

840129

Response of Washington State Residents to Changing Transportation Conditions

WA-RD 42.3

March 1984

Final Report



Washington State Department of Transportation

Planning, Research and Public Transportation Division

In Cooperation with

United States Department of Transportation

Federal Highway Administration

1. Report No. WA-RD-42.2		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Response of Washington State Residents to Changing Transportation Conditions				5. Report Date March 1984	
7. Author(s) Brian Limotti, Evan Iverson, Robert Jacobson				6. Performing Organization Code	
9. Performing Organization Name and Address Planning Research and Public Transportation Division Washington State Department of Transportation Transportation Building Olympia, WA 98504				8. Performing Organization Report No.	
12. Sponsoring Agency Name and Address Planning, Research and Public Transportation Division Washington State Department of Transportation Transportation Building Olympia, WA 98504				10. Work Unit No.	
				11. Contract or Grant No.	
15. Supplementary Notes				13. Type of Report and Period Covered Final	
				14. Sponsoring Agency Code	
16. Abstract This study was undertaken to measure and assess current transportation behavior, attitudes, and adjustments people have made or are planning to make to cope with higher costs of transportation and energy shortages. A secondary objective was to develop an effective and inexpensive system to collect a sizeable amount of multi-modal data for various types of travel from a statistically reliable sample of households in the state of Washington. Telephone interviews of approximately 15 minutes in length were conducted with 2,500 households in 1980 and 2,000 homes in 1983, with both samples having a 95 percent confidence level. Residents of metropolitan, urban and rural areas were included. The households interviewed were selected by a random computer search of telephone numbers. Respondents were screened to ensure that an adult member (18 years or older) of the household was interviewed. The questionnaire dealt with the travel habits of the household rather than just the person being interviewed. Travel to work, local travel, long distance travel, recreational travel, use of public transit and other modes of travel, as well as vehicle ownership trends were topics covered in the interviews. The household's travel patterns two years prior to the interview, as well as current behavior and future plans were included. The replies to the questions indicated that people were concerned about transportation problems and were willing to provide detailed facts and opinions about their household's transportation behavior.					
17. Key Words Surveys, households, transportation, travel, ridership, data collection, behavior			18. Distribution Statement No restrictions		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 146	22. Price

RESPONSE OF WASHINGTON STATE RESIDENTS
TO CHANGING TRANSPORTATION CONDITIONS

Final Report

Prepared by
State Planning Section
Planning, Research, and Public Transportation Division
Washington State Department of Transportation

March 1984

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of Washington, Department of Transportation. This report does not constitute a standard, specification, or regulation.

ACKNOWLEDGMENTS

This research report was prepared by the staff of the Systems Planning Branch of the Washington State Department of Transportation. Chief investigator was Brian Limotti. He was assisted by Robert Jacobson, Don Baltzell and Linda Strength. Dr. Evan A. Iverson, Supervisor, State Transportation Planning Section, served as Project Director.

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY REPORT	i
Purpose	i
Methodology	ii
Highlights	iv
Significance of Survey Findings for Planning	ix
Future Application	xiv
INTRODUCTION	1
Problem Statement	1
Purpose of Study	2
Methodology	4
Survey Procedures	5
Recommendation and Implementation	6
Critique of 1980 and 1983 Surveys	8
Benefits Derived from Study	10
Literature Review	10
SELECTED BIBLIOGRAPHY	15
TRAVEL TRENDS IN THE STATE OF WASHINGTON	19
WORK RELATED TRAVEL	25
LOCAL TRAVEL	43
LONG DISTANCE TRAVEL	55
RECREATIONAL AND VACATION TRAVEL	63
LOCAL TRANSIT USAGE	67
USE OF OTHER FORMS OF TRANSPORTATION	73
MOTOR VEHICLE OWNERSHIP	79
OVERALL TRAVEL HABITS	87

	Page
APPENDIX A - HOUSEHOLD TRIPS	93
APPENDIX B - DEMOGRAPHIC CHARACTERISTICS	95
APPENDIX C - 1980 AND 1983 SURVEY QUESTIONNAIRES	99

TABLE OF TABLES

TABLE i - PERCENT OF CHANGE OF ECONOMIC INDICATORS IN WASHINGTON STATE, 1978 - 1982	iv
TABLE 1 - LOCAL TRANSIT RIDERSHIP, 1978 - 1982	19
TABLE 2 - TOTAL AMTRAK PASSENGERS ON AND OFF IN WASHINGTON STATE, 1978 - 1982	20
TABLE 3 - WASHINGTON STATE FERRY SYSTEM VEHICLES AND PASSENGERS CARRIED	21
TABLE 4 - TOTAL PASSENGERS ON AND OFF FOR THE CERTIFIED AIRLINES, AT SEA-TAC AND SPOKANE AIRPORTS	21
TABLE 5 - INTERCITY RIDERSHIP FOR CARRIERS OPERATING SOLELY IN WASHINGTON STATE	22
TABLE 6 - VEHICLE MILES OF TRAVEL IN WASHINGTON STATE	23
TABLE 7 - NEW AUTOMOBILE REGISTRATIONS BY SIZE	23
TABLE 8 - ESTIMATED VEHICLE REGISTRATIONS	24
TABLE 9 - WORK TRAVEL FORM OF TRANSPORTATION	29
TABLE 10 - WORK TRAVEL TIME AND DISTANCE	30
TABLE 11 - WORK TRAVEL FORM OF TRANSPORTATION BY WORK TRAVEL TIME AND DISTANCE	31
TABLE 12 - WORK TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	33
TABLE 13 - PREVIOUS AND PRESENT WORK TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS WHO HAVE CHANGED	34
TABLE 14 - PRESENT AND FUTURE WORK TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS ANTICIPATING A CHANGE	35

	Page
TABLE 15 - TRAVEL TIME AND DISTANCE TO WORK COMPARED WITH WHETHER WORK TRAVEL FORM OF TRANSPORTATION HAS CHANGED IN THE PAST TWO YEARS	36
TABLE 16 - INCOME AND AGE COMPARED WITH WHETHER WORK TRAVEL FORM OF TRANSPORTATION HAS CHANGED IN THE LAST TWO YEARS	37
TABLE 17 - INCOME AND AGE COMPARED WITH WHETHER WORK TRAVEL FORM OF TRANSPORTATION WILL CHANGE IN THE FUTURE	38
TABLE 18 - REASONS FOR CHANGING WORK TRAVEL FORM OF TRANSPORTATION	39
TABLE 19 - REASONS FOR CHANGING WORK TRAVEL FORM OF TRANSPORTATION COMPARED WITH PREVIOUS FORM	40
TABLE 20 - REASONS FOR CHANGING WORK TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	41
TABLE 21 - LOCAL TRAVEL FORM OF TRANSPORTATION	47
TABLE 22 - PREVIOUS AND PRESENT LOCAL TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS WHO HAVE CHANGED	48
TABLE 23 - PRESENT AND FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS ANTICIPATING CHANGE	48
TABLE 24 - PAST CHANGES BY ANTICIPATED CHANGES IN LOCAL TRAVEL FORM OF TRANSPORTATION	49
TABLE 25 - REASONS FOR CHANGE IN FORM OF TRANSPORTATION FOR LOCAL TRAVEL	49
TABLE 26 - CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	50
TABLE 27 - ANTICIPATED CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	51
TABLE 28 - FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	52
TABLE 29 - CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION BY CHANGE IN AMOUNT OF LOCAL TRAVEL IN PAST TWO YEARS	53

	Page
TABLE 30 - CHANGE IN FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION BY CHANGE IN FUTURE AMOUNT OF LOCAL TRAVEL	53
TABLE 31 - PAST CHANGES BY ANTICIPATED CHANGES IN AMOUNT OF LOCAL TRAVEL	54
TABLE 32 - OTHER ADJUSTMENTS TO RISING COSTS OF LOCAL TRAVEL	54
TABLE 33 - LONG DISTANCE TRAVEL FORM OF TRANSPORTATION	57
TABLE 34 - CHANGE IN FORM OF LONG DISTANCE TRAVEL THE PAST TWO YEARS COMPARED TO FUTURE PLANS	58
TABLE 35 - PREVIOUS AND PRESENT LONG DISTANCE TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS WHO HAVE CHANGED	58
TABLE 36 - PRESENT AND FUTURE LONG DISTANCE TRAVEL FORM OF TRANSPORTATION FOR THOSE RESPONDENTS ANTICIPATING A CHANGE	59
TABLE 37 - LONG DISTANCE TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	60
TABLE 38 - FUTURE LONG DISTANCE TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	61
TABLE 39 - PRESENT LONG DISTANCE TRAVEL FORM OF TRANSPORTATION COMPARED TO FUTURE AMOUNT OF LONG DISTANCE TRAVEL	62
TABLE 40 - RECREATIONAL TRAVEL FORM OF TRASPORTATION	65
TABLE 41 - RECREATION TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE	66
TABLE 42 - FREQUENCY OF TRANSIT RIDERSHIP	69
TABLE 43 - FREQUENCY OF TRANSIT RIDERSHIP BY PURPOSE OF TRIP	70
TABLE 44 - FREQUENCY OF TRANSIT RIDERSHIP BY ADEQUACY OF SERVICE	70
TABLE 45 - REASONS FOR NOT USING TRANSIT	71
TABLE 46 - FUNDING OPTIONS TO PROVIDE TRANSIT SERVICE TO AREAS CURRENTLY UNSERVED	72
TABLE 47 - FUNDING OPTIONS TO IMPROVE EXISTING TRANSIT SERVICE	72

	Page
TABLE 48 - PERCENT OF HOUSEHOLDS USING EACH FORM IN THE PAST YEAR	73
TABLE 49 - PURPOSE FOR WHICH TRIPS WERE TAKEN	73
TABLE 50 - PERCENT INDICATING SERVICES ARE ADEQUATE	74
TABLE 51 - DESIRED IMPROVEMENTS FOR INTERCITY BUS	74
TABLE 52 - DESIRED IMPROVEMENTS FOR WASHINGTON STATE FERRIES	75
TABLE 53 - DESIRED IMPROVEMENTS FOR COMMERCIAL AIRLINES	75
TABLE 54 - DESIRED IMPROVEMENTS FOR PRIVATE AIRCRAFT	75
TABLE 55 - DESIRED IMPROVEMENTS FOR STREETS AND HIGHWAYS	76
TABLE 56 - PERCENT OF HOUSEHOLDS USING EACH FORM OF TRAVEL BY INCOME AND AGE	77
TABLE 57 - PRESENT HOUSEHOLD VEHICLES	82
TABLE 58 - CHANGE IN NUMBER OF VEHICLES PER HOUSEHOLD IN THE PAST TWO YEARS AND FUTURE PLANS	83
TABLE 59 - PAST NUMBER OF VEHICLES BY FUTURE NUMBER OF VEHICLES	83
TABLE 60 - REASONS FOR ACQUIRING VEHICLE	84
TABLE 61 - PERCENT HOUSEHOLD VEHICLES BY INCOME AND AGE	86
TABLE 62 - ACQUISITION OF NEW OR DIFFERENT VEHICLE IN THE PAST TWO YEARS BY INCOME AND AGE	86
TABLE 63 - OVERALL TRAVEL HABITS CHANGED	87
TABLE 64 - OVERALL USE OF AUTOMOBILES BY CHANGES IN OVERALL TRAVEL HABITS	88
TABLE 65 - CHANGES IN TRAVEL FORM BY CHANGES IN OVERALL TRAVEL HABITS	89
TABLE 66 - CHANGES IN AMOUNT OF LOCAL TRAVEL BY CHANGE IN OVERALL TRAVEL HABITS	90
TABLE 67 - CHANGES IN VEHICLE OWNERSHIP BY CHANGE IN OVERALL TRAVEL HABITS	90

	<u>Page</u>
TABLE 68 - OTHER TRAVEL ADJUSTMENTS BY CHANGE IN OVERALL TRAVEL HABITS	91

TABLE OF FIGURES

FIGURE i - RESEARCH PROJECT DATA STRUCTURE	ii
FIGURE ii - VEHICLE MILES OF TRAVEL IN WASHINGTON STATE	v
FIGURE iii - DISTRIBUTION OF WORK TRAVEL MODES - 1980 AND 1983	x
FIGURE iv - HOUSEHOLDS WITH EACH TYPE OF VEHICLE AND AVERAGE NUMBER OF VEHICLES	xi
FIGURE v - OVERALL TRAVEL HABITS CHANGES	xii

RESPONSE OF WASHINGTON STATE RESIDENTS TO CHANGING TRANSPORTATION CONDITIONS

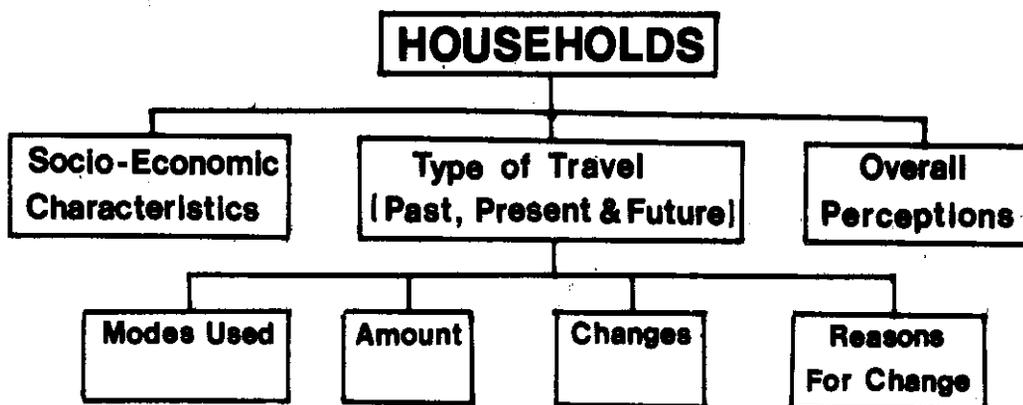
SUMMARY REPORT

During the last decade, increasing transportation costs, sporadic energy shortages, economic recession and inflationary pressures have caused major changes for citizens previously accustomed to relatively inexpensive energy and other transportation costs. When transportation costs increase, the amount of travel and the modes utilized tend to change. To enable those agencies that have responsibility to develop transportation plans and programs, more multimodal information is required concerning needs, behavior and desires of the population.

Purpose

The primary purpose of this research project was to measure and assess actions, changes and perceptions of the residents of the state of Washington in response to higher transportation costs and other developments including energy shortages in recent years. A secondary, but important purpose was to develop an effective and inexpensive system to collect a sizeable amount of information regarding various types of travel and all major modes of transportation for use in plan and program development. More specifically, this research effort has attempted to bring together closely interrelated data from a statistically reliable sample of households about present, past, and future use of major transportation modes for various types of travel. Such information can be aggregated on a statewide, regional or community basis for use by planners and decision makers.

FIGURE 1
RESEARCH PROJECT DATA STRUCTURE



Methodology

To obtain necessary data, samples of the population of Washington State were selected to be interviewed in 1980 and 1983. In selecting the samples, adequate representation of metropolitan, urban and rural areas were included so that needs and desires of each of these areas are reflected. In the 1980 survey, 2,500 households were interviewed, while in 1983, 2,000 were contacted. However, both samples have a 95 percent confidence level on a statewide basis, and the results can therefore be meaningfully compared.

The households to be interviewed were selected by a random computer search of telephone numbers. The questionnaire used in the surveys was prepared by the staff of the Systems Planning Branch of the Washington State Department of Transportation (WSDOT). Questions in the survey covered travel habits of the family rather than just the person being interviewed. The interviews were conducted by telephone by GMA Research Corporation of Bellevue, Washington. The telephone interviews averaged 15 minutes.

Respondents were screened to ensure that those persons interviewed were adults who resided in each of the households selected. No interview was conducted if a

household member 18 years of age or older was not available. An attempt was made to contact an equal number of males and females. In total, 50.6 percent of the respondents were women, and 49.4 percent were men in the 1980 survey, while the 1983 sample yielded 50.1 percent women and 49.9 percent men.

The results of these surveys have been used in developing the State Transportation Plan, as well as for local planning purposes.

Conditions Present at Time of Surveys

To interpret the data derived from the 1980 and 1983 samples, the conditions under which each survey was conducted must be considered.

When the first survey was taken in June 1980, fuel prices had increased rapidly. The average pump price of gasoline in the state was \$1.23 a gallon, with many analysts predicting the price would eventually rise to \$2.00 or more a gallon. Fuel shortages had occurred in 1973-1974 and 1979. National leaders were emphasizing energy conservation. The rate of inflation was more than 13 percent, far exceeding increases in personal income. The state's unemployment rate was 8.5 percent. Transit systems were expanding existing service areas and new systems were being created to serve the urban centers of the state.

In March 1983, when the second survey was conducted, fuel supplies were plentiful and the average price of gasoline had declined to \$1.10. No shortages had occurred in four years and none seemed imminent. The inflation rate had declined to 6 percent, while the state's unemployment rate had risen to 12.7 percent. Though the nation was still suffering from a prolonged and severe recession, economic indicators pointed toward recovery. Transit systems were operating in all urban areas of the state except Wenatchee.

TABLE i
 PERCENT CHANGE IN ECONOMIC INDICATORS
 WASHINGTON STATE
 1978-1982

	<u>Per Capita Real Income</u>	<u>Gasoline Prices</u>	<u>Total Consumer Price Index</u>	<u>Transportation Consumer Price Index</u>
1978-1979	+2.2	+28.8	+11.0	+14.3
1979-1980	-0.7	+35.9	+16.6	+17.8
1980-1981	+2.0	+12.6	+10.7	+12.1
1981-1982	-0.5	-9.4	+6.5	+4.1
1978-1982	+3.0	+78.5	+52.6	+57.1

Source: Office of Financial Management, State of Washington; Oil and Gas Journal; U.S. Department of Commerce, Bureau of Labor Statistics.

The following section contains highlights of the findings from the two surveys, with more detailed discussions for each type of travel contained in the report.

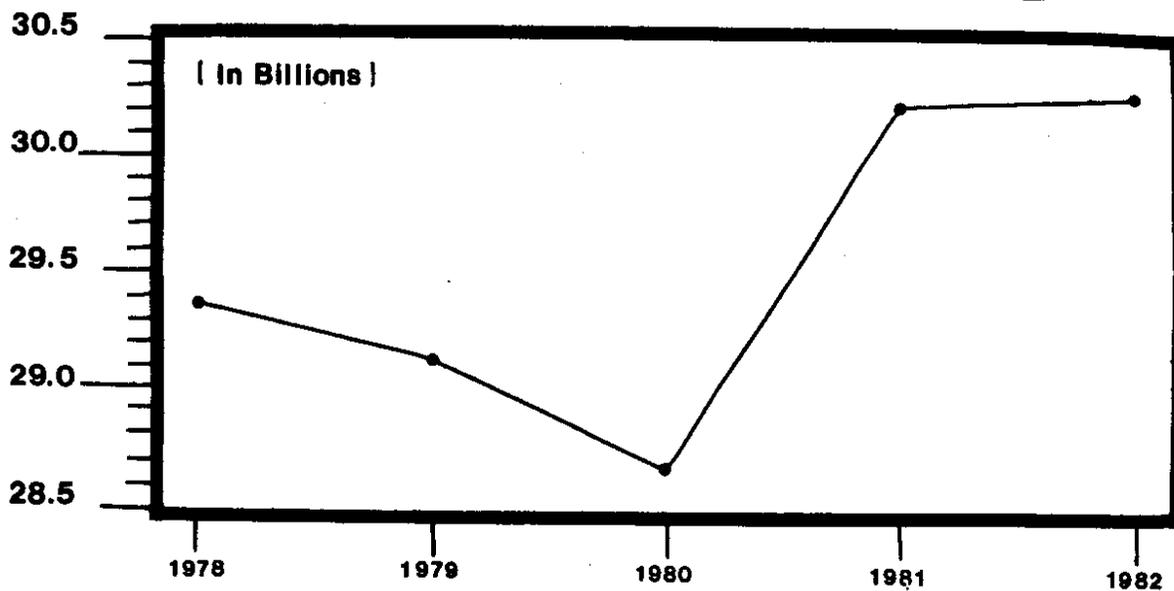
HIGHLIGHTS

- The greatest difference that has occurred in travel habits between the two surveys is an increase in the amount of travel. Nearly 57 percent of those interviewed in 1983 indicated that they had increased travel somewhat in the past two years or planned to make increases in the future. The increase varies according to the type of travel since long distance and non-work related local travel can be changed more easily than travel to work. This is a near complete reversal from the 1980 results, when 46 percent of the households reported their amount of travel had decreased.

- As indicated by the respondents, the average number of motor vehicles per household increased from 1.99 in 1980 to 2.08 in 1983. If official population projections are correct, there will be a 26 percent increase in the number of households and a 44 percent increase in the number of vehicles in the state by the year 2000. Based on the present ratio of vehicles per household, there will be approximately 886,000 more vehicles on the road at the turn of the century. Assuming current travel rates, these additional vehicles will generate nearly 7.9 billion more vehicle miles of travel. Most of this increase will occur in the state's urban areas where traffic congestion is already a problem.

FIGURE ii

VEHICLE MILES OF TRAVEL IN WASHINGTON STATE



- Automotive vehicles will continue to be the preferred mode for all types of travel, with airplanes assuming a secondary role for long distance and vacation travel. Intercity bus and rail remain the two least utilized modes.

- There has been a fifty percent increase in the proportion of households who have changed from driving their vehicles alone to ridesharing for work travel. Assuming that the survey sample accurately reflects changes for the state's population, members of approximately 51,000 more households in 1983 are now using some form of ridesharing for work travel compared to 1980.
- In the 1980 survey, 77 percent of the respondents had not changed their form of transportation used for work, local, long distance or recreational travel and 70 percent did not intend to change in the future. These proportions rose in the 1983 survey to 89 percent who had not changed in the past, and 90 percent did not plan any future changes.
- The proportion of respondents indicating their household's overall travel habits had changed, declined from 58 percent in 1980 to 32 percent in 1983. The changes that have been made include reduction in the amount of travel, use of different modes of transportation, increased use of the telephone instead of traveling and numerous other adjustments.

Work Travel

- Approximately three-fourths of the workers in the state travel to their place of employment in single occupant autos. However, the respondents in both surveys were more inclined to change their form of work travel than for other types of travel.
- More than 60 percent of the respondents in both surveys live within 10 miles of their workplace, while nearly 70 percent of the workers have commute times of 20 minutes or less. The medians for distance and time were 8.2 miles and 15 minutes, respectively.
- When the travel time to work exceeds 30 minutes, there is a marked decrease in those respondents indicating they drive alone to work and a definite increase in those ridesharing or using transit to get to work.

- The cost of fuel is not the major influence on people to change their mode of work travel in 1983 as it was in 1980. Of more importance now are various other responses including changes in employment location and the need for a new replacement vehicle.
- In both surveys, the vast majority of respondents have not moved or do not plan to move regardless of the time, distance or cost involved in commuting.

Local Non-Work Travel

- The private auto has increased in popularity from 1980 to 1983 as the main vehicle for non-work related local travel. Currently, 94 percent of the households drive their automobile as their primary form of local travel. There has been greater reluctance to change the form of transportation used for local travel than for other kinds of travel. Only 7 percent of the respondents in 1983 have changed for their mode of local travel in the past two years, while 6 percent plan such a change in the future.
- The proportion of households that had decreased the amount of local travel the past two years declined from 44 percent in 1980 to 18 percent in 1983, while those indicating an increase rose from 15 percent to 23 percent.
- More households in 1983 indicated that they are using the telephone as a travel substitute and shopping closer to home than did so in 1980. Two-thirds of the respondents do most of their shopping within four miles of home, with the median distance being 2.4 miles.

Long Distance Travel

- For long distance travel (over 100 miles from home), the proportion of households using automobiles and recreational vehicles has increased in 1983 while the use of airplanes has decreased. There was little variance between the two surveys in the percent of respondents who had changed the form of transportation used for long distance travel.

- The proportion of households planning to change their form of long distance travel in the future declined from 17 percent in 1980 to 9 percent in 1983. For those anticipating a change, the airplane will become the primary long distance travel form.
- Perhaps the most striking specific difference between the two surveys is the dramatic upsurge in 1983 of the percentage of households planning to increase their amount of long distance travel. More than one-fifth of the respondents expect to take more long distance trips compared to only 3 percent in 1980.
- As a household's income increases above \$25,000 a year, they are more likely to fly on their long distance trips and less likely to drive automobiles than the overall sample. Conversely, households making less than \$15,000 a year show a somewhat greater tendency to use intercity bus service when compared to the total survey results. Income does not, however, play a significant role in determining whether a household has changed or plans to change the form of long distance travel.

Recreational Travel

- The proportion of households expecting to take a vacation trip more than 500 miles from home increased from 34 percent in 1980 to 44 percent in 1983, while there was little change in the percent planning recreational travel within Washington State. In both surveys, the airplane is slightly preferred over the automobile for vacation trips, while intercity bus and rail are the two least utilized modes.

Local Transit

- The proportion of households served by local transit increased from nearly 54 percent in 1980 to 69 percent in 1983. However, those households having one or more members who ride transit at least once a week declined from one-third in 1980 to 21 percent in 1983.

- Shopping, personal travel and work travel, in that order, continue to be the three main purposes people use transit, while a preference for the private automobile and the inconvenience of a fixed schedule are the two primary deterrents to people for not using transit.

Motor Vehicle Ownership

- While the average number of motor vehicles per household increased from 1980 to 1983, only 5 percent of the households in 1980 expected to increase the number of vehicles. Nearly 15 percent in 1983 intend to make such a change.
- Income and age both determine changes in the number and kind of vehicles a family owns. As family income rises, the number of motor vehicles increases and the type changes. As people become older, the less likely they are to have acquired additional automotive vehicles or to plan changes in the future. Young adults are the most likely to be acquiring additional vehicles.

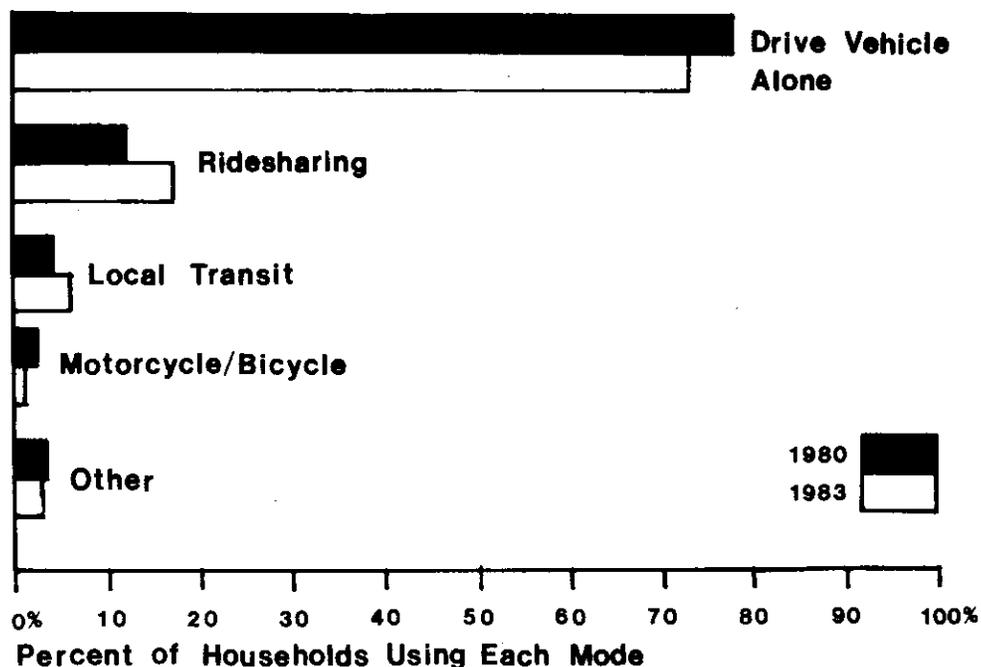
Use of Other Modes

- More than three-fourths of the respondents felt that commercial airlines, streets and highways, and the State Ferry System provided service adequate to meet their needs, while only one-third of those surveyed felt the same about AMTRAK.

SIGNIFICANCE OF SURVEY FINDINGS FOR PLANNING

In transportation system planning there are both long term and short term trends and developments that must be considered. These surveys, which have examined various types of travel as well as amount, modal usage and socio-economic factors, help to place these long and short term developments in perspective.

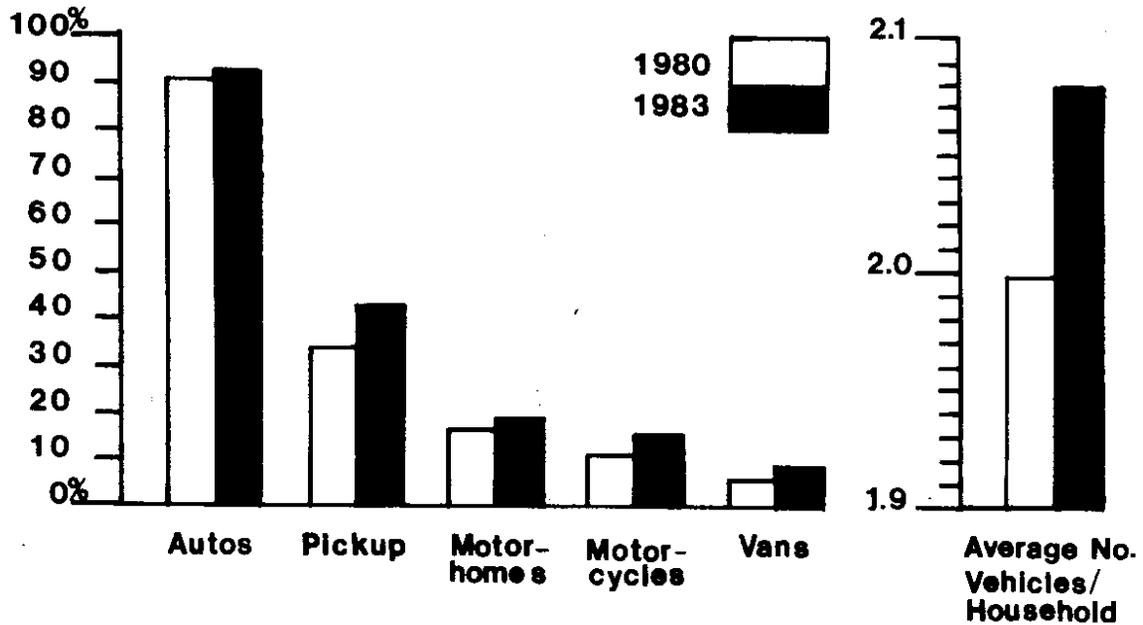
FIGURE iii
 DISTRIBUTION OF WORK TRAVEL MODES -
 1980 and 1983



The desire of Washington State residents to use automotive vehicles for work, local, long distance and recreational travel becomes very evident from both surveys. The proportion of 1983 respondents using these vehicles has not declined even though overall costs have risen. The convenience (including mobility and freedom in scheduling) derived from using automobiles is self-evident, and the desires of the residents to adjust their personal finances to continue this convenience is apparent from their responses. If roadways, streets and highways and related facilities are developed and maintained to accommodate this desire, future costs required to retain this type of travel in the urban centers will be very high, and programs that attempt to respond will be difficult to implement. Basic policy questions should be raised about the willingness of the public to pay the cost of these programs and how these costs should be distributed.

FIGURE iv

HOUSEHOLDS WITH EACH TYPE OF VEHICLE
AND AVERAGE NUMBER OF VEHICLES

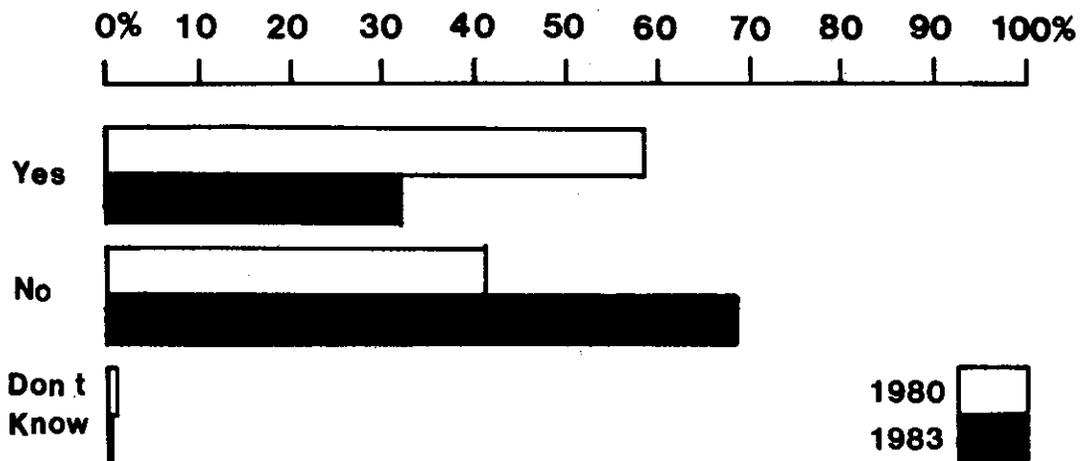


The average number of motor vehicles per household increased from 1980 to 1983 in spite of the fact that the cost of owning and operating vehicles has increased more rapidly than personal income. Unless present conditions change, further increases in vehicles can be expected. The percentage of the population that is of driving age is increasing, and the survey respondents indicated that they planned to retain or expand the number of household vehicles and increase their amount of travel. Most of these additional drivers and vehicles will be in urban and suburban areas where traffic congestion already is a problem.

However, the survey results indicate other important short and long term changes that are taking place that are important in plan and program development. In 1980, when sharp increases in fuel prices and vehicles were occurring and much higher costs were projected, the reaction of the respondents was quite predictable when they were asked about what adjustments they had made. Almost one-half indicated they had reduced or planned to reduce their amount of travel, and a sizeable proportion intended to change their mode of travel. In 1983, when fuel was readily available and the price of gasoline had actually declined, a return to former long term travel trends was evident. However, in the interim, some

significant changes have occurred in travel behavior, and respondents in 1983 indicated that they intended to retain these changes. Among these are the increased use of high occupancy vehicles and transit by workers commuting. Hence, higher transportation costs have had an impact on work travel behavior. Programs that emphasize high occupancy vehicle lanes and pool-it lots are in accord with the changed work travel habits and desires of commuters as expressed in this survey.

FIGURE v
OVERALL TRAVEL HABITS CHANGES



The greatest difference between the two surveys' results is the larger percentage of 1983 households that have increased and intend to increase their amount of travel compared to responses in 1980. Fully one-third of the 1983 respondents plan to increase the amount of either their local or long distance travel. If this does occur, highway and tourist oriented businesses as well as other transportation facilities and services will be affected. However, the 1980 survey results demonstrate that these plans could be modified by sharp increases in fuel prices, curtailment in energy supplies or a change in national energy policies and plans. The 1983 optimism about fuel prices, supplies and economic recovery could be self-defeating if increased energy consumption for travel leads to increased fuel production to meet the demand, causing higher fuel costs and greater inflation.

Survey results have indicated increased use of automobiles and airplanes for travel, with rail and intercity bus continuing to be the two least utilized modes, accounting for less than 5 percent of the households' long distance or recreational travel. If existing travel habits continue and future plans of respondents are implemented, the basic transportation system for people in the state will increasingly be concentrated on two modes: automobiles and other types of private motor vehicles and air travel. The State Ferry System and local transit operations will fulfill local or regional transportation needs, but serve as a supplement to or an extension of the basic bimodal system. This has major implications for development of plans and programs.

When the income and age of users of various transportation modes are analyzed, it becomes evident that differences exist in the riders of the various forms. For long distance travel, airplanes are used more frequently by persons having an income exceeding \$25,000 or who are more than 40 years of age. Conversely, intercity buses are used by those with low incomes and by young or elderly people. Similar age and income differences do not exist for those using rail passenger service or automobiles. For work travel, more middle age or older people or high income respondents drive alone, while transit systems are used more extensively by young people and those in the lower income brackets. If all the transportation systems are to be used as effectively as possible, programs that provide clean and safe terminals and other inducements for people of all age and income levels should be initiated. This is one important part of developing a balanced and integrated multimodal system.

When respondents were asked whether their overall travel habits had changed, the proportion indicating that changes had occurred declined from 58 percent in 1980 to 32 percent in 1983. Changes they indicated they had made included adjustments in the amount of travel, use of different modes, increased use of telephone service, shopping closer to home and better trip planning. The response to this question indicates perception of change more than the other detailed questions contained in the two surveys. When the response to this question is added to other data, it becomes apparent that at least two-thirds of those interviewed in 1983 have not and do not intend to change transportation habits, even though total transportation costs are increasing and other factors are changing.

The results of this study will be used in considering various issues in updating the State Transportation Plan, and the study findings will be included in the plan. Transportation programs and projects that are developed follow guidelines set forth in the plan.

FUTURE APPLICATIONS

The objective of WSDOT, as specified by law, is to develop a comprehensive and balanced multi modal transportation system. Thus it is important that state and local officials and private operators have data that reflect trends in travel behavior and the needs and desires of the state's residents. Such data are not available from established information systems. However, this information can be collected quite inexpensively and should be done every two or three years. By using the approach made in this survey, data can be obtained by household regarding the amount and type of travel, modes used, changes that have occurred and the needs and desires for transportation. If a survey of this nature were made systematically every two years, important trends could be established that would be very useful for development of plans and programs. Without such data that ties the total household travel needs together, trends are available only for the use of each mode.

RESPONSE OF WASHINGTON STATE RESIDENTS TO CHANGING TRANSPORTATION CONDITIONS

INTRODUCTION

Problem Statement

In the past decade, numerous changes have occurred that have directly affected transportation systems, and these changes have had a major impact upon the planning and programming process of public and private agencies. Significant developments and changes that have occurred include the following:

- The cost of transportation has risen more rapidly than personal income. From 1972 to 1982, the cost of owning and operating an automobile increased 206 percent. During the same period, personal income increased 153 percent.
- Energy shortages have occurred and may arise again because the nation is highly dependent upon foreign oil sources. Political, social and economic conditions within some of the major oil-producing areas are very unstable.
- Social and economic changes have permitted an affluent society to greatly increase the number of autos, private aircraft, recreational vehicles and public transportation systems.

Most of the traditional planning assumed that future requirements would follow basic travel trends and traffic distribution patterns that developed over a period of years. Likewise, planning for various modes was not undertaken on a coordinated statewide basis to bring about an integrated multi-modal system.

Since conditions have changed considerably, assessment of needs, expectations and desires of people for various types of travel, transportation modes and improvements in facilities and services under these changed conditions is essential. At present, available data concerning transportation use and operations cannot be integrated with various types of travel needs and desires or with basic population and economic trend data. For some of the public transportation modes in the state

of Washington, data are very limited. Information about socio-economic conditions that generate the need for and use of transportation facilities and services is not obtainable in a manner that permits the analyst to relate it directly to the different transportation modes or to specific types of travel. If a balanced transportation system is to be developed, it is essential that meaningful information concerning all of the modes be integrated and aggregated so household travel needs, modes used, trip purposes and changes made are identifiable.

The household or family is the basic unit in society from which transportation requirements, modes used, problems by type of travel (work, school, other local, long distance and recreational) and specific socio-economic data can be obtained. At this level, it is possible to integrate a great deal of pertinent information.

The basic problem is to measure multimodal transportation requirements as accurately as possible, determine changes that have been made, and ascertain future plans and desires of the population, and do so in such a way that the data received can be used in planning transportation services facilities that respond to public needs and desires.

Purpose of Study

The primary purpose of this research project was to measure and assess actions, changes and perceptions of the residents of the state of Washington in response to higher transportation costs and other developments in recent years, including energy shortages. A secondary, but important purpose was to develop an effective and inexpensive system to collect a sizeable amount of information regarding various types of travel and all major modes of transportation for use in plan and program development. More specifically, this research effort has attempted to bring together closely related data from a statistically reliable sample of households about present, past, and future use of major transportation modes for various types of travel. Such information can be aggregated on a statewide, regional or community basis for use by planners and decision makers.

The study was designed to bring together information about the following factors in such a manner that responses could be interrelated and analyzed for various types

of uses. Except where noted, both the 1980 and 1983 surveys gathered data concerning the following:

- **Work travel:**
 - Form used
 - Distance
 - Time
 - Needs
 - Changes in past two years
 - Plan for the next two years
 - Desire to move closer to work
 - Willingness to change
- **Local Non-Work Travel:**
 - Form used by various family members
 - Distances of major facilities from home
 - Changes made in last two years
 - Plans for future
- **Long Distance Non-Work Travel, Including Vacation Trips:**
 - Forms used
 - Changes in past two years
 - Increase or decrease of travel
 - Plans for future
- **Recreational Travel Within Washington State:**
 - Amount
 - Increase and decrease in past two years and in plans
- **Use of Transit:**
 - Availability of service
 - Frequency of use
 - Purpose used
 - Reasons for not using
 - Willingness to pay for service
 - Desire to use if service were available
- **Motor Vehicles:**
 - Number and type owned
 - Acquisition of new or different vehicles
 - Changes in number and size of vehicles
 - Plans for the future

- Overall Changes In Travel Behavior
- Social and Economic:
 - Age of respondent and family members
 - Number of household members
 - Household income
 - Type of dwelling
 - Occupation of head of household
 - Number of licensed drivers
 - Level of education of head of household
- 1983 Survey Only:
 - Use of air, rail and intercity bus
 - Number and type of daily household trips

Methodology

Data now collected by the Washington State Department of Transportation and numerous federal, state and local agencies were reviewed to determine whether planning and programming needs could be adequately served by existing data. Deficiencies in the data for multi-modal planning were identified. Data regarding the following transportation systems, policies or operations were determined to be of special importance:

- Adjustments people had made or were planning to make because of changing transportation conditions;
- Amount of travel of various types (work, local non-work related, long distance and recreational);
- Use of and attitudes about different transportation modes, including changes made and willingness to make changes;
- Distance, purpose, time and frequency of travel for work, local travel and long distance travel;
- Impact of rising costs upon all forms of travel.

All of these, and numerous other factors, were considered important for planning purposes. However, the primary concern was the existing reliance upon ridership trends of varying degrees of detail and accuracy, and the difficulty relating these trends to pertinent social and economic information. The need identified was to obtain data from a statistically reliable sample of households where both transportation and demographic information could be integrated in a meaningful manner.

Survey Procedures

To obtain as much data as possible for the least cost, various methods of collecting data were examined in some detail. The most complete coverage can be obtained by personal interviews in the home. However, the cost becomes prohibitive, especially if such an approach were implemented on an ongoing basis. Questionnaires distributed by mail have a low rate of return (5 to 20 percent), the number of questions that can be asked are limited, and there is no way of controlling who answers the questionnaire. Telephone surveys likewise have limitations, but the desired number of people can be contacted by trained interviewers for relatively long periods (15 to 25 minutes), and a great deal of data can be obtained for one-third the cost of personal interviews.

To achieve the objectives of the study, the telephone survey method was selected. For the 1980 survey, a sample of 2,500 households was selected by a random computer search of telephone numbers within the state. Metropolitan, urban and rural areas were included so the sample would be representative of the entire state. The sample chosen was sufficiently large so that a 95 percent confidence level with a margin of error of five points could be achieved for each area included in the survey.

Questions to be included in the survey were prepared by the staff of the State Planning Office of the Department of Transportation (WSDOT). The services of the GMA Research Corporation of Bellevue, Washington, a professional survey research firm that uses telephone interviews extensively, were obtained to place questions in appropriate format for telephone survey, pre-test the questionnaire, conduct the interviews, and perform a quality edit of the interviews.

The survey was conducted in June and July, 1980. Respondents were screened to ensure that an adult head of household was answering questions. No household member 18 years of age or less was interviewed. The sample was controlled to obtain responses from an equal number of males and females. In total, 50.6 percent of the respondents were women and 49.4 percent were men. The survey results were analyzed and the findings published in 1981.

The second phase of the study included revising the questionnaire and modifying the sampling process to increase cost-effectiveness. Again WSDOT staff prepared a questionnaire which was used by GMA Research to conduct telephone interviews. A total of 2,000 households in all metropolitan, urban and rural areas of the state were contacted in March of 1983, with only household members 18 years or older being interviewed. All together, 50.1 percent of the respondents were women and 49.9 percent men, closely paralleling the 1980 survey. As both surveys were based on random samples at a 95 percent confidence level, they can statistically be treated as equals and the results compared.

The telephone interview, as a technique for obtaining information on changing transportation demands in the state of Washington, demonstrated that a great deal of data for various geographical areas of the state and each of the transportation modes can be obtained quite economically. The response rate was very high, and those providing data did so quite willingly for interviews averaging 15 minutes. The answers received indicated the respondents had given rather detailed consideration to their travel needs, changes in mode and future plans for coping with higher transportation costs. The fact that this information can be utilized not only on a statewide basis, but also on the local level by such agencies as metropolitan planning organizations, serves to enhance its value.

Recommendation and Implementation

A careful review of planning information now available and discussions with persons responsible for metropolitan and statewide transportation indicate that a need exists to obtain more meaningful transportation data on an ongoing basis. This data should be relevant to all of the transportation modes and be more closely related to pertinent economic, land use and social information. To achieve these objectives, the following recommendations should be implemented:

- An effective and inexpensive multi-modal data collection system should be initiated to supplement existing travel trend and operational data. Such a system should bring together information about travel requirements, modes available and used, planning data (trip purpose, time and distance), public opinions and basic socioeconomic information.
- A telephone survey of a statistically reliable sample of residents in metropolitan, urban and rural areas is an efficient and comparatively economical way of collecting desired information. Such a survey of households can generate a sizeable amount of data that can be used statewide and in specific areas. The size of the sample should be sufficiently large enough to establish a 95 percent confidence level in each of the metropolitan planning organizations of the state and selected smaller urban and rural areas.
- To achieve the greatest use of the survey, it should be somewhat different than the survey conducted as a part of this project. This study served to determine what types of information are most useful as well as factors that yielded very little worthwhile data. The survey can be more useful if greater emphasis is placed upon current travel behavior, specific data desired by planners in making forecasts, the perceived needs of those interviewed and improvements to the various transportation systems.
- To provide information that will be most useful, needs of various organizations such as the planning and programming units within WSDOT, metropolitan planning organizations and local governments should be obtained by the survey team and included as far as possible.
- The survey sample should be drawn from addresses to pinpoint specific locations. This provides origin and destination information and serves as a guide in determining whether the sample is representative. Interviews should be conducted by a professional survey research firm.

- It is recommended that a statewide telephone survey be conducted biennially. It would be advantageous to conduct such surveys biennially in the year that the Transportation Plan of WSDOT is being updated.

Critique of 1980 and 1983 Surveys

Experience using data derived from both surveys indicates that various changes in the questions included in the survey and in the format of the questionnaire could make the data collected more useful. The major focus upon various types of travel and modes used by households proved to be of value since this data is valuable for planners and decision makers, and is not available elsewhere.

Data users have indicated that they would like an annual or biennial survey that provides more detailed information about basic planning factors such as trip distance, time, location and purpose. These questions were included in the survey for work travel but not for other types of travel. Users have also indicated that if the survey sample were drawn by address instead of telephone numbers, the data could be compiled by local agencies in such a way that useful origin and destination data would be available. These changes would not be difficult to make, but other parts of the survey would have to be altered also if the survey were not to exceed 15 minutes.

Difficulties develop if the survey concentrates on detail in any specific area since its major value is to cover all modes and obtain both user data and opinions about adequacy of systems.

In 1980, the survey respondents were asked to provide information about various aspects of travel to educational institutions by members of the household. The data derived did not prove to be very useful, and hence the 1983 survey eliminated this section.

Questions were also included in the 1980 survey about non-work related "intermediate" travel, trips of less than 200 miles outside of the community in which the respondent resided. These questions were included to gain more information about the frequency of such travel, modes of transportation used and related data. The data collected were of little use because the modes used and

amount of travel is very similar to that reported for local travel. In a state such as Washington, it is difficult for respondents to provide any meaningful information about non-work trips between different areas of the same region.

Data about the following types of travel have proved valuable in both surveys, and it is recommended that future surveys concentrate on these:

- Work travel
- Local non-work travel
- Long distance travel
- Recreational travel

Changes that those persons included in the sample have made and their plans for the future are useful. If a household transportation survey can be conducted each biennium, trends can be established and better projections developed concerning numerous variables affecting total travel behavior of the citizenry.

In reporting changes in the amount, type and frequency of travel and modes used, it is important that the specific before and after situations be documented so comparisons can be made. An effort was made to do this in the 1980 survey but the detailed list of options varied according to the type of travel, and the resulting data were not as useful as they could have been if greater consistency had been structured into the questionnaire. For example, if a person has changed from using a single occupant auto to a vanpool to commute to work in the last two years but plans to use the local transit system in the future, the format of the questionnaire must allow these changes to be followed for specific groups, areas and for any other appropriate factors. Likewise, the types of changes listed must be consistent for comparative purposes. This appears to be simple to achieve but, in reality, requires careful interviewing and detailed attention to data processing problems. The 1983 survey rectified most of these problems.

Questions dealing with use of and support for various forms of public transportation require questions that probe for differences between desire for service and willingness to actually use available facilities and provide financial support. Both surveys achieved this objective for transit, but air, rail and intercity bus travel require more detailed questions than were included in the 1980 survey. A few

additional questions concerning each mode were added to the 1983 survey and proved quite informative.

The demographic information obtained from the survey was extremely useful, allowing the analysis of travel behavior and trends of a specific group rather than using general socioeconomic indicators for the state as a whole. By comparing the demographic information obtained in both surveys with the 1980 census, it was possible to evaluate the sampling processes.

Overall the survey questionnaire has evolved into a valuable means of collecting a great amount of data for numerous planning, administration and policy purposes. Even so, as economic and social conditions change appropriate modifications in future surveys may be desirable.

Benefits Derived from Study

The data derived from the surveys that identify responses of Washington State residents to changing transportation conditions have been used in the preparation of several plans since it has been the only data available that relate specific types of travel, modes used and socio-economic conditions within specific areas. The changes respondents indicated they had made and their future plans were useful in assessing modal usage, determining the impacts of price increases upon transportation systems and relating socio-economic trends more specifically to transportation.

Literature Review

Two very different subjects of research provide background for this study. First, the public response to rising transportation costs and energy shortages, and second, the use of survey research, particularly in transportation planning.

Rising Transportation Costs and Energy Shortages. Various studies have been undertaken concerning the impact of rising energy costs and shortages on travel behavior. Due to the relative newness of this subject and the scope of previous studies, there is little to compare this effort with. Most of the studies have been undertaken during or following a period of energy shortages.

One of the first studies on the subject was based upon a survey of persons residing in three small cities in New York State. The report of that study on individual travel behavior concluded that the energy crisis of 1973-74 did not induce significant long-term changes in the travel habits of most people.¹

In general, the other studies made with respect to the 1973-74 energy crisis made similar conclusions. At issue is the extent to which current conditions differ from periods of energy shortages. Studies similar to those in New York have been undertaken in other jurisdictions. Selected references to such studies are listed in the bibliography.

A more recent study (December 1979) in New York State included a survey of household contingency plans in response to rising gasoline prices.² The survey question covered (a) actions taken already, (b) actions taken with gas at \$1.50/gallon and (c) actions taken with 20 percent less gas. The study concluded that:

The primary focus of the public's conservation efforts so far is small, unobtrusive, frequently taken actions which can generally be classified as being trip planning and more efficient use of the vehicle.

Studies that deal with long-term effects of rising transportation costs have been limited and are difficult to isolate from other documents which deal with the broader subject of energy shortages and related national problems.

¹Keck, C. A. et al., Changes in Individual Travel Behavior During the Energy Crisis, 1973-74, Preliminary Research Report 67. New York Department of Transportation, Albany, New York, August, 1974.

²Hartgen, David T. et al., Changes in Travel Response to the 1979 Energy Crisis, Preliminary Research Report 170. Planning Research Unit, New York State Department of Transportation, Albany, New York, 1979.

Trent and Pollard³ differed in that their study found that most respondents either drove less or adopted other strategies for reducing travel costs. Their study involved a series of surveys, 1975, 1976, and 1980, in which many of the same respondents were included in two or three of the surveys in the series. The Trent and Pollard study was undertaken in an Appalachian city of about 38,000 population. As they state:

In rural areas and small towns, driving less may be the best option for many customers who cannot find alternative means for essential work and shopping trips.

Meyers⁴ found that willingness to conserve gasoline was generally independent from travel behavior, demographic characteristics and attitudes toward energy conservation. Those who reported being most willing to conserve gasoline had (a) the least to lose if gasoline supplies were curtailed, (b) the most flexibility in their travel behavior, and (c) the most additional service options available to them.

Survey Research. The literature abounds with published reports on the general subject of surveys. However, recent studies dealing more specifically with the application of surveys in transportation planning are relatively few in number.

A computer search of the Transportation Research Information Service (TRIS) file brought forth only seven references. Of these, three deal primarily with surveys as a technique for providing citizen participation.

³Trent, Roger B., and Pollard, Cecil R., Individual Response to Rising Gasoline Prices: A Panel Approach. Unpublished report submitted to the Transportation Research Board, Washington, D.C., August, 1981.

⁴Meyers, C. E., Factors Affecting Willingness to Conserve Gasoline, Preliminary Research Report No. 167. New York State Department of Transportation, Albany, New York, August, 1979.

Ugolik and Kighton⁵ have demonstrated the use of survey techniques for estimating rural transit demand. A survey (of 339 households in Oneonta, NY; population 1,000) presented three public transportation options with questions regarding possible use of service at different fare and service levels. From the survey data, matrices relating potential ridership to fare, service levels, and travel flexibility were developed for each option.

Pulliam, et al.⁶ used a mail questionnaire to obtain public perception of values critical to transportation in a Maryland suburb of Washington, D.C. Hatfield and Guseman⁷ made an analysis of various methods of market research for transit systems including surveys, field observations and analysis of data from published sources.

An earlier publication of the Washington State Department of Transportation⁸, provides guidelines for conducting surveys. The emphasis in that study is on the design and conduct of surveys. However, it also includes a discussion of various types of surveys including their comparative advantages and disadvantages. In this regard, Hatfield and Guseman also compare mail questionnaires, telephone and on-board personal interviews in planning and transit. Their conclusions with regard to telephone surveys are similar.

⁵Ugolick, W. R., and Kighton, R. G., Estimating the Effects of Alternative Service Levels of Rural Transit Ridership. New York State Department of Planning, Research Unit, Albany, New York, August, 1978.

⁶Pulliam, R.; Pain, R. F.; Shaffer, M. T. and D'Ignazio, J. L., Survey to Assess Public Perception of Values Critical to Transportation Planning, Transportation Research Record No. 617, pp. 13-18, Washington, D.C., 1976.

⁷Hatfield, N. J. and Guseman, P. K., Basic Market Research Techniques for Transit Systems, Texas Transportation Institute, Texas A & M University, College Station, 1978.

⁸Guidelines for Conducting Surveys Concerning Transportation, Washington State Department of Transportation, Social and Economic Planning Section, Olympia, 1975.

A more recent publication authored by Cornog⁹ provides a more extensive source book for the design and conduct of all three types of surveys, personal interview, telephone interview and mail questionnaire.

Additional studies reviewed are cited in the bibliography.

⁹Cornog, June, Social Impact Assessment: A Source Book for Highway Planners, Vol. VI Development and Administration of Community Surveys, June 1982, Final Report, Report No. FHWA/RD-81/029. U.S. Department of Transportation, Federal Highway Administration, Office of Research and Development, Environmental Division, Washington, D.C., 1982.

SELECTED BIBLIOGRAPHY

American Bus Association, America's Most Fuel Efficient Transportation Service. The 1981 Report, Washington, D.C.

Asin, Ruth H., Characteristics of 1977 Licensed Drivers and Their Travel, Report 1, 1977 Nationwide Personal Transportation Study. Federal Highway Administration, Washington, D.C., October 1980.

Boyle, Daniel, Transit Use and Energy Crises: Experience and Possibilities. Transportation Research Record No. 870, pp. 16-21. Transportation Research Board Publications, Washington, D.C., 1982.

Brog, W.; Erhard, E.; Meyburg, A.; and Wermuth, M., Problems of Nonreported Trips in Surveys of Nonhome Activity Patterns, Transportation Research Record No. 891, pp. 1-5. Transportation Research Board Publications, Washington D.C., 1982.

California Department of Transportation. Effects of the Current Fuel Shortage in California: Travel and Related Factors, Report 3. Sacramento, California, September 1979.

Cornog, June, Social Impact Assessment: A Source Book for Highway Planners, Vol. VI Development and Administration of Community Surveys, June 1982, Final Report, Report No. FHWA/RD-81/029. U.S. Department of Transportation, Federal Highway Administration, Office of Research and Development, Environmental Division, Washington, D.C., 1982.

Corsi, T. M. and Harvey, M. E., Transportation Research Board. Energy Crisis Travel Behavior and the Transportation Planning Process, Transportation Research Record No. 648. Washington, D.C., 1977.

Crossley Surveys, Inc., Travel Behavior and Fuel Constraints. Crossley Empire State Poll, New York, October 1979.

Erlbaum, N. S., et al., Automotive Energy Forecasts: Impact of Carpooling, Trip Chaining, and Auto Ownership, Preliminary Research Report No. 137. New York State Department of Transportation, Albany, New York, December 1977.

Guidelines for Conducting Surveys Concerning Transportation. Washington State Department of Transportation, Social and Economic Planning Section, Olympia, Washington, 1975.

Hamstra, T. and Motoyoshi, P., Changes in Recreational Travel in Washington State. Washington State Department of Transportation, Olympia, Washington, November 1982.

Hartgen, D. T., Applications of Behavioral Sciences to Issues in Transportation Planning, Preliminary Research Report No. 148. New York State Department of Transportation, Albany, New York, November 1978.

Hartgen, D. T., et al., Changes in Travel Response to the 1979 Energy Crisis, Preliminary Research Report No. 170. New York State Department of Transportation, Albany, New York, December 1979.

Hartgen, D. T., Individual Travel Behavior Under Energy Constraints, Preliminary Research Report No. 86. New York State Department of Transportation, Albany, New York, July 1975.

Hartgen, D. T., Long-Range Transportation Planning Under Energy Constraints: A Critical Review of Current Capability, Preliminary Research Report No. 87. New York State Department of Transportation, Albany, New York, July 1975.

Hatfield, N. J. and Guseman, P. K., Basic Market Research Techniques for Transit Systems. Texas Transportation Institute, Texas A & M University, College Station, Texas, 1978.

Keck, C. A. et al., Changes in Individual Travel Behavior During the Energy Crisis, 1973-74, Preliminary Research Report No. 67. New York State Department of Transportation, Albany, New York, August 1974.

Klinger, D.; Kuzmyak, J.R.; and Liss, S., Household Travel, Report 9, 1977 Nationwide Personal Transportation Study. Federal Highway Administration, Washington, D.C., July 1982.

Kuzmyak, J. R., Household Vehicle Ownership, Report 2, 1977 Nationwide Personal Transportation Study. Federal Highway Administration, Washington, D.C., December 1980.

Meyers, C. E., Factors Affecting Willingness to Conserve Gasoline, Preliminary Research Report No. 167. New York State Department of Transportation, Albany, New York, July 1979.

Neveu, A. J., The '73-'74 Energy Crisis: Impact on Travel, Preliminary Research Report No. 131. New York State Department of Transportation, Albany, New York, December 1977.

Organization for Economic Cooperation and Development, Research Group, Energy Problems and Urban and Suburban Transport, Paris, France, December 1977.

Phifer, S. P., Family Reactions to Energy Constraints, Preliminary Research Report No. 161. New York State Department of Transportation, Albany, New York, August 1979.

Pulliam, R.; Pain, R. F.; Shaffer, M. T.; D'Ignazio, J. L., Survey to Assess Public Perception of Values Critical to Transportation Planning. Transportation Research Record No. 617, pp. 13-18. Transportation Research Board Publications, Washington, D.C., 1976.

Regional Plan Association, The Last Gas Crisis: How it Affected Travel. Washington, D.C., November 13, 1979.

Roskin, Mark E., Purposes of Vehicle Trips and Travel, Report 3, 1977 National Personal Transportation Study. Federal Highway Administration, Washington, D.C., 1980.

Secretary of Transportation, Intercity Bus Service in Small Communities. U.S. Department of Transportation, Washington, D.C.

Sossiau, A., Home-to-Work Trips and Travel, Report 4, 1977 National Personal Transportation Study. Federal Highway Administration, Washington, D.C., December 1980.

Stopher, P.; and Sheskin, I., Toward Improved Collection of 24-H Travel Records. Transportation Research Record No. 891, pp. 10-17. Transportation Research Board Publications, Washington, D.C.

Trent, Roger B., and Pollard, Cecil R., Individual Response to Rising Gasoline Prices: A Panel Approach. Unpublished report submitted to the Transportation Research Board, Washington, D.C., August 1981.

Ugolik, W. R. and Knighton, R. G. Estimating the Effects of Alternate Service Levels on Rural Transit Ridership. New York State Department of Transportation, Planning Research Unit, Albany, New York, 1978.

Yamane, Taro, Statistics, An Introductory Analysis, 3rd Edition, Harper & Row, New York, 1973.

TRAVEL TRENDS IN THE STATE OF WASHINGTON

Before examining the facts and opinions provided by the citizens in the interviews, it is helpful to review travel trends by various modes of transportation in recent years. Such data is available for the number of vehicle miles driven and the persons using public transit systems, AMTRAK rail passenger service, the Washington State Ferry System, intercity bus systems, the four major airports in the state, as well as new automobile and total vehicle registrations.

Local Public Transit

In 1982, public transit ridership declined for the first time in a decade even though the number of operating transit systems increased from 14 in 1978 to 20 in 1982. However, the major growth in ridership prior to 1982 has not resulted from new systems being developed. Rather, an increase in use of the existing systems accounted for this trend. Though ridership did decline slightly in 1982, for the entire period from 1978 to 1982, transit patronage increased nearly 43 percent.

TABLE 1
LOCAL TRANSIT RIDERSHIP
1978 - 1982

		<u>Percent Change</u>
1978	68,493,569	1978-1979 +20.4
1979	82,454,705	1979-1980 +14.3
1980	94,008,954	1980-1981 +4.6
1981	98,331,752	1981-1982 -0.4
1982	97,894,585	1978-1982 +42.9

Seattle METRO accounts for the largest share of transit riders, comprising 72.2 percent of the total for 1978, 70.3 percent for 1980 and 64.9 percent for 1982. When this system's figures are excluded, the remaining transit systems show yearly increases averaging 16 percent between 1978 and 1982.

Rail Travel

Currently, there are four AMTRAK routes providing service in Washington. Three of these connect Seattle with Portland and another operates between Seattle and Spokane via Wenatchee and Pasco.

In the period from 1978 to 1981, ridership on these AMTRAK routes increased 16 percent, largely because of major increases in passengers in 1979. The discontinuance of the route from Seattle to Vancouver, B.C. in October 1981 affected ridership totals for 1982, helping to account for the nearly 35 percent decrease compared to 1981. For the four routes in continuous service since 1980, passenger totals declined 11.5 percent in 1982 compared to 1981.

TABLE 2
TOTAL AMTRAK PASSENGERS ON AND OFF IN WASHINGTON STATE
1978-1982

		<u>Percent Change</u>	
1978	592,369	1978-1979	+11.2
1979	658,726	1979-1980	+2.0
1980	672,078	1980-1981	+2.6
1981	689,322	1981-1982	-34.7
1982	450,319	1978-1982	-24.0

Washington State Ferry System

Ferry ridership grew rapidly from 1972 to 1978, with annual growth rates of up to 12 percent per year. The growth trend continued until the Hood Canal Bridge sank in February 1979. The result was a substantial drop in cross-sound vehicle travel, affecting mainly the Winslow and Kingston routes. A year later, a decrease occurred in the normal summer influx of tourists into the region. Contributing factors may have been the eruption of Mount St. Helens, national economic conditions and higher travel costs. Vehicle traffic has continued to decline since 1978, while passenger levels have hovered at about the 1978 levels.

TABLE 3

WASHINGTON STATE FERRY SYSTEM
VEHICLES AND PASSENGERS CARRIED

	<u>Vehicles</u>	<u>Percent Change</u>	<u>Passengers</u>	<u>Percent Change</u>
1978	7,367,677	1978-1979 -2.7	10,221,676	1978-1979 +5.3
1979	7,167,056	1979-1980 -7.5	10,762,440	1979-1980 -5.5
1980	6,629,766	1980-1981 -5.1	10,165,869	1980-1981 +0.6
1981	6,292,613	1981-1982 -0.7	10,230,295	1981-1982 -2.0
1982	6,245,547	1978-1982 -15.2	10,027,868	1978-1982 -1.9

Air Travel

Throughout the decade of the seventies, passenger air travel in Washington State grew at the average rate of 6 percent per year. Between 1978 and 1979, the overall number of passengers using certificated airlines at the two major airports in the state increased 17.1 percent. This trend came to an abrupt halt in 1980, however. Total air travel decreased that year 7.4 percent, followed by a 2.5 decrease in 1981. Spokane International Airport showed decreases of 14 percent for both years, while Seattle-Tacoma International Airport declined 6.4 percent and 0.8 percent. In 1982, air travel began to increase again. Total passengers increased 1.3 percent, with Sea-Tac posting a 1.8 percent increase, while Spokane declined 2.6 percent.

TABLE 4

TOTAL PASSENGERS ON AND OFF
FOR THE CERTIFICATED AIRLINES
AT SEA-TAC AND SPOKANE AIRPORTS

		<u>Percent Change</u>
1978	9,730,346	1978-1979 +17.1
1979	11,399,347	1979-1980 -7.4
1980	10,553,063	1980-1981 -2.5
1981	10,284,399	1981-1982 +1.3
1982	10,414,623	1978-1982 +7.0

Intercity Bus

In many areas of the state, intercity buses are the only travel alternative to the private automobile. Due to varying reporting requirements, it is virtually impossible to get ridership data for all intercity bus companies operating in Washington State. Greyhound and Trailways file reports which cover all of their systems' activities, not just those in Washington. Thus, the data contained in this report does not include these two lines. The other companies that provide service have experienced both growth and decline. From 1974 to 1977, there was an average decrease of 21.5 percent per year in patronage. Since then, however, ridership has increased an average of 14 percent a year from 1978 to 1981.

TABLE 5

INTERCITY BUS RIDERSHIP FOR CARRIERS OPERATING SOLELY IN WASHINGTON STATE

		<u>Percent Change</u>	
1978	558,230	1978-1979	+32.7
1979	740,730	1979-1980	+4.8
1980	776,087	1980-1981	+2.7
1981	797,007	1978-1981	+42.8
1982	Data Not Available		

Vehicle Miles of Travel

Data compiled by WSDOT indicates that annual vehicle travel, after decreasing 2.3 percent from 1978 to 1980, has increased 5.8 percent between 1980 and 1982.

TABLE 6
VEHICLES MILES OF TRAVEL IN
WASHINGTON STATE
(BILLIONS)

		<u>Percent Change</u>	
1978	29.378	1978-1979	-0.9
1979	29.122	1979-1980	-1.5
1980	28.696	1980-1981	+5.7
1981	30.346	1981-1982	+0.02
1982	30.353	1978-1982	+3.3

New Automobile Registration

During the last five years, the percentage of smaller cars registered has increased in relation to full size cars. Nonetheless, total registrations for both categories have declined steadily during the same period.

TABLE 7
NEW AUTOMOBILE REGISTRATIONS BY SIZE

	<u>Small Cars</u> ^{1/}	<u>Percent of Total</u>	<u>Percent Change</u>		<u>Standard Cars</u> ^{2/}	<u>Percent of Total</u>	<u>Percent Change</u>	
1978	113,781	68	1978-1979	+8.4	53,893	32	1978-1979	-20.0
1979	123,294	74	1979-1980	-9.2	43,123	26	1979-1980	-34.3
1980	111,946	80	1980-1981	-9.7	28,331	20	1980-1981	-16.3
1981	101,119	81	1981-1982	-15.4	23,719	19	1981-1982	-32.1
1982	85,550	84	1978-1982	-24.8	16,100	16	1978-1982	-70.1

^{1/} Includes subcompacts, compacts and imports.

^{2/} Includes intermediates, large and luxury cars.

Total Vehicle Registration

The total number of registered automobiles and pickup trucks increased yearly from 1978 to 1981 before declining 3 percent in 1982. Overall, registrations are up 9.5 percent from 1978 to 1982.

TABLE 8
ESTIMATED VEHICLE REGISTRATIONS
(AUTOMOBILES AND PICKUPS)

		<u>Percent Change</u>
1978	2,822,640	1978-1979 +5.8
1979	2,987,055	1979-1980 +3.2
1980	3,082,429	1980-1981 +3.4
1981	3,186,459	1981-1982 -3.0
1982	3,091,382	1978-1982 +9.5

WORK RELATED TRAVEL

In planning and designing transportation systems, the major problem in many areas is to provide the type and amount of service required to transport people to and from work. Nearly 79 percent of the 2,000 households included in the 1983 survey had one or more family members employed outside of the home, compared with 76 percent of respondent households in the 1980 survey. Hence, their current work travel behavior and changes they have made, and are expecting to make, are increasingly important in planning statewide systems. The responses to the questions asked of those interviewed provided valuable insight concerning the adjustment workers have made to cope with changing transportation conditions. Responses to questions included in the 1980 and 1983 surveys are summarized below, followed by more detailed data derived from the 1983 survey. The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages, August 1981.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
1. Percent of households with at least one family member who works outside the home:	76.5	78.7	+2.2
2. Present form of transportation used for work travel by percent:			
Drive Vehicle Alone	77.9	73.8	-4.1
Ridesharing	11.1	16.6	+5.5
Share vehicle with 1 other	(NA)	(10.7)	
Carpool-Vanpool 3 or more	(11.1)*	(5.9)	
Local Transit Bus	4.8	5.3	+0.5
Motorcycle	1.3	0.6	-0.7
Bicycle	1.3	0.4	-0.9
Other	3.6	3.3	-0.3

*1980 survey did not differentiate between carpools of 3 or more persons and vehicles shared with 1 other.

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
3. Average commute time to work:	19.6 minutes	20.4 minutes	+0.8
4. Percent who live within 20 minutes of work:	69.9	67.6	-2.3
5. Average travel distance to work:	10.1 miles	11.9 miles	+1.8
6. Percent who live within 10 miles of work:	60.8	61.5	+0.7
7. Percent planning to move closer to work:	4.9	5.7	+0.8
8. Percent who indicated they had changed their form of work travel in the past two years:	20.7	13.2	-7.5
9. Percent who plan to change their form of work travel:	22.6	9.4	-13.2
10. Reasons mentioned most often by respondents for changing form of work travel by percent:			
Cost of Fuel	36.4	20.0	-16.4
Moved	12.3	8.1	-4.2
Changed Job	8.2	19.5	+11.3
Cost of Vehicle	8.0	12.4	+4.4
Needed New Vehicle	6.2	19.5	+13.3

Summary

Travel to and from work can often provide commuters the opportunity to experiment with different forms of transportation. While fixed work hours and job locations offer little day-to-day choice when and where trips must be taken, it is this predictability that allows many workers to adopt more cost-effective means such as ridesharing. Efforts have been undertaken in Washington State to promote more fuel efficient means of commuting such as car and vanpooling to conserve energy and money, and reduce traffic congestion. Even though gasoline prices began declining in 1982, overall inflationary pressures and the impact of the recession have necessitated many commuters to seek cheaper means of travel. These factors are quite apparent when one compares the responses from the work travel sections of the 1980 and 1983 surveys.

- While the single-occupant vehicle remains the prime commute choice for approximately three-fourths of the 1983 respondents, use of this type of transportation has declined during the past three years. During the same period, there has been a 50 percent increase in the number of 1983 respondents who rideshare to work compared to their 1980 counterparts. Since both the 1980 and 1983 surveys are representative of the total households of the state, the 50 percent increase in ridesharing can reflect the total number of additional households in Washington State that are now ridesharing. The implications are extremely important since workers from approximately 51,000 more households are using some form of ridesharing to commute to work in 1983 compared with 1980. Likewise, the 10 percent increase in transit usage translates to more than 4,600 additional households in 1983 taking transit to work than in 1980.
- The 1983 respondents are more reluctant to change their form of work travel than those in 1980, both in terms of their actions the past two years and their plans for the future. Thirty-six percent fewer households in 1983 indicated they have changed their form of work travel in the past two years and 60 percent fewer expect to change their mode in the future.
- In the 1980 survey, nearly one-fourth of the respondents indicated that they intended to change their form of work travel in the future. However, in

1983, 13 percent of those interviewed said they had actually changed their form of work travel in the past two years. When the transportation conditions present in 1980, namely rapidly escalating fuel prices and potential energy shortages, are compared to events that actually occurred after the 1980 survey was taken, the decreased amount of change reflected in the responses of the 1983 survey is understandable. When the 1980 survey was taken, fuel prices had been extremely volatile. Fully one-fourth of those who said they had already changed their form of work travel in the past expected to do so again in the future. And the major reason they gave for this was the cost of fuel. In the months immediately following the June 1980 survey, however, the price of gasoline stabilized and did not increase appreciably again until February of 1981. This leveling off of what had been rapidly increasing fuel prices could explain why many of the 1980 respondents chose not to change their form of work travel.

- In 1980 slightly more respondents indicated plans to change their form of work travel in the future than those who had made similar changes in the past two years, but the reverse is true in the 1983 survey. Less than 10 percent of the 1983 respondents anticipate any future changes in their form of work travel.
- The reasons given by those who changed their form of work travel in the two years prior to 1983 as compared with the two years prior to 1980 are markedly different. As can be expected, the cost of fuel plays a much smaller role in determining if and what change took place for the 1983 respondents. Of much greater importance are changes in job location and the need to replace an older vehicle with a newer one.

More detailed results of the 1983 survey concerning work travel are listed below. The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

Results of 1983 Survey*

WORK TRAVEL FORM OF TRANSPORTATION

The most commonly used form of travel to work continues to be the single-occupant, private automobile, with this mode used by 73.8 percent of the respondents. The 1983 survey differentiated between sharing the ride with one other person and organized car or vanpools of three or more people--a distinction not made in the 1980 survey. More than 16 percent of the 1983 respondents use some form of ridesharing for their travel to work.

When persons residing in those areas that do not have local transit systems are excluded, the distribution varies only slightly. In those areas where it is present, transit is used by 7.6 percent of the workers for travel to their place of employment.

TABLE 9
WORK TRAVEL FORM OF TRANSPORTATION
(PERCENT)

	Statewide	Areas with Transit
Drive Vehicle Alone	73.8	73.9
Ridesharing	16.6	14.7
Share Vehicle With 1 Other Person	(10.7)	(9.6)
Carpool-Vanpool 3 or More Persons	(5.9)	(5.1)
Local Transit	5.3	7.6
Motorcycle	0.6	0.6
Moped	0.7	0.0
Bicycle	0.4	0.5
Other	2.6	2.7

*A more detailed discussion of the results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

Effect of Time and Distance on Work Travel Form of Transportation. The average commute time for workers surveyed in 1983 is slightly more than 20 minutes, while the average distance (one way) from home to work is 11.9 miles. This compares with averages of 19.6 minutes and 10.1 miles in the 1980 survey.

TABLE 10
 WORK TRAVEL TIME AND DISTANCE
 (PERCENT)

<u>Time</u>		<u>Distance</u>	
10 minutes or less	34.8	Less than 1 mile	5.3
11 to 20 minutes	32.8	1 to 2 miles	11.4
21 to 30 minutes	17.2	3 to 4 miles	13.0
31 to 40 minutes	5.5	5 to 6 miles	12.7
41 to 50 minutes	5.2	7 to 8 miles	8.9
51 to 60 minutes	2.8	9 to 10 miles	10.3
Over 1 hour	1.7	11 to 15 miles	15.1
		16 to 20 miles	9.3
		21 to 30 miles	7.5
		Over 30 miles	6.5

When these two factors are cross tabulated with the type of transportation used for work travel, the private auto is still used most regardless of the amount of time or distance. However, as the time required to travel to work increases, there is a decrease in the percent of people who drive alone to work, and an increase in those who rideshare or take the bus. This relationship is also present when travel distances to work exceed 20 miles.

TABLE 11
 WORK TRAVEL FORM OF TRANSPORTATION BY WORK TRAVEL
 TIME AND DISTANCE

(ROW PERCENT)

	Travel Form of Transportation				
	Drive Alone	Share Vehicle	Carpool- Vanpool	Local Transit	Other
<u>Overall Sample</u>	73.8	10.7	5.9	5.3	4.3
<u>Travel Time</u>					
Less than 10 minutes	81.5	7.8	2.6	1.1	7.0
11-20 minutes	75.8	12.6	5.5	3.7	2.4
21-30 minutes	69.8	11.6	5.2	10.4	3.0
31-40 minutes	61.4	6.8	13.6	14.8	3.4
41-50 minutes	51.8	19.7	11.1	11.1	6.3
51-60 minutes	58.1	8.8	21.4	11.6	0.1
Over 1 hour	53.8	0	26.9	15.4	3.9
<u>Travel Distance</u>					
Less than 1 mile	49.4	8.6	1.2	1.2	39.6*
1 to 2 miles	79.5	5.7	2.8	2.8	9.2
3 to 4 miles	81.1	7.5	1.5	8.0	1.9
5 to 6 miles	76.8	13.6	3.5	5.0	1.1
7 to 8 miles	78.8	12.4	0.7	6.6	1.5
9 to 10 miles	79.0	12.3	2.5	6.2	0
11 to 15 miles	71.5	12.8	8.9	6.0	0.8
16 to 20 miles	74.5	11.0	8.3	4.1	2.1
21 to 30 miles	65.5	12.1	14.7	6.0	1.7
Over 30 miles	63.7	8.8	20.6	3.9	3.0

*Includes 34.6 percent who walk.

When asked if they planned moving closer to their place of employment in the next 12 months, 5.7 percent of the 1983 respondents said yes, compared to 4.9 percent in 1980. It appears that the vast majority of respondents have not moved or do not plan to move regardless of the time, distance and cost involved in commuting. Only when travel times exceed one hour and travel distances are more than 30 miles does the percent planning to move increase significantly over the total sample.

Effect of Income and Age on Work Travel Form. Beside time and distance, two other factors which determine the type of transportation used for work travel are income and age. Lower income households show a slightly higher percentage of people using public transit or ridesharing than is found in the overall sample. Conversely, higher income groups are more apt to drive alone to work. Younger commuters show more of a tendency to rideshare than the overall sample, while those 65 years of age or older are most likely to drive alone to work.

TABLE 12
 WORK TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE
 (ROW PERCENT)

	Travel Form				
	Drive Alone	Share Vehicle	Carpool- Vanpool	Local Transit	Other
<u>Overall Sample</u>	73.8	10.7	5.9	5.3	4.3
<u>Income</u>					
Under \$10,000	66.0	12.6	4.8	8.7	7.9
\$10,000-\$14,999	70.1	10.8	5.1	8.3	5.7
\$15,000-\$19,999	72.7	12.0	6.6	5.5	3.2
\$20,000-\$24,999	75.2	7.6	5.7	7.6	3.9
\$25,000-\$29,999	68.0	15.0	7.7	4.6	4.7
\$30,000-\$49,999	77.5	8.2	5.5	4.7	4.1
\$50,000 or Over	83.0	11.1	2.2	0.7	3.0
<u>Age</u>					
18-24	65.0	14.3	7.9	6.4	6.4
25-34	70.0	11.3	8.3	5.9	4.5
35-44	77.3	11.0	3.3	5.7	2.7
45-54	76.6	10.6	4.8	3.4	4.6
55-64	74.2	9.3	6.4	4.4	5.7
65 or Over	86.6	3.0	4.5	4.5	1.4

CHANGES IN WORK TRAVEL FORM

In 1980, 20.7 percent of the households sampled indicated they had changed the type of transportation used for work travel in the last two years. This figure decreased to 13.2 percent in the 1983 survey. Of this group in the 1983 survey, 58.5 percent currently drive alone to work, 18 percent rideshare and 13.2 percent use local transit.

TABLE 13
 PREVIOUS AND PRESENT WORK TRAVEL FORM OF TRANSPORTATION
 FOR THOSE RESPONDENTS WHO HAVE CHANGED
 (COLUMN PERCENT)

	<u>Previous Form</u>	<u>Present Form</u>
Drive Alone	47.1	58.5
Share Vehicle	11.5	10.7
Carpool-Vanpool	8.2	7.3
Local Transit	17.8	13.2
Motorcycle	2.4	1.9
Bicycle	2.9	1.5
Walk	8.2	1.5
Other	1.9	1.0

More than 9 percent of the 1983 respondents indicated they plan to change their form of transportation to and from work. This compares with 22.6 percent in the 1980 survey. Of this 9 percent who anticipate a change, 67.6 percent currently drive alone and 11.5 percent share their vehicle with one other person. If the respondents carry out their intended plans, there will be a reduction in automobile use and greater reliance on local transit for work travel.

TABLE 14
PRESENT AND FUTURE WORK TRAVEL FORM OF TRANSPORTATION
FOR THOSE RESPONDENTS ANTICIPATING A CHANGE

(COLUMN PERCENT)

	<u>Present Form</u>	<u>Future Form</u>
Drive Alone	67.6	27.7
Share Vehicle	11.5	6.7
Carpool-Vanpool	7.4	6.7
Local Transit	9.5	24.3
Motorcycle	1.3	12.2
Bicycle	0	11.5
Walk	2.7	6.8
Other	0	4.1

Effect of Travel Time and Distance on Changes in Work Travel Form. Generally speaking, those persons who spend longer periods of time getting to work are more likely to have changed their form of transportation in the last two years. When the travel time required to get to work exceeds one hour, there is a marked increase in the number of persons who have changed their form of travel when compared with the overall survey sample.

When travel distance is the influence, the relationship is not as clear cut. Only for distances less than a mile and over 30 miles does the number of persons who have changed their form of work travel differ significantly from the total sample.

TABLE 15
 TRAVEL TIME AND DISTANCE TO WORK
 COMPARED WITH WHETHER WORK TRAVEL FORM OF TRANSPORTATION
 HAS CHANGED IN THE PAST TWO YEARS

(ROW PERCENT)

	Work Travel Form Changed		
	Yes	No	Don't Know
<u>Overall Sample</u>	13.2	86.5	0.3
<u>Time</u>			
Less than 10 minutes	13.3	86.5	0.2
11-20	13.7	85.9	0.4
21-30	12.0	87.6	0.4
31-40	9.3	90.7	0
41-50	14.8	85.2	0
51-60	9.3	90.7	0
Over 1 hour	30.8	69.2	0
<u>Travel Distance</u>			
Less than 1 mile	20.7	79.3	0
1 to 2 miles	13.6	86.4	0
3 to 4 miles	16.4	83.6	0
5 to 6 miles	13.7	85.3	1.0
7 to 8 miles	8.0	92.0	0
9 to 10 miles	11.3	88.1	0.6
11 to 15 miles	15.4	84.2	0.4
16 to 20 miles	7.6	92.4	0
21 to 30 miles	9.5	90.5	0
Over 30 miles	17.6	82.4	0

Effect of Income and Age on Changes in Work Travel Form. Lower income households (under \$15,000) and workers under 35 years of age have been the most receptive to changing how they travel to work, while those 55 years or older have changed the least.

TABLE 16

INCOME AND AGE COMPARED WITH WHETHER WORK TRAVEL FORM OF
TRANSPORTATION HAS CHANGED IN THE LAST TWO YEARS

(ROW PERCENT)

	Work Travel Form Changed		
	Yes	No	Don't Know
<u>Overall Sample</u>	13.2	86.5	0.3
<u>Income</u>			
Under \$10,000	23.3	75.7	1.0
\$10,000-\$14,999	17.3	82.1	0.6
\$15,000-\$19,999	10.9	89.1	0
\$20,000-\$24,999	10.5	89.5	0
\$25,000-\$29,999	12.5	87.1	0.4
\$30,000-\$49,999	13.8	86.2	0
\$50,000 or Over	9.6	90.4	0
<u>Age</u>			
18-24	21.6	78.4	0
25-34	18.3	81.2	0.4
35-44	12.0	88.0	0
45-54	10.0	90.0	0
55-64	4.9	93.5	1.6
65 or Over	1.5	98.5	0

A larger proportion of low income households and young adults indicate plans to change their form of work travel in the future than is found in the total sample.

TABLE 17
 INCOME AND AGE COMPARED WITH WHETHER WORK TRAVEL FORM OF
 TRANSPORTATION WILL CHANGE IN THE FUTURE

(ROW PERCENT)

	Will Work Travel Form Change		
	Yes	No	Don't Know
<u>Overall Sample</u>	13.2	86.5	0.3
<u>Income</u>			
Under \$10,000	20.4	73.8	5.8
\$10,000-\$14,999	15.4	81.4	3.2
\$15,000-\$19,999	13.1	83.1	3.8
\$20,000-\$24,999	8.1	88.0	3.8
\$25,000-\$29,999	8.1	89.1	2.8
\$30,000-\$49,999	5.8	92.0	2.3
\$50,000 or Over	8.8	91.2	0
<u>Age</u>			
18-24	22.5	73.0	4.5
25-34	11.1	86.2	2.7
35-44	7.3	90.0	2.7
45-54	6.8	91.4	1.7
55-64	5.7	90.7	3.6
65 or Over	0	98.5	1.5

REASONS FOR CHANGES IN WORK TRAVEL FORM OF TRANSPORTATION

If a respondent indicated a change in work travel form had occurred in the last two years, the person being interviewed was asked to give reasons for this change. The responses were grouped into the categories listed below. It is interesting to compare the responses from the 1980 survey with those of 1983. As can be seen, fuel costs are much less of a consideration now than they were in 1980, while a change in job plays a much more significant role. The recent economic recession has no doubt influenced this, leading to a disruption in commuting patterns as workers must often travel farther for available jobs. This is evidenced by the fact

that the average travel distance to work increased nearly two miles in 1983 compared to 1980's results.

TABLE 18
REASONS FOR CHANGING WORK TRAVEL FORM OF TRANSPORTATION
(COLUMN PERCENT)

	<u>1980</u>	<u>1983</u>
Cost of Fuel	36.4	20.0
Moved	12.3	8.1
Changed Job	8.2	19.5
Cost of Vehicle	8.0	12.4
Needed New Vehicle	6.2	19.5
Conserve Energy	4.1	1.9
Bus Available	4.1	1.9
Joined Carpool	2.5	1.4
Use Park-and-Ride	0.2	NA
Other Reasons	17.9	15.2

When the reasons for changing the form of work travel are crosstabulated with the former type of transportation used, it appears that the increased cost of fuel has affected most those who formerly drove alone to work. Conversely, changing jobs has been the major reason why commuters no longer take the bus to work.

TABLE 19
REASONS FOR CHANGING WORK TRAVEL FORM OF TRANSPORTATION
COMPARED WITH PREVIOUS FORM

(ROW PERCENT)

Previous Work Travel Form	Reasons for Changing								
	Cost of Fuel	Bus Avail- able	Changed Job	Use Carpool/ Vanpool	Cost of Vehicle	Con- serve Energy	Moved	Needed New Vehicle	Other
Drive Car Alone	31.3	2.0	10.1	3.0	16.2	3.0	5.1	21.2	8.1
Share Vehicle	25.0	0	25.0	0	12.5	0	0	16.7	20.8
Carpool-Vanpool	11.8	5.9	23.5	0	11.8	0	29.4	11.8	5.9
Local Transit	2.7	0	29.7	0	10.8	2.7	8.1	18.9	27.0
<u>Overall Sample</u>	20.0	1.9	19.5	1.4	12.4	1.9	8.1	19.5	15.2

Effect of Income and Age on Reasons for Changing Work Travel Form of Transportation

Unlike the 1980 survey, when the cost of fuel was a major cause for changing the form of work travel for all income groups, the 1983 results indicate that changes in job and acquisition of new vehicles tend to play a larger role in determining work travel form. The age of the respondents also influences what reasons were mentioned. On the whole, younger adults mentioned the cost of fuel and the need for new vehicles more as reasons than the overall sample, while a change in job becomes more of a factor as age increases.

TABLE 20
 REASONS FOR CHANGING WORK TRAVEL FORM OF
 TRANSPORTATION BY INCOME AND AGE

(ROW PERCENT)

	Reasons for Changing								
	Cost of Fuel	Bus Available	Changed Job	Use Carpool/ Vanpool	Cost of Vehicle	Con-serve Energy	Moved	Needed New Vehicle	Other
<u>Overall Sample</u>	20.0	1.9	19.5	1.4	12.4	1.9	8.1	19.5	15.2
<u>Income</u>									
Under \$10,000	20.8	0	25.0	0	20.8	0	0	16.7	16.7
\$10,000-\$14,999	11.1	0	18.5	0	18.5	3.7	7.4	18.5	22.2
\$15,000-\$19,999	23.8	4.8	19.0	4.8	19.0	0	14.3	9.5	4.8
\$20,000-\$24,999	31.8	4.5	13.6	0	18.2	0	4.5	18.2	9.1
\$25,000-\$29,999	25.8	0	19.4	3.2	0	6.5	12.9	19.4	12.9
\$30,000-\$49,000	19.6	3.6	17.9	1.8	5.4	1.8	12.5	19.6	17.9
\$50,000 or Over	15.4	0	23.1	0	7.7	0	0	23.1	30.8
<u>Age</u>									
18-24	27.3	0	11.4	0	13.6	0	6.8	29.5	11.4
25-34	14.6	3.2	25.2	2.4	13.8	2.4	9.8	16.3	12.2
35-44	22.9	3.3	18.0	3.3	8.2	0	4.9	24.6	14.7
45-54	20.0	0	25.7	0	5.7	0	2.9	22.9	22.9
55-64	8.3	0	25.0	0	0	16.7	16.7	0	33.3
65 or Over*	100.0	0	0	0	0	0	0	0	0

*Note: Only one respondent in this category.

LOCAL TRAVEL

Local non-work related travel constitutes a major proportion of a household's total travel. The amount and type of local travel can vary significantly for a family since the transportation needs of household members can be quite diverse. Such is not the case for work travel, because those who are employed or attending school have little choice when and where trips must be taken. By contrast, local trips made for shopping, business, recreation or other reasons provide greater opportunities for change. Thus, persons who desire to do so can make some adjustments in their local travel habits.

Both the 1980 and 1983 surveys included a series of questions concerning local travel to determine current travel behavior, modes used by household members and changes that have occurred. The importance to transportation systems planning is obvious.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980 - 1983</u> <u>Difference</u>
1. Present local travel form of transportation by percent:			
Auto-Van-Truck	85.8	94.0	+8.2
Local Transit	3.4	3.2	-0.2
Motorcycle	0.6	0.1	-0.5
Bicycle	0.8	0.3	-0.5
Walk	NA	2.0	---
Other	9.4	0.3	-9.1
2. Percent who have changed form of local travel in the past two years:	10.2	6.9	-3.3

	<u>1980</u>	<u>1983</u>	<u>1980 - 1983</u> <u>Difference</u>
3. Reasons mentioned most often by respondents for changing local travel form of transportation by percent:			
Cost of Fuel	59.7	30.3	-29.4
Cost of Vehicle	11.3	7.3	-4.0
Conserve Energy	8.8	0.9	-7.9
Moved	8.8	13.8	+5.0
Convenience of Private Auto	NA	7.3	---
Needed New Vehicle	NA	35.8	---
4. Amount of local travel in past two years by percent:			
Increased	15.3	22.6	+7.3
Decreased	43.5	18.2	-25.3
Remained the Same	41.3	58.8	+17.5
5. Percent who plan to change their form of local travel:	15.9	6.0	-9.9
6. Amount of local travel in future by percent:			
Increase	1.8	11.6	+9.8
Decrease	35.9	9.2	-26.7
Remain the Same	62.3	77.0	+14.7
7. Percent who have increased use of the telephone as a substitute for travel:	50.8	61.9	+11.1

	<u>1980</u>	<u>1983</u>	<u>1980 - 1983</u> <u>Difference</u>
8. Percent who are shopping closer to home:	44.1	78.3	+34.2

Summary

- A smaller proportion of the respondents in the 1983 survey indicated they have changed their form of local travel compared to work or long distance travel than in the 1980 survey. Of those who have changed, the primary move has been from walking or riding transit to using autos, vans or trucks for local travel. This is in spite of the fact that more areas than ever before in Washington State are served by local transit systems.
- In 1980, nearly 16 percent of the respondents anticipated changing their form of local travel. Only 6.9 percent of the 1983 respondents indicated they actually had made such a change in the past two years.
- In 1980, nearly 36 percent of the households surveyed expected to decrease their amount of local travel in the future. This declined to 18 percent of the 1983 respondents that said they had actually decreased the amount of travel during the past two years. Almost 60 percent have maintained the same amount.
- Survey results indicate that the median length of local (one-way) shopping trips was less than three miles with 18 percent of the households traveling less than one mile. This suggests opportunities for greater use of bicycles or different types of motor vehicles for local travel and for new innovations in short distance transportation.
- Even though the proportion of the respondents that indicated they plan to reduce their amount of local travel declined from 36 to 18 percent, this is still a significant figure when the total amount of local travel for households is considered.

- Two areas where the 1983 respondents have been more receptive to change than their 1980 counterparts is in the increased use of the telephone as a travel substitute and the tendency to shop closer to home.

It is evident from survey results that those interviewed in 1983 are relying more heavily upon automobiles for present and future local travel needs than their 1980 counterparts. During the last three years, fuel prices have stabilized and even decreased, and supplies have been adequate. Conservation of energy is not being emphasized now by national leaders. In 1980 a considerable amount of attention was placed upon energy policies that included measures to reduce fuel consumption. Also, interest rates have declined, there is a lower rate of inflation, comparatively higher unemployment, and positive indications of an economic recovery in 1983. All of these conditions have undoubtedly influenced the residents of the state in determining the amount of travel, and the mode used. For local non-work travel the type and number of trips made vary so greatly that heavy reliance on the automobile is to be expected.

Results of the 1983 Survey*

TRAVEL DISTANCE

In response to the question: "Approximately how far do you travel one way for most of your shopping needs?" 18 percent of respondents reported less than one mile and 33 percent reported from one to two miles. The average distance was 4.7 miles. This relatively short distance could lend itself to the use of small personal vehicles powered by alternate energy sources.

*The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

LOCAL TRAVEL FORM OF TRANSPORTATION

In the survey, persons interviewed were asked questions concerning the form of local travel used for household members. As expected, private automobiles were used by most of those interviewed. Ninety-four percent reported that they used this mode compared to only 3 percent who took transit. In areas surveyed where transit is available, the proportion using this mode for local travel is 4.5 percent. Local travel that is not related to work or school requires maximum flexibility and the automobile appears to be the best suited in most instances.

TABLE 21
LOCAL TRAVEL FORM OF TRANSPORTATION
(PERCENT)

	<u>Statewide</u>	<u>Areas with Transit</u>
Auto-Van-Truck	94.0	92.6
Local Transit	3.2	4.5
Motorcycle	0.1	0.1
Bicycle	0.3	0.2
Walk	2.0	2.3
Other	0.3	0.4

Changes in Local Travel Form. A relatively small proportion, 6.9 percent, of the persons interviewed reported having changed their form of transportation for local travel in the last two years. Of this group, there is a marked increase in usage of automobiles, vans or trucks and a decline in the use of transit.

TABLE 22
 PREVIOUS AND PRESENT LOCAL TRAVEL FORM OF TRANSPORTATION
 FOR THOSE RESPONDENTS WHO HAVE CHANGED
 (COLUMN PERCENT)

	<u>Previous Form</u>	<u>Present Form</u>
Auto-Van-Truck	66.9	82.0
Local Transit	17.3	8.6
Motorcycle	1.4	0.7
Bicycle	2.9	1.4
Walk	10.8	5.8
Other	0.7	1.4

When the respondents were asked whether they planned to change their form of travel in the future, only 6 percent of the persons interviewed stated that they anticipate such changes will occur. Of this 6 percent, there will be a substantial decrease in the use of automotive vehicles and an increase in transit use.

TABLE 23
 PRESENT AND FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION
 FOR THOSE RESPONDENTS ANTICIPATING A CHANGE
 (COLUMN PERCENT)

	<u>Present Form</u>	<u>Future Form</u>
Auto-Van-Truck	84.2	38.3
Local Transit	10.0	40.0
Motorcycle	0	5.8
Bicycle	0.8	6.7
Walk	5.0	6.7
Other	0	2.5

TABLE 24

PAST CHANGES BY ANTICIPATED CHANGES IN LOCAL TRAVEL FORM OF TRANSPORTATION
(TOTAL PERCENT)

<u>Has Local Travel Form Changed</u>	<u>Will Future Local Travel Form Change</u>		
	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>
Yes	1.3	5.4	0.2
No	4.6	87.0	1.4

When past and future amounts of local travel are crosstabulated, it shows fewer respondents maintaining the status quo compared to the form of travel used.

Reasons for Changes in Local Travel Form. If a respondent indicated that the household's local travel form had changed, he or she was asked the reason for the change. More than 35 percent said the need for a new vehicle was the main reason, while 30.3 percent mentioned the cost of fuel. When compared with the reasons given in the 1980 survey, one can clearly see the diminished importance of fuel costs to the 1983 respondents.

TABLE 25

REASON FOR CHANGE IN FORM OF TRANSPORTATION FOR LOCAL TRAVEL
(PERCENT)

	<u>1980</u>	<u>1983</u>
Cost of Fuel	59.7	30.3
Bus Available	5.9	3.7
Changed Job	2.9	NA
Convenience of Private Auto	NA	7.3
Use Carpool-Vanpool	2.5	0.9
Cost of Vehicle	11.3	7.3
Conserve Energy	8.8	0.9
Moved	8.8	13.8
Needed New Vehicle	NA	35.8

Effect of Income and Age on Local Travel Form of Transportation. Lower income households and young adults are the most likely to have changed their form of local travel, while households with incomes over \$50,000 and adults more than 65 years of age are less likely to have changed than the overall sample.

TABLE 26
CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE
(ROW PERCENT)

	Local Travel Form Changed		
	Yes	No	Don't Know
<u>Overall Sample</u>	6.9	92.9	0.1
<u>Income</u>			
Under \$10,000	12.2	87.4	0.4
\$10,000-\$14,999	7.1	92.9	0
\$15,000-\$19,999	7.7	92.3	0
\$20,000-\$24,999	8.2	91.8	0
\$25,000-\$29,999	6.0	94.0	0
\$30,000-\$49,999	5.6	94.2	0.2
\$50,000 or Over	3.4	96.6	0
<u>Age</u>			
18-24	17.5	82.5	0
25-34	8.2	91.7	0
35-44	5.3	94.7	0
45-54	6.3	93.7	0
55-64	4.9	94.8	0.3
65 or Over	4.7	94.9	0.3

Regarding future plans to change their form of local travel, low income households and young adults appear more willing to change than the sample as a whole.

TABLE 27
 ANTICIPATED CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION
 BY INCOME AND AGE

(ROW PERCENT)

	Will Local Travel Form Change		
	Yes	No	Don't Know
<u>Overall Sample</u>	6.9	92.9	0.1
<u>Income</u>			
Under \$10,000	12.6	83.9	3.5
\$10,000-\$14,999	8.4	90.8	0.8
\$15,000-\$19,999	5.1	92.3	2.6
\$20,000-\$24,999	7.3	91.4	1.2
\$25,000-\$29,999	6.0	92.5	1.5
\$30,000-\$49,999	3.3	95.3	1.4
\$50,000 or Over	3.4	96.6	0
<u>Age</u>			
18-24	13.8	83.9	2.3
25-34	6.8	92.0	1.2
35-44	4.2	94.2	1.6
45-54	5.5	92.9	1.6
55-64	4.6	93.7	1.6
65 or Over	5.0	92.3	2.6

Of the 6 percent of those sampled who indicated they plan to change their form of work travel in the future, middle income households and young adults are the most likely to switch to automobiles and the least likely to change to transit.

TABLE 28
 FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION
 BY INCOME AND AGE
 (ROW PERCENT)

	Future Form of Transportation					
	Auto-Van- Truck	Local Transit	Motor- cycle	Bicycle	Walk	Other
<u>Overall Sample</u>	38.3	40.0	5.8	6.7	6.7	2.5
<u>Income</u>						
Under \$10,000	41.4	37.9	3.5	3.5	10.3	3.4
\$10,000-\$14,999	40.0	45.0	5.0	10.0	0.0	0
\$15,000-\$19,999	33.3	41.7	8.3	8.3	8.3	0
\$20,000-\$24,999	61.1	11.1	5.6	5.6	11.1	5.6
\$25,000-\$29,999	25.0	62.5	0	0	6.3	6.3
\$30,000-\$49,999	28.6	50.0	7.1	14.3	0	0
\$50,000 or Over	20.0	20.0	20.0	20.0	20.0	0
<u>Age</u>						
18-24	40.0	20.0	16.7	16.7	6.7	0
25-34	50.0	30.4	4.3	4.3	8.7	2.2
35-44	39.1	43.5	13.0	0	4.3	0
45-54	42.9	38.0	4.8	4.8	4.8	4.8
55-64	23.5	64.7	0	0	11.8	0
65 or Over	11.8	64.7	0	5.9	5.9	11.8

CHANGES IN AMOUNT OF LOCAL TRAVEL

In response to the question "Has the total amount of local travel for members of your household increased, decreased or remained about the same during the past two years?", 18.2 percent reported a decrease, 22.6 percent an increase, and 58.8 percent the same amount. When these responses are crosstabulated with the question regarding whether or not the form of local travel had changed, it indicates that over half of the households surveyed have not changed either their form of transportation or amount of local travel during the past two years.

TABLE 29
 CHANGE IN LOCAL TRAVEL FORM OF TRANSPORTATION BY
 CHANGE IN AMOUNT OF LOCAL TRAVEL PAST TWO YEARS
 (TOTAL PERCENT)

<u>Travel Form Changed</u>	<u>Amount of Local Travel Past Two Years</u>			
	Increased	Decreased	Remained Same	Don't Know
Yes	2.3	1.4	3.0	0.1
No	20.3	16.8	55.9	0.1

Regarding the future amount of local travel, 11.6 percent of the respondents expect to increase the amount, 9.2 percent to decrease and 77 percent to maintain the same level. Nearly three-fourths of those surveyed intend no changes in either the form or amount of future local travel.

TABLE 30
 CHANGE IN FUTURE LOCAL TRAVEL FORM OF TRANSPORTATION BY
 CHANGE IN FUTURE AMOUNT OF LOCAL TRAVEL
 (TOTAL PERCENT)

<u>Travel Form to Change</u>	<u>Amount of Future Local Travel</u>			
	Increase	Decrease	Remain Same	Don't Know
Yes	1.3	1.3	3.4	0
No	10.1	7.7	72.8	1.7
Don't Know	0.2	0.3	0.8	0.3

When the changes in the form of transportation in the last two years are compared with future plans, an even greater resistance to change appears to exist. In this case, 87 percent report neither having changed nor anticipating a change in local travel form, with only 1.3 percent responding affirmatively to both questions.

TABLE 31
 PAST CHANGES BY ANTICIPATED CHANGES IN
 AMOUNT OF LOCAL TRAVEL
 (TOTAL PERCENT)

<u>Amount of Local Travel Past Two Years</u>	<u>Amount of Future Local Travel</u>			
	Increase	Decrease	Remain Same	Don't Know
Increased	4.9	3.4	13.8	0.5
Decreased	2.3	2.1	13.3	0.4
Remained the Same	4.4	3.6	49.8	1.0
Don't Know	0	0.2	0.2	0

OTHER ADJUSTMENTS TO LOCAL TRAVEL

More than 61 percent reported an increase in the use of the telephone as a means of cutting down on travel, while 94 percent indicated they are planning errands so that several can be accomplished during the same trip, and 78.3 percent said they are shopping closer to home. More households reported making these changes than any other in the survey, and it represents a significant increase over the 1980 survey.

TABLE 32
 OTHER ADJUSTMENT TO RISING COSTS OF LOCAL TRAVEL
 (COLUMN PERCENT)

<u>Responses</u>	<u>Increased Use of Telephone</u>	<u>Planning Errands</u>	<u>Shopping Closer to Home</u>
Yes	61.2	94.0	78.3
No	37.9	5.5	20.9
Don't Know	0.8	0.4	0.8

LONG DISTANCE TRAVEL

For this survey, long distance travel was defined as trips of more than 100 miles from home. An effort was made to identify numerous characteristics of this type of travel and determine how it has been affected by the changing transportation conditions of the past three years. Long distance travel is more elective in nature than other types of travel, both in terms of mode and amount. Hence, the adjustments made in this type of travel are often extremely reflective of a household's actual desires and expectations.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
1. Current long distance travel form of transportation by percent:			
Automobile	54.8	70.3	+15.5
Airplane	26.2	16.8	-9.4
Truck/Van/Camper/Motorhome	6.9	9.1	+2.2
Bus	5.1	2.8	-2.3
Rail	1.7	0.5	-1.2
Other	5.2	0.5	-4.7
2. Percent who have changed form of long distance travel in the past two years:	12.4	11.2	-1.2
3. Percent who plan to change form of long distance travel in the future:	16.6	9.3	-7.3

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
4. Amount of future long distance travel by percent:			
Increase	3.0	22.3	+19.3
Decrease	42.6	11.1	-31.5
Remain the Same	54.3	66.6	+12.3

Summary

The difference between the results of the 1980 and 1983 surveys is more striking for long distance travel than for any other type of travel. It appears that a sizable segment of the 1983 respondents have been reassured enough by comparatively stable fuel prices and energy supplies, as well as indications of an economic recovery, to increase their amount of long distance travel--a complete reversal of the 1980 survey results. These same factors have contributed to the increase in the percentage of 1983 respondents who are using motor vehicles for long distance travel.

- There has been a significant increase in the number of households using automobiles, trucks, campers and motorhomes for long distance travel. Conversely, travel by air, which was used by more than one-fourth of the 1980 respondents, decreased to 17 percent of 1983 households.
- The percentage of households who have changed their form of long distance travel in the past two years decreased only slightly in 1983 compared to 1980, whereas those respondents anticipating a change of form in the future decreased by nearly one-half.
- There has been a dramatic increase in the percentage of households that expect to increase their amount of long distance travel in the future, from 3 percent in 1980 to 22 percent in 1983. This is the largest percent change for any type of travel in the survey, and it is present for all income and age groups.

Results of 1983 Survey*

LONG DISTANCE TRAVEL FORM OF TRANSPORTATION

Nearly 80 percent of the respondents indicated that they now use their automobiles or other types of motor vehicles for long distance travel. Air travel was a distant second (16.8 percent). The responses demonstrate the predominance of these two forms of long distance travel and the limited use made of intercity bus and rail.

TABLE 33
LONG DISTANCE TRAVEL FORM OF TRANSPORTATION
(PERCENT)

Auto	70.3
Airplane	16.8
Truck/Van/Camper/Motorhome	9.1
Bus	2.8
Rail	0.5
Other	0.5

Eleven percent of the respondents stated that they had changed their form of travel in the last two years. When asked if they planned to change the mode of travel in the future, 9.3 percent replied affirmatively but 88.8 percent stated that no change would be made. When these two variables are crosstabulated, a similar pattern of stability emerges. Nearly 80 percent of the households have not changed their form of long distance travel in the past nor expect to do so in the future.

*The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

TABLE 34

CHANGE IN FORM OF LONG DISTANCE TRAVEL THE PAST
TWO YEARS COMPARED TO FUTURE PLANS
(TOTAL PERCENT)

<u>Has Long Distance Travel Form Changed</u>	<u>Will Long Distance Travel Form Change</u>		
	Yes	No	Don't Know
Yes	1.8	9.0	0.3
No	7.4	79.4	1.5
Don't Know	0.1	0.3	0.1

The 11 percent of the persons interviewed who had changed their form of travel in the past two years were asked to indicate their previous and present forms. While the automobile is still mentioned most in both categories, it is not nearly as popular currently as it was in the past (69 percent to 39 percent). In this same context, air travel has grown dramatically (13.6 percent to 37 percent) along with the use of trucks/vans/campers/motorhomes. It appears that for those who have been motivated to change, the speed of flying and the versatility of campers and RVs is preferable to the auto.

TABLE 35

PREVIOUS AND PRESENT LONG DISTANCE TRAVEL FORM OF
TRANSPORTATION FOR THOSE RESPONDENTS WHO HAVE CHANGED
(COLUMN PERCENT)

	<u>Previous Form</u>	<u>Present Form</u>
Automobile	69.2	39.4
Airplane	13.6	37.0
Truck/Van/Camper/Motorhome	5.1	9.7
Bus	7.9	9.7
Rail	2.3	2.8
Other	1.9	1.4

Nine percent of the respondents plan to change their form of long distance travel in the future. Of this group, nearly 45 percent will fly while 28 percent intend to use automobiles. When the future type of travel is compared with current forms, it

is apparent that air travel is the most attractive choice for those intending a change.

TABLE 36
PRESENT AND FUTURE LONG DISTANCE TRAVEL FORM OF TRANSPORTATION
FOR THOSE RESPONDENTS ANTICIPATING A CHANGE
(COLUMN PERCENT)

	<u>Present Form</u>	<u>Future Form</u>
Automobile	64.2	28.3
Airplane	16.8	44.6
Truck/Van/Camper/Motorhome	10.6	9.8
Train	0.6	7.6
Bus	7.3	6.0
Other	0.5	3.8

Effect of Income and Age on Form of Long Distance Travel. There is a definite stratification present when the form of long distance travel used is compared with a respondent's income and age. Households earning less than \$10,000 a year are more likely to use the bus for long distance travel, while at the other end of the spectrum, families with incomes over \$50,000 are more than twice as likely to fly than the overall sample. For all age groups, the major form of travel is still the automobile, but the proportion declines as age increases. Air travel, however, increases in popularity with age.

TABLE 37
LONG DISTANCE TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE
(ROW PERCENT)

	Present Form					
	Auto	Airplane	Truck/ RV	Bus	Rail	Other
<u>Overall Sample</u>	70.3	16.8	9.1	2.8	0.5	0.5
<u>Income</u>						
Under \$10,000	66.7	13.2	9.8	8.8	0.5	1.0
\$10,000-\$14,999	73.9	10.0	7.8	6.1	1.7	0.4
\$15,000-\$19,999	71.3	13.5	12.6	1.7	0.9	0
\$20,000-\$24,999	78.9	11.8	5.9	3.0	0.4	0
\$25,000-\$29,999	70.9	17.4	11.0	0	0.4	0.4
\$30,000-\$49,999	68.2	18.6	11.4	1.4	0.2	0.2
\$50,000 or over	60.3	37.0	2.8	0	0	0
<u>Age</u>						
18 - 24	72.5	13.0	10.1	3.4	0	1.0
25 - 34	74.4	13.6	8.7	2.2	0.7	0.3
35 - 44	73.6	14.6	9.2	1.5	0.2	0.9
45 - 54	64.3	22.2	12.4	1.1	0	0
55 - 64	64.3	19.3	13.9	2.2	0	0.3
65 or over	68.3	20.3	3.8	6.0	0.9	0.6

When income and age were crosstabulated by past and future changes in long distance travel form, the proportion indicating a change had taken place or would occur for all income and age groups varied little from the total survey. There is some difference, however, when one examines the effect of income and age on which form of travel will be chosen by those planning to make a change. As income increases, a greater percentage of households than is found in the overall sample intend to switch to airplanes while fewer expect to use automobiles. Those persons 55 and over are more apt to change to airplanes, with young adults showing a greater tendency to use autos.

TABLE 38
 FUTURE LONG DISTANCE TRAVEL FORM OF TRANSPORTATION
 BY INCOME AND AGE
 (ROW PERCENT)

	Future Form					
	Auto	Airplane	Truck/ RV	Bus	Rail	Other
<u>Overall Sample</u>	28.3	44.6	9.8	6.0	7.6	3.8
<u>Income</u>						
Under \$10,000	33.3	40.7	3.7	14.8	7.4	0
\$10,000-\$14,999	42.9	28.6	0	9.5	19.0	0
\$15,000-\$19,999	33.3	47.6	9.6	4.8	4.8	0
\$20,000-\$24,999	36.0	44.0	8.0	0	4.0	8.0
\$25,000-\$29,999	20.0	48.0	16.0	8.0	8.0	0
\$30,000-\$49,999	16.3	58.1	14.0	2.3	4.7	4.7
\$50,000 or over	16.7	33.3	16.7	0	0	33.3
<u>Age</u>						
18 - 24	51.7	31.0	6.9	3.4	3.4	3.4
25 - 34	29.9	36.4	11.7	9.2	9.2	3.9
35 - 44	29.2	45.8	16.7	0	6.2	2.1
45 - 54	33.3	44.4	11.1	3.7	0	7.4
55 - 64	32.1	50.0	10.7	0	7.1	0
65 or over	0	70.0	5.0	10.0	10.0	5.0

AMOUNT OF LONG DISTANCE TRAVEL

More than one-fifth of those sampled expect to increase their amount of long distance travel in the future, while 67 percent intend to maintain the same amount and 11 percent to decrease.

When the present form of travel used is crosstabulated with future plans for changing the amount of travel, it is interesting to note that those currently taking the bus or train are more likely to decrease their amount of future travel, while those using trucks and RVs display a greater tendency to increase their travel than the overall sample.

TABLE 39

PRESENT LONG DISTANCE TRAVEL FORM OF TRANSPORTATION COMPARED
TO FUTURE AMOUNT OF LONG DISTANCE TRAVEL
(ROW PERCENT)

	Amount of Travel		
	Increase	Decrease	Remain the Same
<u>Present Form</u>			
Auto	21.2	11.3	67.5
Airplane	26.5	8.6	64.9
Truck/RV	28.6	10.3	61.1
Bus	13.0	18.5	68.5
Rail	10.0	20.0	70.0
Other	22.2	11.1	66.7
<u>Overall Sample</u>	22.3	11.1	66.6

RECREATIONAL AND VACATION TRAVEL

One aspect of long distance travel is trips taken strictly for recreational or vacation purposes. Both the 1980 and 1983 surveys dealt with this kind of travel.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
1. Percent planning recreational travel within Washington State this year:	58.0	60.9	+2.9
2. Percent planning a vacation this year that will take them over 500 miles from home:	33.8	44.1	+10.3
3. Form of vacation travel by percent:			
Automobile	40.4	40.9	+0.5
Airplane	43.8	43.1	-0.7
Truck/Van/Camper/Motorhome	9.3	12.0	+2.7
Bus	1.8	0.9	-0.9
Rail	1.4	1.7	+0.3
Other	3.2	1.2	-2.0

Summary

- Little change has occurred between the 1980 and 1983 surveys when one examines the form of vacation travel used and the percentage planning recreational travel in Washington State. It appears that most respondents have made whatever adjustments they deemed necessary in their vacation travel habits prior to 1980.

- The percentage of respondents in both surveys indicating they use either automobiles or airplanes for vacation travel is nearly identical, a marked difference when compared to long distance travel forms used.
- One area that has changed from 1980 to 1983 is the increase in households planning to vacation over 500 miles from home, from 34 percent in 1980 to 44 percent in 1983. This parallels the upsurge in households expecting to increase their amount of long distance travel in the future. This has major ramifications for the tourist industry, as well as transportation facilities, to meet this increased demand for recreational travel. Lowered fuel prices, stable energy supplies and the bottoming out of the recession have helped bring out about this revival in vacation trips. This is borne out by the findings in Changes in Recreational Travel in Washington State, WA-RD-49.1, November 1982. Two telephone surveys of 1,200 households each conducted in March and August of 1981 revealed that recreational travel is more sensitive to gasoline price increases than other types of travel, and that as prices go up, frequency of travel goes down. Further, recreational travel returns to "normal" amounts when gasoline becomes readily available and prices stabilize.

Results of 1983 Survey*

RECREATIONAL TRAVEL FORM OF TRANSPORTATION

More than 44 percent of the respondents indicated they planned a vacation this year that would take them more than 500 miles from home. Of this group, most will either fly (43.1 percent) or drive (40.9 percent).

*The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

TABLE 40

RECREATIONAL TRAVEL FORM OF TRANSPORTATION
(PERCENT)

Auto	40.9
Airplane	43.8
Truck/Van/Camper/Motorhome	12.0
Bus	0.9
Rail	1.7
Other	1.2

When the 44 percent who planned a vacation were asked what their destination would be, 42.1 percent said west of the Rockies, 31.2 percent east of the Rockies, 7.5 percent overseas, 6.3 percent Hawaii, 4.8 percent Canada and 3.4 percent Mexico.

Effect of Income and Age on Form of Recreational Travel. As might be expected, a household's income has a definite effect upon the form of travel chosen for vacation trips. Families making less than \$10,000 a year are much more likely to use automobiles and much less apt to fly than the overall sample, while just the opposite is true for households with incomes over \$50,000. Age, however, does not appear to play a role in determining what form of travel is used. Only for those 65 or over in age is there a significant increase in auto use compared with the total survey.

TABLE 41
RECREATIONAL TRAVEL FORM OF TRANSPORTATION BY INCOME AND AGE
(ROW PERCENT)

	Travel Form					
	Auto	Airplane	Truck/ RV	Bus	Rail	Other
<u>Overall Sample</u>	40.9	43.8	12.0	0.9	1.7	1.2
<u>Income</u>						
Under \$10,000	54.1	31.1	9.9	3.3	0	1.6
\$10,000-\$14,999	47.8	32.6	11.9	3.3	3.3	1.1
\$15,000-\$19,999	35.4	40.5	17.8	1.3	2.5	2.5
\$20,000-\$24,999	44.2	39.4	13.5	1.0	1.9	0
\$25,000-\$29,999	38.5	43.0	16.3	0	2.2	0
\$30,000-\$49,999	40.1	44.2	12.9	0.5	1.4	0.9
\$50,000 or over	33.7	59.2	2.0	2.0	1.0	2.0
<u>Age</u>						
18 - 24	42.7	42.7	11.5	1.0	1.0	1.0
25 - 34	39.8	44.9	11.8	0.3	2.4	0.7
35 - 44	37.7	45.4	13.0	0.4	1.7	1.7
45 - 54	39.2	45.2	11.8	1.6	1.1	1.1
55 - 64	42.4	39.5	16.4	0	1.7	0
65 or over	50.0	34.4	8.6	3.9	0.8	2.3

LOCAL TRANSIT USAGE

During the past eight years there has been a substantial increase in the number of communities in Washington State served by local transit systems. Concurrently, several existing systems have expanded services within their operating areas. Today there are 20 operating systems within the state, 12 of which are Public Transportation Benefit Areas (PTBAs). Transit systems now in operation in Washington State include the following:

Metropolitan Systems:

Seattle-King County

City Systems:

Bellingham, Everett, Kelso-Longview, Prosser, Pullman and Yakima

County Transit Authority:

Grays Harbor County

Public Transportation Benefit Areas:

Clallam County, Clark County¹, Jefferson County, Kitsap County¹, Lewis County, Pacific County, Pierce County¹, Snohomish County, Spokane County¹, Thurston County¹, Walla Walla County and Benton-Franklin Counties.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
1. Percent of households served by local transit:	53.5	68.6	+15.1
2. In areas served by local transit, percent who use transit at least once a week:			
Metropolitan areas	39.3	25.7	-13.6
Urban areas	20.2	13.9	-6.3

¹Formerly city system

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
3. Purposes for using transit by percent:			
Work travel	26.8	23.9	-2.9
Shopping	32.3	31.9	-0.4
Personal travel	27.9	28.9	+1.0
School travel	9.1	10.7	+1.6
Other	3.9	4.6	+0.7

Summary

Several factors have contributed to the overall reduction in transit use by the 1983 respondents. Cutbacks in service by some transit systems to reduce operating costs, high unemployment rates and a fluid job market have helped to disrupt established transit commuting patterns. At the same time, lower fuel prices, stable energy supplies and increased promotion of ridesharing have all made the use of other forms of travel such as single occupant vehicles and car and vanpools more attractive and/or feasible. Not surprisingly, ridership of the 20 transit systems in the state declined in 1982, the first such drop since before the 1973 oil embargo.

- The expansion of transit service to nearly all of Washington State's urban areas is reflected in the increased percentage of 1983 households served by transit compared to 1980. However, the percentage of regular transit riders in the latest survey declined in both metropolitan and urban areas.
- Shopping continues to be the most mentioned reason for using transit, with personal travel a close second. There was a 10.8 percent drop in the proportion of households using transit for work travel in 1983 compared to 1980.
- The more frequently a person rides transit, the more likely they are to use it for travel to work or school, while infrequent riders are more apt to use transit for shopping trips or personal travel.

Results of 1983 Survey*

FREQUENCY OF TRANSIT RIDERSHIP

More than 68 percent of the households sampled said local transit service was available in their neighborhood. Of this group, nearly 49 percent stated they use the service at least once a month, with 21.4 percent using it at least once a week.

TABLE 42

FREQUENCY OF TRANSIT RIDERSHIP (PERCENT)

Three or more times per week	14.7
One or two times per week	6.7
A few times per month	9.6
Once a month or less	17.9
Don't use	51.1

When asked the purpose for using transit, 31.9 percent of the respondents stated for shopping, 28.9 percent personal travel, 23.9 percent work travel, 10.7 percent school travel and 4.6 percent other reasons.

When frequency of use is crosstabulated with trip purpose, not surprisingly regular riders of transit are more likely to use it for travel to work and school than is true of the overall sample.

*The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

TABLE 43
 FREQUENCY OF TRANSIT RIDERSHIP
 BY PURPOSE OF TRIP
 (ROW PERCENT)

<u>Frequency of Use</u>	<u>Purpose</u>				
	<u>Work Travel</u>	<u>Shopping</u>	<u>School Travel</u>	<u>Personal Travel</u>	<u>Other Travel</u>
3 or more times per week	37.5	23.8	17.3	20.5	0.8
1 or 2 times per week	15.7	39.3	10.0	31.4	3.6
A few times per month	14.6	35.4	7.9	37.1	5.0
Once a month or less	16.3	36.5	4.5	33.0	9.7
<u>Overall Sample</u>	23.9	31.9	10.7	28.9	4.6

If a household was served by transit, respondents were asked if they considered the present service adequate to meet their needs. More than 71 percent felt the service was adequate. When this question was crosstabulated with frequency of ridership, those who regularly use transit were more likely to feel the service was adequate than the overall sample.

TABLE 44
 FREQUENCY OF TRANSIT RIDERSHIP
 BY ADEQUACY OF SERVICE
 (ROW PERCENT)

<u>Frequency of Use</u>	<u>Is Transit Service Adequate</u>		
	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>
3 or more times per week	87.1	12.9	0
1 or 2 times per week	84.8	15.2	0
A few times per week	80.3	16.7	3.0
Once a month or less	76.8	20.3	2.8
Don't use	62.1	22.3	15.6
<u>Overall Sample</u>	71.6	19.5	8.8

REASONS FOR NOT USING TRANSIT

If transit service was available in a respondent's neighborhood but not used, he or she was asked to give reasons why they chose not to ride. The three reasons mentioned most often were that transit didn't go where they wanted to go (21.1 percent), a preference for the convenience of the automobile (17.9 percent) and that transit takes too long (15.0 percent).

TABLE 45
REASONS FOR NOT USING TRANSIT
(PERCENT)

Transit is too uncomfortable	5.2
Too far to bus stop	8.7
Bus is too crowded	2.0
Doesn't run often enough	11.2
Doesn't go where I want to go	21.1
Takes too long	15.0
Bus is too hard to board	3.6
Costs too much	2.9
Prefer convenience of automobile	17.9
Have no need for transit service	8.1
Don't know schedules	1.1
Other reasons	3.2

IMPROVED TRANSIT SERVICE

If respondents indicated that no transit service was presently available in their neighborhood, they were asked which of a series of options they would approve to provide transit service closer to their home. The majority were not in favor of higher bus fares or increased taxes to support transit.

TABLE 46
 FUNDING OPTIONS TO PROVIDE
 TRANSIT SERVICE TO AREAS
 CURRENTLY UNSERVED
 (PERCENT)

Pay higher bus fare	13.9
Pay increased sales tax or other tax	1.1
A combination of both	6.8
Neither	70.4
Don't know	7.8

If transit service was available to a household but was considered presently inadequate, the respondent was asked to consider a series of funding options to improve service. While most did not wish to increase fares or taxes, the percentage willing to pay higher bus fares is significantly larger than in those areas without transit service (see Table 45).

TABLE 47
 FUNDING OPTIONS TO IMPROVE
 EXISTING TRANSIT SERVICE
 (COLUMN PERCENT)

	<u>For More Frequent Service</u>	<u>For Expanded Service Area</u>
Pay higher bus fare	31.1	36.1
Pay increased sales tax or other tax	5.6	4.9
A combination of both	9.0	12.4
Neither	47.2	41.4
Don't know	7.1	5.3

When asked if they would personally use the local transit service if it were improved, 52.3 percent of those respondents in areas either lacking transit service or with inadequate service said yes, while 42.5 percent still would decline.

USE OF OTHER FORMS OF TRANSPORTATION

In order to obtain a more complete picture of a household's travel behavior, respondents in the 1983 survey were asked a series of questions on other forms of transportation including intercity bus, AMTRAK, the Washington State Ferries, commercial airlines and small private aircraft, as well as streets and highways in their area. The results for each mode are summarized below.

TABLE 48
PERCENT OF HOUSEHOLDS USING
EACH FORM IN THE PAST YEAR

AMTRAK	6.7
Intercity bus	19.0
Washington State Ferries	57.2
Commercial airlines	51.8
Private aircraft	13.1

TABLE 49
PURPOSES FOR WHICH TRIPS WERE TAKEN
(COLUMN PERCENT)

<u>Purpose</u>	<u>AMTRAK</u>	<u>Intercity Bus</u>	<u>Washington State Ferries</u>	<u>Commercial Airlines</u>
Commuting to work	1.3	1.6	2.3	1.2
Business travel	14.2	7.7	11.7	30.3
Social visits	29.7	45.7	20.7	15.7
Shopping	1.3	4.9	3.9	0
Vacation travel	49.7	29.7	58.7	48.5
Other	3.9	10.4	2.6	4.2

TABLE 50
 PERCENT INDICATING EXISTING
 SERVICES ARE ADEQUATE

AMTRAK	34.0
Intercity bus	66.4
Washington State Ferries	78.7
Commercial airlines	91.8
Private aircraft	59.9
Streets and highways	85.6

If a respondent did not feel existing services were adequate, regardless if they used the service, he or she was asked to list what improvements they felt were needed.

TABLE 51
 DESIRED IMPROVEMENTS FOR INTERCITY BUS
 (PERCENT)

Expand service area	31.5
More frequent runs	29.3
Improve terminals	10.5
Faster service	7.3
Improve buses	5.1
More direct routes	3.2
Lower fares	2.9
Improve food service	0.3
Other improvements	9.9

TABLE 52

DESIRED IMPROVEMENTS FOR WASHINGTON STATE FERRIES
(PERCENT)

More frequent service	42.6
Reduce operating costs	14.8
Reduce fares	12.3
Improve safety	9.0
Improve service for walk-ons and bicycle riders	4.9
Improve auto load-unload facilities	1.6
Improve terminals	1.6
Other improvements	13.1

TABLE 53

DESIRED IMPROVEMENTS FOR COMMERCIAL AIRLINES
(PERCENT)

More convenient schedules	31.0
Improve airport access	15.0
Service by major carrier	14.0
Lower fares	12.0
Improve terminals	9.0
Establish new airport	5.0
Improve baggage handling	4.0
Improve safety	3.0
Other improvements	7.0

TABLE 54

DESIRED IMPROVEMENTS FOR PRIVATE AIRCRAFT
(PERCENT)

Additional small airports	50.0
Improve small aircraft safety	23.4
Improve hangars	17.0
Allow larger planes	5.3
Other improvements	4.2

TABLE 55
 DESIRED IMPROVEMENTS FOR STREETS AND HIGHWAYS
 (PERCENT)

Repair pavement	55.4
Improve traffic safety	9.6
Construct new roads	8.2
Widen existing roads	6.5
Reduce traffic congestion	6.3
Improve signing	3.4
Improve shoulders and sidewalks	1.8
Repair bridges	1.2
Other roadway improvements	7.5

EFFECT OF INCOME AND AGE ON TRANSPORTATION CHOICES

When income and age are crosstabulated with those respondents who indicated they have used the travel forms in this section, certain variations from the overall sample are revealed. Higher income households are more likely to have chosen the ferry system or commercial airlines during the past year. Use of these two forms increases as income rises. Respondents less than 25 years of age were twice as likely as the total survey to have taken an intercity bus trip, while adults more than 65 years old were less apt to have ridden the ferry system or flown.

TABLE 56
 PERCENT OF HOUSEHOLDS USING EACH FORM
 OF TRAVEL BY INCOME AND AGE

	Travel Form				
	AMTRAK	Intercity Bus	Ferry System	Commercial Airlines	Small Private Aircraft
<u>Overall Sample</u>	6.7	19.0	57.2	51.8	13.1
<u>Income</u>					
Under \$10,000	5.7	26.5	37.8	31.3	6.5
\$10,000 - \$14,999	8.4	25.2	43.7	41.6	8.4
\$15,000 - \$19,999	5.6	18.4	49.6	44.4	10.3
\$20,000 - \$24,999	8.2	14.7	62.9	46.9	10.2
\$25,000 - \$29,999	4.9	15.3	65.7	55.6	11.2
\$30,000 - \$49,999	5.8	17.2	66.6	64.6	19.6
\$50,000 or over	11.6	20.5	74.0	80.1	28.1
<u>Age</u>					
18 - 24	8.7	38.7	59.4	55.8	16.6
25 - 34	8.2	17.2	59.3	52.0	14.6
35 - 44	6.2	16.0	65.4	54.5	14.6
45 - 54	4.5	19.7	56.0	59.5	13.1
55 - 64	5.4	16.3	57.8	49.0	11.5
65 or over	5.0	20.5	41.8	36.8	6.4

MOTOR VEHICLE OWNERSHIP

One of the most important aspects of the response of Washington State residents to changing transportation conditions is the effect on vehicle ownership. The number and type of vehicles a household uses is reflective of how they are dealing with the present transportation situation. Total vehicle registrations have increased 9.5 percent between 1978 and 1982, while the number of licensed drivers rose 11.6 percent during the same period. There is now an average of 2.08 automotive vehicles per household statewide. This includes automobiles, vans, and pickup trucks but not motorcycles or commercial trucks. Total new car registrations in the state have declined an average 11.5 percent per year from 1978 to 1982. While fewer automobiles are being sold, data concerning new car sales compiled by the Washington State Department of Licensing indicate that the proportion of small domestic and imported automobiles compared to larger cars has been rising steadily the last five years. In 1974 they accounted for roughly one-half of all new car registrations; by 1979 this proportion had risen to 74 percent, and in 1982, 84 percent.

Comparison of 1980 and 1983 Surveys

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
1. Percent of households with each type of vehicle:			
Automobiles	91.6	92.2	+0.6
Pickup Trucks	34.1	42.2	+8.1
Motorhomes/Campers/Trailers	16.7	19.4	+2.7
Motorcycles	10.8	15.1	+4.3
Vans	6.6	8.5	+1.9
2. Average number of automotive vehicles (autos, vans and pickup trucks) per household:	1.99	2.08	+0.09

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Difference</u>
3. Percent of households acquiring a new or different vehicle in the past two years:	44.9	45.3	+0.4
4. Percent who have acquired a new or different vehicle in the past two years that is more economical to operate than its predecessor:	67.4	65.1	-2.3
5. Change in number of household vehicles past two years by percent:			
Increased	15.9	17.0	+1.1
Decreased	7.6	7.7	+0.1
Remained the Same	76.5	75.3	-1.2
6. Future changes in number of household vehicles by percent:			
Increase	5.3	14.7	+9.4
Decrease	9.3	8.4	-0.9
Remain the Same	85.4	76.8	-8.6
7. Reasons for changes in number of household vehicles by percent:			
Replace old vehicle	33.9	39.2	+5.3
Personal reasons	17.2	19.7	+2.5
Better fuel economy	32.2	19.2	-13.0
Need additional vehicles	3.2	11.8	+8.6
Need larger vehicle	5.7	6.3	+0.6

Summary

- The percentage of households owning vehicles in 1983 increased for all types of vehicles over the 1980 results, with motorcycles and vans showing the largest gain by percent. This is also reflected in the increase in average number of automotive vehicles per household from 1.99 in 1980 to 2.08 in 1983.
- Of the 1983 respondents who have acquired new vehicles, the percent of respondents who stated that the new vehicle is more economical than the one it replaced declined slightly when compared to 1980. This is reflected when the reasons given by the 1980 and 1983 respondents for changing their number of household vehicles are contrasted. In 1980, better fuel economy was mentioned by more than 32 percent, while in 1983 the percentage decreased to 19. Replacing an older vehicle and the need for additional vehicles are of more concern to the latter survey households.
- While both survey groups gave fairly similar responses when asked what changes, if any, they had made in the number of household vehicles during the past two years, future changes planned were quite different. In 1980, only 5 percent of the households expected to increase their number of vehicles. This percent rose to nearly 15 in the 1983 survey. There are several reasons for this increased expectation to acquire additional vehicles. Stable energy supplies, more households where both adults work, greater reliance on private rather than public transportation, and lower interest rates can all make the purchase of an additional vehicle more desirable and/or necessary.
- A difference exists when one examines the intended actions of the 1980 respondents with the actual changes made by the 1983 respondents regarding changes in the number of household vehicles. As mentioned previously, only 5 percent of the 1980 households expected to increase their number of vehicles, while 9 percent expected to decrease and 85 percent keep the same. However, 17 percent of the 1983 households have increased their number of vehicles during the past two years, while nearly 8 percent have decreased it and 75 percent have kept the same number. Obviously, the conditions present in 1980 that were not conducive to the acquisition of additional vehicles have

significantly changed. Likewise, the nearly 15 percent of 1983 respondents expecting to increase their number of vehicles must be viewed in light of present influences. Should energy supplies tighten, gasoline prices soar and/or interest rates increase, these future plans of acquiring additional vehicles may be changed.

Results of 1983 Survey *

ACQUISITION OF VEHICLES

Forty-five percent of the households surveyed have acquired a new vehicle in the last two years, and of this group, 65 percent said that the new vehicle is more economical to operate than the previous vehicle.

For all households in the survey sample, the percentage having each type of vehicle is as follows:

TABLE 57
PRESENT HOUSEHOLD VEHICLES
(PERCENT)

Automobiles	92.2
Pickup Trucks	42.2
Motorhomes/Campers/Trailers	19.4
Motorcycles	15.1
Vans	8.5

In addition to the motor vehicles, 50 percent of the households indicated they use at least one bicycle. Of this group, 2.7 percent use bicycles for trips to work, school and other business related local travel. Most are used for recreational purposes.

*The complete results of the 1980 survey are contained in Response of Washington State Residents to Higher Transportation Costs and Energy Shortages.

Increases or Decreases in the Number of Vehicles. More than three-fourths of the households have maintained the same number of vehicles the past two years and expect to keep the same number in the future.

TABLE 58
 CHANGE IN NUMBER OF VEHICLES PER HOUSEHOLD
 IN THE PAST TWO YEARS AND FUTURE PLANS
 (COLUMN PERCENT)

<u>Past Two Years</u>		<u>Future Plans</u>	
Increased	17.0	Increase	14.7
Decreased	7.7	Decrease	8.4
Remained the Same	75.3	Remain the same	76.8

When data concerning past actions regarding number of vehicles and future plans are crosstabulated, it appears that there will be little net change in the number of vehicles per household.

TABLE 59
 PAST NUMBER OF VEHICLES
 BY FUTURE NUMBER OF VEHICLES
 (TOTAL PERCENT)

<u>Past 2 Years</u>	<u>Future Plans</u>		
	Increase	Decrease	Remain the Same
Increased	3.5	3.5	10.0
Decreased	2.4	0.5	4.8
Remained the Same	8.8	4.4	62.1

Reasons for Acquiring New Vehicles. The most frequently mentioned reasons for acquiring new vehicles are replacement for an old vehicle, personal reasons, better fuel economy, a need for additional vehicles and a need for a bigger vehicle.

TABLE 60
REASONS FOR ACQUIRING VEHICLE
(PERCENT)

Replace old vehicle	39.2
Personal reasons	19.7
Better fuel economy	19.2
Need additional vehicles	11.8
Need larger vehicle	6.3
Liked new models	3.3
Need safer vehicle	0.5

EFFECT OF INCOME AND AGE ON VEHICLE OWNERSHIP

Income and age are prime determinants in the kind of vehicles a family owns. As indicated in Table H4, lower income families and those over 65 years of age constitute a smaller percentage of vehicle owners when compared to the entire sample. Such "luxury" vehicles as campers and motorhomes are owned by a greater share of high income and older households, while motorcycles are owned by a larger percent of those between 18-24 than is found in the sample as a whole.

TABLE 61
 PRESENT HOUSEHOLD VEHICLES BY
 INCOME AND AGE
 (PERCENT OF HOUSEHOLDS OWNING EACH TYPE)

	Present Vehicles				
	Autos	Pickup Truck	Vans	Motorcycles	RVs
<u>Overall Sample</u>	92.2	42.2	8.5	15.1	19.4
<u>Income</u>					
Under \$10,000	79.6	26.5	5.2	5.6	10.9
\$10,000 - \$14,999	87.4	34.4	7.6	10.5	14.7
\$15,000 - \$19,999	89.3	41.9	9.0	13.2	24.4
\$20,000 - \$24,999	94.3	40.8	11.0	17.1	20.0
\$25,000 - \$29,999	93.7	48.5	11.2	15.3	21.6
\$30,000 - \$49,999	97.0	52.4	10.0	23.1	27.5
\$50,000 or over	100.0	43.1	7.5	18.5	19.2
<u>Age</u>					
18 - 24	88.0	41.5	6.4	23.0	18.9
25 - 34	93.1	38.9	10.6	17.2	16.0
35 - 44	95.1	51.4	10.4	22.8	23.7
45 - 54	95.5	56.0	8.9	19.5	27.6
55 - 64	93.5	51.5	7.4	9.5	27.0
65 or over	88.3	31.3	6.1	4.1	13.7

There is a greater chance the high income household has acquired a new or different vehicle in the last two years. Conversely, as people become older, they are less likely to acquire additional vehicles.

TABLE 62
 ACQUISITION OF NEW OR DIFFERENT
 VEHICLE IN THE PAST TWO YEARS
 BY INCOME AND AGE
 (ROW PERCENT)

	<u>Acquired New or Different Vehicle</u>	
	Yes	No
<u>Overall Sample</u>	45.3	54.7
<u>Income</u>		
Under \$10,000	29.7	70.3
\$10,000 - \$14,999	36.6	63.4
\$15,000 - \$19,999	37.6	62.4
\$20,000 - \$24,999	51.0	49.0
\$25,000 - \$29,999	50.4	49.6
\$30,000 - \$49,999	56.4	43.6
\$50,000 or over	59.6	40.4
<u>Age</u>		
18 - 24	60.8	39.2
25 - 34	53.8	46.2
35 - 44	51.7	48.3
45 - 54	47.9	52.1
55 - 64	40.4	59.6
65 or over	24.6	75.4

OVERALL TRAVEL HABITS

Both the 1980 and 1983 surveys included fairly detailed questions regarding a variety of different types of travel and forms of transportation, but these inquiries do not determine how each respondent qualitatively perceives their reaction to changing transportation conditions. Information regarding this perception can be quite useful for planning purposes. To meet this need, both surveys included questions concerning whether or not the overall travel habits of the members of the household had changed. To supplement this, the 1983 survey also asked if the overall amount of automobile use for members of the household had changed. By crosstabulating these questions with those dealing with particular kinds of changes, whether it be a new form of travel or a reduced amount of travel, the contributing factors that caused someone to say their overall travel habits had changed can be determined.

Change in Overall Travel Habits

The percentage of households indicating their overall travel habits had changed declined dramatically from more than 58 percent in 1980 to 32 percent in 1983, yielding a complete reversal in survey results.

TABLE 63
OVERALL TRAVEL HABITS CHANGED
(PERCENT)

	<u>1980</u>	<u>1983</u>	<u>1980-1983 Percent Change</u>
Yes	58.3	32.0	-45.1
No	40.6	67.8	+67.0
Don't Know	1.1	0.2	-81.8

Change in Overall Automobile Use

To provide additional information, the 1983 survey asked respondents if their household's use of automobiles had changed. More than 27 percent of the households have increased their overall use of automobiles in the past two years, while 20.4 percent have decreased the amount, 50.5 have stayed the same and 1.5

don't drive. When this question is crosstabulated with the question regarding overall travel habits, it can be seen that more than 39 percent of those respondents whose travel habits have changed have also increased their auto use.

TABLE 64
OVERALL USE OF AUTOMOBILES
BY CHANGES IN OVERALL TRAVEL HABITS

<u>Overall Auto Use</u>	<u>Percent Whose Overall Travel Habits Have Changed</u>
Increased	39.4
Decreased	30.0
Remained the Same	30.0
Don't Drive	0.6

Changes in Travel Form

When this same method is applied to both surveys for comparable questions regarding changes in travel form, it can be seen that in 1980, of those respondents whose travel habits had changed, nearly one-fourth had also changed their form of work travel. In 1983, both work and long distance travel forms were changed nearly the same percentage of time.

TABLE 65
 CHANGES IN TRAVEL FORM BY
 CHANGE IN OVERALL HABITS

	<u>Percent Whose Overall Travel Habits Have Changed</u>	
	1980 Survey	1983 Survey
<u>Work Travel Form Changed</u>		
Yes	23.8	20.3
No	76.2	79.7
Don't know	0.1	0
<u>Local Travel Form Changed</u>		
Yes	12.9	12.0
No	87.1	87.8
Don't know	0	0.2
<u>Long Distance Travel Form Changed</u>		
Yes	15.6	19.5
No	83.8	79.8
Don't Know	0.6	0.6

Changes in Amount of Local Travel

One key area where the two survey results differed was in the substantially larger percent of 1983 respondents indicating an increase in the amount of their local travel compared with 1980. This is also reflected when those whose overall travel habits have changed are considered. In 1980 a decrease in the amount of local travel was considered to be a cause for a change in overall travel habits by a majority of the respondents, but in 1983 it is those who have increased their local travel that are most likely to also feel that their overall travel habits have changed.

TABLE 66
 CHANGES IN AMOUNT OF LOCAL TRAVEL
 BY CHANGE IN OVERALL TRAVEL HABITS

	<u>Percent Whose Overall Travel Habits Have Changed</u>	
	1980 Survey	1983 Survey
<u>Amount of Local Travel</u>		
Increased	14.1	38.0
Decreased	58.4	30.6
Remained the Same	27.4	31.4

Changes in Vehicle Ownership

The increased tendency of the 1983 respondents to acquire vehicles versus their 1980 counterparts can be seen in the larger proportion whose overall travel habits have changed.

TABLE 67
 CHANGES IN VEHICLE OWNERSHIP
 BY CHANGE IN OVERALL TRAVEL HABITS

	<u>Percent Whose Overall Travel Habits Have Changed</u>	
	1980 Survey	1983 Survey
<u>Acquired New or Different Vehicle</u>		
Yes	49.1	55.9
No	50.9	44.1
<u>Amount of Vehicles</u>		
Increased	15.9	25.6
Decreased	9.4	12.5
Remained the Same	74.6	61.9

Other Adjustments

Two of the most popular adjustments made by respondents in both surveys--using the telephone more as a substitute for travel and shopping closer to home--are considered by a majority of households to be a change in their overall travel habits. More respondents reported these adjustments in 1983 than in 1980.

TABLE 68
OTHER TRAVEL ADJUSTMENTS
BY CHANGE IN OVERALL TRAVEL HABITS

	<u>Percent Whose Overall Travel Habits Have Changed</u>	
	1980 Survey	1983 Survey
<u>Has Use of Telephone Increased</u>		
Yes	61.0	71.9
No	39.0	28.1
<u>Shop Closer to Home</u>		
Yes	53.1	80.7
No	46.9	19.3

APPENDIX A

HOUSEHOLD TRIPS

The U.S. Department of Transportation in its 1977 Nationwide Personal Transportation Study, Report 9, Household Travel, July, 1982, presented trip and travel rates per household in relationship to various socio-economic and demographic characteristics. Their findings were based on a sample of 18,000 households throughout the country. The 1983 WSDOT survey contained a series of questions on the number of trips household members had taken in the previous 24 hours. This included travel by automotive vehicle, motorcycle and bicycle, local transit, intercity bus and other modes. The results are summarized below and, where possible, the two studies are compared.

	<u>1983 WSDOT Survey</u>	<u>1977 National Survey*</u>
Percentage of households with each number of licensed drivers:		
Number of Licensed Drivers in Household		
None	1.6	12.7
One	22.5	33.6
Two	58.7	42.8
Three	12.3	8.2
Four or more	5.0	2.7
Average number of daily vehicle trips:		
Number of Licensed Drivers in Household		
None	0.3	NA
One	2.0	2.5
Two	3.0	5.0
Three	3.8	8.0
Four or more	5.0	11.3

*Findings based on 18,000 households sampled nationwide.

	<u>1983 WSDOT Survey</u>	<u>1977 National Survey</u>
Percentage of households with each number of motor vehicles:		

Number of Vehicles in Household

None	3.3	15.3
One	28.0	34.6
Two	41.2	34.4
Three	18.8	10.7
Four or more	8.8	5.0

Average number of daily vehicle trips:

Number of vehicles in household

None	0.4	0.1
One	2.2	2.9
Two	3.0	5.2
Three	3.5	6.9
Four or more	4.3	8.3

Average number of daily trips by mode, 1983 survey:

Mode

Automobile	2.90
Motorcycle	0.03
Bicycle	0.14
Local Transit	0.12
Intercity Bus	0
Other trips	0.05

APPENDIX B

DEMOGRAPHIC CHARACTERISTICS

Both the 1980 and 1983 surveys contained several demographic questions which were similar to those asked in the 1980 Census. Since having a telephone was a prerequisite for a household to be contacted by the two WSDOT surveys, but was not a restriction for the 1980 Census, some variance in the results are to be expected. Even so, by comparing the two surveys with the Census results for the state of Washington, one can see that overall both the 1980 and 1983 studies were quite representative of the state as a whole.

	<u>1980 Census</u>	<u>1980 Survey</u>	<u>1983 Survey</u>
Number of vehicles available per household by percent:			
None	9.0	4.8	3.3
One	32.3	33.9	28.0
Two	34.8	39.9	41.2
Three or more	23.8	21.4	27.5
Type of dwelling by percent:			
Single Family	70.8	74.7	78.5
Duplex	3.8	5.7	4.1
Apartment/Condominium	19.4	13.4	11.6
Mobile home	6.0	6.1	5.8
Occupancy status by percent:			
Own	65.6	71.3	73.5
Rent	34.4	28.7	26.5

Head of household's level of education by percent:	<u>1980 Census^{1/}</u>	<u>1980 Survey</u>	<u>1983 Survey</u>
Grade School or less	10.8	3.2	1.3
Some high school	12.1	7.6	6.3
High school graduate	37.8	29.3	30.4
Some college	20.5	30.3	27.8
College graduate	18.9*	20.3	23.7
Postgraduate studies		9.2	10.4

^{1/}Census figures include all household members over 25 years of age, not just head of household.

*Includes postgraduates as well as college graduates.

Head of household's occupation by percent:

Professional/Managerial	36.4*	26.1	29.4
Clerical	15.9	10.8	5.9
Sales	10.7	5.2	5.7
Crafts	13.6	7.31	5.7
Operative	10.3	5.2	6.4
Service Worker	13.8	6.9	5.7
Laborer	4.2	4.3	4.0
Military	2.7	0.5	1.6
Self-Employed	7.3	0.8	0.6
Retired	NA	13.8	17.5
Unemployed	7.6	2.2	2.3

*Census figures include all household members 16 years or older working, not just head of household.

	1980 <u>Census</u>	1980 <u>Survey</u>	1983 <u>Survey</u>
Number of persons per household:	2.68	2.89	2.85
Family income by percent:			
Under \$10,000	17.0	19.1	12.8
\$10,000-\$14,999	12.3	16.2	13.3
\$15,000-\$19,999	13.3	17.2	13.1
\$20,000-\$29,999	29.6	25.5	28.7
Over \$30,000	27.8	22.0	32.2
Percent distribution of age of adults (18 years or older) in household:			
18 - 24	18.4	19.3	8.6
25 - 34	24.9	26.4	26.8
35 - 44	16.3	16.3	21.7
45 - 54	13.1	14.9	15.0
55 - 64	12.8	11.2	14.5
65 or over	14.5	11.9	13.5

**APPENDIX C -- 1980 AND 1983
SURVEY QUESTIONNAIRES**

INTERVIEWER - RECORD START TIME: _____

(1) (2) (3) (4) (5) ¹

SEX
(6) -1 Female
2 Male

QUOTA GROUP
(7) (8) -01 Seattle
02 Spokane
03 Yakima
04 Olympia
05 Longview
06 Grant
07 Whitman
08 Clark
09 Pasco
10 Kennewick
11 Richland

RESPONSE OF WASHINGTON
RESIDENTS TO HIGHER COSTS OF
TRANSPORTATION AND ENERGY SHORTAGES

JUNE 1980
208373

INTRODUCTION: Hello! My name is Ms./Mr. _____ of GMA Research Corporation, a nationally known opinion research firm. Today we are conducting a short survey on the rising cost of transportation and its impact on the residents of the state of Washington, and would like to include your household's opinions. May I please speak to the male/female head of the household? (IF NOT AVAILABLE, ASK FOR ANY HOUSEHOLD MEMBER 18 OR OVER)

(IF RESPONDENT ASKS WHO SURVEY IS FOR, SAY: "Planning purposes for the State Department of Transportation.")

INTERVIEWER READ: "The following series of questions involve travel to and from work."

Q.1 What are your normal work hours? What about for other adult members of your household? (DO NOT READ LIST)

RESPONDENT	WORK HOURS	1ST OTHER ADULT	2ND OTHER ADULT	3RD OTHER ADULT
(9)(10)-01	7:30 am - 3:30 pm	(11)(12)-01	(13)(14)-01	(15)(16)-01
02	8:00 am - 4:30 pm	02	02	02
03	8:00 am - 5:00 pm	03	03	03
04	9:00 am - 5:00 pm	04	04	04
05	9:00 am - 6:00 pm	05	05	05
06	12:30 pm - 9:00 pm	06	06	06
07	4:00 pm - 11:00 pm	07	07	07
08	5:00 pm - 12:00 am	08	08	08
09	11:00 pm - 7:00 am	09	09	09
10	12:00 am - 8:00 am	10	10	10
11	Rotating shift	11	11	11
12	No one in household works outside home	12	12	12
13	Other (SPECIFY):			
	Other (SPECIFY):	13		
	Other (SPECIFY):		13	
	Other (SPECIFY):			13

IF NO ONE IN HOUSEHOLD WORKS OUTSIDE HOME, SKIP TO Q.9a

Q.2 What is your usual form of transportation to and from work? And for other adult members, if any, in your household?
(DO NOT READ LIST--CLARIFY INTO ONE SPECIFIC CATEGORY)

(INTERVIEWER: BE SURE TO SEPARATE RESPONDENT'S ANSWERS FROM THOSE FOR OTHER ADULTS, IF ANY. PROBE FOR OTHER ADULTS UP TO 3)

RESPONDENT	TRANSPORTATION	1ST OTHER ADULT	2ND OTHER ADULT	3RD OTHER ADULT
(17)(18)-01	Private auto (alone)	(19)(20)-01	(21)(22)-01	(23)(24)-01
02	Car pool (2 or more)	02	02	02
03	Van pool (2 or more)	03	03	03
04	Bus (co. owned or operated)	04	04	04
05	Transit bus (local)	05	05	05
06	Motorcycle	06	06	06
07	Moped	07	07	07
08	Bicycle	08	08	08
09	Park 'n Ride	09	09	09
10	Other (SPECIFY):			
	Other (SPECIFY):	10		
	Other (SPECIFY):		10	
	Other (SPECIFY):			10
11	Don't work outside home	11	11	11

Q.3 On the average, how long does it take you to travel from home to work?
(DO NOT READ LIST) (RECORD ACTUAL TIME & CIRCLE APPROPRIATE CATEGORY)

(IF RESPONDENT DOES NOT WORK, ASK ABOUT OTHER HEAD OF HOUSEHOLD)

MINUTES
(25) (26) (27)

- (28)-1 Less than 10 minutes
2 11 to 20 minutes
3 21 to 30 minutes
4 31 to 40 minutes
5 41 to 50 minutes
6 51 to 60 minutes
7 Over 1 hour
8 Don't know/Refused

INTERVIEWER NOTE:

WHEN RECORDING ACTUAL TIME, INSERT ZEROS WHERE NEEDED: 0 3 5 MINUTES

Q.4 Approximately how far do you live from your work? (DO NOT READ LIST)
(IF RESPONDENT DOES NOT WORK, ASK ABOUT OTHER HEAD OF HOUSEHOLD)

MILES
(29) (30) (31)

- (32)(33)-01 Less than 1 mile (SKIP TO Q.7a)
02 1 to 2 miles
03 3 to 4 miles
04 5 to 6 miles
05 7 to 8 miles
06 9 to 10 miles
07 11 to 15 miles
08 16 to 20 miles
09 21 to 30 miles
10 Over 30 miles
11 Don't know/Refused

INTERVIEWER NOTE:

WHEN RECORDING ACTUAL MILES INSERT ZEROS WHERE NEEDED: 0 5

Q.5a As costs continue to rise, would you prefer to move closer to your place of work?

- (34)-1 Yes
- 2 No
- 3 Other (SPECIFY): _____
- 4 Don't know

Q.5b Are you planning to move closer to your place of work during the next 12 months?

- (35)-1 Yes
- 2 No
- 3 Don't know

Q.6 As a result of rising transportation costs, would you prefer finding a job closer to your home?

- (36)-1 Yes
- 2 No
- 3 Other (SPECIFY): _____
- 4 Don't know

Q.7a Has your form of transportation to and from work changed in the last two years?

- (37)-1 Yes
 - 2 No
 - 3 Don't know
- _____ (SKIP TO Q.8a)

Q.7b What was the old form? (READ ONLY CHOICES IN CAPITAL LETTERS)

- (38)-1 SINGLE OCCUPANT AUTO
- 2 CARPOOL/VAN POOL
- 3 BUS
- 4 MOTORCYCLE/BICYCLE
- 5 Walking
- 6 Other (Specify): _____

Q.7c Why did you change? (DO NOT READ LIST--RECORD UP TO 2 MENTIONS)

- (39)-1 Cost of fuel
- (40) 2 Transit available (bus)
- 3 Change of job
- 4 Park 'n Ride
- 5 Joined car/van pool
- 6 Cost of vehicle/transportation
- 7 Energy conservation/patriotism/energy independence
- 8 Moved/changed residence
- 9 Just needed new car
- 0 Other (SPECIFY): _____

Q.8a Assuming the price of fuel and total transportation costs continue to rise, do you plan to change your form of transportation to and from work?

(41)-1 Yes

2 No (SKIP TO
3 Don't know Q.9a)

Q.8b What form of transportation would be substituted? (DO NOT READ LIST)
(RECORD UP TO 2 MENTIONS)

(42)-1 Automobile (Compact)

- (43) 2 Bus
- 3 Car pool
- 4 Motorcycle
- 5 Moped
- 6 Bicycle
- 7 Walk
- 8 Other (SPECIFY): _____

INTERVIEWER READ: "The following questions are about travel to school or college."

Q.9a Do you or any persons currently living in your household attend school, grades kindergarten through 12?

- (44)-1 Yes
- 2 No (SKIP TO Q.10a)

Q.9b How far do those who attend school in your household live from their school? (RECORD FOR UP TO TWO INDIVIDUALS FOR SCHOOL)
(CLARIFY INDIVIDUAL RESPONSES INTO SCHOOL)

INTERVIEWER NOTE:
WHEN RECORDING ACTUAL MILES INSERT
ZEROS WHERE NEEDED: 0 3 5 MILES

FIRST SCHOOL INDIVIDUAL:

SECOND SCHOOL INDIVIDUAL:

MILES
(45) (46) (47)

MILES
(49) (50) (51)

- (48)-1 Less than 1 mile
- 2 1 to 3 miles
- 3 4 to 6 miles
- 4 7 to 10 miles
- 5 11 to 15 miles
- 6 16 to 20 miles
- 7 21 to 30 miles
- 8 Over 30 miles
- 9 Don't know/Refused

- (52)-1 Less than 1 mile
- 2 1 to 3 miles
- 3 4 to 6 miles
- 4 7 to 10 miles
- 5 11 to 15 miles
- 6 16 to 20 miles
- 7 21 to 30 miles
- 8 Over 30 miles
- 9 Don't know/Refused

Q.9c What is the usual form of transportation to and from school for those members of your household? (DO NOT READ LIST--CLARIFY INTO ONE SPECIFIC CATEGORY)

(INTERVIEWER: BE SURE TO SEPARATE RESPONDENT'S ANSWERS FROM THOSE FOR OTHER ADULTS OR CHILDREN IN HOUSEHOLD)

RESPONDENT	TRANSPORTATION	1ST PERSON (SCHOOL)	2ND PERSON (SCHOOL)
(53)(54)-01	Private auto (alone)	(55)(56)-01	(57)(58)-01
02	Car pool (2 or more) (ride with parents)	02	02
03	Van pool (2 or more)	03	03
04	Bus (Transit)	04	04
05	School bus	05	05
06	Motorcycle	06	06
07	Moped	07	07
08	Bicycle	08	08
09	Park 'n Ride	09	09
10	Walk	10	10
11	Other (SPECIFY):		
	Other (SPECIFY):		
	Other (SPECIFY):	11	
			11

Q.10a Are there any members of your family living at home who attend other training or education programs (that is, college or vocational school)?

(59)-1 Yes

2 No -- SKIP TO Q.12a IF RESPONSE TO Q.9a WAS YES, CHILDREN IN SCHOOL

3 No -- SKIP TO Q.14 IF RESPONSE TO Q.9a WAS NO, NO CHILDREN IN SCHOOL

Q.10b How far do you or those who attend other classes live from their educational institutions? (RECORD UP TO TWO INDIVIDUALS BELOW) (CLARIFY INDIVIDUAL RESPONSES INTO GRIDS BELOW)

FIRST COLLEGE INDIVIDUAL:

SECOND COLLEGE INDIVIDUAL:

MILES
(60) (61) (62)

MILES
(64) (65) (66)

(63)-1 Less than 1 mile
2 1 to 3 miles
3 4 to 6 miles
4 7 to 10 miles
5 11 to 15 miles
6 16 to 20 miles
7 21 to 30 miles
8 Over 30 miles
9 Don't know/Refused

(67)-1 Less than 1 mile
2 1 to 3 miles
3 4 to 6 miles
4 7 to 10 miles
5 11 to 15 miles
6 16 to 20 miles
7 21 to 30 miles
8 Over 30 miles
9 Don't know/Refused

Q.11 What is the usual form of transportation to and from classes for those members of your household? (DO NOT READ LIST) (CLARIFY INTO ONE SPECIFIC CATEGORY)

RESPONDENT	TRANSPORTATION	1ST PERSON (COLLEGE)	2ND PERSON (COLLEGE)
(68)(69)-01	Private auto (alone)	(70)(71)-01	(72)(73)-01
02	Car pool (2 or more)	02	02
03	Van pool (2 or more)	03	03
04	Bus (Transit)	04	04
05	School bus	05	05
06	Motorcycle	06	06
07	Moped	07	07
08	Bicycle	08	08
09	Park 'n Ride	09	09
10	Walk	10	10
11	Other (SPECIFY):		
	Other (SPECIFY):		
	Other (SPECIFY):	11	
			11

Q.12a Has the form of transportation for members of your household to and from school (includes all educational institutions) changed during the past two years?

- (74)-1 Yes
 2 No
 3 Don't know
- SKIP TO Q.13a

Q.12b What was the previous form? Was it... (READ ONLY CHOICES IN CAPITAL LETTERS IN LIST BELOW)

- (75)-1 SINGLE PASSENGER AUTO
 2 CARPOOL/VAN POOL
 3 BUS (SCHOOL)
 4 BUS (TRANSIT OR OTHER)
 5 Walking
 6 Bicycle/Motorcycle
 7 Other (Specify): _____

Q.12c Why did you (they) change? (DO NOT READ LIST) (RECORD UP TO 2 MENTIONS)

- (76)-1 Cost of fuel
 (77) 2 Transit available (bus)
 3 Change of job
 4 Park 'n Ride
 5 Joined car/van pool
 6 Cost of vehicle/transportation
 7 Energy conservation/patriotism/energy independence
 8 Moved/changed residence
 9 Other (SPECIFY): _____

Q.9c What is the usual form of transportation to and from school for those members of your household? (DO NOT READ LIST--CLARIFY INTO ONE SPECIFIC CATEGORY)

(INTERVIEWER: BE SURE TO SEPARATE RESPONDENT'S ANSWERS FROM THOSE FOR OTHER ADULTS OR CHILDREN IN HOUSEHOLD)

RESPONDENT	TRANSPORTATION	1ST PERSON (SCHOOL)	2ND PERSON (SCHOOL)
(53)(54)-01	Private auto (alone)	(55)(56)-01	(57)(58)-01
02	Car pool (2 or more) (ride with parents)	02	02
03	Van pool (2 or more)	03	03
04	Bus (Transit)	04	04
05	School bus	05	05
06	Motorcycle	06	06
07	Moped	07	07
08	Bicycle	08	08
09	Park 'n Ride	09	09
10	Walk	10	10
11	Other (SPECIFY):		
	Other (SPECIFY):		
	Other (SPECIFY):	11	
			11

Q.10a Are there any members of your family living at home who attend other training or education programs (that is, college or vocational school)?

(59)-1 Yes

2 No -- SKIP TO Q.12a IF RESPONSE TO Q.9a WAS YES, CHILDREN IN SCHOOL

3 No -- SKIP TO Q.14 IF RESPONSE TO Q.9a WAS NO, NO CHILDREN IN SCHOOL

Q.10b How far do you or those who attend other classes live from their educational institutions? (RECORD UP TO TWO INDIVIDUALS BELOW) (CLARIFY INDIVIDUAL RESPONSES INTO GRIDS BELOW)

FIRST COLLEGE INDIVIDUAL:

SECOND COLLEGE INDIVIDUAL:

MILES
(60) (61) (62)

MILES
(64) (65) (66)

(63)-1 Less than 1 mile
2 1 to 3 miles
3 4 to 6 miles
4 7 to 10 miles
5 11 to 15 miles
6 16 to 20 miles
7 21 to 30 miles
8 Over 30 miles
9 Don't know/Refused

(67)-1 Less than 1 mile
2 1 to 3 miles
3 4 to 6 miles
4 7 to 10 miles
5 11 to 15 miles
6 16 to 20 miles
7 21 to 30 miles
8 Over 30 miles
9 Don't know/Refused

Q.11 What is the usual form of transportation to and from classes for those members of your household? (DO NOT READ LIST) (CLARIFY INTO ONE SPECIFIC CATEGORY)

RESPONDENT	TRANSPORTATION	1ST PERSON (COLLEGE)	2ND PERSON (COLLEGE)
(68)(69)-01	Private auto (alone)	(70)(71)-01	(72)(73)-01
02	Car pool (2 or more)	02	02
03	Van pool (2 or more)	03	03
04	Bus (Transit)	04	04
05	School bus	05	05
06	Motorcycle	06	06
07	Moped	07	07
08	Bicycle	08	08
09	Park 'n Ride	09	09
10	Walk	10	10
11	Other (SPECIFY):		
	Other (SPECIFY):		
	Other (SPECIFY):	11	
			11

Q.12a Has the form of transportation for members of your household to and from school (includes all educational institutions) changed during the past two years?

- (74)-1 Yes
 2 No
 3 Don't know
- SKIP TO Q.13a

Q.12b What was the previous form? Was it... (READ ONLY CHOICES IN CAPITAL LETTERS IN LIST BELOW)

- (75)-1 SINGLE PASSENGER AUTO
 2 CARPOOL/VAN POOL
 3 BUS (SCHOOL)
 4 BUS (TRANSIT OR OTHER)
 5 Walking
 6 Bicycle/Motorcycle
 7 Other (Specify): _____

Q.12c Why did you (they) change? (DO NOT READ LIST) (RECORD UP TO 2 MENTIONS)

- (76)-1 Cost of fuel
 (77) 2 Transit available (bus)
 3 Change of job
 4 Park 'n Ride
 5 Joined car/van pool
 6 Cost of vehicle/transportation
 7 Energy conservation/patriotism/energy independence
 8 Moved/changed residence
 9 Other (SPECIFY): _____

Q.13a Assuming transportation costs continue to rise, do you and members of your household plan to change your form of transportation to and from school?

- (78)-1 Yes
 2 No (SKIP TO Q.14)
 3 Don't know/does not apply

Q.13b What form of transportation would be substituted? (DO NOT READ LIST) (RECORD UP TO 2 MENTIONS)

- (79)-1 Automobile (compact)
 (80) 2 School bus
 3 Transit bus
 4 Car pool
 5 Motorcycle
 6 Bicycle
 7 Walk
 8 Other (SPECIFY):
- | | | | | |
|-------------|-----|-----|-----|-----|
| KEYPUNCHER: | | | | |
| | | | | 2 |
| (1) | (2) | (3) | (4) | (5) |

INTERVIEWER READ: "The following questions concern local travel, other than for work or school."

Q.14 What is the primary form of transportation for you and other adult members of your household for local travel other than for work and school; that is, travel for shopping, church, visiting friends, doctors, etc.)?

(DO NOT READ LIST--CLARIFY INTO ONE SPECIFIC CATEGORY)
 (INTERVIEWER: BE SURE TO SEPARATE RESPONDENT'S ANSWERS FROM THOSE FOR OTHER ADULTS, IF ANY. PROBE FOR OTHER ADULTS)

RESPONDENT	TRANSPORTATION	1ST OTHER ADULT	2ND OTHER ADULT	3RD OTHER ADULT
(6) (7)-01	Private auto (alone)	(8) (9)-01	(10)(11)-01	(12)(13)-01
02	Car pool (2 or more)	02	02	02
03	Van pool (2 or more)	03	03	03
04	Bus (Transit)	04	04	04
05	School bus	05	05	05
06	Motorcycle	06	06	06
07	Moped	07	07	07
08	Bicycle	08	08	08
09	Park 'n Ride	09	09	09
10	Other (SPECIFY):			
	Other (SPECIFY):	10		
	Other (SPECIFY):		10	
	Other (SPECIFY):			10
11	Don't work outside hme	11	11	11

Q.15a Has your form of transportation for local travel, other than for work, school or vacations, changed during the past two years?

- (14)-1 Yes
2 No
3 Don't know
- SKIP TO Q.16a

Q.15b What was the previous form? Was it... (READ ONLY CHOICES IN CAPITAL LETTERS IN LIST BELOW)

- (15)-1 SINGLE PASSENGER AUTO
2 CARPOOL/VAN POOL
3 BUS (SCHOOL)
4 BUS (TRANSIT OR OTHER)
5 Walking
6 Bicycle/Motorcycle
7 Other (Specify): _____

Q.15c What was the primary reason? (DO NOT READ LIST) (RECORD UP TO 2M)

- (16)-1 Cost of fuel
(17) 2 Transit available (bus)
3 Change of job
4 Park 'n Ride
5 Joined car/van pool
6 Cost of vehicle/transportation
7 Energy conservation/patriotism/energy independence
8 Moved/changed residence
9 Other (SPECIFY): _____

→Q.16a As costs rise, do you and the members of your household plan to change your form of transportation for local travel? (Includes shopping, church, visiting friends, doctors, etc.)

- (18)-1 Yes
2 No
3 Don't know
- (SKIP TO Q.17a)

Q.16b What form of transportation would be substituted? (DO NOT READ LIST) (RECORD UP TO THREE MENTIONS)

- (19)(20)(21)-1 Smaller automobile
2 Bus
3 Car pool
4 Motorcycle
5 Bicycle
6 Walk
7 Other (SPECIFY): _____

INTERVIEWER READ: "The following are subjective questions which may require you to take time in answering."

→Q.17a Has the total amount of local travel for members of your household...(READ LIST)

- (22)-1 Increased, READ OPTIONS SLOWLY!
2 Decreased, or
3 Remained about the same during the past two years?

Q.17b Assuming the price of fuel and total transportation costs will continue to rise, do you plan to... (READ LIST)

- (23)-1 Increase, READ OPTIONS SLOWLY!
2 Decrease, or
3 Keep about the same the amount of local travel you now do?

Q.18a Has there been an increase in the use of the telephone by members of your household as a means of cutting down travel?

- (24)-1 Yes
2 No
3 Don't know

Q.19 Are you and members of your household shopping closer to home than you did two years ago?

- (25)-1 Yes
2 No
3 Don't know

Q.20 Approximately how far do you travel one way for most of your shopping needs? (DO NOT READ LIST)

- | | | | |
|--------|------------------|---|----------------|
| (26)-1 | Less than 1 mile | 5 | 11 to 15 miles |
| 2 | 1 to 3 miles | 6 | 16 to 20 miles |
| 3 | 4 to 6 miles | 7 | 21 to 30 miles |
| 4 | 7 to 10 miles | 8 | Over 30 miles |

Q.21 For trips outside your community that are not work related and less than 200 miles (one way), what is the most frequent form of transportation you use? (DO NOT READ LIST) (RECORD ONLY ONE MENTION)

- (27)-1 Automobile
2 Truck/van/camper/motor home
3 Bus
4 Train
5 Airplane
6 Motorcycle
7 Other (SPECIFY): _____

INTERVIEWER READ: "The following questions deal with longer distance travel."

Q.22 For any trips of more than 200 miles (one way) that are not work related, what is the most frequent form of transportation you used? (DO NOT READ LIST) (RECORD ONLY ONE MENTION)

- (28)-1 Automobile
2 Truck/van/camper/motor home
3 Bus
4 Train
5 Airplane
6 Motorcycle
7 Other (SPECIFY): _____

Q.23a Has your form of personal transportation for long distance travel changed during the past two years?

- (29)-1 Yes
2 No
3 Don't know (SKIP TO Q.24a)

Q.23b How has it changed? (PROBE FOR BOTH OLD FORM OF TRANSPORTATION AND NEW FORM OF TRANSPORTATION)

- | | <u>OLD FORM</u> | <u>NEW FORM</u> |
|--------|----------------------------|------------------------------|
| (30)-1 | Automobile (large) | (31)-1 Automobile (large) |
| 2 | Automobile (small/economy) | 2 Automobile (small/economy) |
| 3 | Airplane | 3 Airplane |
| 4 | Bus | 4 Bus |
| 5 | Train/Amtrack | 5 Train/Amtrack |
| 6 | Other (SPECIFY): _____ | 6 Other (SPECIFY): _____ |

Q.24a As transportation costs continue to rise, do you and members of your household plan to change your form of transportation for long distance travel?

- (32)-1 Yes
2 No
3 Don't know (SKIP TO Q.25)

Q.24b What form of transportation would be substituted? (DO NOT READ LIST) (RECORD UP TO TWO MENTIONS)

- (33)-1 Automobile (compact)
(34) 2 Plane
3 Bus
4 Train
5 Other (SPECIFY): _____

Q.25 Assuming costs of transportation will continue to increase, do you plan to... (READ LIST)

- (35)-1 Increase,
2 Decrease, or
3 Keep about the same the amount of long distance travel you now do?

INTERVIEWER READ: "The following questions concern recreational and vacation travel."

Q.26a Are you planning a vacation this year that will take you over 500 miles from home?

- (36)-1 Yes
2 No
3 Don't know (SKIP TO Q.26c)

Q.26b How do you plan to travel to your vacation destination? (READ LIST) (RECORD ONE MENTION)

- (37)-1 Automobile
- 2 Airplane
- 3 Bus
- 4 Boat/Ship
- 5 Train
- 6 Motorhome
- 7 Pick-up/Camper
- 8 Travel Trailer
- 9 Other (SPECIFY): _____
- 0 Don't know

Q.26c Are you planning any recreational travel within Washington State this year?

- (38)-1 Yes
- 2 No
- 3 Don't know

Q.27a Has the rising cost of travel and transportation affected your recreational and vacation plans?

- (39)-1 Yes
- 2 No | (SKIP TO
- 3 Don't know | Q.28)

Q.27b In what way? (DO NOT READ LIST) (RECORD UP TO THREE MENTIONS)

- (40)-1 Cancelled vacation
- (41) 2 Vacation closer to home
- (42) 3 Take plane instead of car
- 4 Take bus instead of car
- 5 Take train instead of car
- 6 Stay longer at one place
- 7 Take shorter trips
- 8 Take fewer intermediate trips
- 9 Other (SPECIFY): _____

INTERVIEWER READ: "The following questions concern local public transit."

Q.28 Is there local public bus service available in your neighborhood? (INTERVIEWER NOTE: EXCLUDES GREYHOUND AND TRAILWAYS)

- (43)-1 Yes
- 2 No | (SKIP TO
- 3 Don't know | Q.30c)

Q.29 Do you or members of your household ride the bus frequently; that is, at least once per week? (public bus, not Greyhound or Trailways)

- (44)-1 Yes (CONTINUE WITH Q.30a)
- 2 No (SKIP TO Q.30b)

Q.30a For what occasions do you or members of your household ride the bus? (DO NOT READ LIST -- PROBE FOR UP TO FIVE MENTIONS)

- | | | |
|----------|----|--|
| (45)(47) | -1 | Work |
| (46)(48) | 2 | Shopping |
| (49) | 3 | Personal travel |
| | 4 | School |
| | 5 | Other (SPECIFY): _____ |
| | 6 | Don't use bus at all (CONTINUE WITH Q.30b) |

SKIP TO
Q.30d

Q.30b Why do you choose not to ride the bus? (DO NOT READ LIST)
(RECORD UP TO THREE MENTIONS)

- | | | |
|------|----|-------------------------------|
| (50) | -1 | Too far to bus stop |
| (51) | 2 | Too crowded |
| (52) | 3 | Doesn't run often enough |
| | 4 | Doesn't go where I need to go |
| | 5 | Too inconvenient |
| | 6 | Cheaper to drive or walk |
| | 7 | Weather is too bad |
| | 8 | Just prefer automobile |
| | 9 | Other (SPECIFY): _____ |

SKIP TO
Q.30d

Q.30c Would you be willing to pay increased sales or other tax to get public bus service in your area?

- | | | | |
|------|----|------------|---------------|
| (53) | -1 | Yes | SKIP TO Q.30e |
| | 2 | No | |
| | 3 | Don't know | SKIP TO Q.31 |

Q.30d Would you be willing to pay increased sales or other tax to get expanded local public bus service?

- | | | | |
|------|----|------------|---------|
| (54) | -1 | Yes | |
| | 2 | No | SKIP TO |
| | 3 | Don't know | Q.31 |

Q.30e Would you personally use the local bus service?

- | | | |
|------|----|-----|
| (55) | -1 | Yes |
| | 2 | No |

INTERVIEWER READ: "The following questions deal with vehicles in your household."

Q.31 Have you purchased or traded for a new or different vehicle in the past two years?

- | | | | |
|------|----|------------|----------|
| (56) | -1 | Yes | |
| | 2 | No | (SKIP TO |
| | 3 | Don't know | Q.34a) |

Q.32 For what reason? (DO NOT READ LIST) (RECORD UP TO THREE MENTIONS)

- (57)-1 Personal reasons
- (58) 2 Better fuel economy
- (59) 3 To replace old vehicle
- 4 Needed bigger vehicle
- 5 More drivers in household
- 6 Other (SPECIFY): _____

Q.33 Is your new vehicle more economical to operate than your previous vehicle?

- (60)-1 Yes
- 2 No
- 3 Other (SPECIFY): _____
- 4 Don't know

Q.34a Has the number of vehicles in your household... (READ LIST)

- (61)-1 Increased, (ASK Q.34b)
- 2 Decreased, or (ASK Q.34c)
- 3 Remained the same in the past two years? (SKIP TO Q.35a)

→Q.34b By how many did it increase?

____ (SKIP TO Q.35a)
(62) (63)

Don't know

INTERVIEWER: INSERT ZEROS WHERE
NECESSARY: 0 6

KEYPUNCHER: IF "DON'T KNOW, PUNCH "99"

→Q.34c By how many did it decrease?

(64) (65)

Don't know

INTERVIEWER: INSERT ZEROS WHERE
NECESSARY: 0 6

KEYPUNCHER: IF "DON'T KNOW, PUNCH "99"

→Q.35a Assuming the price of fuel and total transportation costs will continue to rise, do you plan to... (READ LIST)

- (66)-1 Increase, (ASK Q.35b)
- 2 Decrease, or (ASK Q.35c)
- 3 Keep the same number of vehicles in your household? (SKIP TO Q.36)

→Q.35b By how many will it increase?

____ (SKIP TO Q.36)
(67) (68)

Don't know

INTERVIEWER: INSERT ZEROS WHERE
NECESSARY: 0 6

KEYPUNCHER: IF "DON'T KNOW, PUNCH "99"

→Q.35c By how many will it decrease?

(69) (70)

Don't know

INTERVIEWER: INSERT ZEROS WHERE
NECESSARY: 0 6

KEYPUNCHER: IF "DON'T KNOW, PUNCH "99"

Q.36 How many, if any, of the following non-commercial vehicles are used by members of your household? (READ LIST)

(RECORD NUMBER IN APPROPRIATE BLANKS) (PROBE INTO CATEGORIES)

<u>(READ LIST):</u>	<u>(RECORD # OF VEHICLES)</u>
01 Standard/Full-Size Automobiles (CLARIFY: Under 20 miles per gallon)	_____ (71)
02 Compact/Economy Automobiles (CLARIFY: Over 20 mpg)	_____ (72)
03 Pick-up Trucks	_____ (73)
04 Street-Approved Motorcycles	_____ (74)
05 Vans	_____ (75)
06 Bicycles	_____ (76)
07 Private Airplanes or Helicopters	_____ (77)
08 Pick-up Camper	_____ (78)
09 Travel Trailer	_____ (79)
10 Motor Homes	_____ (80)
11 Motorboats	_____ (6)
12 Snowmobiles	_____ (7)
13 4-Wheel Drive (All Terrain Vehicles)	_____ (8)

KEYPUNCHER: _____ (1) (2) (3) (4) (5)
--

INTERVIEWER: INSERT ZEROS WHERE NECESSARY
--

KEYPUNCHER: PUNCH BLANK AS A ZERO
--

INTERVIEWER READ: "The following question, again, is subjective in nature. Please give it careful thought."
--

Q.37a Overall, the price of fuel and transportation costs have increased. Have the travel habits of the members of your household changed?

(9)-1 Yes
 2 No _____ (SKIP TO Q.38)
 3 Don't know _____

Q.37b How have your travel habits changed? (PROBE FOR 2 MENTIONS & CLARIFY)

1M _____

 2M _____

Q.44 How many persons, including yourself, reside in your household?
(RECORD ACTUAL NUMBER)

(17) (18)

INTERVIEWER: INSERT ZEROS WHERE NECESSARY: 0 6
NECESSARY: 0 6

Q.45 And what is your age? (DO NOT READ LIST)

- (19)-1 18-24
- 2 25-44
- 3 45-64
- 4 65 or over
- 5 Refused

Q.46 Including yourself, how many members of your household are in each of the following age groups? (READ LIST--RECORD ACTUAL # FOR EACH)

- (20) _____ a. 0 to 4?
- (21) _____ b. 5 to 17?
- (22) _____ c. 18 to 24?
- (23) _____ d. 25 to 34?
- (24) _____ e. 35 to 44?
- (25) _____ f. 45 to 54?
- (26) _____ g. 55 to 64?
- (27) _____ h. 65 or over?

INTERVIEWER: INSERT ZEROS WHERE
NECESSARY: 0 1

Q.47 And finally, which of the following categories includes your combined household income for 1979? (READ LIST)

- (28)-1 Under \$10,000
- 2 \$10,000 to \$14,999
- 3 \$15,000 to \$19,999
- 4 \$20,000 to \$29,999 or
- 5 \$30,000 or over?
- 6 (DON'T READ) REFUSED

RECORD RESPONDENT'S FIRST NAME AND PHONE NUMBER FOR SUPERVISOR VERIFICATION:

FIRST NAME: _____ PHONE #: _____

TERMINATE POLITELY.

VERIFICATION RECEIPT:

Interviewer's Signature: _____

By this signature, I hereby certify that I have properly filled out the survey honestly, completely and correctly. I understand that should I falsify, or in any manner misrepresent the information gathered on this instrument, I will be solely liable for damages that might accrue to GMA Research Corporation.

RECORD FINISH TIME: _____ RECORD LENGTH OF INTERVIEW: _____ (MINUTES)
(29) (30)

GMA RESEARCH CORPORATION

(16)

208373

(1) (2) (3) (4) (5)

20779
TRANSPORTATION COST IMPACT STUDY

GMA Research Corporation
1000 - 124th Avenue N.E.
Bellevue, WA 98005

MARCH 1983

INITIALS			NUMBER			QUESTIONNAIRE	
INTERVWR.	_____	_____	(6)	(7)	(8)	APPROVED BY:	
EDITOR	_____	_____	(9)	(10)	(11)	INITIAL	DATE
SUPERVISOR	_____	_____	(12)	(13)	(14)	<i>[Signature]</i>	3/2
VERIFY	_____	_____				<i>[Signature]</i>	3/2
CODER	_____	_____				<i>[Signature]</i>	3/2
KEYPUNCH	_____	_____					
KEY VERIFY	_____	_____					
HAND TAB	_____	_____				<i>[Signature]</i>	3/2
						<i>[Signature]</i>	3/2

STOP TIME: _____ : _____

START TIME: _____ : _____

LENGTH (IN MINUTES): _____

(15) (16)

DATE: _____/_____/_____/83
(17) (18) (19) (20)

RESPONDENT'S 1ST NAME: _____

PHONE NUMBER: (_____) _____ - _____
(21) (22) (23) (24) (25) (26) (27) (28)

Quota Group: COUNTIES

CLASSIFICATION

01	Whatcom	14	Clallam	27	Lewis	(31) -1	Metropolitan
02	Kitsap	15	Clark	28	Lincoln		
03	Thurston	16	Columbia	29	Mason	2	Urban
04	Benton	17	Cowlitz	30	Okanogan		
05	Franklin	18	Douglas	31	Pacific	3	Rural
06	King	19	Ferry	32	Pend Oreille		
07	Snohomish	20	Garfield	33	San Juan		
08	Spokane	21	Grant	34	Skagit		<u>KEYPUNCH SKIP 32</u>
09	Pierce	22	Gray's Harbor	35	Skamania		
10	Yakima	23	Island	36	Steven		
11	Adams	24	Jefferson	37	Wahkiakum		
12	Asotin	25	Kittitas	38	Walla Walla		
13	Chelan	26	Klickitat	39	Whitman		

INTRODUCTION: Hello! My name is Mr./Ms. _____, with GMA Research Corporation, a national marketing and opinion research firm located in Seattle, Washington. Today we are conducting a survey on the rising cost of transportation and its impact on the residents of the State of Washington, and would like to include your household's opinion. May I please speak to the head of the household?

(If not available, ask for any household member 18 or over)

(IF RESPONDENTS ASK WHO SURVEY IS FOR, SAY: "Planning purposes for the State Department of Transportation.")

HEAD OF HOUSEHOLD (NOT A QUESTION--INTERVIEWER DETERMINE)

- (33) -1 Yes
- 2 No

SEX (NOT A QUESTION--INTERVIEWER DETERMINE)

- (34) -1 Female
- 2 Male

Q.1 Has the overall amount of automobile use for you and members of your household...(READ CHOICES SLOWLY)

- (35) -1 Increased
- 2 Decreased, or
- 3 Remained about the same the past 2 years
- 4 (DON'T READ) Don't drive

(INTERVIEWER READ: "The following series of questions involves travel to and from work.")

Q.2 How many adults in this household, including yourself, work outside the home?

- (36) -1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight
- 9 Nine or more
- 0 None

(IF NONE, SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q. 20)

Y Refused/Don't know

Q.3 Do you work outside the home?

- (37)-1 Yes
- 2 No (SKIP TO Q.6)

Q.4 Currently, what is your usual form of transportation to and from work? (DO NOT READ LIST)

- | | |
|--|--|
| <ul style="list-style-type: none"> (38)-1 Automobile/van/truck--- 2 Local transit bus 3 Motorcyle | <ul style="list-style-type: none"> 4 Bicycle 5 Walk 6 Other (SPECIFY) _____ |
|--|--|

----SKIP TO O.8

Q.5 Do you usually... (READ LIST)

- (39)-1 Drive your vehicle to work alone,
- 2 Share your vehicle with 1 other person, or
- 3 Participate in an ongoing carpool/vanpool of 3 or more persons.

(NOTE: IF RESPONDENT WORKS OUTSIDE HOME, SKIP TO Q.8)

0.6 For the adult in your household currently working outside your home, what is their usual form of transportation to and from work?
(DO NOT READ LIST)

- | | | | |
|---------|----------------------|---|-----------------------|
| (40) -1 | Automobile/van/truck | 4 | Bicycle |
| | CONTINUE TO 0.7 | 5 | Walk |
| 2 | Local transit bus | 6 | Other (SPECIFY) _____ |
| 3 | Motorcycle | | |

---SKIP
TO 0.8

0.7 Do they usually...(READ LIST)

- (41) -1 Drive the vehicle to work alone,
2 Share the vehicle with 1 other person, or
3 Participate in an ongoing carpool/vanpool of 3 or more persons.

Q.8 On the average, how many minutes does it take to travel from home to work?
(RECORD ACTUAL NUMBER OF MINUTES--USE LEADING ZERO WHEN NECESSARY : 0 3)

(42) (43)

(NOTE: IF RESPONDENT DOES NOT WORK OUTSIDE HOME, SKIP TO 0.10)

0.9 Approximately how far do you live from your place of employment?
(RECORD ACTUAL NUMBER OF MILES -- USE LEADING ZERO WHEN NECESSARY: 0 1;
-- IF LESS THAN 1 MILE ENTER "00")

(44) (45) KEYPUNCH SKIP 46,47,48

(NOTE: IF RESPONDENT WORKS OUTSIDE HOME, SKIP TO 0.11)

0.10 For the adult in your household working outside your home, approximately how far is it to the place of employment?
(DO NOT READ LIST -(RECORD ACTUAL NUMBER OF MILES -- USE LEADING ZERO WHEN NECESSARY: 0 1)

(44) (45) KEYPUNCH SKIP 46,47,48

0.11 How many of those, including yourself, who work outside the home usually go to work by each of the following forms of transportation meaning the type of vehicle or other means to go to work? (READ LIST - RECORD NUMBER OF EACH)

- | | | | |
|------------|-----------------------------|------------|-----------------------|
| (49) _____ | Automobile/van/pickup truck | (52) _____ | Bicycle |
| (50) _____ | Local transit bus | (53) _____ | Walk |
| (51) _____ | Motorcycle | (54) _____ | Other (SPECIFY) _____ |

0.12 Has the form of transportation to and from work changed in the last two years?

- (55) -1 Yes
2 No (SKIP TO 0.16)
3 Don't know (SKIP TO 0.16)

Q.13 What was the previous form? (DO NOT READ LIST)

- | | | | | |
|--------|-------------------------|---|-----------------------|--------------------|
| (56)-1 | Automobile/van/truck--- | 4 | Bicycle | ---SKIP
TO 0.15 |
| | CONTINUE TO 0.14 | 5 | Walk | |
| 2 | Local transit bus | 6 | Other (SPECIFY) _____ | |
| 3 | Motorcycle | | | |

Q.14 Was the previous vehicle usually...(READ LIST)

- (57)-1 Driven to work alone,
2 Shared with 1 other person, or
3 Used in an organized carpool/vanpool of 3 or more persons

Q.15 What was the primary reason for the change? (DO NOT READ LIST -- RECORD ONLY ONE ANSWER)

- | | | | |
|--------|--------------------------------|---|-------------------------|
| (58)-1 | Cost of fuel | 7 | Moved |
| 2 | Transit available | 8 | Just needed new vehicle |
| 3 | Changed job | 9 | Other (SPECIFY) _____ |
| 4 | Joined car/vanpool | | |
| 5 | Cost of vehicle/transportation | 0 | Don't know |
| 6 | Energy conservation | | |

Q.16 In the future, are there plans to change the form of transportation to and from work?

- (59)-1 Yes
2 No (SKIP TO 0.19)
3 Don't know (SKIP TO 0.19)

Q.17 What form of transportation would be substituted?

- | | | | | |
|--------|-------------------------|---|-----------------------|--------------------|
| (60)-1 | Automobile/van/truck--- | 4 | Bicycle | ---SKIP
TO 0.19 |
| | CONTINUE TO 0.18 | 5 | Walk | |
| 2 | Local transit bus | 6 | Other (SPECIFY) _____ | |
| 3 | Motorcycle | | | |

Q.18 Would the vehicle...(READ LIST) (PROBE FOR USUAL RESPONSE)

- (61)-1 Be driven to work alone,
2 Be shared with 1 other person, or
3 Be used in an organized carpool/vanpool of 3 or more persons.

Q.19 Is your household planning to move closer to the place of employment during the next 12 months?

- (62)-1 Yes
2 No (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.20)
3 Don't know (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.20)

Q.20 Are transportation costs involved in commuting a factor in your decision to move?

- (63)-1 Yes
2 No
3 Don't know

INTERVIEWER READ: "The following questions concern local travel, other than for work."

Q.21 Currently, what is the primary form of transportation you use for local travel, other than for work? That is, travel for shopping, church, visiting friends, etc. (DO NOT READ LIST. RECORD ONE RESPONSE)

- (64)-1 Automobile/van/pickup truck 4 Bicycle
2 Local transit bus 5 Walk
3 Motorcycle 6 Other (SPECIFY) _____

Q.22 Has your form of transportation for local travel, other than for work, changed during the past two years?

- (65)-1 Yes
2 No (SKIP TO Q.25)
3 Don't know (SKIP TO Q.25)

Q.23 What was the previous form? (DO NOT READ LIST)

- (66)-1 Automobile/van/pickup truck 4 Bicycle
2 Local transit bus 5 Walk
3 Motorcycle 6 Other (SPECIFY) _____

Q.24 What was the primary reason for the change? (DO NOT READ. RECORD ONLY ONE ANSWER)

- (67)-1 Cost of fuel 7 Moved
2 Transit available 8 Just needed new vehicle
3 Convenience of automobile 9 Other (SPECIFY) _____
4 Joined car/vanpool
5 Cost of vehicle/transportation 0 Don't know
6 Energy conservation

Q.25 In the foreseeable future, do you plan to change the form of local travel used?

- (68)-1 Yes
2 No (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.26)
3 Don't know (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.26)

Q.26 What form of transportation would be substituted?
(DO NOT READ LIST)

- (69)-1 Automobile/van/pickup truck 4 Bicycle
2 Local transit bus 5 Walk
3 Motorcycle 6 Other (SPECIFY) _____

INTERVIEWER READ: "The following are subjective questions which may require you to take time in answering."

Q.27 Has the total amount of local travel for members of your household...

(READ OPTIONS SLOWLY!)

- (70)-1 Increased,
2 Decreased, or
3 Remained about the same during the past two years?
4 (DON'T READ) Don't know

Q.28 In the future, do you plan to... (READ LIST)

- (71)-1 Increase,
2 Decrease, or
3 Keep about the same amount and miles of local travel you now do?
4 (DON'T READ) Don't know

INTERVIEWER READ "Does your household practice any of the following measures:"

Q.29 Increased use of the telephone as substitute for travel?

- (72)-1 Yes
2 No
3 Don't know

Q.30 Plan travel so several errands can be accomplished during the same trip?

- (73)-1 Yes
2 No
3 Don't know

Q.31 Shop closer to home?

- (74)-1 Yes
2 No
3 Don't know

Q.32 Approximately how far do you travel one way for most of your shopping needs? (RECORD ACTUAL NUMBER OF MILES - USE LEADING ZERO WHEN NEEDED: 0 4; IF LESS THAN 1 MILE ENTER "00")

RECORD:

(75) (76)

INTERVIEWER READ: "The following questions deal with long distance travel trips of 100 miles or more."

Q.33 Has your form of personal transportation for long distance travel changed during the past two years?

- (77)-1 Yes
2 No (SKIP TO Q.35)
3 Don't know (SKIP TO Q.35)

(1) (2) (3) (4) (5)

Q.34 What was previous form? (DO NOT READ LIST)

- (6)-1 Automobile
- 2 Airplane
- 3 Bus
- 4 Train
- 5 Truck/van
- 6 Motorhome/travel trailer/camper
- 7 Motorcycle
- 8 Other (SPECIFY) _____
- 9 None _____
- 0 Refused
- Y Don't know

Q.35 What is the current form? (DO NOT READ LIST)

- (7)-1 Automobile
- 2 Airplane
- 3 Bus
- 4 Train
- 5 Truck/van
- 6 Motorhome/travel trailer/camper
- 7 Motorcycle
- 8 Other (SPECIFY) _____
- 9 None _____
- 0 Refused
- Y Don't know

Q.36 In the foreseeable future, do you or members of your household plan to change the form of transportation used for long distance travel?

- (8)-1 Yes
- 2 No (SKIP TO Q.38)
- 3 Don't know (SKIP TO Q.38)

Q.37 What form of transportation would be substituted? (DO NOT READ LIST)

- (9)-1 Automobile
- 2 Airplane
- 3 Bus
- 4 Train
- 5 Truck/van
- 6 Motorhome/travel trailer/camper
- 7 Motorcycle
- 8 Other (SPECIFY) _____
- 9 None _____
- 0 Refused
- Y Don't know

Q.38 In the future, do you or members of your household plan to... (READ LIST)

- (10)-1 Increase,
- 2 Decrease, or
- 3 Keep about the same the amount of long distance travel you now do?

INTERVIEWER READ: "The following questions concern recreational and vacation travel."

Q.39 Are you planning any recreational travel within Washington State this year?

- (11)-1 Yes
- 2 No
- 3 Don't know

Q.40 Are you planning a vacation this year that will take you over 500 miles away from home?

- (12)-1 Yes
- 2 NO (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.42)
- 3 Don't know (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.42)

Q.41 What is the destination of that trip? Where are you going? (READ LIST)

- (13)-1 West of Rocky Mountains, USA
- 2 East of Rocky Mountains, USA
- 3 Canada
- 4 Mexico
- 5 Hawaii
- 6 Overseas (SPECIFY) _____
- 7 Other (SPECIFY): _____

Q.42 What form of transportation would be used to travel to your vacation destination? (DO NOT READ LIST)

- (14)-1 Automobile
- 2 Airplane
- 3 Bus
- 4 Train
- 5 Truck/van
- 6 Motorhome/travel trailer/camper
- 7 Motorcycle
- 8 Other (SPECIFY) _____
- 9 None
- 0 Refused
- Y Don't know

INTERVIEWER READ: "The following questions concern local public transit. (Local bus, not Greyhound or Trailways.)"

Q.43 Is there local public transit bus service available in your neighborhood?

- (15)-1 Yes (SKIP TO Q.45)
- 2 No
- 3 Don't know

Q.44 To provide transit bus service closer to your home, would you be willing to...(READ LIST)

- (16)-1 Pay a higher bus fare,
- 2 Pay an increased sales tax or other tax,
- 3 A combination of both, or
- 4 Neither
- 5 Don't know

SKIP TO Q.51

Q.45 Do you or members of your household use the local transit bus service? If so, how often? (READ LIST)

- (17)-1 Three or more times per week,
- 2 One or two times per week,
- 3 A few times per month, or
- 4 Once a month or less.
- 5 (DON'T READ) Do not ride the bus at all (SKIP TO Q.47)

Q.46 For what purposes do you or members of your household ride the bus?
(READ LIST - RECORD ANSWER NUMBERS UP TO FIVE MENTIONS)

- (18) _____ Work (enter "1")
- (19) _____ Shopping (enter "1")
- (20) _____ School (enter "1")
- (21) _____ Personal travel (enter "1")
- (22) _____ Other purpose (SPECIFY) _____ (enter "9")

| SKIP TO Q.48 |

Q.47 What reasons prevent you, or others in your household, from riding the bus? (DO NOT READ LIST - RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPONDENT - UP TO 3 MENTIONS. IF ONLY ONE REASON IS GIVEN, ASK: "What other reasons?" PROBE FOR 3 REASONS. FOR EXAMPLE: IF RESPONSE IS, "Inconvenient," ASK: "In what way?" OR IF RESPONSE IS: "Prefer automobile," ASK, "What are the disadvantages in riding the bus?")

- | | | | |
|----------|--------------------------------|-----------|--------------------------|
| (23)___1 | Uncomfortable | (30)___8 | Costs too much |
| (24)___2 | Too far to bus stop | (31)___9 | Inconvenient-prefer auto |
| (25)___3 | Too crowded | | |
| (26)___4 | Doesn't run often enough | (32)___0 | Don't need-impractical |
| (27)___5 | Doesn't go where I need to go | (33)___11 | Don't know schedules |
| (28)___6 | Takes too long to get there | (34)___12 | Other (SPECIFY) _____ |
| (29)___7 | Too hard to get on and off bus | | |

Q.48 Do you consider the present transit bus service in your community adequate for the needs of your household?

- (35)-1 Yes (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.51)
- 2 No (CONTINUE TO Q.49)
- 3 Uncertain/Don't know (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING Q.51)

Q.49 To provide more frequent transit bus service, would you be willing to...(READ LIST)

- (36)-1 Pay a higher bus fare,
- 2 Pay an increased sales tax or other tax,
- 3 A combination of both, or
- 4 Neither
- 5 (DON'T READ) Don't know

Q.50 To allow transit buses to serve a greater part of your community, would you be willing to...(READ LIST):

- (37)-1 Pay a higher bus fare,
- 2 Pay an increased sales tax or other tax,
- 3 A combination of both, or
- 4 Neither
- 5 (DON'T READ) Don't know

Q.51 Would you personally use the local transit bus if improved service were provided?

- (38)-1 Yes
- 2 No
- 3 Don't know

INTERVIEWER READ: "The following questions deal with other forms of transportation."

Q.52 During the past year, have you or members of your household traveled by AMTRAK?

- (39)-1 Yes
- 2 No (SKIP TO Q.54)
- 3 Don't know (SKIP TO Q.54)

Q.53 For what purposes were AMTRAK trips taken? (DO NOT READ - RECORD ANSWERS IN ORDER GIVEN BY RESPONDENT, NUMBERS UP TO 3 MENTIONS. IF ONLY 1 PURPOSE IS GIVEN, ASK: "Are there any other purposes for AMTRAK trips?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|------------------------------|----------|-----------------------|
| (40)___1 | Commuting to work | (45)___6 | Other (SPECIFY) _____ |
| (41)___2 | Job/business travel | | |
| (42)___3 | Visits to friends/relatives | (46)___7 | None |
| (43)___4 | Shopping trips | (47)___8 | Refused |
| (44)___5 | Vacation/recreational travel | (48)___9 | Don't know |

Q.54 In general, are the AMTRAK services adequate to serve the needs of your household?

- (49)-1 Yes
- 2 No
- 3 Never used
- 4 Don't know

Q.55 During the past year, have you or members of your household traveled by intercity bus, such as Greyhound or Trailways?

- (50)-1 Yes
- 2 No (SKIP TO Q.58)
- 3 Don't know (SKIP TO Q.58)

Q.56 If so, how often do you or members of your household travel by intercity bus, such as Greyhound or Trailways? (READ LIST)

- (51)-1 One or more times per week,
- 2 One or more times per month,
- 3 A few times per year,
- 4 Once a year or less
- 5 (DON'T READ) Don't know

Q.57 For what purposes were intercity bus trips taken? (DO NOT READ. RECORD UP TO 3 MENTIONS. IF ONLY 1 PURPOSE IS GIVEN, ASK: "Are there any other purposes for bus trips?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|------------------------------|----------|-----------------------|
| (52)___1 | Commuting to work | (57)___6 | Other (SPECIFY) _____ |
| (53)___2 | Job/business travel | | |
| (54)___3 | Visits to friends/relatives | (58)___7 | None |
| (55)___4 | Shopping trips | (59)___8 | Refused |
| (56)___5 | Vacation/recreational travel | (60)___9 | Don't know |

Q.58 Has the amount of use of intercity bus, such as Greyhound or Trailways, by you or members of your household...(READ LIST)

- (61)-1 Increased,
- 2 Decreased, or
- 3 Remained about the same during the past two years?
- 4 (DON'T READ) Don't know

Q.59 If other transportation costs increase more than the cost of riding the bus, do you plan to...(READ LIST)

- (62)-1 Increase,
- 2 Decrease, or
- 3 Keep about the same amount of travel by intercity bus you now do?
- 4 (DON'T READ) Don't know

Q.60 In general, are intercity bus services adequate to serve the needs of your household?

- (63)-1 Yes (SKIP TO Q. 62)
- 2 No
- 3 Don't know (SKIP TO Q.62)

Q.61 What improvements to intercity bus service do you think are needed? (DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPONDENT - UP TO 3 MENTIONS)

- | | | | |
|------------------|------------------------------|------------------|-----------------------|
| (64) <u> </u> 1 | More frequent schedules | (69) <u> </u> 6 | Expand service area |
| (65) <u> </u> 2 | Faster service | (70) <u> </u> 7 | More direct routes |
| (66) <u> </u> 3 | Improvements in bus vehicles | (71) <u> </u> 8 | Lower fares |
| (67) <u> </u> 4 | Terminal improvements | (72) <u> </u> 9 | Other (SPECIFY) _____ |
| (68) <u> </u> 5 | Better food service | | |
- 3
- (1) (2) (3) (4) (5)

Q.62 During the past year, have you or others in your household used the Washington State ferries?...(READ LIST)

- (6)-1 Rarely (very few times)
- 2 Occasionally (several times)
- 3 Regularly (two or more times per week)
- 4 No, did not use (SKIP TO Q.64)
- 5 (DON'T READ) Don't know (SKIP TO Q.64)

Q.63 For what purposes were ferry trips taken? (DO NOT READ LIST - RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPONDENT - UP TO 3 MENTIONS)

- | | | | |
|------------------|------------------------------|------------------|-----------------------|
| (7) <u> </u> 1 | Commuting to work | (12) <u> </u> 6 | Other (SPECIFY) _____ |
| (8) <u> </u> 2 | Job/business travel | (13) <u> </u> 7 | None |
| (9) <u> </u> 3 | Visits to friends/relatives | (14) <u> </u> 8 | Refused |
| (10) <u> </u> 4 | Shopping trips | (15) <u> </u> 9 | Don't know |
| (11) <u> </u> 5 | Vacation/recreational travel | | |

Q.64 Do you consider the present service adequate to meet the needs of your household?

- (16)-1 Yes (SKIP TO Q.66)
- 2 No
- 3 Don't know/uncertain (SKIP TO Q.66)

Q.65 What improvements to the ferry system do you think are needed?
(DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPON-
DENT - UP TO 3 MENTIONS)

- | | | | |
|----------|---|----------|--|
| (17)___1 | More frequent runs | (22)___6 | Improved service for walk-
ons/bicycle riders |
| (18)___2 | Improved safety and comfort | (23)___7 | Reduce operating costs |
| (19)___3 | Improved auto load/unload
facilities | (24)___8 | Reduce fares |
| (20)___4 | Terminal improvements | (25)___9 | Prevent strikes |
| (21)___5 | Better parking facilities | (26)___0 | Other (SPECIFY) _____ |

Q.66 Is the community in which you live served by an airport?

- (27)-1 Yes
2 No
3 Don't know

Q.67 During the past year, have you or members of your household traveled
by commercial airplane, including commuter airlines?

- (28)-1 Yes
2 No (SKIP TO Q.71)
3 Don't know (SKIP TO Q.71)

Q.68 For what purposes were such trips taken? (DO NOT READ LIST. RECORD
ANSWER NUMBERS IN ORDER GIVEN BY RESPONDENT, UP TO 3 MENTIONS. IF
ONLY 1 PURPOSE GIVEN, ASK: "Are there any other purposes for trips
by airplane?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|------------------------------|----------|-----------------------|
| (29)___1 | Commuting to work | (34)___6 | Other (SPECIFY) _____ |
| (30)___2 | Job/business travel | (35)___7 | None |
| (31)___3 | Visits to friends/relatives | (36)___8 | Refused |
| (32)___4 | Shopping trips | (37)___9 | Don't know |
| (33)___5 | Vacation/recreational travel | | |

Q.69 Did these trips originate at your local airport? (READ LIST)

- (38)-1 Yes, all (SKIP TO Q.71)
2 Some, but not all
3 None
4 (DON'T READ) Don't know (SKIP TO Q.71)

Q.70 How did you travel to the departure airport? (READ LIST)

- | | | | |
|--------|-------------------------------------|---|-----------------------|
| (39)-1 | Automobile/other private
vehicle | 5 | Other (SPECIFY) _____ |
| 2 | Small commuter airline | 6 | None |
| 3 | Airporter bus/limousine | 7 | Refused |
| 4 | Public transit bus | 8 | Don't know |

Q.71 In general, do you consider air travel services and facilities ade-
quate to serve the needs of your household?

- (40)-1 Yes (SKIP TO Q.73)
2 No
3 Don't know (SKIP TO Q.73)

0.72 What improvements to air travel facilities and services are needed?
(DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPON-
DENT, UP TO 3 MENTIONS. IF ONLY 1 NEED IS GIVEN, ASK: "Is anything
else needed?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|-----------------------------|-----------|--------------------------|
| (41)___1 | More convenient schedules | (47)___7 | Reduced fares |
| (42)___2 | Improved safety and comfort | (48)___8 | Service by major carrier |
| (43)___3 | Improved access to airports | | |
| (44)___4 | Terminal improvements | (49)___9 | Establish new airport |
| (45)___5 | Better parking facilities | (50)___10 | Lower fares |
| (46)___6 | Improved baggage handling | (51)___11 | Other (SPECIFY) _____ |

0.73 During the past year, have you or members of your household traveled
in smaller private aircraft?

- (52)-1 Yes
2 No
3 Don't know

0.74 In general, do you consider facilities and services to be adequate
for the user of small aircraft?

- (53)-1 Yes (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING 0.75)
2 No (CONTINUE TO 0.75)
3 Don't know (SKIP TO "INTERVIEWER READ" INSTRUCTIONS FOLLOWING 0.75)

0.75 What improvements are needed to serve the users of small aircraft?
(DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPON-
DENT, UP TO 3 MENTIONS. IF ONLY 1 NEED IS GIVEN, ASK: "Is anything
else needed?" PROBE FOR 3 MENTIONS)

- (54)___1 More small airports
(55)___2 Improvements to hangars and related facilities
(56)___3 Safety improvements
(57)___4 Allow larger planes
(58)___5 Other (SPECIFY) _____
(59)___6 Refused
(60)___7 Don't know

INTERVIEWER READ: "The following questions deal with vehicles in your
household."

0.76 Have you purchased or traded for a new or different vehicle in the
past two years?

- (61)-1 Yes
2 No (SKIP TO 0.80)
3 Don't know (SKIP TO 0.80)

0.77 For what reason? (DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER
GIVEN BY RESPONDENT, UP TO 3 MENTIONS. IF ONLY 1 NEED IS GIVEN, ASK:
"Is anything else needed?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|----------------------------|-----------|------------------------|
| (62)___1 | Better fuel economy | (68)___7 | Other personal reasons |
| (63)___2 | To replace old vehicle | (69)___8 | Other (SPECIFY) _____ |
| (64)___3 | Needed bigger vehicle | (70)___9 | None |
| (65)___4 | Needed additional vehicles | (71)___0 | Refused |
| (66)___5 | Safety | (72)___11 | Don't know |
| (67)___6 | Liked new designs better | | |

(1) (2) (3) (4) ⁴(5)

0.78 Is your new vehicle more economical to operate than your previous vehicle?

- (6)-1 Yes
- 2 No (SKIP TO 0.80)
- 3 Don't know (SKIP TO 0.80)

0.79 Have the savings been worthwhile?

- (7)-1 Yes
- 2 No
- 3 Uncertain/don't know

0.80 Has the number of vehicles in your household...(READ LIST)

- (8)-1 Increased,
- 2 Decreased, or
- 3 Remained about the same the past two years?

0.81 In the future, do you plan to...(READ LIST)

- (9)-1 Increase,
- 2 Decrease, or
- 3 Keep the same number of vehicles in your household?

0.82 How many of each of the following types of vehicles are currently driven by you or members of your household? (READ LIST - RECORD NUMBER. RECORD 10 OR MORE AS "9"; RECORD "NONE" AS "0")

- (10) 1 Automobiles
- (11) 2 Trucks (Other than campers)
- (12) 3 Vans
- (13) 4 Bicycles
- (14) 5 Motorcycles
- (15) 6 Recreational vehicles such as pickup campers, motorhomes, 4-wheel-drive vehicles or travel trailers.

0.83 Are there any other types of vehicles currently driven by you or members of your household?

- (16)-1 Yes (SPECIFY--LIST AT RIGHT) (Yes) _____
 - 2 No _____
 - 3 Don't know _____
- (17) _____ (18)

0.84 In general, are the major roadways, streets and highways in your area adequate to serve the needs of your house hold?

- (19)-1 Yes
- 2 No
- 3 Don't know

Q.85 In your opinion, do the roads, streets and highways in your area need to be improved? If so, what type of improvements are most needed?
 (DO NOT READ LIST. RECORD ANSWER NUMBERS IN ORDER GIVEN BY RESPONDENT, UP TO 3 MENTIONS. IF ONLY 1 NEED IS GIVEN, ASK: "Is there anything else?" PROBE FOR 3 MENTIONS)

- | | | | |
|----------|--|----------|-----------------------------|
| (20) __1 | Reduce traffic congestion | (25) __6 | Widen existing roads |
| (21) __2 | Improve safety | (26) __7 | Improve shoulders/sidewalks |
| (22) __3 | Construct new streets, highways or roads | (27) __8 | Improve signing/markings |
| (23) __4 | Repair pavement | (28) __9 | Other (SPECIFY) _____ |
| (24) __5 | Repair bridges | | |

INTERVIEWER READ: "The following question, again, is subjective in nature. Please give it careful thought."

Q.86 Overall, have the travel habits of the members of your household changed during the past two years?

- (29)-1 Yes
 2 No
 3 Don't know

Q.87 How many trips have been taken by you and all the members of your household during the last 24 hours? (READ SLOWLY): "A trip is each time an automobile or other private vehicle leaves your place of residence with one or more members of your household as passengers. But if travel is by transit bus, taxi or other public vehicle, count one trip for each member of the household leaving the home."

"How many trips by..." (READ LIST): (USE LEADING ZERO IF NECESSARY: 0 3)

- | | | |
|-------------|-----------------------------|--------------------------------------|
| (30)(31) __ | Automobile/van/pickup truck | (ONE <u>VEHICLE</u> EQUALS ONE TRIP) |
| (32)(33) __ | Motorcycle/mo-ped | |
| (34)(35) __ | Bicycle | |

- | | | |
|-------------|--|-------------------------------------|
| (36)(37) __ | Public transit bus | (ONE <u>PERSON</u> EQUALS ONE TRIP) |
| (38)(39) __ | Intercity bus (i.e., Trailways or Greyhound) | |
| (40)(41) __ | Other vehicle (SPECIFY): _____ | |

INTERVIEWER READ: "The following questions deal with information about your household which will be used for statistical analysis only."

Q.88 Currently, how many licensed drivers, including yourself, are there in your household (USE LEADING ZERO IF NECESSARY: 0 2)

(42) (43)

Q.89 During the past two years, has the number of licensed drivers in your household...(READ LIST)

- (44) -1 Increased,
- 2 Decreased, or
- 3 Remained the same
- 4 Don't know

Q.90 Do you own or rent your place of residence?

- (45) -1 Own
- 2 Rent
- 3 Refused

Q.91 In what type of dwelling do you live (READ LIST):

- (46) -1 Single family residence
- 2 Duplex
- 3 Apartment/condominium
- 4 Mobile home
- 5 Other (SPECIFY) _____
- 6 None
- 7 Refused
- 8 Don't know

Q.92 What is the highest level of education the head of the household has attained? (DO NOT READ LIST)

- (47)-1 Grade school or less
- 2 Some high school
- 3 High school graduate
- 4 Some college (includes vocational)
- 5 College graduate
- 6 Postgraduate studies
- 7 Refused

Q.93 What is the head of the household's occupation (DO NOT READ LIST - RECORD SPECIFIC TASK). RECORD: _____

01	Professional	10	Housewife/homemaker
(48) (49) 02	Manager	11	Military
03	Clerical	12	Student
04	Sales		
05	Crafts	13	Self-employed (no explanation)
06	Operative	14	Retired
07	Service Worker	15	Farm-related
08	Laborer	16	Other (SPECIFY): _____
09	Unemployed	17	(DON'T READ) Refused

Q.94 How many persons, including yourself, reside in your household? (RECORD ACTUAL NUMBER - INSERT LEADING ZERO WHERE NECESSARY: 0 6)

(50) (51)

Q.95 What is the age of the head of household? (RECORD ACTUAL AGE)

(52) (53) (DON'T READ) 1 Refused

Q.96 If you are not the head of household, what is your age?

(54) (55) (DON'T READ) 1 Refused

Q.97 And finally, which of the following categories include your combined household income for 1982? (READ LIST)

- | | | | |
|---------|-------------------|---|--|
| (56) -1 | Under \$10,000 | 5 | \$25,000-\$29,999 |
| 2 | \$10,000-\$14,999 | 6 | \$30,000-\$49,999 |
| 3 | \$15,000-\$19,999 | 7 | Over \$50,000 |
| 4 | \$20,000-\$24,999 | 8 | Refused (PROBE FOR CLASSIFICATION ONLY!) |

VERIFICATION RECEIPT:

Interviewer's Signature: _____

By this signature, I hereby certify that I have properly filled out the survey honestly, completely and correctly. I understand that should I falsify, or in any manner misrepresent the information gathered on this instrument, I will be solely liable for damages that might accrue to GMA