

Final Report

Rural ITS Non-Rider Survey Findings

MULTISYSTEMS

with

**Schulman, Ronca
& Bucuvalas, Inc.**

and

SAIC
An Employee-Owned Company

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TABLE OF CONTENTS

1.0 Introduction	1
2.0 Market Segments	3
2.1 Screening Process.....	3
2.2 Lassen County.....	5
2.3 Eagle County.....	5
2.4 Watauga County.....	5
2.5 Rutland County.....	6
3.0 Demographics	7
3.1 Summary Characteristics.....	7
3.2 Lassen County.....	8
3.3 Eagle County.....	9
3.4 Watauga County.....	9
3.5 Rutland County.....	9
4.0 Travel Behavior	10
4.1 Trip Characteristics.....	10
4.2 Mode Share.....	11
5.0 Attitudes Toward Transit	13
5.1 Recent Use of Transit.....	14
5.2 Concerns about Transit.....	17
5.3 Obtaining Transit Information.....	22
6.0 Use of Traveler Information and Technology	25
6.1 Use of Travel Information.....	26
6.2 Use of Technology.....	32
7.0 Attitudes Toward ITS Concepts	35
7.1 ITS Concepts.....	35
7.2 Perceived Benefits of ITS Strategies.....	40
8.0 Findings	43
8.1 Major Themes.....	43
8.1.1 Most respondents chose to drive alone.....	43
8.1.2 Unlikely users outnumbered potential users.....	43
8.1.3 Many non-riders had limited experience with transit.....	43
8.1.4 Respondents were concerned about availability of service and schedules.....	44
8.1.5 Participants made limited use of general travel information.....	44
8.1.6 Most respondents had access to basic communication technology.....	44
8.1.7 Respondents showed only modest interest in ITS strategies.....	44
8.2 Lessons Learned	45
 Appendix A	 46

LIST OF FIGURES

Figure 2-1 Location of Market Segments.....	4
Figure 5-1 Propensity To Use Transit by Market Segment	14
Figure 5-2 Average Rating of Attitudes Toward Transit.....	18
Figure 6-1 Information Seekers by Market Segment	26
Figure 7-1 Average Ratings of ITS Concept.....	36
Figure 7-2 Propensity To Use Transit by ITS Concept	38

LIST OF TABLES

Table 2-1 Characteristics of Market Segments	5
Table 3-1 Demographic Characteristics by Market Segment.....	7
Table 3-1 Demographic Characteristics by Market Segment (Continued)	8
Table 4-1 Average Weekly Trips by Market Segment.....	10
Table 4-2 Average Travel Time by Market Segment (Minutes).....	11
Table 4-3 Mode Share by Market Segment	12
Table 4-4 Mode Share by Trip Purpose.....	12
Table 5-1 Previous Transit Use by Market Segment	15
Table 5-2 Previous Transit Use by Propensity to Ride.....	16
Table 5-3 Opinions About Transit by Market Segment.....	19
Table 5-3 Opinions About Transit by Market Segment (Continued)	20
Table 5-4 Opinions About Transit by Propensity to Ride.....	21
Table 5-4 Opinions About Transit by Propensity to Ride (Continued)	22
Table 5-5 Sources of Transit Information by Market Segment.....	23
Table 5-6 Sources of Transit Information by Propensity to Ride.....	24
Table 6-1 Sources of Travel Information by Market Segment.....	25
Table 6-2 Demographic Characteristics by Information-Seeking Behavior	28
Table 6-2 Demographic Characteristics by Information-Seeking Behavior (Continued)....	29
Table 6-2 Demographic Characteristics by Information-Seeking Behavior (Continued)....	30
Table 6-3 Opinions about Transit by Information-Seeking Behavior	31
Table 6-4 Use of Technology by Market Segment.....	32
Table 6-5 Use of Technology by Information-Seeking Behavior	33
Table 6-6 Use of Technology by Propensity to Ride	33
Table 6-6 Use of Technology by Propensity to Ride (Continued).....	34
Table 7-1 ITS Concepts by Market Segment.....	37
Table 7-2 ITS Concepts by Propensity to Ride.....	39
Table 7-3 ITS Concepts by Information-Seeking Behavior	40
Table 7-4 Perceived Benefits of ITS Concepts.....	42

Executive Summary

This report summarizes the findings from a telephone survey designed to measure the potential impact of intelligent transportation system (ITS) technologies in rural communities. The survey follows previous research conducted for the U.S. Department of Transportation's Rural Intelligent Transportation System Program that examined the opportunities and challenges of planning and deploying advanced public transportation systems (APTS) technologies in rural and small urban areas. That research included a user needs assessment to determine the information requirements, problems and concerns of both transit operators and passengers of rural transit systems. The study determined that riders were relatively satisfied with the services provided and recommended conducting a follow-up survey of non-users to determine the barriers associated with transit use for this specific population.

Study Goals

The following goals were identified for the non-user survey:

- Include questions to identify barriers associated with transit use and explore how they could be reduced or eliminated.
- Include a thorough examination of the issues that may differ for potential users when compared with current users.
- Obtain qualitative information on attitudes, perceptions, and preferences of non-users.
- Incorporate a sample size large enough to facilitate statistically meaningful comparisons between identified subsets of non-users.

The study recommended conducting the survey with the general public in four to eight rural areas covering major rural market segments. The research was designed to lead to the identification and implementation of appropriate APTS technologies.

A total of 1,000 adults were surveyed in sites in Vermont, North Carolina, Colorado, and California. The survey was designed so that the respondents did not need an understanding of ITS to answer the questions, and the selection of market segments was independent of ITS availability.

Market Segments

The survey was structured to draw upon respondents in four different market segments, based on geography, socioeconomic factors, and demographic characteristics. Previous research efforts have defined a number of market segments for rural America. After reviewing these research findings, the following four market segments were selected for the survey:

- Large, sparsely populated rural areas, characterized by low population density, low trip demand, and long trip distances.
- Slow/No-growth self-contained local communities, characterized by an aging population, declining population, stagnant economy, high unemployment, high demand for social services, few transportation options, and a high percentage of transit dependent riders.
- High growth, self-contained local communities, defined as service areas and retirement communities, economically prosperous, with a higher percentage of work trips and competition with private automobiles for riders.

- Small, poor growing communities, which are the smallest in terms of land area and among the most densely settled, typically with a manufacturing base and include counties in persistent poverty and those dependent on transfer payments.

These market segments were selected because they offered contrast in key characteristics – growth, size, land use, and prosperity. This was expected to allow meaningful conclusions to be drawn about attitudes toward ITS strategies based on market segment.

A screening process identified four candidate areas representative of their respective market segments: Lassen County (CA), Eagle County (CO), Watauga County (NC), and Rutland County (VT). The selected counties are described briefly below.

- With a land area of 4,500 square miles, **Lassen County, California**, was typical of a large, sparsely populated area. Population in 2000 was approximately 33,800 for a population density of 7.4 people per square mile. Lassen Rural Bus is the local transit operator.
- **Eagle County, Colorado**, was chosen to represent a high-growth self-contained area. Encompassing several resort communities, including Vail, this county nearly doubled in population, registering a 90% increase between 1990 and 2000. The county had the highest median income among the market segments at \$36,931 (based on the most recently available data from the 1990 U.S. Census). The Eagle County Regional Transportation Authority operates ECO Transit throughout the county. ECO Transit’s regional routes complement local services provided by towns and resort communities.
- **Watauga County, North Carolina**, was representative of small, poor, but growing communities. Watauga County’s population grew 16% between 1990 and 2000. This county was smallest in land area among selected market segments and had the lowest median household income at \$20,252 (using 1990 census data). AppalCART is the local transit provider.
- **Rutland County, Vermont**, was selected as an example of a slow/no-growth, self-contained community. Rutland County was the slowest growing county selected for this survey, with only 2% population increase between 1990 and 2000. Despite the slow growth, the county’s population of 63,400 was the highest among surveyed communities, with a population density of 68 people per square mile. Marble Valley Regional Transit operates bus service in this community.

Analytical Framework

The study was designed to allow researchers to compare findings across market segments to identify differences in attitudes toward transit and ITS strategies. Survey responses were initially compared among market segments, but in general the expected distinctions did not emerge. However, using two other categorizations yielded more meaningful patterns. Accordingly, in addition to geographic market segments, the following attitude-based market segments were defined.

- Attitude toward transit
- Use of traveler information

To establish a baseline for additional analysis, participants were asked to indicate their level of agreement with the following statement: “In general, I avoid using local public transportation if I can help it.” Respondents used a 10-point scale, where “10” meant “agree strongly” and “1” meant disagree strongly. The statement was intentionally worded negatively to help identify individuals who would not consider transit under any circumstances. For the purposes of further analysis, those who agreed with the statement (rating it 8-10) were considered *unlikely users* and those who disagreed (rating it 1-3) were considered *potential users*. The rest were considered neutral. Based on this assessment, approximately 31% of respondents were potential users and 38% were unlikely users.

The survey asked respondents whether they had made use of travel information in the past 30 days. Overall, 38% said that they made use of travel reports in the past 30 days. For this analysis, these individuals were considered *information seekers*; those who did not make recent use of travel information were considered *information neutral*.

Major Themes

Taken together, the findings from the survey create a profile of individuals who are reluctant to use transit under most circumstances. While respondents displayed modest interest in several of the proposed ITS improvements, it was clear that the proposed strategies did not address the major concerns about transit – which focused on service availability – and that the opportunities to encourage residents to choose transit were limited.

Most respondents chose to drive alone

By definition, survey respondents did not use local transit, and the survey confirmed that these individuals relied on their vehicles. More than half of the respondents surveyed had one vehicle per licensed driver in the household, and about one third had more than one vehicle per driver. Driving alone was the mode that most preferred, and only a handful used any alternative to driving – including walking, bicycle, motorcycle, or taxi. There was some evidence of ridesharing – just under one third drove with someone else as passenger or driver – but the preferred mode among survey participants was stated clearly and consistently across market segments.

Unlikely users outnumbered potential users

Survey participants did not express strong interest in using transit. Overall, only about one in three respondents showed some interest in transit, and more expressed strong negative attitudes. Even those who showed some support for transit showed a tendency to focus on transit’s environmental benefits and its role as a safety net. Those expressing negative comments about transit seemed to focus on their personal choices, stressing the availability of an automobile and the perceived inconvenience of transit.

Many non-riders had limited experience with transit

By definition, the surveyed respondents had not used the local bus within the past 30 days. However, three in four of those surveyed had never used local public transit, including some who did not even know that bus service was available in their study area. Perhaps an even more significant finding was the similarity between potential and unlikely riders. A sizable majority of each subgroup had never used the local bus. This limited experience with local transit

suggests that encouraging individuals to consider the bus – even those showing some propensity to support transit – would be a difficult challenge.

Respondents were concerned about availability of service and schedules

Asked to respond to a series of statements about local bus transportation, participants were most concerned about the availability of service and schedule information. Specifically, they were not familiar with routes and schedules, the bus stop was too far away, and the bus did not run where or when they needed to travel. They were less likely to indicate dissatisfaction with specific aspects of bus service – such as reliability or travel time – although it could not be determined whether this reflects lack of concern or lack of experience. Whereas almost half of respondents were not familiar with the local bus routes, few found the bus schedules confusing or thought it was too difficult to get information about how to use the bus. This pattern was fairly consistent across market segments and between potential and unlikely riders. These findings suggest that respondents were not familiar with the bus schedule because they did not need to be. When asked how they would obtain transit information, participants cited a number of traditional sources of information: bus stop/station, call transit agency, get schedules at public buildings, check the newspaper, or use the telephone. While ITS strategies can improve the quality and availability of transit information, the impact of such programs on increasing transit use may be limited given the expressed concerns about service availability.

Participants made limited use of general travel information

Respondents were asked to rate the value of different types of travel reports that provided information about driving and road conditions. The majority of respondents considered information about unexpected events extremely helpful, including weather-related road conditions, accidents and other unexpected road situations, and roadway construction delays and detours. Despite these high ratings, less than half of respondents made use of such information in the past 30 days. A comparison was made between those who reported recent use of travel reports and those who did not. In general, those who used travel information were more likely to be employed full-time, with higher household income, and a higher educational attainment than those who did not. Moreover, those using travel information also reported higher use of personal technology, including computers, Internet research, e-mail, and cell phones. While individuals who actively seek travel information may be a likely target market for transit-related ITS improvements, there did not seem to be a correlation between propensity to use transit and experience with traveler information.

Most respondents had access to basic communication technology

Most survey respondents had access to basic communication and entertainment technology, including satellite or cable television, personal computer, Internet access, e-mail, and a mobile telephone. At the other end of the spectrum, only a small percentage of respondents had a pager or PDA. Residents of Eagle County had the highest reported access to technology, consistent with the high median income observed in this county.

Respondents showed only modest interest in ITS strategies

Respondents were asked whether the availability of specific ITS strategies would increase their likelihood of riding the bus. Participants responded most favorably to strategies that could help them predict the timing of their transit trip. These included advance estimates of travel time, advance information on travel delays, and “next bus” signs. This is consistent with responses to traveler information, where individuals showed the most interest in receiving notice of accidents,

detours, and weather-related traffic delays. Participants showed much less interest in en-route or Internet-based services, and only one in four said that a message on their cell phone or pager when the bus was near would make them more likely to ride. Overall, participants did not seem to make a strong connection between their concerns about transit services and potential technology-based solutions.

Some differences were observed between market segments. Residents of Eagle County were more likely than their counterparts elsewhere to support ITS concepts, and potential riders generally showed more interest in alternatives than unlikely riders. Those who used travel information recently expressed interest in Internet-based trip planning and electronic fare cards than their information-neutral counterparts. However, almost universally, the majority indicated that the ITS proposals would not make a difference to them, and there was no clear correlation between identified transit concerns and support for technology solutions. As a consequence, it was not clear what impact ITS strategies would have on attracting new riders to transit in rural areas.

Lessons Learned

The survey strongly suggested that rural residents who do not ride transit are not likely to switch modes. Auto use among these individuals, not surprisingly, is quite high and interest in transit is fairly low. Moreover, many of the barriers to using transit were service-related – routes did not run when and where people traveled – and did not lend themselves easily to ITS improvements.

Respondents seemed interested in ITS improvements in two areas: predictability and convenience. Respondents showed the most interest in ITS strategies that could help them predict their travel experience: estimates of travel time, information on delays, and real-time bus arrival times. There was also some interest in electronic fare cards, which could make transit more convenient even for occasional travelers. This interest in predictability was consistent with the experience respondents cited with general travel information. Here they appreciated advance notification of unusual conditions, including delays related to weather, accidents, or construction. It should also be noted that respondents did not show a clear understanding of the benefits of different ITS strategies, and any subsequent research efforts could benefit from educating participants about different types of travel-related technology.

Within the overall survey population of non-riders, several subsets showed higher interest in ITS improvements. First, the group identified as potential riders showed more interest in transit and ITS strategies than those considered unlikely riders. Potential riders could be found in every market segment, suggesting that some potential exists to increase transit ridership in all markets.

However, Eagle County had the highest proportion of potential riders, and this area seemed to be the market with the greatest likelihood of supporting transit in general and new ITS strategies in particular. Respondents had recent familiarity with local transit, they were comfortable with personal technology, and they often showed comparatively high interest in proposed ITS strategies. This, in turn, suggests that high-growth self-contained areas like Eagle County may provide the best opportunity for introducing new ITS technologies, especially those focusing on improving the predictability and convenience of transit services.

1.0 Introduction

This report summarizes the findings from a telephone survey designed to measure the potential impact of intelligent transportation systems (ITS) technologies in rural communities. The survey follows previous research conducted for the U.S. Department of Transportation's Rural Intelligent Transportation System Program that examined the opportunities and challenges of planning and deploying advanced public transportation systems (APTS) technologies in rural and small urban areas. That research included a user needs assessment to determine the information requirements, problems and concerns of both transit operators and passengers of rural transit systems. The study determined that riders were relatively satisfied with the services provided and recommended conducting a follow-up survey of non-users to determine the barriers associated with transit use for this specific population. The following goals were identified for the non-user survey:

- Identify barriers associated with transit use and explore how they could be reduced or eliminated.
- Examine the issues that may differ for potential users when compared with current users.
- Obtain qualitative information on attitudes, perceptions, and preferences of non-users.
- Incorporate a sample size large enough to facilitate statistically meaningful comparisons between identified subsets of non-users.

The study recommended conducting the survey with the general public in four to eight rural areas covering major rural market segments. The research was designed to lead to the identification and implementation of appropriate APTS technologies. The rural market segments, defined in previous research efforts, categorized rural areas according to population size and density, demographic and socioeconomic characteristics, and travel patterns.

The survey was designed so that the respondents did not need an understanding of ITS to answer the questions, and the selection of market segments was independent of ITS availability. A total of 1,000 adults were surveyed in sites in Vermont, North Carolina, Colorado, and California; 250 responses were collected from each market segment. (The selected locations are described in more detail in Section 2.0.) The overall sample was designed to achieve a 95% level of confidence with a precision of $\pm 3.4\%$. For each individual geographic market segment, the confidence interval was 95% with a precision of $\pm 6.9\%$.

The study was designed to allow researchers to compare findings across market segments to identify differences in attitudes toward transit and ITS strategies. Responses were initially compared among the geographic market segments to identify meaningful patterns. Relevant differences between market segments were examined, but in general the expected distinctions did not emerge. In many cases, analyzing responses by attitude – either toward transit or traveler information – yielded more meaningful patterns. Accordingly, much of the analysis focused on this approach instead.

This report is organized as follows:

- Section 2.0 describes the market segments selected for this survey.
- Section 3.0 summarizes the demographic characteristics of the survey respondents.
- Section 4.0 describes current travel patterns.
- Section 5.0 highlights attitudes toward transit among non-riders.
- Section 6.0 summarizes use of travel information.
- Section 7.0 describes attitudes toward ITS technology.
- Section 8.0 summarizes the overall findings of the study.

The survey methodology is presented in the Appendix.

2.0 Market Segments

The survey was structured to draw upon respondents in four different market segments, based on geography, socioeconomic factors, and demographic characteristics. Previous research efforts have defined a number of market segments for rural America. After reviewing these research findings, the following four market segments were selected for the survey:

- **Large, sparsely populated rural areas**, characterized by low population density, low trip demand, and long trip distances.
- **Slow/No-growth self-contained local communities**, characterized by an aging population, declining population, stagnant economy, high unemployment, high demand for social services, few transportation options, and a high percentage of transit dependent riders.
- **High growth, self-contained local communities**, defined as service areas and retirement communities, economically prosperous, with a higher percentage of work trips and competition with private automobiles for riders.
- **Small, poor growing communities**, which are the smallest in terms of land area and among the most densely settled, typically with a manufacturing base and include counties in persistent poverty and those dependent on transfer payments.

These market segments were selected because they offered contrast in key characteristics – growth, size, land use, and prosperity. This was expected to allow meaningful conclusions to be drawn about attitudes toward ITS strategies based on market segment.

2.1 Screening Process

Once these market segments were selected, candidate counties were screened to select four representative localities. The screening process examined the following characteristics:

- **Total population** – At least 30,000 residents, based on U.S. Census data for Year 2000
- **Population density** – Persons per square mile using 2000 population figures
- **Median household income** – Based on 1990 census information (the most recently available information source consistent among all U.S. counties)
- **Population change** – Percent change in total population, 1990-2000
- **Available transit services** – Existing service open to the general public with at least one fixed route
- **Location** – Reflect geographic diversity

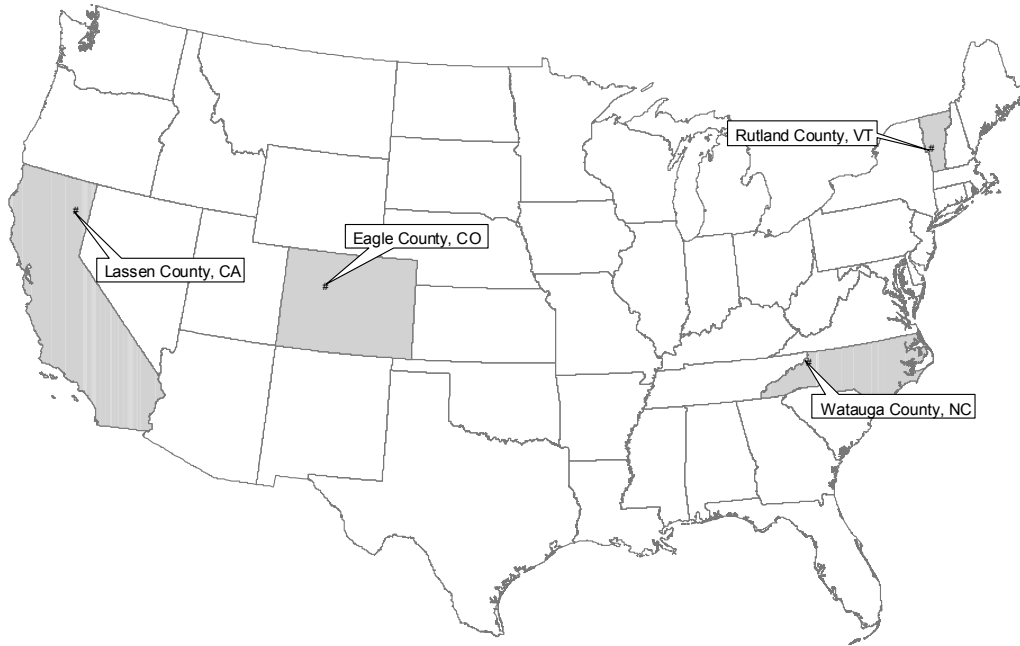


Figure 2-1 Location of Market Segments

Data sources included the U.S. Census, American Public Transportation Association (APTA), and the web pages for individual counties and transit operators.

The screening process identified four candidate areas representative of their respective market segments: Lassen County (CA), Eagle County (CO), Watauga County (NC), and Rutland County (VT). The selected counties, which are shown in Figure 2-1, are described briefly below. Basic summary statistics for these counties are presented in Table 2-1.

County Name	State	Census Population		Change 1990 to 2000		Area Square Miles	Population Density		Median HH Income 1989	Transit Operator
		April 1, 1990	April 1, 2000	Number	Percent		1990	2000		
<i>Large sparsely populated</i>										
Lassen County	CA	27,598	33,828	6,230	22.6%	4,558	6.1	7.4	\$26,764	Lassen Rural Bus
<i>Slow/No-growth self-contained</i>										
Rutland County	VT	62,142	63,400	1,258	2.0%	932	66.7	68.0	\$22,809	Marble Valley Regional Transit ("The Bus")
<i>High growth self contained local</i>										
Eagle County	CO	21,928	41,659	19,731	90.0%	1,688	13.0	24.7	\$36,931	ECO Transit (Eagle County Regional Transportation Authority)
<i>Small poor growing</i>										
Watauga County	NC	36,952	42,695	5,743	15.5%	313	118.2	136.6	\$20,252	AppalCART

Table 2-1 Characteristics of Market Segments

2.2 Lassen County

With a land area of 4,500 square miles, Lassen County, California, was typical of a large, sparsely populated area. Population in 2000 was approximately 33,800 for a population density of 7.4 people per square mile.

Lassen Rural Bus (LRB) is the local transit operator. (LRB) provides fixed-route and dial-a-ride services in Lassen County (CA). Service is focused in and around the City of Susanville. LRB operates hourly service in Susanville Monday through Friday. The West County commuter route makes three daily trips between Susanville and Hamilton Branch, Monday through Friday, and the South County commuter route makes two daily trips Monday through Thursday between Susanville and Doyle. Dial-a-ride service is available for seniors and persons with disabilities in the Susanville area Monday through Friday.

2.3 Eagle County

Eagle County, Colorado, was chosen to represent a high-growth self-contained area. Encompassing several resort communities, including Vail, this county nearly doubled in population, registering a 90% increase between 1990 and 2000. The county had the highest median income among the market segments at \$36,931 (based on the most recently available data from the 1990 U.S. Census).

Eagle County Regional Transportation Authority (ECO Transit) operates six bus routes and complementary paratransit service throughout Vail Valley, Eagle Valley, and Lake County. ECO Transit's regional routes complement local services provided by towns and resort communities. Destinations include Vail, Leadville, Minturn, Dotsero, and Edwards Medical Center. Buses operate seven days a week, 365 days a year.

2.4 Watauga County

Watauga County, North Carolina, was representative of small, poor, but growing communities. Watauga County's population grew 16% between 1990 and 2000. This county was smallest in

land area among selected market segments and had the lowest median household income at \$20,252 (using 1990 census data). Appalachian State University (ASU) is located in the county.

AppalCART provides intown and rural routes. Eight intown routes (including a parking lot shuttle) serve Boone; many of these routes are oriented around the ASU campus. Some weekend service is provided. Complementary paratransit is available for the intown services. AppalCART also provides dial-a-ride van service (Appal-A-Day) throughout the rural sections of Watauga County. Rural services are available weekdays only, and reservations are required. Specialized services are also available for the area's skiing resort.

2.5 Rutland County

Rutland County, Vermont, was selected as an example of a slow/no-growth, self-contained community. Rutland County was the slowest growing county selected for this survey, with only 2% population increase between 1990 and 2000. Despite the slow growth, the county's population of 63,400 was the highest among surveyed communities, with a population density of 68 people per square mile.

The Marble Valley Regional Transit System (The Bus) is the largest non-urban transit system in Vermont and provides service in throughout Rutland County. Four fixed-route services operate in the City of Rutland Monday through Saturday; in addition one route provides deviations up to .75 mile on request. Dial-a-ride service is available for seniors and persons with disabilities. Several specialized services are available to serve the area's ski resorts and tourist attractions, and a bus provides access-to-jobs transportation between Rutland and Manchester.

3.0 Demographics

The survey asked individuals a number of questions about basic demographic and socioeconomic characteristics. The demographic profile of the entire sample is summarized below, along with each individual market segment. Table 3-1 presents this demographic information in detail.

3.1 Summary Characteristics

Overall, more than half (58%) of the respondents who participated in the survey were employed full-time, 11% were employed part-time, 15% were retired, and 7% were full-time students. About one in four (26%) reported an annual household income under \$25,000, and 25% earned \$75,000 or more. Half were high school (27%) or college (26%) graduates, and 12% attended graduate school. Most respondents (61%) were 25-54 years old, and just over half (52%) were male. Almost two-thirds (65%) reported no children living in their household, and about 61% had lived in their home area for 10 years or more. Most reported one (59%) or more (33%) vehicles per licensed driver in the household.

Demographic Characteristics		Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
How long have you been living in this area?	Less than six months	8	3%	8	3%	13	5%	10	4%	39	4%
	Six months to less than a year	6	2%	14	6%	3	1%	9	4%	33	3%
	One year to less than five years	36	14%	49	20%	51	20%	32	13%	168	17%
	Five to less than ten years	35	14%	50	20%	41	16%	26	10%	151	15%
	Ten or more years	165	66%	129	52%	143	57%	173	69%	609	61%
	Total	250	100%	250	100%	251	100%	250	100%	1,000	100%
What is your gender?	Male	145	58%	134	54%	118	47%	124	49%	521	52%
	Female	104	42%	116	46%	132	53%	127	51%	479	48%
		249	100%	250	100%	250	100%	251	100%	1,000	100%
How many children 15 years of age or younger, if any, currently live in your household?	0	161	64%	136	54%	180	72%	173	69%	649	65%
	1	30	12%	47	19%	33	13%	37	15%	147	15%
	2	34	14%	50	20%	29	12%	28	11%	141	14%
	3	19	8%	11	4%	7	3%	11	4%	47	5%
	4	3	1%	6	2%	1	0%	1	0%	11	1%
	5	1	0%	1	0%		0%		0%	2	0%
	6	1	0%		0%		0%	1	0%	1	0%
	7+	1	0%		0%		0%		0%	1	0%
	Total	250	100%	251	100%	250	100%	251	100%	999	100%
How many vehicles are available for each member of your household?	None	1	0%	1	0%	3	1%	1	0%	6	1%
	Less than one	17	7%	19	8%	10	4%	27	11%	72	7%
	One year to less than five years	118	49%	134	54%	160	65%	168	68%	581	59%
	More than one	107	44%	94	38%	72	29%	52	21%	325	33%
	Total	243	100%	248	100%	245	100%	248	100%	984	100%

Table 3-1 Demographic Characteristics by Market Segment

Demographic Characteristics		Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
What is your current employment status?	Employed full-time	134	54%	178	71%	117	47%	143	57%	572	58%
	Employed part-time	26	11%	23	9%	35	14%	25	10%	109	11%
	Retired	49	20%	20	8%	30	12%	47	19%	146	15%
	Unemployed	7	3%	3	1%	10	4%	4	2%	24	2%
	Full-time student	9	4%	8	3%	37	15%	13	5%	67	7%
	Part-time student, or	3	1%	1	0%		0%	3	1%	7	1%
	A homemaker	11	4%	15	6%	14	6%	11	4%	51	5%
	Disabled/handicapped	7	3%	1	0%	2	1%	2	1%	12	1%
	Other		0%		0%	3	1%	2	1%	5	1%
	<i>Total</i>	246	100%	249	100%	248	100%	250	100%	993	100%
What is the last grade of school you completed?	Some high school or less	23	9%	15	6%	17	7%	22	9%	77	8%
	High school graduate	60	24%	75	30%	55	22%	74	30%	264	27%
	Technical/training beyond high school	8	3%	5	2%	4	2%	8	3%	25	3%
	Some college	97	39%	36	14%	75	30%	43	17%	251	25%
	College graduate	38	15%	85	34%	64	25%	71	29%	257	26%
	Graduate school	20	8%	34	14%	36	14%	31	12%	121	12%
	<i>Total</i>	246	100%	250	100%	251	100%	249	100%	995	100%
What is the approximate total combined income of your household before taxes?	Less than \$5,000	5	2%	4	2%	11	5%	7	4%	27	3%
	\$5,000 to less than \$10,000	11	5%	2	1%	14	7%	2	1%	29	4%
	\$10,000 to less than \$15,000	16	8%	1	1%	20	10%	14	7%	52	6%
	\$15,000 to less than \$25,000	32	16%	15	8%	32	15%	24	12%	103	13%
	\$25,000 to less than \$35,000	29	14%	23	12%	25	12%	24	12%	101	12%
	\$35,000 to less than \$50,000	36	18%	28	14%	30	14%	35	18%	130	16%
	\$50,000 to less than \$75,000	42	21%	46	23%	32	15%	42	21%	162	20%
	\$75,000 to less than \$100,000	18	9%	36	18%	18	9%	23	12%	96	12%
	\$100,000 to less than \$150,000	11	5%	27	14%	17	8%	19	10%	74	9%
\$150,000 or more	3	1%	18	9%	9	4%	6	3%	36	4%	
	<i>Total</i>	203	100%	200	100%	208	100%	196	100%	810	100%
What is your age?	16-17	9	4%	6	2%	5	2%	6	2%	27	3%
	18-24	20	8%	19	8%	68	28%	23	9%	130	13%
	25-34	35	14%	70	28%	35	14%	47	19%	187	19%
	35-44	46	19%	78	31%	46	19%	60	24%	229	23%
	45-54	61	25%	43	17%	41	17%	44	18%	189	19%
	55-64	39	16%	21	8%	25	10%	29	12%	114	12%
	65 and over	33	14%	13	5%	27	11%	40	16%	114	12%
	<i>Total</i>	243	100%	250	100%	247	100%	249	100%	990	100%

Table 3-1 Demographic Characteristics by Market Segment (Continued)

3.2 Lassen County

Lassen County (CA) was selected to represent large, sparsely populated areas. The county's respondents were among the least affluent surveyed. Almost one third (31%) reported an annual household income less than \$25,000, and only 16% had a household income in excess of \$75,000. About one in four respondents (24%) completed college or attended graduate school, which was the smallest percentage among the market segments. Fully 44% of respondents indicated that they had more than one vehicle available per licensed driver in their household. Some 66% lived in the area 10 years or more. Just over half (54%) worked full-time, and 20% were retired. About 30% were 55 years old or over. The area's high proportion of male respondents (58%) can be explained in part by the location of a men's state prison in the county. While the institutional population was not included in the study or the related demographic calculations, the civilian employees working at the prison can be expected to be predominantly male.

3.3 Eagle County

Eagle County (CO), a high-growth self-contained area, was the most affluent of the four market segments. Nearly three of four respondents (71%) were employed full time, and 40% reported an annual household income of \$75,000 or higher. Nearly half (48%) completed college or attended graduate school. Consistent with the region's rapid growth, about half of the respondents in Eagle County (48%) moved to the area within the past 10 years. The majority of respondents (59%) were 25-44 years old, and 54% were male. Some 46% reported at least one child in the household, the highest among the market segments. Just over half of the respondents (54%) had one vehicle per licensed driver in their household, and 38% had more than one vehicle per driver.

3.4 Watauga County

Home to Appalachian State University, Watauga County (NC) had characteristics consistent with a university community. While only 47% of respondents were employed full-time, 15% were full-time students. The county had the greatest percentage of low-income households among the four market segments, with 37% reporting annual income below \$25,000. One in four respondents (27%) was 18-24 years old and 72% of respondents reported no children living in their household. More than half (53%) were female. About 43% of respondents moved to this small poor, but growing, area within the previous 10 years. About 65% of respondents had one vehicle per licensed driver in their household, and 30% exceeded that ratio.

3.5 Rutland County

Rutland County was selected as an example of a slow-growth self-contained community. Fully 69% of respondents had lived in the community for 10 years or more. Approximately 57% were employed full-time, and 19% were retired. Equal numbers reported an annual household income below \$25,000 (24%) and above \$75,000 (24%). More than one in four respondents (28%) were 55 years old or over, and 69% reported no children in the household. Some 41% of respondents graduated from college or attended graduate school. About 68% of respondents had one vehicle per licensed driver in their household, but only 21% reported more than one vehicle per driver.

4.0 Travel Behavior

The survey asked respondents to describe their recent travel in the previous seven days. These questions were intended to provide an overview of local travel patterns to identify areas where ITS strategies could encourage individuals to consider transit.

4.1 Trip Characteristics

Overall, respondents reported an average of 14.3 round trips in the previous week for all purposes.¹ As Table 4.1 shows, the most frequently cited trip purposes were work commute trips (average 3.6 trips per week) and personal errands (average 3.4 trips per week). Other common trip purposes were visiting friends and family (1.9 trips per week) and recreation or entertainment (1.9 trips per week). Residents in Lassen County made the fewest trips, which was consistent with the expectations for this large and sparsely populated county. Eagle County, on the other hand, had the highest rate of work commute and other business-related trips, again consistent with expectations for this area.

Trip Purpose	Lassen	Eagle	Watauga	Rutland	Total
Commute	3.3	3.8	3.7	3.6	3.6
Errands	2.9	3.2	3.8	3.8	3.4
Visiting	1.3	1.4	2.1	2.8	1.9
Recreation	1.7	1.8	2.2	2.1	1.9
Business	1.0	1.8	1.3	1.4	1.4
School	0.6	0.7	1.0	0.7	0.8
Child-Care	0.5	0.5	0.6	0.7	0.6
Medical	0.6	0.3	0.5	0.4	0.5
Church	0.1	0.0	0.1	0.1	0.1
Human Services	0.2	0.1	0.1	0.1	0.1
<i>All Trips</i>	12.2	13.6	15.4	15.7	14.3

Table 4-1 Average Weekly Trips by Market Segment

¹ Throughout the survey and this report, *trips* refers to *round trips* unless otherwise indicated.

Trip Purpose	Lassen	Eagle	Watauga	Rutland	Total
Commute	17.5	24.8	23.9	17.1	20.9
School	22.7	9.2	13.8	15.1	14.8
Business	65.9	61.8	43.1	41.9	53.3
Visiting	33.0	29.2	85.3	26.7	42.2
Medical	32.7	0.0	18.1	27.2	27.6
Child-Care	12.2	7.3	21.5	7.3	12.2
Human Services	91.8	8.6	30.0	0.0	42.1
Errands	30.2	18.4	31.6	21.5	25.5
Recreation	26.6	24.9	34.9	20.1	27.5
<i>All Trips</i>	26.6	24.9	32.2	20.8	26.1

Table 4-2 Average Travel Time by Market Segment (Minutes)

Most trips were short, averaging less than 30 minutes. Table 4-2 shows that average trip time for all purposes ranged from 21 minutes in Rutland County to 32 minutes in Watauga County.² Work commuting trips averaged 21 minutes, and personal errands averaged 26 minutes. The longest trips were for business trips other than commuting (53 minutes) and visiting friends and family (42 minutes). While trips for human services, such as senior centers or nutrition facilities, averaged 42 minutes, only a few respondents reported such trips and the individual trip times ranged from 9 minutes to 90 minutes.

Respondents were asked whether they made any stops during their reported trip. About one third of respondents (32%) said they made other stops during their work commute; most of these stops (77%) were for personal errands. While such trip chaining (as this practice is called) is not uncommon, trips with multiple stops tend to be more difficult to serve with transit.

4.2 Mode Share

Virtually every respondent drove to his or her destination – either alone, with a passenger, or in someone else’s vehicle. Because the survey screened out recent transit riders, a high automobile share was not surprising. Table 4-3 shows the mode share for each market segment. Respondents drove alone for 68% of reported trips. Almost 23% drove with a passenger, and 9% were passengers in someone else’s vehicle. Barely 1% reported using any other mode, including walking, bicycle, or taxi. There was not much variation among market segments. There was some difference in the split between single-occupancy vehicles and ridesharing, but the overall vehicle share was 98-100% across the board. Rutland County had the highest drive-alone share, at 72%, and Lassen County had the lowest, at 63%.

² Respondents were asked to estimate travel time for either the start or return portion of their trip. Surveyors rotated the trip segment to avoid bias.

	Lassen		Eagle		Watauga		Rutland		Total	
Mode	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Drive alone	157	63%	165	66%	175	70%	180	72%	677	68%
Drive with passenger	62	25%	66	27%	47	19%	49	20%	224	22%
Passenger in vehicle	26	10%	14	6%	28	11%	18	7%	86	9%
Bicycle	1	0%	0	0%	0	0%	0	0%	1	0%
Walk	0	0%	2	1%	0	0%	2	1%	4	0%
Other	2	1%	2	1%	0	0%	0	0%	4	0%
<i>Total</i>	248	100%	249	100%	250	100%	249	100%	996	100%

Table 4-3 Mode Share by Market Segment

As might be expected, the split between driving alone and driving with a passenger also varied with trip purpose. As Table 4-4 shows, the drive-alone share was highest for work commute trips (84%) and other business-related trips (76%). Ridesharing was most commonly associated with trips for medical visits (74%), recreation (72%), or child-care (65%). However, because of the small sample for many of these trip purposes, these results should be interpreted with caution. For the same reason, these results could not be broken down further by market segment.

	Commute		School		Business		Visiting		Medical	
Mode	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Drive alone	362	84%	35	56%	51	76%	54	59%	4	21%
Drive with passenger	60	14%	22	35%	11	16%	24	26%	6	32%
Passenger in vehicle	6	1%	5	8%	5	7%	13	14%	8	42%
Bicycle	1	0%	0	0%	0	0%	0	0%	0	0%
Walk	0	0%	0	0%	0	0%	0	0%	0	0%
Other	1	0%	1	2%	0	0%	0	0%	1	5%
<i>Total</i>	430	100%	63	100%	67	100%	91	100%	19	100%

	Child-Care		Human Services		Errands		Recreation		Total	
Mode	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Drive alone	7	35%	6	67%	144	58%	14	29%	677	68%
Drive with passenger	13	65%	1	11%	66	27%	21	43%	224	22%
Passenger in vehicle	0	0%	1	11%	34	14%	14	29%	86	9%
Bicycle	0	0%	0	0%	0	0%	0	0%	1	0%
Walk	0	0%	1	11%	3	1%	0	0%	4	0%
Other	0	0%	0	0%	1	0%	0	0%	4	0%
<i>Total</i>	20	100%	9	100%	248	100%	49	100%	996	100%

Table 4-4 Mode Share by Trip Purpose

5.0 Attitudes Toward Transit

Although participants, by definition, did not use transit within the past 30 days, their previous transit experience varied, as did their attitudes toward transit. To establish a baseline for additional analysis, participants were asked to indicate their level of agreement with the following statement: “In general, I avoid using local public transportation if I can help it.” Respondents used a 10-point scale, where “10” meant “agree strongly” and “1” meant disagree strongly. The statement was intentionally worded negatively to help identify individuals who would not consider transit under any circumstances. For the purposes of further analysis, those who agreed with the statement (rating it 8-10) were considered *unlikely users* and those who disagreed (rating it 1-3) were considered *potential users*. The rest were considered neutral. Based on this assessment, approximately 31% of respondents were potential users and 38% were unlikely users.

Asked to elaborate on their opinion, respondents cited benefits for transit in the following categories:

- **Environment** – Less pollution, less congestion, saves fuel
- **Community mobility** – Good for emergencies, bad weather, car breakdowns and people who can’t drive

Negative comments about transit included the following:

- **Service** – Takes too long; doesn’t go where or when I want to travel, bus stop is too far, inconvenient
- **Alternatives** – Have my own car, job requires me to drive
- **Other** – Too expensive, difficult to travel with children, not safe, not comfortable

In general, the positive comments about transit focused on environmental benefits and transit’s role as a safety net. Respondents appeared to believe that transit played an important social role – for others. The negative comments were more likely to reflect personal choices, focusing on automobile availability and the perceived inconvenience of transit service.

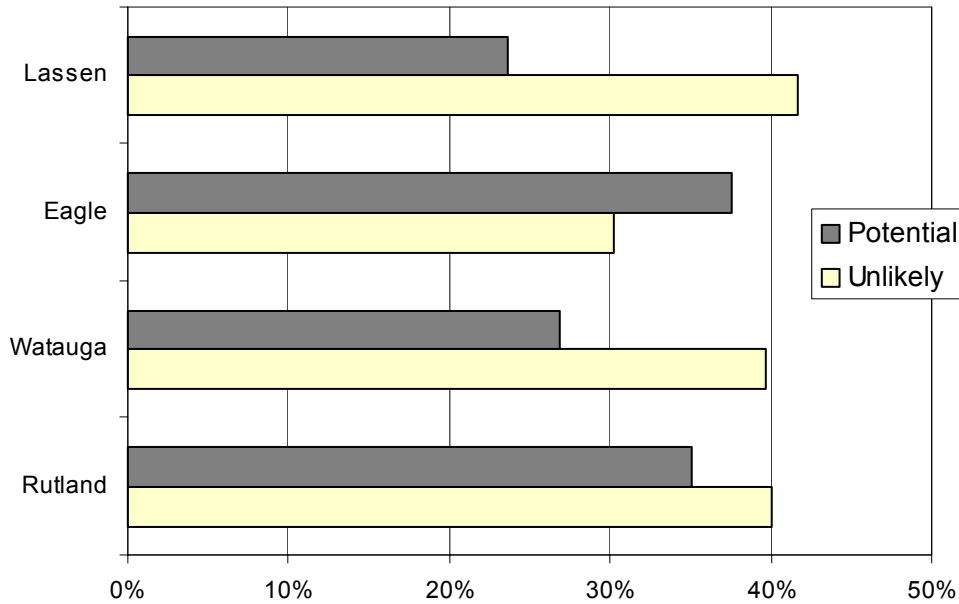


Figure 5-1 Propensity To Use Transit by Market Segment

Unlikely users outnumbered potential users in every market segment except Eagle County. As Figure 5-1 shows, about 38% of respondents in Eagle County were potential users and 30% were unlikely. The split between potential and unlikely users in other markets was 35% versus 40% in Rutland County, 27% versus 40% in Watauga County, and 24% versus 42% in Lassen County.

5.1 Recent Use of Transit

Just over one in four respondents (28%) had previously used their local bus, as Table 5-1 indicates. Among the majority non-riders, 54% knew about the bus but 19% were not even aware that transit was available to them. Clear differences were observed among market segments with regard to previous transit experience. About 40% of Eagle County residents had used their local bus service in comparison to only 13% of those in Lassen County. Interestingly, potential users did not have more experience with the local bus than unlikely riders. About 30% of potential riders and 28% of unlikely riders reported using the local bus, approximately the same percentage as the total surveyed population. As Table 5-2 shows, differences were more apparent in their previous experience with transit in other locations, as discussed below.

Given their limited experience with local transit, respondents were asked whether they had ever used transit outside their current home area. As the tables show, overall, 68% had used transit elsewhere, or more than twice the proportion that had used their local bus system. Among market segments, the proportion that reported riding transit outside their home area did not show a wide range; 64% in Watauga and Lassen Counties had transit experience, as did 71% in Rutland County and 72% in Eagle County. Potential transit users had more transit experience than unlikely users. Despite comparable levels of use with local transit, about 78% of potential users reported using transit elsewhere compared to 62% of unlikely riders.

		Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Are you aware that public transit is available in your area?	Yes	203	83%	208	84%	194	78%	196	81%	801	81%
	No	42	17%	39	16%	55	22%	47	19%	182	19%
	<i>Total</i>	245	100%	247	100%	249	100%	243	100%	983	100%
Have you ever used the local bus?	Yes	33	13%	100	40%	85	34%	52	21%	271	28%
	No, but aware of bus	170	69%	108	44%	109	44%	144	59%	530	54%
	No, not aware of bus	42	17%	39	16%	55	22%	47	19%	182	19%
	<i>Total</i>	245	100%	247	100%	249	100%	243	100%	983	100%
If you used the bus, when was the last time you used it?	Last six months	4	12%	31	32%	14	17%	11	22%	59	23%
	Six months to a year	4	12%	18	19%	18	22%	5	10%	45	17%
	One to five years	19	58%	31	32%	34	41%	17	34%	100	38%
	Five to ten years	4	12%	10	10%	13	16%	6	12%	34	13%
	More than ten years	2	6%	7	7%	4	5%	11	22%	24	9%
	<i>Total</i>	33	100%	97	100%	83	100%	50	100%	262	100%
Have you ever used public transportation elsewhere?	Yes	160	64%	179	72%	160	64%	177	71%	676	68%
	No	89	36%	71	28%	90	36%	74	29%	324	32%
	<i>Total</i>	249	100%	250	100%	250	100%	251	100%	1,000	100%
When was the last time you used public transportation in an area other than this one?	Last six months	12	8%	34	19%	29	18%	45	26%	120	18%
	Six months to a year	10	6%	21	12%	20	13%	23	13%	74	11%
	One to five years	38	25%	60	34%	46	29%	49	28%	194	29%
	Five to ten years	27	17%	26	15%	23	14%	19	11%	95	14%
	More than ten years	68	44%	35	20%	41	26%	40	23%	185	28%
	<i>Total</i>	155	100%	176	100%	159	100%	176	100%	668	100%

Table 5-1 Previous Transit Use by Market Segment

		Potential Rider		Neutral Rider		Unlikely Rider		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
Are you aware that public transit is available in your area?	Yes	217	77%	249	86%	286	84%	752	82%
	No	65	23%	40	14%	56	16%	161	18%
	<i>Total</i>	282	100%	289	100%	342	100%	913	100%
Have you ever used the local bus?	Yes	86	30%	84	29%	94	28%	264	29%
	No, but aware of bus	131	46%	165	57%	191	56%	487	53%
	No, not aware of bus	65	23%	40	14%	56	16%	161	18%
	<i>Total</i>	282	100%	289	100%	341	100%	912	100%
If you used the bus, when was the last time you used it?	Last six months	20	24%	21	25%	18	21%	59	23%
	Six months to a year	20	24%	14	17%	11	13%	45	18%
	One to five years	26	31%	33	39%	37	43%	96	38%
	Five to ten years	10	12%	11	13%	12	14%	33	13%
	More than ten years	8	10%	5	6%	9	10%	22	9%
	<i>Total</i>	84	100%	84	100%	87	100%	255	100%
Have you ever used public transportation elsewhere?	Yes	224	78%	187	64%	219	62%	630	68%
	No	63	22%	103	36%	134	38%	300	32%
	<i>Total</i>	287	100%	290	100%	353	100%	930	100%
When was the last time you used public transportation in an area other than this one?	Last six months	50	23%	24	13%	41	19%	115	18%
	Six months to a year	25	11%	19	10%	25	12%	69	11%
	One to five years	64	29%	55	30%	65	30%	184	30%
	Five to ten years	31	14%	29	16%	33	15%	93	15%
	More than ten years	52	23%	57	31%	52	24%	161	26%
	<i>Total</i>	222	100%	184	100%	216	100%	622	100%

Table 5-2 Previous Transit Use by Propensity to Ride

5.2 Concerns about Transit

Respondents were asked to rate a series of statements about local bus transportation. Statements focused on safety, service, and information. They were intended to highlight particular rider concerns and to identify applications where ITS strategies could be beneficial. On a scale of 1 to 10, respondents were asked to indicate how much they agreed or disagreed with the following statements.³ As above, “10” meant “agree strongly” and “1” meant “disagree strongly.”

- I would be concerned about my personal safety when using the bus.
- The bus isn’t available when I need it.
- The bus doesn’t go where I need to go.
- The bus is often late, off schedule, or unreliable.
- The bus stop is too far away from my house.
- The bus is too slow.
- The bus schedules are too confusing.
- It’s too hard to get information about how to use the bus.
- I don’t know where to catch the bus.
- I don’t know the bus schedule or routes.
- I can’t get good information about bus delays, cancellations or schedule changes.

Average rankings were calculated for the responses to facilitate comparisons. As Figure 5-2 shows, the ratings ranged from a high of 5.9, showing strong agreement with the statement “I don’t know the schedule or routes,” to a low of 2.9, showing little agreement with the statement “I am concerned about my personal safety.”

Consistent with these findings, respondents showed the highest agreement with two statements: “The bus stop is too far away from my house” (46% agreed) and “I don’t know the bus schedule or routes” (45%). Some 40% agreed that the bus did not go where they needed to go, and 38% agreed that the bus was not available when they needed it. They did not show concern about their personal safety (only 13% agreed), nor did they find bus schedules confusing (13%). As Table 5-3 shows, respondents did not express strong opinions, positive or negative, about aspects of service, like reliability or travel time. Because respondents did not ride the bus, it is not known whether this reflects lack of concern or lack of experience.

³ Surveyors rotated the order of these statements to avoid bias.

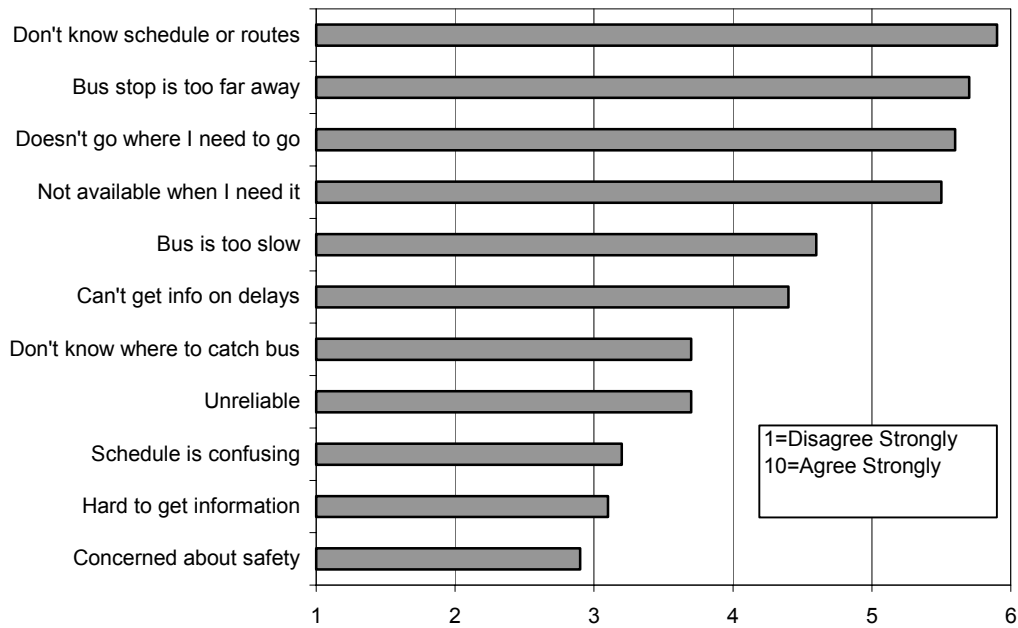


Figure 5-2 Average Rating of Attitudes Toward Transit

While nearly half of respondents said they did not know the bus schedule or routes, they seemed to believe they could obtain such information when they needed it. Only 13% believed it was too difficult to get information about using the bus, an equally small percentage found the schedules confusing (13%), and some 21% did not know where the bus stop was. These responses suggest that individuals did not have information about the bus because they had no use for that information. Should they need the information, however, they appeared to know how to get it.

Differences among market segments may have reflected local service conditions. For example, Table 5-3 shows that 62% of respondents in Watauga County said the bus stop was too far from the house compared to 35% in Eagle County, whereas half (50%) in Lassen County did not know the bus schedule compared to 42% in Eagle and Watauga Counties.

Opinion	Level of Agreement	Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
"I am concerned about my personal safety."	Agree	35	15%	31	13%	20	8%	33	14%	119	13%
	Neutral	35	15%	27	11%	37	15%	38	16%	137	14%
	Disagree	168	71%	177	75%	184	76%	165	70%	694	73%
	<i>Total</i>	238	100%	235	100%	241	100%	236	100%	950	100%
"The bus isn't available when I need it."	Agree	78	44%	78	38%	79	39%	60	31%	295	38%
	Neutral	40	22%	50	24%	60	30%	50	26%	200	26%
	Disagree	61	34%	77	38%	62	31%	83	43%	283	36%
	<i>Total</i>	179	100%	205	100%	201	100%	193	100%	778	100%
"The bus doesn't go where I need to go."	Agree	76	42%	93	42%	93	43%	68	34%	330	40%
	Neutral	44	24%	47	21%	58	27%	50	25%	199	24%
	Disagree	61	34%	84	38%	67	31%	80	40%	292	36%
	<i>Total</i>	181	100%	224	100%	218	100%	198	100%	821	100%
"The bus is often late, off schedule or unreliable."	Agree	18	12%	26	15%	39	23%	20	15%	103	17%
	Neutral	31	21%	45	26%	47	27%	36	27%	159	26%
	Disagree	97	66%	101	59%	86	50%	76	58%	360	58%
	<i>Total</i>	146	100%	172	100%	172	100%	132	100%	622	100%
"The bus stop is too far away from my house."	Agree	95	47%	79	35%	141	62%	85	39%	400	46%
	Neutral	26	13%	38	17%	35	15%	28	13%	127	14%
	Disagree	83	41%	109	48%	53	23%	105	48%	350	40%
	<i>Total</i>	204	100%	226	100%	229	100%	218	100%	877	100%
"The bus is too slow."	Agree	28	16%	59	29%	48	23%	43	24%	178	23%
	Neutral	64	37%	59	29%	86	41%	68	38%	277	36%
	Disagree	83	47%	88	43%	75	36%	70	39%	316	41%
	<i>Total</i>	175	100%	206	100%	209	100%	181	100%	771	100%
"The bus schedules are too confusing."	Agree	14	8%	30	15%	27	14%	25	14%	96	13%
	Neutral	41	24%	34	17%	40	21%	39	22%	154	21%
	Disagree	117	68%	138	68%	126	65%	117	65%	498	67%
	<i>Total</i>	172	100%	202	100%	193	100%	181	100%	748	100%

Table 5-3 Opinions About Transit by Market Segment

Opinion	Level of Agreement	Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
"It's too hard to get information about how to use the bus."	Agree	29	14%	33	15%	17	8%	35	16%	114	13%
	Neutral	39	19%	31	15%	47	22%	41	19%	158	19%
	Disagree	137	67%	149	70%	151	70%	141	65%	578	68%
	<i>Total</i>	205	100%	213	100%	215	100%	217	100%	850	100%
"I don't know where to catch the bus."	Agree	65	30%	33	14%	47	20%	55	24%	200	22%
	Neutral	36	16%	20	9%	47	20%	32	14%	135	15%
	Disagree	118	54%	178	77%	140	60%	139	62%	575	63%
	<i>Total</i>	219	100%	231	100%	234	100%	226	100%	910	100%
"I don't know the bus schedule or routes."	Agree	108	50%	92	42%	95	42%	103	47%	398	45%
	Neutral	33	15%	32	14%	52	23%	35	16%	152	17%
	Disagree	73	34%	97	44%	79	35%	81	37%	330	38%
	<i>Total</i>	214	100%	221	100%	226	100%	219	100%	880	100%
"I can't get good information about delays or schedule changes."	Agree	40	24%	52	28%	44	22%	42	23%	178	24%
	Neutral	39	24%	47	25%	61	31%	44	24%	191	26%
	Disagree	85	52%	86	46%	92	47%	99	54%	362	50%
	<i>Total</i>	164	100%	185	100%	197	100%	185	100%	731	100%

Table 5-3 Opinions About Transit by Market Segment (Continued)

Table 5-4 compares potential riders with unlikely riders, revealing an overall difference in attitude between the groups. Those considered potential riders showed a greater tendency to disagree with the statements about transit barriers than those defined as unlikely riders. In other words, potential riders perceived fewer barriers to using transit than unlikely riders. Specifically, 42% of unlikely riders said that the bus was not available when they needed it, compared with 28% of potential riders. Similarly, 36% of unlikely riders agreed that the bus was too slow, versus 11% of potential riders. On questions about traveler information, the gap between unlikely and potential riders was much smaller. For example:

- “I don’t know the bus schedule or routes” (50% for unlikely riders versus 40% for potential riders)
- “I can’t get good information on delays” (27% versus 21%)
- “It’s too hard to get information on how to use the bus” (11% versus 12%)
- “The bus schedules are confusing” (17% versus 9%)

These differences suggest that service quality may be a greater barrier to increasing rural transit ridership than the lack of passenger information.

Opinion	Level of Agreement	Potential		Neutral		Unlikely		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
"I am concerned about my personal safety."	Agree	4	8%	10	13%	19	21%	33	15%
	Neutral	5	10%	13	16%	16	18%	34	16%
	Disagree	41	82%	56	71%	54	61%	151	69%
	<i>Total</i>	50	100%	79	100%	89	100%	218	100%
"The bus isn't available when I need it."	Agree	12	33%	28	41%	26	43%	66	40%
	Neutral	3	8%	20	29%	18	30%	41	25%
	Disagree	21	58%	21	30%	17	28%	59	36%
	<i>Total</i>	36	100%	69	100%	61	100%	166	100%
"The bus doesn't go where I need to go."	Agree	11	34%	29	40%	29	45%	69	41%
	Neutral	6	19%	24	33%	11	17%	41	24%
	Disagree	15	47%	20	27%	25	38%	60	35%
	<i>Total</i>	32	100%	73	100%	65	100%	170	100%
"The bus is often late, off schedule or unreliable."	Agree	2	7%	8	14%	4	8%	14	10%
	Neutral	4	15%	13	22%	12	24%	29	22%
	Disagree	21	78%	37	64%	33	67%	91	68%
	<i>Total</i>	27	100%	58	100%	49	100%	134	100%
"The bus stop is too far away from my house."	Agree	17	43%	29	40%	37	51%	83	45%
	Neutral	3	8%	13	18%	9	12%	25	14%
	Disagree	20	50%	30	42%	27	37%	77	42%
	<i>Total</i>	40	100%	72	100%	73	100%	185	100%
"The bus is too slow."	Agree	2	6%	7	11%	15	25%	24	15%
	Neutral	6	19%	30	45%	20	33%	56	35%
	Disagree	23	74%	29	44%	26	43%	78	49%
	<i>Total</i>	31	100%	66	100%	61	100%	158	100%
"The bus schedules are too confusing."	Agree	1	3%	7	10%	4	7%	12	8%
	Neutral	3	9%	19	28%	17	29%	39	24%
	Disagree	31	89%	41	61%	37	64%	109	68%
	<i>Total</i>	35	100%	67	100%	58	100%	160	100%
"It's too hard to get information about how to use the bus."	Agree	4	9%	13	19%	6	8%	23	12%
	Neutral	5	11%	17	24%	17	24%	39	21%
	Disagree	36	80%	40	57%	49	68%	125	67%
	<i>Total</i>	45	100%	70	100%	72	100%	187	100%

Table 5-4 Opinions About Transit by Propensity to Ride

Opinion	Level of Agreement	Potential		Neutral		Unlikely		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
"I don't know where to catch the bus."	Agree	16	35%	17	23%	25	31%	58	29%
	Neutral	3	7%	19	25%	13	16%	35	17%
	Disagree	27	59%	39	52%	43	53%	109	54%
	<i>Total</i>	46	100%	75	100%	81	100%	202	100%
"I don't know the bus schedule or routes."	Agree	18	42%	39	52%	45	56%	102	52%
	Neutral	7	16%	14	19%	10	13%	31	16%
	Disagree	18	42%	22	29%	25	31%	65	33%
	<i>Total</i>	43	100%	75	100%	80	100%	198	100%
"I can't get good information about delays or schedule changes."	Agree	6	19%	18	29%	14	25%	38	25%
	Neutral	7	23%	17	27%	9	16%	33	22%
	Disagree	18	58%	28	44%	34	60%	80	53%
	<i>Total</i>	31	100%	63	100%	57	100%	151	100%

Table 5-4 Opinions About Transit by Propensity to Ride (Continued)

5.3 Obtaining Transit Information

Respondents were asked how they would get information about their local bus. Table 5-5 summarizes their responses; participants indicated that they would get information at the bus stop/station or on the bus (24%), call the transit agency (20%), pick up schedules at public buildings (20%), consult the newspaper (18%), or use the telephone (17%).⁴ These responses, which were the five most commonly cited, show that individuals were most likely to rely on traditional sources of information. Only 10% of responses identified the Internet, and less than 1% cited personal digital assistants (PDAs) as a source of transit information.

⁴ Multiple responses were allowed. Percentages are based on total respondents, rather than total answers.

Source	Lassen		Eagle		Watauga		Rutland		Total	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Call the transit agency	46	18%	50	20%	47	19%	61	24%	204	20%
Public buildings	46	18%	40	16%	75	30%	37	15%	198	20%
Newspaper	43	17%	69	27%	32	13%	39	16%	183	18%
Telephone	40	16%	36	14%	51	20%	40	16%	167	17%
Bus station	41	16%	30	12%	21	8%	58	23%	150	15%
Telephone book	65	26%	17	7%	21	8%	29	12%	131	13%
Don't know	36	15%	33	13%	22	9%	30	12%	121	12%
Internet	9	4%	27	11%	42	17%	25	10%	104	10%
Radio	10	4%	12	5%	30	12%	19	8%	71	7%
Bus stop	5	2%	29	12%	14	6%	6	2%	53	5%
Television	2	1%	7	3%	31	13%	9	4%	49	5%
Word-of-mouth/Ask a friend	9	4%	12	5%	13	5%	7	3%	40	4%
Schedule/Signs at bus stops	3	1%	8	3%	8	3%	9	4%	28	3%
Other	9	4%	5	2%	3	1%	7	3%	24	2%
None	3	1%	13	5%	1	0%	1	0%	18	2%
Ask bus driver	3	1%	3	1%	4	2%	1	1%	11	1%
Kiosk	1	1%	1	0%	1	1%	5	2%	8	1%
Cell phone	-	0%	1	0%	1	0%	-	0%	2	0%
PDA/Palm Pilot	-	0%	-	0%	-	0%	1	0%	1	0%
Total respondents	250	100%	250	100%	250	100%	250	100%	1,000	100%

**Table 5-5 Sources of Transit Information by Market Segment
(Multiple Responses Allowed)**

As Table 5-6 shows, there were no major differences between potential riders and unlikely riders with regard to obtaining transit information. Differences were noted among market segments, however, which may reflect local transit marketing practices. For example, respondents in Lassen County were more likely to consult the telephone book (26% of responses) than those in Eagle County (7%). The most commonly cited source of transit information in Eagle County was the newspaper (27%), whereas respondents in Watauga County were most likely to pick up schedules in public buildings (30%). Rutland County residents indicated that they would call the transit agency (24%) or get information at the bus station (23%). While the specifics varied – for example, telephone book versus newspaper – the reliance on traditional information sources was consistent among market segments. Only a small percentage of respondents identified the Internet as an information source, ranging from 17% of responses in Watauga County to only 4% in Lassen County. Participants were even less likely to turn to other advanced technologies to obtain transit information, including cell phones, PDAs, and kiosks.

Source	Potential Rider		Neutral Rider		Unlikely Rider		Total	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Newspaper	56	20%	58	20%	65	18%	179	19%
Radio	17	6%	25	9%	28	8%	70	8%
Television	10	4%	17	6%	21	6%	49	5%
Internet	36	13%	29	10%	36	10%	101	11%
PDA/Palm Pilot	1	0%					1	0%
Telephone	46	16%	50	17%	57	16%	153	16%
Cell phone	1	0%	1	0%			2	0%
Telephone book	38	13%	33	11%	46	13%	118	13%
Call the transit agency	62	22%	57	20%	67	19%	186	20%
Word-of-mouth/Ask a friend	8	3%	13	4%	19	5%	39	4%
Schedule/Signs at bus stops	9	3%	4	1%	15	4%	28	3%
Bus station	39	14%	44	15%	59	17%	142	15%
Bus stop	15	5%	18	6%	18	5%	50	5%
Ask bus driver	4	1%	3	1%	4	1%	11	1%
Schedules in public buildings	51	18%	69	24%	71	20%	192	21%
Kiosk	2	1%	2	1%	4	1%	8	1%
Other	12	4%	3	1%	6	2%	21	2%
None	8	3%	1	0%	3	1%	12	1%
Don't know	36	13%	30	10%	43	12%	109	12%
Total respondents	286	100%	291	100%	352	100%	929	100%

**Table 5-6 Sources of Transit Information by Propensity to Ride
(Multiple Responses Allowed)**

6.0 Use of Traveler Information and Technology

The survey assessed respondent experience and familiarity with sources of general traveler information. Respondents were asked to rate the helpfulness of the following types of traveler information:

- Information about unexpected road situations, such as accidents
- Information on road construction
- Travel time estimates
- Alternate road or highway routes
- Interactive driving directions available on the Internet
- Information about weather-related road and travel conditions

These questions were intended to assess the familiarity with technology and to draw inferences about potential use of different strategies for conveying transit information. Respondents were asked to indicate how helpful each of these travel reports using a scale of 1 to 10. A rating of “10” meant “extremely helpful” and “1” meant “not helpful at all.” For the purposes of this analysis, ratings of 8-10 were considered “very helpful,” ratings of 1-3 were considered “not helpful,” and ratings of 4-7 were “somewhat helpful.”

Table 6-1 summarizes respondent ratings of the usefulness of travel reports. Respondents were most likely to consider information about unexpected events very helpful: weather-related conditions (69% considered it very helpful), unexpected road situations, such as accidents (58%), and information on road construction (54%). Respondents showed less interest in interactive driving directions (47% considered it very helpful), information on alternate routes (47%), and travel time estimates (40%).

Source	Lassen		Eagle		Watauga		Rutland		Total	
	Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Internet/Mapquest	37	35%	43	37%	61	70%	45	63%	186	49%
Radio	45	43%	32	28%	16	18%	18	26%	111	30%
Other	25	24%	38	33%	11	13%	18	25%	93	25%
Television	23	22%	33	29%	16	18%	12	18%	84	22%
Telephone	27	26%	25	22%	5	5%	2	2%	58	15%
Electronic road signs/Road signs	1	1%	19	17%	1	1%	-	0%	22	6%
Newspaper	2	2%	2	2%	5	5%	9	12%	17	5%
Cell phone	1	1%	4	4%	1	1%	-	0%	6	2%
None	-	0%	1	1%	-	0%	1	1%	2	0%
Don't know	-	0%	-	0%	1	1%	-	0%	1	0%
Total respondents	104	100%	115	100%	87	100%	71	100%	377	100%

**Table 6-1 Sources of Travel Information by Market Segment
(Multiple Responses Allowed)**

6.1 Use of Travel Information

Despite their interest in some kinds of travel information, most respondents did not make use of it on a regular basis. Overall, 38% said that they made use of travel reports in the past 30 days. For this analysis, these individuals were considered *information seekers*; those who did not make recent use of travel information were considered *information neutral*. Figure 6-1 shows the relative distribution of information-seeking and information-neutral residents in each market segment. Some 46% of respondents in Eagle County were information seekers, as were 42% in Lassen County. Use of travel information was lowest in Rutland and Watauga Counties at 29% and 35%, respectively. These two latter counties were smallest in land area, with the lowest median household income among the four market segments. This suggests that use of travel information may be correlated with income or, alternatively, the type of travel associated with these market segments. To determine whether travel behavior or income was the relevant indicator, the findings from Section 4.0 were reviewed. As Section 4.1 indicated, residents in Watauga County had the longest travel times, on average, while those in Rutland County had the shortest. Since residents from these counties were least likely to seek travel information it would appear that income, not travel behavior, may be correlated with use of travel information.

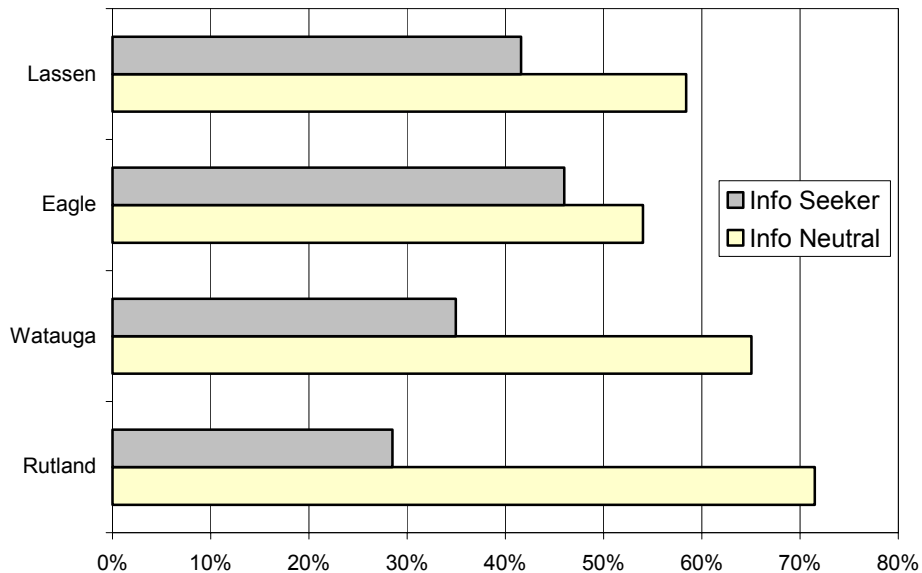


Figure 6-1 Information Seekers by Market Segment

Almost half of information seekers (49%) said they used Internet-based mapping services, such as Mapquest, to obtain travel information. Other commonly cited sources were radio (30%), and television (22%).⁵ Information seekers were then compared to their information-neutral counterparts; Table 6-2 summarizes the differences between these groups. In general, information seekers were more affluent and better educated than their information-neutral counterparts. Specifically, 64% of information seekers were employed full-time compared to 53% of the information neutral. Consistent with this finding, fully 81% were working-age adults, 25-64 years old, versus 68% of information-neutral respondents. About one third (33%) of information seekers reported an annual household income of \$75,000 or above, compared to 21% of others. Finally, 45% of travel information users graduated from college or attended graduate school, in contrast to 34% of others.

Use of travel information did not appear to be correlated with attitude toward transit. Among those who used travel reports in the last 30 days, 32% were potential transit users compared to 30% of those who did not use travel reports. Similarly, as Table 6-3 shows, information seekers and their information-neutral counterparts did not differ greatly in their attitudes toward transit. Both groups showed the most agreement with the following statements:

- “The bus stop is too far from my house” (44% of information seekers agreed versus 46% of information neutral)
- “I don’t know the bus schedule or routes” (43% versus 47%)
- “The bus doesn’t go where I need to go” (39% versus 41%)
- “The bus isn’t available when I need it” (37% versus 39%)

This suggests that information-seeking behavior is not a strong predictor of potential transit use.

⁵ Multiple responses were allowed. Percentage is based on number of respondents.

Demographic Characteristics by Information-Seeking Behavior							
Demographic Characteristics		Information Seeking		Information Neutral		Total	
		Count	Col %	Count	Col %	Count	Col %
How long have you been living in this area?	Less than six months	20	5%	19	3%	39	4%
	Six months to less than a year	11	3%	21	3%	32	3%
	One year to less than five years	73	19%	95	15%	168	17%
	Five to less than ten years	76	20%	76	12%	152	15%
	Ten or more years	197	52%	409	66%	606	61%
	<i>Total</i>	377	100%	620	100%	997	100%
What is your gender?	Male	197	52%	322	52%	519	52%
	Female	180	48%	298	48%	478	48%
	<i>Total</i>	377	100%	620	100%	997	100%
How many children 15 years of age or younger, if any, currently live in your household?	0	240	64%	407	66%	647	65%
	1	55	15%	91	15%	146	15%
	2	56	15%	84	14%	140	14%
	3	18	5%	29	5%	47	5%
	4	6	2%	5	1%	11	1%
	5		0%	2	0%	2	0%
	6	1	0%	1	0%	2	0%
	7+	1	0%		0%	1	0%
	<i>Total</i>	377	100%	619	100%	996	100%

Table 6-2 Demographic Characteristics by Information-Seeking Behavior

Demographic Characteristics		Information Seeking		Information Neutral		Total	
		Count	Col %	Count	Count	Col %	Count
How many vehicles are available for each member of your household?	None	1	0%	5	1%	6	1%
	Less than one	20	5%	53	9%	73	7%
	One year to less than five years	216	58%	363	60%	579	59%
	More than one	136	36%	188	31%	324	33%
	<i>Total</i>	373	100%	609	100%	982	100%
What is your current employment status?	Employed full-time	242	64%	329	54%	571	58%
	Employed part-time	35	9%	74	12%	109	11%
	Retired	36	10%	109	18%	145	15%
	Unemployed	8	2%	15	2%	23	2%
	Full-time student	30	8%	37	6%	67	7%
	Part-time student, or	2	1%	5	1%	7	1%
	A homemaker	18	5%	34	6%	52	5%
	Disabled/handicapped	6	2%	6	1%	12	1%
	Other	0	0%	5	1%	5	1%
	<i>Total</i>	377	100%	614	100%	991	100%
What is the last grade of school you completed?	Some high school or less	17	5%	60	10%	77	8%
	High school graduate	82	22%	180	29%	262	26%
	Technical/training beyond high school	10	3%	15	2%	25	3%
	Some college	100	27%	152	25%	252	25%
	College graduate	113	30%	143	23%	256	26%
	Graduate school	55	15%	66	11%	121	12%
	<i>Total</i>	377	100%	616	100%	993	100%

Table 6-2 Demographic Characteristics by Information-Seeking Behavior (Continued)

Demographic Characteristics		Information Seeking		Information Neutral		Total	
		Count	Col %	Count	Col %	Count	Col %
What is the approximate total combined income of your household before taxes?	Less than \$5,000	7	2%	20	4%	27	3%
	\$5,000 to less than \$10,000	9	3%	20	4%	29	4%
	\$10,000 to less than \$15,000	7	2%	42	8%	49	6%
	\$15,000 to less than \$25,000	36	12%	67	14%	103	13%
	\$25,000 to less than \$35,000	41	13%	60	12%	101	13%
	\$35,000 to less than \$50,000	47	15%	84	17%	131	16%
	\$50,000 to less than \$75,000	63	20%	100	20%	163	20%
	\$75,000 to less than \$100,000	49	16%	47	9%	96	12%
	\$100,000 to less than \$150,000	39	13%	35	7%	74	9%
	\$150,000 or more	14	4%	21	4%	35	4%
	<i>Total</i>	312	100%	496	100%	808	100%
What is your age?	16-17	12	3%	15	2%	27	3%
	18-24	42	11%	87	14%	129	13%
	25-34	84	22%	102	17%	186	19%
	35-44	91	24%	139	23%	230	23%
	45-54	79	21%	110	18%	189	19%
	55-64	51	14%	63	10%	114	12%
	65 and over	17	5%	95	16%	112	11%
	<i>Total</i>	376	100%	611	100%	987	100%

Table 6-2 Demographic Characteristics by Information-Seeking Behavior (Continued)

Opinion	Level of Agreement	Information Seeking		Information Neutral		Total	
		Count	Col %	Count	Col %	Count	Col %
"I am concerned about my personal safety."	Agree	41	11%	78	13%	118	12%
	Neutral	43	12%	93	16%	137	14%
	Disagree	282	77%	411	71%	693	73%
	<i>Total</i>	366	100%	582	100%	948	100%
"The bus isn't available when I need it."	Agree	110	37%	185	39%	295	38%
	Neutral	70	23%	131	27%	200	26%
	Disagree	119	40%	163	34%	282	36%
	<i>Total</i>	299	100%	479	100%	777	100%
"The bus doesn't go where I need to go."	Agree	125	39%	205	41%	330	40%
	Neutral	80	25%	118	24%	198	24%
	Disagree	112	35%	179	36%	292	36%
	<i>Total</i>	317	100%	502	100%	820	100%
"The bus is often late, off schedule or unreliable."	Agree	34	14%	68	18%	103	17%
	Neutral	66	28%	94	25%	160	26%
	Disagree	140	58%	220	58%	360	58%
	<i>Total</i>	240	100%	382	100%	623	100%
"The bus stop is too far away from my house."	Agree	150	44%	248	46%	398	45%
	Neutral	51	15%	76	14%	127	15%
	Disagree	137	41%	213	40%	350	40%
	<i>Total</i>	338	100%	537	100%	875	100%
"The bus is too slow."	Agree	66	22%	112	24%	178	23%
	Neutral	120	39%	157	34%	277	36%
	Disagree	120	39%	196	42%	316	41%
	<i>Total</i>	306	100%	465	100%	771	100%
"The bus schedules are too confusing."	Agree	28	9%	67	15%	95	13%
	Neutral	65	21%	89	20%	154	21%
	Disagree	210	69%	288	65%	498	67%
	<i>Total</i>	303	100%	444	100%	747	100%
"It's too hard to get information about how to use the bus."	Agree	41	13%	73	14%	114	13%
	Neutral	50	15%	107	21%	157	19%
	Disagree	237	72%	338	65%	576	68%
	<i>Total</i>	328	100%	518	100%	847	100%
"I don't know where to catch the bus."	Agree	65	19%	135	24%	200	22%
	Neutral	53	15%	82	15%	136	15%
	Disagree	232	66%	341	61%	572	63%
	<i>Total</i>	350	100%	558	100%	908	100%
"I don't know the bus schedule or routes."	Agree	146	43%	252	47%	398	45%
	Neutral	66	19%	86	16%	152	17%
	Disagree	130	38%	199	37%	329	37%
	<i>Total</i>	342	100%	537	100%	879	100%
"I can't get good information about delays or schedule changes."	Agree	60	22%	118	26%	178	24%
	Neutral	79	28%	111	25%	190	26%
	Disagree	139	50%	223	49%	362	50%
	<i>Total</i>	278	100%	452	100%	730	100%

Table 6-3 Opinions about Transit by Information-Seeking Behavior

6.2 Use of Technology

The survey asked respondents to describe their use of technology; findings are summarized in Table 6-4. The majority had access to basic communication and entertainment technology, including satellite or cable television (89%), personal computer at home, school, or work (72%), Internet access (67%), e-mail (62%), and a wireless telephone (55%). Only 10% of respondents had a pager and 7% had a PDA. Residents of Eagle County had the best access to technology, consistent with the high median income observed in this county. Those in Rutland and Lassen Counties had the fewest wireless telephones (47% and 44%, respectively), which might reflect demographic characteristics, topography, or service availability.

Information seekers were much more likely to use other kinds of technology than information-neutral respondents. For example, as Table 6-5 shows, 86% of information seekers used a computer, 80% looked up information on the Internet, 76% used e-mail, and 65% used a cell phone. Among information-neutral individuals, 64% used a computer, 60% looked up information on the Internet, 55% used e-mail, and 49% used a cell phone. The distinctions between potential and unlikely users were less clear-cut. A higher proportion of potential riders used the Internet and e-mail than unlikely riders, but more unlikely riders had cell phones. Table 6-6 summarizes these differences.

Technology Use		Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Do you use a PC or computer at home, school, or work?	Yes	156	62%	201	80%	191	76%	170	68%	717	72%
	No	94	38%	49	20%	59	24%	80	32%	283	28%
	<i>Total</i>	250	100%	250	100%	250	100%	250	100%	1,000	100%
Do you use a Palm Pilot or PDA?	Yes	5	2%	32	13%	17	7%	16	7%	70	7%
	No	241	98%	217	87%	227	93%	229	93%	914	93%
	<i>Total</i>	246	100%	249	100%	244	100%	245	100%	984	100%
Do you look up information on the Internet?	Yes	150	60%	184	74%	177	71%	161	64%	672	67%
	No	98	40%	66	26%	73	29%	90	36%	327	33%
	<i>Total</i>	248	100%	250	100%	250	100%	251	100%	999	100%
Do you use a cell phone?	Yes	118	48%	185	74%	138	55%	110	44%	552	55%
	No	130	52%	65	26%	112	45%	140	56%	447	45%
	<i>Total</i>	248	100%	250	100%	250	100%	250	100%	999	100%
Do you use a pager?	Yes	17	7%	21	8%	22	9%	36	14%	96	10%
	No	232	93%	229	92%	228	91%	215	86%	904	90%
	<i>Total</i>	249	100%	250	100%	250	100%	251	100%	1,000	100%
Do you use e-mail?	Yes	134	54%	175	70%	167	67%	147	59%	624	62%
	No	116	46%	75	30%	83	33%	103	41%	376	38%
	<i>Total</i>	250	100%	250	100%	250	100%	250	100%	1,000	100%
Do you have satellite or cable television at home?	Yes	222	89%	235	94%	211	84%	224	89%	891	89%
	No	27	11%	15	6%	39	16%	27	11%	108	11%
	<i>Total</i>	249	100%	250	100%	250	100%	251	100%	999	100%

Table 6-4 Use of Technology by Market Segment

Technology Use		Information Seeking		Information Neutral		Total	
		Count	Col %	Count	Col %	Count	Col %
Do you use a PC or computer at home, school, or work?	Yes	323	86%	394	64%	717	72%
	No	54	14%	226	36%	280	28%
	<i>Total</i>	377	100%	620	100%	997	100%
Do you use a Palm Pilot or PDA?	Yes	38	10%	32	5%	70	7%
	No	336	90%	575	95%	911	93%
	<i>Total</i>	374	100%	607	100%	981	100%
Do you look up information on the Internet?	Yes	302	80%	370	60%	672	67%
	No	74	20%	250	40%	324	33%
	<i>Total</i>	376	100%	620	100%	996	100%
Do you use a cell phone?	Yes	245	65%	306	49%	551	55%
	No	132	35%	314	51%	446	45%
	<i>Total</i>	377	100%	620	100%	997	100%
Do you use a pager?	Yes	41	11%	54	9%	95	10%
	No	336	89%	566	91%	902	90%
	<i>Total</i>	377	100%	620	100%	997	100%
Do you use e-mail?	Yes	285	76%	338	55%	623	62%
	No	92	24%	282	45%	374	38%
	<i>Total</i>	377	100%	620	100%	997	100%
Do you have satellite or cable television at home?	Yes	342	91%	546	88%	888	89%
	No	35	9%	73	12%	108	11%
	<i>Total</i>	377	100%	619	100%	996	100%

Table 6-5 Use of Technology by Information-Seeking Behavior

Technology Use		Potential Riders		Neutral Riders		Unlikely Riders		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
Do you use a PC or computer at home, school, or work?	Yes	210	73%	226	78%	239	68%	675	72%
	No	77	27%	64	22%	113	32%	254	28%
	<i>Total</i>	287	100%	290	100%	352	100%	929	100%
Do you use a Palm Pilot or PDA?	Yes	22	8%	14	5%	30	9%	66	7%
	No	261	92%	271	95%	317	91%	849	93%
	<i>Total</i>	283	100%	285	100%	347	100%	915	100%
Do you look up information on the Internet?	Yes	200	70%	220	76%	210	60%	630	67%
	No	86	30%	70	24%	141	40%	297	33%
	<i>Total</i>	286	100%	290	100%	351	100%	927	100%
Do you use a cell phone?	Yes	150	52%	156	54%	208	59%	514	55%
	No	136	48%	135	47%	144	41%	415	45%
	<i>Total</i>	286	100%	291	100%	352	100%	929	100%
Do you use a pager?	Yes	24	9%	28	10%	32	9%	84	10%
	No	262	92%	262	90%	320	91%	844	90%
	<i>Total</i>	286	100%	290	100%	352	100%	928	100%
Do you use e-mail?	Yes	191	67%	195	67%	204	58%	590	62%
	No	96	33%	96	33%	148	42%	340	38%
	<i>Total</i>	287	100%	291	100%	352	100%	930	100%
Do you have satellite or cable television at home?	Yes	248	87%	262	90%	318	90%	828	89%
	No	37	13%	29	10%	34	10%	100	11%
	<i>Total</i>	285	100%	291	100%	352	100%	928	100%

Table 6-6 Use of Technology by Propensity to Ride

		"In general I avoid using local public transportation if I can help it."					
		Agree		Neutral		Disagree	
		Count	Col %	Count	Col %	Count	Col %
Q15a1. Do you . . . USE A PC OR COMPUTER AT HOME, SCHOOL OR WORK.	Yes	239	68%	226	78%	210	73%
	No	113	32%	64	22%	77	27%
Total		352	100%	291	100%	286	100%
Q15a2. Do you . . . USE A PALM PILOT OR PDA	Yes	30	9%	14	5%	22	8%
	No	317	91%	271	95%	261	92%
Total		348	100%	285	100%	283	100%
Q15a3. Do you . . . LOOK UP INFORMATION ON THE INTERNET	Yes	210	60%	220	76%	200	70%
	No	141	40%	70	24%	86	30%
Total		351	100%	291	100%	286	100%
Q15a4. Do you . . . USE A CELL PHONE	Yes	208	59%	156	54%	150	52%
	No	144	41%	135	47%	136	48%
Total		352	100%	291	100%	286	100%
Q15a5. Do you . . . USE A PAGER	Yes	32	9%	28	10%	24	9%
	No	320	91%	262	90%	262	92%
Total		352	100%	291	100%	286	100%
Q15a6. Do you . . . USE E-MAIL	Yes	204	58%	195	67%	191	67%
	No	148	42%	96	33%	96	33%
Total		352	100%	291	100%	286	100%
Q15b. Do you have satellite or cable at home?	Yes	318	90%	262	90%	248	87%
	No	34	10%	29	10%	37	13%
Total		352	100%	291	100%	286	100%

Table 6-6 Use of Technology by Propensity to Ride (Continued)

7.0 Attitudes Toward ITS Concepts

The survey assessed respondent interest in specific ITS strategies. On a scale of 1 to 10, participants were asked to indicate how much the described improvement would encourage them to take transit. Consistent with other survey questions, “10” meant “much more likely to take transit” and “1” meant “no difference.” The following strategies were tested:

- An electronic sign or announcement at the bus stop that tells you when the next bus will actually arrive
- An electronic map on the Internet that shows you where the bus is along its route
- Receiving a message on your phone or pager telling you the bus is within 15 minutes or a mile of your stop
- An electronic sign or announcement on the bus telling you what the next stop is
- Using the Internet to plan a bus trip from start to finish just by entering your origin and destination and getting back specific directions with a map
- Getting bus routes and schedules on the Internet
- Having an electronic fare card that can be used to pay the bus fare
- Being able to learn about service delays well in advance so you could make alternate plans
- Being able to get an accurate estimate of the travel time for your bus trip before you decide to take it

It should be noted that the study was not set up to describe these concepts in great detail. Since these concepts were new for most respondents, a more detailed market analysis might be warranted to test customer reaction further.

7.1 ITS Concepts

As Figure 7-1 shows, average ratings for these concepts were clustered fairly closely, from a low of 4.4 (real-time bus location information on the Internet) to a high of 5.5 (accurate estimate of travel time before the trip). These ratings were clustered closely around the middle of the range, in contrast to the rankings of transit concerns, suggesting that participants did not hold strong opinions about the potential of ITS to encourage them to use transit.

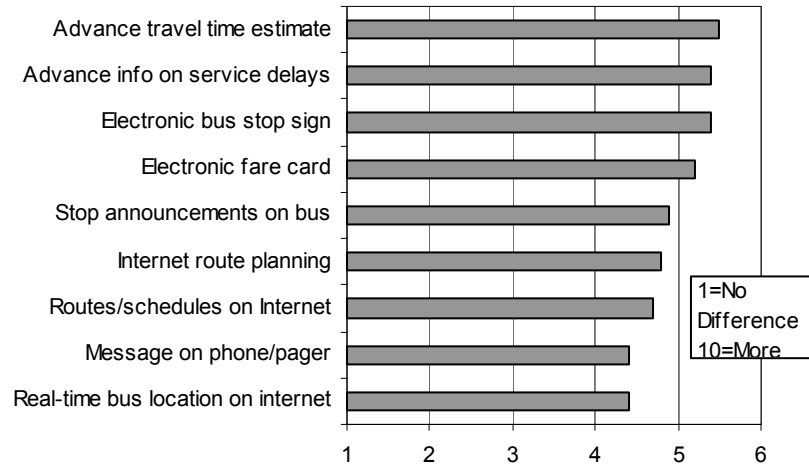


Figure 7-1 Average Ratings of ITS Concept

To facilitate further analysis, ratings of 8-10 were considered “more likely,” ratings of 1-3 were considered “no difference,” and ratings of 4-7 were “somewhat likely.” Table 7-1 summarizes these ratings. Overall, proportion of respondents who said that ITS strategies would make them more likely to ride the bus ranged from 28% to 42%. Surveyed individuals responded most favorably to improvements that could help them predict the timing of their trip. These included advance estimates of travel time (42% more likely), advance information on travel delays (42%), and “next bus” signs (41%). They also showed interest in electronic fare cards (39%). Respondents showed less interest in in-vehicle improvements or Internet-based services. Only 28% said that a message on their cell phone or pager when the bus was near would make them more likely to ride, and just 30% considered real-time bus location on the Internet an inducement.

ITS Concept	Propensity To Ride	Lassen		Eagle		Watauga		Rutland		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %	Count	Col %
Next bus info at stop	More Likely	98	40%	114	47%	97	39%	87	36%	396	40%
	Somewhat Likely	41	17%	46	19%	59	24%	45	18%	191	20%
	No Difference	104	43%	84	34%	90	37%	113	46%	391	40%
	<i>Total</i>	243	100%	244	100%	246	100%	245	100%	978	100%
Internet map with actual location	More Likely	72	30%	75	31%	73	30%	65	27%	285	30%
	Somewhat Likely	46	19%	50	20%	56	23%	33	14%	185	19%
	No Difference	120	50%	120	49%	113	47%	139	59%	493	51%
	<i>Total</i>	238	100%	245	100%	242	100%	237	100%	963	100%
Electronic message when bus is near	More Likely	68	28%	68	28%	73	30%	68	28%	277	28%
	Somewhat Likely	41	17%	50	20%	56	23%	48	20%	196	20%
	No Difference	133	55%	127	52%	116	47%	126	52%	501	51%
	<i>Total</i>	242	100%	245	100%	245	100%	242	100%	974	100%
In-vehicle next stop announcement	More Likely	84	35%	88	36%	94	39%	77	32%	344	36%
	Somewhat Likely	43	18%	45	18%	37	15%	48	20%	173	18%
	No Difference	112	47%	114	46%	112	46%	113	47%	451	47%
	<i>Total</i>	239	100%	247	100%	243	100%	238	100%	968	100%
Internet bus trip planning	More Likely	75	31%	96	40%	85	35%	78	33%	334	35%
	Somewhat Likely	44	18%	40	17%	52	22%	36	15%	173	18%
	No Difference	122	51%	105	44%	103	43%	124	52%	455	47%
	<i>Total</i>	241	100%	241	100%	240	100%	238	100%	962	100%
Bus routes and schedules on Internet	More Likely	90	37%	83	34%	69	28%	85	36%	326	34%
	Somewhat Likely	30	12%	37	15%	58	24%	32	14%	157	16%
	No Difference	124	51%	124	51%	116	48%	119	50%	483	50%
	<i>Total</i>	244	100%	244	100%	243	100%	236	100%	966	100%
Advance info on service delays	More Likely	104	43%	100	40%	103	42%	98	41%	405	41%
	Somewhat Likely	39	16%	54	22%	43	18%	37	15%	174	18%
	No Difference	100	41%	93	38%	99	40%	104	44%	397	41%
	<i>Total</i>	243	100%	247	100%	245	100%	239	100%	976	100%
Advance estimate of travel time	More Likely	105	44%	102	42%	106	43%	95	39%	409	42%
	Somewhat Likely	41	17%	50	20%	45	18%	50	21%	186	19%
	No Difference	95	39%	93	38%	95	39%	96	40%	379	39%
	<i>Total</i>	241	100%	245	100%	246	100%	241	100%	974	100%
Electronic fare card	More Likely	96	40%	120	49%	81	33%	84	34%	381	39%
	Somewhat Likely	43	18%	40	16%	46	19%	44	18%	173	18%
	No Difference	103	43%	85	35%	117	48%	116	48%	421	43%
	<i>Total</i>	242	100%	245	100%	244	100%	244	100%	975	100%

Table 7-1 ITS Concepts by Market Segment

Perhaps more telling, the percentage saying that ITS strategies would make no difference in their decision to use transit ranged from 39% to 51%. As Figure 7-2 shows, those for whom the strategies would make no difference substantially outnumbered those who might ride for five strategies:

- En-route stop announcements (47% no difference versus 36% more likely)
- Internet trip planning (47% versus 35%)
- Routes and schedules on the Internet (50% versus 34%)
- Real-time bus location on the Internet (51% versus 30%)
- Pager or cell phone alert when the bus is near (52% versus 28%)

As indicated above, differences were observed between market segments. In general, respondents in Eagle County showed the most interest in ITS strategies. Some 49% said that an electronic fare card would make them more likely to ride the bus, and only 35% said it would make no difference. Similarly, 47% said that electronic “next bus” signs would improve their likelihood of riding, compared to only 34% who were indifferent. In contrast, those in Rutland County showed the least interest in ITS improvements. Only 41% said that advance information on service delays would encourage them to take the bus – the highest rated strategy – and 44% were indifferent. In fact, Rutland County was the only market segment where indifference outweighed support for every strategy tested.

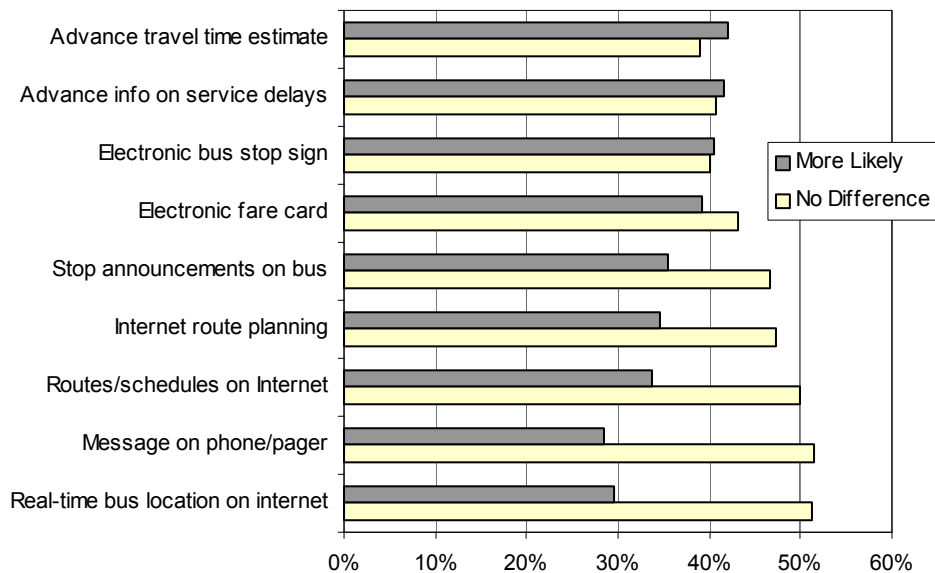


Figure 7-2 Propensity To Use Transit by ITS Concept

Potential and unlikely riders responded differently to ITS concepts. Not surprisingly, as Table 7-2 indicates, potential riders were more likely than unlikely riders to show interest in the alternatives. Of particular note was advance information on service delays, where 46% of potential riders supported the concept compared to 34% of unlikely riders. Similarly, 45% of potential riders showed interest in having advance estimates of travel time, compared to 36% of unlikely riders. But even among potential riders, where support for ITS improvements could be expected to be strongest, the interest was only modest. As indicated above, in no case did even half of the potential riders say the proposed ITS improvement would make them more likely to ride the bus, and in several cases a majority of riders said a particular improvement would make no difference to them. Specifically, 54% of potential riders said that a message on their pager or cell phone when the bus was near would not affect their decision to ride the bus and 53% were indifferent to real-time bus location information on the Internet.

ITS Concept	Propensity To Ride	Potential Rider		Neutral Rider		Unlikely Rider		Total	
		Count	Col %	Count	Col %	Count	Col %	Count	Col %
Next bus info at stop	More Likely	116	41%	131	46%	120	35%	367	40%
	Somewhat Likely	52	18%	71	25%	60	18%	183	20%
	No Difference	116	41%	84	29%	162	47%	362	40%
	<i>Total</i>	284	100%	286	100%	342	100%	912	100%
Internet map with actual location	More Likely	88	31%	96	34%	82	24%	266	29%
	Somewhat Likely	45	16%	74	26%	65	19%	184	20%
	No Difference	147	53%	114	40%	192	57%	453	50%
	<i>Total</i>	280	100%	284	100%	339	100%	903	100%
Electronic message when bus is near	More Likely	77	27%	102	36%	84	25%	263	29%
	Somewhat Likely	52	18%	65	23%	71	21%	188	21%
	No Difference	154	54%	118	41%	185	54%	457	50%
	<i>Total</i>	283	100%	285	100%	340	100%	908	100%
In-vehicle next stop announcement	More Likely	102	36%	110	38%	107	32%	319	35%
	Somewhat Likely	47	17%	67	23%	51	15%	165	18%
	No Difference	132	47%	109	38%	180	53%	421	47%
	<i>Total</i>	281	100%	286	100%	338	100%	905	100%
Internet bus trip planning	More Likely	103	37%	108	38%	98	29%	309	34%
	Somewhat Likely	43	15%	75	27%	52	15%	170	19%
	No Difference	132	47%	100	35%	188	56%	420	47%
	<i>Total</i>	278	100%	283	100%	338	100%	899	100%
Bus routes and schedules on Internet	More Likely	111	39%	114	40%	77	23%	302	33%
	Somewhat Likely	40	14%	56	20%	59	17%	155	17%
	No Difference	132	47%	114	40%	202	60%	448	50%
	<i>Total</i>	283	100%	284	100%	338	100%	905	100%
Advance info on service delays	More Likely	128	46%	131	45%	117	34%	376	41%
	Somewhat Likely	45	16%	67	23%	57	17%	169	19%
	No Difference	107	38%	91	31%	168	49%	366	40%
	<i>Total</i>	280	100%	289	100%	342	100%	911	100%
Advance estimate of travel time	More Likely	129	45%	132	46%	122	36%	383	42%
	Somewhat Likely	48	17%	63	22%	67	20%	178	20%
	No Difference	107	38%	90	32%	149	44%	346	38%
	<i>Total</i>	284	100%	285	100%	338	100%	907	100%
Electronic fare card	More Likely	120	42%	121	42%	112	33%	353	39%
	Somewhat Likely	52	18%	72	25%	45	13%	169	19%
	No Difference	112	39%	93	33%	183	54%	388	43%
	<i>Total</i>	284	100%	286	100%	340	100%	910	100%

Table 7-2 ITS Concepts by Propensity to Ride

Table 7-3 compares information seekers and their information-neutral counterparts to determine the influence of a propensity for using travel information. As observed with potential users, above, the information seekers were more likely to show interest in ITS strategies than information-neutral respondents. At least 40% of information-seekers said the following strategies would make them more likely to ride the bus:

- Advance estimate of travel time (46%)
- Electronic fare card (45%)
- Next-bus sign (44%)
- Advance information on service delays (43%)
- Internet-based route planning (40%)

Although various subgroups within the overall survey population evaluated the proposed ITS strategies differently, there was some consistency in the overall ratings. Generally, support was limited, and in no cases did a majority of respondents indicate that a proposal would make them more likely to ride the bus. Within that context, the ITS strategies that generally received some support were those that offered predictability and convenience. Specifically, respondents showed the most interest in receiving advance estimates of travel time and service delays, in obtaining real-time arrival information at bus stops, and in using electronic fare cards. Participants were consistently indifferent to two strategies: obtaining real-time bus location information on the Internet and receiving a message via pager or cell phone when the bus was near.

ITS Concept	Propensity To Ride	Information Seeker		Information Neutral		Total	
		Count	Col %	Count	Col %	Count	Col %
Next bus info at stop	More Likely	164	44%	232	38%	396	40%
	Somewhat Likely	81	22%	110	18%	191	20%
	No Difference	128	34%	261	43%	391	40%
	<i>Total</i>	373	100%	603	100%	978	100%
Internet map with actual location	More Likely	117	32%	167	28%	285	30%
	Somewhat Likely	80	22%	105	18%	185	19%
	No Difference	171	46%	321	54%	493	51%
	<i>Total</i>	368	100%	593	100%	963	100%
Electronic message when bus is near	More Likely	108	29%	169	28%	277	28%
	Somewhat Likely	78	21%	118	20%	196	20%
	No Difference	186	50%	315	52%	501	51%
	<i>Total</i>	372	100%	602	100%	974	100%
In-vehicle next stop announcement	More Likely	137	37%	207	35%	344	36%
	Somewhat Likely	68	18%	105	18%	173	18%
	No Difference	163	44%	287	48%	451	47%
	<i>Total</i>	368	100%	599	100%	968	100%
Internet bus trip planning	More Likely	148	40%	185	31%	334	35%
	Somewhat Likely	69	19%	104	18%	173	18%
	No Difference	153	41%	301	51%	455	47%
	<i>Total</i>	370	100%	590	100%	962	100%
Bus routes and schedules on Internet	More Likely	133	36%	193	33%	326	34%
	Somewhat Likely	68	18%	89	15%	157	16%
	No Difference	172	46%	310	52%	483	50%
	<i>Total</i>	373	100%	592	100%	966	100%
Advance info on service delays	More Likely	161	43%	244	41%	405	41%
	Somewhat Likely	73	20%	101	17%	174	18%
	No Difference	139	37%	257	43%	397	41%
	<i>Total</i>	373	100%	602	100%	976	100%
Advance estimate of travel time	More Likely	171	46%	238	40%	409	42%
	Somewhat Likely	76	20%	110	18%	186	19%
	No Difference	125	34%	253	42%	379	39%
	<i>Total</i>	372	100%	601	100%	974	100%
Electronic fare card	More Likely	167	45%	214	36%	381	39%
	Somewhat Likely	71	19%	102	17%	173	18%
	No Difference	133	36%	285	47%	421	43%
	<i>Total</i>	371	100%	601	100%	975	100%

Table 7-3 ITS Concepts by Information-Seeking Behavior

7.2 Perceived Benefits of ITS Strategies

Support for specific ITS strategies was compared with attitudes toward transit to determine whether respondents perceived the benefits of technology-based solutions. As a general rule, the correlation was not strong. As Table 7-4 shows, there was very little connection between respondent transit concerns and desired ITS strategies. In almost every subgroup respondents showed the highest level of agreement with four statements about transit:

- “I don’t know the bus schedule or routes.”
- “The bus stop is too far away from my house.”
- “The bus doesn’t go where I need to go.”
- “The bus isn’t available when I need it.”

Three of these top four responses reflect concerns about service availability and design rather than passenger information. While improving transit service coverage in rural areas may well attract new riders, agencies can implement such changes without introducing ITS strategies. And while technology can address the one major concern about passenger information – not knowing the routes or schedules – respondents did not appear to make the connection. Instead, they focused on improving the predictability of transit travel. At least one third of respondents in all the major sub-markets – potential riders, information seekers, and the four counties – said the following strategies would make them more likely to consider using the bus:

- Advance information on service delays
- Advance estimates of travel time
- Electronic signs at bus stops telling riders when the next bus would arrive

Electronic fare cards were also highly rated in several sub-markets. While these strategies can improve the quality and predictability of a bus trip, only the next-bus signs had a connection with the concerns raised about bus schedules. Other more direct connections, such as Internet-based schedules or trip planning, were highly rated in only a few sub-markets.

Because the survey was not designed to educate respondents about the features of these ITS strategies, it is possible that respondents did not understand how specific technology approaches could relate to identified transit concerns. These findings suggest that, at a minimum, future research should include an educational component to ensure that participants are fully informed about the characteristics of different ITS strategies.

Sub-Market	Transit Concerns	Strongly Agree	ITS Strategies	More Likely to Use Transit
Potential Riders	Bus stop is too far away	43%	Advance info on service delays	46%
	Don't know schedule or routes	42%	Advance estimate of travel time	45%
	Don't know where to catch bus	35%	Electronic fare card	42%
	Doesn't go where I need to go	34%	Next-bus info	41%
	Not available when I need it	33%		
Lassen County	Don't know schedule or routes	50%	Advance estimate of travel time	44%
	Bus stop is too far away	47%	Advance info on service delays	43%
	Not available when I need it	44%	Next-bus info	40%
	Doesn't go where I need to go	42%	Electronic fare card	40%
Eagle County	Don't know schedule or routes	42%	Electronic fare card	49%
	Doesn't go where I need to go	42%	Next-bus info	47%
	Not available when I need it	38%	Advance estimate of travel time	42%
	Bus stop is too far away	35%	Advance info on service delays	40%
			Internet trip planning	40%
Watauga County	Bus stop is too far away	62%	Advance estimate of travel time	43%
	Doesn't go where I need to go	43%	Advance info on service delays	42%
	Don't know schedule or routes	42%	Next-bus info	39%
	Not available when I need it	39%	In-vehicle next stop announcement	39%
Rutland County	Don't know schedule or routes	47%	Advance info on service delays	41%
	Bus stop is too far away	39%	Advance estimate of travel time	39%
	Doesn't go where I need to go	34%	Next-bus info	36%
	Not available when I need it	31%	Routes and schedules on Internet	36%
Info Seekers	Bus stop is too far away	44%	Advance estimate of travel time	46%
	Don't know schedule or routes	43%	Electronic fare card	45%
	Doesn't go where I need to go	39%	Next-bus info	44%
	Not available when I need it	37%	Advance info on service delays	43%

Table 7-4 Perceived Benefits of ITS Concepts

8.0 Findings

The telephone survey of non-riders was designed to identify opportunities for using ITS strategies to encourage transit use. While the survey documented some interest in such strategies, overall findings did not conclusively indicate a strong link between implementing ITS strategies and increased potential to use transit. Major themes and overall lessons are presented below.

8.1 Major Themes

Taken together, the findings from the survey create a profile of individuals who are reluctant to use transit under most circumstances. While respondents displayed modest interest in several of the proposed ITS improvements, it was clear that the proposed strategies did not address the major concerns about transit – which focused on service availability – and that the opportunities to encourage residents to choose transit were limited.

8.1.1 Most respondents chose to drive alone

By definition, survey respondents did not use local transit, and the survey confirmed that these individuals relied on their vehicles. More than half of the respondents surveyed had one vehicle per licensed driver in the household, and about one third had more than one vehicle per driver. Driving alone was the mode that most preferred, and only a handful used any alternative to driving – including walking, bicycle, motorcycle, or taxi. There was some evidence of ridesharing – just under one third drove with someone else as passenger or driver – but the preferred mode among survey participants was stated clearly and consistently across market segments.

8.1.2 Unlikely users outnumbered potential users

Survey participants did not express strong interest in using transit. Overall, only about one in three respondents showed some interest in transit, and more expressed strong negative attitudes. Even those who showed some support for transit showed a tendency to focus on transit's environmental benefits and its role as a safety net. Those expressing negative comments about transit seemed to focus on their personal choices, stressing the availability of an automobile and the perceived inconvenience of transit.

8.1.3 Many non-riders had limited experience with transit

By definition, the surveyed respondents had not used the local bus within the past 30 days. However, three in four of those surveyed had never used local public transit, including some who did not even know that bus service was available in their study area. Perhaps an even more significant finding was the similarity between potential and unlikely riders. A sizable majority of each subgroup had never used the local bus. This limited experience with local transit suggests that encouraging individuals to consider the bus – even those showing some propensity to support transit – would be a difficult challenge.

8.1.4 Respondents were concerned about availability of service and schedules

Asked to respond to a series of statements about local bus transportation, participants were most concerned about the availability of service and schedule information. Specifically, they were not familiar with routes and schedules, the bus stop was too far away, and the bus did not run where or when they needed to travel. They were less likely to indicate dissatisfaction with specific aspects of bus service – such as reliability or travel time – although it could not be determined whether this reflects lack of concern or lack of experience. Whereas almost half of respondents were not familiar with the local bus routes, few found the bus schedules confusing or thought it was too difficult to get information about how to use the bus. This pattern was fairly consistent across market segments and between potential and unlikely riders. These findings suggest that respondents were not familiar with the bus schedule because they did not need to be. When asked how they would obtain transit information, participants cited a number of traditional sources of information: bus stop/station, call transit agency, get schedules at public buildings, check the newspaper, or use the telephone. While ITS strategies can improve the quality and availability of transit information, the impact of such programs on increasing transit use may be limited given the expressed concerns about service availability.

8.1.5 Participants made limited use of general travel information

Respondents were asked to rate the value of different types of travel reports that provided information about driving and road conditions. The majority of respondents considered information about unexpected events extremely helpful, including weather-related road conditions, accidents and other unexpected road situations, and roadway construction delays and detours. Despite these high ratings, less than half of respondents made use of such information in the past 30 days. A comparison was made between those who reported recent use of travel reports and those who did not. In general, those who used travel information were more likely to be employed full-time, with higher household income, and a higher educational attainment than those who did not. Moreover, those using travel information also reported higher use of personal technology, including computers, Internet research, e-mail, and cell phones. While individuals who actively seek travel information may be a likely target market for transit-related ITS improvements, there did not seem to be a correlation between propensity to use transit and experience with traveler information.

8.1.6 Most respondents had access to basic communication technology

Most survey respondents had access to basic communication and entertainment technology, including satellite or cable television, personal computer, Internet access, e-mail, and a mobile telephone. At the other end of the spectrum, only a small percentage of respondents had a pager or PDA. Residents of Eagle County had the highest reported access to technology, consistent with the high median income observed in this county.

8.1.7 Respondents showed only modest interest in ITS strategies

Respondents were asked whether the availability of specific ITS strategies would increase their likelihood of riding the bus. Participants responded most favorably to strategies that could help them predict the timing of their transit trip. These included advance estimates of travel time, advance information on travel delays, and “next bus” signs. This is consistent with responses to traveler information, where individuals showed the most interest in receiving notice of accidents,

detours, and weather-related traffic delays. Participants showed much less interest in en-route or Internet-based services, and only one in four said that a message on their cell phone or pager when the bus was near would make them more likely to ride. Overall, participants did not seem to make a strong connection between their concerns about transit services and potential technology-based solutions.

Some differences were observed between market segments. Residents of Eagle County were more likely than their counterparts elsewhere to support ITS concepts, and potential riders generally showed more interest in alternatives than unlikely riders. Those who used travel information recently expressed interest in Internet-based trip planning and electronic fare cards than their information-neutral counterparts. However, almost universally, the majority indicated that the ITS proposals would not make a difference to them, and there was no clear correlation between identified transit concerns and support for technology solutions. As a consequence, it was not clear what impact ITS strategies would have on attracting new riders to transit in rural areas.

8.2 Lessons Learned

The survey strongly suggested that rural residents who do not ride transit are not likely to switch modes. Auto use among these individuals, not surprisingly, is quite high and interest in transit is fairly low. Moreover, many of the barriers to using transit were service-related – routes did not run when and where people traveled – and did not lend themselves easily to ITS improvements. Continued investments in ITS technology may best be suited to strategies to improve operations, particularly opportunities for improving service coordination for transit-dependent individuals.

Respondents seemed interested in ITS improvements in two areas: predictability and convenience. Respondents showed the most interest in ITS strategies that could help them predict their travel experience: estimates of travel time, information on delays, and real-time bus arrival times. There was also some interest in electronic fare cards, which could make transit more convenient even for occasional travelers. This interest in predictability was consistent with the experience respondents cited with general travel information. Here they appreciated advance notification of unusual conditions, including delays related to weather, accidents, or construction. It should also be noted that respondents did not show a clear understanding of the benefits of different ITS strategies, and any subsequent research efforts could benefit from educating participants about different types of travel-related technology.

Within the overall survey population of non-riders, several subsets showed higher interest in ITS improvements. First, the group identified as potential riders showed more interest in transit and ITS strategies than those considered unlikely riders. Potential riders could be found in every market segment, suggesting that some potential exists to increase transit ridership in all markets.

However, Eagle County had the highest proportion of potential riders, and this area seemed to be the market with the greatest likelihood of supporting transit in general and new ITS strategies in particular. Respondents had recent familiarity with local transit, they were comfortable with personal technology, and they often showed comparatively high interest in proposed ITS strategies. This, in turn, suggests that high-growth self-contained areas like Eagle County may provide the best opportunity for introducing new ITS technologies, especially those focusing on improving the predictability and convenience of transit services.

Appendix:

Survey Methodology

I. Survey Methodology

Who:

Eligible respondents were:

- 16 years of age or older.
- Males and females.
- Had not used local bus in the thirty days prior to interview
- Traveled in local area using some vehicle [car/light truck/van/SUV/motorcycle/bicycle] in the seven days prior to interview.

[See section III for Incidence of Eligibility]

How:

Respondents were interviewed by telephone at their homes by **SRBI** [Schulman, Ronca & Bucuvalas, Inc.] from their data collection facility located in New Jersey, using CATI [Computer Assisted Telephone Interviewing] technology.

Where:

Four discrete rural areas were selected by Multisystems representing four unique rural transit segments:

	County	State	Rural Transit Segment
1	Lassen County*	CA	Large, sparsely populated rural areas
2	Eagle County*	CO	High growth, self-contained local communities
3	Watauga County*	NC	Small, poor, growing communities
4	Rutland County*	VT	Slow or no growth, self-contained communities

* The sampling frames for Lassen, Eagle and Rutland Counties were defined by specific Zip Codes within these counties. The sampling frame for Wautaga County was the entire county. See Section II for specific Zip Codes and more detailed explanation of Zip Code selection procedure used in Lassen, Eagle and Rutland Counties.

When:

Interviews were conducted as follows:

- Pretest (N=9): 11/09/01
- Main (N=1000; 225 per market): 12/05/01 through 12/20/01
Note: Based on a pretest of 9 completed interviews, the survey instrument was cut from 30.3 minutes [average pretest length] to 15.9 minutes [the average length of the final completed interview.]

I. Survey Methodology (Continued)

Weighting:

Survey statistics for gender, age and income, which were obtained for all contacts*, were weighted to match census parameters.

See Section IV for detailed weighting scheme, including sources of census parameters.

Note: Contacts are defined as all respondents who answered all screening questions needed to determine eligibility. All contacts are 16 years of age or older and include both past 30 days users and non-users of local public transit.

II. Sample

A Method Used To Determine Geographic Areas Included In Sampling Frame

- SRBI obtained route maps/descriptions from the Websites of the following four rural transit operators:
 - Lassen Rural Bus, CA
 - <http://www.lrbs.com/index.htm>
 - Marble Valley Regional Transit ("The Bus"), VT:
 - <http://www.thebus.com/index.html>
 - ECO Transit (Eagle County Regional Transportation Authority), CO:
 - http://www.eagle-county.com/ECO_Transit.htm
 - AppalCART, NC:
 - <http://www.appalcart.appstate.edu/>
- From these maps the towns/areas served by these systems were determined and their zip codes identified using the US Postal Service Website at www.usps.gov.
- The list of zip codes developed in the step above was examined for logical gaps in their sequence. The missing zip codes were researched and then included or excluded based on their actual location in the area.
- These Zip codes were reverse plotted over a map of the local transit routes and final adjustments were made by Multisystems.
- The final Zip codes selected are shown on the next page.

B Zip Codes/County Selected For Sampling Frame

Lassen County, CA:		
CA	DOYLE	96109
CA	HERLONG	96113
CA	JANESVILLE	96114
CA	MILFORD	96121
CA	STANDISH	96128
CA	JOHNSTONVILLE/SUSANVILLE	96130
CA	JOHNSTONVILLE/SUSANVILLE	96127
CA	CLEAR CREEK/WESTWOOD/LAKE ALAMANOR	96137
Eagle County, CA:		
CO	LEADVILLE	80429
CO	LEADVILLE	80461
CO	AVON/BEAVER CREEK	81620
CO	EAGLE	81631
CO	EDWARDS	81632
CO	GYP SUM/DOT SERO	81637
CO	MINTURN/GILMAN	81645
CO	REDCLIFF	81649
CO	WOLCOTT	81655
CO	VAIL	81657
CO	VAIL	81658
Rutland County, VT:		
VT	SHERBURNE	05482
VT	RUTLAND/MENDON	05701
VT	RUTLAND/MENDON	05702
VT	FAIR HAVEN*	05731
VT	FAIR HAVEN*	05743
VT	CASTLETON*	05735
VT	CENTER RUTLAND	05736
VT	KILLINGTON	05751
VT	NORTH CLARENDON*	05759
VT	PROCTOR	05765
VT	WALLINGFORD*	05773
VT	WEST RUTLAND	05777
Watauga County, NC:		
Entire County selected		

C Generation of Random Digit Sample

To develop the random sample of phone numbers, SRBI starts with a computer bank comprising over 67 million directory listed households nationally. Using area code and exchange data regularly obtained from the telephone company and a proprietary database, this file of listed telephone numbers is subjected to an extensive cleaning and validation process to ensure that all exchanges are currently valid, assigned to the correct area code, and fall within an appropriate set of ZIP Codes.

Telephone exchanges and working blocks which contain three or more listed residential telephone numbers are considered valid and represented on the SRBI database. A block is the set of 100 contiguous numbers identified by the first two digits of the suffix in a telephone number.

Example: (215) 533–9030 area code exchange block

Exchanges are assigned to a single county on the basis of listed residential telephone households. Nationally, about 70% of all exchanges appear to fall totally within single county boundaries. For those overlapping county lines, the exchanges are assigned to the county of plurality, or the county with the highest number of listed residents within the exchange. This assignment prevents any over representation of these exchanges. [See next section for selection of exchanges used for the three market segments that were defined by Zip codes, rather than county.]

After the geographic area has been defined, the sum of the estimated telephone households is calculated and divided by the desired sample size to produce a sampling interval.

Example:

$$\frac{\text{Total estimated telephone households}}{\text{Desired sample size}} = \frac{750,000}{750} = 1,000 \text{ Sampling Interval}$$

For each county, the required quota of unique telephone numbers is selected by systematically sampling from among all working blocks of numbers in all telephone exchanges assigned to that county. The database of numbers is sorted by county of assignment, area code, exchange, and working block.

A sampling interval is calculated by dividing the number of possible random phone numbers for the county (total number of working blocks times 100) by the quota allocated to that county. Each exchange will have a probability of selection equal to its share of active blocks.

Using a random start within the first interval for each county, exchanges and working blocks are systematically selected. Within each selected block, the final two digits of the phone number are randomly chosen from the range 00-99. Before this phone number is selected for the sample, its eligibility is verified. If the number is found to be ineligible, subsequent numbers are sequentially checked and the first eligible number encountered is selected for the sample.

To determine if a number is eligible for selection, it is also passed against a database of 11.8 million businesses. If the number is a known business listing, it is considered ineligible for selection and replaced as described above. This process significantly reduces the proportion of unproductive numbers in the sample.

The final RDD sample of telephone numbers is then pre-dialed by a computer screening program to determine which are currently working residential household telephone numbers. The computer recognizes intercept tones denoting non-working and not-in-service numbers and deletes them from the sample. The systematic dialing of those numbers to obtain a residential contact yields an unbiased sample of telephone households within the specified geographic area.

D Zip/Exchange Analysis

Three markets in this study called for a random digit sample within areas smaller than a county – these markets were defined by ZIP codes. The following describes the issues involved and methods used to select the specific telephone exchanges that were used to generate random digit samples for these areas.

ZIP code and telephone exchange boundaries rarely coincide. A ZIP code may appear as a kaleidoscope of exchanges. For example, when a cluster of several ZIP codes is overlaid with the area's telephone exchanges, only a few exchanges may fall 100% inside the ZIP set. All others may fall partially in and partially out of the ZIP set boundary, and several of the exchanges may fall mostly into surrounding ZIP codes which are not part of the study area.

To see this relationship for the Zip codes selected in this study, SRBI utilized a Zip/Exchange Analysis which examines all exchanges falling anywhere within the set of ZIP codes specified. The analysis looks at every exchange and rank-orders them starting with those that fall 100% within the ZIP set, down to and including those which appear less than 5%. The analysis also includes:

- the cumulative number of exchanges at each percent of exchange in the ZIP set value,
- the cumulative listed phones at each percent of exchange in the ZIP set value,
- the area coverage expected when sampling from the cumulative number of exchanges,
- the hit rate/geographic incidence (chance of being in the ZIP set) achieved by sampling from the cumulative number of exchanges.

The more exchanges included in the sample, the better the area coverage. The more exchanges included that are only marginally within the ZIP set, the lower the hit rate. The Zip Exchange Analysis includes a program that calculates the optimum balance between area coverage, hit rate and inclusion of all specified ZIP codes. The final selection of exchanges included in the sample maximizes coverage of the geographic area by including sufficient exchanges, while, at the same time, maintaining a high hit rate of households actually located in the specified area. These selected exchanges were then used to produce random digit samples as described in the previous section.,

III. Incidence of Eligibility

	Incidence of Eligibility							
	Lassen		Eagle		Watauga		Rutland	
	County, CA		County, CO		County, NC		County, VT	
Total Contacts	332	100%	440	100%	362	100%	353	100%
Eligible	290	87%	280	64%	302	83%	293	83%
Complete	250	75%	250	57%	251	69%	250	71%
Break-off	40	12%	30	7%	51	14%	43	12%
Ineligible	42	13%	160	36%	60	17%	60	17%
No one 16 or older in HH [S1]	4	1%	9	3%	4	1%	3	1%
Work for Transportation [S2]	5	2%	28	6%	5	1%	10	3%
Used bus past 30 days [S7]	18	5%	102	23%	27	7%	31	9%
No vehicle travel past 7 days [S8]	13	4%	19	4%	20	6%	13	4%
No trip purpose mentioned in Q1	2	1%	2	0%	4	1%	3	1%

IV. Detailed Weighting Scheme

Market 1: Lassen County, CA [Zip code sample]								
	Question in Survey	Census Universe			Survey Contacts		Weighting Target****	
Age*:	SD-7/D-7	#	%		#	%	#	%
16-17**	1	870	3.3%		9	3.2%	9	3.2%
18-24	2	3081	11.6%		23	8.2%	23	8.2%
25-34	3	5846	22.1%		39	13.8%	39	13.8%
35-44	4	6079	23.0%		53	18.8%	53	18.8%
45-54	5	4101	15.5%		66	23.4%	66	23.4%
55-64	6	2807	10.6%		40	14.2%	40	14.2%
65+	7	3680	13.9%		46	16.3%	46	16.3%
Ref	Not above				6	2.1%	6	2.1%
Total		26464	100.0%		282	100.0%	282	100.0%
Total answering					276			
Income*:								
	SD-8/D-8							
<\$10K	1 or 2	1278	12.2%		18	6.4%	28	9.9%
\$10 < \$15K	3	958	9.2%		16	5.7%	21	7.4%
\$15 < \$25K	4	1580	15.1%		19	6.7%	35	12.3%
\$25 < \$35K	5	1460	14.0%		32	11.3%	32	11.3%
\$35 < \$50K	6	1721	16.5%		46	16.3%	38	13.4%
\$50 < \$75K	7	1974	18.9%		49	17.4%	43	15.3%
\$75 < \$100K	8	867	8.3%		34	12.1%	19	6.7%
\$100 < \$150K	9	489	4.7%		11	3.9%	11	3.8%
\$150K +	10	119	1.1%		4	1.4%	3	0.9%
DK/Ref	not above				53	18.8%	53	18.8%
Total		10446	100.0%		282	100.0%	282	100.0%
Total answering					229			
				Adjusted Pop*****				
Gender***:	SD-1/D-1							
Male		17380	65.7%					
Prison pop*****		4293						
Adjusted male	1	13087		59.1%	112	39.7%	167	59.1%
Female	2	9073	34.3%	40.9%	170	60.3%	115	40.9%
Total		26453	100.0%		282	100.0%	282	100.0%
Adj. total		22160		100.0%				
Statistical Efficiency: 72.7%								
* Source: SSI ZIP level aggregate demographic report [projected from 1990 census]								
** By interpolation of 12-17: took 1/3								
*** Source: U.S. Census Bureau: Census 2000: entire county--age 18+								
**** Target keeps "no answer" at same percentage and repercentages those answering to match universe parameters.								
***** The High Desert State Prison is located in Lassen County [Susanville]. The prison population, which the U.S. Census includes in the county's population counts, was subtracted from the male population count, since persons in institutions were not represented in this survey.								

Market 2: Eagle County, CO Zip code Sample 							
	Question in Survey	Census Universe		Survey Contacts		Weighting Target****	
Age*:	SD-7/D-7	#	%	#	%	#	%
16-17**	1	805	2.9%	11	2.9%	11	2.9%
18-24	2	3262	11.9%	51	13.7%	44	11.9%
25-34	3	7856	28.5%	81	21.7%	106	28.5%
35-44	4	8055	29.3%	83	22.3%	109	29.3%
45-54	5	4129	15.0%	74	19.8%	56	15.0%
55-64	6	1837	6.7%	41	11.0%	25	6.7%
65+	7	1575	5.7%	32	8.6%	21	5.7%
Ref	Not above			0	0.0%	0	0.0%
Total		27519	100.0%	373	100.0%	373	100.0%
Total answering				373			
Income*:	SD-8/D-8						
<\$10K	1 or 2	677	4.8%	19	5.1%	15	3.9%
\$10 < \$15K	3	479	3.4%	7	1.9%	10	2.8%
\$15 < \$25K	4	1231	8.7%	24	6.4%	27	7.2%
\$25 < \$35K	5	1504	10.6%	28	7.5%	33	8.8%
\$35 < \$50K	6	2104	14.9%	52	13.9%	46	12.3%
\$50 < \$75K	7	2843	20.1%	73	19.6%	62	16.6%
\$75 < \$100K	8	2165	15.3%	57	15.3%	47	12.6%
\$100 < \$150K	9	1767	12.5%	23	6.2%	38	10.3%
\$150K +	10	1357	9.6%	24	6.4%	29	7.9%
DK/Ref	not above			66	17.7%	66	17.7%
Total		14127	100.0%	373	100.0%	373	100.0%
Total answering				307			
Gender***:	SD-1/D-1						
Male	1	17751	55.7%	190	50.9%	208	55.7%
Female	2	14118	44.3%	183	49.1%	165	44.3%
Total		31869	100.0%	373	100.0%	373	100.0%
Statistical Efficiency: 85.4%							
* Source: SSI ZIP level aggregate demographic report [projected from 1990 census]							
** By interpolation of 12-17: took 1/3							
*** Source: U.S. Census Bureau: Census 2000: entire county--age 18+							
**** Target keeps "no answer" at same percentage and repercentages those answering to match universe parameters.							

Market 3: Watauga County, NC [County Sample]							
	Question in Survey	Census Universe		Survey Contacts		Weighting Target****	
Age*:	SD-7/D-7	#	%	#	%	#	%
16-17**	1	793	2.3%	5	1.7%	7	2.2%
18-24	2	11101	31.7%	72	23.9%	95	31.5%
25-34	3	4616	13.2%	30	10.0%	39	13.1%
35-44	4	5679	16.2%	43	14.3%	48	16.1%
45-54	5	5201	14.8%	53	17.6%	44	14.7%
55-64	6	3158	9.0%	35	11.6%	27	9.0%
65+	7	4482	12.8%	61	20.3%	38	12.7%
Ref	Not above			2	0.7%	2	0.7%
Total		35030	100.0%	301	100.0%	301	100.0%
Total answering				299			
Income*:	SD-8/D-8						
<\$10K	1 or 2	2441	16.0%	53	17.6%	40	13.3%
\$10 < \$15K	3	1581	10.3%	17	5.6%	26	8.6%
\$15 < \$25K	4	2330	15.2%	39	13.0%	38	12.6%
\$25 < \$35K	5	1912	12.5%	37	12.3%	31	10.4%
\$35 < \$50K	6	2142	14.0%	43	14.3%	35	11.6%
\$50 < \$75K	7	2110	13.8%	28	9.3%	34	11.5%
\$75 < \$100K	8	1183	7.7%	21	7.0%	19	6.4%
\$100 < \$150K	9	1039	6.8%	8	2.7%	17	5.6%
\$150K +	10	562	3.7%	4	1.3%	9	3.1%
DK/Ref	Not above			51	16.9%	51	16.9%
Total		15300	100.0%	301	100.0%	301	100.0%
Total answering				250			
							Not weighted to new target because sample is statistically equivalent to Universe
Gender***:	SD-1/D-1	#	%	#	%	#	%
Male	1	17689	49.5%	147	48.8%	147	48.8%
Female	2	18047	50.5%	154	51.2%	154	51.2%
Total		35736	100.0%	301	100.0%	301	100.0%
Statistical Efficiency: 80.3%							
* Source: SSI ZIP level aggregate demographic report [projected from 1990 census]							
** By interpolation of 12-17: took 1/3							
*** Source: U.S. Census Bureau: Census 2000: entire county--age 18+							
**** Target keeps "no answer" at same percentage and repercentages those answering to match universe parameters.							

Market 4: Rutland County, VT [Zip code Sample]							
	Question in Survey	Census Universe		Survey Contacts		Weighting Target****	
Age*:	SD-7/D-7	#	%	#	%	#	%
16-17**	1	1205	3.2%	9	3.0%	9	3.2%
18-24	2	4020	10.8%	27	9.1%	32	10.7%
25-34	3	6247	16.7%	40	13.5%	49	16.6%
35-44	4	8372	22.4%	69	23.2%	66	22.2%
45-54	5	6661	17.8%	43	14.5%	52	17.7%
55-64	6	4209	11.3%	46	15.5%	33	11.2%
65+	7	6644	17.8%	60	20.2%	52	17.6%
Ref	Not above			3	1.0%	3	1.0%
Total		37358	100.0%	297	100.0%	297	100.0%
Total answering				294			
Income*:	SD-8/D-8						
<\$10K	1 or 2	1447	7.7%	19	6.4%	17	5.8%
\$10 < \$15K	3	1435	7.6%	11	3.7%	17	5.8%
\$15 < \$25K	4	2251	11.9%	37	12.5%	27	9.1%
\$25 < \$35K	5	2390	12.6%	32	10.8%	29	9.7%
\$35 < \$50K	6	3105	16.4%	48	16.2%	37	12.5%
\$50 < \$75K	7	3788	20.0%	45	15.2%	45	15.3%
\$75 < \$100K	8	2220	11.7%	23	7.7%	27	9.0%
\$100 < \$150K	9	1613	8.5%	7	2.4%	19	6.5%
\$150K +	10	663	3.5%	5	1.7%	8	2.7%
DK/Ref	Not above			70	23.6%	70	23.6%
Total		18912	100.0%	297	100.0%	297	100.0%
Total answering				227			
Gender***:	SD-1/D-1						
Male	1	23323	47.9%	116	39.1%	142	47.9%
Female	2	25368	52.1%	181	60.9%	155	52.1%
Total		48691	100.0%	297	100.0%	297	100.0%
Statistical Efficiency: 84.6%							
* Source: SSI ZIP level aggregate demographic report [projected from 1990 census]							
** By interpolation of 12-17: took 1/3							
*** Source: U.S. Census Bureau: Census 2000: entire county--age 18+							
**** Target keeps "no answer" at same percentage and repercentages those answering to match universe parameters.							

V. Sampling Error

95% Level of Confidence 2-tailed test

	Total Sample N=1,000	Each Market N=250
Observed %:	+/-%	+/-%
10% or 90%	2.1	4.1
20% or 80%	2.8	5.5
30% or 70%	3.2	6.3
40% or 60%	3.4	6.7
50%	3.4	6.9

Example: For a finding of 20% in a given market [N=250], we can be assured at the 95% level of confidence that the true figure is no less than 14.5% and no more than 25.5% [that is, 20% plus or minus 5.5%]

Note: Sampling Error calculations take into account the effects of weighting on statistical efficiency.

VI. Standard SRBI Research Execution Processes

Interviewer Recruitment

The quality of the interviewing staff used on any survey is one of the most important factors affecting the validity, reliability and timeliness of the data collected. Hence, special care is taken in the identification and recruitment of the most appropriate interviewing staff for any particular study.

Once a pool of qualified and potentially available interviewers have been identified, SRBI discusses the terms and conditions of employment on this survey with them. These terms involve the number of cases involved, the interview length and procedures, the amount of travel required, the length of the field period, the quality standards expected, and the method and amount of payment. Those interviewers who meet our standards of performance and who are willing to conduct the interviews according to the specifications and terms of this project are recruited.

Training of In-person and CATI Interviewers

All interviewers who work for SRBI are thoroughly trained and closely supervised. New interviewers are recruited on the basis of their successful experience for other reputable survey research organizations. These new interviewers, however, receive special instruction and training in the methods and procedures which are expected at SRBI. A general manual on standard interviewing procedures is provided to all new interviewers so that they will understand the basic interviewing standards expected at SRBI. In addition, special manuals and training materials are developed for individual projects which require more extensive training or

somewhat different data collection procedures. After an initial training session, interviewers are constantly monitored by field supervisors in their application of correct interviewing techniques. Interviewers receive constant feedback from the Field Department on the quality of their work and areas of improvement.

Some in-person surveys require formal training sessions for the field staff prior to fielding the survey. SRBI frequently conducts training sessions for in-person surveys. These have ranged from one day (e.g., SUNY Taxpayer Study), to five days (e.g., Harlem AIDS Study), and in one memorable instance, ten days (National Survey of the Vietnam Generation). However, training sessions are usually required only if experienced interviewers are not being used on the study (e.g., phlebotomists for the Harlem study) or experienced interviewers are being trained for non-traditional tasks (e.g., DIS probe flow chart for the NSVG study or physical inspection/measurement for Niagara Mohawk). The training procedures described in the previous sections are perfectly adequate for a general cross-sectional attitude survey conducted by professional interviewers.

Coding

At SRBI particular care is devoted to the editing of any open-ended questions. After survey questionnaires have been thoroughly edited by SRBI, a listing of all open-ended responses is forwarded to undergo coding. Coding is the technical procedure by which raw data are assigned to categories. These categories are numbers which can be recorded in a computer data file, tabulated and counted through automatic data processing. The transformation of verbatim replies to numerical symbols is crucial for data analysis. At the same time, this task must be undertaken with great care. All later analysis will be conducted on the assumption of the validity of data categories. Hence, judgments made in the creation and assignment of codes can have profound impact upon the findings and their implications.

The SRBI coding staff is experienced in a broad range of standardized codes, but specialized training would be employed for specialized coding assignments. This training would take place after a Coding Supervisor has met with the analysis team and prepared a Coding Manual for the survey. It covers item-by-item coding instructions, general coding and editing specifications, and special instructions required. Each coder receives a Coding Manual and an item-by-item review is conducted during training. Coders typically make extensive notes in their Manuals and use them for reference during the actual coding process. Any additions to the Manual are made at the direction of the Coding Supervisor.

Once the coding scheme has been determined, coders will code each questionnaire for keypunching. This sometimes involves considerable judgment. The coder must decide which category (code) best captures the essence of the raw data (response). To summarize, our methods are based on the realization that it is the coder's judgment that is recorded in the final data set. Hence, every effort is made by SRBI to make certain that the coder's judgment is faithful to the respondent's original meaning and responsive to those who will be called upon to interpret those findings.

To this end, training sessions for coders ordinarily include the following steps:

- Discussion of the background and purpose of the survey. The project is summarized to make the coders aware of how the instrument and the coding process fit into the overall analytical scheme.
- Question-by-question discussion of the instrument. This emphasizes difficult questions and establishes the procedure for identifying problems and listing problem responses.
- Group coding of sample questionnaires and discussion of codes used. This instructional device quickly uncovers areas of misunderstanding. We have found that group training is not only efficient, but is the best way to ensure a high degree of intercoder reliability.
- Individual coding of questionnaires with immediate supervisory checking. Immediate feedback is decisive in learning.

As a preliminary step before coding begins, each of the coders will be given a random sample of some 10 to 15 complete transcripts to read completely in order to give a basic familiarity with the structure of the questionnaire and a sense of the flavor of these responses.

The element of coder judgment is most pronounced in the coding of open-ended questions. Even if codes are carefully constructed, these codes may still be ambiguously interpreted or inconsistently assigned to cases. Thus, extreme care is taken to standardize coding decision rules.

Extreme care is taken in the training and oversight of the coding staff. The coding supervisor reviews the performance of each coder on a daily basis. Any problems or questions identified by the coding supervisor are reported to the project director for decision.

Under these procedures, quality control is automatically intensified when errors or inconsistencies in coding decisions are found. For each specific item in error, the appropriate section of the Coding Manual is reviewed by the Coding Supervisor and the individual coder. In the rare case where a coder is removed from the project, his or her work would be recoded on a 100 percent basis.

With respect to on-line capabilities, the SRBI coding department is fully automated with networked PC's at each work station. Coding can be conducted either on-line or in the traditional method. In either case, the general principles described above are followed.

Data Tabulation

SRBI uses in-house analytic tables and banners using its in-house software. Banners are produced to client specifications, with full control over which variables are displayed and the sample categories considered missing data for each variable. The program also has the ability to produce accurate means, medians, standard deviations and errors, where appropriate. For all data sets, SRBI will provide data in SPSS format.

VII. Questionnaire

Schulman, Ronca & Bucuvalas Inc.
145 East 32nd Street
New York, NY 10016

#9479
December 2001

Market Code	County	State	Operator	Pre-test Quota	Main Quota
1	Lassen County	CA	Lassen Rural Bus	5	250
2	Eagle County	CO	ECO Transit	5	250
3	Watauga County	NC	AppalCART	5	250
4	Rutland County	VT	Marble Valley Regional Transit, known as "the Bus"	5	250

Rural ITS Non-User Telephone Survey: Screening Questionnaire

Intro. Hello. My name is _____ and I'm calling from SRBI, a national market research firm. We are conducting a survey of residents who are 16 years of age or older about your local area. This is an important survey that will influence transportation services in your area and your opinion is important.

S1. Are you at least 16 years of age?

- 1 Yes **(Continue)**
- 2 No **(Ask To Speak With Someone 16 Or Older And Repeat Intro. If Not Available, Make Callback Appointment)**
- 3 No one in HH is 16 or older **(Thank and Terminate)**
- 4 Refused **(Thank and Terminate)**

S2. **Speaking with Someone 16 or older:** First, do you or does anyone in your household work for a local public transportation agency or company?

- 1 Yes **(Thank and Terminate)**
- 2 No **(Continue)**
- 3 DK/Refused **(Thank and Terminate)**

S3. The following questions are to make sure we are speaking to a representative cross section of the population in your area. Including yourself, how many people living in your household are at least 16 years of age or older?

- 1 One (Respondent)
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight
- 9 Nine
- 10 Ten
- 11 Eleven
- 12 Twelve
- 13 Thirteen
- 14 Fourteen
- 15 Fifteen or more
- 99 Refused **(Thank and Terminate)**

- **If S3=1, Skip To S6.**
- **If S3=2-15, Ask S4.**

S4. Today we are interviewing people who are 16 or older about your local area. To ensure we make a random selection among the **(Insert Number From S3)** people who are 16 or older in your household, may I please speak to the one who had the most recent birthday?

- 1 Person speaking on phone is the qualified respondent [had most recent birthday] **(Skip To S6.)**
- 2 Switching to qualified respondent [had most recent birthday] **(Skip to S5a)**
- 3 Qualified respondent not available
 - **Obtain First Name/Initials and Make Callback Appointment.**
 - **Ask For Best Time To Reach This Person.**
 - **When Calling Back, Start Interview At S5-Callback.**
- 4 Refused **(Thank and Terminate)**

S5-CALLBACK Hello! May I speak with **(INSERT FIRST NAME/INITIALS)**? Recently we spoke with someone in your household and together we determined that you are the person in your household that we would like to interview. We are conducting a survey of residents who are 16 years of age or older about your local area. This is an important survey that will influence transportation services in your area and your opinion is important.

- 1 Speaking with respondent **(Skip to S5b)**
- 2 Switching to respondent **(Re-Read S5-CALLBACK)**
- 3 Not a good time
 - **Ask For Best Time To Reach This Person.**
 - **When Calling Back, Start Interview At S5-Callback.**
- 4 No such person **(Thank & Terminate)**
- 5 Not 16 or older **(Thank & Terminate)**
- 6 Refused **(Thank & Terminate)**

S5a. **(Switched to New Respondent. Reintroduction:)** Hello. My name is _____ and I'm calling from SRBI, a national market research firm. We are conducting a survey of residents who are 16 years of age or older about your local area. This is an important survey that will influence transportation services in your area and your opinion is important.

S5b. Are you at least 16 years of age or older?

- 1 Yes **(Continue)**
- 2 No **(Thank and Terminate)**
- 3 Refused **(Thank and Terminate)**

S6. As far as you know, is any local public transportation service, such as public buses or vans, available in your area? By local public transit, we do NOT mean national bus lines like Greyhound or Trailways.

- 1 Yes, public transportation available **(Ask S7)**
- 2 No **(Skip To S8)**
- 3 Don't Know **(Skip To S8)**
- 4 Refused **(Thank and Terminate)**

S7. Have you used a local public bus or van in the **past 30 days**?

- 1 Yes (**Skip to S-D1**)
- 2 No (**Ask S8**)
- 3 Don't Know (**Thank and Terminate**)
- 4 Refused (**Thank and Terminate**)

S8. In the **past seven days**, have you traveled in your local area using some kind of vehicle, including cars, light trucks, vans, SUV's, buses, motorcycles and bicycles.

- 1 Yes, traveled past 7 days in vehicle (**Go to Main Questionnaire**)
- 2 No (**Ask S-D1**)
- 3 Don't Know (**Thank & Terminate**)
- 4 Refused (**Thank & Terminate**)

SD-1. **If gender is not evident:** Are you ...

- 1 Male
- 2 Female

SD-7. Which of the following groups includes your age as of your last birthday? (**Read List.**)

- 1 16-17
- 2 18-24
- 3 25-34
- 4 35-44
- 5 45-54
- 6 55-64
- 7 65 and over
- 8 (**Do Not Read**) Refused

SD-8. And one last question. Which of the following groups includes the approximate total combined income of your household before taxes? (**Read List**)

- 1 Less than \$5,000
- 2 \$5,000 to less than \$10,000
- 3 \$10,000 to less than \$15,000
- 4 \$15,000 to less than \$25,000
- 5 \$25,000 to less than \$35,000
- 6 \$35,000 to less than \$50,000
- 7 \$50,000 to less than \$75,000
- 8 \$75,000 to less than \$100,000
- 9 \$100,000 to less than \$150,000
- 10 \$150,000 or more
- 11 (**Do Not Read**) DK/NS
- 12 (**Do Not Read**) Refused

Thank You Very Much For Your Time!

[This interview counts as a Non-Qualified Contact.]

Main Questionnaire

I. Travel Profile Past Seven Days

Ask Q1 And Q2 About One Purpose Before Going On To Next Purpose.

1. We'd like to get an idea about your travel in past seven days in your local area.

In the past seven days, have you taken a trip whose main purpose was for **(Insert Purpose)? If Needed, Say:** If you're having trouble picking one main purpose, just give me the first purpose that was accomplished on that trip.

If "Yes" In Q1, Ask Q2.

2. How many trips did you make in the past seven days for that purpose? **(INTERVIEWER: If Answer Is 6 Or More, Say: I need to record answers in terms of round trips. Did you mean round trips or one-way trips.) RECORD ROUND TRIPS)**

(Repeat For Remaining Purposes)

	Past 7 Days			Q2 # Trips
	Q1 Took Trip			
DO NOT Rotate.	Yes	No	DK/Ref	
1.1 Your commute to work	1	2	3	Q2.1 # _____
1.2 Your commute to school	1	2	3	Q2.2 # _____
1.3 Business reasons other than your commute to work	1	2	3	Q2.3 # _____
1.4 Visiting family or friends	1	2	3	Q2.4 # _____
1.5 Medical reasons such as a doctor's office, clinic or healthcare facility	1	2	3	Q2.5 # _____
1.6 Daycare or Child Care	1	2	3	Q2.6 # _____
1.7 Other Human Services such as nutrition facilities, senior centers	1	2	3	Q2.7 # _____
1.8 Personal or household errands like banking or shopping for food or other household or personal necessities	1	2	3	Q2.8 # _____
1.9 Recreation or entertainment such as movies, restaurants or sporting events	1	2	3	Q2.9 # _____
1.10 Any other purposes - other than the ones we just mentioned? (If Yes: Please Specify Up To Two Purposes:)	1	2	3	
1.10a First mention: _____				Q2.10a # _____
1.10b Second mention: _____				Q2.10b # _____

- If "Yes" Anywhere In Q1.1 - Q1.10, Continue.

- Otherwise, Ask Sd-1, Sd-7, Sd-8 And End Interview. Counts As Non-Qualified Contact.

PROFILE OF MOST FREQUENT TRIP

Selection Procedure For Q3 To Q6

- Ask About The ONE Trip Purpose With The Greatest Number Of Trips In Q2. Include Q2.10a/b In The Selection Procedure.
- If Two Or More Tied For Greatest # In Q.2, Pick ONE At Random.

CATI: Put out purpose selected in data file [codes 1-12]

3. For the next few questions please think about the **most recent** trip you took whose main purpose was for **(Insert Purpose)**. If it was a round trip, please focus on the **[Alternate Across Interviews But Keep The Same Choice Within An Interview: “first” or “return”]** portion of that trip.

In terms of hours and minutes, how long was the **[Insert “first” or return”]** portion of your most recent trip for **(Insert Purpose)**?

Hours: ___ [5= 5 or more] 98=D.K. 99=Refused

Minutes: __ __ [1-59]

- 4 At about what time of day did you start the **[Insert “first” or return”]** portion this trip? **(Read List If Necessary)**

- 1 6:00 AM to before 9:00 AM
- 2 9:00 AM to before 4:00 PM
- 3 4:00 PM to before 7:00 PM
- 4 7:00 PM to before Midnight
- 5 Midnight to before 6:00 AM
- 6 DK
- 7 Refused

5. And which one of the following best describes how you made the **[Insert “first” or “return”]** portion of that trip. Did you ... **(Read List)**

- 1 Drive alone
- 2 Drive with a passenger, or
- 3 Were you a passenger in a private auto, truck, or SUV
- 4 Or did you travel by taxi
- 5 Motorcycle
- 6 Bicycle
- 7 Or did you walk
- 8 Some other way **(Specify:_____)**
- 9 Don't recall
- 10 Refused

- 6a. You said the main purpose of that trip was for **(Insert Purpose)**. Did you stop for any **other** reasons during the **[Insert “first” or “return”]** portion of that trip?

- 1 Yes, stopped for other reason **(Ask 6b)**
- 2 No **(Skip To Instructions Before Q7)**
- 3 DK **(Skip To Instructions Before Q7)**
- 4 Refused **(Skip To Instructions Before Q7)**

6b For what other reason or reasons did you stop during that portion of the trip?

(Do Not Read List. Record All That Apply)

- 1 For business other than commute to work
- 2 Visit family/friends
- 3 For medical purposes
- 4 Daycare/Child Care
- 4 Other Human Services like nutrition facilities or senior centers
- 5 Personal/household errands – banking/food shopping
- 6 Recreation/entertainment – movies/restaurants/sporting events
- 7 Other (**Specify:** _____)
- 8 Don't Recall
- 9 Refused

II. USAGE OF PUBLIC TRANSIT

Read to all:

7-before The next several questions deal with public transportation. We are especially interested in the attitudes of people like yourself who do not use public transportation very often.

- **If Not Aware Of Public Transit [S6 = 2,3], Skip To Q9a**
- **Otherwise, Ask Q7.**

7. You mentioned earlier that you haven't used a local public bus or van in the past 30 days. Have you **ever** used public transportation in your local area?

- 1 Yes
- 2 No **(Skip To Q9a)**
- 3 Don't Know **(Skip To Q9a)**
- 4 Refused **(Skip To Q9a)**

8. When was the **last time** you used a local public bus or van in this area? Was it ... **(Read List)**

- 1 Within the past six months
- 2 Six months to less than a year ago
- 3 One year to less than five years ago
- 4 Five to less than ten years ago
- 5 Ten or more years ago
- 6 **(Do Not Read)** Don't Know
- 7 **(Do Not Read)** Refused

III Predisposition Toward Using Public Transit

9a. Please tell me how much you agree or disagree with the statement, "In general, I avoid using local public transportation if I can help it." Please use a scale from 10 to 1, where "10" means you "agree strongly" and "1" means you "disagree strongly". Remember you can use "10", "1," or any number in-between that best describes your feelings.

Now, what number between 10 and 1 best describes how much you agree or disagree?
[98=D.K.; 99= Ref]

If Q9a= DK/Ref, Skip to Q10

9b Why did you give that answer?

IV. BARRIERS TO USING PUBLIC TRANSIT

Ask All

10. I'm going to read some statements about public transportation. After I read each one, please tell me how much you agree or disagree with that statement. Please use a scale from 10 to 1, where "10" means you "agree strongly" and "1" means you "disagree strongly". **IF NECESSARY, READ:** If you're not familiar with the local bus, just answer in terms of what you think it might be like.

Let's start with **(Read First Statement)**. Using a scale from 10 to 1, where "10" means you "agree strongly" and "1" means you "disagree strongly," what number best describes how much you agree or disagree? **(Continue Until All statements Are Rated. Repeat Scale As Needed)**

	Agree Strongly										Disagree Strongly	Does Not Apply	D.K. Ref.
Random Rotation	10	9	8	7	6	5	4	3	2	1	11	12	
Safety													
1. I would be concerned about my personal safety when using the bus													
Service													
2. The bus isn't available when I need it													
3. The bus doesn't go where I need to go													
4. The bus is often late, off schedule, or unreliable													
5. The bus stop is too far away from my house													
6. The bus is too slow													
Information													
7. The bus schedules are too confusing													
8. It's too hard to get information about how to use the bus													
9. I don't know where to catch the bus													
10. I don't know the bus schedule or routes													
11. I can't get good information about bus delays, cancellations or schedule changes													

IF Q1.1 [commute to work] Or Q1.3 [other business] = "Yes," Ask Q11a.

Otherwise, Skip To Instructions Before Q11b.

11a. You mentioned earlier that you traveled to work or for other business-related reasons in the past 7 days. Does your job require you to use your own vehicle?

(If Respondent Says "Most Of The Time/Usually," Record Yes. If Respondent Says "Sometimes/At Times," Record "Sometimes")

- 1 Yes [usually/most of time]
- 2 No
- 5 Sometimes
- 3 Don't Know
- 4 Refused

IF Q1.7 [Human Services] = "Yes," Ask Q11b. Otherwise, Skip To Q12.

11b.. You mentioned earlier that you traveled for Human services such as nutrition facilities, or senior centers in the past 7 days. Did the human service agency arrange for or provide the transportation for any of those trips?

- 1 Yes
- 2 No
- 3 Don't Know
- 4 Refused

V. PUBLIC TRANSIT INFORMATION

Ask All

12. Assuming you wanted to get information about public transit, such as bus routes, schedules, fares, or information about delays or cancellations, from what sources can you currently get this type of information? **Probe:** What others?

(Do Not Read List. Record All That Apply)

- 1 Newspaper
- 2 Radio
- 3 Television
- 4 Internet
- 5 PDA/Palm Pilot
- 6 Telephone (Not Cell phone)
- 7 Cell Phone
- 8 Telephone Book/Yellow Pages
- 9 Call the transit agency
- 10 Word-of-mouth/Ask a friend
- 11 Schedule/Signs at Bus Stops
- 12 At the Bus Station
- 13 At the Bus stop
- 14 Ask Bus driver
- 15 Pick up schedules in public buildings
- 16 Kiosk
- 17 Other (**Specify: _____**)
- 18 None
- 19 Don't know
- 20 Refuse

VI. ITS CONCEPT RATINGS

13. We'd like to get your reaction to some possible new services and ways of getting information about public transit. After I read each one, please tell me how it might affect your interest in using public transit. Please use a scale from 10 to 1, where "10" means you would be **much more likely** to use public transit if that information or service were available, and "1" means it would **make no difference** in your use of public transit. Remember you can use "10", "1," or any number in-between that best describes your feelings.

Let's start with (**Insert Item**). What number between 10 and 1 best describes how much that would affect your interest in using public transit.

(Repeat scale as needed. Continue until all items are rated)

Rotate	Much more likely							No difference			D.K.	Ref.
	10	9	8	7	6	5	4	3	2	1	11	12
1 An electronic sign or announcement at the bus stop that tells you when the next bus will actually arrive												
2 An electronic map on the Internet that shows you where the bus is along its route												
3 Receiving a message on your phone or pager telling you the bus is within 15 minutes or a mile of your stop												
4 An electronic sign or announcement on the bus telling you what the next stop is												
5 Using the Internet to plan a bus trip from start to finish just by entering your origin and destination and getting back specific directions with a map												
6 Getting bus routes and schedules on the Internet.												
7 Having an electronic fare card that can be used to pay the bus fare.												
8 Being able to learn about service delays well in advance so you could make alternate plans												
9 Being able to get an accurate estimate of the travel time for your bus trip before you decide to take it												

VII. GENERAL TRAVEL INFORMATION

14a. Now we are finished talking about public transportation. For the rest of the interview, let's focus on your everyday travel needs.

I'm going to read a short list of typical travel reports that people can use to plan their day-to-day travel. After I read each one, please rate it in terms of how helpful that kind of report has been to you in planning your day-to-day travel.

Please use a scale from 10 to 1 where 10 means "extremely helpful" and 1 means "not helpful at all." If you're not aware of any of the types of travel information I describe, or if it's not available in your area, just say so,

Let's start with **(Insert Item)**. What number between 10 and 1 best describes how helpful that kind of information has been in planning your day-to-day travel?

And how about **(Insert Item)? (Repeat Scale as Needed. Continue Until All Items Are Rated)**

Rotate	Extremely Helpful										Not Helpful At All	Not aware/ Not Available	Ref.
	10	9	8	7	6	5	4	3	2	1	11	12	
1 Information about unexpected road situations such as accidents													
2 Information on road construction													
3 Travel time estimates													
4 Alternate road or highway routes													
5 Interactive driving directions available on the Internet such as Mapquest, where you enter the origin and destination and get specific directions and map													
6 Information about weather-related road & travel conditions													

14b. Are there any other types of travel information that you currently get and find helpful that we did not already mention?

- 1 Yes **(Continue)**
- 2 No **(Skip To Q14d)**
- 3 Don't Know **(Skip To Q14d)**
- 4 Refused **(Skip To Q14d)**

14c. What other types of helpful travel information do you currently get?

14d. Have you made use of any of the types of travel reports we've been discussing **in the past 30 days?**

- 1 Yes **(Ask Q14e)**
- 2 No **(Skip to Q15a)**
- 3 DK/Ref. **(Skip to Q15a)**

14e. What sources have you actually used in the past 30 days to get this kind of travel information? **(Do Not Read List)**

(If More Than One Source In Q14e, Ask Q14f. Otherwise Skip to Q15a)

14f. Which one source do you depend on the most?

Do Not Read List	Q14e Used	Q14f Depend on Most
1 Newspaper	1	1
2 Radio	2	2
3 Television	3	3
4 Internet [Mapquest]	4	4
5 PDA/Palm Pilot	5	5
6 Cell phone	6	6
7 Telephone (not Cell phone)	7	7
8 E-mail	8	8
9 Other (Specify:)	9	9
10 None	10	10
11 D.K./Ref.	11	11

VIII. Technology

15a Turning now to your personal use of technologies, which of the following do you do on a regular basis? Do you ... **(Read List)**

Rotate	Yes	No	D.K.	Ref.
1 Use a PC or computer at home, school or work.	1	2	3	4
2 Use a palm pilot or PDA	1	2	3	4
3 Look up information on the Internet	1	2	3	4
4 Use a cell phone	1	2	3	4
5 Use a pager	1	2	3	4
6 Use e-mail	1	2	3	4

15b. Do you have satellite or cable TV at home?

- 1 Yes, have satellite/cable TV
- 2 No
- 3 D.K.
- 4 Refused

16. Finally, a few last questions for statistical purposes only.

How long have you been living in this area? **(Read List If Necessary)**

- 1 Less than six months
- 2 Six months to less than a year
- 3 One year to less than five years
- 4 Five to less than ten years
- 5 Ten or more years
- 6 **(Do Not Read)** Don't Know
- 7 **(Do Not Read)** Refused

17. Have you **ever** used public transportation in a place other than this local area?
- 1 Yes
 - 2 No **(Skip to Demographics)**
 - 3 Don't Know **(Skip to Demographics)**
 - 4 Refused **(Skip to Demographics)**
18. When was the **last time** you used public transportation in an area other than this one? Was it ... **(Read List)**
- 1 Within the past six months
 - 2 Six months to less than a year ago
 - 3 One year to less than five years ago
 - 4 Five to less than ten years ago
 - 5 Ten or more years ago
 - 6 **(Do Not Read)** Don't Know
 - 7 **(Do Not Read)** Refused

Demographics

D-1. **If gender is not evident:** Are you ...

- 1 Male
- 2 Female

D-2. How many children 15 years of age or younger, if any, currently live in your household? Please include any infants.

_____ # Children [0-9; 8 = 8 or more; 9 = DK/Ref.]

D-3. In total, how many vehicles, including cars, trucks and vans, are owned or leased by the members of your household?

_____ # Vehicles [0-9; 8 = 8 or more; 9 = DK/Ref.]

D-4. How many licensed drivers are there in your household?

_____ # Licensed Drivers [0-9; 8 = 8 or more; 9 = DK/Ref.]

D-5. What is the last grade of school you completed? **(Read List).**

- 1 Some high school or less
- 2 High school graduate
- 3 Technical/training beyond high school
- 4 Some college
- 5 College graduate
- 6 Graduate school
- 7 **(Do Not Read)** Don't know/Not sure
- 8 **(Do Not Read)** Refused

D-6 Please choose from the list I am about to read the item which best describes your current employment status. Are you...**(Read List)**?

- 1 Employed full-time
- 2 Employed part-time (**If asked**, less than 30 hours/week)
- 3 Retired
- 4 Unemployed
- 5 Full-time student
- 6 Part-time student, or
- 7 A homemaker
- 8 **(Do Not Read)** Other (**Specify:** _____)
- 9 **(Do Not Read)** DK/NS
- 10 **(Do Not Read)** Refused

D-7. Which of the following groups includes your age as of your last birthday? **(Read List)**.

- 1 16-17
- 2 18-24
- 3 25-34
- 4 35-44
- 5 45-54
- 6 55-64
- 7 65 and over
- 8 **(Do Not Read)** Refused

D-8a And what is your Zip Code? ENTER 5-digits only : ____ _

D-8. And one last question. Which of the following groups includes the approximate total combined income of your household before taxes? **(Read List)**

- 1 Less than \$5,000
- 2 \$5,000 to less than \$10,000
- 3 \$10,000 to less than \$15,000
- 4 \$15,000 to less than \$25,000
- 5 \$25,000 to less than \$35,000
- 6 \$35,000 to less than \$50,000
- 7 \$50,000 to less than \$75,000
- 8 \$75,000 to less than \$100,000
- 9 \$100,000 to less than \$150,000
- 10 \$150,000 or more
- 11 **(Do Not Read)** DK/NS
- 12 **(Do Not Read)** Refused

Thank You Very Much For Your Time!

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