

Chapter 2

Estimates of Total Travel



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Chapter 2 Estimates of Total Travel

1. Introduction

TRAVEL 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 ¹	Travel Period Section	Commercial Driving Section	TOTAL		
Person Miles Travelled (PMT)	1,982,068 (333,205)	886,235	**	2,868,303	**	**
PMT/Person	8,279 (1,392)	3,701	**	11,980	**	**
Vehicle Miles Travelled (VMT)	1,275,792 (133,784)	337,332	302,824	1,915,948	2,139,703	2,058,323
VMT/Driver	7,826 (821)	2,069	13,625 ²	11,754	13,125	12,626

¹ 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".

² 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**

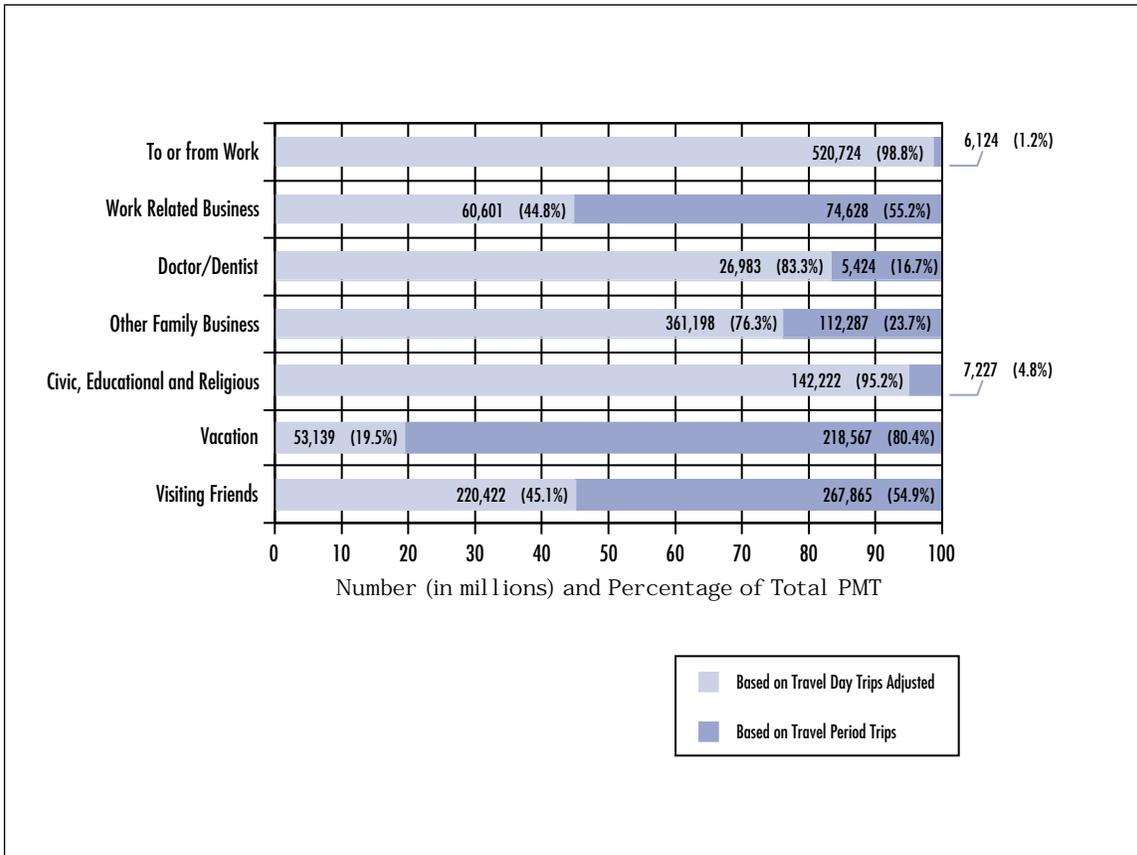


TABLE 2.3

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

Purpose	Travel Day Section Adjusted ¹	Travel Period Section	TOTAL
Earning a Living			
To or from Work	520,724 (5,432)	6,124	526,848
Work Related Business	60,601 (36,779)	74,628	135,229
Subtotal	581,325 (42,211)	80,752	662,077
Family and Personal Business			
Shopping	237,146 (12,475)	11,342	248,488
Doctor/Dentist	26,983 (1,330)	5,424	32,407
Other Family Business	361,198 (84,980)	112,287	473,485
Subtotal	625,327 (98,785)	129,053	754,380
Civic, Educational, and Religious			
Subtotal	142,222 (7,050)	7,227	149,449
Social and Recreational			
Vacation	53,139 (50,450)	218,567	271,706
Visiting Friends	220,422 (58,634)	267,865	488,287
Pleasure Driving	14,436 (2,784)	12,105	26,541
Other Social/Recreational	329,791 (70,019)	161,894	491,685
Subtotal	617,788 (181,887)	660,431	1,278,219
Other²			
Subtotal	15,406 (3,273)	8,772	24,178
TOTAL	1,982,068 (333,205)	886,235	2,868,303
Percent	69.1%	30.9%	100.0%

¹ 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".

² 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 TRANSIT¹ IN CHAPTER 1, SECTION 5

	Travel Day Section Adjusted ²	Travel Period Section	TOTAL
Private Vehicles			
Auto	1,397,810 (190,993)	460,471	1,858,281
Van	119,130 (29,138)	84,267	203,397
Truck	262,907 (26,029)	64,421	327,328
Other POV	8,454 (5,520)	15,241	23,695
Subtotal	1,788,301 (251,680)	624,400	2,412,701
Public Transportation			
Bus, Streetcar	28,151 (7,038)	7,937	36,088
Rail/Subway ³	17,681 (177)	416	18,097
Subtotal	45,832 (7,215)	8,353	54,185
Other Means			
Amtrak	4,300 (808)	5,552	9,852
Airplane	72,878 (72,016)	242,198	315,076
Bike	3,413 (58)	4	3,417
Walk	11,328 (90)	**	11,328
School Bus	33,060 (382)	877	33,937
Other	22,955 (956)	4,851	27,806
Subtotal	147,934 (74,310)	253,482	401,416
TOTAL⁴	1,982,068 (333,205)	886,235	2,868,303
Percent	69.1%	30.9%	100.0%

¹ 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.

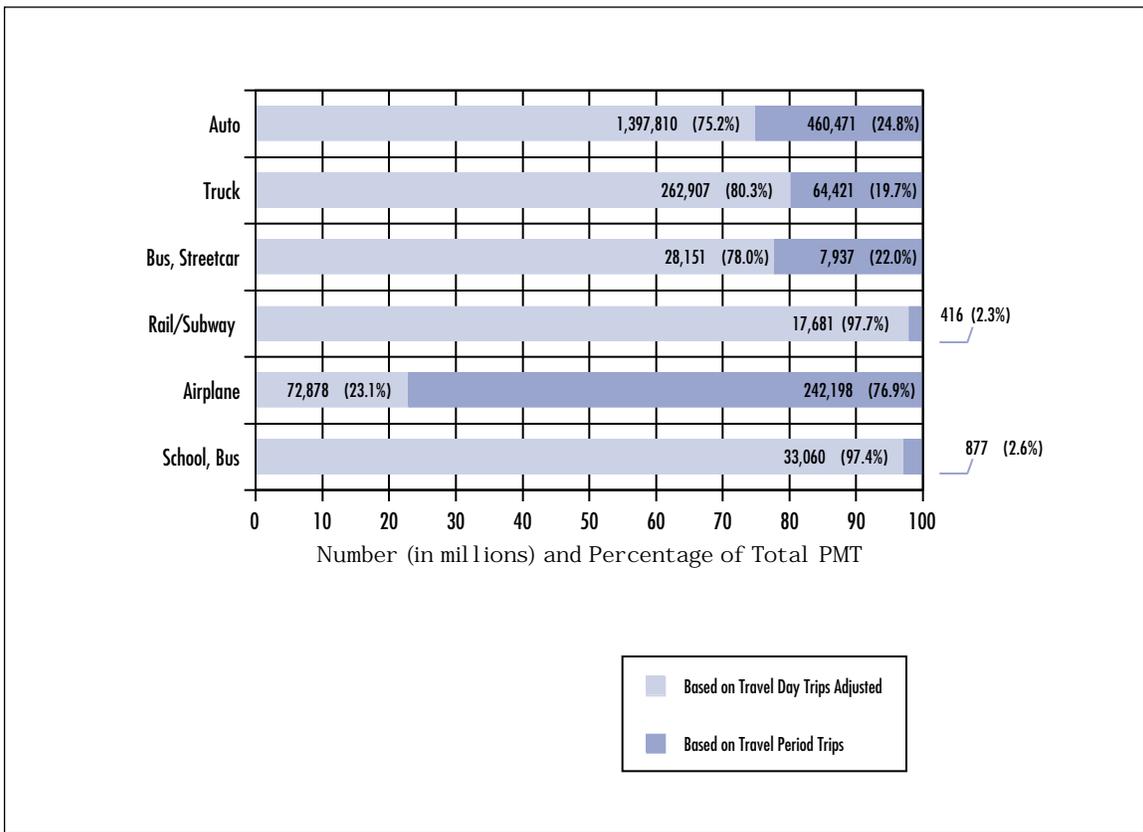
² The numbers in the parentheses are the travel estimated for overlap trips. These estimates are excluded from the travel day estimates to avoid double-counting. Travel day estimates without overlap trips is referred to as the "Travel Day Section Adjusted".

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

⁴ 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



DATA 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 TRANSIT¹ IN CHAPTER 1, SECTION 5

	Private Vehicle- Driver	Private Vehicle- Passenger	Amtrak	Commuter Train	Other Public Transit ²	Airplane	Other ³	TOTAL ⁴
To Or From Work								
Travel Day Adjusted ⁵	448,337	45,197	1,166	5,645	16,288	**	3,987	520,724
Travel Period	5,206	669	145	104	**	**	**	6,124
Work Related Business								
Travel Day Adjusted	34,257	5,088	673	371	406	18,885	703	60,601
Travel Period	17,802	5,975	540	5	281	49,655	355	74,628
Family And Personal Business								
Travel Day Adjusted	419,048	183,862	295	398	6,113	8,542	7,039	625,327
Travel Period	61,283	40,037	247	4	510	26,851	122	129,053
Civic, Educational And Religious								
Travel Day Adjusted	59,169	43,127	**	250	7,075	**	32,425	142,222
Travel Period	4,141	2,124	**	3	722	59	178	7,227
Vacation								
Travel Day Adjusted	6,835	6,921	2,135	1,340	**	23,716	12,192	53,139
Travel Period	57,237	73,747	2,325	14	975	82,002	1,758	218,567
Other Social And Recreational⁶								
Travel Day Adjusted	299,439	222,592	32	578	6,770	21,736	13,174	564,649
Travel Period	188,257	161,410	2,294	286	5,373	81,710	2,425	441,864
TOTAL⁷								
Travel Day Adjusted	1,275,553	512,748	4,300	8,581	37,251	72,878	69,896	1,982,068
Travel Period	337,332	287,068	5,552	416	7,937	242,198	5,100	886,235

¹ 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.

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

³ Includes taxi, bicycle, walk, school bus and other.

⁴ Includes miles of travel where mode of transportation was unreported.

⁵ Travel day estimates without overlap trips are referred to as "Travel Day Adjusted".

⁶ Includes visiting friends or relatives, pleasure driving and other social or recreational activities.

⁷ 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 TRANSIT¹ IN CHAPTER 1, SECTION 5

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

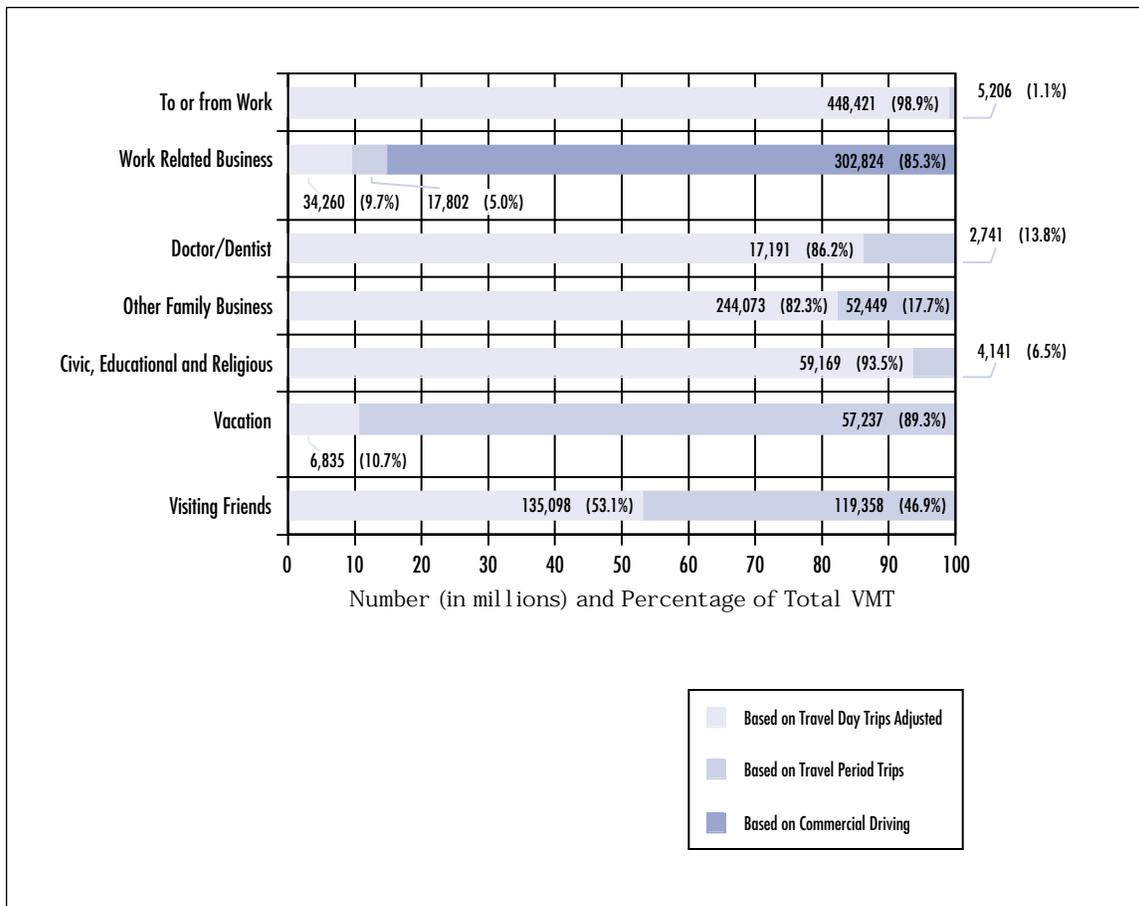


TABLE 2.7

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

Purpose	Travel Day Section Adjusted ¹	Travel Period Section	Commercial Driving Section	TOTAL
Earning a Living				
To or from Work	448,421 (4,621)	5,206	**	453,627
Work Related Business	34,260 (8,075)	17,802	302,824	354,886
Subtotal	482,681 (12,696)	23,008	302,824	808,513
Family and Personal Business				
Shopping	157,801 (4,866)	6,092	**	163,893
Doctor/Dentist	17,191 (618)	2,741	**	19,932
Other Family Business	244,073 (37,317)	52,449	**	296,522
Subtotal	419,065 (42,801)	61,282	**	480,347
Civic, Educational, and Religious				
Subtotal	59,169 (3,032)	4,141	**	63,310
Social and Recreational				
Vacation	6,835 (13,696)	57,237	**	64,072
Visiting Friends	135,098 (28,882)	119,358	**	254,456
Pleasure Driving	7,692 (1,474)	6,905	**	14,597
Other Social/Recreational	156,783 (28,528)	61,993	**	18,776
Subtotal	306,408 (72,580)	245,493	**	551,901
Other²				
Subtotal	8,469 (2,674)	3,408	**	11,877
TOTAL	1,275,792 (133,784)	337,332	302,824	1,915,948
Percent	66.6%	17.6%	15.8%	100.0%

¹ 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".

² 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 ¹	Travel Period Section	Commercial Driving Section	TOTAL
Auto	988,445 (102,408)	257,834	110,605	1,356,884
Van	68,578 (12,597)	32,789	28,004	129,371
Truck	211,506 (16,899)	39,225	149,641	400,372
Other Private Vehicle	7,024 (1,880)	7,484	604	15,112
Other ²	0 (0)	0	13,891	13,891
TOTAL³	1,275,792 (133,784)	337,332	302,824	1,915,948
Percent	66.6%	17.6%	15.8%	100.0%

¹ 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".

² Includes bus, school bus and other.

³ Includes miles of travel where mode of transportation was unreported.

TABLE 2.9

**NUMBER OF VEHICLE MILES OF TRAVEL BY DATA SOURCE¹ AND TRIP LENGTH
1990 NPTS
(MILLIONS)**

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

¹ 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.

² 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.

