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Home-to-Work Trips And Travel

Office Of Highway Planning
December 1980

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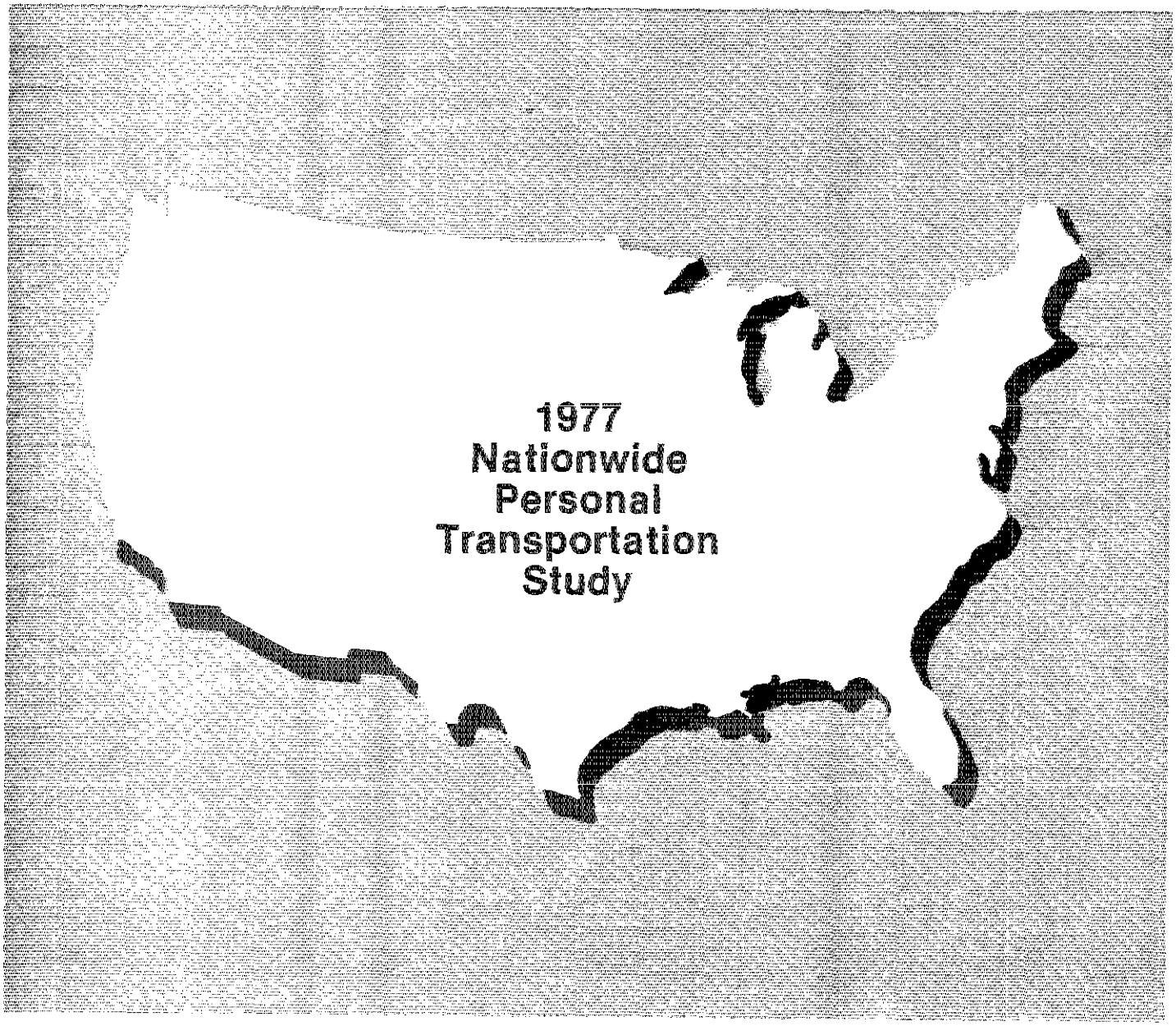

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16. Abstract

This report is part of a series that presents findings from the 1977 Nationwide Personal Transportation Study (NPTS). This report describes home-to-work trips and travel in 1977. The home-to-work trip purpose is explored relative to location, household composition factors such as drivers, income and occupation, and characteristics of travel such as mode of travel, time of day, and vehicle occupancy. Comparisons are made with data from the 1969 NPTS to evaluate trends in home-to-work trips and travel over time.

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1977 NATIONWIDE PERSONAL TRANSPORTATION STUDY

HOME-TO-WORK TRIPS AND TRAVEL

December 1980

U.S. Department of Transportation
Federal Highway Administration
Washington, D.C. 20590

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF FIGURES

I. HIGHLIGHTS

- The usual home-to-work trip averages 9.6 miles, excluding those who work at home. This compares with 9.9 miles reported in 1969.

- The usual commute time to work averages 20.4 minutes, compared to 22 minutes reported in 1969.

- Private motor vehicles, including automobiles, are used for 89.9 percent of all work trips.

- The automobile, which is used for 76.8 percent of home-to-work trips, remains the predominant mode of transportation for home-to-work travel. This is 1 percent less than in 1969.

- Approximately one out of every six workers carpool (17 percent).

- Only 4.5 percent of home-to-work trips utilize public transportation as the major travel mode, with 5.6 percent either walking, bicycling or using some other means of commutation.

- Approximately 49 percent of private vehicle work trips are 5 miles and under. However, these trips account for only 13.4 percent of private vehicle work travel. While only 7.8 percent of private vehicle work trips are 25 miles or longer, these trips account for 31.4 percent of private vehicle work travel. In 1969, 52 percent of the total home-to-work automobile trips were 5 miles and under.

- The average private vehicle occupancy for all home-to-work travel is 1.3 persons per vehicle. In non-SMSA areas, it is 1.4 persons per vehicle and in SMSA's, it is 1.3 persons per vehicle.

- Of the total daily private vehicle home-to-work trips, 62 percent occur in the two rush hour peak periods: 6:00 a.m. to 8:59 a.m. and 4:00 p.m. to 6:59 p.m.

- Most workers--94.6 percent--did not change their mode of home-to-work travel from 1976 to 1977.

- Of workers indicating that public transportation is available within 2 miles of home, 34.6 percent reported living within 1/4 mile of public transportation service.

- In 1977 there were approximately 85.1 million workers in the United States, which comprised 39.9 percent of the total population.

- More than two-thirds (68.3 percent) of all workers reside in SMSA's. Of these, approximately one-half reside in central cities. Of those workers residing outside SMSA's, about half live in areas with less than 5,000 population and half in areas with over 5,000 population.

II. INTRODUCTION

A. PURPOSE OF REPORT

This report is a summary of home-to-work trip and travel data from the *1977 Nationwide Personal Transportation Study* (NPTS). Summaries of trips, trip lengths and miles of travel are included for characteristics such as place of residence, household income, mode of travel, day of the week, hour of the day and vehicle ownership. Trip and travel data reported in the 1977 NPTS and changes that have taken place since the 1969 NPTS can be used in planning for transportation needs, assessing energy and environmental impacts of transportation, and addressing transportation policy issues.

B. ORGANIZATION

Five sections are included in this report. The previous section, Highlights, presents the most significant findings of the 1977 NPTS and comparisons with results of the 1969 survey. This section describes the report content and structure. The third section provides the results of the 1977 NPTS. The fourth section presents comparisons of 1969 and 1977 findings. A summary section describes key findings, trends and their implications.

Information describing the NPTS survey procedures and data processing, including sample design, survey methodology, processing procedures, provisions for obtaining special tabulations, and subject areas planned for 1977 NPTS reports is found in Appendix B of this report. An order form with description and price of the NPTS public use tapes is contained in Appendix C. A glossary of NPTS terms is found in Appendix E.

C. DESCRIPTION OF DATA

In order to fully understand the data presented in this report, some background information is needed on the procedures and questionnaire used to collect for the NPTS survey.

The information presented is one-way travel for the home-to-work trip purpose.

The NPTS survey questionnaire contains seven sections, two of which are used as sources of data for home-to-work trips and travel. Section III of the questionnaire contains a series of questions on the respondent's occupation and characteristics of the usual home-to-work trip,* such as mode, distance and time. Section V of the questionnaire required specific detailed information on all trips taken by household members on a designated travel day. Information collected in Section V includes trip purpose, mode of transportation, distance, trip time,

*The usual home-to-work trip reflects the trip characteristics (e.g., mode, distance, time) that are most often the case for the respondent.

and vehicle occupancy. It is quite possible that there may be some differences between the worker's usual work trip, as reported in Section III, and the home-to-work trip on a specific travel day (Section V). For example, a person may report auto as the usual means of travel to work, however, public transportation may have been used on the designated travel day because the car was in a repair shop.

Certain parts of the analysis are based on data from Section III (usual trip to work), while others are based on data from Section V (home-to-work trips on the designated travel day). The section of the questionnaire used as the source of data is identified in the presentation of findings.

A copy of the NPTS survey questionnaire is contained in the User's Guide for the 1977 NPTS Public Use Tapes and in Report 1 of the NPTS series, Characteristics of 1977 Licensed Drivers. A copy of the survey questionnaire may also be obtained from:

Federal Highway Administration
Highway Statistics Division
HHP-44 (NPTS)
400 Seventh Street, S.W.
Washington, D.C. 20590
(202) 426-0160

Within the third section of this report, the 1977 NPTS findings are presented in five parts:

- Workers' Characteristics and Their Home-to-Work Travel. These tables summarize respondents' usual travel to work from Section III of the questionnaire. Commute lengths, in terms of time and distance, are tabulated for such commuter characteristics as place of residence, household income, occupation, age and sex.

- Choice of Travel Mode. These tables describe the mode of travel used for the home-to-work trip. Most of the tabulations are based on specific travel day information (Section V of the questionnaire); however, several tables show the usual travel mode (Section III of the questionnaire). The tables show number of trips and person miles of travel for each travel mode and for work characteristics such as place of residence, household income, season, day of week, time of day, occupation, age and sex.

- Private Vehicle Use. This is travel reported for a specific travel day on Section V of the questionnaire. The tables summarize trips and vehicle miles of travel by private vehicle for such worker or travel characteristics as day of the week, trip purpose, time of day, residence location and number of vehicles owned. Private vehicles include automobiles, vanbuses and other vans, minibuses, pickup trucks, other trucks in personal use, motorcycles, self-contained recreational vehicles and taxis used for personal use.

- Home-to-Work Vehicle Occupancy and Carpooling. Occupancy data is from Section V of the questionnaire. Average vehicle occupancy for

work trips was determined from survey information by weighting passenger and driver trips by trip length. Included is average work trip occupancy for private vehicles, workers' place of residence, trip length, income, occupation, number of household vehicles, employment type, and number of workers in household. Carpool information is also included and is based on the usual work trip from Section III of the questionnaire.

- o Distribution of SMSA Person Work Trips and Travel. Person trip and person miles of travel characteristics are provided by residence location, hour of the day and day of the week. The information is for a specific travel day (Section V of the questionnaire).

D. COMPARABILITY BETWEEN 1977 NPTS AND 1969 NPTS

Comparing results from the 1969 and 1977 surveys provides insight into changes in trips, travel, trip lengths and vehicle occupancy. Results of the 1977 NPTS are presented similarly to the results of the 1969 NPTS, which are shown in the U.S. Department of Transportation publication, *Home-to-Work Trips and Travel*.

One important change between the 1969 and 1977 surveys is the extension of the 1977 survey to include all motor vehicles owned by households. While the 1969 survey included only automobiles--defined as passenger automobiles, station wagons, vanbuses and personal-use taxis--the 1977 survey added personal trucks and vans, camper vehicles, and motorcycles and mopeds. The additional vehicles included in the 1977 survey allows a more accurate description of total household travel.

To compare 1969 and 1977 household travel, selected information has been analyzed according to both 1977 and 1969 vehicle definitions. The results of the 1977 survey are presented first. Comparisons with 1969 information are presented separately in the fourth section of this report. Differences in vehicle definitions are noted in the tables and discussions.

The occupancy rates presented in this report for 1977 have been developed by weighting trips by trip length. This is a departure from the reporting for 1969 where occupancy was developed based on an accumulation of trips, rather than being weighted by trip length.

III. 1977 SURVEY RESULTS

A. WORKERS'* CHARACTERISTICS AND THEIR HOME-TO-WORK TRAVEL

Information on workers and their home-to-work travel is based on workers' usual** travel from Section III of the questionnaire. Most of the data presented includes approximately 3.4 million workers who work at home. Averages are computed both including and excluding those who work at home, as indicated on the footnotes to the tables.

Figure 1 provides an overview of the characteristics of workers in home-to-work travel.

Workers and Their Place of Residence

Inside and Outside SMSA's.*** As background information, Tables 1 and 2 show the proportions of workers residing inside and outside Standard Metropolitan Statistical Areas (SMSA's).

Table 1 shows that slightly over two-thirds (68.3 percent) of all workers reside in SMSA's. Of the 31.7 percent of workers residing in non-SMSA areas, 16.1 percent reside in areas with less than 5,000 population and 15.6 percent in areas with more than 5,000 population.

SMSA workers comprise 68.3 percent of all workers with 35.3 percent residing in central cities and 33 percent residing outside the central city.

SMSA Population Groups. The greatest proportion (32.5 percent) of all workers who reside in SMSA's live in the 1 million to 3 million SMSA population group (see Table 2). According to the 1970 Census, 27 of the 243 SMSA's are in this population group range.

Almost one-quarter (23.8 percent) of all SMSA workers reside in SMSA's of 3 million or over. Six SMSA's are in this population group.

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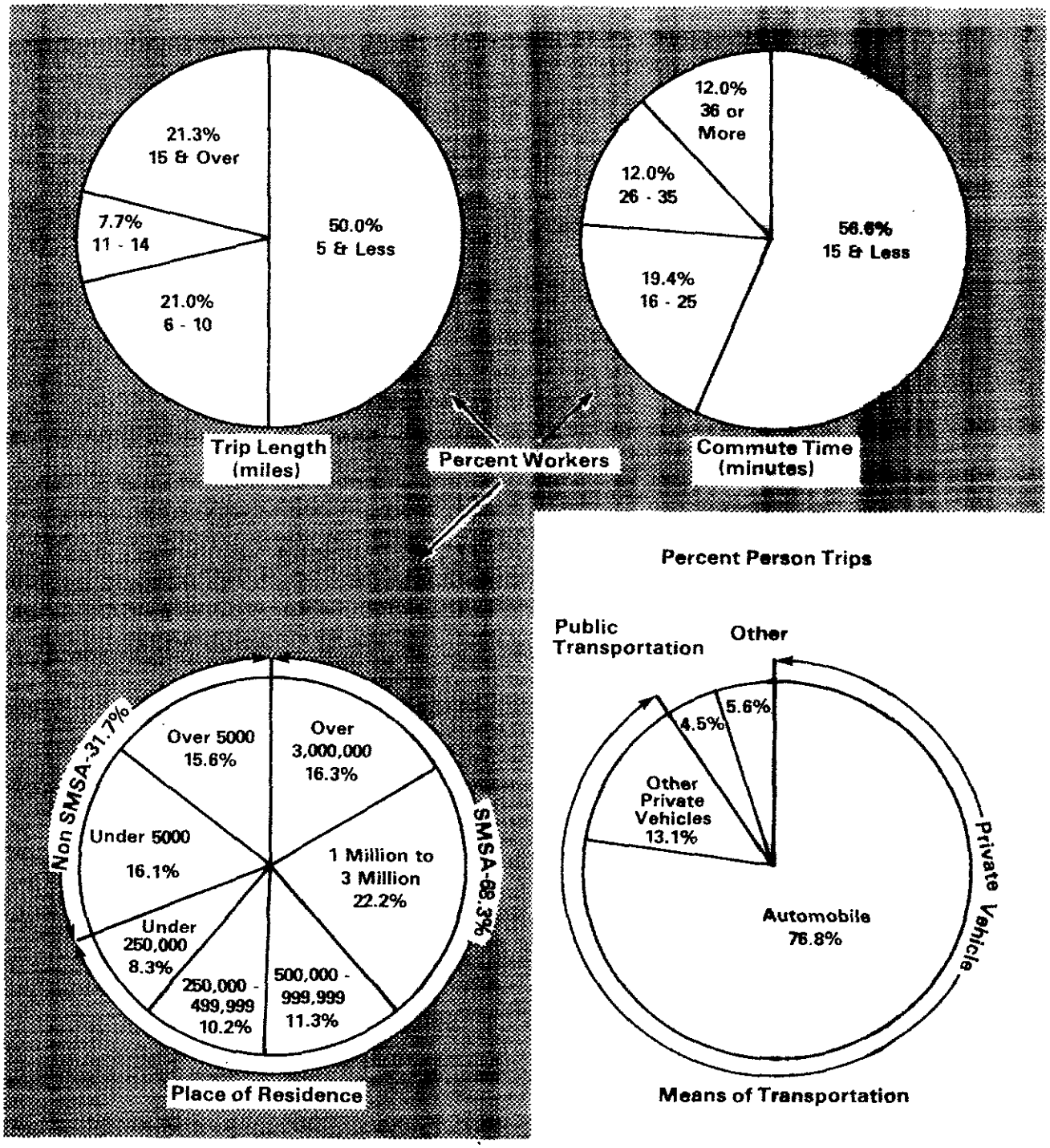
*For purposes of this report, "workers" are defined as persons who reported their primary activity during the previous week as either working or having a job but not at work.

**The usual home-to-work trip reflects the trip characteristics (e.g., mode, distance, time) that are most often the case for the respondent.

***Standard Metropolitan Statistical Area is defined as 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 SMSA if, according to certain criteria, they are socially and economically integrated with the central city. In the New England states, SMSA's consist of towns and cities instead of counties.

FIGURE 1.
CHARACTERISTICS OF WORKERS IN HOME-TO-WORK TRAVEL



Source: Tables 1, 2, 3, 4, and A-7 this report.

TABLE 1. PERCENT OF WORKERS BY PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

	Place of Residence						
	Outside SMSA			Inside SMSA			
	Under 5,000	Over 5,000	Subtotal	Not in Central City	Within Central City	Subtotal	Total
Percent of Workers	16.1	15.6	31.7	35.3	33.0	68.3	100.0†

† Total workers=79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work, or those who do not work in a fixed place).

TABLE 2. PERCENT OF WORKERS BY SMSA SIZE GROUP

	SMSA Size					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1,000,000 to 2,999,999	3,000,000 and Over	Total
Percent of Workers	12.3	14.9	16.5	32.5	23.8	100.0†

† Total workers=54,035,000 (85,060,000 less 31,025,000 living outside SMSAs, or not reporting distance or time to work, or those who do not work in a fixed place).

Although 12.3 percent of workers living in SMSA's reside in the under 250,000 population groups, 132 SMSA's are in this group.

Relationship of Home-to-Work Travel and Place of Residence

Trip Length. Table 3 and Figure 2 show proportions of SMSA and non-SMSA workers by trip length. Including those who work at home, the average distance between home and the work place for all workers is 9.3 miles. Excluding those who work at home, the average distance to work is 9.6 miles.

Work trip lengths for SMSA noncentral city residents is similar to workers who reside outside SMSA's in areas with less than 5,000 population. Workers who reside in central cities of SMSA's have similar work trip lengths as workers residing outside SMSA's in areas with greater than 5,000 people.

For workers who live in SMSA's, 14.7 percent of those who live in central cities travel more than 14 miles to work. In contrast, about 28.2 percent of those who live in noncentral cities travel more than 14 miles to work. Slightly more than one-fifth (21.6 percent) of SMSA workers travel more than 14 miles to work.

For workers outside SMSA's, a similar proportion (20.5 percent) travel more than 14 miles to work.

Commute Time. The average traveltime to work is 19.7 minutes, as shown in Table 4. If the 3.4 million persons who work at home are excluded, the average commute time is 20.4 minutes. Workers who reside in SMSA's have longer average traveltimes than workers who do not live in SMSA's.

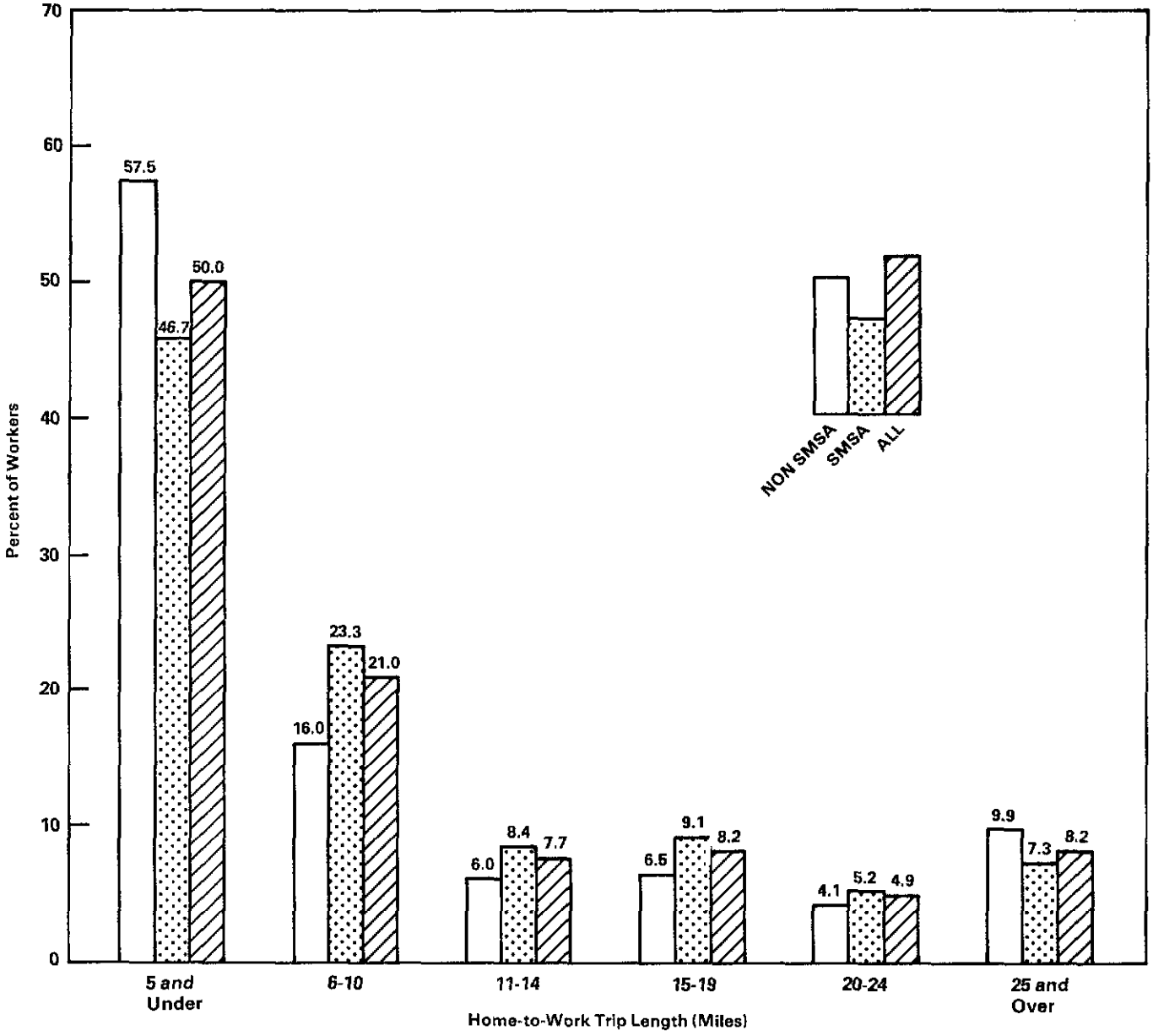
SMSA central city residents have a shorter traveltime than SMSA noncentral city residents. This is mostly due to shorter commute distances (see Table 3).

Of the workers residing outside SMSA's, those living in areas with more than 5,000 people have shorter commute times than workers residing in areas with less than 5,000 people.

The highest proportion (29 percent) of workers traveling more than 25 minutes to work live in the noncentral city portion of SMSA's. The smallest proportion (14 percent) of workers traveling more than 25 minutes to work live outside SMSA's in areas with more than 5,000 population.

Table 4 shows that 56.6 percent of all workers commute 15 minutes or less. The proportion is less among SMSA workers and greater among workers who reside outside SMSA's.

FIGURE 2.
PERCENT OF WORKERS BY PLACE OF RESIDENCE
AND HOME-TO-WORK TRIP LENGTH



Source: Table 3 this report.

TABLE 3. PERCENT OF WORKERS BY HOME-TO-WORK TRIP LENGTH AND PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

Distance to Work (miles)	Place of Residence						All
	Outside SMSA			Inside SMSA			
	Under 5,000	Over 5,000	Average	Not in Central City	Within Central City	Average	
5 or less	49.1	65.8	57.5	40.1	53.6	46.7	50.0
6 - 10	16.9	15.2	16.0	22.0	24.7	23.3	21.0
11 - 14	8.1	3.9	6.0	9.7	7.0	8.4	7.7
15 - 19	8.5	4.4	6.5	11.1	6.9	9.1	8.2
20 - 24	5.5	2.8	4.1	6.9	3.5	5.2	4.9
25 or more	11.9	7.9	9.9	10.2	4.3	7.3	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Trip Length	10.6	7.8	9.2	10.8	7.7	9.3	9.3
Average†† Trip Length	11.8	8.1	9.9	11.0	7.8	9.5	9.6

† Total workers–79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

TABLE 4. PERCENT OF WORKERS BY HOME-TO-WORK COMMUTE TIME AND PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

Commute Time (minutes)	Place of Residence						All
	Outside SMSA			Inside SMSA			
	Under 5,000	Over 5,000	Average	Not in Central City	Within Central City	Average	
15 or less	62.5	73.1	67.8	49.2	54.1	51.6	56.6
16 - 25	15.2	12.9	14.1	21.8	22.0	21.9	19.4
26 - 35	10.8	6.7	8.7	14.8	12.0	13.4	12.0
36 or more	11.5	7.3	9.4	14.2	11.9	13.1	12.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Time	17.9	15.6	16.8	21.7	20.3	21.0	19.7
Average†† Time	19.7	16.1	17.9	22.2	20.6	21.4	20.4

† Total workers–79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place)
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

Commuting speed* was calculated from the average trip lengths and commute times shown in Tables 3 and 4, and includes all modes of home-to-work transportation.

The average speed for all workers is 28.3 miles per hour. Those residing in the central city portion of the SMSA's have the lowest commuting speed (22.8 mph). Speeds approximating 30 miles per hour are found outside SMSA's in areas of greater than 5,000 population and also in noncentral city portions of SMSA's. Workers who reside outside SMSA's with less than 5,000 population have the highest commuting speed (35.6 mph).

These commuting speed differences are probably due to differences in the use of private and public transportation as well as differences in highway congestion, traffic control levels and speed limits.

Relationship of Home-to-Work Travel and SMSA Population

Trip Length. Table 5 shows that the average commute distance increases as SMSA size increases, from 7.7 miles in SMSA's under 250,000 population to 10.4 miles in SMSA's of 3 million or more population. This is a significant difference, representing about one-third longer average commute distance between the smallest and largest SMSA population groups.

Slightly less than one-half (46.5 percent) of all SMSA workers live 5 miles or less from their work place. A little more than one-fifth (21.8 percent) of workers, who reside in SMSA's, travel 15 miles or more to work.

Table 5 shows that workers who reside in large SMSA's, travel longer distances to work than workers in small SMSA's. For example, 59.4 percent of workers in SMSA's of under 250,000 population travel 5 miles or less, while only 43 percent of workers in SMSA's of 3 million or more population travel 5 miles or less. At the other end of the trip length scale, 15 percent of the workers in SMSA's of less than 250,000 population travel 15 miles or more, while slightly more than one-fourth (26.3 percent) of the workers in SMSA's over 3 million population travel 15 miles or longer to work.

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*Commuting speed is computed as follows:

Average Time ÷ 60 = X% of an Hour,

Distance ÷ X% of an Hour = Commuting Speed

Commuting speed includes those who work at home and is an average speed for all modes of transportation.

TABLE 5. PERCENT OF WORKERS BY HOME-TO-WORK TRIP LENGTH AND SMSA SIZE GROUP

Distance to Work (miles)	SMSA Size					All
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	
5 or less	59.4	52.6	48.2	40.4	43.0	46.5
6 - 10	20.2	24.3	24.2	24.2	22.5	23.3
11 - 14	5.4	7.6	8.4	10.1	8.2	8.4
15 - 19	5.4	7.1	8.6	11.1	9.9	9.1
20 - 24	3.3	3.0	5.0	6.1	6.8	5.3
25 or more	6.3	5.4	5.6	8.1	9.6	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Trip Length	7.7	7.9	8.8	10.1	10.4	9.3
Average†† Trip Length	7.8	8.2	8.9	10.2	10.6	9.5

† Total workers=54,035,000 (85,060,000 less 31,025,000 living outside SMSAs, or not reporting distance or time to work or those who do not work in a fixed place)
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (1,081,000)

TABLE 6. PERCENT OF WORKERS BY HOME-TO-WORK COMMUTE TIME AND SMSA SIZE GROUP

Commute Time (minutes)	SMSA Size					All
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	
15 or less	65.5	62.2	54.6	46.5	42.1	51.5
16 - 25	19.5	22.3	23.7	24.0	18.9	21.9
26 - 35	8.1	9.5	13.4	15.3	16.2	13.5
36 or more	6.9	6.0	8.3	14.2	22.8	13.1
Total	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Time	17.0	17.0	19.0	22.0	25.6	21.0
Average†† Time	17.3	17.6	19.3	22.4	26.1	21.4

† Total workers=54,035,000 (85,060,000 less 31,025,000 living outside SMSAs, or not reporting distance or time to work or those who do not work in a fixed place)
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (1,081,000)

The average distance to work for all workers who reside in SMSA's --including those who work at home--is 9.3 miles. If those who work at home are excluded, the average distance to work place is 9.5 miles. Approximately 2 percent of SMSA workers work at home.

Commute Time. Commute time is also greater in the large SMSA population groups than in the small groups (see Table 6.). The average commute time of 25.6 minutes for the largest population groups is 50 percent longer than the 17 minutes average commute time of the smallest population group. The average commute time for SMSA workers is 21 minutes, including those working at home. If those who work at home are excluded, the average commute time for SMSA workers is 21.4 minutes.

Based on the average commute time and distance in Tables 5 and 6, average speed for SMSA home-to-work travel is 26.6 miles per hour. For all SMSA population groups with less than 3 million population, the average commute speed varies within the narrow range of 27.2 to 27.9 miles per hour. The commute speed for SMSA's with over 3 million population is 24.4 miles per hour. Thus, for very large areas, the longer commute trip is made at slower speeds than the shorter commute trips of the smaller SMSA's.

More than one-half (51.5 percent) of all SMSA workers arrive at their work place in 15 minutes or less, with 73.4 percent arriving within 25 minutes, and 86.9 percent arriving within 35 minutes.

Among the SMSA population groups, the smaller the population the greater the proportions of work trips that are 15 minutes or less. For example, 65.5 percent of work trips in SMSA's of less than 250,000 are 15 minutes or less, compared to 42.1 percent of work trips in SMSA's of 3 million and over.

Relationship of Home-to-Work Travel and Household Income

Trip Length. Table 7 shows work trip lengths for seven household income groups. The tendency is for distance to work to increase as income increases up to $35,000, with increases in commute trip length from 7.0 miles to 11.4 miles. However, for households with incomes of $35,000 or more, the average commute distance drops slightly.

Approximately two-thirds (65.7 percent) of the less than $5,000 income group is in the shortest distance to work group--5 miles or less. This contrasts with the fact that less than one-half (47.3 percent) of the highest income group--$50,000 or more--travel 5 miles or less to work. Only 13.2 percent of the workers in households of $5,000 or less income travel 15 miles or longer to work, while 24 percent of the workers in the highest income level travel 15 miles or longer to work.

TABLE 7. PERCENT OF WORKERS BY HOME-TO-WORK TRIP LENGTH AND ANNUAL HOUSEHOLD INCOME

Distance to Work (miles)	Annual Household Income							All
	Less than $5,000	$5,000 to 9,999	$10,000 to 14,999	$15,000 to 24,999	$25,000 to 34,999	$35,000 to 49,999	$50,000 or More	
5 or less	65.7	57.8	51.0	46.5	41.1	42.0	47.3	50.0
6 - 10	15.3	19.6	21.9	21.6	22.6	21.4	21.2	21.0
11 - 14	5.8	5.6	7.6	8.3	9.5	9.2	7.5	7.7
15 - 19	3.9	6.5	8.1	9.3	9.8	9.4	10.0	8.2
20 - 24	3.5	4.0	4.0	5.5	6.6	6.0	6.0	4.9
25 or more	5.8	6.5	7.4	8.8	10.4	12.0	8.0	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Trip Length	7.0	7.7	8.7	10.0	11.4	11.0	9.6	9.3
Average†† Trip Length	7.8	8.0	9.0	10.2	11.8	11.3	10.1	9.6

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place).
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

TABLE 8. PERCENT OF WORKERS BY HOME-TO-WORK COMMUTE TIME AND ANNUAL HOUSEHOLD INCOME

Commute Time (minutes)	Annual Household Income							All
	Less than $5,000	$5,000 to 9,999	$10,000 to 14,999	$15,000 to 24,999	$25,000 to 34,999	$35,000 to 49,999	$50,000 or More	
15 or less	66.5	61.0	57.6	54.7	50.2	50.8	57.1	56.6
16 - 25	13.6	16.9	20.9	20.6	20.5	19.0	18.5	19.4
26 - 35	10.2	12.1	11.2	12.1	12.9	14.6	13.2	12.0
36 or more	9.7	10.0	10.3	12.6	16.4	15.6	11.2	12.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Time	17.1	18.2	18.7	20.4	22.3	22.1	19.2	19.7
Average†† Time	19.0	18.9	19.4	20.8	22.9	22.8	20.3	20.4

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place).
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

Commute Time. The commute time variation among income groups is similar to that described for commute distance--that is, commute time increases as income increases up to the $35,000 level and then decreases (see Table 8.).

More than one-half (56.6 percent) of all workers are within 15 minutes of their work place. Three-quarters (76 percent) of all workers are within 25 minutes of work. Only 12 percent of all workers travel 36 minutes or more to work.

The computation of travel speed based on Tables 7 and 8 is of interest. For the lowest income group, the speed of travel is lowest--24.6 miles per hour. The commute speed increases to 30.7 miles per hour for the $25,000 to $34,999 income group, decreases slightly to 29.9 miles per hour for the $35,000 to $49,999 group and is 30 miles per hour for the highest income group. This tendency, as well as the similar tendencies for commute time and distance may be due to residential location and mode of travel used by the different income groups.

Relationship of Home-to-Work Travel and Worker Age and Sex

Trip Length. Table A-1, Appendix A, shows that females, as a group, travel shorter distances to work than males. The average trip length to work for all females is 7.5 miles as compared to 10.5 miles for males. This difference in home-to-work trip length characteristics for males and females is similar for all age categories except 16 to 20 year olds. Work travel distance increases as age increases up to the age of 40 and then decreases.

Commute Time. As a group, females spend less time in travel to work than do males. Table A-2, Appendix A, shows that the average commute time for females is 17.8 minutes, as compared to 20.9 minutes for all males. This is related to the finding (see Table A-1, Appendix A.) that males travel farther to work than do females. The tendency for female commuting time to be less than males is similar for most income and age groups.

If average speed of travel to work is computed from information in Tables A-1 and A-2 of Appendix A, males are found to travel 30.1 miles per hour and females 25.3 miles per hour. This may be due to the tendency of females to rely more on slower public transportation.

Relationship of Home-to-Work Travel and Occupation*

Trip Length. As expected, Table A-3 of Appendix A, shows that farm workers' average travel distance, 1.2 miles, is considerably less than other occupational groups. This short commute distance for farm workers is attributed to the high proportion who work at home.

*Occupational categories were obtained from the Dictionary of Occupational Titles (first digit summary).

If those working at home are eliminated, average trip lengths increase 0.3 miles or less for each occupation category, except for farm workers, whose average trip length increases to 6.3 miles.

The average trip length for all workers is 9.3 miles. Except for those workers that did not report an occupation, craftsmen have the longest distance to work, 11.4 miles. Service workers have a shorter than average commute distance (6.7 miles), as do salespeople and clerks (8.3 miles). Professional and technical, managers and administrators, and craftsmen have longer than average trip lengths, 10.6, 9.8 and 11.4 miles, respectively.

Commute Time. Except for the farmers and farm managers and unknown occupation groups, the average time to work among the various occupation groups is similar, ranging from a low of 16.6 minutes for service workers to a high of 21.7 minutes for craftsmen (see Table A-4 of Appendix A.). This compares to the average 19.7 minutes commute time for all workers. Again, the commute time for farm workers is short due to the high proportion working at home.

Relationship of Home-to-Work Travel and Employer Type

Table A-5 of Appendix A shows commute traveltimes and distances for workers in five employer type categories.

There is a wide difference between commute time and distance for self-employed persons and persons employed by others. Both the commute time and distance of self-employed workers are approximately one-half that of private company and government workers. This may indicate greater freedom of self-employed persons to locate their business at home or close to home. There is a similarity of average travel speeds between the two groups.

Relationship of Home-to-Work Travel and Licensed Drivers

There is a large difference in work travel distance between workers who have a driver's license and those who do not have a license to drive. For all modes, the average distance for workers with and without driver's licenses is 9.6 miles and 5.3 miles, respectively (see Table A-6, Appendix A).

The difference in work traveltime is less significant--20.9 minutes for workers with licenses and 22.7 minutes for workers without licenses. However, the average speeds of travel, as computed from average commute times and distances, is significantly different.

Licensed drivers travel to work at an average speed of 27.6 miles per hour, and workers without driver's licenses travel at half that speed --14 miles per hour.

The differences in commute distance, time and speed between licensed drivers and those without driver's licenses are probably due to the greater use of public transportation, more walking to work and greater reliance on other than private vehicle transportation by those without driver's licenses. Also, workers without licenses may choose residence locations closer to work than licensed drivers.

B. CHOICE OF TRAVEL MODE

Information on the choice of mode for the home-to-work trip is generally from the specific travel day (Section V of the NPTS questionnaire). However, Section III of the questionnaire is the only source of data on change of mode from the previous year (Table 14), availability of public transportation (Table A-16, Appendix A) and distance to public transportation (Table A-17, Appendix A).

Included are all walking and bicycling trips to work where the origin and destination are not the same address. Excluded are walking and bicycling trips to work for persons under age 16.

Major Mode of Travel

The major modes of travel are private vehicle, public transportation and other. These are defined as follows:

Private vehicle - includes all trips by automobile (including auto, station wagon, vanbus, minibus and personal use taxi), truck (including pickup and other light trucks), camper coach (RV), motorcycle and moped.

Public transportation - includes trips by bus, train, streetcar, subway and taxi.

Other - includes all walk, bicycle and all other mode trips.

In some tables, the private vehicle mode is further split into driver and passenger categories.

As shown in the summary below, private vehicles are used for 89.9 percent of home-to-work trips, public transportation for 4.5 percent and other modes account for the remaining 5.6 percent.

Private Vehicle

Auto, station wagon, vanbus, minibus, personal use taxi	76.8
Truck (pickup and other light trucks), camper coach	11.9
Motorcycle and moped	1.2
Subtotal	89.9

Public Transportation

Bus	2.9
Train	0.5
Streetcar	0.1
Subway	0.8
Taxi	0.2
Subtotal	4.5

Other Modes

Walk	4.6
Bicycle	0.6
Other	0.4
Subtotal	5.6

SMSA and Non-SMSA

Basic differences exist between SMSA and non-SMSA residents concerning the choice of work trip travel mode. As shown in Table A-7, Appendix A, trucks are used about twice as frequently outside SMSA's as in them. Automobiles are used slightly less outside SMSA's. As expected, public transportation use is also less outside SMSA's. The proportion of work trips by public transportation, including buses, trains, streetcars, subways and taxis, is 0.5 percent outside SMSA's and 6.2 percent inside SMSA's. There are small differences in the proportions of walking, motorcycle and other trips between SMSA's and non-SMSA's.

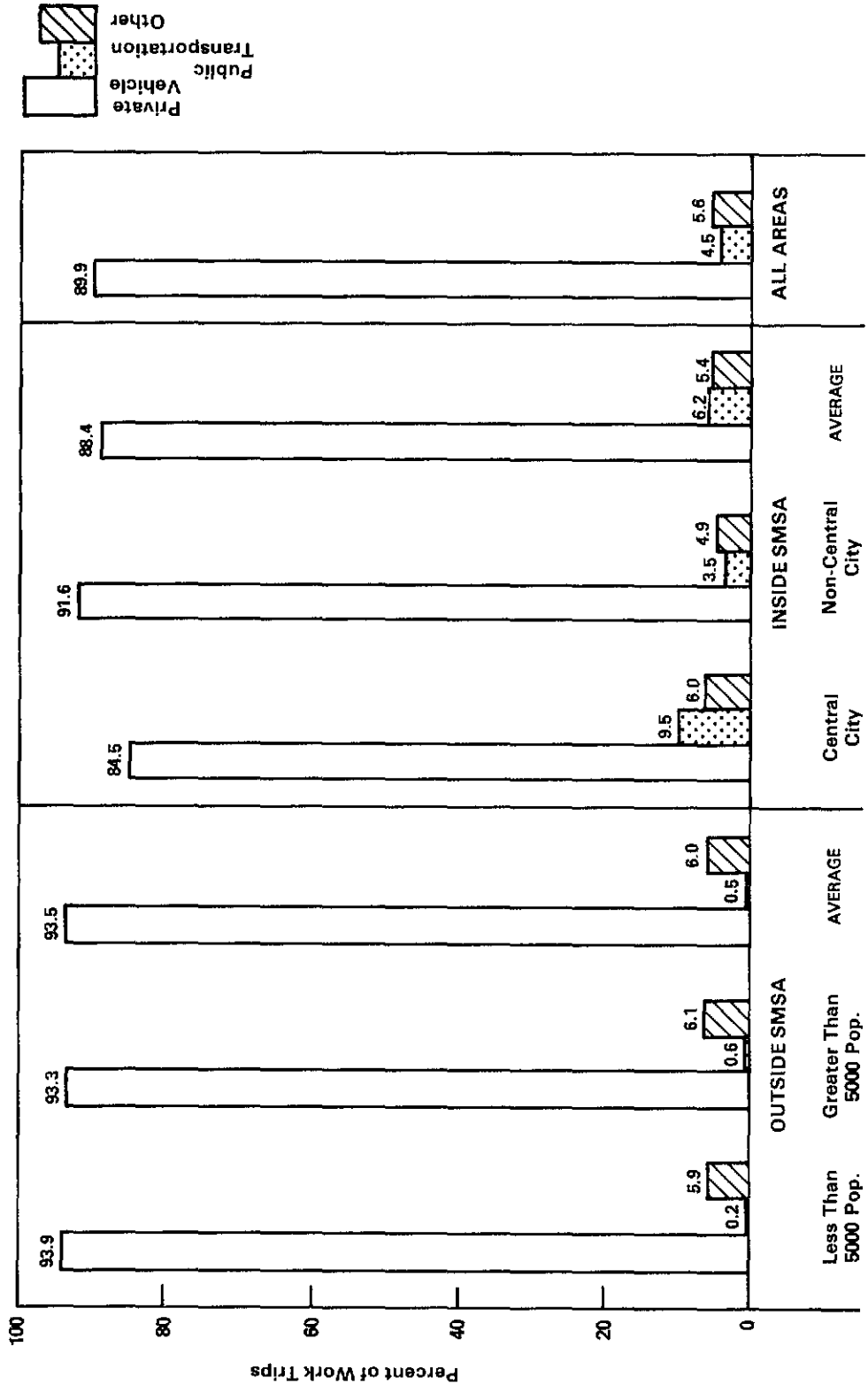
Outside SMSA's, over 93 percent of the work trips are made by private motor vehicle. Within SMSA's, persons residing outside central cities make 91.6 percent of their work trips in private motor vehicles while central city residents use private motor vehicles for 84.5 percent of their work trips. These relationships are illustrated in Figure 3.

SMSA Population Size

As shown in Figure 4, and in Table A-8, Appendix A, the proportion of persons using public transportation for work trips increases as SMSA population size increases. As the proportion of persons using public transportation increases, the proportion of persons using private transportation decreases. As expected, the greatest use of public transportation is in SMSA's of 3 million and more population.

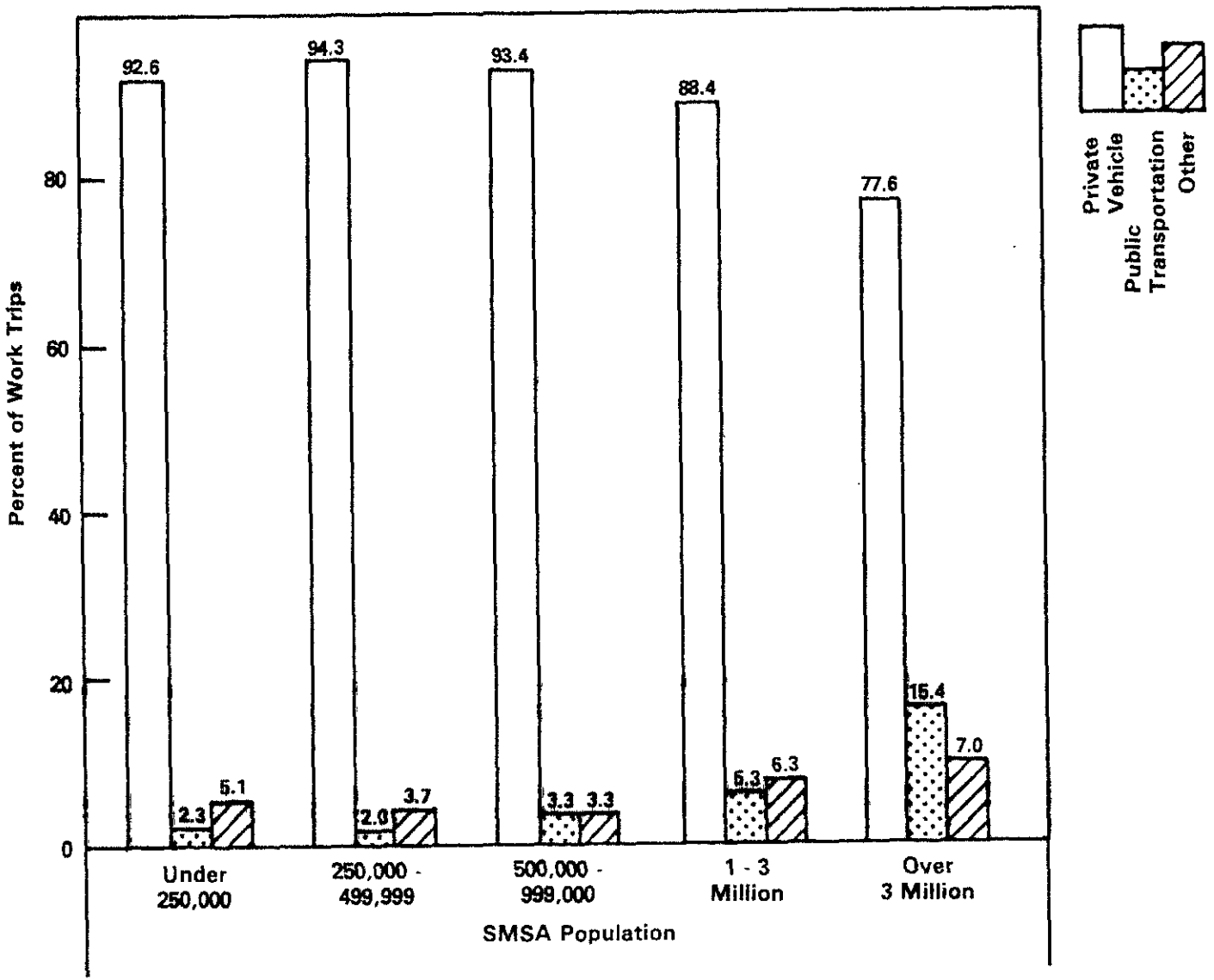
There is a tendency for the proportion of walking trips to increase as SMSA size increases. The proportion of bicycling trips decreases with increased area size.

FIGURE 3.
PERCENT OF HOME-TO-WORK TRIPS BY MODE AND PLACE OF RESIDENCE



Source: Table A-7 this report.

FIGURE 4.
PERCENT OF HOME-TO-WORK TRIPS BY MODE AND SMSA SIZE



Source: Table A-8 this report

Average Trip Length and Place of Residence

Table A-9, Appendix A, shows average work trip length by work trip mode and workers' place of residence. The average trip length for all work trips is 9.2 miles*. For work trips within SMSA's the average trip length is 9.3 miles. Outside SMSA's, the average work trip length is 8.9 miles.

There are major differences in average work trip length between areas outside SMSA's. Workers in areas with less than 5,000 population have an average work trip length of 10.2 miles while workers in areas with greater than 5,000 population have an average work trip length of 7.6 miles. There is also a significant difference in work trip lengths for SMSA noncentral city residents (10.9 miles) and SMSA central city residents (7.6 miles).

As expected, work trips by train have the longest average trip length, 24.2 miles, and walking trips the shortest trip length of 0.5 miles.

Average Trip Length and SMSA Population Size

There is a tendency for work trip length on all modes to generally increase with SMSA population size, the exception being bus and train trips. Table A-10, Appendix A, shows the average trip length of each travel mode.

Annual Household Income

As expected, the proportion of total work trips made in private vehicles increases as household income increases. Table 9 shows this proportion varies from a low of 79.6 percent for private vehicle drivers and passengers of private vehicles with incomes under $5,000 to 94 percent for those with incomes of $50,000 or more. The proportion of workers using public transportation is greatest for income groups under $10,000. The proportion of persons riding as private vehicle passengers declines with increased income.

Also, there is a general tendency for average trip lengths to increase with increased income up to $35,000 then to decline somewhat in the highest income categories.

Season of the Year

There is little variation in the distribution of work trips by mode among the four seasons of the year. Private vehicle trips vary from 89.6 percent in the summer to 91.8 percent in the fall. Public transit trips vary from 3.7 percent in the fall to 4.9 percent in the winter (see Table 10).

*Average person trip length to work from travel day trip data (Section V of questionnaire) is 9.2 miles; average trip length for workers usual trip (Section III of the questionnaire) is 9.3 miles.

TABLE 9. PERCENT OF HOME-TO-WORK TRIPS BY MAJOR MODE AND ANNUAL HOUSEHOLD INCOME

Mode††	Annual Household Income							All
	Less than $5,000	$5,000 to $9,999	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 or More	
Private Vehicle Driver	55.0	65.6	72.2	77.3	76.7	76.5	78.6	72.7
Private Vehicle Passenger	24.6	20.4	18.8	15.9	15.3	15.9	15.4	17.8
Public Transportation	7.2	7.2	4.1	3.3	3.9	4.5	3.4	4.5
Other	13.2	6.8	4.9	3.5	4.1	3.1	2.6	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average‡ Trip Length	6.4	8.5	8.9	9.8	10.1	9.9	8.6	9.2

† Total person work trips = 41,226,000
‡ For all work trips with distance known
†† Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE 10. PERCENT OF HOME-TO-WORK TRIPS BY MAJOR MODE AND SEASON

Mode‡	Season				All
	Spring	Summer	Fall	Winter	
Private Vehicle Driver	73.2	70.5	74.0	72.7	72.7
Private Vehicle Passenger	17.2	19.1	17.8	17.3	17.8
Public Transportation	4.8	4.7	3.7	4.9	4.5
Other	4.8	5.7	4.5	5.1	5.0
Total	100.0	100.0	100.0	100.0	100.0†

† Total person work trips = 41,226,000
‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

Day of the Week

For weekdays, the proportion of daily work trips made in transit vehicles varies from 4.2 percent to 5.3 percent. Public transit use declines to 2.8 percent of all daily work trips on Saturday and to 1.7 percent of all Sunday work trips. This is shown in Table 11.

Although private vehicle trips account for 92.2 percent of all Saturday work trips and 92.2 percent of all Sunday work trips, the portion of work trips that are passenger trips is greater on Sunday.

Minor differences occur in the choice of major travel mode for work trips among weekdays. Private vehicle driver trips vary from 70.5 percent to 73.5 percent of total work trips, passenger trips vary from 15.9 percent to 19.8 percent and public transit trips from 4.2 percent to 5.3 percent.

Time of Day

The highest proportion of daily work trips made by public transportation, 5.9 percent, is in the 3-hour morning peak travel period (6:00-8:59 a.m.). The peak evening travel period (4:00-6:59 p.m.) has a lower proportion of transit trips, 4.7 percent. Throughout the remaining periods of the day, the proportion of transit trips varies between 2.6 percent and 4.0 percent of total daily work trips (see Table 12).

The proportion of total daily work trips that are private vehicle driver trips varies only slightly--between 72 percent and 75 percent--among the periods of the day. There is a greater variation in the proportion of private vehicle passenger work trips among time periods, varying from a low of 15 percent in the 9:00 a.m. to 12:59 p.m. period to a high of 19.7 percent in the 7:00 p.m. to 9:59 p.m. period.

The highest proportion of work trips in the other mode category is in the 9:00 a.m. to 12:59 p.m. period. This is probably due to the high number of walking trips (see Table A-8, Appendix A). Many of these trips may be made between home and work for lunch.

Occupation

Table A-11, Appendix A, shows that private vehicles are the predominant mode of transportation for the home-to-work purpose among all occupational groups. The occupational groups with higher than average--90.5 percent--use of the private vehicle are farmers and farm managers who did not work at home (93 percent), managers and administrators (92.8 percent), craftsmen (95.2 percent) and operatives and laborers (91.8 percent). Professional and technical workers are slightly lower than average (90.1 percent). Sales people and clerks with 89.7 percent of the home-to-work trips by private vehicles, as well as service workers at 83.4 percent, are below average in their use of private vehicles for work. Public transportation is used most heavily by sales and clerical workers (6.4 percent) and service workers (7 percent). These two occupational groups also tend to be in the lower income strata.

TABLE 11. PERCENT OF HOME-TO-WORK TRIPS BY MAJOR MODE AND DAY OF WEEK

Mode ‡	Day of Week							All
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
Private Vehicle Driver	72.3	73.5	70.5	73.5	72.3	76.2	68.8	72.7
Private Vehicle Passenger	17.5	15.9	19.8	17.4	18.4	16.0	23.4	17.8
Public Transportation	5.3	5.2	4.3	5.1	4.2	2.8	1.7	4.5
Other	4.9	5.4	5.4	4.0	5.1	5.0	6.1	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total person work trips = 41,226,000
‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE 12. PERCENT OF HOME-TO-WORK TRIPS BY MAJOR MODE AND TIME OF DAY

Mode‡	Time of Day							All
	A.M.			P.M.				
	1:00 to 5:59	6:00 to 8:59	9:00 to 12:59 PM	1:00 to 3:59	4:00 to 6:59	7:00 to 9:59	10:00 to 12:59 AM	
Private Vehicle Driver	74.4	72.0	73.3	72.6	72.4	72.4	75.0	72.7
Private Vehicle Passenger	18.4	18.2	15.0	18.1	17.7	19.7	18.2	17.8
Public Transportation	4.0	5.9	3.3	3.4	4.7	2.6	2.8	4.5
Other	3.2	3.9	8.4	5.9	5.2	5.3	4.0	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total person work trips = 41,226,000
‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

Household Vehicles* and Drivers

As expected, private vehicle use is highest and public transit use the lowest, among households with vehicles available where several household members have driver's licenses (Table 13). The highest transit use--40.8 percent and 41.2 percent--is among households where motor vehicles are not available or where households have only one vehicle but no licensed drivers. As the number of household drivers increases, use of private vehicles for work travel generally increases. This trend is apparent for all households, including those without vehicles. Where households have two or more vehicles and three or more drivers, over 96 percent of work travel is by private vehicle.

Note that within each vehicle ownership category--none, one, two and three or more--work travel by private vehicle increases, while transit usage decreases, as the number of licensed drivers increases. Where the proportion of travel in the other category is high, such as the case where the household has neither a licensed driver or a motor vehicle available, most of the trips are probably walking trips.

Age and Sex

Tables A-12 and A-13, Appendix A, present the proportion of work trips and person miles of travel made by each sex and age group.

For all age groups, males make a larger proportion of work trips as private vehicle drivers than females. At the same time, women tend to be private vehicle passengers or use public transit more than males.

Table A-12, Appendix A, also shows that public transit trips, at an average of 14.5 miles, are longer than private vehicle work trips (9.2 miles for drivers and 9.7 miles for private vehicle passengers). The other mode of travel is shortest due to the predominance of walking trips in this category.

Average Commute Time by Major Mode

Family Income. Average commute time for private vehicle and public transit work trips generally increases as income increases up to $50,000. The average commute time for all home-to-work trips is 19.5 minutes.** Public transportation average commute time is more

*Includes all motor vehicles (automobiles, vanbuses, other vans, minibuses, pickup trucks, other trucks in personal use, motorcycles, mopeds, self-contained recreational vehicles and taxis in private use) owned by or available to the household on a regular basis.

**Work trips on the designated travel day (Section V of the questionnaire) show a slightly shorter commute time, 19.5 minutes, than comparable data on the usual work trip (Section III), 19.7 minutes.

TABLE 13. PERCENT OF HOME-TO-WORK TRIPS BY MAJOR MODE, NUMBER OF HOUSEHOLD VEHICLES AND NUMBER OF DRIVERS

Mode‡	Number of Household Vehicles													
	None			One				Two				Three or More			
	Number of Drivers			Number of Drivers				Number of Drivers				Number of Drivers			
	None	One	Two	None	One	Two	Three or More	None	One	Two	Three or More	None	One	Two	Three or More
Private Vehicle	31.4	60.0	62.6	31.9	89.0	94.4	95.7	64.0	84.4	95.2	96.3	78.6	67.2	89.2	96.3
Public Transportation	40.8	15.7	2.7	41.2	6.0	1.7	0.0	11.7	6.1	2.1	0.7	21.4	10.5	3.3	0.9
Other	27.8	24.3	34.7	26.9	5.0	3.9	4.3	24.3	9.5	2.7	3.0	0.0	22.3	7.5	2.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total person-to-work trips = 41,226,000

‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

than twice as long as private vehicle average commute time (39.8 minutes versus 18.6 minutes for vehicle drivers and 19.6 minutes for vehicle passengers). Table A-14, Appendix A, provides more detail on commute time.

SMSA Size. Tables A-14 and A-15, Appendix A, show that the average commute time for SMSA's, 20.7 minutes, is slightly longer than the nationwide average of 19.5 minutes. Commute time increases directly with size of SMSA from a low of 16.6 minutes for SMSA's under 250,000 population to 24.7 minutes for SMSA's with 3 million or more population. This is true for private vehicle driver and private vehicle passenger and generally true for public transit.

Change in Mode*

The 1977 survey also determines mode change since the previous year, 1976. Workers were asked whether or not their principal travel mode had changed, and if a change had been made, they were asked to identify their principal means of travel before the change.

Table 14 indicates only 5.4 percent of all workers reported a change in mode. While 3.2 percent of workers who used private vehicles shifted modes, only 1.3 percent of public transportation commuters shifted. For workers who currently use private vehicles, 98 percent reported no change, 1.1 percent reported a change from public transportation to private vehicle and 0.9 percent reported a change from other to private vehicle. Of those workers who currently use public transportation, 91.3 percent indicated no change, 7.7 percent reported a change from private to public and 1 percent changed from other to public transit.

Availability of Public Transportation*

Table A-16, Appendix A, shows the proximity of public transportation to workers' homes. Public transportation service is available within 2 miles for 58.8 percent of the workers. Of those who commute by automobile, 59.7 percent have public transportation available within 2 miles of home.

Distance to Public Transportation*

For workers who live within 2 miles of public transportation service, Table A-17, Appendix A, shows the relationship of travel mode and distance to public transportation. Over one-half of public transportation users live within 1/4 mile of transit service, varying from 50.9 percent of the train commuters to 90.0 percent of the subway commuters.

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*Based on data from Section III of the questionnaire (usual travel to work).

TABLE 14. PERCENT OF WORKERS CHANGING MODE

Previous Mode ‡	Current Mode‡			
	Private Vehicle	Public Transportation	Other	Total
Private Vehicle	--	7.7	10.3	3.2
Public Transportation	1.1	--	2.1	1.3
Other	0.9	1.0	--	0.9
No Change	98.0	91.3	87.6	94.6
TOTAL	100.0	100.0	100.0	100.0†

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place)

‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE 15. PERCENT OF PRIVATE VEHICLE HOME-TO-WORK TRIPS BY HOME-TO-WORK TRIP LENGTH AND DAY OF WEEK

Distance To Work (miles)	Day of Week							All
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
5 and under	48.1	50.3	46.8	49.3	48.1	52.7	58.3	49.1
6 - 10	22.6	22.3	22.1	21.3	23.0	21.2	18.1	22.1
11 - 14	8.8	6.9	8.7	7.8	7.5	6.4	6.6	7.8
15 - 19	7.8	8.6	8.8	8.9	7.4	9.3	7.3	8.3
20 - 24	4.9	4.1	5.1	4.5	6.3	4.6	4.3	4.9
25 or more	7.8	7.8	8.5	8.2	7.7	5.8	5.4	7.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total private vehicle home-to-work trips = 30,246,000

For those using the automobile for commuting, only 33.7 percent are within 1/4 of a mile of public transportation. A smaller proportion of truck, van, recreational vehicle, motorcycle and moped commuters live within 1/4 of a mile of public transportation.

Most bus commuters, 95 percent, live within 2 miles of the bus line. Of the subway commuters, 99 percent live within 1 mile of subway service.

C. PRIVATE VEHICLE USE

The use of private vehicles for home-to-work trips is examined in this section. Private vehicles include automobiles, vanbuses, other vans, minibuses, pickup trucks, other trucks in personal use, motorcycles, mopeds, self-contained recreational vehicles and taxis in private use. Variations in commuting by private vehicle are described for the days of the week, time of day, place of residence, SMSA population size and number of vehicles owned by households. The tables describe commuting on a specific travel day, using data from Section V of the questionnaire.

Some of the tables in this section present data on work and nonwork trips. For purposes of this analysis, work trips consist of the trip from the worker's residence to the place of work. All other trips, including work-related trips, are considered nonwork. Work-related trips are trips related to business activities except to place of work; for example, a plumber drives to a wholesale dealer to purchase supplies for his business. Other nonwork trips are those made for family or personal business, civic, educational or religious purposes, social and recreational activities, or other purposes.

Distribution of Trips by Trip Length

Day of the Week. Almost one-half (49.1 percent) of all private vehicle home-to-work trips are 5 miles or less in length. Weekend work travel is shorter in length than weekday travel with 52.7 percent 5 miles and under on Saturday and 58.3 percent on Sunday (see Table 15).

Table 15 and Table A-19, Appendix A, indicate that while only 7.8 percent of all private vehicle work trips are 25 miles or more in length, they represent 31.4 percent of the vehicle miles of travel. In contrast, the almost 50 percent of work trips 5 miles and under represent only 13.4 percent of the vehicle miles of travel.

The majority of all home-to-work vehicle miles of travel, 57.5 percent, occurs in trips under 20 miles.

SMSA Population Size. As expected, the larger the SMSA, the longer the trip length (see Table A-18, Appendix A).

The distribution of SMSA trips shows a smaller proportion of trips in the shortest and longest categories of trip length--46.2 percent and 7.1 percent respectively--than in the nation as a whole (see Table 15). The proportions of intermediate trip lengths are higher in SMSA's than for the nation as a whole.

Private Vehicle Work and Non-Work Trips

Day of the Week. Between 18.4 and 18.5 percent of total weekly work trips by private vehicles occurs each day Tuesday through Friday, for a total of 73.9 percent of all work trips. A smaller proportion of work trips (15.5 percent) is made on Mondays. Only 10.6 percent private vehicle work trips occur on the weekend with Saturday accounting for more than twice as many as Sunday (see Table 16).

Nonwork and total trips by private vehicle are distributed more uniformly through the week. Nonwork trips vary from a low of 12.0 percent on Monday to a high of 17.0 percent on Saturdays. Total trips vary from what would be a uniform average of 14.3 percent per day (100 percent ÷ 7 days) by only 2.3 percent above average on Friday to 4.4 percent below average on Sunday.

Work trips account for about one-third of total trips for each of the weekdays, Monday through Thursday. Work trips drop to about 30 percent of total trips on Friday. On Saturday and Sunday the work trip percent is 14.7 and 8.3, respectively.

Time of Day. As shown in Table 17, private vehicle work trips and vehicle miles of travel peak from 6:00 to 8:59 a.m., with 33.6 percent of daily work trips and 35.0 percent of daily vehicle miles of home-to-work travel occurring. However, in considering total trips and travel, only 14.5 percent of daily trips and 18.0 percent of daily travel occurs during this peak period.

In the afternoon, work trips by private vehicles peak from 4:00 to 6:59 p.m., with 28.7 percent of the daily work trips and 27.6 percent of daily work travel made during this period. Nonwork trips and travel during this same time period are approximately 21 percent of their daily total. Therefore, the proportion of nonwork trips and travel more closely approximates the daily proportion of work trips and travel in the evening than in the morning peak period.

Although only 28.6 percent of nonwork trips and 31.4 percent of nonwork travel occur in the two peak periods (6:00 to 8:59 a.m. and 4:00 to 6:59 p.m.), more than 62 percent of daily work trips and travel are made in those periods.

TABLE 16. PERCENT OF PRIVATE VEHICLE TRIPS BY PURPOSE AND DAY OF WEEK

Purpose	Day of Week							Total
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
	By Day of Week							
Work	15.5	18.5	18.5	18.5	18.4	7.6	3.0	100.0
Nonwork	12.0	13.8	14.3	14.3	16.0	17.0	12.6	100.0
All Purposes	13.0	15.1	15.5	15.5	16.6	14.4	9.9	100.0†
	By Purpose							
Work	33.0	34.0	33.3	33.2	30.6	14.7	8.3	27.8
Nonwork	67.0	66.0	66.7	66.8	69.4	85.3	91.7	72.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total private vehicle trips = 108,826,000

TABLE 17. PERCENT OF PRIVATE VEHICLE TRIPS AND TRAVEL BY PURPOSE AND TIME OF DAY

Purpose	Time of Day							Total
	AM			PM				
	1:00 - 5:59	6:00 - 8:59	9:00 - 12:59 PM	1:00 - 3:59	4:00 - 6:59	7:00 - 9:59	10:00 - 12:59 AM	
	Percent of Trips							
Work	4.2	33.6	8.8	13.5	28.7	5.8	5.4	100.0
Nonwork	1.5	7.2	28.7	22.3	21.4	13.9	5.0	100.0
All	2.2	14.5	23.2	19.9	23.4	11.7	5.1	100.0†
	Percent of Vehicle Miles of Travel							
Work	6.3	35.0	6.7	13.1	27.6	5.4	5.9	100.0
Nonwork	2.3	10.5	26.9	22.3	20.9	11.9	5.2	100.0
All	3.5	18.0	20.8	19.5	22.9	9.9	5.4	100.0‡

† Total private vehicle trips = 108,826,000
‡ Total private vehicle miles of travel = 907,603,000

Private Vehicle Work Travel and Trip Length

Place of Residence. There are large differences in the trip length distribution for home-to-work travel by private vehicle in SMSA's and areas outside SMSA's, as shown in Table A-19, Appendix A. While 39.7 percent of non-SMSA residents work travel is 25 miles and over, only 27.8 percent of SMSA residents work travel is as long. For SMSA residents, 60.6 percent of work travel is in trips of less than 20 miles, while outside SMSA's, 50.3 percent of work travel is in trips under 20 miles.

More than half, 56.4 percent, of SMSA noncentral city residents work travel is in trips less than 20 miles long, while 67.3 percent of work travel of central city residents is in trips of less than 20 miles. The corresponding proportions of work travel outside SMSA's in areas with populations under and over 5,000 is 47.1 percent and 54.8 percent, respectively.

Number of Vehicles Owned. As shown in Table A-20, Appendix A, the distribution of private vehicle work travel by trip length varies considerably with the number of vehicles available in a household. For example, the proportion of travel in the 25 miles and longer category varies between 26.6 to 46.2 percent among the vehicle ownership categories (see Table A-20, Appendix A).

D. HOME-TO-WORK VEHICLE OCCUPANCY AND CARPOOLING

In this section vehicle occupancy information for home-to-work travel is analyzed for workers' trip length, place of residence, SMSA size, annual income, occupation, and other household characteristics. Carpool information is also shown.

The occupancy rate* information provided is calculated using vehicle miles as the weighting factor rather than trips. Trips are used as the weighting factor in the previous (1969) NPTS reports. Most of the tables presented are on the basis of trips on the travel day from Section V. The information in Tables A-25 through A-27, Appendix A, and Table 19 utilize Section III data on usual travel to work.

Vehicle Occupancy and Trip Length

Place of Residence. As shown in Table 18, the overall average vehicle occupancy for home-to-work travel is 1.3 workers per vehicle. For SMSA's only, the average vehicle occupancy is also 1.3 workers per vehicle. For non-SMSA workers, the average vehicle occupancy is 1.4 workers per vehicle.

*Occupancy = Σ(Number of Persons in Vehicle X Miles Driven) ÷ Σ(Miles Driven).

TABLE 18. AVERAGE OCCUPANCY* BY HOME-TO-WORK TRIP LENGTH AND PLACE OF RESIDENCE

Distance to Work (miles)	Place of Residence						
	Outside SMSA			Inside SMSA			
	Under 5000	Over 5000	Average	Not in Central City	Within Central City	Average	All
5 and Under	1.3	1.2	1.2	1.2	1.2	1.2	1.2
6-10	1.2	1.3	1.2	1.2	1.2	1.2	1.2
11-14	1.3	1.4	1.4	1.3	1.2	1.3	1.3
15-19	1.3	1.4	1.3	1.2	1.2	1.2	1.2
20-24	1.3	1.3	1.3	1.2	1.1	1.2	1.2
25 and Over	1.5	1.6	1.5	1.4	1.4	1.4	1.5
Average	1.4	1.4	1.4	1.3	1.2	1.3	1.3

* For all home-to-work trips

One apparent relationship between average vehicle occupancy and trip length is that vehicle occupancy is generally constant as the trip length increases, except for trips of 25 miles and over, which show a marked increase in occupancy rates.

SMSA Population Size. Table A-21, Appendix A, presents vehicle occupancy among SMSA population groups. Little variation occurs in average vehicle occupancy by SMSA size.

Annual Household Income. Surprisingly, little variation occurs in average vehicle occupancy by household income (see Table A-22, Appendix A).

Number of Household Vehicles. Table A-23, Appendix A, indicates that average occupancy is highest where no vehicles are owned by or available to the household. For the shortest trips, 5 or less miles, occupancies tend to decrease from 1.3 to 1.1 workers per vehicle as the number of household vehicles increase.

Average Vehicle Occupancy

Household Adults and Vehicles. Table A-24, Appendix A, illustrates that vehicle occupancy does not change systematically as the number of adults in a household increases.

Carpooling

Carpooling information presented is based on data from Section III of the questionnaire (usual travel to work).

Of all workers, 17 percent carpool.

Reasons for Not Carpooling

Annual Family Income. Table A-25, Appendix A, lists reasons for not carpooling by household income groups. "Irregular hours" and "irregular work location" are cited by 32.7 percent of workers who do not carpool. Next in order is "don't know anyone," cited by 21.6 percent of workers who do not carpool. "Need car for work" and "prefer to have car available" is the reason 8.8 percent do not carpool.

"Irregular work hours," as a reason for not carpooling, is expressed more often by higher income workers, varying from a low of 23.0 percent for workers with less than $5,000 income to a high of 40.4 percent of workers earning $50,000 or more.

Occupation. Table A-26, Appendix A, reports reasons for not carpooling by occupation. The results parallel those described for income. For example, 35.4 percent of managers and administrators, who usually have high incomes, cite "irregular work hours" as a reason for not carpooling, while only 23.6 percent of the operatives and laborers who usually have low incomes, cite this reason. Twelve point six (12.6) percent of the managers and administrators also cite "need car for work" as a reason for not carpooling, while the average response among the occupations is 5.4 percent.

Type of Employment. More self-employed persons report "irregular work hours" as a reason for not carpooling than private company and government workers. Approximately 20 percent of private company and government workers report "don't know anyone" as a reason for not carpooling. These findings are shown in Table A-27, Appendix A.

Persons Per Carpool

Approximately 62 percent of the persons who carpool to work are in two-person carpools, 16.3 percent in three-person carpools and 11.4 percent in carpools of seven or more persons.

Of the carpools where the driving is shared among the participants, 57.5 percent of the workers are in two-person carpools, 19.7 in three-person carpools and 9.1 percent in carpools of seven or more persons. For those carpools where the driving is not shared, 68.8 percent of the workers are in two-person carpools, 12.7 percent in three-person carpools and 14.0 percent in carpools of seven or more persons. These findings are shown in Table 19.

More than three-quarters, 77.2 percent, of the carpools have two persons. Only 5.5 percent of the carpools have five or more passengers.

E. DISTRIBUTION OF SMSA PERSON WORK TRIPS AND TRAVEL

Tables A-28 and A-29, Appendix A, show the proportions of SMSA person trips and person miles of travel to work in each of seven daily time periods and each day of the week. There are five SMSA population size groupings of workers' trips and travel. This work trip information is from specific travel day data (Section V of the questionnaire).

Hour of Day

There are no great differences for trips and travel by time of day among the SMSA population groups. As shown in Table A-28, Appendix A, in the morning peak period (6:00 to 8:59 a.m.) the proportion of trips varies narrowly from 33.4 to 34.9 percent among the SMSA population groups. In the evening peak the variation is only from 27.2 to 30.4 percent with no general relation to size of SMSA.

TABLE 19. PERCENT OF CARPOOLERS BY NUMBER OF PERSONS IN CARPOOL AND DRIVING ARRANGEMENT

Number of Persons in Carpool	Driving Arrangement: Share Driving	Drive Others Only	Ride Only	N/A	All	% of Carpools‡
			By Number of Persons			
Two	57.5	68.8	64.6	29.4	61.9	77.2
Three	19.7	12.7	15.9	5.7	16.3	13.5
Four	8.8	3.3	5.5	5.0	6.2	3.8
Five	4.1	0.9	3.6	1.4	3.1	1.5
Six	0.8	0.3	1.9	0.0	1.1	0.5
Seven or More	9.1	14.0	8.5	58.5	11.4	3.5
Total	100.0	100.0	100.0	100.0	100.0†	100.0
			By Driving Arrangement			
Two	35.0	27.4	36.4	1.2	100.0	
Three	45.7	19.2	34.2	0.9	100.0	
Four	53.7	13.2	31.0	2.1	100.0	
Five	50.9	7.0	41.0	1.1	100.0	
Six	30.1	8.0	61.9	0.0	100.0	
Seven or More	30.1	30.4	26.2	13.3	100.0	
All	37.7	24.7	35.0	2.6	100.0	

† Total number of workers in carpools = 13,479,000

‡ Number of carpoolers divided by number of persons in carpool (8 persons used for seven or more)

Similarly, person miles of work travel in the morning peak period varies little among the SMSA population groups. Travel in the afternoon peak period (4:00 to 6:59 p.m.) shows a greater variation, from 24.9 to 32.9 percent, among SMSA population groups, but again there is no general relationship to SMSA size.

Day of Week

The proportion of person trips and travel is similarly spread among the days of the week (see Table A-29, Appendix A). A smaller proportion of person work trips and travel occur on Monday rather than other weekdays. Sunday work trips and travel are less than half of Saturday's work trips and travel. Table A-29, Appendix A, shows there is no general relationship between person trips or travel and SMSA population size for the distribution of trips by day of the week.

IV. TRENDS OVER TIME

Changes that have occurred from 1969 to 1977 in home-to-work trip length, commute time, mode of travel, trip length by mode, and vehicle occupancy are presented in this section. Examination of the changes is limited to comparable information from the 1969 and 1977 NPTS surveys. Where comparisons are made and differences in the information exist, this is noted in the discussion and on the tables and figures.

A. TRENDS IN WORKERS' TRAVEL DISTANCE

Table 20 shows the distribution of workers by distance from work in 1969 and 1977. There was a decrease in the proportion of workers whose residence is 5 miles or less from work, from 52.1 percent in 1969 to 47.8 percent in 1977. There was a slight increase in the proportion of workers in the 6 to 10 mile home-to-work-distance category from 1969 to 1977. There were increases in all trip length categories more than 10 miles. Table 20 excludes those who work at home or report no fixed address.

B. TRENDS IN WORKERS' COMMUTE TIME

The distribution of workers by commute time from work is shown in Table 21. There was an increase in the proportion of workers with commute times of 15 minutes or less and in the 16 to 25 minute categories. There was a decrease in the proportion of workers in the 26 minute and over commute time categories. Overall there was a decrease in traveltime from 22 minutes in 1969 to 20.4 minutes in 1977.

C. TRENDS IN MODE OF WORK TRAVEL

Shifts in work travel mode between 1969 and 1977 are illustrated in Table 22. The proportion of home-to-work trips by automobile decreased from 82.7 percent to 80.5 percent. There was a significant increase in the proportion of home-to-work travel by other private vehicles, from 8.1 percent to 12.5 percent. When automobiles and other private vehicles are combined, there was an increase in the proportion of travel by private vehicle from 90.8 percent in 1969 to 93 percent in 1977. The proportion of trips by public transportation decreased from 8.4 percent to 4.7 percent.

D. TRENDS IN TRIP LENGTH BY MODE

Table 23 shows the average home-to-work trip length by selected modes of transportation for 1969 and 1977. The average trip length for all modes decreased from 9.9 miles in 1969 to 9.2 miles in 1977.

TABLE 20. PERCENT OF WORKERS BY DISTANCE FROM HOME TO WORK

Distance Home to Work (miles)	Year of NPTS Survey	
	1969†	1977‡
5 miles or less	52.1	47.8
6 - 10	20.9	21.9
11 - 14	7.5	8.0
15 - 19	7.7	8.6
20 - 24	4.5	5.1
25 & over	6.9	8.6
Not reported	0.4	—
Total	100.0	100.0

† Data from tables 2, A-9 and A-12 report No. 8, Home-to-Work Trips and Travel, Nationwide Personal Transportation Study, August 1973.
‡ Data from Table 3, this report
Note: Data excludes those who work at home or at no fixed address.

TABLE 21. PERCENT OF WORKERS BY COMMUTE TIME FROM HOME TO WORK

Commute Time – Minutes	Year of NPTS Survey	
	1969†	1977‡
15 or less	52.4	54.7
16 - 25	19.0	20.3
26 - 35	14.1	12.5
36 or more	14.5	12.5
Total	100.0	100.0
Average Time	22.0	20.4

† Data from Table A-6 NPTS Report No. 8, August 1973
‡ Data from Table 4, this report
Note: Data excludes persons who work at home or at no fixed address

TABLE 22. TREND IN MODE OF TRAVEL, PERCENT OF WORKERS BY MODE

Mode	Year of NPTS Survey	
	1969†	1977‡
Automobile	82.7	80.5
Truck/RV/Van	8.1	12.5
Subtotal (Private Vehicles)	90.8	93.0
Public Transportation	8.4	4.7
All Other	0.8††	2.3‡‡
Total	100.0	100.0

† Data from Table A-10, Report No. 8, Nationwide Personal Transportation Study, August 1973.
Note: Walk not reported as a mode here.

‡ Data from Table A-7, this report
Note: Walk not reported in this table. Percent by mode *recalculated for 1977 data to eliminate walk for* above comparison.

†† Includes "motorcycle" and "all other".

‡‡ Includes "motorcycle", "moped", "bicycle" and "other".

Trip length by auto--including automobiles, vanbuses and minibuses, and taxis for personal use--decreased from 9.4 miles in 1969 to 9.2 miles in 1977. Trips in pickup trucks and other small trucks are 3.6 miles shorter in 1977 than in 1969. Motorcycle is the only mode in which average trip length increased--from 9.2 miles in 1969 to 10.3 miles in 1977.

Decreases from 1969 to 1977 in home-to-work trip length occur in all public transportation modes. Trips in buses and streetcars are 1.5 miles shorter in 1977 (8.7 versus 7.2). Subway trip length declined from 12.1 miles to 9.7 miles and train trips decreased from 31.1 miles to 24.2 miles.

These trends in trip length are also reflected in home-to-work commute time, which decreased from 22 minutes in 1969 to 20.4 minutes in 1977.

TABLE 23. TRENDS IN AVERAGE TRIP LENGTH (IN MILES) BY SELECTED MODES OF HOME-TO-WORK TRANSPORTATION

Mode	Average Trip Length (miles) 1969†	1977‡
Private Vehicles		
Auto	9.4	9.2
Truck	14.2	10.6
Motorcycle	9.2	10.3
Public Transportation		
Bus and Streetcar	8.7	7.2
Subway	12.1	9.7
Train	31.1	24.2
Taxi	4.5	3.3
All Modes*	9.9	9.2

† Source: Table A-11, Report 8, 1969 National Personal Transportation Study
‡ Source: Table A-9, this report
NOTE: 1977 data recalculated to combine bus and streetcar
* All modes includes private vehicles, public transportation and other modes, such as bicycle and walk.

V. SUMMARY

In this report, home-to-work trips are analyzed in terms of worker characteristics such as age and sex, drivers license availability, residence location, temporal characteristics such as day of the week and time of day, mode of travel chosen, vehicle occupancy and car-pooling. Variations in home-to-work travel are seen in the examination of these characteristics. The purpose of this section is to summarize the important findings for home-to-work travel.

Distances from workers' residences to their work places vary widely and these variations are related to worker characteristics such as place of residence, sex, drivers license and employer type. While the average work trip length for all workers is 9.3 miles, work trip length can vary from a low of 4.0 miles for self-employed (not incorporated) workers to a high of 9.8 miles for private company workers. Average work trip lengths tend to increase as SMSA size increases, from a low of 7.7 miles for areas under 250,000 population to a high of 10.4 miles for areas with 3 million or more population. Some of these variations are shown in Figure 5.

On the average, males tend to travel further for work than females, with the trip lengths for males averaging 10.5 miles and the trip lengths for females averaging 7.5 miles. Those with drivers licenses travel an average of 9.6 miles to work, while workers without drivers licenses travel only an average of 5.3 miles to work.

The choice of travel mode is also related to the characteristics of workers and their place of residence. Private vehicle use, including automobiles, trucks and motorcycles, dominates home-to-work trips. This mode accounts for 89.9 percent of all work trips.

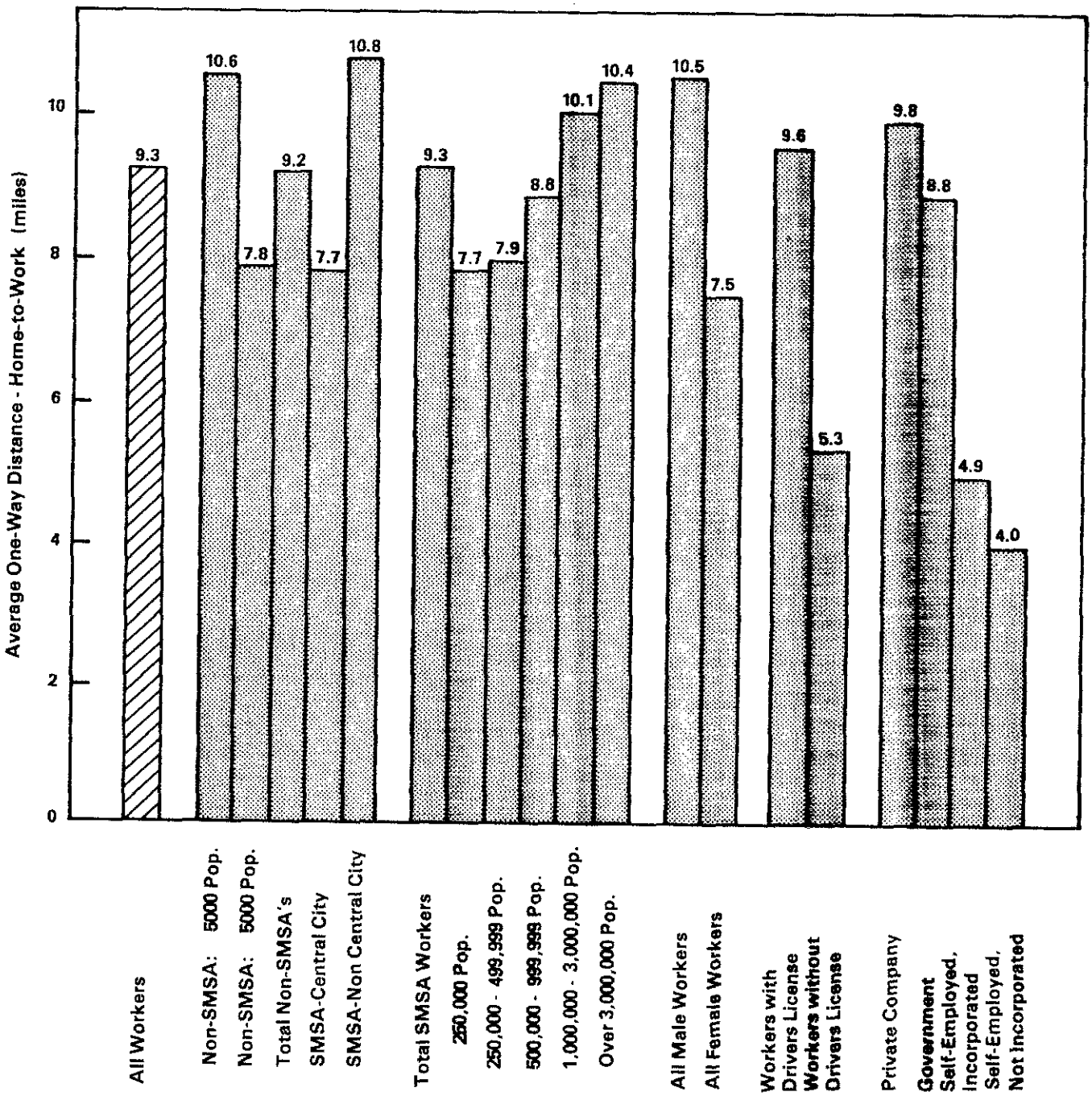
Trip lengths for auto, truck and motorcycle trips average 9.2 miles, 10.6 miles and 10.3 miles, respectively. While almost half of private vehicle home-to-work trips are 5 miles or less in length, the remaining trips over 5 miles bring the average private vehicle trip length up to 9.2 miles.* Trips of 5 miles or less are 49.1 percent of private vehicle home-to-work trips, however they account for only 13.4 percent of vehicle miles of travel to work. On the other hand, while only 7.8 percent of private vehicle work trips are 25 miles or more in length, these trips are 31.4 percent of total work trip travel by private vehicle.

Average commute time for private vehicle drivers is 18.6 minutes and for private vehicle passengers, 19.6 minutes. The average commute time for all home-to-work trips is 19.5 minutes.

Use of private vehicles for work trips tends to increase as household income increases. Males tend to be private vehicle drivers more often than females; females are more likely to be private vehicle passengers or public transit users than males.

*Source: Purposes of Vehicle Trips and Travel, Report 3, 1977 NPTS, December 1980

FIGURE 5.
VARIATIONS IN WORKER TRIP LENGTH



Source: Table 23 this report

Public transportation is used by 4.5 percent of all workers, including 2.9 percent on buses, 0.8 percent on subways, 0.5 percent on trains, 0.2 percent in taxis and 0.1 percent on streetcars.

Public transportation accounts for 6.2 percent of work trips by SMSA residents, but only 0.5 percent of work trips by those residing outside SMSA's. As expected, public transit use in SMSA's increases with SMSA population size, from 2.3 percent in SMSA's under 250,000 to 15.4 percent in areas over 3 million.

Except for trips by train (averaging 24.2 miles) and subway (averaging 9.7 miles), public transportation trip lengths are shorter than private vehicle trips. Trips by bus average 7.6 miles; streetcar trips average 4.3 miles; and trips by taxis average 3.3 miles.

Public transportation commute time, averaging 39.8 minutes, is twice as long as private vehicle commute time.

Walk trips comprise 4.6 percent of all work trips, with an average trip length of 0.5 miles. As expected, the largest proportion of walk trips occurs in SMSA's with populations of 3 million or more.

The average work trip commute time is slightly higher for SMSA residents (20.7 minutes) than the average for all home-to-work trips (19.5 minutes). Average commute time increases directly with SMSA population size, from a low of 16.6 minutes for residents of SMSA's under 250,000 population to a high of 24.7 minutes for residents of SMSA's of 3 million or more population.

Both home-to-work trips and travel by private vehicle peak in the 6:00 to 8:59 a.m. travel period, the time interval in which about one-third of all daily work trips and travel occur. This compares with the 7.2 percent of the daily nonwork private vehicle trips and 10.5 percent of the daily nonwork private vehicle travel that occurs during this time period.

In the afternoon peak period, 4:00 to 6:59 p.m., 28.7 percent of the daily private vehicle work trips and 27.6 percent of the daily private vehicle work travel occurs. For comparison purposes, approximately 21 percent of daily nonwork private vehicle trips and travel occur during the afternoon peak travel period.

Private vehicle occupancy is a special concern as it relates to efficiency in energy use for this mode.

The average private vehicle occupancy for all work trips is 1.3 persons per vehicle. This varies by trip length from 1.2 persons per vehicle for trips under 5 miles to 1.5 persons per vehicle for trips of 25 miles or more.

In SMSA's the average private vehicle occupancy for work trips is 1.3 persons per vehicle as compared to 1.4 persons per vehicle for the rest of the nation.

Approximately 17 percent of all workers carpool. "Irregular work hours" and "irregular work location" are cited as reasons for not joining carpools by 32.6 percent of the workers who do not carpool. "Don't know anyone" is cited as the reason for not carpooling by 21.6 percent of workers not in a carpool. "Irregular work hours is the reason for not carpooling expressed most often by high income workers.

APPENDIXES

APPENDIX A

APPENDIX A (Continued)

TABLE A-1. AVERAGE HOME-TO-WORK TRIP LENGTH † BY AGE, SEX AND ANNUAL HOUSEHOLD INCOME

Age	Sex	Annual Household Income							
		Under $5,000	$5,000 to $9,999	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 or More	All
16-20	Male	6.8	8.4	6.0	7.2	6.9	7.8	4.9	7.0
	Female	6.3	7.1	7.7	7.0	6.5	11.4	11.6	7.2
	Average	6.6	7.8	6.7	7.1	6.5	9.2	7.4	7.1
21-25	Male	9.8	8.2	9.5	12.2	9.1	13.1	20.1	10.1
	Female	6.5	6.9	7.2	9.0	10.8	11.8	8.9	8.0
	Average	8.3	7.6	8.5	10.8	9.3	12.6	14.8	9.2
26-30	Male	16.8	8.4	10.4	11.5	12.2	13.7	5.8	11.0
	Female	7.6	6.8	7.2	8.3	10.7	13.9	5.0	8.0
	Average	12.5	7.8	9.3	10.3	11.8	13.8	5.4	9.9
31-35	Male	4.9	10.9	11.6	12.8	15.3	10.6	5.5	12.2
	Female	8.9	8.0	6.9	8.2	10.2	9.1	8.6	8.2
	Average	6.9	9.7	10.1	11.3	13.3	10.1	6.7	10.8
36-40	Male	7.9	9.2	10.9	12.9	15.3	15.0	9.9	12.4
	Female	5.7	7.8	8.1	7.5	14.0	11.7	3.3	8.7
	Average	6.6	8.5	9.7	11.1	14.8	13.8	9.0	10.9
41-50	Male	7.4	8.7	10.1	11.9	12.3	13.5	11.8	11.2
	Female	6.0	7.3	7.0	7.0	7.9	6.8	7.1	7.1
	Average	6.7	8.0	8.9	10.1	0.7	11.0	10.6	9.6
51-60	Male	3.6	7.7	8.3	10.0	13.1	12.2	9.0	9.8
	Female	5.5	7.5	5.8	6.1	7.7	5.8	9.4	6.5
	Average	4.8	7.6	7.4	8.8	11.5	10.5	9.1	8.6
61-70	Male	4.4	6.3	7.8	9.4	14.1	4.3	11.9	8.0
	Female	4.8	5.5	6.8	4.5	8.0	2.6	0.7	5.4
	Average	4.6	6.0	7.5	8.0	13.0	3.9	9.9	7.0
Total†	Male	8.0	8.3	9.6	11.4	12.6	12.0	10.2	10.5
	Female	6.1	7.1	7.1	7.5	9.4	9.0	8.0	7.5
	Average	7.0	7.8	8.7	10.0	11.5	11.0	9.6	9.3

† Total includes workers under 16 and over 71, whose sample size was too small to display on table.

TABLE A-2. AVERAGE HOME-TO-WORK COMMUTE TIME† BY AGE, SEX AND ANNUAL HOUSEHOLD INCOME

Age	Sex	Annual Household Income							
		Under $5,000	$5,000 to $9,999	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 or More	All
16-20	Male	19.7	17.0	14.7	15.8	13.5	14.9	11.3	15.6
	Female	18.2	16.4	18.2	15.4	15.5	21.8	20.7	16.8
	Average	18.0	16.7	16.2	15.6	14.3	17.8	14.9	16.1
21-25	Male	19.7	17.8	18.4	22.3	18.1	22.9	27.4	19.6
	Female	16.3	18.0	16.6	19.8	23.5	28.3	22.0	18.8
	Average	18.2	17.9	17.6	21.2	20.5	25.1	24.8	19.2
26-30	Male	27.8	18.8	20.7	21.6	25.2	25.3	12.6	21.5
	Female	20.5	18.8	17.9	19.1	24.8	26.3	17.6	19.6
	Average	24.4	18.8	19.8	20.7	25.0	25.7	14.9	20.8
31-35	Male	14.0	21.8	21.5	24.0	27.5	19.4	11.5	22.9
	Female	20.6	19.3	16.0	17.1	21.6	17.7	18.2	18.0
	Average	17.3	20.7	19.7	21.7	25.4	18.8	14.0	21.2
36-40	Male	15.0	18.2	21.8	23.5	24.1	26.5	17.7	22.5
	Female	16.5	18.8	17.8	16.7	22.4	20.1	9.2	18.2
	Average	15.9	18.5	20.1	21.3	23.5	24.2	16.5	20.8
41-50	Male	15.3	18.8	20.2	23.6	23.7	26.5	23.3	22.3
	Female	17.1	19.0	17.2	16.1	16.6	17.7	16.0	17.0
	Average	16.2	18.9	19.0	20.8	21.1	23.3	21.5	20.3
51-60	Male	12.8	17.9	19.1	21.2	26.4	25.5	18.4	21.2
	Female	16.1	18.7	15.6	16.6	18.6	14.1	18.3	16.9
	Average	14.8	18.4	17.9	19.7	24.0	22.5	19.1	19.6
61-70	Male	11.4	16.0	18.9	20.0	24.1	10.9	24.3	18.0
	Female	14.8	18.2	19.4	16.9	22.1	8.5	3.5	17.2
	Average	13.5	17.1	19.1	19.1	23.7	10.4	20.6	17.7
Total†	Male	17.3	18.2	19.7	22.1	23.6	23.4	19.8	20.9
	Female	17.0	18.3	17.1	17.4	19.0	19.5	17.6	17.8
	Average	17.2	18.2	18.7	20.4	22.3	22.1	19.2	19.7

† Total includes workers under 16 and over 71, whose sample size was too small to display on table.

TABLE A-3. PERCENT OF WORKERS BY HOME-TO-WORK TRIP LENGTH AND OCCUPATION

Distance To Work (miles)	Occupation								
	Professional & Technical	Farmers & Farm Managers	Managers & Administrators	Sales & Clerical	Craftsmen	Operatives & Laborers	Service Workers	Occupation or Work Status Unknown	All
5 or less	43.1	94.0	48.8	51.8	41.1	49.2	62.7	25.9	50.0
6 to 10	22.3	2.1	19.7	22.7	23.2	20.0	18.5	43.2	21.0
11 to 14	9.0	0.0	7.4	7.3	8.2	8.5	5.5	8.5	7.7
15 to 19	9.6	2.1	9.5	7.5	10.1	8.3	5.6	0.0	8.2
20 to 24	5.5	0.6	5.7	4.5	5.8	5.1	3.6	3.0	4.9
25 or more	10.5	1.2	8.9	6.2	11.6	8.9	4.1	19.4	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average Trip Length‡	10.6	1.2	9.8	8.3	11.4	9.9	6.7	14.0	9.3
Average Trip Length††	10.8	6.3	10.1	8.4	11.5	10.1	7.0	14.0	9.6

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place)
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

TABLE A-4. PERCENT OF WORKERS BY HOME-TO-WORK COMMUTE TIME AND OCCUPATION

Commute Time (minutes)	Occupation								
	Professional & Technical	Farmers & Farm Managers	Managers & Administrators	Sales & Clerical	Craftsmen	Operatives & Laborers	Service Workers	Occupation or Work Status Unknown	All
15 or less	49.9	96.0	57.9	57.0	50.4	56.1	66.8	28.6	56.6
16 to 25	22.1	1.1	16.2	19.4	22.1	20.6	16.3	32.0	19.4
26 to 35	13.2	2.1	12.0	12.1	13.6	12.1	9.1	19.7	12.0
36 or more	14.8	0.8	13.9	11.5	13.9	11.2	7.8	19.7	12.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Average Time‡	21.6	2.1	20.3	19.4	21.7	19.9	16.6	30.1	19.7
Average Time††	22.0	10.9	20.8	19.7	22.0	20.4	17.2	30.1	20.4

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place)
‡ For total workers including those who work at home
†† For total workers excluding those who work at home (3,416,000)

TABLE A-5. AVERAGE TRIP LENGTH† AND AVERAGE COMMUTE TIME BY EMPLOYMENT TYPE

	Employment Type					
	Private Company	Government Federal, State, Local	Self-Employed Incorporated	Self-Employed Not Incorporated	No Answer	All
Average Trip Length	9.8	8.8	4.9	4.0	9.8	9.3
Average Time to Work	20.5	19.7	10.1	7.6	20.9	19.7

† For total workers

TABLE A-6. AVERAGE TRIP LENGTH† AND AVERAGE COMMUTE TIME FOR HOME TO WORK BY DRIVERS LICENSE CATEGORY‡ AND SMSA SIZE

	SMSA Size					
Have Drivers License	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
	Average Trip Length					
Yes	7.9	8.1	9.1	10.4	11.0	9.6
No	4.0	3.6	4.2	6.1	5.9	5.3
	Average Time					
Yes	17.1	17.1	18.9	21.9	25.4	20.9
No	15.8	14.8	19.0	23.5	27.1	22.7

† For all workers living inside SMSAs
‡ Data includes travel by all modes of transportation

TABLE A-7. PERCENT OF HOME-TO-WORK TRIPS BY MODE AND PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

Mode‡	Place of Residence						
	Outside SMSA			Inside SMSA			
	Under 5000	Over 5000	Average	Not in Central City	Within Central City	Average	All
Auto	71.7	77.0	74.3	79.9	75.8	78.2	76.8
Truck/RV/Van	20.9	14.9	17.9	10.8	7.4	9.1	11.9
Motorcycle/Moped	1.3	1.4	1.3	0.9	1.3	1.1	1.2
Bus	0.1	0.5	0.3	2.2	6.2	4.1	2.9
Train	0.1	0.0	0.1	0.9	0.6	0.7	0.5
Streetcar	0.0	0.0	0.0	0.1	0.2	0.1	0.1
Subway	0.0	0.0	0.0	0.3	2.0	1.1	0.8
Taxi (commercial use)	0.0	0.1	0.1	0.0	0.5	0.2	0.2
Bicycle	0.6	0.7	0.7	0.5	0.6	0.5	0.6
Walk	4.8	5.0	4.9	3.8	5.2	4.5	4.6
Other	0.5	0.4	0.4	0.6	0.2	0.4	0.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0†**

† Total person home-to-work trips = 41,226,000
‡ Auto includes: automobile, vanbus/minibus, and personal use taxi. Other includes: Airplane, school bus, and other.

TABLE A-8. PERCENT OF HOME-TO-WORK TRIPS BY MODE AND SMSA SIZE GROUP

Mode‡	SMSA Size					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
Auto	79.5	79.3	81.7	79.4	71.3	78.2
Truck/RV/Van	12.5	13.5	10.5	7.7	5.5	9.1
Motorcycle/Moped	0.6	1.5	1.2	1.3	0.8	1.1
Bus	1.7	1.7	3.0	4.4	7.4	4.1
Train	0.1	0.1	0.1	0.2	2.7	0.7
Streetcar	0.0	0.0	0.0	0.2	0.4	0.1
Subway	0.0	0.1	0.1	0.3	4.5	1.1
Taxi (commercial use)	0.5	0.1	0.1	0.2	0.4	0.2
Bicycle	0.7	0.7	0.5	0.5	0.4	0.5
Walk	4.0	2.9	2.5	5.2	6.2	4.5
Other	0.4	0.1	0.3	0.6	0.4	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0†

† Total person home-to-work trips = 28,256,000 (41,226,000 less 12,970,000 outside SMSAs)

‡ Auto includes: automobile, vanbus/minibus, and personal use taxi. Other includes: Airplane, school bus, and other.

TABLE A-9. AVERAGE HOME-TO-WORK TRIP LENGTH† (IN MILES) BY MODE AND PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

Mode‡	Place of Residence						
	Outside SMSA			Inside SMSA			
	Under 5000	Over 5000	Average	Not in Central City	Within Central City	Average	All
Auto	10.6	7.4	8.9	10.6	7.8	9.3	9.2
Truck/RV/Van	10.9	9.3	10.2	12.2	9.0	10.9	10.6
Motorcycle/ Moped	10.3	5.4	7.8	15.8	8.4	11.7	10.3
Bus	19.8	15.2	15.8	9.5	6.5	7.3	7.6
Train	63.2	44.2	59.0	28.5	13.8	22.7	24.2
Streetcar	5.0	—	5.0	4.9	4.0	4.2	4.3
Subway	15.0	—	15.0	12.3	9.3	9.7	9.7
Taxi (commercial use)	5.0	0.5	1.0	2.6	3.8	3.7	3.3
Bicycle	1.3	1.8	1.5	1.6	2.0	1.8	1.7
Walk	0.1	0.5	0.3	0.9	0.3	0.6	0.5
Other	12.9	59.4	35.0	78.0	84.8	79.7	64.4
Average Trip Length	10.2	7.8	8.9	10.9	7.8	9.3	9.2

† For all home-to-work person trips with distance known
‡ Auto includes: automobile, vanbus/minibus, and personal use taxi. Other includes: Airplane, school bus, and other.

TABLE A-10. AVERAGE HOME-TO-WORK TRIP LENGTH† (IN MILES) BY MODE AND SMSA SIZE GROUP

Mode‡	SMSA Size					
	Less than 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
Auto	7.3	7.8	8.5	10.6	10.1	9.3
Truck/RV/Van	9.2	9.8	8.7	11.6	16.5	10.9
Motorcycle/Moped	8.1	11.2	16.8	9.0	14.1	11.7
Bus	6.8	4.9	6.5	9.1	6.4	7.3
Train	58.0	80.0	35.0	15.6	21.1	22.7
Streetcar	—	—	—	5.6	3.5	4.2
Subway	—	5.0	7.0	10.0	9.7	9.7
Taxi (commercial use)	1.9	2.2	**	3.6	3.2	3.7
Bicycle	1.5	1.1	1.8	2.7	1.3	1.8
Walk	0.2	0.2	0.3	0.6	0.8	0.6
Other	91.2	**	76.9	77.4	92.6	79.7
Average Trip Length	7.6	7.9	8.5	10.4	10.2	9.3

† For all home-to-work person trips inside SMSAs
‡ Auto includes: automobile, vanbus/minibus, and personal use taxi. Other includes: Airplane, school bus, and other.
** Data insufficient for analysis.

TABLE A-11. PERCENT OF HOME-TO-WORK-TRIPS BY MODE AND OCCUPATION

Mode††	Occupation								
	Professional & Technical	Farmers & Farm Managers	Managers & Administrators	Sales & Clerical	Craftsmen	Operatives & Laborers	Service Workers	Retired	All
Private Vehicle Driver	80.4	83.0	86.4	76.8	86.0	72.5	66.1	87.2	72.7
Private Vehicle Passenger	9.7	10.0	6.4	12.9	9.2	19.3	17.3	5.6	17.8
Public Transportation	5.8	0.0	3.7	6.4	2.0	3.8	7.0	2.6	4.5
Other	4.1	7.0	3.5	3.9	2.8	4.4	9.6	4.6	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Trip‡ Length	10.4	6.4	9.8	8.6	11.4	9.2	7.3	5.7	9.2

† Total home-to-work person trips = 41,226,000

‡ For all work trips with distance known

†† Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE A-12. PERCENT OF HOME-TO-WORK TRIPS BY MODE, AGE AND SEX

Mode‡	Age									
	16-20		21-25		26-29		30-39		40-49	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Private Vehicle Driver	67.1	60.6	78.5	64.7	84.9	73.0	84.1	76.1	85.7	70.9
Private Vehicle Passenger	20.2	27.0	13.3	22.0	7.4	15.5	8.3	17.0	6.6	18.9
Public Transportation	2.8	4.4	4.5	6.5	4.4	6.8	4.3	4.6	3.3	5.1
Other	9.9	8.0	3.7	6.8	3.3	4.7	3.3	2.3	4.4	5.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Trip‡ Length	7.1	7.5	9.8	8.5	10.1	9.2	11.8	7.5	11.2	7.0

Mode‡	Age								All	Average Trip Length (miles)‡
	50-59		60-64		65-69		70 & Over			
	Male	Female	Male	Female	Male	Female	Male	Female		
Private Vehicle Driver	86.7	64.3	81.9	58.7	74.1	68.5	80.5	59.3	72.7	9.2
Private Vehicle Passenger	5.6	23.0	9.5	21.9	9.0	11.4	3.1	21.0	17.8	9.7
Public Transportation	4.1	6.0	4.4	11.3	5.7	14.2	11.2	5.0	4.5	14.5
Other	3.6	6.7	4.2	8.1	11.2	5.9	5.2	14.7	5.0	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†	9.2
Average Trip‡ Length	10.6	6.7	9.3	5.4	5.5	5.4	11.6	2.9	9.2	

† Total person home-to-work trips = 41,226,000
‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.
‡ For all work trips with distance known

TABLE A-13. PERCENT OF HOME-TO-WORK PERSON MILES OF TRAVEL BY MODE, AGE AND SEX

Mode‡	Age									
	16-20		21-25		26-29		30-39		40-49	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Private Vehicle Driver	65.1	55.4	74.1	68.9	86.2	60.6	84.1	73.6	86.2	70.9
Private Vehicle Passenger	29.9	31.7	18.2	22.6	9.1	15.7	10.8	20.2	10.0	22.4
Public Transportation	2.4	12.4	7.6	8.0	4.4	23.6	4.8	6.2	3.6	6.6
Other	2.6	0.5	0.1	0.5	0.3	0.1	0.3	0.0	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Mode‡	Age								All
	50-59		60-64		65-69		70 & Over		
	Male	Female	Male	Female	Male	Female	Male	Female	
Private Vehicle Driver	85.2	66.8	87.6	54.1	86.5	66.3	36.9	12.1	73.1
Private Vehicle Passenger	5.6	25.9	7.7	27.8	8.3	12.2	1.9	7.8	18.5
Public Transportation	8.1	6.0	4.0	17.6	5.2	21.4	61.1	79.9	7.9
Other	1.1	1.3	0.7	0.5	—	0.1	0.1	0.2	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total person miles of travel home-to-work = 376,378,000
‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE A-14. AVERAGE HOME-TO-WORK COMMUTE TIME† (IN MINUTES) BY MODE AND ANNUAL HOUSEHOLD INCOME

Mode‡	Annual Household Income							
	Less than $5,000	$5,000 to $9,999	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 or More	All
Private Vehicle Driver	15.7	17.4	18.4	19.2	19.8	19.8	17.6	18.6
Private Vehicle Passenger	18.9	19.3	19.3	20.0	20.9	22.0	17.0	19.6
Public Transportation	37.2	39.5	37.0	43.8	46.9	43.4	27.6	39.8
Other	9.1	11.4	10.1	9.7	18.4	10.2	8.0	10.1
Total	17.2	18.9	19.0	19.8	21.0	21.0	17.5	19.5

† For all home-to-work trips
‡ *Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private* use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE A-15. AVERAGE HOME-TO-WORK COMMUTE TIME† (IN MINUTES) BY MODE AND SMSA SIZE GROUP

Mode‡	SMSA Size					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
Private Vehicle Driver	16.2	16.6	18.6	21.0	22.4	22.8
Private Vehicle Passenger	17.2	17.6	17.9	22.4	24.8	20.4
Public Transportation	36.6	32.4	33.6	44.4	40.6	39.2
Other	10.9	8.9	23.8	8.3	10.4	10.6
Total	16.6	16.9	19.1	21.8	24.7	20.7

† For all home-to-work trips by persons living inside SMSA's

‡ Private vehicle includes: standard auto, station wagon, vanbus/minibus, camper coach, pickup, van, other truck, bicycle, private use taxi, motorcycle and moped. Public transportation includes: bus, train, streetcar, subway, airplane, and commercial use taxi and truck. Other includes: walk, school bus and other.

TABLE A-16. PERCENT OF WORKERS BY MODE AND AVAILABILITY OF PUBLIC TRANSIT WITHIN 2 MILES OF HOME

Mode*	Availability of Public Transit			Total
	Yes	No	NA	
Auto	59.7	37.2	3.1	100.0
Truck/Van/RV	42.2	55.4	2.4	100.0
Motorcycle/ Moped	46.2	49.0	4.8	100.0
Bus	97.2	2.6	0.2	100.0
Train	85.9	14.1	0.0	100.0
Streetcar	79.4	10.7	9.9	100.0
Subway	99.2	0.0	0.8	100.0
Taxi	79.2	20.8	0.0	100.0
Bicycle	63.5	31.0	5.5	100.0
Walk	66.9	30.3	2.8	100.0
Other	39.2	58.2	2.6	100.0
All Modes	58.8	38.3	2.9	100.0†

† Total workers = 79,214,000 (85,060,000 less 5,846,000 not reporting distance or time to work or those who do not work in a fixed place).

* Auto includes: automobile, vanbus/minibus and personal use taxi. Other includes: airplane, school bus, and other.

TABLE A-17. PERCENT OF WORKERS BY MODE AND DISTANCE FROM PUBLIC TRANSIT
(only reported by those indicating public transportation is available within 2 miles of home)

Mode	Distance from Public Transit					
	Less than ¼ Mile	¼ Mile - ½ Mile	½ Mile - 1 Mile	1 Mile - 2 Miles	Do not Know	Total
Auto	33.7	12.9	5.1	4.0	44.3	100.0
Truck/Van/RV	20.5	9.9	3.9	3.9	61.8	100.0
Motorcycle/Moped	24.2	14.8	2.2	1.2	57.6	100.0
Bus	77.7	13.8	1.7	1.8	5.0	100.0
Train	50.9	18.0	7.4	8.8	14.9	100.0
Streetcar	62.1	0.0	5.8	0.0	32.1	100.0
Subway	90.0	7.5	1.7	0.0	0.8	100.0
Taxi	59.9	5.5	0.0	5.5	29.1	100.0
Bicycle	37.8	16.6	4.4	3.9	37.3	100.0
Walk	50.9	7.0	3.1	2.2	36.8	100.0
Other	33.4	7.0	2.7	3.0	53.9	100.0
All	**34.6**	**12.0**	**4.6**	**3.8**	**45.0**	**100.0†**

† Total workers with public transportation available (46,578,000)

TABLE A-18. PERCENT OF PRIVATE VEHICLE HOME-TO-WORK TRIPS BY TRIP LENGTH AND SMSA SIZE GROUPS

Distance to Work (miles)	SMSA Size					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
5 and under	60.5	51.0	45.6	40.7	43.0	46.2
6 - 10	21.1	26.4	26.9	24.2	21.1	24.0
11 - 14	4.7	7.6	7.6	10.3	8.4	8.3
15 - 19	4.7	7.0	8.3	11.1	11.3	9.2
20 - 24	3.2	3.4	5.4	5.7	6.9	5.2
25 and over	5.8	4.6	6.2	8.0	9.3	7.1
Total	100.0	100.0	100.0	100.0	100.0	100.0†

† Total private vehicle home-to-work trips = 20,631,000 (30,246,000 less 9,615,000 outside SMSAs)

TABLE A-19. PERCENT OF PRIVATE VEHICLE MILES OF TRAVEL BY HOME-TO-WORK TRIP LENGTH AND PLACE OF RESIDENCE INSIDE OR OUTSIDE SMSAs

Distance to Work (miles)	Place of Residence						All
	Outside SMSA			Inside SMSA			
	Under 5,000	Over 5,000	Average	Not in Central City	Within Central City	Average	
5 and under	8.5	20.4	13.5	10.2	18.2	13.3	13.4
6 - 10	15.6	16.4	15.9	17.9	25.2	20.7	19.2
11 - 14	10.7	6.9	9.1	11.1	10.6	10.9	10.4
15 - 19	12.3	11.1	11.8	17.2	13.3	15.7	14.5
20 - 24	11.4	8.1	10.0	12.4	10.4	11.6	11.1
25 and over	41.5	37.1	39.7	31.2	22.3	27.8	31.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total private vehicle miles of travel home-to-work = 278,557,000

TABLE A-20. PERCENT OF PRIVATE VEHICLE MILES OF TRAVEL BY HOME-TO-WORK TRIP LENGTH AND NUMBER OF VEHICLES OWNED

Distance to Work (miles)	Number of Vehicles					
	None	One	Two	Three	Four or More	All
5 and under	7.8	15.8	12.7	12.4	13.8	13.4
6 - 10	26.4	22.7	18.1	19.4	17.4	19.2
11 - 14	4.0	10.0	10.4	11.2	9.5	10.4
15 - 19	10.4	14.6	14.4	13.3	17.3	14.5
20 - 24	5.2	10.3	11.9	10.0	11.5	11.1
25 and over	46.2	26.6	32.5	33.7	30.5	31.4
Total	100.0	100.0	100.0	100.0	100.0	100.0†

† Total private vehicle miles of travel home-to-work = 278,557,000

TABLE A-21. AVERAGE OCCUPANCY† BY HOME-TO-WORK TRIP LENGTH AND SMSA SIZE GROUP

Distance to Work (miles)	SMSA Size					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
5 and under	1.2	1.2	1.2	1.2	1.2	1.2
6 - 10	1.1	1.2	1.2	1.2	1.2	1.2
11 - 14	1.6	1.3	1.2	1.3	1.2	1.3
15 - 19	1.3	1.3	1.2	1.2	1.1	1.2
20 - 24	1.4	1.2	1.1	1.2	1.2	1.2
25 and over	1.5	1.8	1.2	1.3	1.4	1.4
Total	1.3	1.3	1.2	1.3	1.2	1.3

† For home-to-work trips by SMSA residents

TABLE A-22. AVERAGE OCCUPANCY† BY HOME-TO-WORK TRIP LENGTH AND ANNUAL HOUSEHOLD INCOME

Distance to Work (miles)	Annual Household Income							
	Less than $5,000	$5,000 to 9,999	$10,000 to 14,999	$15,000 to 24,999	$25,000 to 34,999	$35,000 to 49,999	$50,000 and Over	All
5 and under	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.2
6 - 10	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
11 - 14	1.3	1.4	1.3	1.3	1.3	1.3	1.1	1.3
15 - 19	1.3	1.4	1.3	1.2	1.2	1.1	1.1	1.2
20 - 24	1.4	1.1	1.2	1.3	1.3	1.1	1.1	1.2
25 and over	1.4	1.4	1.6	1.4	1.3	1.3	1.7	1.5
Average for All Trip Lengths	1.3	1.3	1.4	1.3	1.3	1.2	1.2	1.3

† For all home-to-work trips

TABLE A-23. AVERAGE OCCUPANCY† BY HOME-TO-WORK TRIP LENGTH AND VEHICLE OWNERSHIP

Distance to Work (miles)	Vehicle Ownership					
	None	One	Two	Three	Four or More	All
5 and under	1.3	1.2	1.2	1.2	1.1	1.2
6 - 10	1.4	1.3	1.2	1.2	1.2	1.2
11 - 14	1.0	1.5	1.2	1.1	1.4	1.3
15 - 19	2.3	1.4	1.2	1.2	1.1	1.2
20 - 24	2.0	1.3	1.2	1.2	1.4	1.2
25 and over	1.4	1.4	1.5	1.4	1.5	1.5
Total	**1.5**	**1.3**	**1.3**	**1.2**	**1.3**	**1.3**

† For all home-to-work trips

TABLE A-24. AVERAGE OCCUPANCY† BY NUMBER OF HOUSEHOLD ADULTS AND NUMBER OF HOUSEHOLD VEHICLES

Number of Household Adults	Number of Household Vehicles					
	None	One	Two	Three	Four or More	All
One	1.0	1.3	1.3	1.1	1.3	1.3
Two	1.7	1.4	1.3	1.3	1.3	1.3
Three	1.7	1.5	1.4	1.2	1.2	1.3
Four or More	1.2	1.4	1.5	1.2	1.3	1.3
Total	**1.5**	**1.3**	**1.3**	**1.2**	**1.3**	**1.3**

† For all home-to-work trips

TABLE A-25. PERCENT OF WORKERS BY REASON FOR NOT CARPOOLING AND ANNUAL HOUSEHOLD INCOME

Reason For Not Carpooling	Annual Household Income							All
	Less than $5,000	$5,000 to 9,999	$10,000 to 14,999	$15,000 to 24,999	$25,000 to 34,999	$35,000 to 49,999	$50,000 or More	
Irregular Work Hours	23.0	24.7	27.0	29.9	34.4	33.4	40.4	29.0
Irregular Work Location	3.7	3.3	3.8	3.4	4.9	4.8	2.6	3.7
Need Car for Work	4.3	3.8	4.5	5.7	7.3	7.4	10.5	5.4
Out of Way to Pick Up People	7.6	7.2	8.0	6.7	6.9	4.5	2.3	6.9
Riders Not Dependable	0.8	1.1	1.1	0.8	0.6	0.6	0.9	0.9
Prefer to Have Car Available	3.5	2.7	3.6	3.5	3.5	3.0	4.7	3.4
Like Privacy	1.3	2.3	2.1	1.7	2.0	1.8	1.1	1.9
Don't Know Anyone	22.2	23.3	22.1	22.2	18.2	18.3	18.5	21.6
Don't Trust Others Driving	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1
Don't Want to Call Others	0.8	0.6	0.7	0.7	0.3	0.2	0.4	0.6
Other	5.3	5.2	6.0	5.8	4.1	4.1	4.6	5.4
No Answer	27.5	25.7	21.0	19.6	17.7	21.9	14.0	21.1
Total Workers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total number of workers = 65,735,000 (79,214,000 less 13,479,000 in carpools)

TABLE A-26. PERCENT OF WORKERS BY REASON FOR NOT CARPOOLING AND OCCUPATION

Reason For Not Carpooling	Occupation								
	Professional & Technical	Farmers & Farm Managers	Managers & Administrators	Sales & Clerical	Craftsmen	Operatives & Laborers	Service Workers	Occupation or Work Status Unknown	All
Irregular Work Hours	31.3	35.5	35.4	26.4	27.0	23.6	36.3	31.0	29.0
Irregular Work Location	4.2	13.1	3.9	3.1	5.2	3.5	2.5	0.0	3.7
Need Car for Work	6.1	10.0	12.6	7.1	4.2	1.9	1.6	0.0	5.4
Out of Way to Pick Up People	7.3	2.2	5.2	7.6	8.1	6.4	6.5	0.0	6.9
Riders Not Dependable	0.7	0.0	0.2	0.9	1.0	1.4	0.7	0.0	0.9
Prefer to Have Car Available	4.3	0.0	3.6	4.1	3.0	2.7	2.3	7.4	3.4
Like Privacy	2.0	0.0	1.5	1.6	2.1	2.7	1.1	0.0	1.9
Don't Know Anyone	18.7	5.0	17.7	24.3	22.0	23.3	21.3	25.9	21.6
Don't Trust Others Driving	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1
Don't Want to Call Others	0.3	0.0	0.5	0.9	0.4	0.7	0.7	0.0	0.6
Other	6.0	17.0	5.7	5.4	4.8	4.6	6.5	0.0	5.4
No Answer	19.0	17.2	13.7	18.5	22.1	29.2	20.4	35.7	21.1
Total Workers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†

† Total number of workers = 65,735,000 (79,214,000 less 13,479,000 in carpools)

TABLE A-27. PERCENT OF WORKERS BY REASON FOR NOT CARPOOLING AND TYPE OF EMPLOYMENT

Reason For Not Carpooling	Type of Employment					All
	Private Company	Government	Self-Employed Incorporated	Self-Employed Not Incorporated	Working Without Pay	
Irregular Work Hours	28.9	27.5	39.6	37.3	19.5	29.0
Irregular Work Location	3.6	3.6	6.9	0.0	2.5	3.7
Need Car for Work	5.0	5.1	15.8	6.9	4.4	5.4
Out of Way to Pick Up People	7.0	7.7	1.9	0.0	5.8	6.9
Riders Not Dependable	1.0	0.7	0.0	0.0	0.0	0.9
Prefer to Have Car Available	3.2	4.3	3.1	0.0	4.9	3.4
Like Privacy	2.0	1.7	1.1	0.0	2.1	1.9
Don't Know Anyone	22.7	19.9	10.9	7.2	20.2	21.6
Don't Trust Others Driving	0.0	0.1	0.0	0.0	0.0	0.1
Don't Want to Call Others	0.6	0.6	0.6	0.0	0.0	0.6
Other	5.0	6.4	7.2	16.8	5.9	5.4
No Answer	21.0	22.4	12.9	31.8	34.7	21.1
Total Workers	100.0	100.0	100.0	100.0	100.0	100.0†

† *Total number of workers* = 65,735,000 (79,214,000 less 13,479,000 in carpools)

TABLE A-28. PERCENT OF HOME-TO-WORK PERSON TRIPS AND PERSON MILES OF TRAVEL (PMT) BY SMSA SIZE GROUP AND TIME OF DAY

SMSA Size	Time of Day							Total
	A.M.			P.M.				
	1:00-5:59	6:00-8:59	9:00-12:59PM	1:00-3:59	4:00-6:59	7:00-9:59	10:00-12:59AM	
	Person Trips							
Under 250,000	3.0	34.0	8.8	13.2	29.2	5.9	5.9	100.0
250,000 to 499,999	4.0	33.4	8.9	14.9	27.2	6.1	5.5	100.0
500,000 to 999,999	4.7	33.7	7.9	13.2	29.3	5.6	5.6	100.0
1 to 3 Million	3.7	34.9	8.0	13.7	29.1	5.1	5.5	100.0
Over 3 Million	4.5	34.6	8.3	11.5	30.4	6.0	4.7	100.0
All	4.0	34.2	8.4	13.3	29.0	5.7	5.4	100.0†
	Person Miles of Travel (PMT)							
Under 250,000	3.7	36.0	5.2	11.2	32.9	5.0	6.0	100.0
250,000 to 499,999	6.5	34.8	8.0	14.9	25.5	5.3	5.0	100.0
500,000 to 999,999	5.9	38.4	6.2	11.3	28.2	3.9	6.1	100.0
1 to 3 Million	5.6	36.5	5.6	13.9	24.9	4.4	9.1	100.0
Over 3 Million	5.8	39.6	9.9	9.9	25.7	5.5	3.6	100.0
All	5.6	37.3	7.0	12.4	26.6	4.7	6.4	100.0‡

† Total number of person home-to-work trips = 26,616,000 (41,226,000 less 14,610,000 outside SMSA's)
‡ Total person miles of travel for home-to-work = 213,288,000 (376,378,000 less 163,090,000 outside SMSA's)

TABLE A-29. PERCENT OF HOME-TO-WORK PERSON TRIPS AND PERSON MILES OF TRAVEL (PMT) BY SMSA SIZE AND DAY OF WEEK

SMSA Size (Population)	Day of Week							Total
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
				Person Trips				
Under 250,000	15.2	23.1	16.2	14.5	20.2	7.1	3.7	100.0
250,000 to 499,999	14.8	18.6	17.0	18.8	20.0	6.0	4.8	100.0
500,000 to 999,999	17.7	20.8	19.2	14.7	17.9	7.2	2.5	100.0
1 to 3 Million	16.0	17.7	18.1	20.8	18.6	6.6	2.2	100.0
Over 3 Million	16.4	16.3	19.8	22.2	16.9	5.9	2.5	100.0
All	**16.1**	**18.7**	**18.3**	**19.0**	**18.5**	**6.5**	**2.9**	**100.0†**
				Person Miles of Travel (PMT)				
Under 250,000	15.1	19.6	19.8	18.5	17.0	7.2	2.8	100.0
250,000 to 499,999	14.5	20.7	15.8	18.6	20.9	5.6	3.9	100.0
500,000 to 999,999	17.5	25.5	20.2	13.0	15.3	6.3	2.2	100.0
1 to 3 Million	20.9	17.0	15.7	18.2	20.6	5.2	2.4	100.0
Over 3 Million	15.7	14.5	20.7	22.9	15.6	8.4	2.2	100.0
All	**17.6**	**18.4**	**18.2**	**18.6**	**18.3**	**6.4**	**2.5**	**100.0‡**

† Total number of person home-to-work trips = 26,616,000 (41,226,000 less 14,610,000 outside SMSA's)
‡ Total person miles of travel for home-to-work = 213,288,000 (376,378,000 less 163,090,000 outside SMSA's)

TABLE A-30. PERCENT OF VEHICLE TRIPS BY NUMBER OF OCCUPANTS FOR WORK TRIPS AND ALL TRIPS

Number of Occupants	Home-to-Work Trips	All Purposes
1	83.7	59.9
2	12.0	24.7
3	2.9	8.2
4	0.9	4.4
5	0.3	1.7
6+	0.2	1.1
Total	**100.0**	**100.0**

APPENDIX B

SURVEY PROCEDURES AND DATA PROCESSING

BACKGROUND

The 1977 NPTS was conducted by the Bureau of the Census under the joint sponsorship of the Federal Highway Administration, and the National Highway Traffic Safety Administration of the Department of Transportation (DOT), as part of the expanded scope of the National Travel Program. The National Travel Program is part of the Census of Transportation, which is conducted every 5 years by the Bureau of the Census and includes the National Travel Survey (NTS). In 1977, the National Travel Program also included the 1977 NPTS and provided profiles of the volume and characteristics of travel by the civilian population.

SAMPLE DESIGN

The 1977 NPTS was based on a national probability sample of 24,466 households selected from each of the 50 States and the District of Columbia and representing the total civilian noninstitutional population of the United States. Of the 24,466 households, 3,433 units were found to be vacant, demolished, converted to nonresidential use, or otherwise ineligible for the survey. Some 3,084 households were not interviewed because the occupants were not at home after repeated calls, refused to participate in the survey, or were unavailable for some other reason.

All of the sample units consisted of households that had previously been interviewed for the Current Population Survey (CPS). The CPS is a stratified multistage cluster sample. In the first stage, the United States was divided into 1,030 primary sampling units (PSU's) consisting of counties, groups of counties, or independent cities, which were grouped into 376 strata. Among these strata, 156 consisted of a single PSU, designated as self-representing (SR) areas, and generally contained the larger metropolitan areas. The remaining 220 contained one or more PSU's that are relatively homogeneous according to socioeconomic characteristics. From each stratum, a single PSU was selected for the sample with a probability proportionate to its 1970 Census population. These PSU's are referred to as nonself-representing (NSR). The CPS portion of the NPTS was selected from these 376 PSU's (156 SR and 220 NSR).

METHODOLOGY

As indicated previously, the 1977 NPTS was conducted as part of the expanded scope of the National Travel Program which also included the National Travel Survey (NTS). The NTS/NPTS included a common sample of 13,365 households interviewed from April to November 1977 and January 1978. These households were referred to as the basic sample,

and were interviewed four times for NTS data and once for NPTS data. An additional 4,584 addresses, referred to as the supplemental sample, were divided into three equal parts and were interviewed in December 1977, February 1978, and March 1978. This arrangement spread the total NPTS data collection over a 12-month period from April 1977 to March 1978, with approximately 1,500 households to be interviewed each month.

The households within each monthly sample were divided into 14 equal parts, with each part assigned to one of the first 14 days of the interview month. The assigned day was referred to as the designated travel day. In addition, each household was interviewed for trips of 75 miles and longer for the 14 days preceding the travel day; this was referred to as the 14-day travel period. Thus each household was interviewed for trips and travel during a 15-day period.

DATA PROCESSING

The major steps performed by the Bureau of the Census for the 1977 NPTS included clerical editing and coding of the NTS-2 Questionnaire (Sections I-VI); the NTS-2A (Section VII) was edited and coded by the FHWA DOT personnel; full transcription of the data to magnetic tapes; computer edit of the data to ensure completeness and consistency; calculation of the weighting factors for each household; and computation of variance and calculation of statistical reliability of the data. The data was tabulated upon receipt of the edited, weighted data tapes from the Bureau of the Census.

SPECIAL TABULATIONS

There are some applications that require the use of data items on the Census file, such as those related to place of residence of individual respondents, that cannot be included on the public use tape without possible disclosure of the individual respondents. If disclosure can be avoided, the Bureau of the Census will undertake special tabulations in accordance with its policy that "Special tabulation or transcriptions of data in the files of the Bureau of the Census will be undertaken on a cost basis, insofar as Bureau facilities are available. Those requesting special tabulations should understand that the data are based on surveys paid for by public funds and, therefore, are public property. The purpose for which such tabulations are obtained must not be contrary to the public interest, or be used to give unfair commercial or other advantage to any person or group."

Requests for special tabulations should be addressed to:

Chief, Demographic Surveys Division
Bureau of the Census
Washington, D.C. 20233

SUBJECT AREAS PLANNED FOR 1977 NPTS REPORTS

The following is a list of subject areas for which 1977 NPTS reports are presently planned. The sequence does not necessarily indicate the order in which the reports will be prepared and published. This is not a list of actual reports or report titles, but rather a list of subject areas. It is offered as an indication of current plans as well as to give transportation researchers and planners a general indication of the variety and scope which the 1977 NPTS data encompasses. For those reports that have been published, the correct title, report number and publication date are shown.

Licensed drivers: Characteristics of 1977 Licensed Drivers and Their Travel (Report 1, October 1980)

Private vehicles--ownership and physical characteristics

Purpose of trips and travel

Home-to-work trips and travel

Vehicle occupancy

Vehicle utilization

Travel and the family life cycle

Multi-occupant vehicle travel--public and private

Rural vs. urban travel

Mapping as a travel data collection technique

Survey description and tables of variance

Discretionary travel

Household travel rates

Person-trip characteristics

SURVEY QUESTIONNAIRE

Copies of the NPTS Survey Questionnaire are available upon written request from:

Office of Highway Planning (HHP-44)
Federal Highway Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

APPENDIX C

NPTS PUBLIC USE TAPE REQUEST

Single copies of the tapes are available through the Federal Highway Administration (FHWA).

For governmental agencies and educational institutions, there is no charge for tape copying. If no tapes are furnished with the request, there is a $25 charge for each tape provided by FHWA.

For private individuals and all nongovernment or noneducation organizations, there is a $36 charge per tape copied. In addition, if no tapes are forwarded with the request, there is an added charge of $25 for each tape provided by FHWA.

- All tapes provided to FHWA should be 9-track.
- Appropriate user documentation will be provided with each request.

All orders should be documented on the attached form and should clearly indicate:

1. Which (or all) of the four (4) quarters of data that are desired.
2. Name and/or title of the individual or organization making the request.
3. Number of tapes, if any, included with the request (or being shipped separately).
4. Amount of payment enclosed if applicable.

All checks and money orders should be made payable to Federal Highway Administration. Request and payment should be forwarded to:

Federal Highway Administration
Highway Statistics Division
HHP-44 (NPTS)
400 Seventh Street, S.W.
Washington, D.C. 20590

NPTS Public Use Tape Request

1. Data desired

   Tape 1 - First Quarter ( )
   Tape 2 - Second Quarter ( )
   Tape 3 - Third Quarter ( )
   Tape 4 - Fourth Quarter ( )
   Tapes 1-4 - All Quarters ( )

2. Number of tapes submitted

   None (tape payment included) ( ); 1 tape ( ); 2 tapes ( ); 3 tapes ( ); 4 tapes ( )

3. Method of tape submittal

   With order ( )
   Under separate cover ( )

4. Type of tape labeling desire

   Standard IBM labels ( )
   No labels ( )

5. Recording density (9-track)

   800 BPI ( )
   1600 BPI ( )

6. Type of organization, Name and Address

   Educational ( ) Government ( )
   Private Organization ( ) Private Individual ( )
   Other (specify) ( )

   Name _____
   Title _____
   Organization _____
   Address _____
   City, State, Zip _____

7. Total fee enclosed

   Tape copy on user furnished tape(s),_____quarters @ $36 per quarter $_____

   Tape copy on FHWA furnished tape(s),_____quarters @ $61 per quarter $_____

8. Payment enclosed as

   Money order ( )

   Check ( )

APPENDIX D

GLOSSARY OF TERMS USED IN NPTS

This glossary is provided to assist the user in the interpretation of the data.

Airport: A commercial facility that services regularly scheduled airlines.

Carpool: A regularly scheduled traveling arrangement whereby two or more persons ride together in the same vehicle, sharing the driving and/or the cost of the trip, or simply riding together regularly with one or more persons doing the driving. If two or more household members regularly ride to work in the same vehicle, it is also considered a carpool.

Central City: A city of 50,000 inhabitants or more in the 1970 Census or twin cities i.e., cities with contiguous boundaries and constituting, for general social and economic purposes, a single community with a combined population of at least 50,000, and with the smaller of the twin cities having a population of at least 15,000.

Destination: For travel period trips, the destination is the farthest point of travel from the point of origin of a one-way trip of 75 miles or more.

In travel day trips, the destination is the point at which there is a break in travel.

Driver: 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. If one or more household members share the driving, the percent of driving done by each household member is recorded separately. If nonhousehold members share the driving, the total percent of driving done by all nonhousehold members is recorded.

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 is that which advances a person toward an elementary or high school diploma, or a college, university or professional school degree.

Employed: A person is considered employed if there is a definite arrangement for regular full-time or part-time work for pay every week or every month. A formal, definite arrangement with one or more employers to work a specified number of hours a week, or days a month, but on an irregular schedule during the work month is also considered employment. A person who is on call to work whenever there is a need for his (her) services, is not considered employed.

Family Income: The money income of all persons in a household, including those temporarily absent. Includes wages and salary (before deductions), commissions, tips, cash bonuses; net income from a person's own (unincorporated) business, professional practice, or farm (gross receipts minus business expenses); 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. Excludes income in kind, such as room and board, insurance payments, lump-sum inheritances, occasional gifts of money from persons not living in the same household, money received from selling one's house, car, or other personal property, withdrawal of savings from banks, and tax refunds.

Federal-aid rural area: Any area outside of federal-aid urban areas.

Federal-aid urban area: An urban place of 5,000 or more population as determined by the Bureau of the Census.

Freeway, tollway, or expressway: A divided arterial highway for through traffic with full or partial control of access and grade separations at major intersections.

Head of household: The one person who is regarded as the head by the members of the household. In most cases the husband is the head, if living in the household. In some cases, the head may be a parent of the chief wage earner or the only adult member of the household. An Armed Forces member is considered as the head only if he lives at home and is a household member. Only one head is designated for each household.

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 noninstitutionalized population.

Household trip: One or more household members traveling together.

Household vehicle: A motorized vehicle that is owned, leased, rented or company owned and left at home to be regularly used by household members during the reference period. Includes vehicles used solely for business purposes if kept at home, e.g., taxicabs, police cars, etc., which may be owned by, or assigned to, household members for their regular use. Includes vehicles brought home by a car sales person or auto mechanic, only if the vehicle was available for use by him (her) during the entire reference period. Includes all vehicles that were owned or available for use by members of the household during the reference period even though a vehicle may have been sold before

the interview. Excludes vehicles that were not working and not expected to be working within 60 days, and vehicles that were purchased or received after the designated travel day.

Licensed driver: Any person who holds a valid driver's license from any State.

Means of transportation: A personal mode used for going from one place (origin) to another (destination). Includes private and public motorized modes, as well as walking. For all travel day trips, each change of mode constitutes a separate trip. The following personal transportation modes are included:

-- Automobile: A privately owned and/or operated licensed motorized vehicle including cars, jeeps, dune buggies and stationwagons. Also includes leased and rented cars if they are privately operated and not picking up passengers in return for fare.

-- Vanbus/Minibus: Privately owned and/or operated vans and buses designed to carry from 5-13 passengers.

-- Pickup truck/other van: A small open-body motorized vehicle, privately owned and/or operated, with four to six tires, built on a chassis comparable to that of a passenger car. Accommodates fewer than five passengers. Includes travel trucks (service trucks) when they are not being used for commercial purposes.

-- Other truck (personal use): The private use, either as a passenger or driver, of all other types of trucks, i.e., dump trucks, trailer trucks, etc., when they are not being used for commercial purposes.

-- Motorcycle: Includes large, medium and small motorcycles. Does not include minibikes, etc., which can not be licensed for highway use.

-- Self-contained recreational vehicle: Includes recreational vehicles that are operated as a self-contained unit without being hitched to another vehicle: for example, a motor home.

-- Taxi (personal use): The use of a passenger vehicle either by a driver or a passenger, which does not involve the duties of a professional driver for the payment of a fare by a passenger.

-- Bus: Includes intercity buses, etc.; mass transit systems and shuttle buses that are available to the general public. Also includes senior citizen buses or similar bus services that are available to the public. Does not include shuttle buses operated by a government agency or private industry for the convenience of employees, contracted or chartered buses or school buses. These latter types are included in "other."

-- Train: Includes commuter trains and passenger trains other than elevated trains and subways.

-- Streetcar: Includes trolleys, streetcars, and cable cars.

-- Elevated rail or subway: Includes elevated train and subway trains.

-- Airplane: Includes 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 (commercial use): The use of a taxicab by a driver for hire or by a passenger for fare. Also includes airport limousines. Does not include rental cars if they are privately operated and not picking up passengers in return for fare.

-- Truck (commercial use): Includes the commercial use, either as a driver or a passenger, of pickups, dump trucks and trailer trucks being operated for business-related purposes.

-- Bicycles: Includes bicycles of all speeds and sizes and minibikes.

-- Walk: Includes jogging, walking etc., provided the origin and destination are not the same.

-- Schoolbus: Includes county school buses, private school buses, and buses chartered from private companies for the express purpose of carrying students to or from school and/or school-related activities. Does not include school buses chartered or reserved for other trips, such as church outings; these are included under "other."

-- Motorized bicycle/(often called a Moped): Includes bicycles equipped with both pedals and a small engine, typically a horsepower or less.

-- Other: Includes any types of transportation not included above.

Motorized vehicle: Includes all vehicles that are licensed for highway driving. Specifically excluded are snowmobiles, minibikes, etc.

Origin: Starting point of a trip.

Owned vehicle: Includes all vehicles that one or more household members have purchased for private use regardless if paid for in full, or a gift or legacy to a household member for private use.

Passenger: For a specific trip, any occupant of a motorized vehicle other than the driver.

Person (household member): All people, whether present or temporarily absent, whose usual place of residence is the sample unit, or people staying in the sample unit who have no other usual place of residence elsewhere.

Person miles: A measure of person travel. When one person travels one mile, one person mile of travel results. Where two 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 five miles in the same vehicle, make 4 times 5 vehicle miles or twenty person miles.

Person nights: The number of nights spent by each person away from home on a travel period trip. For example, two persons on a trip spending 5 nights away from home would result in ten person nights.

Person trip: A unit of person travel. When two or more persons travel together in the same vehicle, each person is counted as making one person trip.

Rural area: Any area outside of an urban place.

Standard Metropolitan Statistical Area (SMSA): Except in the New England States, a standard 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 SMSA if, according to certain criteria, they are socially and economically integrated with the central city. In the New England States, SMSA's consist of towns and cities instead of counties.

Station wagon: A passenger vehicle, having an enclosed body of paneled design with two or more seats, where the rear seats can be removed or folded down to create larger luggage or freight compartments.

Stop: For travel period trips, a break in travel other than for gasoline, rest and food. For travel day trips, each stop is treated as a separate trip.

Train station: A depot where regularly scheduled trains may be boarded for travel to cities at least 30 miles away.

Travel day: A 24-hour period from 4:00 a.m. to 3:59 a.m. designated by the Bureau of the Census as the reference period for studying trips and travel of a particular household.

Travel period: The 14 days immediately preceding the travel day of a household.

Traveler: A person reporting a travel day and/or travel period trip(s).

Traveling houshold: A household reporting at least one travel day and/or travel period trip.

Trip(travel day): A travel day trip is defined as any one-way travel from one address (place) to another by private motor vehicle, public transportation, bicycle, or walking. Jogging and walking for exercise are excluded. When travel is to more than one destination, a separate trip exists each time one or both of the following criteria is satisfied:

a. The traveltime between two destinations exceeds 5 minutes.

b. The purpose for travel to one destination is different from the purpose for travel to another.

The one exception is travel within a shopping center or mall. It is to be considered travel to one destination, regardless of the number of stores visited.

Trip(travel period): A travel period trip is one-way to a destination which is 75 miles or more from place of origin.

Trip duration: For travel period trips, the number of nights spent away from home on a single trip, including time (nights) spent enroute and at the destination. For travel day trips, usually measured in minutes.

Trip purpose: The main reason that motivated the trip. For purposes of this survey, there are 21 trip reasons. If there are more reasons than one, 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. The 21 trip reasons are defined as follows:

-- To place of work: Includes travel to a place where one reports for work. It does not include any other work-related travel.

-- Work-related business: Trips related to business activities except to the place of work; for example, a plumber drives to a wholesale dealer to purchase supplies for his business.

-- Convention: Trips made to attend business, professional, special interest, and other types of conventions.

-- Civic/Education/Religious: Trips to political rallies, legislative hearings, voting places, etc.; to school, college, or university for class(es), PTA meetings, seminars, etc.; to church services or to participate in other religious activities. Social activities that take place at a church or school are not classified as religious or educational.

-- Eat meal: Trips taken to eat a meal in a public place. Trips taken to a friend's house for dinner are classified "visit friends or relatives."

-- Doctor or dentist: Trips made for medical, dental or psychiatric treatment or other related professional services.

-- Shopping: Includes "window shopping" and purchases of commodities such as groceries, furniture, textiles, etc., for use or consumption elsewhere.

-- Family or personal business: Trips taken to attend organized functions of the family or friends, such as weddings, graduations, reunions, etc. Includes purchase of services such as cleaning garments, beauty parlor treatments, servicing of an auto, etc.

-- Visit friends or relatives: Trips made to visit friends or relatives but not prompted by organized family affairs or an emergency.

-- Pleasure driving: Includes driving trips made with no other purpose listed here but to "go for a drive" with no destination in mind: for example, a Sunday drive in the country.

-- Sightseeing: Trips taken to sightsee or tour with a particular place planned to visit. This distinguishes "sightseeing" from "pleasure driving."

-- Entertainment: Trips taken to go to a movie, the theatre, opera, concert, discotheque, cabaret, spectator sports, such as a ball game, races, track meet, or an amusement park.

-- Recreation (participant): Trips taken to participate in sporting or outdoor activities, such as fishing, hunting, golf, swimming, picnicking, skiing, skating, bowling, basketball, etc.

-- Vacation: Trips reported by the respondent as "vacation."

-- Change of vehicle: Trips made specifically to change from one vehicle to another within the same "means of transportation" category. (For example, transferring from one bus to another, one plane to another, or from one passenger car to another.)

-- Pick up or leave off passenger: Trips that are made to serve a passenger. For example, a trip by Mrs. Columbo to pick up her mother and drive her to the store on travel day would be reported as two trips: the trip to her mother's home for the purpose of picking up a passenger and the trip to the store for the purpose of shopping. If Mr. Hersholt drives from Washington to Chicago during the 14-day travel period and

stops in Baltimore to pick up his son, the purpose of his first stop on his trip to Chicago will be reported in Part B of Section VI as "picking up a passenger."

-- Return home: The trip made to the residence of the respondent at the time of the trip. In the case of a college student who lives on campus and is interviewed at school, trips to the dormitory or other living quarters on campus are considered "return home."

-- Lodging: Trips made for the purpose of taking overnight accommodations. This category is also used in lieu of "return home" when return trips are to this lodging.

-- Social: Trips taken to enjoy some form of social activity involving friends or acquaintances, such as a party, playing cards, dancing, etc.

-- Other: Any purpose for a trip that does not fit into one of the above categories.

Type Z noninterview: A person in an interviewed household for which trip information is incomplete but certain demographic information is available.

Vehicle mile: A unit to measure vehicle travel made by a household vehicle: automobile, vanbus/minibus, pickup truck/other van, other truck (personal use), motorcycle, self-contained recreational vehicle, and taxi (personal use).

Vehicle occupancy: The number of persons, including driver and passenger(s) in a vehicle; also includes persons who did not complete a whole trip.

Vehicle trip: For purposes of this study, a vehicle trip is a trip made in a private vehicle regardless of the number of persons in the vehicle.

Vehicle type: For purposes of the study, one of the 12 vehicle types used for coding purposes in the household motorized vehicle record of the NTS-2 Questionnaire.

Urban place: Defined by the Bureau of the Census as follows:

a. A place of 2,500 inhabitants or more incorporated as a city, borough, village, or town, (except towns in New England, New York, and Wisconsin);

b. The densely settled fringe, whether incorporated or not, of urbanized areas;

c. Towns in New England and townships in New Jersey and Pennsylvania that contain no incorporated municipalities as subdivisions and have either 25,000 inhabitants or more, or a

population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile;

d. Counties in States other than the New England States, New Jersey, and Pennsylvania that have no incorporated municipalities within their boundaries and have a density of 1,500 persons or more per square mile; or

e. Unincorporated places of 2,500 inhabitants or more.

Urbanized area: Defined by the Bureau of the Census as:

1. Any area made up of:

a. A central city of 50,000 inhabitants or more in 1960, or in a special census conducted by the Census Bureau since 1960, or in the 1970 census; or

b. Twin cities, i.e. cities with contiguous boundaries and consistuting for general social and economic purposes, a single community with a combined population of at least 50,000 and with the smaller of the twin cities having a population of at least 15,000.

2. Surrounding closely settled territory, including the following (but excluding the rural portions of extended cities):

a. Incorporated places of 2,500 inhabitants or more.

b. Incorporated places with fewer than 2,500 inhabitants provided that each has a closely settled area of 100 housing units or more.

c. Small parcels of land, normally less than one square mile in area, having a population density of 1,000 inhabitants or more per square mile. The areas of large nonresidential tracts devoted to such urban land uses as railroad yards, airports, factories, parks, golf courses, and cemeteries are excluded in computing the population density.

d. Other similar small areas in unincorporated territory with lower population density provided that they serve

- to eliminate enclaves, or
- to close indentations in the urbanized areas of one mile or less across the open end, or
- to link outlying enumeration districts of qualifying density that are not more than 1½ miles from the main body of the urbanized area.

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