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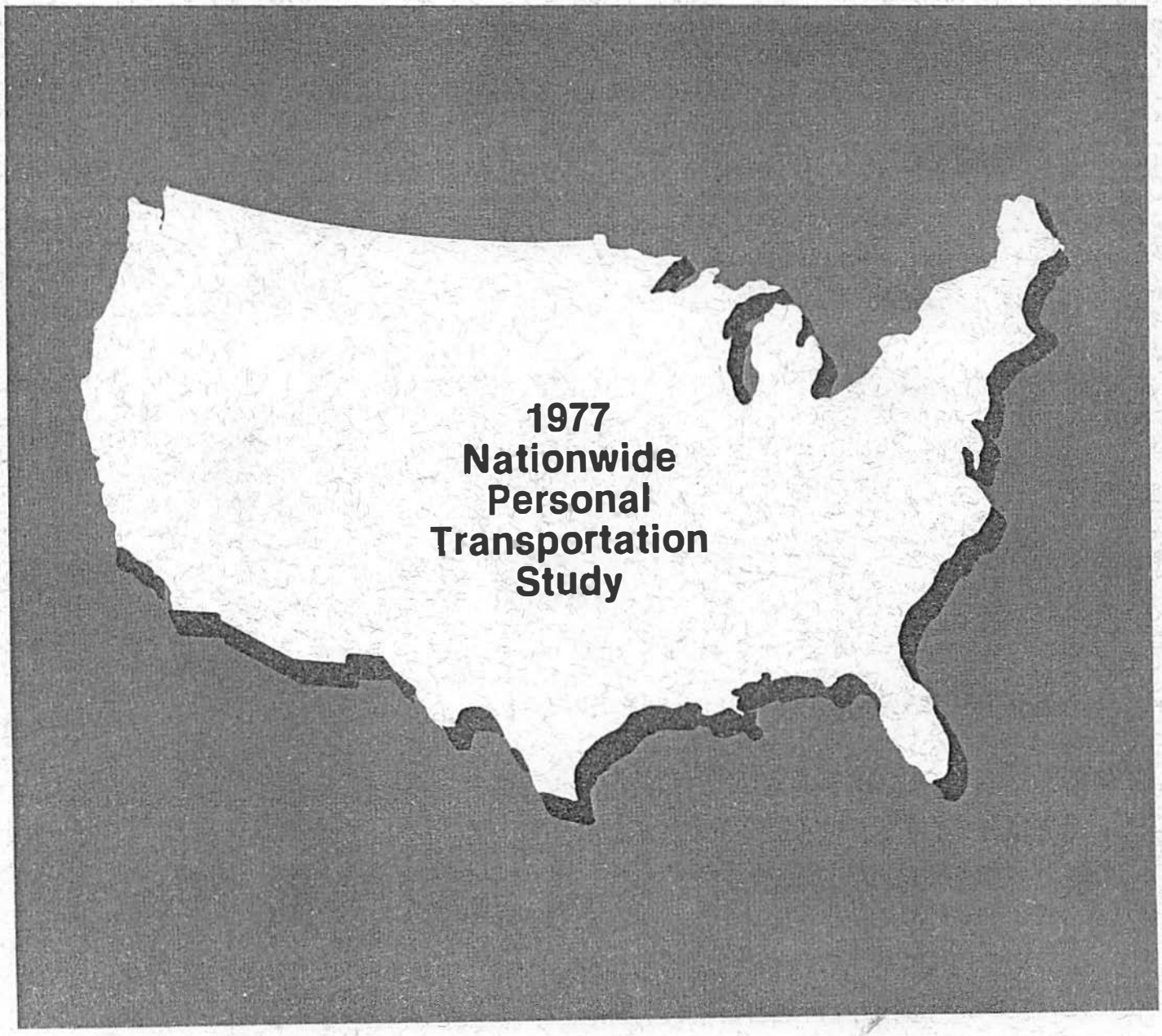
Household Vehicle Utilization

Office of Highway Planning
April 1981

Report No. 5



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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 patterns of utilization of private vehicles (annual miles driven) in 1977. Utilization is keyed to estimates provided by the household of annual mileage placed on household vehicles. Usage of vehicles is related to location, household characteristics, vehicle ownership, whether the vehicle is used for work, and characteristics of the vehicles such as vehicle type, age, purchased new or used.

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1977 NATIONWIDE PERSONAL TRANSPORTATION STUDY

HOUSEHOLD VEHICLE UTILIZATION

Report 5

April 1981

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

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- In 1977, household vehicles were driven an average of 10,200 miles per year. Vehicles in one-vehicle households are used an average of 9,800 miles per year, those in two-vehicle households 10,500 miles per year, three-vehicle households 10,400 miles per year, and households with four or more vehicles, 9,600 miles per year.

- Vehicles owned by households in SMSA's are driven more, averaging 10,350 miles per year than vehicles outside SMSA's, which are driven 9,900 miles per year.

- Average annual vehicle use increases as household income increases: 7,100 miles for vehicles in households with incomes under $5,000 to 10,800 miles in households with incomes between $15,000 and $25,000 to 11,600 miles in households with incomes of $50,000 or more.

- The use of household vehicles increases as the number of drivers in the household increases: 9,400 miles per year in one-driver households to 10,300 miles in two-driver households to 10,700 miles in households with three or more drivers.

- The use of vehicles increases with the number of adults in the household: 8,800 miles per year in one-adult households to 10,200 miles per year in two-adult households, to 10,600 miles per year in households with three or more adults.

- Standard autos are used an average of 10,100 miles a year, station wagons 11,300 miles a year, vanbus/minibus vehicles 12,500 miles, other vans 13,100 miles, pickup trucks 10,600 miles, motorcycles 3,400 miles, and mopeds 1,500 miles.

- The highest average rate of usage occurs in vehicles which are 2 years old, and declines with increasing age. Two-year-old vehicles are driven an average of 13,600 miles per year, with use declining to 7,100 miles for vehicles 10 years and older.

- Compared to 1969, 1977 households are retaining automobiles longer and are using each auto at a lower rate. Vehicles classified as automobiles--standard autos, station wagons, personal-use taxis, and vanbus/minibus--averaged 10,300 miles per year in 1977, compared to 11,600 in 1969. In 1977, the average automobile was 6.3 years old compared to 5.1 years in 1969.

- Vehicles purchased new are driven an average of 10,900 miles per year, while those purchased used are driven 9,200 miles per year. All vehicle types are driven more if purchased new than if purchased used.

- Auto vehicles over 4,000 pounds are driven an average of 11,000 miles per year and since most of the fleet are older, heavier vehicles, they account for 40.0 percent of all miles traveled by such vehicles. Autos under 2,500 pounds are driven an average of 12,900 miles per year, and now are used for 7.7 percent of all auto miles traveled.

- Household vehicles used regularly for work travel are driven an average of 5,000 miles per year more than nonwork vehicles (11,900 versus 6,900 annual miles). They also are younger (6.1 versus 7.5 years) and purchased new less often (46.4 versus 47.6 percent) than nonwork vehicles.

II. INTRODUCTION

A. PURPOSE OF REPORT

This report presents findings from the 1977 Nationwide Personal Transportation Survey (NPTS), pertaining to private vehicle usage by households in the United States as measured by annual miles of vehicle travel. The study of relationships between vehicle utilization and trends in household composition and travel patterns provides a better understanding of travel behavior and improves the evaluation of transportation facilities, energy consumption and related policies and programs.

This report examines the relationship between annual vehicle mileage and those sociodemographic and economic characteristics of households which are important determinants of travel. How use varies for vehicles with particular characteristics is also analyzed and shown. Finally, where the data are compatible, findings are compared to those in the 1969 NPTS to trace changes over time in vehicle usage.

Many factors contribute to vehicle usage. These factors can be complex and interrelated, and many are not causal determinants of vehicle use. The analysis in this report is limited to two-way and at most three-way tabulations, and may be misleading if used for other than descriptive purposes.

B. ORGANIZATION OF FINDINGS

This analysis of vehicle utilization is divided into five major areas. The first examines vehicle usage as influenced by household characteristics, such as residential location, income, number of adults and drivers, and the number of vehicles owned. The second area describes how vehicle use varies along with certain characteristics of the vehicle, such as vehicle type, age, and method of ownership. The third area describes vehicle use for combinations of household and vehicle characteristics. In the fourth area the use private vehicles regularly used for travel to work is compared to other private household vehicles which are not used for commuting. The final area describes 1969 to 1977 changes in private vehicle use by comparing select relationships from the 1969 and 1977 NPTS surveys. The report concludes with a summary of the most important findings.

C. DESCRIPTION OF DATA

The relationships presented in this report use information on characteristics of households and the vehicles they own as compiled by the 1977 NPTS survey. The information base for this survey was a national probability sample of 18,000 households contacted and interviewed over the period April 1977 through March 1978. The behavior of this sample was used to approximate the characteristics and behavior of the entire U.S. population in 1977 through use of statistical sampling weights.

From the sample of households, survey methods were used to gather information on the social and economic characteristics of the household and each of its members, and the physical characteristics and rates of use of each household vehicle. The total annual miles of travel provided by household members for each household vehicle were estimates of the total mileage placed on the vehicle by that household over the past 12 calendar months. For vehicles owned less than 12 months, the estimates of vehicle mileage were expanded to an annual basis.

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 the 1977 NPTS reports is found in Appendix A of this report. An order form with description and price of the NPTS public use tapes is contained in Appendix B. A glossary of NPTS terms is found in Appendix C.

D. COMPARABILITY BETWEEN THE 1969 AND 1977 NPTS SURVEYS

The 1977 NPTS survey is an update of the 1969 NPTS. Comparing results from the 1969 and 1977 surveys provides valuable insight into changes that have taken place in vehicle use over time. The 1969 data used in this report are based on relationships which appeared in Report 2 of the 1969 NPTS series, *Annual Miles of Automobile Travel*.

As often happens when surveys are repeated after a passage of time, the information acquired and survey procedures used are modified to better address current issues and improve upon the earlier effort. So it is that important changes have taken place between the 1969 and 1977 NPTS surveys, and these changes affect the direct comparability of the data and the findings from the two surveys.

In the area of vehicle ownership and use, an important change is the extension of the 1977 survey to include all motor vehicles owned by households. The 1969 survey included only automobiles, defined as passenger autos, station wagons, vanbus/minibus vehicles, and personal-use taxi vehicles. The 1977 survey has added personal trucks and vans, camper vehicles, and motorcycles and mopeds to the inventory, a change which more accurately describes the vehicle base affecting household vehicle travel.

For reasons of compatability, only those private vehicles defined as automobiles in both surveys are used in 1969 and 1977 comparisons. Because these differences in defining household vehicles may be confusing, the report focuses first on presentation of results from the 1977 survey, where findings are based on all motor vehicles owned by or available to the household. Comparisons with 1969 findings are then presented in a separate section where the 1977 data are tabulated in comparable format and definition to the 1969 report. Differences in vehicle definition are noted in the tables and discussion.

III. ANALYSIS OF PATTERNS IN HOUSEHOLD VEHICLE USAGE

A. RELATIONSHIPS BETWEEN 1977 VEHICLE USE AND HOUSEHOLD CHARACTERISTICS

This section examines the relationships between household characteristics, household vehicle ownership, and annual vehicle miles driven. Among the household characteristics explored are residential location by population size and location inside or outside SMSA's; annual household income; number of adults and licensed drivers; household structure; occupation of the household head; and accessibility of public transit.

The relationships shown represent all private motor vehicles owned by or available to households on a regular basis, including leased or rental vehicles and company-owned vehicles. This family of vehicles includes standard autos, station wagons, personal-use taxis, vanbuses and minibuses, other vans (other than vanbuses), pickup trucks, other trucks (other than pickup trucks), camper vehicles and motorcycles and mopeds.

Household Residence by SMSA Size

Vehicles owned by households in the smallest Standard Metropolitan Statistical Areas (SMSA's) have the highest rates of use. As shown in Table 1, vehicles in SMSA's under 250,000 population are driven an average of 10,801 miles per year, compared with a range of 10,105 to 10,439 average annual vehicle miles in SMSA's larger than 250,000. The average annual miles per vehicle for all SMSA households is 10,345.

Table 1 also provides information regarding average annual miles per household as well as average annual miles per vehicle-owning household. The former rates are based on all households, including vehicle-owning and nonvehicle-owning, whereas the latter rates are based solely on households that own vehicles.

Average vehicle miles per household has a more pronounced relationship to SMSA population size. Households in SMSA's under 250,000 travel an average of 16,777 vehicle miles per year, while households in the largest SMSA's (over 3 million) travel 12,369 miles per year.

If only those households that own vehicles are considered, similar trends are found. Rates of household vehicle use range from 19,418 miles per year in SMSA's under 250,000 to 16,760 miles per year in SMSA's over 3 million. Except for households in SMSA's of 1 million to 3 million, average miles per year by vehicle-owning households decreases as SMSA size increases.

As also shown in Table 1, annual mileage per vehicle varies based on the number of vehicles owned. Vehicles in households owning one vehicle or those owning four vehicles or more have the lowest rates

TABLE 1. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND SMSA POPULATION SIZE

Household Vehicle Ownership	SMSA Population					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
One	9,139	9,482	9,395	10,329	9,818	9,779
Two	10,917	10,794	10,593	10,734	10,397	10,676
Three	12,327	10,025	10,300	10,533	10,265	10,626
Four or More	10,652	9,212	9,449	9,440	10,524	9,832
Average Annual Miles per Vehicle	10,801	10,175	10,105	10,439	10,234	10,345
Average Annual Miles per Household (all households)	16,777	15,609	15,042	15,481	12,369	14,811
Average Annual Miles per Household (vehicle owning households)	19,418	17,778	17,419	18,064	16,760	17,802
Percent of Vehicles	13.6	16.8	16.2	32.0	21.4	100.0‡

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
‡ Total vehicles = 70,021,000 (120,098,000 less 50,077,000 not in SMSA's or for which annual miles not reported)

of use, averaging 9,779 and 9,832 annual miles, respectively. Vehicles in two- and three-vehicle households are used more, averaging 10,676 and 10,626 miles per year, respectively. The relationship between average travel per vehicle and number of vehicles owned is consistent for all SMSA population groups, except the over 3 million population group.

Household Residence Inside or Outside of SMSA's

Among the four location groups shown in Table 2, vehicles owned by households residing within SMSA's, but outside of central cities record the most annual mileage. This above-average rate of individual vehicle utilization prevails for all vehicle ownership categories.

Vehicles owned by those SMSA households outside central cities average 10,616 miles per year, compared to 10,010 in SMSA central city areas, and 9,618 to 10,085 in non-SMSA areas. Vehicles owned by households in places of over 5,000 population outside of SMSA's are driven the least, 9,618 miles per year.

Vehicles in two-vehicle households are used the most, averaging 10,500 miles per year per vehicle, closely followed by vehicles in three-vehicle households, which average 10,423 miles per year. Vehicles in one-vehicle households average 9,754 miles per year, while vehicles in four-or-more-vehicle households average 9,572 miles each year. These rankings are generally consistent across the four location groups.

Both the amount of individual vehicle use and total household vehicle use are related to household location. Households in SMSA, noncentral city locations use vehicles the most by any of three measures: annual miles per vehicle (10,616 miles), annual miles per household (17,477 miles) and annual miles per vehicle-owning household (19,376 miles). Households outside SMSA's in places under 5,000 population have the next highest rates of annual vehicle use: 10,085 miles per vehicle, 16,474 miles per household and 18,469 miles per vehicle-owning household. Households with the lowest rates of per vehicle use are in SMSA central cities, and in non-SMSA's with population greater than 5,000. These locations also have the lowest rates of use per household.

Annual Household Income

Income is one of the most important determinants of household vehicle use. As shown in Table 3 and Figure 1, the higher the level of household income the greater the average use of private vehicles. Individual vehicle use ranges from a low of 7,054 miles per year for vehicles in households earning under $5,000 to 11,750 miles for households in the $35,000 to $50,000 income category--a difference of about 70 percent.

TABLE 2. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND RESIDENTIAL LOCATION INSIDE OR OUTSIDE OF SMSA'S

Household Vehicle Ownership	Inside SMSA's		Outside SMSA's		All
	Outside Central City	Inside Central City	Under 5,000	Over 5,000	
One	10,121	9,496	9,799	9,585	9,754
Two	10,955	10,311	10,370	9,962	10,500
Three	10,886	10,247	10,127	9,999	10,423
Four or More	9,861	9,792	9,677	8,463	9,572
Average Annual Miles per Vehicle	10,616	10,010	10,085	9,618	10,188
Average Annual Miles per Household (all households)	17,477	12,324	16,474	14,666	15,060
Average Annual Miles per Household (vehicle owning households)	19,376	16,089	18,469	16,975	17,780
Percent of Vehicles	36.1	28.7	18.8	16.4	100.0‡

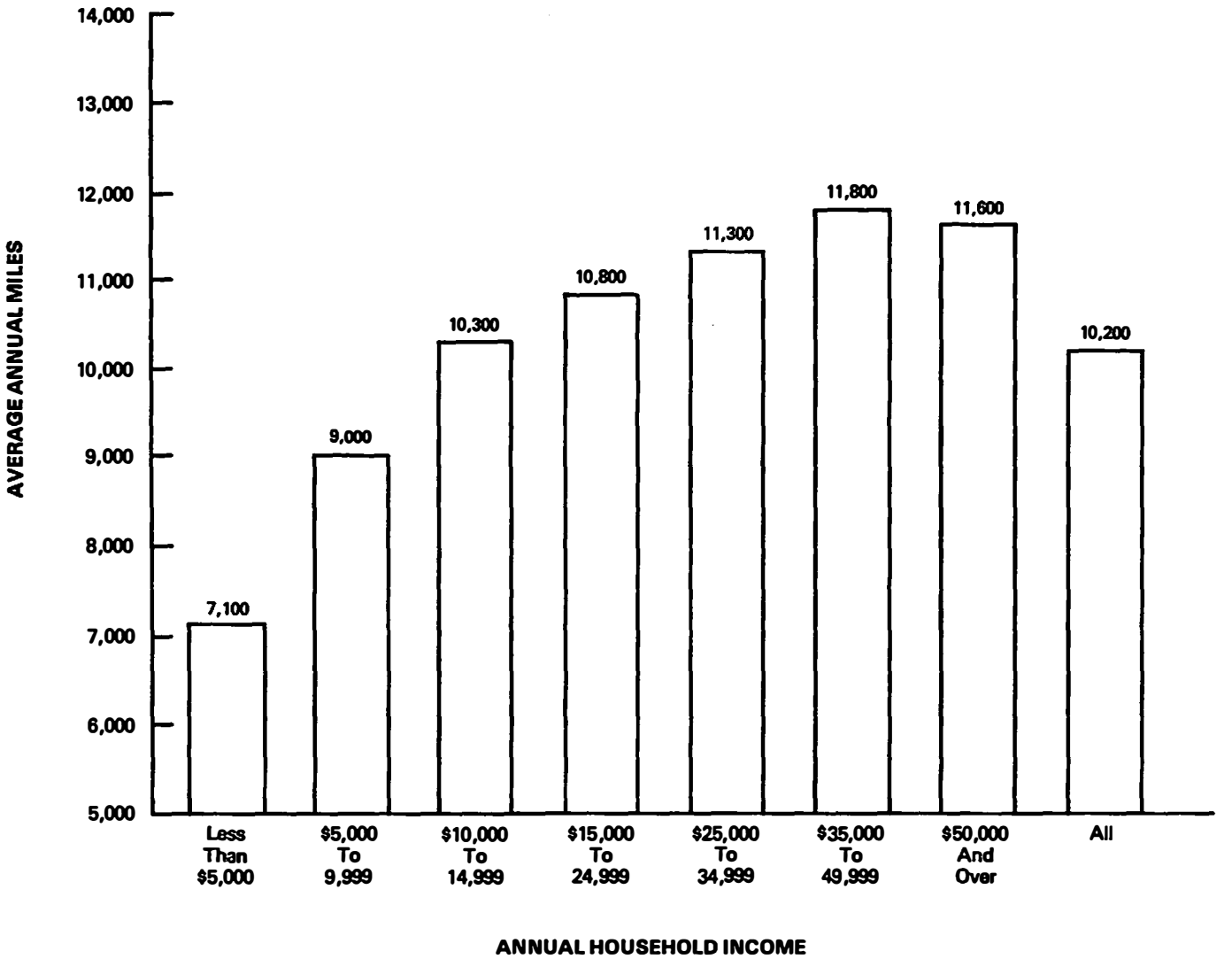
* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
‡ Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported)

TABLE 3. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND ANNUAL HOUSEHOLD INCOME

Household Vehicle Ownership	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 Income Groups
One	6,680	8,763	11,282	12,287	12,432	11,994	9,949	9,754
Two	6,984	9,008	9,847	11,244	11,994	12,411	13,107	10,500
Three	9,167	9,896	10,329	10,326	10,617	12,030	11,402	10,423
Four or More	6,970	8,562	9,482	9,204	10,346	10,733	10,235	9,572
Average Annual Miles Per Vehicle	7,054	8,998	10,261	10,834	11,278	11,750	11,597	10,188
Average Annual Miles Per Household (all households)	4,466	10,324	15,985	21,370	25,376	26,772	27,516	15,060
Average Annual Miles per Household (vehicle owning households)	8,317	12,499	17,096	22,008	25,789	27,657	28,307	17,780
Percent of Vehicles	8.4	17.1	22.5	32.7	12.0	4.8	2.5	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported).

FIGURE 1
AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD INCOME



*Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.

Individual vehicle use also varies with the number of vehicles owned within a given income group. For households with incomes under $10,000, individual vehicle use is greatest when three vehicles are owned. For households in the middle income categories ($10,000 to $35,000) vehicle use is greatest when only one vehicle is owned. For households in the highest income categories ($35,000 and over), vehicle use is greatest when two vehicles are owned.

Total household vehicle mileage also increases with income, even more rapidly than individual vehicle use because vehicle ownership also increases with income. While annual miles per vehicle increases 64 percent from 7,054 miles per year in households with incomes under $5,000 to 11,597 miles per year in households with incomes over $50,000, annual miles per household increases from 4,466 miles to 27,516 miles, or 516 percent, for the same income groups. If only vehicle-owning households are considered for this comparison, the difference is reduced to 240 percent, or 8,317 miles compared to 28,307 miles for the same income groups.

Number of Adults Per Household

As the number of adult members in a household increases, average annual mileage per vehicle also increases, as shown in Table 4. Annual miles per vehicle averages 8,835 miles in one-adult households, and grows to 10,223 in two-adult households, 10,602 in three-adult households, and 10,622 miles in households with four or more adults.

It is expected that the annual mileage per vehicle for a given adult group would drop as additional vehicles are owned. However, this trend is not convincingly demonstrated by the NPTS data. In one and two-adult households, use of each vehicle falls as vehicles are added beyond two vehicles owned. Likewise, in three-adult or four-or-more-adult households, individual vehicle use falls as vehicles are added beyond three vehicles owned. However, for lower levels of vehicle ownership, individual vehicle use <u>also</u> declines, which is not expected, and can only be attributed to economic, locational, and compositional differences between the households at different vehicle ownership levels.

There are striking differences in the average total vehicle miles per household as related to the number of household adults. One-adult households average 5,753 vehicle miles per year, which increases significantly to 16,191 miles per year for two-adult households to 21,740 miles per year for three-adult households and 26,972 miles per year for households with four or more adults. The annual mileage rates for vehicle-owning households only closely follow those for all households, except for one-adult households, which show an increase from 5,753 miles per year to 9,462 miles per year. As expected, one-adult households comprise a large proportion of households without vehicles.

TABLE 4. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND NUMBER OF HOUSEHOLD ADULTS**

Household Vehicle Ownership	Number of Household Adults				
	One	Two	Three	Four or More	All
One	8,875	10,360	10,166	10,167	9,754
Two	9,040	10,597	10,511	10,087	10,500
Three	8,775	9,383	11,404	11,298	10,423
Four or More	6,532	8,552	9,506	10,427	9,572
Average Annual Miles per Vehicle	8,835	10,223	10,602	10,622	10,188
Average Annual Miles per Household (all households)	5,753	16,191	21,740	26,972	15,060
Average Annual Miles per Household (vehicle owning households)	9,462	17,504	23,202	28,482	17,780
Percent of Vehicles	11.5	56.9	18.8	12.8	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.

** Defined as persons 16 years or older.

† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported)

Number of Licensed Drivers

Table 5 indicates that individual vehicles are driven more as the number of household drivers increases. Average annual mileage per vehicle increases from 9,413 miles in one-driver households to 10,334 miles in two-driver households to 10,736 miles in three-or-more-driver households.

As in the previous table with adults per household, it would be expected that individual vehicle use would decline as the number of vehicles owned by the household increases. Again, however, these trends are not consistently demonstrated by the data.

In two, three, and four-or-more-driver households, individual vehicle usage declines in direct proportion to the number of vehicles owned. However, in one-driver households, this correspondence does not occur. Again, it is cautioned that households with the same number of drivers but with different numbers of vehicles are probably also significantly different in terms of income, location, and other important factors which affect vehicle use.

Compared to individual vehicle usage rates, total household vehicle mileage increases dramatically as the number of household drivers increases. As shown in Table 5, average annual household vehicle mileage grows from 10,222 miles in one-driver households to 19,340 miles in two-driver households, to 28,199 miles in three-driver households, to 36,313 miles in households with four drivers or more. This indicates that on the average each driver shares in vehicle use about 9,100 to 10,200 miles per year. If only vehicle-owning households are considered, the per driver share of vehicle use is slightly higher between 9,200 and 11,300 miles per year.

Household Structure

Household structure has an important impact on vehicle usage. Household structure involves complex relationships between such characteristics as size, family relationships, stage of life cycle and employment. While these relationships are difficult to capture in a single measure, a 10-category classification system used by the Federal Highway Administration approximates these household characteristics. Households are distinguished by the number of household adults, the presence of dependent children in the household, age of the youngest child if children are present, or if children are not present, whether the household head is employed or retired.

Table 6 describes vehicle use according to these 10 household structure categories. First, children in a household influence the use of vehicles. In households without children where the household head is employed, annual vehicle use ranges from 9,243 to 10,390 miles per vehicle. In households with children, annual vehicle use is higher, ranging from 9,416 to 11,069 miles per vehicle.

TABLE 5. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND NUMBER OF LICENSED DRIVERS

Household Vehicle Ownership	Number of Household Drivers				
	One	Two	Three	Four or More	All
One	9,060	11,194	12,596	12,114	9,754
Two	9,994	10,572	10,735	10,506	10,500
Three	10,228	9,667	11,294	11,522	10,423
Four or More	9,274	8,891	9,684	10,364	9,572
Average Annual Miles per Vehicle	9,413	10,334	10,736	10,734	10,188
Average Annual Miles per Household (all households)	10,222	19,340	28,199	36,313	15,060
Average Annual Miles per Household (vehicle owning households)	11,308	19,555	28,284	36,606	17,780
Percent of Vehicles	24.4	54.6	14.7	6.3	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.

† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported)

TABLE 6. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND HOUSEHOLD STRUCTURE

Household Vehicle Ownership	Household Structure: Single Adult, No Children	Two or More Adults, No Children	Single Adult, Youngest Child Under 6	Two or More Adults, Youngest Child Under 6	Single Adult, Youngest Child 6 to 15
One	9,248	10,927	10,095	12,564	9,867
Two	9,738	10,516	11,691	10,803	8,717
Three	8,734	10,145	5,708	9,762	10,654
Four or More	7,362	9,278	2,580	7,632	15,580
Average Annual Miles per Vehicle	9,243	10,390	10,129	10,712	10,070
Average Annual Miles per Household (all households)	6,138	16,961	5,863	18,094	9,473
Average Annual Miles per Household (vehicle owning households)	9,864	18,657	10,545	18,770	12,733
Percent of Vehicles	8.2	25.1	0.8	17.7	2.3

Household Vehicle Ownership	Household Structure: Two or More Adults, Youngest Child 6 to 15	Single Adult, Youngest Child 16 or Older	Two or More Adults, Youngest Child 16 or Older	Single Adult, Retired, No Children	Two or More Adults, Retired, No Children	ALL
One	11,829	8,111	8,071	5,241	6,705	9,754
Two	11,442	9,758	10,296	4,601	6,881	10,500
Three	11,313	11,140	10,483	6,230	6,035	10,423
Four or More	9,758	7,708	10,468	1,540	4,535	9,572
Average Annual Miles per Vehicle	11,069	9,416	10,334	5,148	6,641	10,188
Average Annual Miles per Household (all households)	23,418	11,556	24,901	2,784	7,935	15,060
Average Annual Miles per Household (vehicle owning households)	24,167	14,665	26,322	5,273	9,163	17,780
Percent of Vehicles	25.6	1.8	10.9	1.3	6.3	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported).

Second, individual vehicle use is higher in multiple-adult households than in comparable single-adult households. In households where the head is retired, individual vehicle use goes from 5,146 annual miles for single-adult households to 6,641 annual miles for multiple-adult households. In childless households where the head is employed, use increases from 9,243 miles for single-adult to 10,390 miles for multiple-adult households. The difference continues between single and multiple-adult households with children--from 10,129 to 10,712 miles where the youngest child is under 6, from 10,070 to 11,069 miles where the youngest child is 6 to 15, and 9,416 to 10,334 miles where the youngest child is 16 or older.

Vehicle use also varies with the age of the youngest child. Households with children under 6 and households with the youngest child between 6 and 15 have the highest rates of individual vehicle use, ranging from 10,070 to 11,069 miles per year. It may appear surprising, in fact, that households where the youngest child is 16 or older have lower individual vehicle use rates than households with children under age 16. However, these households own larger numbers of vehicles, and the total household vehicle mileage for this group is among the highest.

The number of vehicles owned by households does not seem to systematically influence individual vehicle use among the various household structure groups.

Rates of individual vehicle use are comparable in rank to total household vehicle use among household structure groups.

Households headed by retired persons have the lowest rates of total household vehicle use, ranging from only 2,784 to 7,935 miles per year. For households without children, but where the head of the household is not retired, vehicle use per household rises to 6,138 miles per year for single-adult households and to 16,961 for multiple-adult households.

Households with children drive more total mileage than households without children, and the amount of total household vehicle use increases with the age of the youngest child. As shown, in single-adult households total household vehicle use increases from 5,863 miles per year where the youngest child is under 6 years old to 9,473 miles per year where the child is 6 to 15, and increases again to 11,556 where the youngest child is age 16 or over.

This contrasts with average individual vehicle use in single-adult households, which declines as the youngest child's age increases, from 10,129 to 9,416 miles per year. This is due to increased vehicle ownership in households with older children. The same is true for multiple-adult households, with children, in which total household vehicle use rises from 18,094 to 23,418 to 24,901 miles per year, while average per vehicle use varies from 10,712 to 11,069 and to 10,334 miles per year for households whose youngest child is under 6, 6 to 15, or 16 and over, respectively.

Utilization rates for vehicle-owning households only generally follow the same trends as those for all households. The lowest rates occur in households whose head is retired, 5,273 miles per year for single-adult households and 9,163 miles per year for multiple-adult households. Within the single-adult household categories, those without children drive less (9,964 miles per year) than those with children (10,545 to 14,665 miles per year). Average miles per vehicle-owning household increases with the age of the youngest child.

The same trends occur within multiple-adult households. Those without children drive less (18,557 miles per year) than any category with children (18,770 to 26,322 miles per year) and mileage increases as the age of the youngest child increases.

Occupation of Household Head*

Relationships between occupation of the household head and vehicle use are illustrated in Table 7. Where the head of the household is employed as a manager or administrator, vehicles are driven the most, averaging 11,605 miles per vehicle annually. Households whose heads are professional or technical employees or salesmen and clerks are next in order of per vehicle use, just under 11,000 miles annually. Craftsmen and operatives and laborers follow with per vehicle use at 10,664 and 10,224 miles per year, respectively. Service workers and farmers or farm managers drive their vehicles an average of only about 9,500 miles per year. The lowest use of vehicles occurs in households where the household head is unemployed, averaging 8,100 miles per year.

For six out of the seven occupation categories, vehicles in one-vehicle households are the most heavily used, ranging from a low of about 10,400 miles per year for household vehicles of service workers and salesmen and clerks to a high of 13,024 miles per year for household vehicles of craftsmen. For most households, where the household head is employed, annual mileage per vehicle decreases with the number of vehicles owned.

Households with retired and unemployed heads drive an average of 6,844 and 8,085 miles per year per vehicle, significantly less than households of employed persons.

If average per vehicle use is compared with total household vehicle use, additional information is gained about the use of vehicles by various occupational groups. Managers and administrators, who use individual vehicles the most, 11,605 miles per year, also have one of the highest rates of total household vehicle use of 23,650 miles per year. However, farmers and farm managers, who are among the lowest in individual vehicle use at 9,477 miles, also have one of the highest rates of total household vehicle use at 23,718 miles per year. Households headed by craftsmen, who have only average rates

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

TABLE 7. AVERAGE ANNUAL MILES PER VEHICLE* BY VEHICLE OWNERSHIP AND OCCUPATION OF HOUSEHOLD HEAD

Household Vehicle Ownership	Occupation of Household Head: Professional and Technical	Farmers and Farm Workers	Managers and Administrators	Sales and Clerks	Craftsmen
One	12,530	12,123	12,467	10,358	13,024
Two	11,119	11,026	11,989	11,453	10,805
Three	10,301	9,090	11,251	10,859	10,440
Four or More	8,916	8,394	10,649	10,804	8,546
Average Annual Miles per Vehicle	10,951	9,477	11,605	10,984	10,684
Average Annual Miles per Household (all households)	19,137	23,718	23,650	12,443	21,591
Average Annual Miles per Household (vehicle owning households)	20,102	23,958	24,356	19,253	22,190
Percent of Vehicles	13.5	2.6	13.1	11.3	16.9

Household Vehicle Ownership	Occupation of Household Head: Operatives and Laborers	Service Workers	Retired	Unemployed	Occupation or Work Status Unknown	ALL
One	11,358	10,374	8,278	6,715	11,055	9,754
Two	9,956	9,451	8,935	9,013	11,789	10,500
Three	9,607	9,244	8,959	9,506	13,645	10,423
Four or More	10,335	7,480	6,588	9,844	11,389	9,572
Average Annual Miles per Vehicle	10,224	9,458	6,844	8,085	12,064	10,188
Average Annual Miles per Household (all households)	16,491	11,495	7,724	6,286	18,652	15,060
Average Annual Miles per Household (vehicle owning households)	18,023	14,477	9,839	10,951	21,513	17,780
Percent of Vehicles	14.2	5.3	9.4	8.0	5.7	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported).

of per vehicle use (10,664 miles), have one of the highest rates of total household vehicle use (21,591 miles per year).

Average annual vehicle miles in only vehicle-owning households follow the same trends as annual miles for all households. The highest rates of usage per vehicle-owning household occur in households whose heads are managers or administrators (24,356 miles per year), farmers and farm managers (23,958 miles) and craftsmen (22,190 miles). The occupational categories which show a notable difference between the per household rate and the per vehicle-owning household rate are sales and clerks (12,443 versus 19,253 miles per year) and unemployed (6,286 versus 10,951 miles per year).

Availability of Public Transportation

Households with access to public transportation service use private vehicles less than those without access. Table 8 indicates that households with public transportation service within 2 miles of their home drive individual vehicles an average of 9,921 miles per year, compared to the average of 10,556 miles per vehicle in households without public transportation available.

Total household vehicle use shows a similar pattern. Households without public transportation within 2 miles of their home drive their vehicles approximately 18,100 miles per year, compared to 13,300 miles for households within 2 miles of public transportation.

When only vehicle-owning households are considered, those without public transportation available within 2 miles drive their vehicles an average of 19,937 miles per year, compared to 16,417 miles per year for households with public transportation available.

B. RELATIONSHIP BETWEEN VEHICLE USE AND VEHICLE CHARACTERISTICS

Data presented in this section examines the relationship between annual miles driven in household vehicles and vehicle characteristics such as vehicle type, model year, whether the vehicle is purchased new or used, fuel economy (MPG), weight, transmission type, and air conditioning. Each relationship presented also includes the number of vehicles owned by the household as an important determinant in vehicle use.

Vehicle Type

The annual use of household vehicles by type of vehicle is shown in Table 9 and Figure 2. The table also indicates how usage varies according to the number of vehicles owned by or available on a regular basis to the household. Note that vehicle ownership corresponds to the total number of vehicles owned or available, and not the number of vehicles of any particular type which are owned. For

TABLE 8. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND AVAILABILITY OF PUBLIC TRANSPORTATION**

Household Vehicle Ownership	Availability of Public Transportation			
	Yes	No	Don't Know	All
One	9,493	10,198	10,618	9,754
Two	10,208	10,887	10,270	10,500
Three	10,295	10,678	8,616	10,423
Four or More	9,181	9,934	8,261	9,572
Average Annual Miles per Vehicle	9,921	10,556	9,782	10,188
Average Annual Miles per Household (all households)	13,298	18,123	13,852	15,060
Average Annual Miles per Household (vehicle owning households)	16,417	19,937	15,391	17,780
Percent of Vehicles	54.2	42.9	2.9	100.0†

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.

** Availability defined as having public transportation within 2 miles of residence.

† Total vehicles = 107,900,000 (120,098,000 less 12,198,000 for which annual miles not reported).

TABLE 9. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND VEHICLE TYPE

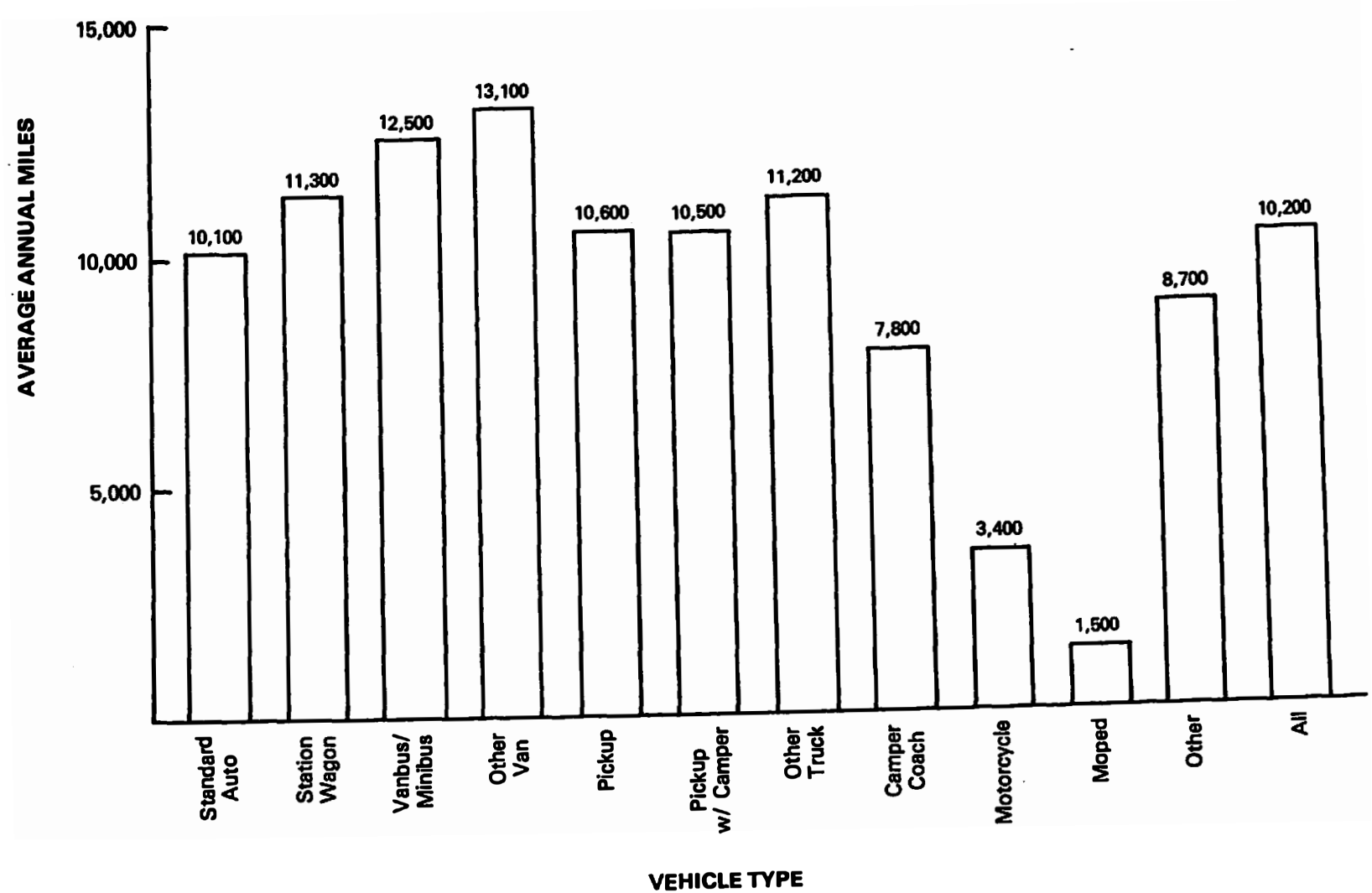
Household Vehicle Ownership	Vehicle Type					
	Standard Auto	Station Wagon	Vanbus/ Minibus	Other Van	Pickup	Pickup with Camper
One	9,502	11,045	14,054	14,459	10,811	14,623
Two	10,326	11,415	12,313	12,601	10,573	11,533
Three	10,568	11,385	11,841	12,700	10,723	7,756
Four or More	10,088	10,725	12,907	13,537	10,403	10,039
Average Annual Miles	10,127	11,271	12,500	13,050	10,648	10,522

Household Vehicle Ownership	Vehicle Type					
	Other Truck	Camper Coach	Motor-cycle	Moped	Other Vehicles	All Vehicles
One	13,863	10,165	5,724	**	16,000	9,754
Two	11,555	7,531	4,848	**	10,166	10,500
Three	17,348	7,686	3,401	2,370	6,704	10,423
Four or More	8,269	7,851	2,800	1,012	8,194	9,572
Average Annual Miles	11,244	7,828	3,422	1,477	8,696	10,188

* Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.
** Insufficient data.

FIGURE 2

AVERAGE ANNUAL MILES PER VEHICLE* BY VEHICLE TYPE



*Includes all motor vehicles (autos, trucks, motorcycles and mopeds) owned by or available to the household on a regular basis.

example, in a three-vehicle household that owns a standard auto, a station wagon and a pickup truck, *on the average* these vehicles are driven 10,568, 11,385 and 10,723 miles per year, respectively.

Among the various types of private vehicles, those with the highest rates of usage are other vans, averaging 13,050 miles per year, followed by vanbuses and minibuses, which average 12,500 miles per year. Standard automobiles experience moderate use, averaging 10,127 miles per year, close to the average for all vehicles, which is 10,188 miles per year. Stations wagons, used slightly more than regular automobiles, average 11,271 miles per year, which is similar to the use of other trucks. The use of pickup trucks (with and without camper) is only slightly greater than that of automobiles, averaging about 10,600 miles per year. Recreational vehicles, defined here as camper coaches, motorcycles and mopeds, are used less than all other household vehicles. Camper coaches average only 7,800 miles per year, motorcycles 3,400 miles, and mopeds 1,500 miles.

The number of vehicles owned by households does not noticeably affect the usage of particular vehicle types.

Vehicle Age

Table 10* and Figure 3 describe how vehicle use varies with the age of the vehicle. The data indicate that 2-year-old vehicles are used the most, and use decreases thereafter with age. Annual vehicle use increases from 11,268 miles per year for current (1978) model year vehicles to 13,498 miles per year for vehicles which are 1 year old. The peak year of annual use--13,562 miles per year--occurs when the average vehicle is 2 years old. Average annual use then declines steadily with vehicle age, to 7,085 miles per year for vehicles which are 10 years of age and older.

In general, Table 10 illustrates that average use of vehicles increases as the number of vehicles per household increases up through three vehicles per household.

New and Used Vehicles

Table 11** illustrates that new vehicles are driven more than used vehicles. Vehicles purchased new are driven an average of 10,859 miles per year, or 18 percent more than the 9,186 miles per year for used vehicles. Moreover, new vehicles are utilized more regardless of the number of vehicles owned by the household.

*Table 10 should be read as follows: In a two-vehicle household that owns a 1975 and a 1973 vehicle, *on the average* these vehicles are driven 12,281 and 11,075 miles per year, respectively.

**Table 11 should be read as follows: In a three-vehicle household that purchased one vehicle new and two vehicles used, the vehicle purchased new is driven an average of 11,345 miles per year and the average vehicle purchased used is driven 9,252 miles per year.

TABLE 10. AVERAGE ANNUAL MILES PER VEHICLE* BY MODEL YEAR AND HOUSEHOLD VEHICLE OWNERSHIP

Vehicle Age (Years)	Model Year	Household Vehicle Ownership				
		One	Two	Three	Four or More	All
Under 1**	1978	11,806	13,144	9,283	7,718	11,268
1	1977	12,454	13,476	14,249	14,137	13,498
2	1976	13,204	13,793	13,847	12,995	13,562
3	1975	11,496	12,281	13,032	12,379	12,261
4	1974	10,806	11,699	11,603	11,806	11,497
5	1973	10,411	11,075	11,792	10,274	10,964
6	1972	9,546	10,125	12,283	11,911	10,624
7	1971	8,874	9,673	10,025	10,503	9,655
8	1970	8,131	8,939	8,783	9,368	8,757
9	1969	8,825	8,723	9,058	7,877	8,714
10 and Over	1968 and older	6,579	7,347	7,273	6,850	7,085
All		9,759	10,557	10,740	10,213	10,368

* Includes motor vehicles owned by or available to household on a regular basis; excludes vehicles for which model year not reported, which eliminates all motorcycles and mopeds.

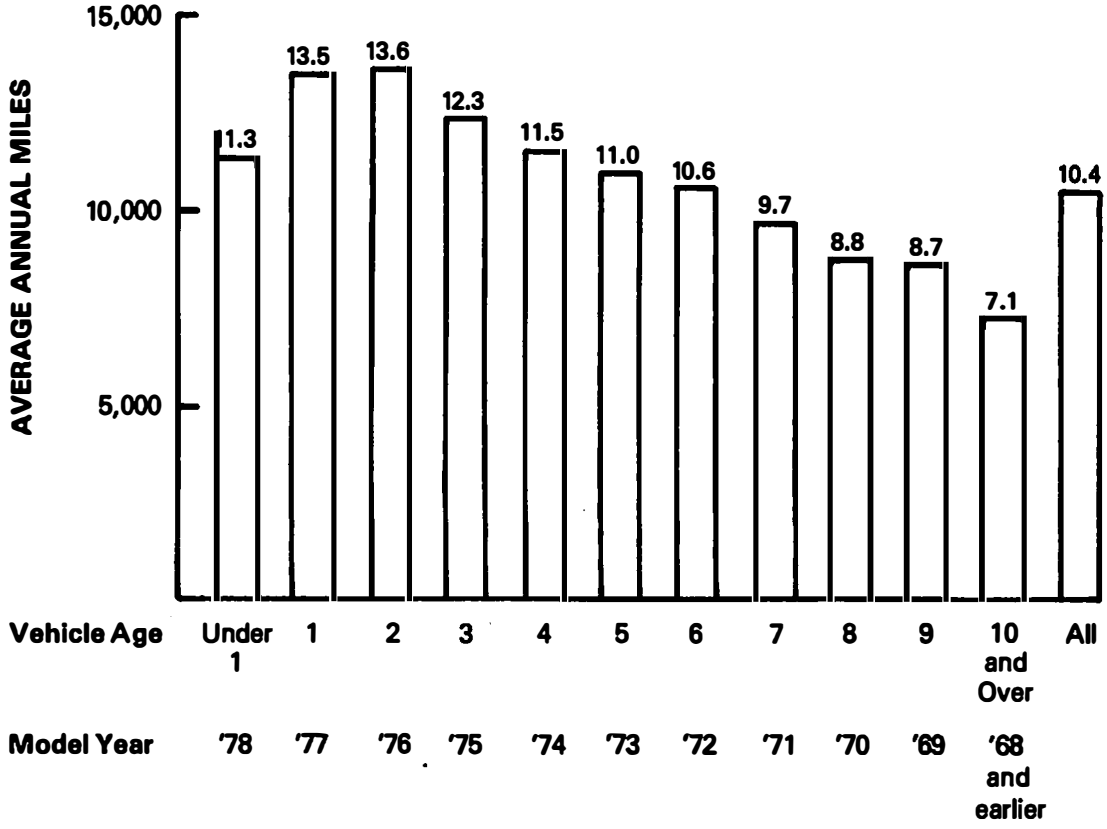
** Because the NPTS was conducted from April 1977 to March 1978, the 1978 model year vehicles comprise only 1 percent of all vehicles reported.

TABLE 11. AVERAGE ANNUAL MILES PER VEHICLE* BY HOUSEHOLD VEHICLE OWNERSHIP AND WHETHER PURCHASED NEW OR USED

Household Vehicle Ownership	Vehicle Purchased New or Used		
	New	Used	All
One	9,924	9,399	9,625
Two	11,238	9,304	10,265
Three	11,346	9,252	10,161
Four or More	10,626	8,500	9,359
All	10,859	9,188	9,857

* Includes only vehicles owned by the household through purchase by household members. Vehicles available on a regular basis through other means (company-owned, leased, rental, other) are not included in annual mileage estimates, but are used in determining household vehicle ownership.

FIGURE 3
AVERAGE ANNUAL MILES (THOUSANDS) PER VEHICLE*
BY MODEL YEAR



***Includes all motor vehicles owned by or available to the household on a regular basis, except motorcycles and mopeds because data on model year not collected.**

For vehicles purchased new, use of each vehicle increases as the number of household vehicles increases, up to three vehicles per household. Individual vehicle use increases from 9,924 miles per year in one-vehicle households to 11,345 miles per year in households with three vehicles, then declines to 10,626 for households with four or more vehicles. For vehicles purchased used, average annual miles declines as number of vehicles per household increases. Utilization rates are highest (9,399 miles per year) for used vehicles in one-vehicle households and lowest (8,500 miles per year) in households with four or more vehicles.

Type of Vehicle and Model Year

Table 12 expands on Tables 9 and 10 by presenting annual vehicle use simultaneously by type and model year.

As shown in Table 12, average vehicle use for the universe of household vehicles peaks at 13,562 miles per year for vehicles that are 2 years old. After the peak, average vehicle use drops throughout its service life to 7,085 miles per year for vehicles 10 years and older.

Peak use of automobiles, other vans and pickups with camper occurs when these vehicles are 1 year old. Peak use of station wagons, pickups and camper coaches is the third year of service life. Vanbuses and minibuses peak in their sixth year, while other trucks peak in the seventh year.

Vehicle Type and Whether Purchased New or Used

Table 11 shows that use of vehicles purchased new exceeds use of vehicles purchased used. Table 13 also shows the rate of use of new vehicles is greater than used vehicles for each vehicle type, except camper coach. Average annual mileage is 17 percent higher for standard autos purchased new than those purchased used, 15 percent higher for new station wagons, 23 percent higher for new vanbus/minibus vehicles, 56 percent higher for new other vans, 26 percent higher for new pickup trucks, 45 percent higher for new pickups with camper, 17 percent higher for new other trucks, 56 percent higher for new motorcycles, and 67 percent higher for new mopeds. The only exception to the rule, camper coaches are driven 4 percent less if purchased new rather than used.

Model Year and Whether Purchased New or Used

As seen in Table 14, through the first 3 years of ownership vehicles purchased new accumulate more annual mileage than those purchased used. From the fourth year on, the relationship changes and vehicles purchased used average higher annual mileage. In general, however, the older a vehicle, the less it is driven, regardless of whether it is purchased new or used.

TABLE 12. AVERAGE ANNUAL MILES PER VEHICLE* BY MODEL YEAR AND VEHICLE TYPE

Model Year	Vehicle Age (Years)	Auto	Station Wagon	Vanbus/ Minibus	Other Van	Pickup	Pickup with Camper	Other Truck	Camper Coach	Other	ALL
1978	Under 1	12,248	7,501	14,379	8,469	9,074	**	**	**	**	11,268
1977	1	13,322	13,784	13,896	17,751	13,927	14,774	20,739	8,070	6,681	13,498
1976	2	13,199	14,430	14,767	17,185	14,907	12,886	9,645	10,889	12,793	13,562
1975	3	11,849	13,844	14,829	13,671	13,511	13,546	11,244	6,055	21,034	12,261
1974	4	10,952	13,706	13,929	14,866	13,701	9,256	9,170	7,004	7,811	11,497
1973	5	10,523	10,939	15,757	12,966	12,340	11,587	25,627	5,605	8,873	10,964
1972	6	10,405	10,942	12,863	17,409	10,206	12,776	28,959	9,131	6,275	10,624
1971	7	9,371	10,434	11,226	17,112	10,102	14,346	12,823	4,730	21,241	9,655
1970	8	8,646	8,673	9,271	8,171	9,503	7,372	12,804	10,478	7,355	8,757
1969	9	8,571	10,959	8,386	9,993	7,842	9,981	7,343	6,844	11,186	8,714
1968 and Older	10 and Over	7,051	7,760	8,107	7,719	6,781	6,269	7,639	10,009	5,767	7,085
All	All	10,127	11,271	12,500	13,050	10,648	10,522	11,244	7,828	8,696	10,368

* Includes all motor vehicles owned by or available to household on a regular basis; excludes vehicles for which model year not reported, which eliminates all motorcycles and mopeds.
** Insufficient data.

TABLE 13. AVERAGE ANNUAL MILES PER VEHICLE* BY VEHICLE TYPE AND WHETHER VEHICLE PURCHASED NEW OR USED

Vehicle Type	Vehicle Purchased New or Used		
	New	Used	All
Standard Auto	10,738	9,205	9,947
Station Wagon	11,778	10,222	10,989
Vanbus/Minibus	13,556	11,009	12,199
Other Van	16,131	10,335	12,775
Pickup	11,628	9,240	10,313
Pickup w/Camper	12,431	8,564	10,618
Other Truck	12,474	10,665	11,233
Camper Coach	7,493	7,788	7,638
Motorcycles	4,198	2,687	3,404
Mopeds	1,795	1,078	1,487
Other	8,224	7,938	8,027
All	10,859	9,188	9,857

* Includes only vehicles owned by the household through purchase by household members. Vehicles available on a regular basis through other means (company-owned, leased, rental, other) are not included in annual mileage estimates.

TABLE 14. AVERAGE ANNUAL MILES PER VEHICLE* BY MODEL YEAR AND WHETHER VEHICLE PURCHASED NEW OR USED

Model Year	Vehicle Age (years)	Vehicle Purchased New or Used		
		New	Used	All
1978	Less than 1	12,280	5,009	12,190
1977	1	13,351	11,338	13,244
1976	2	13,275	11,078	12,867
1975	3	12,271	10,933	11,827
1974	4	11,230	11,601	11,399
1973	5	10,388	11,228	10,805
1972	6	9,759	11,235	10,612
1971	7	9,384	9,791	9,642
1970	8	8,115	9,060	8,746
1969	9	8,348	8,875	8,745
1968 and Older	10 and Over	6,120	7,285	7,056
All	All	11,030	9,360	10,160
Percent of Vehicles		47.9	52.1	100.0†
Average Vehicle Age (Years)		4.5	8.2	6.3

* Includes only vehicles owned by the household through purchase by household members. Motorcycles and mopeds not included beceusa of insufficient data on model year.
† Total vehicles = 99,327,000 (120,098,000 less 20,771,000 that were either not purchased, purchased new/used not reported or model year and annual miles not reported).

Distribution of Annual Mileage by Model Year

Table 15 illustrates how annual vehicle use varies within a particular model year and, conversely, how vehicles experiencing a particular level of utilization are distributed by model year.

The top half of Table 15 describes the proportion of vehicles by age within a particular annual mileage group. The same information presented as a bar chart in Figure 4 shows that generally, median vehicle age decreases as annual mileage increases. This tabulation indicates that vehicles comprising the different utilization groups have different age characteristics. Vehicles in the 23,000 to 28,000 annual miles group are the youngest group of vehicles, with a median age of 3 years. As annual usage declines, vehicles tend to be progressively older, with vehicles used less than 1,000 miles per year having a median age of 9 years. The median age of vehicles for all mileage groups over 13,000 miles per year is 4 years or less.

As seen earlier in Table 10, annual mileage is highest for vehicles under 2 years of age and declines thereafter. This is seen also in the bottom half of Table 15. Of all 2-year-old vehicles, 70.1 percent are used 8,000 miles per year or more, compared with 57.8 percent of vehicles that are 5 years old, 49.5 percent of vehicles 7 years old, and 30.7 percent of vehicles 10 years of age or older.

Average Vehicle Age by Annual Mileage Group and Number of Vehicles Owned

Generally, average vehicle age increases as the number of vehicles per household increases, but average age decreases as annual vehicle use increases. As illustrated in Table 16, vehicles used less than 1,000 miles per year average 10.3 years of age, compared to 6.9 years of age where annual use is between 3,000 and 8,000 miles per year, 5.8 years of age where annual use is between 8,000 and 13,000 miles per year, and 4.3 years of age where annual use is between 23,000 and 28,000 miles.

The use of later model vehicles at higher levels of annual mileage occurs in all households, regardless of the number of vehicles owned.

For households whose vehicles are driven approximately equal miles each year, vehicle age generally increases as the number of vehicles increases. Vehicles used between 8,000 and 13,000 miles per year average 5.6 years of age in one-vehicle households, 5.7 years of age in two-vehicle households, 5.9 years of age in three-vehicle households, and 6.0 years of age in households with four or more vehicles.

Select Automobile Characteristics

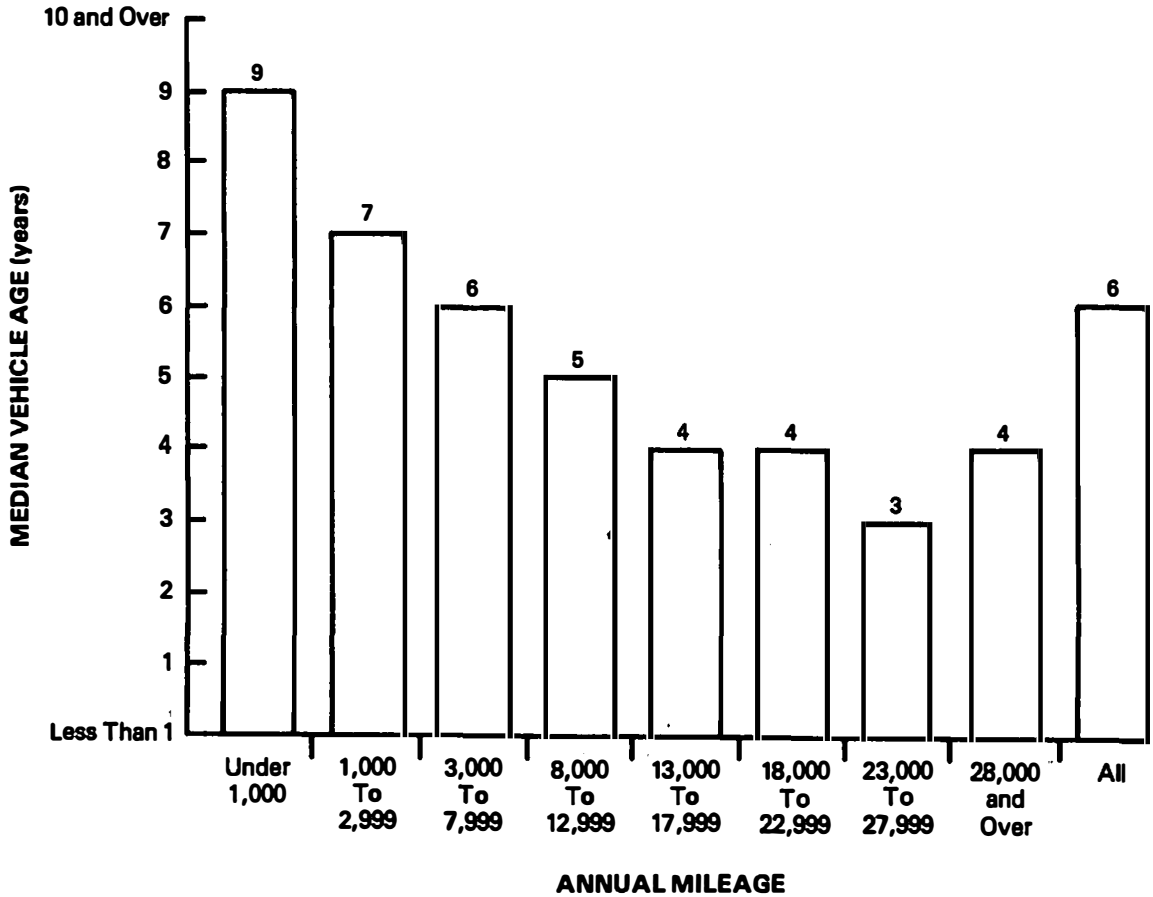
Figure 5 describes vehicle use related to certain physical characteristics, in particular those that have a bearing on energy use. These

TABLE 15. PERCENT OF VEHICLES* BY ANNUAL MILEAGE AND MODEL YEAR

Model Year	Vehicle Age	Annual Mileage: Under 1,000	1,000 to 2,999	3,000 to 7,999	8,000 to 12,999	13,000 to 17,999	18,000 to 22,999	23,000 to 27,999	28,000 and Over	ALL
		by Mileage Group								
1978	Under 1	2.8	1.1	0.7	0.8	0.8	0.9	2.1	1.8	1.0
1977	1	5.4	4.6	7.4	8.2	13.9	13.9	19.6	17.4	9.0
1976	2	3.2	5.5	7.7	11.5	15.4	17.4	16.7	17.7	10.3
1975	3	3.6	5.0	7.1	9.9	10.3	10.2	12.6	10.9	8.2
1974	4	4.8	7.8	9.2	11.6	11.7	10.5	10.0	10.5	9.8
1973	5	5.6	9.3	10.0	11.7	11.9	12.0	9.7	8.9	10.3
1972	6	6.2	9.1	10.2	10.7	10.7	9.5	9.0	7.1	9.7
1971	7	4.7	7.5	8.1	7.3	5.4	7.9	4.4	5.6	7.0
1970	8	6.6	7.2	7.9	7.4	5.0	4.5	2.9	3.0	6.7
1969	9	7.1	9.0	7.2	5.8	4.9	4.1	4.4	3.8	6.4
1968 and Older	10 and Over	50.0	33.9	24.5	15.1	10.0	9.1	8.6	13.3	21.6
	All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0†
Model Year	Vehicle Age	by Model Year								
1978	Under 1	22.0	13.1	18.4	20.0	9.2	5.0	5.6	6.7	100.0
1977	1	4.9	6.1	22.7	24.9	18.8	8.8	6.3	7.5	100.0
1976	2	2.5	6.5	20.9	30.7	18.2	9.8	4.7	6.7	100.0
1975	3	3.6	7.3	23.9	33.2	15.3	7.1	4.4	5.2	100.0
1974	4	4.1	9.6	26.0	32.4	14.6	6.2	2.9	4.2	100.0
1973	5	4.5	10.8	26.9	31.0	14.0	6.7	2.7	3.4	100.0
1972	6	5.2	11.3	29.0	30.1	13.2	5.6	2.7	2.9	100.0
1971	7	5.4	12.9	32.2	28.7	9.4	6.5	1.8	3.1	100.0
1970	8	8.0	12.9	32.8	30.3	9.0	3.9	1.3	1.8	100.0
1969	9	9.1	16.9	31.5	25.8	9.5	3.7	2.0	2.3	100.0
1968 and Older	10 and Over	19.0	18.9	31.4	19.2	5.6	2.4	1.1	2.4	100.0
	All	8.2	12.0	27.7	27.4	12.2	5.7	2.9	3.9	100.0†

* Includes all motor vehicles owned by or available to household on a regular basis; excludes vehicles for which model year not reported, which eliminates all motorcycles and mopeds.
† Total vehicles = 105,030,000 (120,098,000 less 15,068,000 for which model year or annual miles not reported)

FIGURE 4
MEDIAN VEHICLE* AGE BY ANNUAL MILEAGE GROUP



***Includes motor vehicles owned by or available to the household on a regular basis except motorcycles and mopeds because data on model year not collected.**

TABLE 16. AVERAGE VEHICLE AGE* BY ANNUAL MILEAGE AND VEHICLE OWNERSHIP

Annual Mileage Group	Household Vehicle Ownership				
	One	Two	Three	Four or More	All
Under 1,000	9.3	9.3	11.1	12.4	10.3
1,000 to 2,999	8.2	7.9	8.1	8.9	8.2
3,000 to 7,999	6.5	6.8	7.2	7.4	6.9
8,000 to 12,999	5.6	5.7	5.9	6.0	5.8
13,000 to 17,999	4.9	4.8	4.9	5.3	4.9
18,000 to 22,999	4.5	4.8	4.3	5.2	4.8
23,000 to 27,999	4.2	4.1	4.6	4.6	4.3
28,000 and over	5.0	4.5	4.8	4.9	4.7
All	6.3	6.3	6.7	7.2	6.6

* Includes all motor vehicles owned by or available to household on a regular basis; excludes vehicles for which model year not reportad, which eliminates all motorcycles and mopeds.

characteristics include vehicle curb weight,* automatic or manual transmission, and air conditioning. Due to the limitations of survey information, Figure 5 describes use of automobile vehicles only, including standard automobiles, station wagons, personal-use taxis and vanbuses or minibuses.

The average rate of automobile use is 10,300 miles per year.

As shown in Figure 5(a), automobiles in the lightest weight class, under 2,500 pounds, are used the most, ranging between 12,300 and 13,000 miles per year. Automobiles in the medium weight class, 2,500 to 3,500 pounds, are used at a below-average rate, between 9,500 and 9,700 miles per year, while automobiles in the heaviest weight classes, 3,500 pounds and over, are used at an above-average rate, between 10,600 and 11,000 miles per year.

The automobile use information in Figure 5(a) implies greatest use of the most fuel-efficient automobiles. However, automobiles under 2,500 pounds account for only 6.4 percent of all automobiles, and 7.7 percent of all automobile travel, while automobiles over 3,500 pounds account for 57.9 percent of all automobiles and 59.9 percent of all automobile travel.

Figure 5(b) shows equal annual use of automobiles equipped with automatic and manual transmission. While vehicles of all types with automatic transmission are normally less fuel-efficient than vehicles with manual transmission, 80.5 percent of all auto vehicles have automatic transmission. The average annual miles for all autos is 10,300; those with automatic transmission are used at slightly below average rates of 10,200 miles per year and account for 79.3 percent of all auto travel.

Vehicles of all types with air conditioning generally consume more energy than comparable vehicles without air conditioning. As shown in Figure 5(c), air conditioned automobiles are used an average of 11,000 miles per year compared to 9,400 miles per year for automobiles without air conditioning. A majority of travel, 60.3 percent, is in vehicles with air conditioning.

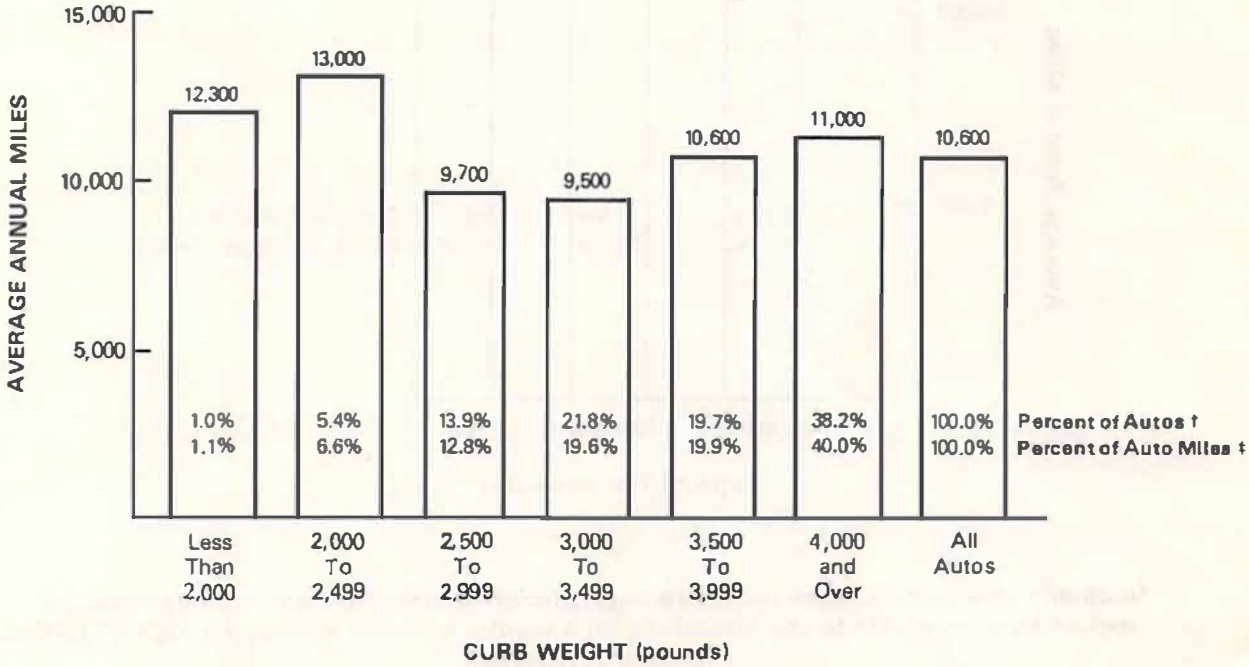
C. VEHICLE USE AS RELATED TO BOTH HOUSEHOLD AND VEHICLE CHARACTERISTICS

Vehicle characteristics must be considered along with household characteristics because individuals usually obtain vehicles based on the travel needs of their households. Therefore, this section presents data on the combined effects of household and vehicle characteristics on vehicle use.

Tables 17 to 20 describe annual vehicle use, average vehicle age, proportion of total vehicles and proportion of total vehicle travel by each of the following household characteristics:

*Vehicle fully laden, but without passengers.

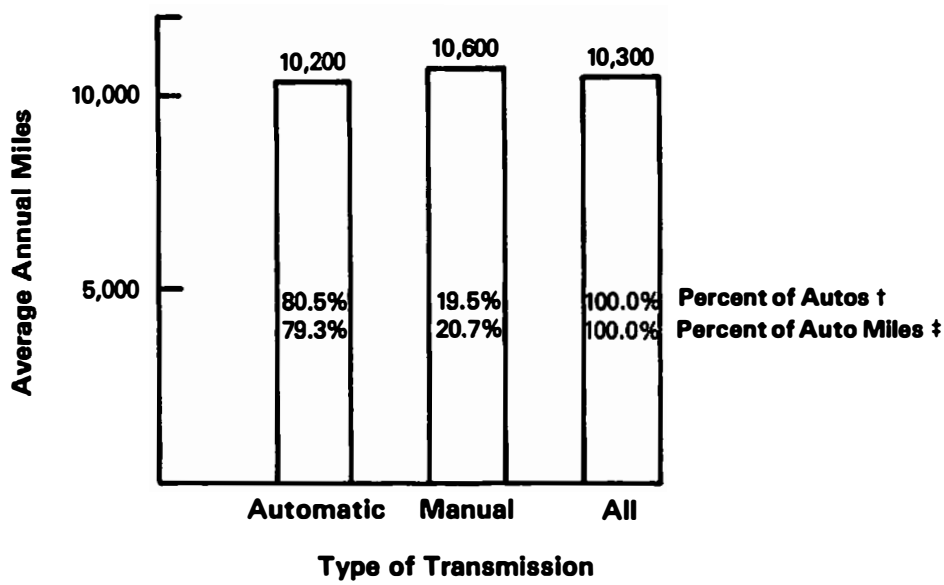
FIGURE 5a
AVERAGE ANNUAL MILES PER AUTO BY CURB WEIGHT



* Includes only auto vehicles (standard auto and station wagon) owned by or available to the household on a regular basis.
† Total autos = 52,208,000 for which curb weight and annual mileage was reported
‡ Total estimated annual auto miles = 551,463,000,000 where curb weight and annual mileage was reported

20.3% autos < 3K. wt
20.5% auto VMT < 3K

FIGURE 5b
AVERAGE ANNUAL MILES PER AUTO*
BY TRANSMISSION TYPE

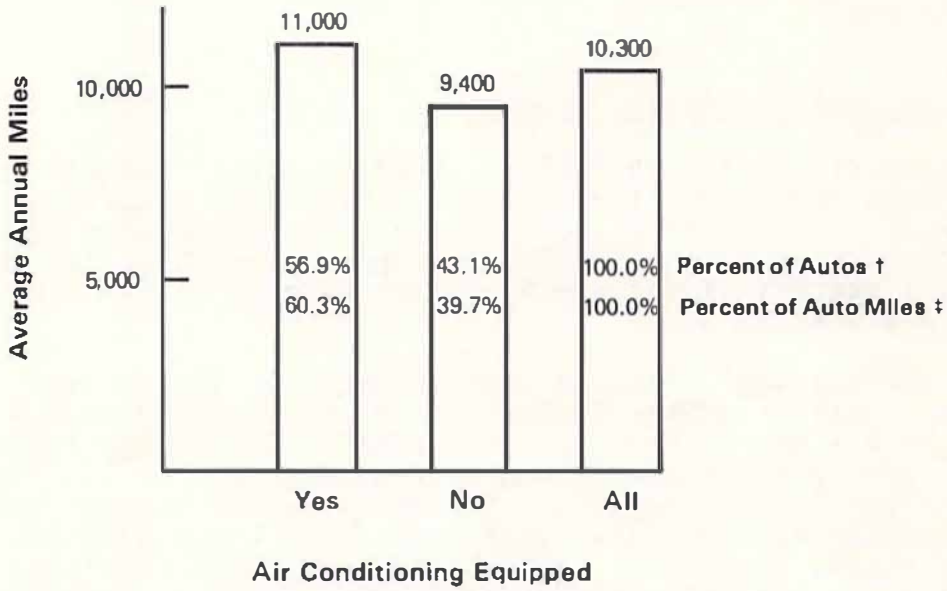


*Includes only auto vehicles (standard auto, station wagon, taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.

† Total autos = 88,913,000 for which transmission type and annual mileage reported

‡ Total estimated annual auto miles = 915,271,000,000 for which transmission type and annual mileage reported

FIGURE 5c
AVERAGE ANNUAL MILES PER AUTO*
BY WHETHER EQUIPPED WITH AIR CONDITIONING



*Includes only auto vehicles (standard auto, station wagon, taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.

† Total autos=88,889,000 for which air conditioning and annual mileage reported

‡ Total estimated annual auto miles = 914,450,000,000 for which air conditioning and annual mileage was reported

- Location in SMSA population groups
- Location inside or outside SMSA's
- Income
- Occupation of household head
- Employment status of household head

Table 21 describes average annual vehicle use for annual increments of vehicle age.

Location in SMSA Population Groups

As indicated previously in Table 1, average annual vehicle use is similar among SMSA population groups. This is seen again in Table 17, supported by information on vehicle age. The difference between the lowest and highest mileage by SMSA group is only about 700 annual miles, or 7 percent of the average usage rate of 10,345 miles per year for all SMSA's.

Vehicles are somewhat older in smaller SMSA's. The average vehicle age in the smallest SMSA's (under 250,000 population) is 6.8 years, compared to 6.4 years in medium size SMSA's (500,000 to 1 million) and 6.2 years in the largest SMSA's (3 million and over). Data presented earlier in this report on the relationship between vehicle utilization and age showed a clear decline in usage with increasing age. The reader should not be concerned that this relationship is not apparent in the SMSA data of Table 17. Table 17 indicates that, while vehicles are newer in larger SMSA's, they are not used more than the vehicles in the smaller SMSA's. There is not adequate difference in average vehicle age across SMSA's to demonstrate the declining-usage-with-age rule.

The largest proportions of SMSA vehicles (32.7 percent) and travel by SMSA households (32.4 percent) occurs in SMSA's of 1 to 3 million population. Vehicles in this SMSA group are driven an average of 10,439 miles per year, close to the average for all SMSA vehicles. Vehicles in SMSA's under 250,000 population, the smallest group, are used the most (10,801 miles per year), but they are a small proportion of the total vehicles in SMSA's (13.2 percent) and their travel is a small proportion of total travel by SMSA households (14.2 percent).

Location Inside and Outside SMSA's

Table 18 shows that vehicles owned by households inside SMSA's are generally younger and are used more per year than vehicles outside SMSA's. Vehicles inside SMSA's average just under 6.4 years in age and are driven between 10,010 and 10,616 miles per year. Vehicles outside SMSA's and in places over 5,000 population are slightly older, 6.6 years, and are used less, 9,678 miles per year, than the average for all vehicles (10,188 miles per year). Vehicles owned by households outside SMSA's in places under 5,000 population are the oldest, 6.8 years, and are used 10,085 miles per year.

TABLE 17. AVERAGE ANNUAL MILES PER VEHICLE, AVERAGE VEHICLE AGE, PERCENT OF VEHICLE MILES, AND PERCENT OF VEHICLES BY SMSA POPULATION SIZE

	SMSA Population					
	Under 250,000	250,000 to 499,999	500,000 to 999,999	1 Million to 3 Million	Over 3 Million	All
Average Annual Miles*	10,801	10,175	10,105	10,439	10,234	10,345
Average Vehicle Age**	6.8	6.4	6.4	6.2	6.2	6.5
Percent of Vehicle Miles	14.2	16.4	15.8	32.4	21.2	100.0†
Percent of Vehicles	13.2	16.5	16.1	32.7	21.5	100.0‡

* Includes all motor vehicles for which annual miles reported.
** Excludes vehicles for which annual miles or model year not reported.
† Total estimated annual vehicle miles= 716,956,000,000 (1,223,865,000,000 less 506,909,000,000 for which annual mileage not reported or outside SMSA's)
‡ Total vehicles= 77,609,000 (120,096,000 less 42,489,000 not located in SMSA's)

TABLE 18. AVERAGE ANNUAL MILES PER VEHICLE, AVERAGE VEHICLE AGE, PERCENT OF VEHICLE MILES, AND PERCENT OF VEHICLES BY LOCATION INSIDE OR OUTSIDE SMSA's

	Household Location				
	Inside SMSA		Outside SMSA		
	Not in Central City	Within Central City	Less than 5,000	Greater than 5,000	ALL
Average Annual Miles*	10,616	10,010	10,085	9,678	10,188
Average Vehicle Age**	6.3	6.4	6.8	6.6	6.6
Percent of Vehicle Miles	37.6	28.2	18.6	15.6	100.0†
Percent of Vehicles	35.6	28.9	18.8	16.7	100.0‡

* Includes all motor vehicles for which annual miles reported.
** Excludes vehicles for which annual miles or model year not reported.
† Total estimated annual vehicle miles = 1,089,735,000,000 for which annual miles reported
‡ Total vehicles = 120,096,000

The great majority of vehicles owned (64.5 percent) and annual miles driven (65.8 percent) are by households inside SMSA's. The largest share of vehicles (35.6 percent) are owned by SMSA households residing outside of central cities, and these vehicles are also used the most.

Annual Household Income

As described previously in Table 3 and here in Table 19, annual vehicle use increases with household income. Table 19 also shows vehicle age decreases as income increases and vehicle age and use are related to annual household income.

Vehicles in households with incomes under $5,000 average 8.5 years in age and are used an average of 7,054 miles per year. This compares to vehicles in households of $15,000 to $25,000 income which average 6.1 years in age and are used 10,834 miles per year and to vehicles in households with incomes in the $35,000 and $50,000 range which average 5.3 years in age and are used 11,750 miles per year.

A large proportion of total travel occurs in newer vehicles owned by higher income households. As shown in Table 19, households with incomes over $15,000 own 51.1 percent of all vehicles and account for 56.4 percent of all travel, while their average vehicle age is only 5.8 years and their average vehicle use is 11,100 miles per year.

Employment Status of Household Head

As shown in Table 20, vehicles owned by households in which the household head is employed are driven about 60 percent more (10,921 versus 6,873 annual miles) and are newer (6.3 versus 7.2 years of age), than vehicles belonging to households where the household head is retired. Households of employed persons drive their vehicles 12 percent more (10,921 versus 9,747 annual miles) and their vehicles are younger (6.3 versus 6.9 years) than vehicles in households whose head is either unemployed or whose employment status is unknown.

About 84 percent of all household vehicles and 80 percent of all household travel in vehicles occurs in households where the household head is employed.

Autos, Trucks, and Vans with Single or Multivehicle Ownership

Table 21 shows the annual rates of use for four primary classes of vehicles along with age of the vehicle and whether the vehicles are in single-vehicle or multivehicle households.*

*Note that vehicle ownership corresponds to the total number of *all* types of vehicles owned by the household, not the number of vehicles of a particular type.

TABLE 19. AVERAGE ANNUAL MILES PER VEHICLE, AVERAGE VEHICLE AGE, PERCENT OF VEHICLE MILES, AND PERCENT OF VEHICLES BY ANNUAL HOUSEHOLD INCOME

	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 and Over	ALL
Average Annual Miles*	7,054	8,998	10,261	10,834	11,278	11,750	11,597	10,188
Average Vehicle Age**	8.5	7.4	6.6	6.1	5.6	5.3	4.6	6.6
Percent of Vehicle Miles	5.9	15.0	22.7	34.8	13.3	5.5	2.8	100.0†
Percent of Vehicles	9.0	17.5	22.4	32.1	11.8	4.8	2.4	100.0‡

* Includes all motor vehicles for which annual miles reported.
** Excludes vehicles for which annual miles or model year not reported.
† Total estimated annual vehicles miles = 1,088,735,000,000 for which annual miles reported.
‡ Total vehicles = 120,098,000.

TABLE 20. AVERAGE ANNUAL MILES PER VEHICLE, AVERAGE VEHICLE AGE, PERCENT OF VEHICLE MILES, AND PERCENT OF VEHICLES BY EMPLOYMENT STATUS OF HOUSEHOLD HEAD

	Employment Status of Household Head			
	Employed	Retired	Other*	ALL
Average Annual Miles**	10,921	6,873	9,747	10,188
Average Vehicle Age***	6.3	7.2	6.9	6.6
Percent of Vehicle Miles	80.1	6.3	13.6	100.0†
Percent of Vehicles	84.2	9.1	6.7	100.0‡

* Other includes unemployed or work status unknown.
** Includes all motor vehicles for which annual miles reported.
*** Excludes vehicles for which annual miles or model year not reported.
† Total estimated annual vehicle miles = 1,088,735,000,000 annual miles reported.
‡ Total vehicles = 120,098,000.

TABLE 21. AVERAGE ANNUAL MILES PER VEHICLE* BY AGE OF VEHICLE, VEHICLE TYPE, AND SINGLE OR MULTIVEHICLE OWNERSHIP

Vehicle Age (Years)	Standard Auto Station Wagon Personal Use Taxi		Vanbus/Minibus Other Van, Pick-Up with Camper		Pickup Other Truck		Other		All		ALL
	Single	Multi	Single	Multi	Single	Multi	Single	Multi	Single	Multi	
Less than 1	11,376	11,833	**	8,996	15,004	8,495	**	**	11,805	11,188	11,268
1	12,380	13,681	10,765	14,242	14,312	14,184	**	6,681	12,454	13,773	13,498
2	13,024	13,447	17,283	13,997	14,143	14,730	**	11,807	13,204	13,675	13,562
3	11,211	12,311	15,465	12,769	14,801	13,254	**	21,034	11,496	12,489	12,261
4	10,661	11,439	13,745	11,830	13,887	13,255	**	7,811	10,806	11,696	11,497
5	10,336	10,649	16,505	12,947	10,214	13,508	**	8,873	10,411	11,129	10,964
6	9,479	10,843	14,000	12,874	10,680	11,202	**	6,275	9,545	10,977	10,624
7	8,660	9,757	14,866	11,190	8,667	10,425	**	21,241	8,874	9,890	9,655
8	8,106	8,855	10,688	8,265	8,157	10,008	**	7,355	8,131	8,968	8,757
9	8,575	8,909	14,929	8,252	13,736	7,468	**	11,186	8,825	8,683	8,714
10 or More	6,555	7,311	11,024	7,169	5,887	6,977	**	5,767	6,579	7,224	7,085
All	9,627	10,451	14,032	11,504	10,796	10,693	**	8,655	9,754	10,542	10,368

* Includes all motor vehicles owned by or available to household on a regular basis; excludes vehicles for which model year not reported, which eliminates all motorcycles and mopeds.
** Insufficient data.

The average annual use of vehicles classified as automobiles, which includes standard automobiles, station wagons, and personal-use taxis, declines steadily with vehicle age in both single and multivehicle households, with usage higher in multivehicle households in all vehicle age groups. Automobile use averages 10,451 miles per year in multivehicle households compared to 9,627 miles in single-vehicle households.

Average annual use of other types of vehicles is not systematically related to vehicle age nor do vehicles in either single or multivehicle households accumulate consistently more mileage.

D. USE OF VEHICLES EMPLOYED IN TRAVEL TO WORK

Travel to work is an important focus for many transportation issues, such as highway and mass transit requirements, congestion, air pollution, and energy use.

By convention, the 1977 NPTS survey defines work-use vehicles as those used at least four times per month for travel to work. The analysis that follows shows differences in the characteristics and use of these vehicles compared to those not used regularly for work. Comparisons are made of vehicle use, age, fuel efficiency (MPG), curb weight, whether purchased new or used, and number of vehicles owned by the household. The household characteristics included are location, household income, number of drivers, and occupation of household head.

SMSA Population Size

As shown in Table 22, vehicles that are used regularly for travel to work (at least four times a month) are generally newer, more often purchased used, and driven significantly more miles per year than vehicles which are not used for work.

For all places, both inside and outside SMSA's, and all levels of vehicle ownership, vehicles used for work average 11,928 miles per year compared to 6,949 miles for nonwork vehicles, or 71.7 percent more mileage per year. Work vehicles are also newer, 6.1 years compared to 7.5 years of age for nonwork vehicles, and are purchased new a smaller proportion of the time, or 46.4 percent compared to 47.6 percent for nonwork vehicles.

Work vehicles are driven more annual miles than nonwork vehicles in both single and multivehicle households, though use of both work and nonwork vehicles is higher in multivehicle households. Work vehicles in single-vehicle households are driven 5,556 additional miles per year, and 4,793 miles in multivehicle households compared to nonwork vehicles. The difference in average age is about the same, about 1-1/2 years newer for work vehicles, in both single and multivehicle households. However, work vehicles are purchased new more often than nonwork vehicles in multivehicle households (45.8 percent versus 45.1 percent). Nonwork vehicles are purchased new more often than work vehicles in single-vehicle households (55.4 percent versus 48.3 percent).

TABLE 22. AVERAGE ANNUAL MILES PER VEHICLE, VEHICLE AGE, AND PERCENT PURCHASED NEW, OF VEHICLES USED FOR WORK TRAVEL* BY SMSA POPULATION SIZE AND SINGLE OR MULTI VEHICLE OWNERSHIP**

SMSA Population	Average Annual Miles †			Average Vehicle Age ‡ (Years)			Purchased New †† (Percent)		
	Work	Other	All	Work	Other	All	Work	Other	All
Under 250,000	12,670	6,988	10,802	6.4	7.8	6.9	42.7	39.6	41.6
Single	10,711	6,095	9,140	6.2	7.9	6.8	48.4	44.2	46.8
Multi	13,179	7,236	11,243	6.5	7.8	6.9	41.2	38.3	40.2
250,000 to 499,999	11,848	7,073	10,176	6.1	7.2	6.5	44.2	47.3	45.2
Single	11,359	6,655	9,483	6.0	7.6	6.7	45.1	54.2	48.8
Multi	11,967	7,205	10,362	6.2	7.1	6.5	44.0	45.1	44.4
600,000 to 999,999	11,509	6,871	10,106	6.0	7.4	6.4	46.5	48.9	47.3
Single	10,943	6,209	9,685	6.2	7.7	6.7	45.9	54.9	48.8
Multi	11,676	7,097	10,326	6.0	7.3	6.4	46.6	46.8	46.7
1 Mil. to 3 Mil.	12,150	6,766	10,440	5.9	7.4	6.4	49.6	51.6	50.2
Single	12,404	6,335	10,329	5.6	7.0	6.1	51.9	60.7	54.9
Multi	12,076	6,912	10,475	5.9	7.5	6.4	48.9	48.6	48.8
Over 3 Million	11,767	6,954	10,235	6.0	7.2	6.4	53.9	51.9	53.2
Single	11,871	6,122	4,819	5.4	7.1	6.0	57.4	62.9	59.4
Multi	11,731	7,315	10,331	6.2	7.2	6.5	52.7	47.2	50.9
All SMSA's	11,975	6,909	10,345	6.0	7.4	6.5	48.2	48.8	48.4
Single	11,674	6,289	9,780	5.8	7.3	6.3	50.9	57.3	53.2
Multi	12,062	7,123	10,515	6.1	7.4	6.5	47.4	45.9	46.9
Non SMSA	11,852	7,004	9,895	6.2	7.7	6.8	42.5	45.7	43.8
Single	12,534	6,452	9,693	6.1	7.4	6.8	41.5	52.2	46.7
Multi	11,710	7,165	9,945	6.2	7.8	6.8	42.7	43.8	43.1
All Places	11,928	6,949	10,188	6.1	7.5	6.6	46.4	47.6	46.8
Single	11,907	6,351	9,754	5.9	7.3	6.5	48.3	55.4	51.1
Multi	11,934	7,141	10,302	6.1	7.6	6.7	45.8	45.1	45.5

* Vehicles which are used four or more times a month for travel to work.

** Distinguishes between households owning one or more than one vehicle; includes all vehicles owned by or available on a regular basis to the household.

† Includes all vehicles owned by or available on a regular basis to the household, for which annual mileage is reported (107,900,000).

†† Includes only vehicles owned by the household (111,881,000).

‡ Includes all vehicles owned by or available on a regular basis to the household, for which vehicle age is reported (115,597,000).

The greater use of work vehicles occurs among vehicles owned both inside and outside SMSA's, as well as across the different SMSA size groups. The relationship is remarkably stable for all areas and vehicle ownership levels. Vehicles used for work are consistently driven about 4,500 to 5,500 miles per year more than other vehicles in the same places at the same ownership level. Similarly, work vehicles are consistently younger, ranging from 1.0 to 1.7 years less in age than nonwork vehicles under the same ownership conditions. Work vehicles are also more frequently purchased used, except in the smallest (under 250,000) and largest (over 3 million) SMSA size groups.

Annual Household Income

Vehicles owned by households at all income levels are driven more miles per year if they are used at least four times a month for travel to work. Moreover, the amount of additional mileage they are driven compared to nonwork vehicles is remarkably consistent at about 5,000 miles per year.

As shown in Table 23, the average annual miles that a vehicle is driven increases steadily with income, from 7,054 miles in households under $5,000 to 11,596 miles in households with incomes of $50,000 or more. However, the net difference in annual miles driven between work and nonwork vehicles remains about the same at all income levels. Work vehicles in households under $5,000 are driven 4,906 additional miles per year compared to nonwork vehicles; this difference is 4,492 miles for incomes of $10,000 to $15,000, 4,722 miles for incomes of $25,000 to $35,000, and 5,068 miles for incomes of $50,000 or more.

Vehicles used for work are also newer than nonwork vehicles at all income levels--generally about 1.0 to 1.4 years newer. This difference occurs in spite of the fact that vehicles are newer at higher income levels. Work vehicles are 0.7 years newer (8.2 versus 8.9 years) in households with incomes under $5,000, 1.1 years newer (6.4 versus 7.5 years) for incomes between $10,000 and $15,000, 1.3 years newer (5.2 versus 6.5 years) for incomes of $25,000 to $35,000, and 1.5 years newer (4.1 versus 5.6 years) for incomes of $50,000 or more.

An interesting difference does occur in the proportion of work and nonwork vehicles purchased new as income increases. A smaller proportion of work vehicles are purchased new than nonwork vehicles in lower income households. Up to $15,000 annual income, household work vehicles are less often purchased new than nonwork vehicles. Over $15,000, a higher proportion of work vehicles are purchased new, with the difference increasing steadily with income.

TABLE 23. AVERAGE ANNUAL MILES PER VEHICLE, VEHICLE AGE, AND PERCENT PURCHASED NEW, OF VEHICLES USED FOR WORK TRAVEL* BY ANNUAL HOUSEHOLD INCOME AND SINGLE OR MULTI VEHICLE OWNERSHIP**

Annual Household Income	Average Annual Miles†			Average Vehicle Age‡ (Years)			Purchased New†† (Percent)		
	Work	Other	All	Work	Other	All	Work	Other	All
Under $5,000	10,092	5,186	7,054	8.2	8.9	8.6	28.8	40.3	35.9
Single	10,222	4,836	6,680	7.9	8.8	8.5	29.0	43.8	38.7
Multi	9,963	5,685	7,516	8.5	8.9	8.7	28.6	35.2	32.3
$5,000 to $9,999	10,851	6,517	8,998	7.1	7.9	7.4	34.7	45.7	39.4
Single	10,611	6,346	8,762	6.7	6.9	6.8	35.6	57.0	44.9
Multi	11,007	6,632	9,154	7.3	8.6	7.9	34.1	38.4	35.9
$10,000 to $14,999	11,722	7,230	10,262	6.4	7.5	6.8	43.1	45.6	43.9
Single	12,428	8,009	11,282	5.4	6.1	5.6	53.6	65.4	56.6
Multi	11,456	7,037	9,923	6.7	7.8	7.1	39.1	40.9	39.9
$15,000 to $24,999	12,250	7,283	10,834	5.8	7.1	6.2	48.6	48.2	48.4
Single	13,297	8,163	12,287	4.8	5.8	5.0	62.1	71.5	64.0
Multi	12,092	7,207	10,643	6.0	7.2	6.3	46.6	46.2	46.4
$25,000 to $34,999	12,638	7,916	11,279	5.2	6.5	5.6	57.8	56.8	57.4
Single	13,855	8,603	12,431	4.2	5.9	4.7	76.6	74.5	76.0
Multi	12,550	7,870	11,198	5.3	6.5	5.6	56.4	55.6	56.1
$35,000 to $49,999	13,248	8,456	11,749	4.8	6.6	5.3	61.9	55.7	59.7
Single	13,111	9,190	11,998	4.6	5.2	4.8	67.1	69.0	67.7
Multi	13,257	8,412	11,733	4.8	6.7	5.4	61.6	54.9	59.2
$50,000 and Over	13,600	8,532	11,596	4.1	5.6	4.7	74.2	68.0	71.6
Single	9,284	11,126	9,950	3.7	5.1	4.2	78.1	86.4	81.1
Multi	13,767	8,445	11,657	4.1	5.6	4.7	74.0	67.3	71.2
All	11,928	6,949	10,188	6.1	7.5	6.6	46.4	47.6	46.8
Single	11,907	6,351	9,754	5.9	7.3	6.5	48.3	55.4	51.1
Multi	11,934	7,141	10,302	6.1	7.6	6.7	45.8	45.1	45.5

* Vehicles which are used four or more times a month for travel to work.
** Distinguishes between households owning one or more than one vehicle; includes all vehicles owned by or available on a regular basis to the household.
† Includes all vehicles owned by or available on a regular basis to the household, for which annual mileage is reported (107,900,000).
‡ Includes all vehicles owned by or available on a regular basis to the household, for which vehicle age is reported (115,597,000).
†† Includes only vehicles owned by the household (111,881,000).

Occupation of Household Head

As shown in Table 24, the difference in usage of about 5,000 miles per year between work and nonwork vehicles also occurs in the households of all occupational categories. This difference prevails despite different base levels of usage among the various occupation groups.

The smallest difference between work and nonwork vehicle use occurs in service worker households, where work vehicles are used an additional 4,215 miles per year. The largest differences occur in households where the occupation or work status of the head is unknown (7,280 miles per year) and sales or clerical (5,171 miles per year).

Work vehicles are consistently younger in all occupation groups, averaging 1.4 years across all groups. The smallest difference occurs in households headed by craftsmen (1.0 years) and the largest difference in the households of service workers (1.9 years).

A higher percentage of vehicles used for work are purchased new compared to nonwork vehicles in all households except where the occupation or work status of the household head is unknown.

Vehicle Type

Table 25 indicates how the annual rates of usage, vehicle age, and the characteristic of being purchased new or used differs between work and nonwork vehicles based on the type of vehicle. Average vehicle age is not shown for motorcycles and mopeds because model year data for these vehicles was not collected during the survey.

Again, all vehicle types are driven more miles per year if they are used for work four or more times per month, and this difference varies with the type of vehicle. Standard autos used for work are driven 4,512 additional miles per year than nonwork autos. Station wagons are driven an additional 4,457 miles if used for work, vanbus/minibus vehicles 6,319 miles, other vans 3,597 miles, pickups 6,040 miles, pickups with camper 4,221 miles, other trucks 13,214 miles, camper coaches 6,927 miles, motorcycles 3,608 miles, and mopeds 153 miles. This difference in usage varies somewhat with the number of vehicles owned by the household, with generally a larger difference in single-vehicle households.

Vehicles of all types are newer if used for work. Standard autos used for work are 1.2 years newer than nonwork automobiles. Station wagons used for work are also 1.2 years newer, vanbus/minibus vehicles 0.9 years younger, other vans 2.3 years younger, pickups 2.4 years younger, pickups with camper 0.8 years younger, and camper coaches 1.5 years younger.

A higher proportion of most vehicle types are purchased new if they are work vehicles. The exceptions are standard automobiles, vanbus/minibus, and pickup with camper, where a higher proportion of nonwork vehicles are purchased new.

TABLE 24. AVERAGE ANNUAL MILES PER VEHICLE, VEHICLE AGE, AND PERCENT PURCHASED NEW, OF VEHICLES USED FOR WORK TRAVEL* BY OCCUPATION OF HOUSEHOLD HEAD AND SINGLE OR MULTI VEHICLE OWNERSHIP**

Occupation	Average Annual Miles†			Average Vehicle Age‡ (Years)			Purchased New†† (Percent)		
	Work	Other	All	Work	Other	All	Work	Other	All
Professional and Technical	12,011	7,551	10,952	5.5	7.1	5.9	58.8	50.0	56.6
Single	12,899	9,298	12,531	4.8	6.1	4.9	68.2	48.5	66.2
Multi	11,776	7,406	10,610	5.7	7.2	6.1	56.2	50.1	54.5
Farmers and Farm Managers	12,282	7,790	9,478	6.5	7.9	7.4	50.8	48.9	48.4
Single	20,431	8,111	12,132	5.7	6.7	6.4	45.6	55.3	52.4
Multi	11,903	7,772	9,028	6.5	8.0	7.4	51.0	48.3	48.1
Managers and Administrators	12,892	8,362	11,605	5.2	6.6	5.6	55.9	52.2	54.8
Single	13,458	8,206	12,468	4.8	6.1	5.0	61.9	61.0	61.7
Multi	12,814	8,374	11,501	5.2	6.6	5.6	55.0	51.5	53.9
Sales and Clerical	12,103	6,932	11,234	5.6	7.1	5.9	48.4	43.9	47.4
Single	10,718	6,733	10,359	5.7	6.2	5.7	54.5	54.8	54.5
Multi	12,657	6,955	11,189	5.6	7.2	6.0	45.9	42.8	45.0
Craftsmen	11,885	7,251	10,666	6.7	7.7	7.0	40.7	37.9	39.9
Single	13,434	8,507	13,024	5.9	7.6	6.0	43.9	35.7	43.2
Multi	11,582	7,197	10,309	6.8	7.7	7.1	40.0	38.0	39.4
Operatives and Laborers	11,406	6,321	10,225	6.9	8.1	7.2	37.0	34.2	36.3
Single	11,762	7,397	11,359	6.4	7.0	6.5	35.4	31.3	35.0
Multi	11,292	6,225	9,932	7.1	8.2	7.4	37.5	34.5	36.7
Service Workers	10,318	6,103	9,458	6.4	8.3	6.8	39.2	34.0	38.1
Single	10,626	8,511	10,375	6.5	7.1	6.6	38.6	48.4	39.5
Multi	10,175	5,622	9,089	6.4	8.5	6.9	39.5	31.5	37.5
Occupation or Work Status Unknown	14,538	7,258	12,064	5.7	7.0	6.1	45.9	47.9	48.6
Single	11,650	8,968	11,057	6.1	6.0	6.1	44.6	48.7	45.1
Multi	14,940	7,135	12,181	5.7	7.1	6.2	48.2	48.0	46.8
All	11,928	6,949	10,188	6.1	7.5	6.6	46.4	47.6	46.8
Single	11,907	6,351	9,754	5.9	7.3	6.5	48.3	55.4	51.1
Multi	11,934	7,141	10,302	6.1	7.6	6.7	45.8	45.1	45.5

* Vehicles which are used four or more times a month for travel to work.
** Distinguishes between households owning one or more than one vehicle; includes all vehicles owned by or available on a regular basis to the household.
† Includes all vehicles owned by or available on a regular basis to the household, for which annual mileage is reported (107,900,000).
‡ Includes all vehicles owned by or available on a regular basis to the household, for which vehicle age is reported (115,597,000).
†† Includes only vehicles owned by the household (111,881,000).

TABLE 25. AVERAGE ANNUAL MILES PER VEHICLE, VEHICLE AGE, AND PERCENT PURCHASED NEW, OF VEHICLES USED FOR WORK TRAVEL* BY VEHICLE TYPE AND SINGLE OR MULTI VEHICLE OWNERSHIP**

Vehicle Type	Average Annual Miles†			Average Vehicle Age‡ (Years)			Purchased New†† (Percent)		
	Work	Other	All	Work	Other	All	Work	Other	All
Standard Auto	11,676	7,164	10,124	6.0	7.2	6.5	46.3	49.1	47.3
Single	11,648	6,289	9,502	5.9	7.3	6.5	48.9	56.5	52.0
Multi	11,685	7,551	10,347	6.1	7.2	6.5	45.5	45.8	45.6
Station Wagon	12,779	8,322	11,271	5.8	7.0	6.2	48.9	48.8	48.9
Single	13,114	6,432	11,044	5.8	7.7	6.4	42.3	47.7	44.1
Multi	12,698	8,710	11,323	5.9	6.8	6.2	50.5	49.0	50.0
Vanbus/Minibus	14,275	7,956	12,501	5.3	6.2	5.5	44.5	49.9	46.1
Single	15,396	9,135	14,058	5.2	8.0	5.8	56.8	28.7	50.9
Multi	14,114	7,842	12,299	5.3	6.0	5.5	42.5	52.0	45.4
Other Van	13,961	10,364	13,052	5.7	8.0	6.4	42.0	41.5	41.8
Single	14,618	12,000	14,452	5.2	5.8	5.3	24.7	44.4	27.8
Multi	13,870	10,325	12,898	5.8	8.2	6.5	44.3	41.4	43.3
Pickup	12,568	6,528	10,649	6.5	8.9	7.3	45.6	41.7	44.3
Single	12,998	6,594	10,811	5.9	7.7	6.6	48.1	46.4	47.5
Multi	12,527	6,509	10,633	6.6	9.1	7.4	45.3	41.1	43.9
Pickup with Camper	12,179	7,958	10,523	5.9	6.7	6.2	52.2	53.5	52.7
Single	17,155	9,158	14,673	6.2	6.0	6.1	46.1	55.5	49.0
Multi	11,796	7,893	10,317	5.9	6.7	6.2	52.8	53.4	53.0
Other Truck	18,268	5,054	11,244	8.4	14.6	11.6	32.9	26.8	29.6
Single	15,308	10,098	13,949	4.3	5.6	4.7	55.6	100.0	67.2
Multi	18,357	5,003	11,195	8.5	14.6	11.7	32.2	26.1	28.9
Camper Coach	13,898	6,971	7,824	3.2	4.7	4.5	53.1	50.9	51.2
Single	6,933	11,247	10,112	1.0	4.7	3.7	100.0	69.9	77.8
Multi	14,542	6,813	7,733	3.3	4.7	4.5	49.2	50.2	50.1
Motorcycle	5,710	2,102	3,424	—	—	—	48.2	42.7	44.5
Single	5,725	—	5,725	—	—	—	39.7	—	39.7
Multi	5,709	2,102	3,386	—	—	—	48.6	42.7	44.6
Moped	1,594	1,441	1,477	—	—	—	82.6	45.3	51.4
Single	—	—	—	—	—	—	—	—	—
Multi	1,594	1,300	1,371	—	—	—	82.6	45.3	51.4
Other	12,220	3,662	11,950	6.6	13.0	9.7	31.5	32.3	32.0
Single	—	—	—	—	—	—	—	—	—
Multi	12,074	3,662	11,798	6.6	13.0	9.7	31.5	32.3	32.0
All	11,928	6,949	10,188	6.1	7.5	6.6	46.4	47.6	46.8
Single	11,907	6,351	9,754	5.9	7.3	6.5	48.3	55.4	51.1
Multi	11,934	7,141	10,302	6.1	7.6	6.7	45.8	45.1	45.5

* Vehicles which ere used four or more times a month for travel to work.
**Distinguishes between households owning one or more then one vehicle; includes all vehicles owned by or evallable on a regular basis to the household.
† Includes all vehicles owned by or available on a regular basis to tha housahold, for which annual mileage is reported (107,900,000).
‡ Includes all vehicles owned by or available on a regular basis to the household, for which vehicle age is reported (115,597,000).
†† Includes only vehicles owned by the household (111,881,000).

Vehicle Age

Table 26 shows how usage of work and nonwork vehicles varies with the age of the vehicle.

Vehicles of all ages and levels of vehicle ownership are driven more miles per year if they are used regularly for work, between 2,622 and 6,183 miles per year more than the equivalent nonwork vehicle. While work vehicles are driven substantially more than nonwork vehicles, no trends occur in the amount of additional usage related to the age of the vehicle.

Work-use vehicles are less frequently purchased new than nonwork vehicles for virtually all model years. As vehicle age increases, the likelihood of the vehicle having been purchased used becomes greater for work-use vehicles.

TABLE 26. AVERAGE ANNUAL MILES PER VEHICLE AND PERCENT PURCHASED NEW, OF VEHICLES USED FOR WORK TRAVEL* BY AGE OF VEHICLE AND SINGLE OR MULTI VEHICLE OWNERSHIP**

Model Year	Vehicle Age (Years)	Average Annual Miles† (Thousands)			Purchased New‡ (Percent)		
		Work	Other	All	Work	Other	All
1978	Less than 1	12,817	6,634	11,270	98.3	100.0	98.8
Single		12,838	7,455	11,807	100.0	100.0	100.0
Multi		12,813	6,544	11,190	97.9	100.0	96.6
1977	1	14,261	11,639	13,499	94.8	93.8	94.5
Single		13,417	10,499	12,455	95.9	94.8	95.5
Multi		14,467	11,991	13,773	94.5	93.4	94.2
1976	2	15,021	9,476	13,563	80.5	83.5	81.3
Single		14,986	9,176	13,205	80.5	85.9	82.2
Multi		15,031	9,591	13,675	80.4	82.5	81.0
1975	3	13,724	8,914	12,262	66.0	66.0	66.0
Single		13,270	7,686	11,497	73.3	77.1	74.5
Multi		13,855	9,299	12,489	63.8	62.5	63.4
1974	4	12,782	8,593	11,498	51.8	59.2	54.1
Single		12,054	7,829	10,807	55.2	65.7	58.3
Multi		12,995	8,800	11,696	50.8	57.4	52.9
1973	5	12,312	8,160	10,965	47.6	54.6	49.9
Single		12,272	7,162	10,412	49.7	60.8	53.7
Multi		12,322	8,504	11,128	47.1	52.5	48.8
1972	6	11,997	7,630	10,625	39.2	46.3	41.6
Single		11,360	6,315	9,546	40.1	53.3	44.7
Multi		12,192	8,386	10,950	38.9	43.9	40.5
1971	7	10,977	7,043	9,654	33.1	41.0	35.8
Single		10,637	6,364	8,873	36.5	51.2	42.7
Multi		11,064	7,313	9,884	32.3	36.8	33.7
1970	8	10,190	6,275	8,757	28.5	38.9	32.3
Single		10,013	5,453	8,131	25.0	43.4	32.8
Multi		10,245	6,602	8,939	29.6	37.0	32.2
1969	9	10,361	5,850	8,714	22.1	28.3	23.8
Single		11,485	5,372	8,824	20.2	33.2	25.9
Multi		10,088	6,020	8,683	22.6	26.7	24.0
1968 and Earlier	10 and Over	9,123	4,520	7,085	14.7	25.5	19.6
Single		9,499	3,957	6,580	12.9	39.3	27.1
Multi		9,039	4,715	7,225	15.2	20.6	17.5
All		11,928	6,949	10,188	46.4	47.6	46.8
Single		11,907	6,351	9,754	48.3	55.4	51.1
Multi		11,934	7,141	10,302	45.8	45.1	45.5

* Vehicles which are used four or more times a month for travel to work.

** Distinguishes between households owning one or more than one vehicle; includes all vehicles owned by or available on a regular basis to the household.

† Includes all vehicles owned by or available on a regular basis to the household, for which annual mileage is reported.

‡ Includes only vehicles owned by the household and vehicle age is reported.

IV. TRENDS OVER TIME IN VEHICLE USE

An important contribution derived from the similarity between the 1969 and 1977 NPTS surveys is the ability to examine changes that have taken place in vehicle utilization over time. Even in the time period between the two surveys, important changes have occurred in household composition, income, location, energy cost and other factors which affect travel and influence vehicle ownership and use.

This section presents selected relationships in vehicle ownership and utilization using comparable data from the 1969 and 1977 NPTS surveys. Relationships describing vehicle utilization in 1969 are taken from the 1969 NPTS Report Number 2, *Annual Miles of Automobile Travel*.

As noted in the introduction, a basic difference exists between the two NPTS surveys which affects the comparison of their results. In the 1969 survey, vehicle information was restricted to auto vehicles, defined as standard autos, station wagons, personal-use taxis, and vanbus/minibus vehicles. In 1977 household vehicles also included light trucks, vans, other trucks engaged for personal travel, camper vehicles, and motorcycles and mopeds.

To achieve comparability for the relationships presented in this section, vehicle utilization statistics for 1977 correspond to the more restricted 1969 definition. Hence, vehicles in this section are referred to as autos.

Trends in Auto Usage Related to Model Year and Auto Ownership

In both 1969 and 1977, average annual miles driven per automobile declined with vehicle age. However, as shown in Table 27 and Figure 6, the rate of decline in use was much higher in 1969.

One-year-old automobiles in 1969 were used an average 16,100 miles per year, declining to only 6,500 miles per year for autos 10 years or older. In 1977, 1-year-old automobiles averaged 13,400 miles per year, declining to 7,100 miles per year for automobiles 10 years or older. This change implies that households in 1977 are retaining automobiles in service longer, and using them more evenly throughout the ownership period. This change prevails for all auto ownership levels.

In 1969, automobiles up to 2 years of age were driven more miles per year than automobiles of comparable age in 1977. Over 2 years of age, automobiles owned in 1977 were generally driven more miles than the equivalent 1969 vehicles. This "crossover" age where 1977 autos are driven more annual miles occurs at 2 years in one-auto households, 5 years in two-auto households, and 7 years in households with three or more automobiles.

TABLE 27. AVERAGE ANNUAL MILES (THOUSANDS) PER AUTOMOBILE* BY AUTOMOBILE AGE AND VEHICLE OWNERSHIP IN 1969 AND 1977

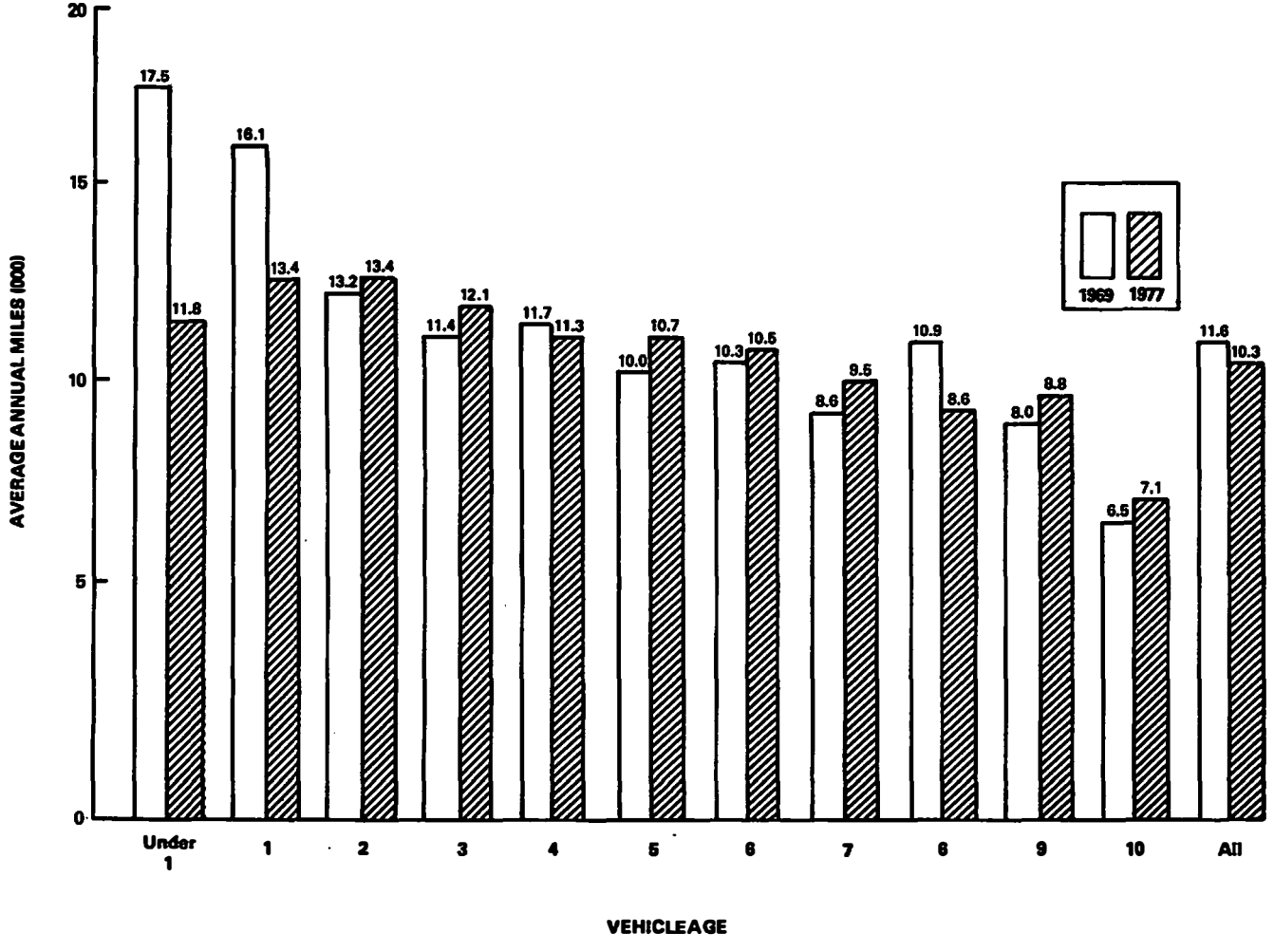
Vehicle Age (Years)	Survey Year	Household Vehicle Ownership: One	Two	Three or More	ALL
Under 1	1969	17.5	17.7	17.1	17.5
	1977	10.1	13.7	9.6	11.8
1	1969	14.6	17.4	16.7	16.1
	1977	12.7	13.9	13.3	13.4
2	1969	12.6	13.5	13.7	13.2
	1977	13.2	13.6	13.1	13.4
3	1969	11.1	11.5	12.9	11.4
	1977	11.3	12.4	12.8	12.1
4	1969	9.6	12.7	16.9	11.7
	1977	10.5	11.4	12.4	11.3
5	1969	9.2	10.1	12.1	10.0
	1977	10.2	10.9	10.9	10.7
6	1969	10.5	9.7	12.2	10.3
	1977	9.6	11.2	10.7	10.5
7	1969	8.5	8.9	8.1	8.6
	1977	9.1	9.6	10.1	9.5
8	1969	9.4	12.8	7.0	10.9
	1977	8.2	8.8	9.1	8.6
9	1969	7.7	7.2	12.4	8.0
	1977	8.7	8.9	8.9	8.8
10 and Over	1969	6.4	6.8	6.3	6.5
	1977	6.6	7.4	7.3	7.1
ALL	1969	10.8	12.0	12.8	11.6
	1977	9.8	10.7	10.4	10.3
Percent of Automobile Owning Households	1969	61.0	33.2	5.8	100.0
	1977	40.9	40.6	18.5	100.0
Percent of Automobiles	1969	42.5	45.4	12.1	100.0†
	1977	35.2	44.2	20.6	100.0‡
Percent of Automobile Miles	1969	39.7	47.0	13.3	100.0††
	1977	33.4	45.8	20.8	100.0‡‡

[1]Based on 66,405,001 automobiles with age reported (1969).
[2]Based on 2,120,323,000 daily automobile miles (1969).
† Based on 69,877,000 automobiles where age reported—1977)

‡ Based on 915,971,000,000 annual automobile miles where age reported—1977)

* Includes only auto vehicles (standard auto, station wagon, taxi, and van-bus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.
Source: Based on data from Table 1 (p.8) in 1969 NPTS Report *Annual Miles of Automobile Travel*, and 1977 NPTS Survey.

FIGURE 6
AVERAGE ANNUAL MILES PER VEHICLE*
BY VEHICLE AGE IN 1969 AND 1977



* Includes only auto vehicles (standard auto, station wagon, personal use taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.

Source: Based on data from Table 1 (page 8) in 1969 NPTS Report, Annual Miles of Automobile Travel, and Table 27 from 1977 NPTS Survey data.

In 1969 automobiles had a higher annual rate of utilization than in 1977 for all ownership levels. The average automobile in 1969 was driven 11,600 miles per year, compared to 10,300 miles in 1977. Automobiles in one-auto households averaged 10,800 miles per year in 1969 compared to 9,800 miles in 1977. Those in two-vehicle households averaged 12,000 miles in 1969 compared to 10,700 in 1977. For three-vehicle households, the average auto was driven 12,800 miles in 1969 and 10,400 in 1977.

Much of the change in the rates of individual automobile use is due to the change in auto ownership, toward higher rates of multiple-auto ownership. In 1969, only 39.0 percent of all households owned more than one automobile. By 1977, this proportion had grown to 59.1 percent. What this means is that households are not traveling less, but usage is being spread over more vehicles in the household.

Trends in Median Vehicle Age by Annual Mileage

Figure 7 presents data comparing vehicle age and level of usage in an alternative format to Table 27. For rates of automobile use beyond 3,000 miles per year, the median age of automobiles was higher in 1977 than in 1969. For vehicles in annual use classes from 3,000 to 8,000 miles through 23,000 to 28,000 miles, the median age of an automobile in 1977 was 1 year less than autos receiving equivalent use in 1969. This shows once again that older vehicles are being driven more than vehicles of comparable age in 1969.

Trends in Auto Use Related to Auto Age and Whether Purchased New or Used

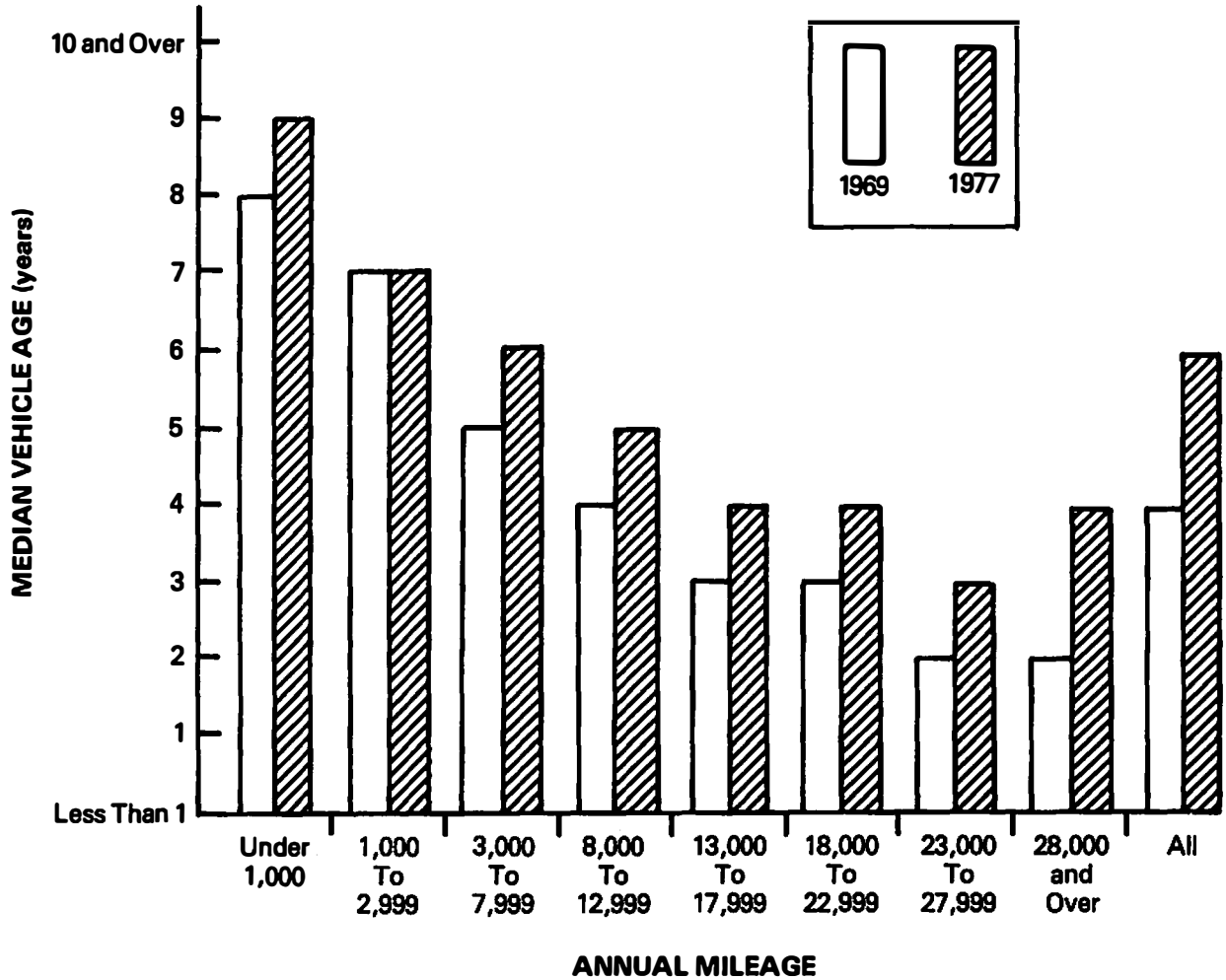
Table 28 illustrates 1969 and 1977 annual automobile utilization by vehicle age for autos purchased new and used.

Overall, there has been a decline in the proportion of household automobiles purchased new, and this relates to the trend of retaining vehicles in service longer. A slightly greater percentage of household autos in 1969 were purchased new (50.6 percent), compared to 48.5 percent in 1977.

This trend is reflected also in vehicle age. The average age of household autos purchased new in 1969 was 3.5 years, rising to 4.7 years by 1977. The average age of household automobiles purchased used in 1969 was 6.8 years, compared to 8.2 years in 1977.

Generally, average annual mileage is less for used autos, and this relationship remained unchanged from 1969 to 1977. Only the overall level of automobile use has dropped, from 12,500 miles per year in 1969 to 10,900 miles per year in 1977 for new cars and from 10,700 miles per year in 1969 to 9,400 miles per year in 1977 for used cars. Also, the differences in annual use among automobile age groups is not as great in 1977 as in 1969.

FIGURE 7
MEDIAN VEHICLE* AGE BY ANNUAL MILEAGE IN 1969 AND 1977



*Includes only auto vehicles (standard auto, station wagon, personal use taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined in 1969 NPTS Survey.

Source: Based on data from Figure 2 (page 11) in 1969 NPTS Report, Annual Miles of Automobile Travel, and 1977 NPTS Survey data.

TABLE 28. AVERAGE ANNUAL MILES (THOUSANDS) PER AUTOMOBILE* IN 1969 AND 1977 BY AUTO AGE AND WHETHER AUTOMOBILE PURCHASED NEW OR USED

Auto Age (years	Survey Year	Auto Purchased New or Used		
		New	Used	All
Less than 1	1969	18.0	**	17.6
	1977	12.8	7.9	12.8
1	1969	15.8	18.3	16.2
	1977	13.2	11.5	13.1
2	1969	12.6	14.5	13.2
	1977	13.1	11.1	12.7
3	1969	11.2	11.9	11.5
	1977	12.2	10.8	11.7
4	1969	10.1	12.9	11.7
	1977	11.3	11.2	11.2
5	1969	9.2	10.5	10.0
	1977	10.2	10.9	10.5
6	1969	8.7	11.2	10.4
	1977	9.7	11.1	10.5
7	1969	7.2	9.1	8.7
	1977	9.2	9.7	9.5
8	1969	6.5	12.5	10.9
	1977	8.1	9.0	8.7
9	1969	**	7.9	8.0
	1977	8.2	9.1	8.9
10 and Over	1969	5.0	6.9	6.6
	1977	6.2	7.3	7.1
All	1969	12.5	10.7	11.6
	1977	10.9	9.4	10.1
Average Age (years)	1969	3.5	6.8	5.1
	1977	4.7	8.2	6.5
Percent of Autos	1969	50.6	49.4	100.0
	1977	48.5	51.5	100.0

* Includes only auto vehicles (standard auto, station wagon, vanbus/minibus, and personal use taxi) owned by the household through purchase by household members.
** Insufficient data
Source: Based on data from Table 4 (p.14) in 1969 NPTS Report. *Annual Miles of Automobile Travel*, and 1977 NPTS survey data.

Trends in Auto Age Related to Annual Mileage and Household Vehicle Ownership

Table 29 indicates that lower levels of auto usage are associated with increasing auto age, and this was true both in 1969 and 1977. The table also indicates that the average auto was older at each level of usage (annual mileage) in 1977 compared to 1969. The average auto which was used less than 1,000 miles per year was 7.8 years old in 1969 and increased to 9.4 years in 1977. Similarly, vehicles used between 8,000 and 13,000 miles per year averaged 4.8 years of age in 1969 compared to 5.7 years in 1977, and from 3.2 to 4.8 years for vehicles driven more than 28,000 miles per year.

The increase in age of autos with lower levels of usage, and increase in age of autos for any particular level of usage between 1969 and 1977 may also be seen in each vehicle ownership category.

Changes in Automobile Use and Age by SMSA Size Group

Table 30 presents 1969 to 1977 changes in use of household automobiles among SMSA population size groups.

In 1977, the average automobile in an SMSA household was older (6.3 versus 4.9 years) and used less (10,400 versus 11,500 annual miles) than in 1969. These changes are generally true for all SMSA groups.

The average automobile in SMSA's under 250,000 population was 1.5 years older and driven 2.8 percent less in 1977 than 1969. In SMSA's with 500,000 to 1 million population the average automobile was 1.1 years older and was driven 10.8 percent fewer miles each year in 1977 than 1969. In the largest SMSA's, over 3 million population, the average automobile was 1.4 years older and driven 10.4 percent less in 1977 than 1969. There was no change in auto use in SMSA's between 250,000 and 500,000 population.

There was also a change between 1969 to 1977 in the proportion of automobiles and automobile travel among SMSA groups. Both the smallest and the largest SMSA's showed decline in the proportion of SMSA autos and travel. The proportion of autos in SMSA's under 250,000 population fell from 16.1 percent in 1969 to 13.1 percent in 1977, and the proportion of SMSA auto travel dropped from 15.9 percent to 13.5 percent. In the largest SMSA's, over 3 million population, the proportion of autos declined slightly from 22.9 percent to 22.7 percent and the proportion of auto travel from 23 percent to 22.4 percent.

Trends in Usage and Age of Autos by Annual Household Income

Table 31 and Figure 8 illustrate 1969 to 1977 changes in auto use, auto age and proportion of both autos and auto travel among household income groups. To achieve comparability, a U.S. Department of Commerce consumer price index was used to adjust 1969 income to

TABLE 29. AVERAGE AUTOMOBILE AGE* (YEARS) BY VEHICLE OWNERSHIP AND ANNUAL MILEAGE IN 1969 AND 1977

Annual Mileage Group	Survey Year	Household Vehicle Ownership			
		One	Two	Three or More	ALL
Under 1,000	1969	7.6	7.6	**	7.8
	1977	9.1	8.6	11.4	9.4
1,000 to 2,999	1969	7.4	7.2	**	7.3
	1977	8.1	7.9	7.8	8.0
3,000 to 7,999	1969	5.7	6.2	5.9	5.9
	1977	6.5	6.7	7.1	6.7
8,000 to 12,999	1969	4.9	4.7	4.8	4.8
	1977	5.5	5.8	5.9	5.7
13,000 to 17,999	1969	4.2	4.0	3.6	4.1
	1977	4.9	4.8	5.1	4.9
18,000 to 22,999	1969	3.6	4.1	3.4	3.8
	1977	4.5	4.7	5.1	4.7
23,000 to 27,999	1969	3.3	2.9	**	3.1
	1977	4.2	4.0	4.5	4.2
28,000 and Over	1969	3.3	3.0	3.4	3.2
	1977	4.9	4.5	5.2	4.8
ALL	1969	5.1	5.1	5.1	5.1
	1977	6.3	6.2	6.7	6.3

* Includes only auto vehicles (standard auto, station wagon, personal use taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS.
** Insufficient data.
Source: Based on data from Table 3 (p.12) in 1969 NPTS Report, *Annual Miles of Automobile Travel*, and 1977 NPTS Survey data.

TABLE 30. AVERAGE ANNUAL MILES* (THOUSANDS), AVERAGE AGE (YEARS), PERCENT OF VEHICLE MILES, AND PERCENT OF AUTOMOBILES BY SMSA POPULATION SIZE 1969 AND 1977

		SMSA Population					
	Survey Year	Less Than 250,000	250,000 - 499,999	500,000 - 999,999	1 Million to 3 Million	Over 3 Million	ALL
Average Annual Miles	1969	11.0	10.3	11.3	11.6	11.5	11.5
	1977	10.7	10.3	10.2	10.5	10.3	10.4
Average Age	1969	5.1	5.2	5.2	4.6	4.7	4.9
	1977	6.6	6.3	6.3	6.2	6.1	6.3
Percent of Automobile Miles	1969	15.9	13.1	15.3	32.7	23.0	100.0†
	1977	13.5	16.1	15.7	32.3	22.4	100.0‡
Percent of Automobiles	1969	16.1	14.6	15.5	30.9	22.9	100.0††
	1977	13.1	16.2	16.1	31.9	22.7	100.0‡‡

† Total automobiles = 44,473,680 in SMSA's (1969).
†† Total automobile miles = 510,307,600,000 for SMSA households (1969).

‡ Total automobiles = 57,600,000 in SMSA's with age and annual miles reported (1977).
‡‡ Total annual auto miles = 600,809,000,000 for autos in SMSA's with age and annual miles reported (1977).

* Includes only auto vehicles (standard auto, station wagon, taxi and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.
Source: Based on data from Table 9 (p.22) in 1969 NPTS Report *Annual Miles of Automobile Travel, and 1977 NPTS Survey.*

TABLE 31. AVERAGE ANNUAL MILES*, AVERAGE AGE, PERCENT OF AUTOMOBILES, AND PERCENT OF AUTOMOBILE MILES BY HOUSEHOLD INCOME** IN 1969 and 1977

		Annual Household Income**						
Automobile Characteristic	Survey Year	$5,000 and Under	$5,000 to $9,999	$10,000 to $11,999	$12,000 to $14,999	$15,000 to $24,999	$25,000 and Over	ALL
Average Annual Miles	1969	6,600	9,650	11,300	12,200	12,200	15,000	11,600
	1977	7,039	8,952	10,457	10,445	10,847	11,820	10,307
Average Automobile Age	1969	7.0	6.1	5.6	4.8	4.6	4.0	5.1
	1977	8.3	7.2	6.6	6.3	5.9	5.3	6.3
Percent of Automobile Miles	1969	3.9	15.7	12.8	20.5	29.0	17.9	100.0†
	1977	5.8	14.7	9.1	13.3	34.3	22.8	100.0‡
Percent of Automobiles	1969	6.6	19.0	13.1	19.6	27.7	14.0	100.0††
	1977	8.5	16.8	9.0	13.2	32.6	19.9	100.0‡‡

† Total annual automobile miles=777,398,900,000 (1969).

†† Total automobiles=66,843,567 (1969).

‡ Total estimated automobile miles= 1,020,515,000,000 (1977).

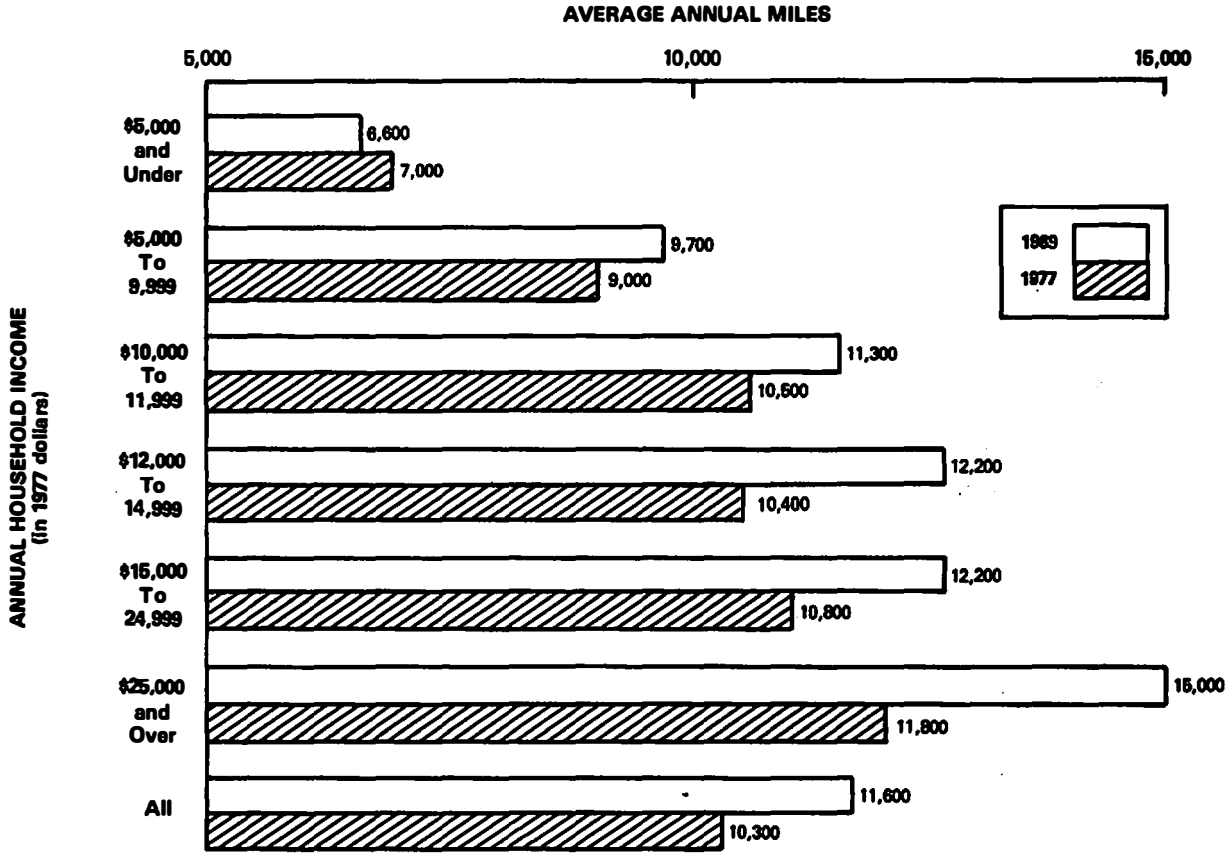
‡‡ Total automobiles=98,000,000 (1977).

* Includes only auto vehicles (standard auto, station wagon, taxi and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.

** 1969 incomes inflated to 1977 price levels using CPI index.

Source: Based on data from Table 5 (p.16) in 1969 NPTS Report, *Annual Miles of Automobile Travel*, and 1977 NPTS Survey data.

FIGURE 8
AVERAGE ANNUAL MILES* BY
ANNUAL HOUSEHOLD INCOME IN 1969 AND 1977



*Includes only auto vehicles (standard auto, station wagon, taxi, and vanbus/minibus) owned by or available to the household on a regular basis, as defined by 1969 NPTS Survey.

Source: Based on data from Table 5 (page 16) in 1969 NPTS Report, Annual Miles of Automobile Travel, and 1977 NPTS Table 31.

1977 levels.*

In 1977, as well as 1969, average annual miles driven per automobile increased directly with household income. However, the rate of increase in 1977 was less than in 1969. Figure 8 shows that the difference in average annual automobile travel between the lowest and highest income groups was 8,400 miles in 1969 but only 4,800 miles in 1977.

The 1969 to 1977 change in the average rate of automobile use was greatest in the higher income brackets and least in the lower income groups. Average annual automobile use in the lowest income group (under $5,000) actually increased from 6,600 miles in 1969 to 7,000 miles in 1977, or 6.7 percent. In the medium income group ($12,000 to $15,000) annual use declined from 12,200 miles to 10,400, or 14.7 percent. In the highest income group (over $25,000) use declined from 15,000 miles to 11,800 miles, or 21.3 percent.

The average age of automobiles, as seen in Table 31, increased in all income classes in 1977 from 7.0 to 8.3 years for incomes under $5,000, 4.8 to 6.3 years for incomes from $12,000 to $15,000, and 4.0 to 5.3 years for incomes over $25,000. This increase in automobile age among household income groups was uniform. These changes in automobile characteristics and use are related to shifts in auto ownership.

The proportions of automobiles owned by three of the six income groups increased. The increase in low income households (under $5,000) was from 6.6 percent in 1969 to 8.5 percent in 1977, while the increase was from 27.7 percent to 32.6 percent in $15,000 to $25,000 households and 14.0 percent to 19.9 percent in the over $25,000 households.

*CPI-W 1969 = 109.8; CPI-W 1977 = 181.5. Bureau of Labor Statistics, Consumer Price Index (CPI): covers urban wage earners and clerical workers (CPI-W); U.S. city average.

V. SUMMARY

In 1977, household vehicles including autos, vans, light trucks, camper vehicles, and motorcycles and mopeds which are either owned directly by households or available on a regular basis through other means, were driven an average of 10,200 miles per year. The average annual use of just automobiles was 10,300 miles in 1977, down considerably from the average of 11,600 miles in 1969. The reasons for the 1977 decrease in individual automobile use are increased vehicle ownership and greater numbers of one-adult households.

Vehicle use is greater inside SMSA's than outside, although rates of use do not vary significantly among SMSA's of varying size. To the extent there is variation, the smallest SMSA's tend to have the higher rates of use, 10,800 miles per year as compared to 10,100 to 10,400 miles per year in other SMSA's.

Within SMSA's, the highest annual use is recorded by vehicles owned by households living outside central cities. Vehicles outside central cities are driven an average of 10,600 miles per year. Outside SMSA's, vehicle use is generally lower, averaging 9,600 to 10,100 miles per vehicle per year. If the household is viewed as the basis for vehicle use, rather than the individual vehicle, the relationships are altered slightly. Households within SMSA's but outside central cities remain the major users of vehicles, averaging 17,500 miles per year. This is even greater than total use of vehicles outside SMSA's, 15,600 miles per year. SMSA central city households use vehicles much less, at 12,300 miles per household per year.

Income has a strong impact on household vehicle use. Annual vehicle use increases from 7,100 miles for households with incomes under $5,000 to 11,600 miles for incomes of $50,000 or greater. Vehicle use per household increases even more dramatically with income, from 4,500 miles per year for households under $5,000 to 27,500 miles per year for the average household with an income of $50,000 or more.

For auto vehicles only, as in the 1969 survey, annual use increases from 7,000 miles per auto for households with incomes under $5,000 to 11,800 miles for incomes over $25,000 in 1977. Compared to 1969, average annual mileage per auto in 1977 is less in all but the lowest income group, dropping most in the higher income brackets.* Automobiles in households of over $25,000 income averaged 15,000 miles per year in 1969 but 11,800 miles per year in 1977.

Average annual use of vehicles increases with the number of household adults and licensed drivers. Annual miles driven averages 8,800 miles per vehicle in one-adult households, 10,200 miles in two-adult households, and 10,600 miles in households with three or more adults. Annual use of vehicles averages 9,400 miles per vehicle in one-driver households, 10,300 miles in two-driver households and 10,700 miles in households with three or more drivers. Generally, average annual miles driven per vehicle declines as the number of household vehicles increases.

*1969 incomes adjusted to 1977 conditions using consumer price index.

The structure of the household has a pronounced effect on vehicle usage. Households with retired heads have the lowest annual rates of vehicle use, averaging between 5,200 and 6,600 miles per vehicle. Vehicles in households with children are used more each year than in childless households and the annual use varies between 200 and 1,000 miles less per vehicle, with the difference increasing with the age of the children. When the youngest child reaches driving age (16 and over), individual vehicle use begins to decline once more due to increased vehicle ownership.

Household vehicles with the highest utilization rates are other vans, averaging 13,100 miles per year, vanbus/minibus vehicles, 12,500 miles per year, and other trucks, 11,200 miles per year. Standard automobiles are used less than the average vehicle or about 10,100 miles per year. Station wagons are driven an average of 11,300 miles per year, while pickup trucks are driven 10,600 miles, pickups with campers 10,500 miles, and camper coaches 7,800 miles per year. Motorcycles, at 3,400 miles per year, and mopeds, at 1,500 miles per year, are the vehicles with the lowest utilization rates.

Individual vehicle use is greatest in two-vehicle households, where vehicles are driven an average of 10,500 miles per year. Vehicles in one-vehicle households are driven an average of 9,800 miles per year, and households with four or more vehicles drive each of their vehicles an average 9,600 miles per year.

Two-year-old vehicles are used the most of all vehicle age groups, averaging 13,600 miles per year. Thereafter use declines with age, reaching a minimum of 7,100 miles per year for vehicles 10 years or older.

Considering just auto vehicles, as in the 1969 NPTS, it appears that older vehicles (autos) are used more in 1977 than in 1969, due to the fact that households are retaining vehicles longer in 1977 than in 1969 and using them more fully. One-year-old vehicles were driven an average of 16,100 miles in 1969 as compared to 13,400 miles in 1977. However, five-year-old automobiles are driven 10,700 miles in 1977 as compared to the 10,000 driven in 1969, and automobiles 10 years old or older are driven 7,100 miles in 1977 compared to 6,500 miles in 1969.

Vehicles purchased new are driven more on the average than vehicles purchased used. Vehicles purchased new in the 1977 survey were driven an average of 10,900 miles per year compared to 9,200 miles per year for vehicles purchased used. Of course, most vehicles purchased used are older, and older vehicles are used less than new vehicles. Higher rates of use among new vehicles exists, regardless of the number of vehicles owned by the household and regardless of the type of vehicle, i.e., automobile, van, truck, etc.

Vehicle* characteristics when related to vehicle use offer important information for policy planning purposes. The 1977 NPTS data show that above average use is common among heavy vehicles, where fuel economy is generally poor. Autos weighing over 4,000 pounds are driven an average of 11,000 miles per year, 6.8 percent above the 10,300 miles per year average for all autos. This is offset somewhat by the high average annual use of light autos under 2,500 pounds, however, these autos represent only 7.7 percent of all auto travel.

Vehicles* with automatic transmission have a greater impact on fuel use than vehicles with standard transmission. Although utilization rates for vehicles with automatic and standard transmissions do not differ appreciably, 10,200 miles per year for automatic and 10,600 miles per year for standard, 79.3 percent of all vehicle travel is by vehicles with automatic transmission.

Air conditioning is also a vehicle characteristic that increases fuel consumption. Household vehicles with air conditioning are driven an average of 1,600 miles per year more than those without air conditioning, and 60.3 percent of all vehicle travel is in air conditioned vehicles.

Most vehicle travel (65.8 percent) is driven by households residing in SMSA's. To the extent that this travel also occurs in SMSA's, it would be expected that conditions are generally more congested and vehicles less fuel efficient than in areas outside SMSA's. Among SMSA households, most travel occurs by those in the largest SMSA's. More than half of all vehicle travel by SMSA households and one-third of all household vehicle travel is by households in SMSA's with over 1 million population. Also, more than one-third (37.6 percent) of all household vehicle travel is done by households inside SMSA's but outside central cities where the highest vehicle use rates are found, 10,600 miles per vehicle per year.

Vehicles used regularly for travel to work have various distinguishing characteristics. Work vehicles are driven an average of about 11,900 miles per year, compared to 6,900 miles for nonwork vehicles and 10,200 for the average vehicle. The difference of about 5,000 annual miles between work and nonwork vehicles is a remarkably consistent relationship which prevails across different levels of household vehicle ownership, location inside or outside SMSA's, for all levels of household income, and for different occupational groups. The only significant variation in the difference between the rates of use of work and nonwork vehicles occurs among the different vehicle types. Autos and station wagons are each used about 4,500 miles per year more if used for work, while pickups and vanbus/minibus vehicles are used more than 6,000 miles per year more, and other vans and motorcycles are only used about 3,600 miles more. Vehicles used for work are also generally about 1.4 years younger

*The relationships in this paragraph correspond only to standard auto, station wagon and vanbus/minibus vehicles.

than those not used for work and are less often purchased new (46.4 percent) than nonwork vehicles (47.6 percent).

Similarly, vehicles of all ages are used more if they are regularly used for work. Two-year-old work vehicles are used 15,000 miles per year compared to 9,500 miles for the average 2 year old vehicle not used for work. Vehicles that are 10 years of age or older and used for work are driven 9,100 miles per year, while the average vehicle of 10 or more years not used for work is driven 4,500 miles per year.

APPENDIXES

APPENDIX A

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 five 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 household, 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 paticipate 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 non-self-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-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-March 1978, with approximately 1500 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 the data was tabulated upon receipt of the edited, weighted data tapes from the Bureau of the Census.

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. 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.

CHARACTERISTICS OF 1977 LICENSED DRIVERS AND THEIR TRAVEL
(Report 1, October 1980)
HOUSEHOLD VEHICLE OWNERSHIP
(Report 2, December 1980)
PURPOSES OF VEHICLE TRIPS AND TRAVEL
(Report 3, December 1980)
HOME-TO-WORK TRIPS AND TRAVEL
(Report 4, December 1980)
HOUSEHOLD VEHICLE UTILIZATION
(Report 5, April 1981)
VEHICLE OCCUPANCY
(Report 6, April 1981)
A life cycle of travel by the American household
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

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

Survey Questionnaire

Copies of the NPTS Survey Questionnaire are available upon written request from the Office of Highway Planning (HHP-44), Federal Highway Administration, Washington, D.C. 20590

APPENDIX B

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 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 forewarded 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 or 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, SW
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 C

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.

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.

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.

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