#SAFE Evaluation

Final Report – 2003

Prepared by

Eli Cuelho, Research Engineer,
David Kack, Research Associate
&
Audrey Kalinowski, Research Assistant

of the

Western Transportation Institute
Montana State University – Bozeman

for the

Regional Weather Information Center, University of North Dakota – Grand Forks,
North Dakota

July 2003

Table of Contents

List Of Tables

List Of Figures

Introduction

The purpose of this evaluation is to investigate system users' perceptions of the effectiveness of the cellular-based #SAFE system (Surveys I – IV) and the 511 system (Survey V) that provide road conditions and weather forecasts to North and South Dakota travelers. The results of the analysis will be used to improve the quality of services rendered, as well as to gain insight into the possible development of an alternative long-term, user-fee supported program to provide this information.

Survey Design

The specific objectives of the survey were to assess the availability, accuracy and effectiveness of the system, as well as to determine users' willingness to pay and #SAFE and 511 awareness. The various sections of the survey solicited the following types of information.

- Basic travel characteristics
- Travel information needs
- Amount and/or likelihood of #SAFE and 511 use
- Qualitative assessment of #SAFE and 511 systems
- Willingness to pay (Surveys I & II)
- Demographic information

Five surveys were conducted as a part of the evaluation process. The first survey (Survey I) was mailed to a geographically diverse group of cellular telephone users in North and South Dakota on July of 2000. This survey was sent only to cellular users because the #SAFE system is only available to cellular users. The second survey (Survey II), essentially a modification of the Survey I, was mailed out in January 2001. The third survey (Survey III) was designed specifically for querying North and South Dakota maintenance officials. The fourth survey (Survey IV) was mailed out in April 2002. Survey IV was also mailed and handed out to commercial vehicle operators. The fifth survey (Survey V) was an analysis of the 511 system. It was mailed out in April 2003. Since Survey IV asks questions about the www.safetravelusa.com and (701)777-6133, the participants did not have to be exclusively cellular users. Likewise in Survey V, both cellular and land based phone systems can access the 511 system, so participants did not have to be cellular users. Each of the survey questions and designs used in this study are shown in Appendix A.

Three types of response options were used throughout the surveys: multiple choice, open-ended questions and ordinal ratings. The multiple-choice questions each contained between 4 and 10 response categories. A single open-ended question was asked on Survey II pertaining to why respondents don't use or rarely use #SAFE. An open-ended question in Survey V asked users for input as to other features they would like on the travel information phone system. For the rated responses, survey respondents were instructed to select one of three values (Survey I) or one of five values (Surveys II, III, IV and V) they felt best represented their behavior or opinion

---

regarding a particular topic. The ordinal nature of such a scale allows conclusions to be drawn on a <u>relative basis only</u>. Differences between response values <u>cannot be quantified</u> because each respondent's assessment of the intervals between the response categories will vary. In general, results from specific questions on this survey are qualitative and are intended to make general improvements and modifications to the #SAFE and 511 systems. More specific details and recommendations would need to come from additional investigations.

Survey Design Evolution

The #SAFE survey administered in January 2001 (Survey II) featured several changes from the original survey (July 2000). These changes were made to provide greater detail and more information related directly to #SAFE. The revisions did not change the questions, but rather the possible answers or the clarity of each answer. The same can be said regarding the April 2002 (Survey IV) survey.

The scale of all ordinal questions increased from three (Survey I) to five (Surveys II, III, IV and V) possible responses. This was done to provide greater detail to each of the responses. Providing five choices allowed respondents to evaluate the #SAFE and 511 systems with greater precision. Another general change to the survey was placing *(#7233)* following #SAFE. This clarification was added based on comments from Survey I. Several Survey II respondents used #7233 as a response to specified others when #SAFE was a possible choice.

Question 4 (Survey I), regarding the likelihood of respondents to use #SAFE during specific weather conditions, was removed from Surveys II and IV. Based on responses from Survey I, the results to this question were predictable. In general, the more adverse the weather condition, the more likely people were to use #SAFE. Due to this trend, it was not necessary to ask the question on the subsequent surveys. The removal of this question also provided more space, allowing the number of responses to all ordinal questions to increase.

A new question (Question 5 on Survey II) was the only addition to the original survey. This open-ended question allowed respondents to briefly state the main reasons for not using the #SAFE system. Since many on Survey I indicated that they had not used #SAFE and a high percentage of respondents skipping the question regarding never using #SAFE, Question 5 was to get direct feedback from respondents regarding their personal reasons for not using or rarely using the #SAFE system. This question was removed from Survey IV since responses to this question on Survey II adequately revealed the reasons for not using the #SAFE system.

Question 6 was intended to ask when respondents access the #SAFE system. A respondent answering this question either should have accessed the system before starting a trip or while on the road. It was later determined that the option of "neither" is unnecessary. Therefore, the response of "neither" was removed from the question regarding when #SAFE was typically accessed. Results from Survey II, where "neither" was not an option, showed an increase in the number of respondents who indicated using #SAFE while on the road.

Question 7 (Surveys I and II) asked users to indicate which seasons they used the #SAFE system. Due to the predictability of responses, this question was removed on subsequent surveys.

Question 12 (Surveys I and II) asked users to evaluate the Ease of Use of certain features of the #SAFE system. This question was removed from subsequent surveys because some of the features of the system changed and responses received were very predictable.

Survey IV evaluated two other sources of traveler information in addition to #SAFE: a telephone information number, (701) 777-6133 and an Internet website, www.safetravelusa.com. These sources of information were added because they provided additional means to access the same information as the #SAFE number.

Based on the responses on Question 16 of Survey I, the option of "This Survey" was changed to "Not aware of #SAFE before now". This change was made to improve the clarity of the question. Later, this question was modified on Survey IV to include how respondents were made aware of (701) 777-6133 and www.safetravelusa.com. "Not aware" was removed as a possible response since survey participants were asked if they knew of the additional resources on the previous question.

Changes to the demographic section of the survey were made. In Survey II the question related to the type of vehicle normally driven was removed. The results from the Survey I indicated that respondents mostly used automobiles (95.5%). Due to the nature of random sampling from a similar population, this question would not provide any additional information and did not need to be asked on Survey II. In spite of this, Survey IV included a demographic related to vehicle type because commercial vehicles were specifically targeted during distribution.

Survey IV also inquired about cell phone ownership in a slightly different manner. In Survey I and Survey II, one question asked how many cell phones were in the respondents' household, while another question inquired as to the cellular carriers. In Survey IV, respondents were asked if they had a cellular phone in their household, and if so, who was the service provider.

Survey IV provided for an "other" option for the respondents in regards to their current state of residence. Surveys I and II only allowed for respondents to select either North Dakota or South Dakota for their state of residence. This change was made in Survey IV to allow for the inclusion of commercial vehicle operators who may not reside in either of the states.

The change in the ordinal questions from 3 to 5 responses also requires a slight modification to the numerical values associated with Survey I ordinal questions. To directly compare the results of all the surveys, the means form the original survey must be converted to the same scale as Survey II and IV. The response of "Very" on Survey I is increased from 3 to 5, and the

response of "Somewhat" increased from a weight of 2 to 3, and the response of "Not Very" remained 1. Once the means of Survey I are normalized, comparisons can be made between the three surveys.

Survey V was designed similarly to the previous surveys. The largest difference is that Survey V focuses newly implemented 511 system. Question 5, 8 and 12 were additional questions focusing on the 511 system. Question 5 asks respondents to indicate their preference for identifying their location to access travel information. Question 8 asks whether respondents feel they have received enough information about 511 system. Question 12 asks for feedback on 511 capabilities. The #SAFE system is no longer in use and has been replaced by the 511 system. Survey V reflects this change.

Survey Administration

Survey administration was designed to target cellular telephone owners in North and South Dakota for Surveys I & II. For Survey I, a simple random sample of 3500 cellular users within North and South Dakota was purchased from US West Dex (now Qwest) Data Products Group. For Survey II, a simple random sample of 2000 cellular users was purchased. These lists of individuals were geographically diverse across the two-state region. For Survey III, the list of maintenance officials was provided by Mark Owens of the Regional Weather Information Center at the University of North Dakota – Grand Forks. It included 43 participants from North and South Dakota. Surveys IV & V were mailed to 3000 randomly selected households in North and South Dakota. Due to the inclusion of the two additional information sources, (701) 777-6133 and www.safetravelusa.com, the participants in Survey IV did not have to be cellular users as in Surveys I and II. Since the 511 system is accessible by land line as well as cellular service, Survey V participants also did not have to be exclusively cellular users. In addition, Survey IV included 530 surveys mailed to four different trucking companies in North Dakota, 380 surveys mailed to South Dakota Trucking Association members, and 397 distributed randomly to commercial vehicle operators at two truck stops in Billings, Montana.

To improve the rate of response, a drawing from those who responded to Surveys I and II before the specified due date, was offered as an incentive. The prize for each winner was $100 of free gasoline from Conoco. Surveys IV and V respondents were offered an incentive of $50 cash. There were five winners for Surveys I, II and IV and three winners for Survey V. No incentive was offered for participation in Survey III. Reducing the incentives between Surveys I & II and Surveys IV & V, from $100 to $50, appeared to reduce the response rate by almost 12%. Once the surveys were mailed, no attempt was made to encourage those who did not respond to Surveys I, II, IV and V. However, due to the small number of maintenance officials in the third survey, those who did not respond by one week prior to the specified due date were sent a reminder postcard. Those who did not respond after the postcard was sent were contacted

by telephone and asked to complete questionnaire over the telephone. Table 1 shows the numbers distributed and quantities returned for each of the surveys.

Table 1: Distribution and Return Rate Statistics for Each Survey

	No. Distributed	No. Returned	Return Rate
Survey I	3500	1128	32.2%
Survey II	2000	663	33.2%
Survey III (Maint.)	43	34	79.1%
Survey IV	4307	865	20.1%
Survey V	3000	640	21.3%

Most surveys were distributed using first class U.S. mail with the exception of Survey IV where in-person methods were used to distribute the survey to the commercial vehicle operators at the Billings, Montana truck stops. Included in the mail-out package were a cover letter, a survey, and a postage paid return envelope. For Surveys I, II, IV and V a small card to enter the incentive drawing was also included in the mail out package.

Statistics

The responses to the #SAFE surveys were analyzed using various summary statistics, including percentages, frequencies and chi-square values. Tabular results for each of the surveys are detailed in Appendix B. Results were used to determine users assessment of the system, traveler information needs, and willingness to pay for use of the system (Surveys I and II). Differences in responses were investigated between respondents in selected demographic categories using the chi-squared analysis. Since the sample size of the maintenance survey was small, the chi-squared analysis was invalid.

Respondents had the option of not responding to any question on the survey. Percentages are based on total responses obtained for each question, as opposed to the total number of survey respondents, thereby eliminating the need for an "unknown" or " no response" category for each question. In addition, if more than one option was selected for questions requiring only a single response, all responses from that individual to that particular question were omitted from the statistical analysis. This was done to avoid biasing the results by arbitrarily choosing which option among several selected by the respondent was to be included. Failure to comply with written instructions also resulted in omission of that respondent's particular response from the data analysis.

Demographic Characteristics

Demographic questions were asked to ensure that responses to the survey were properly represented when the data were analyzed. The following table, Table 2, shows the demographic questions asked in each survey. An "X" represents questions that were asked on each survey.

Table 2: Survey Demographic Questions Asked

Demographic	Survey I	Survey II	Survey III	Survey IV	Survey V
Residence	X	X	X	X	
Gender	X	X	X	X	X
Age	X	X	X	X	X
Type of vehicle normally driven	X			X	X
Primary purpose of travel	X	X		X	
Average number of miles per trip	X	X		X	
Number of cellular phone carriers	X	X			
Household income	X	X		X	
Zip code					X
Education level					X
Cellular Providers				X	X

Other data used for demographic comparisons included frequency of travel on U.S. or Interstate highways in North or South Dakota, how often respondents use the #SAFE or other access systems, and when they use the system. The tables provided in Appendix C show the questions that were analyzed using the chi-square analysis.

Residence

Each survey was sent to a different number of North and South Dakota residents. Table 3 shows the number sent to the general public in each state and the corresponding response rate. The percentage sent and received from Surveys I and II were very similar. Survey III was sent to maintenance personnel. Surveys IV and V were sent in equal amount to the general public in each state. For Survey IV, an additional 1307 surveys were handed out to drivers of commercial vehicles. The 'Other' category is included in Survey IV because 397 surveys were distributed randomly to commercial vehicle operators at two truck stops in Billings, Montana. The state most represented in the 'Other' category was Minnesota with 23 respondents followed by Canada with 14 respondents. Montana, Washington and Idaho followed with 12, 10 and 7 respondents, respectively. A total of 118 participants responded to the 'Other' category. Figure 1 shows the state of residence of each of the survey participants.

Table 3: Number of Surveys Sent to Each State and Corresponding Return Rates

Survey	Sent ND	Returned ND	Sent SD	Returned SD
I	51.5%	53.4%	48.5%	46.6%
II	54.5%	54.6%	45.5%	45.4%
III	19.0%	20.6%	81.0%	79.4%
IV	50.0%	44.1%	50.0%	41.8%
V	50.0%	53.0%	50.0%	47.0%
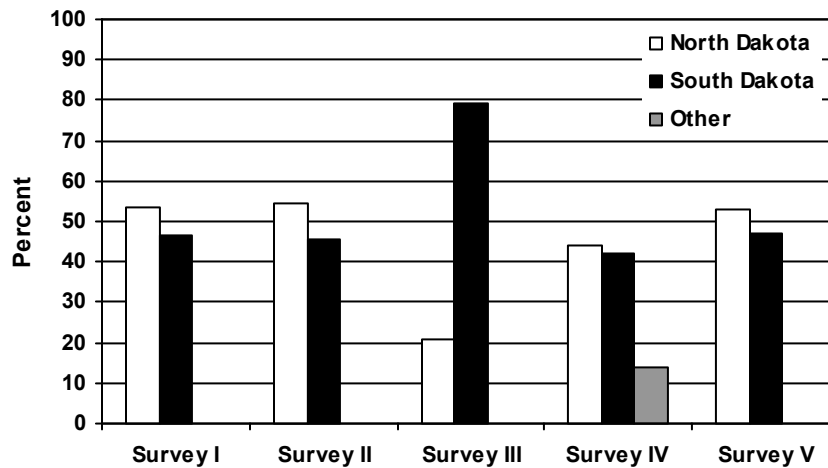
Figure 1: Residence of Survey Respondents

Gender

When the survey was distributed, it was assumed that the gender of the respondents would be representative of cellular users in North and South Dakota. The list purchased from Qwest Dex for Survey I contained approximately 20% males and 80% females. Responses to the survey indicate similar percentages in the study sample: 24.3% males to 75.6% females, as shown in Figure 2. The list used for Survey II was similar to the list used for Survey I, approximately 75% females and 25% males. Results from Survey II were also very similar with a slightly higher percentage, 26.6%, of male respondents. Responses to Survey III were all male maintenance employees, since no female maintenance personnel participated. Surveys IV and V participants were chosen from Qwest Dex. Survey IV also included questions about www.safetravelusa.com and (701) 777-6133 systems and Survey V asked about the land and cellular based 511 system so the users did not exclusively need to be cellular users. Surveys IV and V participants were 35.5% and 35.4%, respectively, female and 64.5 % and 64.6%, respectively, male. The gender breakdown of these surveys differs from Surveys I and II and may be the result of the way the participants were chosen.
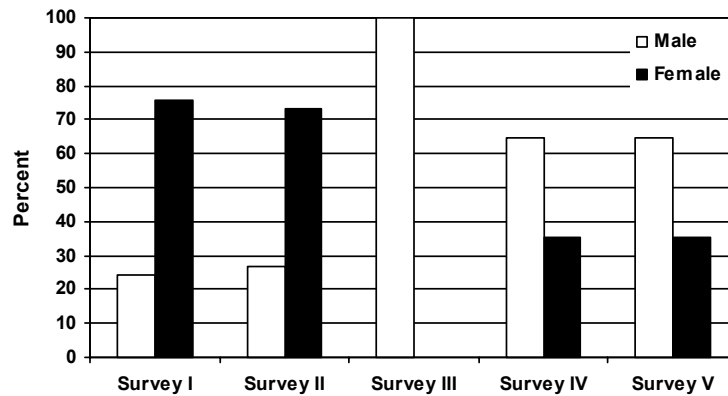
Figure 2: Gender of Survey Respondents

Age

The age breakdown differs across surveys. These differences may be a result of the way the survey participants were chosen. As explained previously, Survey I and II participants were chosen from the Qwest Dex directory based on whether they were cellular phone subscribers. While participants from Surveys IV and V were chosen from the Qwest Dex directory but did not necessarily have to be cellular subscribers. This may explain why more of the respondents from Surveys I and II were in younger age categories than Surveys IV and V. Survey III participants were maintenance workers and chosen for that reason. Figure 3 displays these distributions.
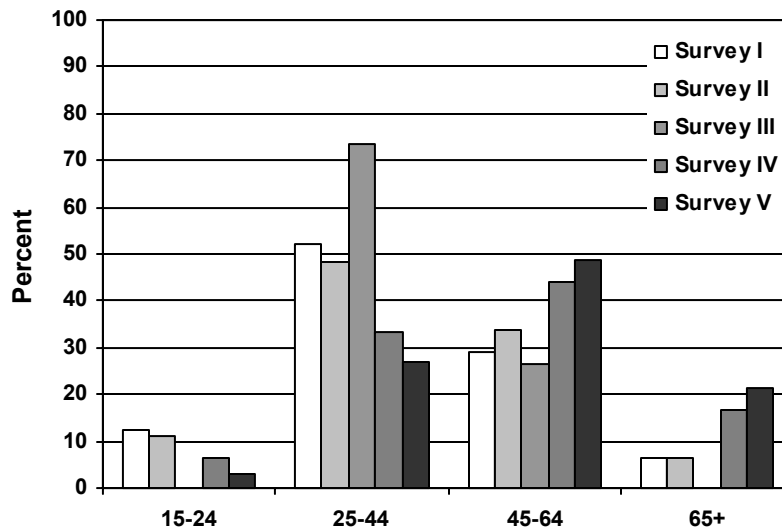
Figure 3: Age of Survey Respondents

Vehicle Type

Vehicle type was used as a demographic breakdown in Survey I, IV and V. The vehicle classifications Survey I respondents could choose from included: 'automobile', 'commercial vehicle' (i.e., truck, bus), 'motorcycle', 'RV', or 'ride as a passenger only'. Survey IV respondents were given the options of 'automobile', 'commercial', and 'other' while Survey V respondents had the added choice of 'RV'. The vast majority of the individuals responding to this survey selected automobile as their primary vehicle on U.S. or Interstate highways in North and South Dakota. The reason for the increased responses from Commercial Vehicle drivers in Survey IV is because approximately 1300 surveys were distributed specifically to Commercial Vehicle drivers whereas other surveys did not specifically target Commercial Vehicle drivers. The majority of respondents to the 'other' category in Survey IV stated a pickup while in Survey V respondents stated van/minivan as the vehicle they used. The actual distribution of responses is shown in Figure 4.
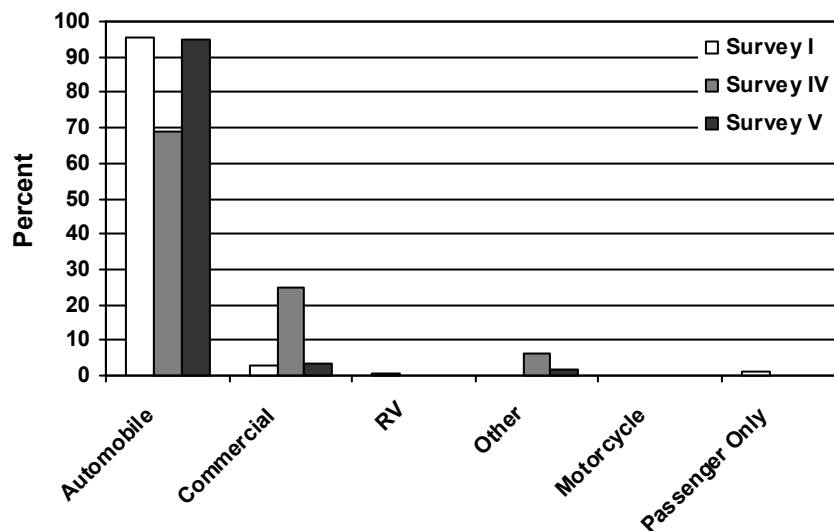
Figure 4: Vehicle Type Normally Driven by Survey Respondents

Trip Purpose

Surveys I, II and IV respondents were asked to choose a category which best describes the purpose of the majority of their vehicle travel on U.S. or Interstate highways in North and South Dakota. The seven categories from which respondents had to choose were 'work', 'school', 'shopping', 'medical', 'recreation', 'visit with family or friends', and 'other'. The results from each survey show only small percentage change in most of the possible responses. The results from this question are shown in Figure 5.
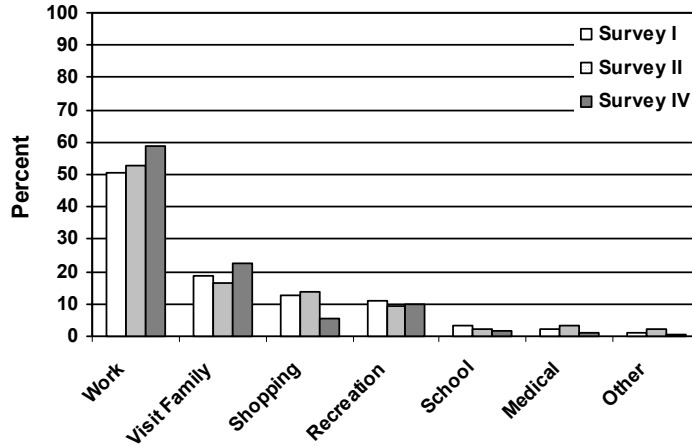
Figure 5: Primary Purpose of Vehicle Travel by Survey Respondents

Trip Length

Surveys I, II and IV respondents were asked to estimate the average length of their travel on U.S. or Interstate highways corresponding to the trip purpose selected in the previous question. Due to the rural nature of North and South Dakota, average trip length could be assumed to vary considerably. Data from the surveys indicate a relatively even distribution of responses to each of the four trip-length categories. The largest difference between Survey I and Survey II is in the 50-99 mile category, where the responses were 28.3% and 23.0%, respectively. The reason for the increased responses in the '300+' mile category for Survey IV was due to the 1300 surveys that were specifically distributed to Commercial Vehicle drivers. In general, these participants are driving long distances. The results from this question are shown in Figure 6.
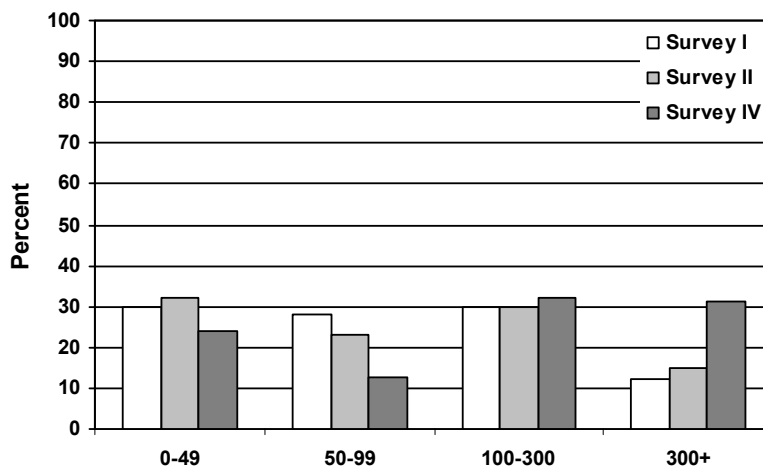
Figure 6: Average Trip Length (in miles) of Survey Respondents

Cellular Telephone Information

Questions regarding system availability, accessibility, and so forth may be related to the type and number of cellular telephones in the study area. Figures 7, 8 and 9 show the distribution of cellular telephone ownership, number owned, as well as their specific cellular carrier(s), respectively. Because the question regarding cellular carriers in Survey I and II allowed respondents to check more than one response, the total of the percentages may add to greater than 100%. Survey IV participants were not asked how many phones they owned, only IF they owned one. They were then asked to supply their service provider. Survey V participants were only asked whether or not they owned cellular phones. Surveys IV and V participants were asked whether they owned a cellular phone because unlike Surveys I and II, where the participants were chosen based on whether they had cellular service, Surveys IV and V participants were not chosen on whether or not they had cellular service. The results of Surveys I and II were similar for the question regarding the number of cellular phones. Results for which cellular carrier was utilized was similar for Surveys I, II and IV. The majority of the respondents used Cellular One as their primary cellular carrier. The second most widely used carrier was Airtouch/Verizon.
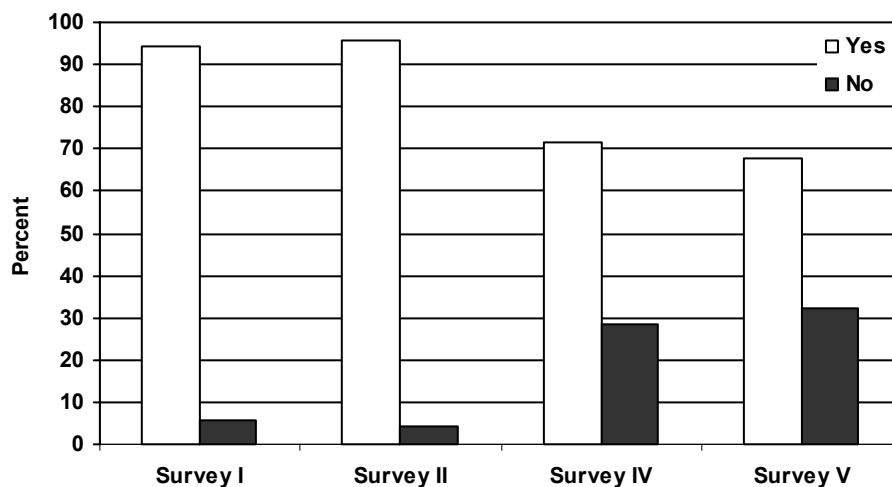
Figure 7: Percentage of Participants with Cellular Phones
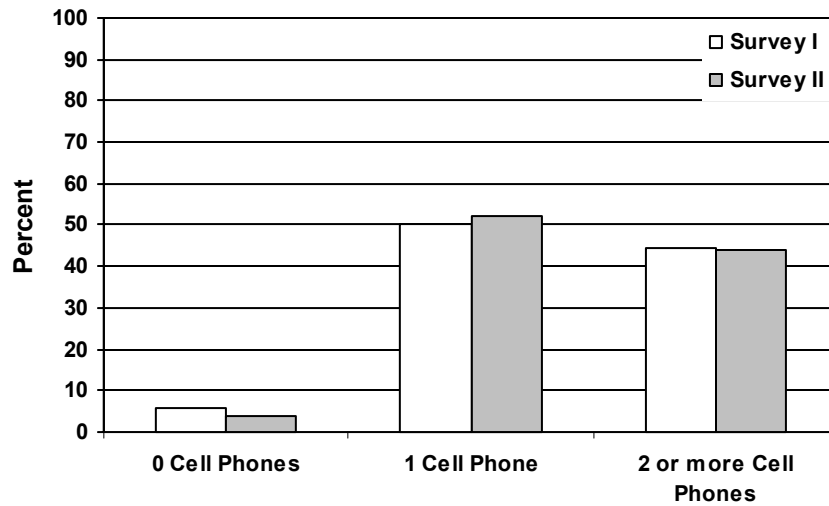
Figure 8: Number of Cellular Telephones Owned by Survey Respondents
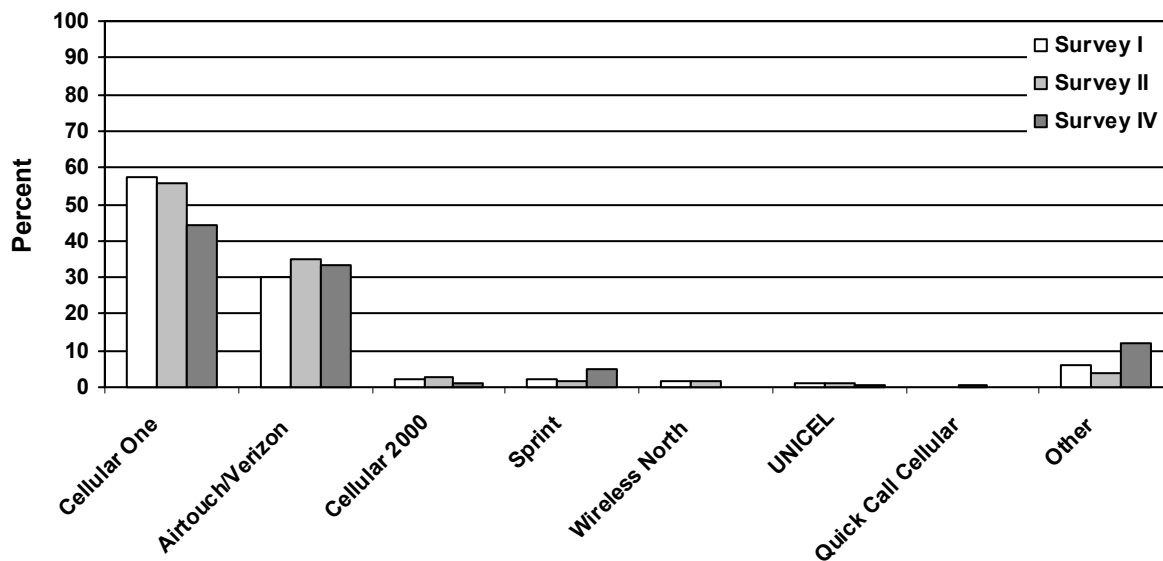
Figure 9: Cellular Telephone Carriers Used by Survey Respondents

Income

The last demographic question included in the survey (Surveys I, II and IV) was related to income. Each survey participant was asked to select from four categories that best described the approximate annual income for their household. Survey I had a slightly higher percentage of respondents in the middle two income levels while Survey II had slightly higher response rates in

the lowest and highest income levels. Survey IV had slightly higher responses in the upper income level. Results are shown in Figure 10.
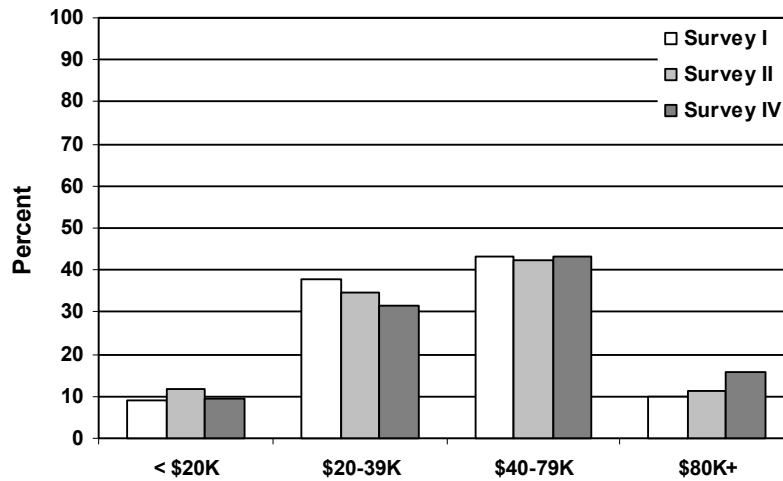
Figure 10: Average Annual Household Income of Survey Respondents

Level of Education Completed (Survey V Only)

Respondents of Survey V were also asked to state their level of education completed. 36.7% of respondents had finished high school or equivalent level of education. The percentage of 4-year college/university graduates was just slightly higher than the percentage of 2-year college graduates at 23.3% and 20.6%, respectively. Chi-square differences for traveler characteristics and some functional measures were found for this demographic. Discussion of these differences follows in the corresponding sections. Results of this question can be seen in Figure 11.
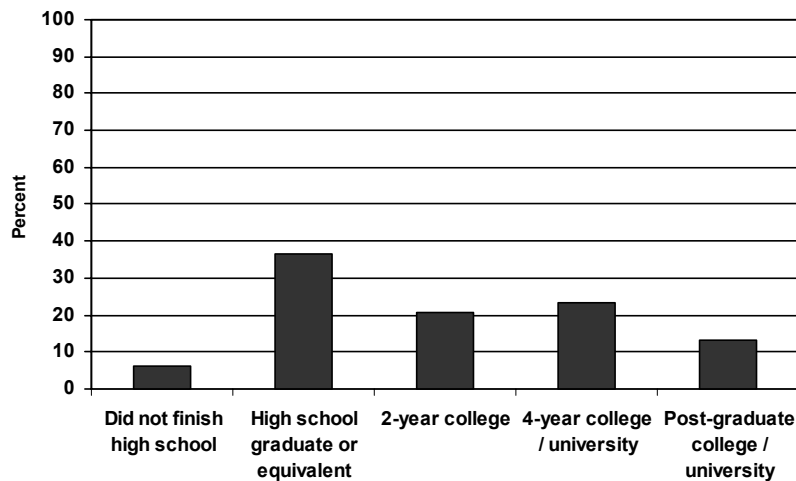
Figure 11: Education Level of Survey V Participants

Traveler Characteristics

Questions 1 through 4 on Survey I, questions 1 through 3 on Survey II and IV and questions 1 through 6 on Survey V were asked to gain an overall understanding of survey participants' travel characteristics in North and South Dakota. These questions were used to determine how often North and South Dakota residents travel on highways, how information is received before or during travel, and the types of information that are most important when traveling. The results of these questions were tallied and a chi-squared analysis was used to determine differences in responses with respect to certain demographics. Appendix A shows each question's format as they were originally asked and Appendix B shows tallies of responses as well as means, medians and standard deviations, where appropriate.

Frequency of Travel

Question 1 on Surveys I, II, IV and V asked respondents to estimate how often they travel on U.S. and Interstate highways in North and South Dakota using one of the following categories: times per day, week, month, or year. This question was not asked on Survey III.

All responses to Question 1 were converted into the number of times traveled per year for comparison. In the analysis, the results of this question were also used as an additional demographic category. The results show that there is variation in the estimated number of times that residents use U.S. and Interstate highways in North and South Dakota per year. Approximately 56 to 71% of the respondents estimated that they travel on U.S. and Interstate highways in North Dakota and South Dakota 300 times or less per year. Overall, the mean number of times respondents travel on the highway system per year for Surveys I, II, IV and V were 470.1, 426.3, 375.4 and 359.0, respectively. The medians for this question were 208 times per year for both Surveys I and II, 104 for Survey IV and 140 for Survey V. The differences in the means and medians cannot be discerned without further investigation. Figure 12 displays the results of this question.
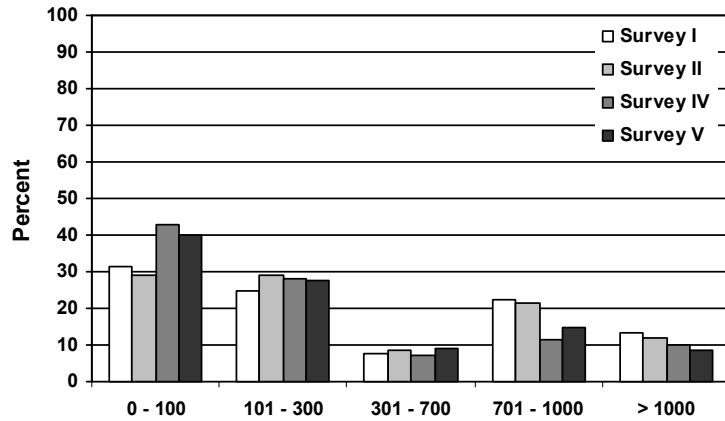
Figure 12: Estimated Frequency of Travel of Survey Participants (times/yr)

From the chi-squared analysis of Survey I, the estimated frequency of highway use showed differences in responses with respect to gender and trip length. Gender differences showed that females indicated traveling less frequently than males. In addition, as the number of miles traveled increased, the frequency of travel tended to decrease; conversely, as the miles traveled decreased, the frequency of travel tended to increase.

The chi-squared analysis of Survey II showed differences in responses with respect to the average number of vehicle miles traveled per trip. As with Survey I, as the frequency of travel increased, the average number of miles per trip decreased.

The chi-squared analysis performed on Survey IV showed differences in residence, age, and miles traveled. Residents from South Dakota indicated a higher frequency of trips than respondents from North Dakota and "Other". Generally, respondents in the middle two age groups were more likely to have a higher trip frequency than those in the youngest or oldest age bracket. Lastly, as is the case in the first two surveys, as the frequency of travel increased, the average number of miles per trip decreased. Curiously, no differences were found using chi-squared analysis between frequency of travel and vehicle type.

Survey V chi-square analysis found differences in highway frequency usage with gender and mobile phone usage. Males tended to use the highway more than was expected and more than females. (The use of "expected" throughout the chi-square discussion relates only to statistical expectations and not those of the author or agency studying this information.) Those participants with mobile phones tended to use the highway system more frequently than expected and more than those without mobile phones. Differences were not detected in state of residence.

Road & Weather Information Resources Used

This question was asked to gain information about what types of resources are most frequently used by North and South Dakota travelers to determine road conditions and weather

forecasts. The format of the question provided a list of potential resources, allowing respondents to choose all resources that apply. The resources used most often by travelers were radio (I–89.2%, II–87.8%, IV-83.1%, V-81.5%), television (I–78.4%, II–82.4%, IV-78.6%, V-76.7%), and personal observations of existing conditions (I–52.2%, II–51.7%, IV-51.1%, V-49.2%). These three resources were the only ones that the <u>majority</u> of respondents used to obtain road and weather information. Results from Survey I showed that less than 8 percent (7.6%) indicated using #SAFE as at least one method of obtaining road and weather information. In Survey II 10.3% of participants indicated that they used #SAFE as at least one method of obtaining road and weather information. Survey IV indicated that only 5.7% of respondents had used #SAFE as a method for obtaining information. Survey V respondents were not asked about #SAFE but instead about the 511 system, where 16.2% of respondents indicated using 511. The results of this question are shown graphically in Figure 13.
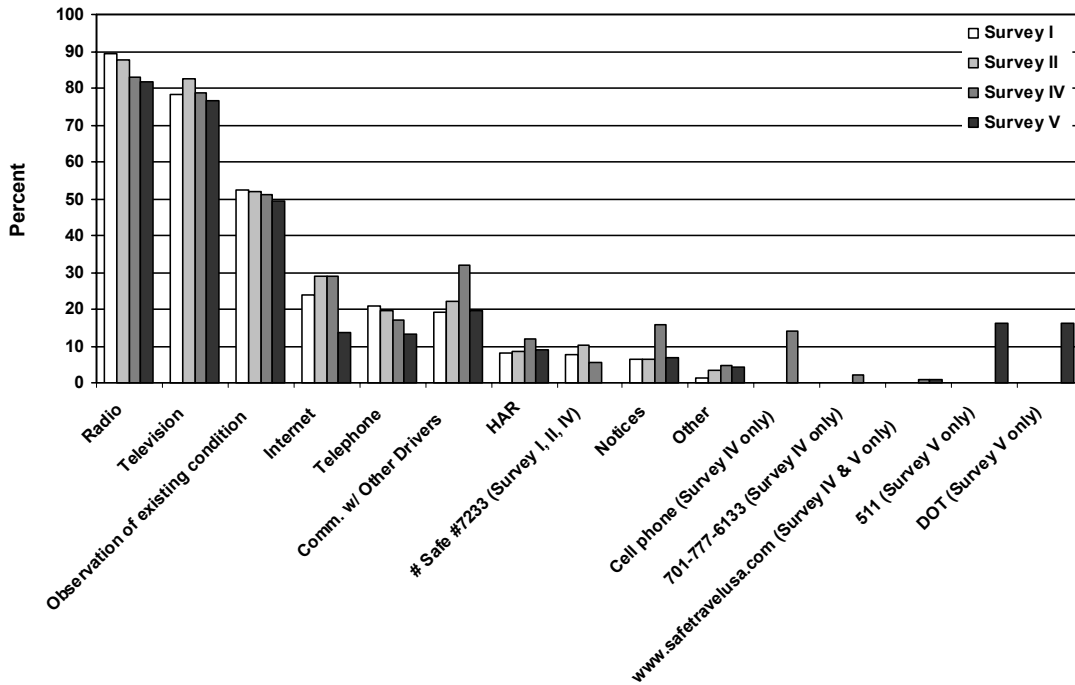
Figure 13: Road Conditions and Weather Information Sources for Survey Respondents

The test results from the chi-squared analysis showed differences in the Television, Highway Advisory Radio (HAR) and Internet responses with respect to residence, age and number of cellular telephones for Survey I. Respondents from South Dakota indicated they would use television as a resource for road and weather conditions more than expected. As the age of respondents increased, their use of the Highway Advisory Radio increased as a resource

for road and weather conditions. Conversely, younger respondents used the Internet more to obtain road and weather information. Respondents who had more cellular phones used the Internet more for their source of road and weather information.

Survey II chi-squared analysis for this question showed differences in HAR; Internet; Use of Notices at Truck Stops, Convenience Stores, Rest Areas; and Use of Other Drivers as potential sources of road and weather information with respect to age, number of cellular telephones, household income, frequency of highway use, and trip purpose. As the age of respondents increased, so did their usage of HAR as an information source. As the frequency of highway use increased, the use of other drivers as a potential information source also increased. Those who indicated that they did not own a cellular telephone used the Internet as a potential road/weather information source. As the number of cellular telephones per household increased, the usage of notices at truck stops, convenience stores and rest areas decreased. Lastly, as the amount of household income increased, the usage of the Internet as a potential source of information also increased.

Survey IV chi-squared analysis for this question showed several differences in the means through which information is accessed. There were differences shown with Television, HAR, Cellular Phones, #SAFE, Internet, Observation of Existing Conditions, and Notices at Truck Stops, Convenience Stores, Rest Areas as sources of information with respect to residence, gender, miles traveled, income, vehicle type, services used, age, cellular phone ownership, and when information is accessed. In regards to residency those respondents from North and South Dakota used the television, HAR, Internet, and communication with other drivers as a source of traveler information. However, those respondents not from North or South Dakota used observation of existing conditions and notices at truck stops, convenience stores and rest areas as sources of traveler information. Male respondents used television, notices at truck stops, convenience stores and rest areas and communication with other drivers as resources more than female respondents. With respect to age, respondents in the middle two age brackets used notices at truck stops, convenience stores and rest areas and communication with other drivers as traveler information sources more than the other age categories. Also as age increased the use of Internet as a resource decreased. As the miles traveled increased the use of HAR, cellular phones and observation of existing conditions also increased as a source of information. Those respondents traveling the longest distances used notices at truck stops, convenience stores and rest stops as a resource while being less likely to use television.

Survey IV showed differences in more categories with respect to the sources of traveler information. Cellular phone owners used cell phone, #SAFE, Internet, notices at truck stops, convenience stores and rest areas, and communication with other drivers as resources. Only two differences were found related to income levels and traveler information. Those respondents in the lowest income level used notices at truck stops, convenience stores and rest area less, while those respondents in the $40,000 to $79,000 income level used television less. Commercial

vehicle respondents used HAR, cellular phones, observation of existing conditions and notices at truck stops, convenience stores and rest areas more and used television and Internet less as resources.

As the frequency of travel increases the use of cellular phones and notices at truck stops, convenience stores and rest areas as resources increases. Also those respondents getting traveler information both before the trip and while on the road used HAR, cellular phones and #SAFE more. Differences were found between those using telephone, notices at truck stops, or communication with other drivers as a resource and the frequency of #SAFE usage however, no conclusions could be made.

Survey V chi-square results indicated differences for mobile phone users, education level completed, state of residence and gender. Users of mobile phones used the radio, 511, other Internet sites and HAR more than was expected. Education level completed also made a difference in the chi-square results. Those participants who had completed 4-year college/university or post-graduate college/university used other Internet sites as a resource more than expected. Those same participants also used observation of existing conditions more than would be expected. Those respondents living in South Dakota indicated they were more likely to use the TV to determine road conditions or hear a weather forecast than users in North Dakota. Finally, females used the TV as a resource more than was expected.

Importance of Various Types of Information to Travelers (Surveys I, II and IV)

Question 3 on Surveys I, II and IV asked survey respondents what types of information they would use to alter their travel plans. Respondents were asked to rate the importance of each traveler information category. For Survey I, there were three responses with which to rate each type of information: not important, somewhat important, and very important. For Surveys II and IV, there were five responses: very unimportant, somewhat unimportant, neutral, somewhat important, and very important. Another difference in the responses between Survey I and Surveys II and IV was that sub question *h)* was labeled *"Other"* for Survey I and *"Construction"* for Surveys II and IV. This was due to the number of respondents who indicated construction as "other" for this question. Results from this question were used to determine what types of information North and South Dakota travelers are most important for considering changes in their travel.

To analyze the ordinal (i.e., scaled) responses, numerical values were assigned to each of the three response categories. With respect to Survey I, the "Very Important" response was assigned a value of 3, the "Somewhat Important" response a value of 2 and the "Not Very Important" response was assigned a value of 1. This is true of all of the scaled responses used in analyzing Survey I. Since Surveys II and IV contained five ordinal responses, the "Very Important" response was assigned a value of 5, the "Somewhat Important" response – 4 and the "Neutral" response – 3, the "Somewhat Unimportant" response – 2, and the "Very Unimportant" response

−1. However, to make direct comparisons between the means for Surveys I, II and IV, Survey I means needed to be adjusted to match those of Surveys II and IV. This was done by reassigning values to the three ordinal responses on Survey I. The "Very Important" response was reassigned a value of 5, the "Somewhat Important" response a value of 3 and the "Not Very Important" response retained its value of 1. The means for each type of information are shown in Table 4.

Table 4: Mean Values for Various Information Types

Types of Information	Survey I Means	Survey II Means	Survey IV Means	Survey I Ranking	Survey II Ranking	Survey IV Ranking
Road Conditions	4.43	4.77	4.03	3	1	2
Weather Conditions	4.45	4.72	4.51	2	2	1
Occurrence of Hazard	2.78	3.61	3.44	7	4	7
Location of Hazard	2.86	3.57	3.49	5	7	6
Travel Delays	2.84	3.59	3.50	6	6	5
Average Travel Speed	2.69	3.51	3.39	8	8	8
Alternate Routes	2.98	3.60	3.56	4	5	4
Other – I, Construction – II, IV	5	3.72	3.72	1	3	3

Direct comparisons between all surveys are difficult due to the conversions of the means of Survey I. Most of the means of each of the responses increased from Survey I with the exception of Construction, as shown in Table 4. This is most likely due to the additional ordinal ratings in Survey II rather than an increase in overall ratings of each of the types of information. Survey participants will generally respond more positively to questions when given the chance. Survey I offered a positive response, a somewhat neutral response and a negative response. Surveys II and IV offered participants one more response between the neutral and the positive, and between the neutral and the negative responses. Since respondents will more likely choose the intermediate positive response, this naturally increased the mean. Therefore, it is difficult to say whether the means are in fact greater or if shortcomings within the conversion process are responsible.

The rank of the questions may help to expose any differences between Surveys I and II. For Survey I, Construction was identified as very important in the "other" category. Naturally, those who wrote in construction felt very positive resulting in a mean of 5. As previously discussed, it was decided to replace the "other" category with "construction" for Surveys II and IV. Allowing everyone to rate the necessity of construction information naturally led to a more realistic mean. Nonetheless, construction was highly rated, ranking in the top three for all surveys. The other two highly rated types of information were road and weather conditions. Specifically, nearly 75% of those who answered this question on Survey I indicated that road conditions and weather

conditions were very important. Similar results were seen in the responses to these categories on Survey II, with an even greater percentage indicating a high importance. Survey IV followed the same trend as respondents rated road and weather conditions as the most important types of information.

For Survey I, there were two types of information that respondents specified in the "other" category: construction (12 responses); and the amount of traffic on the road (3 responses). In each instance, the respondent indicated that this type of information (i.e., construction or amount of traffic) was very important for determining a change in travel plans. Surveys II and IV did not have an "other" category.

The chi-squared analysis showed differences between a respondent's residence, gender, age, and amount of vehicle miles traveled, and the level of importance they held for a particular information type on Survey I. Female respondents indicated a higher importance than males regarding both road and weather condition information. As a respondent's age increased, the level of importance with regard to weather information also increased. North Dakota residents indicated a slightly higher level of importance with regard to information related to the occurrence of hazard, than South Dakota residents did. As the age of respondents increased, so did the level of importance with regard to the occurrence of hazard information. Respondents age 45+ thought travel delay information was more important than respondents between 15 and 24 years of age did, who thought travel delay information was more important than respondents between 25 and 44 did. As the age of a respondent increased the level of importance with regard to the location of hazards, their average travel speed and information related to the availability of alternate routes also increased. Lastly, as the average number of miles per trip increases, so did the level of importance of alternate route information. Survey II chi-squared analysis did not show differences between responses to Question 3 with respect to the demographics.

Survey IV showed several differences between age, residency, type of vehicle and miles traveled. Those in the middle age brackets indicated that construction information and location of hazard/accident were more important than the older and younger age groups. North Dakota residents generally rated construction information as being more important, while those not from North or South Dakota rated the location and occurrence of a hazard/accident as more important. Commercial vehicle drivers rated availability of alternate routes, travel delays and occurrence of a hazard/accident as being more important. Those respondents driving automobiles generally rated average travel speed as being more important. Finally, as the miles traveled increased the importance of availability of information related to alternate routes, travel delays, location of hazard/accident and occurrence of hazard/accident also increases. Differences between importance of the occurrence of hazards/accidents and travel delays versus average household income were also found but conclusions could not be reached based on the responses. Other

differences found where conclusions could not be drawn include travel delays and residency, average travel speed and age.

Importance of Various Types of Information to Travelers (Survey V Only)

Survey V focused on asking questions related to the 511 system as opposed to previous surveys that asked about the #SAFE system. Therefore, the traveler information questions on Survey V differ from the previous surveys, making direct comparisons of the results more difficult. See Appendix A to compare the different travel information questions for each survey. Table 5, Figure 14 and Figure 15 display results from Survey V travel information questions.

One of the traveler information questions on Survey V ask 511 users to rate the importance of certain features on a travel information phone line. Numerical rankings were assigned to each response. For the five ordinal responses, the "Very Important" response was assigned a value of 5, the "Somewhat Important" response – 4 and the "Neutral" response – 3, the "Somewhat Unimportant" response – 2, and the "Very Unimportant" response –1. Users indicated the first priority was to include winter road conditions on highways with second priority on weather forecasts and third priority on construction information on highways. Respondents indicated they were least interested in having public transit information included on the phone line. Table 5 displays the results.

Table 5: Mean Values and Rankings for Various Information Types (Survey V)

	Mean	Ranking
Winter road conditions on highways	4.88	1
Weather forecasts	4.40	2
Construction information on highways	4.00	3
Regional road condition and construction reports	3.81	4
Access to travel info in neighboring states	3.60	5
Information about conditions on city roads	3.29	6
Accident Information	3.11	7
Hands-free voice activation	2.90	8
Opportunity to record comments and give feedback	2.51	9
Public Transit Information	2.25	10

Chi-square differences were found in Survey V. The most differences were found in gender and mobile phone users. With respect to gender, males considered construction information on highway to be less important than expected while the females thought that feature was more important than expected. The same results were true of access to travel information in neighboring states and information about conditions on city roads, males thought it less important and females more important than expected.

Mobile phone users indicated they thought public transit information and hands-free voice activation would be more important than was expected. Mobile phone users felt more neutral

about the opportunity to record comments and give feedback than expected while non mobile phone users felt it was less important than expected. A summary of the chi-square results can be reviewed in Appendix C.

For Survey V, 511 users were also asked how they would prefer to identify their location when calling a traveler information phone line where they needed their location to access pertinent information. Forty-five percent of respondents would prefer to identify their location 'by highway number and communities they are between'. Thirty six percent of respondents would prefer to identify location by using 'by highway number and mile marker'. 'By community' and 'by region' ranked third and fourth, respectively, with 'other' being the least preferred method. Figure 14 displays the results of this question.

Chi-Square differences were found depending on gender. A majority of participants stated they would prefer to identify their location 'by highway number and communities you are between'. Females answered more favorably to this response more than was expected. Conversely, males answered more favorably than expected to the responses: 'by highway number and mile marker' and 'by region'.
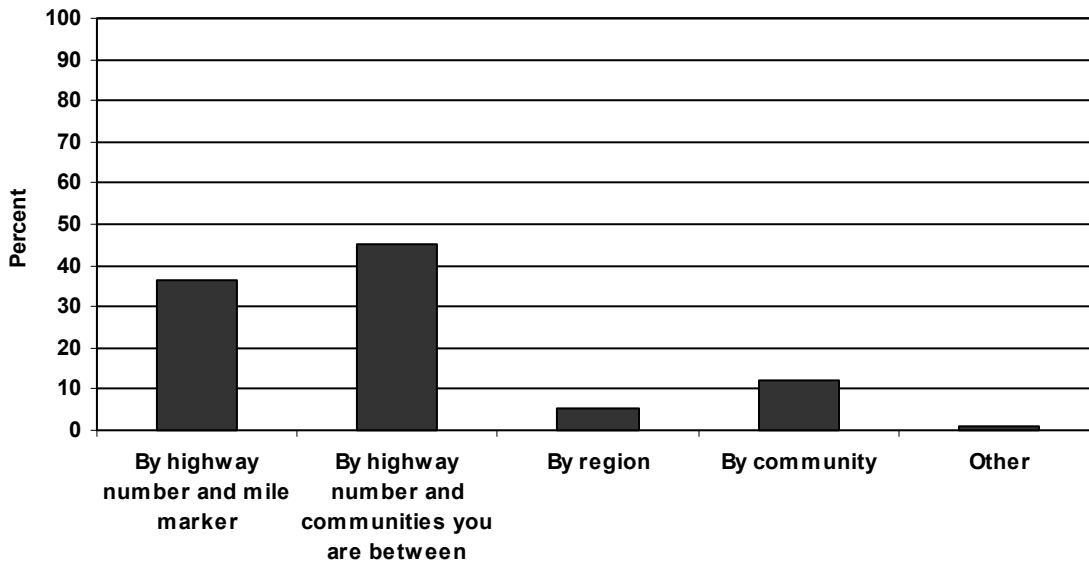
Figure 14: Ways to Identify your Current Location (Survey V)

The last traveler information question in Survey V asked how likely users were to 'stop at a nearby town', 'change travel times', 'take an alternate route', 'cancel a trip', 'continue on regardless', and/or 'seek an alternate mode of travel' when they heard of poor travel conditions. Most travelers will first 'change travel time', a tie for the second option would be 'take an alternate route' or 'cancel the trip', followed by 'stop at a nearby town' and 'continue on

regardless'. Travelers are least likely to 'seek an alternate mode of travel'. Figure 15 displays the mean values of traveler's responses to each option.
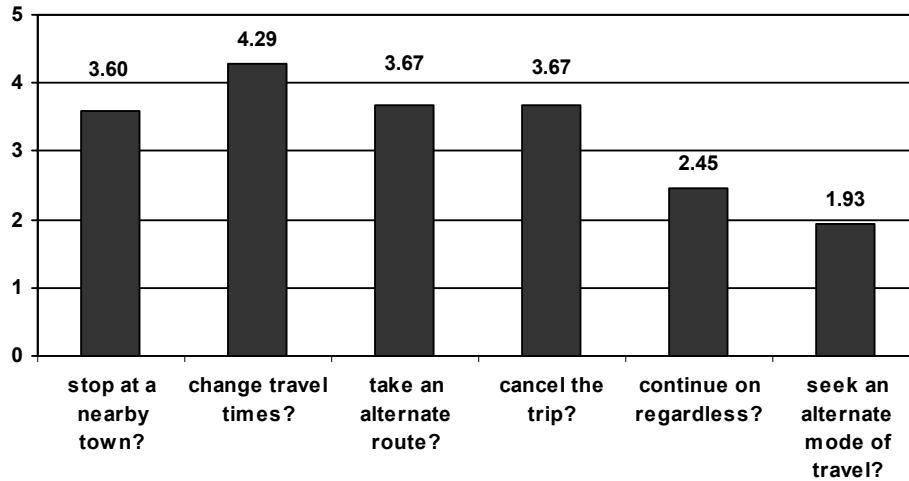
Figure 15: Mean Values of Various Options for Poor Weather Conditions (Survey V)

Respondents were also asked an open ended question to identify other features they would like to see on a travel information phone system. Responses included: time on the report, location of amenities, sunrise and sunset information, ability to skip around on phone line to access other information, talk to a live person, access more than one road per call, road conditions for certain vehicles, ability to call in and leave message on road information. One user stated road and weather condition information was the most important. Another user likes the system because the number is easy to remember. A list of these and other comments are provided in Appendix F.

Likelihood of #SAFE Use

A question in Survey I was used to determine during what types of road and weather conditions people were most likely to use the #SAFE system. This question was asked using the following scale: not likely, somewhat likely, and very likely. As discussed in the Introduction, this question was removed from Surveys II, IV and V due to the predictability of the responses.

Those who selected the "other" category for this question stated tornado (8 responses), ice (7 responses), and fog (4 responses) as alternate responses. Furthermore, the respondents who used the "other" category all stated that the condition they noted would make them very likely to use the #SAFE system (i.e., mean is equal to 3.0). The mean values calculated for the predetermined responses to this question are given in Table 6. Note that mean values are calculated using 3 as a maximum in this case.

Table 6: Mean Values for Various Weather Conditions

Type of Condition	Mean
Blizzard	2.63
Snowy	2.31
Nighttime	1.90
Windy	1.59
Daytime	1.55
Rainy	1.47
Cloudy	1.22
Clear	1.09

According to the results from Survey I, respondents were most likely to use the #SAFE system during a blizzard (75.9%).

Respondents also were very likely to use the #SAFE system during snowy conditions (49%). Due to the predictability of the responses for this question, it was removed from subsequent surveys.

The chi-squared analysis revealed differences in responses based on age, average number of vehicle miles traveled and number of cellular telephones. As age increased, respondents indicated that they were more likely to use the #SAFE system during cloudy and windy conditions. Secondly, respondents who indicated traveling longer distances said that they were more likely to use the #SAFE system during a blizzard or snowy conditions than those who indicated traveling shorter distances. Lastly, respondents who indicated that they did not own a cellular telephone, were less likely to use #SAFE during a blizzard.

Willingness to Pay

Question 15 on both Survey I and Survey II was asked to estimate how much respondents would be willing to pay per call for the #SAFE system. The system is currently free for most cellular telephone users. Thus, respondents were asked how much they would be willing to pay if, in the future, a per-call charge was instituted. This question was not asked as a part of Survey IV due to the predictability of results based on the information from Survey I and II.

The results of this question indicated that most of the respondents would not be willing to pay to use the #SAFE system and approximately a third would be willing to pay 10 to 25 cents. Less than 10% of the respondents indicated they would be willing to spend more than 25 cents to use the #SAFE system in the future. A table comparing the results from of Surveys I and II is shown in Table 7.

Table 7: Willingness to Pay

	Survey I % Response	Survey II % Response
No Charge	56.3	64.3
.10 to .25	33.8	28.1
.26 to .50	8.5	5.8
.51 to .75	0.7	1.2
More than .75	0.7	0.6

Based on the categorical mean of this question, the estimated cost respondents would be willing to pay, using a weighted average of each of the response categories, is approximately 10 cents for Survey I and approximately 8 cents for Survey II. According to the results of the chi-squared analysis, there were no appreciable differences found in the way that respondents answered based on demographic variables.

How Respondents Were Made Aware of #SAFE and 511

This question was asked to determine the primary ways which respondents have become aware of the #SAFE and, in Survey V, the 511 system. The changes that were made to this question in Surveys II and IV are outlined in the Introduction section of this report.

The results of this question on Survey I showed that 76.6% of the respondents were made aware of the #SAFE system by this survey. Theoretically, there should have been a 100% response to this choice, since every respondent who filled out the survey has now been made aware of #SAFE's existence. As discussed in the Introduction, this question was changed slightly. The change clarified the response of "This survey" to say, "Not aware of #SAFE before now." Responses to this particular category changed only slightly (down 6.6%) from Survey I to Survey II. Survey IV participants not asked about being aware of the system. Those who had used the system were asked to answer questions about it while those who had not were asked to skip those questions and proceed further along in the survey. The most common means by which respondents became aware of the system (excluding the survey) was by highway signs (21.6% - I, 21.7% - II, 65.6%-IV). A reason for the increased response to this question in Survey IV may be due to requiring participants answering this question to have used the #SAFE system within the last 12 months. While in previous surveys, participants were not required to have used the system within the last 12 months to respond to this question. Thirty-two percent of Survey V respondents were not aware of the 511 system. Thirty-three percent of respondents had been made aware of the 511 system through the television and 32.8% were made aware through the radio. Respondents were asked to "*check all that apply*" which is why the results may exceed 100%. Respondents to Survey I who selected something other than the predetermined categories, listed television as their alternate source of knowledge (3 responses). Survey II respondents listed television (4 responses), back of driver's license (1 response), work

(1 response), scanner (1 response), and never (1 response). Responses from Survey IV included: map, travel publication, truck stops and atlas. The results of this question are shown in Figure 16.
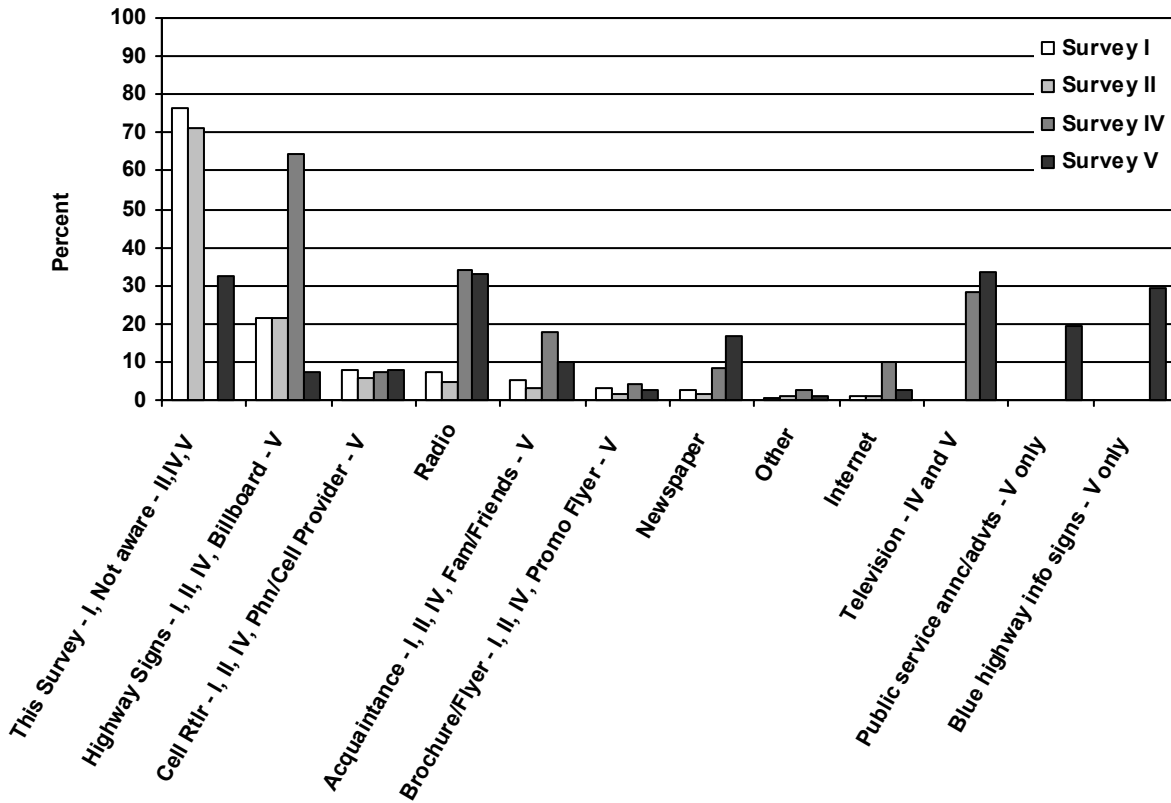
Figure 16: Respondents' Awareness of #SAFE and 511 (Survey V) by Various Means

The chi-squared analysis showed differences for Surveys I, IV and V but not Survey II. The results for Survey I showed differences in how people became aware of the #SAFE system based on their gender, age and number of miles traveled. In general, females indicated that they were made aware of #SAFE through this survey. Males indicated having been made aware of the #SAFE through an acquaintance. It was also revealed that as age and miles traveled increased, respondents indicated that they had been made aware of #SAFE by highway signs. However, for those who typically travel 300+ miles per trip, the frequency at which they were made aware of #SAFE through highway signs decreased.

The chi-squared results for Survey IV showed differences with respect to cellular ownership, when information is accessed, gender and age. Respondents owning a cellular phone were aware of the information services through television and highway signs. Those getting traveler information while on the road indicated being made aware by highway signs but not aware by television and radio. Respondents in the highest age group were made aware through the television. Finally, males indicated they were made aware by highway signs.

Chi-square differences were found in Survey V responses with respect to age. In the categories of becoming aware of 511 through the radio, television and the not aware response differences were found. Statistically speaking, the older population (45 and older) is more aware of 511 and uses the radio and TV more than was expected.

Other differences occur with respect to vehicle type. Respondents who drive automobiles indicate less awareness of 511 through the radio than was expected, while drivers of commercial vehicles indicate they became aware of 511 through the radio more frequently than was expected.

State of residence makes a difference in how people have become aware of 511. In general, South Dakota residents were more aware than North Dakota residents. In addition, people in South Dakota became aware of 511 through the television and blue highway info signs more than North Dakota residents.

Functional Measures – Surveys I, II, IV & V

The #SAFE system was evaluated with regard to ease of access and clarity of road condition and weather forecast information using Surveys I, II and IV. Specifically, Questions 8, 10 and 12 were designed to provide insight into these system attributes. Questions 5, 6 and 7 were asked to gather further information about travelers' use of the #SAFE system. Part of Question 5 was used as a qualifier, while Questions 6 and 7 asked more pointed questions regarding when respondents use #SAFE. Changes made to the surveys are discussed in the Introduction as well as in the applicable sections below.

Survey V differs from the previous surveys. This survey was designed to study the newly implemented 511 system. Questions 9, 10 and 11 were asked to find out how often they use the system, when they use the system, and the user's preference for traveler information systems. Questions 12 and 13 were asked to find out how well the 511 system works for people. When possible, comparisons of results from previous surveys and Survey V are made.

Frequency of #SAFE Use

Question 5 on Survey I had a twofold purpose. First, it was used to determine the frequency of #SAFE use and, second, as a qualifier to determine whether to answer Questions 6 through 14. The clarifier portion of this question was changed slightly on Survey II based on perceived misunderstandings. Due to the elimination of Question 4 from Survey I, this question was question number 4 on Survey II.

According to the results from Survey I, 85.6% of those who answered the question reportedly never use #SAFE. Similar results were obtained from Survey II, where 84.5% indicated never having used #SAFE. Results from Survey I showed that 15.1% of those who returned the survey did not answer the question at all, which made this the most frequently skipped question on the survey. This relatively high rate of non-response indicated that those who participated in the survey possibly misunderstood the question, even though the wording was not believed to be in any way ambiguous or misleading. The results from Survey II verified this since only 5 out of the 663 participants skipped the question.

Since the results from the Survey I indicated that many cellular telephone owners had not used #SAFE, a new, open-ended question (Question 5, Survey II) was created to attempt to determine possible reasons. Responses to this question were divided into one of six categories: awareness, use other resources, travel issues, forgot about system, don't need to use it, and miscellaneous comments. Responses to this question revealed that the primary reason cellular telephone users had not used #SAFE was because they were unaware (~75.4%). Approximately 10.6% indicated that they currently use other resources for road and weather information. Table 8 shows breakdown of each of the categories and Appendix E shows all of the written comments associated with Question 5 – Survey II.

Table 8: Distribution of Responses to Question 5, Survey II

Category	Percentage of Response
Unaware of #SAFE	75.4
Use other resources	10.6
Various travel issues	2.9
Forgot about #SAFE	1.7
Don't need #SAFE	1.5
Miscellaneous	7.9

Of the roughly 15 percent who indicated their frequency of use of the #SAFE system on Survey I, the mean use was 29.6 times per year. This mean was heavily influenced by two respondents who indicated that they use the system once per day and one respondent who indicated using the system twice per day. If those where respondents were excluded from the analysis, the mean would be reduced to 13.6 times per year. The median of the distribution is 5 times per year, indicating that half of those who responded to this part of the question use the system 5 times per year or less and the other half use it 5 times per year or more. Survey II had slightly different results. Of the 15.3% that indicated using #SAFE, the mean was 48.4 times per year; an increase of 18.8% from Survey I. Even more telling is the increase in the median from 5 to 24 times per year. Part of the reason for this is the increase in those who used the system more than 24 times per year. Figure 17 shows the percentage of #SAFE system users in each of the following frequency of use categories: 1 to 6, 7 to 12, 13 to 24 and more than 24 times per year.
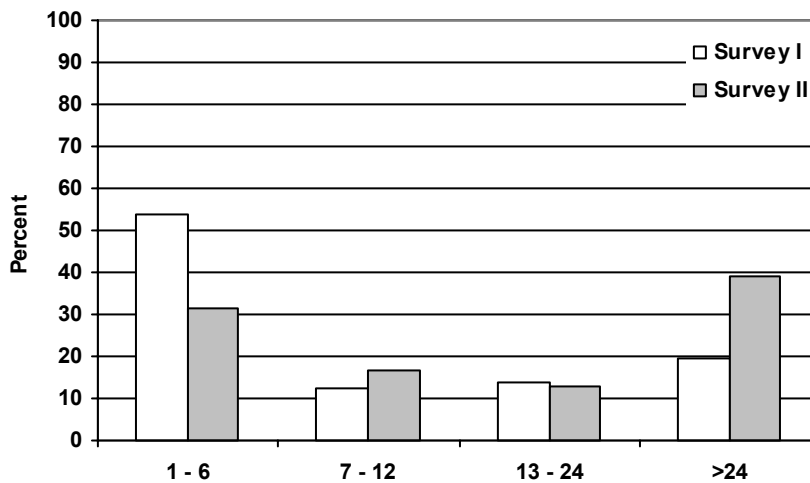
Figure 17: Frequency of #SAFE Use (times per year) by #SAFE Users

The functional measures section of Survey IV was modified to include (701) 777-6133 and www.safetravelusa.com. The question based on the frequency of use changed to elicit an ordinal

rating response rather than multiple choice. Choices included 'Always', 'Sometimes', 'Never' and 'Didn't know about it' as well as an intermediate response between 'Always'& 'Sometimes' and 'Sometimes'& 'Never'. The other questions within this section remained the same. Questions related to functionality were to be based on the services used most frequently. The mean response for #SAFE, (701) 777-6133 and www.safetravelusa.com were 0.81, 0.65 and 0.48 respectively. While none of these means are very high, #SAFE is the most often used source of information of the three. Figure 18 displays the results.
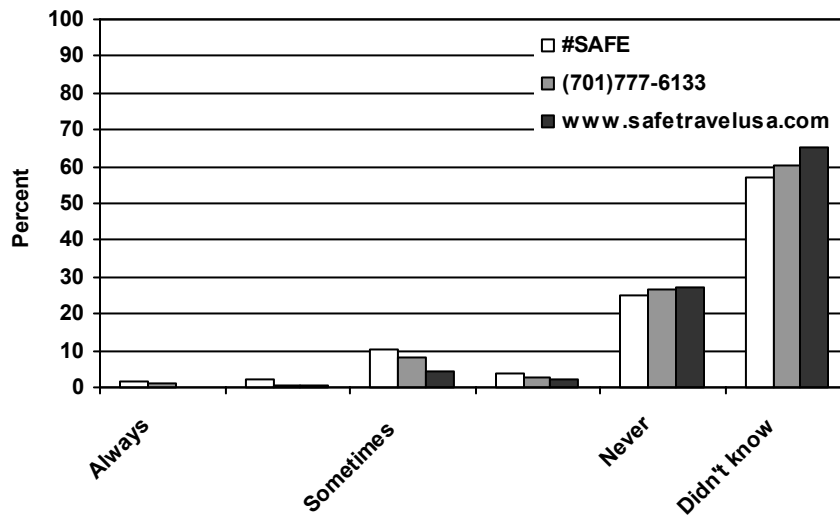
Figure 18: Frequency of Use of #SAFE, (701) 777-6133 & www.safetravelusa.com

The results of the chi-squared analysis for Survey IV indicated that as the number of miles a respondent indicated traveling per trip increased, the more they used #SAFE.

Once respondents answered the questions regarding their use of #SAFE and/or any other traveler information source, they were asked a qualifying question regarding whether they have used #SAFE, (701) 777-6133 or www.safetravelusa.com in the past 12 months. The qualifier for Survey I and II was stated as follows.

> **If you haven't used the #SAFE system during the past 12 months please skip to Question 15 on the back.**

The qualifiers for Survey IV were as follows.

> **If you have not used the services in Question #4 in the past 12 months skip to Question 12 on the back.**

> **Consider the service you indicated in Question #4 you use most frequently, and answer Questions 5-19.**

The qualifier for Survey V was stated as follows.

If you HAVE NOT USED the 511 travel information phone number, please skip to Question 14.

To more accurately assess the accuracy, timeliness and ease of use of the #SAFE system, only those survey respondents who reportedly used the system at least once in the past 12 months were asked to evaluate it.

511 Use and Information Availability (Survey V Only)

Survey V asked users their opinion regarding whether they had received enough information about the 511 system. Nearly 57% of users indicated that they had not received enough information.

Survey V asked users how often they have used 511 since January 2003 (Survey V was mailed out April 2003). Those who have not used 511 were asked to check that response and proceed to the next question. Users had the option of choosing '1-3 times', '4-6 times', '7-10 times' and 'more than 10 times'. Twenty percent of the survey participants indicated that they had used 511 since January 2003. The majority of the survey participants indicated that they had used 511 only 1 to 3 times since January. Figure 19 shows these results.
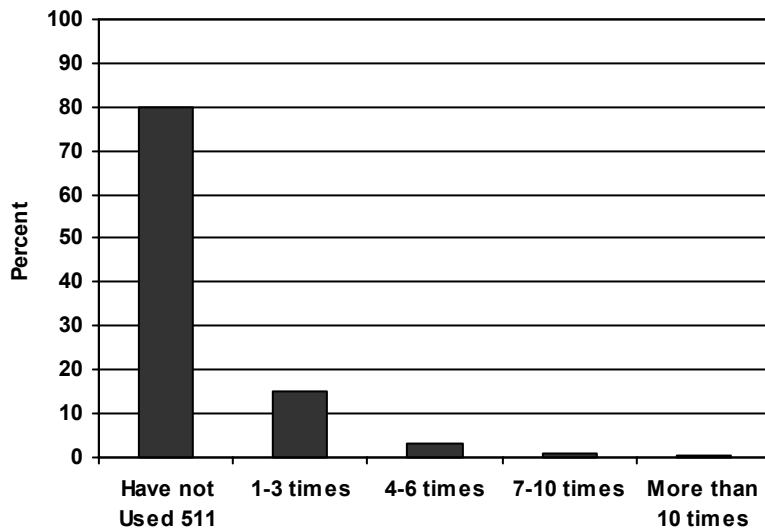
Figure 19: Number of Times Used 511 Since January 2003 (Survey V)

Use of #SAFE and 511: Before or During a Trip

Question 6 (Survey I, II and IV) and Question 10 (Survey V) was asked to identify whether #SAFE and 511 users typically dial into #SAFE or 511 before or after they leave on a trip, both or neither. Responses to Question 6 (Survey I, II and IV) showed that most users access #SAFE while on the road, although nearly as many respondents indicated that they use the system both before they begin their trip and while on the road. The minority indicated that they use #SAFE neither before nor during a trip. As discussed in the Introduction, the option of "neither" was removed from Survey II. Results from Survey II indicate that those who may have indicated using #SAFE 'neither' (before or during their trip), would most likely respond by saying they use it while on the road, as seen by the increase in responses to 'while on the road'. Forty-nine percent of Survey IV respondents accessed traveler information both before leaving and while en-route. Forty-nine percent of Survey V respondents indicated using the 511 system before leaving home with 28% stating they access 511 both before and during. Like Surveys II and IV, survey V participants did not have the option of choosing a 'Neither' response. Lastly, 24% state they use 511 only when en-route. Figure 20 shows the categorical responses and their associated frequencies to these questions.
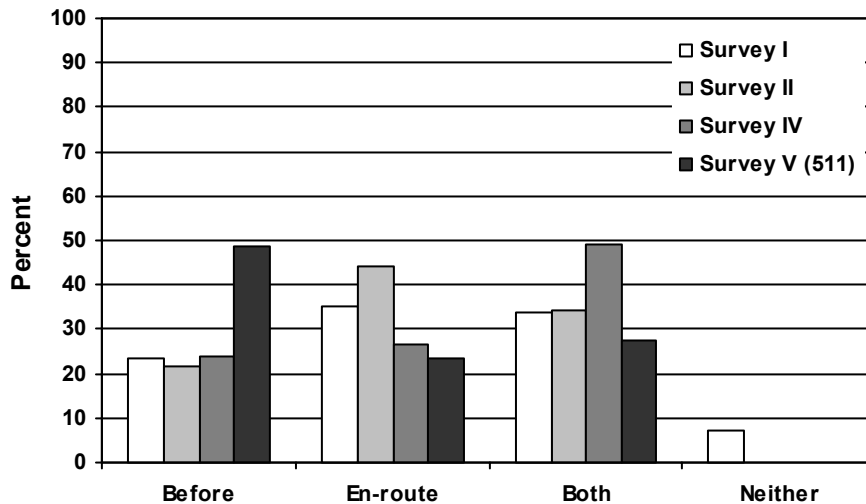
Figure 20: Use of #SAFE or 511 (Survey V) Before or During a Trip

Seasonal Use of #SAFE

Question 7 was asked to identify during which season or seasons the #SAFE system is used most often. Responses to Question 7 indicate that most #SAFE users indicated using the system during the winter. Greater than 96% of those who answered this question indicated that winter was at least one of the seasons in which they use #SAFE (98.4% - I, 96.8 – II). Over 70% indicated that they use the system only during the winter. This question was removed from Survey IV based on the predictability of the responses. Figure 21 shows #SAFE use by season.
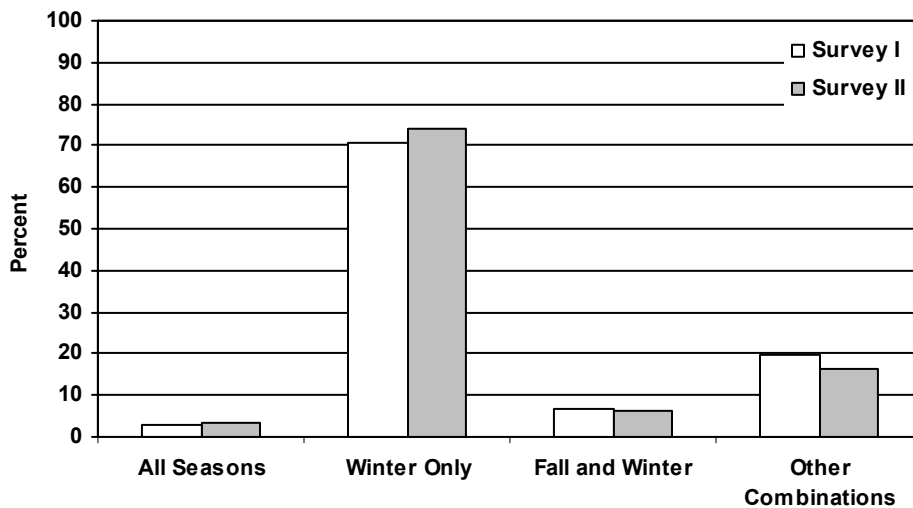
Figure 21: #SAFE Use by Season

#SAFE Availability

Question 8 (Survey I & II) and Question 7 (Survey IV) were designed to collect qualitative data regarding #SAFE system availability. This is an important question because system use is often related to its availability. Responses to this question included both an ordinal scale and a "don't recall" option. The "don't recall" response was not assigned a numerical value because it is not part of the three or five rated responses. Mean values are based on the numerical values, as described previously. The means for Surveys I, II and IV were 3.93, 4.16 and 3.89 respectively. Recall that the mean value for Survey I is a converted value. The original mean was 2.47 (out of 3). For Surveys I, II and IV, 10.5%, 4.4% and 8.3% could not recall the availability of the system, respectively. The chi-squared analysis indicated that there were no differences in the responses to this question with regard to the various demographic questions.

#SAFE Timeliness

Question 9 (Survey I & II) was asked to assess #SAFE users' impressions of the timeliness of the road condition reports and weather forecast information. Survey IV did not directly ask respondents the overall timeliness of the information system that was chosen in Question 4. This information is important because the likelihood of a particular #SAFE caller reusing the system after receiving less-than timely information is assumed to be reduced dramatically. A previous estimate is that one false message does more harm to the trustworthiness of the information provided than the good done by 10 accurate messages.[1] The means for Surveys I and II were 3.63 and 4.00, respectively. The original mean for Survey I was 2.31 out of 3. For Surveys I and

---

[1] Kantowitz, Barry H.; Hanowski, Richard J.; and Kantowitz, Susan C. "Driver Acceptance of Unreliable Traffic Information in Familiar and Unfamiliar Settings." *Human Factors*, Vol. 39, June 1997, pp. 164-76.

II, 10.6% and 4.4% could not recall the timeliness of the system, respectively. The chi-squared analysis indicated that there were no differences in the responses to this question with respect to the various demographic questions.

#SAFE Understandability

This question was asked to assess #SAFE users' impressions of the overall understandability of the road condition reports and weather forecast information. Understandability is important because messages delivered to the system user may contain information that will potentially deter travel during inclement conditions. The means for Surveys I, II and IV were 4.33, 4.30 and 4.26 respectively. The original mean from Survey I was 2.66 out of 3. For Surveys I, II and IV, 5.2%, 3.3% and 3.7% could not recall the understandability of the system, respectively. The chi-squared analysis indicated that there were no differences in the responses to this question with respect to the various demographic questions.

#SAFE Accuracy

This question was asked to assess #SAFE users' impression of the accuracy of the road condition reports and weather forecasts provided by the #SAFE system. Keep in mind that results from this question cannot be directly linked to the actual accuracy of the information because it only takes into account each user's _impression_ of its accuracy. To determine true accuracy, comparisons between real-time road and weather conditions and #SAFE reported conditions would have to be made. This fact, however, does not diminish the importance of this question in that the user must trust the information being distributed by the system to ensure #SAFE's future use. Like timeliness, accuracy is important to attracting and maintaining repeat system users.

The means for Surveys I, II and IV were 3.62, 4.03 and 3.91 respectively. The original mean for Survey I was 2.31 out of 3. For Surveys I and II, 5.3%, 3.3% and 4.7% could not recall the accuracy of the system, respectively. The chi-squared analysis indicated that there were no differences in the responses to this question with respect to the various demographic questions.

#SAFE Ease-of-Use

This question was asked to assess how easy it is to follow the questions/options for each of the #SAFE menus. The #SAFE system currently asks four questions to determine the location and direction of the traveler. The first question is related to the highway the traveler is currently using, the second question is related to the state in which the traveler is currently located, the third question is related to the direction of the traveler's vehicle, and the fourth question is related to the mile marker or exit nearest the traveler. This survey question is important because it attempts to determine deficiencies in the #SAFE system's ability to gather the necessary location/direction information. Confusion regarding the #SAFE menu may deter many from using the #SAFE system again or cause them to make an incorrect entry which, in turn, may

result in a false road condition and forecast report. This question was omitted from Survey IV. Table 9 shows the results from this question. Mean values reported for Survey I are adjusted. The original means for Questions 12 *a)*, *b)*, *c)* and *d)* are 2.52, 2.69, 2.55 and 2.35, respectively.

Table 9: Mean Values and Frequency of "Don't Know" Responses for Question 12

	Survey I		*Survey II*	
Question	**Mean**	**Don't Know**	**Mean**	**Don't Know**
Question regarding what highway you are on?	4.04	8.9%	4.44	0.0%
Question regarding what state you are traveling in?	4.38	6.7%	4.73	0.0%
Question regarding your direction of travel?	4.09	9.8%	4.44	0.0%
Question regarding what mile marker/exit you are near?	3.71	14.2%	4.07	0.0%

Potential Affect on Travel Plans

This question was asked to assess #SAFE users' impressions of how likely it was that the road condition reports and weather forecasts provided by the #SAFE system would affect their travel plans. This question cannot be tied directly to travel behavior, but can provide an understanding of the likelihood of such actions. Therefore, to accurately measure the affect that traveler information has on individual travel decisions, a separate study would need to be conducted.

Responses to this question resulted in means of 3.72, 4.27 and 4.17 for Surveys I, II and IV, respectively. The original mean for this question on Survey I was 2.36 out of 3. These numerical averages indicate that travelers who use #SAFE as a means of determining road condition and weather forecast information may in fact be likely to alter their travel behavior as a result of the information received.

It should be noted, however, that when speculative or hypothetical questions such as this one are asked, responses tend to be biased positively or favorably with regard to the topic under study. In survey research, this phenomenon is typically referred to as a 'socially desirable response'. To determine real travel behavior changes, a question regarding the actual frequency or extent of travel changes in a given time period would need to be asked. Furthermore, due to the number of sources for road and weather information, determining the unique or combined effect #SAFE information on a particular traveler's plans is complicated. The chi-squared analysis showed that there were no differences in the responses with respect to the various demographic questions.

Overall Usefulness of #SAFE

This question was asked to determine the overall impression of the usefulness of #SAFE. Results from this question rated the usefulness of #SAFE road condition reports and weather

forecasts positively. The means of this question for Surveys I, II and IV are 3.72, 4.27 and 4.48, respectively. The original mean for this question on Survey I was 2.69 out of 3. Results from this question cannot be used to predict use of the #SAFE system, in that the question is designed solely to provide an estimate of the user's assessment of #SAFE usefulness. The chi-squared analysis showed that there were no differences in the responses with respect to the various demographic questions.

Travel Information Phone Number Preference (Survey V Only)

Question 11, Survey V asked participants to choose one of the travel information phone numbers that they prefer. Almost 90% of participants choose the 511 system. Respondents to this question state that the number is easy to remember and is kept current. Figure 22 displays the results.
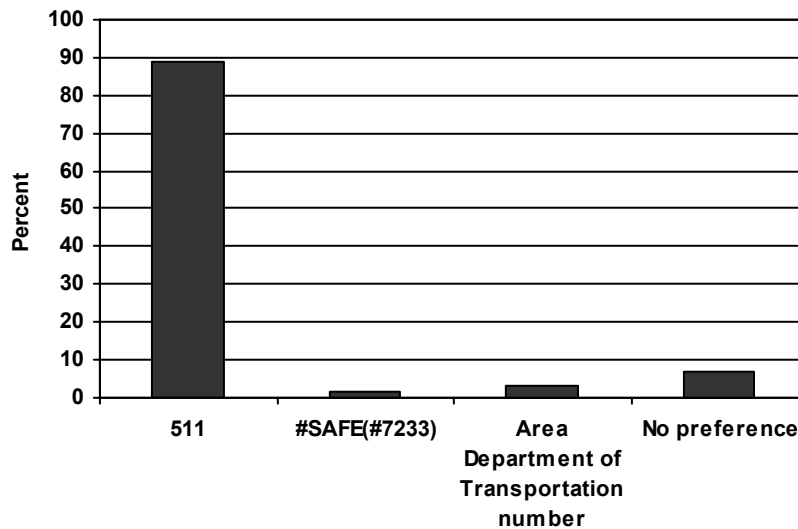
Figure 22: Travel Information Phone Number Preference

511 Satisfaction (Survey V Only)

Respondents were asked how satisfied they were with different 511 capabilities. These included: 'quality of the service', 'usefulness of the service', 'accuracy of the reported road conditions', 'accuracy of the weather forecasts', 'ease of accessing the information you want', 'ease of understanding the information you want' and 'availability of the system'. Survey participants who answered this question had to have used the 511 system at least once since January 2003. Respondents of the system were given the choice of five ordinal responses for each 511 capability. For the five ordinal responses, the "Very Satisfied" response was assigned a value of 5, the "Somewhat Satisfied" response – 4 and the "Neutral" response – 3, the "Somewhat Unsatisfied" response – 2, and the "Very Unsatisfied" response –1. Mean values for

responses of each capability are presented in Table 10. Users rated 'the usefulness of the service' with the highest value and rated 'the accuracy of the weather forecasts' the lowest value, where that value is just below the intermediate response between 'very satisfied' and 'neutral'.

Table 10: Mean Values of Satisfaction of 511 Capabilities

	Mean
The usefulness of the service	4.36
The quality of the service	4.28
The ease of understanding the information	4.24
The availability of the system (system is working/no busy signals)	4.17
The ease of accessing the information you want	4.08
The accuracy of the reported road conditions	4.05
The accuracy of the weather forecasts	3.90

Overall Rating of 511 System (Survey V Only)

This question was asked to gauge people's overall impression of the 511 system. The mean value for this question was 4.1 meaning most people thought the system was between 'Excellent' and above 'Average'. Of the 640 people who responded to this survey, 133 (or 20%) had used the 511 system and rated the system. Figure 23 displays the results from this question.
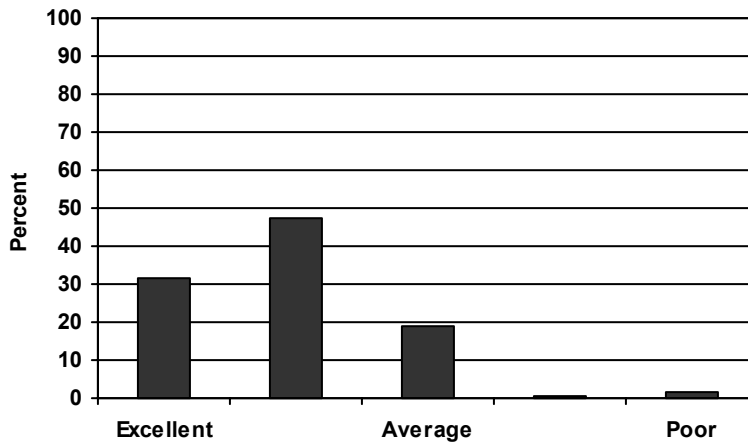
Figure 23: Overall Rating of 511 System in North and South Dakota

Functional Measures – Maintenance Survey

The web-based ATWIS weather forecasting system was evaluated with regard to ease and the overall effectiveness of road condition and weather forecast information. Specifically, Questions 4 through 10 on the Maintenance Survey were designed to provide insight into these system attributes. Questions 1 and 3 were asked to gather information about maintenance personnel's use of ATWIS. Part of Question 1 was used as a qualifier, while Question 3 asked a more pointed question regarding when respondents use ATWIS.

Frequency of ATWIS Use

This question had a twofold purpose. First, it was used to determine the frequency of ATWIS use and, second, as a qualifier to determine whether to answer Questions 4 through 10. Like Surveys I and II, all results were changed into an equivalent of times used per year. Results from this question indicated that 93.8% of maintenance personnel who answered the question use ATWIS at various times during the year. Only 5.9% of those surveyed did not answer this question, making it the most frequently answered question on the survey, other than the demographic questions

The mean use based on responses to this question was 319.7 times per year. The mean was influenced somewhat by two respondents, who indicated they don't use the system at all, and, by three respondents who use the system only 5, 12, and 30 times per year. If those respondents were excluded from the analysis, the mean would increase to 391.7 times per year. The median of the distribution is 286.5 times per year, indicating that about half of those surveyed use ATWIS between 5 and 6 times per week, while the other half uses it less than 5 or 6 times per week.

Reasons for not using ATWIS

Question 2 asked those respondents who never or rarely use ATWIS to state possible reasons why they don't use the system. Only six respondents answered this question, with four of the answers coming from the respondents who used ATWIS 12 times per year or less. Again, this shows a high rate of use among maintenance personnel. Responses to Question 2 were as follows.

- Too much information
- Didn't use it efficiently, didn't take time to use, no access to Internet
- I am new to this position and was unaware of this service
- Depends on winter events
- Comment on #1: during spring load restriction season
- Use for snow storm information

Once respondents answered Question 2, they were asked a qualifying question regarding whether they have used ATWIS in the past 12 months. The qualifier was stated as follows.

If you have not used the ATWIS system during the past 12 months please skip to Question 12 on the back

To accurately assess the accuracy, timeliness, and ease of use of the ATWIS system, only those survey respondents who reportedly used the system during the past 12 months were asked to evaluate the ATWIS system.

Seasonal Use of ATWIS

Question 3 asked users during which seasons they use ATWIS. Respondents were able to check all answers that applied to them. Responses to Question 3 show that 96.8% of users indicated use of the ATWIS system in the winter. Seasonal use was the next highest in spring at 51.6%, followed by fall at 41.9%. Only 22.6% of users used the system in the summer. Over half of those who indicated using ATWIS in the summer were also those who indicated using ATWIS in all seasons. Of the 31 respondents who answered this question, 35.5% used the system <u>only</u> in the winter. Only 3.2% of respondents used the system for the spring only, while no respondents use the system for only the fall and summer months. This data shows that maintenance supervisors and engineers use ATWIS more prevalently during the winter and spring months when the weather is less predictable.

ATWIS Accuracy

This question was asked to assess ATWIS users' impressions of the accuracy of the road condition reports and weather forecasts provided by the ATWIS system. Responses to this question included both an ordinal scale and a "don't recall" option. The "don't recall" response was not assigned a numerical value because it is not part of the five rated responses. Mean values are based on numerical values, with a 5 value given to the "Very Accurate" response and a 1 value given to the "Very Inaccurate" response.

Twenty-nine people responded to this question. Eight (27.6%) indicated they thought the system was very accurate, while 19 (65.5%) thought the system was somewhat accurate. Two people (6.9%) were neutral as to whether ATWIS provided accurate information. Nobody thought the system was somewhat inaccurate or very inaccurate. The mean for this question was determined to be 4.21, which shows that most users think the system is between somewhat and very accurate.

ATWIS Understandability

This question was asked to assess ATWIS users' impressions of the overall understandability of the road condition reports and weather forecast information. Results from this question indicated that out of the 30 people who answered this question, 17 (56.7%) thought the system was very easy to use. Eleven (36.7%) thought the system was somewhat and easy to use, and 2 (6.7%) were neutral on the understandability of the system. Nobody thought the system was somewhat difficult or very difficult to use. The mean value was determined to be

4.50. This was based on the numerical values as described previously. The high mean value suggests that users are satisfied with the understandability of ATWIS.

ATWIS Reliability

Question 6 asked users to rate the reliability of ATWIS. This question is very important as reliability has a big effect on both present and future system use. Again, the results from this question cannot be directly linked to the actual reliability of the information because it only takes into account each user's impression of the system reliability. Of the thirty people who answered this question, 6 (20.0%) thought that the information was very reliable. Twenty-two (73.33%) thought the system was somewhat reliable, 1 (3.33%) was neutral, and 1 (3.33%) thought the system was somewhat unreliable. Nobody thought the system was very unreliable. The mean for this question was 4.10 meaning that most system users thought the ATWIS system was relatively reliable.

ATWIS Timeliness

Question 7 was asked to assess ATWIS users' impressions of the timeliness of the road condition reports and weather forecast information. Results from this question indicated that only 79.4% of people surveyed answered this question. This is a non-response rate of 20.6%, which made this the most frequently skipped question on the survey. This may be due to the participants' misunderstanding of the difference between timeliness, reliability, and accuracy among other things. Of the 27 people who did answer this question, 9 (33.3%) people thought the information was very timely, while 15 (55.6%) people thought the information was somewhat timely. Two (7.4%) were neutral of the question of timeliness, while 1 (3.7%) person thought the information was somewhat untimely. Nobody thought the information was very untimely. The mean for this question was 4.19 indicating that users are satisfied with the timeliness of the system.

Usefulness of ATWIS

Question 8 was asked to determine the usefulness of the information retrieved from the ATWIS system. Results from this question rated the usefulness of the information from ATWIS positively. Of the 29 responses to this question, 11 (37.9%) said that ATWIS was very useful, and 16 (55.2%) said that the information was somewhat useful. One person (3.45%) was neutral, and 1 (3.45%) said the information was somewhat useless. The mean calculated from these 29 responses was 4.28. Results from Question 8 cannot be used to predict use of ATWIS system, in that the question is designed solely to provide an estimate of the user's assessment of ATWIS usefulness.

Frequency of Alternate Sources

This question was asked to assess how often users verify the information they get from ATWIS. This question is important, because it may be an indirect measure of how confident

users are in the data acquired from ATWIS. It may also indicate that users are going to other sources to retrieve other necessary data. To investigate possible reasons, a more pointed question could be asked to verify this in future surveys.

The results of question 9 indicated that out of the 30 responses to this question, 3 (10.0%) verify the information every time, 16 (53.3%) verify the information most of the time, and 11 (36.7%) verify the information sometimes. Nobody rarely or never verified information from the ATWIS system. The mean for this question was determined to be 3.73.

Potential Affect on Plans and Assignments

This question was asked to assess ATWIS users' impressions of how likely it was that the road condition reports and weather forecasts provided by the ATWIS system would affect plans or assignment of personnel. This question cannot be tied directly to planning and assignment behavior, but can provide an understanding of the likelihood of such actions. Therefore, to accurately measure the affect that ATWIS information has on individual planning and assignment decisions, a separate study would need to be conducted.

Responses to Question 10 showed that ATWIS never affects plans or assignments only 3.3% of the time. It rarely affects plans 13.3% of the time, sometimes affects plans 66.7% of the time. Only 16.67% of respondents said that ATWIS affected their plans most of the time, while nobody said it affects their plans every time. Responses to this question resulted in a mean of 2.97. This numerical average indicates that supervisors who use ATWIS as a means of determining road condition and weather forecast information may sometimes alter planning or personnel assignment because of information received.

Changes

The final question asked what changes should be made to ATWIS. The responses to this question are listed below.

- More updates, Doppler radar broken into smaller pieces
- More frequent updates
- Make information more reliable
- Include an extended (one-day) forecast, update one more time per day
- Update at least every 12 hours
- I like the system. Would like better handle on how salt or chemical effect the freeze point of chemicals on the roadway.
- I would like to have another site in the SW corner of North Dakota
- Up to date radar with the highways instead of county lines
- Wind speed not very reliable
- I need to use it more to get comfortable with it

Comments

Surveys I, II, IV and V allowed respondents to provide general comments or suggestions. Many of the comments on Survey I (approximately 75%) were related to the respondents awareness of #SAFE, saying that they would like to know more about the service. Since many of the comments were related to awareness, Question 5 on Survey II was added. This question asked respondents the main reason that they never or rarely used #SAFE. Approximately 40% of the comments on Survey II were related specifically to awareness. The decrease in comments referring to awareness is most likely attributed to the fact that participants were given the opportunity to supply comments related to awareness. Survey IV participants also commented on the need for more awareness of the system. Others commented on the need to keep the information current. Survey V participants expressed a desire for increased awareness of the 511 system. Those who had used the 511 system commented that they were satisfied with its accuracy. The comments respondents provided gave insight into ways that they would like to see the system changed to enhance the performance. Users request that more specific information be included about the road and weather conditions. They would like to know the length of the bad road conditions. They'd also like to know exactly what types of weather problems they will encounter when driving, i.e. snow, ice, sleet, rain, wind. Users also would like to be able to make one phone call to access road and weather information for multiple roadways. One user said they had to redial to access information about another roadway. Users like the option to talk to a real person when calling. They feel they can get answers to specific questions that may not be covered in the recordings. They would also like to be able to record information on the phone line so that the system may be updated to accurately reflect the conditions at a given time. Appendix D provides a list of all the written comments made by respondents.

Summary

The specific objectives of all surveys were to assess system accuracy, system functionality and system effectiveness, as well as to determine users' willingness to pay (Surveys I and II). In addition, specific questions regarding survey participants level of awareness were asked. Maintenance officials were surveyed to evaluate the ATWIS system (Survey III). Similar to Surveys I and II, Survey III evaluated ATWIS system accuracy, functionality and effectiveness. Survey IV focused on #SAFE as well as (701) 777-6311 and www.safetravelusa.com. Survey V was used to evaluate the newly developed 511 system. Results from each of the surveys provided insight into respondents' perceptions of the system effectiveness.

The survey sent to maintenance officials (Survey III) throughout the bi-state region showed that the ATWIS system is easy to understand and provides useful data for their everyday responsibilities. Results from the means of this survey showed that respondents ranked accuracy higher than timeliness, and, timeliness higher than reliability. When asked how the information effects their everyday assignments, the mean showed that maintenance officials were only somewhat likely to change their plans based on the information received from the ATWIS system.

Surveys I, II, IV and V focused on the general public and their perceptions. Accuracy of the information conveyed via #SAFE and 511 is extremely important to maintaining repeated users. Questions designed to identify overall accuracy of the #SAFE system focused on usefulness, timeliness and accuracy. Questions for the 511 system asked about accuracy only. Mean values for the timeliness and accuracy of #SAFE were very similar showing a consensus regarding #SAFE road condition reports and weather forecast information.

System functionality also is important because a dysfunctional system will not allow participants to understand or receive the proper information. Questions were designed to assess #SAFE and 511 system availability, understandability and ease-of-use. #SAFE and 511 users were quite positive about these system features. Overall, the means for these questions suggests that #SAFE and 511 does in fact provide a functional service to the user.

The system also must have the potential to affect driver behavior or travel plans, as opposed to simply providing neutral information. Two questions were asked to assess #SAFE effectiveness. One related to potential of #SAFE to effect travel behavior and the other to assess the overall usefulness of #SAFE. The 511 survey only asked about the overall usefulness. In general, the means of these questions suggests that some people find the information useful, but not sufficient to alter their travel plans. Table 11 displays a summary of the mean values (where applicable) for certain aspects of the #SAFE and 511 systems.

Table 11: Summary of #SAFE and 511 Accuracy, Functionality and Usefulness

	Survey I	Survey II	Survey IV	Survey V
Accuracy - road and weather	3.62	4.03	3.91	3.98*
Timeliness	3.63	4.00	NA	NA
Availability	3.93	4.16	3.89	4.17
Understandability	4.33	4.30	4.26	4.24
Ease of accessing information	4.06*	4.42*	NA	4.08
Useful	3.72	4.27	4.48	4.36

* indicates an average of the given responses

To gather information about a user-fee supported system, Survey I and II participants were asked to estimate how much they would be willing to pay for the #SAFE service. Analyzing the responses from this question resulted in an average price of $.08 to $.10 per call.

Survey participants also were asked how they had become aware of #SAFE and 511. Most of the respondents to the #SAFE survey learned of the service through highway signs while 511 participants learned of it through television.

Results from these surveys found that public awareness about #SAFE was fairly low. The 511 survey participants were much more aware of the system than the #SAFE participants. For Survey V (511 system survey), 67.7% of respondents were aware of the system while for Surveys I, II and IV; 23%, 29% and 35%, respectively, were aware of the #SAFE system. Although only 20% of respondents indicated they had used the 511 system, of those, 90% indicated they prefer using it. Comments from users state that they like the 511 system because the number is easier to remember and the conditions are kept more current.

The respondents to Survey V rated the features they think most important to be included on the system to be: 'winter road conditions', 'weather forecasts' and 'construction information'. While they think the least important feature to be included on the system would be 'public transit information.'

The chi-square analysis revealed that not only are the residents of South Dakota more aware of the 511 system than is statistically expected, but that they were made more aware of the system through the TV and blue highway information signs.

In general, the 511 system has had greater awareness and use than the previously used #SAFE system. As Table 11 illustrates, overall, the means between the #SAFE and 511 system attributes are very similar. But, as evidenced by 90% of the users giving the 511 system an overall positive rating, the 511 system is perceived to be working well by the users. Having only been deployed for four months when the surveys were distributed, it is evident that users are responding positively to the system and have provided valuable feedback to increase the opportunity for more users of the system.

Appendix A – Survey Instruments

Survey I – July 2000

1 HOW OFTEN do you travel on U.S. or interstate highways in North or South Dakota?
(Fill in only one blank)
_____ times per day
_____ times per week
_____ times per month
_____ times per year

2 When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report? *(Check all that apply)*

❑ Television   ❑ Internet
❑ Radio   ❑ Observations of Existing Conditions
❑ Telephone   ❑ Notices at Truck Stops, Convenience Stores, Rest Areas
❑ Highway Advisory Radio   ❑ Communication with Other Drivers
❑ #SAFE   ❑ Other *(please specify)* _____

3 How IMPORTANT is the following traveler information for determining a change in your travel plans?
(Check only one box for each item)

	Not Very Important	Somewhat Important	Very Important
a) Road conditions	❑	❑	❑
b) Weather conditions	❑	❑	❑
c) Occurrence of hazard/accident	❑	❑	❑
d) Location of hazard/accident	❑	❑	❑
e) Travel delays	❑	❑	❑
f) Average travel speed	❑	❑	❑
g) Availability of alternate routes	❑	❑	❑
h) Other (please specify) _____	❑	❑	❑

4 HOW LIKELY are you to use the #SAFE system to determine road conditions or hear a weather forecast report, during the following conditions? *(Check one box per item)*

	Not Very Likely	Somewhat Likely	Very Likely
a) Clear	❑	❑	❑
b) Cloudy	❑	❑	❑
c) Rainy	❑	❑	❑
d) Snowy	❑	❑	❑
e) Windy	❑	❑	❑
f) Blizzard	❑	❑	❑
g) Daytime	❑	❑	❑
h) Nighttime	❑	❑	❑
i) Other (please specify) _____	❑	❑	❑

5 HOW OFTEN do you NORMALLY use the #SAFE number to determine road conditions or to hear a weather forecast report? *(Fill in only one blank)*

❑ Never use #SAFE
_____ times per day
_____ times per week   ***If you haven't used the #SAFE system during the past
_____ times per month   12 months please skip to Question 15 on the back.***
_____ times per year

6 Do you TYPICALLY use #SAFE to access road conditions or hear a weather forecast report...
❑ Before you start a trip?
❑ While on the road?
❑ Both
❑ Neither

7 During which SEASON(S) do you MOSTLY use the #SAFE system? *(Check all that apply)*
❑ Spring
❑ Summer
❑ Fall
❑ Winter

8 When trying to access the #SAFE system, HOW AVAILABLE is it?
❑ Very Available
❑ Somewhat Available
❑ Not Very Available
❑ Don't Recall

9 HOW TIMELY are #SAFE road condition reports and weather forecasts?
❑ Very Timely
❑ Somewhat Timely
❑ Not Very Timely
❑ Don't Recall

10 HOW EASY are #SAFE road condition reports and weather forecasts to understand?
❑ Very Easy
❑ Somewhat Easy
❑ Not Very Easy
❑ Don't Recall

11 HOW ACCURATE are #SAFE road condition reports and weather forecasts?
❑ Very Accurate
❑ Somewhat Accurate
❑ Not Very Accurate
❑ Don't Recall

12 When using the #SAFE menus, HOW EASY are the following menu questions/options to follow?

	Not Very Easy	Somewhat Easy	Very Easy	Don't Recall
a) Question regarding what highway you are on?	❑	❑	❑	❑
b) Question regarding what State you are traveling in?	❑	❑	❑	❑
c) Question regarding your direction of travel?	❑	❑	❑	❑
d) Question regarding what mile marker/exit you are near?	❑	❑	❑	❑

Continue on other side ☞

---

13 HOW LIKELY are #SAFE road condition reports and weather forecasts to affect your travel plans?
- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Not Very Likely

14 Overall, HOW USEFUL are #SAFE road condition reports and weather forecasts?
- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Not Very Useful

15 For most, #SAFE is currently provided free of charge. If, in the future, there was a cost associated with the #SAFE system, HOW MUCH PER CALL would you be willing to pay to use #SAFE? *(Check only one box)*
- ❑ No charge
- ❑ 10 to 25¢
- ❑ 26 to 50¢
- ❑ 51 to 75¢
- ❑ more than 75¢

16 How have you been made aware of the #SAFE system? *(Check all that apply)*
- ❑ Radio
- ❑ Cellular Retailer
- ❑ Acquaintance
- ❑ Internet
- ❑ Newspaper
- ❑ Highway Signs
- ❑ Brochure/Flyer
- ❑ This Survey
- ❑ Other (please specify) _____

17 The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one box per question)*

a) What is your current state of residence?	❑ North Dakota ❑ South Dakota
b) What is your gender?	❑ Male ❑ Female
c) What is your age?	❑ 15 – 24 Years ❑ 25 – 44 ❑ 45 – 64 ❑ 65 +
d) What type of vehicle do you NORMALLY drive on U.S. or Interstate highways in North or South Dakota?	❑ Automobile ❑ Commercial (Truck, Bus) ❑ Motorcycle ❑ RV ❑ Ride as Passenger Only
e) What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?	❑ Work ❑ School ❑ Shopping ❑ Medical ❑ Recreation ❑ Visit Family or Friends ❑ Other _____
f) What is the AVERAGE number of miles traveled for the trip purpose checked above?	❑ 0 – 49 ❑ 50 – 99 ❑ 100 – 300 ❑ 300 +
g) How many cellular telephones do you have in your household?	❑ 0 ❑ 1 ❑ 2 or more
h) Please identify the cellular carrier(s) you use for the cellular telephone(s) in your household. *(Check all that apply)*	❑ Airtouch/Verizon ❑ Cellular 2000 ❑ Cellular One ❑ Quick Call Cellular ❑ Sprint ❑ UNICEL ❑ Wireless North ❑ Other _____
i) What is your approximate annual household income?	❑ Under $20,000 ❑ 20,000 – 39,000 ❑ 40,000 – 79,000 ❑ 80,000 +

General Comments/Suggestions: _____

_____

When finished, please return the completed survey in the postage paid envelope along with the yellow card to enter the drawing for $100 of free gas by August 10, 2000.

THANK YOU FOR YOUR PARTICIPATION!

Survey II – January 2001

1 HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?
(Fill in only one blank)
_____ times per day
_____ times per week
_____ times per month
_____ times per year

2 When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report? *(Check all that apply)*
- ❑ Television
- ❑ Radio
- ❑ Telephone
- ❑ Highway Advisory Radio
- ❑ #SAFE (#7233)
- ❑ Internet
- ❑ Observations of Existing Conditions
- ❑ Notices at Truck Stops, Convenience Stores, Rest Areas
- ❑ Communication with Other Drivers
- ❑ Other *(please specify)* _____

3 HOW IMPORTANT is the following traveler information for determining a change in your travel plans?
(Check only one box for each item)

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant
a) Road conditions	❑	❑	❑	❑	❑
b) Weather conditions	❑	❑	❑	❑	❑
c) Occurrence of hazard/accident	❑	❑	❑	❑	❑
d) Location of hazard/accident	❑	❑	❑	❑	❑
e) Travel delays	❑	❑	❑	❑	❑
f) Average travel speed	❑	❑	❑	❑	❑
g) Availability of alternate routes	❑	❑	❑	❑	❑
h) Construction	❑	❑	❑	❑	❑

4 HOW OFTEN do you NORMALLY use #SAFE (#7233) to determine road conditions or to hear a weather forecast report? *(Fill in only one blank)*
- ❑ Never use #SAFE
_____ times per day
_____ times per week
_____ times per month
_____ times per year

5 If you have NEVER USED or RARELY USE #SAFE to determine road conditions or to hear a weather forecast report, briefly state the main reason below.

_____

If you have not used the #SAFE system during the past 12 months please skip to Question 15 on the back.

6 Do you TYPICALLY use #SAFE to access road conditions or hear a weather forecast report...
- ❑ Before you start a trip?
- ❑ While on the road?
- ❑ Both

7 During which SEASON(S) do you MOSTLY use the #SAFE system? *(Check all that apply)*
- ❑ Spring
- ❑ Summer
- ❑ Fall
- ❑ Winter

8 When trying to access the #SAFE system, HOW AVAILABLE is it?
- ❑ Very Available
- ❑ Somewhat Available
- ❑ Neutral
- ❑ Somewhat Unavailable
- ❑ Very Unavailable
- ❑ Don't Recall

9 HOW TIMELY are #SAFE road condition reports and weather forecasts?
- ❑ Very Timely
- ❑ Somewhat Timely
- ❑ Neutral
- ❑ Somewhat Untimely
- ❑ Very Untimely
- ❑ Don't Recall

10 HOW EASY are #SAFE road condition reports and weather forecasts to understand?
- ❑ Very Easy
- ❑ Somewhat Easy
- ❑ Neutral
- ❑ Somewhat Difficult
- ❑ Very Difficult
- ❑ Don't Recall

11 HOW ACCURATE are #SAFE road condition reports and weather forecasts?
- ❑ Very Accurate
- ❑ Somewhat Accurate
- ❑ Neutral
- ❑ Somewhat Inaccurate
- ❑ Very Inaccurate
- ❑ Don't Recall

12 When using the #SAFE menus, HOW EASY are the following menu questions/options to follow?

	Very Easy	Somewhat Easy	Neutral	Somewhat Difficult	Very Difficult	Don't Recall
a) What highway you are on?	❑	❑	❑	❑	❑	❑
b) What state you are traveling in?	❑	❑	❑	❑	❑	❑
c) Your direction of travel?	❑	❑	❑	❑	❑	❑
d) What mile marker/exit you are near?	❑	❑	❑	❑	❑	❑

Continue on other side ☛

13 HOW LIKELY are #SAFE road condition reports and weather forecasts to affect your travel plans?
- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Neutral
- ❑ Somewhat Unlikely
- ❑ Very Unlikely

14 Overall, HOW USEFUL are #SAFE road condition reports and weather forecasts?
- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Neutral
- ❑ Somewhat Useless
- ❑ Very Useless

•••

15 For most, #SAFE (#7233) is currently provided free of charge. If, in the future, there was a cost associated with the #SAFE system, HOW MUCH PER CALL would you be willing to pay to use #SAFE? *(Check only one box)*
- ❑ No charge
- ❑ 10 to 25¢
- ❑ 26 to 50¢
- ❑ 51 to 75¢
- ❑ more than 75¢

16 How have you been made aware of the #SAFE (#7233) system? *(Check all that apply)*
- ❑ Not aware of #SAFE before now
- ❑ Radio
- ❑ Cellular retailer
- ❑ Acquaintance
- ❑ Internet
- ❑ Highway signs
- ❑ Brochure/Flyer
- ❑ Newspaper
- ❑ Other *(please specify)*_____

17 The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one box per question)*

a) What is your current state of residence?	❑ North Dakota ❑ South Dakota
b) What is your gender?	❑ Male ❑ Female
c) What is your age?	❑ 15 – 24 Years ❑ 25 – 44 ❑ 45 – 64 ❑ 65 +
d) What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?	❑ Work ❑ School ❑ Shopping ❑ Medical ❑ Recreation ❑ Visit Family or Friends ❑ Other _____
e) What is the AVERAGE number of miles traveled for the trip purpose checked above?	❑ 0 – 49 ❑ 50 – 99 ❑ 100 – 300 ❑ 300 +
f) How many CELLULAR TELEPHONES do you have in your household?	❑ 0 ❑ 1 ❑ 2 or more
g) Please identify the CELLULAR CARRIER(S) you use for the CELLULAR TELEPHONE(S) in your household. *(Check all that apply)*	❑ Airtouch/Verizon/Commnet ❑ Cellular 2000 ❑ Cellular One ❑ Quick Call Cellular ❑ Sprint ❑ UNICEL ❑ Wireless North ❑ Other _____
h) What is your approximate annual household income?	❑ Under $20,000 ❑ $20,000 – 39,000 ❑ $40,000 – 79,000 ❑ $80,000 +

General Comments/Suggestions: _____
_____
_____

*When finished, please return the completed survey in the postage paid envelope along with the yellow card to enter the drawing for $100 of free gas by **January 19, 2001**.*

THANK YOU FOR YOUR PARTICIPATION!

Survey III – Maintenance Survey

1 HOW OFTEN do you use the District or State Maintenance Forecasts provided by ATWIS to determine weather information for work purposes? (*Fill in only one blank*)

- ❑ Never use   Mean = 319.7
- _____ times/day   Median = 286.5
- _____ times/week   Standard Deviation = 248.7
- _____ times/month
- _____ times/year

2 If you have NEVER USED or RARELY USE the District or State Maintenance Forecasts provided by ATWIS, briefly state the main reason below.

_____

If you have not used the ATWIS system during the past 12 months please skip to Question 12 on the back.

3 DURING WHICH SEASON(S) do you most often use the District or State Maintenance Forecasts provided by ATWIS to determine weather information? (*Check all that apply*)

- ❑ Spring   51.61%
- ❑ Summer   22.58%
- ❑ Fall   41.94%
- ❑ Winter   96.77%

4 HOW ACCURATE is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Accurate   27.59%
- ❑ Somewhat Accurate   65.52%   Mean = 4.207
- ❑ Neutral   6.90%   Standard Deviation = 0.559
- ❑ Somewhat Inaccurate   0.00%
- ❑ Very Inaccurate   0.00%
- ❑ Don't Recall   0.00%

5 HOW EASY TO UNDERSTAND is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Easy   56.67%
- ❑ Somewhat Easy   36.67%   Mean = 4.500
- ❑ Neutral   6.67%   Standard Deviation = 0.630
- ❑ Somewhat Difficult   0.00%
- ❑ Very Difficult   0.00%
- ❑ Don't Recall   0.00%

6 HOW RELIABLE is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Reliable   20.00%
- ❑ Somewhat Reliable   73.33%
- ❑ Neutral   3.33%   Mean = 4.100
- ❑ Somewhat Unreliable   3.33%   Standard Deviation = 0.607
- ❑ Very Unreliable   0.00%
- ❑ Don't Recall   0.00%

7 HOW TIMELY is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Timely 33.33%
- ❑ Very Untimely 0.00%
- ❑ Don't Recall 0.00%
- ❑ Somewhat Untimely 3.70%
- ❑ Very Untimely 0.00

Mean = 4.185
Standard Deviation = 0.736

8 Overall, HOW USEFUL is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Useful 37.93%
- ❑ Somewhat Useful 55.17%
- ❑ Neutral 3.45%
- ❑ Somewhat Useless 3.45%
- ❑ Very Useless 0.00%

Mean = 4.276
Standard Deviation = 0.702

9 HOW OFTEN do you use alternate sources of weather information to verify information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Every Time 10.00%
- ❑ Most of the Time 53.33%
- ❑ Sometimes 36.67%
- ❑ Rarely 0.00%
- ❑ Never 0.00%

Mean = 3.733
Standard Deviation = 0.640

10 HOW OFTEN has information retrieved from the District or Maintenance Forecasts provided by ATWIS altered your plans or assignments of personnel or equipment?

- ❑ Every Time 0.00%
- ❑ Most of the Time 16.67%
- ❑ Sometimes 66.67%
- ❑ Rarely 13.33%
- ❑ Never 3.33%

Mean = 2.967
Standard Deviation = 0.669

11 What are some changes you would like made to the current ATWIS system?

_____

● ●

12 What position do you currently hold or what is your current job title?

_____

13 What is your current state of residence?

- ❑ North Dakota 20.59%
- ❑ South Dakota 79.41%

14 What is your gender?

- ❑ Male 100%
- ❑ Female 0%

15 What is your age?

- ❑ 15-24 years 0.00%
- ❑ 25-44 75.53%
- ❑ 45-64 26.47%
- ❑ 65+ 0.00%

General Comments/Suggestions: _____

Survey IV – April 2002

1 HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?
(Fill in only one blank)
_____ times per day
_____ times per week
_____ times per month
_____ times per year

2 When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report? *(Check all that apply)*

❑ Television
❑ Radio (FM/AM)
❑ Telephone
❑ Highway Advisory Radio
❑ #SAFE (#7233)

❑ Internet
❑ Observations of Existing Conditions
❑ Notices at Truck Stops, Convenience Stores, Rest Areas
❑ Communication with Other Drivers
❑ Other (please *specify*) _____ .

3 HOW IMPORTANT is the following traveler information for determining a change in your travel plans?
(Check only one response for each item)

	Very Important		Neutral		Very Unimportant
a) Road conditions	❑	❑	❑	❑	❑
b) Weather conditions	❑	❑	❑	❑	❑
c) Occurrence of hazard/accident	❑	❑	❑	❑	❑
d) Location of hazard/accident	❑	❑	❑	❑	❑
e) Travel delays	❑	❑	❑	❑	❑
f) Average travel speed	❑	❑	❑	❑	❑
g) Availability of alternate routes	❑	❑	❑	❑	❑
h) Construction	❑	❑	❑	❑	❑

4 HOW OFTEN do you use the following services to determine road conditions or to hear a weather forecast report?
(Check only one response for each item)

	Always		Sometimes		Never	Didn't know about it
a) #SAFE (#7233)	❑	❑	❑	❑	❑	❑
b) (701) 777-6133	❑	❑	❑	❑	❑	❑
c) www.safetravelusa.com	❑	❑	❑	❑	❑	❑

If you have not used the services in Question #4 in the past 12 months, please skip to Question 12 on the back.

Otherwise

Consider the service you indicated in Question #4 you use most frequently, and answer Questions 5-19

5 How have you been made aware of this service? *(Check all that apply)*

❑ Radio
❑ Cellular retailer
❑ Acquaintance
❑ Internet

❑ Highway signs
❑ Brochure/Flyer
❑ Newspaper
❑ Other (please *specify*)_____ .

6 Do you TYPICALLY use this service to access road conditions or hear a weather forecast report...

❑ Before you start a trip?
❑ While on the road?
❑ Both

Continue on other side ▶

---

7 When trying to access this service, HOW AVAILABLE is it? *(Check only one)*

Very Available		Neutral		Very Unavailable	Don't Recall
□	□	□	□	□	□

8 HOW EASY to understand are the road condition reports and weather forecasts provided by this service? *(Check only one)*

Very Easy		Neutral		Very Difficult	Don't Recall
□	□	□	□	□	□

9 HOW ACCURATE is this service's road condition reports and weather forecasts? *(Check only one)*

Very Accurate		Neutral		Very Inaccurate	Don't Recall
□	□	□	□	□	□

10 HOW LIKELY is this service's road condition reports and weather forecasts to affect your travel plans? *(Check only one)*

- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Neutral
- ❑ Somewhat Unlikely
- ❑ Very Unlikely

11 Overall, HOW USEFUL is this service's road condition reports and weather forecasts? *(Check only one)*

- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Neutral
- ❑ Somewhat Useless
- ❑ Very Useless

> The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one response per question)*

- ❑ 25-49
- ❑ 50 – 99
- ❑ 100 – 300
- ❑ 300+

12 What is your current state of residence?
- ❑ North Dakota
- ❑ South Dakota
- ❑ Other_____.

13 What is your gender?
- ❑ Male
- ❑ Female

14 What is your age?
- ❑ 15– 24 years
- ❑ 25 – 44
- ❑ 45 – 64
- ❑ 65 or older

15 What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?
- ❑ Work
- ❑ School
- ❑ Shopping
- ❑ Medical
- ❑ Recreation
- ❑ Visit Family or Friends
- ❑ Other_____.

16 What is the AVERAGE number of miles traveled for the trip purpose in Question 15?
- ❑ 0 – 24

17 Do you have a CELLULAR TELEPHONE in your household?
- ❑ Yes _____ Service Provider
- ❑ No

18 What is your approximate annual household income?
- ❑ Under $20,000
- ❑ $20,000 - $39,999
- ❑ $40,000 - $79,999
- ❑ $80,000 or more

19 What TYPE of vehicle do you PRIMARILY drive on the U.S. or Interstate highways in North or South Dakota?
- ❑ Automobile
- ❑ Commercial (Truck, bus)
- ❑ Other_____

THANK YOU FOR YOUR PARTICIPATION!
When finished, please return the completed survey in the postage paid envelope along with the yellow card to be entered in the drawing for $50 by April 30, 2002.

Survey V – April 2003

TRAVEL INFORMATION SURVEY

1 HOW OFTEN do you travel on U.S. or Interstates highways in North or South Dakota? *(Fill in only one blank)*

_____ times per day

_____ times per week

_____ times per month

_____ times per year

2 When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report? *(Check all that apply)*

- ❑ Television
- ❑ Radio (AM/FM)
- ❑ Telephone
- ❑ 511 travel information phone number
- ❑ Local Department of Transportation road condition phone numbers
- ❑ www.safetravelusa.com

- ❑ Other Internet sites
- ❑ Highway advisory radio (AM 530, AM 1610)
- ❑ Observations of existing conditions
- ❑ Notices at truck stops, convenience stores, rest areas
- ❑ Communication with other drivers
- ❑ Other *(please specify)* _____

3 If you were to call a travel information phone number, HOW IMPORTANT would the following features be?
(Check only one response for each item)

	Very Important		Neutral		Very Unimportant
a) Winter road conditions on highways	❑	❑	❑	❑	❑
b) Construction information on highways	❑	❑	❑	❑	❑
c) Weather forecasts	❑	❑	❑	❑	❑
d) Accident information	❑	❑	❑	❑	❑
e) Public transit information	❑	❑	❑	❑	❑
f) Information about conditions on city roads	❑	❑	❑	❑	❑
g) Access to travel information in neighboring states	❑	❑	❑	❑	❑
h) Regional road condition and construction reports	❑	❑	❑	❑	❑
i) Hands-free voice activation	❑	❑	❑	❑	❑
j) Opportunity to record comments and give feedback	❑	❑	❑	❑	❑

4 What other features would you like to see on a travel information phone system?

_____

_____

_____

5 If it were necessary for you to identify your location to access travel information, WHICH METHOD would you prefer? *(Check only one)*

- ❑ By highway number and mile marker *(for example, I-29, mile marker 121)*
- ❑ By highway number and communities you are between *(for example, I-29 between Sioux Falls and Brookings)*
- ❑ By region *(for example, Southeast North Dakota, Northeast South Dakota, etc.)*
- ❑ By community *(for example, near Watertown, near Fargo, etc.)*
- ❑ Other _____

6 When you hear of poor travel conditions HOW LIKELY are you to...
(Check only one response for each item)

	Very Likely		Neutral		Very Unlikely
a) stop at a nearby town?	❑	❑	❑	❑	❑
b) change travel times?	❑	❑	❑	❑	❑
c) take an alternate route?	❑	❑	❑	❑	❑
d) cancel the trip?	❑	❑	❑	❑	❑
e) continue on regardless?	❑	❑	❑	❑	❑
f) seek an alternate mode of travel?	❑	❑	❑	❑	❑

7 How have you been made aware of the 511 travel information phone number? *(Check all that apply)*

- ❑ Radio
- ❑ Television
- ❑ Public service announcements/advertisements
- ❑ Newspaper articles
- ❑ Family/Friends
- ❑ Internet

- ❑ Blue highway information signs
- ❑ Billboard
- ❑ Phone/cell phone provider
- ❑ Promotional flyers
- ❑ Other_____
- ❑ I was not aware of 511 before this survey

8 In your opinion, have you received enough information about the 511 travel information phone number?

- ❑ Yes
- ❑ No

Please continue on the other side ☞

9 HOW OFTEN have you used 511 since January 2003? *(Check only one)*
- ❏ Have not used 511 *(skip to Question 14)*
- ❏ 1-3 times
- ❏ 4 -6 times
- ❏ 7 - 10 times
- ❏ More than 10 times

If you **HAVE NOT USED** the 511 travel information phone number, please skip to **Question 14**.

10 When do you USUALLY access 511? *(Check only one)*
- ❏ Before I start a trip
- ❏ During a trip
- ❏ Both before and during a trip

11 Which travel information phone number do you PREFER? *(Check only one)*
- ❏ 511
- ❏ #SAFE (#7233)
- ❏ Area Department of Transportation number
- ❏ No preference

Comments:_____

12 HOW SATISFIED are you with the following 511 capabilities? *(Check only one response for each item)*

	Very Satisfied		Neutral		Very Unsatisfied
a) The quality of the service	❏	❏	❏	❏	❏
b) The usefulness of the service	❏	❏	❏	❏	❏
c) The accuracy of the reported road conditions	❏	❏	❏	❏	❏
d) The accuracy of the weather forecasts	❏	❏	❏	❏	❏
e) The ease of accessing the information you want	❏	❏	❏	❏	❏
f) The ease of understanding the information	❏	❏	❏	❏	❏
g) The availability of the system (system is working/no busy signals)	❏	❏	❏	❏	❏

13 Overall, how would you rate the North Dakota or South Dakota 511 travel information system?

Excellent		Average		Poor
❏	❏	❏	❏	❏

The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one response per question)*

14 What is your home zip code?   _____

15 What is your gender?   ❏ Male
                                ❏ Female

16 What is your age?   ❏ 18– 24 years
                             ❏ 25 – 44
                             ❏ 45 – 64
                             ❏ 65 or older

17 Do you own a mobile phone?   ❏ Yes
                                      ❏ No

18 What type of vehicle do you NORMALLY drive on highways in North or South Dakota?
- ❏ Automobile (car, pickup, SUV)
- ❏ Commercial (truck, bus)
- ❏ RV
- ❏ Other_____

19 What is the highest level of education you have completed?
- ❏ Did not finish high school
- ❏ High school graduate or equivalent
- ❏ 2-year college (community/technical)
- ❏ 4-year college/university
- ❏ Post-graduate college/university

20 General comments/suggestions:

_____
_____
_____

THANK YOU FOR YOUR PARTICIPATION!

When finished, please return the completed survey in the postage paid envelope along with the yellow card by April 30, 2003 to be entered in the drawing for $50.

Appendix B – Tabular Results

The following three parts to this appendix show the survey question layout as well as the summary statistics for each question on each of the surveys. The statistical results shown include: frequencies, percentages, means and standard deviations. The abbreviation "N" represents the total number of respondents who answered the question, and "*" indicates the number individuals who skipped a particular question. The abbreviation "StDev" represents the standard deviation of the specific question. Results for Surveys I, II, III, IV and V are shown in order.

Survey I – July 2000

1 **HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?**
(Fill in only one blank)

_____ times per day
_____ times per week
_____ times per month
_____ times per year

Times/yr.	Count	Percent
1	1	0.09
2	8	0.71
3	9	0.8
4	9	0.8
5	8	0.71
6	8	0.71
8	1	0.09
10	10	0.89
12	27	2.41
15	1	0.09
20	2	0.18
24	61	5.44
25	1	0.09
30	1	0.09
36	60	5.35
40	1	0.09
48	44	3.92
50	1	0.09
52	46	4.1
60	21	1.87
72	15	1.34
84	6	0.53
96	11	0.98
100	3	0.27
104	91	8.11
108	1	0.09
120	4	0.36
144	2	0.18
150	1	0.09
156	68	6.06
200	1	0.09
208	51	4.55
210	3	0.27
240	5	0.45
250	2	0.18
260	47	4.19
264	1	0.09
288	2	0.18

Times/yr.	Count	Percent
312	20	1.78
360	1	0.09
364	7	0.62
365	37	3.3
416	2	0.18
448	1	0.09
520	15	1.34
600	1	0.09
624	4	0.36
720	1	0.09
728	2	0.18
730	241	21.48
780	4	0.36
832	1	0.09
884	1	0.09
1000	2	0.18
1008	1	0.09
1040	2	0.18
1095	39	3.48
1440	2	0.18
1460	63	5.61
1556	1	0.09
1825	16	1.43
2190	11	0.98
2340	1	0.09
2555	2	0.18
2920	2	0.18
3285	1	0.09
3650	3	0.27
4000	1	0.09
5475	1	0.09
7300	1	0.09
7440	1	0.09
N=	1122	
*=	6	
Mean	470.1	
Median	208	
StDev	633.5	

2 **When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report?** *(Check all that apply)*

- ❑ Television
- ❑ Radio
- ❑ Telephone
- ❑ Highway Advisory Radio
- ❑ #SAFE
- ❑ Internet
- ❑ Observations of Existing Conditions
- ❑ Notices at Truck Stops, Convenience Stores, Rest Areas
- ❑ Communication with Other Drivers
- ❑ Other *(please specify)*

	Yes	Percent	No	Percent	Count
Television	884	78.37	244	21.63	1128
Radio	1006	89.18	122	10.82	1128
Telephone	237	21.01	891	78.99	1128
HAR	93	8.24	1035	91.76	1128
#SAFE	86	7.62	1042	92.38	1128
Internet	271	24.02	857	75.98	1128
Obs. of Existing Cond's	589	52.22	539	47.78	1128
Notices at Truck Stops	70	6.21	1058	93.79	1128
Comm. w/ Other Drivers	217	19.24	911	80.76	1128
Other	13	1.15	1115	98.85	1128

Others	Count
Newspaper	3
Sheriff's Office	2
CB Radio	2
DTN	3
National Weather Service	1
AAA	1
ND DOT	1

3 **How IMPORTANT is the following traveler information for determining a change in your travel plans?**
(Check only one box for each item)

	Not Very Important	Somewhat Important	Very Important
a) Road conditions	❑	❑	❑
b) Weather conditions	❑	❑	❑
c) Occurrence of hazard/accident	❑	❑	❑
d) Location of hazard/accident	❑	❑	❑
e) Travel delays	❑	❑	❑
f) Average travel speed	❑	❑	❑
g) Availability of alternate routes	❑	❑	❑
h) Other *(please specify)* _____	❑	❑	❑

	1.Not Important	%	2. Somewhat	%	3. Very Important	%	Count	*	Mean	StDev
Road Conditions	30	2.68	258	23.06	831	74.26	1119	9	2.7158	0.5072
Weather Conditions	21	1.88	265	23.72	831	74.4	1117	11	2.7252	0.4869
Occurrence of Hazard	322	29.62	560	51.52	205	18.86	1087	41	1.8924	0.6882
Location of Hazard	303	27.98	555	51.25	225	20.78	1083	45	1.928	0.6948
Travel Delays	296	27.23	581	53.45	210	19.32	1087	41	1.9209	0.678
Average Travel Speed	369	33.7	526	48.04	200	18.26	1095	33	1.8457	0.7045
Alternate Routes	272	24.82	564	51.46	260	23.72	1096	32	1.9891	0.6969
Other	0	0	0	0	15	100	15	1112	3	0

Others	Count
Amount of Traffic	3
Construction	12

4 **HOW LIKELY are you to use the #SAFE system to determine road conditions or hear a weather forecast report, during the following conditions?** *(Check one box per item)*

	Not Very Likely	Somewhat Likely	Very Likely
a) Clear	❑	❑	❑
b) Cloudy	❑	❑	❑
c) Rainy	❑	❑	❑
d) Snowy	❑	❑	❑
e) Windy	❑	❑	❑
f) Blizzard	❑	❑	❑
g) Daytime	❑	❑	❑
h) Nighttime	❑	❑	❑
i) Other *(please specify)* _____	❑	❑	❑

	1.Not Important	%	2. Somewhat	%	3. Very Important	%	Count	*	Mean	StDev
Clear	994	92.12	65	6.02	20	1.85	1079	49	1.0973	0.3536
Cloudy	869	80.61	181	16.79	28	2.6	1078	50	1.2199	0.4729
Rainy	663	61.11	334	30.78	20	1.85	1085	43	1.47	0.6416
Snowy	190	17.38	371	33.94	532	48.67	1093	35	2.3129	0.7505
Windy	587	54.4	351	32.53	141	13.07	1079	49	1.5867	0.7101
Blizzard	139	12.66	126	11.48	833	75.87	1098	30	2.6321	0.6973
Daytime	594	55.1	377	34.97	141	13.07	1079	49	1.5482	0.6683
Nighttime	403	37.35	374	34.66	302	27.99	1079	49	1.9064	0.8033
Other	0	0	0	0	19	100	19	1108	3	0

Others	Count
Ice	7
Tornado	8
Fog	4

5 **HOW OFTEN do you NORMALLY use the #SAFE number to determine road conditions or to hear a weather forecast report?** *(Fill in only one blank)*

❑ Never use #SAFE
_____ times per day
_____ times per week
_____ times per month
_____ times per year

If you haven't used the #SAFE system during the past 12 months please skip to <u>Question 15</u> on the back.

	Count	Percent
Never Use	820	85.59
Use	138	14.41
N=	958	
*=	170	

Times/ yr.	Count	Percent
0	1	0.73
1	15	10.95
2	20	14.6
3	17	12.41
4	10	7.3
5	6	4.38
6	5	3.65
8	1	0.73
10	5	3.65
12	11	8.03
15	1	0.73
20	1	0.73
22	1	0.73
24	16	11.68
25	1	0.73
30	1	0.73
36	4	2.92
48	3	2.19
52	4	2.92
104	9	6.57
120	1	0.73
156	1	0.73
365	2	1.46
730	1	0.73
N=	137	
*=	991	
Mean	29.64	
Median	5	
StDev	79.19	

6   Do you TYPICALLY use #SAFE to access road conditions or hear a weather forecast report…

- ❑ Before you start a trip?
- ❑ While on the road?
- ❑ Both
- ❑ Neither

	Count	Percent
Before you start a trip?	32	23.53
While on the road?	48	35.29
Both	46	33.82
Neither	10	7.35
N=	136	
*=	992	

7   During which SEASON(S) do you MOSTLY use the #SAFE system? (Check all that apply)

- ❑ Spring
- ❑ Summer
- ❑ Fall
- ❑ Winter

	Yes	Percent	No	Percent	Count	*
Spring	18	13.64	114	86.36	132	996
Summer	17	12.88	115	87.12	132	996
Fall	19	14.39	113	85.61	132	996
Winter	130	98.48	2	1.52	132	996

8   When trying to access the #SAFE system, HOW AVAILABLE is it?

- ❑ Very Available
- ❑ Somewhat Available
- ❑ Not Very Available
- ❑ Don't Recall

	Count	Percent
3. Very Available	60	44.78
2. Somewhat Available	56	41.79
1Not Very Available	4	2.99
Don't Recall	14	10.45
N=	134	
*=	994	
Mean	2.4667	
StDev	0.5641	

9   HOW TIMELY are #SAFE road condition reports and weather forecasts?

- ❑ Very Timely
- ❑ Somewhat Timely
- ❑ Not Very Timely
- ❑ Don't Recall

	Count	Percent
3. Very Timely	42	31.82
2. Somewhat Timely	71	53.79
1.Not Very Timely	5	3.79
Don't Recall	14	10.61
N=	132	
*=	996	
Mean	2.3136	
StDev	0.55	

10 HOW EASY are #SAFE road condition reports and weather forecasts to understand?
- ❑ Very Easy
- ❑ Somewhat Easy
- ❑ Not Very Easy
- ❑ Don't Recall

	Count	Percent
3. Very Easy	86	63.70
2. Somewhat Easy	41	30.37
1.Not Very Easy	1	0.74
Don't Recall	7	5.19
N=		135
*=		993
Mean		2.6641
StDev		0.4905

11 HOW ACCURATE are #SAFE road condition reports and weather forecasts?
- ❑ Very Accurate
- ❑ Somewhat Accurate
- ❑ Not Very Accurate
- ❑ Don't Recall

	Count	Percent
3. Very Accurate	41	30.83
2. Somewhat Accurate	83	62.41
1.Not Very Accurate	2	1.50
Don't Recall	7	5.26
N=		133
*=		995
Mean		2.3065
StDev		0.4974

12 When using the #SAFE menus, HOW EASY are the following menu questions/options to follow?

	Not Very Easy	Somewhat Easy	Very Easy	Don't Recall
a) Question regarding what highway you are on?	❑	❑	❑	❑
b) Question regarding what State you are traveling in?	❑	❑	❑	❑
c) Question regarding your direction of travel?	❑	❑	❑	❑
d) Question regarding what mile marker/exit you are near?	❑	❑	❑	❑

	1.Not Very Easy	%	2.Somewhat	%	3.Very Easy	%	Don't Recall	%	N	*	Mean	StDev
a.)	5	3.70	49	36.30	69	51.11	12	8.89	135	994	2.5203	0.5776
b.)	6	4.44	27	20.00	93	68.89	9	6.72	135	994	2.6905	0.5581
c.)	5	3.70	45	33.33	71	52.59	13	9.77	135	995	2.5455	0.5774
d.)	12	8.89	51	37.78	53	39.26	19	14.18	135	994	2.3534	0.6627

13 HOW LIKELY are #SAFE road condition reports and weather forecasts to affect your travel plans?
- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Not Very Likely

	Count	Percent
1. Not Very Likely	7	5.07
2. Somewhat Likely	74	53.62
3. Very Likely	57	41.3
N=		138
*=		990
Mean		2.3623
StDev		0.5787

14 Overall, HOW USEFUL are #SAFE road condition reports and weather forecasts?

- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Not Very Useful

	Count	Percent
1. Not Very Useful	1	0.74
2. Somewhat Useful	40	29.41
3. Very Useful	95	69.85
N=		136
*=		992
Mean		2.6912
StDev		0.4794

15 For most, #SAFE is currently provided free of charge. If, in the future, there was a cost associated with the #SAFE system, HOW MUCH PER CALL would you be willing to pay to use #SAFE? *(Check only one box)*

- ❑ No charge
- ❑ 10 to 25¢
- ❑ 26 to 50¢
- ❑ 51 to 75¢
- ❑ more than 75¢

	Count	Percent
No Charge	616	56.26
.10 to .25	370	33.79
.26 to .50	93	8.49
.51 to .75	8	0.73
More than .75	8	0.73
N=		1095
*=		33
Mean		1.5589
StDev		0.7405

16 How have you been made aware of the SAFE system? *(Check all that apply)*

- ❑ Radio
- ❑ Cellular Retailer
- ❑ Acquaintance
- ❑ Internet
- ❑ Newspaper
- ❑ Highway Signs
- ❑ Brochure/Flyer
- ❑ This Survey
- ❑ Other (please specify)

	Yes	Percent	No	Percent	N	*
Radio	79	7.12	1030	92.88	1109	19
Cellular Retailer	88	7.94	1021	92.06	1109	19
Acquaintance	59	5.32	1050	94.68	1109	19
Internet	14	1.26	1095	98.74	1109	19
Newspaper	28	2.52	1081	97.48	1109	19
Highway Signs	240	21.64	869	78.36	1109	19
Brochure/Flyer	35	3.16	1074	96.84	1109	19
This Survey	849	76.56	260	23.44	1109	19
Other (Television)	3	0.27	1106	99.73	1109	19

17 **The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one box per question)***

a) What is your current state of residence?

❑ North Dakota
❑ South Dakota

		Count	Percent
1.North Dakota		601	53.37
2.South Dakota		525	46.63
	N=	1126	
	*=	2	
	Mean	1.4663	
	StDev	0.4991	

What is your gender?

❑ Male
❑ Female

	Count	Percent
1.Male	274	24.33
2.Female	852	75.67
N=	1126	
*=	2	
Mean	1.7567	
StDev	0.4293	

c) What is your age?

❑ 15 – 24 Years
❑ 25 – 44
❑ 45 – 64
❑ 65 +

		Count	Percent
1.15 to 24 Years		142	12.6
2. 25-44		586	52
3. 45-64		327	29.02
4. 65+		72	6.39
	N=	1127	
	*=	1	
	Mean	2.2919	
	StDev	0.7662	

d) What type of vehicle do you NORMALLY drive on U.S. or Interstate highways in North or South Dakota?

❑ Automobile
❑ Commercial (Truck, Bus)
❑ Motorcycle
❑ RV
❑ Ride as Passenger Only

		Count	Percent
1.Automobile		1077	95.48
2.Commercial		33	2.93
3.Motorcycle		2	0.18
4.RV		5	0.44
5.Ride as a Passenger		11	0.98
	N=	1128	
	*=	0	
	Mean	1.0851	
	StDev	0.4746	

e) What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?

❑ Work
❑ School
❑ Shopping
❑ Medical
❑ Recreation
❑ Visit Family or Friends
❑ Other _____

		Count	Percent
1. Work		572	50.8
2. School		37	3.29
3. Shopping		145	12.88
4. Medical		25	2.22
5. Recreation		122	10.83
6. Visit Family		212	18.83
7. Other		13	1.15
	N=	1126	
	*=	2	
	Mean	2.8011	
	StDev	2.089	

f) What is the AVERAGE number of miles traveled for the trip purpose ¿ed above?

❑   0 – 49
❑   50 – 99
❑   100 – 300
❑   300 +

	Count	Percent
1. 0-49	336	29.84
2. 50-99	319	28.33
3. 100-300	336	29.84
4. 300+	135	11.99
N=	1126	
*=	2	
Mean	2.2398	
StDev	1.0098	

g) How many cellular telephones do you have in your household?

❑   0
❑   1
❑   2 or more

	Count	Percent
1. 0 Cell Phones	64	5.68
2. 1 Cell Phone	564	50.04
3. 2 or more Cell Phones	499	44.28
N=	1127	
*=	1	
Mean	2.386	
StDev	0.5924	

h) Please identify the cellular carrier(s) you use for the cellular telephone(s) in your household.
(Check all that apply)

❑   Airtouch/Verizon
❑   Cellular 2000
❑   Cellular One
❑   Quick Call Cellular
❑   Sprint
❑   UNICEL
❑   Wireless North
❑   Other _____

	Yes	Percent	No	Percent	N	*
Airtouch/Verizon	339	30.21	782	69.7	1122	6
Cellular 2000	23	2.05	1098	97.86	1122	6
Cellular One	643	57.31	481	42.87	1122	6
Quick Call Cellular	3	0.27	1118	99.64	1122	6
Sprint	23	2.05	1099	97.95	1122	6
UNICEL	12	1.07	1109	98.84	1122	6
Wireless North	18	1.60	1103	98.31	1122	6
Other	66	5.88	1052	93.76	1122	6

Others	Count
AT&T	5
Bell South	1
Commnet	23
GTE Wireless	1
Horizon	1
Ionex	2
MCI Worldcom	2
MTS	1
Nextell	1
Trackphone	1
Unspecified	26
Voice Stream	1
Western Wireless	1

i) What is your approximate annual household income?

❑ Under $ 20,000
❑ 20,000 – 39,000
❑ 40,000 – 79,000
❑ 80,000 +

	Count	Percent
1. Under $20,000	98	9.12
2. 20,000-39,000	406	37.77
3. 40,000-79,000	464	43.16
4. 80,000+	107	9.95
N=	1075	
*=	53	
Mean	2.5395	
StDev	0.794	

Survey II – January 2001

1 HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?
(Fill in only one blank)
_____ times per day
_____ times per week
_____ times per month
_____ times per year

Times/yr.	Count	Percent
1	2	0.3
2	3	0.45
3	4	0.6
4	6	0.91
5	4	0.6
6	7	1.06
7	1	0.15
8	1	0.15
10	3	0.45
12	27	4.08
15	1	0.15
20	2	0.3
24	31	4.68
25	1	0.15
36	25	3.78
48	23	3.47
52	35	5.29
60	7	1.06
72	6	0.91
84	1	0.15
96	1	0.15
100	1	0.15
104	59	8.91
120	7	1.06
128	1	0.15
150	1	0.15
156	52	7.85
180	1	0.15
208	24	3.63
210	2	0.3
216	2	0.3
240	5	0.76

Times/yr.	Count	Percent
250	1	0.15
256	1	0.15
260	36	5.44
280	1	0.15
312	14	2.11
336	1	0.15
360	1	0.15
364	10	1.51
365	15	2.27
416	4	0.6
480	1	0.15
520	9	1.36
624	1	0.15
720	1	0.15
728	1	0.15
730	135	20.39
736	1	0.15
750	1	0.15
780	1	0.15
800	1	0.15
960	1	0.15
1014	1	0.15
1095	23	3.47
1120	1	0.15
1200	1	0.15
1460	39	5.89
1825	5	0.76
2190	6	0.91
2555	1	0.15
3650	2	0.3
N=	662	
*=	1	
Mean	426.3	
Median	208	
StDev	498.4	

2 **When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report?** *(Check all that apply)*
- ❑ Television
- ❑ Radio
- ❑ Telephone
- ❑ Highway Advisory Radio
- ❑ #SAFE (#7233)
- ❑ Internet
- ❑ Observations of Existing Conditions
- ❑ Notices at Truck Stops, Convenience Stores, Rest Areas
- ❑ Communication with Other Drivers
- ❑ Other (please specify) _____

	Yes	Percent	No	Percent	Count
Television	546	82.35	117	17.65	663
Radio	582	87.78	81	12.22	663
Telephone	131	19.76	532	80.24	663
HAR	57	8.6	606	91.4	663
#SAFE	68	10.26	595	89.74	663
Internet	193	29.11	470	70.89	663
Obs. of Existing Cond's	343	51.73	320	48.27	663
Notices at Truck Stops	42	6.33	621	93.67	663
Comm. w/ Other Drivers	148	22.32	515	77.68	663
Other	22	3.32	641	96.68	663

Others	Count
Weather Radio	5
Other	4
DOT	3
Newspaper	3
DTN	2
Scanner	2
Sheriff's Office/Police	2
Cell Phone	1

3 HOW IMPORTANT is the following traveler information for determining a change in your travel plans?
   (Check only one box for each item)

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant
a) Road conditions	❏	❏	❏	❏	❏
b) Weather conditions	❏	❏	❏	❏	❏
c) Occurrence of hazard/accident	❏	❏	❏	❏	❏
d) Location of hazard/accident	❏	❏	❏	❏	❏
e) Travel delays	❏	❏	❏	❏	❏
f) Average travel speed	❏	❏	❏	❏	❏
g) Availability of alternate routes	❏	❏	❏	❏	❏
h) Construction	❏	❏	❏	❏	❏

	5.Very Important	%	4.Somewhat Important	%	3. Neutral	%	2. Somewhat Unimportant	%	1. Very Unimportant	%
Road Conditions	527	79.97	116	17.6	11	1.67	3	0.46	2	0.3
Weather Conditions	488	75.54	141	21.83	13	2.01	3	0.46	1	0.15
Occurrence of Hazard	130	20.67	208	33.07	219	34.82	54	8.59	18	2.86
Location of Hazard	116	18.5	221	35.25	212	33.81	58	9.25	20	3.19
Travel Delays	121	18.97	242	37.93	197	30.88	49	7.68	29	4.55
Average Travel Speed	121	19.03	221	34.75	195	30.66	62	9.75	37	5.82
Alternate Routes	120	18.72	256	39.94	186	29.02	46	7.18	33	5.15
Construction	143	22.2	268	41.61	160	24.84	53	8.23	20	3.11

	Count	*	Mean	StDev
Road Conditions	659	4	4.765	0.5267
Weather Conditions	646	17	4.721	0.5368
Occurrence of Hazard	628	34	3.607	0.9991
Location of Hazard	627	36	3.566	0.9968
Travel Delays	638	25	3.591	1.0242
Average Travel Speed	636	27	3.514	1.0845
Alternate Routes	641	22	3.599	1.0338
Construction	644	19	3.716	1

4 **HOW OFTEN do you NORMALLY use #SAFE (*#7233*) to determine road conditions or to hear a weather forecast report?** *(Fill in only one blank)*

     ❑ Never use #SAFE
     _____ times per day
     _____ times per week
     _____ times per month
     _____ times per year

	Count	Percent
Never Use	556	84.5
Use	102	15.5
N=	658	
*=	5	

Times	Count	Percent
1	4	3.92
2	14	13.73
3	8	7.84
4	2	1.96
5	1	0.98
6	3	2.94
10	2	1.96
12	15	14.71
16	1	0.98
24	12	11.76
35	1	0.98
36	6	5.88
48	3	2.94
52	9	8.82
60	3	2.94
72	1	0.98
104	6	5.88
120	1	0.98
156	4	3.92
208	2	1.96
352	1	0.98
365	3	2.94
N =	102	
*=	530	
Mean	48.4	
Median	24	
StDev	77.96	

5 **If you have NEVER USED or RARELY USE #SAFE to determine road conditions or to hear a weather forecast report, briefly state the main reason below.**

_See Appendix E_____

_____

6 **Do you TYPICALLY use #SAFE to access road conditions or hear a weather forecast report…**
- ❑ Before you start a trip?
- ❑ While on the road?
- ❑ Both

	Count	Percent
Before you start a trip?	20	21.51
While on the road?	41	44.09
Both	32	34.41
N=	93	
*=	570	

7 **During which SEASON(S) do you MOSTLY use the #SAFE system?** *(Check all that apply)*
- ❑ Spring
- ❑ Summer
- ❑ Fall
- ❑ Winter

	Yes	Percent	No	Percent	Count	*
Spring	15	16.13	78	83.87	93	570
Summer	8	8.6	85	91.4	93	570
Fall	14	15.05	79	84.95	93	570
Winter	90	96.77	3	3.23	93	570

8 **When trying to access the #SAFE system, HOW AVAILABLE is it?**
- ❑ Very Available
- ❑ Somewhat Available
- ❑ Neutral
- ❑ Somewhat Unavailable
- ❑ Very Unavailable
- ❑ Don't Recall

	Count	Percent
5. Very Available	44	47.83
4. Somewhat Available	32	34.78
3. Neutral	11	11.96
2. Somewhat Unavailable	1	1.09
1. Very Unavailable	0	0.00
Don't Recall	4	4.35
N=	92	
*=	571	
Mean	4.1630	
StDev	0.7434	

9 **HOW TIMELY are #SAFE road condition reports and weather forecasts?**
- ❑ Very Timely
- ❑ Somewhat Timely
- ❑ Neutral
- ❑ Somewhat Untimely
- ❑ Very Untimely
- ❑ Don't Recall

	Count	Percent
5. Very Timely	31	33.70
4. Somewhat Timely	44	47.83
3. Neutral	11	11.96
2. Somewhat Untimely	2	2.17
1. Very Untimely	0	0.00
Don't Recall	4	4.35
N=	92	
*=	571	
Mean	4.00	
StDev	0.7357	

10 HOW EASY are #SAFE road condition reports and weather forecasts to understand?

- ❑ Very Easy
- ❑ Somewhat Easy
- ❑ Neutral
- ❑ Somewhat Difficult
- ❑ Very Difficult
- ❑ Don't Recall

	Count	Percent
5. Very Easy	44	48.35
4. Somewhat Easy	40	43.96
3. Neutral	3	3.30
2. Somewhat Difficult	1	1.10
1. Very Difficult	0	0.00
Don't Recall	3	3.30
N=	91	
*=	572	
Mean	4.297	
StDev	0.6225	

11 HOW ACCURATE are #SAFE road condition reports and weather forecasts?

- ❑ Very Accurate
- ❑ Somewhat Accurate
- ❑ Neutral
- ❑ Somewhat Inaccurate
- ❑ Very Inaccurate
- ❑ Don't Recall

	Count	Percent
5. Very Accurate	27	30.00
4. Somewhat Accurate	50	55.56
3. Neutral	8	8.89
2. Somewhat Inaccurate	2	2.22
1. Very Inaccurate	0	0.00
Don't Recall	3	3.33
N=	90	
*=	573	
Mean	4.033	
StDev	0.6855	

12 **When using the #SAFE menus, HOW EASY are the following menu questions/options to follow?**

	Very Easy	Somewhat Easy	Neutral	Somewhat Difficult	Very Difficult	Don't Recall
a) What highway you are on?	❑	❑	❑	❑	❑	❑
b) What state you are traveling in?	❑	❑	❑	❑	❑	❑
c) Your direction of travel?	❑	❑	❑	❑	❑	❑
d) What mile marker/exit you are near?	❑	❑	❑	❑	❑	❑

	Very Easy	%	Somewhat Easy	%	Neutral	%	Somewhat Difficult	%	Very Difficult	%	Don't Recall
a)	47	51.65	38	41.76	5	5.49	1	1.10	0	0	0
b)	69	17.98	16	17.98	4	4.49	0	0	0	0	0
c)	50	55.56	32	35.56	6	6.67	2	2.22	0	0	0
d)	30	33.33	40	44.44	61	17.78	4	4.44	0	0	0

	N	*	Mean	StDev
a)	91	572	4.440	0.6533
b)	89	574	4.730	0.5386
c)	90	573	4.444	0.7207
d)	90	573	4.067	0.8319

13 **HOW LIKELY are #SAFE road condition reports and weather forecasts to affect your travel plans?**
- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Neutral
- ❑ Somewhat Unlikely
- ❑ Very Unlikely

	Count	Percent
5. Very Likely	41	43.62
4. Somewhat Likely	40	42.55
3. Neutral	10	10.64
2. Somewhat Unlikely	3	3.19
1. Very Unlikely	0	0.00
N=	94	
*=	569	
Mean	4.266	
StDev	0.7784	

14 **Overall, HOW USEFUL are #SAFE road condition reports and weather forecasts?**
- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Neutral
- ❑ Somewhat Useless
- ❑ Very Useless

	Count	Percent
5. Very Useful	56	60.22
4. Somewhat Useful	32	34.41
3. Neutral	3	3.23
2. Somewhat Useful	2	2.15
1. Very Useful	0	0.00
N=	93	
*=	570	
Mean	4.527	
StDev	0.6691	

15 For most, #SAFE (*#7233*) is currently provided free of charge. If, in the future, there was a cost associated with the #SAFE system, HOW MUCH PER CALL would you be willing to pay to use #SAFE? *(Check only one box)*

- ❏ No charge
- ❏ 10 to 25¢
- ❏ 26 to 50¢
- ❏ 51 to 75¢
- ❏ more than 75¢

	Count	Percent
No Charge	414	64.29
.10 to .25	181	28.11
.26 to .50	37	5.75
.51 to .75	8	1.24
More than .75	4	0.62
N=	644	
*=	19	
Mean	1.4581	
StDev	0.7162	

16 How have you been made aware of the #SAFE (*#7233*) system? *(Check all that apply)*

- ❏ Not aware of #SAFE before now
- ❏ Radio
- ❏ Cellular retailer
- ❏ Acquaintance
- ❏ Internet
- ❏ Highway signs
- ❏ Brochure/Flyer
- ❏ Newspaper
- ❏ Other (please specify)

	Yes	Percent	No	Percent	N	*
Not aware before now	465	70.99	190	29.01	655	8
Radio	31	4.73	624	95.27	655	8
Cellular Retailer	36	5.5	619	94.5	655	8
Acquaintance	19	2.9	636	97.1	655	8
Internet	7	1.07	648	98.93	655	8
Highway Signs	142	21.68	513	78.32	655	8
Brochure/Flyer	12	1.83	643	98.17	655	8
Newspaper	10	1.53	645	98.47	655	8
Other	8	1.22	647	98.78	655	8

Others	Count
Television	4
Back of Driver's License	1
Work	1
Scanner	1
Never	1

17 **The following information is needed to ensure that your responses are properly represented in this survey. It will be used for the purposes of this survey ONLY. *(Check only one box per question)***

a) What is your current state of residence?

❑   North Dakota
❑   South Dakota

	Count	Percent
North Dakota	361	54.61
South Dakota	300	45.39
N=		661
*=		2

b) What is your gender?

❑   Male
❑   Female

	Count	Percent
Male	176	26.55
Female	487	73.45
N=		663
*=		0

c) What is your age?

❑   15 – 24 Years
❑   25 – 44
❑   45 – 64
❑   65 +

	Count	Percent
1.15 to 24 Years	74	11.18
2. 25-44	321	48.49
3. 45-64	224	33.84
4. 65+	43	6.5
N=		662
*=		1

d) What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?

- ❑ Work
- ❑ School
- ❑ Shopping
- ❑ Medical
- ❑ Recreation
- ❑ Visit Family or Friends
- ❑ Other _____

	Count	Percent
1. 0-49	214	32.33
2. 50-99	152	22.96
3. 100-300	198	29.91
4. 300+	98	14.8
N=		662
*=		1

e) What is the AVERAGE number of miles traveled for the trip purpose checked above?

- ❑ 0 – 49
- ❑ 50 – 99
- ❑ 100 – 300
- ❑ 300 +

	Count	Percent
1. Work	350	53.11
2. School	14	2.12
3. Shopping	91	13.81
4. Medical	23	3.49
5. Recreation	66	10.02
6. Visit Family	111	16.84
7. Other	4	0.61
N=		659
*=		4

Others	Count
Pick up my better half	1
Unspecified	3

f) How many CELLULAR TELEPHONES do you have in your household?

- ❑ 0
- ❑ 1
- ❑ 2 or more

	Count	Percent
1. 0 Cell Phones	27	4.07
2. 1 Cell Phone	345	52.04
3. 2 or more Cell Phones	291	43.89
N=		663
*=		0

g) Please identify the CELLULAR CARRIER(S) you use for the CELLULAR TELEPHONE(S) in your household. *(Check all that apply)*

- ❑ Airtouch/Verizon/Commnet
- ❑ Cellular 2000
- ❑ Cellular One
- ❑ Quick Call Cellular
- ❑ Sprint
- ❑ UNICEL
- ❑ Wireless North
- ❑ Other _____

	Yes	Percent	No	Percent	N	*
Airtouch/Verizon	231	35.05	428	64.95	659	4
Cellular 2000	17	2.58	642	97.42	659	4
Cellular One	369	55.99	290	44.01	659	4
Quick Call Cellular	3	0.46	656	99.54	659	4
Sprint	12	1.82	647	98.18	659	4
UNICEL	7	1.06	652	98.94	659	4
Wireless North	9	1.37	650	98.63	659	4
Other	25	3.79	634	96.21	659	4

Others	Count
AT&T	3
Currently switching	1
Digital	1
Firstel	1
Ionex	3
Looking for new company.	1
Midwest Wireless	1
Motorola	2
Prepaid	1
SRT	2
Trac Phone	2
Tracfone	2
Unspecified	5

h) What is your approximate annual household income?

- ❑ Under $20,000
- ❑ $20,000 – 39,000
- ❑ $40,000 – 79,000
- ❑ $80,000 +

	Count	Percent
1. Under $20,000	72	11.56
2. 20,000-39,000	217	34.83
3. 40,000-79,000	263	42.22
4. 80,000+	71	11.4
N=		623
*=		40

Survey III – Maintenance Survey

1. HOW OFTEN do you use the District or State Maintenance Forecasts provided by ATWIS to determine weather information for work purposes? (*Fill in only one blank*)

❑ Never use

_____ times/day

_____ times/week

_____ times/month

_____ times/year

Times/yr.	Count	Percent
0	2	6.25
5	1	3.13
12	1	3.13
30	1	3.13
52	1	3.13
104	2	6.25
156	3	9.38
208	5	15.63
365	8	25.00
520	1	3.13
703	5	15.63
730	2	6.25
N=	32	
*=	2	
Mean =	319.7	
St. Dev =	248.7	
Median =	286.5	

2. If you have NEVER USED or RARELY USE the District or State Maintenance Forecasts provided by ATWIS, briefly state the main reason below.

3. DURING WHICH SEASON(S) do you most often use the District or State Maintenance Forecasts provided by ATWIS to determine weather information? (*Check all that apply*)

❑ Spring
❑ Summer
❑ Fall
❑ Winter

Season	Count	Percent
Spring	16	51.61
Summer	7	22.58
Fall	13	41.94
Winter	30	96.77
N=	32	
*=	2	

4. HOW ACCURATE is the information retrieved from the District or Maintenance Forecasts provided by

ATWIS?

- ❑ Very Accurate
- ❑ Somewhat Accurate
- ❑ Neutral
- ❑ Somewhat Inaccurate
- ❑ Very Inaccurate
- ❑ Don't Recall

Description	Count	Percent
Very Accurate	8	27.59
Somewhat Accurate	19	65.52
Neutral	2	6.90
Somewhat Inaccurate	0	0.00
Very Inaccurate	0	0.00
Don't Recall	0	0.00
	N=	29
	*=	5
	Mean =	4.207
	St. Dev =	0.559

5. HOW EASY TO UNDERSTAND is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Easy
- ❑ Somewhat Easy
- ❑ Neutral
- ❑ Somewhat Difficult
- ❑ Very Difficult
- ❑ Don't Recall

Description	Count	Percent
Very Easy	17	56.67
Somewhat Easy	11	36.67
Neutral	2	6.67
Somewhat Difficult	0	0.00
Very Difficult	0	0.00
Don't Recall	0	0.00
	N=	30
	*=	4
	Mean =	4.5
	St Dev =	0.63

6. HOW RELIABLE is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Reliable
- ❑ Somewhat Reliable
- ❑ Neutral
- ❑ Somewhat Unreliable
- ❑ Very Unreliable
- ❑ Don't Recall

Description	Count	Percent
Very Reliable	6	20.00
Somewhat Reliable	22	73.33
Neutral	1	3.33
Somewhat Unreliable	1	3.33
Very Unreliable	0	0.00
Don't Recall	0	0.00
	N=	30
	*=	4
	Mean =	4.100
	St. Dev =	0.607

7. HOW TIMELY is the information retrieved from the District or Maintenance Forecasts

provided by ATWIS?

- ❑ Very Timely
- ❑ Somewhat Timely
- ❑ Neutral
- ❑ Somewhat Untimely
- ❑ Very Untimely
- ❑ Don't Recall

Description	Count	Percent
Very Timely	9	33.33
Somewhat Timely	15	55.56
Neutral	2	7.41
Somewhat Untimely	1	3.70
Very Untimely	0	0.00
Don't Recall	0	0.00
N=		27
*=		7
Mean=		4.185
St. Dev=		0.736

8. Overall, HOW USEFUL is the information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Very Useful
- ❑ Somewhat Useful
- ❑ Neutral
- ❑ Somewhat Useless
- ❑ Very Useless

Description	Count	Percent
Very Useful	11	37.93
Somewhat Useful	16	55.17
Neutral	1	3.45
Somewhat Useless	1	3.45
Very Useless	0	0.00
N=		29
*=		5
Mean=		4.276
St. Dev=		0.702

9. HOW OFTEN do you use alternate sources of weather information to verify information retrieved from the District or Maintenance Forecasts provided by ATWIS?

- ❑ Every Time
- ❑ Most of the Time
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

Description	Count	Percent
Every Time	3	10.00
Most of the Time	16	53.33
Sometimes	11	36.67
Rarely	0	0.00
Never	0	0.00
N=		30
*=		3.733
Mean=		30
St. Dev=		0.640

10. HOW OFTEN has information retrieved from the District or Maintenance Forecasts provided by ATWIS altered your plans or assignments of personnel or equipment?

- ❑ Every Time
- ❑ Most of the Time
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

Description	Count	Percent
Every Time	0	0.00
Most of the Time	5	16.67
Sometimes	20	66.67
Rarely	4	13.33
Never	1	3.33
	N=	30
	*=	4
	Mean=	2.967
	St. Dev=	0.669

11. What are some changes you would like made to the current ATWIS system?

_____

_____

_____

12. What position do you currently hold or what is your current job title?

Title	Count	Percent
Maintenance Supervisor	17	50.0
Area Engineer	9	26.5
District Engineer	3	8.8
Maintenance Coordinator	2	5.9
Other	3	8.8

Others	Count
Area Supervisor	1
Maintenance Superintendent	1
Maintenance Engineer	1

13. What is your current state of residence?

- ❑ North Dakota
- ❑ South Dakota

State	Count	Percent
N. Dakota	7	20.59
S. Dakota	27	79.41
	N=	34
	*=	0

14. What is your gender?

- ❑ Male
- ❑ Female

Gender	Count	Percent
Male	34	100
Female	0	0
	N=	34
	*=	0

15. What is your age?

- ❑ 15-24 years
- ❑ 25-44
- ❑ 45-64
- ❑ 65+

Age (years)	Count	Percent
15-24	0	0.00
25-44	25	73.53
45-64	9	26.47
65+	0	0.00
	N=	34
	*=	0

Survey IV – April 2002

1 **HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?**
   (Fill in only one blank)
   _____ times per day
   _____ times per week
   _____ times per month
   _____ times per year

Times	Count	Percent
1	7	0.84
2	11	1.32
3	9	1.08
4	14	1.67
5	7	0.84
6	22	2.63
8	3	0.36
9	2	0.24
10	13	1.56
11	1	0.12
12	33	3.95
15	1	0.12
18	3	0.36
20	1	0.12
24	64	7.66
25	1	0.12
30	1	0.12
36	43	5.14
48	42	5.02
50	1	0.12
52	43	5.14
60	15	1.79
72	12	1.44
80	1	0.12
90	1	0.12
96	7	0.84
100	2	0.24
104	78	9.33
106	1	0.12
108	1	0.12
110	1	0.12
120	12	1.43
144	1	0.12
156	56	6.7

Times	Count	Percent
180	3	0.36
200	3	0.36
208	32	3.83
240	6	0.72
260	36	4.31
288	2	0.24
300	2	0.24
312	13	1.56
324	1	0.12
334	1	0.12
360	3	0.36
364	9	1.08
365	18	2.15
416	5	0.6
520	8	0.96
600	1	0.12
624	2	0.24
728	1	0.12
730	92	11
780	3	0.36
1040	2	0.24
1095	16	1.91
1200	2	0.24
1300	1	0.12
1460	29	3.47
1825	11	1.32
1920	1	0.12
2190	7	0.84
2555	3	0.36
2920	1	0.12
3650	7	0.84
4380	1	0.12
5475	1	0.12
5840	1	0.12
7300	1	0.12
8030	1	0.12

N	836
*	29
Mean	375.36
Median	104
StDev	721.73

2 When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report? *(Check all that apply)*
❑ Television
❑ Radio (FM/AM)
❑ Telephone
❑ Highway Advisory Radio
❑ #SAFE (*#7233*)
❑ Internet
❑ Observations of Existing Conditions
❑ Notices at Truck Stops, Convenience Stores, Rest Areas
❑ Communication with Other Drivers
❑ Other (please *specify)* _____.

	Yes	Percent	No	Percent	*	N	Count
Television	676	78.6	184	21.4	5	860	865
Radio	715	83.14	145	16.86	5	860	865
Telephone	146	17	713	83	6	859	865
Highway Advisory Radio	104	12.11	755	87.89	6	859	865
Internet	248	28.87	611	71.13	6	859	865
Observation of Existing Condition	439	51.05	421	48.95	5	860	865
Notices	137	15.95	722	84.05	6	859	865
Communication with Other Drivers	273	31.78	586	68.22	6	859	865
Others	40	4.66	819	95.34	6	859	865

3 HOW IMPORTANT is the following traveler information for determining a change in your travel plans?
(Check only one response for each item)

	Very Important		Neutral		Very Unimportant
a) Road conditions	❑	❑	❑	❑	❑
b) Weather conditions	❑	❑	❑	❑	❑
c) Occurrence of hazard/accident	❑	❑	❑	❑	❑
d) Location of hazard/accident	❑	❑	❑	❑	❑
e) Travel delays	❑	❑	❑	❑	❑
f) Average travel speed	❑	❑	❑	❑	❑
g) Availability of alternate routes	❑	❑	❑	❑	❑
h) Construction	❑	❑	❑	❑	❑

	Count	*	Mean	StDev
Road conditions	850	15	4.03	0.291
Weather condition	841	24	4.51	0.298
Occurrence of Hazard	802	63	3.44	0.136
Location of Hazard/Accident	804	61	3.49	0.127
Travel delays	799	66	3.50	0.134
Average Travel Speed	808	57	3.39	0.132
Availability of Alternative Routes	807	58	3.56	0.121
Construction	819	46	3.72	0.127

	5. Very Important	%	4 Somewhat Important	%	3. Neutral	%	2. Somewhat Unimportant	%	1. Very Unimportant	%
Road conditions	611	71.88	156	18.35	62	7.29	9	1.06	12	1.41
Weather condition	599	71.22	179	21.28	48	5.71	6	0.71	9	1.07
Occurrence of Hazard	174	21.7	187	23.32	322	40.15	59	7.36	60	7.48
Location of Hazard/Accident	196	24.38	182	22.64	303	37.69	68	8.46	55	6.84
Travel delays	168	21.03	224	28.04	298	37.3	59	7.38	50	6.26
Average Travel Speed	147	18.19	223	27.6	311	38.49	55	6.81	72	8.91
Availability of Alternative Routes	194	24.04	238	29.49	260	32.22	52	6.44	63	7.81
Construction	256	31.26	234	28.57	226	27.59	57	6.69	46	5.62

4 **HOW OFTEN do you use the following services to determine road conditions or to hear a weather forecast report?**
(Check only one response for each item)

	Always		**Sometimes**		**Never**	**Didn't know about it**
a) #SAFE (*#7233*)	☐	☐	☐	☐	☐	☐
b) (701) 777-6133	☐	☐	☐	☐	☐	☐
c) www.safetravelusa.com	☐	☐	☐	☐	☐	☐

	N	*
# SAFE (7233)	824	41
701-777-6133	807	58
www.safetravelusa.com	801	64

5 **How have you been made aware of this service? (Check all that apply)**
❑ Radio
❑ Cellular retailer
❑ Acquaintance
❑ Internet
❑ Highway signs
❑ Brochure/Flyer
❑ Newspaper
❑ Other (*please pecify*)_____.

	5.Always	%	4	%	3. Sometimes	%	2	%	1.Never	%	Don't Know	%
# SAFE (7233)	15	1.82	16	1.94	85	10.3	32	3.88	206	24.97	470	54.33
701-777-6133	8	0.99	6	0.74	65	8.05	24	2.97	217	26.89	487	56.3
www.safetravelusa.com	2	0.25	6	0.75	33	4.12	18	2.25	219	27.34	523	60.46

	No	%	Yes	%	N	*
Radio	124	65.26	66	34.74	190	674
Cellular Retailer	178	92.71	14	7.29	192	673
Acquaintance	157	81.77	35	18.23	192	673
Internet	173	90.1	16	9.9	192	673
Highway signs	66	34.38	126	65.63	192	673
Brochure/Flyer	185	95.85	8	4.15	193	672
Newspaper	176	91.67	16	8.33	192	673
Television	137	71.35	55	28.65	192	673
Other	184	97.35	5	2.65	189	676

6   Do you TYPICALLY use this service to access road conditions or hear a weather forecast report…

❑ Before you start a trip?
❑ While on the road?
❑ Both

	Count	%
Before you start a trip	45	24.06
While on the road	50	26.74
Both	92	49.2
N	187	
*****	678	

7   When trying to access this service, HOW AVAILABLE is it? *(Check only one)*

Very Available		Neutral		Very Unavailable	Don't Recall
☐	☐	☐	☐	☐	☐

	Count	%
5.Very Available	52	29.38
4.Somewhat Available	66	37.29
3.Neutral	50	28.25
2.Somewhat Unavailable	6	3.39
1.Very Unavailable	3	1.69
Don't recall	16	8.29
N	177	
*****	688	
Mean	3.893	
Std	0.926	

8   HOW EASY to understand are the road condition reports and weather forecasts provided by this service? *(Check only one)*

Very Easy		Neutral		Very Difficult	Don't Recall
☐	☐	☐	☐	☐	☐

	Count	%
5.Very Easy	94	51.37
4.Somewhat Easy	53	28.96
3.Neutral	27	14.75
2.Somewhat Difficult	7	3.83
1.Very Difficult	2	1.09
Don't recall	7	3.68
N	183	
*****	682	
Mean	4.257	
Std	0.923	

9 HOW ACCURATE is this service's road condition reports and weather forecasts? *(Check only one)*

Very Accurate		Neutral		Very Inaccurate	Don't Recall
☐	☐	☐	☐	☐	☐

	Count	%
5.Very Accurate	44	24.18
4.Somewhat Accurate	90	49.45
3.Neutral	38	20.88
2.Somewhat Inaccurate	8	4.4
1.Very Inaccurate	2	1.1
Don't recall	9	4.71
N	182	
*	683	
Mean	3.912	
Std	0.849	

10 HOW LIKELY is this service's road condition reports and weather forecasts to affect your travel plans? *(Check only one)*

- ❑ Very Likely
- ❑ Somewhat Likely
- ❑ Neutral
- ❑ Somewhat Unlikely
- ❑ Very Unlikely

	Count	%
5.Very Likely	85	44.5
4.Somewhat Likely	66	34.55
3.Neutral	31	16.23
2.Somewhat Unlikely	5	2.62
1.Very Unlikely	4	2.09
N	191	
*	674	
Mean	4.17	
Std	0.937	

11 **Overall, HOW USEFUL is this service's road**
condition reports and weather forecasts? *(Check only one)*

❑   Very Useful
❑   Somewhat Useful
❑   Neutral
❑   Somewhat Useless
❑   Very Useless

	Count	%
5.Very Useful	113	59.79
4.Somewhat Useful	56	29.63
3.Neutral	18	9.52
2.Somewhat Useless	2	1.06
1.Very Useless	0	0
N	189	
*****	676	
Mean	4.48	
Std	0.712	

12 **What is your current state of residence?**

❑   North Dakota
❑   South Dakota
❑   Other_____.

	Count	%
North Dakota	380	44.13
South Dakota	360	41.81
Other	121	14.05
N	861	
*****	4	

13 **What is your gender?**

❑   Male
❑   Female

	Count	%
Male	554	64.49
Female	305	35.51
N	859	
*****	6	

14 What is your age?
- ❑ 15– 24 years
- ❑ 25 – 44
- ❑ 45 – 64
- ❑ 65 or older

	Count	%
15 - 24	55	6.4
25 - 44	285	33.18
45 - 64	337	43.89
65 or older	142	16.53
N	859	
*****	6	

15 What is the PRIMARY PURPOSE for the majority of your vehicle travel on U.S. or Interstate highways in North or South Dakota?
- ❑ Work
- ❑ School
- ❑ Shopping
- ❑ Medical
- ❑ Recreation
- ❑ Visit Family or Friends
- ❑ Other_____.

	Count	%
Work	398	58.88
School	10	1.48
Shopping	36	5.33
Medical	9	1.33
Recreation	65	9.62
Visit family or friends	154	22.78
Other	4	0.59
N	676	
*****	189	

16 What is the AVERAGE number of miles traveled for the trip purpose in Question 15?
- ❑ 0 – 24
- ❑ 25-49
- ❑ 50 – 99
- ❑ 100 – 300
- ❑ 300+

	Count	%
0 - 24	129	15.11
25 - 49	77	9.02
50 - 99	108	12.65
100 - 300	273	31.97
300+	267	31.26
N	854	
*****	11	

17 Do you have a CELLULAR TELEPHONE in your household?

❑ Yes _____Service Provider

❑ No

	Count	%
No	244	28.47
Yes	613	71.53
N	857	
*	8	

18 What is your approximate annual household income?

❑ Under $20,000

❑ $20,000 - $39,999

❑ $40,000 - $79,999

❑ $80,000 or more

	Count	%
under $ 20,000	76	9.31
$20,000 - $39,999	259	31.74
$40,000 - $79,999	353	43.26
$80,000 or more	128	15.69
N	816	
*	49	
Mean	2.653	
StD	0.853	

19 What TYPE of vehicle do you PRIMARILY drive on the U.S. or Interstate highways in North or South Dakota?

❑ Automobile

❑ Commercial (Truck, bus)

❑ Other_____

	Count	%
Automobile	582	68.79
Commercial	212	25.06
Other	52	6.15
N	846	
*	19	

Survey V – April 2003

1 HOW OFTEN do you travel on U.S. or Interstate highways in North or South Dakota?
(Fill in only one blank)
_____ times per day
_____ times per week
_____ times per month
_____ times per year

Times Per Year	Count	Percent
0	30	4.69
1	4	0.63
2	11	1.72
3	9	1.41
4	11	1.72
5	3	0.47
6	11	1.72
7	1	0.16
8	5	0.78
9	1	0.16
10	5	0.78
12	24	3.75
16	1	0.16
20	1	0.16
24	46	7.19
30	1	0.16
36	16	2.5
40	1	0.16
48	18	2.81
50	1	0.16
52	32	5
60	8	1.25
72	8	1.25
96	6	0.94
100	3	0.47
104	67	10.47
108	1	0.16
120	7	1.09
156	35	5.47
180	3	0.47

Times Per Year	Count	Percent
200	1	0.16
208	27	4.22
216	1	0.16
240	1	0.16
244	1	0.16
260	34	5.31
312	10	1.56
336	1	0.16
364	2	0.31
365	27	4.22
400	1	0.16
520	15	2.34
624	2	0.31
728	1	0.16
730	89	13.91
780	2	0.31
1040	1	0.16
1095	12	1.88
1460	15	2.34
1825	9	1.41
2190	8	1.25
2555	2	0.31
2920	2	0.31
3650	6	0.94
N=	640	
*=	0	
Mean	359	
Median	104	
St Dev	570.9	

2 **When traveling in North or South Dakota, WHAT RESOURCES do you NORMALLY use to determine road conditions or to hear a weather forecast report?** *(Check all that apply)*

❑ Television
❑ Radio (AM/FM)
❑ Telephone
❑ 511 travel information phone number
❑ Local Department of Transportation road condition phone numbers
❑ www.safetravelusa.com
❑ Other Internet sites
❑ Highway advisory radio (AM 530, AM 1610)
❑ Observations of existing conditions
❑ Notices at truck stops, convenience stores, rest areas
❑ Communication with other drivers
❑ Other *(please specify)* _____

	Yes		No		
	Count	Percent	Count	Percent	*
TV	489	76.65	149	23.35	2
Radio	520	81.5	118	18.5	2
Telephone	84	13.17	554	86.83	2
511	103	16.14	535	83.86	2
DOT	102	15.99	536	84.01	2
www.safetravelusa.com	5	0.78	633	99.22	2
Other Internet sites	87	13.64	551	86.36	2
HAR	57	8.93	581	91.07	2
Observations of existing conditions	314	49.22	324	50.78	2
Notices at truck stops, convenience stores, rest areas	43	6.74	595	93.26	2
Other drivers	124	19.44	514	80.56	2
Other	28	4.39	610	95.61	2

3 **If you were to call a travel information phone number, HOW IMPORTANT would the following features be?** *(Check only one response for each item)*

	Very Important		Neutral		Very Unimportant
a) Winter road conditions on highways	❑	❑	❑	❑	❑
b) Construction information on highways	❑	❑	❑	❑	❑
c) Weather forecasts	❑	❑	❑	❑	❑
d) Accident information	❑	❑	❑	❑	❑
e) Public transit information	❑	❑	❑	❑	❑
f) Information about conditions on city roads	❑	❑	❑	❑	❑
g) Access to travel information in neighboring states	❑	❑	❑	❑	❑
h) Regional road condition and construction reports	❑	❑	❑	❑	❑
i) Hands-free voice activation	❑	❑	❑	❑	❑
j) Opportunity to record comments and give feedback	❑	❑	❑	❑	❑

	Very Important				Neutral				Very Unimportant		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	*
Winter road conditions on highways	578	91.46	38	6.01	12	1.9	1	0.16	3	0.47	8
Construction information on highways	220	36.3	203	33.5	157	25.91	16	2.64	10	1.65	34
Weather forecasts	347	57.64	168	27.91	74	12.29	7	1.16	6	1	38
Accident information	67	11.75	109	19.12	272	47.72	63	11.05	59	10.35	70
Public transit information	18	3.17	36	6.35	212	37.39	107	18.87	194	34.22	73
Information about conditions on city roads	115	19.69	138	23.63	194	33.22	76	13.01	61	10.45	56
Access to travel information in neighboring states	144	24.37	190	32.15	173	29.27	47	7.95	37	6.26	49
Regional road condition and construction reports	171	29.03	219	37.18	143	24.28	31	5.26	25	4.24	51
Hands-free voice activation	75	13.32	93	16.52	216	38.37	56	9.95	123	21.85	77
Opportunity to record comments and give feedback	24	4.19	64	11.17	246	42.93	88	15.36	151	26.35	67

	N	Mean
Winter road conditions on highways	632	4.87
Construction information on highways	606	4
Weather forecasts	602	4.4
Accident information	570	3.11
Public transit information	567	2.25
Information about conditions on city roads	584	3.29
Access to travel information in neighboring states	591	3.6
Regional road condition and construction reports	589	3.81
Hands-free voice activation	563	2.89
Opportunity to record comments and give feedback	573	2.51

4   What other features would you like to see on a travel information phone system?

_____

  See Appendix F_____

_____

5   If it were necessary for you to identify your location to access travel information, WHICH METHOD would you prefer? *(Check only one)*

❑ By highway number and mile marker *(for example, I-29, mile marker 121)*
❑ By highway number and communities you are between *(for example, I-29 between Sioux Falls and Brookings)*
❑ By region *(for example, Southeast North Dakota, Northeast South Dakota, etc.)*
❑ By community *(for example, near Watertown, near Fargo, etc.)*
❑ Other _____

	Count	Percent
By highway number and mile marker	221	36.41
By highway number and communities you are between	273	44.98
By region	33	5.44
By community	74	12.19
Other	5	0.99
N	607	
*	33	

6   When you hear of poor travel conditions HOW LIKELY are you to…
(Check only one response for each item)

	Very Likely		Neutral		Very Unlikely
a) stop at a nearby town?	❑	❑	❑	❑	❑
b) change travel times?	❑	❑	❑	❑	❑
c) take an alternate route?	❑	❑	❑	❑	❑
d) cancel the trip?	❑	❑	❑	❑	❑
e) continue on regardless?	❑	❑	❑	❑	❑
f) seek an alternate mode of travel?	❑	❑	❑	❑	❑

	Very Likely				Neutral				Very Unlikely		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	*
stop at a nearby town?	183	31.18	151	25.72	145	24.7	52	8.86	56	9.54	33
change travel times?	330	55.84	152	25.72	75	12.69	19	3.21	15	2.54	49
take an alternate route?	173	30.3	181	31.7	130	22.77	32	5.6	55	9.63	69
cancel the trip?	212	35.69	144	24.24	129	21.72	47	7.91	62	10.44	46
continue on regardless?	35	6.17	93	16.4	150	26.46	103	18.17	186	32.8	73
seek an alternate mode of travel?	37	6.55	29	5.13	104	18.41	80	14.16	315	55.75	75

	N	Mean
stop at a nearby town?	587	3.6
change travel times?	591	4.29
take an alternate route?	571	3.67
cancel the trip?	594	3.67
continue on regardless?	567	2.45
seek an alternate mode of travel?	565	1.93

7 How have you been made aware of the 511 travel information phone number? *(Check all that apply)*

❑ Radio
❑ Television
❑ Public service announcements/advertisements
❑ Newspaper articles
❑ Family/Friends
❑ Internet
❑ Blue highway information signs
❑ Billboard
❑ Phone/cell phone provider
❑ Promotional flyers
❑ Other_____
❑ I was not aware of 511 before this survey

	Yes		No		
	Count	Percent	Count	Percent	*
Radio	207	32.81	424	67.19	9
Television	211	33.44	420	66.56	9
Public service announcements/advertisements	122	19.33	509	80.67	9
Newspaper articles	106	16.8	252	83.2	9
Family/Friends	62	9.83	569	90.17	9
Internet	15	2.38	616	97.62	9
Blue highway information signs	185	29.32	446	70.68	9
Billboard	45	7.13	586	92.87	9
Phone/cell phone provider	48	7.61	583	92.39	9
Promotional flyers	15	2.38	616	97.62	9
Other	8	1.27	623	98.73	9
I was not aware of 511 before this survey	204	32.33	427	67.67	9

8 In your opinion, have you received enough information about the 511 travel information phone number?

❑ Yes
❑ No

	Count	Percent
Enough Info	272	43.31
Not Enough Info	356	56.69
N	628	
*	12	

9 **HOW OFTEN have you used 511 since January 2003?** *(Check only one)*

Have not used 511 *(skip to Question 14)*
- ❑ 1-3 times
- ❑ 4 -6 times
- ❑ - 10 times
- ❑ More than 10 times

	Count	Percent
Have not Used 511	490	79.93
1-3 times	92	15.01
4-6 times	20	3.26
7-10 times	7	1.14
More than 10 times	4	0.65
N	613	
*	27	

If you HAVE NOT USED the 511 travel information phone number, please skip to Question 14.

10 **When do you USUALLY access 511?** *(Check only one)*
- ❑ Before I start a trip
- ❑ During a trip
- ❑ Both before and during a trip

	Count	Percent
Before I start trip	62	48.82
During s trip	30	23.62
Both before and during a trip	35	27.56
N	127	
*	513	

11 **Which travel information phone number do you PREFER?** *(Check only one)*
- ❑ 511
- ❑ #SAFE (#7233)
- ❑ Area Department of Transportation number
- ❑ No preference

Comments:_____

	Count	Percent
511	117	88.64
#SAFE(#7233)	2	1.52
Area Department of Transportation number	4	3.03
No preference	9	6.82
N	132	
*	508	

12 HOW SATISFIED are you with the following 511 capabilities? *(Check only one response for each item)*

	Very Satisfied		Neutral		Very Unsatisfied
a) The quality of the service	❏	❏	❏	❏	❏
b) The usefulness of the service	❏	❏	❏	❏	❏
c) The accuracy of the reported road conditions	❏	❏	❏	❏	❏
d) The accuracy of the weather forecasts	❏	❏	❏	❏	❏
e) The ease of accessing the information you want	❏	❏	❏	❏	❏
f) The ease of understanding the information	❏	❏	❏	❏	❏
g) The availability of the system (system is working/no busy signals)	❏	❏	❏	❏	❏

	Very Satisfied				Neutral			Very Unsatisfied		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	*
The quality of the service	59	46.09	49	38.28	18	14.06	1	0.78	1	0.78	512
The usefulness of the service	65	52	42	33.6	17	13.6	0	0	1	0.8	515
The accuracy of the reported road conditions	47	37.9	45	36.29	24	19.35	7	5.65	1	0.81	516
The accuracy of the weather forecasts	32	26.45	50	41.32	34	28.1	5	4.13	0	0	519
The ease of accessing the information you want	53	43.44	32	26.23	32	26.23	4	3.28	1	0.82	518
The ease of understanding the information	55	45.45	43	35.54	21	17.36	1	0.83	1	0.83	519
The availablity of the system	53	43.8	43	35.54	19	15.7	5	4.13	1	0.83	519

	N	Mean
The quality of the service	128	4.28
The usefulness of the service	125	4.36
The accuracy of the reported road conditions	124	4.05
The accuracy of the weather forecasts	121	3.9
The ease of accessing the information you want	122	4.08
The ease of understanding the information	121	4.24
The availablity of the system	121	4.17

13 Overall, how would you rate the North Dakota or South Dakota 511 travel information system?

Excellent		Average		Poor
❏	❏	❏	❏	❏

	Count	Percent
Excellent	42	31.58
	63	47.37
Average	25	18.8
	1	0.75
Poor	2	1.5
N	133	
*	507	

The following information is needed to ensure that your responses are properly represented in this survey.
It will be used for the purposes of this survey ONLY. *(Check only one response per question)*

14 What is your home zip code? _____

Zip Code	Count	Percent
57001	2	0.32
57002	1	0.16
57004	1	0.16
57005	4	0.63
57006	8	1.27
57012	1	0.16
57013	1	0.16
57014	2	0.32
57016	1	0.16
57022	3	0.47
57025	1	0.16
57027	1	0.16
57028	1	0.16
57030	1	0.16
57032	1	0.16
57034	1	0.16
57037	1	0.16
57039	1	0.16
57040	1	0.16
57042	2	0.32
57045	1	0.16
57046	1	0.16
57049	1	0.16
57055	1	0.16
57059	2	0.32
57062	1	0.16
57064	1	0.16
57066	1	0.16
57069	6	0.95
57071	3	0.47
57072	1	0.16
57078	8	1.27
57103	11	1.74
57104	8	1.27
57105	9	1.42
57106	13	2.06
57108	4	0.63
57110	1	0.16
57201	11	1.74
57213	1	0.16
57217	1	0.16
57218	1	0.16
57226	2	0.32
57227	1	0.16
57232	1	0.16
57233	1	0.16
57234	1	0.16
57235	1	0.16
57237	1	0.16
57241	1	0.16
57243	1	0.16
57246	1	0.16
57259	2	0.32
57262	2	0.32
57266	1	0.16
57301	4	0.63
57312	1	0.16
57315	1	0.16
57317	1	0.16
57334	1	0.16
57348	1	0.16
57349	1	0.16
57350	9	1.42
57355	1	0.16
57356	3	0.47
57363	1	0.16
57366	1	0.16
57369	2	0.32
57375	1	0.16
57376	1	0.16
57380	1	0.16
57385	1	0.16
57401	14	2.22
57422	1	0.16

Zip Code	Count	Percent
57427	1	0.16
57428	1	0.16
57430	1	0.16
57435	1	0.16
57437	1	0.16
57438	1	0.16
57442	1	0.16
57449	1	0.16
57450	1	0.16
57451	2	0.32
57454	1	0.16
57456	1	0.16
57461	1	0.16
57471	1	0.16
57501	2	0.32
57523	1	0.16
57532	1	0.16
57533	2	0.32
57535	1	0.16
57544	1	0.16
57548	1	0.16
57551	1	0.16
57553	1	0.16
57555	3	0.47
57556	1	0.16
57567	1	0.16
57580	3	0.47
57588	1	0.16
57601	3	0.47
57620	1	0.16
57622	1	0.16
57626	1	0.16
57632	1	0.16
57638	2	0.32
57656	1	0.16
57701	13	2.06
57702	18	2.85
57703	3	0.47
57706	1	0.16
57709	1	0.16
57710	1	0.16
57717	1	0.16
57718	1	0.16
57720	1	0.16
57725	1	0.16
57730	4	0.63
57732	1	0.16
57735	1	0.16
57745	1	0.16
57747	3	0.47
57754	1	0.16
57760	3	0.47
57761	2	0.32
57770	2	0.32
57772	1	0.16
57783	5	0.79
57785	1	0.16
57793	2	0.32
58001	1	0.16
58002	1	0.16
58011	1	0.16
58012	1	0.16
58013	1	0.16
58015	1	0.16
58017	1	0.16
58027	1	0.16
58030	1	0.16
58032	2	0.32
58033	1	0.16
58035	1	0.16
58040	1	0.16
58041	1	0.16
58045	1	0.16
58047	3	0.47

Zip Code	Count	Percent
58051	2	0.32
58054	2	0.32
58063	1	0.16
58072	5	0.79
58075	2	0.32
58078	13	2.06
58079	1	0.16
58081	1	0.16
58102	9	1.42
58103	19	3.01
58104	9	1.42
58105	1	0.16
58201	11	1.74
58203	8	1.27
58204	2	0.32
58208	1	0.16
58212	2	0.32
58220	1	0.16
58222	1	0.16
58224	1	0.16
58227	1	0.16
58231	1	0.16
58237	4	0.63
58240	1	0.16
58241	1	0.16
58243	1	0.16
58249	1	0.16
58251	1	0.16
58256	2	0.32
58257	2	0.32
58259	1	0.16
58266	1	0.16
58269	1	0.16
58270	1	0.16
58275	1	0.16
58276	2	0.32
58278	1	0.16
58301	4	0.63
58310	1	0.16
58318	4	0.63
58325	1	0.16
58327	1	0.16
58329	2	0.32
58341	1	0.16
58345	1	0.16
58351	2	0.32
58356	3	0.47
58367	3	0.47
58368	2	0.32
58369	1	0.16
58374	1	0.16
58401	7	1.11
58413	2	0.32
58420	1	0.16
58421	2	0.32
58422	1	0.16
58428	1	0.16
58436	1	0.16
58438	1	0.16
58441	1	0.16
58451	1	0.16
58456	1	0.16
58476	1	0.16
58501	8	1.27
58502	1	0.16
58503	5	0.79
58504	9	1.42
58523	3	0.47
58532	1	0.16
58540	3	0.47
58545	4	0.63
58552	1	0.16
58554	12	1.9
58559	1	0.16

Zip Code	Count	Percent
58561	2	0.32
58563	3	0.47
58570	1	0.16
58571	1	0.16
58577	1	0.16
58595	1	0.16
58601	16	2.53
58622	3	0.47
58623	2	0.32
58626	1	0.16
58631	1	0.16
58638	1	0.16
58639	1	0.16
58640	1	0.16
58645	1	0.16
58646	1	0.16
58647	1	0.16
58651	1	0.16
58655	1	0.16
58701	14	2.22
58703	11	1.74
58718	1	0.16
58721	2	0.32
58722	1	0.16
58730	1	0.16
58736	1	0.16
58741	2	0.32
58746	2	0.32
58749	1	0.16
58759	1	0.16
58761	1	0.16
58763	1	0.16
58765	1	0.16
58770	2	0.32
58779	1	0.16
58781	1	0.16
58785	1	0.16
58788	1	0.16
58789	1	0.16
58790	1	0.16
58801	11	1.74
58830	1	0.16
58831	1	0.16
58849	1	0.16
58852	1	0.16
58853	1	0.16
58854	2	0.32
N=	632	
*=	8	

	Count	Percent
SD	297	47.0
ND	335	53.0
N	632	
*	8	

15 What is your gender?
❑ Male
❑   Female

	Count	Percent
Male	412	64.58
Female	226	35.42
N	638	
*	2	

16 What is your age?
❑ 18– 24 years
❑   25 – 44
❑   45 – 64
❑   65 or older

	Count	Percent
18-24	18	2.82
25-44	173	27.12
45-64	312	48.9
65 or older	135	21.16
N	638	
*	2	
Mean	2.884	

17 Do you own a mobile phone?
❑ Yes
❑   No

	Count	Percent
Own Mobile Phone	427	67.56
Do Not Own Mobile Phone	205	32.44
N	632	
*	8	

18 What type of vehicle do you NORMALLY drive on highways in North or South Dakota?
❑ Automobile (car, pickup, SUV)
❑ Commercial (truck, bus)
❑ RV
❑ Other _____

	Count	Percent
Automobile	586	94.82
Commercial	22	3.56
RV	0	0
Other	10	1.62
N	618	
*	22	

19 What is the highest level of education you have completed?

❑ Did not finish high school
❑ High school graduate or equivalent
❑ 2-year college (community/technical)
❑ 4-year college/university
❑ Post-graduate college/university

	Count	Percent
Did not finish high school	39	6.19
High school graduate or equivalent	231	36.67
2-year college	130	20.63
4-year college/university	147	23.33
Post-graduate college/university	83	13.17
N	630	
*	10	

20 General comments/suggestions: __See Appendix D__

Appendix C – Table of Chi-Squared Comparisons

In Survey V, when the number of responses in categories was small, less than 5, the numbers in more than one category were added together to allow chi-square testing. Chi-square tests are invalid when the expected count of an event is less than 5. This was done for the demographic category of age and vehicle type for each information category.

Information	1. Highway Use	5. #SAFE Use/Year	6. #SAFE Before/During	7. Season = Spring	7. Season = Summer	7. Season = Fall	7. Season = Winter	17a. Residence	17b. Gender	17c. Age	17d. Vehicle Type	17e. Trip Purpose	17f. Vehicle Miles Traveled	17g. # of Cell Phones	17h. Cellular Carrier	17i. Household Income
1. Highway Use																
2. Source = TV																
2. Source = Radio																
2. Source = Telephone																
2. Source = HAR																
2. Source = #SAFE																
2. Source = Internet																
2. Source = Observation																
2. Source = Public Notices																
2. Source = Other Drivers																
3a. Road Conditions																
3b. Weather Conditions																
3c. Occurrence of hazard																
3d. Location of hazard																
3e. Travel Delays																
3f. Average travel speed																
3g. Alternate routes																
4a. Condition = Clear																
4b. Condition = Cloudy																
4c. Condition = Rainy																
4d. Condition = Snowy																
4e. Condition = Windy																
4f. Condition = Blizzard																
4g. Condition = Daytime																
4h. Condition = Nighttime																
5. Never use #SAFE																
5. #SAFE Use/Year																
6. #SAFE before or during trip																
7. Season = Spring																
7. Season = Summer																
7. Season = Fall																
7. Season = Winter																
8. #SAFE Availability																
8. Don't Recall Availability																
9. #SAFE Timeliness																
9. Don't Recall Timeliness																
10. #SAFE Understandability																
10. Don't Recall Understandability																
11. #SAFE Accuracy																
11. Don't Recall Accuracy																
12a. Highway menu option ease																
12a. Don't Recall Highway menu ease																
12b. State menu option ease																
12b. Don't Recall state menu ease																
12c. Direction menu option ease																
12c. Don't Recall Direction menu ease																
12d. Mile-marker menu option ease																
12d. Don't Recall mile-marker menu ease																
13. Likelihood of affect on travel plans																
14. #SAFE Usefulness																
15. Willingness to Pay																
16. Awareness = Radio																
16. Awareness = Cellular Retailer																
16. Awareness = Acquaintance																
16. Awareness = Internet																
16. Awareness = Newspaper																
16. Awareness = Highway Signs																
16. Awareness = Brochure/Flyer																
16. Awareness = This Survey																

Legend:
- Chi-squared Analysis Passed
- Chi-squared Analysis Invalid
- No Chi-squared Analysis
- Chi-squared Differences Found

Table C1: Chi-squared Comparisons Included in the Analysis for Survey I

Question/Demographic	1. Highway Use	4. #SAFE Use/Year	6. #SAFE before or during trip	7. Season = Spring	7. Season = Summer	7. Season = Fall	7. Season = Winter	17a. Residence	17b. Gender	17c. Age	17d. Trip Purpose	17e. Vehicle Miles Traveled	17f. # of Cell Phones	17h. Household Income
1. Times per Year												D		
2.TV	P	X	X	X	X	X	X	P		P		X		
2.Radio	P	X	X	X	X	X	X					X		
2.Telephone	P	X	X	X	X	X	X					X		
2.HAR	P	X	X	X	X	X	X		D					
2.Pound SAFE	P	X	X	X	X	X	X					X		X
2.Internet	P	X	X	X	X	X	X					D	D	
2.Observation	P	X	X	X	X	X	X							
2.Notices	P	X	X	X	X	X	X			X	X			X
2.Other Drivers	D	X	X	X	X	X	X				D	P		
2.Other	X	X	X	X	X	X	X			X	X		X	X
3.a. Road Conditions	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.b Weather Conditions	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.c. Occurence of hazard	X	X	X	X	X	X	X	P	X	X	X	X	X	X
3.d. Location of hazard	X	X	X	X	X	X	X	P	X	X	X	X	X	X
3.e. Travel Delays	X	X	X	X	X	X	X	P	X	X	X	X	X	X
3.f. Average travel speed	X	X	X	X	X	X	X	P	X	X	X	X	X	X
3.g. Alternate routes	X	X	X	X	X	X	X	P	X	X	X	X	X	X
3.h. Construction	X	X	X	X	X	X	X	P	X	X	X	X	X	X
4. Never use	P	X	X	X	X	X	X	P	X			P	D	
4. Times per Year	X		X	X	X	X	X	P		X	X	X	X	X
6. Typically use	X	X					X	P	X	X	X	X	X	X
7. Spring	X	X	X		X	X	X	P	X	X	X	X	X	X
7. Summer	X	X	X	X		X	X	P	X	X	X	X	X	X
7. Fall	X	X	X	X	X		X	P	X	X	X	X	X	X
7.Winter	X	X	X	X	X	X			X	X	X	X	X	X
8. How Available	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9.How Timely	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10. How Easy	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11. How Accurate	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.a.Highway	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.a. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.b. State	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.b. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.c. Direction	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.c. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.d.Location	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12.d. Do Not Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13.How Likely	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14. How Useful	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15. How Much Per Call	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16. Not aware before now	P	X	X	X	X	X	X	P	P	P	X	P	X	
16.Radio	P	X	X	X	X	X	X	P	P	X	X	P	X	
16.Cellular Retailer	P	X	X	X	X	X	X	P	P	X	X	P	X	
16. Acquaintance	X	X	X	X	X	X	X	P	P	X	X	X	X	X
16.Internet	X	X	X	X	X	X	X	P		X	X	X	X	X
16. Highway Signs	X	X	X	X	X	X	X	P	P	X	X	P	X	X
16. Brochure/Flyer		X	X	X	X	X	X	P	X	X	X	X	X	X
16. Newspaper	X	X	X	X	X	X	X	P	X	X	X	X	X	X
16. Other	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Legend:

(gray)	Chi-squared Analysis Passed
(X)	Chi-squared Analysis Invalid
(white)	No Chi-squared Analysis
(black)	Chi-squared Differences Found

Table C2 - Chi-squared Comparisons Included in the Analysis for Survey II

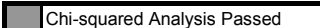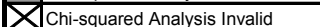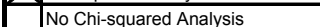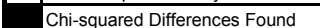| Question/Demographic	1. Highway Use	4a. #SAFE Usage	4b. (701)777-6133 Usage	4c. www.safetravelusa.com Usage	6. #SAFE before or during trip	12. Residence	13. Gender	14. Age	15. Trip Purpose	16. Vehicle Miles Traveled	17. Cell Phones	18. Household Income	19. Vehicle Type
1. Times per Year													
2.TV													
2.Radio													
2.Telephone													
2. Cell Phone													
2.HAR													
2. (701) 777-6133													
2.Pound SAFE													
2.Internet													
2.Observation													
2.Notices													
2.Other Drivers													
2. www.safetravelusa.com													
2.Other													
3.a. Road Conditions													
3.b Weather Conditions													
3.c. Occurence of hazard													
3.d. Location of hazard													
3.e. Travel Delays													
3.f. Average travel speed													
3.g. Alternate routes													
3.h. Construction													
4a. #SAFE Usage													
4b. (701)777-6133 Usage													
4c. www.safetravelusa.com Usage													
5.Radio													
5.Cellular Retailer													
5. Acquaintance													
5.Internet													
5. Highway Signs													
5. Brochure/Flyer													
5. Newspaper													
5. Other													
6. Typically use													
7. How Available													
7. Do Not Recall													
8. How Easy													
8. Do Not Recall													
9.How Accurate													
9. Do Not Recall													
10. How Likely													
10. Do Not Recall													
11. How Useful													
11. Do Not Recall													

Legend:
- ▓ Chi-squared Analysis Passed
- ✕ Chi-squared Analysis Invalid
- ☐ No Chi-squared Analysis
- ■ Chi-squared Differences Found

Table C3 - Chi-squared Comparisons Included in the Analysis for Survey IV

Information	1. Highways/year (5 categories)	14a. State	15. Gender	16. Age	17. Mobile Phone	18. Vehicle	19. Education level
		Demographics					
1. Highways/year (5 categories)		passed	differences	invalid	invalid	invalid	invalid
2. TV	passed	differences	differences	invalid	passed	invalid	passed
2. Radio	passed	passed	passed	invalid	differences	invalid	passed
2. Telephone	passed	passed	passed	invalid	passed	invalid	passed
2. 511	passed	passed	passed	invalid	differences	invalid	passed
2. Local DOT	passed	passed	passed	invalid	passed	invalid	passed
2. www.safetraelusa.com	invalid	invalid	invalid	invalid	passed	invalid	invalid
2. Other Internet	passed	passed	passed	invalid	differences	invalid	differences
2. HAR	invalid	passed	passed	invalid	passed	invalid	differences
2. Observations of exising conditions	passed	passed	passed	invalid	passed	invalid	differences
2. Notices	invalid	passed	passed	invalid	passed	invalid	invalid
2. Communication	passed	passed	passed	invalid	passed	invalid	passed
2. Other	invalid	passed	passed	invalid	passed	invalid	invalid
3a. Winter road conditions on highway	invalid	invalid	invalid	invalid	invalid	invalid	invalid
3b. Construction information on highways	invalid	passed	differences	invalid	passed	invalid	invalid
3c. Weather forecasts	passed	passed	invalid	invalid	passed	invalid	invalid
3d. Accident information	differences	passed	passed	invalid	passed	invalid	invalid
3e. Public transit information	invalid	passed	passed	invalid	differences	invalid	invalid
3f. Information about conditions on city roads	differences	passed	differences	invalid	passed	invalid	invalid
3g. Access to travel information in neighboring states	differences	passed	passed	invalid	passed	invalid	invalid
3h. Regional road condition and construction reports	invalid	passed	passed	invalid	passed	invalid	invalid
3i. Hands-free voice activiation	passed	differences	passed	differences	differences	passed	invalid
3j. Opportunity to record comments and give feedback	passed	passed	passed	invalid	differences	invalid	invalid
5. Identify location	invalid	passed	differences	invalid	passed	invalid	invalid
6a. Stop nearby town	invalid	passed	differences	invalid	passed	passed	invalid
6b. Change travel times	invalid	passed	differences	invalid	invalid	invalid	invalid
6c. Alternate route	invalid	passed	differences	invalid	passed	invalid	invalid
6d. Cancel trip	invalid	passed	differences	invalid	differences	invalid	invalid
6e. Continue	invalid	passed	differences	invalid	passed	invalid	invalid
6f. Alternate mode	invalid	passed	passed	invalid	passed	invalid	invalid
7. Radio	passed	passed	differences	differences	differences	differences	passed
7. Television	passed	differences	passed	invalid	passed	passed	passed
7. Public service announce	passed	passed	passed	invalid	passed	passed	passed
7. Newspaper	passed	passed	passed	invalid	passed	passed	invalid
7. Family/friends	passed	passed	passed	invalid	invalid	passed	invalid
7. Internet	invalid	passed	differences	invalid	invalid	invalid	invalid
7. Highway info signs	passed	passed	passed	invalid	differences	passed	passed
7. Billboard	invalid	passed	passed	invalid	passed	passed	passed
7. Phone/cell provider	invalid	passed	passed	invalid	differences	invalid	invalid
7. Promo flyers	invalid	passed	differences	invalid	passed	invalid	invalid
7. Other	invalid	invalid	invalid	invalid	invalid	invalid	invalid
7. Not aware	passed	differences	passed	differences	passed	differences	passed
8. Enough information	passed	differences	passed	invalid	passed	passed	passed
9. Frequency of 511 use since jan 2003	invalid	invalid	invalid	invalid	invalid	invalid	invalid
10. When usually access 511	invalid	invalid	invalid	invalid	invalid	invalid	invalid
11. Travel information preference	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12a. Quality of service	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12b. Usefulness of service	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12c. Accuracy of reported road conditions	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12d. Accuracy of weather forecasts	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12e. Ease of accessing info you want	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12f. Ease of understanding the info	invalid	invalid	invalid	invalid	invalid	invalid	invalid
12g. Availability of the system	invalid	invalid	invalid	invalid	invalid	invalid	invalid
13. Overall 511 rating	invalid	invalid	invalid	invalid	invalid	invalid	invalid

Legend:
- No chi-square test
- Chi-square differences found
- Chi-square analysis passed
- Chi-square invalid

Table C4 – Chi-square comparisons included in the analysis for Survey V

Appendix D – Comments from Survey Participants

Survey I – July 2000

- #SAFE needs some marketing. This is the first I've heard of it. Cell user for 8 years.
- #SAFE sounds interesting. It would be nice to have reliable road/weather info.
- #SAFE sounds like a wonderful public service, if only the public knew about it.
- Cell phones are the best things ever invented
- Communications is vital. Thanks for pursuing this.
- Did not know that it existed
- Have more highway signs with the phone number
- How do you use #SAFE?
- I am a single traveler and would like a number to call
- I am a State Trooper.
- I am not familiar with #SAFE.
- I appreciate this service. In the winter, it could be advertised more.
- I did not know about # SAFE until this
- I didn't know about #SAFE, I would love to have more info. It would be helpful.
- I have never heard of this. You need more advertisement.
- I have never heard of #SAFE before.
- I have never heard of #SAFE, I would be interested in more info.
- I have never heard of this before.
- I have never heard this referred to as #SAFE. The ND signs say #7233.
- I have never used #SAFE but I might use it now that I know about it.
- I have not called #SAFE in a while.
- I have not heard of #SAFE. I would be interested in learning more.
- I have not heard of this before and would like more info.
- I have not used the system I am not opposed to it though if good information on it
- I never knew the #SAFE existed until this survey.
- I think our dealers should tell people about this.
- I think that #SAFE is a good idea, but numbers would be easier to use.
- I think this should be advertised more. I was not aware of #SAFE but I am now.
- I was not aware of #SAFE and am glad to hear of it.
- I was not aware of #SAFE.
- I was not aware of the system. If I knew of it, I would have used it. I will now
- I was not aware of this until this survey.
- I wasn't aware of #SAFE, I would appreciate some more information.

- I will use this in the future.
- I would be willing to try #SAFE
- I would like more info o the #SAFE system.
- I would like more information on #SAFE. It only takes once for it to pay off.
- I would like more information on the #SAFE system.
- I would like to have info on #SAFE for me and my husband
- I would like to receive more information about #SAFE.
- I would use #SAFE if I had known about it.
- I would use this had I known about it.
- If I did have a cell phone, #SAFE would be nice to have access to on the road.
- If weather and road conditions are not good, I do not travel in winter.
- It is not always easy to find your mile marker and exit.
- It would have been nice had our cellular company made us aware of this.
- I've never heard of #SAFE. I do not remember any media coverage of it.
- I've never heard of it. It sounds like a good thing that people should know about
- I've seen the highway signs for years, but until now did not realize what #SAFE
- More extensive promotion of #SAFE. I did not know that it existed in this area.
- Most highway reports are not accurate or up to date.
- Need more information on #SAFE before I would use the service.
- Need to get #SAFE out to the public more. Like maybe on cell phone bills.
- Never heard of #SAFE before, but I will use it now.
- Never heard of it before
- Please make the information about #SAFE more noticeable through advertising
- Please take my name off your mailing list.
- Should have more information on what #SAFE is and a number to call to try it
- Sounds like a good service. Is it available here now?
- Still do not know what #SAFE system is.
- Thank You #SAFE Good Program
- Thank you for asking people's opinions, I think its great.
- Thanks for informing me about #SAFE, I will use it now.
- The updates are not very current. They were not updated within last 2 hours
- There needs to be more publicity on this service.
- This is a wonderful survey. I enjoyed filling it out. Thanks
- This is the first I have heard about #SAFE
- This is the first I have heard if it. I would like to know more about it.
- Up to this point, we were unaware of this program, but we will try it.
- Was not aware of #SAFE until this survey

- We no longer own a cell phone.
- Weather/Road conditions are very important to people in western SD.
- What is #SAFE?
- What is #SAFE?
- What is #SAFE?
- What our income is should not have any bearing on this survey.
- Wish there was more information on #SAFE, and how to use it, etc.…
- Would like to learn more about the #SAFE program
- You might want to find ways to publicize #SAFE better.
- You should talk about using #SAFE on the local news and radio

Survey II – January 2001

- #SAFE needs to be advertised not many people are aware of it.
- Advertise your #SAFE.
- Appreciate your concerns for the public's safety. Thank You.
- As I said before, put more specific directions on the signs as to how to use. Otherwise, thank you very much for the service.
- Cell phone companies should inform customers when purchasing phones about this.
- Could you please send more information on #SAFE.
- Could you send me more info? On the #SAFE system.
- Do our schools have your Info? And #?
- Good luck in your quest.
- Good Survey, Hope this helped.
- Have cellular companies inform of service and cost.
- How did you get my home, the cell phones are in another name?
- I didn't know this existed until this survey. I suggest more promotion such as signs at cell stores, ads on the radio or ads in the cell bills.
- I like having the #SAFE program. It is needed in our area of the country!
- I plan to use #SAFE in the future. Sounds like it would be the quickest+easiest way to get info and the most accurate.
- I still don't know how to use #SAFE.
- I use Highway 2 to go to work from where I live and I feel the highway is well maintained for all reasons. (weather, dead animals…)
- I was unaware of the #SAFE system but I now will use it if necessary!
- I will try the service, as I have not used it in the past.
- I wish cell phones would be less expensive, so a person could afford one for each driver in the household.
- I wish that our local state highways #'s 11,18,13 would be included in the road conditions.
- I wish there is a program if people get welfare or SSI the payment be cheap.
- I would have used #SAFE if I had known it existed.
- I would like more information on this number.
- I would like special rates to be able to use in our home to cut charges down.
- I would like to get a cell phone.
- I'm sure this is a wonderful resource for weather conditions. Because of this survey I will remember to use it more - now especially because I have a baby along in the vehicle
- In the summer I travel 4 more times per day on the Interstate during the week.

- Interested in hearing more about #SAFE. Still don't know how to access it. Is it on the cell phone?
- It's very important in SD to know about weather+road conditions in the winter. It's best to know if a bad storm is heading in your direction.
- Keep up the good work.
- Limited usefulness in the area I drive in S. Central ND, as my highways are not available on system.
- My problem is with the automation which said was clear and OK in fact we were in bad weather. Only used it the once was not current.
- Never got the survey until the 12th of Jan.
- People who can afford cellular phones can afford to pay for services such as this #SAFE thing. It sounds like a waste of taxpayer's money to me.
- Plan to change cell co. when contract up this fall. Was with Cellular 2000 before moving to ND 1999.
- Send more info. on #SAFE.
- Sounds like a neat program.
- Sounds like a valuable service.
- Thank You
- Thank you for including me in the survey.
- Thank you for informing me of #SAFE. It's nice to know I have another resource.
- Thank you for the info. We could really use the gas coupon. I hope I win.
- Thank You for the information given on #SAFE. I will begin to make use of it.
- Thank you for the useful information.
- Thank you.
- Thanks for including us in the survey. Nice to know of another way to get reports
- Thanks for informing me on this service for my cell phone! I'll have to try it.
- Thanks for making me aware of #SAFE!
- Thanks for telling me- I will use it now.
- The #SAFE program needs more advertising to get the word out. It could be very useful.
- The area I live and travel verizon doesn't work in most areas.
- The cell phone is a great feeling of security when traveling in bad weather.
- The mile marker request for the system is tough a lot of the highways have very few if any.
- There seems to be a lot of dead spots in rural areas where our cell phone won't let us call out nor can we receive calls. This can be a dangerous situation if weather is bad, or there is an accident and a person cannot rely on the phone to get help.
- This survey has made me more aware of #SAFE. Thanks

- Tower needed in Elgin-Carson area in N.D.
- Traveled for cancer treatments but will not go as much next year. In SD I would like to see us go back to 65mph on the interstate.
- We call published numbers for road advice, however it is a recorded message for the entire state and is much to general to be truly effective. We would use a service that was more specific to our travel area.
- We were not aware of this service before now and called it today and loved it.
- What is #SAFE?
- What is #SAFE?
- Why me? I once was a truck driver; it was a priority to have the weather.
- Will try #SAFE now that I know about it.
- Would like to learn more about #SAFE.
- Would like to win Conoco deal - it would be wonderful.

Survey III – Maintenance Survey
- Use as a tool, uses several sources, hasn't found one can put full confidence in
- Likes the hourly, enjoys the info, checks with TV
- Useful
- Didn't give it a good chance
- I am the overall coordinator for the maintenance of 1800 lane miles of roadway in the SE corner of North Dakota. The ATWIS system is an excellent tool coordinating roadway maintenance activities. Forecasting is accurate.
- Very good system. It is easy to use.
- I would like to see the total amounts of snow or rain in the forecast maybe to have more updates on the weather when storms are coming

Survey IV – April 2002

- I very seldom use highways. The majority of places I have to go is located within the city.
- I have a phone for any car problem flat tyre or car problem- as I am totally disabled-can't walk for help
- the weather far cash is not always right.
- Never heard of the service
- I did not know that the items in questions #4 existed . good information.
- State of SD has it's own special road conditions phone number for SD Roads 330-6071
- I was concerned when I saw sign for weather into with cell #'s only as we don't have a cell phone. In the car we depend the radio.
- I am now aware of the services I had not heard of before (because of the questionnaires)
- In extreme weather conditions, weather and road conditions should be broadcast on all area radio stations using the emergency broadcast system.
- So, what are these services?
- I just purchased a cell phone in February. My new services said nothing about the new members
- I don't use these services know but I see the signs up on the highway. I am glad to see the sign just in case I need to use that number
- I will check this out now
- Retired from ND DOT so sometimes call local office
- I appreciate being made aware of other services available
- All local trip or hwy to/from work other is all interstate hwy 300t miles- 5*y
- I've wrote the 3#'s down listed in questions 4 and plan on using them in the future
- Miles traveled in North and South Dakota always in the semi. Some mouths North Dakota miles are very much
- North Dakota rest area program is awesome. Let Montana know how you do it , there is very poor, thanks also to ND road improvements
- It is always nice to know what the weather condition are ahead of you ; it doesn't do any good to get a road report that is more than three hours old.
- Road seem to be getting better all the times –70 miles on hour is fast enough-55 to 60 on some roads
- I got caught in a very bad storm this past October. I used # 7233 and received inaccurate information. It should have been updated to reflect the true conditions on this case, it 'downplayed' the severity of the weather and road conditions : therefore: needs to be updated more frequently through out day when nasty weather is approaching.
- I do also hear weather reports on state radio as my job operating equipment for city snowplows, street sweeper etc.
- I have called the number on the back of my driver's license to report a fire on the interstate
- I have driven many times when the message on the radio is mo travel advised ' and made the trip in normal or a little less than normal time! Bad advice causes a person to not pay attention when it is really bad. I've worked at a radio station for over 35 years – I find the best information on road condition is truckers!

- # 7723 doesn't work on my cell phone because signal is directed to home area before going back out. Its like that on most out of state cell phones
- None weather radio in excellent for area you are in but can't tell anything outside broadcast area. Internet helps. To all weather station if you have time to wait tell they get to area you are interested in.
- I would like to see road condition signs like they have in Washington & Idaho that show the temp and any adverse weather ahead.
- Update info more often.
- Retired –travel for pleasure
- I have sold my car and no longer drive so don't feel this application and consider this information as completion of survey.
- Good luck with the survey now that & know about it and hope to use it.
- I drive everyday- the most difficult issue for me is that I have driven on days where the media is suggesting no travel and it's not too bad. I 've traveled other days and I wonder why no one reporting poor road conditions. It's hard to trust road reports
- Roads traveling south need to be changed to 2 lanes south and 2 lanes coming north especially Hwy 83 (like interstate going E & W)
- As a suggestion LED signs are used frequently in Canada to advise of road conditions and closures. They seem to work real well
- Need good info up to date. We move long, heavy and wide loads across I90-I94 corridor from Washington –Minnesota.
- I just logged onto www.safetravel.com and liked what I saw. I will now use it now that I am aware of this site. I have been using numerous other sites.
- I do not have anything as do not have car drive in 89years old
- You should make sure these services are made more publicized. The general public needs to know my income is my business
- This information is for safety use for the trucking company I work with.
- I think most people do not know about the service for hearing weather condition
- I will check your website safetravelusa the next time and travel
- Need more and larger rest area's
- Just installed xm radio (satellite radio) and it has real good 24hrs weather radio network. Should be good for upcoming winters.
- I know there was these services, just not specially
- Why would anyone want to go to North or South Dakota?
- Need 3g to access web on notebook pc still developing. Best service is NOAA weather radio for now
- Let trucks know about #safe –776133 and www
- But I disturb lots of bumps in ND on Hwy I94
- Glad to see we are trying to get info to drivers. Would probably use but don't go through much anymore. Use to go throughout 2* a week years ago
- Like to see tax dollars used for highway repair and maint. In both N&S Dakota roads entirely too rough for freight carriers.
- Sorry I haven't heard of your service, now that I have we will, we have a computer here and in AZ , we have relatives in Helena.

- Dependent on availability of alternate routes – would like to see one national wide number with options for each state.
- I plan to try #safe and www.safetravelusa.com the weather for the entire western US is as important in the winter as the regional weather, when selecting my route . I drive to the west coast and back to northern Wisconsin every week
- Put a sign at the weigh station port of entry "for weather info"

Survey V – April 2003

- 511 is a great service to travelers.
- 511 is a great service.
- 511 looks like a very good program and we will very likely use this number in the future.
- 8 grades I had to stay at home and help my dad with farming because he was getting too old for heavy work.
- A very good and accurate program, keep up the good work.
- Access to this information provides an added level of safety
- Accuracy in network.
- After 30+ years of driving in Nebraska and South Dakota winter weather, I have found that my best defense is common sense. Example: If you walk out of the house to your car and slip and fall because of ice, pick yourself up and go back in the house. Then wait for conditions to change.
- All the families in our community own a base Cellular One phone. We all use 511 one time or other for road travel.
- All this is okay, but too much money is being spent on "fun" projects that we don't need!
- At my age (89) I am not doing much driving anymore, but enjoy riding with friends.
- At my time of travel (early morning) I call a local radio station with up-to-minute conditions and also on any changes during day. 16 years Weather Spotter.
- Better information on specific areas. If a problem exists, how far does the problem last and is there an alternative route?
- Can't beat WNAX-The best for weather. Question 1-How may hours? Not times?
- Copy of results requested.
- Do not travel that extensively. Mainly holidays . Other than that usually within 200 miles of home.
- Do you have any cowboys or cowgirls looking for a summer job working with horses?
- Due to open winter, did not need to use 511 this year. I think it's a very good system and simple to remember.
- Excellent.
- Get out more information on 511 and how to use it.
- Getting the 511 out so that people know about it even on weather band. For I listen to it on a daily basis.
- Glad to have been chosen. It is very important to have 511 access.
- Good survey. (4)
- Got a good system. Make sure it is compatible with 911 then kick the states in the butt to get their 911 systems up to speed and universal throughout the states. (How many mailing lists do you put me on?? (Yellow Card)).
- Have not had the opportunity to use it yet, we have been out of state.
- Have not tried 511 system-so uses I've been using lack the continuous updating that is needing.
- Have not used enough to really have an opinion
- I am a senior citizen and use my car mostly for necessary grocery and other shopping. However, I have continued to drive as far as Brookings (from Sioux Falls) to visit

friends. When I visit my family in Minnesota I go by bus. I have a 1992 model car. When it wears out I doubt I will buy another car.

- I am interested in the 511 travel information phone number and its services.
- I do travel ND, SD, and MT and am very grateful to have this weather access number.
- I don't have a car. I do not have a drive vehicle. You just selected the wrong name.
- I feel lucky, so just mail me the $20.
- I had to redial to get #85 and I-94 info. It should be easier to switch to another highway info. Segment.
- I have called the University of North Dakota weather office for a description of potential weather conditions for a specific locality and route. I have done this several times and they have been very helpful. When you talk to a real person you can ask questions to help understand.
- I have never used a weather information service on the phone.
- I have not used 511. I did not know about it. I am 87 years old and do not travel a lot. I used to and enjoyed the interstate.
- I have used 511 1 or 2 times and actually got info, where as calling 7233 never connected to anything, i.e., no information. I will use 511 if information is actually available.
- I hope to win the $50 in the drawing!
- I just think 511 should be updated more often.
- I like it as is.
- I live in a small town and I walk to work. It is 80 miles to the nearest interstate. Sorry I can't be more help.
- I love my On Star.
- I never heard of the #7233 system or 511. It sounds like a good deal. Does it work for highways outside of ND and SD? Does MT use it? Is there a fee?
- I thank you for the chance to participate in this survey.
- I think 511 is a great idea.
- I think 511 is fine. We live in Texas during the winter months, so we don't have occasion to use it.
- I think a usefulamount of road information is important for drivers in winter and road work in progress summer driving.
- I think I would have used the 511 number if it were a bad winter. This year the conditions did not cause much of a need to use it.
- I think it is a good program you have done.
- I think they survey is a good way to find out what people think.
- I think this is a great service to the public. For us living in the winter states with snow, this is mainly when we use it.
- I think this is really important because of the weather conditions in this area.
- I travel a lot between Rapid City and Sioux Falls and up to Great Falls, MT. I would like more information on 511. Thank you!
- I travel for a company looking for gravel and road work. When I am on the road with no internet access I use this service and I find it very valuable.
- I tried accessing 511 info on the internet earlier this year for info about South Dakota travel. It was somewhat helpful.
- I wasn't sure if this questionnaire was applicable to me-age 91 years. I did it anyway.

- I would like to see 511 publicized more!
- I would like to see a simple number like 511 for information on roads, forecasts, construction, etc.
- I'm a retired farmer and have moved to town. We do very little traveling, so do not use any 511 travel information. If the sky looks threatening we stay home.
- I'm glad to have 511, it's handy.
- I'm satisfied.
- If there was an emergency, I might use 511 along with TV or radio, and if it was bad, I would not go.
- If you have a new way for people to get ravel information let people know about it. Find ways to advertise it.
- In the winter time, I like to be able to call and find the road conditions. If the roads are bad, I don't go. If I have an appointment, I cancel and go when conditions are better. So, I like having somewhere to call.
- Is this nationwide? It sounds like a good service,.
- It is good to have this # available, especially with winter in South Dakota. Thank you for reminding me.
- Keep getting the word out.
- Keep promoting it. When a person needs it they will know how to use it.
- Keep up the good work!
- Let's get going.
- Local TV very good weather reports.
- More information and advertising is needed to make the public aware of 511.
- More information regarding accessing the 511 number is needed. I wasn't aware of the number how much the phone call costs.
- N/C
- ND State cost for the 511 is too costly! With most people now having cell phones, the state cost of $10,000 per month is outrageous to say the least!
- Need more info.
- No remarks.
- None at present.
- None that apply.
- None, I just appreciate the service.
- None. (12)
- Number 511 will take care of my travel weather.
- Numbers 18 and 19 do not apply.
- Only used 511 once, seemed alright, but I wasn't overly impressed. Never used #7233, so I can't compare.
- Our tower is terrible. Work on a tower that our cell phone works. In Bismarck or I-94 they are fine till you get south of Dawson, ND.
- People need to understand that even with these reports road conditions can change very quickly, but it's an excellent tool.
- People should only talk on cell phones when stopped or in an emergency situation (illness, etc.).

- Question #6-Poor Conditions-depends on how poor the conditions are and how important the travel reasons, so question 6 is ???
- Question 19 is unnecessary.
- Questions 7 & 8-I have no idea what this number
- Road report is too generalized. Each time I called, I got the same message, "Snow-covered and slippery spots". (This was for western South Dakota.) Tell me, is it blizzard conditions? Is it raining? Is it icy? How severe is the wind? Is no travel advised? Give me a clue. I know in the Black Hills of SD there are slippery spots! So far, I find 511 pretty useless.
- Should be some regulations on use of cell phones in moving automobiles.
- Some of your questions on this survey are unclear. You may want to look into statistical information and learn how to correct this.
- Sounds like a good idea to have an easy number for road conditions.
- Survey again after advertising 511 more
- Telephone destination for information. Notify local family of time of your departure and destination.
- Thank you for alerting me to 511 and thanks for asking.
- Thank you for asking. Most of the time, we feel like the forgotten people out here. Our nearest town is 50 miles away. There is only one option as far as roads go and during the winter months or tornado season we do need information.
- Thank you for the 511 service! I'm looking forward to using it.
- Thank you for the survey. I do extensive traveling on SD & ND and I did not know about 511.
- Thank you. (2)
- Thanks for asking, you will find the best way to improve any situation is to ask questions.
- The 511 program is an important service and does a good job at informing the public.
- The 511 system is this available in my community? Fi so why have we not been informed of this?
- The information about the 511 phone number was helpful for me to understand, in case of a situation that might come up, that way I would know what to do.
- This is a good deal for winter travelers.
- This is interesting-Good job!
- This service I just recently learned of. There might be others who haven't heard of the service. I just got my mobile phone.
- This survey is a neat thing. This number tells a lot of information about the weather and conditions of the road. Thanks for coming up this 511 number.
- Too many speeders. Speed limits high enough on interstate. All states the same, all others same speed.
- We live on a ranch and are very weather conscious.
- We stay at home in poor travel conditions.
- We tried to call 511 from here in Rolla and could not get the call to go through.
- Weather advisory conditions that you can use are relatively new in our area. I like the #'s posted on highway signs.
- When 511 was first up and running, my son who travels interstate daily was not impressed with 511 with accuracy of info.

- When traveling US I94 to Bozeman have son and family living there.

Appendix E – Survey II, Question 5 Responses

Use Other Resources Comments (58)

- Always depended on radio forecast and road conditions.
- Always listen to radio and just personal observations.
- Because we drive mostly within 50-100 miles so get the weather on radio and TV. If it's going to be bad we stay home.
- Can get road condition thru the state highway conditions #. Unaware of this #.
- Can usually get the information needed from TV and radio.
- Didn't know about it, just watch weather channel.
- Don't think of it, because I use other sources.
- Forget to use it. Usually use the weather radio or TV.Sometimes road report #'s.
- Have never really been aware of #SAFE. TV is easy.
- I believe local reports are more accurate.
- I call a family member to find out the weather.
- I get the weather and road reports from TV and radio.
- I guess I go by what the news tells me.We usually travel in pretty much anything
- I just listen to the radio or TV and call where we're going.
- I just travel 17 miles a day to see my husband who is in a nursing home and can hear it on the radio.
- I just use TV when I'm going on vacation. I see TV, I never heard of #SAFE...
- I listen before I leave home.
- I listen to the radio and TV
- I listen to the radio for weather info.
- I primarily use the internet for weather & road conditions before I leave home.
- I rarely use because I check weather before leaving to determine if I should travel or not.
- I rely on TV.
- I use other sources and I am not familiar with #SAFE.
- I use the radio and just do not remember the #.
- If I am already on the road, I usually know the conditions I am traveling into via the other methods listed in 2; I forget about it.
- It is easier to see on TV w/ weather than to hear it and not familiar with area.
- I've never needed to, I get info needed through other means.
- Just usually listen to the radio en-route.
- Keep updated in road conditions from other drivers and observing conditions.
- Listen to radio - TV - Don't go.
- Listen to the radio all the time.
- Listen to the radio.
- Listen to TV reports before I leave for work and listen to local radio driving to work.
- Locally family members give us road info. Mostly would use #SAFE on trips.
- My parents check the road and weather conditions for me which I base my decision then on traveling
- Trust satellite weather on TV more.
- TV and Radio

- Usually only rely on the TV for updates. Never think to use it until I see it on the highway signs.
- Watch TV or listen to the radio.
- Use Internet before and listen to radio during.
- Use Internet.
- use radio and truck stop information.
- Use radio or TV.
- Use TV or radio.
- Not sure of it+ usually determine from TV/Internet if safe to travel.
- We have a weather radio.
- We have access to the radio reports and many cell phone owners call and give a report of the area where they are traveling.
- We use TV or Radio.
- We usually watch TV.
- Never needed to, the TV or radio were adequate enough.
- Never really thought about it as an option. Much easier to watch TV or radio.
- Radio
- Radio (current).
- Radio, Internet and word of mouth have been the tools I primarily use. Really unaware of this resource.
- Rarely travel outside of local radio station's coverage.
- Rely too much on the Radio I guess.
- Other sources readily available.
- I have relied on other sources.

Unaware of #SAFE Comments (411)
- Did not know about #SAFE. (3)
- Did not know about it. (19)
- Did not know anything about it.
- Did not know it existed. (15)
- Did not know it was available. (8)
- Did not know of it. (2)
- Did not know of this service until now.
- Did not know service existed.
- Did not know this number was available to call for road conditions.
- Did not know you could find info out that way.
- Did not know.
- Did not realize it was available till we returned from a trip across country - Never saw any signs.
- Did not really know about it.
- Didn't know #SAFE existed.
- Didn't know about it. (52)
- Didn't know about the option.
- Didn't know about the service.

- Didn't know enough about it.
- Didn't know I had it.
- Didn't know it was available in ND.
- Didn't know of this number.
- Didn't think about it.
- Do not know of its availability.
- Don't know about it - never heard of it.
- Don't know anything about it!
- Don't really know about it and don't always have a cell phone.
- Don't really know what it is.
- Don't think about it- not aware of it.
- First time I've heard of it.
- Had no knowledge of the service.
- Hadn't heard about it until now. (6)
- Hadn't heard of it. (4)
- Haven't heard about it. (2)
- Honestly did not know about it.
- Honestly have not heard of it.
- I am new to ND and have never heard anything about #SAFE.
- I am not aware of #SAFE here.
- I am not familiar with it. Never heard of it before.
- I did not know about it. (13)
- I did not know about this #SAFE.
- I did not know I had this option of #SAFE.
- I did not know it was available.
- I did not know there was #SAFE.
- I did not know there was such a thing.
- I did not know was available.
- I did not realize this number was available.
- I did not remember that I could use it.
- I didn't know about it until right now!
- I didn't know about it. Probably will use in the future.
- I didn't know my cellular service offered it.
- I didn't know of it.
- I didn't know they had #SAFE.
- I don't know about it.
- I don't know anything about #SAFE.
- I don't know anything about it. (2)
- I didn't know about it. Probably will use in the future.
- I didn't know my cellular service offered it.
- I get the weather and road reports from TV and radio.
- I guess I did know about it.
- I guess I've never heard of it.
- I had never heard of it before this survey.

- I had never heard of it. (21)
- I had not heard of it until now. Would have used it in Dec. were caught in hazardous conditions.
- I have been in the situation where as I needed it.
- I have never had the need to use it, but I would if necessary.
- I have never heard of #SAFE - What is it?
- I have never heard of it - no information.
- I have never heard of it before. The Internet is very easy and fast to use.
- I have never heard of the #SAFE system. Do not know how to access the system.
- I have never heard of them.
- I have never heard or was aware of it.
- I have no knowledge of #SAFE.
- I have not been aware of this service.
- I have not heard of this number before.
- I have not run into a situation where it was required.
- I just use it in bad weather.
- I just don't think of it at the time of travel.
- I never heard about it before this survey.
- I never heard about it till recently.
- I never knew about it.
- I never knew about the number.
- I never thought about it.
- I only heard of #SAFE in the last week or so.
- I was not aware of #SAFE.
- I was unaware it existed.
- I wasn't aware of it.
- I wasn't aware that was included in the cellular service.
- Ignorante.
- I'm not sure that I've ever heard of such service.
- It's not advertised, I never think of it.
- I've never heard about it from my cell company.
- I've never needed to, I get info needed through other means.
- I've never used it because I hadn't heard about it. I'll use it now that I've been informed.
- Just read about it recently.
- Know nothing about it.
- Lack of knowledge.
- Never heard of it before. (26)
- Never heard of it before. If it requires a phone I would not use it because we don't normally have phone service.
- Never knew about it. (60)
- We just got our cell and I forgot all about this service.
- We stopped using our cell phone and didn't know about #SAFE.
- Never knew it existed. (5)
- Never knew of this resource number.

- Never knew there was one. What is the cost?
- Never knew this option was available!
- Never knew/heard of #SAFE.
- Never needed to nor knew about it.
- Never needed to yet.
- Really didn't know it was available.
- Not aware of it. (9)
- Unaware of #SAFE (17)
- Was not aware of #SAFE. (23)
- Never thought about using it. (9)
- Not familiar with it. (5)
- No knowledge of it.
- No prior knowledge about #SAFE.
- Not knowing about it.
- Probably because I didn't know it was there to use.
- This is the first I have heard about #SAFE, I will use it now.
- This is the first I have heard of this number.
- This survey is the first time that I had heard of #SAFE.
- To be truthful, I don't know what it is or where.
- Unaware
- Unaware but will certainly use now. Have tried but don't know mile markers.
- Until recently, wasn't aware of the number.
- We did not know of #SAFE until this survey was sent to us.
- We didn't know it was available to us.
- What is it?

Miscellaneous Comments (43)
- Didn't know how to use it. Tried dialing 7233 and didn't work, the signs should say to dial the # first then 7233.
- Do not know how to use it.
- Have tried #SAFE but it didn't work on my cell phone at the time.
- Don't have a cell phone.
- In the past would rarely use system but since it has been upgraded use it more.
- Just never used it. (4)
- Just not used to it... But will start next month!
- Used it and felt the automatic information not complete enough.
- Uses the cell phone to make calls to law enforcement or friends in areas traveled
- No cell phone.
- No comment.
- When traveling before leaving on business or trip.
- Not in the habit of calling for reports.
- Not much info on such a resource.
- Not posted in areas where we are driving nor are we really looking for them.
- Road conditions.

- The few times I tried it wasn't working.
- Tried could not get through.
- Unsure of any costs. Unsure it was accessible by our phone.
- Use it mainly when weather conditions are not good.
- I don't carry a cell phone my husband and daughter do.
- I don't have a cell phone.
- I have not run into a situation where it was required.
- I just use it in bad weather.
- I just don't think of it at the time of travel.
- I only heard of #SAFE in the last week or so.
- I wasn't aware that was included in the cellular service.
- It's not advertised, I never think of it.
- I've never needed to, I get info needed through other means.
- Just read about it recently.
- Never needed to yet.
- Never thought about using it. (9)

Seasonal Comments/ Travel Characteristics (16)

- During winter.
- Guess never had reason to- don't travel that much.
- Haven't traveled to far yet to see long distance weather report.
- Don't normally travel long distances.
- Don't really travel that much or too far. Usually travel in a radius of 100 miles or less.
- Don't travel that much.
- Don't travel to far from home in the winter time.
- Haven't traveled in winter.
- I stay within 100 miles from my home. If it is too bad when I leave the house I stay home. Boss's orders.
- I try to stay close to home during unsafe weather.
- I usually travel short distances therefore do not need to check much further ahead of me for road/weather.
- We don't travel a lot.
- We don't travel often, and when we do we usually plan ahead of time, so we check the extended weather on TV to plan in advance.
- Not driving during poor conditions.
- Use only if conditions change drastically after we have been on the road a while
- Usually do traveling during the summer months.

Forget About System Comments (9)

- Don't think about it or don't think that it is an option. Maybe it should be publicized more often.
- Forget the # and that it's there.
- Forget about it, that it is available.
- Forget about it. (2)
- I usually can't remember the number.
- Not something I remember - not catchy enough.
- I don't think about it much. It's too new or not mentioned much.
- I had forgotten it existed.

No Reason to Use Comments (8)

- Have never had a need to use it.
- Have not had a need to.
- Have not had the need to at this point/ Did not know about it.
- Don't need too.
- Don't take the time to place the phone call.
- No reason to use it.
- Not that important that we have to travel on a special day.
- Not that important.

Appendix F - Survey V, Question 4 Responses

No experience with 511 Comments (7)

- No comment right now, but I will use the service very often from now on.
- I can't answer that. This is the first I heard of it.
- Never used it.
- I don't know, have never used it. When I have someplace to go, I just go.
- I've never used the system so decline to comment.
- Will have to see more information before I can answer this!
- With 511 being so new I haven't used it as of yet, although I plan to use it when I travel later this month.

Update information Comments (9)

- Updated more often.
- Update information.
- Put the time the report was last done, so that we can make sure it is updated and not old.
- Information that is very current.
- Localize road reports if possible. How current, up-to-minute are they? Who is reporting?
- None of the information is up-to-date and is inaccurate and your comments convince me that it would change.
- Accurate Information.
- Easier access to phone numbers- and more up to date (time) information. Much info is dated (time) and not kept up hourly and out storm and road conditions change rapidly.
- That it be current and not exaggerated.

Fine as is Comments (13)

- Okay.
- None, is fine.
- The things I need are there.
- Their doing just fine.
- Okay as above.
- None, the features in #3 are sufficient.
- You covered everything very well.
- The above #3 is more than I need.
- Covered all information.
- They have always answered all my needs for information.
- Good information now.
- The above features cover most everything.
- It's good for me the way it is.

Location Information Comments (5)

- Mile marker info. Wind direction and speed.
- Ability to get information on specific areas.
- Where am I.
- Information by county (#1-Minnehaha, #23 Deuel, #6 Brookings) and Amber Alerts
- Be more road, area, and time specific.

Location of Amenities Comments (10)

- Visitor info. (sight seeing, current events, what to do?)
- Emergency Services (Ambulance, etc.)
- Lodging and Rest stop information.
- Where the rest stops are located.
- Location of nearest hotels, malls, etc.
- Places of interest on highway.
- Where the fish are biting.
- Motel/Hotel Availability
- Motels, etc.
- Possibly gas stations and rest areas.

Weather Conditions Comments (13)

- Wind direction and speed, also temperature.
- Road conditions and weather reports.
- Time, Sunrise/Sunset, Gas Prices
- Temperature.
- Temperature.
- Closed roads due to weather.
- Be able to request information about a specific road condition and weather with an interactive response.
- Temperature.
- Pending weather.
- Weather reports.
- Wind information.
- Winter road conditions on the interstates including interstate closings.
- I can't think of anything else. Weather and road conditions are most important.

Ease of Use Comments (5)

- Easy to remember.
- Ease of use.
- I would just like it to easy to use
- I would like it to be all hands free.
- I have an on-star phone system which is entirely hands-free, so it would be very important to have a voice-activated system.

Fee Comments (7)

- Toll-free.
- I'd like to see it not cost the taxpayers anything.
- Free
- If there are any tolls.
- Toll Free.
- Keep costs down!
- Low gas prices or coupons to get low gas prices.

Miscellaneous Comments (12)

- See comments. (Question 20.)
- (3) covers travel information very well.
- Amber Alert.
- Stated above.
- Same
- Radar.
- Just a thought: Reports of missing adults or children (who've just been reported missing in my region.)
- Any given
- All the above.
- We sit in central South Dakota. Often times the Rapid City and Pierre reports forget we are here and the National Weather Channel always forgets us.
- Example: No travel in Wells County.
- Nothing. People report worse than actual.

Phone Line/Number Comments (17)

- Access/Phone # listings to State police, hospitals, etc.
- A live voice instead of the computer generated monotone, southern drawl, or European accent.
- Emergency tow service phone numbers.
- We call 1-800-328-ROAD and it was only for ND. We needed MN and SD.
- I don't have a travel phone system.
- Ability to skip around to the info I want, so I don't have to listen to 5 min. of canned info I don't need, to get 5 sec. I do need.
- One that would not be tied up.
- No recordings during crucial times, i.e., storms and accidents.
- 911 information for locations if an accident occurs.
- Talk to a person, not a recorder.
- Access more than one road condition per call.
- Ability to connect with service station or vehicle assistance.

- Do not have a phone system in auto.
- Give out a phone number for the highway patrol other than 911.
- More cell towers.
- Have a website too.
- Give website address for internet and cellular users.

Detour Comments (6)

- Detour road conditions.
- To know about different ways that are out there of road conditions like 511.
- Would like to see (hear) construction information thru traffic or detours.
- Emergency routes to take in case of severe weather.
- Alternate roads and less used routes.
- Easier method to get the route I'm traveling.

Road Condition Comments (20)

- Traffic volume expected.
- Sanded or not sanded.
- Break down between various towns and cities.
- Information about heavy traffic. Information about events in cities along highways.
- Roads blocked because of emergencies such as fire, mudslide, etc. for natural disasters.
- Just the road conditions for my area of travel.
- How long the condition is/was expected to last.
- Travel conditions on major highways and interstates, in state and bordering states.
- It might be helpful if motorists could call in conditions, but the system would have to be designed to differentiate between facts and the report options.
- In case of a road closure, which roads are not suitable for tractor-trailers, due to very steep grades or bridges not able to take heavy loads.
- Traffic delays.
- Information to keep roads safe.
- If sanders and plows are out.
- Forecasts of hail with other weather.
- The speed in which traffic is moving.
- Location of wild fires.
- Road conditions are the biggest concern maybe directions like On-star.
- Snowplow movements, highway patrol locations.
- Emergency information.
- I can't think of anything else. Weather and road conditions are most important.