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An Evaluation of User Perceptions and Behaviors of FAST-TRAC: Pilot Study Results

David W. Eby, Fredrick M. Streff, Richard R. Wallace,
Lidia P. Kostyniuk, Michelle L. Hopp, and Steven E. Underwood[†]

The University of Michigan
Transportation Research Institute

[†]The University of Michigan
Electrical Engineering and Computer Science

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16. Abstract

The purpose of the User Perceptions and Behaviors evaluation component of FAST-TRAC is to understand how users perceive and value the in-vehicle navigation system, ALI-SCOUT, and to determine how the system is used in the Oakland County study area. Specifically, we want to know if the system helps drivers navigate and reduces their travel times, whether drivers like all or parts of the system, their beliefs about the costs and benefits of the system, whether they would purchase the navigation system, and if so, what they would be willing to pay for it. Prior to beginning this component of the evaluation, a pilot study was conducted to pretest and pilot test data collection methods and instruments planned for use in subsequent evaluation tasks.

The pilot study took place between April 1994 and February 1995 and included 62 subjects with ALI-SCOUT units installed in vehicles they were driving. The study had three main goals: 1) pretest and finalize the methods, procedures, and protocols for the subsequent evaluation tasks; 2) provide preliminary data that can be used as an early assessment of the project; and 3) provide data for use in the development of subsequent comparative analyses of behaviors and attitudes among different user groups. The general procedure followed for each subject's participation was: recruitment, participation in a short training session, distribution of a set of training materials developed for the project, and driving the ALI-SCOUT equipped vehicle for some specified duration. The subjects were twice asked to complete a survey, the first after one week of use and the second after two months of use. They were also asked to keep a daily record (called a driver log) of their driving behaviors and use of ALI-SCOUT for one month. The results from both surveys and the driver logs are presented in this report.

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David W. Eby, Ph.D.
Fredrick M. Streff, Ph.D.
Richard R. Wallace, M.S.
Lidia P. Kostyniuk, Ph.D
Michelle L. Hopp, M.A.
Steven E. Underwood, Ph.D.

INTRODUCTION

The purpose of the User Perceptions and Behaviors evaluation component of FAST-TRAC is to understand how users perceive and value the in-vehicle navigation system, ALI-SCOUT, and to determine how the system is used in the Oakland County study area. Specifically, we want to know if the system helps drivers navigate and reduces their travel times, whether drivers like all or parts of the system, their beliefs about the costs and benefits of the system, whether they would purchase the navigation system, and if so, what they would be willing to pay for it.

Prior to beginning this component of the evaluation, a pilot study was conducted to pretest and pilot test data collection methods and instruments planned for use in subsequent evaluation tasks. The results of this pilot testing are presented here. Specifically, the objectives of the pilot study of the User Perceptions and Behaviors portion of the FAST-TRAC Evaluation Project were to:

- ☞pretest and finalize the methods, procedures, and protocols for the subsequent evaluation tasks;
- ☞provide preliminary data that can be used as an early assessment of the project;
- ☞provide data for use in the development of subsequent comparative analyses of behaviors and attitudes among different user groups.

The pilot study took place between April 1994 and February 1995 and included 62 subjects with ALI-SCOUT units installed in vehicles they were driving. The general procedure followed for each subject's participation was: recruitment, participation in a short training session, distribution of a set of training materials developed for the project, and driving the ALI-SCOUT equipped vehicle for some specified duration. The subjects were twice asked to complete a survey, the first after one week of use and the second after two months of use. They were also asked to keep a daily record (called a driver log) of their driving behaviors and use of ALI-SCOUT for one month.

Pilot Study Subject Selection and Hand-Off Procedures

The sample of subjects included in the pilot study were selected based on convenience for the experimenters and subjects. Partners in the FAST-TRAC project were asked for assistance in finding pilot study subjects among their employees. The following organizations participated in this task:

Chrysler Corporation
General Motors Corporation
Nissan Corporation
Road Commission of Oakland County

The specific methods for recruiting subjects varied between groups, but each method consisted of finding individuals who were willing to have the ALI-SCOUT unit in their cars for a period of at least two months. Prior to participation, all subjects met with an evaluator, or an evaluator's representative, to discuss their role in the study and were given a package of information related to the project (called the handoff package). The handoff package consisted of the following information:

An Introductory Letter
An Informed Consent Form (called the subject participation form)
An ALI-SCOUT Manual
An ALI-SCOUT Training Video
A Driver Log Booklet

The driver log booklet contained complete instructions for filling out and returning driver log sheets, 28 daily driver log sheets, four stamped envelopes for the weekly return of driver log sheets, and two mechanical pencils. The introductory letter, subject participation form, and an example daily driver log sheet are included in Appendix A.

The procedure for meeting with the subject, giving him or her the handoff package, and securing a signature on the informed consent form (called the handoff procedure) was slightly different for each group that participated and are summarized separately.

Chrysler Corporation

As part of the simulation component of the FAST-TRAC evaluation, each employee at the Chrysler Technical Center (CTC) in Auburn Hills, Michigan, received a survey in October 1993, which, among other items, asked if he or she would be willing to participate in the pilot study. Of the 5,248 surveys distributed, 3,033 were returned, with 1,213 respondents indicating an interest in participating in the pilot test. In order to select people who drove in the study area and owned vehicles easily installed with ALI-SCOUT, the surveys from interested people were filtered on the basis of home location and vehicle type. From the outcome of this analysis a sample of 40 people who varied on demographic factors (age, gender, and income), was drawn. Mr. Ivars "Ivy" Renga, the Chrysler ITS programs manager, contacted 20 of these individuals (ten subjects and ten alternates) and set up a handoff meeting in April 1994.

At the handoff meeting, representatives from the Road Commission for Oakland County (RCOC), Siemens Automotive (the makers of ALI-SCOUT), and the University of Michigan Transportation Research Institute (UMTRI) FAST-TRAC evaluation team were present. The agenda consisted of introductory remarks on Intelligent Transportation Systems (ITS), Chrysler Corporation's involvement in ITS and FAST-TRAC, an overview of the FAST-TRAC project, a review of ALI-SCOUT basics, an explanation of the University of Michigan's role in FAST-TRAC, a showing of the ALI-SCOUT training video, an explanation of the expectations and responsibilities of participants in the FAST-TRAC evaluation, and an optional vehicle viewing and demonstration ride in an ALI-SCOUT equipped vehicle. A signed consent form was collected from those individuals who still wanted to participate. Following the meeting, participants made arrangements with Mr. Renga to have the ALI-SCOUT units installed in their vehicles.

Additional handoff meetings for new participants were held in the summer and autumn of 1994. There were also several meetings between UMTRI project staff and individual participants who could not attend a group meeting. In total, twenty-one Chrysler employees participated as subjects in the pilot study.

General Motors Corporation

General Motors Corporation (GM) decided to obtain volunteers for the study by equipping ten vehicles in the GM executive fleet with ALI-SCOUT units and then cycling these vehicles to interested employees for a two-month period. Employees of the General Motors Technical Center (GM Tech Center) in Warren, Michigan that were eligible for use of these cars were invited by the GM FAST-TRAC coordinator, Mr. Anthony Lobaza, to participate in the pilot study. Those who agreed were assigned an instrumented vehicle for two months of use. Upon receipt of the vehicle the participant went to another location within the GM Tech Center where they met with a GM FAST-TRAC representative, signed the informed consent form, and received the handoff package. These vehicles were continually cycled through GM employees between April 1994 and December 1994. In all, thirty-three GM employees participated in the pilot study.

Nissan Corporation

Mr. Kunihiko Kurami, the Nissan FAST-TRAC coordinator, invited several employees from the Nissan facility in Farmington Hills, Michigan to participate in the pilot study. UMTRI project staff members met with each of these volunteers individually and discussed use and operation of ALI-SCOUT and the subject's role and responsibilities in the study. UMTRI project staff also secured a signature on the informed consent form and gave the subject the handoff package. In total, four people from Nissan participated in the pilot study.

Road Commission of Oakland County

Several RCOC staff involved in the FAST-TRAC project wanted to participate in the pilot study. UMTRI project staff members met with each of them individually and discussed their role and responsibilities in the study, obtained a signature on the informed consent form, and distributed the handoff package. Use and operation of ALI-SCOUT was not discussed since these participants were already familiar with the product. Four RCOC employees participated in the pilot study.

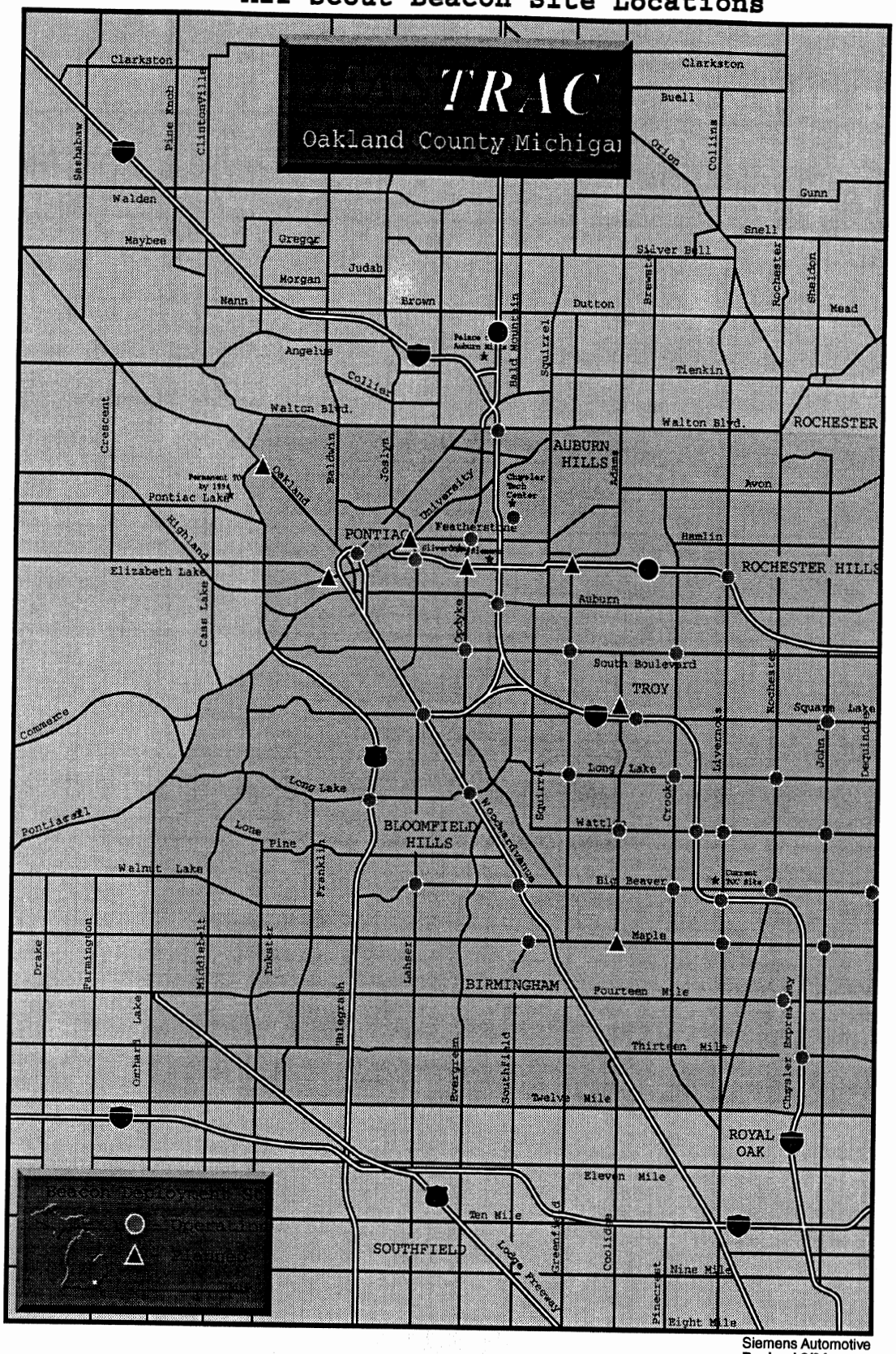
Subject Demographics

The demographic information from each subject showed that those who participated in the pilot study were a highly homogeneous group with 82.0 percent male. Of those reporting an age, the mean age was 43.9 years (standard deviation, SD, = 14.6) and ranged from 33 to 60 years. Most of those subjects who reported an income had a high household income, with 2.5 percent reporting an income between $45,000 and $54,999, 5.0 percent reporting an income between $55,000 and $64,000, 12.5 percent reporting an income between $65,000 and $79,999, 22.5 percent reporting an income between $80,000 and $99,999, and 57.5 reporting a household income of $100,000 or more. Pilot study participants also were highly educated. Of those reporting their highest education level, 2.17 percent indicated a high school diploma or equivalent, 6.5 percent reported some college, 8.7 percent reported a bachelor's degree, 4.3 percent reported some graduate school, and 78.3 percent reported that they had completed graduate school.

Level of FAST-TRAC System Function During Pilot Study

The general approach to deploying FAST-TRAC infrastructure (the infrared beacons used for two-way communication between ALI-SCOUT equipped vehicles and the Traffic Operations Center) was to instrument fully a localized area and then expand this area as the project progressed, with the pilot study being conducted in the localized area. Figure one shows a map of the FAST-TRAC project area, including the beacon locations, at the end of the pilot study. Operational beacons were concentrated around the city of Troy when the pilot study began, with beacons in Pontiac, Birmingham, Bloomfield Hills, and along Interstate 75 being added during the course of the study.

Ali-Scout Beacon Site Locations



Siemens Automotive
Revised 8/94

ALI-SCOUT USER SURVEYS

Study participants were asked to complete a survey designed by the evaluation team (Appendix C) at two times during their participation. The first time was after one week of participation, and the second time was after two months of participation. Both surveys were mailed to the subject with a stamped and preaddressed envelope. Subjects were asked to fill out the surveys at their earliest convenience and then mail them back to UMTRI in stamped and addressed envelopes provided by UMTRI. If the survey was not received within two weeks of being mailed out, the subject was contacted and reminded to return the survey. This contact was made with reminder cards (Appendix B) for approximately one half of the subjects and by telephone for the other half. We found that telephone contacts were more effective, and they will be used in subsequent evaluation efforts.

Survey One: The questions on this survey were grouped into seven categories that focused on the characteristics of the user and his or her attitudes towards and use of ALI-SCOUT and the ALI-SCOUT system. The category titles were: Driving and Commuting, Use of Technology, ALI-SCOUT Operation and Displays, ALI-SCOUT system as a whole, Use of the ALI-SCOUT system, Valuation, and Demographics. A complete copy of survey one can be found in Appendix C.

Survey Two: After two months of participation, the subjects were surveyed a second time. The second survey was identical to the first except that questions about Use of Technology and Demographics were omitted.

Summary of Survey Results

As mentioned previously, 62 people participated in the pilot study. Of these individuals, 45 completed survey one and 36 completed survey two. The complete univariate results for both surveys are presented in Appendix D. For each question, responses from survey one are presented on the left and survey two responses for the same question are presented on the right. Included in these tables are the numbers and

percentages of people answering each question. Because of the low number of respondents for both surveys and the fact there was little difference in results or trends between each survey, no tests of differences were conducted.

We summarize the results based upon six of the seven categories in survey one. The seventh category, demographics, is discussed in the introduction. Because the subjects were a very homogeneous group, some subjects received differing information and experimental procedures, and the system was not fully functional (and changing) during the study duration, it is important to note that, as a pilot study, the results presented here should be considered only as a preliminary investigation of user preferences and behaviors towards the ALI-SCOUT system.

Driving and Commuting

Overall, 91.1 percent of the respondents' households contained one or more vehicles that were owned or leased, and about one quarter of the respondents did not live in the Oakland County study area (i.e., Troy, Rochester Hills, Auburn Hills, Pontiac, Bloomfield Hills, and Birmingham). Of those who lived in the study area, most were long-term residents (mean = 13.65 years; SD = 9.71) who drove in the study area five times a week or more and considered themselves to be very familiar with the area.

Nearly every respondent was employed either full- or part-time and 40 percent worked in the study area. Only about seven percent considered driving other than commuting to be a major part of their work. About 36 percent reported that in the past three months drove four or more routes to work or school. There was little change here in survey two. Mean self-reported morning commute times were 30.49 minutes (SD = 17.74) for the first survey and 29.05 minutes (SD = 14.74) for the second. Overall, subjects reported that they rarely encountered traffic congestion or traffic incidents, with about 40 percent reporting they encounter congestion and about 75 percent reporting they encounter traffic incidents once a month or less. Nearly every respondent, however,

indicated that they would be willing to divert to avoid an incident or congestion. Finally, nearly two-thirds of the subjects believed that there was very little congestion in the Oakland County study area during the morning commute hours (about 17 percent felt that there was no congestion). There was little difference between surveys on these items.

In general, pilot study participants reported traveling out-of-town frequently. Almost 80 percent have taken two or more out-of-town vacations in the last year while 40 percent have taken five or more vacations in the last year. Further, about 80 percent of respondents have taken at least one out-of-town business trip in the last year. Respondents reported that they, in general, are confident when wayfinding in unfamiliar environments. Surprisingly, however, well over half of the respondents reported using maps at most only once every two to six months. About one quarter of the respondents had used an electronic guidance system before using the ALI-SCOUT device. These subjects reported that they had either used Travtek, Zexel, or an earlier version of ALI-SCOUT.

Technology

In general, respondents considered themselves to be familiar and comfortable with technology. Every respondent had experience with personal computers with over one half reporting extensive experience. All but one respondent had experience with video cassette recorders. Most people reported significant experience with facsimile machines and pocket calculators. Very few respondents reported having experience with electronic pagers or cellular car phones. Over 90 percent of respondents indicated that they were either somewhat or very interested in news items concerning new technology and about half believed that new technology was either somewhat or very easy to use. Finally, nearly 90 percent reported that new technology was either somewhat or very enjoyable to use.

ALI-SCOUT Operation and Displays

Frequency of Use

All people reported using ALI-SCOUT at least some of the time, with the exception of one person in survey two who reported never using ALI-SCOUT. About 70 percent used ALI-SCOUT on at least one-half of their trips. Thus, ALI-SCOUT was used frequently by study participants. Comparing between surveys, we found that the frequency of use was generally lower for the second survey. If only the percentage of people indicating a use frequency of six or seven (with seven labeled as "always") are considered, the percentage is reduced from 48.9 percent in survey one to 27.8 percent in survey two. These results indicate that study participants used the ALI-SCOUT to a much lesser extent toward the end of the study. This finding strongly suggests that if ALI-SCOUT vehicles are to be used as traffic-condition probes, then simply using the number of ALI-SCOUT equipped vehicles in the area as a measure of network coverage is inappropriate. In fact, the results suggest that at least a doubling of the number of vehicles would be more appropriate.

Subjects who answered that they did not use ALI-SCOUT all of the time were asked to explain why they sometimes did not use the system. Eighty percent of people in survey one (n = 36) answered this question, giving a total of 69 different responses (some people gave more than one reason). The responses were interpreted and categorized. In order of frequency, the reasons given in survey one were:

- Trips out of the beacon area (33.3 percent)
- Programming destinations was too cumbersome (30.4 percent)
- Do not trust instructions (11.6 percent)
- Trip too short (10.1 percent)
- Directions already known (7.2 percent)
- System errors too large (4.3 percent)
- System disrupts other in-vehicle activity (2.9 percent).

Ninety-two percent of subjects in survey two answered the question (n = 34) giving a total of 51 responses. The reasons given in survey two were:

- Trips out of the beacon area (35.3 percent)
- Programming destinations was too cumbersome (11.7 percent)
- Do not trust instructions (11.7 percent)
- Trip too short (11.7 percent)

- ☞ System errors too large (11.7 percent)
- ☞ Believed that system provided no benefits (7.8 percent)
- ☞ Directions already known (5.9 percent)
- ☞ System disrupts other in-vehicle activity (3.9 percent).

Entering and Selecting Destinations

There are four ways of entering new destinations in ALI-SCOUT. One way is to look up the address of a location in the Address Ranges section of the ALI-SCOUT manual, which lists addresses and their associated coordinates (i.e., latitude and longitude). If the destination is a public place, then its coordinates also can be found in a list of Points of Interest in the ALI-SCOUT manual, which lists hundreds of locations and coordinates. A third way of entering a new destination is to look up the location on a Map in the ALI-SCOUT manual that includes latitude and longitude coordinates. The final way of entering destinations is to be in a location and have ALI-SCOUT figure out the coordinates and assign the new destination as your Current Location. Up to eighty previously entered destinations can be saved in the ALI-SCOUT memory. These destination can be used by scrolling through them and selecting one.

Subjects were asked to rank the four methods of entering new destinations in order of how frequently they were used. In general, we found that people used the map method most frequently followed by the current location, points of interest, and address ranges methods, respectively. For each method, participants indicated, on a seven-point scale, how difficult they thought the method was to use. In general, they reported that the current location and points of interest methods were easy to use, and that the address ranges and map methods were difficult to use. There was little difference on these items between surveys. Thus, people reported using the ALI-SCOUT map method most frequently, but thought that it was difficult to use.

Subjects were asked to indicate the percentage of ALI-SCOUT trips in which they used a destination already stored in memory. The mean reported percentage was 70.2

(SD = 31.0) for survey one and 67.9 (SD = 30.0) for survey two. In addition, most subjects thought that the destination memory feature was easy to use, with about one-half indicating that it was "very easy to use."

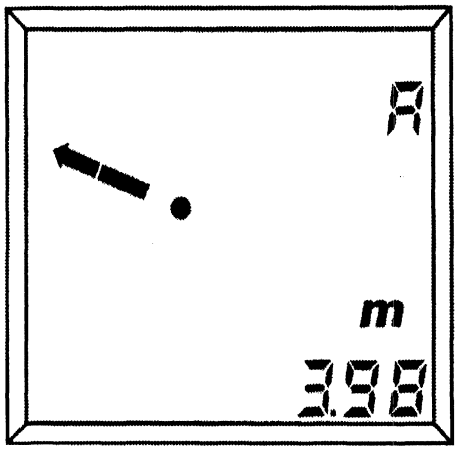
Keyboard

Subjects were asked several question related to the ALI-SCOUT keyboard. On seven-point scales, subjects were asked to indicate their level of difficulty in learning and using the ALI-SCOUT keyboard, whether they thought it functioned properly, and their overall impression. Level of difficulty for learning and using the keyboard was judged using a scale that was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy. We found that 53.3 percent indicated the keyboard was easy to learn (i.e., they indicated either five, six, or seven), 28.9 percent thought it was difficult (i.e., they indicated one, two, or three), while the rest thought it was neither easy nor difficult (i.e., indicated four) or did not answer the question.

Subject responses were mixed about the level of difficulty in using the keyboard, with 48.9 percent indicating that it was easy, 37.7 percent indicating it was difficult, and 11.1 percent indicating it was neither difficult nor easy to use. There was little difference between surveys on these questions. Keyboard functionality was rated by having subjects indicate their level of agreement with the statement "the ALI-SCOUT keyboard functioned properly" using a scale anchored by the label "strongly disagree" for one and "strongly agree" for seven. The results showed that 26.6 percent in survey one and 22.2 percent in survey two indicated some level of disagreement (i.e., they responded one, two, or three) with the statement that the keyboard functioned properly, while 53.4 percent in survey one and 50.0 percent in survey two indicated some level of agreement (i.e., they responded five, six, or seven). Several subjects gave neutral responses (15.6 percent in survey one and 19.4 percent in survey two). Finally, subjects indicated their overall impression of the keyboard using a scale anchored with the labels "disliked" for one and "liked" for seven. The results showed that 48.9 percent in survey one and 44.4 percent in

survey two indicated some level of dislike (i.e., they responded one, two, or three), while 35.6 percent in survey one and 39.0 percent in survey two reported liking the keyboard, at least to some degree. The rest either gave neutral responses or failed to answer the question.

Autonomous Mode

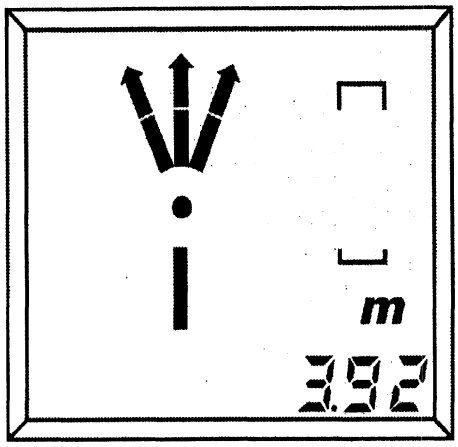


Subjects were asked several questions about the ALI-SCOUT system's autonomous, or "crow-fly," navigation feature. On seven-point scales, subjects were asked to rate their level of difficulty for understanding autonomous mode information, the amount of detail, level of distraction, perceived accuracy of guidance, whether it helped them find destinations, whether it functioned properly, and their overall impression. The scale for rating the level of difficulty in understanding autonomous mode information was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses show that 86.6 percent in survey one and 86.1 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with about 50 percent in both surveys indicating that it was "very easy" to understand. Sufficiency of detail was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. In both surveys, about 73 percent of subjects reported the level of detail to be good (i.e., they indicated five, six, or seven). Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. In survey one 84.5 percent and 80.5 percent in survey two reported that autonomous mode was not very distracting (i.e., they indicated five, six, or seven). Accuracy of guidance was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. In

survey one 42.2 percent and in survey two 47.2 percent of respondents reported that autonomous mode provided inaccurate guidance (i.e., reported one, two, or three), while 39.9 percent in survey one and 30.6 percent in survey two thought it provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects judged whether the autonomous mode helped them find destinations and whether the autonomous mode display functioned properly by indicating their level of agreement with the statements, "the autonomous mode helped me find my way" and "the autonomous mode display functioned properly." The scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 53.3 percent in survey one and 44.4 percent of respondents in survey two indicated disagreement with the statement that the autonomous mode feature helped them find their way, while 19.9 percent in survey one and 27.8 percent in survey two indicated agreement. Many people gave neutral responses. In both surveys, about 31 percent indicated disagreement with the statement that autonomous mode functioned properly, while about 50 percent indicated agreement. Again, many people gave neutral responses. Subjects reported their overall impression of the autonomous mode using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the feature. The responses showed that 44.5 percent in survey one and 25.0 percent in survey two indicated that they did not like the feature (i.e., they reported one, two or three) and 37.8 percent in survey one and 44.4 percent in survey two indicated that they liked the feature. Many respondents gave neutral responses. Finally, subjects were asked to give an interpretation of what they thought the autonomous mode display (shown above) was designed to indicate. The results show that 92.6 percent in survey one and 90.5 percent in survey two gave correct answers.

Follow Main Road Display



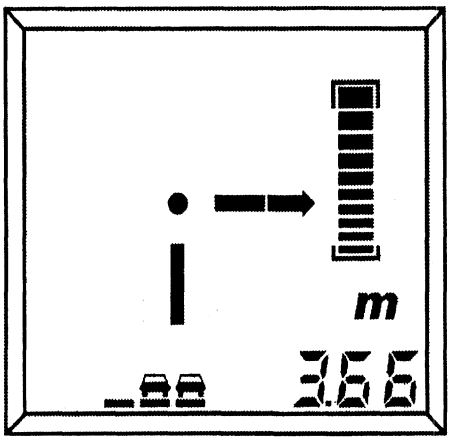
Subjects were asked several questions about the ALI-SCOUT follow main road display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the graphic, level of distraction, perceived accuracy of guidance, whether it helped them find destinations, whether it functioned properly, their overall impression of the display, and their frequency of following the recommendation. The scale for rating the level of difficulty in understanding the follow main road display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 80.1 percent in survey one and 77.8 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with 46.7 percent in the first survey and 36.1 percent in the second survey indicating that it was "very easy" to understand. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. In survey one 73.3 percent and 72.3 percent in survey two reported that the autonomous mode display was not that distracting (i.e., they indicated five, six, or seven). About 13 percent in both surveys gave neutral responses. Accuracy of guidance was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. The results showed that 24.4 percent in survey one and 11.2 percent in survey two thought that the display provided inaccurate guidance (i.e., they reported one, two, or three), while 60.0 percent in survey one and 69.4 percent in survey two thought it provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Next, subjects judged whether the follow main road display helped them find destinations and whether the display functioned properly by indicating their level of

agreement with the statements, "the follow main road display helped me find my way" and "the follow main road display functioned properly." The scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 35.5 percent of respondents in survey one and 41.7 percent in survey two indicated disagreement with the statement that the follow main road display helped them find their way (i.e., they indicated one, two, or three), while 40.1 percent in survey one and 33.4 percent in survey two indicated agreement. Many people gave neutral responses. In both surveys, about 17 percent indicated disagreement with the statement that the follow main road display functioned properly, while 53.3 percent in survey one and 61.1 percent in survey two indicated agreement. Again, many people gave neutral responses. Subjects reported their overall impression of the display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the feature. The responses showed that 33.4 percent in survey one and 22.2 percent in survey two indicated that they did not like the display (i.e., they reported one, two or three) and 44.5 percent in survey one and 55.6 percent in survey two indicated that they liked the feature. Many respondents gave neutral responses.

People indicated their frequency of following the recommendation given in the display using a scale anchored by the labels "never" for one and "always" for seven, with a response of four indicating that they followed the recommendation about half of the time. The results show that 31.1 percent in survey one and 19.5 percent in survey two indicated that they followed the recommendation less than one half of the time, 11.1 percent in survey one and 27.8 percent in survey two followed the display one half of the time, and 51.1 percent in survey one and 41.7 percent in survey two followed the display greater than one half of the time. Finally, subjects were asked to give an interpretation of what they thought the followed main road display shown above indicated. The results show that 77.8 percent in survey one and 81.6 percent in survey two gave correct answers.

Prepare Maneuver Display

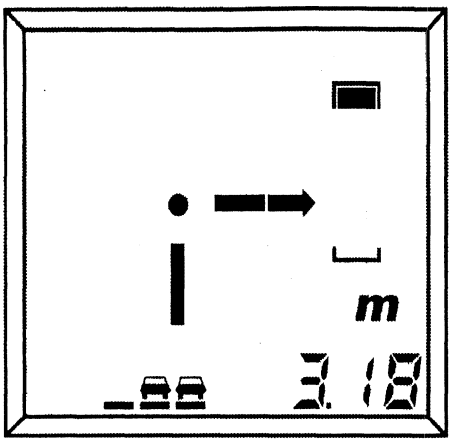


Subjects were asked several questions about the ALI-SCOUT prepare maneuver display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the amount of detail, the sufficiency of advance warning provided, level of distraction, perceived accuracy of guidance, whether it helped them find destinations, whether it functioned properly, and their overall impression. The scale for rating the level of difficulty in understanding the prepare maneuver display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 89.0 percent in survey one and 86.2 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with about 40 percent in both surveys indicating that it was "very easy" to understand. Sufficiency of detail and advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 84.5 percent in survey one and 75.1 percent in survey two reported the level of detail to be good (i.e., they indicated five, six, or seven), while 70 percent in both surveys reported that the advance warning was sufficient, at least to some degree. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. In survey one 64.5 percent and 66.7 percent in survey two reported that the prepare maneuver display was not that distracting (i.e., they indicated five, six, or seven), while 24.5 in survey one and 16.7 percent in survey two thought that it was distracting. Accuracy of guidance was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. Twenty-nine percent in survey one and 25.0 percent of respondents in survey two reported that the prepare maneuver display provided inaccurate guidance (i.e., reported one, two, or three), while 51.1 percent in survey one and 52.8 percent in survey two thought it

provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects also judged whether the display helped them find destinations and whether it functioned properly by indicating their level of agreement with the statements, "the prepare maneuver display helped me find my way" and "the prepare maneuver display functioned properly." The scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 39.9 percent in survey one and 36.0 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 35.5 percent in survey one and 38.8 percent in survey two indicated agreement. Many people gave neutral responses (17.8 percent in survey one and 16.7 percent in survey two). In both surveys, 22.2 percent indicated disagreement with the statement that the prepare maneuver display functioned properly, while about 60.0 percent in survey one and 52.8 in survey two indicated agreement. Again, many people gave neutral responses. Subjects reported their overall impression of the prepare maneuver display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the feature. The responses showed that 26.6 percent in survey one and 22.2 percent in survey two indicated that they did not like the display (i.e., they reported one, two or three) and 46.7 percent in survey one and 50.1 percent in survey two indicated that they liked the display. Many respondents in both surveys gave neutral responses. Finally, subjects were asked to give an interpretation of what they thought the prepare maneuver display shown above indicated. The results showed that 88.5 percent in survey one and 78.4 percent in survey two gave correct answers.

Execute Maneuver Display

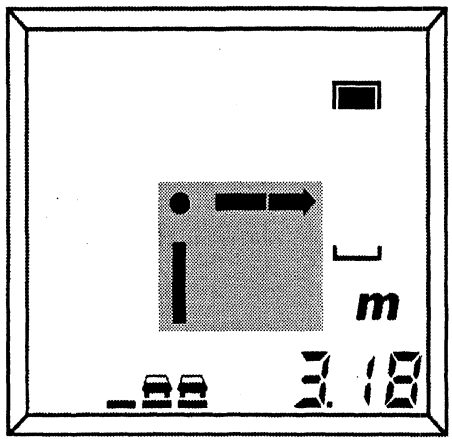


Subjects were asked several questions about the ALI-SCOUT execute maneuver display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the amount of detail, the sufficiency of advance warning provided, level of distraction, perceived accuracy of guidance, whether it helped them find destinations, whether it functioned properly, and their overall impression. The scale for rating the level of difficulty in understanding the prepare maneuver display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 80.0 percent in survey one and 83.3 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with about 31.3 percent in survey one and 44.4 percent in survey two indicating that it was "very easy" to understand. Sufficiency of detail and advance warning were rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 80.0 percent in survey one and 72.3 percent in survey two reported the level of detail to be good (i.e., they indicated five, six, or seven), while 77.8 percent in survey one and 72.2 percent in survey two reported that the advance warning was good. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 68.9 percent and 72.3 percent in survey two reported that the execute maneuver display was not that distracting (i.e., they indicated five, six, or seven), while 17.8 in survey one and 11.1 percent in survey two thought that it was distracting. Accuracy of guidance was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. Twenty seven percent in survey one and 19.4 percent of respondents in survey two reported that the execute maneuver display provided inaccurate guidance (i.e., reported one, two, or three), while 57.8 percent in survey one and 52.8 percent in survey two thought it provided accurate guidance. The

rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects also judged whether the display helped them find destinations and whether it functioned properly by indicating their level of agreement with the statements, "the execute maneuver display helped me find my way" and "the execute maneuver display functioned properly." These scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 42.2 percent in survey one and 33.4 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 37.8 percent in survey one and 38.9 percent in survey two indicated agreement. Many people gave neutral responses (15.6 percent in survey one and 19.4 percent in survey two). Further, the results showed that 24.4 percent in survey one and 19.5 percent in survey two indicated disagreement with the statement that the execute maneuver display functioned properly, while about 64.4 percent in survey one and 52.7 percent in survey two indicated agreement. Again, many people gave neutral responses. Subjects reported their overall impression of the execute maneuver display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the feature. The responses showed that 28.9 percent in survey one and 19.4 percent in survey two indicated some degree of dislike (i.e., they reported one, two, or three) and 44.4 percent in survey one and 52.8 percent in survey two indicated that they liked the display to at least some degree. Many respondents in both surveys gave neutral responses (22.2 percent in survey one and 19.4 percent in survey two). Finally, subjects were asked to give an interpretation of what they thought the execute maneuver display shown above indicated. The results showed that 91.7 percent in survey one and 82.9 percent in survey two gave correct answers.

Turn Arrow Display

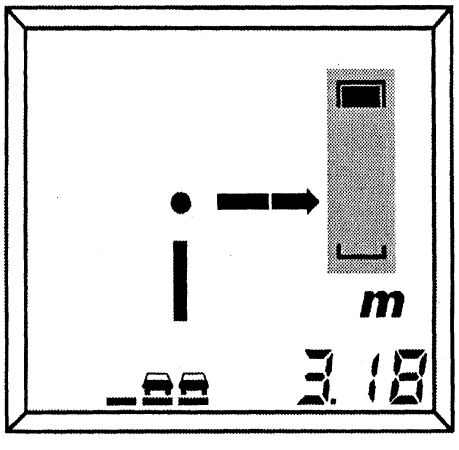


Subjects were asked several questions about the ALI-SCOUT turn arrow display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the amount of detail, the sufficiency of advance warning provided, level of distraction, perceived accuracy of guidance, whether it helped them find destinations, and their overall impression. The scale for rating the level of difficulty in understanding the prepare maneuver display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 88.8 percent in survey one and 83.4 percent in survey two thought the display was easy to understand (i.e., a response of five, six, or seven), with about 51.1 percent in survey one and 41.7 percent in survey two indicating that it was "very easy" to understand. Sufficiency of detail and advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 84.5 percent in survey one and 75.0 percent in survey two reported the level of detail to be good (i.e., they indicated five, six, or seven), while 75.6 percent in survey one and 72.2 percent in survey two reported that the advance warning was good. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. In survey one, 77.7 percent, and 69.4 percent in survey two reported that the turn arrow display was not that distracting (i.e., they indicated five, six, or seven), while 8.7 percent in survey one and 8.4 percent in survey two thought that it was distracting. Many people gave neutral responses to this question. Accuracy of guidance was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. Twenty-two percent in survey one and 22.2 percent of respondents in survey two reported that the turn arrow display provided inaccurate guidance (i.e., reported one, two, or three), while 64.4 percent in survey one and 55.6

percent in survey two thought it provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects also judged whether the display helped them find their destinations by indicating their level of agreement with the statement, "the turn arrow display helped me find my way." The scale was anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 35.5 percent in survey one and 36.1 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 42.2 percent in survey one and 41.6 percent in survey two indicated agreement. Many people gave neutral responses (20.0 percent in survey one and 13.9 percent in survey two). Finally, subjects reported their overall impression of the turn arrow display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the feature. The responses showed that 22.2 percent in survey one and 19.4 percent in survey two indicated that they did not like the display (i.e., they reported one, two or three) and 46.7 percent in survey one and 52.8 percent in survey two indicated that they liked the display. Many respondents in both surveys gave neutral responses.

Countdown Bar Display



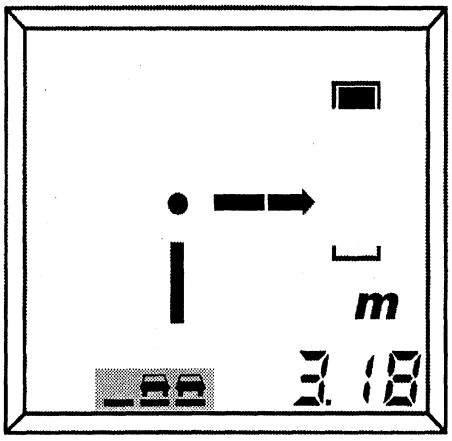
Subjects were asked several questions about the ALI-SCOUT countdown bar display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the amount of detail, the sufficiency of advance warning provided, level of distraction, perceived accuracy of information, whether it helped them find destinations, and their overall

impression. The scale for rating the level of difficulty in understanding the countdown bar display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 84.5 percent in survey one and 80.6 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with 37.8 percent in survey one and 30.6 percent in survey two indicating that it was "very easy" to understand. Sufficiency of detail and advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 82.3 percent in survey one and 72.2 percent in survey two reported the level of detail to be good (i.e., they indicated five, six, or seven), while 75.6 percent in survey one and 69.4 percent in survey two reported that the advance warning was good. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 64.5 percent and 61.1 percent in survey two reported that the countdown bar display was not that distracting (i.e., they indicated five, six, or seven), while 17.7 in survey one and 22.3 percent in survey two thought that it was distracting. Accuracy of information was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. In both surveys 22.2 percent of respondents reported that the countdown bar display provided inaccurate information (i.e., reported one, two, or three), while 62.2 percent in survey one and 52.8 percent in survey two thought it provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects also judged whether the display helped them find their destinations by indicating their level of agreement with the statement "the countdown bar display helped me find my way." The scale was anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 39.9 percent in survey one and 41.7 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 37.8 percent in survey one and 38.8 percent in survey two indicated agreement. Many people gave neutral responses (17.8 percent in survey one and 11.1 percent in

survey two). Subjects reported their overall impression of the countdown bar display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the display. The responses showed that 26.7 percent in survey one and 30.6 percent in survey two indicated some degree of dislike (i.e., they reported one, two, or three), and 51.2 percent in survey one and 49.9 percent in survey two indicated that they liked the display to at least some degree. Many respondents in both surveys gave neutral responses (17.8 percent in survey one and 11.1 percent in survey two). Finally, subjects were asked to give an interpretation of what they thought the countdown bar display shown above indicated. The results showed that 88.0 percent in survey one and 80.0 percent in survey two gave correct answers.

Lane Recommendation Display



Subjects were asked several questions about the ALI-SCOUT lane recommendation display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the amount of detail, the sufficiency of advance warning provided, level of distraction, perceived accuracy of information, whether it helped them find destinations, their overall impression, and their frequency of following the recommendation. The scale for rating the level of difficulty in understanding the lane recommendation display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 68.9 percent in survey one and 66.7 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with 22.2 percent in survey one and 27.8 percent in survey two indicating that it was "very easy" to understand. Sufficiency of detail and advance warning was rated using a scale

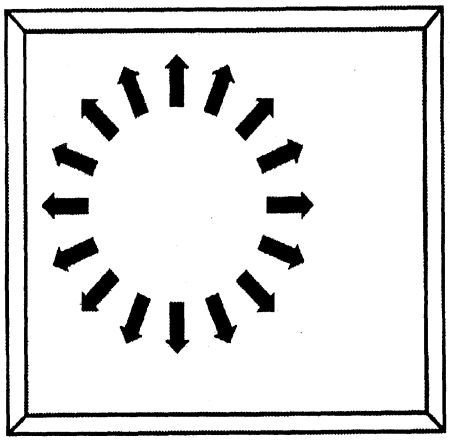
anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 64.5 percent in survey one and 63.9 percent in survey two reported the level of detail to be good (i.e., indicated five, six, or seven), while 60.0 percent in survey one and 64.0 percent in survey two reported that the advance warning was good. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 62.3 percent and 66.7 percent in survey two reported that the lane recommendation display was not that distracting (i.e., they indicated five, six, or seven), while 15.5 in survey one and 13.9 percent in survey two thought that it was distracting. Accuracy of information was rated using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven. The responses showed that 28.8 percent of respondents in survey one and 19.4 percent in survey two reported that the lane recommendation display provided inaccurate information (i.e., reported one, two, or three), while 51.0 percent in survey one and 50.0 percent in survey two thought it provided accurate guidance. The rest either did not respond or were neutral in their response (i.e., they indicated four).

Subjects also judged whether the display helped them find their destinations by indicating their level of agreement with the statement "the lane recommendation display helped me find my way." The scale was anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 33.3 percent in survey one and 36.1 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 31.1 percent in survey one and 25.0 percent in survey two indicated agreement. Many people gave neutral responses (24.4 percent in survey one and 27.8 percent in survey two). Subjects reported their overall impression of the lane recommendation display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the display. The responses showed that 31.1 percent in survey one and 25.0 percent in survey two indicated some degree of dislike (i.e., they reported one, two or three) and 37.7 percent in survey one and 36.1 percent in survey two indicated that they liked the display to at least

some degree. Many respondents in both surveys gave neutral responses (20.0 percent in survey one and 27.8 percent in survey two).

Next, respondents indicated their frequency of following the lane recommendation given in the display using a scale anchored by the labels "never" for one and "always" for seven, with a response of four indicating that they followed the lane recommendation about one-half of the time. The results showed that 19.9 percent in survey one and 27.7 percent in survey two indicated that they followed the recommendation less than one-half of the time, 11.1 percent in survey one and 16.7 percent in survey two followed the display one-half of the time, and 53.3 percent in survey one and 47.1 percent in survey two reported following the display greater than one-half of the time. Finally, subjects were asked to give an interpretation of what they thought the lane recommendation display shown above indicated. The results showed that 65.2 percent in survey one and 68.6 percent in survey two gave correct answers.

Left Recommended Route Display



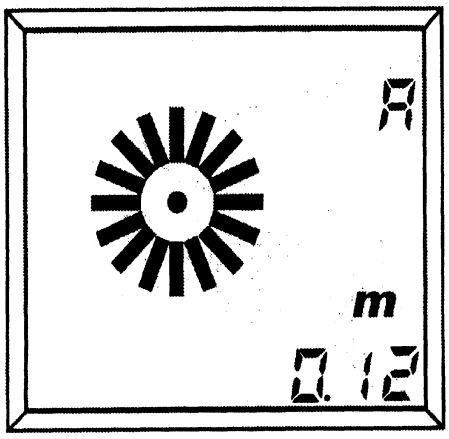
Subjects were asked several questions about the ALI-SCOUT left recommended route display. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display, the sufficiency of advance warning provided, level of distraction, whether it helped them find destinations, whether they believed it functioned properly, and their overall impression. The scale for rating the level of difficulty in understanding the left recommended route display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 60.0 percent in survey one and 66.7 percent in survey two thought it was easy to understand (i.e., a

response of five, six, or seven), with 28.9 percent in survey one and 38.9 percent in survey two indicating that it was "very easy" to understand. Sufficiency of advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 44.4 percent in survey one and 47.2 percent in survey two reported that the sufficiency of advance warning was good (i.e., they indicated five, six or seven). Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 64.5 percent and 55.6 percent in survey two reported that the left recommended route display was not that distracting (i.e., they indicated five, six, or seven), while 22.2 in survey one and 27.8 percent in survey two thought that it was distracting.

Subjects also judged whether the display helped them find their destinations and whether it functioned properly by indicating their level of agreement with the statements "the left recommended route display helped me find my way" and "the left recommended route display functioned properly." The scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 66.7 percent in survey one and 50.1 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 11.0 percent in survey one and 11.2 percent in survey two indicated agreement. Many people gave neutral responses (13.3 percent in survey one and 30.6 percent in survey two). Results for the question about proper function showed that 24.4 percent in survey one and 19.5 percent of respondents in survey two indicated disagreement with the statement that the display functioned properly, while 55.5 percent in survey one and 58.3 percent in survey two indicated agreement. Finally, subjects reported their overall impression of the left recommended route display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the display. The responses showed that 42.2 percent in survey one and 38.9 percent in survey two indicated some degree of dislike (i.e., they reported one, two, or three), and 22.2 percent in survey one and 33.3 percent in survey two indicated that they liked the display to at least some degree. Many

respondents in both surveys gave neutral responses (28.9 percent in survey one and 22.2 percent in survey two).

Destination Zone Display



Subjects were asked several questions about the ALI-SCOUT destination zone display and the switch over into autonomous mode from guided mode when a destination zone is reached. On seven-point scales, subjects were asked to rate their level of difficulty for understanding the display and switch over, level of distraction, whether it helped them find destinations, whether they believed it functioned properly, their overall impression, distance between switch over and final destination, and difficulty in finding the destination. The scale for rating the level of difficulty in understanding the destination zone display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 57.8 percent in survey one and 58.3 percent in survey two thought it was easy to understand (i.e., a response of five, six, or seven), with 17.8 percent in survey one and 27.8 percent in survey two indicating that it was "very easy" to understand. Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 62.1 percent and 50.1 percent in survey two reported that the left recommended route display was not that distracting (i.e., they indicated five, six, or seven), while 15.6 percent in survey one and 16.7 percent in survey two thought that it was distracting. Subjects judged whether the display helped them find destinations and whether it functioned properly by indicating their level of agreement with the statements "the destination zone display helped me find my way" and "the destination zone display functioned properly." These scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven,

with four indicating neither agreement nor disagreement. The results showed that 51.1 percent in survey one and 55.6 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 15.5 percent in survey one and 22.2 percent in survey two indicated agreement. Many people gave neutral responses (22.2 percent in survey one and 16.7 percent in survey two). Results for the question about proper function showed that 24.4 percent in survey one and 24.9 percent of respondents in survey two indicated disagreement with the statement that the display functioned properly, while 53.3 percent in survey one and 38.8 percent in survey two indicated agreement. Subjects reported their overall impression of the destination zone display and the switch over to autonomous mode navigation using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the display and switch over. The responses showed that 46.6 percent in survey one and 38.8 percent in survey two indicated some degree of dislike (i.e., they reported one, two, or three) and 24.5 percent in survey one and 33.4 percent in survey two indicated that they liked the display to at least some degree. Many respondents in both surveys gave neutral responses (20.0 percent in survey one and 22.2 percent in survey two).

Subjects also judged whether the sufficiency of the switch over to autonomous mode in the destination zone using a scale anchored by the labels "always too far" for one and "always close enough" for seven, with a response of four indicating that the switch over occurred close enough about one half of the time. The study showed that 42.2 percent in survey one and 47.2 percent of respondents in survey two thought the switch over occurred too far away more than one half of the time, 22.2 percent in both surveys thought the switch over was close enough one half of the time, and 28.9 percent in survey one and 25.0 percent in survey two thought the switch over occurred close enough over one half of the time. Finally, participants rated the difficulty they had finding destinations after they entered the destination zone using a scale anchored by the labels "always had difficulty" for one and "never had difficulty" for two, with a response of four indicating they had no difficulty about one half of the time. The results showed that 22.2 percent in survey

one and 16.7 percent in survey two reported having difficulty more than one half of the time, 13.3 percent for survey one and 8.3 percent for survey two reported having no difficulty about one half of the time, while 57.8 percent in survey one and 63.8 percent in survey two reported have no difficulty more than one half of the time.

The ALI-SCOUT system as a whole

Visual Display

Subjects were asked several questions about the ALI-SCOUT visual display as a whole. On seven-point scales, subjects were asked to rate their level of difficulty for reading the display while driving and while the vehicle was stationary, their level of difficulty for understanding the display, the sufficiency of advanced warning provided by the visual display, whether they believed it functioned properly, their overall impression of the visual displays, and their level of distraction for the visual display at night, during the day, during heavy traffic, during light traffic, on the freeway, and on non-freeways. The scale for rating the level of difficulty for reading and understanding the visual display was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 80.0 percent in survey one and 72.2 percent in survey two thought it was easy to read while driving (i.e., a response of five, six, or seven), with 28.9 percent in survey one and 25.0 percent in survey two indicating that it was "very easy" to read. It was also found that 86.7 percent in survey one and 86.1 percent in survey two indicated that they thought it was easy to read while the vehicle was stationary (i.e., a response of five, six, or seven), with 42.2 percent in survey one and 41.7 percent in survey two indicating that it was "very easy" to read. Further, 84.4 percent of respondents in survey one and 75.1 percent in survey two reported that they thought the visual display was easy to understand while the vehicle was stationary (i.e., a response of five, six, or seven), with 22.2 percent in survey one and 27.8 percent in survey two indicating that it was "very easy" to understand. Sufficiency of advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 66.6 percent in survey one and 75.0 percent

in survey two reported that the advance warning was good (i.e., a response of five, six, or seven).

Subjects also judged whether the display helped them find their destinations and whether it functioned properly by indicating their level of agreement with the statements "the visual display helped me find my way" and "the visual display functioned properly." These scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 51.2 percent in survey one and 47.3 percent of respondents in survey two indicated disagreement with the statement that the visual display helped them find their way (i.e., they responded one, two, or three), while 40.0 percent in survey one and 36.1 percent in survey two indicated agreement. In addition, results showed that 33.3 percent in survey one and 25.1 percent of respondents in survey two indicated disagreement with the statement that the visual display functioned properly, while 53.4 percent in survey one and 52.7 percent in survey two indicated agreement.

Subjects reported their overall impression of the visual display using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the display. The responses showed that 44.5 percent in survey one and 38.9 percent in survey two indicated some degree of disliking the display (i.e., they reported one, two or three) and 37.9 percent in survey one and 38.9 percent in survey two indicated that they liked the display to at least some degree. Many respondents in both surveys gave neutral responses (17.8 percent in survey one and 16.7 percent in survey two). Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 75.6 percent in survey one and 69.5 percent in survey two reported that the visual display was not that distracting at night (i.e., they indicated five, six, or seven), 82.2 percent in survey one and 74.9 percent in survey two thought that the display was not that distracting during daylight hours, 77.8 percent in survey one and 69.5 percent in survey two thought it was not that distracting in heavy traffic, 82.2 percent in survey one

and 75.0 percent in survey two thought it was not that distracting in light traffic, 82.2 percent in survey one and 75.0 percent in survey one thought it was not that distracting on freeways, and 82.3 percent in survey one and 72.2 percent in survey two thought it was not that distracting on non-freeway roads.

Voice Guidance

Subjects were asked several questions about the ALI-SCOUT voice guidance feature. On seven-point scales, subjects were asked to rate their level of difficulty for hearing and understanding the voice commands, the sufficiency of information and advanced warning, whether it helped them find destinations and functioned properly, their level of distraction with the voice commands, whether they liked the sound of the voice, and their overall impression. The scale for rating the level of difficulty in hearing and understanding the voice guidance commands was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 91.0 percent in survey one and 86.1 percent in survey two thought the voice guidance commands were easy to hear (i.e., a response of five, six, or seven), while 93.3 percent in survey one and 83.3 percent in survey two indicated that they thought the voice was easy to understand. Subjects judged the sufficiency of information and advance warning using a scale anchored by the labels "insufficient" for one and "sufficient" for seven, with a response of four indicating neither sufficient nor insufficient. The study showed that 84.5 percent of respondents in survey one and 69.4 percent in survey two thought the amount of information given by voice guidance was, to some degree, sufficient (i.e., a response of five, six, or seven) and 75.6 percent in survey one and 63.8 percent in survey two indicted that the advance warning was insufficient to some degree (i.e., a response of one, two, or three).

Subjects judged whether voice guidance helped them find their destinations and whether it functioned properly by indicating their level of agreement with the statements "the voice guidance feature helped me find my way" and "the voice guidance feature functioned properly." The scales were anchored by the labels "strongly disagree" for one

and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 40.0 percent in survey one and 47.2 percent of respondents in survey two indicated disagreement with the statement that the voice guidance helped them find their way, while 40.0 percent in survey one and 36.1 percent in survey two indicated agreement. Many people gave neutral responses (17.8 percent in survey one and 11.1 percent in survey two). Results for the question about proper function showed that 24.5 percent in survey one and 22.2 percent of respondents in survey two indicated disagreement with the statement that the voice functioned properly, while 57.8 percent in survey one and 58.3 percent in survey two indicated agreement. Again, many subjects gave neutral responses (15.6 in survey one and 13.9 percent in survey two). Level of distraction was judged using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. The results showed that in survey one 66.6 percent and 63.9 percent in survey two reported that the voice guidance feature was not that distracting (i.e., they indicated five, six, or seven).

Subjects rated how much they liked the sound of the voice in voice guidance using a scale anchored by the labels "disliked" for one and "liked" for seven. The study showed that 60.0 percent of subjects in survey one and 50.1 percent of subjects in survey two indicated some degree of liking the voice (i.e., they reported five, six, or seven), 15.6 percent in survey one and 16.7 percent in survey two reported they disliked the voice at least to some degree, and 22.2 percent in survey one and 27.8 percent in survey two indicated that they neither liked nor disliked the voice in voice guidance. Finally, subjects reported their overall impression of voice guidance by using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating that they neither liked nor disliked the voice or voice guidance feature. The responses showed that 66.7 percent in survey one and 52.8 percent in survey two indicated they liked the voice guidance at least to some degree (i.e., they reported five, six, or seven).

ALI-SCOUT Recommendations to Turn

Subjects were asked several questions about the turn recommendations (visual and voice) of ALI-SCOUT. Using seven-point scales, subjects judged their frequency of following the recommendation, their reasons for not following the recommendations, and their preference for voice and/or visual recommendations. Subjects judged the frequency of following turn recommendations using a scale anchored by the labels "never" for one and "always" for seven, with a response of four indicating they followed the recommendations about one-half of the time. The study showed that 33.3 percent in survey one and 27.8 percent in survey two indicated that they followed the recommendations less than one-half of the time, 20.0 percent in survey one and 19.4 percent in survey two indicated that they followed the recommendations one-half of the time, and 44.5 percent in survey one and 47.2 percent in survey two followed the recommendations more than one-half of the time.

Subjects were then asked to consider all the times they did not follow a recommendation and indicate how frequently various factors were part of their reason not to follow the turn recommendation using seven-points scales anchored by the labels "never" for one and "always" for seven, with a response of four indicating the factor was involved about one-half of the time. Table 1 shows the results for the seven factors considered. Less than one-half indicates that the respondent reported one, two, or three, one-half means that they responded four, and more than one-half indicates responses of five, six, or seven. The top percentage in each cell is for survey one and the bottom percentage is for survey two. Of the seven factors, knowing a faster route proved to be the most common by a wide margin.

Table 1: Summary of Respondent Ratings of Frequency With Which Various Factors were Involved in a Decision not to Follow a Recommendation			
Factor	**Less than one half**	**One Half**	**More than one half**
Knew of a faster route	11.1 8.4	2.2 5.6	82.2 80.6
Turn went away from destination	31.1 36.1	4.4 13.9	59.9 44.5
Turn led into congestion	53.3 50.0	2.2 5.6	35.5 38.8
Needed to make other stops	55.6 55.5	6.7 13.9	28.9 25.0
Advice was not clear	57.7 86.1	13.3 2.8	20.0 5.6
No room to merge	77.8 80.5	4.4 5.6	6.6 5.6
Advice too late	77.8 86.1	6.7 0.0	6.6 8.3

Modality for Route Guidance Recommendations

Subjects were asked to think about the visual and voice displays in ALI-SCOUT and indicate their preferred means for getting ALI-SCOUT recommendations. The results showed that 2.2 percent in survey one and 16.7 percent in survey two indicated a preference for a visual display only, 8.9 percent in survey one and 13.9 percent in survey two indicated a preference for the voice commands only, 77.8 percent in survey one and 61.1 percent in survey two indicated a preference for the combination of voice and visual recommendations, and 4.4 percent in survey one and 2.8 percent in survey two indicated that they had no preference.

Achievement of System Wide Goals

Subjects were asked several questions about how frequently they thought the ALI-SCOUT system helped them reduce their travel time, avoid congestion, drive more safely, save fuel, find the fastest route, and reach their destination on time. Subjects judged these items using seven-point scales anchored with the labels "never" for one and "always" for seven. The study showed that 37.7 percent in survey one and 47.2 percent in survey two thought that ALI-SCOUT helped them reduce their travel time at least some of the time (i.e., a response of two or greater), 46.6 percent in survey one and 30.7 percent in survey two thought that the system helped them avoid congestion, 48.8 percent in survey one and 36.2 percent in survey two thought ALI-SCOUT helped them drive more safely at least some of the time, 44.4 percent in survey one and 36.2 percent in survey two thought the system helped them save fuel at least some of the time, 53.2 percent in survey one and 38.9 percent in survey two thought ALI-SCOUT helped them find the fastest route, and 51.0 percent in survey one and 38.9 percent in survey two thought ALI-SCOUT helped them reach their destination on time.

ALI-SCOUT Characteristics

Subjects were asked several questions about the characteristics of ALI-SCOUT as a whole. On seven-point scales, subjects were asked to rate their level of difficulty for learning and understanding ALI-SCOUT, the sufficiency of information and advance warning, the accuracy of guidance, whether they thought ALI-SCOUT helped them find their way, reduced their travel time and functioned properly, level of distraction, and their overall impression. The scale for rating the level of difficulty in learning and understanding ALI-SCOUT was anchored by the labels "very difficult" for one and "very easy" for seven, with a response of four indicating that it was neither difficult nor easy to understand. The responses showed that 51.0 percent in survey one and 55.6 percent in survey two thought ALI-SCOUT was easy to learn (i.e., a response of five, six, or seven), while many respondents were neutral in their response (20.0 percent in survey one and 19.4 percent in survey two). Further, 73.4 percent in survey one and 66.6 percent in survey two indicated that it was easy to understand. Sufficiency of information and

advance warning was rated using a scale anchored by the labels "insufficient" for one and "sufficient" for seven. The study showed that 71.2 percent in survey one and 61.1 percent in survey two reported that the amount of information given was good (i.e., they indicated five, six, or seven), while 64.5 percent in survey one and 72.2 percent in survey two reported that the advance warning was good. Subject judged accuracy of guidance using a scale anchored by the labels "very inaccurate" for one and "very accurate" for seven, with a response of four indicating neutrality for the question. Results showed that 50.0 percent in survey one and 52.7 percent in survey two indicated that they thought the ALI-SCOUT system as a whole was inaccurate (i.e., a response of one, two or three), 35.5 percent in survey one and 25.0 percent in survey two indicated the system was accurate (i.e., a response of five, six, or seven), and 20.0 percent in survey one and 13.9 percent in survey two indicated a neutral response.

Subjects judged whether the ALI-SCOUT system as a whole helped them find destinations, reduced their travel time and functioned properly by indicating their level of agreement with the statements: "the ALI-SCOUT system as a whole helped me find my way"; "the ALI-SCOUT system as a whole helped reduce my travel time"; and "the ALI-SCOUT system as a whole functioned properly" These scales were anchored by the labels "strongly disagree" for one and "strongly agree" for seven, with four indicating neither agreement nor disagreement. The results showed that 46.7 percent in survey one and 61.1 percent of respondents in survey two indicated disagreement with the statement that the display helped them find their way, while 19.9 percent in survey one and 16.6 percent in survey two indicated agreement. Many people gave neutral responses (28.9 percent in survey one and 16.7 percent in survey two). The study also showed that 71.1 percent in survey one and 77.8 percent in survey two indicated disagreement with the statement about reducing travel time, while 4.4 percent in survey one and 11.1 percent in survey two indicated agreement. Finally, 31.2 percent in survey one and 30.6 percent of respondents in survey two indicated disagreement with the state that ALI-SCOUT functioned properly, while 40.0 percent in survey one and 52.7 percent in survey two indicating agreement.

Subjects also judged the level of distraction caused by the ALI-SCOUT system using a scale anchored by the labels "very distracting" for one and "not at all distracting" for seven. Results showed that 75.5 percent in survey one and 69.4 percent in survey two indicated that ALI-SCOUT was not distracting (i.e., they responded with a five, six, or seven). Finally, subjects reported their overall impression of the ALI-SCOUT system as a whole using a scale anchored by the labels "disliked" for one and "liked" for seven, with a response of four indicating neutrality. The responses showed that 46.7 percent in survey one and 49.9 percent in survey two indicated some degree of dislike (i.e., they reported one, two, or three) and 31.1 percent in survey one and 38.9 percent in survey two indicated that they liked ALI-SCOUT at least to some degree (a response of five, six, or seven). Many respondents gave neutral responses (17.8 percent in survey one and 5.6 percent in survey two).

Beacon Coverage

Subjects were asked about their thoughts on the size of the area in which beacons were installed and the spacing between beacons in the beaconized area. Subjects judged the size of the beacon coverage area using a seven-point scale anchored by the labels "coverage area too small" for one and "coverage area large enough" for seven. The results showed that 93.4 percent in survey one and 86.1 percent in survey thought the coverage area was small (i.e., they indicated either one, two or three), with 75.6 percent in survey one and 58.3 percent in survey two indicating that the coverage was too small (a response of one). Respondents judged whether the beacon spacing was too close or too far apart for their driving needs by using a seven-point scale anchored by the labels "beacons too far apart" for one and "beacons close enough" for seven. The results showed that 95.5 percent in survey one and 80.5 percent in survey two thought the beacon spacing was not close enough (i.e., a response of six or less). Combined, these results indicate on overwhelming dissatisfaction with both the extent and the density of beacon coverage during the time of the pilot study.

Use of the ALI-SCOUT System

Use by Type of Trip

Subjects were asked to rate how frequently they used ALI-SCOUT for their work commute, other work-related trips, recreational trips, and other personal trips. The results showed that 75.5 percent in survey one and 63.9 percent in survey two used ALI-SCOUT for commuting on more than one-half of their commute trips (i.e., a response of five, six, or seven), 35.6 percent in survey one and 30.6 percent in survey two used ALI-SCOUT for more than one-half of their other work-related trips, 31.2 percent in survey one and 27.8 percent in survey two used ALI-SCOUT for over one-half of their recreational trips, and 31.1 percent in survey one and 36.1 percent in survey two used ALI-SCOUT for more than one-half of their other personal trips.

ALI-SCOUT Driving Compared to Non-ALI-SCOUT Driving

Subjects answered several question in which they were asked to rate the extent to which ALI-SCOUT changed their attention to various driving-related factors, changed various emotions while driving, and changes the frequency of certain driving experiences. Subjects judged their change in attention to various driving-related factors using a seven-point scale anchored by the labels "much less attention" for one and "much more attention" for seven, with a response of four indicating "no change." Results showed that when compared to non-ALI-SCOUT driving, 84.4 percent in survey one and 77.8 percent in survey two thought ALI-SCOUT caused no change in their attention to traffic conditions, 80.0 percent in survey one and 72.2 percent in survey two thought ALI-SCOUT caused no change in their attention to traffic signals, 91.1 percent in survey one and 83.3 percent in survey two thought ALI-SCOUT caused no change in their attention to road signs, 77.8 percent in survey one and 72.2 percent in survey two thought ALI-SCOUT caused no change in their attention to street signs, 88.9 percent in survey one and 80.6 percent in survey two thought ALI-SCOUT caused no change in their attention to street addresses, 93.3 percent in survey one and 88.9 percent in survey two thought ALI-SCOUT caused no change in their attention to the vehicle speedometer, 93.3 percent in survey one and 88.9 percent in survey two thought ALI-SCOUT caused no change in their attention to the

vehicle mirrors, and 95.6 percent in survey one and 86.1 percent in survey two thought the ALI-SCOUT system produced no change in their attention to their fuel gauge.

Subjects judged the extent to which ALI-SCOUT, as compared to their driving without ALI-SCOUT, change the frequency of various feelings using a seven-point scale anchored by the labels "always less with ALI-SCOUT" for one and "always more with ALI-SCOUT" for seven, with a response of four indicating no change. Results showed that when compared to non-ALI-SCOUT driving, 88.9 percent in survey one and 72.2 percent in survey two thought ALI-SCOUT caused no change in their feeling of nervousness while driving, 80.0 percent in survey one and 63.9 percent in survey two thought ALI-SCOUT caused no change in their feelings of confidence, 77.8 percent in survey one and 75.0 percent in survey two thought ALI-SCOUT caused no change in their feelings of confusion, 73.3 percent in survey one and 72.2 percent in survey two thought ALI-SCOUT caused no change in their feelings of attentiveness, 86.7 percent in survey one and 77.8 percent in survey two thought ALI-SCOUT caused no change in their feelings of safety, 86.7 percent in survey one and 69.4 percent in survey two thought ALI-SCOUT caused no change in their feelings of stress, 82.2 percent in survey one and 72.2 percent in survey two thought ALI-SCOUT caused no change in their feelings of relaxation, and 66.7 percent in survey one and 52.8 percent in survey two thought the ALI-SCOUT system produced no change in their feelings of frustration, with 26.7 percent in survey one and 33.4 percent in survey two indicating increased frustration while driving with ALI-SCOUT.

Subjects judged the extent to which ALI-SCOUT, as compared to their driving without ALI-SCOUT, changed the frequency of various driving experiences using a seven-point scale anchored by the labels "always less with ALI-SCOUT" for one and "always more with ALI-SCOUT" for seven, with a response of four indicating no change. Results showed that when compared to non-ALI-SCOUT driving, 91.1 percent in survey one and 83.3 percent in survey two thought ALI-SCOUT caused no change in their experience of crashing, 93.3 percent in survey one and 83.3 percent in survey two thought ALI-SCOUT caused no change in their experiences of missing stop signs, 91.1 percent in survey one

and 80.6 percent in survey two thought ALI-SCOUT caused no change in their experiences of running red lights, 91.1 percent in survey one and 77.8 percent in survey two thought ALI-SCOUT caused no change in their experiences of running off the road, and 84.4 percent in survey one and 75.0 percent in survey two thought ALI-SCOUT caused no change in their experiences of crossing lane markers.

Crashes and Near Crashes

Subjects were asked if they were involved in any crashes while driving an ALI-SCOUT equipped vehicle. All respondents in survey one and 94.5 percent of respondents in survey two indicated that they had not been involved in a crash. The remaining 5.6 percent in survey two declined to answer the question. Subjects were asked if they were involved in any near crashes while driving an ALI-SCOUT equipped vehicle. The results showed that 95.6 percent in survey one and 83.3 percent in survey two indicated that they had not been involved in any near crashes, while 2.2 percent in survey one and 8.3 percent in survey two indicated that they had. Those people reporting near-crashes were then asked to rate the extent to which they thought ALI-SCOUT was a factor in the near crash using a scale anchored by the labels "not at all a factor" for one and "the main factor" for seven. One-half of subjects in both surveys indicated that ALI-SCOUT was not at all a factor while one half indicated that ALI-SCOUT was the main factor in the near crash (i.e., a response of six or seven). These subject were also asked to explain how ALI-SCOUT did or did not contribute to the near crash. Over both surveys, two-thirds of the subjects reporting a near crash answered with the following four comments:

- Driver was not paying attention when demonstrating ALI-SCOUT;
- Driver resetting destination while driving;
- Vehicle nearly side-swiped by other vehicle;
- Driver was not paying attention to ALI-SCOUT.

Valuation

Willingness to Pay

Subjects were asked several question related to the valuation of the ALI-SCOUT system. For the purpose of answering the questions, subjects were asked to assume that the ALI-SCOUT system was available nationwide. Given this scenario, subjects rated how useful they thought the ALI-SCOUT system would be for commuting trips, out-of-town vacations, out-of-town business trips, and local driving using a seven-point scale anchored with the labels "not at all useful" for one and "extremely useful" for seven. The results showed that 42.2 percent in survey one and 63.8 percent in survey two thought that the ALI-SCOUT system would not be useful for commuting trips (i.e., a response of one, two, or three), while 35.5 percent in survey one and 27.7 percent in survey two thought it would be useful for commuting (i.e., a response of five, six, or seven). The study also showed that 20.0 percent in survey one and 19.5 percent in survey two thought the ALI-SCOUT system would not be useful for out-of-town vacations, while 66.7 percent in survey one and 58.2 percent in survey two thought that it would be useful. The ratings also showed that 15.5 percent in survey one and 14.0 percent in survey two thought that ALI-SCOUT would not be useful for out-of-town business trips, while 68.9 percent in survey one and 63.9 percent in survey two thought that it would be useful. Finally, 57.8 percent in survey one and 66.6 percent in survey two thought that ALI-SCOUT would not be useful for local driving, while 22.2 and 14.0 thought that it would be useful.

Next, subjects were asked to assume that they had $2,500 to spend on options for a new vehicle. They then were presented with a list of options and costs for the options and asked to identify which options they would purchase with their $2,500. Table 2 shows the percentage of people in each survey who indicated that they would purchase each option. The options are listed in order of frequency of selection. Clearly, few pilot study participants would be willing to purchase an ALI-SCOUT given a nationwide network, $2,500 to spend, and a cost of $1,000 for the ALI-SCOUT device.

Table 2: A Summary of the Percentage of People who Indicated Which Vehicle Options They Would Buy if They Had $2,500 to Spend on Options for a New Car.		
Vehicle Option	**Survey one**	**Survey two**
Air Conditioning ($650)	97.8	91.7
Power Locks ($250)	91.1	91.7
Power Windows ($300)	82.2	86.1
Driver Side Air Bag ($400)	86.7	80.6
Passenger Side Air Bag ($400)	82.2	83.3
Power Mirror ($100)	71.1	77.8
Cassette Player ($150)	60.0	55.6
CD Player ($250)	48.9	30.6
Cellular Phone ($500)	26.7	27.8
Integrated Child Safety Seat ($150)	22.2	13.9
Car Alarm ($300)	15.6	13.9
Sunroof ($500)	2.2	8.3
ALI-SCOUT ($1,000)	2.2	0.0
Trip Computer ($1,000)	0.0	0.0

As a further attempt to judge subjects' valuation of ALI-SCOUT, subjects were asked to indicate how much they would be willing to pay for the ALI-SCOUT as an option on a new car. Table 3 categorizes the responses as a function of price range and percentage of people willing to pay some price within that range. As shown in Table 3, the modal response showed that most people in both surveys are willing to pay somewhere between $200 and $399 for the ALI-SCOUT device.

Table 3: Summary of How much People are Willing to Pay for the ALI-SCOUT Device as a Function of Survey Number		
Price Range	**Survey one**	**Survey two**
- $50	0.0	2.8
$0	28.9	27.8
$1 - $199	15.5	13.9
$200 - $399	35.5	33.3
$400 - $599	11.1	2.8
$600 - $799	6.6	8.4
$800 - $1000	2.2	2.8

Subjects were then asked to indicate how much they would be willing to pay for the ALI-SCOUT system to be added to their present vehicle. The responses showed that 44.4 percent in survey one and 38.9 percent in survey two would not pay anything to have the ALI-SCOUT put in their car, 13.3 percent on survey one and 22.3 percent in survey two indicated that they would pay up to $199 to add ALI-SCOUT to their present vehicle, 31.1 percent in survey one and 25.0 percent in survey two replied that they would be willing to between $200 and $399 to add the ALI-SCOUT, 11.1 percent in survey one and 2.8 percent in survey two indicated that they would be willing to pay between $400 and $599 to add ALI-SCOUT, and 2.8 percent in survey two indicated that they would pay $650 to add ALI-SCOUT to their present vehicle.

Subjects were asked to indicate how much they would be willing to pay for ALI-ALI-SCOUT as an option on a rental car per day and per week. The study showed that 42.2 percent in survey one and 30.6 percent in survey two indicated that they would not be willing to pay any additional money per day for ALI-SCOUT on a rental vehicle, 48.8 percent in survey one and 58.3 percent in survey two indicated that they would be willing to pay between one and five dollars extra per day for the ALI-SCOUT, while 8.9 percent in survey one and 2.8 percent in survey two indicated that they would pay $10 per day

extra to have an ALI-SCOUT on a rental car. The results also showed that 40.0 percent in survey one and 30.6 percent in survey two indicated that they would not be willing to pay anything extra per week to have ALI-SCOUT on their rental car, 2.2 percent in survey one and 11.1 percent in survey two indicated they would be willing to pay between one and nine dollars extra per week, 42.8 percent in survey one and 33.3 percent in survey two indicated they would pay between $20 and $29 extra per week, 8.8 percent in survey one and 11.2 percent in survey two indicated that they would be willing to pay between $30 and $39 extra per week, 2.2 percent in survey one indicated that they would pay $40 per week extra, 4.4 percent in survey one and 2.8 percent in survey two indicated that they would pay $50 per week extra, and 2.8 percent in survey two indicated that they would pay $70 per week extra to have ALI-SCOUT on a rental car.

Who Should Pay for ALI-SCOUT Infrastructure?

In order to function properly, ALI-SCOUT requires two additional components to support the in-vehicle equipment. These out-of-vehicle components, or infrastructure, are roadside beacons for communication between ALI-SCOUT and the traffic operations center and a central computer to receive information, track traffic congestion, calculate ALI-SCOUT routes, and transmit these routes. Installation, operation, and maintenance of this infrastructure will require financial investment above the price of the in-vehicle ALI-SCOUT system. Subjects were asked to indicate who they thought should pay these costs by selecting from a list of entities all those who they thought should pay at least part of the cost. Table 4 shows the percentage of people who selected each entity in order of the most frequently selected entity and survey number.

Table 4: Summary of Who Respondents Thought Should Pay For the ALI-SCOUT Infrastructure, at Least in Part.		
Entity	**Survey one**	**Survey two**
Individual Users of ALI-SCOUT	57.8	61.1
Commercial Users of ALI-SCOUT	46.7	63.9
Manufacturers of Products like ALI-SCOUT	46.7	47.2
State Government	35.6	30.6
Federal Government	35.6	27.8
County Government	31.1	30.6
City Government	24.4	22.2
Other Entities	6.7	11.1
Car Manufacturers	4.4	5.6

Subjects were then asked to rank the top three entities selected in terms of who they believed should bear the greatest, second greatest, and third greatest cost of the infrastructure. The results showed that the two most frequently selected entities for bearing the greatest cost were manufactures of products like ALI-SCOUT and individual users, the most frequently selected entities for paying the second greatest infrastructure costs were commercial users and manufacturers of products like ALI-SCOUT (many people did not indicate a second choice), and the most frequently selected entity for paying the third most costs were county government and manufacturers of products like ALI-SCOUT. Over one-third of respondents declined to indicate a tertiary response.

One option for funding the installation, operation, and maintenance of the ALI-SCOUT infrastructure is to charge users a monthly user fee for service. Subjects were asked to indicate how much they would be willing to pay per month for such a service. The results showed that 28.9 percent in survey one and 27.8 percent in survey two would not pay for the service, 42.2 percent in survey one and 55.6 percent in survey two would be

willing to pay between one and 10 dollars per month, 15.6 percent in survey one and 2.8 percent in survey two would be willing to pay between $11 and $20 per month, 4.4 percent in survey one and 5.6 percent in survey two would be willing to pay between $21 and $30 per month, and 2.8 percent in survey two indicated that they would pay $60 per month to receive ALI-SCOUT services.

Importance of Potential Benefits from ALI-SCOUT-Like Systems

Subjects were asked to consider the operation of systems like ALI-SCOUT and rate the importance of such systems on fuel savings, reduced air pollution, traffic safety, reduced highway congestion, accurate route guidance, diverting traffic into neighborhoods, ease of use, and rapid updates of road conditions. Subject rated these factors using a seven-point scale anchored by the labels "not at all important" for one and "extremely important" for seven, with a response of four indicating that it is neither important nor unimportant. The results are shown in Table 5 as a function of the factor (in order of importance) and survey number. The values shown are the percentages of respondents who indicated that they thought the factor had some level of importance (i.e., they responded either five, six, or seven).

Table 5: Percentage of Subjects Assigning Some Level of Importance to Various Factors Related to ALI-SCOUT-Like Systems

Factor	Survey One	Survey Two
Quick Updates of Road Conditions	80.0	86.1
Ease of Use	77.7	75.0
Accuracy of Route Guidance	71.1	80.6
Relief of Highway Congestion	71.1	80.5
Traffic Safety	48.7	52.8
Traffic Diverted into Neighborhoods	40.0	44.5
Reduced Air Pollution	20.0	36.1
Fuel Savings	17.8	36.1

Potential Changes to ALI-SCOUT User Survey

As mentioned in the introduction, the main purpose of the pilot study was to pretest and finalize methods, procedures, and protocols for the subsequent analysis including the user survey and its administration. There are several changes from the pilot study that will take place.

1) In general, we found little difference in results between the surveys. This suggests that user opinion does not change much between the first week and the second month of use. These results argue that it is unnecessary to administer two surveys within this time period. Therefore, in the evaluation study, only one survey will be administered after the first month of participation. If a subject participates for a period of six months or longer, then another survey will be administered after six months of participation.

2) The pilot test of the survey showed that some of the items may not be capturing the type of information intended or capturing redundant information. Further, feedback from subjects and the low response rate suggested that the survey may be too long. Therefore, several of the survey questions will be omitted in the subsequent evaluation.

DRIVER LOGS

In addition to filling out surveys, pilot study participants were asked to keep a record of all trips in which they drove the ALI-SCOUT equipped vehicle during the first month of driving. As mentioned previously, the hand-off package contained a three-ring binder (the driver log folder) with driver log instructions, 28 daily driver log sheets, and four stamped, addressed envelopes for the weekly return of driver log sheets (see Appendix A)

A separate daily driver log sheet was to be completed each day for the first 28 days of participation. On the driver log sheet, the subject was instructed to record the origin, destination, trip length in miles, and time of day for each trip that he or she drove the ALI-SCOUT equipped car, whether they used the ALI-SCOUT device for the trip, whether this

was the first time ALI-SCOUT was used for the trip, and whether ALI-SCOUT went into guided mode. On a daily basis, the subjects were also asked to record information on amount of fuel purchased, unusual driving experiences, and problems with the ALI-SCOUT. If more room was needed on the daily driver log form, the subjects were instructed to write on the back. Each set of seven daily driver log forms in the folder was demarcated with a yellow sheet and the subjects were asked to mail back the set of seven logs for each week at the end of the week. If a package of drivers log forms was overdue by ten days, the subject was contacted by phone and reminded to return the completed logs.

Summary of Driver Log Information

As shown in Appendix A, the daily driver log form has spaces for recording several types of information: Daily trip information (type and address of each origin and destination, length and time of trip, ALI-SCOUT use, whether guided mode was available), fuel purchase, unusual driving experiences, and problems using ALI-SCOUT.

Participants were asked to complete daily driver log sheets for 28 consecutive days. After each seven day period, subjects were asked to mail completed sheets to UMTRI using self-addressed, stamped envelopes that were provided. Table 6 shows the number of people completing driver logs as a function of week number. As can be seen in this table, of the 62 people who participated, 52 people filled out the first-week logs and four people dropped out each subsequent week, a weekly drop-out rate of eight or nine percent.

Table 6: Number of People Completing Surveys by Week of Participation and Percentage Change from Previous Week		
Week Number	**Frequency**	**Percentage Change**
1	52	n/a
2	48	-7.69
3	44	-8.33
4	40	-9.09

Daily Trips

Subjects were asked to record detailed information about each trip they drove with the ALI-SCOUT-equipped vehicle. As discussed in the driver log instructions (Appendix A), we defined a trip as the driving that occurred between starting the car and turning off the ignition. Therefore, an outing in which a person goes from home to the bank, from the bank to visit a friend, and then from the friend's residence back to home would be recorded as three trips. The driver log sheet had room for up to ten daily trips, but participants were instructed to use the back of the driver log sheet to record extra trips (which several subjects did). For each trip, the subject was instructed to indicate the name and address of the origin and destination location, the approximate length of trip in miles, the hour of day, whether they used the ALI-SCOUT device during the trip, whether this was the first time ALI-SCOUT was used for the trip, and whether they passed a functioning beacon (indirectly measured by asking them if they received guided mode instructions during the trip).

Over all driver logs received, a total of 3,958 trips were recorded. Of those trips for which the time of day was recorded, 17.3 percent were during the morning traffic peak (6:31 am to 8:30 am), 10.6 percent were during the morning traffic base (8:31 am to 11:30 am), 8.0 percent were during noon (11:31 am to 1:30 pm), 18.0 percent were during the afternoon base (1:31 pm to 4:30 pm), 19.9 percent were during afternoon peak (4:31 pm

to 6:30 pm), 20.0 percent were during the evening (6:31 pm to 11:30 pm), and 6.3 percent were during the night (11:31 pm to 6:30 pm). Of those trips where an estimated trip length was recorded, 39.1 percent were five miles or less in estimated length, 22.0 percent were 5.1 to 10.0 miles long, 27.7 percent were 10.1 to 20.0 miles long, 6.7 percent were 20.1 to 30.0 miles long, 1.9 percent were 30.1 to 40.0 miles long, and 2.6 percent were greater than fifty miles long.

For each trip, a destination name was entered. In order derive an indirect measure of trip purpose, we categorized the destinations into 15 types of locations. Table 7 shows the frequency and percentage of trips to each type of location.

Table 7: Frequency and Percentage of Destinations Reported in Driver Logs

Location Type	Number	Percentage
Home	1463	41.34
Work	771	21.79
Shopping Facility	362	10.23
School/Educational Facility	256	7.23
Friend/Relative's Residence	155	4.38
Restaurant/Bar	72	2.03
Recreational Area (e.g., golf course)	62	1.75
Religious Facility	61	1.72
Medical/Personal Service Facility	48	1.36
Entertainment Area (e.g., Movie Theater)	17	0.48
Child Care Facility	13	0.37
Motel/Hotel/Inn	10	0.28
Other	249	7.04

Table 8 shows the total number of trips, weekly trips by person, total number of trips in which ALI-SCOUT was used, the weekly ALI-SCOUT trips by person, the total number of trips in which guided mode instructions were received, and the weekly number of trips per person in which guided mode was involved. As can be seen in Table 8, the number of weekly trips per person remained fairly constant over the first three weeks and then dropped off slightly during the fourth week. Interestingly, the number of weekly trips in which ALI-SCOUT was used and the weekly number of trips in which guided mode was achieved remained somewhat constant over the first three weeks and then slightly increased during the fourth week. There are at least two explanations for these findings. First, people were becoming more familiar with ALI-SCOUT and where it worked for them and began to turn it on only when they were traveling through the beaconized area. A second possibility is that those people who rarely used ALI-SCOUT began failing to return the driver logs, inflating the weekly-by-person-use values. In the highest weeks (week one and three), people are reporting an average of 3.33 trips per day. This is high compared to the 1990 Nationwide Personal Transportation Survey (NPTS) data that shows that males take an average of 2.55 trips per day. Given that all pilot study participants were employed full-time and have a high household income, one would expect these subjects to make more trips than the average U.S. resident.

Table 8: Number of Trips and Weekly Trips per Person as a Function of Whether ALI-SCOUT was used and Guided Mode was Achieved.

Week number	Total number of trips	Weekly trips per person	Total number of trips, ALI-SCOUT	Weekly number of trips per person, ALI-SCOUT	Total number of trips, Guided Mode	Weekly number of trips per person, Guided Mode
1	1212	23.31	213	4.10	133	2.56
2	1024	21.33	210	4.38	131	2.73
3	1007	22.89	175	3.98	110	2.50
4	715	17.88	194	4.85	124	3.10

For each trip, subjects were asked to indicate the location of the origin and destination. In order to get an assessment of driving frequency in the FAST-TRAC study area, for each origin and destination pair (O-D pair) we determined whether the origin was in the FAST-TRAC area and whether the destination was in the FAST-TRAC area. There were a total of 2,331 trips in which the origin or destination were clearly indicated. The O-D pair results shown in Tables 9a, 9b, and 9c are presented as a function of ALI-SCOUT use and whether guided mode instructions were reported.

Table 9a: Origin-Destination Matrix (Showing Number of Trips and Percentage of Total) for Trips in which ALI-SCOUT Was *Not* Used and *No* Guided Mode Instructions were Reported.

	Destination			
Origin	**FAST-TRAC Area**	**Non-FAST-TRAC Area**	**Unknown**	**Total**
FAST-TRAC Area	33 13.3%	17 6.9%	13 5.2%	63 25.4%
Non-FAST-TRAC Area	14 5.6%	109 44.0%	19 7.7%	142 57.3%
Unknown	8 3.2%	16 6.5%	19 7.7%	43 17.3%
Total	55 22.2%	142 57.3%	51 20.6%	248 100%

Table 9b: Origin-Destination Matrix (Showing Number of Trips and Percentage of Total) for Trips in which ALI-SCOUT Was Used and *No* Guided Mode Instructions were Reported				
	Destination			
Origin	FAST-TRAC Area	Non-FAST-TRAC Area	Unknown	Total
FAST-TRAC Area	232 26.9%	152 17.6%	24 2.8%	408 47.2%
Non-FAST-TRAC Area	138 16.0%	212 24.5%	16 1.9%	366 42.4%
Unknown	30 3.5%	30 3.5%	30 3.5%	90 10.4%
Total	400 46.3%	394 45.6%	70 8.1%	864 100%

Table 9c: Origin-Destination Matrix (Showing Number of Trips and Percentage of Total) for Trips in which ALI-SCOUT Was Used and Guided Mode Instructions were Reported				
	Destination			
Origin	FAST-TRAC Area	Non-FAST-TRAC Area	Unknown	Total
FAST-TRAC Area	363 29.8%	261 21.4%	69 5.7%	693 56.9%
Non-FAST-TRAC Area	283 23.2%	99 8.1%	30 2.5%	412 33.8%
Unknown	59 4.8%	28 2.3%	27 2.2%	114 9.4%
Total	126 10.3%	705 57.8%	388 31.8%	1219 100%

Fuel Consumption

In an attempt to determine fuel consumption, subjects were asked to record the number of gallons put into the ALI-SCOUT-equipped vehicle during the four week period (see Appendix A, driver log instructions). Table 10 shows the number of gallons of gasoline put into ALI-SCOUT vehicles by week and the weekly number of gallons per person. The results show that the reported weekly number of gallons per person varied nonsystematically by week.

Table 10: Fuel Purchase by Week of Participation

Week Number	Number of Gallons	Number of Gallons per Person
1	594	11.42
2	711	14.81
3	550	12.50
4	372	9.30

Unusual Driving Experiences

Pilot study participants were asked to indicate in the appropriate blank space on the daily driver log sheet any unusual driving experiences (for example, crashes, near crashes, or traffic citations) that they had while driving the ALI-SCOUT-equipped vehicle (see Appendix A, driver log instructions). An analysis of these open-ended comment showed that, over all daily driver log sheets, there were only six unusual driving experiences reported. Shown as shown in Appendix E, one comment indicated a near crash due to driver error, one indicated a near crash of a non-participant using the ALI-SCOUT vehicle, one indicated difficulty staying in the lane attempting to enter a destination while driving (an activity clearly discouraged by the evaluation team and Siemens Automotive), and the remaining responses were not about unusual driving experiences.

Problems With ALI-SCOUT System

Study participants were asked to indicate in the appropriate blank space on the daily driver log sheet any problems they had with the ALI-SCOUT system (e.g., inputting information, understanding the output, receiving information from a beacon) while driving the ALI-SCOUT-equipped vehicle (see Appendix A, driver log instructions). An analysis of these open-ended comments by week of participation showed that 49.09 percent of all responses were recorded during the first week of participation, 26.36 percent during week two, 16.36 percent during week three, and 8.18 percent were recorded during the fourth week of participation.

In all, there were 425 comments written in the "Problem with the ALI-SCOUT system" section of the daily driver log form. The evaluation team analyzed for content and categorized these comments (the verbatim responses are presented in Appendix E). Table 11 shows a listing of the categories and the frequency with which responses fit into them. Note that this table lists a greater number of comments than were recorded in the driver log form. This occurred because some respondents included more than one idea in a single comment.

Table 11: Summary of "Problems with ALI-SCOUT" Driver Log Comments		
Category	**Frequency**	**Percentage**
Did not agree with ALI-SCOUT-selected route	80	17.39
Thought system was inaccurate	72	15.65
Lost guided mode despite following instructions	52	11.30
Thought beacon not responding	43	9.35
Difficulty entering destinations	25	5.43
Trip out of beacon area	24	5.22
Reported positive experience	21	4.57
Thought voice commands did not give sufficient advanced warning	16	3.48
Told to make turn at nonexisting road or illegal turn	14	3.04
Thought system did not distinguish between close roads	10	2.17
System responded to beacon but did not go into guided mode	9	1.96
Thought system directed them into traffic problems	8	1.74
Stated dislike of system	6	1.30
Thought the beeping and/or voice was irritating	4	0.87
Miscellaneous	76	16.52

Potential Changes to Driver Logs and Driver Log Procedure

As mentioned in the introduction, the main purpose of the pilot study was to pretest, validate, and finalize methods, procedures, and protocols for the subsequent analysis including the driver logs and its administration. There are several changes from the pilot study that will take place.

1) During the course of the pilot study, we had to renumber several subjects' driver log sheets because they put more than one day of trips on a daily driver log sheet. As a

result, our previously assigned log numbers did not end up corresponding with the daily driver log sheets. To correct this problem in the pilot study we spent a significant amount of time renumbering driver log sheets. During the actual evaluation, this problem will be addressed by removing the pre-entered driver log numbers and numbering them as they are received in the UMTRI FAST-TRAC office. This procedure was successfully used for the last third of the subjects in pilot test.

2) We also found that some participants did not fill out consecutive daily driver log forms. For example, one subject did not fill out forms for weekend travel. This problem will be corrected by given subjects more clearly written instructions, and they will be instructed verbally to fill out information on consecutive days.

3) We experienced some difficulty with subjects misplacing evaluation materials after attending a handoff meeting and before getting an ALI-SCOUT device installed in their vehicle, which, in some cases, was weeks. This problem will be eliminated by giving participants the handoff materials after they have installed the ALI-SCOUT in their vehicles.

4) Analysis of driver log comments and trip frequency by week shows that the four-week duration of the driver log study is too long and, perhaps, inappropriate. The study showed that about 92 percent of written comments were found in the first three weeks of participation. The trip analysis showed that the weekly trips per person remained fairly constant over the first three weeks of participation, and then drops during the fourth week. In fact, all week-by-week analyses we conducted showed consistent results over the first three weeks, with either an increase or decrease occurring for the fourth week. These results suggest that certain subjects are losing interesting in maintaining the driver log during the fourth week. Therefore, the driver log study will only be conducted for three weeks.

5) Because we can only collect information on the subject's driving (and for some vehicles many other trips are made by non-participants), vehicles vary in fuel consumption

rates, and vehicles are frequently fueled by non-participants, the analysis of fuel data indicated that the collection of this information gives us very little idea of actual fuel consumption. Therefore, this data will not be collected in subsequent evaluations.

6) Because we received only six comments out of nearly 4,000 driver logs about unusual driving experiences, this category of open-ended comments will be combined with the "problems with ALI-SCOUT" category to create a new category called, "Comments about ALI-SCOUT and Driving."

7) We found that many people had difficulty entering origin and destination information. This finding argues that we need to simplify the trip entry method. The most likely revision to this method will be to take out the address and simply ask for the name and city of the origin and destination.

8) We found that asking to indicate only the hour (and not the minute) of the start time of their trips led to confusion and possible inaccuracies in the resulting data; that is, some subjects entered the minutes anyway. Therefore, we will ask the subjects to enter both hour and minute of trip start time.

APPENDIX A:

Handoff package written materials

Welcome to the FAST-TRAC project

You have been asked to participate as a subject in the FAST-TRAC project taking place in Oakland County, Michigan. FAST-TRAC, which stands for "Faster And Safer Travel through Traffic Routing and Advanced Controls," is one of many projects nation-wide where intelligent vehicle highway systems (IVHS) are being tested. You participation will provide us with invaluable information about the various components of FAST-TRAC, particularly the in-vehicle Ali-Scout device.

As a participant in FAST-TRAC you will be driving a vehicle equipped with an experimental device capable of providing route guidance to destinations you enter. As part of our evaluation, you will be asked to participate in several activities. First, you are requested to maintain a record or log of all trips that you take and driving experiences that you have for the next four weeks. Periodically, you will also be asked to fill out questionnaires. You may also be asked to participate in one-on-one and/or group interviews. While your participation in these activities is extremely beneficial to the evaluation, your participation in any of the activities is voluntary.

In your "packet" of Ali-Scout information you will find a users manual, a VHS Video Tape that provides an introduction to using Ali-Scout, and a three-ring binder containing the driver log sheets and information. The manual and video should be looked at as soon as is convenient--they contain information that is essential to using Ali-Scout. In fact, we recommend that you watch the video with both the user's manual and the Ali-Scout display unit in front of you.

In the three-ring binder you will find all the information and materials you need to maintain a record of your driving. It is important that you read the instructions and begin filling out the driver log sheets the *first* day that your car is equipped with a functioning Ali-Scout system. At the end of each week you should mail them back to the University of Michigan in the envelopes provided.

Before you can be a participant in any of the FAST-TRAC project activities, you must sign the informed consent form on the next page. This form is a University of Michigan requirement to inform participants of what is expected of them and to protect participants from being subjected to unethical experimental treatments. You should read the form carefully. You are under no obligation to sign the form. However, without your informed consent we cannot include you in the FAST-TRAC project.

If you have any questions regarding the FAST-TRAC project, the activities that are requested of you, or the Ali-Scout evaluation please contact David or Richard at 313-763-2466 (phone) or 313-936-1076 (FAX).

SUBJECT PARTICIPATION FORM

Natural Use Study

The purpose of this experiment is determine what you think about and how you use an in-vehicle navigation system called Ali-Scout. This system displays navigation information visually and out loud. Your participation involves driving a vehicle equipped with Ali-Scout for one to twelve months. During this time you will be requested to periodically complete a questionnaire and mail it back to us. You may also be requested to maintain a daily driving log and mail these to us on a weekly basis. Additionally, you may be asked to participate in a phone, personal and/or group interview during or after the study. While your participation in all phases of the study will be extremely useful, your participation will be completely voluntary.

The results from this study will be published, but your name will not appear on any of the reports. All information that you give us will be kept strictly confidential.

The requirements for participation are that you have a valid drivers license and a willingness to maintain a driver log, complete the questionnaire, and voice your opinion in interviews. If you decide to participate and later do not want to continue, you may withdraw without any penalty.

At no time should you do anything unsafe while driving the car. The in-vehicle system could be distracting, but it is under your control. As such, the only risks associated with this study are those associated with your normal driving.

I have read and understand the information presented above. I understand my participation in this study is entirely voluntary and I may withdraw at any time without penalty.

Print name: _____

Signature: _____

Date: _____

Driver Log Instructions

Hello, and welcome to the FAST-TRAC project. In order to evaluate fully the Ali-Scout system we are asking you to maintain a driving log (or diary) of your travels over the next month. You should begin filling out the driver log on the day you get the Ali-Scout device.

You have a driver log form for the first 28 days that your car will be equipped with the Ali-Scout device. For each day that you drive your car, you are asked to record every trip that you take, the fuel that you purchase, all unusual driving experiences, and any problems you have with the Ali-Scout system. Only you, the designated Ali-Scout user, should fill out the driver log for the Ali-Scout equipped car. For the days that the car is not driven by you, please write "NO TRIPS TAKEN" on the form and return it to us with the rest of the completed forms. This will help us keep track of how your car is being used and will assure us that no forms have been misplaced. Note that we also have included five extra sheets in case you need them.

Trips Taken

For our purposes, a trip is anytime you start the car, drive somewhere, and then turn the car off. This means that, for example, if you were to go from your house to a shopping center, then to a friend's house, and then back home, this would constitute three trips. The first trip was from your house to the store, the second was from the store to your friend's house, and the third was from your friend's house back home.

At the end of each trip you take as the driver of the Ali-Scout equipped car, please record the following information directly on the driving log.

Origin: Record the place, address, and city where the trip began. For example, 7-Eleven at 310 Crooks in Troy. If you don't know the street address, then just record the street name. If the trip begins in a township, then record the township name instead of a city. Also, if the trip begins out of Michigan, please indicate the state.

Destination: Record the place, address, and city where the trip ended following the instructions for recording the origin.

Length of trip in miles: Record your estimate of the trip length in miles and tenths of miles. For example, a trip length of one and one-half miles would recorded as "1.5" miles.

Time of day that the trip took place: Record the hour of the day in which the trip began and circle whether the hour was AM or PM. For example, a trip that started at 1:30 in the afternoon would be recorded as "1" with PM circled. It is important that you remember to indicate AM or PM.

Was Ali-Scout used during the trip? Indicate whether or not you used Ali-Scout for the trip by circling "Y" for yes or "N" for no. If Ali-Scout was not used, then the next two questions do not need to be answered.

Was this the first time Ali-Scout was used for this trip? Indicate whether or not this was the first time that you used Ali-Scout to guide you from this specific origin to this specific destination by circling "Y" for yes or "N" for no.

Did Ali-Scout go into Guided Mode during this trip? Indicate whether or not Ali-Scout went into Guided Mode during this trip by circling "Y" for yes and "N" for no. Guided Mode means that Ali-Scout gave you turn-by-turn directions during at lease some of the trip.

If you take more than 10 trips in a single day, then continue your record of the trips on the back of the driving log. Remember that trips taken by others in the Ali-Scout equipped vehicle, or trips taken by you in some other vehicle, should *not* be recorded on the driver log.

Finally, many of the trip origins will be the same as the preceding trip's destination. In these cases you may write "SAME" in the origin box to indicate that the origin of the trip is the same as the destination from the previous trip.

Fuel Purchased

If you or anyone else purchases fuel for the Ali-Scout equipped vehicle, please record the number of gallons on the driving log form. If no fuel is purchased on a specific day, then record a zero in this space.

Unusual Driving Experiences

In this section we want you to record any driving-related experiences that happen to you that were out of the ordinary. While we want you to record any unusual driving experience, we are particularly interested in any collisions (e.g., crashes, fender-benders, bumps) or near-collisions you may have experienced, unsafe driving (e.g., running off the road, failing to stop at stop sign), and any tickets or warnings from law enforcement that you may have received. It is important that you include as much detail about the incident as you can and that you record the number of the trip during which the incident occurred. The trip number can be found to the left of each origin box on the driver log form. Use the back of the form if you need more space. If you are unsure whether a certain incident should be recorded, go ahead and record that incident.

While we know that much of this information is sensitive, these data are extremely important in allowing us to assess the Ali-Scout system. The information you provide us will be kept in the strictest confidence and will not impact your driving record.

Problems using the Ali-Scout system

In this section, we want you to write down any problems that you had with the Ali-Scout system. This includes, but is not limited to, entering information into Ali-Scout, understanding the Ali-Scout display or voice commands, problems with getting to a destination, or problems in receiving information from a beacon after it is passed. Again, it is important that you include as much detail as possible about the problem and that you indicate the trip number in which the problem(s) occurred. Use the back of the driver log if you need more space.

Sending the logs back to us

At the end of each week, please remove the completed driver logs, place them in one of the provided envelopes, and mail. It is important that you check and make sure that you have completed a driver log for each day. If the envelopes are misplaced the driver logs should be mailed to:

The University of Michigan
Transportation Research Institute
Social and Behavioral Analysis Division
Attn: FAST-TRAC project
2901 Baxter Rd., Ann Arbor, MI 48109-2150

Final Information

If you have any questions about the driver logs, Dave or Richard can be phoned at (313) 763-2466 or send a facsimile to (313) 936-1076.

Thank you for participating in the FAST-TRAC project and remember to buckle up and drive safely.

DRIVER LOG **CONFIDENTIAL**

Name:_____ Date:_____ Log-number:_____ Code:_____

Trips Taken

Trip	Origin (e.g., Home, 112 2nd St., Pontiac)	Destination (e.g., Bank One, 433 Main St., Troy)	Length of trip in miles	Time of day for trip	Was Ali-Scout used?	First time Ali-Scout used for this trip?	Ali-Scout go into *Guided Mode?*
1				AM PM	Y N	Y N	Y N
2				AM PM	Y N	Y N	Y N
3				AM PM	Y N	Y N	Y N
4				AM PM	Y N	Y N	Y N
5				AM PM	Y N	Y N	Y N
6				AM PM	Y N	Y N	Y N
7				AM PM	Y N	Y N	Y N
8				AM PM	Y N	Y N	Y N
9				AM PM	Y N	Y N	Y N
10				AM PM	Y N	Y N	Y N

Note: If necessary, continue your trip records on the back.

Fuel Purchased: _____ gallons

Unusual driving experiences and corresponding trip number (e.g., collisions, near-collisions, tickets):

Problems using the Ali-Scout system and corresponding trip number (e.g., inputting information, understanding the output, receiving information from a beacon):

APPENDIX B:
Reminder Card Text

Dear FAST-TRAC Participant:

The University of Michigan FAST-TRAC Project team has not received from you the following item(s) that we have been expecting.

Missing Item(s): _____

If you have already completed and mailed the listed item(s), we thank you for your cooperation. If you have not had a chance to complete and mail these items, we request that you please take the time to do so. Your input is essential to the success of this project.

Thank you,
Social and Behavioral Analysis Division
UMTRI

APPENDIX C:
ALI-SCOUT User Survey One

ALI-SCOUT USER SURVEY

FAST-TRAC PROJECT
OAKLAND COUNTY, MICHIGAN

NAME: _____

DATE: _____

A. Driving and Commuting

In this section, we would like to learn about your driving patterns.

A1. In the space provided, please list the make (such as Ford or Pontiac), model (such as Taurus or Bonneville), and year of all of the cars (up to 3) owned or leased by your household according to how often you drive them--that is, list the car that you drive most often, list second the car that you drive second most often, and list third the car that you drive third most often. (If your household does not own or lease any vehicles, place an X in the box.)

☐ No vehicles in household

(1) Make_____ Model _____ Year _____

(2) Make_____ Model _____ Year _____

(3) Make_____ Model _____ Year _____

The FAST-TRAC Project, in which you are a participant, has been implemented in the following Oakland County communities: Troy, Rochester Hills, Auburn Hills, Pontiac, Bloomfield Hills, and Birmingham. In the following questions, the Oakland County study area refers to these communities.

A2. How long have you lived in the Oakland County study area?

_____ year(s) _____ month(s)

☐ I do not live in the study area

A3. In the last one month, how regularly did you drive within the Oakland County study area? Please circle the most appropriate number on the scale provided.

5 times a week or more						**Once a month or less**
1	2	3	4	5	6	7

A4. How familiar are you with the road network in the Oakland County study area? Please circle the most appropriate number on the scale provided.

Very unfamiliar						**Very familiar**
1	2	3	4	5	6	7

A5. Do you currently work in the Oakland County study area?

☐ Yes ☐ No

A6. What is the postal zip code of your workplace?

_____

A7. Please place an X in the box that best describes your **current status**.

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Full-time student
- ☐ Retired
- ☐ Unemployed
- ☐ Other (please specify) _____

A8. Other than commuting to and from work (or school), is driving a major part of your job or schooling in the past **one week**?

- ☐ Yes
- ☐ No

A9. Not counting commuting trips, how many hours did you drive as a part of your job or schooling in the past **one week**?

_____ hr(s) and _____ minute(s)

A10. In the past three months, how many routes have you driven from your home to work (or school)?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more

A11. On average how many minutes does it take you to drive from home to work (or school) during your morning commute?

_____ minutes

A12. During your morning commute, do you generally listen to traffic reports?

- ☐ Yes
- ☐ No

A13. In general, how often do you encounter heavy traffic congestion during your morning commute?

5 times a week or more						**Once a month or less**
1	2	3	4	5	6	7

A14. In general, how often do you encounter traffic incidents (like accidents) during your morning commute?

5 times a week or more						**Once a month or less**
1	2	3	4	5	6	7

A15. Are you willing to divert from the route that you normally use to commute from home to work (or school) to avoid congestion or a traffic incident?

☐ Yes ☐ No

A16. In your opinion, what is the general level of traffic congestion in the Oakland County study area during your morning commute?

No Congestion						**Heavy Congestion**
1	2	3	4	5	6	7

A17. How many out-of-town vacation trips did you make in the last 12 months?

☐ 0
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 or more

A18. How many out-of-town business trips did you make in the last 12 months?

☐ 0
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 or more

A19. When driving in unfamiliar areas, are you generally confident or unconfident in finding your way around?

Very Unconfident						**Very Confident**
1	2	3	4	5	6	7

A20. How frequently do you use road maps?

☐ At least once a week
☐ 1-3 times per month
☐ Once every 2-6 months
☐ Once a year
☐ Less than once a year

A21. Prior to your experience with Ali-Scout, had you ever before driven a vehicle equipped with an electronic route-guidance system?

☐ Yes ☐ No (If no, please skip to question **B1.**)

A22. Which system did you use?

_____

B. Technology

FAST-TRAC represents a test of new technology. In the following questions, we would like to learn about your experience with and interest in new technology.

B1. Indicate the amount of experience that you have had using the following technologies by circling the most appropriate number on the scale provided. On this scale, **1** means none and **7** means extensive experience.

		None						**Extensive**
B1a.	Personal Computers	1	2	3	4	5	6	7
B1b.	VCRs	1	2	3	4	5	6	7
B1c.	Electronic Pager	1	2	3	4	5	6	7
B1d.	Cellular Car Phones	1	2	3	4	5	6	7
B1e.	Fax Machines	1	2	3	4	5	6	7
B1f.	Pocket Calculator	1	2	3	4	5	6	7

B2. In general, how interested are you in news items concerning new technology?

☐ Not at all interested ☐ Somewhat interested
☐ Not very interested ☐ Very interested

B3. In general, do you find new technology easy or difficult to use?

☐ Very difficult ☐ Somewhat easy
☐ Somewhat difficult ☐ Very easy
☐ Neither difficult nor easy

B4. In general, how enjoyable do you find using new technology?

☐ Not at all enjoyable ☐ Somewhat enjoyable
☐ Not very enjoyable ☐ Very enjoyable

C. Ali-Scout Operation and Displays

As a participant in the FAST-TRAC Project, you have been driving a vehicle equipped with an electronic route-guidance system called Ali-Scout. In this section, we would like to learn what you think about the different parts of the system.

C1. Since you have had an Ali-Scout equipped vehicle, how often have you used Ali-Scout for trips in which you drove? Please circle the most appropriate number on the scale provided.

Never						**Always**
1	2	3	4	5	6	7

C1A. If you did not answer **always**, we would like to learn why you sometimes did not use the system. Please explain why in the space provided.

_____

_____

_____

_____

(If you **never** used Ali-Scout, please skip to section **F**, p. 24.)

C2. The Ali-Scout system offers several options for **entering new destinations**. These options are:

Address Ranges--obtaining coordinates by using the address ranges section of the Ali-Scout manual,

Points of Interest--obtaining coordinates by using the points of interest section of the Ali-Scout manual,

Map--obtaining coordinates by referring to the map included in the Ali-Scout manual, and

Current Location--entering the current location of your vehicle.

We are interested in knowing which of these options you used most often for entering new destinations. Please rank them from one (most frequent) to four (least frequent) according to how often you used them.

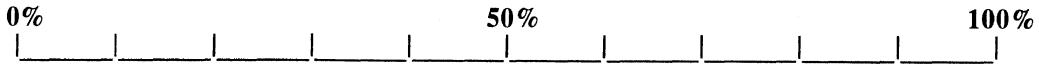
Address Ranges _____

Points of Interest _____

Map _____

Current Location _____

C3. Ali-Scout stores up to 80 destinations in memory. Of all the trips that you took with Ali-Scout, how often did you select a destination from Ali-Scout's memory? Please circle the most appropriate point on the scale below.



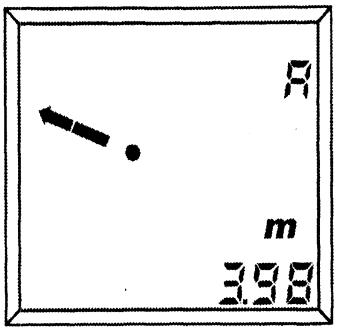
C4. We also are interested in knowing how easy or difficult you found each method of entering and selecting destinations. Please rate each of the five methods by circling the most appropriate number on the scales provided. (If you did not use a particular method, then place an X in the box.)

		Did not Use	Very Difficult to Use						Very Easy to Use
C4A.	Destination Memory	☐	1	2	3	4	5	6	7
C4B.	Address Ranges	☐	1	2	3	4	5	6	7
C4C.	Points of Interest	☐	1	2	3	4	5	6	7
C4D.	Map	☐	1	2	3	4	5	6	7
C4E.	Current Location	☐	1	2	3	4	5	6	7

C5. In order to enter and select destinations using Ali-Scout, you must use the system's keyboard. Please rate the following characteristics of the Ali-Scout system's **Input Keyboard** by circling the most appropriate number on the scales provided.

		Very Difficult						Very Easy
C5a.	Easy or Difficult to Learn	1	2	3	4	5	6	7
C5b.	Easy or Difficult to Use	1	2	3	4	5	6	7
		Strongly Disagree						**Strongly Agree**
C5c.	Functioned Properly	1	2	3	4	5	6	7
		Disliked						**Liked**
C5d.	Overall Impression	1	2	3	4	5	6	7

C6. Please rate the following characteristics of the Ali-Scout system's **Autonomous Mode** (crow-fly direction) display by circling the most appropriate number on the scales provided.



		Very Difficult						**Very Easy**
C6a.	Easy or Difficult to Understand	1	2	3	4	5	6	7
		Insufficient						**Sufficient**
C6b.	Amount of Detail Shown	1	2	3	4	5	6	7
		Very Distracting						**Not at all Distracting**
C6c.	Distraction While Driving	1	2	3	4	5	6	7
		Very Inaccurate						**Very Accurate**
C6d.	Accuracy of Guidance	1	2	3	4	5	6	7
		Strongly Disagree						**Strongly Agree**
C6e.	Helped Me Find My Way	1	2	3	4	5	6	7
C6f.	Functioned Properly	1	2	3	4	5	6	7
		Disliked						**Liked**
C6g.	Overall Impression	1	2	3	4	5	6	7

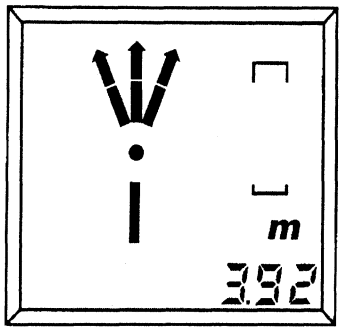
C7. When Ali-Scout showed the **Autonomous Mode** display, how did you interpret this information? Please answer in the space provided.

_____

_____

_____

C8. Please rate the following characteristics of the Ali-Scout system's **Follow Main Road** display by circling the most appropriate number on the scales provided.



		Very Difficult						**Very Easy**
C8a.	Easy or Difficult to Understand	1	2	3	4	5	6	7
		Very Distracting						**Not at all Distracting**
C8b.	Distraction While Driving	1	2	3	4	5	6	7
		Very Inaccurate						**Very Accurate**
C8c.	Accuracy of Guidance	1	2	3	4	5	6	7
		Strongly Disagree						**Strongly Agree**
C8d.	Helped Me Find My Way	1	2	3	4	5	6	7
C8e.	Functioned Properly	1	2	3	4	5	6	7
		Disliked						**Liked**
C8f.	Overall Impression	1	2	3	4	5	6	7

C9. In general, how often did you follow the **Follow Main Road** information suggested by the Ali-Scout system?

Never						**Always**
1	2	3	4	5	6	7

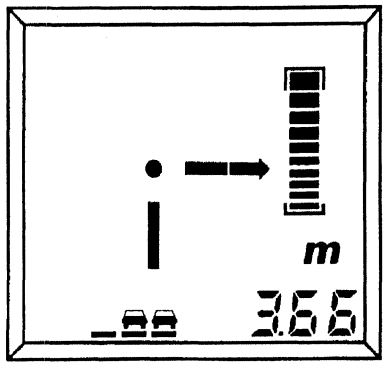
C10. When Ali-Scout showed the **Follow Main Road** display, how did you interpret this information? Please answer in the space provided.

_____

_____

_____

C11. Please rate the following characteristics of the Ali-Scout system's **Prepare Maneuver** display.



	Very Difficult						**Very Easy**
C11a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Insufficient					**Sufficient**	
C11b. Amount of Detail Shown	1	2	3	4	5	6	7
C11c. Advance Warning Provided	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C11d. Distraction While Driving	1	2	3	4	5	6	7
	Very Inaccurate						**Very Accurate**
C11e. Accuracy of Guidance	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C11f. Helped Me Find My Way	1	2	3	4	5	6	7
C11g. Functioned Properly	1	2	3	4	5	6	7
	Disliked						**Liked**
C11h. Overall Impression	1	2	3	4	5	6	7

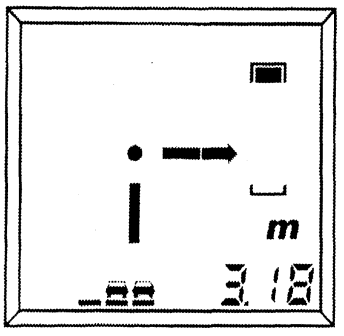
C12. When Ali-Scout showed the **Prepare Maneuver** display, how did you interpret this information? Please answer in the space provided.

_____

_____

_____

C13. Please rate the following characteristics of the Ali-Scout system's **Execute Maneuver** display.



	Very Difficult						**Very Easy**
C13a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Insufficient					**Sufficient**	
C13b. Amount of Detail Shown	1	2	3	4	5	6	7
C13c. Advance Warning Provided	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C13d. Distraction While Driving	1	2	3	4	5	6	7
	Very Inaccurate						**Very Accurate**
C13e. Accuracy of Guidance	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C13f. Helped Me Find My Way	1	2	3	4	5	6	7
C13g. Functioned Properly	1	2	3	4	5	6	7
	Disliked						**Liked**
C13h. Overall Impression	1	2	3	4	5	6	7

C14. When Ali-Scout showed the **Execute Maneuver** display, how did you interpret this information? Please answer in the space provided.

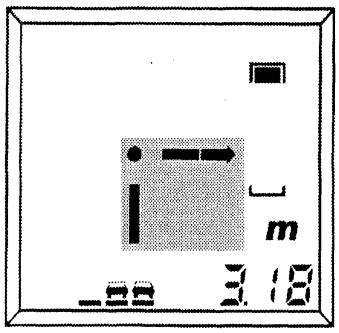
_____

_____

_____

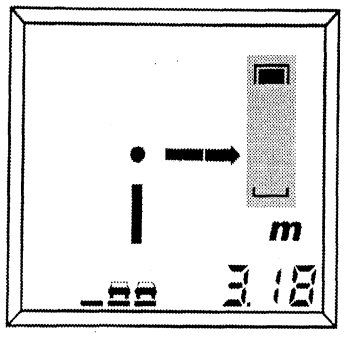
The Prepare Maneuver and Execute Maneuver displays contain several components, including a turn arrow, a countdown bar, and a lane recommendation. In the next few items, we would like to learn what you thought of each of these components.

C15. Please rate the following characteristics of the **Turn Arrow** information (the shaded region in the figure below) provided by Ali-Scout.



	Very Difficult						**Very Easy**
C15a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Insufficient					**Sufficient**	
C15b. Amount of Detail Shown	1	2	3	4	5	6	7
C15c. Advance Warning Provided	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C15d. Distraction While Driving	1	2	3	4	5	6	7
	Very Inaccurate						**Very Accurate**
C15e. Accuracy of Guidance	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C15f. Helped Me Find My Way	1	2	3	4	5	6	7
	Disliked						**Liked**
C15g. Overall Impression	1	2	3	4	5	6	7

C16. Please rate the following characteristics of the **Countdown Bar** information (the shaded region in the figure below) provided by Ali-Scout.



	Very Difficult						**Very Easy**
C16a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Insufficient					**Sufficient**	
C16b. Amount of Detail Shown	1	2	3	4	5	6	7
C16c. Advance Warning Provided	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C16d. Distraction While Driving	1	2	3	4	5	6	7
	Very Inaccurate						**Very Accurate**
C16e. Accuracy of Guidance	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C16f. Helped Me Find My Way	1	2	3	4	5	6	7
	Disliked						**Liked**
C16g. Overall Impression	1	2	3	4	5	6	7

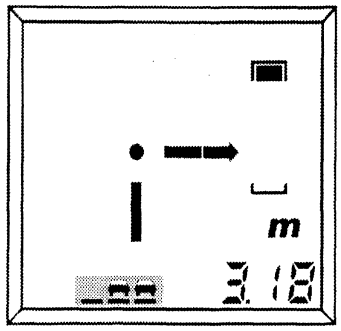
C17. When Ali-Scout showed the **Countdown Bar**, how did you interpret this information? Please answer in the space provided.

_____

_____

_____

C18. Please rate the following characteristics of the **Lane Recommendation** information (the shaded region in the figure below) provided by Ali-Scout.



	Very Difficult						**Very Easy**
C18a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Insufficient					**Sufficient**	
C18b. Amount of Detail Shown	1	2	3	4	5	6	7
C18c. Advance Warning Provided	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C18d. Distraction While Driving	1	2	3	4	5	6	7
	Very Inaccurate						**Very Accurate**
C18e. Accuracy of Guidance	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C18f. Helped Me Find My Way	1	2	3	4	5	6	7
	Disliked						**Liked**
C18g. Overall Impression	1	2	3	4	5	6	7

C19. When Ali-Scout showed a **Lane Recommendation**, how did you interpret this information? Please answer in the space provided.

_____

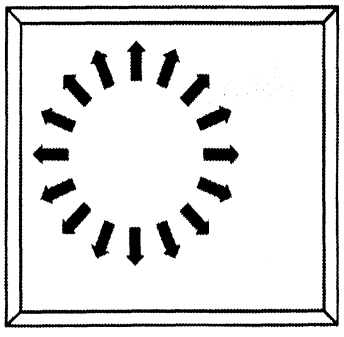
_____

_____

C20. In general, how often did you follow the **Lane Recommendation** information suggested by the Ali-Scout system?

Never						Always
1	2	3	4	5	6	7

C21. During normal use of Ali-Scout, you may leave guided mode (for example, if you ignore a route instruction or if you pass a beacon that is not operating). In such situations, Ali-Scout displays the Left Recommended Route display. Please rate the following characteristics of the Ali-Scout system's **Left Recommended Route** display.



	Very Difficult						Very Easy
C21a. Easy or Difficult to Understand	1	2	3	4	5	6	7

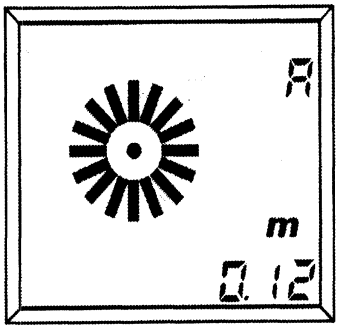
	Insufficient					Sufficient	
C21b. Advance Warning Provided	1	2	3	4	5	6	7

	Very Distracting						Not at all Distracting
C21c. Distraction While Driving	1	2	3	4	5	6	7

	Strongly Disagree						Strongly Agree
C21d. Helped Me Find My Way	1	2	3	4	5	6	7
C21e. Functioned Properly	1	2	3	4	5	6	7

	Disliked						Liked
C21f. Overall Impression	1	2	3	4	5	6	7

C22. When you get close to your destination, Ali-Scout enters the destination zone and returns to autonomous mode. Please rate the following characteristics of the Ali-Scout system's **Switch over to Autonomous Mode in the Destination Zone** display.



	Very Difficult						**Very Easy**
C22a. Easy or Difficult to Understand	1	2	3	4	5	6	7
	Very Distracting						**Not at all Distracting**
C22b. Distraction While Driving	1	2	3	4	5	6	7
	Strongly Disagree						**Strongly Agree**
C22c. Helped Me Find My Way	1	2	3	4	5	6	7
C22d. Functioned Properly	1	2	3	4	5	6	7
	Disliked						**Liked**
C22e. Overall Impression	1	2	3	4	5	6	7

C23. In general, did you feel that you were close enough to or too far from your final destination when you reached the destination zone? Circle the most appropriate number on the scale provided.

Always too far						**Always close enough**
1	2	3	4	5	6	7

C24. After entering the destination zone, did you have any difficulty finding your final destination?

Always had Difficulty						**Never had Difficulty**
1	2	3	4	5	6	7

D. The Ali-Scout System as a Whole

In this section, we would like to learn what you think of the Ali-Scout system as a whole.

D1. In this set of questions, we would like to know your overall assessment of Ali-Scout's **visual displays**. Please rate the listed characteristics of these displays by circling the most appropriate number on the scales provided.

		Very Difficult						**Very Easy**
D1a.	Easy or Difficult to Read (Driving)	1	2	3	4	5	6	7
D1b.	Easy or Difficult to Read (Still)	1	2	3	4	5	6	7
D1c.	Easy or Difficult to Understand	1	2	3	4	5	6	7

		Insufficient					**Sufficient**	
D1d.	Advance Warning Provided	1	2	3	4	5	6	7

		Strongly Disagree						**Strongly Agree**
D1e.	Helped Me Find My Way	1	2	3	4	5	6	7
D1f.	Functioned Properly	1	2	3	4	5	6	7

		Disliked						**Liked**
D1g.	Overall Impression	1	2	3	4	5	6	7

D2. In general, were Ali-Scout's visual displays distracting:

		Very Distracting						**Not at all Distracting**
D2a.	At night	1	2	3	4	5	6	7
D2b.	During daylight hours	1	2	3	4	5	6	7
D2c.	In heavy traffic	1	2	3	4	5	6	7
D2d.	In light traffic	1	2	3	4	5	6	7
D2e.	When traveling along freeways	1	2	3	4	5	6	7
D2f.	Traveling along other roads	1	2	3	4	5	6	7

D3. For this question, we would like to know your overall assessment of the Ali-Scout system's **Voice Guidance** feature. Please circle the most appropriate number on the scale provided.

		Very Difficult						Very Easy
D3a.	Easy or Difficult to Hear	1	2	3	4	5	6	7
D3b.	Easy or Difficult to Understand	1	2	3	4	5	6	7
		Insufficient					**Sufficient**	
D3c.	Amount of Information Given 1	2	3	4	5	6	7	
D3d.	Advance Warning Provided	1	2	3	4	5	6	7
		Strongly Disagree						**Strongly Agree**
D3e.	Helped Me Find My Way	1	2	3	4	5	6	7
D3f.	Functioned Properly	1	2	3	4	5	6	7
		Very Distracting						**Not at all Distracting**
D3g.	Distraction While Driving	1	2	3	4	5	6	7
		Disliked						**Liked**
D3h.	Sound of the Voice	1	2	3	4	5	6	7
D3i.	Overall Impression	1	2	3	4	5	6	7

D4. Considering both visual and verbal information, how often did you follow Ali-Scout's recommendations to turn?

Never						**Always**
1	2	3	4	5	6	7

(If **always**, please skip to question **D6**, p. 18.)

D5. Considering all of the times that you **did not take the recommended turn**, how often were each of the following items part of your reason not to follow the recommended turn? (Answer by circling the most appropriate number on the scale provided just below each item.)

D5a. I knew of a faster route:

Never						**Always**
1	2	3	4	5	6	7

D5b. I believed that the recommended turn would take me away from my destination:

Never						**Always**
1	2	3	4	5	6	7

D5c. I needed to make stops along the way to my destination:

Never						Always
1	2	3	4	5	6	7

D5d. I believed that the recommended turn would lead me into traffic congestion:

Never						Always
1	2	3	4	5	6	7

D5e. Ali-Scout provided the suggested turn too late:

Never						Always
1	2	3	4	5	6	7

D5f. The recommended turn was not clear to me:

Never						Always
1	2	3	4	5	6	7

D5g. Not enough room to merge:

Never						Always
1	2	3	4	5	6	7

D5h. Other (please write in): _____

Never						Always
1	2	3	4	5	6	7

D6. Comparing the visual and verbal turn recommendations, which did you prefer for route guidance information?

- ☐ Voice alone
- ☐ Visual alone
- ☐ Voice and visual together
- ☐ No preference

D7. In the space provided, please explain briefly why you preferred this form of turn recommendations, or why you had no preference.

_____

_____

_____

_____

_____

D8. In your opinion, how often did the Ali-Scout system help you achieve the following **in the Oakland County study area**?

		Never						Always
D8a.	Reduce travel time	1	2	3	4	5	6	7
D8b.	Avoid congestion	1	2	3	4	5	6	7
D8c.	Drive more safely	1	2	3	4	5	6	7
D8d.	Save fuel	1	2	3	4	5	6	7
D8e.	Find fastest route	1	2	3	4	5	6	7
D8f.	Reach destination on time	1	2	3	4	5	6	7

D9. Please rate the following characteristics of the **Ali-Scout system as a whole**.

		Very Difficult						Very Easy
D9a.	Easy or Difficult to Learn	1	2	3	4	5	6	7
D9b.	Easy or Difficult to Understand	1	2	3	4	5	6	7
		Insufficient					**Sufficient**	
D9c.	Amount of Information Given 1	2	3	4	5	6	7	
D9d.	Advance Warning Provided	1	2	3	4	5	6	7
		Very Inaccurate						**Very Accurate**
D9e.	Accuracy of Guidance	1	2	3	4	5	6	7
		Strongly Disagree						**Strongly Agree**
D9f.	Helped Me Find My Way	1	2	3	4	5	6	7
D9g.	Reduced My Travel Time	1	2	3	4	5	6	7
D9h.	Functioned Properly	1	2	3	4	5	6	7
		Very Distracting						**Not at all Distracting**
D9i.	Distraction While Driving	1	2	3	4	5	6	7
		Disliked						**Liked**
D9j.	Overall Impression	1	2	3	4	5	6	7

D10. In order to operate properly, the in-vehicle components of Ali-Scout, must communicate with roadside beacons. As a result, the system cannot guide you to destinations beyond the beacon coverage area. In your use of the Ali-Scout system, did you find that the beacon coverage area was too small or large enough for your driving needs?

Coverage area too small						**Coverage area large enough**
1	2	3	4	5	6	7

D11. Thinking only of the area in which beacons were installed, did you find that beacons were spaced too far apart or close enough for your driving needs?

Beacons too far apart						**Beacons close enough**
1	2	3	4	5	6	7

E. Use of the Ali-Scout System

In this section, we would like to know how you used Ali-Scout as part of your driving and trip-making.

E1. How often did you use Ali-Scout for the for the following types of trips? Circle the most appropriate number in the scales provided.

		Never						**Always**
E1a.	Commuting to work	1	2	3	4	5	6	7
E1b.	Work-related trips (besides commuting)	1	2	3	4	5	6	7
E1c.	Recreational trips	1	2	3	4	5	6	7
E1d.	Other personal trips	1	2	3	4	5	6	7

For the next few questions, please compare your driving without an Ali-Scout system to your driving with the Ali-Scout system.

E2. Please indicate the extent to which **driving with Ali-Scout** changed your attention to:

		Much less Attention			**No Change**			**Much more Attention**
E2a.	Traffic Conditions	1	2	3	4	5	6	7
E2b.	Traffic Signals	1	2	3	4	5	6	7
E2c.	Road Signs (such as 55 MPH)	1	2	3	4	5	6	7
E2d.	Street Signs (such as Main St.)	1	2	3	4	5	6	7
E2e.	Street Addresses (such as 643)	1	2	3	4	5	6	7
E2f.	Speedometer	1	2	3	4	5	6	7
E2g.	Mirrors (such as Rearview)	1	2	3	4	5	6	7
E2h.	Fuel Gauge	1	2	3	4	5	6	7

E3. Please indicate the extent to which **driving with the Ali-Scout system**, compared to driving without Ali-Scout, made you feel:

		Always less with Ali-Scout						**Always more with Ali-Scout**
E3a.	Nervous	1	2	3	4	5	6	7
E3b.	Confident	1	2	3	4	5	6	7
E3c.	Confused	1	2	3	4	5	6	7
E3d.	Attentive	1	2	3	4	5	6	7
E3e.	Safe	1	2	3	4	5	6	7
E3f.	Stressed	1	2	3	4	5	6	7
E3g.	Relaxed	1	2	3	4	5	6	7
E3h.	Frustrated	1	2	3	4	5	6	7

E4. Again, compared to driving without Ali-Scout, please indicate the extent to which you had the following experiences while driving with Ali-Scout:

		Always less with Ali-Scout						**Always more with Ali-Scout**
E4a.	Crashes	1	2	3	4	5	6	7
E4b.	Missed Stop Signs	1	2	3	4	5	6	7
E4c.	Ran Red Light	1	2	3	4	5	6	7
E4d.	Ran Off Road	1	2	3	4	5	6	7
E4e.	Crossed Lane Marker	1	2	3	4	5	6	7

The next few questions deal with your crash and near-crash involvement while driving the Ali-Scout equipped vehicle. These questions are only for analytical purposes, and your responses will be held in the strictest confidence.

E5. Were you involved in any crashes while driving with the Ali-Scout system?

☐ Yes ☐ No (If no, please skip ahead to question **E8**, p. 23.)

E6. In your opinion, to what extent was Ali-Scout a contributing factor to this (these) crash(es)?

Not at all a Factor						**the Main Factor**
1	2	3	4	5	6	7

E7. In the space provided, please explain how Ali-Scout did or did not contribute to this (these) crash(es).

_____

_____

_____

_____

_____

E8. Were you ever involved in what you consider to be a near-crash while driving with the Ali-Scout system?

☐ Yes ☐ No (If no, please skip ahead to question **F1**, p. 24.)

E9. In your opinion, to what extent was Ali-Scout a contributing factor to this (these) near-crash(es)?

Not at all a Factor						**the Main Factor**
1	2	3	4	5	6	7

E10. In the space provided, please explain how Ali-Scout did or did not contribute to this (these) near-crash(es).

_____

_____

_____

_____

_____

F. Valuation

In the following questions, we would like to learn how much you, an experienced user, value the Ali-Scout system.

F1. For assistance in reaching your destinations, how do you rate the following sources of route-guidance information?

		Poor						**Excellent**
F1a.	Standard road map	1	2	3	4	5	6	7
F1b.	Verbal directions from passenger	1	2	3	4	5	6	7
F1c.	Verbal directions from other people	1	2	3	4	5	6	7
F1d.	Written directions	1	2	3	4	5	6	7
F1e.	Ali-Scout	1	2	3	4	5	6	7

F2. If you were about to drive to an unfamiliar area, which of the following sources of route-guidance information would you like to use?

		Definitely Would not Like						**Definitely Would Like**
F2a.	Standard road map	1	2	3	4	5	6	7
F2b.	Verbal directions from passenger	1	2	3	4	5	6	7
F2c.	Verbal directions from other people	1	2	3	4	5	6	7
F2d.	Written directions	1	2	3	4	5	6	7
F2e.	Ali-Scout	1	2	3	4	5	6	7

F3. For the following items, assume that the Ali-Scout system was available nationwide. Given this scenario, how useful do you think the Ali-Scout system would be for:

		Not at all Useful						**Extremely Useful**
F3a.	The commuting trip?	1	2	3	4	5	6	7
F3b.	Out-of-town vacation trips?	1	2	3	4	5	6	7
F3c.	Out-of-town business trips?	1	2	3	4	5	6	7
F3d.	Local driving (non-work, e.g., for shopping)?	1	2	3	4	5	6	7

F4. If you had $2,500 to spend on options for a new car, how would you allocate your budget? Please place an X in the box(es) next to the option(s) that you would purchase. (Remember, you have only $2,500 to spend.)

- ☐ Car Alarm ($300)
- ☐ Cellular Phone ($500)
- ☐ Power Windows ($300)
- ☐ Cassette Player ($150)
- ☐ Air Conditioning ($650)
- ☐ Air Bag, Driver's Side ($400)
- ☐ Sunroof, Power ($500)
- ☐ Trip Computer ($1,000)
- ☐ Power Mirror ($100)
- ☐ Power Locks ($250)
- ☐ CD Player ($250)
- ☐ Integrated Child Safety Seat ($150)
- ☐ Air Bag, Passenger's Side ($400)
- ☐ Ali-Scout ($1,000)

F5. How much would you be willing to pay for the Ali-Scout system **as an option on a new car**?

$_____

F6. How much would you be willing to pay to add the Ali-Scout system to **your present car**?

$_____

F7. How much extra per day would you be willing to pay for the Ali-Scout system as an **option on a rental car**?

$_____

F8. How much extra per week would you be willing to pay for the Ali-Scout system as an **option on a rental car**?

$_____

F9. In the space provided, please make any comments that you would like regarding the purchase or rental of an Ali-Scout unit for your personal vehicle.

_____

_____

_____

_____

_____

F10. In order to function properly, Ali-Scout requires two additional components to support the in-vehicle equipment. These out-of-vehicle components are:

(1) Roadside Beacons
Each beacon consists of a transmitter, receiver, and control unit for communicating with Ali-Scout's in-vehicle equipment. Beacons are located at selected intersections.

(2) Central Computer
Located in a traffic control facility, the central computer is the brain of the system--receiving, transmitting, and integrating information from throughout the study area. Each beacon is linked to the central computer.

Installation, operation, and maintenance of these out-of-vehicle components will require financial investment above and beyond the price of the in-vehicle devices. In your opinion, who should pay to install, operate, and maintain the beacons and central computer? (Place an X in the box next to all entities that you think should pay at least a part of this cost.)

- ☐ Federal government
- ☐ State government
- ☐ Individual users of Ali-Scout
- ☐ Commercial users of Ali-Scout
- ☐ Manufacturers of products such as Ali-Scout
- ☐ County government
- ☐ City government
- ☐ Car manufacturers
- ☐ Other (please specify): _____

F11. Of those entities that you marked in question **F10**, we are interested in knowing who you think should bear the primary cost. In the space provided, list the three entities that you think should pay the most. Please list them in order, with 1 being the entity that you think should pay the most, 2 being the entity that you think should pay the second most, and three being the entity that you think should pay the third most.

1. _____
2. _____
3. _____

F12. One option for funding the installation, operation, and maintenance of the beacons and central computer is to charge users a monthly fee to receive information (such as route guidance) from the system. This monthly fee would cover both services received and maintenance of the system. If you owned an Ali-Scout in-vehicle device, how much **per month** would you be willing to pay to receive the information provided by the beacons and central computer?

$_____

F13. In your opinion, how important are each of the following factors to the **operation** of systems such as Ali-Scout?

	Not at all Important						**Extremely Important**
F13a. Fuel savings	1	2	3	4	5	6	7
F13b. Reduced air pollution	1	2	3	4	5	6	7
F13c. Traffic safety	1	2	3	4	5	6	7
F13d. Relief of highway congestion	1	2	3	4	5	6	7
F13e. Accurate route guidance	1	2	3	4	5	6	7
F13f. Traffic diverted into neighborhoods	1	2	3	4	5	6	7
F13g. Ease of use	1	2	3	4	5	6	7
F13h. Quick updates of road conditions	1	2	3	4	5	6	7

F14. We are interested in knowing how you would like to see Ali-Scout improved. In the space provided, please tell us two changes that you would like to see made in the system.

(1.) _____

_____

_____

(2.) _____

_____

_____

G. Demographics

To help us analyze the results of this survey, please answer the following questions about your background. Your answers to these questions will be kept strictly confidential.

G1. Please write your date of birth in the space provided.

Month _____ Day _____ Year _____

G2. Please indicate your gender by placing an X in the appropriate box.

☐ Male ☐ Female

G3. What is the highest level of education that you have completed? (Place an X in the most appropriate box.)

☐ Less Than High School Diploma (or equivalent)
☐ High School Diploma (or equivalent)
☐ Some College
☐ Bachelor's Degree
☐ Some Graduate School
☐ Graduate Degree

G4. Including yourself, how many people live in your household?

_____ People Living in Household

G5. Including yourself, how many licensed drivers live in your household?

_____ Licensed Drivers

G6. What was your household's income last year (before taxes)? (Place an X in the most appropriate box.)

☐ Less than $15,000
☐ $ 15,000 to $ 24,999
☐ $ 25,000 to $ 34,999
☐ $ 35,000 to $ 44,999
☐ $ 45,000 to $ 54,999
☐ $ 55,000 to $ 64,999
☐ $ 65,000 to $ 79,999
☐ $ 80,000 to $ 99,999
☐ $ 100,000 or more

Thank you for participating in our survey. The information that you have provided will be of great value in our efforts to measure how the technologies involved in the FAST-TRAC Project have affected the transportation system in Oakland County and how they might affect the future of transportation in Oakland County and beyond. Please use the remainder of this page for any additional comments that you would like to make about the Ali-Scout system or the FAST-TRAC Project

APPENDIX D:
Univariate Output for ALI-SCOUT Survey

A. Driving and Commuting

In this section, we would like to learn about your familiarity with the Oakland County study area, your driving experience, and your commuting patterns.

A1. In the space provided, please list the make (such as Ford or Pontiac), model (such as Taurus or Bonneville), and year of all the cars (up to 3) owned or leased by your household according to how often you drive them--that is, list first the cat you drive most often, list second the cat that you drive second most often, and list third the cat that you drive third most often. (If your household does not own or lease any vehicles, place an X in the box.)

Number of vehicles in household

(1) Make	Model	Year
(2) Make	Model	Year
(3) Make	Model	Year

No. of Vehicles	Survey No. 1	
	Frequency	Percent
None	4	8.9
One or more	41	91.1

In the following questions, the Oakland County study area refers to these communities: Troy, Rochester Hills, Auburn Hills, Pontiac, Bloomfield Hills, and Birmingham.

A2. Do you live in the Oakland County study area?

Live in Oakland County	Survey No. 1	
	Frequency	Percent
No	9	20.0
Yes	33	73.3
Missing	3	6.7

A2. How long have you lived in the Oakland County study area?

Years Lived in Oakland County	Survey No. 1	
	Frequency	Percent
3.0	1	2.2
3.58	2	4.4
4.25	1	2.2
4.5	1	2.2
5.0	2	4.4
6.25	1	2.2
6.33	1	2.2
7.5	1	2.2
8.5	1	2.2
8.75	1	2.2
9.0	1	2.2
9.58	1	2.2
10.0	1	2.2
10.58	1	2.2
11.25	1	2.2
11.5	1	2.2
12.0	2	4.4
13.0	2	4.4
15.0	1	2.2
15.08	1	2.2
16.42	1	2.2
16.7	1	2.2
17.83	1	2.2
18.0	1	2.2
20.0	1	2.2
21.66	1	2.2
22.5	1	2.2
23.0	1	2.2
23.66	1	2.2

Years Lived in Oakland County	Survey No. 1	
	Frequency	Percent
24.0	1	2.2
25.0	1	2.2
31.0	1	2.2
33.58	1	2.2
47.0	1	2.2
Don't Live In Area	8	17.8
Missing	0	0

A3. In the last one month, how regularly did you drive within the Oakland County study area? Please circle the most appropriate number on the scale provided.

5 times a week or more — Once a month or less

1 2 3 4 5 6 7

Scale Values for Frequency of Driving in Oakland County Study Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	38	84.4	28	77.8
2	2	4.4	1	2.8
3	1	2.2	1	2.8
4	3	6.7	1	2.8
5	0	0	2	5.6
6	0	0	0	0
7	1	2.2	2	5.6
Missing	0	0	1	2.8

A4. How familiar are you with the road network in the Oakland County study area? Please circle the most appropriate number on the scale provided.

Very unfamiliar 1 2 3 4 5 6 7 Very familiar

Scale Value Familiarity with Road Network in Oakland County Study Area	Survey No. 1	
	Frequency	Percent
1	2	4.4
2	1	2.2
3	0	0
4	4	8.9
5	8	17.8
6	9	20.0
7	21	46.7

A5. Do you currently work in the Oakland County study area?

Currently Work in Oakland County Study Area	Survey No. 1	
	Frequency	Percent
No	27	60.0
Yes	18	40.0

A6. What is the postal zip code of your workplace?

Workplace Zip Code	Survey No. 1	
	Frequency	Percent
48025	2	4.5
48090	23	52.3
48098	4	9.1
48304	1	2.3
48326	12	27.3
48329	1	2.3
Missing	1	2.3

A7. Please place an X in the box that best describes your current status?

Current Employment Status	Survey No. 1	
	Frequency	Percent
Employed Full-time	40	88.9
Employed Part-time	3	6.7
Full-time student	0	0
Retired	0	0
Unemployed	0	0
Other	0	0
Missing	2	4.4

A8. Other than commuting to and from work (or school), is driving a major part of your job or schooling in the past one week?

Driving a Major Part of Work or School	Survey No. 1	
	Frequency	Percent
No	39	86.7
Yes	3	6.7
Missing	3	6.7

A9. Not counting commuting trips, how many hours did you drive as a part of your job or schooling in the past one week?

Hours Driven In Past Week As Part of Job or Schooling	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0.0	3	6.7	15	41.7
0.5	1	2.2	0	0
1.0	1	2.2	1	2.8
1.5	0	0	3	8.3
2.0	1	2.2	4	11.1
4.5	0	0	1	2.8
5.0	1	2.2	4	11.1
6.5	0	0	1	2.8
7.0	0	0	1	2.8
10.0	0	0	1	2.8
13.0	1	2.2	0	0
15.0	1	2.2	0	0
16.0	1	2.2	0	0
30.0	1	2.2	0	0
Skip	32	71.1	0	0
Missing	2	4.4	3	8.3

A10. In the past three months, how many routes have you driven from your home to work (or school)?

Number of Routes Driven in Past Three Months to Work or School	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	13	28.9	4	11.1
3	11	24.4	17	47.2
4	7	15.6	5	13.9
5 or more	10	22.2	8	22.2
Missing	3	6.7	1	2.8

A11. On average how many minutes does it take you to drive from home to work (or school) during your morning commute?

Average Minutes to Work or School for Morning Commute	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
10	1	2.2	0	0
12	1	2.2	2	5.6
14	1	2.2	1	2.8
15	5	11.1	3	8.3
18	0	0	1	2.8
20	6	13.3	4	11.1
25	5	11.1	5	13.9
28	1	2.2	0	0
30	12	26.7	9	25.0
35	7	15.6	5	13.9
40	2	4.4	4	11.1
45	1	2.2	1	2.8
60	1	2.2	0	0
Missing	2	4.4	1	2.8

A12. During your morning commute, do you generally listen to traffic reports?

Listen to Traffic Reports During Morning Commute	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	18	40.0	12	33.3
Yes	25	55.6	22	61.1
Missing	2	4.4	2	5.6

A13. In general, how often do you encounter heavy traffic congestion during your morning commute?

5 times a week or more 1 2 3 4 5 6 7 Once a month or less

Ratings for Encounters With Traffic Congestion During Morning Commute	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	0	0	2	5.6
3	3	6.7	1	2.8
4	3	6.7	5	13.9
5	5	11.1	7	19.4
6	10	22.2	3	8.3
7	19	42.2	15	41.7
Missing	2	4.4	1	2.8

A14. In general, how often do you encounter traffic incidents (like accidents) during your morning commute?

5 times a week or more 1 2 3 4 5 6 7 Once a month or less

Ratings for Encounters with Traffic Incidents During Morning Commute	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	1	2.2	1	2.8
4	0	0	0	0
5	2	4.4	2	5.6
6	7	15.6	4	11.1
7	33	73.3	27	75.0
Missing	2	4.4	2	5.6

A15. Are you willing to divert from the route that you normally use to commute from home to work (or school) to avoid congestion or a traffic incident?

Willing to Divert to Avoid Traffic Congestion or Incident	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	2	4.4	1	2.8
Yes	41	91.1	34	94.4
Missing	2	4.4	1	2.8

A16. In your opinion, what is the general level of traffic congestion in the Oakland County study area during your morning commute?

No Congestion — Heavy Congestion

1 2 3 4 5 6 7

Ratings for Level of Traffic Congestion in Oakland County Study Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	8	17.8	6	16.7
2	10	22.2	5	13.9
3	10	22.2	9	25.0
4	5	11.1	6	16.7
5	6	13.3	5	13.9
6	3	6.7	2	5.6
7	0	0	0	0
Missing	3	6.7	3	8.3

A17. How many out-of-town vacation trips did you make in the last 12 months?

Number of Out-of-Town Vacation Trips in Last 12 Months	Survey No. 1	
	Frequency	Percent
0	4	8.9
1	4	8.9
2	6	13.3
3	4	8.9
4	7	15.6
5 or more	18	40.0
Missing	2	4.4

A18. How many out-of-town business trips did you make in the last 12 months?

Number of Out-of-Town Business Trips in Last 12 Months	Survey No. 1	
	Frequency	Percent
0	8	17.8
1	3	6.7
2	8	17.8
3	5	11.1
4	2	4.4
5 or more	17	37.8
Missing	2	4.4

A19. When driving in unfamiliar areas, are you generally confident or unconfident in finding your way around?

Very Unconfident 1 2 3 4 5 6 7 Very Confident

Ratings for Confidence in Finding Way in Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	3	6.7	1	2.8
3	3	6.7	5	13.9
4	6	13.3	2	5.6
5	10	22.2	10	27.8
6	12	26.7	8	22.2
7	8	17.8	7	19.4
Missing	2	4.4	2	5.6

A20. How frequently do you use road maps?

Frequency of Road Map Use	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
At Least Once a Week	0	0	2	5.6
1-3 Times per Month	15	33.3	10	27.8
Once Every 2-6 Months	23	51.1	18	50.0
Once a Year	2	4.4	3	8.3
Less Than Once a Year	3	6.7	1	2.8
Missing	2	4.4	2	5.6

A21. Prior to your experience with Ali-Scout, had you ever before driven a vehicle equipped with an electronic route-guidance system?

Prior Experience with Electronic Guidance System	Survey No. 1	
	Frequency	Percent
No	31	68.9
Yes	12	26.7
Missing	2	4.4

A22. Which system did you use?

Survey 1 responses:

- Travtek.
- Travtek
- First generation Ali-Scout, Travtek vehicle, Zexel Navmate
- ZEXCEL
- GM IVHS car for Orlando Study -- one trip about 20 miles

B. Technology

FAST-TRAC represents a test of new technology. In the following questions, we would like to learn about your experience with and interest in new technology.

B1. Indicate the amount of experience that you have had using the following technologies by circling the most appropriate number on the scale provided. On this scale, 1 means none and 7 means extensive experience.

None Extensive
1 2 3 4 5 6 7

Ratings for Experience with Personal Computers	Survey No. 1	
	Frequency	Percent
1	0	0
2	1	2.2
3	1	2.2
4	3	6.7
5	7	15.6
6	8	17.8
7	23	51.1
Missing	2	4.4

Ratings for Experience with VCRs	Survey No. 1	
	Frequency	Percent
1	1	2.2
2	0	0
3	3	6.7
4	7	15.6
5	7	15.6
6	10	22.2
7	15	33.3
Missing	2	4.4

Ratings for Experience with Electronic Pagers	Survey No. 1	
	Frequency	Percent
1	29	64.4
2	4	8.9
3	3	6.7
4	0	0
5	2	4.4
6	2	4.4
7	3	6.7
Missing	2	4.4

Ratings for Experience with Cellular Car Phone	Survey No. 1	
	Frequency	Percent
1	20	44.4
2	6	13.3
3	3	6.7
4	0	0
5	4	8.9
6	5	11.1
7	5	11.1
Missing	2	4.4

Ratings for Experience with FAX Machines	Survey No. 1	
	Frequency	Percent
1	1	2.2
2	0	0
3	3	6.7
4	5	11.1
5	9	20.0
6	11	24.4
7	14	31.1
Missing	2	4.4

Ratings for Experience with Pocket Calculator	Survey No. 1	
	Frequency	Percent
1	0	0
2	0	0
3	1	2.2
4	0	0
5	2	4.4
6	9	20.0
7	31	68.9
Missing	2	4.4

B2. In general, how interested are you in news items concerning new technology?

Interest in News Items Concerning New Technology	Survey No. 1	
	Frequency	Percent
Not at all interested	0	0
Not very interested	2	4.4
Somewhat interested	13	28.9
Very interested	28	62.2
Missing	2	4.4

B3. In general, do you find new technology easy or difficult to use?

Ease or Difficulty of Using of New Technology	Survey No. 1	
	Frequency	Percent
Very difficult	0	0
Somewhat difficult	3	6.7
Neither difficult nor easy	14	31.1
Somewhat easy	19	42.2
Very easy	6	13.3
Missing	3	6.7

B4. In general, how enjoyable do you find using new technology?

Enjoyment in Using New Technology	Survey No. 1	
	Frequency	Percent
Not at all enjoyable	0	0
Not very enjoyable	3	6.7
Somewhat enjoyable	27	60.0
Very enjoyable	13	28.9
Missing	2	4.4

C. Ali-Scout Operation and Displays

As a participant in the FAST-TRAC Project, you have been driving a vehicle equipped with an electronic route-guidance system called Ali-Scout. In this section, we would like to learn what you think about the different parts of the system.

C1. Since you have had an Ali-Scout equipped vehicle, how often have you used Ali-Scout for trips in which you drove? Please circle the most appropriate number on the scale provided.

Never Always
1 2 3 4 5 6 7

Ratings for Frequency of Use of Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	2	4.4	4	11.1
3	2	4.4	3	8.3
4	9	20.0	8	22.2
5	9	20.0	8	22.2
6	16	35.6	8	22.2
7	6	13.3	2	5.6
Missing	1	2.2	2	5.6

C1A. If you did not answer always, we would like to learn why you sometimes did not use the system.

Survey 1 responses:

☞ 1. The trip was very short and no beacons along the route to assist. 2. I did not have time to determine the coordinates of my destination. (I do not yet have a map from which I could more quickly determine coordinates)

☞ My commute does not take me past any working beacons because Ali-Scout was always in autonomous mode Even in autonomous mode it was very inaccurate because I went by beacons so infrequently

☞ 1. In a hurry to get to location. Didn't want to take time to program. 2. Hate hearing computer voice disturbing music and thoughts while driving

☞ Because I drive outside the beacon areas

☞ 1.Short trips 2. Unit giving ridiculous directions

☞ I was because outside Oakland County boundary

☞ The road map of Oakland County study area is so familiar to me that I forgot to use it.

☞ Trips out of Oakland County, coordinates not known

- I either didn't want to take the time to program a new destination or I knew it wouldn't be operative in the area I'm going. Lately I find it gives BAD direction!

- Drove outside the study area (no coordinates available) 2. Drove a different vehicle that wasn't equipped.

- *Left guided mode or traveled outside area * did not choose to use guided route

- Because I don't always drive in the study area. Occasionally the Ali Scout suggests routes that I don't want to drive. Finally, I have had difficulty entering new destination coordinates

- Area not covered. System goes out of calibration

- Too short of a trip. Trip out of study area w/no destination.

- The time it takes to program. Not all areas are covered. Don't trust the system completely. Last minute trips.

- Driving outside area.

- Did not use when I knew from experience that system would not go into guided mode on a particular trip or when destination was just outside test area or when there was no opportunity to program a destination prior to a trip.

- 1.It doesn't go anywhere - coverage area too small 2. It is hard to enter data 3. There are no benefits to using it - If I take out a map to look up lat/long I may just use the map!

- It does not give the fastest route to the places I go. Usually I would get to my destination by turning at a light with a beacon at it. Unfortunately, Ali-Scout does not tell you where to go until after you pass through the lights. The Ali-Scout asks you to double back to turn on the road you would have turned on anyway!

- Out of range.

- Because my driving route is out of the study area or it is a one time deal w/c I did not bother to program.

- Several trips have been outside the area of operation. (operation Oakland County). During these trips I did not pay attention to the system.

- My normal commute and many local trips did not pass beacons. If I knew the route, I often did not use Ali-Scout if I would not pass a beacon.

- Trips outside control area. No time to program new location/destination. Forgot

- 1) I know the way 2)It takes some effort & time to key in coordinates. 3) Sometimes I was in a hurry.

- Too painful to program destination for short well-known routes.

- Most trips are commuting so its use is very repetitive. Many trips outside Ali-Scout's zone.

- Many trips were not through the study area. Without beacon resistance, autonomous errors were too large for reliable operation.

- Entering a destination is much too cumbersome and time consuming.

- Had guests in car. Knew where I was going. No location was programmed. The system never seemed to make sense.

- Ali-Scout is an idiotic system. It is difficult, time consuming and not convenient program. It does not work that well.

- One time destinations are difficult to program in. Some of my trips are outside the guidance zone. It does not route me the optional way in the guidance zone. Optimal route from home to work is completely outside the zones - so I have not used the optimal mode just to try it out. Short local trips less than 3 miles to local store not worth the effort & no value to use it for these trips.

- I knew where I was going. It is a PAIN to enter the coordinates from the map. If you don't pass a beacon close to the location, the current position has error and isn't exact.

- Destination not covered by the system.

- Starting points for destination points not in area where beacons are located. Destination/route known & too much trouble to enter coordinates.

- In my home area (Wayne County) it doesn't work.

Survey 2 responses:

- Traveled outside guided area. My preferred route is not the "recommended route".

- I found the system unreliable and therefore not worth the effort to use it.

- When trips were made outside Oakland County - coordinates were not known.

- Because the beacons are not located where I drive.

- Travelling outside Oakland County. Did not have map with coordinates originally. Too long a time required to input new coordinates.

- Short trips did not seem to be worth the effort.

- The trip was outside the beacon area and /or I couldn't get the coordinates and input them quickly. Most importantly, the system added no value to my trip.

- I was familiar with route to my destination. Many of my destinations were outside the "covered" area.

- Almost never went into guided mode.

- Beacon area quite limited and system of little use when you drive outside the beacon area.

- Routes picked up by Ali-Scout are not convenient and often have many unnecessary turns.

- Ali Scout wasn't accurate so near the end I stopped using it altogether. It seemed to be off more then it was correct.

- I took it as a suggested route direction.

- Like uninterrupted drive. Find computer voice coming on & going in wrong directions.

- Driving outside the area. Beacons not working.

- Ali Scout wasn't accurate so near the end I stopped using it altogether. It seemed to be off move then it was correct.

- Hard to enter data. Maps in correct in my area. Coverage area too small. Annoying device. No evidence

that Ali-Scout actually changes route based on conjecture.

- ☞ After my required evaluation period of 1 month, I have not used Ali-scout because it is basically worthless. My opinion of Ali-Scout has not changed since the last time I filled out the survey. So please see the other survey for the answers. I am not going to waste time filling it out again!

- ☞ Trip was less than 1-mile in length -- also shortest route between point A to B was not recommended by Ali-Scout therefore cancelling guided mode! This situation is annoying!

- ☞ Parents live in Macomb County - Sterling Heights, Brother lives in Canton Township. Ali-Scout is not equip for these areas.

- ☞ Since I filled out the first survey, I have seldom traveled in the area with enough beacons to make Ali-Scout useful.

- ☞ It is too difficult and time consuming to operate Ali-Scout. It is not accurate. I know the route.

- ☞ Not used for very short trips of less than a mile.

- ☞ Drove outside the study area on many occasions. System does not always pick the best route - it has led me down I-75 to Stephensen Hwy. exit at peak traffic time and then I'm stuck in traffic. Better route would be down M-59 to get home.

- ☞ Not in area.

- ☞ Beyond range of effectiveness.

- ☞ Routine commute to and from work. Too troublesome to set destination area.

- ☞ Traveling outside Oakland County area. traveling to familiar locations that I choose not to program into unit.

- ☞ I knew where I was going. The trip was short enough that it was not worth the time to enter the coordinates.

- ☞ I only used the system during 1st two weeks when I was recording trips. 99% of trips are routine or out of range of Ali-Scout.

- ☞ Quit using after 1st month's evaluation because I find it to be a stupid device.

- ☞ Optimum commute route outside Ali-Scout range - Ali-Scout not suitable for short commutes around Rochester - Ali-Scout prefers Rochester Road & 16 Mile - other routes are better.

- ☞ Outside beacon area, computed vehicle location error is extensive - (in 4% of distance travelled) - thus making system useless

- ☞ I found no benefit from the system. Routes given were rarely sensible - particularly near destinations. When not in the test area (I.e., near beacons) errors were too great

C2. The Ali-Scout system offers several options for entering new destinations. These options are:

Address Ranges--obtaining coordinates by using the address ranges section of the Ali-Scout manual,

Points of Interest--obtaining coordinates by using the points of interest section of the Ali-Scout manual,

Map--obtaining coordinates by referring to the map included in the Ali-Scout manual, and

Current Location--entering the current location of your vehicle.

We are interested in knowing which of these options you used most often for entering new destinations. Please rank them from one (most frequent) to four (least frequent) according to how often you used them.

Address Ranges

Most Frequent 1 2 3 Least Frequent 4

Ratings for Frequency of Use of Address Range	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	1	2.8
2	11	24.4	11	30.6
3	9	20.0	5	13.9
4	16	35.6	13	36.1
Missing	4	8.9	6	16.7

Points of Interest

Most Frequent 1 2 3 Least Frequent 4

Ratings for Frequency of Use of Points of Interest	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	3	8.3
2	9	20.0	7	19.4
3	23	51.1	13	36.1
4	6	13.3	8	22.2
Missing	4	8.9	5	13.9

Map

Most Frequent 1 2 3 Least Frequent 4

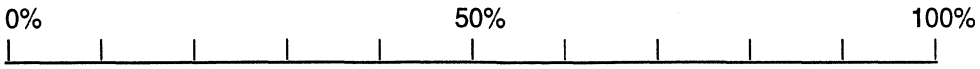
Ratings for Frequency of Use of Map	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	21	46.7	16	44.4
2	8	17.8	6	16.7
3	4	8.9	4	11.1
4	9	20.0	5	13.9
Missing	3	6.7	5	13.9

Current Location

Most Frequent 1 2 3 Least Frequent 4

Ratings for Frequency of Use of Current Location	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	16	35.6	12	33.3
2	13	28.9	6	16.7
3	4	8.9	5	13.9
4	10	22.2	8	22.2
Missing	2	4.4	5	13.9

C3. Ali-Scout stores up to 80 destinations in memory. Of all the trips that you took with Ali-Scout, how often did you select a destination from Ali-Scout's memory? Please circle the most appropriate point on the scale below.



Percent of Destinations Selected from Ali-Scout Memory	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0	1	2.2	0	0
3	1	2.2	0	0
5	1	2.2	0	0
7	1	2.2	0	0
9	0	0	1	2.8
10	0	0	2	5.6
15	1	2.2	1	2.8
20	1	2.2	2	5.6
25	1	2.2	0	0
30	1	2.2	1	2.8
40	1	2.2	0	0
50	4	8.9	3	8.3
60	1	2.2	3	8.3
70	4	8.9	1	2.8
80	4	8.9	5	13.9
85	2	4.4	0	0
90	11	24.2	10	27.8
95	1	2.2	1	2.8
100	9	20.0	4	11.1
Missing	0	0	2	5.6

C4. We also are interested in knowing how easy or difficult you found each method of entering and selecting destinations. Please rate each of the five methods by circling the most appropriate number on the scales provided.

Destination Memory

Very Difficult to Use 1 2 3 4 5 6 7 Very Easy to Use

Ratings for Difficulty of Entering and Selecting Destination Memory	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	3	6.7	1	2.8
3	2	4.4	2	5.6
4	1	2.2	2	5.6
5	5	11.1	3	8.3
6	5	11.1	4	11.1
7	22	48.9	18	50.0
Did Not Use	5	11.1	3	8.3
Missing	1	2.2	3	8.3

Address Ranges

Very Difficult to Use 1 2 3 4 5 6 7 Very Easy to Use

Ratings for Difficulty of Entering and Selecting Address Ranges	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	2	5.6
2	0	0	1	2.8
3	6	13.3	5	13.9
4	6	13.3	4	11.1
5	3	6.7	6	16.7
6	3	6.7	1	2.8
7	6	13.3	2	5.6
Did Not Use	17	37.8	12	33.3
Missing	0	0	3	8.3

Points of Interest

Very Difficult to Use 1 2 3 4 5 6 7 Very Easy to Use

Ratings for Difficulty of Entering and Selecting Points of Interest	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	2	5.6
2	2	4.4	1	2.8
3	0	0	2	5.6
4	6	13.3	6	16.7
5	8	17.8	5	13.9
6	4	8.9	5	13.9
7	7	15.6	3	8.3
Did Not Use	15	33.3	9	25.0
Missing	1	2.2	3	8.3

Map

Very Difficult to Use 1 2 3 4 5 6 7 Very Easy to Use

Ratings for Difficulty of Entering or Selecting Map	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	2	5.6
2	4	8.9	3	8.3
3	5	11.1	7	19.4
4	8	17.8	7	19.4
5	3	6.7	3	8.3
6	2	4.4	5	13.9
7	7	15.6	2	5.6
Did Not Use	10	22.2	3	8.3
Missing	1	2.2	4	11.1

Current Location

Very Difficult to Use 1 2 3 4 5 6 7 Very Easy to Use

Ratings for Difficulty of Entering or Selecting Current Location	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	0	0
2	1	2.2	1	2.8
3	5	11.1	2	5.6
4	0	0	3	8.3
5	8	17.8	2	5.6
6	5	11.1	2	5.6
7	15	33.3	13	36.1
Did Not Use	8	17.8	9	25.0
Missing	1	2.2	4	11.1

C5. In order to enter and select destinations using Ali-Scout, you must use the system's keyboard. Please rate the following characteristics of the Ali-Scout system's Input Keyboard by circling the most appropriate number on the scales provided.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ease or Difficulty of Learning Keyboard

Ratings for Difficulty of Learning Keyboard	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	3	8.3
2	3	6.7	3	8.3
3	6	13.3	5	13.9
4	7	15.6	2	5.6
5	11	24.4	7	19.4
6	6	13.3	8	22.2
7	7	15.6	5	13.9
Missing	1	2.2	3	8.3

Ease or Difficulty of Using Keyboard

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Using Keyboard	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	2	5.6
2	6	13.3	6	16.7
3	6	13.3	7	19.4
4	5	11.1	4	11.1
5	9	20.0	7	19.4
6	6	13.3	5	13.9
7	7	15.6	2	5.6
Missing	1	2.2	3	8.3

Keyboard Functioned Properly

Strongly Disagree 1 2 3 4 5 6 Strongly Agree 7

Ratings for Keyboard Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	4	8.9	3	8.3
3	6	13.3	4	11.1
4	7	15.6	7	19.4
5	4	8.9	5	13.9
6	7	15.6	5	13.9
7	13	28.9	8	22.2
Missing	2	4.4	3	8.3

Overall Impression

Disliked 1 2 3 4 5 6 Liked 7

Ratings for Overall Impression of Keyboard	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	12	26.7	8	22.2
2	1	2.2	3	8.3
3	9	20.0	5	13.9
4	6	13.3	3	8.3
5	8	17.8	6	16.7
6	5	11.1	6	16.7
7	3	6.7	2	5.6
Missing	1	2.2	3	8.3

C6. Please rate the following characteristics of the Ali-Scout system's Autonomous Mode (crow-fly direction) display by circling the most appropriate number on the scales provided.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Autonomous Mode Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	1	2.2	0	0
3	0	0	0	0
4	4	8.9	1	2.8
5	5	11.1	4	11.1
6	11	24.4	10	27.8
7	23	51.1	17	47.2
Missing	0	0	3	8.3

Insufficient 1 2 3 4 5 6 7 Sufficient

Ratings for Amount of Detail Shown On Autonomous Mode Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	2	5.6
2	2	4.4	0	0
3	0	0	3	8.3
4	4	8.9	2	5.6
5	5	11.1	7	19.4
6	13	28.9	10	27.8
7	15	33.3	9	25.0
Missing	0	0	3	8.3

Very Distracting — Not at all Distracting

1 2 3 4 5 6 7

Ratings for Distraction by Autonomous Mode Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	1	2.2	0	0
3	0	0	1	2.8
4	5	11.1	2	5.6
5	3	6.7	3	8.3
6	14	31.1	12	33.3
7	21	46.7	14	38.9
Missing	0	0	3	8.3

Very Inaccurate — Very Accurate

1 2 3 4 5 6 7

Ratings for Accuracy of Guidance of Autonomous Mode Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	6	13.3	5	13.9
3	7	15.6	9	25.0
4	8	17.8	5	13.9
5	10	22.2	5	13.9
6	6	13.3	4	11.1
7	2	4.4	2	5.6
Missing	0	0	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Autonomous Mode Display Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	14	31.1	7	19.4
2	6	13.3	5	13.9
3	4	8.9	4	11.1
4	12	26.7	7	19.4
5	6	13.3	4	11.1
6	1	2.2	4	11.1
7	2	4.4	2	5.6
Missing	0	0	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Autonomous Mode Display Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	1	2.8
2	6	13.3	1	2.8
3	3	6.7	9	25.0
4	8	17.8	4	11.1
5	7	15.6	3	8.3
6	7	15.6	10	27.8
7	9	20.0	5	13.9
Missing	0	0	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Autonomous Mode Display Overall Impression	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	10	22.2	3	8.3
2	3	6.7	1	2.8
3	7	15.6	5	13.9
4	7	15.6	8	22.2
5	8	17.8	8	22.2
6	7	15.6	5	13.9
7	2	4.4	3	8.3
Missing	1	2.2	3	8.3

C7. When Ali-Scout showed the Autonomous Mode display, how did you interpret this information?

Survey 1 responses:

- I interpreted the arrow as the direction I should head to reach my destination. I had no trouble in differentiating that direction from the direction to drive my car.
- I generally ignored it, being familiar with the area I was traveling in.
- Straight line distance to destination
- The directional arrow gave me my heading with the top of the display always in the direction I am traveling. The distance in miles in a crow-fly distance, not necessarily driving distance.
- General direction with distance. As stated above "as crow flies"! Accuracy not good even with upgraded software!
- Did not pass beacon yet, or dropped out of guided phase. Points to general location of programmed destination.
- The arrow indicated the direct route you would have to take to reach your destination. The mileage indicates the direct distance from your destination and also whether you are getting closer or further from the destination.
- General direction & distance to destination
- Distance from where I am as the crow flies
- Follow the general direction know the distance from destination
- The arrow shows direction to destination; distance to destination shown.

- I took it as a general guide.
- I interpreted it as a crow-fly direction. If you mean "how did I use it/", I really didn't, since it became inaccurate.
- Its 3.98 miles to my destination as the crow flies. and my destination is to the north/east.
- How far I was from destination.
- Arrow showed direction to follow. Didn't always work. Wouldn't trust it.
- Information beacons were not in the immediate area to set the "guided mode" or the beacons were not operational. Also if I took a shorter route, Ali-Scout would indicate that I left the recommended route and go to autonomous mode!
- Arrow was pointing toward destination. Straight line distance to destination (not during distance) as indicated by mileage shown at the bottom right. A=> autonomous mode.
- Direction 1 need to go to reach my destination.
- Showed how many miles to your dest. "as the crow flies" (straight line between 2 points)
- Crow fly distance is completely irrelevant!
- It gave the distance and direction to destination. Distance was in the miles. Direction was relative to the current heading of the car.
- That I was not in the Ali-Scout region, or that I had not yet passed a beacon if I was in the region.
- Although autonomous mode is helpful in finding new locations, I utilized the Ali- Scout during evaluation of times that I knew where I was going & it was not helpful at all during these times. General direction is good but not accurate enough to really be helpful.
- That the car is beyond the active area.
- It gave the distance and direction. Distance was the miles. Direction was relative to the current heading of the car.
- Knew arrow was indicating general direction. Verified that it was showing proper direction since in this mode I knew where I was going.
- I used the arrow to guess where to turn. However, I almost always knew where to turn anyway. Small curves in a road can cause the arrow to be somewhat misleading. Also, the system location errors can be quite large if you haven't passed a beacon recently.
- Generally thought of this as an analog compass. Distance display "as the crow flies" was of little value.
- The vehicle is 2.98 miles - point to point, ie. a straight line, away from my destination.
- Indicated destination direction & distance.
- Direction and distance to destination.
- Read it (stupid question).
- It points to your destination to get there.

- Miles (straight line) to destination.
- Rough distance to destination.
- It indicates the direct (point to point) distance and direction to my destination.
- What direction to generally head to get to destination.
- A hindrance.
- Usually it told me to turn left when my route would logically go right. Exception was Bloomfield Twp Library which distance was off a few tenths of a mile.
- Arrow showed straight-line direction. Distance shows straight-line distance to destination in miles.
- Beacons have not located you but the direction & mileage to your destination is indicated.

Survey 2 responses:

- Good direction and distance to destination.
- Ali-Scout was indicating a direction and distance to the desired destination.
- How far it was to destination.
- I interpreted the arrow to be the "as the crow flies" direction of my destination. The number gives the corresponding distance.
- Distance and direction approximately accurate.
- Indicated general direction of destination.
- Crow fly direction
- It displays the direction and distance to my destination "as the crow flies."
- It gives the general direction and the distance from destination.
- Distance and direction.
- 3.98 miles to destination in a northwest location from current position.
- The arrow showed me where to turn & it showed the length of mile left.
- 3.98 Miles to your destination as the crow flies; & arrow is pointing towards your dest; system is not in guided mode.
- The arrow showed me where to turn & it showed the length of miles left.
- It took me a long time to figure out that this is just a pointer. Ali-Scout manual is larger than VCR manual.
- Arrow pointed to direction I should take to reach my destination and approximate distance on a straight line of travel.
- I took it as a suggested route direction.
- The arrow points toward the destination, the number tells the distance "as the crow flies."

- ☞ Acts like a compass.
- ☞ Indicated direction and distance.
- ☞ General direction being shown on display. Arrow indicates direction of destination.
- ☞ For long distance trips (greater than 10 miles) it helped gage the relative distance left to travel, and the proper relative direction to take
- ☞ Used like a compass, also served as guide to minimum driving distance to destination.
- ☞ The autonomous mode shows the direction and distance as the crow flies to the destination.
- ☞ It was either useless or wrong. (Wrong when I didn't agree with it.)
- ☞ Displays direction and distance to destination. Not valid if distance is <25 miles! (Yes, 25 miles)
- ☞ You should go to the general direction shown. Problem is that unless you have recently passed a beacon the information is inaccurate up to 1 mile & direction is also inaccurate.
- ☞ Arrow showed direction towards destination number showed straight line distance in miles.

C8. Please rate the following characteristics of the Ali-Scout system's Follow Main Road display by circling the most appropriate number on the scales provided.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Main Road Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	0	0	1	2.8
3	2	4.4	2	5.6
4	3	6.7	2	5.6
5	7	15.6	6	16.7
6	8	17.8	9	25.0
7	21	46.7	13	36.1
Missing	3	6.7	3	8.3

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction by Main Road Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	1	2.2	1	2.8
3	1	2.2	0	0
4	6	13.3	5	13.9
5	5	11.1	2	5.6
6	10	22.2	11	30.6
7	18	40.0	13	36.1
Missing	3	6.7	3	8.3

Very Inaccurate 1 2 3 4 5 6 7 Very Accurate

Ratings for Accuracy of Guidance for Main Road Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	5	11.1	1	2.8
3	5	11.1	2	5.6
4	4	8.9	4	11.1
5	10	22.2	4	11.1
6	4	8.9	12	33.3
7	13	28.9	9	25.0
Missing	3	6.7	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Main Road Display Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	11	24.4	8	22.2
2	1	2.2	5	13.9
3	4	8.9	2	5.6
4	8	17.8	5	13.9
5	7	15.6	5	13.9
6	7	15.6	2	5.6
7	4	8.9	5	13.9
Missing	3	6.7	4	11.1

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Main Road Display Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	2	5.6
2	1	2.2	3	8.3
3	2	4.4	1	2.8
4	10	22.2	5	13.9
5	6	13.3	6	16.7
6	9	20.0	8	22.2
7	9	20.0	8	22.2
Missing	3	6.7	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Main Road Display Overall Impression	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	7	15.6	5	13.9
2	3	6.7	0	0
3	5	11.1	3	8.3
4	6	13.3	5	13.9
5	7	15.6	4	11.1
6	7	15.6	10	27.8
7	6	13.3	6	16.7
Missing	4	8.9	3	8.3

C9. In general, how often did you follow the Follow Main Road information suggested by the Ali-Scout system?

Never Always
1 2 3 4 5 6 7

Ratings for Frequency of Using Follow Main Road Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	7	15.6	1	2.8
3	6	13.3	6	16.7
4	5	11.1	10	27.8
5	9	20.0	8	22.2
6	9	20.0	6	16.7
7	5	11.1	1	2.8
Missing	3	6.7	4	11.1

C10. When Ali-Scout showed the Follow Main Road display, how did you interpret this information?

Survey 1 responses:

- I continued on the road I was on.
- Continue in the direction indicated.
- Never saw this display
- Routes to take
- I am 3.92 miles from destination; follow the main road
- It worked properly once, and I followed. It then failed to work and I ignored it.
- As a general instruction.
- Continue driving on current road; distance to destination shown.
- Follow the direction in general shown by the three arrows
- Continue straight on the road you are on.
- I was in the "guided" route
- I should wait for verbal instructions
- Device was in guided mode, after passing beacon.
- Going straight down road in any lane. Followed couple of times and took me wrong way.
- This display told me to take any lane straight ahead until otherwise directed.
- M.R.D. showed me the route to take for the trip.
- It was fine except when it tells me to turn r/l & I can not because there's a bldg or a house where it wants me to turn.
- Keep going in the direction you're heading.
- I am on course with a pre-selected route which provides the best road conditions between points a & b (but may not be the shortest route).
- It is not obvious how to interpret it. I ignored it.
- Keep on the road you are on, even if it circles around (Like the off ramp at I-75 North) to 16 mile west. Most times, I followed it to evaluate how bad it was. That is how stupid a route it picked!
- Based interpretation on information provided in user's manual. Followed verbal commands.
- That I'm in the correct main road and close to destination.
- Sit tight you're on the right road.
- That I was being directed to follow the road that I was currently been on.

- Stay on the main road and go generally straight ahead. This was ambiguous once at a Y intersection.
- Generally ignored it but tried to observe regarding system accuracy.
- Follow main road! Go straight.
- Remain on the main road travelling in same direction.
- Should & told you upcoming turns & how far before you hit turn & miles to destination.
- Continue on the current roadway even if it changes direction slightly left or right.
- Follow the main road wherever it goes - don't turn to another until instructed.
- Drove straight.
- System data is insufficient.
- Go generally in the direction shown., If the road turns and there is no obvious other choices, stay on the main road.
- I proceeded in the direction of the road I was on.
- Straight ahead.
- With the system knowing your location, the direction is the shortest distance to your destination (not the best route though)

Survey 2 responses:

- It gives the general direction, the destination may be slightly left or right of the current vehicle direction.
- Continue straight ahead.
- Suggested route is as the display indicates.
- Continue on this road until further instructions.
- Helpful but not particularly important.
- Keep on present course.
- Remain on current road headed in current direction and be prepared for future instructions.
- Follow main road.
- Approaching destination which is straight ahead 3.92 miles.
- Stay on current road.
- Showed exactly where to drive & when to turn.
- Stay on Main Road.
- Continue on the path you're on; you're 3.92 miles form the next beacon.
- Showed exactly where to drive & when to turn.

- It means that I entered the coverage area & should go straight.
- I was following a pre-programmed route that may not be the shortest route between points A to B!
- Follow the road, generally straight ahead
- Half the time, it was not my choice for the best route to take -- definitely not the fastest route.
- Arrows showed direction to follow or upcoming maneuver.
- Indicated to continue on a straight path & distance to destination is indicated.
- Go straight ahead.
- Recommended route based on current location and programmed destination. It often did not choose the most direct route.
- Go straight ahead.
- Wrong or useless
- Stay on main road, do not exit or turn into another road. This road may not be straight.
- Drive generally straight ahead, following the main road if it curves.
- I thought it would pick an efficient route - though it rarely did.
- Follow main road wherever it goes numbers showed distance to destination in miles.

C11. Please rate the following characteristics of the Ali-Scout system's Prepare Maneuver display.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	2	4.4	1	2.8
3	0	0	0	0
4	0	0	0	0
5	7	15.6	6	16.7
6	16	35.6	10	27.8
7	17	37.8	15	41.7
Missing	3	6.7	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Amount of Detail on Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	0	0	0	0
3	1	2.2	1	2.8
4	3	6.7	4	11.1
5	12	26.7	2	5.6
6	12	26.7	10	27.8
7	14	31.1	15	41.7
Missing	3	6.7	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	3	6.7	0	0
3	0	0	3	8.3
4	4	8.9	3	8.3
5	10	22.2	7	19.4
6	11	24.4	7	19.4
7	11	24.4	11	30.6
Missing	4	8.9	4	11.1

Very Distracting — Not at all Distracting

1 2 3 4 5 6 7

Ratings for Distraction by Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	4	8.9	1	2.8
3	4	8.9	4	11.1
4	2	4.4	3	8.3
5	5	11.1	5	13.9
6	12	26.7	10	27.8
7	12	26.7	9	25.0
Missing	3	6.7	3	8.3

Very Inaccurate — Very Accurate

1 2 3 4 5 6 7

Ratings for Accuracy of Guidance of Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	4	11.1
2	2	4.4	1	2.8
3	6	13.3	4	11.1
4	6	13.3	5	13.9
5	7	15.6	1	2.8
6	6	13.3	9	25.0
7	10	22.2	9	25.0
Missing	3	6.7	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Prepare Maneuver Display Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	11	24.4	7	19.4
2	6	13.3	3	8.3
3	1	2.2	3	8.3
4	8	17.8	6	16.7
5	5	11.1	4	11.1
6	6	13.3	3	8.3
7	5	11.1	7	19.4
Missing	3	6.7	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Prepare Maneuver Display Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	4	11.1
2	3	6.7	4	11.1
3	1	2.2	0	0
4	5	11.1	6	16.7
5	7	15.6	4	11.1
6	11	24.4	6	16.7
7	9	20.0	9	25.0
Missing	3	6.7	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression of Prepare Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	5	13.9
2	1	2.2	0	0
3	5	11.1	3	8.3
4	9	20.0	7	19.4
5	7	15.6	2	5.6
6	10	22.2	6	16.7
7	4	8.9	10	27.8
Missing	3	6.7	3	8.3

C12. When Ali-Scout showed the Prepare Maneuver display, how did you interpret this information?

Survey 1 responses:

- I got in the appropriate lane and then made the requested maneuver (turn).
- Prepare to make right or left turn or other maneuver
- Never saw this display
- Ali-Scout told me to prepare for a maneuver, then when to make the maneuver. The bar graph was useful in letting me know where to turn exactly. Lane information is not yet available. On occasion and at certain locations, insufficient advance warning was given to allow me to safely make the maneuver.
- Decent display, needs a little more accuracy in routing. May be taken care of when system done. Should review Advanced warning time based on actual vehicle speeds & # of lanes that may have to be shifted.
- Device was alerting & directing an upcoming maneuver.
- Make the change in direction indicated as soon as possible and as soon as safe.
- I must be prepared to make a turn
- Prepare to turn right or left - this usually seems to send me in a direction that is wrong and then tells me I have left the recommended route.
- Followed the instructions, usually changed lanes before the voice message. I did not have many of these maneuvers.
- Prepare to turn in the direction shown; bar chart shows distance until turn; number shows distance to destination; cars displayed in recommended lanes.

- As a general guidance
- It worked properly once, and I followed. It then failed to work and I ignored it.
- Right turn ahead; 3.66 miles to destination
- Lanes to be in. Route to take.
- Showed me I was nearing my destination & to follow the arrow and voice command.
- A lane change and/or turn is fast approaching - be alert!
- Told you to get into a lane & be ready to turn. The bars decreased as you got closer to turn.
- Turn angle is rarely 90 - sent me on a wrong turn once.
- I should get ready to turn. Many times this information was given too late? (getting off I-75 north to 16 Mile). I did not look at it that much, I was watching traffic. I did listen to the voice though!
- Performed maneuver as directed keeping in mind safety and vehicles near my vehicle.
- I should get ready to turn. Many times information was given too late. (Getting off I-75 north at 16 Mile). I did not look at it much, I was watching traffic. I did listen to the voice though.
- That it is telling to get
- Move to the correct lane and prepare to turn. Several times I turned too early. In each of these cases, I knew the route and turned off at a reasonable place, but Ali-Scout wanted me to turn at an unusual place (such as the second turn around) so it could leave me plenty of time to get in the correct lane.
- Same answer as in C10.
- Prepare to turn.
- Directional change approaching & approx. distance until executing maneuver.
- Showed what lane you should be in, when turn was coming up and time before turn & miles to destination.
- Turn as indicated will occur soon. Use lanes as indicated. Exact location of turn is to be determined, driver must be vigilant.
- Turn at next intersection.
- Prepare for turn.
- It told me which lanes I was to be in, the distance from my turn, and the direction I was to turn.
- Get in the lane shown. Prepare to turn.
- Confusing. Poor human factors. A lousy display.
- OK if it was accurate easily interpreted, just wrong
- Arrow showed type of turn, bar graph showed relative distance to turn. Car icons showed which lane(s) to be in.
- According to Ali-Scout this direction is what you should do.

Survey 2 responses:

- Get ready to turn. Several times I turned too soon because I knew a better route than Ali-Scout was prepared to tell me.
- Get ready to turn
- Prepare to make the maneuver indicated.
- Told me direction to turn, the suggested lane(s) to be in, and how far away from the maneuver.
- Helpful but not particularly important.
- Prepare to change course
- On several ocassions this symbol made wrong turns
- Prepare to turn by taking the appropriate lane; miles shown is distance to turn maneuver
- Followed by instructions and changed lanes according to instructions.
- Prepare to turn and countdown until it is time to turn.
- Prepare to turn in the direction of the arrow when the bar graph degredates. This means also, that I should move into the appropriate lane.
- Prepare to turn as indicated
- Prepare to turn when stated. Get into appropriate lanes
- Same as C-10.
- Rt. turn ahead.
- Right 2 lanes, Prepare to turn right
- Get ready to make a right turn when the bars disappear
- Direction of maneuver is indicated and distance to point of maneuver & what lane to maneuver to
- Your location is at a right hand turn which you will be entering soon so get into right lane for turn.
- A change in direction was just ahead so prepare to make an adjustment in my direction of travel!
- Showed me when to turn.
- Sometimes it would tell me to turn while driving on x-way no where to turn - or sometimes tell me to turn where there are big bldg & houses.
- Maneuver coming up. Prepare to turn or change lanes.
- It performed well to inform me of when/where to turn.
- It provided warning prior to turning.
- Turn indicator

☞ prepare to turn in the direction of the arrow. The bar and distance normally indicates the distance to the turn. The display shows what lane one can make the turn from.

☞ Turn soon. You can probably see the turn location from here.

☞ Get in the appropriate lane & plan to turn when countdown reaches 0.

☞ Arrow showed direction of next turn Bar graph showed relative distance to turn Cars shopped which lane(s) to be in Numbers showed distance to destination

☞ Wrong or useless

C13. Please rate the following characteristics of the Ali-Scout system's Execute Maneuver display.

Very Difficult 1 2 3 4 5 6 Very Easy 7

Ratings for Difficulty of Understanding Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	1	2.2	0	0
3	1	2.2	1	2.8
4	3	6.7	1	2.8
5	8	17.8	4	11.1
6	14	31.1	10	27.8
7	14	31.1	16	44.4
Missing	3	6.7	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Amount of Detail on Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	0	0	0	0
3	0	0	0	0
4	4	8.9	5	13.9
5	10	22.2	2	5.6
6	14	31.1	10	27.8
7	12	26.7	14	38.9
Missing	2	4.4	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	1	2.8
2	2	4.4	0	0
3	0	0	2	5.6
4	2	4.4	4	11.1
5	9	20.0	5	13.9
6	19	42.2	9	25.0
7	7	15.6	12	33.3
Missing	2	4.4	3	8.3

Very Distracting 1 2 3 4 5 6 Not at all Distracting 7

Ratings for Distraction by Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	2	4.4	0	0
3	3	6.7	3	8.3
4	4	8.9	3	8.3
5	3	6.7	6	16.7
6	14	31.1	9	25.0
7	14	31.1	11	30.6
Missing	2	4.4	3	8.3

Very Inaccurate 1 2 3 4 5 6 Very Accurate 7

Ratings for Accuracy of Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	4	11.1
2	2	4.4	0	0
3	4	8.9	3	8.3
4	5	11.1	7	19.4
5	7	15.6	2	5.6
6	11	24.4	9	25.0
7	8	17.8	8	22.2
Missing	2	4.4	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Execute Maneuver Display Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	12	26.7	5	13.9
2	6	13.3	2	5.6
3	1	2.2	5	13.9
4	7	15.6	7	19.4
5	5	11.1	4	11.1
6	7	15.6	4	11.1
7	5	11.1	6	16.7
Missing	2	4.4	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Execute Maneuver Display Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	2	5.6
2	2	4.4	2	5.6
3	3	6.7	3	8.3
4	3	6.7	7	19.4
5	6	13.3	4	11.1
6	13	28.9	7	19.4
7	10	22.2	8	22.2
Missing	2	4.4	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression for Execute Maneuver Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	8	17.8	3	8.3
2	2	4.4	0	0
3	3	6.7	4	11.1
4	10	22.2	7	19.4
5	6	13.3	4	11.1
6	9	20.0	4	11.1
7	5	11.1	11	30.6
Missing	2	4.4	3	8.3

C14. When Ali-Scout showed the Execute Maneuver display, how did you interpret this information?

Survey 1 responses:

- I did the maneuver.
- make the turn immediately, or other maneuver
- Never saw this display
- Turn left or right
- Right turn close at hand; 3.18 miles to destination
- It worked properly once, and I followed. It then failed and ignored it.
- As a general guidance
- Turn in the direction of the arrow, distance given to destination; cars displayed in recommended lanes.
- Follow instructions
- See C12
- I must turn in the direction indicated at that point.
- Make the maneuver indicated if safe.
- Device was "ordering" a maneuver.
- Time to turn w/bar chart showing when getting to location.

- As the bar graph disappeared from the screen, I know I was close to my turn. No lane info. yet.
- Follow the arrow & voice command
- Please read note from follow Main Road on pg. 8.
- Use common sense & follow road surface not execute maneuver immediately (sometimes indicates a "turn now" long before I reach intersection).
- Be in my 2 right hand lanes. Turn right when the continuous bar is "empty". Distance to destination is shown at lower right.
- Turn
- The lanes to stay in on the expressway
- I didn't notice the difference between this display & prepare display
- Turn at the next available entrance/road/turnaround in a (can't read word).
- Turn right (or left). It took me a while to realize that the arrow could mean U-turn if it pointed mostly backward.
- Turn right now.
- Indicated lane to be in & direction of maneuver.
- Make indicated turn now. If multiple turns are possible, then driver must guess which to use. Recommended lane does not differentiate between lane and exit ramp.
- Told you time to make a turn, location of turn & lane to be in.
- Turn now as shown by arrow from lane(s) shown by car icons
- vague idea of what it meant
- Poor human factors.
- Turn now!
- Do it
- Turn at next intersection.
- This is what you should do to follow Ali-Scout's route.

Survey 2 responses:

- Changed lanes and took the turn.
- Turn right (left) here
- Turn as indicated.
- Change course immediately.
- As in C12 but execute the turn.

- Execute the maneuver indicated.
- Turn
- When to turn.
- I took it as a sign for me to get prepared for my response.
- Turn Rt.
- Turn right
- I don't know the difference between this and prior display.
- Get into proper lane & prepare to make a turn now!
- I took it as a sign for me to get prepared for my response.
- Turn at next (nearest) opportunity.
- Execute indicated maneuver now.
- Maneuver forth coming.
- I t performed well at informing me of when/where to turn.
- Turn warning
- Be in the right two lanes, turn right.
- Wrong or useless
- Turn now. Good luck at Cloverleafs or compound intersections: where to turn is not always clear.
- Turn now.
- Arrow showed direction of turn cars showed what lane to be in numbers showed distance to destination

The Prepare Maneuver and Execute Maneuver displays contain several components, including a turn arrow, a countdown bar, and a lane recommendation. In the next few items, we would like to learn what you thought of each of these components.

C15. Please rate the following characteristics of the Turn Arrow information (the shaded region in the figure below) provided by Ali-Scout.

Very Difficult 1 2 3 4 5 6 Very Easy 7

Ratings for Difficulty of Understanding Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	0	0	0	0
3	0	0	0	0
4	2	4.4	2	5.6
5	6	13.3	4	11.1
6	11	24.4	11	30.6
7	23	51.1	15	41.7
Missing	1	2.2	3	8.3

Insufficient 1 2 3 4 5 6 Sufficient 7

Ratings for Amount of Detail on Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	0	0	0	0
3	0	0	1	2.8
4	4	8.9	4	11.1
5	8	17.8	3	8.3
6	13	28.9	11	30.6
7	17	37.8	13	36.1
Missing	1	2.2	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	2	4.4	0	0
3	1	2.2	2	5.6
4	4	8.9	4	11.1
5	8	17.8	4	11.1
6	12	26.7	9	25.0
7	14	31.1	13	36.1
Missing	2	4.4	3	8.3

Very Distracting Not at all Distracting
1 2 3 4 5 6 7

Ratings for Distraction by Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	0	0
3	0	0	2	5.6
4	5	11.1	5	13.9
5	5	11.1	4	11.1
6	11	24.4	8	22.2
7	19	42.2	13	36.1
Missing	1	2.2	3	8.3

Very Inaccurate 1 2 3 4 5 6 7 Very Accurate

Ratings for Accuracy of Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	4	11.1
2	2	4.4	1	2.8
3	3	6.7	3	8.3
4	5	11.1	5	13.9
5	11	24.4	1	2.8
6	6	13.3	11	30.6
7	12	26.7	8	22.2
Missing	1	2.2	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Turn Arrow Information Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	10	22.2	6	16.7
2	5	11.1	3	8.3
3	1	2.2	4	11.1
4	9	20.0	5	13.9
5	6	13.3	3	8.3
6	7	15.6	5	13.9
7	6	13.3	7	19.4
Missing	1	2.2	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression of Turn Arrow Information	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	1	2.2	1	2.8
3	3	6.7	3	8.3
4	13	28.9	7	19.4
5	4	8.9	2	5.6
6	8	17.8	7	19.4
7	9	20.0	10	27.8
Missing	1	2.2	3	8.3

C16. Please rate the following characteristics of the Countdown Bar information provided by Ali-Scout.

Very Difficult Very Easy
1 2 3 4 5 6 7

Ratings for Difficulty of Understanding Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	0	0	0	0
3	0	0	1	2.8
4	3	6.7	2	5.6
5	4	8.9	6	16.7
6	17	37.8	12	33.3
7	17	37.8	11	30.6
Missing	2	4.4	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Amount of Detail on Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	0	0
3	0	0	0	0
4	3	6.7	6	16.7
5	7	15.6	4	11.1
6	13	28.9	9	25.0
7	17	37.8	13	36.1
Missing	2	4.4	3	8.3

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	0	0
3	1	2.2	3	8.3
4	1	2.2	4	11.1
5	8	17.8	3	8.3
6	10	22.2	10	27.8
7	16	35.6	12	33.3
Missing	5	11.1	3	8.3

Very Distracting — Not at all Distracting

1 2 3 4 5 6 7

Ratings for Distraction by Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	1	2.8
2	1	2.2	1	2.8
3	1	2.2	6	16.7
4	6	13.3	3	8.3
5	4	8.9	4	11.1
6	13	28.9	5	13.9
7	12	26.7	13	36.1
Missing	2	4.4	3	8.3

Very Inaccurate — Very Accurate

1 2 3 4 5 6 7

Ratings for Accuracy of Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	5	13.9
2	1	2.2	0	0
3	5	11.1	3	8.3
4	4	8.9	6	16.7
5	10	22.2	1	2.8
6	9	20.0	10	27.8
7	9	20.0	8	22.2
Missing	3	6.7	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Countdown Bar Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	11	24.4	6	16.7
2	5	11.1	4	11.1
3	2	4.4	5	13.9
4	8	17.8	4	11.1
5	5	11.1	7	19.4
6	5	11.1	4	11.1
7	7	15.6	3	8.3
Missing	2	4.4	3	8.3

Disliked 1 2 3 4 5 6 7 Liked

Ratings for Overall Impression of Countdown Bar	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	7	15.6	5	13.9
2	1	2.2	0	0
3	4	8.9	6	16.7
4	8	17.8	4	11.1
5	7	15.6	3	8.3
6	9	20.0	7	19.4
7	7	15.6	8	22.2
Missing	2	4.4	3	8.3

C17. When Ali-Scout showed the Countdown Bar, how did you interpret this information?

Survey 1 responses:

☞ It gave me an idea about how far I had yet to travel before doing the maneuver.

☞ Entering maneuver zone, prepare to execute maneuver

- Never saw this display
- A maneuver was to take place ahead a short distance.
- Relative time/distance to turn.
- Relative distance to maneuver
- It indicated the amount of time I had before I needed to complete the recommended maneuver.
- This represents the distance before I must turn
- Counts down the distance before you need to perform the maneuver
- Not followed strictly
- It indicates the distance to the road to turn onto.
- Approaching my right turn
- Prepare to turn
- Showed how close you are the destination.
- Distance to turn.
- Bars decreased as you got closer to your maneuver location.
- I have "x" amount of car length/or feet before I execute my turn.
- Never understood the display
- It showed how far to when you should turn.
- The bar indicated how close the maneuver was -- as the bars disappeared, the closer the maneuver was.
- Don't exactly know.
- It showed how far to when you should turn.
- Turn was approaching, prepare to turn.
- I used it to help me tell when to turn.
- Waiting to turn. I generally ignored this information because I was busy to prepare to turn (change lane, watch for sign and other vehicles, etc.)
- Distance until maneuver reqd.
- As bars disappeared, you are nearing turn poi
- The shorter the bar, the closer the turn. Correlation between bar length and distance is unclear. Attempts to correlate length and distance is very distracting.
- Seldom looked at this; not interested on taking eyes off road.
- How far to next turn.

- Turn very soon.
- The count-down bar visually indicated the distance to the point when I should execute a turn.
- Pick recommended lane.
- Distance to turn is shortening.

Survey 2 responses:

- Distance to turn.
- The countdown bar provides a visual measure of when the indicated maneuver should take place.
- I used this to indicate how close I was to performing the maneuver.
- Distance to turn.
- Anticipate a course change.
- Represents distance to the turn.
- It gives the relative distance before the final maneuver is to be performed.
- Prepare to turn; the countdown bar decreases as you approach the destination where you must turn.
- The amount of distance to the maneuver.
- Turn right dummy!
- I took it as a guidance for my next move.
- Turn Rt. now.
- As the bars disappeared, you are getting closer to when you need to turn.
- I never understood this one!
- I am getting closer to the area where I must execute a turn.
- I took it as a guidance for my next move.
- Get ready to turn and estimate distance to turn based on the vertical length of bars.
- It gave me a relative measure of how far to go to perform the maneuver.
- Turn or maneuver approaching.
- Indicated remaining distance until maneuver reqd.
- Signal to watch for turn, start to decelerate.
- The countdown bar gives a measure of the distance to the turn.
- Bar gets shorter as intersection is approached. Exact turn location questionnaire
- Turn when countdown reaches 0.

☞ 1/10 mile per bar

C18. Please rate the following characteristics of the Lane Recommendation information provided by Ali-Scout.

Very Difficult 1 2 3 4 5 6 Very Easy 7

Ratings for Difficulty of Understanding Lane Recommendation	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	1	2.8
2	0	0	0	0
3	2	4.4	4	11.1
4	3	6.7	3	8.3
5	7	15.6	2	5.6
6	14	31.1	12	33.3
7	10	22.2	10	27.8
Missing	5	11.1	4	11.1

Insufficient 1 2 3 4 5 6 Sufficient 7

Ratings for Amount of Detail on Lane Recommendation	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	1	2.8
2	0	0	0	0
3	4	8.9	5	13.9
4	3	6.7	3	8.3
5	7	15.6	3	8.3
6	12	26.7	10	27.8
7	10	22.2	10	27.8
Missing	5	11.1	4	11.1

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Lane Recommendation	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	0	0
3	6	13.3	5	13.9
4	2	4.4	3	8.3
5	7	15.6	2	5.6
6	10	22.2	11	30.6
7	10	22.2	10	27.8
Missing	6	13.3	4	11.1

Very Distracting Not at all Distracting
1 2 3 4 5 6 7

Ratings for Distraction by Lane Recommendation	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	1	2.8
2	2	4.4	1	2.8
3	1	2.2	3	8.3
4	5	11.1	3	8.3
5	3	6.7	7	19.4
6	17	37.8	6	16.7
7	8	17.8	11	30.6
Missing	5	11.1	4	11.1

Very Inaccurate
1 2 3 4 5 6 7
Very Accurate

Ratings for Accuracy of Lane Recommendation	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	4	11.1
2	2	4.4	0	0
3	6	13.3	3	8.3
4	4	8.9	7	19.4
5	6	13.3	3	8.3
6	11	24.4	9	25.0
7	6	13.3	6	16.7
Missing	5	11.1	4	11.1

Strongly Disagree
1 2 3 4 5 6 7
Strongly Agree

Ratings for Lane Recommendation Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	9	20.0	4	11.1
2	4	8.9	4	11.1
3	2	4.4	5	13.9
4	11	24.4	10	27.8
5	5	11.1	2	5.6
6	3	6.7	3	8.3
7	6	13.3	4	11.1
Missing	5	11.1	4	11.1

Disliked Liked
1 2 3 4 5 6 7

Ratings for Lane Recommendation Overall Impression	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	5	13.9
2	1	2.2	1	2.8
3	7	15.6	3	8.3
4	9	20.0	10	27.8
5	6	13.3	3	8.3
6	5	11.1	4	11.1
7	6	13.3	6	16.7
Missing	5	11.1	4	11.1

C19. When Ali-Scout showed a Lane Recommendation, how did you interpret this information?

Survey 1 responses:

- I moved to the recommended lane.
- Not used
- Never saw
- Move to the lane
- Move over 2 lanes to make right hand turn
- It indicates which lanes you should be in for the upcoming turn
- Not followed strictly
- Simply recommends lane usage on a multi-lane road in preparation of a turn
- Change to one of the lanes with the figure of a vehicle on it.
- recommended lane note: almost unusable because you must watch where you're going - voice is sufficient; this maybe considered dangerous by some.
- Use any lane of car in it.
- I was to move into one of the lanes where the vehicle symbol was shown. This function has not been implemented yet. My opinion is based on the first generation Ali-Scout system.
- It told me to change lanes but look at the cars on the display was confusing to me.
- This has not been used.

- I very rarely paid attention to this feature - I concentrate on arrow and countdown bar most of the time (its a novel feature)
- I guess its supposed to tell you what lane to be in but I never used the display - I listened to the audio.
- I used the voice for lane changes.
- Told you which lane you should be in.
- Move to lane shown for fastest travel.
- Not sure if it is traffic related or just facilitated turning.
- That I was either in an exit only lane, or that I needed to be in a certain lane to execute an upcoming maneuver.
- I used the information to tell me which lane to move to.
- This display was most difficult of all to observe, on occasion had to look closely to note how many lanes were displayed
- Change lane to prepare to turn
- Relocate to proper lane for up=coming maneuver.
- Never looked at this.
- Use lane(s) indicated. Differentiation between lane and exit ramp is unknown.
- Showed lane you need to be in to execute maneuver.
- Where your vehicles should be located (which lane).
- Pick recommended lane.
- The lane recommendation function told me which lane to be in to execute the upcoming turn.
- Sometimes the appropriate lane depends on the next maneuver. For example, if 3 lanes are turning right and my next maneuver is to turn left, I should be in the leftmost of the 3 lanes.
- Poor human factors of the display.
- Car icons showed which lanes to be in to make turn.
- Should get in lanes identified to execute next maneuver

Survey 2 responses:

- Take left two lanes
- Turn right dummy
- Did not use much.
- Suggested lane usage.
- Did not use this feature.

- Important to be in proper lane.
- I used this to get into the proper lane to do the maneuver.
- More safety to one of the lanes indicated by the car images.
- I didn't pay any attention to it.
- Rt 2 lanes 2 turn.
- Told you which lane to be in. System only selected lane occasionally - didn't find this very helpful.
- I never understood this one!
- I frankly didn't pay much attention to this function.
- I didn't pay much attention to it.
- get into appropriate lane to prepare to turn.
- Change lane
- Move into lane or one of the lanes recommended.
- It gave me the recommended lane to be in when the road split or when an exit was approaching.
- Turn preparation warning
- Place your vehicle in one of the lanes occupied by a vehicle symbol in the display.
- Pull into lane indicated. I am unsure when an exit ramp qualifies as an indicated lane.
- Get in one of the lanes shown.
- Cars showed which of the lanes to be in to execute the maneuver

C20. In general, how often did you follow the Lane Recommendation information suggested by the Ali-Scout system?

Never Always
1 2 3 4 5 6 7

Ratings for Frequency of Following Lane Recommended	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	3	8.3
2	6	13.3	4	11.1
3	1	2.2	3	8.3
4	5	11.1	6	16.7
5	8	17.8	3	8.3
6	5	11.1	7	19.4
7	11	24.4	7	19.4
Missing	7	15.6	3	8.3

C21. During normal use of Ali-Scout, you may leave guided mode (for example, if you ignore a route instruction or if you pass a beacon that is not operating). In such situations, Ali-Scout displays the Left Recommended Route display. Please rate the following characteristics of the Ali-Scout system's Left Recommended Route display.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Left Recommended Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	1	2.2	0	0
3	3	6.7	0	0
4	3	6.7	7	19.4
5	5	11.1	4	11.1
6	9	20.0	6	16.7
7	13	28.9	14	38.9
Missing	5	11.1	2	5.6

Insufficient 1 2 3 4 5 6 7 Sufficient

Ratings for Sufficiency of Advance Warning Provided by Left Recommended Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	8	17.8	4	11.1
2	6	13.3	3	8.3
3	3	6.7	2	5.6
4	3	6.7	7	19.4
5	3	6.7	1	2.8
6	6	13.3	8	22.2
7	11	24.4	8	22.2
Missing	5	11.1	3	8.3

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction by Left Recommended Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	4	11.1
2	4	8.9	2	5.6
3	1	2.2	4	11.1
4	3	6.7	4	11.1
5	7	15.6	5	13.9
6	12	26.7	6	16.7
7	10	22.2	9	25.0
Missing	3	6.7	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Left Recommended Route Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	18	40.0	14	38.9
2	9	20.0	2	5.6
3	3	6.7	2	5.6
4	6	13.3	11	30.6
5	2	4.4	1	2.8
6	1	2.2	1	2.8
7	2	4.4	2	5.6
Missing	4	8.9	3	8.3

Strongly Disagree — Strongly Agree

1 2 3 4 5 6 7

Ratings for Left Recommended Route Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	5	13.9
2	2	4.4	2	5.6
3	3	6.7	0	0
4	5	11.1	6	16.7
5	2	4.4	3	8.3
6	10	22.2	10	27.8
7	13	28.9	8	22.2
Missing	4	8.9	2	5.6

Disliked — Liked

1 2 3 4 5 6 7

Ratings for Overall Impression of Left Recommended Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	9	20.0	7	19.4
2	6	13.3	2	5.6
3	4	8.9	5	13.9
4	13	28.9	8	22.2
5	4	8.9	3	8.3
6	2	4.4	5	13.9
7	4	8.9	4	11.1
Missing	3	6.7	2	5.6

C22. When you get close to your destination, Ali-Scout enters the destination zone and returns to autonomous mode. Please rate the following characteristics of the Ali-Scout system's Switch over to Autonomous Mode in the Destination Zone display.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Switch to Autonomous Mode	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	2	5.6
2	1	2.2	0	0
3	3	6.7	4	11.1
4	6	13.3	7	19.4
5	7	15.6	3	8.3
6	11	24.4	8	22.2
7	8	17.8	10	27.8
Missing	5	11.1	2	5.6

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction by Switch to Autonomous Mode	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	2	5.6
3	3	6.7	3	8.3
4	6	13.3	10	27.8
5	6	13.3	5	13.9
6	11	24.4	2	5.6
7	11	24.4	11	30.6
Missing	4	8.9	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Switch to Autonomous Mode Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	14	31.1	11	30.6
2	5	11.1	4	11.1
3	4	8.9	5	13.9
4	10	22.2	6	16.7
5	1	2.2	3	8.3
6	2	4.4	1	2.8
7	4	8.9	4	11.1
Missing	5	11.1	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Switch to Autonomous Mode Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	1	2.2	3	8.3
3	4	8.9	3	8.3
4	5	11.1	10	27.8
5	6	13.3	3	8.3
6	8	17.8	4	11.1
7	10	22.2	7	19.4
Missing	5	11.1	3	8.3

Disliked Liked
1 2 3 4 5 6 7

Ratings for Switch to Autonomous Mode Overall Impression	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	7	19.4
2	5	11.1	3	8.3
3	10	22.2	4	11.1
4	9	20.0	8	22.2
5	4	8.9	5	13.9
6	4	8.9	1	2.8
7	3	6.7	6	16.7
Missing	4	8.9	2	5.6

C23. In general, did you feel that you were close enough to or too far from your final destination when you reached the destination zone? Circle the most appropriate number on the scale provided.

Always too far Always close enough
1 2 3 4 5 6 7

Ratings for Distance From Final Destination	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	5	13.9
2	5	11.1	8	22.2
3	9	20.0	4	11.1
4	10	22.2	8	22.2
5	4	8.9	3	8.3
6	6	13.3	4	11.1
7	3	6.7	2	5.6
Missing	3	6.7	2	5.6

C24. After entering the destination zone, did you have any difficulty finding your final destination?

Always had Difficulty 1 2 3 4 5 6 Never had Difficulty 7

Ratings for Difficulty Finding Destination When Destination Zone Reached	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	0	0
2	4	8.9	5	13.9
3	4	8.9	1	2.8
4	6	13.3	3	8.3
5	3	6.7	3	8.3
6	5	11.1	8	22.2
7	18	40.0	12	33.3
Missing	3	6.7	4	11.1

D. The Ali-Scout System as a Whole

In this section, we would like to learn what you think of the Ali-Scout system as a whole.

D1. In this set of questions, we would like to know your overall assessment of Ali-Scout's visual displays. Please rate the listed characteristics of these displays by circling the most appropriate number on the scales provided.

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Reading Visual Display (Driving)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	1	2.8
3	2	4.4	3	8.3
4	3	6.7	3	8.3
5	8	17.8	7	19.4
6	15	33.3	10	27.8
7	13	28.9	9	25.0
Missing	0	0	2	5.6

Very Difficult 1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Reading Visual Display (Still)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	0	0	0	0
3	1	2.2	0	0
4	2	4.4	2	5.6
5	4	8.9	7	19.4
6	16	35.6	9	25.0
7	19	42.2	15	41.7
Missing	0	0	2	5.6

Very Difficult — Very Easy

1 2 3 4 5 6 7

Ratings for Difficulty of Understanding Visual Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	0	0	0	0
3	1	2.2	1	2.8
4	3	6.7	4	11.1
5	10	22.2	6	16.7
6	18	40.0	11	30.6
7	10	22.2	10	27.8
Missing	0	0	3	8.3

Insufficient — Sufficient

1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Visual Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	1	2.8
2	2	4.4	1	2.8
3	3	6.7	1	2.8
4	4	8.9	4	11.1
5	10	22.2	7	19.4
6	14	31.1	11	30.6
7	6	13.3	9	25.0
Missing	2	4.4	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Visual Display Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	12	26.7	10	27.8
2	8	17.8	2	5.6
3	3	6.7	5	13.9
4	3	6.7	4	11.1
5	10	22.2	7	19.4
6	7	15.6	5	13.9
7	1	2.2	1	2.8
Missing	1	2.2	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Visual Display Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	5	13.9
2	3	6.7	2	5.6
3	6	13.3	2	5.6
4	6	13.3	6	16.7
5	7	15.6	4	11.1
6	9	20.0	8	22.2
7	8	17.8	7	19.4
Missing	0	0	2	5.6

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression of Visual Display	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	9	20.0	5	13.9
2	7	15.6	2	5.6
3	4	8.9	7	19.4
4	8	17.8	6	16.7
5	7	15.6	5	13.9
6	7	15.6	2	5.6
7	3	6.7	7	19.4
Missing	0	0	2	5.6

D2. In general, were Ali-Scout's visual displays distracting:

Very Distracting Not at all Distracting
1 2 3 4 5 6 7

Ratings for Distraction by Visual Display at Night	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	2	5.6
2	1	2.2	0	0
3	5	11.1	2	5.6
4	3	6.7	5	13.9
5	8	17.8	4	11.1
6	14	31.1	11	30.6
7	12	26.7	10	27.8
Missing	0	0	2	5.6

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction by Visual Display During Daylight Hours	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	1	2.8
3	3	6.7	2	5.6
4	2	4.4	3	8.3
5	6	13.3	3	8.3
6	18	40.0	8	22.2
7	13	28.9	16	44.4
Missing	0	0	2	5.6

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction of Visual Display in Heavy Traffic	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	3	8.3
2	2	4.4	0	0
3	2	4.4	2	5.6
4	3	6.7	4	11.1
5	9	20.0	3	8.3
6	14	31.1	11	30.6
7	12	26.7	11	30.6
Missing	0	0	2	5.6

Very Distracting
1 2 3 4 5 6 7
Not at all Distracting

Ratings for Distraction of Visual Display in Light Traffic	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	0	0
3	2	4.4	3	8.3
4	3	6.7	3	8.3
5	6	13.3	5	13.9
6	18	40.0	8	22.2
7	13	28.9	14	38.9
Missing	0	0	2	5.6

Very Distracting
1 2 3 4 5 6 7
Not at all Distracting

Ratings for Distraction of Visual Display on Freeways	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	0	0
3	2	4.4	3	8.3
4	3	6.7	3	8.3
5	6	13.3	2	5.6
6	16	35.6	9	25.0
7	15	33.3	16	44.4
Missing	0	0	2	5.6

Very Distracting 1 2 3 4 5 6 Not at all Distracting 7

Ratings for Distraction of Visual Display on Other Roads	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	2	4.4	1	2.8
3	2	4.4	2	5.6
4	2	4.4	4	11.1
5	7	15.6	2	5.6
6	17	37.8	8	22.2
7	13	28.9	16	44.4
Missing	0	0	2	5.6

D3. For this question, we would like to know your overall assessment of the Ali-Scout system's Voice Guidance feature. Please circle the most appropriate number on the scale provided.

Very Difficult 1 2 3 4 5 6 Very Easy 7

Ratings for Difficulty of Hearing Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	1	2.2	0	0
3	0	0	1	2.8
4	2	4.4	1	2.8
5	2	4.4	3	8.3
6	15	33.3	11	30.6
7	24	53.3	17	47.2
Missing	1	2.2	3	8.3

Very Difficult
1 2 3 4 5 6 7 Very Easy

Ratings for Difficulty of Understanding Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	1	2.2	1	2.8
4	1	2.2	2	5.6
5	4	8.9	3	8.3
6	15	33.3	9	25.0
7	23	51.1	18	50.0
Missing	1	2.2	3	8.3

Insufficient
1 2 3 4 5 6 7 Sufficient

Ratings for Amount of Information Given by Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	2	4.4	2	5.6
3	2	4.4	3	8.3
4	2	4.4	4	11.1
5	8	17.8	4	11.1
6	13	28.9	9	25.0
7	17	37.8	12	33.3
Missing	1	2.2	2	5.6

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	4	8.9	0	0
3	1	2.2	3	8.3
4	4	8.9	8	22.2
5	6	13.3	4	11.1
6	16	35.6	7	19.4
7	12	26.7	12	33.3
Missing	1	2.2	2	5.6

Strongly Disagree Strongly Agree
1 2 3 4 5 6 7

Ratings for Voice Guidance Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	9	20.0	9	25.0
2	5	11.1	3	8.3
3	4	8.9	5	13.9
4	8	17.8	4	11.1
5	8	17.8	4	11.1
6	8	17.8	5	13.9
7	2	4.4	4	11.1
Missing	1	2.2	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Voice Guidance Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	7	15.6	4	11.1
2	3	6.7	1	2.8
3	1	2.2	3	8.3
4	7	15.6	5	13.9
5	4	8.9	4	11.1
6	13	28.9	8	22.2
7	9	20.0	9	25.0
Missing	1	2.2	2	5.6

Very Distracting 1 2 3 4 5 6 7 Not at all Distracting

Ratings for Distraction by Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	3	8.3
2	4	8.9	4	11.1
3	5	11.1	2	5.6
4	3	6.7	2	5.6
5	2	4.4	4	11.1
6	20	44.4	9	25.0
7	8	17.8	10	27.8
Missing	1	2.2	2	5.6

Disliked Liked
1 2 3 4 5 6 7

Ratings for Sound of the Voice in Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	3	6.7	0	0
3	1	2.2	4	11.1
4	10	22.2	10	27.8
5	9	20.0	6	16.7
6	14	31.1	6	16.7
7	4	8.9	6	16.7
Missing	1	2.2	2	5.6

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression of Voice Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	2	4.4	3	8.3
3	3	6.7	4	11.1
4	7	15.6	7	19.4
5	6	13.3	6	16.7
6	21	46.7	8	22.2
7	3	6.7	5	13.9
Missing	1	2.2	2	5.6

D4. Considering both visual and verbal information, how often did you follow Ali-Scout's recommendations to turn? (If always, please skip to question D6.)

Never Always
1 2 3 4 5 6 7

Ratings for Following Recommendation to Turn	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	10	22.2	5	13.9
3	3	6.7	4	11.1
4	9	20.0	7	19.4
5	12	26.7	12	33.3
6	7	15.6	5	13.9
7	1	2.2	0	0
Missing	1	2.2	2	5.6

D5. Considering all of the times that you did not take the recommended turn, how often were each of the following items part of your reason not to follow the recommended turn? (Answer by circling the most appropriate number on the scale provided just below each item.)

Never Always
1 2 3 4 5 6 7

Ratings for Knew of Faster Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	1	2.8
3	1	2.2	1	2.8
4	1	2.2	2	5.6
5	4	8.9	5	13.9
6	18	40.0	14	38.9
7	15	33.3	10	27.8
Missing	2	4.4	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Believed Recommended Turn Went Away From Destination	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	8	17.8	6	16.7
2	4	8.9	3	8.3
3	2	4.4	4	11.1
4	2	4.4	5	13.9
5	6	13.3	6	16.7
6	11	24.4	6	16.7
7	10	22.2	4	11.1
Missing	2	4.4	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Needed To Make Stops Along Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	12	26.7	8	22.2
2	7	15.6	9	25.0
3	6	13.3	3	8.3
4	3	6.7	5	13.9
5	8	17.8	3	8.3
6	5	11.1	6	16.7
7	0	0	0	0
Missing	4	8.9	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Believed Recommended Turn Would Lead Into Traffic Congestion	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	18	40.0	9	25.0
2	4	8.9	7	19.4
3	2	4.4	2	5.6
4	1	2.2	2	5.6
5	6	13.3	7	19.4
6	8	17.8	7	19.4
7	2	4.4	0	0
Missing	4	8.9	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Provided Suggested Turn Too Late	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	23	51.1	16	44.4
2	8	17.8	10	27.8
3	4	8.9	5	13.9
4	3	6.7	0	0
5	2	4.4	3	8.3
6	1	2.2	0	0
7	0	0	0	0
Missing	4	8.9	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Recommended Turn Not Clear	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	19	42.2	16	44.4
2	5	11.1	11	30.6
3	2	4.4	4	11.1
4	6	13.3	1	2.8
5	3	6.7	2	5.6
6	5	11.1	0	0
7	1	2.2	0	0
Missing	4	8.9	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Not Enough Room to Merge	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	26	57.8	14	38.9
2	4	8.9	12	33.3
3	5	11.1	3	8.3
4	2	4.4	2	5.6
5	2	4.4	1	2.8
6	1	2.2	1	2.8
7	0	0	0	0
Missing	5	11.1	3	8.3

Never Always
1 2 3 4 5 6 7

Ratings for Other	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	0	0	2	5.6
3	2	4.4	1	2.8
4	2	4.4	0	0
5	2	4.4	0	0
6	1	2.2	2	5.6
7	2	4.4	1	2.8
Missing	34	75.6	29	80.6

Survey 1 responses:

- The voice was helpful because it freed me from watching the screen. The screen was helpful because it reinforced the voice message and gave more detail.
- Large Objects in way of turn
- Gave opposite direction Manual override
- Not desired route
- Previous trips that had followed directions were not accurate.
- No thru road to turn.
- Illegal turn recommended.
- Did not indicate a turn @ proper location.
- Poor choice of route - likes 16 mile too much!
- Recommended route would have taken longer

Survey 2 responses:

- Wrong destination entered by me
- Instructed to turn in wrong direction.
- Not 100% accurate.
- Generally took me out of the way or into traffic.
- Dumb route

D6. Comparing the visual and verbal turn recommendations, which did you prefer for route guidance information?

Route Guidance Information Preference	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
Voice Alone	4	8.9	5	13.9
Voice and Visual Together	35	77.8	22	61.1
Visual Alone	1	2.2	6	16.7
No Preference	2	4.4	1	2.8
Missing	3	6.7	2	5.6

D7. In the space provided, please explain briefly why you preferred this form of turn recommendations, or why you had no preference.

Survey 1 responses:

- Voice was less distracting and more immediate. You didn't have to look at the display at all
- The voice supplemented the visual display so I didn't have to pay constant attention. The voice and other audio signals blend into the background (My kids like the voice, also).
- Voice doesn't require looking at display
- In heavy traffic voice is good, but I like visual confirmation.
- Voice is preferred, & visual provides detail (i.e., distance to maneuver): voice/visual is 90/10 in heavy traffic Voice/visual is 50/50 in light traffic.
- You had confirmation between voice and visual
- The voice guide helps if you don't have time to look at the display; the display helps you see the countdown 7 know when to turn.
- Depending on situations both systems can be effective. In heavy traffic and during night - voice systems can be more friendly whereas in light traffic the visual system may be ok
- I prefer both because the visual provides more information, but I would not rely on only the visual because this would be too distractive. I like to glance at the visual occasionally, but use the voice commands for specific directions.
- I am not constantly looking the visual guide.
- Two sources of info are better than one.
- Can't always look at screen, Voice can remind me.
- I am hard of hearing & like the voice command as well as the visual.
- I may not be looking @ the display when a turn is coming up. After hearing the voice command I usually

verifies w/ the visual display.

- The visual was good to see in advance & the verbal was a good reminder.
- Both forms of guidance worked fine - but voice recommendations were an instant reminder of my next move in case I was distracted by some passenger conversations and ignored the visual display & tone!
- The verbal guidance, in most cases, was sufficient and kept me from taking my eyes off the road. Then, a glance at the visual prepare maneuver display provided rapid confirmation of the verbal instructions
- Like to see local map detail on guidance display.
- Display is too small & far from sight (can't read word). Display info is not obvious - a person doesn't need the manual or video to understand it.
- When the voice said to turn, I would glance at the bar to see how far! If I had to choose between voice and visual, I would choose the voice. However, the voice should tell you what street you are turning on.
- If traffic allowed viewing of display visual gave indication of upcoming quick maneuvers. Verbal gave indication which did not require removing eyes from road.
- When the voice, I would glance of the bar to see how far! If I had to choose between voice and visual, I would choose the voice. However, the voice should tell you what street you are turning on.
- I like the voice guidance because it calls your attention. If it is only visual, you'll have to check the screen all the time.
- You can't always watch screen so you need the voice too.
- At the times when I did not want to look at the display (i.e., heavy traffic, or to check on child) the verbal recommendations allowed me to continue to use the system easily.
- I preferred the voice so I wouldn't have to take my eyes off the road. However, the visual display helped to tell how far ahead the turn would be and what lane to get in to.
- Found the voice distracting and occasionally annoying (conversation with other passengers, listening to radio). I believe that when driving to an unfamiliar destination, most drivers will pay more attention to their route and route guidance, voice is not necessary.
- Voice & visual input provide detailed directions for maneuvering.
- Voice plus visual provide reinforcement.
- Voice allows me to keep my eyes on the road, while the visual is there for reference when I can glance at it.
- Voice is sufficient for simple turn - by turn guidance.
- Voice was primary input- visual map was used to confirm my understanding & exactly when to execute maneuver. Voice is essential!
- Having the voice helps keep one focused on successfully completing the turn.
- In heavy traffic voice is less distracting.
- Voice alerted me, visual provided detail.

☞ If I really didn't know where I was going I would prefer both visual & audio. If I believed the system and I received a congestion warning - I would also desire both voice ad visual.

☞ Voice alerted me, visual provided detail.

Survey 2 responses:

☞ Combination of voice and visual is easy to understand and voice attracts your attention

☞ The voice sometimes alerts you to an upcoming maneuver. The visual gives you necessary info for maneuvers (lane recommendation and countdown bar) so you don't miss your turn or turn onto the wrong sheet, driveway or cross-over.

☞ In heavy traffic and during night - I would like the voice system, whereas in light traffic the visual system is ok.

☞ I liked the voice while driving but the bar graph better defined when to turn.

☞ Visual provides more info than voice, but voice requires no attention by the driver. Combination is best.

☞ Voice was distracting.

☞ The visual was used as a check on verbal commands.

☞ If Ali-Scout would be useful, it would be in the voice and visual.

☞ I liked to hear the voice in case I could not look at display.

☞ I would not like to rely on the visual display only because this would take my attention away from the road. Yet the voice commands alone are not sufficient (eg distance to maneuver).

☞ Voice by itself does not provide sufficient data. I have more confidence in system with voice and visual working together.

☞ Visual is not enough, need verbal to look at monitor at the right time.

☞ Voice often distracted and surprised.

☞ Voice annoying when driving. I enjoy relaxing to music on my way home to work etc., not having a computer talking to me! It is my only time of day that I can have peace and quiet.

☞ I would really prefer not to be guided.

☞ The voice mode gets you attention to look at the visual display.

☞ Voice often distracted and surprised.

☞ Voice alone - in traffic or driving on x-way you can not always look at the visual - But you can listen. Sometimes where the Ali-scout is mounted makes alot of difference also.

☞ I mostly preferred the voice, but the "countdown" bars were useful and the arrow sometimes gave useful information if several turns were possible.

☞ The verbal tone was annoying.

☞ Voice command initiates attention and visual provides detailed instructions.

☞ Giving an audible tone and then visually showing direction worked well. Voice became annoying after novelty wore off.

☞ Both are needed because the voice alerts you to take note of the visual display which my attention is not focused on always.

☞ I felt the voice messages were generally distracting and unnecessary. Kind of like the old voice messages provided in auto's in the early 80's (e.g., door ajar headlights on, etc.) The voice messages became annoying after a period of time.

☞ In situations where you don't want to take your eyes off the road or if you had forgotten that you were using the navigation system, the verbal recommendation gave the desired information at the correct time.

☞ You should consider voice to be the primary stimulus and the visual feedback to be used as a check to confirm what the voice instructed.

☞ Voice is less distracting.

☞ Most complete.

D8. In your opinion, how often did the Ali-Scout system help you achieve the following in the Oakland County study area?

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Reduce Travel Time	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	25	55.6	17	47.5
2	9	20.0	8	22.2
3	1	2.2	4	11.1
4	2	4.4	3	8.3
5	4	8.9	2	5.6
6	1	2.2	0	0
7	0	0	0	0
Missing	3	6.7	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Avoid Congestion	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	21	46.7	23	63.9
2	14	31.1	6	16.7
3	1	2.2	2	5.6
4	5	11.1	2	5.6
5	0	0	0	0
6	1	2.2	1	2.8
7	0	0	0	0
Missing	3	6.7	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Drive More Safely	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	20	44.4	21	58.3
2	12	26.7	7	19.4
3	2	4.4	2	5.6
4	6	13.3	2	5.6
5	1	2.2	1	2.8
6	1	2.2	1	2.8
7	0	0	0	0
Missing	3	6.7	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Save Fuel	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	21	46.7	21	58.3
2	11	24.4	8	22.2
3	3	6.7	2	5.6
4	5	11.1	2	5.6
5	0	0	0	0
6	0	0	1	2.8
7	1	2.2	0	0
Missing	4	8.9	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Find Fastest Route	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	19	42.2	20	55.6
2	11	24.4	8	22.2
3	4	8.9	3	8.3
4	6	13.3	2	5.6
5	2	4.4	0	0
6	0	0	1	2.8
7	1	2.2	0	0
Missing	2	4.4	2	5.6

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Helped Reach Destination On Time	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	19	42.2	19	52.8
2	11	24.4	5	13.9
3	2	4.4	4	11.1
4	7	15.6	3	8.3
5	2	4.4	1	2.8
6	0	0	1	2.8
7	1	2.2	0	0
Missing	3	6.7	3	8.3

D9. Please rate the following characteristics of the Ali-Scout system as a whole.

Very Difficult Very Easy
1 2 3 4 5 6 7

Ratings for Difficulty Learning Ali-Scout Characteristics	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	4	11.1
2	5	11.1	1	2.8
3	3	6.7	2	5.6
4	9	20.0	7	19.4
5	6	13.3	2	5.6
6	11	24.4	10	27.8
7	6	13.3	8	22.2
Missing	2	4.4	2	5.6

Very Difficult — Very Easy

1 2 3 4 5 6 7

Ratings for Difficulty Understanding Ali-Scout Characteristics	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	1	2.8
2	1	2.2	2	5.6
3	1	2.2	2	5.6
4	4	8.9	5	13.9
5	12	26.7	3	8.3
6	13	28.9	12	33.3
7	8	17.8	9	25.0
Missing	3	6.7	2	5.6

Insufficient — Sufficient

1 2 3 4 5 6 7

Ratings for Amount of Information Given by Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	0	0	2	5.6
3	3	6.7	4	11.1
4	7	15.6	5	13.9
5	8	17.8	5	13.9
6	17	37.8	9	25.0
7	7	15.6	8	22.2
Missing	2	4.4	2	5.6

Insufficient Sufficient
1 2 3 4 5 6 7

Ratings for Sufficiency of Advance Warning Provided by Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	2	5.6
2	4	8.9	1	2.8
3	2	4.4	1	2.8
4	6	13.3	4	11.1
5	7	15.6	6	16.7
6	15	33.3	12	33.3
7	7	15.6	8	22.2
Missing	3	6.7	2	5.6

Very Inaccurate Very Accurate
1 2 3 4 5 6 7

Ratings for Accuracy of Guidance of Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	9	30.0	7	19.4
3	3	6.7	9	25.0
4	9	20.0	5	13.9
5	6	13.3	3	8.3
6	8	17.8	4	11.1
7	2	4.4	2	5.6
Missing	2	4.4	3	8.3

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Ali-Scout Helped Me Find My Way	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	12	26.7	10	27.8
2	8	17.8	7	19.4
3	1	2.2	5	13.9
4	13	28.9	6	16.7
5	5	11.1	3	8.3
6	2	4.4	3	8.3
7	2	4.4	0	0
Missing	2	4.4	2	5.6

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Ratings for Ali-Scout Reduced My Travel Time	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	15	33.3	15	41.7
2	14	31.1	8	22.2
3	3	6.7	5	13.9
4	8	17.8	2	5.6
5	1	2.2	4	11.1
6	0	0	0	0
7	1	2.2	0	0
Missing	3	6.7	2	5.6

Strongly Disagree — Strongly Agree

1 2 3 4 5 6 7

Ratings for Ali-Scout Functioned Properly	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	7	15.6	5	13.9
2	3	6.7	2	5.6
3	4	8.9	4	11.1
4	10	22.2	4	11.1
5	5	11.1	8	22.2
6	5	11.1	8	22.2
7	8	17.8	3	8.3
Missing	3	6.7	2	5.6

Very Distracting — Not at all Distracting

1 2 3 4 5 6 7

Ratings for Distraction by Ali-Scout While Driving	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	2	4.4	2	5.6
3	3	6.7	3	8.3
4	1	2.2	2	5.6
5	5	11.1	5	13.9
6	19	42.2	13	36.1
7	10	22.2	7	19.4
Missing	2	4.4	2	5.6

Disliked Liked
1 2 3 4 5 6 7

Ratings for Overall Impression of Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	9	20.0	7	19.4
2	7	15.6	3	8.3
3	5	11.1	8	22.2
4	8	17.8	2	5.6
5	8	17.8	7	19.4
6	5	11.1	5	13.9
7	1	2.2	2	5.6
Missing	2	4.4	2	5.6

D10. In order to operate properly, the in-vehicle components of Ali-Scout must communicate with roadside beacons. As a result, the system cannot guide you to destinations beyond the beacon coverage area. In your use of the Ali-Scout system, did you find that the beacon coverage area was too small or large enough for your driving needs?

Coverage area too small Coverage area large enough
1 2 3 4 5 6 7

Ratings for Coverage Area of Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	34	75.6	21	58.3
2	5	11.1	9	25.0
3	3	6.7	1	2.8
4	1	2.2	2	5.6
5	1	2.2	1	2.8
6	1	2.2	0	0
7	0	0	0	0
Missing	0	0	2	5.6

D11. Thinking only of the area in which beacons were installed, did you find that beacons were spaced too far apart or close enough for your driving needs?

Beacons too far apart — Beacons close enough

1 2 3 4 5 6 7

Ratings for Spacing of Ali-Scout Beacons	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	11	24.4	7	19.4
2	7	15.6	3	8.3
3	5	11.1	5	13.9
4	13	28.9	6	16.7
5	5	11.1	4	11.1
6	2	4.4	4	11.1
7	0	0	4	11.1
Missing	2	4.4	3	8.3

E. Use of the Ali-Scout System

In this section, we would like to know how you used Ali-Scout as part of your driving and trip-making.

E1. How often did you use Ali-Scout for the for the following types of trips? Circle the most appropriate number in the scales provided.

Never Always
1 2 3 4 5 6 7

Ratings for Frequency of Use Ali-Scout for Work Commute	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	0	0
2	4	8.9	4	11.1
3	2	4.4	1	2.8
4	2	4.4	5	13.9
5	6	13.3	5	13.9
6	5	11.1	3	8.3
7	23	51.1	15	41.7
Missing	0	0	3	8.3

Never Always
1 2 3 4 5 6 7

Ratings for Frequency of Ali-Scout Use for Other Work-related Trips	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	16	35.6	9	25.0
2	3	6.7	5	13.9
3	2	4.4	4	11.1
4	6	13.3	4	11.1
5	3	6.7	3	8.3
6	5	11.1	2	5.6
7	8	17.8	6	16.7
Missing	2	4.4	3	8.3

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Use for Recreational Trips	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	13	28.9	9	25.0
2	3	6.7	3	8.3
3	6	13.3	6	16.7
4	9	20.0	5	13.9
5	7	15.6	4	11.1
6	4	8.9	4	11.1
7	3	6.7	2	5.6
Missing	0	0	3	8.3

Never Always
1 2 3 4 5 6 7

Ratings for Ali-Scout Use for Other Personal Trips	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	5	13.9
2	4	8.9	3	8.3
3	11	24.4	8	22.2
4	13	28.9	4	11.1
5	5	11.1	7	19.4
6	5	11.1	4	11.1
7	4	8.9	2	5.6
Missing	0	0	3	8.3

For the next few questions, please compare your driving without an Ali-Scout system to your driving with the Ali-Scout system.

E2. Please indicate the extent to which driving with Ali-Scout changed your attention to:

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Traffic Conditions	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	2	4.4	2	5.6
4	38	84.4	28	77.8
5	2	4.4	1	2.8
6	2	4.4	2	5.6
7	1	2.2	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Traffic Signals	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	4	8.9	2	5.6
4	36	80.0	26	72.2
5	1	2.2	2	5.6
6	3	6.7	3	8.3
7	1	2.2	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Road Signs	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	2	4.4	2	5.6
4	41	91.1	30	83.3
5	1	2.2	1	2.8
6	1	2.2	0	0
7	0	0	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Street Signs	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	2	4.4	0	0
3	1	2.2	2	5.6
4	35	77.8	26	72.2
5	6	13.3	2	5.6
6	1	2.2	2	5.6
7	0	0	2	5.6
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Street Addresses	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	0	0	0	0
3	1	2.2	1	2.8
4	40	88.9	29	80.6
5	2	4.4	2	5.6
6	1	2.2	1	2.8
7	0	0	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Speedometer	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	1	2.2	0	0
3	1	2.2	1	2.8
4	42	93.3	32	88.9
5	0	0	0	0
6	1	2.2	0	0
7	0	0	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Mirrors	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	1	2.2	0	0
3	1	2.2	1	2.8
4	42	93.3	32	88.9
5	1	2.2	0	0
6	0	0	0	0
7	0	0	1	2.8
Missing	0	0	2	5.6

Much less Attention — No Change — Much more Attention

1 2 3 4 5 6 7

Ratings for Ali-Scout Changed Your Attention to Fuel Gauge	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	1	2.2	1	2.8
4	43	95.6	31	86.1
5	1	2.2	1	2.8
6	0	0	0	0
7	0	0	1	2.8
Missing	0	0	2	5.6

E3. Please indicate the extent to which driving with the Ali-Scout system, compared to driving without Ali-Scout, made you feel:

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Nervous With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	0	0
2	0	0	0	0
3	2	4.4	1	2.8
4	40	88.9	26	72.2
5	1	2.2	4	11.1
6	0	0	1	2.8
7	0	0	0	0
Missing	0	0	4	11.1

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Confident With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	2	5.6
3	0	0	2	5.6
4	36	80.0	23	63.9
5	4	8.9	3	8.3
6	1	2.2	2	5.6
7	1	2.2	0	0
Missing	0	0	3	8.3

Always less with Ali-Scout
1 2 3 4 5 6 7
Always more with Ali-Scout

Ratings for Feeling Confused With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	0	0
2	0	0	0	0
3	3	6.7	0	0
4	35	77.8	27	75.0
5	3	6.7	3	8.3
6	2	4.4	2	5.6
7	0	0	0	0
Missing	0	0	4	11.1

Always less with Ali-Scout
1 2 3 4 5 6 7
Always more with Ali-Scout

Ratings for Feeling Attentive With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	0	0
2	0	0	0	0
3	2	4.4	3	8.3
4	33	73.3	26	72.2
5	5	11.1	2	5.6
6	3	6.7	2	5.6
7	0	0	0	0
Missing	0	0	3	8.3

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Safe With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	3	6.7	0	0
3	0	0	2	5.6
4	39	86.7	28	77.8
5	1	2.2	1	2.8
6	1	2.2	2	5.6
7	0	0	0	0
Missing	0	0	3	8.3

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Stressed With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	0	0	0	0
3	1	2.2	0	0
4	39	86.7	25	69.4
5	3	6.7	7	19.4
6	1	2.2	0	0
7	0	0	0	0
Missing	0	0	3	8.3

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Relaxed With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	1	2.8
3	3	6.7	3	8.3
4	37	82.2	26	72.2
5	0	0	2	5.6
6	1	2.2	1	2.8
7	2	4.4	0	0
Missing	0	0	3	8.3

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Feeling Frustrated With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	0	0
3	1	2.2	2	5.6
4	30	66.7	19	52.8
5	7	15.6	5	13.9
6	1	2.2	5	13.9
7	4	8.9	2	5.6
Missing	0	0	3	8.3

E4. Again, compared to driving without Ali-Scout, please indicate the extent to which you had the following experiences while driving with Ali-Scout:

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Changes in Crashes With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	0	0
3	1	2.2	1	2.8
4	41	91.1	30	83.3
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
Missing	1	2.2	5	13.9

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Changes in Missed Stop Signs With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	0	0
3	0	0	1	2.8
4	42	93.3	30	83.3
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
Skip	0	0	1	2.8
Missing	1	2.2	4	11.1

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Changes in Ran Red Light With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	0	0
3	1	2.2	1	2.8
4	41	91.1	29	80.6
5	0	0	0	0
6	0	0	0	0
7	0	0	1	2.8
Missing	1	2.2	5	13.9

Always less with Ali-Scout 1 2 3 4 5 6 7 Always more with Ali-Scout

Ratings for Changes in Ran Off Road With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	0	0	0	0
3	1	2.2	1	2.8
4	41	91.1	28	77.8
5	1	2.2	1	2.8
6	0	0	1	2.8
7	0	0	0	0
Skip	0	0	1	2.8
Missing	1	2.2	4	11.1

Always less with Ali-Scout

Always more with Ali-Scout

1 2 3 4 5 6 7

Ratings for Changes in Crossed Lane Marker With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	1	2.2	0	0
3	0	0	1	2.8
4	38	84.4	27	75.0
5	3	6.7	1	2.8
6	0	0	2	5.6
7	0	0	2	5.6
Missing	2	4.4	3	8.3

The next few questions deal with your crash and near-crash involvement while driving the Ali-Scout equipped vehicle. These questions are only for analytical purposes, and your responses will be held in the strictest confidence.

E5. Were you involved in any crashes while driving with the Ali-Scout system? (If no, please skip ahead to question E8.)

Crash Involvement While Driving With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	45	100.0	34	94.5
Yes	0	0	0	0
Missing	0	0	2	5.6

E6. In your opinion, to what extent was Ali-Scout a contributing factor to this (these) crash(es)?

Not at all a Factor 1 2 3 4 5 6 the Main Factor 7

Ratings for Ali-Scout Contributing to Crashes	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
Skip	43	95.6	32	88.9
Missing	2	4.4	3	8.4

E7. In the space provided, please explain how Ali-Scout did or did not contribute to this (these) crash(es).

Survey 1 responses:

☞ No responses.

Survey 2 responses:

☞ Less safe with Ali-Scout. [Note: There was no crash reported but subject filled this blank in - ED.]

E8. Were you ever involved in what you consider to be a near-crash while driving with the Ali-Scout system? (If no, please skip ahead to question F1.)

Near Crash Involvement While Driving With Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	43	95.6	30	83.3
Yes	1	2.2	3	8.3
Skip	1	2.3	0	0
Missing	0	0	2	5.6

E9. In your opinion, to what extent was Ali-Scout a contributing factor to this (these) near-crash(es)?

Not at all a Factor 1 2 3 4 5 6 7 the Main Factor

Ratings for Ali-Scout Contributing to Near Crashes	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	2	5.6
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	1	2.8
7	1	2.2	1	2.8
Skip	42	93.3	29	80.6
Missing	1	2.2	3	8.3

E10. In the space provided, please explain how Ali-Scout did or did not contribute to this (these) near-crash(es).

Survey 1 responses:

☞ Wasn't paying attention to it at the time

Survey 2 responses:

☞ I was giving a demonstration ride to some reporters. I was explaining the system, watching the Ali-Scout visuals and talking to the reporters, when I almost ran into a car stopped in front of me.

☞ I was re-setting my destination on Ali Scout when a car to my right changed lanes and pulled in front of me as I was stopping for a red light.

☞ Nearly sideswiped by speeding car. Sufficient warning time for evasive maneuvers.

F. Valuation

In the following questions, we would like to learn how much you, an experienced user, value the Ali-Scout system.

F1. For assistance in reaching your destinations, how do you rate the following sources of route-guidance information?

Poor Excellent
1 2 3 4 5 6 7

Ratings for Standard Road Map As Route Guidance Source	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	2	5.6
2	0	0	0	0
3	0	0	0	0
4	4	8.9	0	0
5	10	22.2	3	8.3
6	12	26.7	15	41.7
7	19	42.2	14	38.9
Missing	0	0	2	5.6

Poor Excellent
1 2 3 4 5 6 7

Ratings for Verbal Directions From Passenger As Route Guidance Source	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	3	6.7	1	2.8
3	3	6.7	3	8.3
4	11	24.2	5	13.9
5	10	22.2	8	22.2
6	10	22.2	10	27.8
7	7	15.6	7	19.4
Missing	1	2.2	2	5.6

Poor Excellent
1 2 3 4 5 6 7

Ratings for Verbal Directions From Other People As Route Guidance Source	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	0	0
2	2	4.4	2	5.6
3	6	13.3	4	11.1
4	17	37.8	9	25.0
5	9	20.0	11	30.6
6	9	20.0	6	16.7
7	1	2.2	2	5.6
Missing	0	0	2	5.6

Poor Excellent
1 2 3 4 5 6 7

Ratings for Written Directions As Route Guidance Source	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	0	0	1	2.8
3	0	0	0	0
4	6	13.3	1	2.8
5	13	28.9	8	22.2
6	17	37.8	16	44.4
7	9	20.0	7	19.4
Missing	0	0	2	5.6

Poor Excellent
1 2 3 4 5 6 7

Ratings for Ali-Scout As Route Guidance Source	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	11	24.4	6	16.7
2	7	15.6	5	13.9
3	2	4.4	6	16.7
4	9	20.0	4	11.1
5	7	15.6	8	22.2
6	9	20.0	2	5.6
7	0	0	3	8.3
Missing	0	0	2	5.6

F2. If you were about to drive to an unfamiliar area, which of the following sources of route-guidance information would you like to use?

Definitely Would Not Like Definitely Would Like
1 2 3 4 5 6 7

Ratings for Liking Standard Road Map As Route Guidance In Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	0	0	0	0
3	0	0	0	0
4	3	6.7	0	0
5	5	11.1	2	5.6
6	7	15.6	4	11.1
7	30	66.7	26	72.2
Missing	0	0	3	8.3

Definitely Would Not Like 1 2 3 4 5 6 7 Definitely Would Like

Ratings for Liking Verbal Directions From Passenger As Route Guidance In Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	0	0	0	0
3	4	8.9	2	5.6
4	8	17.8	10	27.8
5	7	15.6	2	5.6
6	12	26.7	8	22.2
7	14	31.1	11	30.6
Missing	0	0	3	8.3

Definitely Would Not Like 1 2 3 4 5 6 7 Definitely Would Like

Ratings for Liking Verbal Directions From Other People As Route Guidance In Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	0	0
2	4	8.9	1	2.8
3	7	15.6	3	8.3
4	11	24.4	10	27.8
5	9	20.0	5	13.9
6	7	15.6	7	19.4
7	7	15.6	7	19.4
Missing	0	0	3	8.3

Definitely Would Not Like 1 2 3 4 5 6 7 Definitely Would Like

Ratings for Liking Written Directions As Route Guidance In Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	0	0	1	2.8
2	0	0	0	0
3	1	2.2	0	0
4	6	13.3	2	5.6
5	12	26.7	6	16.7
6	14	31.1	12	33.3
7	12	26.7	13	36.1
Missing	0	0	2	5.6

Definitely Would Not Like 1 2 3 4 5 6 7 Definitely Would Like

Ratings for Liking Ali-Scout As Route Guidance In Unfamiliar Area	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	5	13.9
2	5	11.1	6	16.7
3	2	4.4	1	2.8
4	10	22.2	8	22.2
5	6	13.3	3	8.3
6	8	17.8	5	13.9
7	7	15.6	5	13.9
Missing	1	2.2	3	8.3

F3. For the following items, assume that the Ali-Scout system was available nationwide. Given this scenario, how useful do you think the Ali-Scout system would be for:

Not at all Useful 1 2 3 4 5 6 7 Extremely Useful

Ratings for Ali-Scout Usefulness for Commuting Trip	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	7	19.4
2	8	17.8	9	25.0
3	5	11.1	7	19.4
4	9	20.0	1	2.8
5	11	24.4	4	11.1
6	2	4.4	3	8.3
7	3	6.7	3	8.3
Missing	1	2.2	2	5.6

Not at all Useful 1 2 3 4 5 6 7 Extremely Useful

Ratings for Ali-Scout Usefulness for Out-of-town Vacation Trips	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	2	5.6
2	3	6.7	2	5.6
3	2	4.4	3	8.3
4	5	11.1	6	16.7
5	12	26.7	7	19.4
6	5	11.1	7	19.4
7	13	28.9	7	19.4
Missing	1	2.2	2	5.6

Not at all Useful
1 2 3 4 5 6 7 Extremely Useful

Ratings for Ali-Scout Usefulness for Out-of-town Business Trips	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	4	8.9	2	5.6
2	2	4.4	1	2.8
3	1	2.2	2	5.6
4	6	13.3	6	16.7
5	9	20.0	8	22.2
6	8	17.8	6	16.7
7	14	31.1	9	25.0
Missing	1	2.2	2	5.6

Not at all Useful
1 2 3 4 5 6 7 Extremely Useful

Ratings for Ali-Scout Usefulness for Local Driving	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	8	17.8	7	19.4
2	12	26.7	12	33.3
3	6	13.3	5	13.9
4	8	17.8	5	13.9
5	7	15.6	2	5.6
6	1	2.2	2	5.6
7	2	4.4	1	2.8
Missing	1	2.2	2	5.6

F4. If you had $2,500 to spend on options for a new car, how would you allocate your budget?

Would Purchase Car Alarm ($300)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	38	84.4	30	83.3
Yes	7	15.6	5	13.9
Missing	0	0	1	2.8

Would Purchase Cellular Phone ($500)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	33	73.3	25	69.4
Yes	12	26.7	10	27.8
Missing	0	0	1	2.8

Would Purchase Power Windows ($300)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	8	17.8	4	4
Yes	37	82.2	31	86.1
Missing	0	0	1	2.8

Would Purchase Cassette Player ($150)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	18	40.0	15	41.7
Yes	27	60.0	20	55.6
Missing	0	0	1	2.8

Would Purchase Air Conditioning ($650)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	1	2.2	2	5.6
Yes	44	97.8	33	91.7
Missing	0	0	1	2.8

Would Purchase Air Bag, Driver's Side ($400)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	6	13.3	6	16.7
Yes	39	86.7	29	80.6
Missing	0	0	1	2.8

Would Purchase Sunroof, Power ($500)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	44	97.8	32	88.9
Yes	1	2.2	3	8.3
Missing	0	0	1	2.8

Would Purchase Trip Computer ($1,000)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	45	100.0	35	97.2
Yes	0	0	0	0
Missing	0	0	1	2.8

Would Purchase Power Mirror ($100)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	13	28.9	7	19.4
Yes	32	71.1	28	77.8
Missing	0	0	1	2.8

Would Purchase Power Locks ($250)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	4	8.9	2	5.6
Yes	41	91.1	33	91.7
Missing	0	0	1	2.8

Would Purchase CD Player ($250)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	23	51.1	24	66.7
Yes	22	48.9	11	30.6
Missing	0	0	1	2.8

Would Purchase Integrated Child Safety Seat ($150)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	35	77.8	30	83.3
Yes	10	22.2	5	13.9
Missing	0	0	1	2.8

Would Purchase Air Bag, Passenger's Side ($400)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	8	17.8	5	13.9
Yes	37	82.2	30	83.3
Missing	0	0	1	2.8

Would Purchase Ali-Scout ($1,000)	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	44	97.8	35	97.2
Yes	1	2.2	0	0
Missing	0	0	1	2.8

F5. How much would you be willing to pay for the Ali-Scout system as an option on a new car?

Dollars Willing to Pay For Ali-Scout Option	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
-50	0	0	1	2.8
0	13	28.9	10	27.8
10	1	2.2	0	0
50	1	2.2	0	0
100	4	8.9	4	11.1
150	1	2.2	1	2.8
200	5	11.1	1	2.8
250	6	13.3	7	19.4
300	5	11.1	4	11.1
400	4	8.9	1	2.8
450	1	2.2	0	0
500	1	2.2	2	5.6
700	1	2.2	1	2.8
750	1	2.2	0	0
900	0	0	1	2.8
1000	1	2.2	0	0
Missing	0	0	3	8.3

F6. How much would you be willing to pay to add the Ali-Scout system to your present car?

Dollars Willing to Pay To Add Ali-Scout to Present Car	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0	20	44.4	14	38.9
50	1	2.2	1	2.8
100	5	11.1	6	16.7
150	0	0	1	2.8
200	4	8.9	4	11.1
250	6	13.3	3	8.3
300	4	8.9	2	5.6
400	2	4.4	0	0
500	3	6.7	1	2.8
650	0	0	1	2.8
Missing	0	0	3	8.3

F7. How much extra per day would you be willing to pay for the Ali-Scout system as an option on a rental car?

Dollars/Day for Ali-Scout in Rental Car	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0	19	42.2	11	30.6
1	1	2.2	4	11.1
2	1	2.2	4	11.1
3	6	13.3	3	8.3
5	14	31.1	10	27.8
10	4	8.9	1	2.8
Missing	0	0	3	8.3

F8. How much extra per week would you be willing to pay for the Ali-Scout system as an option on a rental car?

Dollars/Week for Ali-Scout in Rental Car	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0	18	40.0	11	30.6
5	0	0	3	8.3
7	1	2.2	1	2.8
10	1	2.2	3	8.3
15	7	15.6	3	8.3
20	3	6.7	2	5.6
21	0	0	1	2.8
25	8	17.8	3	8.3
30	2	4.4	2	5.6
35	2	4.4	2	5.6
40	1	2.2	0	0
50	2	4.4	1	2.8
70	0	0	1	2.8
Missing	0	0	3	8.3

F9. In the space provided, please make any comments that you would like regarding the purchase or rental of an Ali-Scout unit for your personal vehicle.

Survey 1 responses:

☞ If the system could truly get me to my destination from the coordinates I enter without my consulting a map, I would consider renting the unit when I go on vacation.

☞ If I were convinced that the system would work better, I would be more interested in it.

☞ On my personal car I would only pay for the system if I thought there was enough cars with it to provide useful traffic information I would be much more likely to pay for it on a rental car since I would probably be in unfamiliar territory.

☞ If the system is improved for accuracy and can be programmed for traffic and road conditions all throughout the country I might consider renting an Ali Scout unit. For local use I will not be interested to own a unit.

☞ As a navigation/route guidance device only, I would find limited use for Ali-Scout. Other functions, such as travel advisories, and better user-friendliness would increase the likelihood of me purchasing the system. Also, a more extensive beacon network would be required.

☞ The system needs to be less confusing and less reading. Ali-Scout seemed to be off more often than not.

Don't have a lot of trust in system. It takes you the same route to work unless you change yourself.

☞ Ali-Scout would be one item I would buy if I did not have a budget for options.

☞ This system is underdeveloped and outdated. You won't be able to sell any!

☞ For everyday commuting, It was worthless. Since the coverage area is so small, I can't really evaluate Ali-Scout's usefulness in an unfamiliar area (ie a trip to another area.) I think a regular map is still better than Ali-Scout on a trip!

☞ I really found no use in local area. I also did not see its benefit in traffic problems. Also a safety hazard if someone has home address keyed in.

☞ From my limited experience, I did not find Ali-Scout too useful. Maybe because most of my travelling is outside the beacon area.

☞ Until Ali-Scout is nationwide the system has little value to drivers locally as most people know their own county & community. However it could prove handy in diverting drivers away or around heavy traffic areas someday!

☞ For everyday driving, it was worthless. The coverage area is so small, I can't really evaluate Ali-Scout's usefulness in an unfamiliar area (i.e., a trip to another area.) I think a regular map is still better than Ali-Scout on a trip!

☞ Although system works well, it is a real problem having to constantly look up and enter coordinates. This would be a drawback. Also, believe should be offered in rental cars at no extra cost.

☞ I would only purchase the system if there were a good grid of beacons and some evidence the system decreased commute time.

☞ I think Ali-scout is too simple (in terms of function) to be useful. I think it is a lousy product! Government should not waste tax money on it.

☞ Would prefer national or statewide range (minimal/prior to purchase).

☞ Depends on how extensive the system is and if traffic information is being fed in. Otherwise I would rather spend $5 for a map. However, it does have gizmo attraction, but I could care less.

☞ Ali-Scout's value is greatest when driver is least familiar with the local roads. After living in an area for a short while, Ali-Scout's value is greatly reduced.

☞ Only useful if greatly expanded.

☞ There are better human factors a superior technology for navigation. May someday help in more congested environments.

☞ The keypad entry system is the most confusing electronic gadget I have ever encountered.

☞ Given the kind of driving I do, I do not have much need for Ali-Scout.

☞ The system is too demanding to enter a public location e.g. intersection of 2 major streets major buildings & town st locations. All these should be identified in the manual by a simple number. When you pass the first beacon the system would send this to your central computer which would update the onboard computer with the connect longitude and latitude.

☞ I would never consider Ali-Scout. It is a dumb, inconvenient system. Fast-Trac is a waste of taxpayer money.

☞ My main dissatisfaction is the cumbersome way of entering destinations and the way you cannot get turn-by-turn guidance right to a destination (with some rare examples)

☞ It would need to have a detail map navigated system incorporated at a reasonable price $500 max or $20 weekly rental

Survey 2 responses:

☞ Route guidance, by itself, is of little use to me since I am very familiar with the road system (I don't even need a map for 99% of mt driving). Other features must be added to make it more valuable for me. Also, it must be dynamic.

☞ It has promise but the version I tested would not be worth much to me.

☞ Provided the system is accurate and comprehensive, and can be programmed nationwide I might be interested in renting the system. For local use, I have slight reservations.

☞ I think the idea of the system is great. I got no value at all from the system as it was. It would have to improve before I was willing to spend a cent on it.

☞ Seems to have many bugs and is not something I would trust by itself.

☞ I feel as though I am a victim of a government study! I want to write my congressmen and ask to put a stop to this madness . GET OFF MY BACK!

☞ Ali-Scout would be worth owning or renting if it functioned anywhere in the USA (even as taking a vacation trip from East coast from west coast) but locally it is not much value unless it can inform the driver of traffic jams or accidents before he gets to that area!

☞ The display system is fine, but the current destiny and extent of beacons was too small to allow me to get any benefit from the system. Also, it often gave me bad routes such as guiding me to 0.5 miles from my destination without providing any clue about how to get through a subdivision.

☞ I would put more value on it if the compass and distance measurement were more accurate. Outside the beacon area, the distance indicator became very inaccurate.

☞ The area of coverage would have to be much broader & more accurate.

☞ I would like to buy it for my personal car for in town driving became it is not useful.

☞ Without better positioning accuracy, Ali-Scout is not worth much. With high position accuracy and a good best route data base, Ali-Scout could be very desirable in a rental car.

☞ I would not buy Ali-Scout unless it was much better than present - expanded coverage - accurate information much better navigation algorithm

☞ Unless the driving area is well covered with beacons, it has not shown sufficient value to make a personal investment

☞ Above numbers assume wide deployment of beacons and a better way to enter destination.

F10. In order to function properly, Ali-Scout requires two additional components to support the in-vehicle equipment. These out-of-vehicle components are:

(1) Roadside Beacons

Each beacon consists of a transmitter, receiver, and control unit for communicating with Ali-Scout's in-vehicle equipment. Beacons are located at selected intersections.

(2) Central Computer

Located in a traffic control facility, the central computer is the brain of the system--receiving, transmitting, and integrating information from throughout the study area. Each beacon is linked to the central computer.

Installation, operation, and maintenance of these out-of-vehicle components will require financial investment above and beyond the price of the in-vehicle devices. In your opinion, who should pay to install, operate, and maintain the beacons and central computer? (Place an X in the box next to all entities that you think should pay at least a part of this cost.)

Federal Government Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	28	62.2	25	69.4
Yes	16	35.6	10	27.8
Missing	1	2.2	1	2.8

State Government Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	28	62.2	24	66.7
Yes	16	35.6	11	30.6
Missing	1	2.2	1	2.8

Individual Users of Ali-Scout Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	18	40.0	13	36.1
Yes	26	57.8	22	61.1
Missing	1	2.2	1	2.8

Commercial Users of Ali-Scout Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	23	51.1	12	33.3
Yes	21	46.7	23	63.9
Missing	1	2.2	1	2.8

Manufacturers of Products Such as Ali-Scout Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	23	51.1	18	50.0
Yes	21	46.7	17	47.2
Missing	1	2.2	1	2.8

County Government Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	30	66.7	24	66.7
Yes	14	31.1	11	30.6
Missing	1	2.2	1	2.8

City Government Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	33	73.3	27	75.0
Yes	11	24.4	8	22.2
Missing	1	2.2	1	2.8

Car Manufacturers Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	42	93.3	33	91.7
Yes	2	4.4	2	5.6
Missing	1	2.2	1	2.8

Other Should Pay to Install, Operate, and Maintain Out-of-Vehicle Components	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
No	41	91.1	31	86.1
Yes	3	6.7	4	11.1
Missing	1	2.2	1	2.8

Survey 1 responses:

- Nobody. Don't bother with the system.
- If case studies reveal that incidence of accidents were reduced due to usage of Ali-Scout system, then #1 to bear primary cost should be ins. co's.
- Nobody.

Survey 2 responses:

- Insurance companies.
- Cost should be split by who benefits. If Federal roads are less congested, then federal, if City roads are less congested then city.
- No one - it does work well.

F11. Of those entities that you marked in question F10, we are interested in knowing who you think should bear the primary cost. In the space provided, list the three entities that you think should pay the most. Please list them in order, with 1 being the entity that you think should pay the most, 2 being the entity that you think should pay the second most, and three being the entity that you think should pay the third most.

First Choice to Pay Most for Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
Federal Government	5	11.1	3	8.3
State Government	5	11.1	1	2.8
Individual Users	9	20.0	4	11.1
Commercial Users	2	4.4	4	11.1
Manufacturers of Products Like Ali-Scout	8	17.8	9	25.0
County Government	1	2.2	1	2.8
City Government	1	2.2	1	2.8
Car Manufacturers	0	0	1	2.8
Other	7	15.6	3	8.3
Unspecified Users	2	4.4	6	16.7
Missing	5	11.1	3	8.3

Second Choice to Pay Most for Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
Federal Government	3	6.7	2	5.6
State Government	6	13.3	2	5.6
Individual Users	4	8.9	6	16.7
Commercial Users	8	17.8	7	19.4
Manufacturers of Products Like Ali-Scout	6	13.3	3	8.3
County Government	2	4.4	1	2.8
City Government	2	4.4	1	2.8
Car Manufacturers	0	0	0	0
Other	3	6.7	1	2.8
Unspecified Users	0	0	1	2.8
Missing	11	24.4	12	33.3

Third Choice to Pay Most for Ali-Scout	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
Federal Government	4	8.9	3	8.3
State Government	1	2.2	2	5.6
Individual Users	5	11.1	3	8.3
Commercial Users	1	2.2	3	8.3
Manufacturers of Products Like Ali-Scout	5	11.1	5	13.9
County Government	6	13.3	4	11.1
City Government	1	2.2	1	2.8
Car Manufacturers	2	4.4	0	0
Other	3	6.7	1	2.8
Unspecified Users	1	2.2	0	0
Missing	16	35.6	14	38.9

F12. One option for funding the installation, operation, and maintenance of the beacons and central computer is to charge users a monthly fee to receive information (such as route guidance) from the system. This monthly fee would cover both services received and maintenance of the system. If you owned an Ali-Scout in-vehicle device, how much per month would you be willing to pay to receive the information provided by the beacons and central computer?

Dollars/Month Willing to Pay For Guidance Service	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
0	13	28.9	10	27.8
1	3	6.7	1	2.8
2	0	0	1	2.8
2.5	0	0	1	2.8
3	1	2.2	0	0
5	6	13.3	8	22.2
9	1	2.2	0	0
10	8	17.8	9	25.0
15	4	8.9	0	0
20	3	6.7	1	2.8
25	1	2.2	1	2.8
30	1	2.2	1	2.8
60	0	0	1	2.8
Missing	4	8.9	2	5.6

F13. In your opinion, how important are each of the following factors to the operation of systems such as Ali-Scout?

Not at all Important 1 2 3 4 5 6 7 Extremely Important

Ratings for Importance of Fuel Savings	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	15	33.3	7	19.4
2	8	17.8	7	19.4
3	2	4.4	1	2.8
4	8	17.8	4	11.1
5	0	0	4	11.1
6	5	11.1	5	13.9
7	3	6.7	4	11.1
Missing	4	8.9	4	11.1

Not at all Important 1 2 3 4 5 6 7 Extremely Important

Ratings for Importance of Ali-Scout For Reduced Air Pollution	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	14	31.1	7	19.4
2	6	13.3	6	16.7
3	4	8.9	1	2.8
4	8	17.8	4	11.1
5	2	4.4	5	13.9
6	4	8.9	5	13.9
7	3	6.7	3	8.3
Missing	4	8.9	5	13.9

Not at all Important — Extremely Important

1 2 3 4 5 6 7

Ratings for Importance of Traffic Safety	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	5	11.1	3	8.3
2	5	11.1	1	2.8
3	1	2.2	1	2.8
4	8	17.8	8	22.2
5	7	15.6	6	16.7
6	4	8.9	3	8.3
7	11	24.2	10	27.8
Missing	4	8.9	4	11.1

Not at all Important — Extremely Important

1 2 3 4 5 6 7

Ratings for Importance of Ali-Scout For Relief of Highway Congestion	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	1	2.2	1	2.8
2	1	2.2	1	2.8
3	3	6.7	1	2.8
4	5	11.1	1	2.8
5	5	11.1	8	22.2
6	9	20.0	5	13.9
7	18	40.0	16	44.4
Missing	3	6.7	3	8.3

Not at all Important 1 2 3 4 5 6 Extremely Important 7

Ratings for Importance of Ali-Scout For Accurate Route Guidance	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	2	4.4	0	0
3	2	4.4	1	2.8
4	3	6.7	2	5.6
5	6	13.3	6	16.7
6	9	20.0	5	13.9
7	17	37.8	18	50.0
Missing	3	6.7	2	5.6

Not at all Important 1 2 3 4 5 6 Extremely Important 7

Ratings for Importance of Traffic Diverted Into Neighborhoods	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	6	13.3	3	8.3
2	3	6.7	2	5.6
3	2	4.4	4	11.1
4	9	20.0	7	19.4
5	5	11.1	4	11.1
6	7	15.6	6	16.7
7	6	13.3	6	16.7
Missing	7	15.6	4	11.1

Not at all Important 1 2 3 4 5 6 Extremely Important 7

Ratings for Importance of Ali-Scout For Ease of Use	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	3	6.7	2	5.6
2	1	2.2	1	2.8
3	0	0	1	2.8
4	3	6.7	3	8.3
5	6	13.3	3	8.3
6	10	22.2	11	30.6
7	19	42.2	13	36.1
Missing	3	6.7	2	5.6

Not at all Important 1 2 3 4 5 6 Extremely Important 7

Ratings for Importance of Ali-Scout For Quick Updates of Road Conditions	Survey No. 1		Survey No. 2	
	Frequency	Percent	Frequency	Percent
1	2	4.4	1	2.8
2	1	2.2	0	0
3	0	0	0	0
4	3	6.7	2	5.6
5	2	4.4	5	13.9
6	12	26.7	12	33.3
7	22	48.9	14	38.9
Missing	3	6.7	2	5.6

F14. We are interested in knowing how you would like to see Ali-Scout improved. In the space provided, please tell us two changes that you would like to see made in the system.

Survey 1 responses:

- For the trips I have made with the system, I have gone in and out of the beacon area. The system has not yet guided me completely from beginning to end. I feel that I have not yet been able to fully evaluate the system. More beacons are need over a wider area. The function that determines one's present coordinates is highly inaccurate. I would like to see a map on the screen so that I could "point' to the destination. The system would obtain the coordinates this way. The determination of coordinates has to be made easier and quicker. I like the idea behind Ali-Scout, but I do not trust the system, yet. When I leave the study area, I am "on my own". Since this happened on all my trips, I cannot get too enthused now about the system.

- Must improve accuracy. Must improve routing - routes are simply not appropriate or desirable.

- Improve data entry method. The keyboard is tiny. Provide more activation sites within the area. Perhaps beacons are still being built.

- Have to have more beacons to make it useful. Most people's driving is to and from work so the guidance information is of no use for this. A feature I would add instead would be the ability to input two beacons and the system would output the most recently reported travel time between them. That way the driver could compare several different routes. When I am choosing a route to go to work I don't necessarily want the one that takes the least time. Sometimes I choose a route because it is a more pleasant drive if I believe it won't take more than a couple of extra minutes.

- Make it more accurate. Make programming of unit more intuitive

- More detailed map on address code. More detail suer instructions including what the driver can expect or not to expect.

- More reliable in terms of accurately directing you to your destination.

- Destination locations seem to drift over time. The farther you drive on a trip, the more the destinations preprogrammed into the Ali Scout appear to have drifted when. Make it easier to load new destinations into Ali Scout

- Currently, this system has no value without scats. Seems to be a 1/2 system. Actual computer input buttons are unreliable and difficult to use.

- Better accuracy of Autonomous Mode. I even have updated software. A little more advance notice before changes. More use of lane usage symbols.

- The accuracy of the route guidance is lost when the system enters the destination zone and goes into autonomous operation. If your destination is a minor street, you can get lost. (A good start would be to assure that all entry points for a destination zone are in the system. Ali-Scout has sent me down main roads with no entry to my destination zone. The Domino pizza delivery person wouldn't get to his destination. Use someone like a delivery person as the model for potential users and determine requirements based on their usage.) Improve the user- friendliness of entering destination data. If I have to look at a map to find my coordinates, then I don't need Ali-Scout. A touch screen display with menus, such as that used in Trav-Tek, would be preferred.

- I don't believe it is particularly cost-effective. Must be much lower cost (not subsidized lower cost, but actual lower cost) for value received

- Some information about a sequence of maneuvers or overall view of trip strategy. (As the crow fly arrow does not show in guidance mode, but would still be helpful). More advanced warning before a

maneuver

- A better keyboard with larger keys. Keys (both alphanumeric and outside) should be illuminated with colors. There should be a few memory keys to quickly recall regularly used destinations.

- The concept is good but the unit is hard to program - make too many mistakes. I liked the map idea & I would use it if it covered more areas. Also the (actual destination) should be made to work. It has yet to get me all the way home. Unit should be as simple as possible and have a very short operation manual.

- Ali Scout has the potential to be very useful. Since a destination's coordinates can be programmed to 1 sec of (can't read)(latitude or longitude), it should be possible to program the destination, in principle, to within 102 ft of longitude at 75 ft of latitude so the maximum distance should be 127 ft or about .02 mi. This requires adequate beacons, maps, sideroad information, etc. to allow Ali-Scout to work reliably at this level. Therefore, I see no reason why the system can't stay in guided mode to much closer than 1/2 mile of its destination in principle. My experience is that this is about the distance (+- .1 mi) where Ali-Scout flys back to autonomous mode. In addition, when the computers get close (within .1-.2 miles of the destination, it pointed in nearly random direction. Furthermore, the system could be off as destination if it had not been in guided mode during a trip. Finally, I never saw Ali-Scout's instructions change regardless of time of day or traffic conditions, so I don't know if interaction with the central computer to optimize a route is functional at this time. If Ali-Scout's capabilities improve in all these areas, it would be a useful system. In its present form, it is a cute electronic gadget of limited usefulness.

- Need to add map display. Need to store in street names.

- Easier to input destinations (bar code scanners) rather than entering coordinates. You could make contact with a beacon when you start the car - sometimes I was 1/2 way to my destination when I hit a beacon.

- Ali-Scout need a voice command to alert drivers of a traffic jam ahead and give an alternate route to your destination. Also expand the area at least state-wide. An aerial display of road map is also appealing to me - especially in residential areas like a new subdivision.

- Start over with something more advanced. Spend IVHS money on concrete!

- Factor in speed limits of roads. Ali-Scout took me to Fourteen Mile to get to Builders Square on Coolidge when I was already on Maple. Speed limit on Fourteen Mile slows to 25 MPH while Maple is 45 MPH. Simplify coordinate system in maps. It is very frustrating trying to determine correct coordinates. Also verify coordinates in Places of Interest section. Also, would like to be charged on a per usage rather than a monthly basis since I would not require it for all driving scenarios.

- Replace the beacons with a system that continually updates route information. This way you can be in guided mode as soon as you enter the covered region. This should eliminate the constant need to double back to get on the preferred route. It should also help with better alternate route planning once you stray off the preferred route. Replace the display with one that shows when you are on a map, and where your destination is, and your progress. People already know how to read a map. You could also more easily enter destinations by having a cursor on the map. Have the voice tell you more information like a) "Turn right onto crooks Road." b) "Follow Crooks Road. You will turn left in 1 mile."

- More warning time before directions are given. Perhaps give name of street in addition to turn left, turn right.

- Improvements in accuracy -- primarily the "actual position" mode for inputting destinations. Better and more accuracy (mainly consistency) for the change in autonomous mode once the destination zone is reached.

- Beacons between intersections instead of at intersections so you can get directions before the first intersection. because of the low density and limited areas covered by the beacons, the system only actually helped me once in a month. It often chose obvious but non-optimal routes. As a result, I don't feel this is a very good test of the potential of the system.

- Add map display. Simplify input procedure.

- Improvement in accuracy -- elim. poss. of receiving incorrect directions. Increase battery longevity or utilize rechargeable batteries. Expansion of current area a must. Improve accuracy of directions. Stress importance of inputting current location upon arriving at same. Design a method of revising destination by direction in miles i.e. 16 mi & Woodward, 2 mi south or 2 mi south & 3 mi eastward & destination would automatically be revised.

- Consistency and accuracy -- cannot trust it. Route guidance doesn't seem very flexible.

- Entering new data always required checking the manual -- not obvious, user-friendly system. What good is a system that gives up 1/2 mile from the location. If you need a map to set coordinates and again when you are near location, why not just use a map? It seemed like only major roads are in computer. System seems to lead me to congestion, not away from it. I think a map and my radio can do what Ali-Scout does for FAR less money.

- Better compass for autonomous operation. better verbal guidance at complex intersections/interchanges.

- Consistency and Accuracy -- cannot trust it. Route guidance doesn't seem very flexible.

- Provide maneuver instructions all the way to the destination. More (many more) beacons or the ability to provide maneuver instructions about them.

- Get rid of it. It is a nuisance. If this is the best the federal Highway Admin. can come up with, I'm ashamed for the Federal Govt. Fast-Trac and Ali-Scout are a waste of time and taxpayer funds.

- System very seldomly gave optimal route- possibly to do lack of sensors and extended coverage - need to be greatly expanded. Instruction manual inadequate - it is written as a reference manual for someone who already knows the system. I sent you a tape of a suggested introduction. A manual with the same step by step info should be prepared.

- In my visual routes to and from work, I pass no beacons. Consequently the position error accumulates to the point where Ali-Scout is useless. If I change my route to pass a beacon. It adds 5 minutes to my commuting time. I think Ali-Scout should include a GPS receiver to provide accurate position location all the time. Beacons and a central computer are relics of the 60's. I'm afraid that as it is now, Ali-Scout is of limited value. I think Ali-Scout does an excellent job in communicating essential information to the driver. As a map lover, I am surprised at the value of the basic Ali-Scout display. I hope that, at the conclusion of my evaluation period, I will be offered the opportunity to comment at greater length on Ali-Scout.

- Change the keyboard entry. It is skewing your results to the dislike category. More beacons over wider range.

- Easier method of inputting destination. Expanded beacon area. Although I live in the study area, I lived work on the fringes and found the system to be of little value due to limited implementation of beacons. The system likes to route you to 16 mile too often. It isn't always the best route.

- Use in conjunction with a navigational system. Components hidden or designed into the instrument panel.

Survey 2 responses:

- Improve "recommended routing" - most of the time there is no sense to the route. Improve accuracy and

number of beacons.

- I would like to be closer to my destination before I fall out of guided mode. Accuracy is a must and currently this is a weakness. I would like to see some messages, traffic alerts, and other services provided (e.g.,, yellow pages, etc). I would like to see an easier more user-friendly means of entering destinations and of changing them. While Ali-Scout gets the driver close to his destination, it isn't close enough to be of use for commercial fleet operators, delivery services, etc. Results would vary on every trip. Sometimes you drop from guided mode to autonomous mode much too far from your destination and this affects accuracy.

- Increased accuracy. Increased ease of use.

- The keyboard needs improvement. The keys should be larger and illuminated. Provide memory keys for setting to frequently used destinations.

- More beacons over a wider area. Easier method of determining and inputting destination coordinates. Make system work as intended.

- Improve accuracy. Improve keyboard - keys too small, keys sometimes stick.

- If Ali-Scout is to be successful you have to develop an easier way to enter destination coordinates. The area of coverage needs to be broadened.

- Accuracy of autonomous mode. Way to enter w/o saving a one time destination.

- Until there is sufficient extent and density of beacons, the system is useless. The method for entering destinations is poor. Voice input would be best; a much improved keyboard would also help.

- Expand the area to become more useful. If you override the recommended route several times the equipment should pick up the route chosen as the recommended route.

- Without interactive computer, this system is useless for daily commuting. Needs larger (can't read) buttons.

- The buttons should be larger & the system not so confusing to use. Not so many options. The easier the better.

- More beacons need to be installed. Improved updates of road conditions are desired.

- Get rid of the voice command very distracting. More reliable for routes.

- More beacons closer together & covering a wider area. Beacons working properly - for the last couple of weeks - 50% of the beacons are not functioning.

- Coverage area. Make it self-contained.

- Voice message indicating "heavy traffic ahead - please follow this alternate route. " An ariel map display showing the road I am travelling and indicating my location & progression along this route!

- More beacons need to be installed. Improved updates of road conditions are desired.

- Add a map display such that no key-in is necessary to input coordinates. The user needs to touch the map for choosing destination. Add a CD-ROM which can be used o read area maps and updated road conditions.

- More beacons. More detailed information near a destination.

☞ Directions to destination 100% accurate. Documented facts on benefits of utilizing system. Should be included in a contract price when purchasing system (the monthly cost); ala cellular phone.

☞ Route guidance takes into account congestion. Route guidance suggests shortest/fastest route.

☞ Should pick best route even if route does not include beacons. Too often does not pick quickest route but beacon route. Should have own speaker and not use radio speaker for tones and voice.

☞ Too much double to set it up for routine travel. ali Scout needs to have memory on routine travel such as daily trips to the office & home. Need to show current position on a map, allowing the driver to anticipate & get visual feedback on where he/she is at versus the destination.

☞ Compass/distance measurement more accurate. Beacons only work 1/2 the time.

☞ Change autonomous/guided mode displays to a street map display. Keyboard button size is too small, make keys larger.

☞ See my comments in the first report.

☞ F13h [quick updates of road cf road conditions- ED.] could be valuable. I never got any information like this from the system. Why all the beacons? Why not LORAN like the boaters use?

☞ You must reduce autonomous mode location errors. Better verbal directions at compound intersections and cloverleafs.

☞ The instruction manual was awful - hard to learn how to use the system. The system does not navigate by fastest route - see example below [picture drawn]. This needs to be fixed.

☞ I think the system was not well thought out & would need to be completely re-done. It chose inefficient routes and was nothing but a distraction.

☞ Better ways of entering destination - present keyboard-map method is crazy! Automatic guidance should continue even after a missed turn - automatic route replanning

Other survey 1 comments:

☞ In the begin of the program I was excited to use Ali-Scout but after awhile I was told I left the course, when I had followed it. I was on Square Lake going to I75 S & it told me to turn right. I did this & it said I left the course. Another time I was on 19 Mile near Rochester Rd & going home (15 and VanDyke) & I was told to turn left into a subdivision. Often I would be within a mile of less of where I needed to go.

☞ I would not buy the current system for any amount of money! problems: 1) It is hard to enter destinations unless you are at the location and since you are already at the location, you already know how to get there! 2) Ali-Scout has the annoying habit of putting you in guided mode right after you have gone past an intersection with a beacon. If you had to turn at the intersection, then Ali-Scout doubles back to get you to the road! 3) For situations n 2, or when you left the recommended route, Ali-Scout does not put you on an alternate route that would be faster. Instead, it doubles back. 4) There were a number of times that the direction it gave made no sense, that is they were wrong. For instance, telling you to turn when there is no STREET! 5) Once you enter a destination coordinate,, it tends to drift. That is, if I can come back to the same exact spot where I was 0.0 miles away one time, it will say I am .12 miles away. 6) The coverage area is too limited. I live in troy, I know the best routes. Ali-Scout gives me longer routes. It is of no use at ALL!

Other survey 2 comments:

☞ I would not buy the current system for any amount of money! Problems: 1) It is too hard to enter

destinations unless you are at the location. And since you are already at the destination, you know how to get there! 2) Ali-Scout has the annoying habit of putting you in guided mode right after you have gone past an intersection with a beacon. If you had to turn at the intersection, then Ali-Scout doubles back to get you in the road! 3) For situations in 2, or when you left the recommended route, Ali-Scout does not put you on an alternate route that would be tested. Instead, it doubles back. 4) There were a couple of times that the directions it gave made no sense, that it was very wrong. For instance, telling me to turn where there is NO STREET! 5) As you enter a destination coordinate, it tends to drift. That is, if I come back to the road exact spot where I was 0.0 miles, away would say I have .12 mile away. 6) The coverage area is too limited. I live in Troy, I know the best routes. ali-Scout gives me a longer route. It is no use at ALL!

☞ I received this survey 1-1/2 weeks after completing survey #1 and only had the vehicle with Ali-scout for another week after that. Nothing happened during the period after I sent in the first survey to change any of the answers I gave in that survey, so I see no point in taking the time to do this one. Driving the car was fun. I'm glad I had the opportunity to participate in the evaluation of Ali-Scout.

☞ I am so irritated with having to fill out a 24-page survey twice that I may be unduly negative.

Thank you for participating in our survey. The information that you have provided will be of great value in our efforts to measure how the technologies involved in the FAST-TRAC Project have affected the transportation system in Oakland County and how they might affect the future of transportation in Oakland County and beyond. Please use the remainder of this page for any additional comments that you would like to make about the Ali-Scout system or the FAST-TRAC Project

APPENDIX E:
Verbatim Comments from Driver Log Data Sheets

This Appendix contains a listing of comments pilot study participants wrote on daily driver log form from April 1994 through January 1995. On every daily driver log sheet participants were asked to report both unusual driving experiences and problems using the ALI-SCOUT system.

In the *Unusual Driving Experiences* category, we asked participants to include collisions, near-collisions, tickets, and other unusual driving experiences. In the *Problems Using ALI-SCOUT* category, we asked subjects to comment on problems inputting information, understanding ALI-SCOUT output, receiving information from a beacon, and any other problems. Since the questions were open-ended, subjects also added their own unique experiences and comments using the system and therefore some responses go beyond the scope of the original questions.

The comments are presented in the order that they were received by the evaluation team. The comments are reproduced exactly as the written on the daily driver log form. In accordance with the informed consent form, identifying information has been removed by inserting asterisks over the information or bracketing the information with a nonidentifying label.

Unusual Driving Experiences (e.g., collisions, near collision, tickets).

- None
- Traffic stopped just east of M59 on I75 dog in middle of road. No warning from Ali Scout.
- Ali Scout went into guided mode when my spouse borrowed the car She panicked and nearly had a wreck
- 17 Mile backed up to Livernois from Rochester Rd. System guided me down 17 Mile anyway.
- Set destination while driving - strayed over center line.
- In order to follow Ali-Scout's illogical left turn this morning, I turned in front of a car, the driver of which honked at me. It was "calculated" on my part, as I knew it would be too close, but not "unsafe".

Problems Using the Ali-Scout system (e.g., inputting information, understanding the output, receiving information from a beacon)

- My wife used the car and went by a beacon at Crooks and South Blvd. Ali Scout went into guided mode.
- Ali Scout much more accurate in autonomous mode after going by beacon yesterday.

- Passed by beacon at Dequindre/Big Beaver and nothing happened

- Said I was over a mile from my destination when I arrived at home. The coordinates I input were about 1/4 mile from home. Used current position function to create a new destination for home. I couldn't figure out how to change the "home" destination to the current position (over) so I had to create a new destination home.

- Passed Beacon at Big Beaver and Dequindre. Ali Scout beeped but did not change from autonomous to guided mode. When I arrived at Tech center it said I was 1 mile from destination.

- Used my new destination that I created yesterday with the current position function for the trip home., When I arrived it said I was about 1/2 mile from my destination (over) While at work I tried to figure out how to use the current position again, but was unsuccessful

- Passed by 3 beacons (Square lake/Woodward, Telegraph/Long Lake, Telegraph/Maple) with Ali Scout still in autonomous mode from a previous trip and it did not beep or change to guided mode.

- Ali Scout was off by more than 40 mile after we got back from our trip to Pittsburgh

- System was upgraded today. When I got home it was within a mile of being at zero for the HOME destination

- Passed by beacon at Stevenson and 14 mile and it went into guided mode for the first time with me driving

- Passed by beacon at Rochester and Long Lake and it didn't go into guided mode

- Passed by beacons at Rochester/Long Lake and Rochester/Big Beaver and it didn't go into guided mode.

- Most time, there is no beacon response at all. A few times, it pointed to wrong direction. it is pretty accurate when it asks driver to turn at cross intersections.

- I recorded the position of my home by using the "Actual Position" function. I used this destination for trip #3 . When I got close to my home (within around two miles), the "as the crow flies" arrow was incorrect. I don't know if the coordinates of my home were set correctly.

- Ali Scout told me to turn left into a side street just after I passed Dequindre & 16 mile while heading north. This intersection was not followed. Soon after the instruction I left guided mode.

- Due to the sparsity of beacons in my neighborhood, Ali-Scout does not go into guided mode for my short local trips. The arrow is often incorrect for locations in my area. I set the coordinates with the "actual position" function.

- After a week with the system, I find the "Actual Position" function very inaccurate. When the system determines the coordinates of a location it would be helpful if I could see the coordinates and check them (approximately) with the list of coordinates for the streets. I did not receive a map from which I can determine coordinates. The beacons are too sparsely located in my area to make (over) the system useful.

- No manual

- No manual

- No manual
- No manual
- No manual
- No problem inputting Seemed to be a serious out of position relationship Oakland mall 4 miles off, etc reported to [Company Representative], NRDC garage
- Instructed to turn left @ Crooks & Auburn, which would have added 2 miles o the route. Traffic on Crooks was normally heavy. The suggested route would have taken me to Livernois, which is at least as heavily used as Crook, Note: Since the GM Tech Center is in Macomb county, I use the Kmart at 12& John R as a surrogate destination, until I get a map with coordinates.
- Instructed to turn left (E) @ Auburn & Crooks. In contrast to trip #3 on 4/21/94, followed the instruction.Instructed to turn left (N) at Livernois & Auburn and followed instruction.AT about Hamlin & Livernois, system went of guided mode into autonomous. When I arrived home, there was no message that I reached my destination. As noted before, my home is just east of Crooks & just south of Avon. The system seems incapable of guiding me home from South Blvd & Crooks where the beacon is located Also, traveling 12 mile from the Tech Center to I-75, I-75 N to Crooks, and Crooks to S. Blvd/Crooks intersection, did not get any beacon signals to activate system.
- System activated at Adams & Long Lake. System guided me fine to Crooks via M-54. Just North of Hamilton on Crooks, system reverted to autonomous mode, thus again failing to guide me home.
- As I indicated in a previous report, the system failed as follows: after having followed instructions once the South Blvd/Crooks beacon activated the system, I was guided to Livernois just North of Hamlin when the system reverted to autonomous mode without guiding me home, This is in reference to trip 2
- For trip 4, see comment, on 4/25/94 log.
- Activation took place at the 16 mi Dequindre beacon. About 1/2 mile south of 16 mi Ali Scout instructed me to turn right on Athena St. This would be taking me west, whereas my destination was southeast. Bad deal. My destination was programmed in yesterday by using the current positions function.
- As in previous occasions, the AliScout instructed me to turn at Auburn from Crooks, which would have taken me out of my way by about 2 miles.
- Driving north on John R, the system instructed me to turn right (east). I believe at Long Lake, whereas my home is NW of there. Something wrong
- Ali-Scout recognized beacon at 16 & Dequindre, but gave ridiculous instructions (to turn right where there was no street).
- Destination locations becoming increasingly inaccurate (from 0.5 mile to 1 mile left on unit when car is at destination)
- I could not make an input for the destination coordinates.
- Inputs to the new coordinate system could not be made.

- Input coordinate for new destinations could not be made - reported to [company representative] gave Tony LaBonza's number (x-xxxx).

- The input coordinate problem was reported to Tony LaBonza in a telephone message.

- I obtained Dr. David Eby's phone number from [Company Representative]. I am supposed to call Dr. Eby to ask about the input coordinates.

- I called Dr. Eby and learned how to make destination coordinate numbers.

- I still could not make the input for the destination coordinates, even though I followed the instruction by Dr. Eby.

- Tried to make a contact with Siemans to learn about the destination input, without success.

- Tried to contact Dr. Eby at U of M to ask about the destination input.

- Learned how to make the destination coordinate input from

- Voice commands were given too close to when action was required. For example, I was traveling north on John R and Ali Scout directed me to turn right on Big Beaver and then left in the turn around. If I hadn't realized that this was the intent, then I would have turned right on Big Beaver and stayed in the right lane rather than going to the left lane for the turn around. The display did not show which lane to be in.

- Traveling south on Dequindre rd., Ali-Scout instructed me to turn right on a side street just south of Big Beaver. It then led me around the block in a residential neighborhood and instructed me to turn left on Dequindre so that I was traveling north. It then instructed me to turn right on Big Beaver and shortly afterward left guided mode.

- Upon receipt of manual, programmed about 10 regular stops. System seemed out of calibration by about 4 miles.

- System appeared to have corrected itself after 4/27 trip through Troy. Still about 2 miles off.

- Decided to go to work through Troy. Two beacon signals. Calibrations seemed greatly improved +/- 1 mile.

- Just after beacon at 16 m/Dequindre the Ali Scout misdirected (asked to go left - there was no entry on left all along the road.

- Asked to take left turns at wrong places but general direction was o.k.

- After John R/Maple beacon, it gave wrong direction - right instead to left!

- After John R/Maple beacon it gave wrong direction - right instead to left, the same error occurred yesterday.

- Accurate guidance and origin location with autonomous mode.

- My first day with Ali- Scout Destination was set to Oakland mall as trial beacons on ok at all stations along the way

- Beacon went on at Dequindre & 16 mile it guided o.k. but guidance was off on Maple about 2 mile before destination (set by actual position)

- The Tech Center origin (set by actual position) was off by 4.5 miles.

- 60 Foxboro R. Hills (set by Actual Position) was off by 4.7 miles

- Guidance was off about 3 miles before destination (set by actual position)

- Announced Destination reached about 3 miles before destination (set by actual position)

- Destination origin was out by 6 miles

- Beacons at LongLakeE/Woodward and LongLakeE/Adams gave right direction at wrong places.

- Destination origin out by 11 miles. (unlike on 5/1/94)

- After Adams S/South Blvd Beacon it gave wrong direction (left instead straight) then after Adams S/LongLake Beacon it was ok - origin accuracy good (set previously by actual position)

- Destination origin was out by 11 miles - same as on 5/6/94

- Starting from Dequindre N/Big Beaver beacon, the instructions were PERFECT along M59 and Rochester Rd., but guided mode was terminated at Rochester N/Barclay court 4 MILES before destination.

- Destination set by MAP after John R/Maple beacon it gave wrong direction (right instead of straight), then after John R/Wattles beacon it worked perfectly, the destination location was accurate.

- Reasonable accuracy of destination, 2 miles error (Destination was set by actual position)

- Ali-Scout told me to turn right (east) on Big Beaver and then get in the left lane. I took the first turn around to go west on Big Beaver and the system told me I "had left the recommended route".

- Bad directions again! It told me to go s. on Crook @ Wattles - You can't get to the school that way - When I was sitting in front of the school - it indicated the distance as .1 mile

- none

- Difficulty inputting coordinates based on current location -. Incorrectly input coordinates - but we are just learning

- Turn right here corresponded to taking the right fork when the road separated If I didn't already know where I was going, I would have found the directions confusing

- Coming home it told me to turn left and go south from Wattles west of Coolidge on Estates - I live north of Wattles - when I arrived home it said "destination reached" so it had the correct coordinate for my home

- Ali-Scout went into guided mode because I set the destination in @ K-mart Headquarters. It told me to turn left from Crooks - South of Big Beaver - that is NOT the right direction to k mart headquarters

- Ali-Scout SHOULD have detected a beacon @ 17 mile and Coolidge - I was heading north on Coolidge - I did not detect the beacon

- it picked up the beacon at 16 mile and Crooks, but complained that I left the recommended route when I enter the I 75 freeway

- Heading North on Crooks, the system told me to turn right on McManus & turn left at the dead end (1 block); then it told me I had left the

- Going from Boulan to home, the system told me to turn left & then turn left again (S. on Estates and S. on Bordela) - This is not the correct way home! Then the system said I had left the recommended route -

- I had the destination set at Oakland Mall - the system told me to turn left (North) east of Crooks - the correct direction is SE which it apparently knew after it told me I left the recommended route.

- I took a different route from the RCOC to Home because of Lasher closure. I followed Cranbrook to Woodward and took Woodward north. I passes my first beacon at Woodward/Long Lk. Ali Scout guided me to Northbound Opdyke, but traffic was too heavy and the distance between Long Lake and Opdyke was too short to make a safe weaving maneuver. So I followed Woodward instead. Ali Scout could not distinguish between Woodward and Opdyke. It assumed I followed directions and I stayed in guided mode. I assume that Ali-Scout was guiding me eastbound on Square Lake Road from Opdyke because it asked me to turn right at a midblock location on Woodward. Finally, I passed another beacon at Woodward/Square Lake nd was guided to NB I-75 and EB M-59. This was good. However, I went into autonomous mode shortly after getting on M-59. It did not guide me to an appropriate exit for home.

- In 3.3 miles of autonomous operation, the dead-reckoning error was 0.52 miles. This is intolerable and I don't understand it.

- New software installed prior to #6. Dead reckoning system has improved.

- Left guided route

- Left guided route

- left guided route area

- Guided mode for last 1 mi of trip only

- South on Crooks - guided mode turned west on 15 as suggested, then said I had left the recommended route.

- travelled outside guided area.

- travelled outside guided area except last 1/2 mile

- travelled outside "guided" area

- travelled outside "guided" area

- Travelled outside "guided" area

- travelled outside "guided" area

- travelled outside guided area

- travelled outside guided area
- travelled outside guided area
- travelled outside guided area for most of trip
- left guided area @ 14 & Coolidge
- left programmed route
- same as comment #2 of 5-11-94
- recommended route is not my preferred roue or shortest route
- left controlled area near 14 & Coolidge
- did not follow recommended route
- error in "home" coordinates - reset present positions
- routed me S. on Coolidge & E at 14 mi then went to "A" mode. Also had entered RCOC - B.H. by present position & when I got to B.H. "A" mode indicated B.H. was .81 mi south of actual
- guided after 16/wood inter. beacon
- left route - route is not proper for this trip (from Coolidge/Wattles beacon from Woodward/Quanton beacon - route trip along Covington St which is a residential street, route should be Cranbrook Rd S. of Quanton.
- left route - recommended route not appropriate
- No problems - used Points of Interest for NBD Bank.
- Autonomous mode still not accurate. Would be nice if at known locations you could hit a button and update location for autonomous mode.
- Went to Autonomous at SBI-75 & Crooks. By time got to TOC autonomous mode off by 0.45 miles.
- Autonomous mode still not as accurate as I would expect.
- Autonomous mode needs to be more accurate. 1/2 mile is to far in advance of destination to go from guided to autonomous.
- Autonomous operation is not calibrated properly
- SB Crooks - Picked up Guided mode & made left turn on to S. Blvd. Headed to TOC. Routed me down subdiv street High Oaks Dr (Approx 1/2 mi E of Crooks) & down to Court then around cul-de-sac & back out to South Blvd. It then said I left route.
- Routing seemed improper from S. Blvd & Adams to Clarkston - doing my trip from TOC - Home
- From Sq Lk & Woodward to PVR, 2420 Pontiac Lk Rd, it went into Autonomous and was 0.52 mi off.

- I drove west on Long Lake from Woodward in guided mode with the RCOC programmed as my destination. Lahser Road is closed between 13 mile and Maple Road and I believe that this temporary closure has been included in the Ali-Scout map data. As I approached Telegraph road, I expected to be guided to Southbound Telegraph Road. Instead, I was given guidance to cross Telegraph going west on Long Lake. When I got into the intersection, Ali-Scout dropped into autonomous mode, and it was too late to turn onto Telegraph (like a good soldier, I followed Ali-Scout's guidance, even though I knew it wouldn't be right). I'm not sure why this happened. Passed the beacon at lahser/Quarton. I did not pick up at the third beep and therefore did not go guided.

- At Big Beaver/Woodward, Ali-Scout seemed to be misdirecting me; wanted to get me back to Beacons but this wasn't the best route under traffic conditions.

- Don't use because system does not yet identify traffic problem.

- Good in Troy only.

- At 14 & John R, Ali Scout indicated lane directions (Ctr lane) for first time.

- No problems but Ali-Scout began giving direction in Birmingham for the first time.

- St. Clair Shore in Macomb County - no fast trac.

- Beacon didn't work at Sq.Lk. & Rochester

- As I crossed Woodward on Square lake in the guided mode (having picked up the beacon southbound I-75 near Auburn Road and on Square lake Road just east of Woodward), Ali-Scout suddenly switched into the "switchover mode" as if I was in the destination area. I turned left onto Lahser road and suddenly Ali-Scout went back into guided mode and informed me that I had left the recommended route. It should have never left guided mode.

- The same thing happened as happened on 6-14-94 when Ali-Scout into the switchover mode after passing through the Woodward/Square lake intersection. This time I continued straight west on Square lake and Ali-Scout went back into guided mode as expected. It took me to Telegraph Road and guided me southbound on Telegraph. When I approached Long Lake Road, Ali-Scout went to switchover, then to autonomous mode. I was still 6 miles from the RCOC.

- Destination route 4 home is longer than route taken by driver

- Voice instruction was wrong but the arrow was correctly moved according to the program. (Supposed to go straight but asked to make left turn) p.s. The problem voice instruction seems to occur whenever I pass a beacon located at 19 Mile and John R and continue to drive from 19 mile/John R to 19 mile/Dequinder if I previously drove along Rochester Rd.

- Directions on the screen were improperly given.

- Wrong voice & arrow instruction when I drove from 19 Mile/John R to 19 Mile/Dequindre.

- Wrong voice instruction while other instructions in the screen was O.K. when i drove from 19 Mile/John R to 19 Mile/Dequindre

- Ali Scout correctly guided me into southbound Rochester Rd. from M59 West. At square lake I turned left (east) and received expected message that I had departed from suggested route. I expected Ali Scout to pick up a signal from the beacon at Square Lake and John R and to tell me to turn

right (south) on John R It did not. After I passed the Square Lake/John R beacon (continuing east on Square lake), Ali Scout told me to turn right (north)!

- Ali-Scout responded to beacon at John R/Square Lake but this was too close to home for it to give directions

- Ali Scout beeped as I approached the beacon at John n R/Square Lake (moving west on Square lake), but did not tell me either to turn right or go straight. After I turned right (north) onto John R, it began guided mode and worked ok until I approached the I-75 interchange while going west on M59. At that point, it displayed the signal to switch over to autonomous mode in the destination area and remained in autonomous mode the rest of the trip. It did not pick up any beacon signals at M59/Martin Luther King Blvd or at MLK Blvd/Featherstone.

- System went into guided mode after getting onto M59 east at Martin L. King Blvd. When I chose to continue on M59 instead of turning south onto I75, system responded ok - continue along main road [picture drawn of an Ali-Scout command]. Shortly after passing I75, system displayed signal to switch to autonomous mode in destination area. It never returned to guided mode despite responding to beacons along the way by beeping. (I checked home coordinates after getting home - they were correct.) Note that place where system went into autonomous mode for destination area is very nearly the same place where it did so on trip 1 in the morning. Could there be a problem with a beacon in this area that leads to a system malfunction?

- Same behavior as yesterday. Went out of guided mode into autonomous mode (destination) on M59 1/2 mile east of I75 north exit & never returned to guided mode.

- Did not pick up beacon & go into guided mode until pausing under Livernois road on M59. Rest of trip was fine.

- Ali Scout stayed in guided mode from 1st beacon to w/in .6 mi of location - the first time it had done this on the same route. But: isn't .6 miles really too far from a destination to be useful if you don't know where you are going? I think it is. I also don't understand why, when Ali-Scout receives signal from 1st beacon (Square lake & John R) it can't process the information quickly enough to tell me whether to go straight or turn. It doesn't go into guided mode until after I've already made that decision.

- Did not pick up a beacon signal until M59 & Livernois. Then performed fine.

- Ali-Scout wanted me to turn left from John R onto Auburn. This would have required me to turn right onto Rochester Rd, drive several miles on rochester with its heavy traffic, and then turn left from Rochester onto Avon. This is stupid. John R to Avon is a much better route at any time of day. When I ignored Ali-Scout's instructions to turn, it never went back into guided mode. I don't think enough beacons are available for system to receive enough information about traffic conditions to make intelligent decisions about best routes.

- Responded to beacon at Long Lake/Dequindre but never gave instructions. When I got home, system did not indicate that destination had been reached. Did not indicate distance to home as 0 (.01 miles) even though actual coordinates had been obtained previously for this destination.

- System responded to beacon at 18/Dequindre but never gave instructions. When I arrived home, compass indicated 0.7 miles to go in wrong direction even though actual coordinates for those had been previously obtained

- This time compass read 0.01 miles from destination when I reached home & indicated that destination had been reached.

- ali-Scout went into guided mode as I passed through Troy on trip 2, but did not stay in Guided Mode.
- Ali Scout System not working - found out later from Seimens of wire pinch shorting out radio and Scout
- Ali Scout repaired and system working ok!
- Both going to work and returning home and to my Daughter's house Ali Scout told me to turn the opposite way I needed to turn - manual override!
- Still giving erroneous directions from work to home. However, return trip from H.P. [Highland Park] to CTC was prefect.
- Ali Scout on trip home overstated miles B 2.7 miles, of course I was well out of beacon range at 14 Mile and Mound.
- Ali-Scout directed me to exit east bound M-59 @ Dequindre. Just as I was about to the intersection coming off the ramp, the display & voice indicated that I had left the recommended route. Ali Scout returned to autonomous mode as I proceeded home.
- Ali-Scout directed me to exit southbound I-75 at University, to proceed east on University, South on Squirrel & then north on Squirrel. As I approached the entrance to Oakland U. on Squirrel, the unit chimed and the display indicated that I was in the destination zone, while the mileage display indicated that i was still 11 miles from my destination. Ali-Scout the returned to autonomous mode.
- Ali-Scout directed me to exit east bound M-59 at Rochester road, and to then proceed north on Rochester Rd. Just north of Hamlin, the unit chimed and the display indicated that I was in the destination zone, while the mileage display indicated that i was still 6 miles from my destination. Ali-Scout then returned to autonomous mode as I returned home.
- Ali-Scout directed me as reported in trip #3 from 7/7/94, I ignored this direction & continued to proceed east on M-59 toward home.
- Ali-Scout directed me to exit east-bound M-59 @ Crooks & then to proceed north to Hamlin, where I was directed to turn right. As I headed east on Hamlin, approaching Livernois, Ali-Scout indicated that I was in the destination zone while the display also showed 8 miles remaining to my destination. Ali-Scout returned to autonomous mode as I proceeded home.
- Same as reported on 7/6/94 (trip #2) & 7/7/94 (trip #3). Input ignored.
- Ali-Scout picked up beacon signal just after entering M59E (before Opdyke) - the first time it has done this since last Wednesday or Thursday. After entering guided mode it told me to "get into lane" before I75 exit (it never said which lane or gave any turn instructions. After passing I-75 N exit, just before Squirrel road, Ali-Scout flipped into autonomous mode/destination mode even though I was still more than 6 miles from home. This is about the same place I had similar problems last week. Ali-Scout received a beacon signal at M59 & Livernois Road and behaved fine after that.
- Ali-Scout went into guided mode near Opdyke on M59E 7 flipped out again between I-75 7 Squirrel (See trip 2 yesterday for more details). It never resumed guided mode. When I got to Bellbrook, Ali-Scout showed 16 miles from destination despite fact that destination had been obtained by setting coordinate not more than 3 car lengths away from where I parked.
- Behaved just like trip 2 yesterday except that when I got to Bellbrook, Ali-Scout indicated I was 0.6 miles from destination.

- Noticed that when I was about 1.5 miles from home (max), Ali-Scout indicated I was 2.8 miles away. As I approached beacon at Square lake & John R, distance read 1.8 miles (true distance is more than 1 mile at this point). As soon as Ali-Scout picked up signal from beacon, distance began to drop significantly, reading .4 miles by the time I was just across intersection. When I reached my house, distance showed 0.02 miles at position where I had originally obtained actual coordinate.

- Same problem as previous few days. In this case, since I was going home instead of to Bellbrook, I passed a beacon at M-59 & Livernois which put Ali-Scout back into guided mode and it worked fine from that point on.

- Ali-Scout dropped into "A" mode for no reason at 14 Mile - 12 Mile rd traveling south on Southfield

- None Kmart H.Q. direction used to & from daughter house as she lives just east of Kmart. Ali Scout instructing left turn when it should be right turn travelling south on Coolidge

- Didn't use, out of beacon area.

- Ali Scout dropped into "A" mode for no known reason at 14 Mile - 12 Mile Rd travelling south on Southfield.

- Passed beacon at CTC - did not recv. any information

- Passed beacon at CTC - did not recv. any information

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- When using Ali-Scout to any destination - I usually have 2 or 3 miles left over. I>E> CTC - 6.68 from my house - according to Ali-Scout. When I pull into the parking lot - it still says I have 3.37 miles left. I rechecked the coordinate still kept coming up this way.

- Passed a beacon at I75 and Coolidge and also I75 & Big Beaver and received no signal.

- (Traveling north) received information from beacon at I75 & Big Beaver. But was switched to autonomous mode north of Big Beaver Rd.

- While traveling south on I75 passed a beacon at Wattles (17 Mi) and also Big Beaver (16 mi) & received no beacon signal or information.

- When I arrived at all trips, except Burger King, I programmed Ali-Scout & set it for actual position. Yet when I would drive back to the acts & houses. It either didn't respond or told me to turn off in a different direction when I only had a mile or so to go. At times I was told to turn left or rt when it was wrong & would have taken me out of my way. (over) I passed a couple of beacons & one time it went on & the other time it didn't. Was driving home on I75 South & at some point around Rochester Rd I was told to turn left. A couple of times I noticed the arrow pointing in the wrong direction...if I have to go East on 15 to get home, it would show West...I mean the arrow would be pointing down instead of straight up.

- I live south of 15 mile near Dodge park & while I was coming home from car wash. I was told to turn left on Rochester Rd..I kept going straight as I would have gone out of my way. Ali Scout redirected me again & when I got to just past VanDyke & 15 I was told I was home when I had another mile or so to go.

- I do not like this unit.

- Same problem as 7-5 thru 7-8.
- Several beacons (Roch. Road @ Big beaver; Rochester Road @ Long lake were passed and Ali Scout beeped at both but never entered guided mode.
- Ali Scout still showed a 1/2 mile to go when we reached destination, even though coordinates of destination had been set via actual position
- Same problem described yesterday. System recovered after encountering beacon @ M59 & Livernois and worked ok from there
- Ali Scout obviously did not know which road to take to get through subdivision to my home while in guided mode. Does this mean it only has (? can't read) for main roads?
- Same problem described in logs of last 2 weeks.
- Same problem as yesterday and last week
- Set Ali-Scout as if I were going home to see how it would behave if I turned south on I-75 instead of continuing on M59 E because I wanted to see if "get into lane instruction" received between Opdyke and I75 was an attempt to get me to turn onto I75. It was not - after I took I75 south, Ali-Scout correctly told me I had left recommended route. I then set destination as Troy Library (across street, approx., from Colombia center. but Ali Scout never went into guided mode.
- Same problem on M59 as reported previously
- Same problem as usual
- Verbal direction for right oblique turn onto Opdyke from Woodward was not rec'd; verbal directions announced an improper turn while turning right from Opdyke Road into Executive Hills - stated deviation from designated route;
- No notice to turn @ 16 mi east
- Not given proper directions - directed to turn west @ Opdyke & Long Lake to lahser Then Lahser to Maple & not directed east to Puritan & Oak - guided to geni. area
- Partial guidance
- Partial guidance
- Partial guidance
- Partial guidance
- Partial guidance
- Driver incompassitated due to ruptured disks in backbone - have not operated vehicle sine 7-4-94
- It only went into guided mode for 1 block (Quarton & Lahser) - This was expected since that was the last beacon I passed.
- It worked like a charm.

- I turned West on Square Lake (from Woodward). When the system went into guided mode it said left turn ahead, so I turned left on Lahser (as I planned to do anyway). The system said "You have left the route". Perhaps the system wanted me to go farther west on Square Lake, turn back east, and then turn south on Lahser.

- System went into guided mode at Maple & Southfield. System directed me straight thru Birmingham instead of sending me around the bypass. At 15 Mile and Coolidge, the system directed me to turn left which I did. The system then went out of guided mode. Perhpas the system wanted me to go along 10 mile (which I did) but I think staying on 15 mile would have been better.

- (am) At Big Beaver and Woodward, it went into guided mode. However, between Big Beaver and Maple, it wants me to turn left even though there is no street or thru-street. Then it tells me I left the recommended route & then it stopped giving directions.

- Trip #2 from CTC to parents Ali Scout was telling me to make rt hand turns, where there wasn't any place to (?can't read) (going east on M-59)Also when I do take the route Ali Scout suggests - sometimes it tell me to turn left - where there are houses - big houses, & office bldgs.

- Was on Sq Lake & computer told me to turn on to I75 S & so I got on 75 it said you have left your course. Looked at beacon log & not all beacons have come on for me. 14 and 75 is one.

- Do not know how to program, yet.

- Un-able to program in destinations w/the control PNL off. Programmed in home location (approx.) with map; before reacting my house Ali-Scout thought I have reached my destinations.

- On the way home from Utica and Southfield Ali-Scout did not get into guided mode until close to home.

- Had problem programming "current location" into address.

- Was able to program Home "current location" by Trial & Error.

- Leewards wasn't in "yellow pages" so had to use map & had a hard time (can't read 1 word) location so it didn't get me too close to Leewards

- Red Oaks is at 13 mile just e. of John R. We travelled down John R & when we got to 16 Mile it told us to turn right (west). We disregarded & continued down John R w/no problems.

- After punched in coordinates at home to go to Kroger arrow was pointing in wrong direction & miles were showing as 6.x - when it only 3 miles away.

- While driving south on I-75 beacons at Wattles and also Big Beaver rd were not giving out a signal. This has been a problem for over 3 weeks!

- Ali Scout went into guided mode this AM. It is quite annoying! I attempted to program a destination. Ali Scout does not like numeric first character entries! I wonder if the manual is correct?

- Ali Scout guided me to a place more than 1 mile from my home -- it got confused on Telegraph (fringe coverage area) Ali Scout successfully took me to Meijer and back. The human factors of this device SUCK! Buttons too small, maps incorrect Map 3 is wrong about Quarton Rd. In-putting a destination is a chore. Manual is incorrect - e.g. (picture) button will not take the user to the top of the menu. As a taxpayer - I am pissed off about this!

- Home Depot is on the system fringe - doesn't really work there

- Didn't go into guided mode when passed beacons CTC & M-59 Livernois

- Driving on Big Beaver, system wants us to turn on Corporate St. When we use Crook's, it declared "you have left the recommended route" and went into Auto mode. It did announced "Destination Arrived" when we reached Charlie's Crab.

- Kept shutting off. I jiggled it. It's fine now.

- It took a long time to get into guided mode. I was past the 16 mile and Crooks intersection before it went into guide mode

- Ali-Scout does not update very fast at an intersection. In fact, I had to get into the left turn lane, on Wattles, turn left onto Coolidge before Ali Scout went into Guided Mode! In other words, the guided information was not timely!

- At Crooks and 10 Mile, I need to get on the I-75 highway to get to work. Updates from the beacon came too late. I had to actually make the turn to loop around onto 16 mile east (from Crooks road going south) before Ali-Scout told me to turn. Then, Ali-Scout told me to keep going past the turnaround (I ignored it) and to loop at a later time. Ali-Scout then told me to go straight down 16 Mile (Eastbound) instead of taking the highway. From years of experience I know at 6:00am that the highway is the fastest way! I then followed 16 Mile (getting most lights red) until it came out of Guided Mode at Dequindre. It should at least say it is going out of the covered area. Also, it would be helpful to give street name when giving directions. For instance, instead of saying "turn right" it should say "turn right on Crooks Road".

- When it went into guided mode, it did not give me much warning to get off the highway (I-75 @ Big Beaver Road), I was actually on the off ramp when it told me to get off the highway!

- Not enough warning before I had to get off I-75 @ Big Beaver Road.

- When I turned onto 16 Mile west to loop around to go to 16 Mile East, Ali-Scout missed the first turnaround and told me, to turn at the second. Why? I followed it and then hit all the lights red going on 16 Mile East!

- Going south on Crooks to East bound 16 Mile, Ali-Scout told me to go on the red route. I think the faster way is the blue route (picture drawn).

- I was going south on I-75 from Clarkston. Ali-Scout went into guided mode near M-59. All went well. Got off at Crooks. Went south on Crooks past Long Lake. Ali Scout then told me to turn left in the middle of the road (no left turns around at the spot (see red route). It should have gone the blue route. (Picture drawn).

- Ali Scout guided my commute -- 5 miles shorter route that took an additional 10 minutes. Hey boss -- I'm late because of Ali-Scout!

- We had to drive around a little to get Ali-Scout into guided mode. My passenger told me he thinks the system is primitive and annoying. Asked why anyone would design such as system w/o GPS.

- Ali Scout said destination reached when I was still on M59 -- previously Ali Scout wouldn't say dest reached until I got onto CTC drive

- Didn't go into guided mode when passed beacons M-59 Livernois & CTC & 18 & Rochester

- Beacons not working

- Beacons not working
- Beacon at west bound Square Lake & Coolidge was not communicating with my vehicle.
- Passed 3 beacons, system guided me down I-75 past Crooks then reported I had left the recommended route.
- At start from Vic Tanny, system was directing ok even though I had not passed a beacon. When beacon at Coolidge & Wattles was passed, system began directing me to wrong location. Revised coordinates for destination when I arrived.
- System cannot accurately guide vehicle in area of Long Lake and Coolidge. Gives instruction to make illegal U-turn on Crooks south of Long Lake.
- Beacon east bound Long Lake at Crooks did not pass information to my vehicle in time before I passed it.
- Beacon on northbound Coolidge at Square lake did not communicate with my vehicle.
- No problems getting to this destination using Wattles from Rochester Road.
- Beacon at Square Lake and Coolidge not working.
- Ali Scout Cryptic, Hard to use
- Useless
- Provides incorrect information
- Useless
- What value is this system? NONE.
- For the short trips, Ali-Scout is useless! This is because AliScout waits until after the light to tell you where to go. If you need to turn at the light, it makes you double back to turn at the light you just came from
- I was going down 16 Mile, going east. Just near I-75 when Ali-Scout said "Turn Right." The location of "TechRML" (Tech center, my workplace) drifts. Ali-Scout thinks it is 18 Mile north of where I originally set it.
- In my opinion, Ali Scout took the longer route!
- ali-Scout did not give the shortest (time and distance) route. We were southbound Livernois from Wattles Road. Just before 16 mile, there is a road (I don't know the name) that leads directly to the library/civic center. Ali-Scout wanted to go 16 Mile instead!
- Ali Scout always wanted to exit from the highway I-75 when its going well. Why?
- Had to change existing data that Ali-Scout has wrong.
- Why do beacons stored in Ali-Scout drift? Talking is annoying.

- I did a study to see if my way to work (from home) was faster than ali-scout. It was! My average for 5 days was: 13 minutes 48 seconds AliScout average for 5 days was: 17 minutes and 53 seconds. This Ali-Scout was 4 minutes 7 seconds slower for what should be a 14 minute trip!

- The route it told me to follow is given in red on the map (map drawn) at point A Ali Scout missed the first turnaround and took me 1/2 mile out of the way to loop around. Of course, I missed the light at Long Lake. At point B, ali-Scout told me to make a U-turn on Crooks (there was no turnaround at that point).

- Traveling east on 16 mile road, the voice suddenly said "turn right" shortly after passing I75. There was no advance warning on the visual display. The audible beeps every time I past a beacon were a little irritating.

- I chose to get onto I75. Ali-Scout directed me off at Rochester road and directed me back toward 16 mi road. The unit functioned ok, but I had hoped that once I got on I75, it would change the route to follow I75 to either 14 mile or 12 mile.

- I chose to go along 14 mile road, up Woodward, and across 15 Mile road. While on 14 mi, Ali-Scout went out of Guided mode shortly before I reached Woodward.

- Coordinates for Olive Garden in book were wrong (wrong city) After we discovered this, we went north to Rochester and passed 2 beacons but did not go into guided mode.

- System performed well. At Square Lake and Lahser, voice said "turn left" but graphic looked like a U-turn. Both seemed plausible, so I did a U-turn. Voice then announced I had left the route and went back into autonomous mode.

- Went back into guided mode at Coolidge and Maple. At Adams went into autonomous mode. At Southfield it went back into Guided mode.

- I didn't get the Fast-Trac map (Its missing from the Users guide) This makes it impossible to pinpoint my destination!

- Beacon did not have time to communicate with my vehicle due to tree limb blocking beacon, north west corner of Wattles and Coolidge.

- Heading East on Long Lake passed a beacon at Long Lake & Rochester, Ali-Scout had me turn around and head down Rochester Road to Stephenson to 13 Mile. I would've expected being directed to John R. or Rochester Road to I-75.

- System guided me down I-75 into traffic jam due to accident at Adams overpass on I-75. Left recommended route to exit I-75 at Adams due to time constraints.

- Tried to follow system but was directed to make an illegal U-turn from southbound Crooks to northbound Crooks between Long Lake and Wattles.

- Told me I left route at Crooks & I-75 even though it never directed me to make a maneuver. Was indicating (picture drawn).

- Beacon at Woodward & Big beaver kept giving beeps. Was almost continuous until we moved past the beacon.

- Was travelling westbound on Maple when I passed a beacon (at John R.). System then directed me down Rochester Road to 14 Mile. System should've kept me on Maple to Coolidge since 14 Mile slows to 25 MPH and Maple is 40 MPH.

- Beacon on Westbound Big Beaver at Dequindre not working.

- Beacon on eastbound Big beaver at Dequindre working ok.

- No beacon at Adams & South Blvd.

- Travelling Woodward Ave - passed 16 mi & Long Lake beacons but didn't go into guided mode. Also, within 1/2 mi of dest. in autonomous mode - AliScout told me to turn around in opposite direction.

- compass off by 2 miles at destination

- compass of by 2.2 miles at destination

- same as trip 1 - day 1

- compass off only .005 mi

- same problem as before

- compass off 0.5 miles

- same problem as before.

- crossed 16 mi and Long Lake @ Woodward - didn't go into guided mode. Also, 1/2 mile from destination (at beacon @ CTC) Ali-Scout tells me to turn around

- same as 9/6/94

- Scout said to take Opdyke - I passed it. 2 blocks before Square lake Scout said to turn right on a side street?

- On Woodward @ 13 1/2 mile Scout said to turn left (curve) which should have been @ 15-1/2 mile - it was 2 miles off when I got home.

- Beacons @ 16 mile and Long Lake on Woodward did not register. Also, beacon on 75 @ 59 didn't register and again at CTC entrance - guided mode told me to turn around.

- No guided mode all the way home.

- same as 9/8/94

- compass off by 4 miles at home

- same as 9/6/94

- beacons @ 16 mile & Long Lake on Woodward only chime twice - no guided mode until Square Lake Rd.

- same as trip 3

- For fun, I drove past beacon at Lahser & Quarton. System went into guided mode and directed me to turn south on Covington, then left on Maple, then I was close enough it went out of guided mode. So the system worked, but the route was not at all direct.

- System was 2 miles off when I reached my destination.

- I took Cranbrook up to 16 mile and then turned east on 16 mile. At Woodward I turned south. The system directed me to take a U turn and then get back onto 16 Mile. Thus, the system worked, but it is significant shortcoming that it can't give directions at the first beacon until after I had already made a turn.

- I had Ali-Scout set for the GM Tech Center. I headed east on Maple and turned south on Southfield. The system told me to turn left on Lincoln but the graphic implied I should do a U turn. when I turned left as instructed the system told me I was off the recommended route

- Passed beacon at Southfield. System said to prepare to turn right, so I turned right on the bypass. I did not wait to turn right for Ali Scout to tell me when to turn right. Probably Ali Scout would have had me turn right one block later. This would have been a lousy route.

- Beacons @ 16 mile & Long Lake along Woodward chimed only twice -- no guided until Square Lake Rd.

- Beacon on Sq Lake didn't respond (2 beeps). Also, beacon on I75 @ M59 only 2 beeps

- No response from beacons at Sq. Lake Rd/Woodward and I75/M59 (2 beeps only).

- Only 2 beeps at 16 Mile and at Long Lake along Woodward. At CTC, Ali-Scout told me to turn around twice after passing the beacon.

- Same

- Only 2 beeps @ Woodward/16 Mile & Woodward/Long Lake & I75/M59

- Only 2 beeps @ Woodward/16 Mile, Woodward/Long Lake, and I75/M59

- Only 2 beeps @ I75/M59, Woodward/Sq. Lake

- Only 2 beeps @ I75/M59 beacon. Also, Ali-Scout tells me to turn around at entrance into CTC.

- Only 2 beeps @ Woodward/Square Lake Rd beacon

- I75/M59 beacon - only 2 beeps

- 2 beeps at beacons on Woodward @ 16 Mile and Long Lake Rd.

- 2 beeps at I75/M59 beacon. Also turning on Woodward @ Square Lake Rd, Ali-Scout told me I was going the wrong way.

- Only 2 beeps at beacons at Woodward -- 16 miles and Long Lake Rd. Also, 2 beeps at I75/M59 beacon.

- 2 beeps only @ beacons on Woodward/ 16 mile and Long Lake & I75/M59

- Only 2 beeps at Woodward/16 Mile & Long Lake & I75/M59

- The route taken by Ali-Scout was convoluted and longer.

- Ali-Scout made me turn off the shorter route I'd taken, make turns through a residential area, get back onto a main road by crossing busy traffic with a left turn (no stop light to help). Guided mode for only about 1/10 of my trip.

- GM Tech Center is well out of the Ali-Scout beacon site locations.

- Partial guidance did not begin until intersection of Woodward & Long Lake, then direct right turn @ Lone Pine - stayed on Lone Pine until Cranbrook where I deviated from recomb. route since I was already 5 blks west of my destination - took Cranbrook to Oak then East on oak to Puritan.

- Encountered large traffic back-up @ Sq. Lake & Woodward intersection. Generally advised to turn rt onto Opdyke exit from Sq. Lake.

- Voice response continually states that I have left the recommended route when turning west on Oak St. from Woodward yet, informs me that I have arrived @ my destination when I turn into my driveway (cnr of Oak & Puritan)

- System shows five lanes on I75 just before M-59, when there are actually only 4 lanes. System shoes four lanes on M-59 east of I75, when there are only 3 lanes.

- Accessing the top of menu, choosing a name for actual location, and entering actual coordinates does not always work properly. Sometimes necessary to power off & then back on.

- Actual position of vehicle in Ali-Scout as real-world location had drifted by around 4 miles over 48 hours.

- trip #3. While in guided mode, i deviated from recommended path and system didn't warn me.

- While in guided mode, system told me to turn into a subdivision.

- Al-Scout reports a location that is about 2-3 miles off actual position.

- passed two beacons (Adams @ M59 @ Livernois) and system did not respond.

- I input Eastover school correctly but 00000 longitude was stored somehow so an autonomous arrow pointed south the entire time.

- My name and house are coordinates were already in computer when I picked up car, presumably from previous driver. That's spooky! (Perhaps you should clear computers between drivers).

- Route (16 mile to Mound) was slow. Went into A made 4 miles from Tech center ?? I was impressed it correctly routed me right to make a left turn. At destination, it routed me west instead of east.

- I ignored directions to go up Mound Z& drove to I75. From there on, it did very well although it took me off I75 before I normally do. It seems to avoid freeways.

- We took I75 but it wanted surface street.

- On I75, it tried to exit us at Big Beaver. We stayed on. Then it skipped Crooks exit and exited us at Adams. Crooks is best exit - does it not know about Crooks?

- Mostly out of range of Ali-Scout.

- Ali-Scout has wrong entrance to Cranbrook.
- I ignore the Ali-Scout route to and from work because it's a poor route.
- Ali-Scout seems to only be aware of major roads so it misses shortcuts. On this trip, it took us up Woodward to Long Lake Rd. rather than short cut at Charing Cross.
- Length of trip in road travelled miles, not triangulated miles. Guided mode last 3.5 miles only.
- Left guided mode after 1 mile because route suggested is ridiculous with my personal tonc.
- First day comments: Programmability is extremely poor; human factors leave much to be desired. Route selection seems to assume that one should remain within sensored area instead of taking best time route. Beeping when passing sensor is a scary experience (I have figured how to turn sound down.)
- I chose to leave guided mode.
- I chose to leave path in the interest of time.
- Destination coordinates misplaced abut .2 miles toward the south.
- Prior of passing beacons, estimated distance was extremely poor, estimated direction off slightly.
- Left guided mode.
- Distance and destination off by about 1/4 mile.
- Left guided mode.
- Off by 1/4 mile again.
- A key stuck "down" while programming.
- MFS location invalid during compensation sequence.
- No contact w/ 13- I75 beacon
- Entered guided mode @ Maple/Southfield - returned to autonomous mode @ Maple and Telegraph.
- At Cloverleaf interchanges, message should indicate 1st/2nd of two exits.
- At end of exit - declared off course.
- More time required for change lanes advisory on multilane roadways.
- N-S drift 0' 0' 31" on this trip! E-W drift 0'0'8" on this trip!
- Accumulative N-S error = .75 miles on this trip.
- Round trip accumulative error 0.51 miles.
- 9 mile round trip accumulated error .20 miles E-W

- 8.7 mile round trip accumulated error 0.38 miles N-S
- Round trip errors .03m: E-W.
- Cumulative error since last at groves = 1.3 miles N-S
- Guided mode @ 14 mile/Stevenson minor detour at Oakland Mall lot. Returned to route but not to guided mode - very bad.
- Accumulated error to this location=3.4 mi.
- Accumulated position error to date>20 miles!
- Into guided mode @ Maple/Southfield. By the time the guided mode display & voice were activated, I was already committed to a turn onto ring road to bypass downtown Birmingham...>left guided route. If beacon were 1/4 mile or more to the West, this would not have happened. Additional note: accumulated error prior to beacon = 20.8 miles! Accumulated error from beacon to destination= 0.47 miles.
- Guided mode 15 mile from Southfield to Telegraph - dropped to autonomous mode without verbal notice. Some audio alarm should sound!
- Returned to Autonomous mode at Telegraph & Quarton without warning. Position error at destination= 0.57 miles.
- Returned to autonomous mode @ Maple /Telegraph.
- Return to autonomous mode @ Metro Pkwy & Dequindre - 3.4 mi from dest. - no notice. Displayed. *.
- Wanted to send me north of 16 mile. Dest. is so. of 16.
- Feel poor recommended route was given.
- When I entered coordinates of each center from map, it said was 1.4 miles from destination.
- Same as 1) when I entered home destination.
- When driving east on 15 mile at Cranbrook, said nearest beacons at 16 & Woodward.
- Routed me off of I75 as Rochester to 16 Mile - (can't read 1 word) traffic very bad choice!
- Programming device is hard - can't respond old entries e.g. "home." How do you review and correct entries? Should have this info. on a quick card. Do the solid arrows on the inside mean the same as the solid arrows on the outside ? No feedback that info. was accepted. Interior coordinates - the cursor should jump to the next blank spot when the first is. How do the solid & open arrows differ? How do you delete entries? Should have this info. on a quick card. Instruction manual should have a diagram showing all keys and their function. For example it is not obvious that (drawing) is shift. Problem is you can't see what the arrows on page 4 are positioned to - you want a much larger picture. Movie should go into more depth on programming. Not obvious why some key selections e.g. why did you assign (drawing) as the key to select current location. I would have used X as in " X marks the spot" - easier to remember or H for " "Hee" Battery running low, sign came on I couldn't turn it off.

- Sensor at Livernois and M-59 is on freeway & doesn't interact with Livernois traffic. Your map should so indicate. You need more sensors in Rochester. From my home I 8 alternate ways to work, however, when I reach the first sensor I am committed. Good on handling quick maneuvers & closely spaced turns. I like the warning about which lane to be in. You cannot program it to enter the current location to an existing named location. You have to type in a new name. You should have simple numbers for all major intersections e.g. 160 for 12 Mile and Mound. Then all you have to do is type in 160 & it will take you there. Same numbering system for prominent locations. System doesn't know optimal routes which may be different from straight-line routes. Need a way to enter destination location for one time users - why have to name a temporary location. Instruction manual doesn't tell you what the I or L in the upper right corner of the screen means.

- at South and Crooks I encountered the first external sensor - I could have taken two different routes from that point but I received no assistance. The device kicked in after I made a choice and went beyond the intersection. It should have told me which way to go at that point. For a good evaluation, you need sensors at 12 Mile and Mound and 13 and Chicago Rd Mound. This will capture most of the people leaving the GM Tech center who go to Oakland County. Trip 4 took a route I hadn't though of - did well. trip 5 - helped me get out of the Chrysler parking lot and (can't read 4 words). When going eastbound on Featherstone, when reaching Squirrel you have to turn right. To get to my destination, I could continue south and then east to join Adams, or I could make a turn and go south on Squirrel. The system chose the latter. the problem is that often turning right on Squirrel you have to immediately get in the left lane to make the U-turn. The system gives no advance warning about the left turn. It should have said "Turn right and prepare to turn left." The advance warnings are important.

- While driving on 3 the system said I should turn left which I failed to do. Later I rejoined the planned route but shortly after I was informed I left the recommended route. In other words, the system didn't recognize I had rejoined the planned route.
- For trip 2, optimal route was not recommended.

- I was in a hurry to get home & the reported traffic throughout the area was heavy. The system planned a very BAD route. It seems that it cannot plan to go further west than the destination and then come east a little bit. This should be recognized. BAD PERFORMANCE! System seems to like Rochester Road and avoid I75. (Diagram drawn) System should inform you verbally when you go beyond the end of service and revert to autonomous mode.

- System misdirected me on making a U turn on 16 Mi. It then told me I left the route. When I passed (picture) to get the location of the next beacon the system told me about a beacon behind me but didn't recognize I had a beacon 1-1/2 mi in front of me. Trip was 10 minutes longer than my optimal route which takes 40 minutes.

- Rather than going straight east on Big beaver between crooks and Rochester Rd., where I turned noting the system and me get on I75 southbound to Rochester Road & then go North. I didn't think I saw any time saved by the time taken to get on and off I75.

- I tried this route once before. From 10 years of experience I am sure the optimal route was not selected.

- System tried to direct me to go home I75-to Rochester Rd. Optimal path is I75 - crooks-Wallace. This goes back to a previous comment. The system is not able to navigate me wet beyond my destination and then go east to the destination. Traffic was light - no reason to go home on Rochester Road. other comments - NB Crooks between Square Lake and South Boulevard goes from 3 lanes to one. By requiring the drive to shift left. A voice warning "merge left" would be appropriate. between Hamlin and Avon the system abandoned me & reverts to autonomous

mode. You need to provide a voice warning that you are reverting to autonomous mode. Without this a driver could blithely continue driving, not knowing unless he looked, that he will not receive any more voice messages.

- Ali-Scout researchers: the following summarized my experience with Ali-Scout. 1) I was probably not a good candidate, as less than 1/10 of my driving time was conducted in an area with Ali-Scout beacons. 2) Even in the beacon area, & in Guided Mode, I found that Ali-Scout took me on a longer, more convoluted route than one would logically choose. Because of these factors, my overall impression of the Ali-Scout system is very negative. The idea may be good, however; good luck in future versions.

- The route taken by Ali-Scout was convoluted and longer.

- Ali-Scout made me turn off the shorter route I'd taken, make turns through a residential area, get back onto a main road by crossing busy traffic with a left turn (no stop light to help). Guided mode for only about 1/10 of my trip.

- GM Tech center is well out of Ali-Scout Site locations.

- In order to follow Ali-Scout's illogical left turn this morning, I turned in front of the car, the driver of which honked at me. It was "calculated" on my part, as I knew it would be too too close, but not "unsafe."

- Ali-Scout guided mode for less than 1/6 of the trip. I'm going out of town on business for a couple of days, so I'll mail these reports. Overall, Ali-Scout has not been helpful - it has hindered my transportation.

- Only brief use of Guided mode.

- Only briefly went into guided mode.

- Only brief use of guided mode (near home, then immediately out of beacon range).

- Briefly near home (dance class route near home).

- Dear Researchers: On a number of trips (that did not have entries in the menu) the Ali-Scout gave nonsensical directions as though malfunctioning. I telephoned the UofM # and was directed to call Siemens. When I eventually reached Siemens our attempts to program new entries were not successful. We conjectured that the unit needed new batteries even though a "low battery" notice was not provided. [Company Representative] gave me new batteries but installing this did not lead to any improvements. I'm giving up on this unit. I'll be in my office during the week of Nov. 28th. E-mail is *******. Should you want to get a new unit to me before the end of the week, I'm game for another try.

- I did not use Ali-Scout as I was running a workshop, had guests in the car! Eventually read manual and watched tape and turned on the system. It gave me low battery diagnostic. Apparently because the Display unit had been misaligned. After a couple attempts to install the display, it seemed to be in place and began to talk. Cursor buttons of two varieties is totally confusing to my style of cognition. Icons have no relationship to purpose. When I program in a corrected coordinates, then press 1 to same end, my next time at the corrected location gives me the old coordinates back.

- I came south on John R. at Square Lake the system acknowledged (by beep) the sensor but did not go into guided mode until it reached the sensor at Wattles.

- Next beacon doesn't work. Thinks the next beacon is beyond my destination. In reality, the next beacon is 1 mile straight ahead (North). (Can't read 1 word) is 1-1/2 mi s.w. of current location. There is no beacon beyond my destination. Optimal route was N or John R to (?) Lake left to Rochester Rd & then North. System tried to send me to John R - 16 Mile - Roch. Rd North. Rochester Rd 16 mi to Long Lake is always very congested. Should avoid this. This system is really unusable for me. You need sensors on Rochester Road north of M59. Also one at Walton & Livernois. Tonight (trip 2) took 45-50 minutes normally by my optimal Mound-M59 route this takes 30 min.

- Because of the scarcity of sensors, I suggest you have an operation to update the computer's memory to the longitude and latitude of the programmed location. For example when I was at Meijers the indicator said I was .4 mi away. A push of the (triangle drawn) key could update the computer location to that of Meijer - (opposite function of the (upside down triangle).

- System trip to send me east on 16 Mi & 15 Mi, John R South to 13 was great this morning.

- Southbound on Rochester Road - system said turn right. Now I am west bound on Big Beaver & am directed to turn left so I can go east on Big Beaver. There are 2 left turn locations. If I take the first one I am told that I am off course. The system should recognize there are 2 possible turn locations.

- Route from Coolidge - Square Lake - Crooks was wrong choice. Much better to go Coolidge - South Blvd. - Crooks.

- SB on I-75 - Rochester Road SB exit Ali-Scout directed me to turn left which was on NB Rochester Rd & then gave indication I was in autonomous mode. No voice warning. I'll try again next week to see what it really wanted me to do.

- every time the system is updated by a sensor you should adjust the internal calibration so eventually the inherent tracking errors will be minimized.

- Still couldn't correctly handle I-75 SB to Rochester Road SB . Today the optimal route would have been Crooks SB to Big beaver EB. Instead I was directed Crooks to I-75 (at Square lake) SB to Rochester.

- SB I-75 - system told me to exit Rochester Road Sb. At end of exit ramp I was put into autonomous mode. I proceeded SB on Stevenson. South of 14 Mile I was directed to go back to 14 mi & go east. Continue south to 13 Mi would have been just as good and slightly shorter. Today the traffic on I-75 was light. I should have stayed on I-75 at Rochester Rd & gotten off at 14 mi. A system like this needs a lot of credibility - if it doesn't give best routes, people will quickly lose confidence in it.

- I did not intend to use Ali-Scout on this trip, it was left on. I had trouble programming it with the coordinates to my home. However, after entering Oakland county I found that it responded to the beacon and was in guided mode., apparently trying to get me. I reviewed the video and manual after going home but sure could not figure out how to program it to accept new destinations that I was interested in.

- Steering vehicle feels difficult at times. Don't know if this has to do with Ali-Scout or just a general vehicle problem.

- Could not program exact coordinates for home address in spite of many attempts. I used Athens High as the nearest location for the trip. Ali-Scout was remarkably accurate in guiding at Athens High.

- Again used Athens High as destination to come back home from friend's house. During trip to friend's house used Charley's crab as temporary destination since it was on the way. Again Ali-Scout did a good job of locating Charley's Crab.

- After leaving Oakland County Ali-Scout was in unguided mode. Also it missed the beacon at John R and Long Lake. First beacon picked up was at Wattles and John R.

- Ali-Scout did not pick up the beacon at John R & Long Lake. It did recognize the beacon at Wattles & John R and went into guided mode. After entering Macomb County went off and stopped issuing directions.

- Although Ali-Scout was in guided mode it missed Athens High which was used as a destination instead of home (I still have not figured out how to program it). Note: vehicle was not used between 11-23 to PM of 11-28. Vehicle was left at the Tech Ctr parking lot & exchanged for another during the holidays.

- Ali-Scout gave wrong directions, asked for a left turn from Ryan Rd while going south when no such turn could be made.

- Ali-Scout seemed to be back in health! Gave correct directions to Athens High

- Charley's crab was used as closest destination. Did provide directions to Charley's.

- Used Troy High as nearest destination. Ali-Scout was reasonably accurate in providing directions.

- Northbound beacon at I75 & Livernois only cause my unit to beep twice. All other beacons beeped it three times.

- Because I75 S/B was conjested at Big Beaver, I decided to listen to Ali-Scout and follow the directions & it told me to "turn right" at the Big beaver exit. I did. My instinct told me I should go Big Beaver east to Rochester Rd. When I did, I was told I left the recommended route It apparently wanted me to Go Big Beaver West. Ali-Scout is not precise enough to guide me to the east or West ramp once I exited on to Big Beaver. Further, once I went Big beaver east, I ran into greater conjestion (no beacons to guide me), I turned around, got back onto I75 S/B and got off at rochester Rd as Ali-Scout directed. I got into a greater mess/conjestion. After traveling 1.0 mile, I turned around and got back onto I75 S/B. This total fiasco added a couple of miles to my trip, but mroe critical was the extra 30 minutes. Ali-Scout, in conjunction with a detailed navigational map system would work ideal, if Ali-Scout could calculate trip legnth/time base based on current traffic movement.

- CTC beacon only beeped once. Beacon at M59 only beeped twice.

- CTC beacon only beeped twice (Southbound). Southbound beacon North of Big Beaver only beeped once.

- S/B beacon north of Big Beaver only beeped twice.