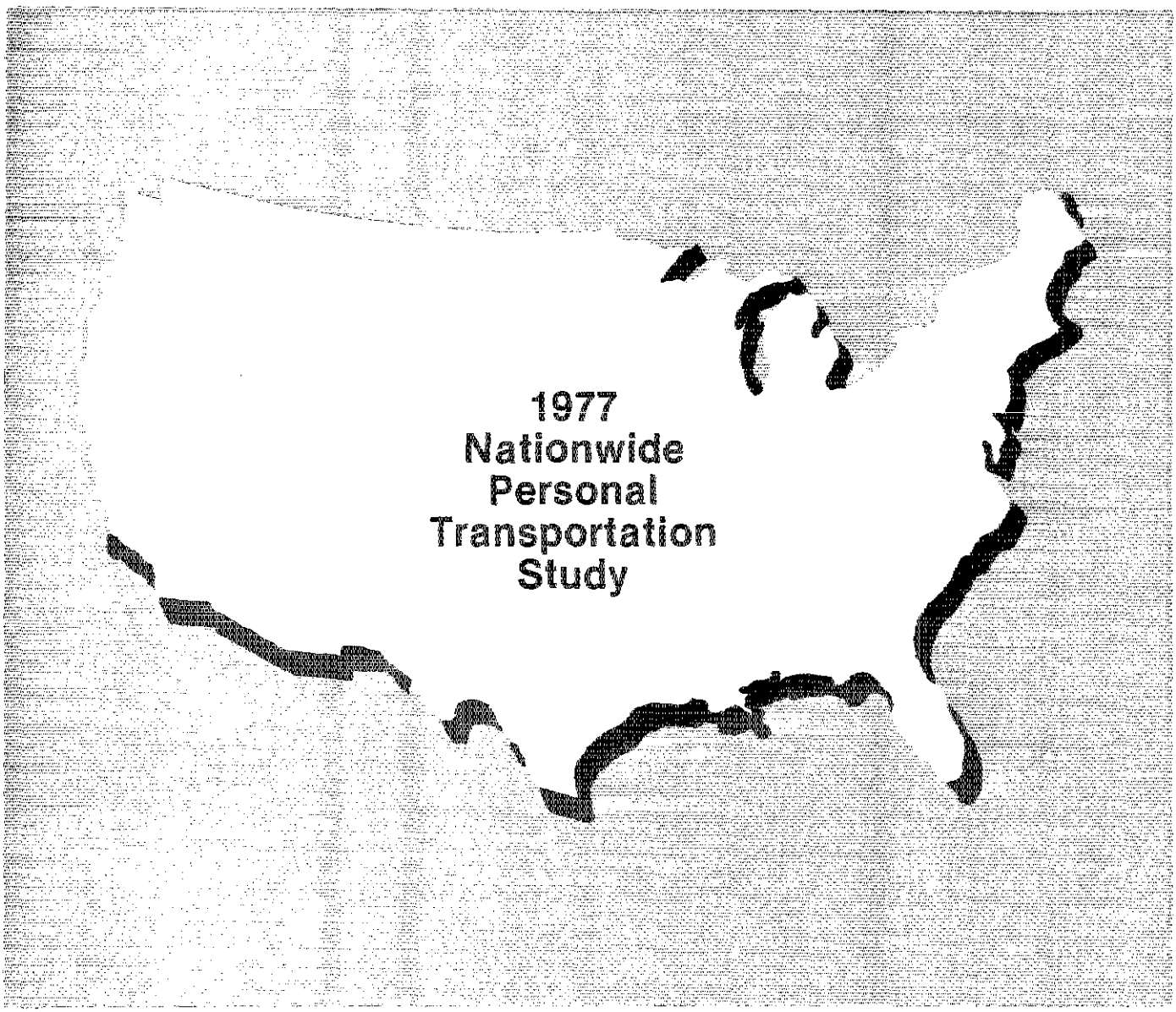
U.S. Department
of Transportation
Federal Highway
Administration

A Life Cycle of Travel by the American Family

Office of Highway Planning
July 1981

Report No. 7



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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA/PL/81/014		

4. Title and Subtitle
A Life Cycle of Travel by the American Family
Report 7, 1977 NPTS

5. Report Date
July, 1981

6. Performing Organization Code

7. Author(s)
Carol Zimmerman

8. Performing Organization Report No.

9. Performing Organization Name and Address

10. Work Unit No. (TRAIS)

11. Contract or Grant No.

12. Sponsoring Agency Name and Address
Highway Statistics Division (HHP-44)
Federal Highway Administration
400 Seventh St., SW, Room 3300
Washington, D.C. 20590

13. Type of Report and Period Covered
final report

14. Sponsoring Agency Code

15. Supplementary Notes
Contact person:
Ruth H. Asin (202)426-0160

16. Abstract

This report provides information about family trips and travel from the point of view of the family life cycle, using data from the 1977 Nationwide Personal Transportation Study. Daily travel characteristics of families in stages of four life cycles are presented. The life cycles represented include the traditional family life cycle, consisting of a husband, wife and their dependent children. In addition, the report describes the travel characteristics of stages in the single-parent families, childless married couples, and single persons living alone.

17. Key Words	18. Distribution Statement
Family life cycle Family trips and travel Stages in family life cycle Life cycle approach	This document is available to the public through the National Technical Information Service, Springfield, VA 22161 and the Superintendent of Documents, U.S. GPO, Washington, D.C. 20402

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	78	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

1977 NATIONWIDE PERSONAL TRANSPORTATION STUDY

A LIFE CYCLE OF TRAVEL BY THE AMERICAN FAMILY

Report 7

July 1981

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

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I. Highlights

- In the traditional family life cycle, travel increases from an average of 4.0 trips and 36.1 miles daily in the early stages of young, childless households. It peaks at 11.0 trips and 90.2 miles daily for households in those stages with older children (19-22) living at home, and then declines to a low of 0.9 trips and 2.6 miles daily for elderly couples in the later life cycle.

- Single-parent families travel considerably less for all purposes at every stage than do two-parent families, due to the smaller number of trips and travel generated for earning a living and the smaller family size. Fewer vehicles and licensed drivers, particularly, act as constraints on daily tripmaking.

- For childless couples, travel is greatest when the family head is in his twenties or thirties. A decline in travel at progressively older life cycle stages is most apparent in travel for all purposes and especially for social and recreational activities.

- In the single-person life cycle, there is a general decrease in daily travel with each progressively older stage.

- Travel patterns of families are affected by the presence and age of children in the family. Children have the greatest impact on family travel as they reach their late teens and early twenties, when daily travel increases sharply.

- Travel by persons living alone declines with increasing age. In their twenties, such persons average 4.0 trips and 36.1 miles of travel per day. For persons eighty and over, travel drops to an average of 0.9 trips and 2.6 miles daily.

- For earning a living, families with young children (oldest age 0-3 years) take fewer trips per day (1.1) than young couples without children (1.4), but travel more miles per day for this purpose (11.7 vs. 10.7).

- Social and recreational travel exhibits a marked decline with age. When the household head is less than 30 years old, married couples without children take 0.6 trips and 8.0 miles of travel per day. At age 60-69 half as many trips and miles of travel are reported.

- Trips for family business (shopping, doctors visits, etc.) remain an important reason for household travel throughout the life cycle. For example, persons living alone average the same number of trips in their twenties and thirties (0.5) as they do in their fifties and sixties.

- Trips and travel for earning a living peak to 2.0 and 16.9 miles respectively, when the oldest child, age 19-22, is living at home. As children leave home, and the family head enters the retirement years of the life cycle, trips decline to 0.5 daily when the family head is age 60-69 and it declines to 0.0 when the family head is in the eighties. Miles of travel during this period drop precipitously from 3.7 and then to 0.0 respectively.

Purpose of Report

This report provides information about family travel behavior over the family life cycle, using data from the 1977 Nationwide Personal Transportation Study (1977 NPTS). Travel data combined with socio-economic, geographic, and other information by stage in family life cycle suggest that a family's travel behavior changes significantly over its life span. This indicates that the family life cycle is a useful dimension for describing daily family travel. Understanding the travel behavior of families is important to industry and to local, State, and federal governments in identifying markets for products and services, planning a transportation system and formulating policies which affect personal travel.

Organization of Report

The study of travel behavior over the family life cycle is presented in Section III. Section III is divided into two parts. In the first part, the family life cycle approach is described to acquaint readers who may be unfamiliar with the theory and application of this approach. In the second part, the daily travel characteristics of families in stages of four life cycles are presented. The first life cycle presents the traditional family life cycle, a hypothetical construction of stages in the life of the nuclear family, consisting of husband, wife, and their dependent children. In addition to the traditional family life cycle, the report describes the travel characteristics of stages in single-parent families, childless married couples, and single persons living alone. In Section IV, the travel data from NPTS are then compared with the findings of other studies.

Following Section IV, the results of the study are summarized in Section V. Additional material appears in the Appendixes, which include detailed tables of family characteristics, tables of sampling variability for each stage in the life cycle, and a bibliography of references and other relevant literature. Information describing the survey procedures and data processing, including sample design, survey methodology, processing procedures, provisions for obtaining special tabulation, subject areas planned for 1977 NPTS reports, as well as an order form with description and price of the public use tapes are also found in the Appendixes of this report.

The 1977 NPTS was designed to provide comprehensive data on travel and transportation patterns in the United States, updating an earlier NPTS done in 1969. The 1977 NPTS addresses the full range of trips and travel done by U.S. families, along with the related social and economic characteristics of the tripmaker. The 1977 study was designed to collect information on all trips taken during a designated 24-hour period. The 1977 study collected information on the use and availability of public transportation facilities, types of motorized vehicles available to the family, characteristics of the trips taken, including mode, purpose, miles traveled, time required and persons on the trip. A unique feature of the 1977 NPTS was the use of mapping during home interviews to estimate the amount of travel in urban and rural areas.

Data presented in this report differ from other reports in the 1977 NPTS report series. First, the data in this report are unweighted and represent the travel information only for those families in the NPTS sample at a given point in time. The basic idea of this report is to compare one life cycle or life cycle stage to others at a given point in time, and no attempt is being made to relate this information to the entire population of families in the United States.

The second difference pertains to the basic unit of reporting. In the other NPTS reports of this series, the basic unit of reporting is the household (defined as all persons living together under the same roof), and all travel is related to the basic household unit. In this report, the basic unit of reporting is the family, which to distinguish it from the term household is defined as two or more persons living together, related by blood or marriage, or a single person living alone. Since this report discusses daily travel characteristics of families by stages in the life cycle, it is necessary to exclude all cases where trip information is missing for one or more household members. Of the 17,949 households surveyed, trip information is lacking for one or more members in approximately 13.2 percent of the households or 2,363 cases (the latter are referred to as Type Z Cases and when weighted data are used, as in other reports of this series, an adjustment in the weights is made for these cases). Of the 15,586 households which have complete trip information, only 12,931 meet the criteria of a family. Trip and travel information are derived only from these families.

The third difference lies in the definition of a trip. In other NPTS reports, a trip is described in terms of a vehicle trip or a person trip. A trip made by one person in an automobile would be considered as one vehicle trip or one person trip. Three people traveling together in an automobile would be considered as one vehicle trip or three person trips. In this report, trips are discussed in terms of family trips and include trips by one or more family members traveling together by any travel mode on the specified travel day. This includes, in addition to trips made by private motorized vehicles, public transportation, walking, and bicycling. Thus, one family member making a trip by automobile would be considered as one family trip. Likewise, three family members making a trip by automobile would also be considered as one family trip. The reason for including all modes of travel is to give the reader an idea of a family's overall level of tripmaking rates throughout the life cycle rather than simply travel by private motorized vehicle.

Definitions

Child-launching stage: stage in the life cycle of a family in which grown children are beginning to leave home, but in which one or more children still reside with their parents.

Childless married couple life cycle: life cycle of married couples who do not have children. In this study the childless married couple life cycle consists of seven stages.

Empty nest stage: stage in the life cycle of a family in which grown children have left the home of their parents, and the married couple lives alone.

Family trip: any time one or more family members take a trip by any mode, including trips by private motorized vehicles, and all public modes of transportation. This term should not be confused with either vehicle trips or person trips, which are used in other reports in this series.

Family Unit: persons living together that are related by blood or marriage.

Household: all persons living together under one roof, including unrelated individuals.

Life cycle: a birth to death sequence of stages of an individual or group.

Life cycle approach: analytical approach which describes or explains physical or behavioral changes in an individual or social group, (such as a family), as a birth to death process consisting of a sequence of stages.

Single-parent life cycle: life cycle of families consisting of one parent and his/her dependent children. In this study the single parent life cycle consists of six stages.

Single-person life cycle: life cycle of persons living alone. In this study the single person life cycle consists of seven stages.

Sole survivor stage: stage in the life cycle of a family in which one of the original married couple outlives the other and lives alone.

Stage in the life cycle: time period in the life cycle of an individual or social group. It is distinguished from earlier and later stages on the basis of physical or behavioral attributes peculiar to that stage.

Trip purpose: the main reason that motivated the trip. In NPTS there are 21 trip reasons. In this study they are grouped into the following categories:

- All purposes: trips for all 21 purposes
- Earning a living: includes trips to a place of work and work-related travel
- Family and personal business: includes trip purposes listed as visits to the doctor or dentist, shopping, and other family or personal business
- Social/recreational: includes trips listed as visit to friends or relatives, pleasure driving, sightseeing, entertainment, recreation (participant), vacation, and social
- Other: includes trips to pickup/dropoff passenger, change mode of transportation, conventions, return home, lodging, and other

Traditional family life cycle: life cycle of nuclear family consisting of husband, wife and their dependent children. In this report the traditional family life cycle is divided into twelve stages.

Description of the Family Life Cycle Approach

The Life Cycle Approach

The concept of the life cycle is used to understand changes in the behavior of an individual or family over time. In our society, people go through a succession of stages from infancy, to childhood, to adulthood, to old age. These stages are distinguished from one another on the basis of physical maturation and on a host of social statuses involving school, employment, marriage, and other conditions which produce differences in a person's attitudes or patterns of behavior at various points in the life cycle.

Because most individuals experience life cycle changes within a family unit, the family life cycle itself evolves over time along with its members. Thus, the stages in the life cycle of a family are based upon the composition of the family at different points in time. For example, a family composed of a young married couple and their preschool children is in a different stage of the family life cycle than a family consisting of a middle-aged couple whose mature children are no longer living at home.

The life cycle approach attempts to catalog the traditional or expected sequence of stages experienced by individuals or families as they go through life. However, for a specific person or family, life's events may follow a path different from the normal or expected due to choice or circumstance. Death, divorce, childlessness, and many other factors alter life cycles. Nevertheless, the life cycle approach is useful for understanding the typical behavior of individuals and families over time and for understanding life cycles other than the traditional patterns. For further discussion of the life cycle concept and its applications, the reader may wish to consult the references contained in Appendix C.

The Life Cycle and Travel

Many of the activities and materials necessary or desirable to families require travel. Because patterns of consumption, employment, recreation, and

other forms of behavior are influenced by life cycle considerations, travel based upon such behavior will be affected by life cycle stages as well.

This report describes statistically and graphically the travel of families over the family life cycle. It shows the amount of travel undertaken by families in different life cycle stages. It also provides information about family geographic, economic, and social characteristics which may influence the travel patterns of each life cycle stage.

Defining Stages in the Family Life Cycle

A variety of criteria for separating one stage of the family life cycle from other stages have been used in studies of the family. The criteria usually include a combination of variables, such as age and marital status of adults in the family, employment status or presence of children in the family and their ages. Because no standard classification exists, the stages used in this report will be similar but not necessarily identical to those found elsewhere in other life cycle literature (note that other reports in this NPTS series use a household structure classification system and not a family life cycle classification, hence, comparisons cannot be made between the two systems). The large number of households surveyed in NPTS (17,949) permit a finer classification of stages in the life cycle than in most other studies. Families were selected to represent four types of life cycles and stages in each cycle according to the criteria presented in Table 1. The four types of life cycles are the traditional family, the single parent, the childless couple, and the single person family.

Because certain stages in the four life cycles have the same characteristics, families selected from NPTS to represent each stage were placed into one or more cycles. For example, Stage 9 in the traditional family life cycle (married couple, head 50-59, no children at home) contains the same family as those that might appear in Stage 4 of childless couples (married couple, head 50-59, no children), thus accounting for an overlap. The breakdown of family by the four types of life cycles is as follows:

9,206 families were the traditional families

901 single-parent families

3,880 families of childless couples

3,695 single persons living alone

Daily Travel Characteristics of Families by Stages in the Family Life Cycle

Traditional Family Life Cycle

Families were selected from NPTS to represent stages of the traditional family life cycle according to the criteria presented in Table 1. The 12 stages discussed in the report are shown in Table 2. The codes shown in Table 2 will be used to explain the different stages, as they are mentioned in this report.

The average daily family trips and miles of travel by stage in the traditional family life cycle are presented in Tables 3 and 4 respectively. The tables show the average number of trips and miles of travel daily for four major trip purpose categories and all trip purposes combined. The four major trip purposes are earning a living, which consists of trips to and from place of work and trips for work-related business; family and personal business, which includes three categories: visits to a doctor or dentist, shopping trips, and trips for other family or personal business; social and recreational trips, which consist of seven trip purposes: visiting friends or relatives, pleasure driving, sightseeing, entertainment, recreation (participant), vacation, and other social and recreational trips. The remaining nine trip purposes included in "other" are attend conventions, civic, educational, and religious activities, eat meals, change vehicle, change mode of transportation, pick up or drop off passenger, return home, overnight lodging, and others not included in the above. "All" purposes consists of all of the 21 purposes mentioned above.

Table 1

Definitions of Life Cycle Stages

Type of Life Cycle							
Traditional Family		Single Parent		Childless Couple		Single Person	
Stage	Description	Stage	Description	Stage	Description	Stage	Description
1	Not Married Head <30 No Child						
2	Married Couple Head <30 No Child			1	Married Couple Head 30 Not Applicable	1	Not Married Head 30 Not Applicable
3	Married Couple Not Applicable Child 0-3	1	Not Married Not Applicable Child 0-3				
4	Married Couple Not Applicable Child 4-6	2	Not Married Not Applicable Child 4-6				
5	Married Couple Not Applicable Child 7-10	3	Not Married Not Not Applicable Child 7-10				
6	Married Couple Not Applicable Child 11-15	4	Not Married Not Applicable Child 11-15				
7	Married Couple Not Applicable Child 16-18	5	Not Married Not Applicable Child 16-18	2	Married Couple Head 30-39 Not Applicable	2	Not Married Head 30-39 Not Applicable
8	Married Couple Not Applicable Child 19-22	6	Not Married Not Applicable Child 19-22	3	Married Couple Head 40-49 Not Applicable	3	Not Married Head 40-49 Not Applicable
9	Married Couple Head 50-59 No Child			4	Married Couple Head 50-59 Not Applicable	4	Not Married Head 50-59 Not Applicable
10	Married Couple Head 60-69 No Child			5	Married Couple Head 60-69 Not Applicable	5	Not Married Head 60-69 Not Applicable
11	Not Married Head 70-79 No Child			6	Not Married Head 70-79 Not Applicable	6	Not Married Head 70-79 Not Applicable
12	Not Married Head 80+ No Child			7	Not Married Head 80+ Not Applicable	7	Not Married Head 80+ Not Applicable

NOTE: Child refers to age of oldest child.

Not Applicable means age of head or oldest child not used as a criteria for definition of a given life cycle stage.

Not Married can mean never marrying or divorced, separated, or widowed.

No Child can mean childless or no child residing in home of parent.

Head - For purposes of this report, only those married couples were used where the husband was designated as the head.

Table 2
Traditional Family Life Cycle

Stage	Marital Status	Age of Head of Family[1/]	Age of Oldest Child Living at Home	Code
1	Young Person Not Married (NM)	Under 30 (<30)	No Children (NA)	NM,<30,NA
2	Young Married Couple (MC)	Under 30 (<30)	No Children (NA)	MC,<30,NA
3	Married Couple (MC)	Any Age (NA)	0-3 Years (0-3)	MC,NA,0-3
4	Married Couple (MC)	Any Age (NA)	4-6 Years (4-6)	MC,NA,4-6
5	Married Couple (MC)	Any Age (NA)	7-10 Years (7-10)	MC,NA,7-10
6	Married Couple (MC)	Any Age (NA)	11-15 Years (11-15)	MC,NA,11-15
7	Married Couple (MC)	Any Age (NA)	16-18 Years (16-18)	MC,NA,16-18
8	Married Couple (MC)	Any Age (NA)	19-22 Years (19-22)	MC,NA,19-22
9	Married Couple (MC)	50-59 Years (50-59)	No Children at Home (NA)	MC,50-59,NA
10	Married Couple (MC)	60-69 Years (60-69)	No Children at Home (NA)	MC,60-69,NA
11	Older Person Spouse Deceased (NM)	70-79 Years (70-79)	No Children at Home (NA)	NM,70-79,NA
12	Older Person Spouse Deceased (NM)	80 Years or Older (80+)	No Children at Home (NA)	NM,80+,NA

1/ In husband-wife families, only those cases were used where the husband was designated as the head of the family

Trips and miles of travel data are presented in cumulative form in Figures 1 and 2 respectively. As indicated, a family trip is the basic unit of travel. It is defined as a trip by one or more family members traveling together by any mode of private and/or public transportation.

For all purposes, average daily family trip frequency and miles of travel vary considerably over the traditional family life cycle. Tables 3 and 4 indicate that the fewest trips and miles of travel are reported in Stage 12 (NM, 80+, NA), which averages less than one trip (0.9) per day and travels an average distance of 2.6 miles daily. The highest trip frequency and greatest number of miles traveled occur in Stage 8 (MC, NA, 19-22). These families average 11 trips per day and travel an average of 90.2 miles daily.

In addition to the two extremes in daily trips and miles of travel produced by families in Stages 8 (MC, NA, 19-22) and 12 (MC, 80+, NA), other noteworthy variations in travel are evident over the family life cycle. Greater daily tripmaking (6.0) and miles of travel (61.2 miles) are reported by young married couples (Stage 2: MC, < 30, NA) than young single persons (Stage 1: NM, < 30, NA): 4.0 trips and 36.1 miles of travel. On the other hand, the addition of young children to the family in Stage 3 (MC,NA,0-3) is associated with a slight reduction in daily family trips (5.6) and daily miles of travel (49.6) compared to earlier childless Stage 2 (MC, 30, NA). As children mature and family size increases from Stage 4 (MC, NA, 4-6) to Stage 6 (MC, NA, 11-15), the average trip frequency gradually increases from 6.4 to 7.8 trips daily; average miles traveled per day increase from 52.3 to 55.5 miles respectively. However, as the oldest child reaches age 16-18 (Stage 7: MC, NA, 16-18), the average trip frequency rises to 10.1 per day and miles traveled increases to 73.9. With the oldest child at home in the late teens and early twenties (Stage 8: MC, NA, 19-22), family trips peak at 11.0 and miles traveled at 90.2.

A transition to the empty nest stage in the life cycle of the traditional family, in which grown children leave the home of their parents and the married couple lives alone (Stage 9: MC, 50-59, NA) is accompanied by a marked decline in family trips and travel to 4.5 and 44.1 respectively. Further reductions occur as

FIGURE 1. - AVERAGE DAILY FAMILY TRIPS BY STAGE IN THE TRADITIONAL FAMILY LIFE CYCLE

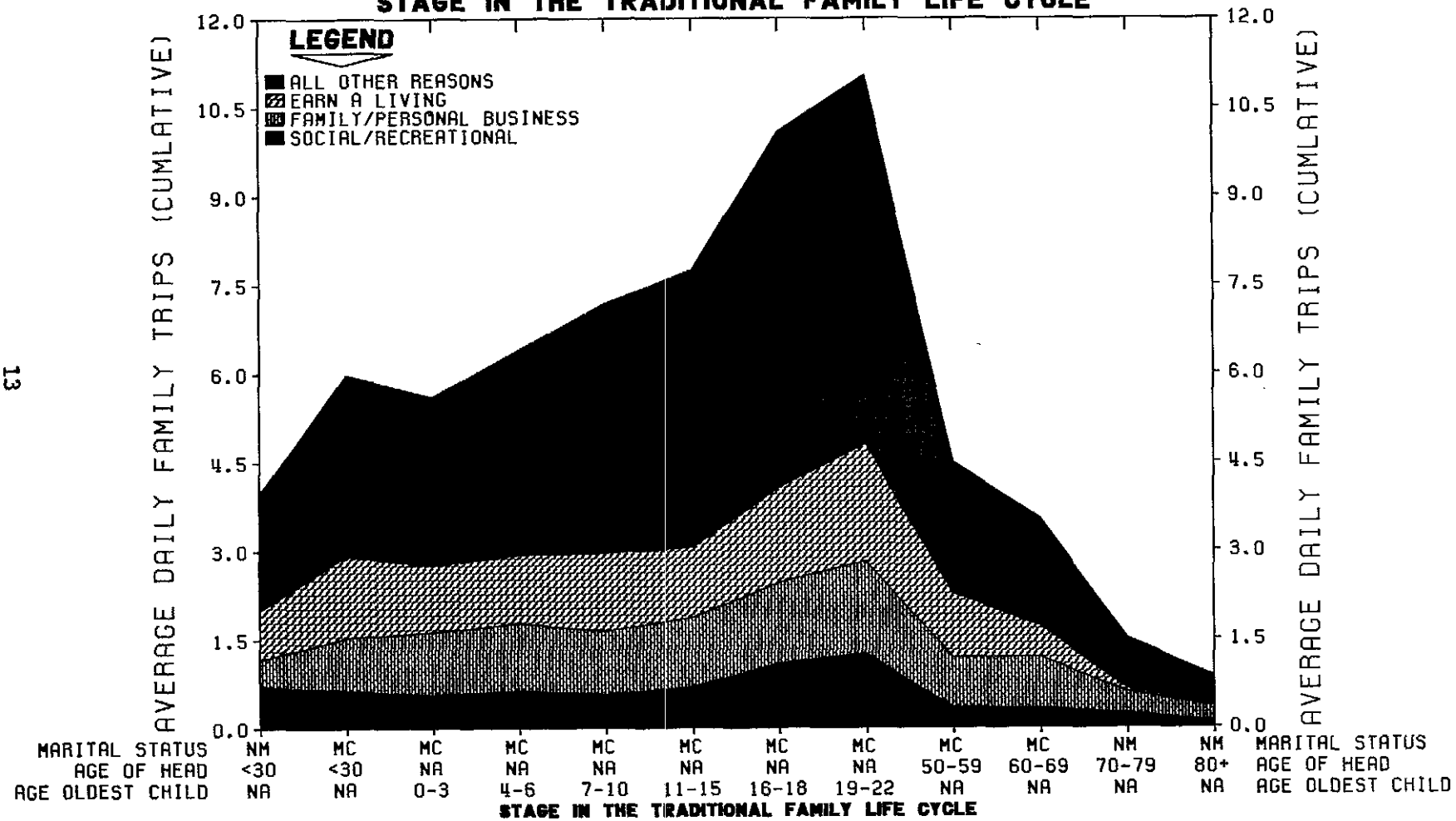


FIGURE 2. - AVERAGE DAILY FAMILY TRAVEL IN MILES BY STAGE IN THE TRADITIONAL FAMILY LIFE CYCLE

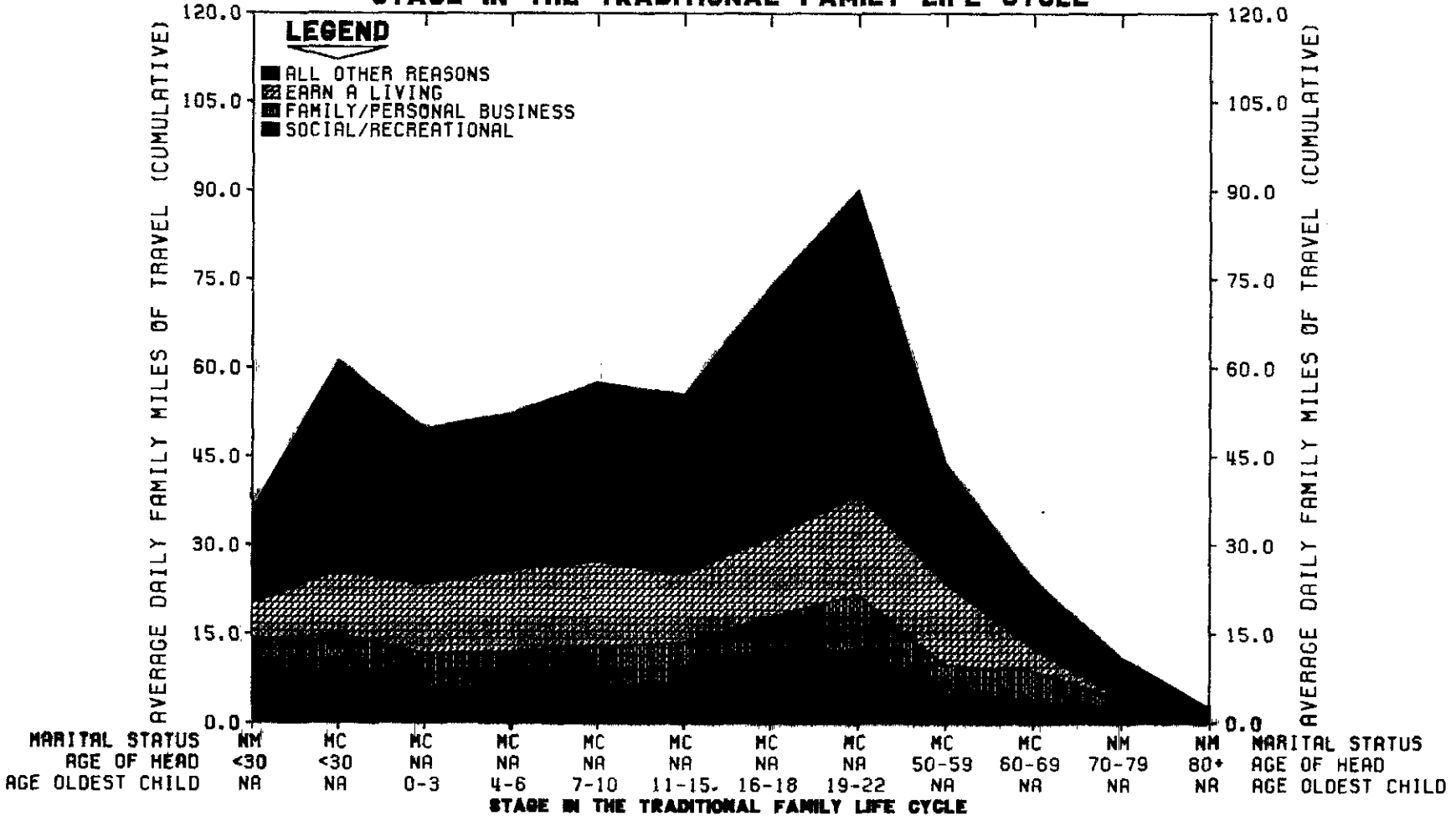


TABLE 3
Average Daily Family Trips[1] By Stage in the Traditional Family Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2]
1(NM,<30,NA)	4.0	0.8	0.5	0.7	2.0	653
2(MC,<30,NA)	6.0	1.4	0.9	0.6	3.1	620
3(MC,NA,0-3)	5.6	1.1	1.1	0.6	2.8	825
4(MC,NA,4-6)	6.4	1.2	1.1	0.6	3.5	636
5(MC,NA,7-10)	7.2	1.3	1.1	0.6	4.2	831
6(MC,NA,11-15)	7.8	1.2	1.2	0.7	4.7	1096
7(MC,NA,16-18)	10.1	1.6	1.4	1.1	6.0	862
8(MC,NA,19-22)	11.0	2.0	1.6	1.3	6.1	590
9(MC,50-59,NA)	4.5	1.1	0.9	0.3	2.2	838
10(MC,60-69,NA)	3.5	0.5	0.9	0.3	1.8	1070
11(NM,70-79,NA)	1.5	0.1	0.4	0.2	0.8	826
12(NM,80+,NA)	0.9	0.0	0.3	0.1	0.5	359
						9206

[1] One family trip is defined as any time one or more family members take a trip, by any private and/or public mode and includes walking and bicycling. It should not be confused with either vehicle trips or person trips.

[2] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and which could meet any one of the four family life cycle criteria (12,931 families out of the total sample of 17,949 households).

TABLE 4

Average Daily Family Travel in Miles[1/] By Stage in the Traditional Family Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2/]	Avg. Trip Le All Purpo (miles)[3/]
1(NM,<30,NA)	36.1	6.4	4.2	9.7	15.8	653	9.0
2(MC,<30,NA)	61.2	10.7	7.0	8.0	35.5	620	10.2
3(MC,NA,0-3)	49.6	11.7	6.3	5.5	26.1	825	8.9
4(MC,NA,4-6)	52.3	13.7	5.9	6.2	26.5	636	8.2
5(MC,NA,7-10)	57.3	14.2	6.6	6.4	30.1	831	8.0
6(MC,NA,11-15)	55.5	11.5	6.9	6.7	30.4	1,096	7.1
7(MC,NA,16-18)	73.9	13.4	8.5	9.4	42.6	862	7.3
8(MC,NA,19-22)	90.2	16.9	9.0	12.8	51.5	590	8.2
9(MC,50-59,NA)	44.1	13.7	4.8	5.0	20.6	838	9.8
10(MC,60-69,NA)	27.5	3.7	5.0	3.9	14.9	1,070	7.9
11(NM,70-79,NA)	11.1	0.2	1.5	2.6	6.8	826	7.4
12(NM,80+,NA)	2.6	0.0	0.6	0.4	1.6	359	8.3
						9206	

[1/] Family travel is defined as family trips multiplied by the respective trip lengths.

[2/] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and which could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

[3/] Average trip length is defined as total miles divided by total number of trips.

the family head reaches his sixties,[1/] to 3.5 trips and 27.5 miles daily. In the "sole survivor" stages (Stages 11: NM, 70-79, NA and 12: NM, 80+, NA) daily tripmaking declines to 1.5 and 0.9 respectively and miles traveled to 11.1 and 2.6 respectively.

Average trip length (shown in Table 4) does not follow the same pattern. While trips and miles traveled show general increases from Stage 1 (NM, < 30, NA) through Stage 8 (MC, NA, 19-22), average trip lengths decrease from Stage 2 (MC, < 30, NA) through Stage 6 (MC, NA, 11-15) from 10.2 to 7.1 miles respectively. This suggests more frequent but shorter trips. Trip lengths increase from Stage 7 (MC, NA, 16-18) through Stage 9 (MC, 50-59, NA) from 7.3 to 9.8 miles respectively and then decrease to a low of 0.3 at Stage 12 (NM, 80+, NA).

The data in Tables 3 and 4 indicate that travel for all trip purposes, both daily trip frequency and miles of travel, vary over the traditional family life cycle. These variations suggest that as families pass from one stage of the life cycle to the next, their day-to-day demand for travel shifts as well, according to the number of family members, their ages, and the desire or ability for mobility associated with each family member's age.

In addition to a discussion of the traditional family life cycle data for trips and travel for all purposes, information on four major trip purpose categories follows.

Earning a Living

For earning a living, daily trips and travel, as shown in Tables 3 and 4, follows a pattern over the family life cycle similar to travel for all purposes. Stage 1 families (NM, < 30, NA) average 0.8 trips and 6.4 miles per day. This increases to 1.4 trips and 10.7 miles of daily travel in Stage 2 which consists of young married couples without children.

[1/] In NPTS, any person living in the household could be designated the head of the household. In this report, however, only those married couples were used where the husband was designated head of the family.

Daily trips decrease slightly to 1.1 in Stage 3 families (MC, NA, 0-3) and then continue to increase, reaching a peak in Stage 8 (MC, NA, 19-22) of 2.0 trips and then declining rapidly as families enter the retirement years from ages 60-69 (0.5 trips) and finally to 0.0 trips in Stage 12 (NM, 80+, NA). Miles of travel increase to 14.2 miles in Stage 5 (MC, NA, 7-10), dip slightly and then increase to a high of 16.9 miles in Stage 8 (MC, NA, 19-22). Miles of travel decrease even more rapidly than trips starting with 13.7 in Stage 9 (MC, 50-59, NA) to 0.0 in Stage 12 (NM, 80+, NA).

Comparing Stage 9 (MC, 50-59, NA) and Stage 10 (MC, 60-69, NA), the percentage of families with employed husbands drops from 81.6 percent in Stage 9 to 40.5 percent in Stage 10, while the percentage of families with employed wives drops from 40.3 percent in Stage 9 to 22.9 percent in Stage 10 (Table A-1, items 6 and 7, Appendix A).

Family and Personal Business

The traditional family life cycle travel for family and personal business contributes to average family travel from 0.3 trips (Stage 12: NM, 80+, NA) to 1.6 trips (Stage 8: MC, NA,19-22) and 0.6 miles (Stage 12) to 9.0 miles per day (Stage 8: MC, NA, 19-22). Although family and personal business travel, like total travel and work travel exhibits the inverted u-shape pattern of change over the twelve stages, the overall slope is somewhat flatter. This difference reflects the fact that travel associated with such activities as shopping, doctors visits, and personal care remain important parts of the daily routine of life at every stage, whereas travel for other activities, work in particular, is more highly concentrated in certain segments of the life cycle of the family.

Nevertheless, there are noteworthy variations in family and personal business travel among the twelve stages of the traditional family life cycle. A slight increase in trip frequency is reported as children are added to the family in Stage 3, (MC, NA, 0-3), in which families take an average 1.1 trips per day for family and personal business. This tendency is countered by a slight decline in distance traveled for this purpose from Stage 2 (MC, 30, NA) to Stage 3: 7.0 to 6.3 miles respectively. Following several

stages of relative stability, daily family and personal business travel reaches a peak in Stage 8 with 1.6 trips and 9.0 miles per day when the oldest child living at home is between 19-22.

Families in Stages 9 (MC,50-59,NA) and 10 (MC,60-69,NA), composed of married couples with the husband in his fifties and sixties and no children at home, maintain a constant 0.9 trips per day, similar to couples in their twenties (Stage 2). However, the younger couples travel 7.0 miles per day for family and personal business compared to 4.8 and 5.0 for married couples in Stages 9 and 10 respectively.

Finally, the trip frequency for family and personal business of elderly single person families (Stages 11 and 12) is similar to the young single-person families of Stage 1, although once again the younger persons travel considerably more miles on the average.

Social and Recreational

Daily travel for social and recreational purposes ranges from an average of 0.1 trips and 0.4 miles in Stage 12 for the elderly in their eighties to 1.3 trips and 12.8 miles for married couples with children from 19-22 years (Tables 3 and 4). While the pattern for these two Stages have consistently held the high and low for all the trip purposes discussed, social and recreational travel in the remaining stages of the family life cycle diverges from the usual pattern in certain respects.

Up through Stage 6 (MC, NA, 11-15), trips for social and recreational purposes remain a remarkably constant 0.6 and 0.7 trips per day. Travel, on the other hand, declines from 9.7 miles for the young unmarried, to 5.5 miles for married couples with a child from 0-3 years, after which point it increases slightly through Stage 6 (MC, NA, 11-15) to 6.7 miles. As families pass into the child-launching period of Stages 7 (MC, NA, 16-18) and 8 (MC, NA, 19-22), social and recreational travel reaches its maximum with an average of 1.1 and 1.3 trips per day and 9.4 and 12.8 miles per day respectively (the child-launching period in the life cycle of a family is that stage in which grown children are beginning to leave home, but in which one or more children still reside with their parents).

The latter third of the family life cycle, consisting of couples age 50 and older whose children have left home, introduces a marked decline in social and recreational tripmaking, with 0.3 or less trips per day on the average. The decline in distance is even more precipitous than trips, falling from 5.0 miles per day in Stage 9 (MC, 50-59, NA) to 0.4 miles in Stage 12 (NM,80+,NA).

These data suggest that travel for social and recreational purposes is strongly associated with young unmarried or married adults under 30 (Stages 1 and 2) and adolescents from ages 16-22 years of age in the family, (Stages 7 and 8).

Younger children, on the other hand, do not affect average trip frequency, but are associated with fewer miles per day. For older adults in the post-childrearing years, Stages 9-12 (unlike their travel for family business) a pronounced decline in social and recreational travel occurs. The data in Tables 3 and 4 indicate that this tendency is related to changes in the ages of the adult members as well as changes in family composition. Younger families of similar composition (Stages 1 and 2) who are less than 30 years old, undertake much more social and recreational travel than their older counterparts in Stages 9 through 12.

Other

Daily trips and travel for "other" purposes range from an average low of 0.5 trips and 1.6 miles of travel for families in Stage 12 (NM, 80+, NA) to a high of 6.1 trips and 51.5 miles of travel for families in Stage 8 (MC, NA, 19-22). Families in Stage 7 (MC, NA, 16-18) are second in daily trips (6.0) but travel 8.9 miles less per day than do families in Stage 8.

Trips for "other" purposes contribute about one half or more of all trips made for earning a living, family and personal business, and social and recreation combined in most life cycle stages (Table 3). The same is true for miles of travel except for single person families under 30 (Stage 1: NM, 30,NA)and families in Stage 9 (MC, 50-59, NA) (Table 4).

Table 5
Traditional Family Life Cycle: Selected Family Characteristics, 1977-78[1/]

	Life Cycle Stage[2/]											
	1	2	3	4	5	6	7	8	9	10	11	12
Residence												
Percent Urban	83	73	67	66	63	61	62	68	68	63	73	73
Percent Single-Family Detached Dwelling	20	48	65	69	78	83	88	86	79	80	54	57
Economic and Demographic Characteristics												
Median Family Income Range ($000)	7.5 to 9.9	12.0 to 14.9	12.0 to 14.9	12.0 to 14.9	15.0 to 19.9	15.0 to 19.9	15.0 to 19.9	15.0 to 19.9	15.0 to 19.9	10.0 to 11.9	3.0 to 3.9	3.0 to 3.9
Avg. # of Persons	1.0	2.0	3.3	3.9	4.2	4.4	4.5	4.5	2.0	2.0	1.0	1.0
Avg. # of Children	NA	NA	1.3	1.9	2.2	2.4	2.5	2.5	NA	NA	NA	NA
Head of Household												
Avg. Age (Yrs.)	24	25	28	31	34	41	46	50	55	64	74	84
Percent Female 3/	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	71
Percent Employed	80	89	89	85	87	85	84	78	82	41	7	5
Spouse of Head[3/]												
Avg. Age (Yrs.)	NA	23	25	28	32	38	43	47	53	61	NA	NA
Percent Employed	NA	69	29	29	34	39	45	41	40	23	NA	NA
Transportation Resources												
Avg. # of Vehicles	1.0	1.8	1.7	1.8	1.9	2.0	2.5	2.9	1.9	1.6	0.5	0.3
Avg. # of Drivers	0.9	1.8	1.8	1.8	1.8	1.8	2.5	2.9	1.7	1.6	0.5	0.3
Percent Within ¼ Mile of Public Transit	50	36	29	30	28	24	25	31	30	32	40	41

1/Based on 9,206 families in 1977 NPTS.

2/Refer to Table 1 for definition of stages in the traditional family life cycle.

3/In husband/wife households, only those cases were used where the husband was designated as head of household.

Young families with the head under 30, with or without children, and older families without children at home in Stages 9 through 12, make 3.1 or less trips daily for these purposes. Families with the oldest child 7 to 15 make from 4 to almost 5 trips per day, while families where the oldest child is of driving age (Stages 7 and 8) average 6.0 and 6.1 "other" trips. Miles of travel follow a similar pattern.

The level of travel for these various purposes undertaken by families in each stage of the life cycle depends upon a number of factors which tend to change over time. Some of these, such as the age of family members, marital status, and family composition, are embodied in the life cycle classification itself. But there are other characteristics of families which influence travel change over the life cycle as well. These include such important considerations as location of residence, family income, and vehicle ownership. Detailed tables comparing families in each stage of the traditional family life cycle according to these and other characteristics are presented in Table A-1, Appendix A. An abbreviated version of this information is contained in Table 5.

Single-Parent Life Cycle

The family consisting of one parent and offspring has become an increasingly common living arrangement in the United States. From 1960 to 1976 the percentage of children under 18 living with only one parent rose from 9.1 to 17.0 (Glick and Norton, 1977).

To compare the travel behavior of single-parent families with that of two-parent families in the traditional family life cycle, single-parent families (families of one parent and children only) surveyed in NPTS are classified into six life cycle stages according to the age of the oldest child (Table 1). Tables 6 and 7 present the average trips and daily travel by purpose for one-parent families.

In both trips and travel for the category "all purposes" single-parent families travel considerably less than their two-parent counterparts at every stage (compare Stages 1 to 6 in Tables 6 and 7 with Stages 3 to 8 in Tables 3 and 4).

TABLE 6

Average Daily Family Trips[1/] By Stage in the Single-Parent Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2/]
1(NM,NA,0-3)	3.0	0.4	0.6	0.5	1.5	76
2(NM,NA,4-6)	4.4	0.6	0.7	0.3	2.8	99
3(NM,NA,7-10)	4.7	0.6	0.8	0.6	2.7	140
4(NM,NA,11-15)	5.5	0.6	0.9	0.8	3.2	256
5(NM,NA,16-18)	7.7	0.8	1.2	1.1	4.6	187
6(NM,NA,19-22)	7.0	1.0	1.0	1.2	3.8	143
						901

[1/] One family trip is defined as any time one or more family members take a trip, by any private and/or public mode and includes walking and bicycling. It should not be confused with either vehicle trips or person trips.

[2/] Refer to Table 1 for definitions of life cycle stages.

[3/] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

TABLE 7

Average Daily Family Travel in Miles[1] By Stage in the Single-Parent Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2]
1(NM,NA,0-3)	18.4	3.0	3.8	3.2	8.4	76
2(NM,NA,4-6)	18.9	3.8	1.8	3.1	10.2	99
3(NM,NA,7-10)	24.0	3.4	3.1	6.0	11.5	140
4(NM,NA,11-15)	26.4	4.1	4.0	4.2	14.1	256
5(NM,NA,16-18)	47.8	5.4	5.8	9.8	26.8	187
6(NM,NA,19-22)	48.4	7.8	4.0	9.5	27.1	143
						901

[1] Family travel is defined as family trips multiplied by the respective trip lengths.

[2] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

Part of this difference is due to the lesser amount of travel generated by single-parent families for earning a living. With only one potential adult wage earner, the magnitude of work travel is markedly reduced: approximately half as many trips and a third as many miles per day as in two-parent families.

For the other trip purposes, family and personal business, social and recreational, and other, the difference in travel over the two life cycles is less pronounced, especially trips for social and recreational purposes. Except in Stage 2 of Table 6, when the oldest child is 6 years old, the frequency of social and recreational trips for one and two parent families is virtually identical. Nevertheless, the distance traveled for social/recreational purposes by single-parent families, except for those with an oldest child of 18, generally falls short of the miles per day reported by two-parent families. Trips for other purposes are slightly higher in two-parent famlies, and miles traveled are almost twice as great in two-parent families compared to single-parent families.

Thus, like the two-parent family, daily travel over the life cycle of the single-parent family exhibits a general pattern of increase as children are older. However, the average magnitude of travel at each life cycle stage is smaller in one-parent families for distance and for most categories of trip frequency. Some of the discrepancy is undoubtedly due to the fact that single-parent families are generally smaller in size. (Table A-2, Item 5, Appendix A). Yet some of the relatively low levels of travel in single-parent families can be attributed to a number of other family characteristics which affect the number of trips or miles of travel they undertake each day. These characteristics are described below.

Table A-2 in Appendix A provides detailed information for comparison of the attributes of single-parent families in life cycle Stages 1-6 with similar stages in two-parent families in Table A-1, Appendix A, life cycle Stages 3-8. From this survey data, several major differences and some similarities between the two types of families are observed:

1. Single-parent families are more frequently in multifamily dwellings in urban areas than two-parent families. Specifically from 75.2-86.0 percent of single-parent families live in urban areas, compared to 61.0-68.2 percent of two-parent families. For multifamily dwellings the range is from 23.6-48.7 percent for single-parent families, compared to 4.8-20.1 percent for two-parent families.

2. Single-parent families tend to have much lower incomes than two-parent families. More than half of all single-parent families, regardless of stage of life cycle earn $10,000 per year or less, while for two-parent families the median income is from $10,000-$19,999.

3. Single-parent families have fewer licensed drivers (from 17.5-32.9 percent have no licensed drivers) than the two-parent families (Item 8 of Tables A-1 and A-2 in Appendix A).

4. Single-parent families live closer to public transportation than two parent families. Generally, more than half of all single-parent families live less than ½ mile from public transportation compared to a little more than one-third of all two parent families.

5. Single-parent families have less than half as many vehicles per family in most stages. The average number of vehicles per family ranges from 0.58-1.49 in single-parent families compared to 1.69-2.94 in two parent families.

6. Single-parent families have about the same number of children as two-parent families.

With respect to travel these characteristics of single-parent families suggest that the low daily travel of these families is a result of both limited resources and low levels of demand. Fewer vehicles and drivers and a low income may act as constraints on daily trip-making relative to two parent families. At the same time, their smaller family size, different family composition (one adult member), reduced travel for earning a living, and a residential location in more densely built, urban areas may effectively limit the number of trips or miles of travel necessary for family activities.

Childless Couple Life Cycle

The proportion of married couples who remain childless has actually declined over the last fifty years. For women who married in the 1920's about 20 percent did not have children; for women marrying in the 1960's and 1970's the projected figure is 4 to 7 percent (Glick and Norton, 1977). While this represents a small portion of the families in the U.S., childless couples may become more common with increasing inflation, expanded employment opportunities for women, birth control, and other factors which may cause married couples to forego childrearing.

In earlier sections of the report, an attempt was made to show that travel patterns of families are affected by the presence and age of children in the family. For married couples who do not have children, the potential effect of childrearing on daily travel is obviously lacking. Families of married couples without children in the home (at the time of the 1977 NPTS) are classified into seven stages based upon the age of the husband. Tables 8 and 9 illustrate the average level of travel at stages in the life cycle of these childless couples. Figure 3 shows daily trip frequency by trip purpose in cumulative form.

As Tables 8 and 9 and Figure 3 demonstrate, the peak in daily family travel in the traditional family (when children are in their late teens and early twenties) is lacking in the childless couple cycle. Rather, travel for married couples without children is generally the greatest in Stages 1 (MC, 30, NA) and 2 (MC, 30-39, NA), when the husband is in his twenties and thirties. Average trip frequency appears to be a more reliable indicator of daily travel than distance due to the sizable standard errors for Stages 2 and 7 (Tables B-5 and B-6 of Appendix B). Nevertheless, the overall tendency for a reduction in travel over the life cycle is still evident for both trips and distance per day.

The decline in travel of childless married couple families at progressively older life cycle stages is most apparent in travel for all purposes and for social and recreational travel. For example, couples under 30 (Stage 1) average 6.0 trips and 61.2 miles of travel per day, compared to couples in

TABLE 8

Average Daily Family Trips[1] By Stage in the Childless Couple Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2]
1(NM,<30,NA)	6.0	1.4	0.9	0.6	3.1	640
2(MC,30-39,NA)	5.8	1.4	1.0	0.5	2.9	243
3(MC,40-49,NA)	4.9	1.4	0.7	0.3	2.5	278
4(MC,50-59,NA)	4.5	1.1	0.9	0.3	2.2	838
5(MC,60-69,NA)	3.8	0.5	0.9	0.3	2.1	1070
6(MC,70-79,NA)	2.6	0.1	0.7	0.3	1.5	637
7(MC,80+,NA)	1.9	0.0	0.6	0.2	1.1	174
						3880

[1] One family trip is defined as any time one or more family members take a trip, by any private and/or public mode and includes walking and bicycling. It should not be confused with either vehicle trips or person trips.

[2] Refer to Table 1 for definitions of life cycle stages.

[3] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

TABLE 9

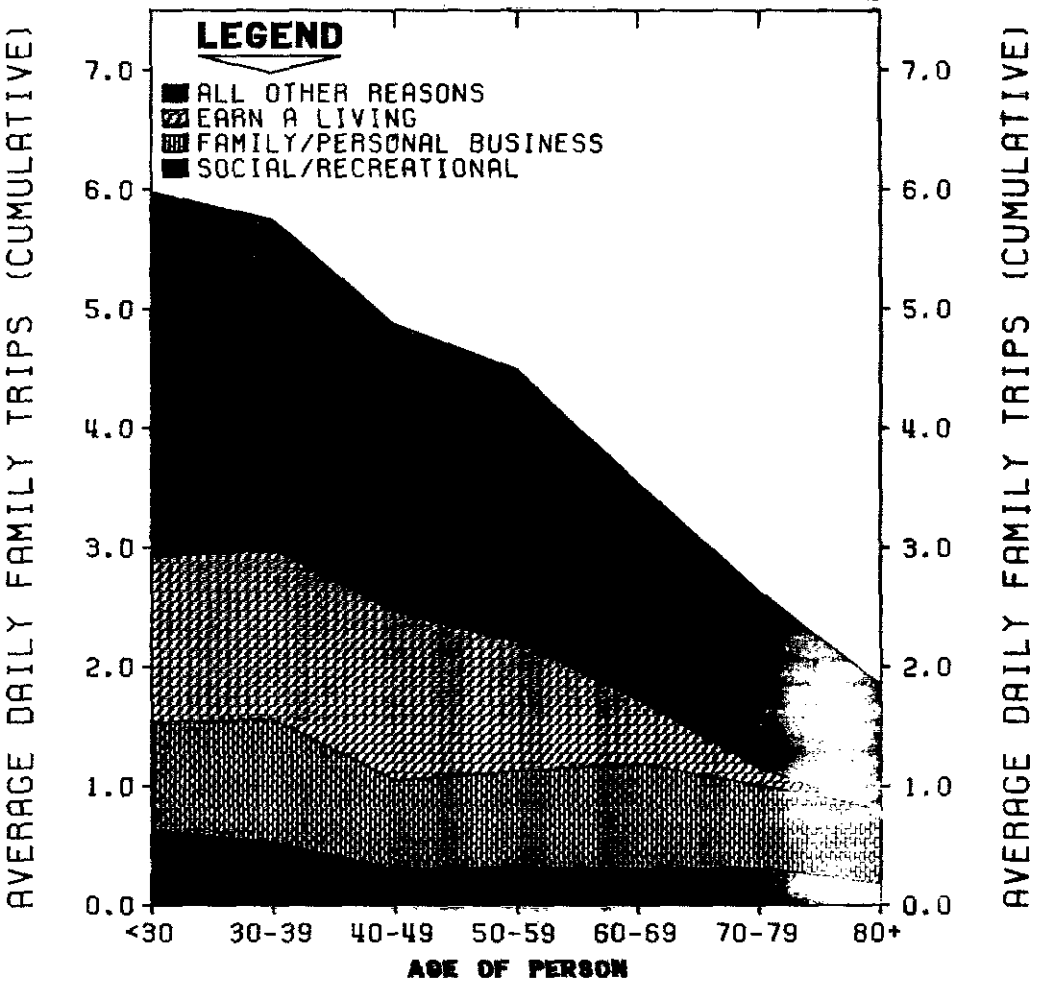
Average Daily Family Travel in Miles[1] By Stage in the Childless Couple Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Families[2]
1(MC,<30,NA)	61.2	10.7	7.0	8.0	35.5	640
2(MC,30-39,NA)	99.6	30.3	10.4	6.8	52.1	243
3(MC,40-49,NA)	53.2	13.2	7.2	4.8	28.0	278
4(MC,50-59,NA)	44.1	13.7	4.8	5.0	20.6	838
5(MC,60-69,NA)	24.5	3.7	5.0	3.9	11.9	1070
6(MC,70-79,NA)	18.7	0.6	3.6	3.9	10.6	637
7(MC,80+,NA)	33.1	0.0	1.6	2.6	28.9	174
						3880

[1] Family travel is defined as family trips multiplied by the respective trip lengths.

[2] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

FIGURE 3. - AVERAGE DAILY FAMILY TRIPS BY STAGE IN THE CHILDLESS COUPLE LIFE CYCLE



Stage 6 (husband in his seventies), who report 2.6 trips and 18.7 miles per day on the average for travel for all purposes. Similarly, social and recreational travel falls from 0.6 trips and 8.0 miles per day in Stage 1 to 0.3 trips and 3.9 miles per day in Stage 6.

Travel for earning a living for childless couples remains approximately the same through Stage 4 (MC, 50-59, NA). Unlike couples with children, where a little more than one-third of all wives are employed (Item 7 in Table A-1, Appendix A), more than half of the wives of childless couples are employed (Item 7, Table A-3, Appendix A), thus childless employed couples spend more time for more travel to work than their childrearing counterparts.

Family and personal business travel remains fairly stable over the childless couple cycle in terms of daily trips, ranging from an average of 1.0 in Stage 2 (MC, 30-39, NA) to 0.6 in Stage 7 (MC, 80+, NA). However, there is a marked decline in distance for this purpose at the later life cycle stages, which suggests that older couples conduct their family business activities in closer proximity to home than younger ones.

Trips for "other" purposes decline with advancing age and range from 3.1 when the husband is in his twenties to 1.1 when the husband is in his eighties. Travel for these purposes peak at 52.1 miles in Stage 2 and then decrease through Stage 6 (MC,70-79,NA) and pick up again in Stage 7, but this may be due to the nature of the sample.

Table A-3, Appendix A presents detailed statistical descriptions of families at each stage of the childless couple life cycle. These data indicate the following:

1. The average family in the childless couple cycle is similar in type of residence and location to families in the traditional family life cycle (Item 2).

2. The average family in the childless couple cycle has a median income ranging from $12,000 to $20,000 in the early stages and dropping in the retirement years to a low of $5,000 to $5,999 in Stage 7 (MC, 80+, NA) (Item 7).

3 The average family in the childless couple cycle averages more than one driver and vehicle per family, except in Stage 7 (Item 8).

4. The average family in the childless couple cycle is likely to have both husband and wife employed (Items 6 and 7 respectively).

From these statistics it appears that married couples without children have a relatively high demand for day to day mobility. The trip to work figures most prominently in their daily travel, at least until the retirement years. At the same time, a relatively high income and access to vehicles probably permits these families to satisfy their travel needs with few constraints.

Single-Person Life Cycle

The fourth life cycle, the single person life cycle, describes the sequence of stages which an individual may undergo as he or she leaves the parental home and and sets up his or her own home. Although the actual proportion of adults who never marry is less than 10 percent (Glick and Norton, 1977), more and more people are living part of their lives alone as single persons. This may be due to such factors as the high rate of divorce, increasing life expectancy, and older ages at first marriage.

Tables 10 and 11 present the average travel of individuals in seven stages of the single-person life cycle divided on the basis of 10-year age groups. Figure 4 shows the daily trips by purpose in cumulative form. Except for very high distance figures for Stages 2 (NM, 30-39, NA) and 4 (NM, 50-59, NA) (which may be unreliable estimates as indicated by the large standard errors), there is a general decrease in daily travel occurs with each progressively older stage. Travel for all purposes drops from 4.0 trips and 36.1 miles per day in Stage 1 when a person is in his/her twenties, to 0.9 trips and 2.6 miles in Stage 7 when person is in his/her eighties. In the same manner, social and recreational travel declines from an average 0.7 trips and 9.7 miles in Stage 1 to 0.1 trips and 0.4 miles of travel in Stage 7. Trips for other purposes also show the same pattern, from 2.0 in Stage 1 to 0.5 in Stage 7. Miles of travel for other purposes, however, peak at Stage 4, when the individual is in his/her fifties (19.6 miles), and then decline to 1.6 miles in Stage 7.

TABLE 10

Average Daily Family Trips[1] By Stage in the Single-Person Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Single Persons[2]
1(NM,<30,NA)	4.0	0.8	0.5	0.7	2.0	653
2(NM,30-39,NA)	3.6	1.0	0.5	0.4	1.7	348
3(NM,40-49,NA)	3.1	0.9	0.4	0.3	1.5	246
4(NM,50-59,NA)	2.6	0.5	0.5	0.3	1.3	506
5(NM,60-69,NA)	1.9	0.2	0.5	0.2	1.0	757
6(NM,70-79,NA)	1.5	0.1	0.4	0.2	0.8	826
7(NM,80+,NA)	0.9	0.0	0.3	0.1	0.5	359
						3695

[1] One family trip is defined as any time one or more family members take a trip, by any private and/or public mode and includes walking and bicycling. It should not be confused with either vehicle trips or person trips.

[2] Refer to Table 1 for definitions of life cycle stages.

[3] The households used for computing average family trips per day were those for which complete trip information was reported for NPTS 1977-78 and could meet any one of the four family life cycle criteria. (12,931 families out of the total sample of 17,949 households).

TABLE 11

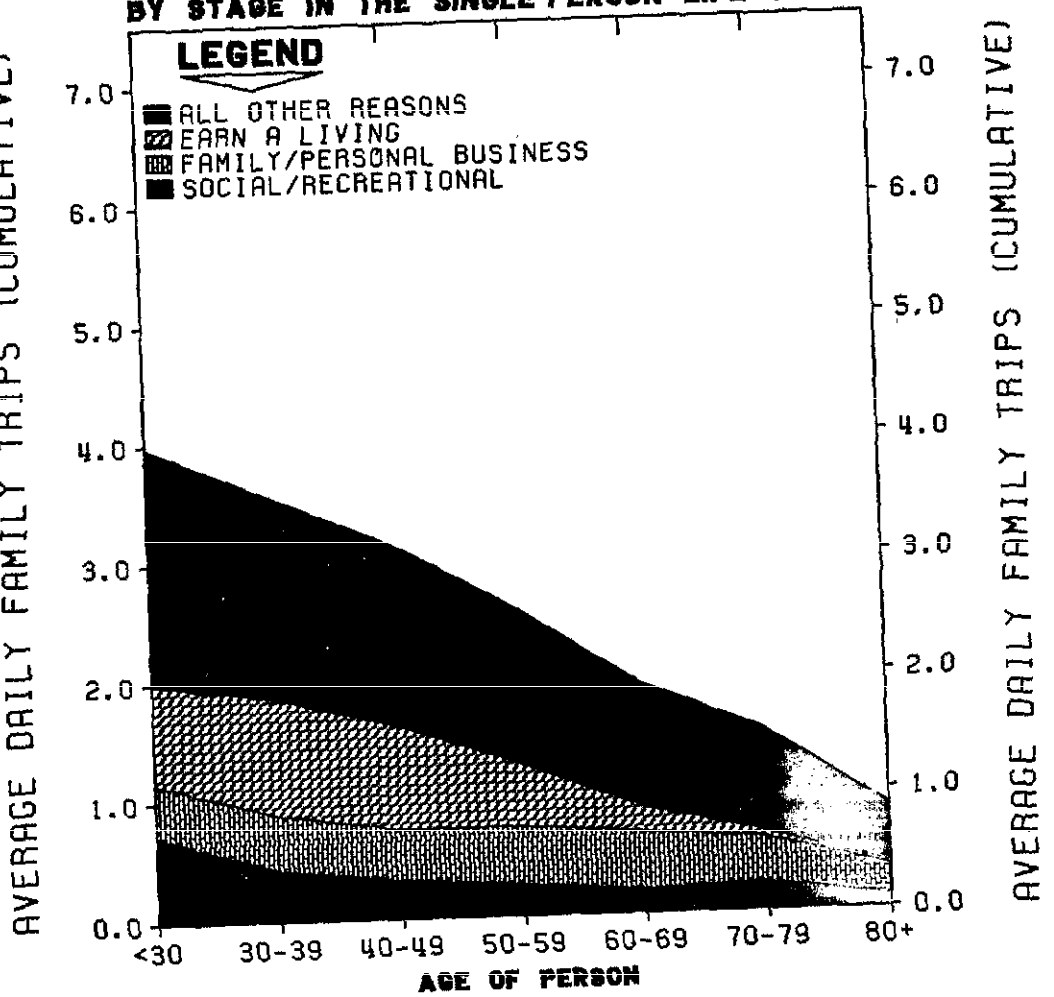
Average Daily Family Travel in Miles[1/] By Stage in the Single-Person Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes	Earning A Living	Family and Personal Business	Social and Recreation	Other	Number of Single Persons[2/]
1(NM, 30,NA)	36.1	6.4	4.2	9.7	15.8	653
2(NM,30-39,NA)	41.0	19.5	3.6	6.0	11.9	348
3(NM,40-49,NA)	25.4	7.6	2.5	3.1	12.2	246
4(NM,50-59,NA)	31.6	6.8	2.7	2.5	19.6	506
5(NM,60-69,NA)	11.1	1.1	1.9	2.2	5.9	757
6(NM,70-79,NA)	11.1	0.2	1.5	2.6	6.8	826
7(NM,80+,NA)	2.6	0.0	0.6	0.4	1.6	359
						3695

[1/] Single persons travel is defined as the trip multiplied by the respective trip length.

[2/] The single persons living alone used for computing average single person trips per day were those for which complete trip information was reported in the 1977 NPTS.

FIGURE 4. - AVERAGE DAILY FAMILY TRIPS BY STAGE IN THE SINGLE PERSON LIFE CYCLE



Travel for all purposes combined and social and recreational are different from earning a living and family and personal business travel. Earning a living averages a fairly constant 0.5 to 1.0 trips per day through Stage 4, when individuals are under age 60. From Stage 5 onward, work travel falls sharply, reflecting the retirement years for persons age 60 and over who live alone (Item 6 of Table A-4, Appendix A).

For family and personal business travel, the number of trips per day remains relatively stable over the single-person life cycle, with a range of 0.3 to 0.5 trips. Distance traveled for this purpose, however, exhibits considerably more variation and ranges from 4.2 miles for single persons living alone under 30 to 0.6 miles for single persons in their eighties. Once again the younger persons travel more miles on the average . As in the life cycle of childless couples, the families in the later life stages appear to conduct their family and personal business close to home requiring fewer miles of travel to satisfy these needs.

The characteristics of single persons living alone in each stage of the single-person life cycle are described in Table A-4. The data indicate the following:

1. Single persons live more frequently in urban areas and in multiple family dwellings (Items 2 and 3) than married couple families in the same stage.

2. Single persons are equal in median income to married couple families only when the family head is age 30-39 (Item 4). At every other stage persons living alone tend to earn less.

3. Single persons live within $\frac{1}{4}$ mile of public transportation 40 to 50 percent of the time (Item 9).

4. Single persons are frequently without vehicles when the individual is 60 years or older (Item 11).

5. Single persons are more frequently males who are divorced, separated or never married through age 49. For persons age 50 and over the majority of persons living alone are females who are widows (Item 6 of Table A-4, Appendix A).

The diversity of single persons in the age groups described in this report indicates that most individuals in a stage of the single-person life cycle are in a transitional state. Persons in the early stages seem to be about to enter or have recently dissolved a marriage, whereas persons in later stages appear to have entered the single person cycle subsequent to the death of a spouse. The portion who have never married declines progressively with each stage, further evidence that this life cycle is not permanent for most of the persons in it.

Therefore, with respect to travel, changes in daily trips or distance over the single-person life cycle may reflect the complex nature of the cycle itself as well as the age-dependent changes in travel demand. For example in Stage 4, the decline in travel for earning a living may result from the beginning of the withdrawal from the labor force for persons age 50-59.

Despite the complexity in the sources of change in daily travel, the single-person life cycle, nevertheless, provides a means for measuring the demand for travel and the transportation resources available to single-person families at various stages.

IV. NPTS in Perspective - Comparison with Other Studies

The data presented in the preceding parts of this report indicate that the travel of families varies considerably throughout stages of the life cycle. However, the findings are based on a single sample taken at a point in time. How do the results compare with other studies of family travel?

The general effect of stage in the life cycle is suggested in a number of studies. For example, a recent study of family travel in Great Britain (Jones et al, 1980) found significant differences among the trip rates of families in eight life cycle stages. In a study of automobile ownership and usage based on the 1969 NPTS, Sharp (1978) reported that in the U.S. both ownership and usage characteristics change with stage in the family life cycle. In that study nine life cycle stages were used. The influence of life cycle stage on vehicular travel within the Detroit Metropolitan area was examined by Kostyniuk and Cleveland (1978). Using data collected in 1965, they found total family trip generation to be influenced by the life cycle characteristics of a family. They also reported differences between men and women according to life cycle stage for all types of trips and for separate trip purpose categories.

Studies of family travel such as these demonstrate that the stage in the famly life cycle is a useful device for identifying major differences in the travel patterns of households. However, the trip rates and miles of travel data by life cycle stage presented in this report cannot be directly compared to the data in these other studies due to differences in the number of life cycle stages, their characteristics and, in the definition of trips. Nevertheless, the pattern of travel over the life cycle in this report is confirmed by other studies of family travel behavior.

This study of life cycle patterns in family travel represents an important advance over earlier studies due to the greater number of life cycle stages for which data are presented. In the traditional family life cycle, twelve stages are used compared to a maximum of nine stages in the other studies cited. The larger number of stages makes it possible to detect changes in travel over the life cycle with greater precision.

Another advantage of this report is that it provides information on the travel patterns of families in different life cycles. In addition to the life cycle based on the nuclear family structure, life cycle depictions of unmarried individuals, childless couples, and single-parent families are presented. Understanding the travel behavior of these families from a life cycle point of view is important because of their increasing significance within the population as a whole. Over the past two decades, two-parent families as a proportion of all households in the United States have declined and nonfamily households and single-parent families have been increasing rapidly (Glick and Norton, 1979). These trends are expected to continue during the 1980's (Bureau of the Census, 1979). The data in this report will be useful in understanding the travel-related consequences of these demographic changes.

V. Summary

This report presents the daily trips and miles of travel by trip purpose of families, using the family life cycle aproach. This approach views a family as a social unit which changes over time as individuals are added or deleted from the family as they mature.

The life cycle of a family is divided into stages based upon the composition of the family at different points in time.. The four types of family life cycles are traditional family life cycle (12 stages), single-parent family life cycle (6 stages), childless couple family life cycle (7 stages), and single-person life cycle (7 stages).

Over the twelve stages of the traditional family life cycle, average trips per day and miles traveled have the pattern of an inverted U, with travel greatest in the middle of the life cycle and lowest at either end. From Stage 1, (single-person families under age 30) to Stage 8, (husband/wife families with one or more children age 19-22, and living at home), daily travel rises from 4.0 trips and 36.1 miles per day to 11.0 trips and 90.2 miles per day. From Stage 8 (husband/wife families only) to Stage 12, family travel drops sharply to 0.9 trips and 2.6 miles per day in families of persons age 80 and older who live alone.

Compared to two-parent families, single-parent families travel less at each life cycle stage. Daily trips and miles of travel tend to increase as children are older, but they still lag behind that of families in which both parents are present. Specifically, from Stage 1, (single parent with the oldest child 3 years of age or less), to Stage 6 (single parent with one or more children age 19-22 and living at home), daily trips and travel rises from 3.0 trips and 18.4 miles per day to 7.0 trips and 48.4 miles per day respectively.

Differences in family size, composition, economic, and geographical characteristics in one- and two-parent families account for the differences in travel pattern. The size of two-parent families range from 2-4.51 persons, as compared to 2.2-3.53 persons for one-parent families. Two-parent families, with the oldest child from 16-18, most frequently reside in single-family detached homes, have a median income from $15,000-$19,999, own an average

of 2.53 vehicles (with an average of 2.49 licensed drivers), and 25 percent live within ¼ mile of public transportation. By comparison, one-parent families more frequently live in multifamily dwellings in urban areas, have a median income from $5,000-$9,000 annually, almost one-quarter to one-half of all families do not own a vehicle, and almost 40 percent live within ¼ mile to public transportation.

The average daily trips of the traditional family, the childless married couple and single persons decline with increasing age of head of household. When the family head is under 30 years old, daily trips average 6.0 for traditional families and childless couples and 4.0 for single persons living alone. By age 50, these figures drop to 4.5 and 2.6 trips per day respectively, and by age 80 they decline to an average of 0.9 daily trips for traditional families and single persons and 1.9 for childless couples.

In addition to travel for all purposes, travel in four separate trip purpose categories is described for each family cycle: earning a living, family and personal business, and social and recreational travel and other. From a life cycle perspective, the daily travel for these trip purposes does not necessarily follow the pattern for travel for all purposes. Trips and travel for other purposes comprise more than half of all trips in most life cycles. Of the remaining three categories, travel for family and personal business remains relatively constant, suggesting that shopping and personal business are important to families throughout the entire life cycle. For example, for single persons, there is little variation, with trips for these purposes averaging from 0.4 to 0.5 until the person reaches 80 years of age, when it declines to 0.3 trips.

On the other hand, social and recreational travel appears to be associated with young adulthood. Single persons living alone and under age 30 average 0.7 trips and 9.7 miles of social/recreational travel per day. In families with one or more children age 19-22, living at home, 1.3 trips and 12.8 miles of travel are devoted to social and recreational purposes.

Travel for earning a living has a life cycle component. In families with pre-teen children, daily tripmaking for work tends to be low, averaging 1.1 to 1.2 trips per day in Stage 3 (MC, NA, 4-6) to Stage 6 (MC, NA, 11-15) of the traditional family

life cycle. However, average distances traveled tend not to be affected. Travel for work declines sharply in the retirement stages of the life cycle.

In the final section of the report, the findings of this study are compared with selected studies of family travel which have used some measure of life cycle stage. Although the data could not be directly compared, the overall conclusions of the studies confirm the life cycle pattern in family travel documented in this report. These conclusions should be useful in analyzing the effect of demographic changes on the daily travel of individuals and families in the years ahead.

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APPENDIX A

Additional Tables

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Table A-1. Family Characteristics By Stage in the Traditional Family Life Cycle

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12
1.	Number of NPTS Families	653	620	825	636	832	1096	862	590	838	1070	826	399
2.	Distribution by Place of Residence												
	a. Urban/Rural												
	Urban	82.6	73.3	67.3	66.0	63.4	61.0	62.0	68.2	68.4	63.4	72.6	73.0
	Rural	17.4	26.7	32.7	34.0	36.6	39.0	38.0	31.8	31.6	36.6	27.4	27.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	b. Inside/Outside SMSA's												
	Inside SMSA's	71.0	67.1	63.8	64.8	64.2	59.9	60.3	67.0	62.6	57.5	57.5	58.3
	Inside Central City	26.0	35.7	34.1	30.7	33.9	34.5	35.0	37.3	33.3	27.7	21.9	24.0
	Outside Central City	45.0	31.4	29.7	34.1	30.3	25.4	25.3	29.7	29.3	29.8	35.6	34.3
	Outside SMSA's	29.0	32.9	36.2	35.2	35.8	40.1	29.7	33.0	37.4	42.5	42.5	41.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. SMSA Population Size Groups												
	Less than 100,000	31.3	34.5	37.9	36.7	37.2	40.6	40.2	34.6	38.7	43.5	43.3	43.2
	100,000-499,999	20.9	16.6	19.5	20.2	20.2	16.7	16.2	18.1	17.9	18.7	13.3	14.5
	500,000-999,999	9.2	13.3	11.3	10.9	10.7	10.6	10.7	11.4	11.1	8.6	8.9	10.3
	1,000,000 and over	38.6	35.6	31.3	32.2	31.9	32.1	32.9	35.9	32.3	29.2	34.5	32.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3.	Distribution by Type of Dwelling												
	a. Single Family Homes	24.0	51.3	69.1	72.6	81.3	86.5	90.1	88.8	82.0	81.6	56.5	59.5
	b. Trailer/Mobile Homes	5.9	6.3	6.3	6.4	4.2	2.9	2.0	0.8	2.9	4.2	4.3	2.5
	c. Multi-Family Homes	60.3	39.1	20.1	16.5	10.7	7.0	4.8	6.6	10.8	10.0	33.1	30.3
	d. Other/Not Available	9.8	3.3	4.5	4.5	3.8	3.6	3.1	3.8	4.3	4.2	6.1	7.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4.	Distribution by Annual Family Income												
	a. Less than $5,000	26.4	7.0	6.4	6.4	3.7	4.2	3.6	3.4	5.9	19.5	69.4	75.4
	b. $5,000-$9,999	33.9	21.5	21.6	17.9	15.3	12.2	12.6	11.4	15.2	28.6	22.7	16.2
	c. $10,000-$14,999	27.5	30.0	33.8	28.4	24.1	25.3	21.5	19.0	22.9	21.9	4.1	5.6
	d. $15,000-$19,999	8.0	22.2	18.9	22.4	23.2	22.8	22.6	19.2	20.4	12.4	1.9	1.4
	e. $20,000-$24,999	2.6	12.1	10.5	12.6	17.0	16.2	17.3	18.8	12.7	8.4	0.7	0.2
	f. $25,000-$34,999	0.8	5.7	6.3	8.6	11.1	13.6	13.2	17.6	13.5	5.4	0.8	0.6
	g. $35,000 and over	0.8	1.5	2.5	3.7	5.6	5.7	9.2	10.6	9.4	3.8	0.4	0.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5.	Family Size												
	a. Average Number of Persons	1.00	2.00	3.26	3.88	4.21	4.42	4.45	4.51	2.00	2.00	1.00	1.00
	b. Average Number of Children (22 Years of Age and Under)	NA	NA	1.26	1.88	2.21	2.42	2.45	2.51	NA	NA	NA	NA

1/ Unweighted data from total NPTS sample.
2/ Refer to Table 1 for definitions of stages.
* NA - Not Applicable

Table A-1. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12
6.	Characteristics of Head** of Family												
	a. Average Age (years)	24.4	24.8	27.6	30.9	34.4	41.1	46.1	50.3	55.0	64.3	73.9	83.7
	b. Distribution of Heads of Families												
	Males	61.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17.7	29.0
	Females	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.3	71.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution by Race												
	White	86.2	93.5	92.4	89.7	90.1	91.6	92.8	90.7	93.9	93.9	90.9	91.4
	Black	10.6	5.4	5.7	8.3	8.6	7.0	6.0	8.2	5.6	5.7	8.9	8.1
	Other	3.2	1.1	1.9	2.0	1.3	1.4	1.2	1.1	0.5	0.4	0.2	0.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	d. Distribution by Education												
	12 Years or Less	38.0	42.0	49.0	50.0	52.0	61.0	64.0	65.0	72.0	80.0	81.0	85.0
	1-4 yrs. of College	51.0	44.0	38.0	37.0	34.0	30.0	25.0	26.0	22.0	16.0	16.0	12.0
	More than 4 yrs. of College	11.0	14.0	13.0	13.0	14.0	9.0	11.0	9.0	6.0	4.0	3.0	3.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	e. Distribution by Primary Employment Status												
	Employed	80.1	88.8	88.7	85.5	87.3	85.1	84.6	77.9	81.6	40.5	7.2	5.2
	Keeping House	1.1	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.5	52.5	43.2
	Going to School	11.8	3.6	1.8	0.9	0.5	0.3	0.3	0.2	0.1	0.0	0.1	0.0
	Retired	0.0	0.0	0.0	0.1	0.2	1.8	1.9	5.3	5.7	48.2	31.2	39.3
	Other	7.0	7.4	9.5	13.4	11.9	12.7	13.1	16.5	12.6	10.8	9.0	12.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
7.	Wife of Head**												
	a. Average Age (years)	NA	23.5	25.2	28.2	31.8	37.9	42.8	47.2	53.3	60.9	NA	NA
	b. Distribution by Education												
	12 Years or Less	NA	50.0	61.0	63.0	65.0	74.0	74.0	78.0	76.0	83.0	NA	NA
	1-4 yrs. of College	NA	43.0	33.0	31.0	30.0	23.0	23.0	19.0	21.0	15.0	NA	NA
	More than 4 yrs. of College	NA	7.0	6.0	6.0	5.0	3.0	3.0	3.0	3.0	2.0	NA	NA
	Total	NA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	NA	NA
	c. Distribution by Primary Employment Status												
	Employed	NA	69.4	28.9	29.4	34.0	39.2	45.0	41.1	40.3	22.9	NA	NA
	Keeping House	NA	21.0	66.7	64.5	61.0	54.6	48.5	48.9	51.2	66.9	NA	NA
	Going to School	NA	4.0	0.6	1.4	1.4	0.4	0.6	0.1	0.3	0.0	NA	NA
	Retired	NA	0.0	0.0	1.6	0.0	0.0	0.1	0.2	0.2	3.4	NA	NA
	Other	NA	5.6	2.8	3.1	3.7	5.8	5.8	9.7	8.0	6.8	NA	NA
	Total	NA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	NA	NA

** In husband/wife families, the husband is designated as head of family.

Table A-1. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12
8.	Drivers in Family												
	a. Average Number of Licensed Drivers per Family	0.91	1.84	1.79	1.76	1.80	1.78	2.49	2.91	1.69	1.59	0.45	0.27
	b. Percent of Families Without a Licensed Driver	8.7	1.5	1.9	2.7	1.5	2.0	2.2	2.3	3.6	6.0	54.9	73.3
	c. Percent of Families With Licensed Drivers	91.3	98.5	98.1	97.3	98.5	98.0	97.8	97.7	96.4	94.0	45.1	16.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
9.	Distribution of Families by Access to Public Transportation												
	Less than ¼ Mile	49.6	36.2	28.7	29.7	27.7	24.2	25.2	30.7	29.6	31.7	40.3	41.0
	¼-½ Mile	10.4	11.2	10.8	10.0	9.9	12.0	12.4	14.1	11.6	10.2	9.8	8.9
	½-2 Miles	7.0	6.9	8.6	10.4	10.2	8.5	9.8	8.6	8.5	7.3	4.7	3.3
	Don't Know/Not Available	33.0	45.7	51.9	49.9	52.2	55.3	52.6	46.6	50.3	50.8	45.2	46.8
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10.	Distribution of Families by Access to Freeway												
	Less than 2 miles	55.4	49.6	42.8	41.8	37.8	38.2	38.9	43.4	41.8	38.8	40.5	35.4
	2 Miles and over	41.3	47.2	53.2	55.5	57.9	57.6	57.2	53.2	55.0	57.2	45.4	41.0
	Don't Know/Not Available	3.3	3.2	4.0	2.7	4.3	4.2	3.9	3.4	3.2	4.0	14.1	23.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
11.	Characteristics of Family Motor Vehicles												
	a. Average Number of Vehicles per Family	0.98	1.77	1.69	1.81	1.91	2.01	2.53	2.94	1.89	1.59	0.46	0.28
	b. Distribution of Vehicles per Family												
	1 Vehicle	66.7	30.3	35.9	28.9	22.4	20.7	14.0	8.7	25.8	42.5	39.7	25.3
	2 Vehicles	9.2	55.1	51.6	55.6	61.6	61.8	39.4	27.6	55.7	41.4	2.5	1.1
	3 or more Vehicles	4.0	11.0	9.3	12.2	13.2	15.5	44.8	61.7	15.2	10.1	0.2	0.3
	0 Vehicles	20.1	3.6	3.2	3.3	2.8	1.8	1.8	2.0	3.3	6.0	57.6	73.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution of Families By Type of Family Vehicle Owned***												
	Automobiles	70.8	89.4	85.8	85.9	83.6	85.2	92.8	94.5	90.6	86.1	59.6	25.6
	Station Wagons	3.4	8.1	13.8	20.4	24.5	26.0	23.0	20.7	10.5	10.0	1.0	1.1
	Van/Pickup/Rec Vehicles	9.8	24.5	30.2	29.6	36.1	40.6	42.5	41.7	37.0	29.9	2.7	1.4
	Motorcycles	6.3	8.9	4.5	5.1	5.2	5.0	6.8	5.3	1.8	0.4	0.0	0.0
	d. Distribution of Families By Number of Cylinders in Family Vehicles												
	4 Cylinder Vehicles	25.4	34.1	28.2	26.3	25.0	22.2	23.6	30.7	15.3	11.0	1.8	1.1
	6 Cylinder Vehicles	17.7	31.2	33.6	33.6	30.3	30.0	34.8	42.7	32.0	30.3	13.7	9.7
	8 Cylinder Vehicles	41.4	64.6	68.3	74.7	80.6	85.4	87.5	87.3	82.2	77.5	27.7	15.0
	e. Average Gasoline Bill/Month	34.74	58.05	56.38	60.71	64.83	72.42	82.13	98.22	60.05	40.08	8.79	2.90
	f. Average VMT/Year	8390	16411	14267	14797	16112	17075	19890	23716	15487	10831	1670	832

*** Percents do not add to 100% because of double counting of families which own more than one vehicle.

Table A-2. Characteristics of Single-Parent Families With Children By Life Cycle Stage[1,2]

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
1.	Number of NPTS Families	76	117	171	292	234	182
2.	Distribution by Place of Residence						
	a. Urban/Rural						
	Urban	81.6	75.2	86.0	75.7	74.8	78.6
	Rural	18.4	24.8	14.0	24.3	25.2	21.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	b. Inside/Outside SMSA's						
	Inside SMSA's	77.6	69.3	73.7	69.1	69.3	72.5
	Inside Central City	27.6	19.7	26.9	31.8	32.1	30.2
	Outside Central City	50.0	49.6	46.8	37.3	37.2	42.3
	Outside SMSA's	22.4	30.7	26.3	30.9	30.7	27.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	c. SMSA Population Size Groups						
	Less than 100,000	23.7	31.6	28.7	31.5	31.6	26.9
	100,000-499,999	13.1	18.8	16.3	15.0	14.1	14.8
	500,000-999,999	21.1	13.7	11.7	11.0	18.8	13.7
	1,000,000 and over	42.1	35.9	43.3	42.5	35.5	44.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0
3.	Distribution by Type of Dwelling						
	a. Single-Family Home	40.8	45.4	46.2	60.0	67.6	67.7
	b. Trailer/Mobile Homes	7.9	8.5	3.5	5.1	4.7	1.6
	c. Multifamily Homes	48.7	42.7	46.8	31.5	23.9	23.6
	d. Other/Not Available	2.6	3.4	3.5	3.4	3.8	7.1
	Total	100.0	100.0	100.0	100.0	100.0	100.0
4.	Distribution by Annual Family Income						
	a. Less than $5,000	55.3	42.7	37.5	34.3	29.5	23.0
	b. $5,000-$9,999	27.6	33.4	38.0	31.5	29.0	29.9
	c. $10,000-$14,999	10.5	18.8	14.1	20.2	20.9	25.2
	d. $15,000-$19,999	2.6	2.6	5.8	7.2	9.0	11.0
	e. $20,000-$24,999	1.3	1.7	1.2	3.1	5.6	6.0
	f. $25,000-$34,999	2.6	0.8	2.3	2.4	3.8	3.3
	g. $35,000 and over	0.1	0.0	1.1	1.3	2.2	1.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0
5.	Family Size						
	a. Average Number of Persons	2.22	2.50	3.02	3.41	3.53	3.37
	b. Average Number of Children (22 Years of Age and Under)	1.22	1.50	2.02	2.41	2.53	2.37

1/ Unweighted data from total NPTS sample.
2/ Refer to Table 1 for definition of stages.

Table A-2. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
6.	Characteristics of Head of Family						
	a. Average Age (years)	23.9	27.0	31.1	38.1	44.3	49.0
	b. Distribution of Heads of Families						
	Males	5.3	7.7	2.3	12.7	13.2	17.0
	Females	94.7	92.3	97.7	87.3	86.8	83.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution by Race						
	White	72.4	78.6	73.1	72.9	77.8	74.7
	Black	26.3	20.5	25.1	25.0	22.2	23.1
	Other	1.3	0.9	1.8	2.1	0.0	2.2
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	d. Distribution by Education						
	12 Years or Less	78.0	75.0	68.0	79.0	74.0	83.0
	1-4 yrs. of College	19.0	23.0	27.0	16.0	22.0	15.0
	More than 4 yrs. of College	3.0	2.0	5.0	5.0	4.0	2.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	e. Distribution by Primary Employment Status						
	Employed	44.7	60.7	62.6	64.1	58.6	58.7
	Keeping House	43.4	34.2	29.2	29.5	26.9	28.6
	Going to School	5.0	1.7	2.3	1.0	3.0	2.3
	Retired	0.0	0.8	0.6	1.7	2.1	0.0
	Other	6.9	2.6	5.3	3.7	9.4	10.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0

Table A-2. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
8.	Drivers in Family						
	a. Average Number of Licensed Drivers per Family	0.67	0.76	0.77	0.78	1.41	1.50
	b. Percent of Families Without a Licensed Driver	32.9	23.9	22.8	23.6	17.5	18.7
	c. Percent of Families With Licensed Drivers	67.1	76.1	77.2	76.4	82.5	81.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0
9.	Distribution of Families by Access to Public Transportation						
	Less than ¼ Mile	48.8	45.3	48.0	41.8	38.5	45.7
	¼-½ Mile	11.8	9.4	12.9	12.7	10.7	12.1
	½-2 Miles	5.2	4.3	3.4	5.4	6.8	6.5
	Don't Know/Not Available	34.2	41.0	35.7	40.1	44.0	35.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0
10.	Distribution of Families by Access to Freeway						
	Less than 2 miles	56.6	47.1	51.5	52.4	45.7	52.3
	2 Miles and over	34.2	39.3	39.7	40.1	49.6	40.6
	Don't Know/Not Available	9.2	13.6	8.8	7.5	4.7	7.1
	Total	100.0	100.0	100.0	100.0	100.0	100.0
11.	Characteristics of Family Motor Vehicles						
	a. Average Number of Vehicles per Family	0.58	0.71	0.71	0.83	1.30	1.49
	b. Distribution of Vehicles per Family						
	1 Vehicle	48.7	57.3	63.8	55.9	39.8	32.5
	2 Vehicles	2.6	5.1	2.9	8.9	28.2	29.1
	3 or more Vehicles	1.3	0.8	0.6	2.7	9.4	15.3
	0 Vehicles	47.4	36.8	32.7	32.5	22.6	23.1
	Total	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution of Families By Type of Family Vehicle Owned***						
	Automobiles	44.7	58.1	60.8	56.5	72.6	72.0
	Station Wagons	3.9	3.4	5.8	8.9	10.7	4.4
	Van/Pickup/Rec Vehicles	6.6	3.4	2.9	5.2	7.3	12.0
	Motorcycles	1.3	1.7		1.4	2.6	3.8
	d. Distribution of Families By Number of Cylinders in Family Vehicles***						
	4 Cylinder Vehicles	14.5	17.1	17.0	8.6	21.4	9.9
	6 Cylinder Vehicles	17.1	16.2	17.5	16.8	21.8	25.8
	8 Cylinder Vehicles	21.1	30.8	33.3	45.5	53.4	61.5
	e. Average Gasoline Bill/Month	18.57	26.50	26.28	26.59	42.50	44.77
	f. Average VMT/Year	4295	5326	5473	5334	9322	10469

*** Percents do not add to 100% because of double counting of families which own more than one vehicle.

Table A-3. Characteristics of Childless Couple Families By Life Cycle Stage[1,2]

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
1.	Number of NPTS Families	663	263	308	923	1133	663	359
2.	Distribution by Place of Residence							
	a. Urban/Rural							
	Urban	73.3	68.1	63.0	68.4	63.4	64.6	73.0
	Rural	26.7	31.9	37.0	31.6	36.6	35.4	27.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	b. Inside/Outside SMSA's							
	Inside SMSA's	67.1	70.4	63.9	62.6	57.5	53.2	58.3
	Inside Central City	35.7	38.8	33.1	33.3	27.7	24.7	24.0
	Outside Central City	31.4	31.6	30.8	29.3	29.8	28.5	34.3
	Outside SMSA's	22.9	29.6	36.1	37.4	42.5	46.8	41.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. SMSA Population Size Groups							
	Less than 100,000	34.5	30.8	37.4	38.8	43.5	48.3	43.2
	100,000-499,999	16.6	17.8	19.8	17.9	18.7	15.2	14.5
	500,000-999,999	13.3	8.7	10.7	11.0	8.6	8.4	10.3
	1,000,000 and over	35.6	42.7	32.1	32.3	29.2	28.1	32.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3.	Distribution by Type of Dwelling							
	a. Single-Family Home	51.3	73.8	83.1	82.0	81.6	78.1	59.5
	b. Trailer/Mobile Homes	6.3	3.0	3.6	2.9	4.2	4.4	2.5
	c. Multifamily Homes	39.1	18.6	10.4	10.8	10.0	14.7	30.3
	d. Other/Not Available	3.3	4.6	2.9	4.3	4.2	3.8	7.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4.	Distribution by Annual Family Income							
	a. Less than $5,000	7.0	3.0	4.6	5.9	19.5	33.2	73.4
	b. $5,000-$9,999	21.5	14.0	9.3	15.2	28.6	39.4	16.2
	c. $10,000-$14,999	30.0	33.6	21.2	22.9	21.9	16.3	5.6
	d. $15,000-$19,999	22.2	16.0	20.1	20.4	12.4	5.0	1.4
	e. $20,000-$24,999	12.1	22.8	17.2	12.7	8.4	2.3	0.3
	f. $25,000-$34,999	5.7	7.2	18.2	13.5	5.4	2.3	0.6
	g. $35,000 and over	1.5	3.4	9.4	9.4	3.8	1.5	0.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5.	Family Size							
	a. Average Number of Persons	2.00	2.00	2.00	2.00	2.00	2.00	1.00
	b. Average Number of Children (22 Years of Age and Under)	NA*	NA	NA	NA	NA	NA	NA

* NA - Not Applicable

1/ Unweighted data from total NPTS sample.

2/ Refer to Table 1 for definition of stages.

Table A-3. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
6.	Characteristics of Head** of Families							
a.	Average Age (years)	24.8	33.5	45.3	55.0	64.3	73.5	83.2
b.	Distribution of Heads of Families							
	Males	NA	NA	NA	NA	NA	NA	NA
	Females	NA	NA	NA	NA	NA	NA	NA
	Total	NA	NA	NA	NA	NA	NA	NA
c.	Distribution by Race							
	White	93.5	93.2	92.2	93.9	93.9	95.2	91.7
	Black	5.4	4.9	6.8	5.6	5.7	4.5	8.3
	Other	1.1	1.9	1.0	0.5	0.4	0.3	0.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
d.	Distribution by Education							
	12 Years or Less	42.0	38.0	64.0	72.0	80.0	78.0	80.0
	1-4 yrs. of College	44.0	34.0	27.0	22.0	16.0	17.0	14.0
	More than 4 yrs. of College	14.0	28.0	9.0	6.0	4.0	5.0	6.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
e.	Distribution by Primary Employment Status							
	Employed	88.9	87.0	86.2	81.6	40.5	11.6	4.2
	Keeping House	0.1	0.1	0.3	0.0	0.5	0.3	1.7
	Going to School	3.6	2.3	0.6	0.1	0.0	0.0	0.0
	Retired	0.0	0.0	1.6	5.7	48.2	79.3	83.5
	Other	7.4	10.6	11.3	12.6	10.8	8.8	10.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
7.	Wife of Head**							
a.	Average Age (years)	23.5	30.7	43.8	53.3	60.9	69.3	75.6
b.	Distribution by Education							
	12 Years or Less	50.0	42.0	74.0	76.0	83.0	81.0	85.0
	1-4 yrs. of College	43.0	41.0	20.0	21.0	15.0	17.0	12.0
	More than 4 yrs. of College	7.0	17.0	6.0	3.0	2.0	2.0	3.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
c.	Distribution by Primary Employment Status							
	Employed	69.4	68.0	52.4	40.3	22.9	4.9	1.1
	Keeping House	21.0	23.6	38.6	51.2	66.8	79.5	77.3
	Going to School	4.0	1.9	1.3	0.3	0.0	0.2	0.0
	Retired	0.0	0.3	0.6	0.2	3.4	8.6	8.8
	Other	5.6	6.2	7.1	8.0	6.9	6.8	12.8
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

** In husband/wife families, the husband is designated as head of family.

Table A-3. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
8.	Drivers in Family							
	a. Average Number of Licensed Drivers per Family	1.84	1.78	1.77	1.69	1.59	1.39	0.89
	b. Percent of households Without a Licensed Driver	1.5	2.7	1.8	3.6	6.0	10.9	34.2
	c. Percent of Families With Licensed Drivers	98.5	97.3	98.2	96.4	94.0	89.1	65.8
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
9.	Distribution of Families by Access to Public Transportation							
	Less than ⅛ Mile	36.2	35.0	27.9	29.6	31.7	32.7	37.6
	⅛-½ Mile	10.4	11.2	10.6	9.7	11.6	10.2	8.9
	½-2 Miles	6.9	12.2	9.1	8.5	7.4	7.6	6.1
	Don't Know/Not Available	46.5	41.6	52.4	52.2	49.3	49.5	47.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10.	Distribution of Families by Access to Freeway							
	Less than 2 miles	49.6	49.5	40.9	41.8	38.9	36.6	34.3
	2 Miles and over	47.2	48.6	54.9	55.0	57.1	56.7	56.3
	Don't Know/Not Available	3.2	1.9	4.2	3.2	4.0	6.7	9.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
11.	Characteristics of Family Motor Vehicles							
	a. Average Number of Vehicles per Family	1.77	1.94	2.14	1.89	1.59	1.12	0.75
	b. Distribution of Vehicles per Family							
	1 Vehicle	30.3	21.7	19.2	25.8	42.5	60.6	51.4
	2 Vehicles	55.1	60.8	53.5	55.6	41.4	25.5	11.0
	3 or more Vehicles	11.0	14.8	25.0	15.2	10.1	2.6	0.6
	0 Vehicles	3.6	2.7	2.3	3.4	6.0	11.3	37.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution of Families By Type of Family Vehicle Owned***							
	Automobiles	89.4	91.6	89.9	90.6	86.1	82.5	56.9
	Station Wagons	8.1	14.1	12.3	10.5	10.0	5.6	3.9
	Van/Pickup/Rec Vehicles	24.5	24.7	39.0	37.0	29.9	14.1	8.8
	Motorcycles	8.9	6.1	4.9	1.8	0.4	0.3	NA
	d. Distribution of Families By Number of Cylinders in Family Vehicles***							
	4 Cylinder Vehicles	34.1	37.3	21.4	15.3	11.0	5.1	2.2
	6 Cylinder Vehicles	31.2	29.3	33.4	32.0	30.3	27.9	21.0
	8 Cylinder Vehicles	64.6	67.7	41.6	82.2	77.5	67.6	43.6
	e. Average Gasoline Bill/Month	58.05	69.71	74.28	60.50	40.08	27.28	10.38
	f. Average VMT/Year	16411	18214	17975	15487	10831	5960	3054

*** Percents do not add to 100% because of double counting of families which own more than one vehicle.

Table A-4. Characteristics of Single Person Families By Life Cycle Stage[1,2]

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
1.	Number of NPTS Families	654	350	246	506	758	827	359
2.	Distribution by Place of Residence							
	a. Urban/Rural							
	Urban	82.6	79.7	80.5	74.9	74.3	72.6	73.0
	Rural	17.4	20.3	19.5	25.1	25.7	27.4	27.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	b. Inside/Outside SMSA's							
	Inside SMSA's	71.0	78.9	76.4	65.7	61.8	57.5	58.3
	Inside Central City	26.0	30.9	32.1	28.3	24.3	21.9	24.0
	Outside Central City	45.0	48.0	44.3	37.4	37.5	35.6	34.3
	Outside SMSA's	29.0	21.1	23.6	34.3	38.2	42.5	41.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. SMSA Population Size Groups							
	Less than 100,000	31.3	22.0	24.0	36.0	39.3	43.3	43.2
	100,000-499,999	20.9	14.3	16.7	16.0	18.3	13.3	14.5
	500,000-999,999	9.2	10.5	9.3	11.4	9.4	8.9	10.3
	1,000,000 and over	38.6	53.2	50.0	36.6	33.0	34.5	32.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3.	Distribution by Type of Dwelling							
	a. Single Family Home	24.0	32.2	39.4	56.8	56.5	56.5	59.5
	b. Trailer/Mobile Homes	5.9	4.9	6.5	5.9	5.3	4.4	2.5
	c. Multi-Family Homes	60.3	57.8	45.6	33.7	33.1	33.1	30.3
	d. Other/Not Available	9.8	5.1	8.5	3.6	5.1	6.0	7.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4.	Distribution by Annual Family Income							
	a. Less than $5,000	26.4	10.6	22.4	32.6	55.9	69.4	75.4
	b. $5,000-$9,999	33.9	22.0	22.0	31.0	27.0	22.7	16.2
	c. $10,000-$14,999	27.5	31.8	25.6	19.8	10.8	4.1	5.6
	d. $15,000-$19,999	8.0	20.3	14.2	9.3	3.3	1.9	1.4
	e. $20,000-$24,999	2.6	7.7	6.1	3.6	1.7	0.7	0.3
	f. $25,000-$34,999	0.8	4.6	4.9	3.0	0.8	0.8	0.6
	g. $35,000 and over	0.8	3.0	4.8	0.7	0.5	0.4	0.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5.	Family Size							
	a. Average Number of Persons	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	b. Average Number of Children (22 Years of Age and Under)	NA*	NA	NA	NA	NA	NA	NA

* NA - Not Applicable

1/ Unweighted data from total NPTS sample.

2/ Refer to Table 1 for definitions of stages.

Table A-4. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
6.	Characteristics of Head** of Family							
	a. Average Age (years)	24.4	34.1	45.0	55.0	65.0	73.9	83.7
	b. Distribution of Heads of Families							
	Males	61.0	66.6	51.2	36.2	23.1	19.7	29.0
	Females	39.0	33.4	48.8	63.8	76.9	80.3	71.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution by Race							
	White	86.2	86.9	82.5	85.6	83.8	90.9	91.4
	Black	10.6	12.0	17.1	13.8	15.4	8.9	8.1
	Other	3.2	1.1	0.4	0.6	0.8	0.2	0.5
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	d. Distribution by Education							
	12 Years or Less	38.0	42.0	59.0	75.0	81.0	81.0	85.0
	1-4 yrs. of College	51.0	38.0	28.0	19.0	14.0	16.0	12.0
	More than 4 yrs. of College	11.0	20.0	13.0	6.0	5.0	3.0	3.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	e. Distribution by Primary Employment Status							
	Employed	80.1	91.4	80.0	65.3	29.9	7.2	5.2
	Keeping House	1.1	2.3	6.1	14.4	38.1	52.5	43.2
	Going to School	11.8	0.9	0.1	7.7	0.0	0.1	0.0
	Retired	0.0	0.3	1.2	5.6	23.4	31.2	39.3
	Other	7.0	5.1	12.6	7.0	8.6	9.0	12.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

** In husband/wife families, the husband is designated as head of family.

Table A-4. (Continued)

Item No.	Characteristics	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
8.	Drivers in Family							
	a. Average Number of Licensed Drivers per Family	0.91	0.91	0.81	0.75	0.61	0.45	0.27
	b. Percent of Families Without a Licensed Driver	8.7	9.4	19.1	25.1	39.3	54.9	73.3
	c. Percent of Families With Licensed Drivers	91.3	90.6	80.9	74.9	60.7	45.1	26.7
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
9.	Distribution of Families by Access to Public Transportation							
	Less than ¼ Mile	49.6	50.9	51.3	41.3	42.7	40.3	40.9
	¼-½ Mile	10.4	10.0	11.4	10.9	11.5	9.8	8.9
	½-2 Miles	7.0	7.1	2.8	6.1	5.9	4.7	3.3
	Don't Know/Not Available	33.0	32.0	34.5	41.7	39.9	45.2	46.9
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10.	Distribution of Families by Access to Freeway							
	Less than 2 miles	55.3	55.2	58.5	45.8	42.3	40.5	35.5
	2 Miles and over	41.3	40.5	36.6	45.5	45.0	34.4	32.9
	Don't Know/Not Available	3.4	4.3	4.9	8.7	12.7	14.1	23.6
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
11.	Characteristics of Family Motor Vehicles							
	a. Average Number of Vehicles per Family	0.98	1.05	0.94	0.82	0.64	0.46	0.28
	b. Distribution of Vehicles per Family							
	1 Vehicle	66.7	66.3	62.2	58.1	52.9	39.7	25.3
	2 Vehicles	9.2	12.0	7.7	9.1	4.0	2.5	1.1
	3 or more Vehicles	3.9	4.0	4.5	1.6	0.9	0.2	0.3
	0 Vehicles	20.2	17.7	25.6	31.2	42.2	57.6	73.3
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c. Distribution of Families By Type of Family Vehicle Owned***							
	Automobiles	70.8	72.7	66.3	61.9	53.2	59.6	25.6
	Station Wagons	3.4	4.6	6.5	4.7	2.4	1.0	1.1
	Van/Pickup/Rec Vehicles	9.8	12.1	8.1	8.9	5.0	2.7	1.4
	Motorcycles	6.3	4.9	0.8	0.4	0.1		
	d. Distribution of Families By Number of Cylinders in Family Vehicles***							
	4 Cylinder Vehicles	25.4	20.3	12.6	7.3	4.2	1.8	1.1
	6 Cylinder Vehicles	17.7	19.4	17.1	16.0	16.9	13.7	9.7
	8 Cylinder Vehicles	41.4	48.3	51.6	49.0	38.0	27.7	15.0
	e. Average Gasoline Bill/Month	34.74	39.52	34.71	24.09	14.95	8.79	2.90
	f. Average VMT/Year	8390	9865	8472	5575	3032	1670	832

*** Percents do not add to 100% because of double counting of families which have more than one vehicle.

APPENDIX B

Tables of Sampling Variability

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TABLE B-1

Two Standard Errors[1] of the Mean of Family Trips

By Stage in the Traditional Family Life Cycle

Stage in the Life Cycle	Purpose of Trips				
	Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2]
1(NM,<30,NA)	0.2	0.1	0.1	0.1	653
2(MC,<30,NA)	0.3	0.1	0.1	0.1	620
3(MC,NA,0-3)	0.3	0.1	0.1	0.1	825
4(MC,NA,4-6)	0.3	0.1	0.1	0.1	636
5(MC,NA,7-10)	0.3	0.1	0.1	0.1	831
6(MC,NA,11-15)	0.3	0.1	0.1	0.1	1,096
7(MC,NA,16-18)	0.4	0.1	0.1	0.1	862
8(MC,NA,19-22)	0.6	0.2	0.1	0.1	590
9(MC,50-59,NA)	0.2	0.1	0.1	0.0	838
10(MC,60-69,NA)	0.2	0.1	0.1	0.0	1,070
11(NM,70-79,NA)	0.1	0.0	0.1	0.0	826
12(NM,80+,NA)	0.2	0.0	0.1	0.0	359

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 3. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 4.0 ± 0.2 trips per day, or between 4.2 trips and 3.8 trips.

[2] The families used for computing average family trips per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-2

Two Standard Errors[1] of the Mean of Family Travel

By Stage in the Traditional Family Life Cycle

Stage in the Life Cycle	Purpose of Trips				
	Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2]
1(NM,<30,NA)	5.0	1.9	1.9	2.7	653
2(MC,<30,NA)	8.4	1.4	1.9	1.9	620
3(MC,NA,0-3)	7.5	2.7	1.0	1.1	825
4(MC,NA,4-5)	7.1	2.9	1.1	1.7	636
5(MC,NA,7-10)	5.4	2.4	1.3	1.4	831
6(MC,NA,11-15)	4.0	1.4	0.1	1.4	1,096
7(MC,NA,16-18)	6.1	1.6	1.6	1.5	862
8(MC,NA,19-22)	10.7	3.0	1.6	2.8	590
9(MC,50-59,NA)	7.5	5.4	1.0	1.7	838
10(MC,60-69,NA)	4.7	0.7	1.0	1.3	1,070
11(NM,70-79,NA)	6.3	0.1	1.1	1.4	826
12(NM,80+,NA)	0.9	0.1	0.3	0.2	359

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 4. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 36.1 $\pm$ 5.0 miles of travel per day, or between 41.1 and 31.1 miles.

[2] The families used for computing average family miles of travel per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-3

Two Standard Errors[1] of the Mean of Family Trips

By Stage in the Single-Parent Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2]
1(NM,NA,0-3)	0.7	0.2	0.2	0.2	76
2(NM,NA,4-6)	0.7	0.1	0.2	0.2	99
3(NM,NA,7-10)	0.6	0.2	0.2	0.2	140
4(NM,NA,11-15)	0.5	0.1	0.2	0.2	256
5(NM,NA,16-18)	0.8	0.2	0.2	0.2	187
6(NM,NA,19-22)	0.9	0.2	0.2	0.3	143

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 6. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 3.0 $\pm$ 0.7 trips per day, or between 3.7 trips and 2.3 trips.

[2] The families used for computing average family trips per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-4

Two Standard Errors[1/] of the Mean of Family Travel

By Stage in the Single-Parent Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes[3/]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2/]
1(NM,NA,0-3)	7.1	2.4	2.7	2.3	76
2(NM,NA,4-6)	4.9	1.4	1.5	3.2	99
3(NM,NA,7-10)	6.4	1.5	1.2	4.6	140
4(NM,NA,11-15)	4.6	1.0	1.1	1.8	256
5(NM,NA,16-18)	8.4	1.7	1.5	3.5	187
6(NM,NA,19-22)	10.8	2.4	1.3	3.9	143

[1/] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 7. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 18.0 $\pm$ 7.1 miles of travel per day, or between 25.1 and 10.9 miles.

[2/] The families used for computing average family miles of travel per day were those for which complete trip information was reported for 1977 NPTS.

[3/] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-5

Two Standard Errors[1/] of the Mean of Family Trips

By Stage in the Childless Couple Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes[3/]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2/]
1(MC,<30,NA)	0.3	0.1	0.1	0.1	640
2(MC,30-39,NA)	0.5	0.2	0.2	0.1	243
3(MC,40-49,NA)	0.4	0.2	0.1	0.1	278
4(MC,50-59,NA)	0.2	0.1	0.1	0.0	838
5(MC,60-69,NA)	0.2	0.1	0.1	0.0	1070
6(MC,70-79,NA)	0.2	0.0	0.1	0.1	637
7(MC,80+,NA)	0.3	0.0	0.1	0.1	174

[1/] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 8. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 6.0 $\pm$ 0.3 trips per day, or between 6.3 trips and 5.7 trips.

[2/] The families used for computing average family trips per day were those for which complete trip information was reported for 1977 NPTS.

[3/] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-6

Two Standard Errors[1] of the Mean of Family Travel

By Stage in the Childless Couple Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Families[2]
1(MC,<30,NA)	8.4	1.4	1.9	1.9	640
2(MC,30-39,NA)	53.0	36.3	7.6	1.4	243
3(MC,40-49,NA)	12.2	3.2	2.8	3.5	278
4(MC,50-59,NA)	7.5	5.4	1.0	1.7	838
5(MC,60-69,NA)	4.5	0.7	1.0	1.3	1070
6(MC,70-79,NA)	4.7	0.2	0.9	1.3	637
7(MC,80+,NA)	38.3	0.1	0.6	3.0	174

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 9. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 61.2 $\pm$ 8.4 miles of travel per day, or between 69.6 and 52.8 miles.

[2] The families used for computing average family miles of travel per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-7

Two Standard Errors[1] of the Mean of Family Trips

By Stage in the Single-Person Life Cycle

Stage in the Life Cycle	Purpose of Trips				Number of Single Persons[2]
	Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	
1(NM, 30,NA)	0.2	0.1	0.1	0.1	653
2(NM,30-39,NA)	0.3	0.1	0.1	0.1	348
3(NM,40-49,NA)	0.3	0.1	0.1	0.1	246
4(NM,50-59,NA)	0.2	0.1	0.1	0.1	506
5(NM,60-69,NA)	0.0	0.1	0.1	0.0	757
6(NM,70-79,NA)	0.1	0.1	0.1	0.0	826
7(NM,80+,NA)	0.2	0.1	0.1	0.0	359

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 10. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 4.0 ± 0.2 trips per day, or between 4.2 trips and 3.8 trips.

[2] The families used for computing average family trips per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

TABLE B-8

Two Standard Errors[1] of the Mean of Family Travel

By Stage in the Single-Person Life Cycle

Stage in the Life Cycle	Purpose of Trips: Total All Purposes[3]	Earning A Living	Family and Personal Business	Social and Recreation	Number of Single Persons[2]
1(NM,<30,NA)	5.0	1.9	1.9	2.7	653
2(NM,30-39,NA)	21.4	20.8	2.6	3.2	348
3(NM,40-49,NA)	4.2	1.9	1.0	1.7	246
4(NM,50-59,NA)	15.1	5.2	1.1	1.0	506
5(NM,60-69,NA)	2.0	0.3	0.6	1.2	757
6(NM,70-79,NA)	6.3	0.1	1.1	1.4	826
7(NM,80+,NA)	0.9	0.1	0.3	0.2	359

[1] The two standard errors of the mean can be used to calculate the 95% confidence limits for the mean in the corresponding cell of Table 11. For example, for "Total All Purposes" in Stage 1, there is a 95% probability that the mean for all families in that stage lies within 36.1 ± 5.0 miles of travel per day, or between 41.1 and 31.1 miles.

[2] The families used for computing average family miles of travel per day were those for which complete trip information was reported for 1977 NPTS.

[3] For purposes of computing variability, all purposes included earning a living, family and personal business, social and recreational, and other, i.e. change mode, eat meal, conventions, for overnight lodgings, drop off/pick up passenger, return home, civic, educational and religious, and other.

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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 FAMILY
(Report 7, July 1981)
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

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 ( )

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