000 - 29,999	2,101 (12.1%)	257 (5.2%)	2,358 (10.6%)
30,000 - 49,999	2,053 (11.8%)	204 (4.2%)	2,257 (10.1%)
50,000 or more	470 (2.7%)	18 (0.4%)	487 (2.2%)
<b>TOTAL<sup>1</sup></b>	<b>17,336</b> (100.0%)	<b>4,905</b> (100.0%)	<b>22,248</b> (100.0%)

<sup>1</sup> Includes commercial drivers where annual miles per driver, driver's sex or both were unreported.

FIGURE 9.1

DISTRIBUTION OF COMMERCIAL DRIVERS BY DRIVERS' SEX  
AND ANNUAL COMMERCIAL MILES DRIVEN PER DRIVER  
1990 NPTS

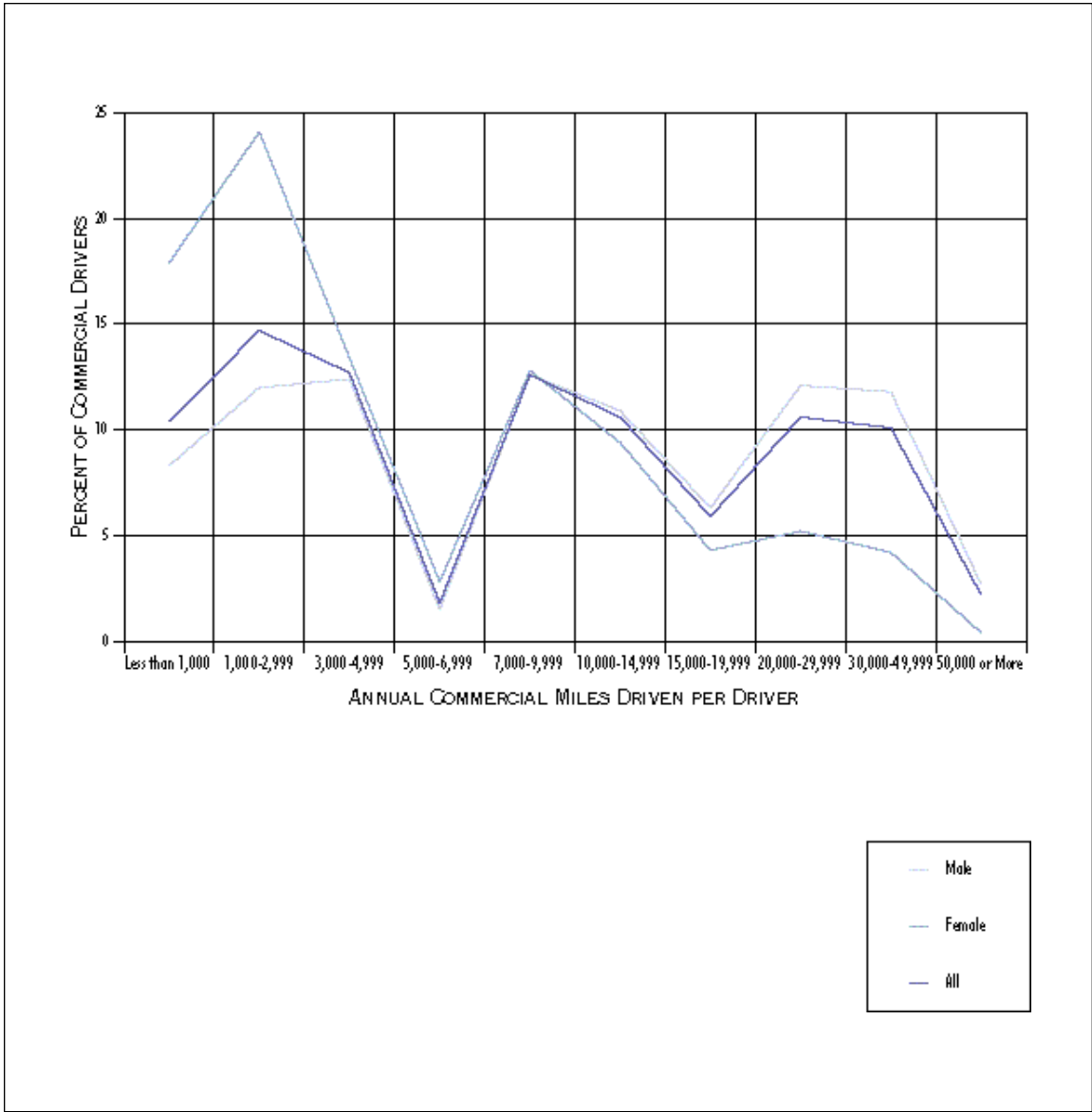


TABLE 9.3

**NUMBER OF COMMERCIAL DRIVERS BY DRIVERS' AGE, SEX AND RATIO OF  
COMMERCIAL MILES DRIVEN TO TOTAL ANNUAL MILES DRIVEN<sup>1</sup>  
1990 NPTS  
(THOUSANDS)**

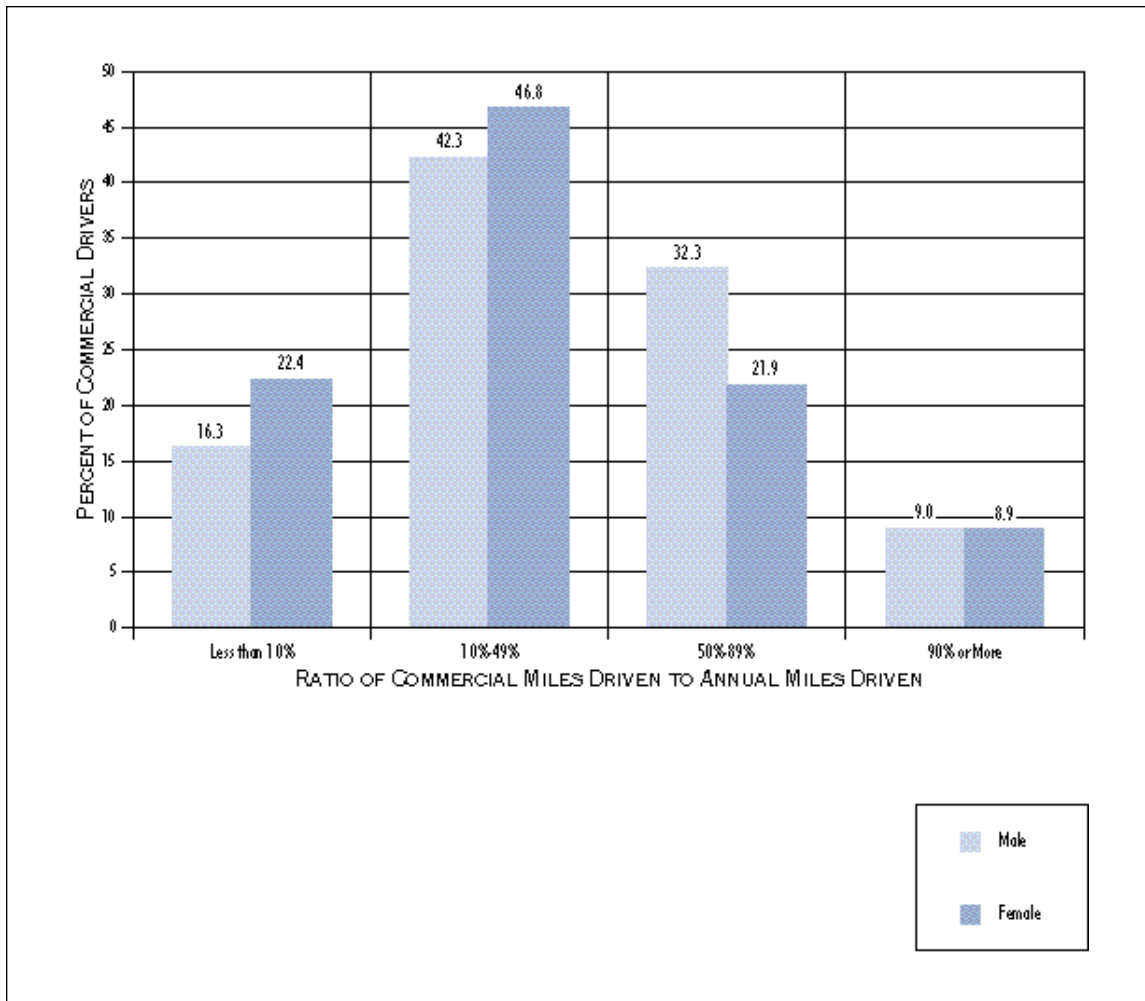
% Commercial Miles Driven of Total Annual Miles Driven	16 - 19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-64 years	65 years or older	TOTAL <sup>2</sup>
<b>MALE</b>								
Less than 10%	112 (47.3%)	529 (19.2%)	682 (16.8%)	466 (15.4%)	169 (10.4%)	34 (6.8%)	38 (18.5%)	<b>2,030</b> (16.3%)
10%-49%	74 (31.2%)	1,286 (46.6%)	1,660 (40.9%)	1,270 (41.9%)	705 (43.3%)	203 (40.6%)	58 (28.6%)	<b>5,258</b> (42.3%)
50%-89%	42 (17.5%)	638 (23.1%)	1,402 (34.5%)	1,048 (34.6%)	597 (36.6%)	225 (44.9%)	63 (31.0%)	<b>4,014</b> (32.3%)
90% or More	9 (3.9%)	306 (11.1%)	314 (7.7%)	248 (8.2%)	158 (9.7%)	38 (7.6%)	45 (21.9%)	<b>1,118</b> (9.0%)
<b>TOTAL<sup>2</sup></b>	<b>237</b> (100.0%)	<b>2,759</b> (100.0%)	<b>4,059</b> (100.0%)	<b>3,033</b> (100.0%)	<b>1,628</b> (100.0%)	<b>500</b> (100.0%)	<b>204</b> (100.0%)	<b>12,420</b> (100.0%)
<b>FEMALE</b>								
Less than 10%	31 (37.2%)	292 (32.4%)	275 (22.6%)	152 (20.4%)	47 (10.3%)	** (0.0%)	** (0.0%)	<b>798</b> (22.4%)
10%-49%	28 (33.2%)	417 (46.3%)	567 (46.6%)	375 (50.3%)	205 (44.5%)	29 (41.7%)	41 (53.2%)	<b>1,663</b> (46.8%)
50%-89%	13 (16.0%)	159 (17.6%)	259 (21.3%)	158 (21.2%)	149 (32.2%)	32 (46.0%)	7 (9.3%)	<b>778</b> (21.9%)
90% or More	11 (13.6%)	33 (3.7%)	114 (9.4%)	61 (8.1%)	60 (13.0%)	9 (12.2%)	29 (37.4%)	<b>317</b> (8.9%)
<b>TOTAL<sup>2</sup></b>	<b>84</b> (100.0%)	<b>902</b> (100.0%)	<b>1,216</b> (100.0%)	<b>746</b> (100.0%)	<b>462</b> (100.0%)	<b>70</b> (100.0%)	<b>76</b> (100.0%)	<b>3,556</b> (100.0%)
<sup>1</sup> There were 13.5% or 3,008 thousand commercial drivers (weighted) whose information on the ratio of commercial miles driven to total annual miles driven was unusable. This group represented 632 drivers in the sample.					<sup>2</sup> Does not include commercial drivers whose age, sex and/or ratio of miles was unreported.			
					** Indicates no data reported.			

Table 9.3 presents the distribution of workers with driving as part of their work contributing to their overall annual driving. The majority of workers for whom driving was part of their work had half of their annual driving for work; and only less than 10% of the workers

contributed 90% of their overall driving to work. Female workers for whom driving was part of their work reported a smaller percentage of their overall driving being for their work than male workers.

FIGURE 9.2

DISTRIBUTION OF COMMERCIAL DRIVERS BY DRIVERS' SEX AND RATIO OF COMMERCIAL MILES DRIVEN TO TOTAL ANNUAL MILES DRIVEN  
1990 NPTS



COMMERCIAL TRAVEL & LABOR SURVEILLANCE

More than half of the workers for whom driving was an essential part of their work typically drove commercially five days in a week. Female workers for whom driving was an

essential part of their work drove fewer days during a typical week than their male counterparts.

TABLE 9.4

NUMBER OF COMMERCIAL DRIVERS BY DRIVERS' SEX AND THE NUMBER OF DAYS OF COMMERCIAL DRIVING IN A TYPICAL WEEK  
1990 NPTS  
(THOUSANDS)

Number of Days Driving Commercially in a Typical Week	Male Driver	Female Driver	TOTAL <sup>1</sup>
One	443 (2.6%)	293 (6.0%)	737 (3.3%)
Two	912 (5.3%)	480 (9.8%)	1,392 (6.3%)
Three	1,361 (7.9%)	731 (14.9%)	2,093 (9.4%)
Four	1,070 (6.2%)	403 (8.2%)	1,472 (6.6%)
Five	9,192 (53.0%)	2,159 (44.0%)	11,358 (51.0%)
Six	2,791 (16.1%)	470 (9.6%)	3,261 (14.7%)
Seven	1,470 (8.5%)	359 (7.3%)	1,829 (8.2%)
<b>TOTAL<sup>1</sup></b>	<b>17,336</b> (100.0%)	<b>4,905</b> (100.0%)	<b>22,248</b> (100.0%)

<sup>1</sup> Includes commercial drivers whose sex and number of days they do commercial driving in a typical week were unreported.



TABLE 9.5

**NUMBER OF COMMERCIAL DRIVERS BY DRIVERS' AGE AND SEX  
1990 NPTS  
(THOUSANDS)**

Drivers' Age	Male	Female	TOTAL <sup>1</sup>
16 - 19	332 (1.9%)	120 (2.4%)	451 (2.0%)
20 - 29	3,777 (21.8%)	1,239 (25.3%)	5,016 (22.5%)
30 - 39	5,509 (31.8%)	1,611 (32.8%)	7,120 (32.0%)
40 - 49	4,194 (24.2%)	1,033 (21.1%)	5,227 (23.5%)
50 - 59	2,355 (13.6%)	636 (13.0%)	2,991 (13.4%)
60 - 64	728 (4.2%)	120 (2.4%)	848 (3.8%)
65 or older	361 (2.1%)	105 (2.1%)	466 (2.1%)
<b>TOTAL<sup>1</sup></b>	<b>17,336</b> (100.0%)	<b>4,905</b> (100.0%)	<b>22,248</b> (100.0%)
Number of Licensed Drivers	80,289 (17,033) <sup>2</sup>	82,707 (18,112) <sup>2</sup>	163,025 (35,152) <sup>2</sup>
Percentage Commercial Drivers of Total Drivers	21.6% (3,707) <sup>3</sup>	5.9% (1,081) <sup>3</sup>	13.6% (4,789) <sup>3</sup>
Number of Workers	63,996 (13,570) <sup>2</sup>	54,334 (11,946) <sup>2</sup>	118,343 (25,520) <sup>2</sup>
Percentage Commercial Drivers of Total Workers	27.1% (3,707) <sup>3</sup>	9.0% (1,081) <sup>3</sup>	18.8% (4,789) <sup>3</sup>

<sup>1</sup> Includes commercial drivers whose age, sex or both were unreported.      <sup>3</sup> The number in the parenthesis is the unweighted sample size of commercial drivers.

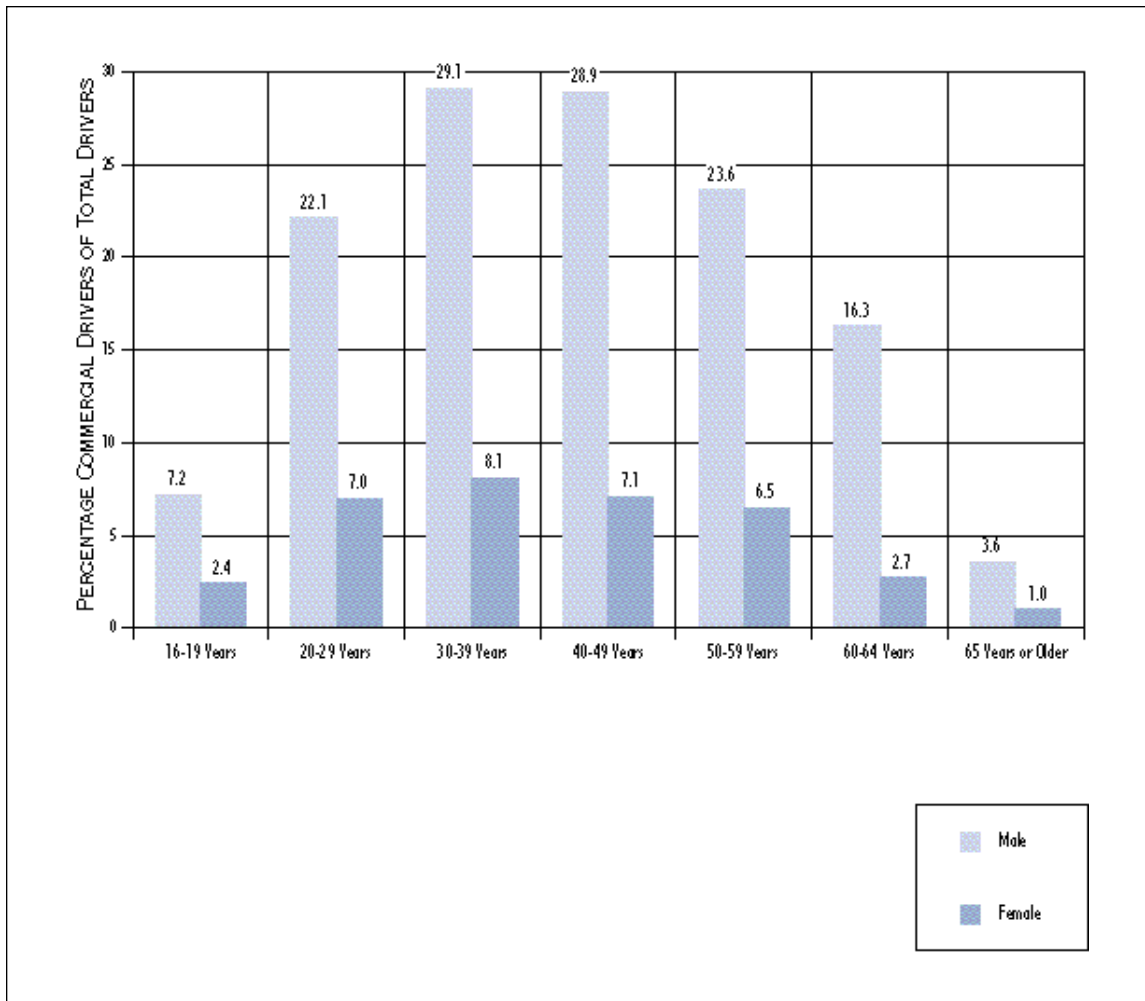
<sup>2</sup> The number in the parenthesis is the unweighted sample size.

On average, about 14% of all drivers and 19% of all workers were in occupations where driving was an essential part of their work. The percentage of male drivers for whom driving was an essential part of their work was

three times that of female drivers - 22% vs. 6% (Table 9.5). The likelihood of participating in occupations where driving is essential decreased with age.

**FIGURE 9.3**

**PERCENTAGE OF COMMERCIAL DRIVERS AS TOTAL DRIVERS BY DRIVERS' AGE AND SEX  
1990 NPTS**



**TABLE 9.6**  
**NUMBER OF COMMERCIAL MILES DRIVEN<sup>1</sup> BY DRIVERS' AGE AND SEX**  
**1990 NPTS**  
**(THOUSANDS)**

Drivers' Age	Male	Female	TOTAL <sup>2</sup>
16 - 19	1,772,393 (0.7%)	384,546 (1.0%)	<b>2,156,939</b> (0.7%)
20 - 29	47,976,809 (18.1%)	8,637,603 (22.8%)	<b>56,614,411</b> (18.7%)
30 - 39	92,792,097 (35.0%)	13,740,770 (36.2%)	<b>106,532,867</b> (35.2%)
40 - 49	68,808,280 (26.0%)	7,778,034 (20.5%)	<b>76,586,314</b> (25.3%)
50 - 59	39,019,212 (14.7%)	5,714,423 (15.1%)	<b>44,733,635</b> (14.8%)
60 - 64	10,404,715 (3.9%)	832,748 (2.2%)	<b>11,237,464</b> (3.7%)
65 or older	3,188,028 (1.2%)	644,739 (1.7%)	<b>3,832,767</b> (1.3%)
<b>TOTAL<sup>2</sup></b>	<b>264,827,707</b> (100.0%)	<b>37,964,095</b> (100.0%)	<b>302,824,111</b> (100.0%)

<sup>1</sup> Estimated by multiplying the number of commercial miles driven in a typical week by 48 weeks.

<sup>2</sup> Includes miles of travel where driver's age, sex or both were unreported.

On average, male workers for whom driving was an essential part of their work drove more than twice as much as their female counterparts. The gap in the number of miles driven as part of their work between male and female workers was the smallest in both

the youngest and the oldest age categories. Gender difference was also observed in the distribution of the number of workers categorized by the amount of driving performed as part of their work (see Table 9.2).

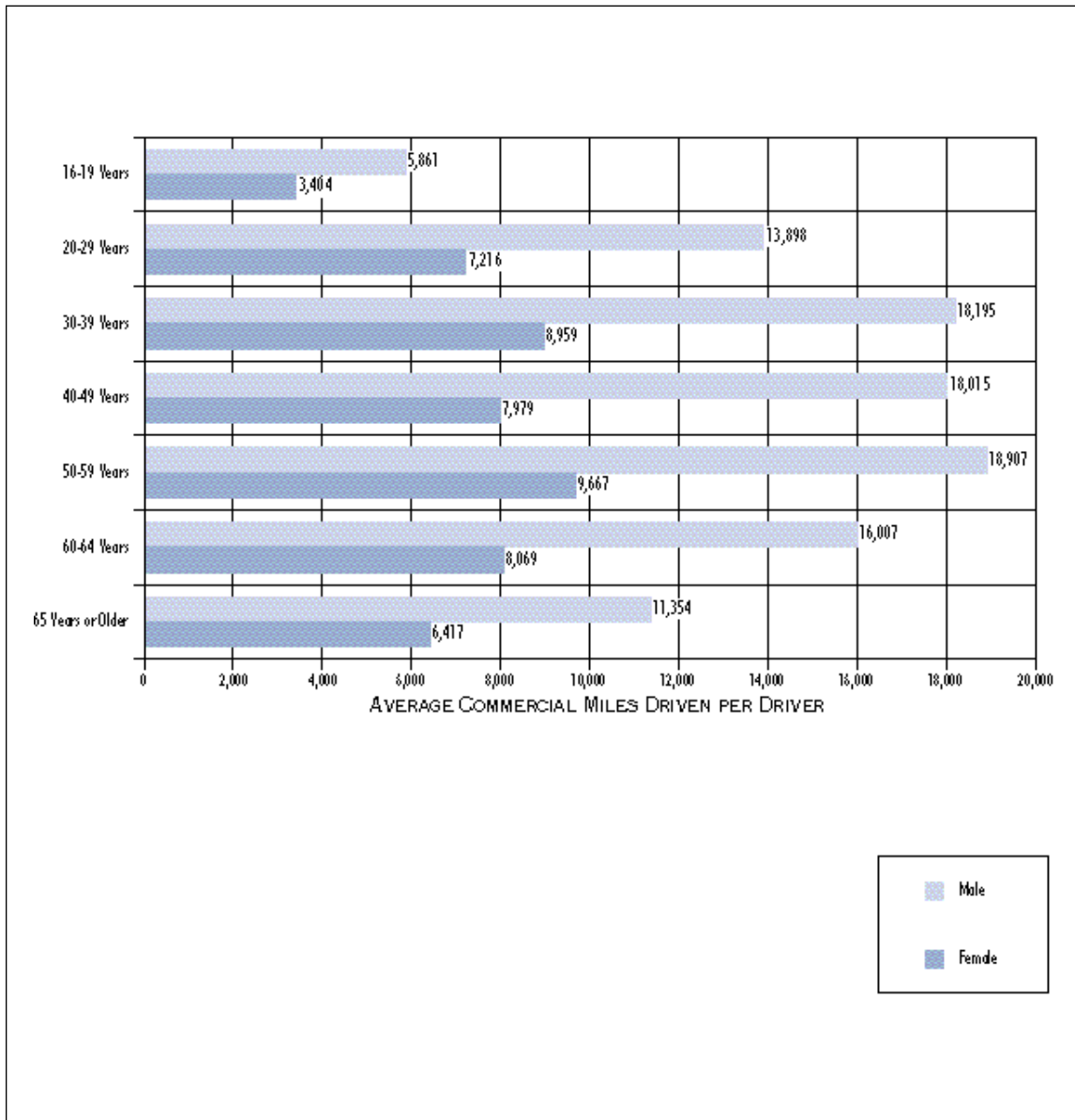
**TABLE 9.7**  
**AVERAGE ANNUAL COMMERCIAL MILES DRIVEN PER DRIVER<sup>1</sup> BY DRIVERS' AGE AND SEX**  
**1990 NPTS**  
**(THOUSANDS)**

Drivers' Age	Male	Female	ALL
16 - 19	5,861	3,404	<b>5,193</b>
20 - 29	13,898	7,216	<b>12,177</b>
30 - 39	18,195	8,959	<b>16,059</b>
40 - 49	18,015	7,979	<b>15,975</b>
50 - 59	18,907	9,667	<b>16,850</b>
60 - 64	16,007	8,069	<b>14,920</b>
65 or older	11,354	6,417	<b>10,053</b>
<b>ALL</b>	<b>16,838</b>	<b>8,189</b>	<b>14,866</b>

<sup>1</sup> Information based on observations that had valid commercial miles of travel information.

FIGURE 9.4

ESTIMATED AVERAGE ANNUAL COMMERCIAL MILES DRIVEN PER DRIVER BY DRIVERS' AGE AND SEX  
1990 NPTS



COMMERCIAL TRAVEL & LOGS SURVEILLANCE

About half of the total driving done as part of work was by trucks, including pickup trucks and medium and heavy trucks, and another one-third by automobiles. Workers using heavier trucks in their commercial driving

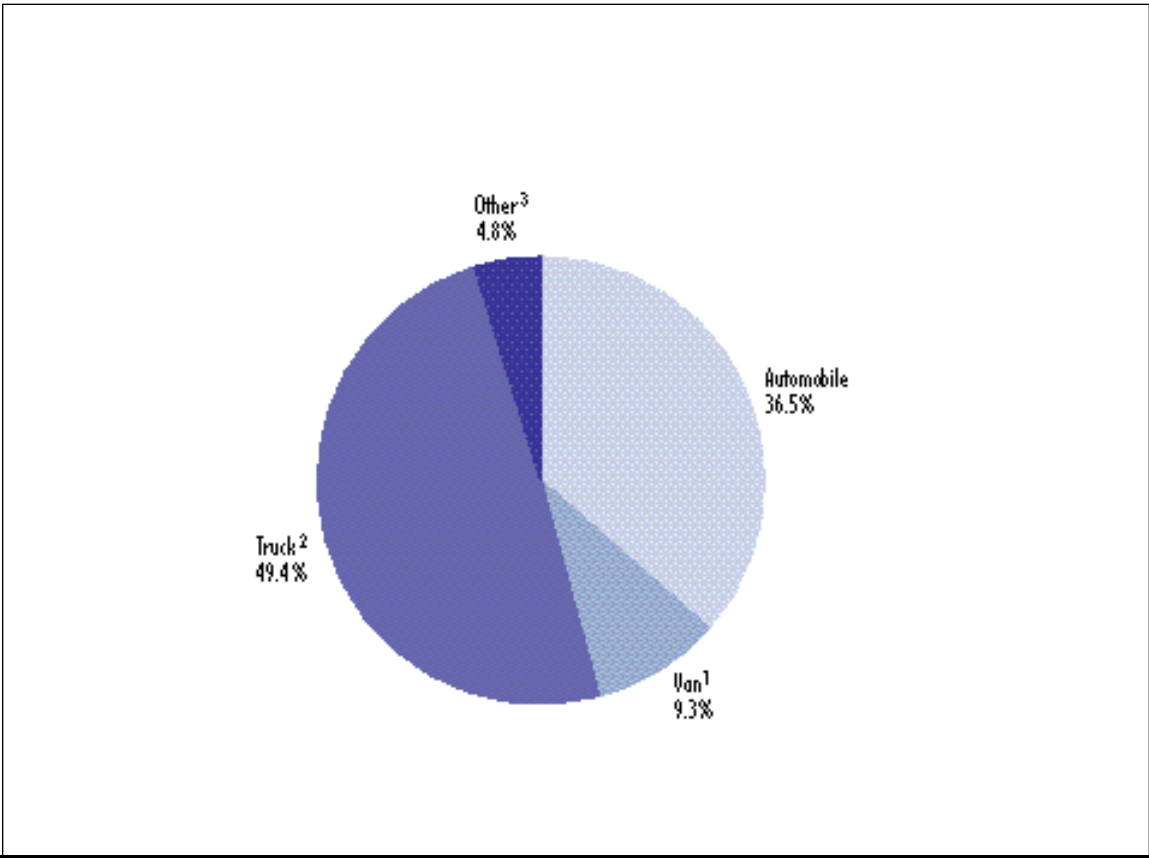
drove significantly more than other workers. This probably reflects the fact that most commercial driving on heavier trucks was for long-distance hauling.

TABLE 9.8

NUMBER OF COMMERCIAL MILES DRIVEN, NUMBER OF COMMERCIAL DRIVERS  
AND AVERAGE COMMERCIAL MILES DRIVEN PER DRIVER BY VEHICLE TYPE  
1990 NPTS

	Commercial Miles Driven (000)	Commercial Drivers (000)	Commercial Miles Driven per Driver <sup>1</sup>
Automobile	110,604,948 (36.5%)	10,052 (45.2%)	11,710
Passenger Van	13,174,351 (4.4%)	1,299 (5.8%)	11,190
Cargo Van	14,830,080 (4.9%)	1,127 (5.1%)	14,000
Pickup Truck	58,659,913 (19.4%)	5,067 (22.8%)	12,793
Other Truck	90,980,717 (30.0%)	3,599 (16.2%)	28,683
Other Private Vehicle	603,767 (0.2%)	37 (0.2%)	16,489
Bus	1,671,114 (0.6%)	119 (0.5%)	18,269
School Bus	3,720,777 (1.2%)	298 (1.3%)	13,993
Other	8,498,948 (2.8%)	636 (2.9%)	16,087
<b>TOTAL<sup>2</sup></b>	<b>302,824,111</b> (100.0%)	<b>22,248</b> (100.0%)	<b>14,866</b>
<sup>1</sup> Information based on observations that had valid commercial miles of travel information.		<sup>2</sup> Includes commercial drivers and miles of travel where vehicle type was unreported.	

**FIGURE 9.5**  
**DISTRIBUTION OF COMMERCIAL MILES DRIVEN BY VEHICLE TYPE**  
**1990 NPTS**



<sup>1</sup> Includes passenger and cargo vans.

<sup>2</sup> Includes pickup and other trucks.

<sup>3</sup> Includes other private vehicles, buses, school buses and other.

TABLE 9.9

**NUMBER OF COMMERCIAL DRIVERS BY DRIVERS' SEX,  
ANNUAL COMMERCIAL MILES DRIVEN AND VEHICLE TYPE  
1990 NPTS  
(THOUSANDS)**

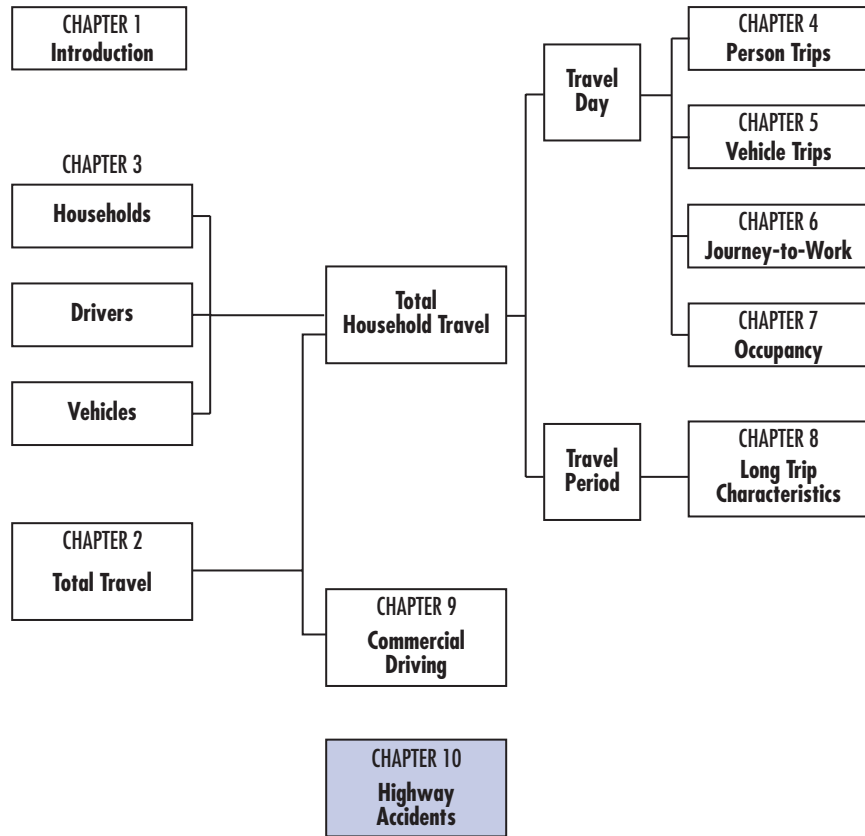
	Annual Commercial Miles Driven Per Driver							
	< 20,000		20-50,000		> 50,000		TOTAL <sup>1</sup>	
	Male	Female	Male	Female	Male	Female	Male	Female
Automobile	4,426 (39.9%)	3,210 (77.2%)	1,475 (35.5%)	272 (59.0%)	51 (10.8%)	4 (25.4%)	6,371 (36.7%)	3,674 (74.9%)
Passenger Van	587 (5.3%)	358 (8.6%)	201 (4.8%)	28 (6.0%)	4 (0.9%)	** (0.0%)	885 (5.1%)	414 (8.4%)
Cargo Van	784 (7.1%)	57 (1.4%)	192 (4.6%)	5 (1.1%)	20 (4.3%)	** (0.0%)	1,065 (6.1%)	63 (1.3%)
Pickup Truck	3,317 (29.9%)	334 (8.0%)	829 (20.0%)	49 (10.7%)	56 (11.9%)	** (0.0%)	4,659 (26.9%)	408 (8.3%)
Other Truck	1,484 (13.4%)	44 (1.1%)	1,286 (31.0%)	26 (5.5%)	323 (68.7%)	9 (50.7%)	3,514 (20.3%)	85 (1.7%)
Other Private Vehicle	12 (0.1%)	8 (0.2%)	16 (0.4%)	** (0.0%)	1 (0.1%)	** (0.0%)	29 (0.2%)	8 (0.2%)
Bus	50 (0.4%)	11 (0.3%)	28 (0.7%)	3 (0.6%)	** (0.0%)	** (0.0%)	94 (0.5%)	24 (0.5%)
School Bus	108 (1.0%)	95 (2.3%)	15 (0.4%)	44 (9.6%)	** (0.0%)	4 (23.9%)	143 (0.8%)	155 (3.2%)
Other	332 (3.0%)	36 (0.9%)	111 (2.7%)	35 (7.5%)	15 (3.2%)	** (0.0%)	565 (3.3%)	71 (1.4%)
<b>TOTAL<sup>1</sup></b>	<b>11,105</b> (100.0%)	<b>4,157</b> (100.0%)	<b>4,154</b> (100.0%)	<b>461</b> (100.0%)	<b>470</b> (100.0%)	<b>18</b> (100.0%)	<b>17,336</b> (100.0%)	<b>4,905</b> (100.0%)
<sup>1</sup> Includes commercial drivers whose sex, annual commercial miles driven and/or vehicle type were unreported.				** Indicates no data reported.				



**T**HE disparity between genders was considerable in the type of vehicle used for commercial driving. The percentage of female workers for whom driving an automobile was an essential part of their work was twice of their male counterparts - 75% vs. 37%. Also, the percentage of female school bus drivers was three times that of male school bus drivers - 3.2% vs. 0.8%. On the other hand, less than 2% of female workers drove heavier trucks as part of their work, compared to 20% in male workers. The type of commercial driving (e.g., local, short-haul, long-haul) basically governed the

type of vehicle used. Cars and pickup trucks were more commonly used for short-distance hauling while heavier trucks were more frequently used for long-distance hauling. If driving was an essential part of their work, females, in general, tended to use automobiles, passenger vans and pickup trucks, while males used cargo vans and heavier trucks.





# Chapter 10

## NPTS Highway Accident Data

# 10

- Approximately two-thirds of all highway motor vehicle accidents result in property damage only (PDO).
- Of these property damage only accidents, a police report is filed in three-quarters of the cases. The remaining quarter are considered “unreported” accidents. Most states have threshold amounts of damage before a police report is required.
- In terms of the characteristics of unreported accidents, about 77% involve two or more vehicles. Only 23% are single-vehicle accidents.



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## Chapter 10 NPTS Highway Accident Data

**T**HIS chapter presents information on highway accidents that occurred during the five-year period prior to the 1990 NPTS survey. The questions in the questionnaire only refer to the most recent accident that occurred in the last 5 years. Furthermore, highway accidents in the 1990 NPTS refer only to those that involved a motor vehicle on a public highway or road, resulting in property damage and/or personal injury. Motor vehicle accidents in a parking lot, in a driveway, on a private road, or in a foreign country were excluded from the survey. Therefore, readers should be cautious when interpreting data presented in this chapter. Survey results presented in this chapter by no means represent an overall picture of all motor vehicle accidents during any time period. Consequently, one should not compare data presented in this chapter with those published in other sources.

Specifically, the emphasis of this chapter is on the estimated differences between accidents for which police reports were filed and those for which no police reports were filed. A reported-accident in this survey is one for which the respondent thinks that a police report has been filed. Every state has laws requiring accidents involving serious bodily injury or fatality to be reported, but the thresholds for reporting property damage only (PDO) accidents vary from state to state.

### Accident Questions in NPTS

The accident questions were added to the NPTS survey in an effort to obtain data on the number and characteristics of accidents for which no police report was filed. Most commonly, these are PDO accidents with damage below \$500. The U. S. Department of Transportation (DOT) is interested in unreported accidents because they are part of the measures of

safety for the highway system, the vehicle and the driver. While there are other data systems that provide information on fatal accidents and other reported highway crashes, there was no source of national data on the phenomenon of unreported accidents. These accidents certainly have economic and social costs associated with them, and it was important to attempt to define their scope and nature. Accordingly, questions on these unreported accidents were included as part of the 1990 NPTS.

### Caveats Regarding NPTS Highway Accident Data

The reader should be aware of the fact that highway crash data reported in this chapter are based on information collected from a total of 6,830 accidents. Of these, respondents stated that a police report was filed in 5,400 accidents, and no police report was filed in the remaining 1,430 accidents. Throughout this chapter, tables on “unreported” accidents are based on this sample of 1,430 accidents.

Due to the small sample size, there are several concerns about the quality of the NPTS accident data. These concerns are reflected in the following aspects:

- A relatively small proportion of respondents (14 percent) reported being the driver in the most recent highway crash during the past five years.
- It appears that many of the drivers did not know whether a police report was filed. This might happen under the circumstance when the police may have been called to the scene, but did not file a report because the accident took place on private property. Or, one of the parties may have called the police later and a report was filed.

- The ratio of reported to unreported accidents was greater than initially expected. There was almost a 4 to 1 ratio of reported to unreported accidents. According to DOT's experience, this ratio was expected to be closer to 2 to 1.
- Although unreported accidents took place under adverse road conditions, they did not do so to the degree expected by the DOT.

### General Estimates System Data

Representative statistics on police-reported motor vehicle crashes are published by DOT's National Highway Traffic Safety Administration (NHTSA) in its annual publication General Estimates System. From 1988 to 1990, the number of police-reported crashes dropped by 6 percent, from 6,877 thousand crashes in 1988 to 6,462 thousand in 1990. Crashes resulting in severe or fatal injuries declined by 8 percent during the period, though the number of minor or moderate injury crashes remained the same.<sup>1</sup> Motor vehicle crashes involving more than one vehicle outnumbered single-vehicle crashes by more than two to one (Table 10.1).

### NPTS Accident Summary

Based on data collected in the NPTS, the majority of households were not involved in any motor-vehicle accidents during the five-year period prior to the 1990 NPTS survey. More than 80 percent of the accidents involved automobiles. Out of the 32 million accidents estimated from the survey, 78 percent were reported and 21 percent were unreported. The difference between reported and unreported accidents in terms of the type of vehicle involved in the accident is negligible.

### Driver Characteristics

More than half of the accidents involved male drivers — 54 percent of reported accidents and 52 percent of unreported accidents. There was no difference between male drivers and female drivers in reporting accidents. Drivers between the ages of 20 and 29 were involved in more accidents than drivers in other age groups. This is true for both male and female drivers.

### Accident Severity

Single-vehicle accidents were more likely to be unreported than multiple-vehicle accidents. More than three quarters of the accidents did not result in any injury or fatality. The proportion of unreported accidents that resulted in no injury was significantly greater than that of police-reported accidents. As expected, police-reported accidents resulted in a larger proportion of more serious injuries than did unreported accidents. Ninety-two percent of unreported accidents resulted in property damage only.

<sup>1</sup> National Highway Traffic Safety Administration, General Estimates System, 1990, DOT HS 807 781, U.S. Department of Transportation, Washington, D.C. November 1991.



**TABLE 10.1**

**MOTOR VEHICLE CRASHES BY CRASH TYPE AND CRASH SEVERITY  
(THOUSANDS)**

Crash Type	Property Damage Only	Minor or Moderate Injury	Severe or Fatal Injury	<b>TOTAL</b>
<b>Single Vehicle</b>	<b>1,235</b> (60%)	<b>631</b> (31%)	<b>176</b> (9%)	<b>2,043</b> (100%)
<b>Multi-Vehicle</b>	<b>3,020</b> (68%)	<b>1,194</b> (27%)	<b>205</b> (5%)	<b>4,419</b> (100%)
<b>TOTAL</b>	<b>4,255</b> (66%)	<b>1,825</b> (28%)	<b>382</b> (6%)	<b>6,462</b> (100%)

Source: National Highway Traffic Safety Administration, *General Estimates System, 1990*, DOT HS 807 781. U.S. Department of Transportation, Washington, D.C. November 1991.

During the five-year period prior to the 1990 NPTS survey, slightly more than half of accidents involved male drivers — 53.6% for reported accidents and 52.4% for unreported ones. The distributions of accidents by driver's sex were relatively similar in both reported and unreported accidents indicating

that there was no difference in the type of accidents between male and female drivers. Partially because drivers in the age group 20 to 29 drove more compared to other age groups, they were more likely to be involved in highway crashes than any other age group.

TABLE 10.2

COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS BY DRIVER'S AGE AND SEX  
1990 NPTS

Driver's Age	Reported Accident			Unreported Accident		
	Male	Female	TOTAL	Male	Female	TOTAL
16-19	830,211 (6.2%)	694,417 (6.0%)	1,524,628 (6.1%)	219,250 (6.3%)	286,830 (9.0%)	506,080 (7.6%)
20-29	4,356,812 (32.6%)	3,567,702 (30.9%)	7,924,513 (31.8%)	1,085,134 (31.2%)	938,804 (29.6%)	2,023,938 (30.4%)
30-39	3,383,447 (25.3%)	2,950,819 (25.5%)	6,334,266 (25.4%)	946,606 (27.3%)	978,279 (30.8%)	1,924,885 (29.0%)
40-49	1,953,418 (14.6%)	1,884,370 (16.3%)	3,837,788 (15.4%)	556,035 (16.0%)	550,174 (17.3%)	1,106,209 (16.6%)
50-59	1,206,394 (9.0%)	1,122,469 (9.7%)	2,328,863 (9.3%)	270,309 (7.8%)	198,458 (6.3%)	468,767 (7.1%)
60-64	456,513 (3.4%)	399,237 (3.5%)	855,750 (3.4%)	92,928 (2.7%)	36,736 (1.2%)	129,664 (2.0%)
65+	1,118,879 (8.4%)	861,787 (7.5%)	1,980,665 (7.9%)	296,637 (8.5%)	167,799 (5.3%)	464,435 (7.0%)
<b>TOTAL<sup>1</sup></b>	<b>13,367,069</b> (100.0%)	<b>11,550,350</b> (100.0%)	<b>24,924,151</b> (100.0%)	<b>3,472,648</b> (100.0%)	<b>3,175,140</b> (100.0%)	<b>6,647,789</b> (100.0%)

<sup>1</sup> Includes accidents where driver's age was unreported.

Of the estimated 31 million accidents during the five-year period prior to the 1990 NPTS survey, 79% were reported and 21% unreported. Regardless of accident reporting status, about 80% of the accidents involved automobiles.

TABLE 10.3

COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS BY TYPE OF VEHICLE IN ACCIDENTS 1990 NPTS

Vehicle Type <sup>1</sup>	Reported Accident	Unreported Accident	Dist. of Household Vehicles
Automobile	20,023,420 (80.3%)	5,379,782 (80.9%)	74.7%
Pickup Truck	2,733,275 (11.0%)	727,065 (10.9%)	17.2%
Van	1,029,096 (4.1%)	304,692 (4.6%)	5.5%
Other Truck	727,816 (2.9%)	145,321 (2.2%)	0.6%
Motorcycle	211,506 (0.8%)	64,926 (1.0%)	1.3%
Other	150,012 (0.6%)	26,003 (0.4%)	0.7%
<b>TOTAL<sup>2</sup></b>	<b>24,924,151</b> (100.0%)	<b>6,647,789</b> (100.0%)	100.0%

<sup>1</sup> Refers to the vehicle that was driven by the household member being interviewed. The above table does not purport to display all vehicles in the accident, only the one driven by the interviewed household member who was involved in the accident.

<sup>2</sup> Includes accidents where vehicle type was unreported.

**TABLE 10.4**

**COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS BY OTHER VEHICLE INVOLVEMENT  
1990 NPTS**

	Single-Vehicle Accident	Multiple-Vehicle Accident	Unknown	TOTAL
<b>Reported</b>	<b>2,497,798</b> (10.0%)	<b>22,372,766</b> (89.9%)	<b>53,587</b> (0.2%)	<b>24,924,151</b> (100.0%)
<b>Unreported</b>	<b>1,517,530</b> (22.8%)	<b>5,130,259</b> (77.2%)	<b>0</b> (0.0%)	<b>6,647,789</b> (100.0%)
<b>Unknown</b>	<b>100,057</b> (22.7%)	<b>211,926</b> (48.0%)	<b>129,564</b> (29.3%)	<b>441,547</b> (100.0%)
<b>TOTAL</b>	<b>4,115,385</b> (12.9%)	<b>27,714,951</b> (86.6%)	<b>183,151</b> (0.6%)	<b>32,013,487</b> (100.0%)



Almost one-fourth of all unreported accidents were single-vehicle accidents, but only 10% of reported accidents involved one vehicle. According to the literature, a plausible rea-

son for single-vehicle accidents not being reported might be to avoid increases in insurance premiums resulting from accidents.

TABLE 10.5

COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS  
BY NUMBER OF VEHICLES INVOLVED IN THE ACCIDENT  
1990 NPTS

No. of Vehicles Involved	Reported Accident	Unreported Accident	Unknown	TOTAL <sup>1</sup>
1	2,497,798 (10.0%)	1,517,530 (22.8%)	100,057 (22.7%)	4,115,385 (12.9%)
2	20,584,040 (82.6%)	5,023,468 (75.6%)	183,445 (41.5%)	25,790,953 (80.6%)
3	1,467,103 (5.9%)	88,244 (1.3%)	18,037 (4.1%)	1,573,384 (4.9%)
4	188,723 (0.8%)	** (0.0%)	10,443 (2.4%)	199,166 (0.6%)
5	85,039 (0.3%)	* (0.0%)	* (0.0%)	97,504 (0.3%)
6+	47,862 (0.2%)	* (0.0%)	* (0.0%)	53,944 (0.2%)
<b>TOTAL<sup>1</sup></b>	<b>24,924,151</b> (100.0%)	<b>6,647,789</b> (100.0%)	<b>441,547</b> (100.0%)	<b>32,013,487</b> (100.0%)

<sup>1</sup> Includes accidents where number of vehicles involved was unreported. Also includes records where insufficient data were reported in other cells.

\* Indicates insufficient data reported.  
\*\* Indicates no data reported.

FIGURE 10.1

DISTRIBUTION OF ACCIDENTS BY NUMBER OF VEHICLES INVOLVED AND REPORTING STATUS  
1990 NPTS

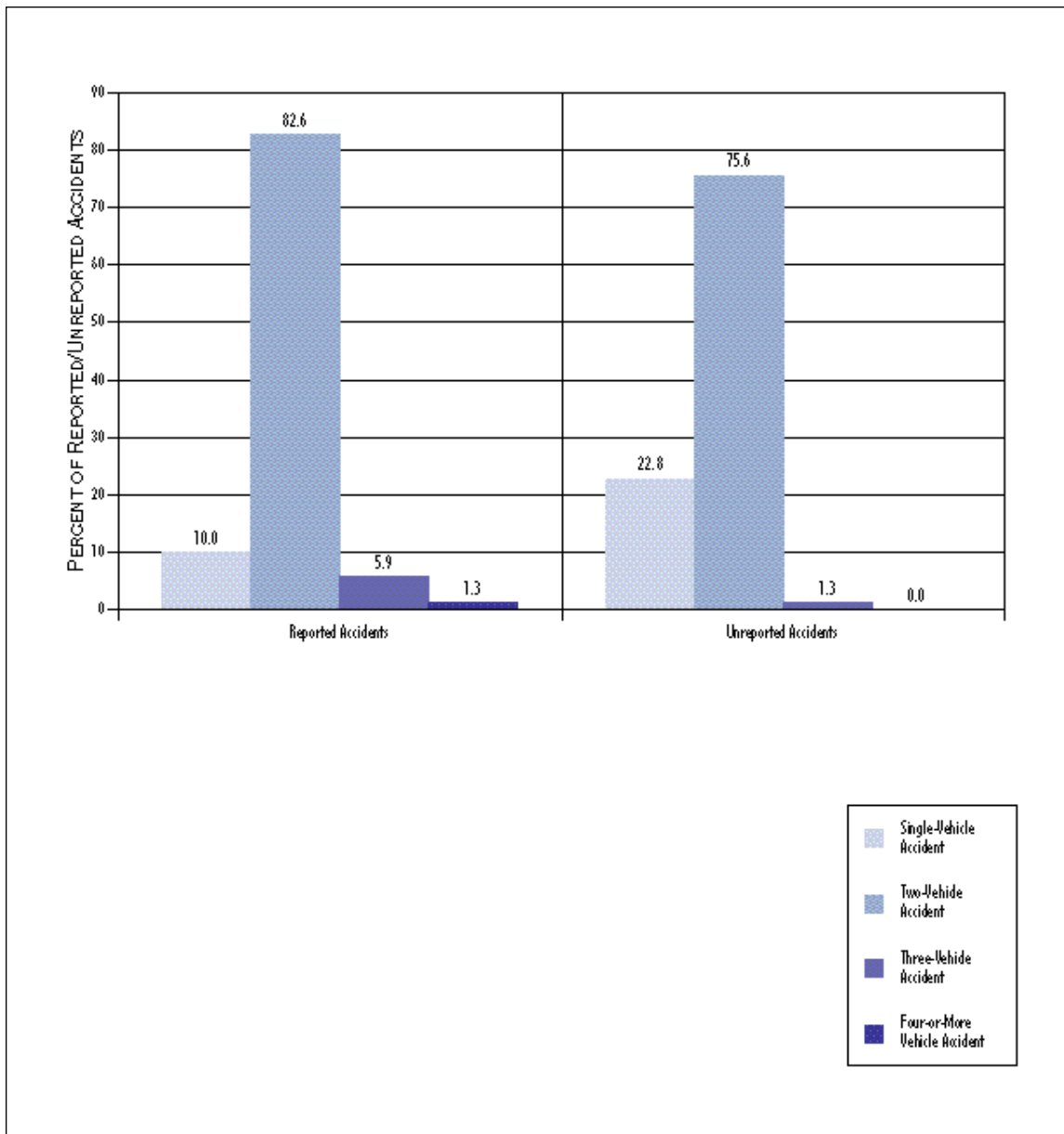


TABLE 10.6

**COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS BY VEHICLE TYPE  
AND OTHER VEHICLE INVOLVEMENT  
1990 NPTS**

Vehicle Type <sup>1</sup>	Reported Accident			Unreported Accident		
	Single Vehicle	Multiple Vehicle	TOTAL <sup>2</sup>	Single Vehicle	Multiple Vehicle	TOTAL <sup>2</sup>
Automobile	1,930,022 (77.3%)	18,082,927 (80.8%)	<b>20,023,420</b> (80.3%)	1,198,370 (79.0%)	4,181,412 (81.5%)	<b>5,379,782</b> (80.9%)
Pickup Truck	302,891 (12.1%)	2,430,384 (10.9%)	<b>2,733,275</b> (11.0%)	172,342 (11.4%)	554,723 (10.8%)	<b>727,065</b> (10.9%)
Van	96,556 (3.9%)	932,540 (4.2%)	<b>1,029,096</b> (4.1%)	49,589 (3.3%)	255,103 (5.0%)	<b>304,692</b> (4.6%)
Other Truck	96,622 (3.9%)	631,194 (2.8%)	<b>727,816</b> (2.9%)	55,049 (3.6%)	90,273 (1.8%)	<b>145,321</b> (2.2%)
Motorcycle	44,369 (1.8%)	167,137 (0.7%)	<b>211,506</b> (0.8%)	*	*	<b>64,926</b> (1.0%)
Other	27,338 (1.1%)	122,674 (0.5%)	<b>150,012</b> (0.6%)	*	23,017 (0.4%)	<b>26,003</b> (0.4%)
<b>TOTAL<sup>2</sup></b>	<b>2,497,798</b> (100.0%)	<b>22,372,766</b> (100.0%)	<b>24,924,151</b> (100.0%)	<b>1,517,530</b> (100.0%)	<b>5,130,259</b> (100.0%)	<b>6,647,789</b> (100.0%)

<sup>1</sup> See Footnote 1 of Table 10.3.

\* Indicates insufficient data reported.

<sup>2</sup> Includes accidents for which information on whether other vehicles were involved in the accident, the type of vehicle involved in the accident, or both were unreported. Also includes records where insufficient data were reported in other cells.

More than three quarters of all accidents did not result in any injury or fatality. Single-vehicle accidents that did not result in any injury were more likely to go unreported than multiple-vehicle accidents that resulted in no injury, 42% vs 22%.

TABLE 10.7

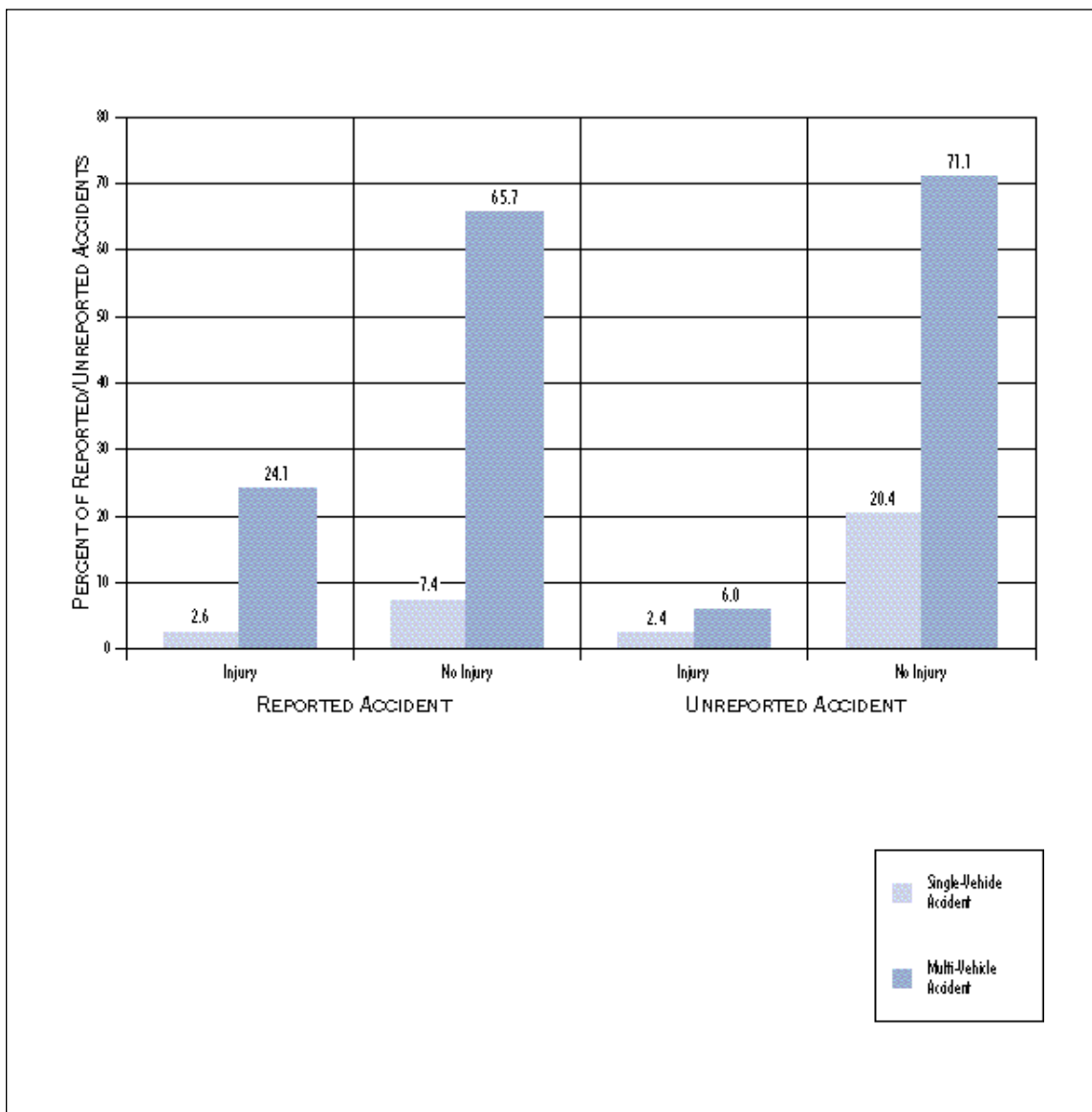
COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS  
BY ACCIDENT SEVERITY AND OTHER VEHICLE INVOLVEMENT  
1990 NPTS

	Single-Vehicle Accident		Multiple-Vehicle Accident		TOTAL <sup>1</sup>
	Injury	No Injury	Injury	No Injury	
<b>Reported</b>	<b>652,965</b>	<b>1,844,833</b>	<b>5,996,553</b>	<b>16,341,753</b>	<b>24,924,151</b>
	(75.6%)	(56.7%)	(92.7%)	(77.1%)	(77.9%)
<b>Unreported</b>	<b>158,971</b>	<b>1,358,559</b>	<b>395,780</b>	<b>4,726,482</b>	<b>6,647,789</b>
	(18.4%)	(41.8%)	(6.1%)	(22.3%)	(20.8%)
<b>TOTAL<sup>1</sup></b>	<b>863,912</b>	<b>3,251,473</b>	<b>6,466,557</b>	<b>21,205,638</b>	<b>32,013,487</b>
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

<sup>1</sup> Includes accidents for which information on accident reporting status, whether other vehicles were involved in the accident and/or accident severity were unreported.

FIGURE 10.2

DISTRIBUTION OF ACCIDENTS BY REPORTING STATUS AND ACCIDENT SEVERITY  
1990 NPTS



This table presents data based on the most serious injury that resulted from the accident. Police-reported accidents had a considerably larger proportion of serious injuries that required transporting to a medical facility

than unreported accidents. As expected, more than 97% of unreported accidents resulted in property damage only or in minor injuries that did not require any medical attention.

TABLE 10.8

COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS  
BY VEHICLE INVOLVEMENT AND MOST SERIOUS ACCIDENT INJURY  
1990 NPTS

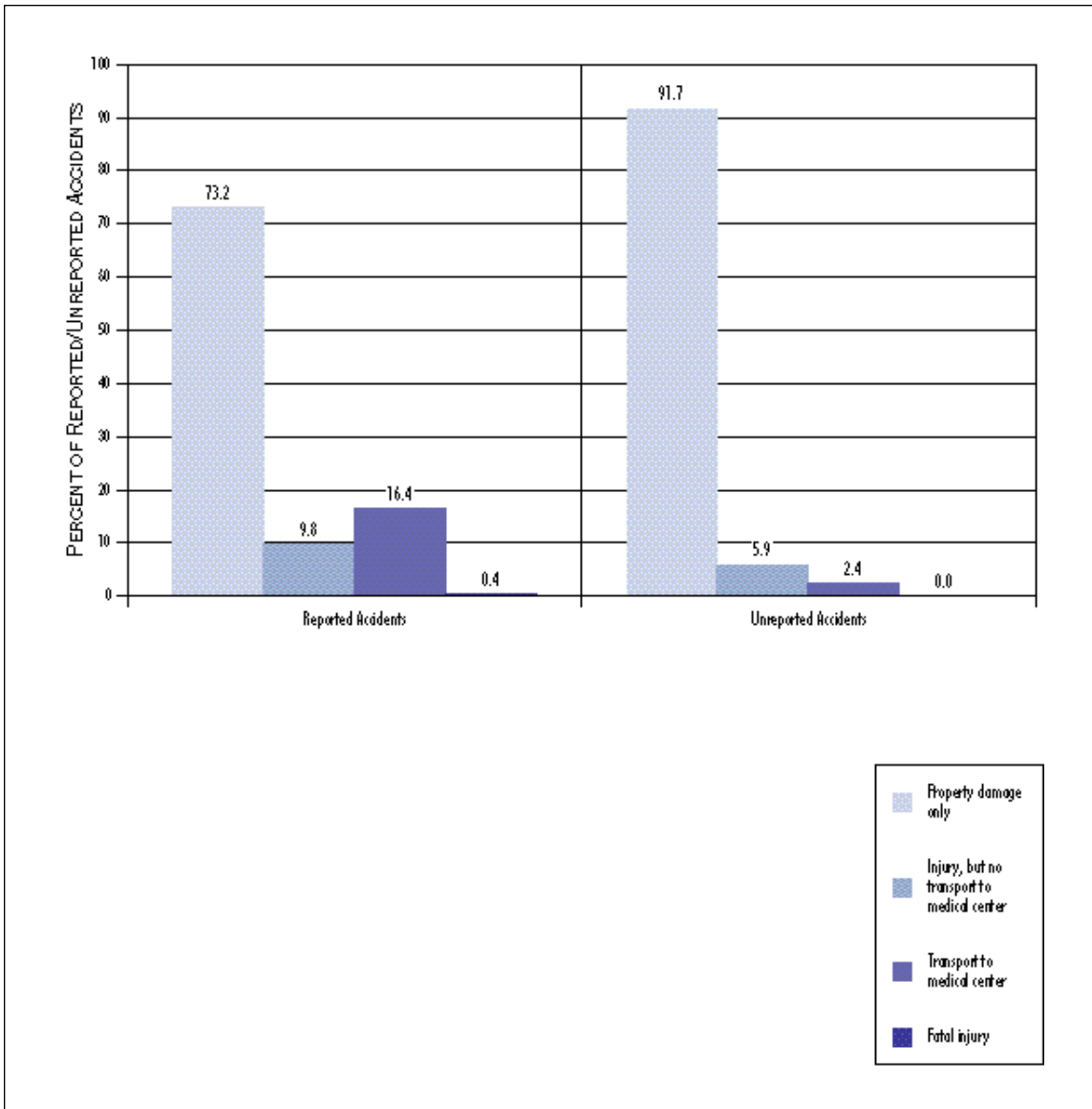
Most Serious Injury	Reported Accident			Unreported Accident		
	Single Vehicle	Multiple Vehicle	TOTAL <sup>1</sup>	Single Vehicle	Multiple Vehicle	TOTAL <sup>1</sup>
Property damage only	1,844,833 (73.9%)	16,376,214 (73.2%)	18,252,844 (73.2%)	1,358,559 (89.5%)	4,734,478 (92.3%)	6,093,037 (91.7%)
Injury, but no transport to medical center	159,781 (6.4%)	2,290,976 (10.2%)	2,450,757 (9.8%)	90,632 (6.0%)	303,727 (5.9%)	394,358 (5.9%)
Transport to medical center	471,758 (18.9%)	3,592,397 (16.1%)	4,085,943 (16.4%)	68,339 (4.5%)	92,054 (1.8%)	160,393 (2.4%)
Fatal injury	* (0.0%)	76,115 (0.3%)	97,542 (0.4%)	** (0.0%)	** (0.0%)	** (0.0%)
<b>TOTAL<sup>1</sup></b>	<b>2,497,798</b> (100.0%)	<b>22,372,766</b> (100.0%)	<b>24,924,151</b> (100.0%)	<b>1,517,530</b> (100.0%)	<b>5,130,259</b> (100.0%)	<b>6,647,789</b> (100.0%)

<sup>1</sup> Includes accidents for which information on whether there were other vehicles involved, the most serious injury resulted or both were unreported. Also includes records where insufficient data were reported in other cells.

\* Indicates insufficient data reported.  
\*\* Indicates no data reported.

FIGURE 10.3

DISTRIBUTION OF ACCIDENTS BY MOST SERIOUS ACCIDENT INJURY AND REPORTING STATUS  
1990 NPTS



There were about three times as many crashes within cities or towns as in the open country. This estimate is in agreement with NHTSA's estimate based on data reported in

the General Estimates System. There is no difference between reported accidents and unreported accidents in terms of where the accidents occurred.

TABLE 10.9

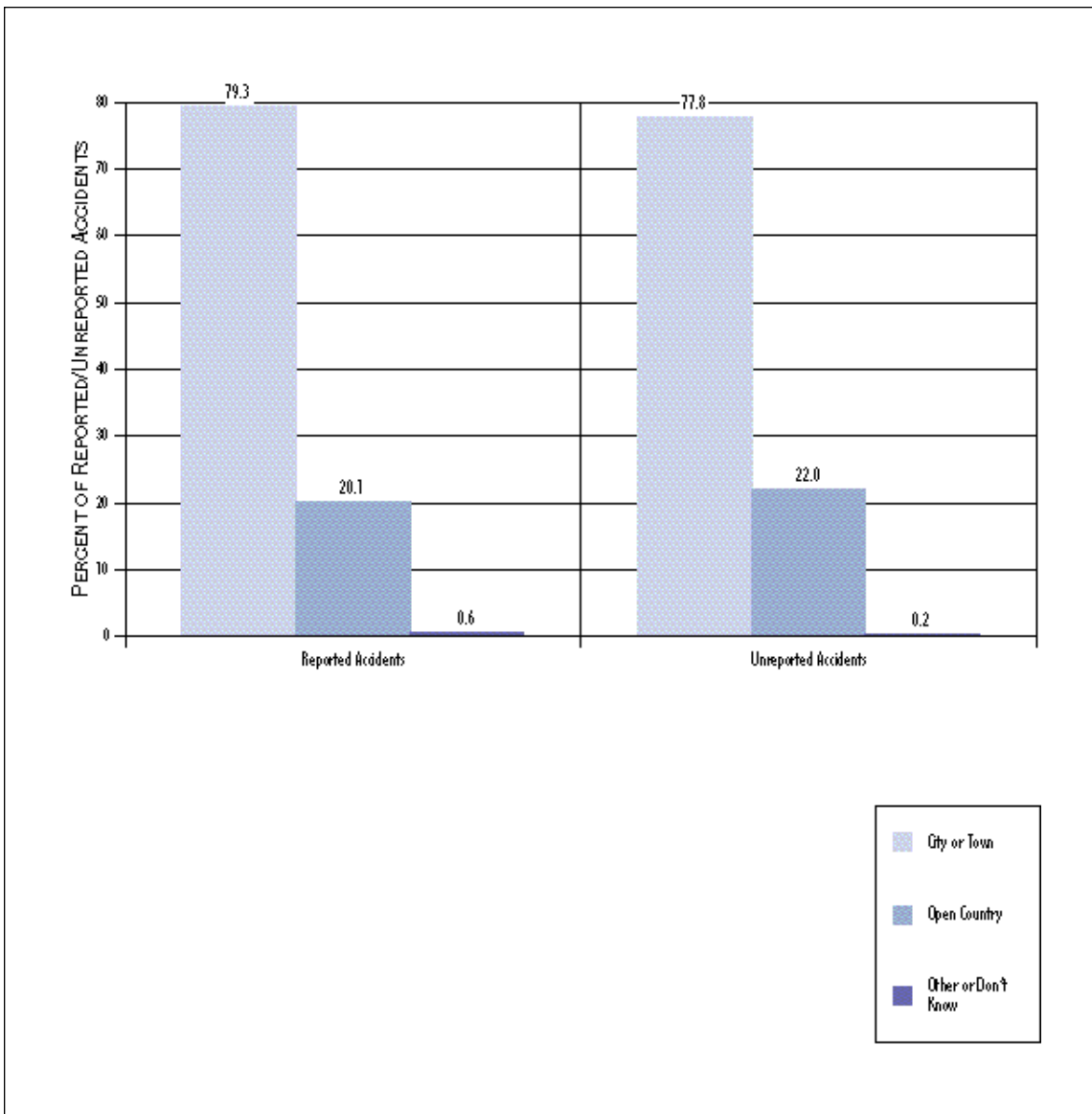
COMPARISON OF REPORTED ACCIDENTS AND UNREPORTED ACCIDENTS BY PLACE OF ACCIDENT  
1990 NPTS

Place of Accident	Reported Accident	Unreported Accident	Unknown	TOTAL
City or Town	19,774,050 (79.3%)	5,172,298 (77.8%)	243,206 (55.1%)	25,189,554 (78.7%)
Open Country	5,015,924 (20.1%)	1,459,286 (22.0%)	68,787 (15.6%)	6,543,997 (20.4%)
Other or Unknown	134,177 (0.6%)	16,205 (0.2%)	129,555 (29.3%)	279,936 (0.9%)
<b>TOTAL</b>	<b>24,924,151</b> (100.0%)	<b>6,647,789</b> (100.0%)	<b>441,548</b> (100.0%)	<b>32,013,487</b> (100.0%)



FIGURE 10.4

DISTRIBUTION OF ACCIDENTS BY PLACE OF ACCIDENT AND REPORTING STATUS  
1990 NPTS



According to the NHTSA's estimates, 55% of the motor vehicle crashes in 1990 occurred in daylight and normal weather. This estimate is similar to what the NPTS survey data suggest - 58% in daylight (when no headlights were required) and dry road conditions

(Tables 10.10 and 10.11). Most of the reported single-vehicle accidents occurred in darkness and dry conditions, while the majority of the unreported single-vehicle accidents occurred in daytime and dry conditions.

TABLE 10.10

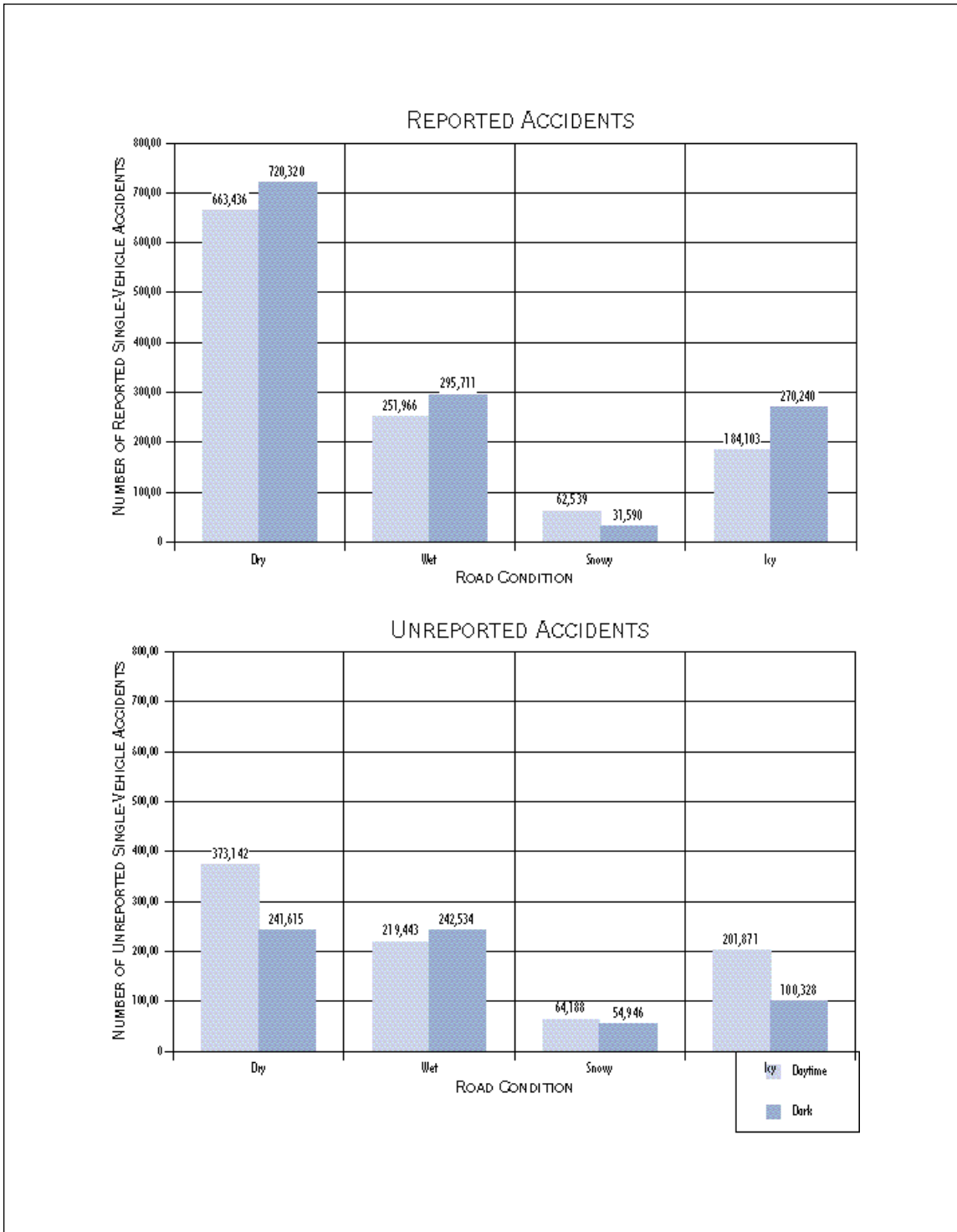
COMPARISON OF REPORTED SINGLE-VEHICLE ACCIDENTS AND UNREPORTED SINGLE-VEHICLE ACCIDENTS BY ROAD AND LIGHT CONDITION  
1990 NPTS

Road Condition	Reported Accident			Unreported Accident		
	Daytime	Dark	TOTAL <sup>1</sup>	Daytime	Dark	TOTAL <sup>1</sup>
Dry	663,436 (26.6%)	720,320 (28.8%)	<b>1,383,757</b> (55.4%)	373,142 (24.6%)	241,615 (15.9%)	<b>622,090</b> (41.0%)
Wet	251,966 (10.1%)	295,711 (11.8%)	<b>554,840</b> (22.2%)	219,443 (14.5%)	242,534 (16.0%)	<b>461,977</b> (30.4%)
Snowy	62,539 (2.5%)	31,590 (1.3%)	<b>94,128</b> (3.8%)	64,188 (4.2%)	54,946 (3.6%)	<b>119,134</b> (7.9%)
Icy	184,103 (7.4%)	270,240 (10.8%)	<b>454,344</b> (18.2%)	201,871 (13.3%)	100,328 (6.6%)	<b>308,014</b> (20.3%)
<b>TOTAL<sup>1</sup></b>	<b>1,162,045</b> (46.5%)	<b>1,323,213</b> (53.0%)	<b>2,497,798</b> (100.0%)	<b>858,644</b> (56.6%)	<b>641,688</b> (42.3%)	<b>1,517,530</b> (100.0%)

<sup>1</sup> Includes accidents where light condition, road condition or both were unreported.

FIGURE 10.5

COMPARISON OF SINGLE-VEHICLE ACCIDENTS BY REPORTING STATUS AND ROAD AND LIGHT CONDITION  
1990 NPTS



Unlike single-vehicle accidents, there was no difference between reported and unreported multi-vehicle accidents in terms of the light and road conditions under which the accidents occurred. Regardless of the reporting

status, the number of multi-vehicle crashes that occurred in daylight outnumbered the number of multi-vehicle crashes that occurred in dark conditions about four to one.

TABLE 10.11

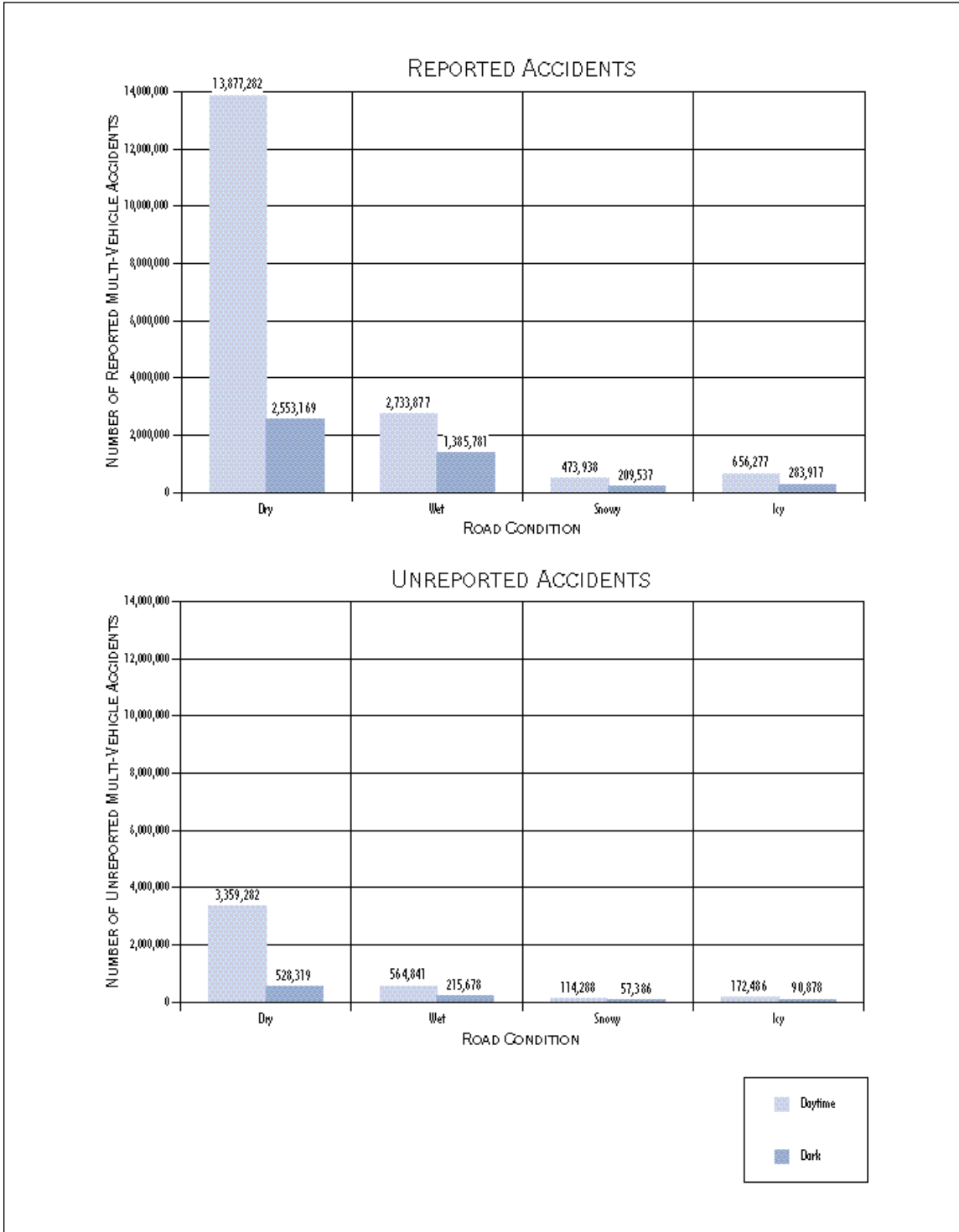
COMPARISON OF REPORTED MULTIPLE-VEHICLE ACCIDENTS AND UNREPORTED MULTIPLE-VEHICLE ACCIDENTS BY ROAD AND LIGHT CONDITION  
1990 NPTS

Road Condition	Reported Accident			Unreported Accident		
	Daytime	Dark	TOTAL <sup>1</sup>	Daytime	Dark	TOTAL <sup>1</sup>
Dry	13,877,282 (62.0%)	2,553,169 (11.4%)	16,449,636 (73.5%)	3,359,282 (65.5%)	528,319 (10.3%)	3,887,601 (75.8%)
Wet	2,733,877 (12.3%)	1,385,781 (6.2%)	4,126,097 (18.4%)	564,841 (11.0%)	215,678 (4.2%)	780,519 (15.2%)
Snowy	473,938 (2.1%)	209,537 (0.9%)	683,795 (3.1%)	114,288 (2.2%)	57,386 (1.1%)	171,674 (3.3%)
Icy	656,277 (2.9%)	283,917 (1.3%)	948,115 (4.2%)	172,486 (3.4%)	90,878 (1.8%)	263,364 (5.1%)
<b>TOTAL<sup>1</sup></b>	<b>17,832,733</b> (79.7%)	<b>4,469,639</b> (20.0%)	<b>22,372,766</b> (100.0%)	<b>4,237,998</b> (82.6%)	<b>892,260</b> (17.4%)	<b>5,130,259</b> (100.0%)

<sup>1</sup> Includes accidents where light condition, road condition or both were unreported.

FIGURE 10.6

COMPARISON OF MULTIPLE-VEHICLE ACCIDENTS  
BY REPORTING STATUS AND ROAD AND LIGHT CONDITION  
1990 NPTS





NATIONWIDE PERSONAL TRANSPORTATION SURVEY

# Appendix A

## Glossary of Terms Used In NPTS







# Appendix A Glossary of Terms Used in NPTS

**T**HIS glossary provides the most common terms used in the NPTS and definitions of those terms. These definitions are provided to assist the user in the interpretation of the transportation data.

## Census Division

The Census Bureau divides the states into the following divisions:

- **New England:**  
Connecticut            Maine  
Massachusetts        New Hampshire  
Rhode Island         Vermont
- **Middle Atlantic:**  
New Jersey            New York  
Pennsylvania
- **East North Central:**  
Illinois                Indiana  
Michigan              Ohio  
Wisconsin
- **West North Central:**  
Iowa                    Kansas  
Minnesota            Missouri  
Nebraska              North Dakota  
South Dakota
- **South Atlantic:**  
Delaware              Florida  
Georgia                Maryland  
North Carolina        South Carolina  
Virginia                West Virginia
- **East South Central:**  
Alabama                Kentucky  
Mississippi            Tennessee
- **West South Central:**  
Arkansas              Louisiana  
Oklahoma              Texas

- **Mountain:**  
Arizona                Colorado  
Idaho                    Montana  
Nevada                 New Mexico  
Utah                     Wyoming
- **Pacific:**  
Alaska                 California  
Hawaii                 Oregon  
Washington

## Consolidated Metropolitan Statistical Area (CMSA)

A metropolitan complex of 1 million or more population, containing two or more component parts designated as primary metropolitan statistical areas (PMSAs).

## Destination

For travel period trips, destination is the farthest point of travel from the point of origin to 75 miles or more on a one-way trip.

For travel day trips, the destination is the point at which there is a break in travel.

## Driver

A driver is a person who operates a motorized vehicle. If more than one person drives on a single trip, the person who drives the most miles is classified as the principal driver.

## Employed

A person is considered employed if he/she worked for pay, either full time or part time, during the week before the interview.

A person who is on call to work whenever there is a need for his/her services is not considered employed.

### Education Level

The number of years of regular schooling completed in graded public, private, or parochial schools, or in colleges, universities, or professional schools, whether day school or night school. Regular schooling advances a person toward an elementary or high school diploma, or a college, university, or professional school degree.

### Household

A group of persons whose usual place of residence is a specific housing unit; these persons may or may not be related to each other. The total of all U.S. households represents the total civilian non-institutionalized population.

A Household does not include group quarters (i.e., 10 or more persons living together, none of whom are related).

### Household Income

Household income is the money earned by all family members in a household, including those temporarily absent. Annual income consisted of the income earned 12 months preceding the interview. Household income includes monies from all sources, such as wages and salary, commissions, tips, cash bonuses, income from a business or farm, pensions, dividends, interest, unemployment or workmen's compensation, social security, veterans' payments, rent received from owned property (minus the operating costs), public assistance payments, regular gifts of money from friends or relatives not living in the household, alimony, child support, and other kinds of periodic money income other than earnings.

Household income excludes in-kind income such as room and board, insurance payments, lump-sum inheritances, occasional gifts of money from persons not living in the same household, withdrawal of savings from banks, tax refunds, and the proceeds of the sale of one's house, car, or other personal property.

### Household Members

Household members include all people, whether present or temporarily absent, whose usual place of residence is in the sample unit. Household members also include people staying in the sample unit who have no other usual place of residence elsewhere.

### Household Trip

A household trip consists of one or more household members traveling together.

### Household Vehicle

A household vehicle is a motorized vehicle that is owned, leased, rented or company-owned and available to be used regularly by household members during any travel period. Household vehicles are used solely for business purposes or business-owned vehicles if kept at home and used for the home to work trip, (e.g., taxicabs, police cars, etc.) which may be owned by, or assigned to, household members for their regular use. Household vehicles include all vehicles that were owned or available for use by members of the household during the travel period, even though a vehicle may have been sold before the interview.

Vehicles excluded from household vehicles are those which were not working and were not expected to be working within 60 days, and vehicles that were purchased or received after the designated travel day.

### Interstate Highway, Freeway or Expressway

A divided arterial highway for through traffic with full or partial control of access and grade separations at major intersections.

### Licensed Driver

A licensed driver is any person who holds a valid driver's license from any state.

### Means of Transportation

A mode of travel used for going from one place (origin) to another (destination). A means of transportation includes private and public modes, as well as walking. For all travel day trips, each change of mode constitutes a separate trip. The following transportation modes, grouped by major mode, are included in the transportation data.

### Private Vehicle

- Automobile  
A privately owned and/or operated licensed motorized vehicle including cars, jeeps and station wagons. Leased and rented cars are included if they are privately operated and not used for picking up passengers in return for fare.
- Van  
A privately owned and/or operated van or minivan designed to carry 5 to 13 passengers, or to haul cargo.
- Pickup Truck  
A pickup truck is a motorized vehicle, privately owned and/or operated, with an enclosed cab that usually accommodates 2-3 passengers, and an open cargo area in the rear. Pickup trucks usually have the same size of wheelbase as a full-size station wagon. This category also includes pickups with campers.
- Other Trucks  
This category consists of all trucks other than pickup trucks (i.e., dump trucks, trailer trucks, etc.).
- RV or Motor Home  
An RV or motor home includes a self-powered recreational vehicle that is operated as a unit without being towed by another vehicle (e.g., a Winnebago motor home).

- Motorcycle  
This category includes large, medium, and small motorcycles.

Minibikes are excluded because they cannot be licensed for highway use.

### Public Transportation

- Bus  
The bus category includes intercity buses, mass transit systems, and shuttle buses that are available to the general public. Also, Dial-A-Bus and Senior Citizen buses that are available to the public are included in this category.

However, shuttle buses operated by a government agency or private industry for the convenience of employees, contracted or chartered buses, or school buses are excluded from this category.

- Commuter Train  
This category includes commuter trains and passenger trains other than elevated rail trains and subways. Commuter Train also includes local and commuter train service.

Amtrak intercity service is excluded from this category.

- Streetcar/Trolley  
This category includes trolleys, streetcars, and cable cars.
- Elevated Rail/Subway  
This category includes elevated railways and subway trains in a city.
- Bus, Streetcar  
This category includes both the bus and streetcar/trolley categories as described above.
- Rail/Subway  
This category includes both the commuter train and elevated rail/subway categories as described above.

## Other Modes

- **Amtrak**  
Amtrak is defined as the U.S. national passenger railroad service providing intercity train service.

Amtrak intracity service is excluded from the commuter train data.

- **Airplane**  
Airplanes include commercial airplanes and smaller planes that are available for use by the general public in exchange for a fare. Private planes and helicopters are included under "Other."
- **Taxi**  
Taxis include the use of a taxicab by a driver for hire, or by a passenger for fare, and airport limousines.

The taxi category does not include rental cars if they are privately operated and not picking up passengers in return for fare.

- **Bicycles**  
This category includes bicycles of all speeds and sizes that do not have a motor.
- **Walk**  
This category includes jogging, walking, etc., provided the origin and destination are not the same.
- **School Bus**  
This category includes county school buses, private school buses, and buses chartered from private companies for the express purposes of carrying students to or from school and/or school-related activities.
- **MOPED (Motorized Bicycle)**  
This category includes motorized bicycles equipped with a small engine, typically characteristic of a two horsepower motor or less. Minibikes, dirt bikes, and trail bikes are excluded from this

category. Note that a motorized bicycle may or may not be licensed for highway use.

- **Other**  
Includes any types of transportation not previously listed.

## Metropolitan Statistical Area (MSA)

Except in the New England States, a Metropolitan Statistical Area is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. In addition, contiguous counties are included in an MSA if, according to certain criteria, they are socially and economically integrated with the central city. In the New England States, MSA's consist of towns and cities instead of counties.

## Motorized Vehicle

Motorized vehicles are all vehicles that are licensed for highway driving. Snow mobiles and minibikes are specifically excluded.

## Occupancy

Occupancy is the number of persons, including driver and passenger(s) in a vehicle. NPTS occupancy rates are generally calculated as person miles divided by vehicle miles.

## Origin

Origin is the starting point of a trip.

## Passenger

For a specific trip, a passenger is any occupant of a motorized vehicle, other than the driver.

### Person Miles of Travel (PMT)

PMT is a measure of person travel. When one person travels one mile, one person mile of travel results. Where 2 or more persons travel together in the same vehicle, each person makes the same number of person miles as the vehicle miles. Therefore, four persons traveling 5 miles in the same vehicle, make 20 person miles ( $4 \times 5 = 20$ ).

### Person Trip

A person trip is a trip by one or more persons in any mode of transportation. Each person is considered as making one person trip. For example, four persons traveling together in one auto makes four person trips.

### Season

Season is defined as: Winter - December, January and February; Spring - March, April and May; Summer - June, July and August; and Fall - September, October and November.

### Traffic Accident

A traffic accident is an accident that involves a motor vehicle which occurs on a public highway or road in the United States, and results in property damage or personal injury.

Traffic Accidents do not include accidents which occur in a parking lot, in a driveway, on a private road, or in a foreign country.

### Travel Day

A travel day is a 24-hour period from 4:00 a.m. to 3:59 a.m. designated as the reference period for studying trips and travel by members of a sampled household.

### Travel Period

A travel period consists of 14 days. The travel period is the 13 day period which precedes the travel day, and includes the 14th day as the travel day for a sampled household.

### Travel Day Trip

A travel day trip is defined as any one-way travel from one address (place) to another by any means of transportation (e.g., private motor vehicle, public transportation, bicycle, or walking). When traveling to more than one destination, a separate trip exists each time one or both of the following criteria is satisfied:

- (a) the travel time between two destinations exceeds 5 minutes, and/or
- (b) the purpose for travel to one destination is different from the purpose for travel to another.

An exception to a travel day trip is travel within a shopping center or mall. It is to be considered travel to one destination, regardless of the number of stores visited.

### Travel Period Trip

A travel period trip is a one-way destination which is 75 miles-or-more from home with a return home trip during the 14-day travel period. Travel to the destination is counted as one trip and travel to return home is counted as another trip. For example, a person living in Denver flies to San Francisco, stays one week, and returns to Denver during the 14-day travel period. This would be counted as two travel period trips - one outgoing and one return. The only time a travel period trip would not have a return trip collected is when the respondent moves his/her residence.

### Trip Purpose

A trip purpose is the main reason that motivates a trip. For purposes of this survey, there are 11 trip reasons. For travel day trips, if there is more than one reason, and the reasons do not involve different destinations, then only the main reason is chosen. If there are two or more reasons, and they each involve different destinations, then each reason is classified as a separate trip. For travel period trips, if there is more than one reason, the primary reason is collected. The 11 trip reasons (grouped into the five major purposes) are defined as follows:

### Earning a Living

- To or From Work  
Travel to a place where one reports for work; excluding work-related travel.
- Work-Related Business  
Trips related to business activities; excluding travel to the place of work.

Example: a plumber drives to a wholesale dealer to purchase supplies for his business, or a company executive travels from his office to another firm to attend a business meeting.

Business, out-of-town trips, and professional conventions are included.

### Family and Personal Business

- Shopping  
Shopping includes “window-shopping” and purchases of commodities such as groceries, furniture, clothing, etc. for use or consumption elsewhere.
- Doctor/Dentist  
This category includes trips made for medical, dental, or psychiatric treatment, or other related professional services.

- Other Family or Personal Business  
This category includes the purchase of services such as cleaning garments, servicing an automobile, haircuts, banking, legal services, etc.

### School or Church

- School/Church  
This category includes trips to school, college or university for class(es), or to PTA meetings, seminars, etc., or to church services or to participate in other religious activities.

Social activities that take place at a church or school, but cannot be classified as religious or educational are not included in this category.

### Social and Recreational

- Vacation  
This category is for trips reported by the respondent as “vacation.”
- Visit Friends or Relatives  
Trips which are specifically designated to visit friends or relatives.
- Pleasure Driving  
Driving trips made with no other purpose listed but to “go for a drive” with no destination in mind.
- Other Social or Recreational  
Trips taken to enjoy some form of social activity involving friends or acquaintances. This category includes trips for general entertainment or recreation (both as observer or as participant).

### Other

- Other  
For trips that do not fit in any of the other categories.

### Urbanized Area

An approximate classification of sample households belonging or not belonging to an urbanized area. Those areas classified as an urbanized area are listed below:

1. In a central city of an MSA, or
2. In an MSA but outside the central city, and
3. Within a zip code area with a population density of at least 500 people per square mile in 1990.

### Vehicle

In the 1969 survey, vehicle refers to autos and passenger vans owned or available to the household. In the 1977, 1983, and 1990 surveys, the term vehicle was expanded to include pickups and other light trucks, RV's, motorcycles and mopeds owned or available to the household. Estimates show that in 1969 there were an additional 7.5 million pickups and other light trucks that are not reflected in the 1969 NPTS data.

### Vehicle Mile of Travel (VMT)

VMT is a unit to measure vehicle travel made by a private vehicle, such as an automobile, van, pickup truck, or motorcycle. Each mile traveled is counted as one vehicle mile regardless of the number of persons in the vehicle.

### Vehicle Occupancy

Vehicle Occupancy is the number of persons, including driver and passenger(s) in a vehicle; also includes persons who did not complete a whole trip. NPTS occupancy rates are generally calculated as person miles divided by vehicle miles.

### Vehicle Trip

A trip by a single vehicle regardless of the number of persons in the vehicle.

### Vehicle Type

For purposes of the 1990 NPTS, one of the nine vehicle types used for coding purposes in the household motorized vehicle record. The nine types are:

1. Automobile (including station wagon)
2. Passenger
3. Cargo
4. Pickup Truck (including pickup with camper)
5. Other Truck
6. RV or Motor Home
7. Motorcycle
8. Moped (Motorized Bicycle)
9. Other (Specify)

See "Means of Transportation" for definitions of these vehicle types.

### Weekday

Weekday is defined as the time between 12:01 a.m. Monday and 6:00 p.m. Friday. This was done because Friday evening is considered the start of the weekend.

### Weekend

Weekend is defined as the time between 6:01 p.m. Friday and midnight Sunday.





# Appendix B

## Differences in Geographical Boundaries Between 1983 and 1990 NPTS





## Appendix B Differences in Geographical Boundaries Between 1983 and 1990 NPTS

**B**ETWEEN 1983 and 1990, the definitions of two geographical boundaries changed. These changes complicate any comparisons of metropolitan area data from the 1983 and 1990 NPTS. One change is the definition of a Metropolitan Statistical Area (MSA). In 1983 all areas were divided into combinations of counties called Standard Metropolitan Statistical Areas (SMSAs), with the exception that SMSAs in New England consisted of cities and towns. Typically, metropolitan areas are redefined following each census, resulting in additions or subtractions of counties, New England towns, and central cities. Substantial changes were made following the 1980 Census because of considerable revisions in the standards used by the Office of Management and Budget to define the areas.

By 1990 the term “metropolitan statistical area” (MSA) replaced “standard metropolitan statistical area” (SMSA). An optional two-tiered metropolitan structure was introduced for MSAs of a million people or more. These MSAs could be subdivided into primary MSAs (PMSAs) if certain decentralization conditions were met and if the locality desired such subdivisions. If PMSA’s were defined within an MSA, then the MSA became a consolidated MSA (CMSA). Table B.1 summarizes the metropolitan area changes since the 1980 Census.

Of the 318 preexisting SMSAs, 53 became PMSAs within 15 CMSAs, and 8 new PMSAs were established within these CMSAs. In addition, 5 preexisting SMSAs became CMSAs which were further subdivided into 10 PMSAs. As the result of these redefinitions, there were 20 CMSAs with 71 component PMSAs when the 1990 NPTS was conducted.

Among these 20 CMSAs, there were ten with a population of more than 3 million. These ten CMSAs were made up of 48 PMSAs, most of which did not by themselves have a population more than 3 million. Moreover, there was one MSA in 1990 with a population of more than 3 million.

In the 1990 NPTS, the variable MSASIZE was given a population size value based on its MSA or CMSA size. Therefore, if a household was located in an area within a PMSA of less than 3 million, but its CMSA had a population of more than 3 million, then the household was categorized as being located in an MSA of 3+ million. In 1983, however, only the SMSAs which by themselves had a population of more than 3 million were categorized as being “3+ million.”

The implication of this definitional change on the NPTS data is that many more households were estimated by the 1990 data as being located within metropolitan areas with a population of more than 3 million than that estimated by the 1983 NPTS. The reason is that all of the 1990 households in the aforementioned 48 PMSAs and the one MSA were classified as being located within areas with a population of more than 3 million, although most of these 48 PMSAs did not by themselves have a population of more than 3 million. On the other hand, the 1983 NPTS classified households located within SMSAs which by themselves had a population of more than 3 million as being located in areas with a population of “3+ million.”

The second geographic boundary change was the definition of a central city. Central cities are now defined as the largest city in population in the MSA plus any other cities of more than 25,000 (15,000 if one-third of the largest city’s population) provided that

they meet certain standards which demonstrate their status as centers of employment. Prior to 1983 there could be up to three central cities, including the largest plus the next two largest, if their popula-

tion was at least one-third of the largest city's population. The number of MSA central cities is now 525 compared with only 429 SMSA central cities prior to 1983.

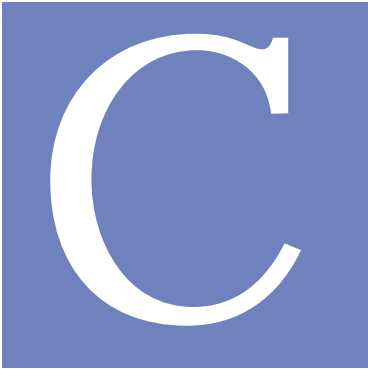
TABLE B.1

SUMMARY OF METROPOLITAN AREA CHANGES SINCE THE 1980 CENSUS<sup>1</sup>

Of the preexisting 318 SMSAs in the 1980 Census:	New MSAs since the 1980 Census:
<ul style="list-style-type: none"> <li>• 53 SMSAs in 1983 became PMSAs within 15 CMSAs, and 8 new PMSAs were established within these CMSAs. The 8 new PMSAs were:               <ul style="list-style-type: none"> <li>- Salem-Gloucester, MA (in Boston CMSA),</li> <li>- Aurora-Elgin, Joliet, and Lake City of Illinois (in Chicago CMSA),</li> <li>- Middletown, CT (in Hartford CMSA),</li> <li>- Brazoria, TX (in Houston CMSA),</li> <li>- Pawtucket-Woonsocket-Attleboro, RI-MA (in Providence CMSA), and</li> <li>- Oakland, CA (in San Francisco CMSA).</li> </ul> </li> <li>• 7 SMSAs in 1983 became CMSAs which were further divided into a total of 15 PMSAs. They were:               <ul style="list-style-type: none"> <li>- Buffalo, NY</li> <li>- Dallas-Fort Worth, TX</li> <li>- Denver, CO</li> <li>- Kansas City, MO</li> <li>- Pittsburgh, PA</li> <li>- Portland, OR</li> <li>- St. Louis, MO</li> </ul> </li> <li>• 2 SMSAs (Kansas City and St. Louis) reverted to MSA status, eliminating their CMSAs and 5 PMSAs.</li> <li>• 8 SMSAs were absorbed by adjacent areas:               <ul style="list-style-type: none"> <li>- Bay City, MI by Saginaw,</li> <li>- Meriden, CT by New Haven,</li> <li>- Newark, OH by Columbus,</li> <li>- Newport News-Hampton, VA by Norfolk,</li> <li>- Petersburg-Colonial Heights-Hopewell, VA by Richmond,</li> <li>- Rock Hill, SC and Salisbury-Concord, NC by Charlotte, and</li> <li>- Springfield, OH by Dayton.</li> </ul> </li> <li>• 85 SMSAs became MSAs with changes in composition.</li> <li>• 167 SMSAs became MSAs without any changes.</li> </ul>	<ul style="list-style-type: none"> <li>• 3 MSAs were added due to the new 1983 MA definition:               <ul style="list-style-type: none"> <li>- Dothan, AL</li> <li>- Fort Pierce, FL</li> <li>- Houma-Thibodaux, LA</li> </ul> </li> <li>• 9 new MSAs were established between 1984 and 1990:               <ul style="list-style-type: none"> <li>- Naples, FL (established in 1984)</li> <li>- Santa Fe, NM (established in 1984)</li> <li>- Cheyenne, WY (established in 1985)</li> <li>- Jackson, TN (established in 1985)</li> <li>- Rapid City, SD (established in 1985)</li> <li>- Merced, CA (established in 1986)</li> <li>- Decatur, AL (established in 1988)</li> <li>- Jamestown-Dunkirk, NY (established in 1988)</li> <li>- Yuma, AZ (established in 1990)</li> </ul> </li> </ul>
<p><sup>1</sup> Summarized by the U.S. Bureau of the Census.</p>	

# Appendix C

## Weighting Procedures





## Appendix C Weighting Procedures<sup>1</sup>

**T**HIS section discusses the weighting procedures for the 1990 NPTS.

These weighting factors are necessary in order to obtain estimated totals for the U.S. population. The weights reflect the sample design and selection probabilities, as well as adjustments to compensate for survey nonresponse and noncoverage. The weights are multiplicative factors; that is, the estimated total is obtained by multiplying each data value by the appropriate weight and summing the results.

The weight variables are included in the proper data files as follows:

1. The Household and Vehicle Files (HOUSEHLD.DAT and VEHICLE.DAT) contain the variable WTHHFIN, which is the weight used to make estimates of household characteristics such as household income and the number of vehicles per household.
2. The Person File (PERSON.DAT) includes the variable WTPERFIN, the weight used to make person-level estimates such as the number of licensed drivers or annual miles driven.
3. The Travel Day Files (DAYTRIP.DAT and SEGTRIP.DAT) contain the variable WTTRDFIN, the weight used to compute estimates of travel characteristics collected for the travel day, such as the number of person trips and their distributions by mode and purpose. The DAYTRIP.DAT file also contains a second weight variable (WTTOHFIN), which is used only for making estimates based on the data from Question 32 of the Travel Day Section, miles driven by type of highway.
4. The Travel Period Trip File (PERTRIP.DAT) includes the variable WTTRPFIN, which is the weight used

to make estimates for characteristics of the travel period trip, those of 75 miles or longer one-way.

Estimates of the number of vehicle trips or vehicle miles of travel should be based on only the data for the persons who drove the vehicles to avoid counting the trips or miles more than once. The variable DRVR\_FLG in the Travel Day Files identifies those trips in which the respondent was the driver. In the Travel Period File, there are two such variables (TODRVFLG and RTDRVFLG) to indicate whether the respondent was the driver on the outgoing and return portions of the trip.

Because the sample units were telephone households, the first series of steps calculate the analysis weights to estimate household characteristics. All subsequent weights are based on the household analysis weights. Using the household weight, person-level weights were calculated adjusting for nonresponding members of the responding households. Travel-day and travel-period weights were then calculated based on the person-level weights.

One final weight calculation was required for the “miles-driven by type of highway” because these data were captured for a randomly selected trip for each person in the sample. This weight is based on the travel-day weight and also reflects the probability that the trip was selected.

The weight sums are:

• Household level	93,347,000
• Person level	222,100,829
• Travel-day level	249,562,296,784
• Travel-period level	1,536,106,728
• Randomly-selected trip level	173,376,227,059

<sup>1</sup> Source: U.S. Department of Transportation, Federal Highway Administration, *1990 Nationwide Personal Transportation Survey: User's Guide for the Public Use Tapes*, pp. v1-v4, Washington, DC, December 1991.



The steps used in the weights calculations are summarized below.

The household weights were calculated as follows:

#### Step 1.

##### Calculate initial and sampling weights.

Since the Mitofsky-Waksberg design was used in Quarter 1, the sampling weights are unknown but equal. The initial Quarter 1 weight ratios the sample households to the exogenous strata counts from Market Statistics. For Quarter 2, the initial weight ratioed the phone numbers in the 20,000 Nielsen sample to the Nielsen frame. This initial Quarter 2 weight was divided by the ratio of released numbers to the 20,000 Nielsen sample, yielding the sampling weight (which ratios the released numbers to the frame). For Quarters 3 and 4, the sampling weight was the initial weight calculated and ratioed the released numbers to the frame.

#### Step 2.

##### Poststratification of the sampling weights.

The Quarters 2 through 4 sampling weights were post-stratified to the exogenous strata counts from Market Statistics.

#### Step 3.

##### Nonresponse and multiplicity adjustments.

The Quarter 1 weight from Step 1 and the Quarters 2 through 4 weights from Step 2 were adjusted for nonresponse. The adjustment factor ratioed the responding households to the responding and nonresponding households. These weights were then adjusted for multiple phone numbers in a household.

#### Step 4.

Combining the quarters. The weights from Step 3 were prorated by the percent of the responding households in each quarter.

#### Step 5.

##### Smoothing the weights across the year.

The weights from Step 4 were divided into 6 pairs based on the travel month, (i.e. January with February, etc). These weights were ratioed to 1/6 of the Market Statistics counts.

#### Step 6.

##### Poststratification to Current Population Survey estimates.

The final step in calculation of the household-level weights adjusted the weights from Step 5 so that they summed to March 1990 Current Population Survey estimates for five characteristics given in Table C.1:

- Census Region
- Household size
- MSA status
- Race (black, nonblack)
- Ethnicity (Hispanic, nonhispanic).

The person weights were calculated from the final household weights that resulted from Step 6, above.

#### Step 7.

Person-level nonresponse adjustment. The initial person-level weight (from Step 6.) was adjusted for nonresponse. The adjustment factor ratioed the sum of the weights for all responding persons to the sum of the weights for all responding and nonresponding persons.

#### Step 8.

Travel day and travel period weights. The travel-day and travel-period weights were calculated from the final person-level weights from Step 7, above. The travel-day weight was calculated by multiplying the final person weight, from Step 7, by 365 to expand the person travel day to an annual

TABLE C.1

## MARCH 1990 CURRENT POPULATION SURVEY HOUSEHOLD ESTIMATES

Household Characteristic	Estimated Number of Households (CPS 3/90) (000)	
<b>Census Region</b>		
Northeast	19,127	(20.5%)
Midwest	22,760	(24.4%)
South	32,261	(34.6%)
West	19,199	(20.6%)
<b>Household Size</b>		
1 person	22,999	(24.6%)
2 persons	30,114	(32.3%)
3 persons	16,128	(17.3%)
4+ persons	24,106	(25.8%)
<b>MSA status</b>		
in MSA 2.5M+	29,177	(31.3%)
in MSA 1M - 2.5 M	16,793	(18.0%)
in MSA < 1M	26,361	(28.2%)
not in MSA	21,016	(22.5%)
<b>Race of Householder</b>		
Black	10,486	(11.2%)
Nonblack	82,861	(88.8%)
<b>Ethnicity of Householder</b>		
Hispanic	5,933	(6.4%)
Nonhispanic	87,414	(93.6%)
<b>TOTAL</b>	<b>93,347</b>	<b>(100.0%)</b>

total. The travel-period weight was calculated by dividing the travel-day weight by 14, to reflect the 14-day travel period.

#### Step 9.

Nonresponse adjustment. The final travel day weight from Step 8 was adjusted by ratioing the travel respondents to the travel respondents and nonrespondents.

#### Step 10.

Randomly selected trip and type-of-highway weights. The conditional randomly-selected-trip weight was calculated by dividing the total mileage for all eligible trips for a person by the length of the selected trip. The type-of-highway weight was calculated by multiplying the weight from Step 9 by the conditional randomly selected trip weight.

# Appendix D

## Estimated Standard Errors of Key Statistics





## Appendix D Estimated Standard Errors of Key Statistics

**T**HE final adjusted weights are used in calculating parameter estimates and their sample variances.

Research Triangle Institute (RTI) uses SUDAAN for these calculations. Variance estimation for the statistics computed in the SUDAAN series of procedures for survey data analysis is based on a first-order Taylor series approximation of the deviations of estimates from their expected values. This approximation for large samples is well-known (see Kendall and Stuart, 1961, p. 231). Woodruff (1971) presented applications of this technique to sample surveys. This method yields one of the best known numerical approximations currently available in the statistical literature for ratio estimates. The general approach taken to compute variances is to first form the Taylor series linearization for a particular statistic. These linearized values are referred to as  $Z_i$  for the  $i^{\text{th}}$  sample unit throughout this appendix. Once the linearized values are formed, they are substituted into the formula for computing the variance of a total estimate that is appropriate for the design. Estimating the total number of individuals who belong to an arbitrarily defined domain or subpopulation provides a convenient example. Denote the total in question by  $N_d$ , where  $d$  denotes the domain. Establish a domain indicator

$$I_{hijk} = \begin{cases} 1 & \text{if the } k^{\text{th}} \text{ person is in the domain} \\ 0 & \text{if the } k^{\text{th}} \text{ person is not in the domain} \end{cases}$$

where

$h$  is the stratum,  $h=1, \dots, H$

$i$  is the  $i^{\text{th}}$  cluster, in stratum  $h$ ,  
 $i=1, \dots, n_h$

$j$  is the  $j^{\text{th}}$  household in the cluster  $i$  in stratum  $h$ ,  $j=1, \dots, n_j$

$k$  is the  $k^{\text{th}}$  person in the household; in cluster  $i$  in stratum  $h$ ,  $k=1, \dots, n_j$

and  $w_{hijk}$  is the population weight for person  $k$  in household  $j$  in cluster  $i$  in stratum  $h$ .

Then,  $Z_{hijk} = I_{hijk} \cdot W_{hijk}$

and the estimate of the domain total is

$$\hat{N}_d = \sum_h \sum_i \sum_j \sum_k Z_{hijk}$$

and the variance of this estimate is

$$\text{Var}(Z) = \sum_h n_h s_h^2$$

where

$$s_h^2 = \frac{\sum_i (z_{hi} - \bar{z}_h)^2}{n_h - 1}, \text{ the stratum-level sum of squares,}$$

with

$$z_{hi} = \sum_j \sum_k Z_{hijk}, \text{ the cluster-level sum,}$$

and

$$\bar{z}_h = \frac{\sum_i z_{hi}}{n_h}, \text{ the stratum level mean.}$$

Other methods of obtaining the variance estimates could be used instead of the first order Taylor series linearizations. Examples include such pseudorandomization techniques as balanced repeated replications (BRR), jackknifing and bootstrapping. The Taylor series linearization is preferred by many because of its computational efficiency (generally less demanding of computer time).

Specifically, standard errors for particular statistics such as the number of person trips taken by a particular mode, or by an age group, or for a particular purpose, (as given in Tables D1- D14) can be calculated using two variables in the NPTS files. These variables are PSU\_ID and VARSTRAT. VARSTRAT contains the  $h = 1, \dots, H$  geographical strata used while conducting the survey, while PSU\_ID ( $i = 1, \dots, n$ ) identifies the  $i^{\text{th}}$  cluster in stratum  $h$ . Thus,  $n_h$  is the number of clusters (PSU\_ID) in stratum  $h$  (VARSTRAT), and  $z_{hi}$  is the weighted total value for cluster  $i$  in stratum  $h$ , where value pertains to the weighted total number of miles, trips, households, etc., depending on the statistic which is being evaluated.

Depending on the minimum number of stratum clusters, the standard error was defined as follows:

$$se = \begin{cases} se_1 & , \text{if } n_h > 3 \\ se_2 & , \text{otherwise} \end{cases}$$

$$se_1 = \sqrt{v_1}$$

$$se_2 = \sqrt{v_2}$$

where:

$$v_1 = \sum_{h=1}^H W_h - n_h$$

$$v_2 = \frac{\sum_{h=1}^H \sum_{i=1}^{n_h} \left[ z_{hi} - \frac{\sum_{i=1}^{n_h} z_{hi}}{n_h} \right]^2}{\sum_{h=1}^H n_h - 1}$$

$n_h$  = number of PSU\_ID's in the  $h^{\text{th}}$  VARSTRAT

$z_{hi}$  = sum of weighted variable<sup>1</sup> for  $i^{\text{th}}$  PSU\_ID in the  $h^{\text{th}}$  VARSTRAT

$$w_h = \frac{\sum_{i=1}^{n_h} \left[ z_{hi} - \frac{\sum_{i=1}^{n_h} z_{hi}}{n_h} \right]^2}{n_h - 1}$$

Estimated standard errors for selected statistics are presented in Tables D1- D14.

The standard errors that are shown in Tables D1- D14 reflect the sampling error and also the variation in estimates due to some nonsampling errors. Sampling error is due to variability between estimates from all other possible samples of the same size that could have been selected using the same sample design. Estimates that were derived from any of these different samples would differ from one another. This variability, along with some nonsampling error, are measured by the stan-

<sup>1</sup> i.e.  $w_{hhfin}$ ,  $w_{trdfin}$ ,  $trpmiles * w_{trdfin}$

standard error. The systematic biases and some additional nonsampling errors are not found in the standard error. Some examples of nonsampling errors would include nonresponse, inaccurate response, and data entry errors. Thus, the accuracy of the estimates given is dependent on the sampling error and nonsampling errors which are measured by the standard error, and also on the biases and nonsampling errors which are not measured by the standard error.

The standard error of these estimates can be used to construct an interval around specific estimates. This interval will include, with a given amount of confidence, the average result of all possible samples. About 68 percent of the intervals, created by subtracting one standard error and adding one standard error, will include the average result of all possible samples. About 95 percent of the intervals, created by subtracting two standard errors and adding two standard errors, will include the average result of all possible samples, and about 99.99 percent of the intervals, created by subtracting and adding three standard errors, will include the average result of all possible samples. Thus, one can state, with a given percent of confidence (as stated above) that the computed interval will contain the average result of all possible samples.

An example of how these standard errors could be used is as follows. One may want to know the number of vehicle trips taken by an automobile. The estimated total number of vehicle trips taken by automobiles is 127,693,762 thousand. The standard error for this estimate, as found in Table D-12, is 1,111,866 thousand. To construct an interval that would include the average about 68 percent of the time, one would calculate:  $127,693,762,000 \pm (1)1,111,866,000$ . Therefore, a 68 percent confidence interval for the average result of all possible samples, as shown by this data, would be included in the interval 126,581,896 thousand to 128,805,628 thousand vehicle

trips. An interval that would include the average about 95 percent of the time would be constructed by solving:  $127,693,762,000 \pm (2)1,111,866,000$ . Hence, a 95 percent confidence interval for the average result of all possible samples, for the total number of vehicle trips taken in automobiles, is estimated to be in the interval from 125,470,030 thousand to 129,917,494 thousand vehicle trips.





TABLE D.1

STANDARD ERROR FOR SELECTED ESTIMATED SUMMARY STATISTICS  
1990 NPTS

Standard Error for Summary Statistics	
Total Number of Households	402,292
Total Number of Persons	1,318,004
Total Number of Licensed Drivers	906,298
Total Number of Workers	799,933
Household Vehicles	956,682
Household Vehicle Trips	1,250,013,000
Household Vehicle Miles of Travel	18,678,030,000
Person Trips	1,927,250,000
Person Miles of Travel	43,718,160,000
Travel Period Vehicle Trips	29,757,650
Travel Period Vehicle Miles of Travel	12,240,800,000
Travel Period Person Trips	50,411,100
Travel Period Person Miles of Travel	33,790,560,000
Total <sup>1</sup> Vehicle Miles of Travel	20,964,960,000
Total <sup>1</sup> Person Miles of Travel	49,414,320,000

<sup>1</sup> Includes both travel day miles of travel and travel period miles of travel.

ESTIMATED STANDARD ERRORS OF SELECTED STATISTICS BY TRIP TYPE

TABLE D.2

STANDARD ERROR FOR ESTIMATED NUMBER OF PERSONS BY RACE  
1990 NPTS

Race	Standard Error for Persons
White	1,141,124
Black	665,707
Other	569,008
<b>ALL</b>	<b>1,318,004</b>

TABLE D.3

STANDARD ERRORS FOR ESTIMATED NUMBER OF PERSONS BY AGE  
1990 NPTS

Age	Standard Error for Persons
5-15	478,506
16 - 19	280,742
20 - 29	573,173
30 - 39	534,884
40 - 49	325,296
50 - 59	319,800
60 - 64	190,250
65 and Over	362,950
<b>ALL</b>	<b>1,318,004</b>

ESTIMATED STANDARD ERRORS OF ALL STATISTICS REFERENCED

**TABLE D.4**  
**STANDARD ERRORS FOR ESTIMATED NUMBER OF PERSONS, WORKERS, AND LICENSED DRIVERS BY SEX**  
**1990 NPTS**

<b>Number of Persons</b>	<b>Standard Error</b>
Male	712,026
Female	783,723
<b>ALL</b>	<b>1,318,004</b>
<b>Number of Workers</b>	<b>Standard Error</b>
Male	470,702
Female	439,921
<b>ALL</b>	<b>799,933</b>
<b>Number of Licensed Drivers</b>	<b>Standard Error</b>
Male	516,511
Female	535,357
<b>ALL</b>	<b>906,298</b>

TABLE D.5

STANDARD ERRORS FOR ESTIMATED NUMBER OF WORKERS BY AGE  
1990 NPTS

Age	Standard Error for Workers
16 - 19	154,814
20 - 29	474,331
30 - 39	456,600
40 - 49	346,467
50 - 59	234,288
60 - 64	123,874
65 and Over	82,925
<b>ALL</b>	<b>799,933</b>

ESTIMATED STANDARD ERRORS OF ALL STATISTICS REFERENCED

TABLE D.6

STANDARD ERRORS FOR ESTIMATED NUMBER OF HOUSEHOLDS BY MSA SIZE  
1990 NPTS

MSA Size	Standard Error for Households
Less than 250,000	282,843
250,000 - 499,999	250,932
500,000 - 999,999	255,114
1,000,000 - 2,999,999	400,413
3,000,000 or more	457,622
Not in MSA	439,012
<b>ALL</b>	<b>402,292</b>

TABLE D.7

STANDARD ERRORS FOR ESTIMATED NUMBER OF PERSONS BY MSA SIZE  
1990 NPTS

MSA Size	Standard Error for Persons
Less than 250,000	668,063
250,000 - 499,999	629,786
500,000 - 999,999	627,825
1,000,000 - 2,999,999	1,024,451
3,000,000 or More	1,237,968
Not in MSA	1,071,904
<b>ALL</b>	<b>1,318,004</b>



**TABLE D.8**

**STANDARD ERRORS FOR ESTIMATED NUMBER OF VEHICLES BY MSA SIZE  
1990 NPTS**

MSA Size	Standard Error for Vehicles
Less than 250,000	533,609
250,000 - 499,999	496,689
500,000 - 999,999	508,013
1,000,000 - 2,999,999	755,050
3,000,000 or more	882,691
Not in MSA	883,832
<b>ALL</b>	<b>956,682</b>

TABLE D.9

STANDARD ERRORS FOR ESTIMATED PERSON TRIPS AND PERSON MILES OF TRAVEL BY MSA SIZE  
1990 NPTS

MSA Size	Standard Error	
	Person Trips	Person Miles of Travel
Less than 250,000	997,426,600	16,560,790,000
250,000 - 499,999	854,976,400	9,124,026,000
500,000 - 999,999	897,134,100	10,954,620,000
1,000,000 - 2,999,999	1,385,446,000	23,768,680,000
3,000,000 or more	1,566,960,000	29,886,700,000
Not in MSA	1,437,063,000	20,205,500,000
<b>ALL</b>	<b>1,927,250,000</b>	<b>43,718,160,000</b>

**TABLE D.10**  
**STANDARD ERRORS FOR ESTIMATED VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL BY MSA SIZE**  
**1990 NPTS**

MSA Size	Standard Error	
	Vehicle Trips	Vehicle Miles of Travel
Less than 250,000	633,835,600	7,351,170,000
250,000 - 499,999	543,801,200	5,513,748,000
500,000 - 999,999	573,208,000	6,522,445,000
1,000,000 - 2,999,999	921,352,300	9,735,198,000
3,000,000 or more	972,618,200	11,761,430,000
Not in MSA	922,675,400	12,130,700,000
<b>ALL</b>	<b>1,250,013,000</b>	<b>18,678,030,000</b>

TABLE D.11

STANDARD ERRORS FOR ESTIMATED PERSON TRIPS AND PERSON MILES OF TRAVEL  
BY MODE OF TRANSPORTATION  
1990 NPTS

Mode	Standard Error	
	Person Trips	Person Miles of Travel
<b>PRIVATE VEHICLE</b>		
Auto	1,526,477,000	25,606,940,000
Passenger Van	469,521,800	10,432,040,000
Cargo Van	73,047,410	2,099,931,000
Pickup Truck	526,533,200	8,453,223,000
Other Truck	113,281,100	3,142,487,000
RV/Motor Home	46,837,990	1,644,538,000
Motorcycle	47,856,580	1,111,918,000
Moped	21,894,120	455,131,900
Other POV	29,719,960	339,988,000
<b>PUBLIC TRANSPORTATION</b>		
Bus	124,811,900	4,706,646,000
Amtrak	14,268,750	2,158,911,000
Commuter Train	37,097,430	1,524,714,000
Streetcar/Trolley	9,188,660	119,399,400
Elevated Rail/Subway	48,920,420	813,590,000
<b>OTHER MODE</b>		
Airplane	19,660,690	20,364,180,000
Taxi	38,145,620	315,254,400
Bicycle	89,960,530	364,603,700
Walk	525,762,300	429,712,900
School Bus	178,772,400	1,634,345,000
Other	39,896,910	12,364,990,000
<b>ALL</b>	<b>1,927,250,000</b>	<b>43,718,160,000</b>

**TABLE D.12**

**STANDARD ERRORS FOR ESTIMATED VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL  
BY MODE OF TRANSPORTATION  
1990 NPTS**

Mode	Standard Error	
	Vehicle Trips	Vehicle Miles of Travel
Auto	1,111,866,000	16,118,840,000
Passenger Van	251,058,800	4,370,449,000
Cargo Van	63,033,060	1,609,946,000
Pickup Truck	405,292,000	6,578,588,000
Other Truck	69,519,750	2,740,346,000
RV/Motor Home	48,863,300	670,972,800
Motorcycle	45,847,390	986,791,600
Moped	16,212,150	166,125,300
Other POV	27,766,250	304,218,200
<b>ALL</b>	<b>1,250,013,000</b>	<b>18,678,030,000</b>

TABLE D.13

STANDARD ERRORS FOR ESTIMATED NUMBER OF PERSON TRIPS  
AND PERSON MILES OF TRAVEL BY TRIP PURPOSE  
1990 NPTS

Trip Purpose	Standard Error	
	Person Trips	Person Miles of Travel
<b>EARNING A LIVING</b>		
To or From Work	478,799,000	8,744,114,000
Work-Related Business	122,168,200	12,993,260,000
<b>FAMILY AND PERSONAL BUSINESS</b>		
Shopping	525,347,900	6,650,350,000
Doctor/Dentist	93,519,850	1,827,617,000
Other Family Business	664,388,300	17,655,540,000
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>		
	480,746,100	5,957,504,000
<b>SOCIAL &amp; RECREATIONAL</b>		
Vacation	67,621,560	20,521,330,000
Visiting Friends	411,233,300	11,638,720,000
Pleasure Driving	56,242,260	2,156,869,000
Other Social/Recreational	623,359,700	18,112,470,000
<b>OTHER</b>		
	107,887,900	2,964,184,000
<b>ALL</b>	<b>1,927,250,000</b>	<b>43,718,160,000</b>

TABLE D.14

STANDARD ERRORS FOR ESTIMATED NUMBER OF VEHICLE TRIPS AND  
VEHICLE MILES OF TRAVEL BY TRIP PURPOSE  
1990 NPTS

Trip Purpose	Standard Error	
	Vehicle Trips	Vehicle Miles of Travel
<b>EARNING A LIVING</b>		
To or From Work	412,421,100	7,724,612,000
Work-Related Business	103,466,000	3,723,768,000
<b>FAMILY AND PERSONAL BUSINESS</b>		
Shopping	348,158,300	3,610,234,000
Doctor/Dentist	66,800,150	1,200,897,000
Other Family Business	472,715,100	7,958,197,000
<b>CIVIC, EDUCATIONAL, &amp; RELIGIOUS</b>		
	178,321,900	2,991,542,000
<b>SOCIAL &amp; RECREATIONAL</b>		
Vacation	23,328,510	3,219,005,000
Visiting Friends	245,218,400	6,236,333,000
Pleasure Driving	31,680,220	1,487,875,000
Other Social/Recreational	318,760,900	6,710,482,000
<b>OTHER</b>		
	76,473,870	2,216,324,000
<b>ALL</b>	<b>1,250,013,000</b>	<b>18,678,030,000</b>

# Appendix E

## Procedure To Adjust 1983 Income Categories Into 1990 Dollars







## Appendix E Procedure to Adjust 1983 Income Categories into 1990 Dollars

**T**O protect the confidentiality of NPTS' respondents, their household income data were categorized and available only in income categories. To assure compatibility in comparing 1983 and 1990 survey results, the 1983 income categories needed to be adjusted to reflect monetary inflation between 1983 and 1990. The adjustment is not straightforward due to the categorical nature of the data. A cumulative polynomial fitting technique is used, consisting of three steps:

- (1) The basic idea of this technique is to first fit a polynomial curve to the cumulative frequency distribution (of any data element).
- (2) The 1983 income is adjusted by the Consumer Price Index (CPI) to 1990 dollars.
- (3) Without altering the cumulative frequency distribution, one can then "re-categorize" the cumulative frequency distribution into any desired categories.

An example of how 1983 data were adjusted is given. This example redistributes 1983 households into adjusted 1983 income categories.

Table E.1 gives the 1983 income categories, and the corresponding number of households in each category. Since the cumulative polynomial fitting technique fits a polynomial curve to the cumulative distribution based on the endpoints of the income categories and since the last income category — \$80,000 and up — has an indefinite range, it is impossible to determine the endpoint of this income category. To overcome this difficulty, this income category is divided into several categories with income intervals of equal

size. In order to determine the number of "equally-spaced" categories that should represent the last income category, the following equation is used:

$$I = \frac{\text{Total number of households earning } \$80,000 \text{ \& up}}{\text{Total number of households earning } \$75,000\text{-}80,000} = \frac{1,394}{404} = 3.45$$

The solution to this equation implies that the last income category should be divided into four categories (\$80,000-85,000, \$85,000-90,000, \$90,000-95,000 and \$95,000-100,000). Each of the first three categories is assumed to have the same number of households as the "\$75,000-80,000" category. That is, the categories "\$75,000-80,000", "\$80,000-85,000", "\$85,000-90,000" and "\$90,000-95,000" will each have an estimated total of 404 households. To estimate the total number of households in the last income category, "\$95,000-100,000", the following equation is used:

$$\begin{aligned} &\text{Total number of households in the} \\ &\text{"\$95,000-100,000" category} \\ &= \text{Total households in the original} \\ &\text{"\$80,000 and up" category -} \\ &\quad [ (\text{Number of new} \\ &\quad \text{categories created - 1}) \times \\ &\quad \text{Total households in the "\$75,000-} \\ &\quad \text{80,000" category}] \\ &= 1,394 - (3 \times 404) \\ &= 182. \end{aligned}$$

The revised 1983 income categories and the corresponding number of households in each category are shown in Table E.2.

TABLE E.1

NUMBER OF HOUSEHOLDS BY 1983 HOUSEHOLD INCOME

1983 INCOME (THOUSANDS)	TOTAL NUMBER OF HOUSEHOLDS
Less than \$5	9,475
\$5-10	12,878
\$10-15	12,602
\$15-20	10,159
\$20-25	9,708
\$25-30	8,061
\$30-35	6,117
\$35-40	4,249
\$40-45	3,504
\$45-50	1,985
\$50-55	1,852
\$55-60	1,069
\$60-65	769
\$65-70	654
\$70-75	499
\$75-80	404
\$80 and up	1,394

TABLE E.2

NUMBER OF HOUSEHOLDS AND THE ENDPOINTS OF REVISED 1983 INCOME CATEGORIES,  
(INCLUDING FOUR NEW INCOME CATEGORIES)

REVISED 1983 INCOME CATEGORY (THOUSANDS)	ENDPOINT OF INCOME CATEGORIES ( $X_{83,i}$ )	TOTAL NUMBER OF HOUSEHOLDS IN 1983 ( $Y_{83,i}$ )	CUMULATIVE TOTAL NUMBER OF HOUSEHOLDS IN 1983 ( $W_{83,i}$ )
Less than \$5	\$5	9,475	9,475
\$5-10	\$10	12,878	22,353
\$10-15	\$15	12,602	34,955
\$15-20	\$20	10,159	45,114
\$20-25	\$25	9,708	54,822
\$25-30	\$30	8,061	62,883
\$30-35	\$35	6,117	69,000
\$35-40	\$40	4,249	73,249
\$40-45	\$45	3,504	76,753
\$45-50	\$50	1,985	78,738
\$50-55	\$55	1,852	80,590
\$55-60	\$60	1,069	81,659
\$60-65	\$65	769	82,428
\$65-70	\$70	654	83,082
\$70-75	\$75	499	83,581
\$75-80	\$80	404	83,985
\$80-85	\$85	404	84,389
\$85-90	\$90	404	84,790
\$90-95	\$95	404	85,197
\$95-100	\$100	182	85,379

### STEP 1. FIT A POLYNOMIAL MODEL.

The first step in the cumulative polynomial fitting technique is to fit a polynomial model based on the endpoints of the revised 1983 income categories. Based on the end points  $X_{83,i}$  and their corresponding cumulative totals,  $W_{83,i}$  (Table E.2), a  $k=10$  order polynomial fit was developed. To estimate the parameters  $a_k$ ,  $k=1,2,\dots,10$ , the sum of the squares of the residuals,  $e_i^2$ , is minimized.

$$W_{83,i} = a_0 + (a_1 \times (X_{83,i})) + (a_2 \times (X_{83,i}^2)) + \dots + (a_k \times (X_{83,i}^k)) + e_i$$

where  $i$  is the  $i^{\text{th}}$  income category,  $i=1, 2, \dots, (16+4)$ ; and

$X_{83,i}$  is the endpoint of  $i$ , expressed in thousands in this equation.

In fitting this curve, the following parameters for  $a_k$  were estimated:

Parameter:

$$a_0 = 2,293.86$$

$$a_1 = 2,967.89$$

$$a_2 = -49.3761$$

$$a_3 = 2.52795$$

$$a_4 = -0.105174$$

$$a_5 = 0.164953E-02$$

$$a_6 = 0.318930E-05$$

$$a_7 = -0.438472E-06$$

$$a_8 = 0.589443E-08$$

$$a_9 = -0.340569E-10$$

$$a_{10} = 0.754465E-13$$

Figure E.1 illustrates the cumulative number of households categorized by the revised 1983 income category and the fitted polynomial curve.

### STEP 2. CONVERT 1983 INCOME CATEGORIES INTO 1990 DOLLARS.

Since the 1990 NPTS household income distribution is presented in 5 income categories, the question then becomes one of grouping the 1983 households into these 5 income categories and, at the same time, of taking into account the inflation factor. First, the endpoint of each 1990 income category is converted to 1983 dollars by using an inflation factor,  $r$ , which is calculated by dividing the 1990 consumer's price index (CPI) by the 1983 CPI.

$$r = \frac{\text{CPI}_{1990}}{\text{CPI}_{1983}} = 1.312, \text{ where CPI} = \text{consumer's price index}$$

The rationale for this conversion is to determine the equivalent endpoints in 1983, given 1990 buying power. In other words, for households earning less than \$10,000 per year in 1990, what would have been the equivalent cutoff point for this income category in 1983? With the inflation rate of 1.312, the equivalent cutoff point for the "less than \$10,000" category in 1990 is "less than \$7,622 (= \$10,000/1.312)" in 1983. Similarly, earnings between \$10,000 and \$20,000 in 1990 are equivalent to earnings between \$7,622 and \$15,244 (= \$20,000/1.312) in 1983. Table E.3 shows the revised 1983 income categories that are in 1990 dollars.

FIGURE E.1

FITTED POLYNOMIAL CURVE AND THE CUMULATIVE NUMBER OF HOUSEHOLDS BY REVISED 1983 INCOME CATEGORY

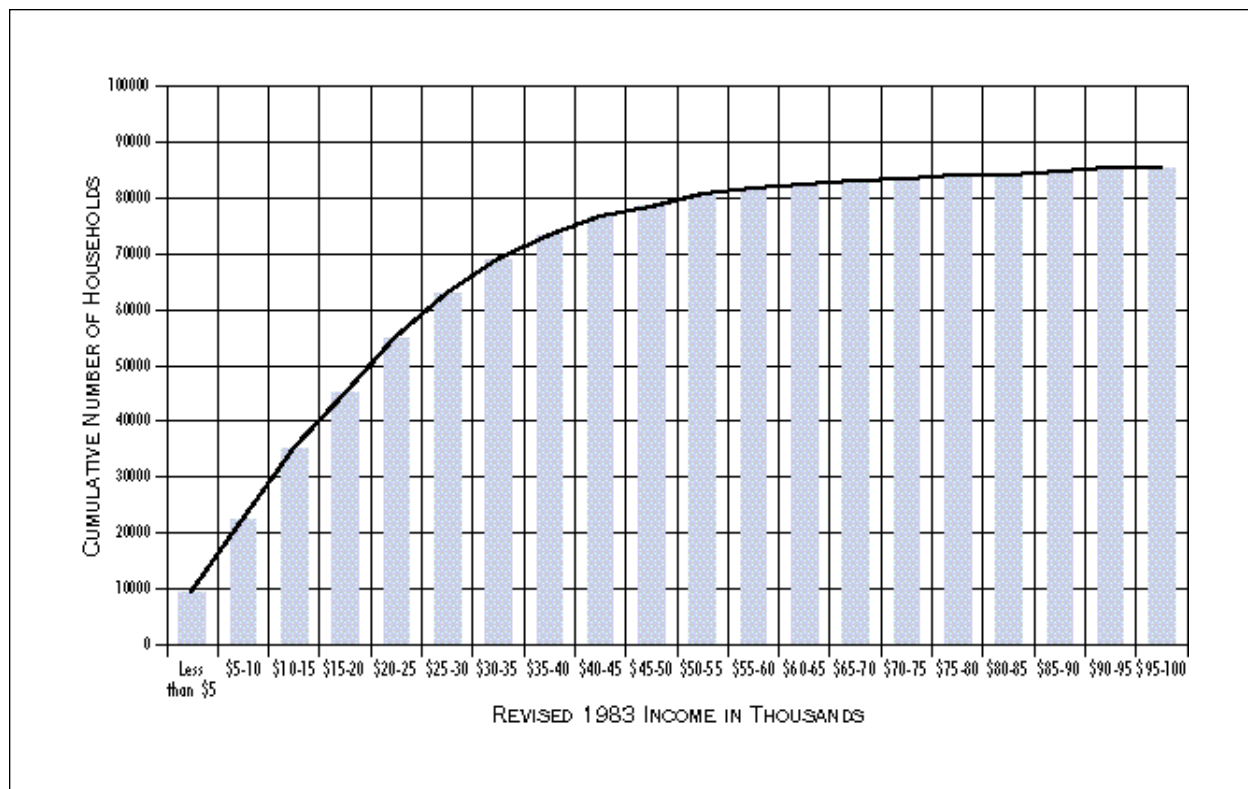


TABLE E.3

REVISED 1983 INCOME CATEGORIES

INCOME CATEGORY USED IN THE 1990 NPTS	REVISED 1983 INCOME CATEGORY IN 1990 DOLLARS
Less than \$10,000	Less than \$7,622
\$10,000 - 20,000	\$7,622 - 15,244
\$20,000 - 30,000	\$15,244 - 22,866
\$30,000 - 40,000	\$22,866 - 30,488
More than \$40,000	More than \$30,488

**STEP 3. ESTIMATE 1983 HOUSEHOLD DISTRIBUTION USING THE REVISED INCOME CATEGORIES**

To categorize the number of 1983 households in the revised 1983 income categories (Table E.3), the following equation is used:

$$\begin{aligned}
 W_{90,i} &= a_0 + (a_1 \times (Z_{90,i})) + (a_2 \times (Z^2_{90,i})) + \dots + (a_{10} \times (Z^{10}_{90,i})) \\
 &= 2,294 + 2,968 \times Z_{90,i} - 49.36 \times Z^2_{90,i} + 2.53 \times Z^3_{90,i} - 0.11 \times Z^4_{90,i} + 0.002 \times Z^5_{90,i}
 \end{aligned}$$

where

- $W_{90,i}$  is the cumulative number of households in the revised 1983 income categories;
- $i$  is the  $i^{\text{th}}$  income category,  $i=1, 2, 3, 4, 5$ ; and
- $Z_{90,i}$  = the endpoint of the revised 1983 income category  $i$ , in thousands of dollars (from Table E.3).

To calculate the number of households earning less than \$7,622 per year in 1983,  $Z_{90,1}$  in the above equation was replaced by 7.622:

$$\begin{aligned}
 W_{90,1} &= 2,294 + 2,968 \times 7.622 - 49.36 \times 7.622^2 + 2.53 \times 7.622^3 - 0.11 \times 7.622^4 + 0.002 \times 7.622^5 \\
 &= 18,016.
 \end{aligned}$$

The 1983 household distribution categorized by the income categories that are in 1990 dollars is shown below.

1990 INCOME CATEGORY	REVISED 1983 INCOME CATEGORY IN 1990 DOLLARS	NUMBER OF 1983 HOUSEHOLDS (THOUSANDS)
Less than \$10,000	Less than \$7,622	$W_{90,1}=18,016$
\$10,000 - 20,000	\$7,622 - 15,244	$W_{90,2}-W_{90,1}=18,437$
\$20,000 - 30,000	\$15,244 - 22,866	$W_{90,3}-W_{90,2}=15,694$
\$30,000 - 40,000	\$22,866 - 30,488	$W_{90,4}-W_{90,3}=12,065$
More than \$40,000	More than \$30,488	$W_{90,5}-W_{90,4}=21,167$

# Appendix F

## Comparisons of Households Not Reporting Income With Those Reporting Income







# Appendix F Comparisons of Households Not Reporting Income With Those Reporting Income

**A** PPENDIX F provides statistics on household characteristics by whether the household reported household income or not. These tables are presented to help determine whether there are any differences between the households who reported their household income and households who did not report their household income.

TABLE F.1

NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND HEAD OF THE HOUSEHOLD'S RACE  
1990 NPTS

Head of the Household's Race	Income Reported	Income Not Reported	TOTAL
White	55,438 (82.0%)	19,859 (77.1%)	<b>75,297</b> (80.7%)
Black	7,223 (10.7%)	3,086 (12.0%)	<b>10,309</b> (11.0%)
Other	4,693 (6.9%)	1,636 (6.3%)	<b>6,329</b> (6.8%)
Unknown	230 (0.3%)	1,181 (4.6%)	<b>1,411</b> (1.5%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.2

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND  
HEAD OF THE HOUSEHOLD'S HISPANIC STATUS  
1990 NPTS**

Head of the Household's Hispanic Status	Income Reported	Income Not Reported	TOTAL
Hispanic	4,382 (6.5%)	1,451 (5.6%)	5,833 (6.2%)
Not Hispanic	63,069 (93.3%)	23,292 (90.4%)	86,361 (92.5%)
Unknown	134 (0.2%)	1,019 (4.0%)	1,153 (1.2%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.3

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND  
DISTANCE TO THE NEAREST PUBLIC TRANSPORTATION  
1990 NPTS**

Distance to the Nearest Public Transportation	Income Reported	Income Not Reported	TOTAL
Less than 1/4 mile	23,219 (34.4%)	9,176 (35.6%)	32,395 (34.7%)
1/4 to 1/2 mile	7,504 (11.1%)	2,630 (10.2%)	10,134 (10.9%)
1/2 to 1 mile	3,021 (4.5%)	990 (3.8%)	4,012 (4.3%)
1 mile or more	4,883 (7.2%)	1,731 (6.7%)	6,614 (7.1%)
Not available	28,072 (41.5%)	10,881 (42.2%)	38,954 (41.7%)
Unknown	885 (1.3%)	354 (1.4%)	1,238 (1.3%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.4

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND MSA SIZE  
1990 NPTS**

MSA Size	Income Reported	Income Not Reported	TOTAL
Less than 250,000	6,917 (10.2%)	2,084 (8.1%)	9,001 (9.6%)
250,000-499,999	6,016 (8.9%)	1,948 (7.6%)	7,964 (8.5%)
500,000-999,999	6,333 (9.4%)	2,482 (9.6%)	8,815 (9.4%)
1,000,000-2,999,999	13,182 (19.5%)	5,001 (19.4%)	18,183 (19.5%)
3,000,000 or More	19,485 (28.8%)	8,484 (32.9%)	27,968 (30.0%)
Not in MSA	15,652 (23.2%)	5,763 (22.4%)	21,415 (22.9%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.5

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND URBANIZED AREA SIZE  
1990 NPTS**

Urbanized Area Size	Income Reported	Income Not Reported	TOTAL
50,000-199,999	6,152 (9.1%)	2,036 (7.9%)	8,188 (8.8%)
200,000-499,999	4,763 (7.0%)	1,807 (7.0%)	6,570 (7.0%)
500,000-999,999	4,565 (6.8%)	1,585 (6.2%)	6,150 (6.6%)
1,000,000 or more without subway/rail	13,507 (20.0%)	4,998 (19.4%)	18,505 (19.8%)
1,000,000 or more with subway/rail	13,328 (19.7%)	6,236 (24.2%)	19,564 (21.0%)
Not in Urbanized Area	25,270 (37.4%)	9,100 (35.3%)	34,370 (36.8%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.6

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND POPULATION DENSITY  
1990 NPTS**

Population Density <sup>1</sup>	Income Reported	Income Not Reported	TOTAL
Less than 1,000	<b>34,046</b> (50.4%)	<b>12,058</b> (46.8%)	<b>46,104</b> (49.4%)
1,000-4,999 within an MSA	<b>21,408</b> (31.7%)	<b>8,332</b> (32.3%)	<b>29,740</b> (31.9%)
5,000-9,999 within an MSA	<b>7,240</b> (10.7%)	<b>3,033</b> (11.8%)	<b>10,273</b> (11.0%)
10,000-49,999 within an MSA	<b>3,896</b> (5.8%)	<b>1,938</b> (7.5%)	<b>5,834</b> (6.2%)
50,000 or more within an MSA	<b>501</b> (0.7%)	<b>183</b> (0.7%)	<b>684</b> (0.7%)
1,000 or more not within an MSA	<b>494</b> (0.7%)	<b>218</b> (0.8%)	<b>712</b> (0.8%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

<sup>1</sup> Population density is calculated as persons per square mile for the zip code in which the household is located.

TABLE F.7

NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND  
WHETHER HOUSEHOLD IS LOCATED INSIDE OR OUTSIDE A CENTRAL CITY  
1990 NPTS

Inside/Outside Central City Limits	Income Reported	Income Not Reported	TOTAL
Inside Central City	24,978 (37.0%)	9,601 (37.3%)	34,579 (37.0%)
Outside Central City	26,839 (39.7%)	10,199 (39.6%)	37,038 (39.7%)
Unknown	15,768 (23.3%)	5,962 (23.1%)	21,730 (23.3%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

NATIONAL PERSONAL TRANSPORTATION SURVEY

TABLE F.8

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND NUMBER OF HOUSEHOLD VEHICLES  
1990 NPTS**

Number of Household Vehicles	Income Reported	Income Not Reported	TOTAL
No Vehicles	5,460 (8.1%)	3,113 (12.1%)	8,573 (9.2%)
One Vehicle	22,678 (33.6%)	7,976 (31.0%)	30,654 (32.8%)
Two Vehicles	26,348 (39.0%)	9,523 (37.0%)	35,872 (38.4%)
Three or More Vehicles	13,098 (19.4%)	5,150 (20.0%)	18,248 (19.5%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)

TABLE F.9

**NUMBER OF HOUSEHOLDS BY INCOME REPORTING STATUS AND COMPARISON OF VEHICLES AND DRIVERS  
1990 NPTS**

Comparison of Vehicles and Drivers	Income Reported	Income Not Reported	TOTAL
# of Drivers greater than # of Vehicles	8,964 (13.3%)	3,269 (12.7%)	12,232 (13.1%)
# of Drivers equal to # of Vehicles	40,812 (60.4%)	14,175 (55.0%)	54,987 (58.9%)
# of Drivers less than # of Vehicles	17,809 (26.4%)	8,319 (32.3%)	26,128 (28.0%)
<b>TOTAL</b>	<b>67,585</b> (100.0%)	<b>25,762</b> (100.0%)	<b>93,347</b> (100.0%)



