

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

**1990 NPTS DATABOOK
VOLUMES I AND II**

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

PREPARED BY:

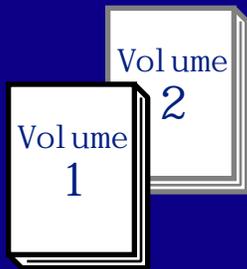
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OCTOBER 1994

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Chapters belonging to Volume 2 appear dimmed.

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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Technical Report Documentation Page

1. Report No. FHWA-PL-94-010A		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle 1990 NPTS Databook Nationwide Personal Transportation Survey				5. Report Date November 1993	
				6. Performing Organization Code	
7. Author(s) Patricia S. Hu, Jennifer Young Graphics: Christopher Gray				8. Performing Organization Report No.	
				10. Work Unit No. (TRAVIS)	
9. Performing Organization Name and Address Center for Transportation Analysis, Energy Division Oak Ridge National Laboratory P.O. Box 2008, Oak Ridge, Tennessee 37831				11. Contract or Grant No.	
				13. Type of Report and Period Covered	
12. Sponsoring Agency Name and Address Office of Highway Information Management Federal Highway Administration, HPM-40 Washington, D.C. 20590 Contract Manager: Susan Liss				14. Sponsoring Agency Code	
15. Supplementary Notes For more information on the NPTS survey, contact the Office of Highway Information Management, Federal Highway Administration, HPM-40, (202) 366-0160, FAX (202) 366-7742. To obtain the public use data file on tape or diskettes, contact the Volpe National Transportation Systems Center, Cambridge, Massachusetts, (617) 494-2450, FAX (617) 494-3633.					
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:					
17. Key Words occupancy person trips/person miles of travel trips/travel vehicle trips/vehicle miles of travel vehicles			18. Distribution Statement This report is available from the Federal Highway Administration - see item 15.		
19. Security Classif. (of this report) Not applicable		20. Security Classif. (of this page) Not applicable		21. No. of Pages	22. Price

U.S. Department of Transportation
Federal Highway Administration

1990 NPTS Data book Volume I

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

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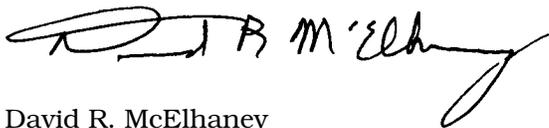
November 1993

Foreword

THE 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.



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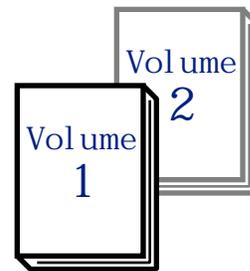
Acknowledgements

The authors wish to thank the following individuals for their careful review and valuable suggestions regarding this publication:

Alan Pisarski, Peter Koltnow, Charles Lave of the University of California at Irvine, Lee Schipper of Lawrence Berkley Laboratory, and Russell Lee, David Greene, Jerry Hadder, Shaw-Pin Miaou, Mike Bronzini, Glen Harrison, and Frank Southworth of Oak Ridge National Laboratory.

The contributions of these individuals are greatly appreciated.

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Chapters belonging to Volume 2 appear dimmed.

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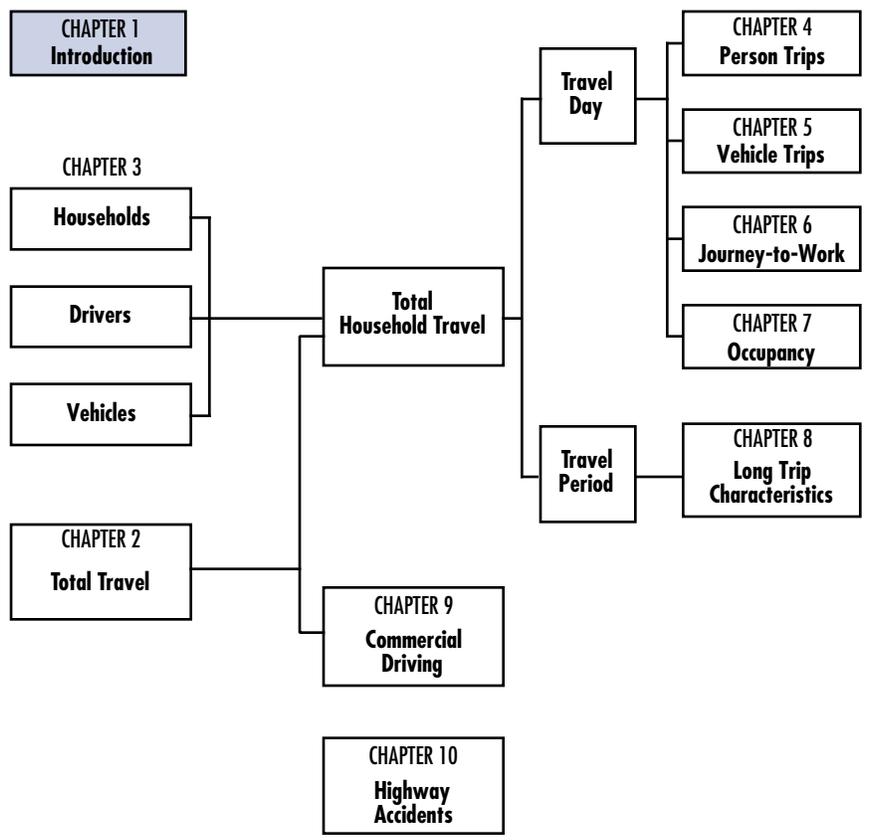
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Chapter 1

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.¹

¹ 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 ¹	NPTS ²	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%	
¹ 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.	
		² 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.²

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.

² 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:

	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
All Households			
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
Total	67,585	91,994	73.4
White Households			
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
Total	55,439	76,908	72.1
Black Households			
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
Total	7,222	9,942	72.6
Hispanic Households			
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
Total	4,381	5,871	74.6

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	
All Trips			
Group 1 ¹	2,779,125	4,006,132	69.4
Group 2 ²	1,431,043	1,754,642	81.6
Group 3 ³	852,520	1,031,252	82.7
Group 4 ⁴	788,120	458,185	172.0
Total	5,850,809⁵	7,250,211	80.7
Bus Trips			
Group 1 ¹	1,501,340	2,030,054	74.0
Group 2 ²	1,011,716	1,095,421	92.4
Group 3 ³	807,995	991,884	81.5
Group 4 ⁴	780,721	458,163	170.4
Total	4,101,772	4,575,522	89.6
Rail/Subway Trips			
Group 1 ¹	1,277,785	1,976,078	64.7
Group 2 ²	419,327	659,221	63.6
Group 3 ³	44,525	39,368	113.1
Group 4 ⁴	7,399	22	33631.8
Total	1,749,037	2,674,689	65.4
¹ Group 1 represents New York, Los Angeles and Chicago. ² Group 2 represents the next 9 largest urbanized areas - Philadelphia, Detroit, San Francisco, Washington D.C., Dallas, Houston, Boston, San Diego & Atlanta. ³ Group 3 represents the 21 remaining urbanized areas of 1 million or more population.		⁴ Group 4 represents all urbanized areas with populations between 200,000 and 1 million. ⁵ Does not include 390,000 transit trips made by persons residing outside urbanized areas of 200,000 or more.	

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

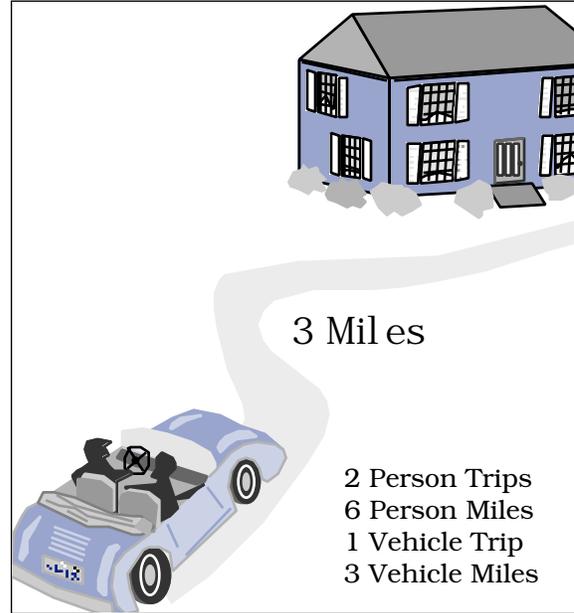


FIGURE 1.2
DISTINCTION BETWEEN TRAVEL DAY AND TRAVEL PERIOD

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				

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.