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16. Abstract

The objective of this research was to examine the effects of higher transportation costs and energy shortages on the public's travel behavior patterns. Telephone interviews of approximately 15 minutes in length were conducted with 2,500 residents of the State of Washington. 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, intermediate and long distance travel, recreational travel, use of public transit and 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. Overall, 58 percent of the respondents reported that the travel habits of members of their household had been modified. The most frequently mentioned modification was a decrease in the amount of travel. Nearly one-fourth of the respondents have switched their form of travel in the last two years; thirty percent indicate they will do so in the future. Public transit is used mainly for travel to work and shopping, and where there is currently local transit service, one-third of those who have such service indicated that they or members of their household rode the bus for some purpose. The number of vehicles owned by households has remained quite stable in the past two years and will continue so in the future. When a new vehicle has been acquired, two-thirds of the time it is more economical to operate than the one it replaced.

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

REPORT HR-586
AUGUST, 1981

PREPARED BY

PLANNING IMPLEMENTATION SECTION
PUBLIC TRANSPORTATION AND PLANNING DIVISION
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

IN COOPERATION WITH
US. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

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Guidance and suggestions were received from Robert S. Nielsen, Assistant Secretary, Public Transportation and Planning Division.

The contents of this report reflect the views of the author who is 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.

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

SUMMARY REPORT

Increased costs of transportation and energy shortages represent a major change for citizens who have become accustomed to relatively inexpensive energy and other transportation costs. Plans and programs that have been developed for transportation facilities and services have assumed that energy will be available and that future requirements will follow basic travel patterns developed over a period of years. As transportation costs increase, the amount of travel and the modes utilized tend to change. To enable those agencies that have responsibility to develop meaningful plans and programs, more information is required concerning current travel behavior patterns, changes that people have made in the last two years and actions planned for in the future.

The purpose of this research project has been to obtain such information. From these efforts, a clearer picture has emerged concerning the various ways residents of the state are coping with escalating energy and travel costs. Thus, the data derived have numerous uses for analyzing transportation problems and developing and implementing transportation plans and programs.

To obtain more information about the changes and plans that Washington State residents have made in response to higher transportation costs and other conditions, a sample of the population of the state was selected to be interviewed. In selecting the sample, the goal was to insure adequate representation of metropolitan, urban and rural areas. The metropolitan areas covered were Seattle (including Bellevue, Renton and Kirkland) and Spokane. The five urban areas include Yakima, Olympia, Longview, Clark County including Vancouver, and the Tri-Cities area of Pasco, Kennewick and Richland. Grant and Whitman Counties were included to provide information from rural residents.

The households to be interviewed were selected by a random computer search of telephone numbers. The total sample consisted of 2,500 households. The questionnaire used in the survey was prepared by the staff of the Planning Implementation Section 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 insure that those persons interviewed were adults in charge of the household. 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.

The data derived from the survey are most useful and interesting, but it is helpful to review travel trends in recent years before examining the responses of the citizens who were interviewed.

Travel Trends

Conditions affecting travel have changed dramatically in recent years and the use of the various modes reflect these changes. A brief summary of the use of each mode of travel is listed below.

1. Local transit systems in the state have shown steady growth with increases in ridership of 20 percent between 1978 and 1979 and 14 percent from 1979 to 1980.

2. AMTRAK passenger totals increased 14 percent for 1979 over the previous year. Data available for the first three quarters of 1980 indicate a decrease of 4 percent over the same time in 1979.

3. The number of overall passengers using certificated airlines at the four major airports (Sea-Tac, Spokane, Yakima, Pasco) in the state

increased 17 percent in 1979 over 1978, but decreased 7 percent in 1980.

4. The number of vehicles carried by the Washington State Ferry System increased 5 percent from 1978 to 1980. Passenger totals for the same period increased by 10 percent.

5. From 1974 to 1977 there was an average decline of 22 percent per year in the number of persons using intercity bus lines in the state. Ridership increased 8 percent from 1978 to 1979, but decreased 6 percent from the previous year in 1980.

6. The number of vehicle miles driven in the state decreased 1 percent in 1979 over the previous year, and 1.5 percent in 1980. This reverses the trend of increased vehicle miles driven each year in five of the previous six years.

7. During this same period (1978 through 1980) the number of vehicle registrations and licensed drivers both increased by 7 percent.

The increased cost of living, including transportation, and the recession in 1980 had an impact on the use of all forms of transportation. However, there has been an overall increase in the use of public transportation in the last five years and a slight decline in the number of miles driven by automobiles and other motor vehicles.

IMPLICATIONS OF SURVEY FINDINGS FOR PLANNING

In the development of plans and programs, a number of assumptions must be made about the amount of travel people will make, the modes used for such travel and the type of travel involved.

To obtain adequate data that would be useful in making assumptions, the survey included questions about travel changes that have occurred in the last two years, existing travel patterns and plans for the future. All respondents were asked to indicate what changes, if any, they would make assuming the price of fuel and vehicles continues to rise.

Survey results indicate that more than three-fourths of the respondents now use their automobiles for local, long-distance, work and recreational travel. Approximately the same proportion have done so in the past two years and plan to do so in the future even though costs of fuel and vehicles continue to rise. The automobile is and will continue to be the predominant mode for all types of travel in Washington.

The greatest change that has been made by the respondents is a decrease in the amount of travel. Almost one half of those interviewed indicated that they have made and plan to make further reductions. However, the number of people that will need to be transported is increasing as the total population increases. With the population growth and the rise in the median age of the population, there will be more drivers and hence more vehicles in the future.

More than 85 percent of those households interviewed indicated they plan to keep the same number of vehicles they now have in the future. The number of vehicles per household has remained quite stable during the past two years even though transportation costs have increased considerably. However, as the number of households increases, obviously the number of vehicles increases. This does not mean that there will be more miles driven, however. If the respondents carry out their plans, the total number of miles driven will continue to decline even though there are more registered vehicles and drivers. The projected decrease in vehicle miles driven will be uneven in various parts of the state since the population

growth rates and the availability of the various types of transportation services vary. Hence, increased transportation costs cannot be relied upon to relieve traffic congestion in areas where the need is the greatest.

Also, the reduction in the amount of travel people intend to make will result in a decrease in the amount of available motor fuel tax revenues. This has major ramifications for state and local governments in a period of inflation.

Even though the proportion of the respondents that have or are planning to change their mode of travel is less than one fourth of the total, the impact upon the total transportation system will be dramatic. The number of people using transit, carpools and vanpools will increase greatly. In areas of the state that have local transit systems, 6 percent of the population use the buses, but if the respondents carry out their plans the ridership will probably double. Air travel will be substituted for the automobile to a greater degree for intermediate and long distance travel. Other forms of public transportation will also carry more people.

Any sizeable increases in the price of gasoline and/or reduced energy supplies will provide an even greater impetus for the use of various forms of public transportation and hence the need for an integrated transportation system becomes increasingly evident.

People have indicated by their actions and by their stated plans that they will be most likely to change the mode they use for work travel and will be least likely to change for non-work related local travel.

Persons interviewed have not moved closer to their work to reduce costs and indicate that they do not plan to do so. However, if the price of fuel and motor vehicles increases and interest rates decline, this may become more of a factor. A sizable proportion indicated that they desire to obtain a job closer to their home.

Survey results indicate that the quickest mode of travel for commuting to work is the most popular. The automobile provides the most rapid and convenient form of transportation for a large part of the state and most of the workers indicate they will continue to utilize this form of transportation.

The respondents indicate that they are now vacationing closer to home and will do so in the future to avoid long distance travel. This will have an impact upon the tourist industry if the respondents carry out their stated plans.

Long distance travel seems to be an area in which the respondents intend to make substantial decreases. This has an impact upon the transportation modes and upon the economy. Even though there is a considerable amount of work-related long distance travel, the respondents indicated that they plan to substitute other methods of communication instead of travel to reduce costs for non-work related travel.

It appears evident from the survey that families will continue to keep a sizable number of vehicles, but if they are driving them less it is reasonable to assume that they will keep them longer, and when they acquire new vehicles they will be smaller than the automobiles they now have. One of the major trends that was evident throughout the survey was the change to the small automobile. The changes the respondents indicate they have made and plan to make are borne out by current trends in which the small automobile continues to account for an ever larger proportion of the vehicles produced.

Changing transportation conditions in the United States require that new methods of obtaining information be devised for transportation planning. This survey has been a first attempt in that regard. From this effort, it becomes apparent that a great deal of data for various geographical areas of the state and for each of the transportation modes can be obtained quite economically through telephone interviews. Such data is very valuable when devising plans and programs. Most of the respondents seem to have given quite a bit of thought about plans to cope with escalating transportation costs. Hence, their plans for the future should not be discounted. As the impact of rising costs becomes greater, the perspective of the respondents may change, especially those having lower incomes, as well as the young and the elderly. Hence, the need to conduct such a survey at least once every two years is apparent.

Those people who responded to the survey did so quite willingly and seemed quite desirous of discussing transportation problems. This type of cooperation can yield a great deal of information that is not available from reviewing transportation trends or experiences of the past.

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.

Summary of Major Findings

1. More than one-half (58 percent) of the respondents reported that the travel habits of members of their households had been modified in the last two years. 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.

2. The greatest change that has occurred in travel habits in the last two years or in future plans is a decrease in the amount of travel. Forty-seven percent of those interviewed indicated that they had reduced travel somewhat and planned to make greater reductions in the future. The decrease 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 or educational facilities.

3. Approximately 46 percent of the respondents indicated that they are taking action to reduce total travel costs by various means such as shopping closer to home, acquiring smaller automobiles, using the transit system or carpools and reducing local, long distance and recreational travel.

4. Although a larger number of Washington residents are using other modes of transportation for travel, most residents (77 percent) indicate

that they have not changed their mode of transportation for work, long distance, intermediate or recreational travel in the last two years, and 70 percent do not intend to change modes in the future even though the overall cost of transportation, including fuel, continues to rise.

5. More than three-fourths (78 percent) of the respondents indicated that they now drive alone to work. An additional 11 percent use car or vanpools; 8 percent, transit or private buses; and 3 percent, bicycles or motorcycles. Even though most workers use their automobiles to drive to work, the greatest change in the mode of transportation that has occurred or is planned is in work-related travel. One-fifth of those interviewed who work outside of the home have changed their mode of travel in some way and 23 percent indicate that they plan to change their mode in the future. Of this group, 25 percent plan to change to transit, and 13 percent will carpool.

   The number of people who indicate they plan to change is sufficiently large that they will have a dramatic impact on the public transportation systems of the state. In urban areas that now have transit, 6 percent of the household members now use transit. If those who indicate they plan to change actually do so, the proportion using transit would double.

6. The two major influences on people to change their mode of work travel appear to be the cost of fuel and the time it takes to get to work. More than 44 percent of those people who had changed their form of work travel in the last two years, did so because of higher fuel costs. Likewise, those people who take between 31 and 60 minutes to get to work changed their mode of travel more frequently than the sample as a whole. Time, and not distance, is the significant factor. Of those surveyed, the average commute time was 20 minutes.

   This change of mode is evidently the only response long distance commuters are willing to make, since only 5 percent indicated they are planning to move closer to their place of employment. For most of the respondents, travel distance is not a determining factor, snce 71 percent live within 10 miles or less of their place of employment.

7. The private auto has been and will continue to be the main vehicle for non-work related local travel. Currently, 85 percent of the households drive their automobile as their primary form of local travel. There has been greater reluctance to part with the private auto for local travel than for other kinds of travel. Only 10 percent of the respondents have changed their mode of local travel in the past two years, while 16 percent plan such a change in the future.

8. Eighty-four percent of the respondents indicated that most of their non-work related local travel occurs within six miles of home. Most shopping by families takes place within four miles of home (69 percent). This has significance for size and type of vehicles used as well as the mode used. A sizable proportion anticipated much greater use of smaller autos, bicycles, motorcycles, walking, and transit for local travel not related to work.

9. To decrease the cost of local travel, 44 percent of the respondents stated they have reduced their amount of travel. Forty-one percent have maintained the same amount of travel at present as in the past.

   One-third (36 percent) of the respondents indicated that in the future they plan to decrease local travel while 62 percent will continue the same amount.

10. For long distance travel (over 200 miles from home), 64.8 65 of the households interviewed stated that they now use an automobile, van or camper, but 28 traveled by airplane. Buses accounted for 5 percent, and trains, 2 percent. Twelve percent indicated they had changed their mode of transportation in the last two years. Of this group, 46 percent now use air travel; 22 percent, small autos; 13 percent, buses; and 8 percent AMTRAK. Hence, among those who have changed, a much larger proportion uses modes of transportation other than the automobile for long distance travel, when compared to other types of travel.

11. Although 79 percent of those who make long distance trips do not plan to change the form of transportation they use, 17 percent indicated that they definitely plan to make changes for future travel. Nearly one-third (32 percent) of those planning to change would travel by air; 27 percent by bus; 19 percent by train; 15 percent by auto; and 7 percent by other means. If they do make the changes indicated, the favored modes of long distance travel would be somewhat different than at present.

12. The greatest change in long distance travel is the decrease in amount of travel that respondents indicate they plan to make. Forty-three percent plan to reduce their travel, with 54 percent stating that the present level will remain the same and 3 percent planning to increase long distance travel in the years ahead.

13. Income plays more of a role in determining which mode of travel a family uses for long distance trips than it does for other kinds of travel. More than 70 percent of the respondents who use the bus and 44 percent of those who take the train earn less than $15,000 a year, while 54 percent of those who fly earn in excess of $20,000 annually. Income does not, however, play a significant role in determining whether a household has changed or plans to change the mode of transportation for long distance travel. The travel patterns appear to have been established before the energy shortages and price increases of the last two years, and these changes may have actually reinforced these patterns, particularly for lower income households.

14. One-third (34 percent) of those interviewed stated that they plan to take a vacation trip more than 500 miles from home. Of this group, one-half would travel by auto, van or camper; 45 percent by air; 2 percent by bus and 2 percent by train. The change from previous modes has been quite unusual, with air transportation increasing greatly and travel by auto decreasing substantially.

15. Approximately one-half (49 percent) of those interviewed indicated that their vacation and recreational travel plans had been affected by rising transportation costs. The response has been to vacation closer to home, take shorter trips, substitute other modes for their desired form of travel and cancel vacation trips away from home. Fifty-nine percent of the respondents said they planned vacations within the state in 1980. Since most households indicated that they either travel by air or drive their automobiles for vacations, decreased travel on these modes is anticipated.

16. More than one-half of the respondents have local transit service in their neighborhood. One-third of those who have such service indicated that they or members of their household rode the buses for some purpose.

17. In those communities where there is existing transit service, only 37 percent of the respondents indicated they would be willing to pay increased taxes to expand transit service; where there is no transit service presently available, 35 percent said they would pay increased taxes to establish transit service.

    Of those respondents who would be willing to pay additional taxes, 83 percent indicate they would use the new or additional service.

18. Travel to work and shopping are the main purposes for which people use transit. Inconvenience and a preference for the private auto are the main reasons given by the respondents for not using transit. However, if previous experience is an indicator of travel behavior, another surge in gasoline prices may result in increasing numbers of people accepting transit as a more cost-effective alternative than the auto.

19. The average number of automotive vehicles per household is 1.99. Currently, there is an almost equal number of households that own full-size automobiles and compact vehicles. The number of vehicles owned by a household has remained quite stable in the past two years, and the respondents indicate that the present number will be retained in the

future (77 percent kept the same number of vehicles the past two years; 85 percent plan to keep the same number in the future).

Forty-five percent of the households surveyed have acquired a different (but not additional) vehicle in the last two years. Of this group, two-thirds said the newly acquired vehicle is more economical to operate than the one it replaced.

20. 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.

The sections that follow give a more detailed analysis of the response of the public to higher transportation costs and energy shortages.

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

INTRODUCTION

The cost of transportation has risen more rapidly than personal income for residents of Washington and energy shortages have occurred and may well develop in the future on a more prolonged basis. This represents a major change for citizens who have become accustomed to relatively inexpensive energy and transportation. Transportation planning and program development have assumed that energy would be available and that future requirements would follow basic travel patterns developed over a period of years. Satisfactory transportation planning and program development requires that the needs of people be met. Under changed conditions, these needs are quite different. To address these needs, more information is required to determine what changes people are undertaking to cope with these problems. The type of information required is quite different than that traditionally compiled to make projections. Trends in the number of persons using various modes of transportation are very pertinent indicators of the response of citizens to changing conditions. However, this type of information represents only one aspect of the total. Many other adjustments, plans and changes are taking place which have a profound effect upon the development and implementation of programs and projects.

Purpose of Study

This study was undertaken to obtain more information about the impact of rising transportation costs on the travel behavior of Washington State residents. By measuring and defining current travel and behavior patterns, determining changes that have occurred in the last two years and ascertaining plans to be initiated in the future, a clearer picture emerges of how residents of the state are coping with the impacts of escalating energy and travel costs. This information will be very useful in the development and implementation of transportation programs and projects.

Procedures to Obtain Data

To learn more about the changes and plans that Washington residents have made in response to higher energy and other transportation costs, a sample of the population of the state was selected to be interviewed. In selecting the sample, the goal was to ensure adequate representation of the entire state. Metropolitan, urban and rural areas were included. The two metropolitan areas covered were Seattle (including Bellevue, Renton and Kirkland) and Spokane. The five urban areas included Yakima, Olympia, Longview, Clark County including Vancouver, and the Tri-Cities area of Pasco, Kennewick and Richland. Grant and Whitman counties were included to provide information from rural residents.

The households to be interviewed were selected by a random computer search of telephone numbers. The total sample consisted of 2,500 households. This provides a confidence level for the results of 95 percent, with a margin of error of 5 points.

The sample for each area of the state is as follows:

Metropolitan 1,000
Seattle 600
Spokane 400

Urban 1,100
Yakima 200
Olympia 200
Longview 200
Clark County 200
Pasco 100
Kennewick 100
Richland 100

Rural 400
Grant County 200
Whitman County 200

The questionnaire used in the survey was prepared by the staff of the Planning Implementation Section of the Washington State Department of Transportation (WSDOT). The interviews were conducted by telephone by the GMA Research Corporation of Bellevue, Washington. The telephone interviews averaged 15 minutes.

Survey Process

The survey was conducted by telephone during June, July and August, 1980. Respondents were screened, as an adult head of household was the desired respondent. If an adult head of household was not present, any household member 18 years or older was interviewed. An interview was not conducted if a household member 18 years or older was not available. An attempt was also 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 general, the people who initially agreed to respond to the survey answered all the questions. The refusal rate was very low on all the questions. This high degree of cooperation on the public's part is perhaps an indication that increasing travel costs is a subject of concern to which they have devoted some thought.

Organization of Results

Due to the large amount of data generated by this study, a series of six papers have been prepared, each addressing one subject in detail. The topics covered are:

A. Travel Trends in the State of Washington
B. Work Related Travel
C. Local Travel
D. Long-Distance, Intermediate, Recreational and Vacation Travel
E. Opinions Concerning Use of Transit by Washington Residents
F. Trends in Acquisition and Use of Motor Vehicles
G. Summary of Findings

Literature Review

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[1] concluded that the energy crisis of 1973-74 did not induce significant long-term changes in the travel habits of most people.

In general, the other studies made with respect to the 1973-74 energy crisis made similar conclusions. At issue is the extent to which the current situation differs from that of seven years ago.

Similar and related studies 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[2] included a survey of household contingency plans in response to rising gasoline prices. The survey question covered (1) actions taken already, (2) actions taken with gas at $1.50/ gallon and (3) 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 be generally classified as being trip planning and more efficient use of the vehicle."

[1]Keck, 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, August 1974.

[2]Hartgen, 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, 1979.

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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 sytems, AMTRAK rail passenger service, intercity bus systems and the four major airports in the state.

Local Public Transit

There has been steady growth in public transit ridership the last three years. The number of transit systems operating vehicles has increased from 14 in 1978 to 15 in 1979 and 20 in 1980. However, the major growth in ridership has not resulted from new systems being developed. Rather, an increase in use of the existing systems accounts for this trend. Systems which have been in existence for three years or longer carried 94.1 million riders in 1980 while the total for all systems was 94.3 million. The increase for those systems which operated in all of the last three years was 19.8 percent between 1978 and 1979, and 14.7 percent between 1979 and 1980. For all transit systems the increases were 20.4 percent between 1978 and 1979 and 14.3 percent between 1979 and 1980. For the entire period from 1978 through 1980, transit ridership increased more than 37 percent.

Table A1
Local Transit Ridership
1978-1980

	Continuous Systems	All Systems
1978	68,493,549	68,493,569
1979	82,061,582	82,454,705
1980	94,141,444	94,266,858
Percent Change:		
1978-1979	+19.8	+20.4
1979-1980	+14.7	+14.3
1978-1980	+37.4	+37.6

Seattle METRO accounts for the largest share of these ridership figures, comprising 72.2 percent of the total for 1978, 70.7 percent for 1979 and 70.5 percent for 1980. When this sytem's figures are excluded, the remaining transit systems show a 27.1 percent increase in patronage between 1978 and 1979 and a 15 percent increase from 1979 to 1980. In all areas having transit systems, ridership has been on the upswing.

Rail Travel

Currently, there are five AMTRAK routes providing service in Washington. Three of these connect Seattle with Portland, one provides service from Seattle to Vancouver, B.C. and another operates between Seattle and Spokane via Yakima and Pasco. A route that connected Seattle with Spokane via Wenatchee was discontinued in October, 1979.

In the period from 1978 to 1980, ridership on these AMTRAK routes increased 17 percent, largely because of major increases in passengers in 1979. Passenger data is not available as yet for the fourth quarter in 1980, but when the first three quarters of 1980 are compared to 1979, there is a decrease of 4.2 percent. The discontinuance of the route to Spokane via Wenatchee affected ridership totals for 1980 as did a decrease in tourist travel. One contributing factor was the eruption of Mt. St. Helens.

Table A2

Total AMTRAK Passengers On and Off in Washington State

	1978	1979	1978-1979	1980	1979-1980	1978-1980
	Number	Number	Percent Change	Number	Percent Change	Percent Change
First Quarter	112,565	127,206	+13.1	129,578	+1.9	+15.1
Second Quarter	142,038	187,821	+32.2	169,181	-9.9	+19.1
Third Quarter	178,438	213,862	+19.8	208,074	-2.7	+16.6
Fourth Quarter	159,328	146,872[1]	-7.8	N/A		
Total	592,369	675,761	+14.1			

[1]Reduction in number of AMTRAK routes serving Washington State from six to five occurred in October, 1979.

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 four major airports in the state increased 16.5 percent. This trend came to an abrupt halt in 1980, however. Air travel was down for all four quarters of the year, with the biggest drop occurring in the third quarter, traditionally the period of heaviest travel. Spokane International Airport, which accounts for 12.5 percent of the total passengers, showed a decrease of 14 percent for the year, while Seattle-Tacoma International Airport, which comprises 84.5 percent of the total ridership, declined 6.4 percent in passengers. The other two major airports in the state, Yakima and Pasco, increased their totals for the year by 43 percent and 20.7 percent, respectively.

Table A3
Total Passengers On and Off for the Certificated Airlines
At Sea-Tac, Spokane, Pasco and Yakima Airports

	1978	1979	1978-1979	1980	1979-1980	1978-1980
	Number	Number	Percent Change	Number	Percent Change	Percent Change
First Quarter	2,073,010	2,497,351	+20.5	2,418,761	-3.1	+16.7
Second Quarter	2,379,314	2,973,468	+25.0	2,728,600[2]	-8.2	+14.7
Third Quarter	3,004,274	3,577,662	+19.1	3,212,576	-10.2	+6.9
Fourth Quarter	2,556,560	2,614,142[1]	+2.2	2,518,266	-3.7	-1.5
Total	10,013,158	11,662,623	+16.5	10,878,203	-6.7	+8.6

[1]Hughes Airwest on strike September to December, 1979.

[2]Yakima, Pasco and Spokane Airports closed for several days due to May, 1980 eruption of Mt. St. Helens.

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 provided service in all of the last three years have experienced both growth and decline. From 1974 to 1977, there was an average decrease of 21.5 percent per year in patronage. Ridership figures did increase 8.2 percent from 1978 to 1979. But this was offset by the decline that occurred in 1980. At this time data is not yet available for the fourth quarter of 1980, but when the first three quarters of 1980 are compared with the same period in 1979, the data indicates a decrease in ridership of 6.3 percent. The third quarter, which is usually the peak travel period, decreased 21 percent from a year earlier.

Table A4
Intercity Bus Ridership for Those Companies
Operating Continuously the Last Three Years

	1978	1979	1978-1979	1980	1979-1980	1978-1980
	Ridership	Ridership	Percent Change	Ridership	Percent Change	Percent Change
First Quarter	105,070	88,439	-15.8	98,295	+11.1	-6.4
Second Quarter	101,252	111,054	+9.7	107,852	-2.9	+6.5
Third Quarter	104,850	130,899	+24.8	103,298	-21.1	-1.5
Fourth Quarter	100,686	115,308	+14.5	N/A		
Total	411,858	445,700	+8.2			

Vehicle Miles of Travel

Data compiled by WSDOT indicates that annual vehicle travel has decreased slightly in the last three years. In particular, the third quarter of 1980 showed a substantial reduction of miles traveled compared to the same time for 1979 and 1978.

Table A5
Vehicle Miles of Travel in
Washington State
(Billions)

	1978	1979	1978-1979	1980	1979-1980	1978-1980
	Miles	Miles	Percent Change	Miles	Percent Change	Percent Change
First Quarter	6.552	6.741	+2.9	6.357	-5.7	-3.0
Second Quarter	7.462	7.390	-1.0	7.213	-2.4	-3.3
Third Quarter	8.372	8.070	-3.6	7.135	-11.6	-14.8
Fourth Quarter	6.992	6.921	-1.0	6.991	+1.0	0
Total	29.378	29.122	-0.9	28.696	-1.5	-2.3

Summary

The rising cost of energy and transportation in general have had a definite effect on all modes of travel as demonstrated by the following trends:

1. Local transit has shown steady growth throughout the state in both the existing and the new systems.

2. After posting solid gains in ridership in 1979, AMTRAK, Certificated Airlines and intercity bus companies all had declining passenger totals in 1980.

3. The miles of travel by motor vehicle declined slightly (2.3 percent) from 1978 through 1980. It is significant that there has been a decline each year for the last three years even though vehicle registrations have increased.

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. Seventy-seven percent of the 2,500 households included in this survey had one or more family members employed outside of the home. Hence, their current work travel behavior and changes they have made and are expecting to make are extremely important in planning statewide systems. The responses to the questions asked of those interviewed provided valuable insight concerning the response workers have made to higher transportation costs.

Transportation Modes Used For Work Travel

The most commonly used form of travel to work continues to be the single occupant private automobile with this mode used by 77.9 percent of the respondents. Carpools are used by 10.7 percent and public transit by 4.8 percent. When persons residing in those areas that do not have local transit systems are excluded, the distribution varies somewhat but not greatly. In the urban areas, transit is used by 6 percent of the workers for travel to their place of employment.

Table B1
Transportation Mode Used for Work Travel
Statewide Survey Responses

Work Travel Mode	Percent
Drive Car Alone	77.9
Carpool	10.7
Vanpool	0.4
Private Bus	2.7
Local Transit Bus	4.8
Motorcycle	1.3
Moped	0.3
Bicycle	1.3

Table B2

Persons Residing In Areas Having Local Transit Systems

Work Travel Mode	Percent
Drive Car Alone	77.7
Carpool	9.4
Vanpool	0.5
Private Bus	3.0
Local Transit Bus	6.0
Motorcycle	1.4
Moped	0.2
Bicycle	1.8

Effect of Time and Distance on Work Travel Mode

The average commute time for all households surveyed is just under 20 minutes, while the average distance (one way) from home to work is 10.1 miles. When these two factors are cross-tabulated with the type of transportation used for work travel, the private auto is still the preferred choice 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 carpool or take the bus, be it private or public. This relationship is not as pronounced when the distance to work increases. Thus, the actual time spent commuting to work and not the number of miles driven seems to influence the type of travel chosen.

Table B3

Type of Transportation Used for Work Travel by the Time It Takes to Get to Work and the Distance to Work
(Row Percent)

	Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
Travel Time								
Less than 10 minutes	83.8	9.0	0.3	1.6	1.7	1.4	0.2	1.9
11-20 minutes	80.1	10.4	0.5	1.4	3.9	1.2	0.5	1.8
21-30 minutes	70.6	13.8	0.2	3.6	8.3	1.1	0	2.3
31-40 minutes	68.3	12.9	3.0	5.0	11.9	2.0	0	0
41-50 minutes	52.4	20.4	1.0	9.7	12.6	0	0	3.9
51-60 minutes	59.4	14.5	0	10.1	14.5	1.4	0	0
Over 1 hour	61.0	9.8	2.4	12.2	9.8	2.4	0	2.4
Travel Distance								
Less than 1 mile	81.4	7.3	1.1	2.3	1.7	1.1	0.6	4.5
1 to 2 miles	78.8	8.5	0	3.2	4.0	1.6	0.3	3.7
3 to 4 miles	76.6	10.9	0.2	2.4	6.3	1.0	0.7	1.9
5 to 6 miles	76.1	9.4	0.5	2.4	7.0	2.1	0.3	2.1
7 to 8 miles	81.8	8.6	0.3	1.4	4.8	1.4	0.3	1.4
9 to 10 miles	79.6	8.2	0.8	4.1	4.1	0.8	0.4	2.0
11 to 15 miles	79.8	12.3	0.3	2.1	3.8	0.9	0	0.9
16 to 20 miles	71.8	19.6	0	1.8	6.1	0.6	0	0
21 to 30 miles	74.7	14.9	0.6	2.6	3.9	1.9	0	1.3
Over 30 miles	73.6	16.8	0.8	6.4	0.8	0.8	0	0.8
Overall Sample	77.9	10.7	0.4	2.7	4.8	1.3	0.3	1.3

Even though transportation costs have risen considerably in recent years, only 15.7 percent of those working adults interviewed indicated a desire to move closer to their place of employment, and only 4.9 percent are actually planning such a move. However, 24 percent of those employed would like to find a job closer to home. In this group, a greater percentage than found in the overall sample would prefer a job closer to home. These are the people who carpool or take private or public buses to work.

Table B4

Type of Transportation Used for Work Travel Compared
to Desire for a Job Closer to Home
(Percent)

	Drive Alone	Car-pool	Van-pool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle	Overall Sample
Closer Job									
Yes	25.5	31.2	18.2	37.0	30.2	26.5	28.6	22.9	24.0
No	74.5	68.8	81.8	63.0	69.8	73.5	71.4	77.1	76.0

When travel time and distance are cross-tabulated with the desire to find a job closer to home, a certain threshold is apparent beyond which the percentage of those wishing for a closer place of work is greater than is found in the overall sample. Travel times greater than 20 minutes and distances above nine miles cause an increasing number of respondents to prefer that their place of employment be closer to home.

Table B5

Time It Takes to Get to Work Compared
to Desire for a Job Closer to Home
(Percent)

	Time							
	Less than 10 min.	11-20	21-30	31-40	41-50	51-60	Over 1 hour	Overall Sample
Closer Job								
Yes	11.5	25.7	34.1	37.7	45.9	34.0	41.4	24.0
No	88.5	74.3	65.9	62.3	54.1	66.0	58.6	76.0

Table B6

Travel Distance to Work Compared to Desire for a Job Closer to Home
(Percent)

	Distance										
	Less Than 1 Mile	1-2	3-4	5-6	7-8	9-10	11-15	16-20	21-30	Over 30 Mi.	Overall Sample
Closer Job											
Yes	8.9	10.9	12.0	20.5	25.9	32.2	32.4	40.8	46.1	34.8	24.0
No	91.1	89.1	88.0	79.5	74.1	67.8	67.6	59.2	53.9	65.2	76.0

Effect of Income and Age on Work Travel Mode

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 carpooling than is found in the overall sample. Conversely, higher income groups are more apt to drive alone to work.

Table B7

Type of Transportation Used for Work Travel
By Income Group
(Row Percent)

Income	Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
Under $10,000	68.1	13.1	0.9	6.1	7.9	0.4	0	3.5
$10,000-$14,999	77.7	10.8	0	2.5	5.1	0	0.6	3.2
$15,000-$19,999	75.5	10.0	0.7	3.7	5.3	2.3	0.2	2.3
$20,000-$29,999	78.3	10.8	0.1	2.5	4.5	1.6	0.3	1.7
$30,000 or over	81.0	11.2	0.4	1.7	3.3	1.3	0.3	0.8
Overall Sample	77.9	10.7	0.4	2.7	4.8	1.3	0.3	1.3

Younger commuters show more of a tendency to use public transit and carpools than the overall sample, while those 65 years of age and older are the most likely to drive alone to work.

Table B8

Type of Transportation Used for Work Travel
By Age Group
(Row Percent)

Age	Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
18-24	70.6	13.0	0.9	4.7	6.7	1.1	0.4	2.7
25-44	79.1	10.0	0.3	2.2	4.0	1.6	0.4	2.3
45-64	80.7	10.0	0.3	2.2	5.4	0.7	0	0.7
65 or over	85.5	7.2	0	2.9	2.9	1.4	0	0
Overall Sample	77.9	10.7	0.4	2.7	4.8	1.3	0.3	1.3

Past and Future Changes in Work Travel Mode

One-fifth of the households sampled (20.7 percent) indicated that they have changed the type of transporation they use for travel to and from work in the last two years. Of this group, 60 percent currently drive alone to work, 15.7 percent carpool, and 10.9 percent use local transit.

Table B9

Type of Transportation Used for Work Travel Compared
To Whether Changes Have Occurred in Work Travel Mode
In the Last Two Years
(Row Percent)

Has Work Travel Form Changed	Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
Yes	60.0	15.7	1.1	4.3	10.9	2.8	0.9	4.3
No	82.4	9.4	0.2	2.4	3.3	0.9	0.1	1.3

When the previous mode of travel to work is compared with the mode now used, some interesting facts emerge. Of those people who presently use local transit for commuting, 78.3 percent formerly drove their cars alone to work. Two-thirds of those who carpool and 64 percent of those who use private buses also formerly drove alone to work in their automobiles.

Table B10

Type of Present Transportation Used for Work Travel
Compared with Former Work Travel Mode
(Percent)

Former	Present: Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
Drive Alone	53.0	66.3	33.3	64.0	78.3	76.5	40.0	58.3
Carpool/Vanpool	10.2	3.4	33.3	16.0	5.0	0	20.0	25.0
Bus	13.2	12.4	0	16.0	3.3	0	0	4.2
Motorcycle/Bicycle	7.2	4.5	0	0	1.7	5.9	0	8.3
Walking	8.4	6.7	0	0	10.0	5.9	0	4.2
Other	8.1	5.6	33.3	4.0	0	11.8	40.0	0

In the future, 23.3 percent of the households indicated they plan to change their mode of transportation to and from work. Of these, 84.5 percent currently drive alone and 8.6 percent carpool.

Table B11

Type of Transportation Used for Work Travel Compared
To Whether Changes Will Occur in Work Travel Mode in the Future
(Row Percent)

Work Travel Change	Drive Alone	Carpool	Vanpool	Private Bus	Local Transit	Motor-cycle	Moped	Bicycle
Yes	84.5	8.6	0.7	1.5	2.2	0.7	0.3	1.5
No	75.7	11.1	0.3	3.3	5.7	1.4	0.3	2.2

Of those workers who said they intend to change their mode of work travel in the future, one fourth plan to use the bus; 21.8 percent, compact cars; and 13.4 percent, bicycles.

Table B12

Mode to be Adopted in the Future By Those Who Change Their Type of Work Travel

(Percent)

Bus	25.3
Compact Car	21.8
Bicycle	13.4
Carpool	12.8
Motorcycle	12.6
Walk	7.3
Other	5.2
Moped	1.5

Effect of Time and Distance on Changes in Work Travel Mode

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 is between 31 and 60 minutes, there is a marked increase in the number of persons who have changed their form of travel when compared with the overall survey sample.

Table B13

Travel Time to Work Compared With Whether Changes Have Occurred in Work Travel Form in the Last Two Years

(Row Percent)

	Has Mode of Work Travel Changed?	
	Yes	No
Time		
Less than 10 minutes	18.9	81.1
11-20	20.6	79.4
21-30	21.1	78.9
31-40	28.6	71.4
41-50	32.4	67.6
51-60	36.5	63.5
Over 1 hour	12.9	87.1
Overall Sample	20.7	79.3

There is no relationship between travel distance and changes in the form of work travel. Increased travel distance does not yield greater change in work travel form. As it does in influencing the type of travel used in commuting, travel time, and not distance, also appears to be the catalyst for any changes that occur in the form of travel used.

Effect of Income and Age on Changes in Work Travel Mode

Lower income households have been more likely to have changed their form of work travel the past two years than the sample as a whole. Just the opposite is true for those households making $30,000 or more. Young adults have been the most receptive to changing how they travel to work, while those 45 years or older have changed the least.

Table B14
Income and Age Groups Compared With Whether Changes Have Occurred in Work Travel Mode in the Last Two Years
(Row Percent)

	Has Mode of Work Travel Changed?	
	Yes	No
Income		
Under $10,000	25.0	75.0
$10,000-$14,999	23.7	76.3
$15,000-$19,999	22.5	77.5
$20,000-$29,999	21.4	78.6
$30,000 or over	16.5	83.5
Age		
18-24	32.7	67.3
25-44	21.9	78.1
45-64	12.9	87.1
65 or over	5.9	94.1
Overall Sample	20.7	79.3

Regarding future plans to change the type of transportation used for work travel, those families making between $10,000 and $20,000 indicate an increased chance of altering their travel form over that of the total survey sample. The same holds true for young adults.

Table B15

Effect of Income and Age Upon Changes
In Mode of Work Travel
(Row Percent)

	Will Work Travel Mode Change?	
	Yes	No
Income		
Under $10,000	23.1	76.9
$10,000-$14,999	28.3	71.7
$15,000-$19,999	28.0	72.0
$20,000-$29,999	21.2	78.8
$30,000 or over	22.6	77.4
Age		
18-24	28.7	71.3
25-44	24.4	75.6
45-64	18.5	81.5
65 or over	15.9	84.1
Overall Sample	23.3	76.7

Reasons for Changing Work Travel Mode

If a respondent indicated a change in work travel mode had occurred in the last two years, he or she was asked to give reasons for this change. The responses were grouped into the categories listed below.

Table B16
Reasons for Changing Work Travel Mode

(Percent)

Cost of Fuel	44.4
Moved	15.0
Changed Job	10.0
Cost of Vehicle	9.8
Needed New Vehicle	7.5
Conserve Energy	5.0
Bus Available	5.0
Joined Carpool	3.0
Use Park-and-Ride	0.3

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

Table B17

Reasons for Changing Mode of Travel to Work
Compared With Former Type of Transportation
(Row Percent)

Former Work Travel Type	Reasons for Changing: Cost of Fuel	Bus Available	Changed Job	Park and Ride	Use Carpool/ Vanpool	Cost of Vehicle	Conserve Energy	Moved	Needed New Vehicle
Drive Car Alone	52.3	6.1	6.1	0	3.1	11.1	5.3	10.3	5.7
Carpool/Vanpool	21.2	9.1	24.2	3.0	3.0	9.1	3.0	24.2	3.0
Bus	4.3	4.3	21.7	0	8.7	4.3	0	47.8	8.7
Motorcycle/Bicycle	27.8	0	5.6	0	5.6	5.6	0	27.8	27.8
Walking	5.0	0	35.0	0	0	0	5.0	40.0	15.0
Other	62.5	0	7.5	0	0	7.5	10.0	2.5	10.0
Overall Sample	44.4	5.0	10.0	0.3	3.0	9.8	5.0	15.0	7.5

Effect of Income and Age on Reasons for Changing Work Travel Mode

It is interesting to note that among those households where the family income falls below $10,000, the cost of fuel is not the prime reason for changing the work travel form. More than half indicated that the change was due to either a new job or a move. The cost of fuel is the major concern of middle and upper income families, however. Also, there is more mention of conserving energy as a reason among higher income groups.

Table B18

Reasons for Changing Work Travel Mode By Income Group
(Row Percent)

	Reasons for Changing								
	Cost of Fuel	Bus Available	Changed Job	Park and Ride	Use Carpool/ Vanpool	Cost of Vehicle	Conserve Energy	Moved	Needed New Vehicle
Income									
Under $10,000	30.3	6.1	21.2	0	3.0	3.0	0	30.3	6.1
$10,000-$14,999	40.0	5.4	10.9	0	3.6	7.3	3.6	23.6	3.6
$15,000-$19,999	52.6	2.6	7.9	0	2.6	13.2	2.6	11.8	6.6
$20,000-$29,999	48.2	4.4	5.3	0	3.5	10.5	7.0	11.4	4.4
$30,000 or over	49.4	3.8	8.9	0	2.5	7.6	11.4	10.1	6.3
Overall Sample	44.4	5.0	10.0	0.3	3.0	9.8	5.0	15.0	7.5

The age of the respondents also affect what reasons were mentioned for changing the form of work travel. On the whole, younger adults mentioned the cost of fuel less and moving or changing jobs more than the overall sample. Conserving energy becomes more of a factor as age increases. Conversely, as age decreases, there is more use of carpools or vanpools.

Table B19

Reasons for Changing Work Travel Mode By Age Group
(Row Percent)

	Reasons for Changing								
Age	Cost of Fuel	Bus Avail-able	Changed Job	Park and Ride	Use Carpool/ Vanpool	Cost of Vehicle	Conserve Energy	Moved	Needed New Vehicle
18-24	38.9	4.2	11.6	0	4.2	7.4	3.1	17.9	12.6
25-44	43.9	4.8	11.4	0.4	2.6	9.6	4.8	16.2	6.1
45-64	57.8	4.7	4.7	0	3.1	9.4	6.2	7.8	6.2
65 or over	20.0	20.0	0	0	0	20.0	20.0	20.0	0
Overall Sample	44.4	5.0	10.0	0.3	3.0	9.8	5.0	15.0	7.5

Summary

Increasing transportation costs have affected travel to work in the following ways:

1. The single occupant automobile is used by 77.9 percent of the respondents as their primary means of work travel. Next in order for the total survey sample are carpools (10.7 percent) and public transit (4.8 percent). In areas where transit service is available, 6 percent used the local buses.

2. More than 77 percent of the households surveyed have at least one family member who works outside the home.

3. Based on the results of the survey, the average time to commute to work is approximately 20 minutes and the average one-way distance from home to work is 10.1 miles.

4. As travel time to work increases, the percentage of single occupant autos decreases, while the proportion of carpools and bus riders increase.

5. While only 4.9 percent of the respondents are planning to move closer to their place of work, 24 percent would prefer a job closer to their home.

6. Travel times greater than 20 minutes and distances above nine miles cause an increasing number of persons to desire a job closer to home.

7. Lower income households and young workers are more apt to use public transit or carpools for work travel than the sample as a whole.

8. One-fifth of those sampled have changed their form of travel to and from work in the last two years.

9. Of those people who have changed their form of work travel the last two years, more than 78 percent of those who now use public transit formerly drove alone to work.

10. In the future, there will be even more people changing their form of work travel (23.3 percent). Of these, 84.5 percent currently drive alone to work.

11. In general, the longer the time required for persons to travel to work the more likely they are to have changed their work travel mode in the last two years.

12. More lower income households and young adults have changed their form of work travel than other income and age groups.

13. The single reason mentioned most often for changing work travel form is the cost of fuel, 44.4 percent, followed by moving, 15 percent and a change of job, 10 percent.

LOCAL TRAVEL BY WASHINGTON STATE RESIDENTS

The responses to rising transportation costs which can be made by a given household vary. For example, those who are employed or attending school have little day-to-day choice when and where trips must be taken. For the most part work travel and trips to and from work or school can only be modified by changing to a more cost efficient mode such as a car pool, transit, or bicycle.

By contrast, trips made for shopping or other local trips and long distance travel provide greater opportunities for change. Thus, it should be expected that Washington State residents either have already or would be expected to change their local travel habits in response to rising transportation costs and energy shortages.

The June, 1980 survey included a series of questions designed to analyze these factors. Their importance to transportation systems planning is obvious.

Current Modes of Transportation for Local Travel

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. Eighty-five percent reported that they used this mode compared to only 3.3 percent who used carpools or vanpools and 4.5 percent who took transit. 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.

Considerable deviation exists with respect to travel by household members for educational travel such as college and vocational education, and for other local trips. For school travel the percentage walking or utilizing transit or carpools is sufficient to reduce the number driving automobiles alone to less than half (43.3 percent).

In response to the question: "Approximately how far do you travel one way for most of your shopping needs?" 29.2 percent of respondents reported "less than one mile" and 39 percent reported from two to three miles. Local trips to colleges and vocational schools on the average were somewhat longer*.

Changes in Mode of Travel in Last Two Years

Among the persons interviewed a relatively small number reported having changed their form of transportation for local travel in the last two years. Responses to two questions dealing with this issue indicate that only 17.7 percent reported a mode change for travel to educational institutions and even fewer (10.2 percent) stated that such change occurred for other local travel.

Table C1
Local Travel Form by Trip Purpose
(Percent)

Travel Mode	School Travel	Other Local Travel	Total	Number of Cases
Drive Car Alone	42.3	90.4	85.0	4,251
Car or Vanpool	26.7	0.3	3.3	164
Transit	11.6	3.6	4.5	223
Bicycle or Motorcycle	3.2	1.5	1.7	85
Walk	13.9	(Not Reported)	1.6	78
Other	2.3	4.2	3.9	198
Total	100.0	100.0	100.0	--
Number of Cases	562	4,437	--	4,999

Table C2

Form of Local Transportation by Community

(Percent)

	Seattle	Spokane	Yakima	Olympia	Long-View	Grant	Whitman	Clark	Tri-Cities	Total	No. of Cases
Drive Car Alone	80.5	80.5	91.1	81.1	91.4	90.4	83.6	91.0	88.0	85.0	4,215
Car or Vanpool	1.2	7.5	2.0	1.9	0.6	6.3	2.1	2.4	5.1	3.3	164
Transit	12.3	3.4	2.0	3.6	2.1	--	1.9	0.9	--	4.5	223
Bicycle or Motorcycle	1.4	2.3	1.0	3.3	0.6	0.5	1.7	1.5	2.2	1.7	85
Walk	2.1	0.4	1.8	2.6	--	0.3	4.3	1.3	0.9	1.6	78
All Other Forms	2.5	6.0	2.0	7.4	5.2	1.9	6.4	2.9	3.0	3.9	198
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	--
No. of Cases	1,261	773	392	419	327	363	421	455	588	--	4,999

Table C3

Travel Distance by Local Travel Trip Purpose

(Percent)

Travel Distance	Shopping Trips	Trips to Educational Institution	
		First Person	Second Person
Less Than One Mile	29.2	12.5	22.4
1-3 Miles	39.8	25.0	25.0
4-6 Miles	15.2	18.6	18.4
7-10 Miles	7.9	18.1	13.2
11-15 Miles	3.7	10.3	9.2
16-20 Miles	1.3	6.7	2.6
21-30 Miles	1.4	3.3	--
Over 30 Miles	1.5	5.5	9.2
Total	100.0	100.0	100.0
Number of Cases	2,490	260	76

Table C4

Form of Transportation for Local Travel Changed in Past 2 Years by Travel Purpose

(Percent)

Form of Travel Changed	Travel Purpose	
	Educational	Other Local
Yes	17.7	10.2
No	81.9	88.8
Don't Know	0.4	--
Total	100.0	100.0
Number of Cases	1,057	2,494

Changes in Amount of 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?" 43.5 percent reported a decrease, 15.3 percent an increase; and 41.3 percent, the same amount. When these results are cross-tabulated by community, more than 85 percent of persons interviewed reported that the amount of local driving in their households either decreased or remained about the same during the past two years.

Table C5

Changes in the Amount of Local Travel by Communities

(Row Percent)

	Local Travel		
	Increase	Decrease	Remain Same
Seattle	15.3	44.2	40.5
Spokane	16.2	47.1	36.7
Yakima	11.5	45.5	43.0
Olympia	14.2	43.4	42.4
Longview	10.2	36.7	53.1
Grant	14.9	45.8	39.3
Whitman	16.2	38.4	45.5
Clark	20.3	45.5	34.2
Tri-Cities	16.8	40.5	42.8
Total	15.3	43.5	41.3

Number of Cases 2,497

Future Local Travel Plans

When the respondents were asked whether they planned to change the amount of travel in the future only a small percentage of the persons interviewed stated that they anticipate such changes will occur. The cross-tabulation of responses to questions relating to changes in the amount of and mode of future local travel.

The responses suggest that people consider the amount of local personal travel they now do to be sufficiently important to them that they will continue existing travel patterns regardless of price increases. More than one-half (54.8 percent) expect that both the amount of local travel and their current form of such travel will remain the same. Further only 8.7 percent expect both a decrease in the amount of travel and a change in mode.

Table C6
Planned Changes in the Amount of Local Travel
by Anticipated Mode Changes

A. In percent of total responses: Are changes planned?

	Amount of Local Travel			
	Increase	Decrease	About Same	Total
Changes Planned				
Yes	21.7	24.3	11.0	15.9
No	78.3	72.9	87.8	82.3
Don't Know	--	2.8	1.2	1.8
Total	100.0	100.0	100.0	100.0
Number of Cases	46	890	1,551	2,487

B. Percent of Total Responses: Amount of Local Travel.

	Anticipated Changes in Travel Mode			
Amount of Local Travel	Yes	No	Don't Know	Total
Increase	2.5	1.8	0	1.8
Decrease	54.5	31.7	56.8	35.8
Same	42.9	66.5	43.2	62.4
Total	100.0	100.0	100.0	100.0
Number of Cases	396	2,047	44	2,487

C. Percent of Total Responses to Both Questions

	Amount of Travel			
Changes Planned	Increase	Decrease	About Same	Total
Yes	0.4	8.7	6.8	15.9
No	1.4	26.1	54.8	82.3
Don't Know		1.0	0.8	1.8
Total	1.8	35.8	62.4	100.0
Number of Cases	46	890	1,551	2,487

When the changes in the mode of transportation in the last two years are compared with future plans, an even greater resistance to change appears to exist. In this case 75.7 percent report neither having changed nor anticipating a change in local travel mode and with only 3.1 percent responding affirmatively to both questions.

Table C7

Recent Changes by Anticiapted Changes in Mode for Local Travel

(Percent)

	Future Mode Change Anticipated			
Past Mode Changed	Yes	No	Don't Know	Total
Yes	3.1	6.6	0.4	10.1
No	12.9	95.7	1.3	89.9
Total	15.9	82.3	1.8	100.0
Number of Cases	396	2,050	44	2,490

Note: Entries in each cell are in percent of the total number of persons interviewed providing responses to both question: (a) "Has your form of transportation for local travel... changed during the past two years?" and (b) "As costs rise do you ... plan to change your form of transportation for local travel?"

Other Adjustments to Rising Costs of Local Travel

Slightly more than one-half (50.8 percent) reported an increase in the use of the telephone as a means of cutting down on travel. Also, less local travel has resulted.

Table C8
Other Adjustment to Rising Costs of Local Travel:
Shopping Closer to Home; Increased Use of Telephone
(Percent)

Responses	Increased Use of Telephone	Shopping Closer to Home
Yes	50.8	44.1
No	48.1	55.2
Don't Know	1.1	0.7
Total	100.0	100.0
Number of Cases	2,495	2,496

Nearly as many (44.1 percent) reported shopping closer to home. Overall, the data indicates that shopping closer to home is another important way in which Washington residents have reduced their local travel costs.

Summary

For local travel, the impacts of rising energy costs include the following:

1. Unlike other types of travel investigated in this survey, non-work related local travel has not been modified by most of the persons interviewed. More than three-fourths of the respondents indicated they do not plan to change either the amount or their mode of local travel. This leaves one-fourth that do have such plans and their actions are reflected in the increased ridership of local transit and in the use of bicycles and other alternatives to travel by automobile.

2. Since most of the local travel that is not work or school related occurs within a relatively small area, usually not more than five miles from home, the potential use of smaller motor vehicles (described by some as glorified golf carts) may prove to be an attractive alternative.

3. The population of the state is increasing and most persons do not have plans to change their travel habits, therefore, transportation facilities will be needed to handle this additional traffic. The pressures for adequate facilities in urban areas will increase assuming the survey results are representative of the citizens of the State.

LONG DISTANCE AND RECREATIONAL TRAVEL

Long Distance

For this survey, long-distance travel was defined as trips of more than 200 miles from home that are not work-related. An effort was made to determine how higher transportation costs including rising fuel prices have affected this type of travel which is more elective than work, school or shopping trips.

More than one-half (54.8 percent) of the respondents indicated that they now use their automobiles for long-distance travel. Air travel was second (26.2 percent) with travel by bus accounting for only 5 percent and trains, 1.7 percent.

Table D1
Mode of Transportation Now Used for Long-Distance Travel
(Percent)

Auto	54.8
Truck/Van/Camper/Motorhome	6.9
Bus	5.1
Train	1.7
Airplane	26.2
Other	5.2

Twelve 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, 16.6 percent replied affirmatively but 79.1 percent stated that no change would be made.

More than 77 percent of the families who plan to change their mode of travel in the future have not changed the form of travel in the last two years. Hence, the change must be viewed as a trend with more than one-fourth (29.0 percent) of the total respondents either having made a change or planning to. If this trend is followed by the general population, it is apparent that a very sizeable shift is occurring in the mode of travel used for long-distance personal travel.

Table D2

Change in Type of Long-Distance Travel in the Future
Compared to Change in Mode of
Travel the Last Two Years
(Percent)

		Future		
	Last Two Years	Change	Remain the Same	Don't Know
Change	12.4	22.3	10.0	12.0
Remain the Same	87.1	77.2	89.7	82.4
Don't Know	0.5	0.5	0.3	5.6
Total	100.0	100.0	100.0	100.0
Future	100.0	16.6	79.1	4.3

Those persons interviewed who had changed were asked to indicate their former form of long-distance travel and their current mode. Formerly, the largest proportion of this group traveled by large automobile (55.7 percent) but the greatest number now use airplane (40.8 percent). It is interesting to note that three-fourths formerly traveled by large and small automobiles but only 28.6 percent of those having changed now use automobiles. Travel by bus and train increased but not as dramatically as air travel.

Table D3

Former and Current Mode of Travel
For Those Respondents Who Have Made Change
(Percent)

	Former Mode	Present Mode
Mode		
Automobile (large)	55.7	9.2
Automobile (small)	18.6	19.4
Airplane	11.1	40.8
Intercity bus	4.9	11.9
Train	2.0	7.1
Other	7.8	11.6

Of those households that indicated they have changed their form of long-distance travel in the past two years, more than 60 percent of those indicating airplanes, buses and trains as their current type of long-distance travel formerly used large cars for such trips. Hence, the change is not as pronounced between types of automobiles as with other forms of travel.

Table D4
Type of Transportation Now Used for Long-Distance Travel
Compared to Former Type of Transportation
For Those Households That Have Changed
(Percent)

	New Type					
Former Type	Large Car	Small Car	Airplane	Bus	Train	Other
Large Car	21.4	47.4	67.2	65.7	61.9	55.9
Small Car	14.3	1.8	26.1	22.9	23.8	17.6
Air Plane	32.1	22.8	0	11.4	14.3	8.8
Bus	21.4	5.3	2.5	0	0	0
Train	7.1	1.8	1.7	0	0	2.9
Other	3.6	21.1	2.5	0	0	14.7

Those persons interviewed that indicated they plan to change their future mode of long-distance travel, stated they will use airplanes, buses and trains rather than using other, more compact automobiles.

Table D5

Type of Transportation to be Substituted in the Future for Long-Distance Travel by Those Indicating They Will Change

(Percent)

Compact Automobiles	14.6
Airplane	31.6
Bus	27.4
Train	19.0
Other	7.4

When the future type of travel is compared with current forms, it is significant to note that two-thirds of those that plan to use airplanes and 58.8 percent of those who state they will travel by train formerly used automobiles.

Table D6

Type of Transportation to be Used for Future Long-Distance Travel Compared to Mode of Transportation for Current Long-Distance Travel

(Percent)

	Future Mode				
Current Mode	Compact Auto	Airplane	Bus	Train	Other
Auto	39.2	66.7	50.7	58.8	65.8
Truck/Van/ Camper/Motorhome	18.9	6.4	6.0	2.1	7.9
Bus	8.1	3.2	11.2	3.1	5.3
Train	4.0	0.6	1.5	2.1	0
Airplane	28.4	21.1	26.9	31.9	15.8
Other	1.4	1.9	3.7	2.1	5.3

Amount of Travel

The major impact of the rising costs of transportation has been to reduce the amount of personal long-distance travel. Nearly 43 percent of the households interviewed plan to decrease the amount of long-distance travel, but 54.3 percent will travel the same amount and only 3 percent indicated that they planned to increase.

More than one-half (57 percent) of those persons who plan to increase, decrease, or undertake the same amount of long-distance travel in the future currently use the automobile for such trips. However, among those indicating a reduction or an increase of travel, a sizeable proportion now take airplanes. Other modes account for a much smaller proportion.

Table D7

Current Mode of Long-Distance Travel

By Amount of Future Travel Respondents are Planning

(Percent)

	Amount of Travel		
Mode	Increase	Decrease	Remain the Same
Auto	50.0	57.0	53.8
Truck/Van/ Camper/Motorhome	5.4	5.5	8.0
Bus	2.7	5.3	5.1
Train	1.4	1.5	1.8
Airplane	36.5	28.4	24.0
Other	2.7	2.0	6.9

Change in Overall Travel Behavior

When asked whether the overall travel habits of the household had changed, 58.3 percent indicated changes had occurred, compared to 40.6 percent who stated that

no changes had been made. When the replies of the respondents to this question are cross-tabulated with other questions regarding form and amount of long-distance travel, the results are interesting.

Among those families who indicated that their overall travel habits have changed, 15.7 percent have changed their form of long-distance travel in the past two years, 21.1 percent intend to change the form of travel in the future and 54.8 percent will decrease their amount of future long-distance travel.

Table D8

Percent Change in Travel Habits Compared to Change in Type and Amount of Transportation

Has Type of Transportation For Long-Distance Travel Changed in the Past 2 Years?	Have Family's Overall Travel Habits Changed? Yes	No	Don't Know
Yes	15.7	7.6	14.3
No	83.8	91.9	85.7
Don't Know	0.6	0.5	0

Will Type of Transportation For Long-Distance Travel Change in the Future?	Have Family's Overall Travel Habits Changed? Yes	No	Don't Know
Yes	21.1	10.3	10.7
No	74.3	85.9	78.6
Don't Know	4.6	3.8	10.7

Amount of Long-Distance Travel in the Future?	Have Family's Overall Travel Habits Changed? Yes	No	Don't Know
Increase	2.4	3.9	3.8
Decrease	54.8	25.5	34.6
Remain the Same	42.7	70.6	61.5

Effect of Income Upon Travel

Income appears to play a major role in the form of transportation a person uses for long-distance travel. More than 70 percent of the respondents who use the bus and 44 percent of those who take the train earn less than $15,000 a year, while nearly 30 percent of those who travel by air earn more than $30,000 annually and 54 percent earn more than $20,000.

Table D9
Type of Transportation by Income Group for Long-Distance Travel
(Percent)

1979 Family Income	Auto	Truck/Van Camper/ Motorhome	Bus	Train	Airplane	Other
Under $10,000	16.7	12.6	50.0	30.6	14.6	42.9
$10,000-$14,999	17.1	11.3	20.8	13.9	14.6	19.8
$15,000-$19,999	17.5	20.5	17.0	22.2	17.0	12.1
$20,000-$29,999	27.7	31.8	10.4	8.3	24.3	17.6
$30,000 or over	21.0	23.8	1.9	25.0	29.8	7.7

Income does not play a significant role in determining whether the respondents have changed their form of transportation. Almost as large a proportion of those interviewed that have incomes under $10,000 changed the form of transportation as those who earn more than $30,000. The same is true for those who indicated that they planned to change in the future.

Table D10

Has the Form of Transportation for Long-Distance Travel Changed in the Past Two Years?

(Percent)

1979 Family Income	Yes	No	Don't Know
Under $10,000	20.6	19.0	7.7
$10,000-$14,999	17.7	15.7	30.8
$15,000-$19,999	14.8	17.7	15.4
$20,000-$29,999	23.1	25.7	38.5
$30,000 or over	23.8	21.9	7.7

Table D11

Will the Form of Transportation for Long-Distance Travel Change in the Future?

(Percent)

1979 Family Income	Yes	No	Don't Know
Under $10,000	19.7	18.7	23.3
$10,000-$14,999	19.9	15.4	14.4
$15,000-$19,999	16.1	18.0	10.0
$20,000-$29,999	24.7	25.3	30.0
$30,000 or over	19.7	22.4	22.2

There is some difference, however, in the mode to which the various income groups plan to change. Fifty-eight percent of those who plan to use the airplane and 52.3 percent of those who plan to travel by train earn more than $20,000 while almost one-half (47 percent) of those using the bus earn less than $20,000.

Table D12

Transportation Mode Respondents Plan

To Use For Long-Distance Travel by Income Group

(Percent)

1979 Family Income	Compact Car	Airplane	Bus	Train	Other
Under $10,000	16.4	13.4	27.6	16.3	26.7
$10,000-$14,999	22.4	14.1	19.5	17.4	30.0
$15,000-$19,999	20.9	14.1	17.9	13.9	16.7
$20,000-$29,999	23.9	30.2	22.8	31.4	13.3
$30,000 or over	16.4	28.2	12.2	20.9	13.3

It is somewhat surprising to note that of those families planning to decrease the amount of long-distance travel in the future, income is not the determining factor. Nearly one-half of those planning to decrease long-distance travel earn $20,000 or more a year, while less than 20 percent make less than $10,000 annually.

Table D13

Amount of

Planned Long-Distance Travel By Income Group

(Percent)

1979 Family Income	Increase	Decrease	Remain the Same
Under $10,000	16.4	18.7	19.1
$10,000-$14,999	10.4	15.6	17.2
$15,000-$19,999	25.4	17.1	17.2
$20,000-$29,999	23.9	25.8	25.2
$30,000 or over	23.9	22.8	21.4

Age of Transportation Users

For all age groups the major form of transportation for long-distance travel is the automobile but the proportion declines the older the persons become.

Nearly one-third of those presently using intercity buses are over 65 years of age and 56 percent are 45 years or older. Train travel is most popular with those who are between the ages of 25 and 44. This also applies to travel by automobile and airplane.

Table D14
Type of Transportation
for Long-Distance Travel by Age Group
(Percent)

Age	Auto	Truck/Van Camper/ Motorhome	Bus	Train	Airplane	Other
18-24	16.3	9.6	20.3	12.2	12.9	6.3
25-44	49.4	53.3	22.9	48.8	40.8	30.6
45-64	25.0	28.7	24.6	14.6	30.0	25.2
65 or over	9.4	8.4	32.2	24.4	16.3	37.8

Intermediate Travel

For this survey, intermediate travel is defined as trips outside the community of 200 miles or less that are not work related. Since this type of personal travel is usually quite elective in nature, the responses from persons interviewed should provide an indication of whether rising costs are having much of an impact.

As might be expected in Washington, practically all of this travel is by automobile, camper or truck. These vehicles were used for 91.8 percent of this type of travel. Intercity buses accounted for 4 percent with travel by other forms being negligible.

Table D15

Type of Transportation for Intermediate Travel

(Percent)

Auto	85.2
Truck/Van/ Camper/Motorhome	6.6
Bus	4.0
Train	.5
Airplane	.6
Other	3.2

When comparing the type of transportation used for intermediate travel with that used for long-distance travel (over 200 miles from home), it is interesting to note that practically all (92.9 percent) of those who fly on intermediate trips, also use airplanes for long-distance travel. This "repeat" percentage drops considerably when buses or trains are considered as 43 percent of those who use the bus for intermediate trips also use it for long-distance travel, and only one-fourth of those who use trains travel by this mode for both kinds of travel.

Table D16

Transportation Modes for Intermediate Travel by Form of Long-Distance Travel

(Percent)

	Intermediate Travel					
Long Distance Travel	Auto	Truck/Van Camper/ Motorhome	Bus	Train	Airplane	Other
Auto	61.7	19.5	9.2	16.7	7.1	18.6
Truck/Van/ Camper/Motorhome	2.9	63.4	2.0	0	0	1.7
Bus	3.5	1.2	42.9	8.3	0	10.2
Train	1.5	0.6	5.1	25.0	0	0
Airplane	26.7	10.4	37.8	50.0	92.9	18.6
Other	3.7	4.9	3.1	0	0	50.8

Effect of Income and Age Upon Travel

Income has a definite effect on which mode a person uses for intermediate trips. Nearly half of those who use the bus (49.3 percent) and 58 percent of those who take the train make less than $10,000 a year. Conversely, of those who fly, 70 percent earn $30,000 or more a year.

Table D17

Type of Transportation by Income Group for Intermediate Travel

(Percent)

1979 Family Income	Mode of Travel					
	Auto	Truck/Van Camper/ Motorhome	Bus	Train	Airplane	Other
Under $10,000	17.1	13.2	49.3	58.3	10.0	55.1
$10,000-$14,999	16.3	11.1	21.3	8.3	0	20.4
$15,000-$19,999	17.4	23.6	9.3	16.7	10.0	6.1
$20,000-$29,999	26.2	30.6	12.0	16.7	10.0	10.2
$30,000 or over	22.9	21.5	8.0	0	70.0	8.2

The age of the respondent also, to some extent, determines which mode he or she will use for an intermediate trip. Those 18 to 24 years of age and 65 or over account for three-fourths of those who take the train and over 60 percent of those using the bus. Of those who fly, 57 percent are between 45 and 64 years of age.

Table D18

Type of Transportation by Age Group for Intermediate Travel

(Percent)

Age	Auto	Truck/Van Camper/ Motorhome	Bus	Train	Airplane	Other
18-24	14.6	7.4	23.7	33.3	7.1	8.8
25-44	46.7	53.1	25.8	16.7	21.4	17.5
45-64	26.6	30.9	10.8	8.3	57.1	22.8
65 or over	12.1	8.6	39.8	41.7	14.3	50.9

Recreational and Vacation Travel

Nearly one-half (48.6 percent) of the respondents indicated that their vacation and recreational travel had been affected by increased costs of transportation. When asked how their plans have been affected, most families state they were taking fewer and shorter trips.

Table D19
In What Way Have Vacation Plans Been Affected By Rising Travel Costs?
(Percent)

Cancel vacation	16.6
Take plane instead of car	1.4
Take bus instead of car	1.3
Take train instead of car	0.4
Vacation closer to home	18.3
Stay longer in one place	2.4
Take shorter trips	25.6
Take fewer trips	34.0

One-third of the respondents (33.8 percent) 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 (39.7 percent).

Table D20
Type of Transportation for Long-Distance Vacation Travel
(Percent)

Auto	39.7
Airplane	43.1
Bus	1.8
Boat	0.9
Train	1.4
Motorhome	2.7
Pickup Camper	5.9
Trailer	0.6
Other	2.2
Don't Know	1.6

A much larger proportion (58 percent), indicated they plan some vacation and recreational travel within Washington State this year.

As might be expected, the income level has a definite effect upon the mode of travel used for vacations. Two-thirds (66.7 percent) of those who use the bus for their vacation earn less than $15,000 a year. Those who travel by air, auto, train and motorhome are in the upper income groups.

Table D21

Type of Transportation for Vacation Travel By Income Group

(Percent)

1979 Family Income	Auto	Airplane	Bus	Boat	Train	Motor-home	Pickup Camper	Trailer
Under $10,000	14.1	13.1	25.0	14.3	10.0	0	12.5	0
$10,000-$14,999	14.8	12.8	41.7	14.3	10.0	0	12.5	60.0
$15,000-$19,999	17.4	16.8	8.3	14.3	30.0	20.0	17.5	0
$20,000-$29,999	29.2	22.3	25.0	28.6	30.0	45.0	37.5	20.0
$30,00 or over	24.5	35.1	0	28.6	20.0	35.0	20.0	20.0

The age of the respondents also affects the mode of travel used for vacations. A larger proportion of those who travel by bus are the younger and older respondents. Those using airplanes, automobiles and trains are predominantly from 25 to 64 years of age.

Table D22

Type of Transportation for Vacation Travel By Age

(Percent)

Age	Auto	Airplane	Bus	Boat	Train	Motor-home	Camper	Trailer
18-24	19.0	15.1	20.0	12.5	8.3	13.0	10.2	20.0
25-44	49.7	46.4	13.3	25.0	58.3	30.4	49.0	0
45-64	21.1	28.8	20.0	37.5	25.0	47.8	26.5	60.0
65 or over	10.2	9.8	46.7	25.0	8.3	8.7	14.3	20.0

More than two-thirds of those families whose overall travel habits have changed indicated that their vacation plans have been affected by rising travel costs. Thus, when people look at their total transportation situation and how it has changed, the amount of vacation and recreational travel has been impacted significantly.

Summary

As a result of the increased cost of transportation some very definite changes have occurred in long-distance, intermediate and recreational travel that is not work related. The following factors are of significance in the planning and development of transportation systems and projects:

1. The major change that will occur is an overall reduction in the amount of travel that is not work related. More than 42 percent indicate they plan to decrease travel in the future.

2. For long-distance travel, there has been a shift away from the use of the automobile and this trend will increase in the future. The principal change has been to air travel.

3. Even though more people are using other modes for long-distance travel, the automobile continues to be used by more than one-half of the respondents for trips of more than 200 miles.

4. For those persons who have changed, the major change in mode has been from standard or large automobiles to air travel. The shift has been of sufficient significance that it is of major importance in development of air transportation facilities.

5. Although long-distance travel by train and bus has increased, these modes still carry a small proportion of long-distance travelers. However, the increases are dramatic even though the respondents using these forms of travel carry a relatively small proportion of the total.

6. Family income is an important factor in determining which mode of transportation is used for long-distance travel but it has very little significance in determining whether a change in the travel mode will be made.

7. Nearly one-third of the respondents in this survey who use intercity buses for long-distance travel are 65 years of age or older while air and train is used most frequently by those between 25 and 44 years of age.

8. Nearly all (92 percent) of intermediate travel (trips outside of communities of less than 200 miles that are not work related) is by automobiles or other types of private vehicles such as campers or vans. Only 4 percent use buses and less than 1 percent travel by air. Those who do use travel modes other than automobiles, use these same modes for long-distance travel.

9. Almost one-half (48.6 percent) of the respondents indicated that higher transportation costs have had a direct impact on the type and amount of recreational travel.

10. The persons in the sample are taking fewer and shorter trips.

11. For those taking long-distance vacation trips (500 miles or more), air travel is used more frequently than an automobile.

12. Automobiles and air travel for vacation are used most frequently by persons between 25 and 65 years of age with those over 65 using the bus most often.

OPINIONS CONCERNING USE OF TRANSIT BY WASHINGTON STATE RESIDENTS

During the past six years there has been a substantial increase in the number of communities in Washington State being served by transit systems. Concurrently, several existing systems have expanded services within their operating areas. Today there are 20 operating systems within the State. An additional 12 Public Transportation Benefit Areas (PTBA's) have been organized. The current (January 1981) status of transit systems in Washington State is as follows:

Operating Systems:

Metropolitan Systems:

Seattle-King County

City Systems:

Bellingham, Bremerton, Everett, Grandview, Kelso-Longview, Prosser, Pullman, and Yakima.

County Transit Authority:

Grays Harbor County

Public Transportation Benefit Areas:

Clallam County, Clark County[1], Jefferson County, Lewis County, Pacific County, Pierce County[1], Snohomish County, Spokane (City)[1], Thurston County[1], Walla Walla County, and Benton-Franklin Counties.

PTBA Systems Not Yet Operating.

1. Feasibility study completed or in process: Chelan/Douglas County, Franklin County, Grant County, and San Juan County.
2. Ballot proposition approved: Yakima County voters have approved a tax proposal prior to establishment of a PTBA. When the PTBA is established it is assumed the proposition will again be subject to voter ratification.
3. Ballot proposition pending: Spokane County.
4. Ballot proposition failed[2]: Benton County, Island County, Kitsap County, Lewis County and Skagit County.

[1]Formerly city system.

[2]May be submitted later.

Current Patronage

In the Seattle metropolitan area, 44 percent of those persons interviewed in the survey indicated that one or more members of the household used the transit system.

Outside of the Seattle-King County METRO service area, one-fourth (26 percent) of the persons interviewed in the survey reported frequent transit patronage. This data is significant since it indicates the extent to which families are dependent upon this form of travel in cities throughout the state.

Table E1
Frequency of Transit Ridership by Communities
With Operating Transit Systems
(Row Percent)

	Frequent Ridership			
	Yes	No	Total	Number of Cases
Seattle	44.1	55.9	100.0	565
Spokane	29.6	70.4	100.0	280
Yakima	18.8	81.2	100.0	128
Olympia	25.3	74.7	100.0	95
Longview	16.9	83.1	100.0	89
Vancouver	20.0	80.0	100.0	65
Pullman	36.3	63.7	100.0	102
Total	33.6	66.4	100.0	1,324

Note: Limited to respondents reporting transit serving their neighborhood. When the respondents were asked to indicate the reasons for using the bus, work travel and shopping were given most frequently as might be expected but limited use for other reasons was reported.

Transit Patronage Increasing. Overall patronage of transit systems has increased in recent years. For example, from July 1979 to July 1980, all but three of the operating systems experienced an increase in the number of riders from 10 to 25 percent and only one system, Prosser, showed a decline.[3]. Much of that increase may be the result of the public response to rising transportation costs and the energy shortage.

Table E2

Purpose for Which Respondents Use the Bus

By Percent of Respondents Reporting

Trip Purpose	Only One Occasion Reported	Respondents Reporting*	All Occasions Reported
Work Travel	42.1	49.8	26.8
Shopping	28.0	59.9	32.3
Personal Travel	16.5	51.8	27.9
School	11.6	17.0	9.1
Other	1.8	7.3	3.9
Totals	100.0		100.0
Number of Cases	164	454	843

Note: Respondents were given the opportunity to report up to five responses to the question, "For what occasions do you or members of your household ride the bus?"

*Percent of respondents giving the trip purpose indicated among their total reported occasions for riding the bus; therefore, this column cannot be added.

[3]See: Transportation Trends in Washington State, 1980, Washington State Department of Transportation, Olympia, 1980, pp. 24-27.

Responses to the question "Why do you choose not to ride the bus?", demonstrate the importance of convenience. As can be seen, inconvenience is clearly the most frequent reason given for not riding the bus. Further, it is likely that among those answering "just prefer automobile" that preference is based in large part on the greater convenience and flexibility inherent in that mode.

Table E3
Reasons Given for not Riding the Bus
(Percent)

Reason Given	All Reasons Given
Too far to bus stop	4.6
Too crowded	1.0
Doesn't run often enough	7.5
Doesn't go where I want to go	16.7
Too inconvenient	32.6
Cheaper to drive or walk	5.7
Just prefer automobile	18.0
Other	13.9
Total	100.0
Number of cases	1,441

Trends in Transit Patronage

More than one-half (58.3 percent) of all respondents, reported that they had changed their overall travel habits during the past two years (see Table 4). Of these, only 6.5 percent (1.0 percent of all respondents) have switched to transit.

Table E4

Changes in Overall Travel Habits in Response to Rising Costs by Transit Users and Non-users

(Percent)

	Areas with Transit				
	Frequent Riders	Non-Riders	Total	Areas without Transit	Total
Overall Travel Habits Changed					
Yes	60.2	57.0	58.1	58.5	58.3
No	38.0	41.7	40.5	40.7	40.6
Don't Know	1.8	1.3	1.4	0.8	1.1
Total	100.0	100.0	100.0	100.0	100.0
No. of Cases	445	894	1,339	1,153	2,492

Work Travel

Among those who have changed their mode of travel the most common change has been in work travel. Changes in mode for work travel were reported by 407 (20.7 percent) of the 2,500 respondents. No clear pattern of these changes, is evident. (See Table 6.) Respondents shifted both from less economical to more economical transportation forms. Only 9.2 percent of those who reported a mode change for work travel indicated a shift to transit. It may be that job changes, residential relocation and other factors have a greater influence on work travel mode than do increased transportation costs.

Table E5

Mode Changes in Work Travel in Communities with Operating Transit Systems (Percent)

Old Work Travel Form	Current Work Travel Form: Drive Car Alone New*	Drive Car Alone Other	Car Vanpool	Transit Bus	Moped/ Motor-cycle	Bicycle	Other Misc.	Changed From
Drive Alone	42.4	40.8	69.2	80.0	75.0	63.6	59.7	55.0
Car/ Vanpool	10.2	13.2	7.7	4.0	--	18.2	13.4	10.7
Bus	13.5	19.7	10.3	4.0	--	9.1	10.5	12.9
Motor/ Bicycle	8.5	9.2	--	4.0	--	--	4.5	5.5
Walking	5.1	14.5	7.7	8.0	--	9.1	--	7.4
Other	20.3	2.6	5.1	--	25.0	--	11.9	8.5
Percent Change to:	21.8	28.0	14.4	9.2	2.9	4.0	19.6	100.0
Number of Cases	39	14	25	11	39	271	67	76

*New more economical automobile

Local Travel

Although the number of those changing their transportation mode for other than work travel is relatively low, 20.2 percent of those who have changed have chosen to use transit when a change is made, transit is the mode of transportation most often selected. The respondent's current transportation mode is compared to the previous mode for school and other local travel. School is defined here as college, vocational education or other post high school institution both public and private.

Table E6

Mode Changes in School Travel in Communities

With Operating Transit Systems

(Percent)

	Current School Travel Form						Changed From
	Drive Car Alone	Carpool	Transit	Bicycle	Walking	Other	
Old Travel Form							
Drive Alone	33.3	60.0	57.1	100.0	77.8	100.0	55.8
Car/Vanpool	--		14.3	--	11.1	--	4.7
School Bus	11.1	20.0	--	--	--	--	7.0
Transit	22.2	--	14.3	--	11.1		14.0
Walking	22.2	20.0	14.3	--	--	--	14.0
Bicycle/ Motorcycle	5.6	--	--	--	--	--	2.3
Other	5.6	--	--	--	--	--	2.3
Percent Changed to:	41.9	11.6	16.3	7.0	20.9	2.3	100.0
No. of Cases	18	5	7	3	9	1	43

Note: These few cases (only 43) do not allow worthwhile frequency distribution. Therefore the distribution in this table should not be considered indicative of all Washington State residents.

Table E7
Mode Changes in Other Local Travel in Communities
With Operating Transit Systems
(Percent)

	Current Travel Form						
	Drive Car Alone	Car/ Vanpool	Transit	Motor-cycle	Bicycle	Other	Changed From
Old Travel Form							
Drive Alone	54.9	60.0	73.3	85.7	64.3	73.1	63.3
Car/Vanpool	4.0	6.7	--	14.3	7.1	3.8	4.3
Transit	11.9	6.7	20.0	--	--	7.7	10.5
Walking	8.5	13.3	--	--	--	7.7	7.4
Bicycle/ Motorcycle	4.0	6.7	--	--	21.4		4.3
Other	11.7	6.7	6.7	--	7.1	7.7	10.2
Percent Changed to:	69.1	5.9	5.9	2.7	5.5	10.2	100.0
No. of Cases	177	156	15	7	14	26	256

Potential Transit Patronage

The overall number of persons who plan to switch to transit in response to rising transportation costs is small, less than 5 percent of all persons interviewed. Of those who plan to change 22.6 percent expect to change to transit for work travel; 11.3 percent for school travel (by adults) and 15.9 percent for other local travel. (See Table 8 which presents a tabulation of these anticipated changes.)

Among those considering transit in their future plans, the majority (86.7 percent) are currently driving an automobile as a single occupant.

This study supports the notion that new increases in transportation costs will result in greater use of transit than has occurred in the past two years. To oversimplify

the survey results indicates that one-third of the households living in areas having transit use this mode and 9.3 percent plan to switch to transit in the future. A 9.3 percent growth may not, at first thought, seem significant. But if this rise is representative of the population as a whole, this increase, together with those households now using transit will result in more than 42 percent of one or more members of all households being frequent transit patrons. The extent to which these plans may be carried out will be dependent in part on the availability of transit services particularly to provide more convenient home to work and return transportation. In any case, transit is an important option being considered by an even greater proportion of households not now considered to be frequent transit riders.

Table E8

Travel Mode Changes Planned in Response to Rising Costs

(Percent)

	Work Travel	School Travel	Other Local Travel
Plan Change			
Yes	22.6	11.3	15.9
No	74.4	86.5	82.3
Don't Know	3.0	2.2	1.8
Total	100.0	100.0	100.0
Number of Cases	1,970	1,052	2,492

Table E9

Potential Transit Use: Respondents Including Transit In Their Choices for Substitute Mode by Trip Purpose*

(Percent)

Current Mode	Work Travel	School Travel	Other Local Travel	Total All Trips
Drive Alone	81.3	77.8	91.3	86.7
Carpool	10.7	--	2.7	5.9
Bicycle	1.8	--	0.7	1.1
Misc. Other	6.2	22.2	5.3	6.3
Total	100.0	100.0	100.0	100.0

*Respondents were invited to give more than one choice in reporting their plans for changing their form of transportation for work travel, school travel and other local travel. Data in this table is based on the count of respondents who included transit as one of their choices in reporting to the three questions.

Opinions Regarding Transit Service

A number of questions in the survey were designed to measure respondent's support for local transit service. These asked for respondent's willingness to pay taxes to obtain a new system or expand an existing system and intentions to use new services if provided. There are wide variations among communities with regard to the respondent's support for transit as measured by the responses to these questions.

Among communities with operating systems, few enjoyed strong support for taxes to pay for transit expansion from survey respondents. However, only in the Seattle metropolitan area, where a greater proportion are already transit riders, did respondents reporting favorably to increased taxes for expansion of transit exceed 40 percent.

Table E10

Support for Transit Services

(Percent)

	Willingness to Pay Taxes			Would Patronize Service	
For System Expansion	Yes	No	Don't Know	Yes	No
Seattle	43.2	51.3	5.5	82.9	17.1
Spokane	27.5	63.7	8.8	86.3	13.7
Yakima	37.5	54.5	8.3	75.4	24.6
Olympia	34.1	57.1	8.8	79.1	20.9
Longview	12.2	85.6	2.2	70.0	30.0
Whitman County	32.3	67.7	0	86.7	13.3
Clark County	35.8	59.7	4.5	86.1	13.9
All with operating systems	35.4	58.6	6.0	82.3	17.7
For New System					
Grant County	18.1	80.3	1.6	80.6	19.4
Pasco	52.4	36.6	11.0	88.4	11.6
Kennewick	54.5	40.0	5.5	90.3	9.7
Richland	62.0	34.0	4.0	84.4	15.6
All without operating systems	41.3	54.2	4.5	86.3	13.7

Two ballot propositions by Metro (Seattle-King County) voted on since the July, 1980 survey suggest that overall voter support was stronger than this survey indicates--voters turned down a proposal for such taxes by a narrow margin in September, but the proposal was approved by a very narrow majority in the November general election. A more likely explanation is that support for transit taxes increased between July and November.

Among those communities without current operating systems a more diverse response to proposed taxes was given (See Table 10). A majority of those persons interviewed in the Tri-Cities metropolitan area (Pasco, Kennewick and Richland), indicated support for such taxes. As might be expected, lowest support was reported in Grant County which is predominantly a rural area.

Willingness to Ride the Bus

The persons interviewed were asked if they would personally use the local bus service and a much higher proportion of respondents in all the communities gave a positive response than when questioned about taxation. The answers are unqualified as to how often or under what circumstances the respondents would actually utilize the transit system. Therefore, it would not be safe to predict the level of future transit patronage from these responses. For example, there is a very large difference, as indicated in Table 10, between the percent of the population now using transit and those who responded affirmatively when asked if they would use the transit system.

However, the percent of persons interviewed who indicated a willingness to use the transit system in this survey is significant. As recently as five years ago, several planning surveys in the larger urban centers of the state indicated that a majority of people wanted an expanded transit system and were willing to pay the costs involved but adults would not personally use the system. Perhaps the most dramatic change in opinions of people in this state regarding transportation that has occurred has been the attitude toward personal use of transit by adults in the middle class or higher income levels.

Table E11
Summary of Transit Support by Eleven
Communities Surveyed
(Row Percent)

	Frequent Ridership		Support for Taxes			Future Patronage	
	Yes	No	Yes	No	OK	Yes	No
Seattle	44.1	55.9	43.2	51.3	5.5	82.9	17.1
Spokane	29.6	70.4	27.5	63.7	8.8	86.3	13.7
Yakima	18.8	81.3	37.2	54.5	8.3	75.4	24.6
Olympia	25.3	74.7	34.1	57.1	8.8	79.1	20.9
Longview	16.9	83.1	12.2	85.6	2.2	70.0	30.0
Grant County	--	--	18.1	80.3	1.6	80.6	19.4
Whitman County	36.3	63.7	32.3	67.7	-0-	86.7	13.3
Clark County	20.0	80.0	35.8	59.7	4.5	86.1	13.9
Pasco	--	--	52.4	36.6	11.0	88.4	11.6
Kennewick	--	--	54.5	40.0	5.5	90.3	9.7
Richland	--	--	62.0	34.0	4.0	84.4	15.6
Total	33.4	66.6	34.2	60.3	5.5	83.3	16.7

Characteristics of Transit Patrons

Results of the survey indicate that transit riders differ from non-riders in a number of ways. In comparison with non-riders, a larger proportion of transit riders are found in each of the following categories: female, renters, young people, from low income families, and from families in which two or more people work. However, a closer examination of the data indicates that fewer transit riders fit into these groups than one might expect. In most socio-economic indexes the riders do not vary significantly from the non-riders. The characteristics of those respondents reporting a recent change from some other transportation mode to transit supports this indication.

Comparisons of the characteristics of those persons having recently changed to transit and those who may change to transit in the future are set forth in Table 14. The number of persons in those two categories is too small to permit high statistical confidence. However, the data do indicate, with some exceptions, that new and potential riders are more like the general population than are the transit patrons in the past decade.

Planning Implications

The overall implication of the survey is that the current trend of increased demand for public transportation services will continue with increasing overall transportation costs. As costs of competitive modes (primarily the automobile) rise in comparison with transit, more persons can be expected to weigh the tradeoff between inconvenience and cost in favor of transit. Should another round of increased transportation costs occur, transit systems may well see a surge in patronage. Although only a small proportion of all respondents anticipate a shift to transit usage, the implication is that even the small proportion is large compared to previous increases.

Table E12

Selected Characteristics by Frequency

Of Transit Patronage

(Percent)

	Riders	Non-Riders	All Respondents*
Sex of Respondent			
Male	43.5	51.4	48.8
Female	56.5	48.6	51.2
Total	100.0	100.0	100.0
Number of Cases	448	779	1,327
Housing Tenure			
Own	59.0	66.6	64.0
Rent	41.0	33.4	36.0
Total	100.0	100.0	100.0
Number of Cases	441	871	1,315
Household Size			
One	17.0	19.1	18.4
Two	33.7	37.6	36.3
Three	17.2	18.6	18.1
Four	17.6	15.6	16.3
Five	8.1	6.1	6.8
Six or more	6.4	3.0	4.1
Total	100.0	100.0	100.0
Number of Cases	438	868	1,321

*Residing in neighborhoods with transit services

Table E12 (cont.)

	Riders	Non-Riders	All Respondents*
Age of Respondent			
18-24	20.4	16.6	17.9
25-44	40.5	42.1	41.5
45-64	25.5	26.3	26.0
65 and over	13.3	15.0	14.6
Total	100.0	100.0	100.0
Number of Cases	432	856	1,288
Number of Working Adults			
One	44.6	50.8	48.7
Two	41.3	39.3	40.1
Three	8.5	6.6	7.3
Four	4.4	2.7	3.3
Five or more	1.2	0.6	0.7
Total	100.0	100.0	100.0
Number of Cases	363	710	1,075
Household Income			
Under $10,000	24.7	20.3	21.8
10,000-14,999	16.3	16.5	16.4
15,000-19,999	15.7	16.6	16.3
20,000-29,999	25.5	25.1	25.2
30,000 and over	17.8	21.6	20.4
Total	100.0	100.0	100.0
Number of Cases	381	770	1,154

*Residing in neighborhoods with transit services

Table E12 (cont.)

	Riders	Non-Riders	All Respondents*
Occupation			
Professional	21.3	19.3	20.0
Manager	7.4	7.7	7.6
Clerical	16.2	10.2	12.2
Sales	3.9	7.3	6.2
Crafts	5.1	8.2	7.2
Operative	2.5	4.4	3.8
Service Worker	10.4	7.6	8.5
Laborer	3.0	3.4	3.3
Farm Related	--	0.1	0.1
Self-employed	0.2	0.7	0.5
Military	0.5	0.4	0.4
Student	3.5	2.8	3.0
Homemaker	10.4	10.6	10.6
Retired	13.4	15.0	14.4
Unemployed	2.1	2.3	2.2
Total	100.0	100.0	100.0
Number of Cases	432	858	1,290

*Residing in neighborhoods with transit service

Table E13

Selected Characteristics of Respondents by Commitment to Transit for Work Travel and Other Local Travel

(Percent)

Work Travel

	Commitment to Transit Patronage			
	Long-term Riders	New Riders	Potential Riders	All Respondents
Sex of Respondent				
Female	65.7	56.0	54.9	50.6
Male	34.3	44.0	45.1	49.4
Total	100.0	100.0	100.0	100.0
Number of Cases	35	25	113	2,500
Age of Respondent				
18-24	17.6	48.0	11.0	14.6
25-44	47.1	36.0	58.3	45.2
45-64	29.4	16.0	25.9	26.3
65 & over	5.9	--	4.6	13.9
Total	100.0	100.0	100.0	100.0
Number of Cases	34	25	111	2,434
Housing Tenure				
Own	57.1	36.0	70.3	71.3
Rent	42.9	64.0	29.7	28.7
Total	100.0	100.0	100.0	100.0
Number of Cases	35	25	108	2,472
Household Income				
Less than $10,000	30.0	13.0	12.6	19.1
10,000-14,999	10.0	21.8	16.5	16.2
15,000-19,999	16.7	21.8	16.5	17.2
20,000-29,999	30.0	30.4	25.2	25.5
30,000 & over	13.3	13.0	29.2	22.0
Total	100.0	100.0	100.0	100.0
Number of Cases	30	23	103	2,191

Other Local Travel*

	Commitment to Transit Patronage			
	Long-term Riders	New Riders	Potential Riders	All Respondents
Sex of Respondents				
Female	73.2	53.3	56.8	50.6
Male	26.8	46.6	43.2	49.4
Total	100.0	100.0	100.0	100.0
Number of Cases	15	146	82	2,500
Age of Respondent				
18-24	21.2	26.7	14.2	14.6
25-44	17.1	33.3	44.7	45.2
45-64	19.7	26.7	24.1	26.3
65 & over	42.1	13.3	17.0	13.9
Total	100.0	100.0	100.0	100.0
Number of Cases	15	141	76	2,434
Housing Tenure				
Own	39.2	20.0	65.0	71.3
Rent	60.8	80.0	35.0	28.7
Total	100.0	100.0	100.0	100.0
Number of Cases	15	135	79	2,472
Household Income				
Under $10,000	53.2	26.7	23.4	19.1
10,000-14,999	29.-	26.7	21.0	16.2
15,000-19,000	6.5	6.7	10.5	17.2
20,000-29,999	6.5	33.3	29.8	25.5
30,000 & over	4.8	6.7	15.3	22.0
Total	100.0	100.0	100.0	100.0
Number of Cases	15	124	62	2,191

*This table does not include those utilizing transit for travel to school by adults i.e, college or vocational school, etc.

Summary

Escalating transportation costs have had these effects on usage of public transit:

1. One or more members in one-third of the households that have transit service available in their immediate neighborhood use this service. A much larger proportion state they would personally be willing to use transit system on an ongoing basis.

2. Work travel and household shopping are the most frequent use of public transportation services.

3. Inconvenience is the main deterrent to transit patronage.

4. Although only a small proportion have or expect to change their mode of transportation, such changes are more common for work travel than for other local travel purposes.

5. Except for the Tri-Cities metropolitan area, the majority of persons interviewed do not favor increased taxes to support new or expanded public transit service even though a much larger majority indicated a willingness to patronize such service once provided.

6. Persons who frequently ride the bus differ in their socio-economic characteristics from those who do not.

7. The socio-economic characteristics of those who have switched recently, or plan to switch, to transit are similar to those of the general population and differ from traditional transit patrons.

TRENDS IN ACQUISITION AND USE OF MOTOR VEHICLES

One of the most important aspects of the response of Washington State residents to increased energy costs 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. Vehicle registration data indicates that there are now an average of 2.04 automotive vehicles per household statewide. This includes automobiles, vans, and pickup trucks but not motorcycles or commercial trucks. The trend in Washington State, not surprisingly, has been toward smaller, and hence, more economical automobiles. Data concerning registration of new automobiles compiled by the Washington State Department of Licensing indicate that the percentage of small domestic and imported automobiles has been rising steadily the last five years. In 1974 they accounted for roughly one-half of all new car registrations, but by 1979 this proportion had risen to 74 percent.

The results of this survey conducted by the Department of Transportation provide more information concerning the number and use of vehicles. Forty-five percent of the households surveyed have acquired a new vehicle in the last two years, and of this group, 67.9 percent currently own at least one compact car, followed by standard size cars (54.3 percent) and pick-up trucks (39.3 percent). Also, of those families who have acquired a new vehicle, 67.4 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 F1

Type of Vehicles	Percent
Full-size Cars	56.5
Compact Cars	55.8
Pick-up Trucks	34.1
Motorcycles	10.8
Travel Trailer	7.5
Vans	6.6
Pick-up Campers	6.3
Motorhomes	3.0

In addition to the motor vehicles, a majority of the households indicated they use at least one bicycle. Of this group, 3.7 percent use bicycles for trips to work, school and other business related local travel. Most are used for recreational purposes.

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. A greater proportion (85.4 percent) plan to keep the same number of vehicles in the future.

Table F2
Change in Number of Vehicles per Household
in the Last Two Years and Future Plans
(Percent)

Last Two Years		Future Plans	
Increased	15.9	Increase	5.3
Decreased	7.6	Decrease	9.3
Remained the Same	76.5	Remain the Same	85.4

When data concerning past actions regarding number of vehicles and future plans are cross-tabulated, it becomes apparent that there will be little net change in the number of vehicles per household. Hence the major change is in the size of the vehicles.

Table F3
Overall Percent of Change in the Number of Household Vehicles
for the Last Two Years and Future Plans

Last 2 Years	Future Plans		
	Increase	Decrease	Remain the Same
Increased	0.8	2.9	12.2
Decreased	1.2	0.6	5.8
Remained the Same	3.3	5.8	67.4

This stable vehicle ownership pattern is further demonstrated when the current types of vehicles used by households are cross-tabulated with both past and future changes in the number of vehicles.

Table F4

Changes by Percent in Both the Past and Future Number of Household Vehicles by the Current Types of Vehicles

(Row Percent)

	Changes Made Last Two Years			Future		
	Increased	Decreased	Remained the Same	Increase	Decrease	Remain the Same
Full Size Car	18.0	6.1	75.9	4.8	11.5	83.6
Compact Car	20.1	6.6	73.2	4.2	11.0	84.8
Pick-up Trucks	21.6	6.0	72.4	4.1	11.4	84.5
Motorcycles	33.5	10.0	56.5	9.7	9.0	81.3
Travel Trailers	22.6	7.5	69.9	2.1	13.3	84.6
Vans	27.3	10.9	61.8	8.0	12.9	79.1
Pick-up Campers	26.3	6.4	67.3	2.6	13.5	84.0
Motorhomes	24.7	8.2	67.1	4.0	13.3	82.7

Of those people who indicated that their family's overall travel patterns have changed, three-fourths (74.7 percent) have kept the same number of vehicles the last two years, while only 12 percent indicated they decreased the number. Thus variation in the number of vehicles has not been perceived by many households to be a contributing factor to any changes that have occurred in their transportation behavior.

Table F5

Overall Changes in the Number of Household Vehicles in the Last Two Years by Change in Family's Overall Travel Patterns (Percent)

Number of Vehicles Per Household	Change in Overall Travel Patterns		
	Yes	No	Don't Know
Increased	5.6	4.9	3.6
Decreased	12.0	5.6	7.1
Remained the Same	82.4	89.4	89.3

Effect of Income and Age on Vehicle Ownership

Income is a prime determinant in the number and kind of vehicles a family owns. As indicated in Table 6, lower income families constitute a smaller percentage of vehicle owners when compared to their portion in the entire sample. Such expensive "luxury" vehicles as travel trailers and motorhomes are owned by a greater share of high income and older households, while motorcycles and vans are used by a higher percent of those between 25-44 than is found in the sample as a whole.

Table F6

Current Types of Household Vehicles by Income and Age

(Percent)

Vehicle Type	1979 Family Income					Age			
	Under $10,00	$10,000-$14,999	$15,000-$19,999	$20,000-$29,999	$30,000 or over	18-24	25-44	45-64	65 or over
Fullsize Car	15.9	16.7	16.7	25.1	25.6	13.0	41.0	30.6	15.4
Compact Car	12.8	14.7	17.1	29.3	26.1	17.2	50.4	24.9	7.6
Pickup Truck	10.7	13.2	19.6	29.4	27.1	10.4	49.7	30.8	9.1
Motorcycle	6.9	13.5	20.0	33.5	26.2	21.1	58.5	18.1	2.3
Travel Trailer	10.2	13.9	13.9	30.1	31.9	6.5	39.7	40.8	13.0
Vans	11.3	9.3	24.0	29.3	26.0	13.1	54.4	26.3	6.3
Pickup Camper	12.7	13.5	23.8	24.6	25.4	11.3	51.0	23.8	13.9
Motorhome	10.9	10.9	12.5	29.7	35.9	11.4	25.7	48.6	14.3
Overall Sample	19.1	16.2	17.2	25.5	22.0	14.5	45.2	26.3	13.9

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 F7

Relationship of Family Income and Age to Acquisition of New or Different Automotive Vehicles in the Last Two Years

(Row Percent)

	Acquired New or Different Vehicle	
	Yes	No
1979 Family Income		
Under $10,000	25.0	75.0
$10,000-$14,999	40.3	59.7
$15,000-$19,999	49.4	50.6
$20,000-$29,999	52.5	47.5
$30,000 or over	59.3	40.7
Age		
18-24	51.1	48.9
25-44	52.7	47.3
45-64	42.8	57.2
65 or over	19.8	80.2

Reasons for Acquiring New Vehicle

The most frequently mentioned reasons for acquiring new vehicles are as follows: replacement for old vehicle, 36.8 percent; better fuel economy, 34.9 percent; personal reasons, 18.6 percent; a need for a bigger vehicle, 6.2 percent; and more drivers in the household, 3.5 percent.

When the major reasons given for acquiring a new or different vehicle for each income group are compared, better fuel economy is given less frequently by respondents in lower income groups than others. The higher cost of smaller fuel-efficient vehicles may be the reason. Lower income families are also less likely to acquire a new vehicle as a replacement for an old one than are higher income families.

Table F8

Reasons for Acquiring a New or Different Vehicle the Last Two Years by Income Group

(Percent)

	Personal	Better Fuel Economy	Replace Old Vehicle	Needed Bigger Car	More Drivers In Household	Overall Sample
1979 Family Income						
Under $10,000	15.6	7.7	12.0	4.0	2.4	19.1
$10,000-$14,999	12.1	13.8	15.5	9.3	11.9	16.2
$15,000-$19,999	17.3	18.3	20.0	28.0	9.5	17.2
$20,000-$29,999	28.1	29.3	24.6	34.7	35.7	25.5
$30,000 or over	26.8	30.9	27.9	24.0	40.5	22.0

When the reasons given by each age group for acquiring a new or different vehicle are compared, the replies are quite consistent with the proportion of the overall sample that fall within that age group for each reason with the exception of those persons indicating they made a change because they needed a bigger auto. Seventy-one percent of those who gave this reason were within the group that are 25 through 44 years of age. This would seem logical since people in this age group are rearing children and there are more drivers in the household.

Table F9

Reason for Acquiring a New or Different Vehicle in the Last Two Years by Age Group

(Percent)

	Personal	Better Fuel Economy	Replace Old Vehicle	Needed Bigger Car	More Drivers In Household	Overall Sample
Age						
18-24	20.2	16.1	14.2	9.6	25.0	14.5
25-44	50.8	54.3	50.1	71.1	45.8	45.2
45-64	23.4	24.2	26.9	15.7	29.2	26.3
65 or over	5.6	5.3	8.8	3.6	0	13.9

The total number of vehicles for low income households has changed least in the last two years, while those families making over $30,000 have been most likely to add additional vehicles. In the future, all income levels plan to maintain the same number of vehicles for the most part.

Table F10

Percent of Change By Income In The Number of Household Vehicles

(Row Percent)

	Change in Last Two Years			Future Plans		
1979 Family Income	Increased	Decreased	Remained the Same	Increase	Decrease	Remain the Same
Under $10,000	8.7	9.1	82.2	4.3	9.3	86.4
$10,000-$14,999	13.4	6.9	79.7	5.4	8.2	86.4
$15,000-$19,999	15.9	8.7	75.4	5.9	8.8	85.4
$20,000-$29,999	18.5	7.4	74.1	5.4	8.4	86.2
$30,000 or over	23.0	6.9	70.1	5.6	12.9	81.5

Among those persons interviewed, there is a direct correlation between age and the acquisition of additional vehicles in the past two years and in the future. Most of the respondents indicated that they plan to retain the same number as they now have. In the future, only those between 18-24 years of age show any signficant tendency to increase the number of vehicles they now have.

Table F11

Percent of Change in the Number of Household Vehicles By Age Group

(Row Percent)

	Last Two Years			Future Plans		
	Increased	Decreased	Remained the Same	Increase	Decrease	Remain the Same
Age						
18-24	26.2	12.5	61.3	10.8	10.5	78.7
25-44	19.3	8.1	72.6	5.9	7.7	86.4
45-64	12.1	5.8	82.1	3.4	10.8	85.8
65 or over	3.3	4.5	92.3	0.9	10.1	89.1

Summary

One of the more visible ways people have responded to increased transportation costs is in the number and type of vehicles they own. These responses include the following:

1. Perhaps the most significant responses to questions about number, types, size of vehicles and the changes that have been made or are definitely planned is the expressed desire of the respondents to maintain the present status. If this sample is representative, people will be retaining vehicles longer, driving less and changing to compact automobiles when they do make purchases.

2. A large proportion of those persons in the sample indicated that the number of vehicles they now have is approximately the same as they had two years ago and the number will remain the same in the future.

3. Forty-five percent of those interviewed stated that they had acquired a new or different vehicle in the past two years.

4. Two out of every three housholds that have acquired a new automotive vehicle own at least one compact automobile.

5. When the types of vehicles now owned by each household are compared, the percentage of compact automobiles is now approximately the same as full sized automobiles.

6. The average number of automotive vehicles per household for the sample is 1.99. This compares with a state average of 2.04 registered vehicles per family.

7. Two-thirds of the households that have acquired a new vehicle in the last two years indicated that it is more economical to operate than previous vehicles.

8. The reasons given most frequently for acquiring a new or different vehicle were a need to replace old vehicle, personal reasons, or to obtain better fuel economy.

9. Income and age are major factors in determining changes in the number and kind of vehicles that a family owns. As family incomes increase, the family is more apt to own a car or truck and is more likely to have made a change in number and type of vehicles. As people become older, the less likely they are to have made changes in automotive vehicles or to plan changes in the future. Young adults are the most likely to be acquiring additional vehicles.

SUMMARY OF FINDINGS

Changes Occurring in the Last Two Years

From data presented in this report, it becomes obvious that the travel behavior of a sizeable segment of the residents of the state has changed in the last two years as a result of higher transportation costs. When the respondents were asked whether the overall travel habits of the members of their households had changed, 58.3 percent indicated that they had. The changes that have been made have occurred in a number of ways as indicated by the answers to the following questions:

1. Has the mode of transportation to and from work changed in the last two years? 20.7 percent responded yes.

2. Has the mode of transportation for members of your household to and from school (including all educational institutions) changed during the past two years? 17.7 percent responded yes.

3. Has the mode of transportation for local travel not related to work or formal education changed during the past two years? 10.2 percent responded yes.

4. Has the total amount of local travel for members of your household increased? (15.3 percent); decreased? (43.5 percent); or remained about the same? (41.3 percent).

5. Has your mode of personal transportation for long-distance travel changed during the past two years? 12.4 percent responded yes.

6. Has the rising cost of travel and transportation affected your recreation and vacation plans? 48.6 percent responded yes. Of these, 77.9 percent are either taking fewer trips or shorter trips.

7. Have you purchased or traded for a new or different vehicle in the past two years? Of the 44.9 percent answering "yes" to this inquiry, 67.4 percent reported that the new vehicle is more economical to operate than their previous vehicle.

Responses to these questions show quite clearly that the major change has been in a reduction in the amount of travel rather than a change in mode. However, changes in the mode used are significant because use of a different mode by 10 percent or less of the population can bring about major changes in the type of equipment and facilities required to transport people. Such a change has resulted in transit even though the proportion of the people who regularly use transit is relatively small in this state.

Anticipated Changes

This survey also included questions concerning planned adjustments in response to future increases in transportation costs. The respondents were asked what action they planned to take, if any, assuming the price of fuel and total transportation costs continue to rise. Specific questions and responses are as follows:

1. Change your mode of transportation to and from work? 22.6 percent responded yes.

2. Change your mode of tranportation to and from school? 11.3 percent responded yes.

3. Change your mode of transportation for local travel (shopping, church, visiting friends, doctors, etc.)? 15.9 percent responded yes.

4. Increase, decrease or keep about the same the amount of future local travel? 35.9 planned to decrease.

5. Change your mode of transportation for long-distance travel? 16.6 percent responded yes.

6. Increase, decrease or keep about the same the amount of future long-distance travel? 42.6 percent planned to decrease.

7. Increase, decrease or keep about the same the number of vehicles in your household? 9.3 percent to decrease.

Responses indicate that the planned changes of citizens are quite similar to changes made in the past two years. A rather small proportion of the persons interviewed plan to change their mode of travel. However, a sizeable number reported decreases in the amount of local travel (35.9 percent of 2,487 responding) and of long-distance travel (42.6 percent of 2,470 responding). Very sizeable changes in the total transportation system will result if those persons who plan to change their mode and amount of travel do so.

Three other questions related to work travel included:

1. As costs continue to rise, would you prefer to move closer to your place of work? 15.7 percent responded yes.

2. Are you planning to move closer to your place of work during the next 12 months? 4.9 percent responded yes.

3. As a result of rising transportation costs, would you prefer finding a job closer to home? 24.0 percent responded yes.

The responses clearly indicate a preference for obtaining a job closer to home over moving closer to the job. Since only a small proportion either want or plan to move closer to work, the amount of travel to be saved by relocation appears to be quite limited.

Relationships Among Groups Having Differential Responses to Rising Transportation Costs

As discussed in the preceding sections, Washington State residents have responded to increasing transportation costs in a wide variety of ways. Contingency plans in

response to future increases also vary. The survey provides the basis for measuring differences in the socio-economic characteristics between those who either have or plan to make changes in mode or amount of travel and those who do not.

Computer generated calculation of Chi Square values provide statistical support for the measurement of the differences between such groups. Each of ten socio-economic characteristics were tabulated by each of several specific recent adjustments responses to the question: "Have the travel habits of the members of your household changed?", and to each planned contingency adjustment. Tables 1 and 2 in Appendix A provide summary tabulations of the results of the analyses.

Overall Travel Habits

A majority, 58.3 percent of all respondents, reported having modified overall household travel habits. The differences between those who responded affirmatively to this question and those who did not, are highly significant for six of the 10 socio-economic variables, with the data indicating important differences in all but the sex of respondent. The survey shows that among respondents, persons who reported changes in the travel habits of household members are (1) younger, (2) have a higher educational level, and (3) are more apt to be employed in endeavors other than unskilled labor. The household is usually smaller in size with fewer working adults and licensed drivers. The data indicate further differences (not statistically significant) including a higher income, owning a single family residence or condominium rather than renting living quarters.

Changes in Travel Mode

With a few exceptions, persons reporting changes in travel mode do not differ significantly from the remainder of the persons interviewed. Surprisingly, in each of the exceptions the differences are highly significant: they are younger; more apt to live in a duplex, apartment, or mobile home as renters; and include fewer working adults in the family.

Amount of Local Travel

Those persons interviewed reporting a reduction in the amount of local travel differed in several respects. They had a higher educational level, fewer licensed number of drivers in the household, and were more apt to be purchasers of single family units rather than renters.

Use of Telephone as a Means of Reducing Travel

This is also an adjustment in which differences between those who reported it and those who did not are relatively significant, as follows: They were younger and less likely to be self-employed, clerical workers or retired.

Shopping Closer to Home

Persons interviewed reporting this adjustment differed in fewer respects. They were younger than the total sample and more likely to be renters of apartments.

Public Transit Riders

Only a small proportion (approximately 1.0 percent) of persons interviewed reported having shifted to transit as an adjustment to rising transportation costs. In general, those making such shifts are more like non-transit riders in their socio-economic characteristics than those reporting long-term transit usage. This is also true of those indicating a possible shift to transit in the future.

Planned Changes (If Costs Continue to Rise)

In general, persons interviewed reporting planned adjustments to future cost increases did not differ significantly from the remainder of respondents in the sample. Two exceptions are noted, changes in travel mode for work travel and for long-distance travel. Other than for a planned reduction in long-distance travel, in all cases those reporting adjustment plans were significantly younger. Some differences were also noted in the numbers of licensed drivers and of working adults (but not family size) among those reporting plans for most adjustments. It is

noted that many of those who reported having already modified their travel habits also plan changes in the future.

Conclusions

The dominant mode for travel remains the automobile. Adjustments to increasing transportation costs to date have been dependent upon the ability of households to maintain the accustomed convenience and flexibility which the automobile provides.

While a majority reported having changed their overall travel habits, more than 40 percent reported no such change. Shifts to smaller automobiles, reducing the amount of travel and increased use of the telephone have been popular adjustments. There has been some increase in the use of other transportation modes such as transit and carpools. However, the survey suggests that for the most part, few households have made drastic modifications of their automobile-oriented life style. The responses of those interviewed in the survey suggest that future changes will be no more drastic.

APPENDIX A - STATISTICAL TABLES

The tables contained in this Appendix present a series of cross-tabulations of the responses to the questionnaire. Only those answers which indicate either a change has occurred or will occur in travel behavior, or show a decrease in travel amount are included. These answers are compared to nine socio-economic variables: type of dwelling, household tenure, educational level, age, occupation, income, number of working adults, number of vehicles and number of licensed drivers.

For any one "change" variable by any one socio-economic variable the all cases entry indicates the percentage of the persons providing an answer to the socio-economic characteristics who reported making, or planning to make, the indicated change. The remaining entries, falling in order below the all cases entry, indicate the deviation in percentage points for each category of response for the socio-economic variable. The chi square (X^2) value indicates whether the deviation demonstrated significant differences between those responding a change has occurred and all others responding to the same pair of questions. A chi square value of 0.0000 to 0.0200 indicates significant differences. In general, a value of 0.0200 to 0.800 suggests the differences might be by chance. A value of more than 0.800 indicates no real significant difference among the categories of the socio-economic variable and responses to the change question. For example, in Table 1, under change in the travel mode for long-distance travel (the fifth column) and the socio-economic variable educational level, 12.4 percent of persons interviewed who responded to both questions reported having made such a change. The deviation from that 12.4 percent for all educational levels is less than 1.0 percent. Therefore, it can be said that level of education did not result in any difference in the change in transportation mode for long-distance travel. However, with regard to overall travel habits there were significant differences.

Note that large percentage differences in the table do not always result in significant chi square values. This is because the distribution of cases among categories is not uniform. Such variables as number of working adults and number of household vehicles have many more cases in the 0 through 2 range than for 3 or more. Thus, greater percentage differences in the higher value categories have much less effect in the resultant chi square (X^2) value.

Appendix Table 1

Percentage Deviations By Category For Selection Socio-Economic

Characteristics Among Those Reporting Changes In Their Travel Habits

(See Text for Interpretation)

Characteristic	Change in Overall Travel Habits	Changes in Travel Mode: Work Travel	School Travel	Other Loc. Travel	Long Dist. Travel	Decrease In Local Travel	Shopping Closer To Home	Use Phone To Cut Travel	Reduce No. of Autos	New, More Economical Auto
Type of Dwelling										
All Cases	58.4	20.8	17.7	10.2	12.3	43.4	44.1	50.8	7.6	30.1
Single Family	+0.7	-1.5	-1.6	-0.9	-0.1	+1.2	+0.9	-0.5	-0.8	+2.5
Duplex	+5.9	+10.1	+15.6	+3.3	+2.7	+2.7	+1.3	+8.1	+3.0	-1.0
Apt./Condo	-6.4	+7.8	+7.8	+5.5	+1.6	-7.4	+12.1	-3.2	+3.0	-9.6
Mobile Home	+3.0	-8.1	-5.5	-3.0	-3.8	+2.0	-1.0	+6.1	+1.0	-5.3
Other	-28.4	-0.8	-	-10.2	-2.3	-23.4	-9.1	-8.7	+3.4	-20.1
x^2 Significance	0.0353	0.0002*	0.0017*	0.0012*	0.4132	0.0081*	0.0001*	0.0554	0.0779	0.0000*
Housing Tenure										
All Cases	58.5	20.7	17.7	10.2	12.4	43.5	44.1	50.8	7.6	30.3
Own/buying	+1.2	-2.6	-0.9	-1.5	-2.4	+2.6	-3.7	-0.8	-1.1	+1.7
Rent/Leasing	-3.0	+6.3	+2.7	+3.6	+3.6	-6.4	+9.4	+2.1	+3.4	-4.2
x^2 Significance	0.0603	0.0000*	0.2079	0.0001*	0.0009	0.0001*	0.0000*	0.2092	0.0025*	0.0045*
Educational Level										
All Cases	58.7	20.7	17.8	10.3	12.4	43.5	44.3	50.9	7.7	30.4
Grade School	-23.6	-13.3	+1.0	+1.3	-0.9	-11.4	+3.1	-4.7	-2.6	-16.3
Some High School	-7.4	-1.2	-3.7	+3.7	+0.5	-8.0	-0.4	-6.0	+1.4	-1.0
High School Grad.	-3.2	-2.4	-3.0	-1.7	-0.5	-1.6	-0.9	+0.1	+0.1	-1.3
Some College	+0.7	+3.4	+3.7	+0.6	+0.3	+1.6	+0.2	+2.6	+1.4	+3.1
College Grad.	+4.6	+0.2	+1.1	+1.1	-0.2	+2.2	+1.8	+0.8	-1.1	-0.7
Post Grad.	+12.5	-1.6	-0.4	-1.5	+0.8	+5.4	-2.4	-4.2	-2.8	+1.8
x^2 Significance	0.0000*	0.0017*	0.5733	0.2455	0.9968	0.0140*	0.8745	0.2060	0.2495	0.139

* Differences statistically significant

Appendix Table 1 (Continued)

Characteristic	Change in Overall Travel Habits	Changes in Travel Mode: Work Travel	School Travel	Other Loc. Travel	Long Dist. Travel	Decrease In Local Travel	Shopping Closer To Home	Use Phone To Cut Travel	Reduce No. of Autos	New, More Economical Auto
Age of Respondent										
All Cases	58.9	20.8	17.9	10.3	12.6	43.9	44.4	51.1	7.7	30.3
18-24	+1.3	+12.1	+5.5	+5.8	+6.9	-4.4	+12.1	+14.4	+4.2	+2.8
25-44	+4.3	+1.0	-0.5	+0.9	+0.1	+1.6	+4.2	+3.0	+0.5	+4.5
45-64	-0.9	-7.9	-1.6	-3.1	-2.6	-0.3	-9.5	-6.3	-1.9	0
65 and over	-18.9	-14.9	-11.2	-2.9	-2.9	-0.5	-8.4	-12.8	-3.2	-17.6
x^2 Significance	0.0000*	0.0000*	0.1696	0.0000*	0.0001*	0.0001*	0.0000*	0.0000*	0.0002*	0.0000*
Occupation										
All Cases	58.4	20.7	17.7	10.3	12.4	43.5	44.2	50.9	7.5	30.4
Professional	+7.0	+1.3	+0.2	+1.8	+2.0	+4.2	+2.2	+0.2	+0.3	+6.9
Manager	+2.1	+3.1	-1.2	0	-1.1	+2.7	-1.6	+0.6	-0.3	+6.0
Clerical	+3.6	+1.0	+3.5	-2.7	+1.3	-13.6	+5.2	-3.4	-0.2	+1.7
Sales	-2.7	-0.2	-0.7	-3.2	+4.1	+3.0	+1.5	+1.1	-1.9	+12.1
Crafts	+4.6	+0.5	-5.8	+3.7	-0.3	-2.3	-4.9	+5.7	+2.4	+2.5
Operative	+1.6	-2.6	-0.5	+0.5	+1.8	+4.8	-5.0	+7.4	+1.7	+7.1
Service Worker	+0.6	+2.2	+3.0	+5.5	-1.7	+4.2	+11.4	+7.0	+5.4	-1.9
Labor	-9.8	+1.4	+1.2	-1.8	+1.8	-5.2	-1.7	+6.6	+5.6	+4.2
Unemployed	-11.2	-6.4	-17.7	+0.3	+6.5	-7.7	-0.8	-11.3	-1.8	-17.2
Homemaker	+1.8	-1.9	-1.7	-0.9	-3.0	-0.5	-1.8	+2.5	-2.0	-5.2
Military	+10.8	+17.2	-5.2	-10.3	+10.7	+2.7	+17.3	+26.0	+0.2	+0.4
Student	-1.3	-4.5	+4.7	+0.4	-1.7	-13.1	+4.0	+0.9	-2.1	-9.0
Self-employed	+6.3	+16.8	+4.5	+7.3	-6.5	-8.2	-3.0	-15.6	+4.3	+10.8
Retired	-12.4	+2.6	-2.7	-3.0	-2.7	+1.4	-7.0	-12.8	-3.1	-15.7
Farm related	-0.9	-7.9	+3.4	-0.3	+0.1	+6.5	-1.7	+21.6	-2.5	+9.6
x^2 Significance	0.000*	0.6814	0.8925	0.1362	0.4118	0.3033	0.0282	0.000*	0.0645	0.0000*

Appendix Table 1 (Continued)

Characteristic	Change in Overall Travel Habits	Changes in Travel Mode: Work Travel	School Travel	Other Loc. Travel	Long Dist. Travel	Decrease In Local Travel	Shopping Closer To Home	Use Phone To Cut Travel	Reduce No. of Autos	New, More Economical Auto
Household Income										
All Cases	58.3	21.1	18.2	10.4	12.6	43.7	45.0	52.2	7.8	31.1
Under $10,000	-18.6	+3.4	+0.5	-1.3	+1.1	-5.6	+4.6	-2.0	+1.1	-16.5
$10,000-$14,999	-0.9	+2.7	-1.9	+2.1	+1.4	+0.1	-3.2	-2.2	-0.9	-5.0
$15,000-$19,999	+4.0	+1.4	+2.1	+1.0	-1.8	+1.3	+1.8	+6.5	+0.9	+2.0
$20,000-$29,999	-0.6	+0.5	-1.5	-0.7	-1.1	+2.3	-2.1	0	-4.0	+5.1
$30,000 and over	+0.7	-4.7	+0.7	-0.7	+0.7	+1.2	-0.7	-1.7	-0.7	+10.3
x^2 Significance	0.0000*	0.0585	0.8529	0.5073	0.5701	0.1380	0.1522	0.0802	0.7220	0.0000*
Number of Working Adults										
All Cases	58.3	20.7	17.7	10.2	12.3	43.4	44.1	50.8	7.6	30.1
None	-14.3	-7.4	-9.4	-3.2	-1.9	-0.9	-4.1	-9.2	-2.1	-16.7
One	+0.6	0	-1.1	+1.0	-0.6	+1.1	+0.5	+0.3	+0.1	-1.2
Two	+5.3	+0.4	+0.4	0	+0.6	+0.3	+1.6	+2.0	+0.7	+8.8
Three	+2.0	-3.0	+6.7	+1.3	+4.5	-8.3	-5.2	+11.8	+2.3	+7.3
Four	+11.7	+1.3	+10.0	0	+7.7	+1.6	+5.9	+1.2	-2.6	+11.6
Five and over	+26.3	+10.1	-17.7	+12.9	-4.6	+2.8	+2.1	+3.0	+7.8	+0.7
x^2 Significance	0.0000*	0.8274	0.0340	0.1223	0.1470	0.4819	0.0238	0.000.1*	0.2955	0.0000*

Appendix Table 1 (Continued)

Characteristic	Change in Overall Travel Habits	Changes in Travel Mode: Work Travel	School Travel	Other Loc. Travel	Long Dist. Travel	Decrease In Local Travel	Shopping Closer To Home	Use Phone To Cut Travel	Reduce No. of Autos	New, More Economical Auto
Number of Vehicles										
All Cases	58.3	20.7	17.7	10.2	12.3	43.4	44.1	50.8	7.6	31.8
None	-18.6	+12.6	-4.2	+4.2	+0.8	-15.3	+2.5	-10.4	+9.0	-
One	-0.9	+2.9	+3.2	+1.0	-1.0	-1.0	+2.8	-1.6	+2.7	-8.2
Two	+4.0	-3.0	-2.4	-1.3	-0.4	+4.8	-1.0	+1.2	-2.1	+3.3
Three	-2.4	+2.8	-2.4	-1.8	+3.4	+0.4	-1.8	+3.7	-3.8	+7.0
Four and Over	+0.7	-8.3	+7.9	+3.2	+0.4	-12.1	-9.8	+2.7	-2.3	+11.5
x^2 Significance	0.0000*	0.0003*	0.0723	0.0795	0.361	0.0000*	0.0557	0.0347	0.0000*	0.0000*
Number of Licensed Drivers										
All Cases	58.3	20.7	17.7	10.2	12.3	43.4	44.1	50.8	7.6	30.1
None	-32.2	+7.1	-8.6	-2.1	-5.3	-27.1	-1.1	-14.8	+1.7	-28.9
One	-7.6	+1.4	-4.9	+0.1	+1.0	-2.2	+2.0	-6.4	-0.9	-11.5
Two	+3.8	+0.4	-0.4	+0.2	-1.5	+4.1	-0.1	+1.5	+0.2	+3.3
Three	-0.5	-3.7	+3.1	-1.4	+4.7	-3.1	-4.5	+5.0	+0.6	+5.2
Four	+7.0	-0.2	+2.5	+2.8	+5.3	-6.6	+3.9	+10.0	+0.4	+19.5
Five and over	+26.2	-1.3	+4.9	-1.9	-1.5	-0.2	-6.7	+6.0	-2.0	+18.5
	0.0000*	0.6549	0.3827	0.8962	0.0124	0.0000*	0.4505	0.0001*	0.9250	0.0000*

Appendix Table 2

Percentage Deviations By Category For Selected Socio-Economic Characteristics Among Those Planning Future Changes In Their Travel Habits

(See Text for Interpretation)

Characteristic	Planned Changes in Travel Mode				Decrease in	
	Work Travel	School Travel	Other Local Travel	Long-Dist. Travel	Local Travel	Long-Dist. Travel
Type of Dwelling						
All Cases	22.6	11.2	15.9	16.6	35.9	42.7
Single Family	-0.5	-0.5	-0.4	-0.4	+0.7	+1.0
Duplex	+9.5	-3.0	-0.3	-0.8	-4.7	+3.7
Apt./Condo.	-1.9	+5.6	+4.3	+3.5	-0.9	-3.4
Mobile Home	+2.6	+1.0	-4.1	-0.9	-1.3	-6.5
Other	-2.6	-	-5.9	+10.6	-9.6	-12.7
x^2 Significance	0.1461	0.2713	0.1231	0.4337	0.2391	0.1331
Housing Tenure						
All Cases	22.7	11.2	15.9	16.5	35.9	42.8
Own/buying	-0.2	-1.0	-0.9	-1.2	+1.5	+0.4
Rent/Leasing	+0.6	+3.0	+2.2	+3.1	-2.6	-0.9
x^2 Significance	.7789	0.0949	0.0725	0.0108*	0.0536	0.2752
Educational Level						
All Cases	22.6	11.3	15.9	16.6	36.0	42.9
Grade School	+2.4	+7.5	-6.9	-0.1	-7.8	-7.8
Some High School	+1.6	-2.7	-2.5	+5.6	-2.3	-2.1
High School Grad.	-1.5	-0.2	-3.0	-0.1	-2.1	-0.2
Some College	+0.9	+0.8	+0.9	-0.6	-1.2	-1.5
College Grad.	+0.4	-3.7	+3.2	-2.2	+3.1	+1.6
Post Grad.	-0.4	+3.7	+4.5	+2.8	+8.6	+6.8
x^2 Significance	0.9329	0.2631	0.0061*	0.1963	0.0407	0.1866
Age of Respondent						
All Cases	22.6	11.3	15.9	16.7	36.3	43.1
18-24	+5.1	+8.6	+8.4	+5.1	+8.9	+4.5
25-44	+0.6	-1.6	+1.2	+2.5	-0.4	+0.1
45-65	-4.6	-1.3	-3.8	-3.7	+0.3	-1.6
65 and over	-6.7	-4.6	-5.0	-5.5	-8.9	-2.1
x^2 Significance	0.0037*	0.0034*	0.0000*	0.0000*	0.0000*	0.2462

Appendix Table 2 (Continued)

Characteristic	Planned Changes in Travel Mode: Work Travel	School Travel	Other Local Travel	Long-Dist. Travel	Decrease in: Local Travel	Long-Dist. Travel
Occupation						
All Cases	22.8	11.4	15.8	16.6	36.2	43.2
Professional	+2.7	+1.1	+4.3	+0.1	+3.8	+2.8
Manager	+0.6	-5.5	-2.8	+0.8	+1.7	-2.0
Clerical	-2.2	+0.7	-0.2	+1.5	-0.5	-3.2
Sales	-0.7	+9.4	+0.9	+0.7	+5.5	+7.2
Crafts	+4.6	-1.0	-0.1	-0.9	-6.7	-6.4
Operative	+6.0	-0.6	+5.9	-2.4	+7.1	+3.9
Service Worker	-1.0	+2.9	+4.9	+5.9	-0.6	-1.3
Laborer	-1.8	-5.7	+2.1	+1.2	+2.5	+0.2
Unemployed	-1.4	-4.3	-2.6	-2.9	-7.9	-6.7
Homemaker	-7.0	-1.6	-2.5	-0.7	-2.2	+2.6
Military	-7.4	-11.4	-0.4	+6.5	+10.0	+18.3
Student	-6.6	+1.1	-1.5	+5.2	-5.8	+4.1
Self-employed	+5.8	-11.4	+7.5	+8.4	-30.3	-13.8
Retired	+7.2	+8.6	-6.1	-5.2	-4.8	-1.2
Farm related	+0.3	-6.1	-5.8	+3.9	+3.8	-7.3
x^2 Significance	0.2957	0.3633	0.0180*	0.3495	0.0313	0.3605
Household Income						
All Cases	23.5	11.4	16.1	16.6	37.0	43.8
under $10,000	-1.6	+6.0	0	+0.5	-2.8	-0.2
$10,000-$14,999	+4.1	-0.8	+3.4	+4.0	-3.0	-1.6
$15,000-$19,999	+3.9	-0.8	+0.1	-1.3	+2.9	-0.7
$20,000-$29,999	-2.8	+1.7	+0.3	-0.5	+1.3	+0.6
$30,000 and over	-1.3	-3.9	-2.8	-1.8	+0.8	-1.3
x^2 Significance	0.0798	0.0601	0.2057	0.2190	0.5635	0.9269

Appendix Table 2 (Continued)

Characteristic	Planned Changes in Travel Mode				Decrease in	
	Work Travel	School Travel	Other Local Travel	Long-Dist. Travel	Local Travel	Long-Dist. Travel
Number of Working Adults						
All Cases	22.7	11.2	15.9	16.6	35.9	42.6
None	-16.0	+5.7	-3.3	-3.1	-7.5	-4.8
One	-2.1	-2.2	-0.4	-0.2	-1.1	-1.2
Two	+1.6	-0.1	+0.9	+2.4	+1.9	+2.1
Three	+4.2	+2.8	+3.9	-1.3	+12.2	+9.7
Four	+6.6	+5.8	+10.8	+0.1	+13.3	+5.6
Five	-4.5	+11.2	+2.7	-16.6	+45.9	+11.9
Six or more	-22.7	+89.8	0	-16.6	0	0
x^2 Significance	0.2447	0.0177	0.0195	0.2195	0.0000*	0.0368
Number of Vehicles						
All Cases	22.7	11.2	15.9	16.6	35.9	42.6
None	-10.0	+2.7	-5.7	-3.4	-16.7	-10.9
One	+1.9	-0.5	+1.7	+1.6	-0.4	+0.9
Two	-0.4	-0.7	-1.2	+0.1	+1.4	+0.1
Three	-0.6	+0.2	-0.5	-1.1	+5.0	+2.3
Four or more	-1.8	+3.9	+5.7	+2.8	-3.1	+0.7
x^2 Significance	0.2552	0.7602	0.0423	0.0972	0.0001*	0.0926
Number of Licensed Drivers						
All Cases	22.7	11.2	15.9	16.6	35.9	42.6
None	-17.1	+7.0	-10.1	-8.4	-20.8	-17.0
One	+1.3	+1.0	+1.2	-1.0	-4.0	-3.2
Two	-1.4	-0.7	-0.2	+1.5	+1.4	+0.4
Three	+1.7	+4.9	-3.2	-1.4	+2.6	+6.0
Four	+8.1	+6.0	+10.5	+0.2	+6.8	+4.2
Five and more	-3.3	-1.5	+3.0	-11.2	+12.2	+16.9
x^2 Significance	0.0816	0.3958	0.0013*	0.0577	0.0000*	0.0007*

APPENDIX B - SURVEY QUESTIONNAIRE

INTERVIEWER - RECORD START TIME: _____

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

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)

(25) (26) (27) MINUTES

(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)

(29) (30) (31) MILES

(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
3 Don't know
(SKIP TO 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:

(45) (46) (47) MILES

(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

SECOND SCHOOL INDIVIDUAL:

(49) (50) (51) MILES

(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):	11	
	Other (SPECIFY):		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:

MILES
(60) (61) (62)

(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

SECOND COLLEGE INDIVIDUAL:

MILES
(64) (65) (66)

(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):	11	
	Other (SPECIFY):		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
3 Don't know/does not apply

(SKIP TO Q.14)

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:

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

---> 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
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

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)

OLD FORM	NEW FORM
(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 Q.28)
3 Don't know

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 Q.30c)
3 Don't know

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)(46)(48)(49)
-1 Work
2 Shopping
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)(51)(52)
-1 Too far to bus stop
2 Too crowded
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
3 Don't know → SKIP TO 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
3 Don't know → (SKIP TO 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?

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

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?

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

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)

(READ LIST):	(RECORD # OF VEHICLES)	
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)(3 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
3 Don't know
____(SKIP TO Q.38)

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

1M_____

_____

2M_____

_____

DEMOGRAPHICS:

Your answers to the following questions will be used for statistical analysis only.

Q.38 In what type of dwelling do you live? (READ LIST)

(10)-1 Single family dwelling
2 Duplex
3 Apartment/Condominium
4 Mobile home
5 Other (SPECIFY):_____

Q.39 How many licensed drivers, including yourself, are there in your household? (RECORD NUMBER)

_____ (11)

INTERVIEWER: INSERT ZERO IF NONE: 0

Q.40 Do you rent or own your place of residence?

(12)-1 Own/Buying
2 Rent/Lease

Q.41 What is the highest level of education you had the opportunity to complete? (DO NOT READ LIST)

(13)-1 Grade school or less
2 Some high school
3 High school graduate
4 Some college (includes vocational school)
5 College graduate
6 Post graduate studies
7 Refused

Q.42 How many working adults are there in your household?

_____ (14)

INTERVIEWER: INSERT ZERO IF NONE: 0

Q.43 What is your occupation? (DO NOT READ LIST) (RECORD SPECIFIC TASK)

RECORD: _____

FOR EDITORS ONLY:

(15)(16)
-01 Professional
02 Manager
03 Clerical
04 Sales
05 Crafts
06 Operative
07 Service Worker
08 Laborer
09 Unemployed
10 Housewife/Homemaker
11 Military
12 Student
13 Self-employed (no explanation)
14 Retired
15 Farm-related
16 Refused

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)

INTERVIEWER: INSERT ZEROS WHERE NECESSARY: 0 1

(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?

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)