

**NATIONWIDE  
PERSONAL  
TRANSPORTATION  
STUDY**

**Automobile Occupancy**

**REPORT NO. 1**  
APRIL 1972

U. S. Department of Transportation / Federal Highway Administration

NATIONWIDE PERSONAL TRANSPORTATION SURVEY

Automobile Occupancy

Report No. 1

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April 1972



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FEDERAL HIGHWAY ADMINISTRATION  
WASHINGTON, D.C. 20591

INTRODUCTION

The following report presents data concerning current automobile occupancy<sup>1/</sup> rates and relates these figures to the major purpose of the trip<sup>2/</sup> and to several other selected variables. These data, compiled from the Nationwide Personal Transportation Survey, represent the most complete national review of automobile occupancy to date.

Automobile occupancies taken from these data, while not only giving new perspective to urban problems, may also be useful as a basis for the computation of estimated passenger miles of travel. Furthermore, estimates of generated automobile traffic may be derived from these figures as, for example, the effect of a new office building or factory may be calculated when the number of workers is known.

DESCRIPTION OF THE DATA

Data collected in this survey included automobile trips, number of occupants on each trip, passenger-miles, and vehicle-miles, all from which average occupancy rates were computed and primarily grouped according to the major purpose of the trip. There were four primary groupings from which more specific secondary groupings were taken. The four primary categories for purpose were: (1) earning a living; (2) family business; (3) educational, civic, and religious; and (4) social and recreational.

In addition to the classification of trips, etc., by purpose, further analyses were made for five selected variables. The variables examined were residence of principal operator of the vehicle, both for incorporated places and unincorporated areas; population groupings of the standard metropolitan statistical areas; day of the week; the length of the trip; and, finally, time of day by hour that the trip was started.

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<sup>1/</sup> For this section of the survey, the driver was counted as an occupant.

<sup>2/</sup> A trip is defined as any travel from one place to another (one-way) by motor vehicle that ends on the travel day (4:00 a.m. on the reference day to 3:59 a.m. the following day).

### HIGHLIGHTS

- . Average car occupancy for all trip purposes combined was found to be 1.9 occupants per trip.
- . Average car occupancy varied from a high of 3.3 occupants per trip for "vacation trips" to a low of 1.4 occupants per trip for "to and from work" trips.
- . Average car occupancy generally increases with increasing trip length.
- . Average occupancy per automobile trip shows occupancy to be higher on weekends.
- . One-occupant trips represent 50.2 percent of all trips.
- . Approximately 73.5 percent of trips "to and from work" were in one-occupant cars.

## BACKGROUND AND PROCEDURES

### Background

The Nationwide Personal Transportation Survey was designed to obtain up-to-date information on national patterns of travel. Earlier surveys, limited primarily to automobile and truck travel, were conducted in a number of States between 1930 and 1940 and more recently between 1951 and 1959. In April 1961, a survey was conducted to determine on a national basis characteristics of travel and ownership and use of automobiles. In addition, in this national survey in 1961, family income data were available which could be related to travel patterns.

### Survey procedures

Data for the Nationwide Personal Transportation Survey were collected in 1969-1970 by the Bureau of the Census of the Department of Commerce for the Federal Highway Administration of the Department of Transportation.

The survey was based on a multi-stage probability sample of housing units located in 235 sample areas, comprising 485 counties and independent cities, representing every State and the District of Columbia. The 235 sample areas were selected by grouping all the Nation's counties and independent cities into about 1,900 primary sample units (PSU's) and further forming 235 strata of one or more PSU's that are relatively homogeneous according to socio-economic characteristics. With each of the strata, a single PSU was selected to represent the stratum. Within each PSU, a probability sample of housing units was selected to represent the civilian non-institutionalized population.

The households in the Nationwide Personal Transportation Survey comprised two outgoing panels in the Quarterly Housing Survey (QHS) conducted by the Bureau of the Census. One panel was interviewed in April, July, and October 1969, and January 1970; the second panel was interviewed only once in August 1969.

Experienced field staff of the Bureau of the Census were assigned to the survey. Training consisted of a one-day session for field supervisors by Washington office personnel, and a one-day session of training of the interviewers by field supervisors. In addition, interviewers were assigned home-study exercises to be turned in before each interview period. The interviewers were also observed periodically by field office personnel.

The completed questionnaires were edited first in the Census regional field offices to clear up inconsistencies and omissions and later in the Washington office. The questionnaires were then edited, coded, etc., before being put on tapes. Edited tapes for each month of the

survey were furnished to the Federal Highway Administration for processing.

At the first visit to a selected household, in panel 1 during April 1969, and in panel 2 during August 1969, Sections I through VII of the household questionnaire were completed as well as a control card. On the control card were entered data on characteristics of the household such as income, automobile ownership, and age and sex of persons in the households. Only Sections VI and VII were completed at subsequent interviews at the households in panel 1.

Each of the tables in this report will indicate a reference source to a particular table from which the sample base can be determined. These sample bases are identified in Appendix A. A copy of the questionnaire is also found in the Appendix.

### Sampling variability

The Nationwide Personal Transportation Survey is based on a probability sample and the estimates are subject to sampling variability. The term "sampling variability" refers to the expected differences between the results of the survey and those that would have been obtained had a complete census been taken.

Some items such as person or household characteristics or number of vehicles were collected only during the first visit to a household in April or in August. Standard errors of estimates and measures of sampling variability were calculated from data collected those two months. Estimates of the standard errors for characteristics of vehicle trips and vehicle miles were determined from variance functions fitted to the data collected during the five months of interviewing.

Most of the data are presented as percentage distributions. The base value of each 100 percent figure is also indicated. Tables IV.-1 and IV.-2 in Appendix B give the standard errors for specified percentages and base values. The appropriate standard error of estimate may be determined by interpolation. In general, the chances are about two out of three that the difference due to sampling variability between the estimated data and the figure that would have been obtained from a complete census does not exceed the standard error.

### Other possible sources of error

In addition to variability arising from the use of samples and household responses, errors may have been made by interviewers or by other personnel involved in the collection and processing of data. Quality controls at all levels of data collection and processing were exercised by the Bureau of the Census.

## CHARACTERISTICS OF OCCUPANCY RATES

### Occupancy by purpose

In this survey the occupancy for all purposes (all places and areas combined) was found to be 1.9 occupants per trip (see table 1 and figure 1). The occupancy per trip of the four primary purpose divisions varied from a high of 2.5 for "social and recreational" and "educational, civic, and religious" purposes, to a low of 1.4 occupants per trip for "earning a living" trips. The high for any one subdivision was 3.3 occupants per trip for "vacation" trips, while the low was 1.4 for trips made "to and from work."

Occupancy weighted by passenger-miles and vehicle-miles was also computed. The occupancy in passenger-miles per vehicle-mile for "all purposes" was 2.2 (see table 1). The highest occupancy for a primary division was 2.9 passenger-miles per vehicle-mile for "social and recreational" trips, and the lowest was 1.6 for trips related to "earning a living." Values for the purpose subdivisions ranged from 3.3 passenger-miles per vehicle-mile for "vacation trips" to 1.6 for "to and from work" trips.

### Occupancy by population group and purpose

Generally, occupancy of automobiles seemed to be slightly higher in unincorporated areas than in incorporated places. These data are shown in table 1. Residents of unincorporated areas reported 2.0 occupants per trip for trips for "all purposes" combined. The corresponding average for incorporated places was 1.9 occupants per trip. Interestingly, occupancy weighted by passenger-miles per vehicle-mile was equal in both incorporated and unincorporated areas at 2.2.

The major exception to this general relationship was in the category of "social and recreational" trips. Excluding "vacation" trips, which were a small percentage of the total trips, occupancy in incorporated places was higher than or equal to occupancy in unincorporated areas. The largest difference was in "pleasure" trips where incorporated outranked unincorporated 2.8 to 2.5 occupants per trip.

Two other points should be noted. First, occupants per trip for the "family business" category averaged nearly 2.0 for all subdivisions. Secondly, some of the minor differences between the averages may be due to sampling variability rather than any real difference in occupancy rates.

### Occupancy by SMSA and purpose

Table 2 shows the average occupancy for trips by the residents of the various standard metropolitan statistical area (SMSA) size groupings. Generally, there appears to be no clear relationship between SMSA size and occupants per trip for any given trip purpose.

Table 1.--Average occupancy in automobile trips classified by major purpose of travel and by place of residence

Place of residence	Major purpose of trip													
	Earning a living			Family business			Educational, civic, and religious		Social and recreational			All purposes		
	To and from work	Related business	Total	Medical and dental	Shopping	Other	Total	Vacation	Visits to friends or relatives	Pleasure rides	Other			
													Total	
All incorporated places	1.4	1.6	1.4	2.0	2.0	1.9	1.9	2.6	*	2.3	2.8	2.6	2.5	1.9
All unincorporated areas	1.4	1.7	1.5	2.3	2.1	2.0	2.1	2.5	*	2.3	2.5	2.6	2.4	2.0
All places and areas	1.4	1.6	1.4	2.1	2.0	1.9	2.0	2.5	3.3	2.3	2.7	2.6	2.5	1.9
Occupancy - Passenger miles per vehicle-mile														
All incorporated places	1.5	1.6	1.5	2.1	2.2	2.2	2.2	2.4	*	2.7	3.2	3.0	2.9	2.2
All unincorporated areas	1.6	2.0	1.7	2.9	2.3	2.2	2.4	2.6	*	2.6	2.5	2.9	2.8	2.2
All places and areas	1.6	1.7	1.6	2.6	2.2	2.2	2.3	2.5	3.3	2.7	3.0	3.0	2.9	2.2

\* Data insufficient for analysis.

SOURCE: Based upon unpublished table P-8 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.



**Figure 1 - AVERAGE AUTOMOBILE OCCUPANCY CLASSIFIED BY PURPOSE OF TRIP**

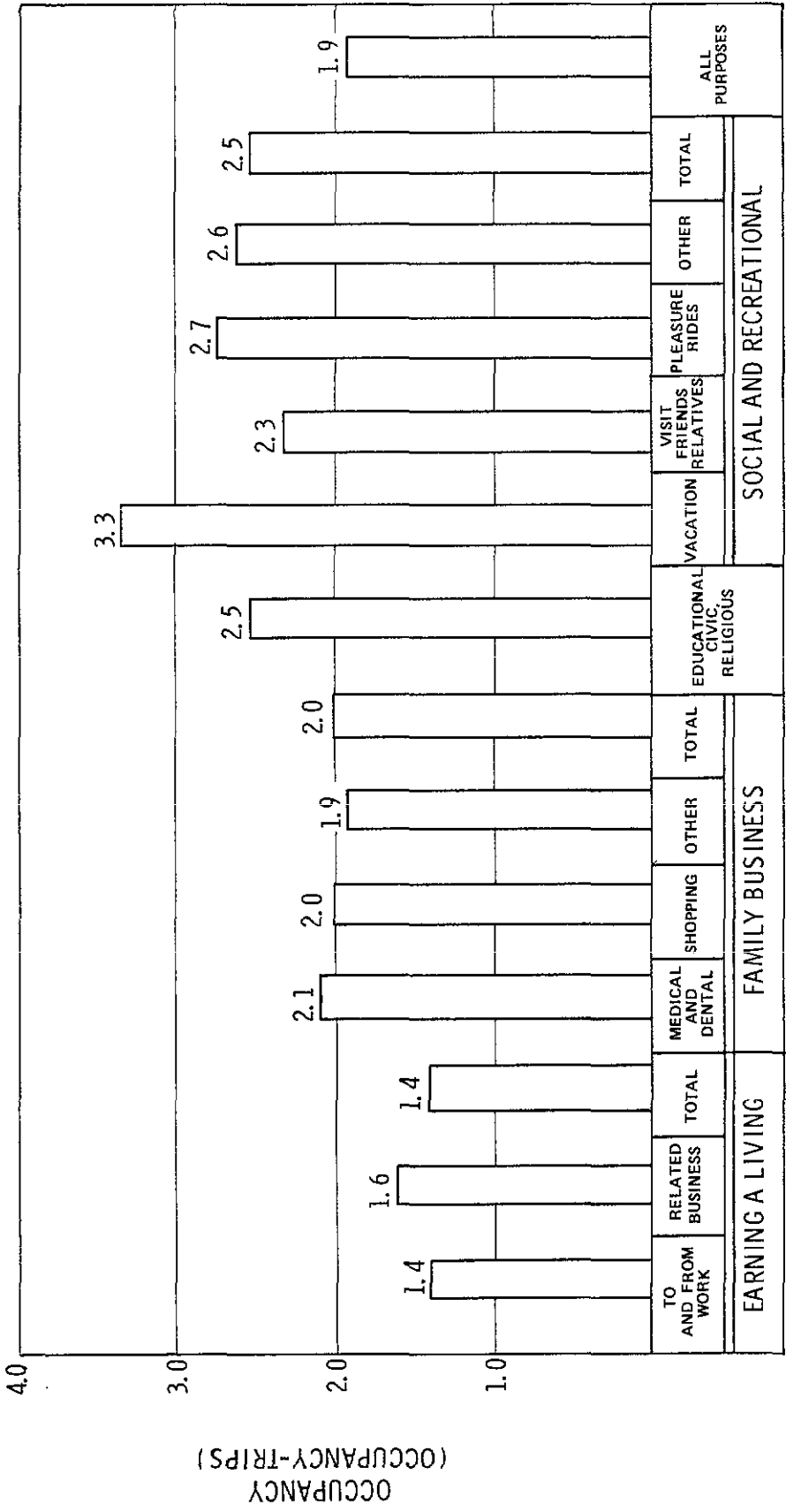


Table 2.--Average occupancy in automobile trips classified by major purpose of the trip and place of residence in Standard Metropolitan Statistical Areas.

SMSA size	Major purpose of trip											All purposes	
	Earning a living		Family business			Educational, civic and religious	Vacation	Social and recreational			Total		
	To and from work	Related business	Medical and dental	Shopping	Other			Total	Visits to friends or relatives	Pleasure rides			Other
Under 250,000	1.4	1.6	1.4	1.9	2.0	2.0	2.5	*	2.2	3.0	2.6	2.5	2.0
250,000-499,999	1.4	1.6	1.4	2.0	2.0	2.0	2.5	*	2.3	2.5	2.5	2.4	1.9
500,000-999,999	1.4	1.8	1.4	2.1	2.0	2.0	2.3	*	2.4	1.8	2.5	2.5	1.9
1,000,000-1,999,999	1.4	1.5	1.4	2.1	1.8	1.9	2.3	*	2.0	2.8	2.6	2.4	1.8
2,000,000-2,999,999	1.4	1.6	1.4	2.0	1.9	1.9	2.6	*	2.4	3.1	2.9	2.7	2.0
3,000,000 and over	1.3	1.4	1.3	2.1	1.9	1.9	2.5	*	2.4	2.6	2.5	2.5	1.9
Total SMSA's	1.4	1.6	1.4	2.1	2.0	1.9	2.5	3.4	2.2	2.7	2.6	2.5	1.9

\* Available data not sufficient for analysis.

SOURCE: Based upon unpublished table P-8 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for Federal Highway Administration, 1969-1970.

The highest proportion of single occupant cars were for trips "to and from work." As can be seen from table 3, nearly three-fourths (74.5 percent) of all "to and from work" trips are made in a single occupant car. Even in the "family business" category, which averages 2.0 occupants per trip, over 40 percent of the trips are made by cars with driver only. It is not surprising that over 50 percent of all trips made by residents of SMSA's are made by automobiles with only one occupant. Furthermore, 78.2 percent of all trips made by residents of SMSA's are made with only one or two occupants.

#### Occupancy by length of trip and purpose

From table 4, occupancy by trip length and purpose, automobile occupancy appears to generally increase with increasing trip length, particularly for the longer trips. Although occupancy rates may indeed increase with increasing length in the range less than 15 miles, the figures in table 4 do not clearly indicate such a relationship. Further, in some categories, no specific relationship can be seen at all; for instance "educational, civic, and religious" trips.

One category which shows a correspondence between trip length and occupancy is "shopping" trips. The occupancy increases from a low of 1.7 occupants per trip for trips less than one-half mile to more than 2.2 occupants per trip for trips over 10 miles.

#### Occupancy by day of week and purpose

Figures taken from table 5, average occupancy per automobile trip by day of week and purpose, show occupancy to be higher on the weekends (see figure 2). For "all purposes," occupants per trip vary from a low of 1.8 during early and mid-week to a high of 2.4 on Sunday. In fact, the occupancy rate increases from 1.8 occupants per trip on Thursday, to 1.9 occupants per trip on Friday, to 2.1 on Saturday, and to the high of 2.4 on Sunday.

There are two notable exceptions to this general relationship. "To and from work" trips do not show a clear relationship to the day of the week. Secondly, "shopping" trips show a relatively constant occupancy rate of 2.0 occupants per trip for all days of the week.

"Social and recreational" trips generally show a higher weekend occupancy rate in relation to mid-week rates. Occupancy for "visits to friends and relatives" trips range from a Wednesday low of 2.0 occupants per trip to a Sunday high of 2.6.

Table 6 shows the distribution of total trips for each purpose by day of the week. As may be seen, most high occupancy trips tend to be taken on the weekend. For example, "educational, civic, and religious" trips show an all-week average of 2.5 occupants per trip (table 5). It can be seen that over 30 percent of these trips are taken on Sunday alone (table 6).

Table 3--Distribution of automobile trips by number of occupants for each purpose of travel - Residents of Standard Metropolitan Statistical Areas (SMSA'S)

Number of occupants	Major purpose of trip													
	Earning a living			Family business				Educational, civic, and religious	Social and recreational				All purposes	
	To and from work	Related business	Total	Medical and dental	Shopping	Other	Total		Vacation	Visits to friends or relatives	Pleasure rides	Other		Total
Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent*	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	
1	74.5	62.9	73.2	38.5	43.7	45.9	44.4	33.7	*	36.3	17.0	27.3	30.1	50.9
2	17.6	24.7	18.4	38.2	34.0	31.2	33.0	26.5	*	31.4	41.1	36.0	34.5	27.3
3	4.1	7.5	4.5	12.6	11.5	12.5	12.0	15.8	*	14.8	13.2	12.7	13.6	9.9
4	1.6	2.6	1.8	4.2	6.1	4.7	5.4	10.8	*	8.9	16.2	11.2	10.6	5.7
5	1.0	0.8	1.0	2.2	2.5	3.1	2.7	5.5	*	4.1	7.8	5.2	5.1	2.9
6	0.4	0.5	0.4	3.7	0.8	1.3	1.1	3.6	*	2.2	2.0	4.0	3.2	1.5
7	0.1	--	--	0.3	0.8	0.6	0.7	1.6	*	1.3	2.5	1.5	1.5	0.7
8	0.1	0.1	0.1	--	--	--	--	0.6	*	0.3	--	0.6	0.4	0.2
9 or more	--	0.3	--	--	0.3	0.1	0.2	0.5	*	0.3	--	1.0	0.5	0.3
N/A	0.6	0.6	0.6	0.3	0.3	0.6	0.5	1.4		0.4	0.2	0.5	0.5	0.6
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
Total number (000) of daily trips	53,033	6,716	59,749	2,755	25,937	21,407	50,099	14,844	244	14,068	2,036	20,088	36,435	163,964

\* Available data not sufficient for analysis

SOURCE: Based upon unpublished table P-8 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for Federal Highway Administration, 1969-1970.

Table 4.--Average occupancy in automobile trips classified by trip length and major purpose of travel

One-way trip length in miles	Major purpose of trip											All purposes
	Earning a living		Family business			Educational, civic, and religious	Social and recreational			Other		
	To and from work	Related to business	Medical and dental	Shopping	Other		Vacation	Visits to friends and relatives	Pleasure rides			
						1.3				1.4	2.0	
Less than 1/2	1.3	1.4	2.0	1.7	1.8	2.4	*	1.9	1.6	2.5	1.8	
1	1.4	1.5	1.8	1.8	1.8	2.6	*	2.2	2.8	2.2	1.9	
2	1.4	1.6	1.9	1.9	1.9	2.6	*	2.0	2.4	2.5	2.0	
3	1.3	1.5	2.0	2.0	1.9	2.6	*	2.2	2.3	2.6	1.9	
4	1.3	1.7	1.6	2.0	1.9	2.5	*	2.0	2.3	2.5	1.9	
5	1.4	1.7	2.2	2.1	2.1	2.4	*	2.3	2.5	2.7	2.0	
6	1.4	1.4	1.9	2.1	2.0	2.1	*	2.1	2.8	2.7	1.9	
7	1.4	1.8	2.1	2.2	1.9	2.5	*	2.5	2.6	2.6	2.0	
8-10	1.4	1.6	2.2	2.2	2.1	2.6	*	2.1	2.9	2.6	1.9	
11-15	1.4	1.8	2.7	2.5	2.1	2.4	*	2.2	3.1	2.6	1.9	
16-20	1.5	1.9	2.6	2.3	2.1	2.0	*	2.6	2.8	2.6	1.9	
21-30	1.7	1.6	2.3	2.6	2.1	2.3	*	2.7	2.6	2.9	2.1	
31-40	1.5	1.6	-	2.1	2.8	2.9	*	2.2	2.1	3.0	2.3	
41 and Over	1.6	1.6	3.3	2.5	2.8	2.9	*	2.7	3.2	3.4	2.6	
Total all lengths	1.4	1.6	2.1	2.0	1.9	2.5	3.4	2.3	2.7	2.6	1.9	

\* Available data not sufficient for analysis.

SOURCE: Based upon unpublished table T-5 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.

Table 5.--Average occupancy in automobile trips  
by purpose of trip and day of week

Day of week	Major purpose of trip													
	Earning a living			Family business				Educational, civic, and religious	Social and recreational					All purposes
	To and from work	Related business	Total	Medical and dental	Shopping	Other	Total		Vacation	Visits to friends or relatives	Pleasure rides	Other	Total	
Monday	1.4	1.6	1.4	2.0	2.0	2.0	2.0	2.3	*	2.3	3.1	2.4	2.4	1.8
Tuesday	1.4	1.5	1.4	2.2	1.8	1.8	1.9	2.5	*	2.1	2.3	2.1	2.1	1.8
Wednesday	1.4	1.5	1.4	2.2	1.9	1.9	2.0	2.5	*	2.0	2.6	2.6	2.3	1.8
Thursday	1.4	1.6	1.5	2.1	2.0	1.9	2.0	2.4	*	2.1	2.5	2.3	2.3	1.8
Friday	1.5	1.5	1.5	1.8	2.0	1.8	1.9	2.5	*	2.1	2.3	2.8	2.5	1.9
Saturday	1.4	1.9	1.5	2.3	2.0	1.9	2.0	2.7	*	2.4	2.8	2.7	2.6	2.1
Sunday	1.3	1.9	1.4	2.4	2.1	2.2	2.1	2.7	*	2.6	2.8	2.7	2.7	2.4
Total all days	1.4	1.6	1.5	2.1	2.0	1.9	2.0	2.5	3.3	2.3	2.7	2.6	2.5	1.9

\* Available data not sufficient for analysis.

SOURCE: Based upon unpublished table T-7 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.

**Figure 2. AVERAGE AUTOMOBILE OCCUPANCY BY PURPOSE OF TRIP AND DAY OF WEEK**

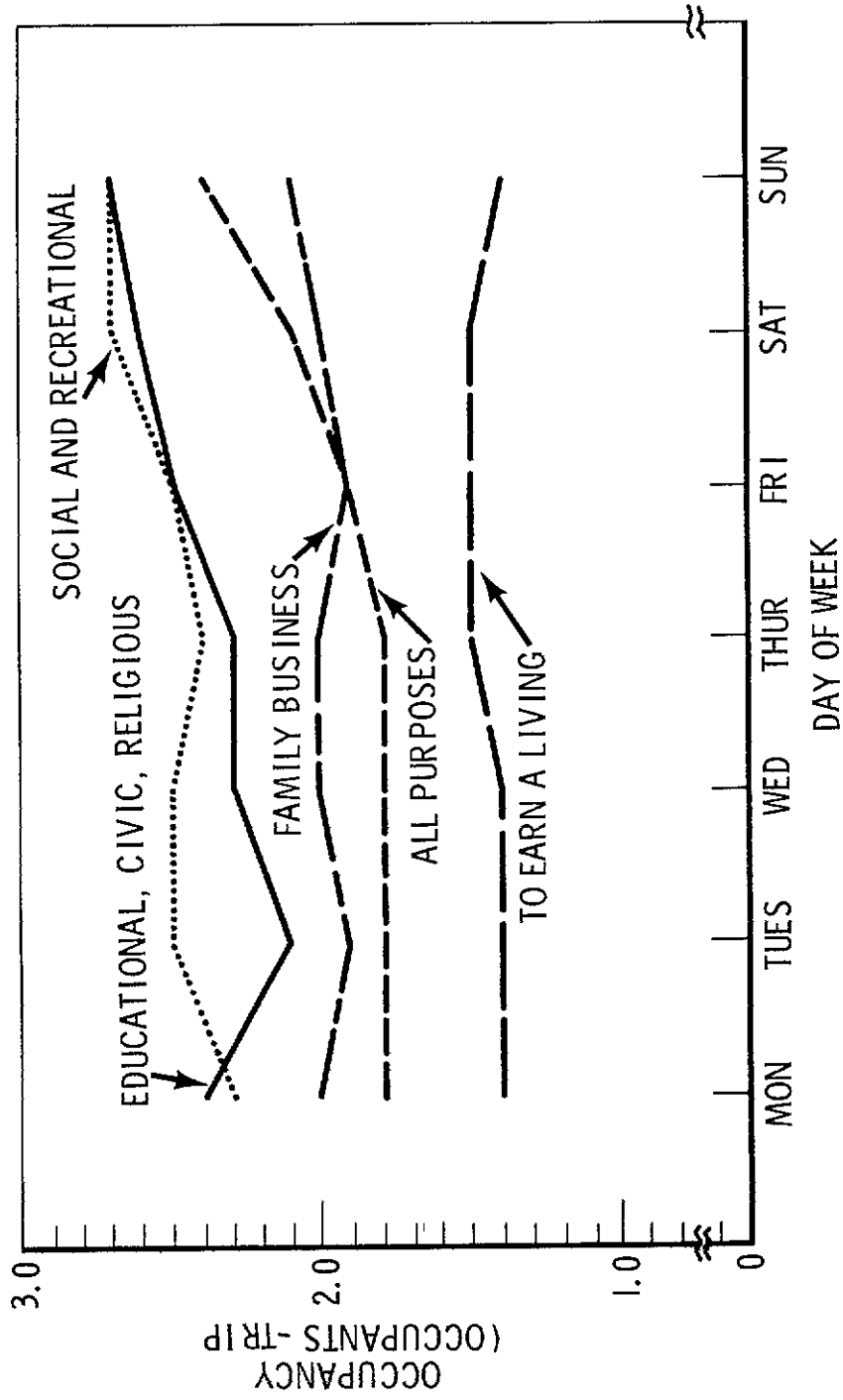


Table 6--Distribution of automobile trips for each purpose of trip by day of week

Day of week	Major purpose of trip																					
	Earning a living				Family business				Educational, civic and religious			Social and recreational										
	To and Related from business work		Total		Medical and dental		Shopping		Other		Total		Vacation		Visits to friends or relatives		Pleasure rides		Other		Total	
	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Monday	16.6	19.9	17.0	21.4	13.1	15.2	14.5	12.2	*	10.1	6.3	7.8	8.6	13.9								
Tuesday	17.8	17.9	17.8	19.1	12.1	15.8	14.2	14.7	*	12.7	7.4	11.3	11.6	14.9								
Wednesday	19.4	13.6	18.7	15.0	11.9	14.7	13.3	15.7	*	12.1	9.1	10.7	11.2	15.0								
Thursday	17.9	18.2	17.9	18.8	14.6	15.2	15.1	12.4	*	10.4	11.1	11.2	11.0	15.0								
Friday	17.4	13.6	17.0	15.1	18.2	16.5	17.2	10.1	*	12.8	9.7	17.1	14.9	15.9								
Saturday	7.8	10.4	8.1	8.8	22.0	13.8	17.6	3.4	*	16.4	19.7	23.7	20.5	13.4								
Sunday	2.8	6.1	3.2	1.6	7.7	8.5	7.7	31.2	*	25.1	36.4	17.8	21.9	11.5								
N/A	0.3	0.3	0.3	0.2	0.4	0.3	0.4	0.3		0.4	0.3	0.4	0.3	0.4								
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								
Average trips per week (000)	531,875	73,324	605,219	29,295	254,776	24,104	518,265	154,002	2,261	149,484	23,214	198,671	373,630	669,718 1/2								

<sup>1/2</sup>Data insufficient for analysis.

SOURCE: Based upon unpublished table T-7 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.

1/ Includes 18,601,000 trips for which purpose was not reported.



"To and from work" trips show the opposite relationship. This subdivision has a low all-week average of 1.4 occupants per trip. Only 2.8 percent of this type of trip is taken on Sunday; the major portion being taken Monday through Friday. Table 7 shows the distribution of total trips for each day by the purpose of the trip. On Sunday, 42.5 percent of the total number of trips are in the high occupancy group, "social and recreational" (2.7 occupants per trip); while on Wednesday, 45 percent of the trips are in a much lower occupancy group, "earning a living," (1.4 occupants per trip).

#### Occupancy by time of day and purpose

Shown on table 8 are average occupancies for three selected purposes and "all purposes" by the time of day that the trip was started. The three selected purposes are "to and from work," "shopping," and "visit to friends or relatives." These purposes were singled out because of their particular importance by reason of the greatest share of trips. It should be noted that the category "all purposes" includes all trip purposes in the survey.

Perhaps the most interesting subdivision is "to and from work" trips. As can be seen, occupancy decreases steadily from 1.7 occupants per trip at 5:00 a.m. to 1.3 occupants per trip at 8:00 a.m. Occupancy then holds relatively steady until 3:00 p.m. when it jumps to 1.6 occupants per trip. It then decreases again to 1.3 occupants per trip at 6:00 p.m. and holds fairly constant until 1:00 a.m.

"Shopping" trips display a somewhat different tendency with time; increasing from 1.7 occupants per trip at 8:00 a.m., to 2.1 occupants per trip at 3:00 p.m. It appears that the occupancy rate again cycles, going from 1.9 occupants per trip at 4:00 p.m. to 2.3 at 8:00 p.m. before it begins to fall off.

Interestingly, the "visits to friends and relatives" occupancy rates are not affected by time of the day. Although occupancy rates are slightly higher after 8:00 p.m., most occupancy rates hover around the 24-hour average of 2.3 occupants per trip.

"All purposes" trips display much the same tendency. The times of lowest occupancy are from 4:00 a.m. to 8:00 a.m. The times of highest occupancy appear to be from 6:00 p.m. to 11:00 p.m. It seems, however, that only in a few cases is the actual hourly occupancy far from the 24-hour average of 1.9 occupants per trip.

#### Distribution of one occupant trips by purpose and hour of the day

Table 9 and figure 3 show the percent of all trips taken in one-occupant cars for a given purpose and time. The one-occupant trips represent 50.2 percent of all trips. As might be expected, 73.5 percent of trips "to and from work" were in one-occupant cars. On the other end are "visits to friends or relatives" with 36.3 percent being one-occupant trips.

Table 7.--Distribution of automobile trips for each day by purpose of trip

Day of week	Major purpose of trip														Average number of daily trips (000)		
	Earning a living				Family business				Educational, civic, and religious		Social and recreational					N/A	Total
	To and from work	Related business	Total	Medical and dental	Shopping	Other	Total	Percent	Percent	Vacation	Percent	Visits to friends and relatives	Percent	Pleasure rides			
Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Monday	37.9	6.3	44.2	2.7	14.3	15.3	32.3	8.0	*	6.5	0.6	6.6	13.9	1.6	100.0	233,298	
Tuesday	37.8	5.2	43.0	2.2	12.4	14.7	29.3	9.0	*	7.5	0.6	9.0	17.3	1.4	100.0	250,365	
Wednesday	41.1	3.9	45.0	1.7	12.2	13.6	27.5	9.6	*	7.2	0.8	8.5	16.7	1.2	100.0	251,735	
Thursday	38.0	5.3	43.3	2.2	14.8	14.3	31.3	7.6	*	6.2	1.0	8.8	16.3	1.5	100.0	251,320	
Friday	34.8	3.8	38.6	1.6	17.4	14.6	33.6	5.8	*	7.2	0.8	12.7	20.9	1.1	100.0	266,947	
Saturday	18.6	3.4	22.0	1.2	25.1	14.4	40.7	2.3	*	10.9	2.0	21.0	34.2	0.8	100.0	224,037	
Sunday	7.7	2.3	10.0	0.3	10.4	10.3	21.0	25.0	*	19.5	4.3	18.4	42.5	1.5	100.0	192,316	
Avg. trip per week	31.8	4.3	36.1	1.7	15.2	14.0	30.9	9.2	0.1	8.9	1.3	11.8	22.5	1.3	100.0	1,669,718 1/	

\* Available data not sufficient for analysis.

SOURCE: Based upon unpublished table T-7 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.

1/ This figure represents average number of weekly trips.

2/ Totals include percentages for "vacation" trips.

Table 8.--Average occupancy in automobile trips  
by hour of day trip started - selected purposes

Hour of day trip started	Major purpose of trip			
	To and from work	Shopping	Visits to friends and relatives	All purposes
4:00 a.m.	*	*	*	1.7
5:00 a.m.	1.7	*	*	1.8
6:00 a.m.	1.6	*	*	1.7
7:00 a.m.	1.4	*	*	1.6
8:00 a.m.	1.3	1.7	2.1	1.7
9:00 a.m.	1.3	1.8	2.0	1.9
10:00 a.m.	1.4	1.8	2.3	1.9
11:00 a.m.	1.3	1.9	2.1	2.0
12:00 p.m.	1.3	1.9	2.3	1.9
1:00 p.m.	1.3	1.9	2.2	1.9
2:00 p.m.	1.3	2.0	2.2	2.0
3:00 p.m.	1.6	2.1	2.2	2.0
4:00 p.m.	1.5	1.9	2.3	1.9
5:00 p.m.	1.4	2.1	2.3	1.8
6:00 p.m.	1.3	2.1	2.3	2.1
7:00 p.m.	1.5	2.2	2.3	2.2
8:00 p.m.	1.3	2.3	2.4	2.3
9:00 p.m.	1.3	2.2	2.4	2.2
10:00 p.m.	1.5	1.9	2.6	2.1
11:00 p.m.	1.3	*	2.4	2.0
12:00 a.m.	1.3	*	2.2	1.8
1:00 a.m.	1.4	*	*	1.9
2:00 a.m.	*	*	*	1.9
3:00 a.m.	*	*	*	1.8
Average for 24 hours	1.4	2.0	2.3	1.9
Percent of total trips represented	31.8	15.2	8.9	100.0 <sup>1/</sup>

\* Data not sufficient for analysis.

SOURCE: Based upon unpublished table T-5 from the  
Nationwide Personal Transportation Survey  
conducted by the Bureau of the Census for the  
Federal Highway Administration, 1969-1970.

<sup>1/</sup> The percentages are based on an average of 236,748,000 daily trips.

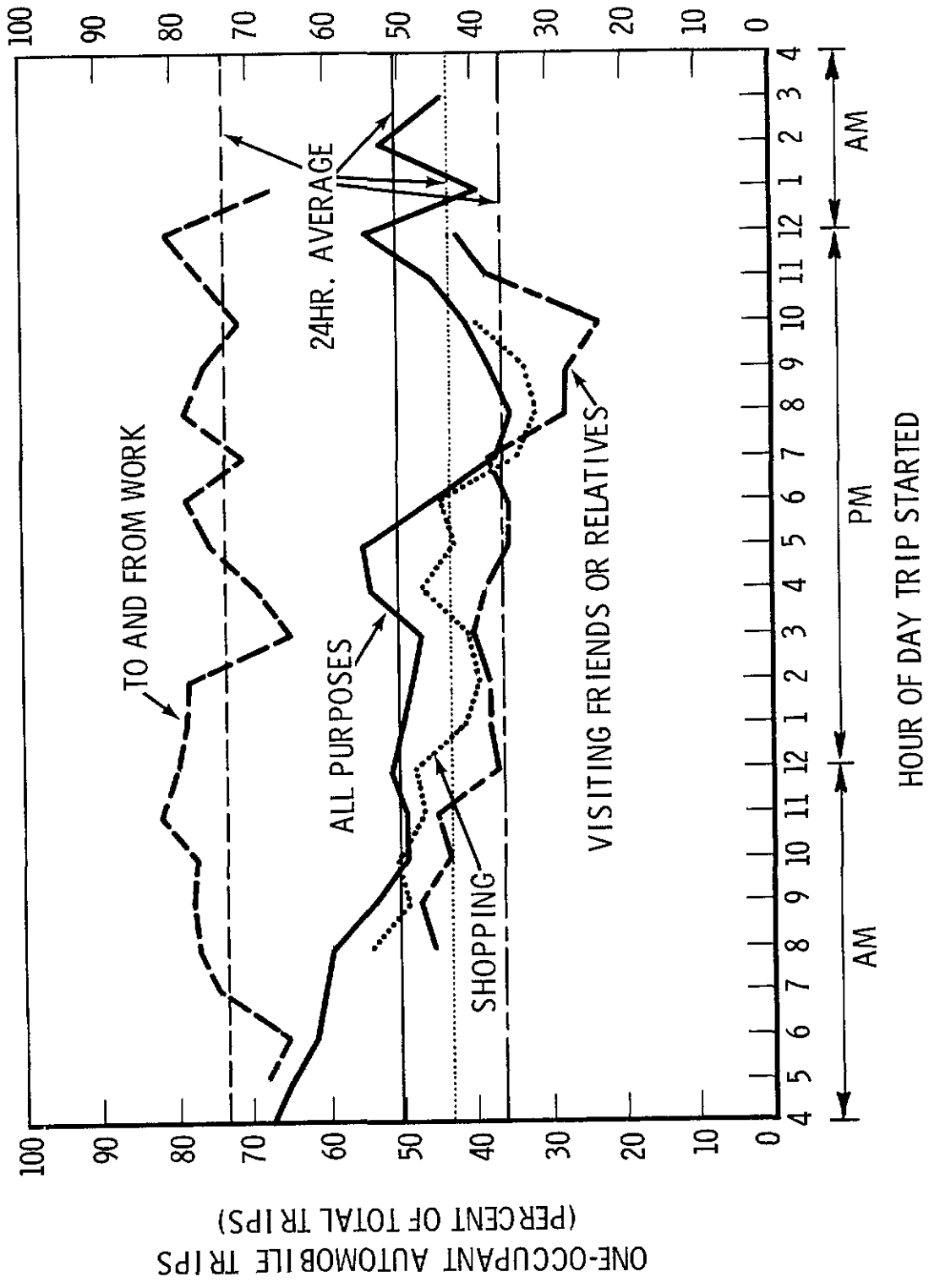
Table 9.--Proportion of trips in one-occupant automobiles by hour of day trip started - selected purposes

Hour of day trip started	Major purpose of trip			
	To and from work	Shopping	Visits to friends and relatives	All purposes
4:00 a.m.	Percent *	Percent *	Percent *	Percent 67.7
5:00 a.m.	68.3	*	*	64.3
6:00 a.m.	65.1	*	*	61.6
7:00 a.m.	74.4	*	*	65.4
8:00 a.m.	77.4	54.6	45.1	59.9
9:00 a.m.	78.0	49.4	47.7	53.7
10:00 a.m.	78.0	50.6	43.3	49.3
11:00 a.m.	82.0	47.5	45.3	49.2
12:00 p.m.	79.7	48.1	36.8	51.3
1:00 p.m.	78.3	41.8	38.2	50.0
2:00 p.m.	78.1	39.8	38.4	48.3
3:00 p.m.	64.9	41.1	40.9	47.3
4:00 p.m.	69.1	47.1	38.3	54.0
5:00 p.m.	75.6	43.2	35.2	55.1
6:00 p.m.	78.5	44.6	35.3	45.3
7:00 p.m.	71.2	34.1	38.2	36.5
8:00 p.m.	78.8	31.5	27.9	35.0
9:00 p.m.	76.5	33.2	27.8	37.7
10:00 p.m.	71.1	39.1	23.1	40.1
11:00 p.m.	76.0	*	38.1	45.0
12:00 a.m.	81.0	*	42.6	53.9
1:00 a.m.	66.9	*	*	39.3
2:00 a.m.	*	*	*	51.6
3:00 a.m.	*	*	*	43.8
24 Hours	73.5	43.3	36.3	50.2

\* Data not sufficient for analysis.

SOURCE: Based upon unpublished table T-5 from the Nationwide Personal Transportation Survey conducted by the Bureau of the Census for the Federal Highway Administration, 1969-1970.

**Figure 3. PROPORTION OF TRIPS IN ONE-OCCUPANT AUTOMOBILES  
BY HOUR OF DAY**



The "all purposes" one-occupant car percentages are above the average during both morning and evening "rush" hours (6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m., respectively) when "to and from work" trips exert their largest influence. During the evening hours of 6:00 to 11:00 p.m., however, "all purposes" percentages drop below the 24-hour average to a low of 35.0 percent being one-occupant trips. Perhaps this represents the greater influence of "shopping" and "visits to friends or relatives" trips. It is interesting that during these same hours, only percentages for "to and from work" trips do not drop. It should be remembered that as one-occupant trip percentages decrease the automobile occupancy generally increases. This can be seen from tables 8 and 9 where the "all purposes" percentage is the lowest (35.0 percent) for trips started at 8:00 p.m. This low percentage corresponds to the "all purposes" occupancy high of 2.3 occupants per trip.

## SUMMARY

1. Occupancy rates of passenger cars are affected by the purpose of the trip. It seems that purposes that encourage family activity such as "social and recreational" trips do in fact result in higher occupancy rates. On the other hand, trips which a single family member might take, such as "to and from work," do result in lower occupancy rates.

2. The size of the standard metropolitan statistical area has no clear relationship to occupancy rates. Although there does appear to be some difference between incorporated places and unincorporated areas, this difference may be due to statistical variance.

3. Length of trip, day of week, and time of day all have some affect on automobile occupancy rates. It is difficult to see, however, if they directly influence occupancy rates or, if they affect the type or purpose of the trip. Even though it can be seen that these variables do influence occupancy rates for individual purposes, it is probably true that "high occupancy" trips are encouraged by the above variables to an even greater extent.

4. Although the "all purpose" average is near 2 occupants per trip, nearly 50 percent of all trips are still taken in one-occupant cars. Even when occupancy approaches 3.0 occupants per trip, the percent of one-occupant cars is still high. It is noteworthy that nearly three-fourths of all trips taken "to and from" work are taken in one-occupant, driver only, cars.

## APPENDIX A

### Sample base for Nationwide Personal Transportation Survey

The following are the major series of tables and the sample base for tables developed from the survey. Each of the tables in any of these reports will indicate a reference source from which the sample base can be determined.

1. H-series, E-series, and T-9 through T-16

These tables relate to data collected in Sections I through V of the questionnaire. The tables are based upon a sample of approximately 6,000 households, approximately 3,000 from panel 1 interviewed in April 1969, and approximately 3,000 from panel 2 interviewed in August 1969. Each of these panels were expanded to national estimates. For purposes of all tables referred to in any of these reports, the expanded data from the two panels were averaged.

2. P-series and T-1 through T-8

These tables relate to data collected in Section VI. Data from four interviews at the identical households in panel 1 (approximately 3,000 households were interviewed in April, July, October 1969, and January 1970) were combined and expanded to represent annual estimates of trips and travel by automobile or other forms of public transportation.



## APPENDIX A

### Major sections of questionnaire

The following are the main sections of the questionnaire:

1. The data reported in items a through t above Section 1 of the questionnaire were transcribed from the control card.
2. Section I - Automobile Record
3. Section II - Shopping and nearness to public transportation to main business district by residents of Standard Metropolitan Statistical Areas.
4. Section III - Travel to work for all employed persons 16 years or older.
5. Section IV - Driver information or estimated annual miles driven by licensed drivers.
6. Section V - Travel to school for persons between 5 and 18 years of age and attending school. For panel 2 of the households interviewed in August 1969, the interviewer asked for the travel to school information for the preceding May.
7. Section VI - Travel day report. All one-way trips by motor vehicle or some form of public transportation taken by persons 5 years of age or older were reported for a pre-assigned reference day. The reference days were all in a one-week period in each of the months of interviewing and all weekdays and weekends were represented. Generally, the interviewer visited all households the first weekday after the reference day in order to minimize memory errors.
8. Section VII - Overnight travel record of all trips lasting one or more nights during the 7 days ending the day before the preassigned travel day. Insufficient data were collected in this section to permit detailed analyses.

APPENDIX A

NOTICE - All information which would permit identification of the individual will be held in strict confidence, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any purposes.				① BUDGET BUREAU NO. 41-569011 APPROVAL EXPIRES DECEMBER 1970									
FORM NPT-2 (7-10-69)  U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS ACTING AS COLLECTING AGENT FOR THE U.S. DEPARTMENT OF TRANSPORTATION  <b>HOUSEHOLD QUESTIONNAIRE - AUGUST 1969</b> <b>NATIONWIDE PERSONAL TRANSPORTATION SURVEY</b>				a. Ident. Code		b. Household No.		c. Control No.					
								PSU    Rot.    Segment    Serial    Str.					
				d. Type of structure		e. Race		f. SMSA		g. Place		h. State	
				i. Subsample		j. Designated travel day		k. No. of hhd. members (all ages)		l. Number of automobiles			
m. Automobile				n. Principal user Line No.		o. (If no automobile)		p. Income		q. OFFICE USE			
Auto No.		Year		Make		Office use		1 <input type="checkbox"/> Auto available 2 <input type="checkbox"/> Not available		q. Interviewer's code			
s. Date of interview		t. Noninterview reason		1 <input type="checkbox"/> NOH 2 <input type="checkbox"/> TA		3 <input type="checkbox"/> Ref. 4 <input type="checkbox"/> Other Type A		5 <input type="checkbox"/> Other type - Specify <u>7</u>					
Section I - AUTOMOBILE RECORD													
Now I have some questions about your - - (first, second, etc., automobile)				Auto No.		Auto No. → ②		Auto No.					
1. Is it owned by somebody living here?				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to Q. 3)		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to Q. 3)		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to Q. 3)					
2a. Was it purchased new or used?				1 <input type="checkbox"/> New 2 <input type="checkbox"/> Used		1 <input type="checkbox"/> New 2 <input type="checkbox"/> Used		1 <input type="checkbox"/> New 2 <input type="checkbox"/> Used					
b. In what month and year was it bought? (Examples: 10/67, 04/68)				Month    Year		Month    Year		Month    Year					
3. About how many thousand miles was it driven during the past 12 months?				Miles (Thousands)		Miles (Thousands)		Miles (Thousands)					
4. Is it used at least once a week in going from home to work?				1 <input type="checkbox"/> Yes - Entire trip 2 <input type="checkbox"/> Yes - Part-way 3 <input type="checkbox"/> No (Go to next auto or Sec. II)		1 <input type="checkbox"/> Yes - Entire trip 2 <input type="checkbox"/> Yes - Part-way 3 <input type="checkbox"/> No (Go to next auto or Sec. II)		1 <input type="checkbox"/> Yes - Entire trip 2 <input type="checkbox"/> Yes - Part-way 3 <input type="checkbox"/> No (Go to next auto or Sec. II)					
5. How many people are usually in the automobile going to work, including the driver?				Number		Number		Number					
6a. What type of parking facility is usually used for the trip to work - the employer's lot, a commercial lot, on the street, or what?				1 - Commercial parking garage or lot 2 - Employer provided space 3 - Fringe parking 4 - Other lot or garage		5 - On the street 6 - No all day parking used 7 - Other							
				CODE KEY →									
b. Is there a cost for parking?				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to next auto or Sec. II)		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to next auto or Sec. II)		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to next auto or Sec. II)					
c. How much?				\$    1 <input type="checkbox"/> Day 2 <input type="checkbox"/> Week 3 <input type="checkbox"/> Month		\$    1 <input type="checkbox"/> Day 2 <input type="checkbox"/> Week 3 <input type="checkbox"/> Month		\$    1 <input type="checkbox"/> Day 2 <input type="checkbox"/> Week 3 <input type="checkbox"/> Month					
d. Does . . . pay by putting coins into a meter?				1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No					
Section II - SHOPPING													
ASK for SMSA residents only - 1 or 2 as second digit of identification code													
Now we are interested in where people shop - (Ask 1 and 2 for (1) wife or (2) female head or (3) male head)				1 <input type="checkbox"/> Yes → How many times? _____ (Go to Q. 3)		2 <input type="checkbox"/> No							
1. During the past 3 months has . . . gone to the main business district of _____, principally to shop?													
2. What were the reasons for not shopping there? (Mark all boxes that apply)				1 <input type="checkbox"/> Goods available locally 2 <input type="checkbox"/> Too far away 3 <input type="checkbox"/> Difficulty of parking		4 <input type="checkbox"/> Difficulty of driving in congested area 5 <input type="checkbox"/> No automobile 6 <input type="checkbox"/> Other - Specify <u>7</u>							
3. How far is it from home to the nearest public transportation line to go to the main business district of _____?				1 <input type="checkbox"/> Less than one block 2 <input type="checkbox"/> 1-2 blocks (less than 1/4 mile) 3 <input type="checkbox"/> 3-6 blocks (1/4 - 1/2 mile)		4 <input type="checkbox"/> Over 6 blocks (over 1/2 mile) 5 <input type="checkbox"/> No public transportation available 6 <input type="checkbox"/> Lives in main business district							

Note: Fill remaining pages for household members 5 years old or over.

3		Section III - TRAVEL TO WORK	
1. Line No.	2. CHECK ITEM		
	<input type="checkbox"/> This person is 16 years old or older and has an entry in Control Card question 16b. <i>(Fill in Sec. III, IV, and V as applicable.)</i> <input checked="" type="checkbox"/> All others <i>(Fill in Sec. IV and V as applicable.)</i>		
We are interested in where people work and how they get to work.		1 <input type="checkbox"/> Yes — Whar city? _____	
3. Is the place where . . . works located in a city?		2 <input type="checkbox"/> No	
		3 <input type="checkbox"/> Don't know State? _____	
4. How far is it from home to the place where . . . works? (Actual travel distance)		Miles	1X <input type="checkbox"/> No fixed place } Go to Sec. IV 2X <input type="checkbox"/> At home } 3X <input type="checkbox"/> Less than a mile (5 blocks)
5. How much time is usually required for . . . to get to work from the time he leaves until he arrives at work?		Minutes	
6. How does . . . usually get to work? <i>(Mark all appropriate boxes)</i>		1 <input type="checkbox"/> Bus or street car 2 <input type="checkbox"/> Commuter train, subway, elevated, etc. 3 <input type="checkbox"/> Automobile — with other persons 4 <input type="checkbox"/> Automobile — alone 5 <input type="checkbox"/> Truck 6 <input type="checkbox"/> Motorcycle 7 <input type="checkbox"/> Walk only (Go to Q. 10a) 8 <input type="checkbox"/> Other — including bicycle — See Sec. IV	
7. How far is it from home to the nearest public transportation line that . . . uses (could use) to get to his place of work?		1 <input type="checkbox"/> Less than 1 block 2 <input type="checkbox"/> 1 to 2 blocks (less than 1/4 mile) 3 <input type="checkbox"/> 3 to 6 blocks (1/4 to 1/2 mile) 4 <input type="checkbox"/> Over 6 blocks (over 1/2 mile) 5 <input type="checkbox"/> None available } (Go to Q. 8)	
8. What is the reason . . . does not use public transportation to go to work? Anything else? <i>(Mark all boxes that apply)</i>		1 <input type="checkbox"/> None available 2 <input type="checkbox"/> Not convenient to get to 3 <input type="checkbox"/> Not convenient to place of work 4 <input type="checkbox"/> Too many transfers 5 <input type="checkbox"/> Too expensive 6 <input type="checkbox"/> Too crowded or uncomfortable 7 <input type="checkbox"/> Takes too long 8 <input type="checkbox"/> Need auto for work 9 <input type="checkbox"/> Other — Specify: _____	
9. What is the reason . . . uses public transportation to get to work? Anything else? <i>(Mark all boxes that apply)</i>		1 <input type="checkbox"/> No driver's license 2 <input type="checkbox"/> No car available 3 <input type="checkbox"/> No car pool available 4 <input type="checkbox"/> Cheaper than auto 5 <input type="checkbox"/> Safer than auto 6 <input type="checkbox"/> No parking problems 7 <input type="checkbox"/> No driving strain 8 <input type="checkbox"/> Faster 9 <input type="checkbox"/> Other — Specify: _____	
10a. Does . . . work at same location as 5 years ago?		1 <input type="checkbox"/> Yes 3 <input type="checkbox"/> Not working 5 years ago	
b. Does . . . live at same location as 5 years ago?		2 <input type="checkbox"/> No	
c. Compared with the time it took . . . to get to work 5 years ago, is the time to work:		1 <input type="checkbox"/> About the same as 5 years ago 2 <input type="checkbox"/> At least 10 minutes more 3 <input type="checkbox"/> At least 10 minutes less	
Section IV - DRIVER INFORMATION			
1. About how many thousands of miles did . . . drive during the past 12 months, including driving as part of work?		1 <input type="checkbox"/> None 2 <input type="checkbox"/> Under 5,000 3 <input type="checkbox"/> 5,000 — 9,999 4 <input type="checkbox"/> 10,000 — 14,999 5 <input type="checkbox"/> 15,000 — 19,999 6 <input type="checkbox"/> 20,000 — 24,999 7 <input type="checkbox"/> 25,000 — 29,999 8 <input type="checkbox"/> 30,000 and over	
Section V - TRAVEL TO SCHOOL			
Ask Sec. V for persons 5-18 years old Now I would like to ask some questions about transportation to school.			
1. Last May was . . . attending or enrolled in school?		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Go to Sec. VI)	
2. Was it a public or private school?		1 <input type="checkbox"/> Public 2 <input type="checkbox"/> Private	
3. What grade was . . . attending?		Grade _____ <i>(Enter "0" for kindergarten, "1" for first, etc.)</i>	
4. About how many miles was it from home to . . . 's school? <i>(If less than one mile, enter "0")</i>		Miles	
5. About how long did it take . . . to get from home to school?		Minutes	
6. How did . . . usually get to school? <i>(Mark only one box)</i>		1 <input type="checkbox"/> School bus — No charge 2 <input type="checkbox"/> Public transportation — No charge 3 <input type="checkbox"/> School bus — Charge 4 <input type="checkbox"/> Public transportation — Charge 5 <input type="checkbox"/> Walk, bicycle 6 <input type="checkbox"/> Automobile — Driver 7 <input type="checkbox"/> Automobile — Passenger 8 <input type="checkbox"/> Motorcycle 9 <input type="checkbox"/> Other	
7. Was free school bus or free public transportation available?		1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	

Section VI - TRAVEL DAY REPORT						
a. Line No.	b. Age	c. Sex 1 <input type="checkbox"/> Male 2 <input type="checkbox"/> Female	d. Employment status (C.C. 16a) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	e. Occupation (C.C. 16b)	f. Retired Code (C.C. 17)	g. Licensed driver (C.C. 18) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
<p>Now I have some questions about the trips taken on _____. A trip is anytime you went from one place to another by motor vehicle or some form of public transportation. For example, going to work by automobile would be one trip, going to lunch by automobile would be a second trip, returning to work from lunch would be a third trip.</p> <p>Reference day is from 4:00 a.m. to 3:59 a.m. the following day</p>						
1. Did . . . go any place at anytime on _____?	1 <input type="checkbox"/> Yes - One or more trips not previously reported (Fill columns) 2 <input type="checkbox"/> Yes - All previously reported 3 <input type="checkbox"/> No					
2. At what time did . . . start the (1st, next) trip he took on _____?	Trip 1	Trip 2	Trip 3	Trip 4		
	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.		
3. How far is it from where . . . started to where he went?	Miles 0 <input type="checkbox"/> Less than 1/2 mile (5 blocks)	Miles 0 <input type="checkbox"/> Less than 1/2 mile (5 blocks)	Miles 0 <input type="checkbox"/> Less than 1/2 mile (5 blocks)	Miles 0 <input type="checkbox"/> Less than 1/2 mile (5 blocks)		
4. How long did it take to get there?	1 <input type="checkbox"/> 15 min. or less 2 <input type="checkbox"/> 16-30 min. 3 <input type="checkbox"/> 31-45 min. 4 <input type="checkbox"/> 46 min.-1 hr. 5 <input type="checkbox"/> 1 Bet. 1 and 2 hrs. 6 <input type="checkbox"/> 2 hrs. or more	1 <input type="checkbox"/> 15 min. or less 2 <input type="checkbox"/> 16-30 min. 3 <input type="checkbox"/> 31-45 min. 4 <input type="checkbox"/> 46 min.-1 hr. 5 <input type="checkbox"/> 1 Bet. 1 and 2 hrs. 6 <input type="checkbox"/> 2 hrs. or more	1 <input type="checkbox"/> 15 min. or less 2 <input type="checkbox"/> 16-30 min. 3 <input type="checkbox"/> 31-45 min. 4 <input type="checkbox"/> 46 min.-1 hr. 5 <input type="checkbox"/> 1 Bet. 1 and 2 hrs. 6 <input type="checkbox"/> 2 hrs. or more	1 <input type="checkbox"/> 15 min. or less 2 <input type="checkbox"/> 16-30 min. 3 <input type="checkbox"/> 31-45 min. 4 <input type="checkbox"/> 46 min.-1 hr. 5 <input type="checkbox"/> 1 Bet. 1 and 2 hrs. 6 <input type="checkbox"/> 2 hrs. or more		
<p>CODE KEY →</p> <p>1. To work 2. Business, other than to work 3. Shopping 4. Other family or personal business</p> <p>5. To school or church 6. To doctor or dentist 7. Vacation 8. Visit friends or relatives</p> <p>9. Pleasure driving 10. Other social or recreational 11. Other Return home (reclassification required)</p>						
5. What was the main reason for this trip? (If "return home" enter the main purpose of the outgoing trip(s), plus "R.H.") (Enter one code.)	Trip 1	Trip 2	Trip 3	Trip 4		
Code	Code	Code	Code			
6. In addition to . . . did anyone else living here go on this trip? List line numbers of other household members 5 years old or older who went on this trip.	0 <input type="checkbox"/> No others	0 <input type="checkbox"/> No others	0 <input type="checkbox"/> No others	0 <input type="checkbox"/> No others		
Line numbers	Line numbers	Line numbers	Line numbers			
<p>CODE KEY →</p> <p>1. School bus 2. Other bus and/or street car 3. Elevated or subway 4. Other train</p> <p>5. Airplane 6. Taxi 7. Automobile - Driver 8. Automobile - Passenger</p> <p>9. Motorcycle or motor bike 10. Truck (including pick-up) 11. Other</p>						
7. What means of transportation were used for this trip? (If more than one, circle major means.)	Trip 1	Trip 2	Trip 3	Trip 4		
Code (If code 1-5 only go to Q. 13)	Code (If code 1-5 only go to Q. 13)	Code (If code 1-5 only go to Q. 13)	Code (If code 1-5 only go to Q. 13)	Code (If code 1-5 only go to Q. 13)		
8. Was public transportation for this trip available within 1/2 mile? (1/2 mile?)	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't know		
9. What automobile was used? (Transcribe automobile number from C.C.)	Automobile No. or 9 <input type="checkbox"/> Not an auto listed on the C.C.	Automobile No. or 9 <input type="checkbox"/> Not an auto listed on the C.C.	Automobile No. or 9 <input type="checkbox"/> Not an auto listed on the C.C.	Automobile No. or 9 <input type="checkbox"/> Not an auto listed on the C.C.		
10. Who drove the automobile for this trip?	Line No. 99 <input type="checkbox"/> Not a household member	Line No. 99 <input type="checkbox"/> Not a household member	Line No. 99 <input type="checkbox"/> Not a household member	Line No. 99 <input type="checkbox"/> Not a household member		
11. Was parking free for this trip?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Did not park 4 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Did not park 4 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Did not park 4 <input type="checkbox"/> Don't know	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Did not park 4 <input type="checkbox"/> Don't know		
12. How many people were in the automobile including the driver? (Do not include children under 5 and non-household members.)	Number 0 <input type="checkbox"/> Don't know	Number 0 <input type="checkbox"/> Don't know	Number 0 <input type="checkbox"/> Don't know	Number 0 <input type="checkbox"/> Don't know		
13. Did . . . go anywhere else on _____?	1 <input type="checkbox"/> Yes - One or more trips not recorded (Go to next column) 2 <input type="checkbox"/> Yes - All trips recorded } Go to Q. 14a 3 <input type="checkbox"/> No	1 <input type="checkbox"/> Yes - One or more trips not recorded (Go to next column) 2 <input type="checkbox"/> Yes - All trips recorded } Go to Q. 14a 3 <input type="checkbox"/> No	1 <input type="checkbox"/> Yes - One or more trips not recorded (Go to next column) 2 <input type="checkbox"/> Yes - All trips recorded } Go to Q. 14a 3 <input type="checkbox"/> No	1 <input type="checkbox"/> Yes - One or more trips not recorded (Go to next column) 2 <input type="checkbox"/> Yes - All trips recorded } Go to Q. 14a 3 <input type="checkbox"/> No		
14a. During the 7 days ending (the day before travel day) did . . . return home from a trip after being away from home one or more nights?	1 <input type="checkbox"/> Yes - One or more trips not previously reported (Go to 14b) 2 <input type="checkbox"/> Yes - All trips previously reported 3 <input type="checkbox"/> No					
b. How many such trips ended during the 7 days?	Number _____ (Go to Sec. VII)					

Section VII - OVERNIGHT TRAVEL			
OUTBOUND TRIP	Trip 1	Trip 2	Trip 3
	Line No. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">9</span>	Line No. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">10</span>	Line No. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">11</span>
1. How many miles is it from home to where . . . went? (To farthest point)	Miles	Miles	Miles
2. How much time did . . . spend getting there? (Total time from home to farthest point, not just travel time) (Enter nearest full hour or day)	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days
3. What time of day did the trip start?	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.
4. On what day of the week did the trip start?	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.
5. What was the main reason for the trip? (Enter code)	Code Key →		
	1. To work 2. Business - Other than to work 3. Shopping 4. Other family or personal business 5. To school or church 6. To doctor or dentist 7. Vacation 8. Visit friends or relatives 9. Pleasure driving 10. Other social or recreational 11. Other		
6. What means of transportation were used? (Enter codes) <i>(Include all means such as transportation to and from terminals as well as major means, circle major means.)</i>	Code Key →		
	1. School bus 2. Other bus and/or street car 3. Elevated or subway 4. Other train 5. Airplane 6. Taxi 7. Automobile - Driver 8. Automobile - Passenger 9. Motorcycle or motorbike 10. Truck (including pickup) 11. Other		
7. What automobile was used? (If either code 7 or 8 has been entered in Q. 6 complete questions 7-9) <i>(Transcribe automobile number from C.C.)</i>	Auto No.	Auto No.	Auto No.
	9 <input type="checkbox"/> Not an auto listed on the C.C.	9 <input type="checkbox"/> Not an auto listed on the C.C.	9 <input type="checkbox"/> Not an auto listed on the C.C.
8. Who drove the automobile? (If more than one driver, enter the line number of the person who drove the most miles)	Driver Line No.	Driver Line No.	Driver Line No.
	99 <input type="checkbox"/> Not a household member	99 <input type="checkbox"/> Not a household member	99 <input type="checkbox"/> Not a household member
9. How many people were in the automobile, including the driver? (Include children under 5 and non-household members)	Number	Number	Number
RETURN TRIP	Trip 1	Trip 2	Trip 3
10. How many nights were you away from home?	Number	Number	Number
11. How much time did . . . spend on the return trip? (Enter nearest full hour or day)	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days	1 <input type="checkbox"/> Hours 2 <input type="checkbox"/> Days
12. What time of day did . . . start on the return trip?	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.	1 <input type="checkbox"/> a.m. 2 <input type="checkbox"/> p.m.
13. On what day of the week did . . . start on the return trip?	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.	1 <input type="checkbox"/> Sun. 5 <input type="checkbox"/> Thurs. 2 <input type="checkbox"/> Mon. 6 <input type="checkbox"/> Fri. 3 <input type="checkbox"/> Tues. 7 <input type="checkbox"/> Sat. 4 <input type="checkbox"/> Wed.
14. What means of transportation were used? (Enter codes) <i>(Include all means such as transportation to and from terminals as well as major means, circle major means.)</i>	Code Key →		
	1. School bus 2. Other bus and/or street car 3. Elevated or subway 4. Other train 5. Airplane 6. Taxi 7. Automobile - Driver 8. Automobile - Passenger 9. Motorcycle or motorbike 10. Truck (including pickup) 11. Other		
15. Who drove the automobile? (If more than one driver, enter the Line No. of the person who drove the most miles)	Driver Line No.	Driver Line No.	Driver Line No.
	9 <input type="checkbox"/> Not a household member	9 <input type="checkbox"/> Not a household member	9 <input type="checkbox"/> Not a household member
16. How many people were in the automobile on the return trip, including the driver? (Include children under 5 and nonhousehold members)	Number	Number	Number
17. In addition to . . . did anyone else living here go on this trip both outbound and return? (If outbound or return only, enter the trip in a separate column) <i>(List line numbers of other household members 5 years old or older who went on this round trip)</i>	0 <input type="checkbox"/> No others	0 <input type="checkbox"/> No others	0 <input type="checkbox"/> No others
	Line Numbers	Line Numbers	Line Numbers

APPENDIX B

Table IV.-1.--Estimated standard errors for number of vehicle trips for one day when single auto is only means

Estimated total (000)	Estimated standard error (1 Sigma) (000)
100	95
250	150
500	213
750	261
1,000	302
2,500	479
5,000	683
10,000	982
15,000	1,222
25,000	1,625
50,000	2,459
75,000	3,197
100,000	3,893
125,000	4,567
150,000	5,228
175,000	5,879
200,000	6,524
225,000	7,164
235,000	7,420
255,000	7,802

These standard errors may be used to evaluate the percentages shown in tables 3, 6, 7, and 9.

## APPENDIX B

Table IV.-2.--Estimated standard errors for percentages of vehicle trips for one day when single auto is only means

Base of Percentage (000)	Estimated percentage					
	1 of 99%	5 or 95%	10 or 90%	20 or 80%	25 or 75%	50%
500	-	-	-	17.0	18.4	21.2
750	-	-	10.4	13.9	15.0	17.3
1,000	-	-	9.0	12.0	13.0	15.0
2,500	-	4.1	5.7	7.6	8.2	9.5
5,000	1.3	2.9	4.0	5.4	5.8	6.7
10,000	.9	2.1	2.9	3.8	4.1	4.8
15,000	.8	1.7	2.3	3.1	3.4	3.9
25,000	.6	1.3	1.8	2.4	2.6	3.0
50,000	.4	.9	1.3	1.7	1.8	2.1
75,000	.3	.8	1.0	1.4	1.5	1.7
100,000	.3	.7	.9	1.2	1.3	1.5
125,000	.3	.6	.8	1.1	1.2	1.3
150,000	.2	.5	.7	1.0	1.1	1.2
175,000	.2	.5	.7	.9	1.0	1.1
200,000	.2	.4	.6	.8	.9	1.1
225,000	.2	.4	.6	.8	.9	1.0
235,000	.2	.4	.6	.8	.8	1.0
255,000	.2	.4	.6	.8	.8	.9

These standard errors may be used to evaluate the percentages shown in tables 3, 6, 7, and 9.