



U.S. Department
of Transportation
Federal Highway
Administration

1990 NPTS

**NATIONWIDE
PERSONAL
TRANSPORTATION
SURVEY**

**TRAVEL BEHAVIOR
ISSUES
IN THE 90's**

1990 NPTS Publications Series:

User's Guide for the Public Use Tape
(for tape or diskette users)
Summary of Travel Trends
Travel Behavior Issues in the 90's
1990 NPTS Databook
NPTS Urban Travel Patterns

Abbreviations used in this report:

AHS — American Housing Survey
MSA — metropolitan statistical area
NPTS — Nationwide Personal Transportation Survey
PMT — person miles of travel
POV — personally operated vehicle
VMT — vehicle miles of travel

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof. The views expressed by the author are not necessarily those of the Government.

**U.S. Department of Transportation
Federal Highway Administration**

TRAVEL BEHAVIOR ISSUES IN THE 90'S

**Based on Data from the
1990 Nationwide Personal Transportation Survey (NPTS)
and the
1985 and 1989 American Housing Surveys (AHS)**

**Prepared by:
Alan E. Pisarski
Falls Church, Virginia**

**Prepared for:
Office of Highway Information Management, HPM-40
(202) 366-0160, FAX (202) 366-7742**

July 1992

FOREWORD



Travel Behavior Issues in the 90's presents a preliminary examination of the most recent personal

travel data relating to key questions of interest to transportation planners and policymakers. Drawing on data from the 1990 Nationwide Personal Transportation Survey (NPTS) and the 1985 and 1989 American Housing Surveys (AHS), it provides a selective review of changes in the amount, purpose, and mode of personal travel, as related to various demographic and geographic factors.

This is a key historical moment in the relationship between the implementation of new surface transportation policy and real world travel behavior. There were significant changes in travel behavior during the past decade and there is every indication that the amount and nature of personal travel may continue to change. Many of the same social and demographic factors that were related to travel behavior change in the 1980's are still at work—the aging of the population, shrinking household size, increases in the percent of women holding driver's licenses, increases in vehicle ownership, and locational changes in where we live and work. While this report does not attempt to be an

exhaustive analysis of these factors, it does provide a starting point for looking at personal travel as a reflection of the choices we have made in our social, economic, and cultural fabric.

There are more data available now to take a comprehensive look at travel behavior than there have been in at least a decade. In addition to the NPTS and AHS data sets used in this report, journey to work data from the 1990 Decennial Census and data from a number of major metropolitan planning organization (MPO) travel surveys are being made available now. This combination of data will allow further research in all of the issue areas discussed in this report, as well as other topics not yet addressed.

Alan Pisarski, a nationally acknowledged expert on transportation policy issues and interpretation of transportation trends, is the author of this report and we are gratified to have the benefit of his extensive experience and analytical capabilities. This report is part of a continuing effort by this office to share important information—even when preliminary—with the transportation community.

—*Stephen C. Lockwood*
Associate Administrator for Policy
Federal Highway Administration

TABLE OF CONTENTS

Introduction	1
Chapter One:	
Changes in Person Miles of Travel	3
Chapter Two:	
Changes in Vehicle Miles of Travel	11
Chapter Three:	
What Has Happened with Transit?	17
Chapter Four:	
Trends in Vehicle Alternatives to Work	31
Chapter Five:	
Describing Women's Travel Behavior	41
Chapter Six:	
Vehicle Occupancy Trends and Patterns	51
Chapter Seven:	
Changes in Trip Length	57
Chapter Eight:	
Work Trip Travel Times	67

LIST OF FIGURES

CHANGES IN PERSON MILES OF TRAVEL

Figure 1.	Factors Affecting Person Travel, Percent Change, 1983 – 1990	4
Figure 2.	Person Miles of Travel, Factors of Increase, 1983 – 1990	5
Figure 3.	Indexed Trends of PMT Factors, 1977 – 1990	6

CHANGES IN VEHICLE MILES OF TRAVEL

Figure 4.	Vehicle Trip Length Trends, NPTS Selected Purposes, 1983 – 1990	12
Figure 5.	Factors Affecting Vehicle Travel, Percent Change, 1983 – 1990	13
Figure 6.	Vehicle Miles of Travel, Factors of Increase, 1983 – 1990	14

WHAT HAS HAPPENED WITH TRANSIT?

Figure 7.	Share of Transit Activity by Trip Purpose, 1990	18
Figure 8.	Transit Shares of All Travel by Purpose Category, 1983 & 1990	19
Figure 9.	Transit Shares of Work Travel by Place of Residence, 1985 & 1989	20
Figure 10.	Transit Shares of All Travel by Place of Residence, 1983 & 1990	21
Figure 11.	Source of Transit Trips to Work by Place of Residence, 1985	21
Figure 12.	Source of Decline in Transit Work Trips by Place of Residence, 1985 – 1989	22
Figure 13.	Transit Use by Area Type by Transit Available, 1985	23
Figure 14.	Trends in Transit Use for Work Trips, Selected Groups, 1985 & 1989	24
Figure 15.	Transit Use Trends by Region, 1985 & 1989	25
Figure 16.	Transit Shares of All Travel by Age Group, 1983 & 1990	26
Figure 17.	Male/Female Transit Use Trends, 1977, 1983 & 1990	27
Figure 18.	Mode Choice of the Poverty Population for Work Trips, 1985 & 1989	28

TRENDS IN VEHICLE ALTERNATIVES TO WORK

Figure 19.	Trends in Alternatives to the Single Occupant Vehicle for Work Trips, 1985 & 1989	32
Figure 20.	Walk to Work Trends, 1985 & 1989	33
Figure 21.	Work at Home Trends, 1985 & 1989	33
Figure 22.	Walk to Work Shares Compared to All Workers' Shares, 1989	34
Figure 23.	Walk to Work Trends, Selected Housing Categories, 1985 & 1989	35
Figure 24.	Work at Home Shares Compared to All Workers' Shares, 1989	37
Figure 25.	Work at Home Trends, Selected Housing Categories, 1985 & 1989	38

DESCRIBING WOMEN'S TRAVEL BEHAVIOR

Figure 26.	Women's Trips per Day Contrasted to Men's by Age Group, 1990	42
Figure 27.	Trends in Men's Trips per Day by Age Group, 1983 & 1990	43
Figure 28.	Trends in Women's Trips per Day by Age Group, 1983 & 1990	45
Figure 29.	Women's Trips by Purpose by Age Group, 1990	45
Figure 30.	Travel per Day Broken Down by Age and Sex, 1983 & 1990	46

VEHICLE OCCUPANCY TRENDS AND PATTERNS

Figure 31. Average Vehicle Occupancy by Trip Purpose, 1990	52
Figure 32. Work Trip Vehicle Occupancy by Trip Length, 1990	53
Figure 33. Average Vehicle Occupancy by Trip Purpose, 1977, 1983 & 1990	54

CHANGES IN TRIP LENGTH

Figure 34. Vehicle Trip Length Trends by Purposes with Increasing Lengths, 1977, 1983 & 1990	58
Figure 35. Vehicle Trip Length Trends by Purposes with Stable Lengths, 1977, 1983 & 1990	58
Figure 36. Trip Length Trends by Income by Trip Purpose, 1990	59
Figure 37. Trip Length Trends by Population of Place of Residence, NPTS Selected Purposes, 1990	60
Figure 38. Trip Length to Work, AHS Survey Trends, 1974 – 1989	61
Figure 39. Median Work Trip Length Trends, Selected Demographic Groups, 1985 & 1989	62
Figure 40. Trip Length Distribution, Central Cities and Suburbs, 1989	63
Figure 41. Trip Length Distribution, Central Cities, 1985 & 1989	64
Figure 42. Trip Length Distribution, Suburbs, 1985 & 1989	65

WORK TRIP TRAVEL TIMES

Figure 43. Travel Time to Work, AHS Survey Trends	68
Figure 44. Travel Time to Work, Selected Demographic Groups, 1989	68
Figure 45. Travel Time to Work by Place of Residence, 1983 & 1990	70
Figure 46. Travel Speeds to Work by Mode, 1983 & 1990	71
Figure 47. Travel Time to Work, 1989 AHS	72
Figure 48. Cumulative Travel Time to Work, Central Cities, 1989	73
Figure 49. Time of Departure for Work, 1985 & 1989	74

LIST OF TABLES

DESCRIBING WOMEN'S TRAVEL BEHAVIOR

Table 1. Women's Daily Trip Rates by Availability of a Driver's License	44
Table 2. Women with No License Trip Rate Trend by Purpose	47
Table 3. Women with License Trip Rate Trend by Purpose	47

WORK TRIP TRAVEL TIMES

Table 4. Work Trip Travel Time, Length, and Speed by Household Location	69
Table 5. Work Trip Travel Time, Length, and Speed by Mode	70

INTRODUCTION



The 1990 Nationwide Personal Transportation Survey (NPTS) provides a wealth of material for inspection and analysis. Taken together, the present study and the three previous studies are America's primary source of information on trends in national travel behavior over the last 20 years.

This report does not seek to summarize the results of the survey nor to summarize what is happening in American travel behavior. Other products underway are focused on these goals. Rather, this report has the pleasant task of addressing the questions that it is believed are the ones most people would most want to know about when a comprehensive data source on travel first becomes available. It seeks to anticipate the questions people will ask and attempts a first look at an answer—"What happened to women's travel?" "Why did vehicle miles of travel grow so much?" Most of the questions relate to important public policy concerns—"What is happening with transit?" "What are the trends in travel times?" All of the questions are aimed at the interests of those who seek a better understanding of the travel phenomenon.

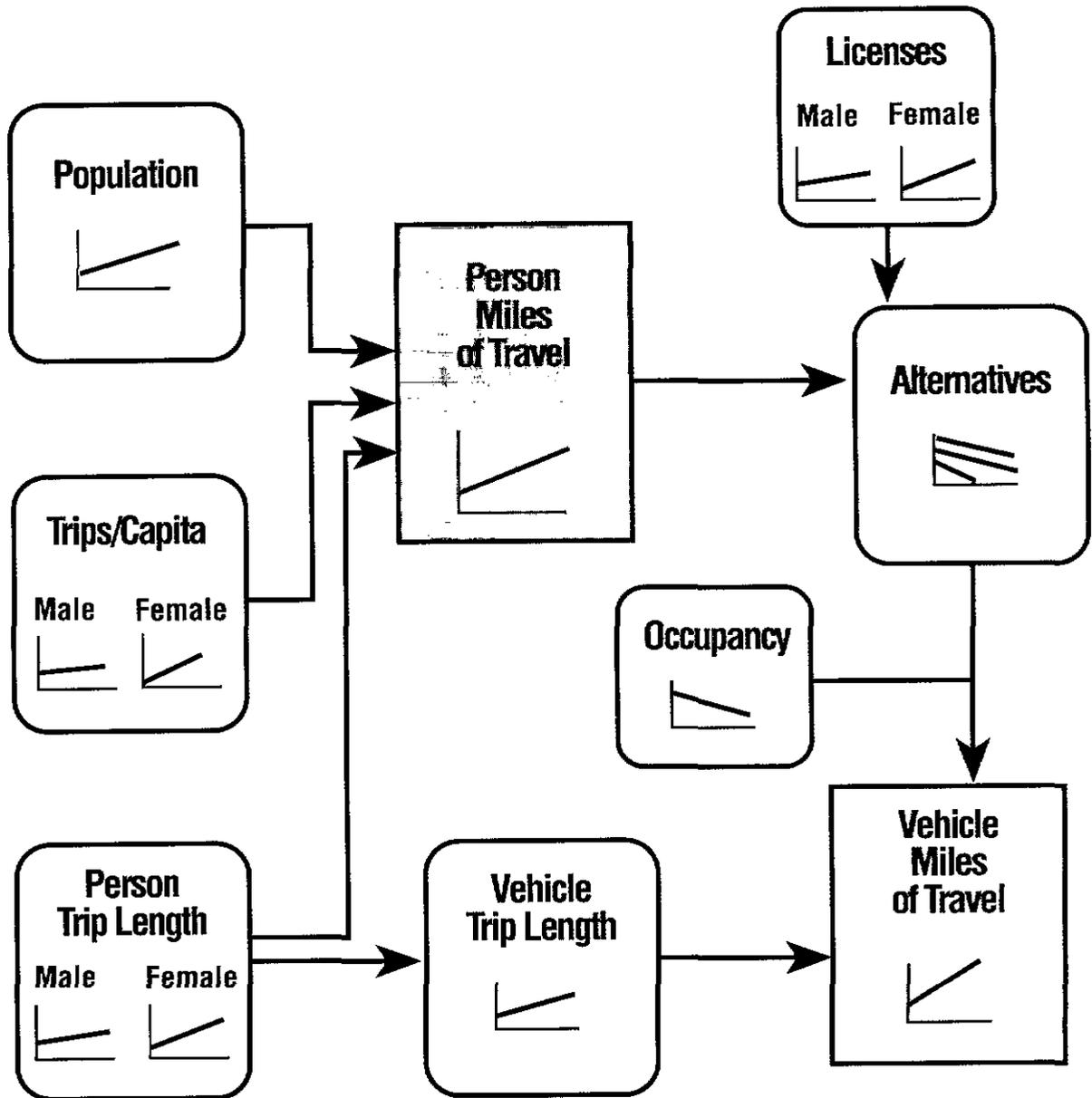
Some of the material is preliminary at this stage in the processing of the data set. But, it seemed warranted to seek to get some material into the hands of a waiting research community,

with an expression of warning about its preliminary character, rather than wait for definitive data to become available. For instance, no data were used involving geographic or temporal stratifications. That remains an exciting opportunity area for others to pursue. The report uses both NPTS data and data from the American Housing Survey (AHS) of the Bureau of the Census, sponsored by the Department of Housing and Urban Development.

This report certainly does not exhaust the number of policy and analytical questions that might be investigated with these data sets. There are many—"What are travel patterns of households without vehicles?" "How does household composition affect travel behavior?" "What changes in travel happened in areas that made major investments in transit or highways in the 80's?" There is a sense from these data that we are seeing the final democratization of travel, as young and old, low income populations, and women make immense strides in personal transportation. These and many more such questions should be pursued. It is hoped that this report will help stimulate the interest that will engage many others in the inspection and use of these data. There are many insights waiting to be discovered.

—Alan E. Pisarski

FACTORS IN GROWTH OF PERSONAL TRAVEL



1990 NPTS

Travel Behavior Issues in the 90's

Publication No. **FHWA-PL-93-012** (*Ordering number*)

HPM-40/2-95 (6.5M) E

To order a copy, contact: Federal Highway Administration
Research and Technical Report Center
9701 Philadelphia Court
Unit Q
Lanham, MD 20706
(301) 577-0818
(301) 577-1421 (FAX)