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# Public Perceptions of the Midwest's Pavements - Minnesota - Phase I (Winter Ride)

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*Public Perceptions of the Midwest's Pavements - Minnesota - Phase I (Winter Ride)*, Milwaukee, WI (1997).

This Phase I study (Minnesota) is part of a larger study. See links below for reports on the other Phase I study as well as, Phase II, Phase III, and the executive summary of this study:

[Phase I - Focus Group](#)

[Phase II - State-Wide Survey Report](#)

[Phase III - Targeted Survey Report](#)

[Executive Summary \(Minnesota\)](#)

**MINNESOTA WINTER RIDE  
SURVEY REPORT**



**Survey conducted by  
Wisconsin Survey Research Laboratory**

**Responses analyzed by  
Marquette University**



**September 1997**

## EXECUTIVE SUMMARY

The Minnesota Winter Ride Survey was designed to gauge the extent to which motorists were tolerant of the rougher ride of pavements on rural two-lane highways in the winter. Survey objectives, therefore, were centered around this focal question of winter ride tolerance. A telephone survey was conducted during the first quarter of the year (January 15 to March 15, 1997) by the Wisconsin Survey Research Laboratory (WSRL), which simultaneously conducted a similar survey in Wisconsin. Random digit dial samples were drawn for both states according to accepted sampling procedure. The survey data set provided by WSRL included 417 respondents.

Analysis of the survey responses, performed by Marquette University, yielded insights into the sample composition and relationships between respondents' perception/tolerance and their driving and demographic characteristics. In terms of demographics, the sample was evenly split male versus female, with two-thirds of the respondents in the 21-49 age range. Almost half were lifetime residents of Minnesota, and one-third had a college degree or beyond. A majority drove cars, as opposed to minivans, trucks, etc., and very few of the respondents rated the roughness of their vehicle's ride as less than average.

As to the respondents' perceptions and tolerance, over half had noticed changes in the pavement's ride since the beginning of winter and could link their perceptions of change to specific stretches of rural highway. When asked about their tolerance of the rougher ride in winter, approximately two-thirds of the 232 drivers answering the question indicated that the ride was tolerable. Over three-fourths reported being more tolerant of this rough ride in winter than they would be the rest of the year. Respondents who had noticed changes in the pavement were asked for a reason they would tolerate a rougher ride in winter. For the 177 drivers who responded, the two major reasons given were "nothing I can do about it" and "freezing weather changes the road." Finally, a revealing finding was that only 69 motorists (15.9% of total respondents) reported avoiding specific stretches of highway due to intolerable winter ride.

Relationships among the survey variables were determined by means of cross-tabulations which essentially are matrices resulting from cross-tabulating the response frequencies of one survey question against those of another. In this case, the perception/tolerance responses were cross-tabulated against the driving and demographic characteristics of the respondents. This process provided insights in the context of the survey objectives, e.g., which types of motorists were more tolerant of a rough ride in winter? While the crosstabs are discussed in Section IV of the report, Table I provided at the end of this summary presents a quick overview of key relationships among the survey variables.

Conclusions emanating from the Minnesota Winter Ride Survey included the following. Overall, Minnesota respondents were predominately tolerant of the pavement's potentially rougher ride in winter. Three-fourths of the 232 respondents who had noticed a change in the pavement's ride indicated that they were more tolerant of the rough ride in winter than they would be the rest of the year. Driving and vehicle characteristics influenced the extent to which motorists noticed changes in the pavement since the start of winter. Those who drove more frequently on rural two-lane highways, accumulating greater annual mileage, and those with poorer riding vehicles were more likely to notice changes. The likelihood of evaluating the change in the pavement's ride as tolerable increased with the rise in educational level and income across respondents.

Several respondent characteristics had a bearing on the extent to which they were tolerant of the rougher ride in winter versus the remainder of the year. Males were somewhat more tolerant, as were those respondents in the lower range in annual mileage. As would be expected, motorists whose vehicles had poorer rides (perceived roughness of ride related to suspension and so forth) were less tolerant of the rough winter ride of the pavement. Tolerance was greater for higher levels of education, and accordingly, lower for respondents reporting household incomes of \$30,000 or less.

Finally, the analysis yielded a more complete picture of those 69 respondents who avoided specific stretches of highway because of an intolerable ride. They tended to drive more frequently on rural two-lane highways. In terms of education, they were more likely to have completed some college or technical school. Also, the avoiders tended to be in the lower range of the income distribution.

Minnesota Winter Ride Survey findings, on the whole, were reasonably consistent. Minnesota drivers who had noticed a change in the pavement's ride since the beginning of winter were largely more tolerant of the rough ride than they would be the rest of the year. Based on the analysis, it was apparent that the perception and tolerance of the survey respondents was influenced by particular driving and demographic characteristics.

These informal tolerances will be compared to thresholds developed later in the project.

**TABLE 1**  
**RELATIONSHIPS AMONG SURVEY VARIABLES**

<u>Perception/Tolerance</u>	<u>Related Variables</u>
Noticed changes in pavement (Q2) (Q3)	Most also noticed specific stretches of highway  Respondents who drove more frequently-7 days/wk. (Q1a)  Motorists who drove most miles per year (Q13)  Drivers of sport utility vehicles (Q11)  Respondents whose vehicles had poorer ride (Q12)  Noticing increased through age 50 but declined after 65 (Q500)  Noticing lower for respondents reporting household incomes of \$30,000 or less (Q512)
Noticed pavement changes on specific stretches of highway (Q3)	Slightly more likely to avoid the stretches (Q8)  Drivers of sport utility vehicles (Q11)  Somewhat more likely for drivers of mid-size cars (Q11a)  Respondents whose vehicles had poorer ride (Q12)  More likely for drivers in the 35 to 50 age range (Q500)  Noticing lower for respondents reporting household incomes of \$30,000 or less (Q512)
Opinion on way road rides in winter (Q6)	Tolerance rose with increasing levels of education (Q508)  Tolerance increased simultaneously with income (Q512)
Tolerance of rough ride in winter (Q7)	Tolerance consistent with tolerance of ride in Q6  Tolerant respondents less likely to avoid highway

stretches (Q8)

Respondents who drove less than 10,000 miles per year (Q13) were most tolerant

Motorists whose vehicles had poorer rides (Q12) were less tolerant

Drivers under 35 years of age (Q500) were somewhat less tolerant

Tolerance was greater for higher levels of education (Q508)

Tolerance was lower for respondents reporting household incomes of \$30,000 or less (Q512)

Male drivers were somewhat more tolerant than were female drivers (Q998b)

Avoidance of specific stretches due to intolerable ride (Q8)

Respondents who avoided specific stretches were more likely to find winter ride too rough (Q6)

Motorists who drove most frequently, 7 days/wk., (Q1a) were more likely to avoid specific stretches

Respondents either under 35 or 65 and over in age (Q500) were somewhat more likely to avoid stretches

The likelihood of avoiding specific stretches of highway decreased as the household income of respondents increased (Q512)

# MINNESOTA WINTER RIDE SURVEY

## I. SURVEY OBJECTIVES

The purpose of this survey was to target winter ride conditions in Minnesota to acquire insights into the threshold of acceptability for ride. The central question was: Are motorists more tolerant of a rough ride in the winter? The goal was to find an informal tolerance level of winter pavements to compare with later threshold levels derived from broader survey data (the state-wide survey).

Objectives for the survey, therefore, were centered around the primary question of winter ride tolerance:

- 1) to determine whether motorists were more tolerant of a rough ride in winter, or if they avoid it.
- 2) as a lead-in to this central question, to determine whether motorists had noticed changes in the pavement's ride since the beginning of winter.
- 3) to identify two-lane rural state highways, and specific stretches of those highways, where motorists noticed changes in the pavement's ride.
- 4) to discover reasons motorists would tolerate a rougher ride in winter.
- 5) to collect data on relevant vehicle and driving characteristics.
- 6) to obtain demographic data (e.g., age, sex, etc.) relevant to analysis and interpretation of the survey responses.

## II. SURVEY METHODOLOGY

The project proposal submitted to the Wisconsin Department of Transportation (WisDOT) called for the Wisconsin Survey Research laboratory (WSRL) to use its Wisconsin Opinion Poll to determine "winter intolerable rides" by adding items totaling approximately 3 minutes to its questions to respondents around the state of Wisconsin. Since this is a quarterly survey, the data collection period of January 15 through March 15, 1997 was selected to focus on winter ride experience. A similar survey on winter driving, therefore, was conducted in Minnesota during the same months, but this survey was administered as a "stand alone" without including other topics.

The Minnesota and Wisconsin surveys used similar sample designs. (This sample description was provided by the Wisconsin Survey Research Laboratory). The random dial samples for both states were prepared in the following way. For each state a list of all the area codes and exchange prefixes containing residential numbers was compiled. Each area code and prefix combination was then split into blocks of 1000 potential phone numbers. These blocks were grouped on the basis of the assessed likelihood of the block to contain working residential phone numbers. The likelihood of the block to contain working residential phone numbers was based on an examination of the white-page listings. The white page listings were obtained from CD Rom phone disks.

Each group of blocks had a different sampling rate. Groups of blocks with a high likelihood of containing working residential phone numbers were sampled at a higher rate than groups of block with a low likelihood of containing working residential phone numbers. As a result more sample phone numbers are selected from blocks with a high likelihood of containing working residential phone numbers. To compensate for these varying sample selection rates a weighted data set was used during data analysis. These weights were included in the data sets at the record level, (i.e., each record contains a record weight). The record weight is 100 times the inverse of the sample selection rate for the record divided by the study's response rate. The value of 100 is used to compensate for the fact that response rate is expressed as a percentage and not a proportion.

Telephone interviewers identified themselves as calling "on behalf of the Minnesota Department of Transportation". They indicated that they were seeking residents' opinions about driving and riding on state highways in the winter. They explained that the information would "help the Department of Transportation make policy decisions about your state highways". The survey codebook of questions in the Minnesota Winter Ride Survey is provided in Appendix A.

### **III. RESULTS**

This section examines patterns of response to the Minnesota Winter Ride Survey. It should be noted that Minnesota experienced a very severe and snowy winter in 1996-1997. The Statistical Package for the Social Sciences (SPSS) was utilized for response reporting and data analysis. The survey data set prepared by Wisconsin Survey Research Laboratory included 417 respondents, weighted to 433 cases, as per the preceding WSRL sampling description.

The SPSS set of weighted frequencies is provided in Appendix B. For ease of interpretation, the discussion of the survey responses is divided into four major sections. Section A addresses the descriptive characteristics of the survey respondents, i.e., respondent demographics. Driving and vehicle characteristics are covered in Section B. Section C examines responses pertaining to pavement and ride conditions. Responses to the open-ended questions, namely 4, 5, 7a, 9 and 10, regarding specific stretches of highway, are discussed in Section D. For detailed review, the verbatim responses are included in Appendix C. It should be noted that the numbering of survey question includes: **1)** the sequence from questions 0m to 13, **2)** nine questions at the "500" level, and **3)** two questions designated "998b and 998e."

#### **A. Respondent Demographics**

##### ***Sex and Age of Respondents***

With regard to the sex of the survey respondents, frequencies for question 998b indicate a fairly even split with 51.7 percent male and 48.3 percent female. The survey also determined how many adults 18 or older, men vs. women, lived in the respondents' households. Frequencies for question 0m indicate that approximately two-thirds (66.6%) of the respondent households included two adults, 28.2 percent had only one adult, with the remaining 10 percent comprised of three to five adults. As to gender of the adults in the households, questions 0o and 0p reveal similar frequencies, with approximately three-fourths of the households having one adult male and one adult female. In terms of age, the survey respondents were well-dispersed across age categories.



Analysis of question (Q) 500 indicated the following age composition:

- 1) respondents 18-20yrs. = 3.0%
- 2) 21-34yrs. = 32.0%
- 3) 35-49yrs. = 32.0%
- 4) 50-64yrs. = 16.2%
- 5) 65 and over = 16.7%

As such, almost two-thirds of the respondents were in the 21-49 age range, with the remainder largely in the 50 and over age set.

### ***Education and Income***

Categories for the education question, Q508, ranged from eighth grade to post graduate. Over one-third (34.6%) had completed high school or the GED, about one-third (33%) had a college degree or beyond, and 28.6 percent had attended college or a technical school. Respondents were, therefore, spread well across the various levels of education.

Given such balanced dispersion in education, income could be expected to range rather widely but with relatively few at the high end. This was the case, with Q512 yielding the following frequencies for the 377 respondents who answered the question:

\$1,000 to \$9,999	4.4%
10,000 to 19,999	8.2
20,000 to 29,999	11.4
30,000 to 39,999	18.6
40,000 to 49,999	10.6
50,000 to 69,999	14.6
70,000 to 99,999	12.4
100,000 and over	6.5

As a follow-up on income, Q513 was included to give respondents specific \$10,000 increments of income for any further response. Since this question garnered only 65 responses, the focus for income analysis is Q512. Given the challenge of obtaining responses on household income, this research effort proved effective, with 87 percent of the respondents answering the primary income question.

### ***Residence Frequencies***

Respondents were asked how many years they had lived in Minnesota. Responses to Q501 suggest that many have been Minnesota residents for a substantial number of years. Almost half (45.7%) were lifetime residents, with only 8 percent living in Minnesota less than 10 years.

As far as county of residence is concerned, responses to Q502 indicate a good dispersion. Counties with 20 or more respondents included: Anoka (31), Dakota (29), Hennepin (91), and Ramsey (43). It should be noted that the Minneapolis metropolitan area is in Hennepin County, whereas Ramsey County includes the St. Paul area.

## **B. Driving and Vehicle Characteristics**

Respondents were asked several questions about their driving and their vehicles.

### ***Driving Frequencies***

Question 1a was a key lead query as to how often respondents drove on rural two-lane highways in Minnesota. Other than four who were unsure, 38 who did not drive the designated type of highway and 14 who did not drive in winter, respondents reported a wide range of driving frequency. Approximately one-fourth (23.6%) drove the designated highways 7 days per week. About 40 percent (39.8) drove from 1-6 days per week. Of the remaining respondents (22.7%), most (18.9%) drove the rural highways from 1-5 days per month. In sum, approximately two-thirds (64.8%) of the respondents drove on rural two-lane highways at least one day per week.

With regard to annual mileage, responses to Q13 indicate the heaviest concentration is in the range of 10,000 to 20,000 miles, accounting for a bit over half (51.1%) of the respondents. The percentages at the low and high ends matched, with 8.8% driving less than 5,000 miles, and the same proportion driving over 30,000 miles annually.

### ***Vehicle Characteristics***

Since drivers' perceptions of pavement conditions can be directly related to the type of vehicle they drive, several questions addressed this dimension. Q11 determined the type of vehicle normally driven by the respondents. The frequencies indicated that (61.9%) of the respondents drove cars. With regard to trucks, 18.7 percent drove pickups while 1.6 percent drove commercial trucks. The remaining 16.9 percent drove either a minivan/van or a sport utility vehicle. Of the 268 respondents who drove cars, the breakout on size (Q11a) was: 1) compact = 27.6%, 2) mid-size = 42.5%, and 3) full-size = 28.7%.

Respondents were then asked in Q12 to rate the roughness of the ride of their vehicle. As the frequencies demonstrate, very few of the respondents (4.6%) reported less than an average ride, in contrast with 61.5% who indicated a "good" or "very good" ride for their vehicles. The remaining one-third judged the ride of their vehicle to be average.

## **C. Pavement and Ride Perceptions and Tolerances**

This section provides of the questions designed to tap drivers' perceptions and tolerances of pavement conditions, the central thrust of the winter ride survey. Early in the survey respondents were asked in Q2 if they had noticed any changes in the pavement on the designated highways since the start of winter. An added statement focused their attention on bare pavement. Frequencies indicated that well over half (57.2%) of the 381 drivers who answered Q2 had noticed changes. Subsequently, Q3 asked whether the pavement's roughness or ride had changed on specific stretches of these highways. Of the 375 drivers who responded, over three-fifths (61.9%) responded in the affirmative. Discussion of open-ended questions 4 and 5, which involved specific highway identification, will follow in Section D.

The next series of questions, Q6 to Q10, addressed the dimension of tolerance. In Q6 respondents were queried as to their tolerance of the winter ride on the highway they had designated. Of the 232 drivers who answered this question, one-third (33.2%) indicated the

winter ride was “too rough”, whereas the remaining respondents (65.9%) evaluated the ride as “tolerable”. Question 7 then probed their tolerance of this rough ride in winter versus the rest of the year. Over three-fourths (76.3%) of the 232 respondents to this question reported being more tolerant of the rough ride in winter. In contrast, 49 respondents (21.1%) were not more tolerant. Responses to Q7a, which involved the content analysis of open-ended answers, will be discussed in Section D.

Finally, in questions 8-10, respondents were asked about specific stretches of highway they avoided because of an intolerable ride in winter. While open-ended answers to questions 9 and 10 will be reviewed in Section D, responses to Q8 reveal the extent of highway avoidance. It should be noted that all of the drivers surveyed responded to this question. Of this total sample of drivers, only 69 respondents (15.9%) reported avoiding specific stretches because of intolerable winter ride on the pavement. Further analysis in subsequent sections will shed additional light on this issue of avoidance of specific highways.

#### **D. Responses to Open-Ended Questions**

As previously noted, the Minnesota Winter Ride Survey was designed to provide DOT professionals with not only perception and tolerance data, but also verbatim responses to open-ended questions which facilitate identification of the rural two-lane highways driven by the respondents, as well as determination of specific stretches of highway judged intolerable in the winter. While this section highlights selected results, professionals are referred to Appendix C for detailed verbatim responses to questions 4, 5, 7a, 9, and 10.

Respondents were asked in Q4 to identify the rural two-lane highway on which they had noticed changes in the ride since the outset of winter. Specific highways were mentioned by 209 respondents. Minnesota highways identified by ten or more respondents included highways 10, 14, 35, 59 and 169. Specific stretches of the highways identified were then pinpointed in Q5. Stretches for the highways identified by ten or more respondents, i.e., highways 10, 14, 35, 59 and 169, are listed in Appendix D.

Respondents who had noticed changes in the pavement were asked in Q7a for a reason they would tolerate a rough ride in winter. While specific verbatim responses are listed in Appendix C, the answers were also tabulated according to the categories arrayed in Q7a. For the 177 drivers who answered this question, the four categories accounting for 92.6 percent of the responses were:

Nothing I can do about it	37.9%
Freezing weather changes the road	22.0
Difficult to maintain in winter	18.1
There is snow on the ground	14.7

Although most of the drivers answering Q7a gave only one reason, 20 respondents offered a second reason. All but one of the second reasons for tolerance were subsumed in the four categories listed above. In sum, the primary reason Minnesota drivers surveyed would tolerate a rougher ride in winter was that there was nothing they could do about it; they expected it in winter and were used to it.

As previously noted, 69 drivers indicated in response to Q8 that they avoided specific stretches of highway because of an intolerable ride in the winter. When subsequently asked in questions 9 and 10 to identify the specific highway stretches, 64 of these respondents did so. Highways avoided by five or more respondents included highways 10, 12 and 59. The specific stretches of highway for Q10 are listed in Appendix C.

#### **IV. ANALYSIS**

In light of the sample size and format of the response data, the most efficient type of analysis to reveal key relationships is crosstabulation. Crosstabs essentially are matrices resulting from crosstabulating the response frequencies of one question against those of another. The same computer software that generated the response frequencies, namely SPSS, was utilized to run the crosstabs. Statistical testing of relationships between response variables was precluded because minimal conditions (e.g., expected frequencies across cells) could not be met.

For the analysis to yield the desired findings, survey questions were divided into two basic categories. First were the perception/tolerance questions: questions 2,3,6,7, and 8 (see Appendix A). The second category included the respondent “descriptors”, i.e., driving characteristics and demographics: questions 1a, 11, 11a, 12, 13, 500, 501, 508, 512, and 998b. Questions 1a, 11, 11a, 12, and 13 were vehicle and driving characteristics. Since the term “crosstab” will be used repeatedly in this section, it has been abbreviated to “Xtab”. For Xtab purposes, the relevant demographic descriptors were deemed to be age (Q500), years lived in Minnesota (Q501), education (Q508), income (Q512) and sex (Q998b).

As a review of the frequencies in Appendix B reveals, responses to questions 500, 501, 508 and 512 were distributed across all coded values; e.g., for age in Q500 (In what year were you born?), responses ranged from coded values 907 (the year 1907) to 979 (1979). Since this response format did not lend itself to Xtab analysis, the responses for these four questions were consolidated into cumulative categories. The same procedure was used for questions 1a and 13, the driving characteristics. This consolidation process, therefore, yielded response data amenable to Xtab analysis.

The Xtab process of running the perception/tolerance question responses against each other and then against the respondent descriptors (e.g., demographics) produced a substantial set of computer output. It should be emphasized that the Xtab analysis was performed to determine relationships among the response data which would provide insights in the context of the survey objectives. In short, which types of motorists were more tolerant of a rough ride in winter? Likewise, which motorists noticed changes in the pavement’s ride and avoided specific stretches of highway? And how did vehicle and driving characteristics come into play? As a result, the computer output was culled to the Xtabs which best provided the desired insights. These Xtabs are included in Appendix E in the order in which they are discussed in this section.

#### **Q2 (Noticed Changes in Pavement) Xtabs**

With regard to the question of perceiving changes in the pavement since the beginning of winter, how were the responses in Q2 related to those in Q3? The Xtab of Q2 x Q3, the first presented in Appendix E, provided the answer. Note that each cell in the Xtab matrix provides the count (frequency), the row percentage, and the column percentage in descending order. Column and row totals in counts and percentages are also listed.

Given these guidelines to interpretation it can be seen that 85.3 percent (row percent for yes - yes) of the respondents who noticed changes in the pavement (Q2) also noticed specific highway stretches where the pavement's ride had changed (Q3). Likewise, if they answered "no" to Q2, they were more likely to answer "no" to Q3, as was true for 68.2 percent of the respondents

In terms of vehicle and driving characteristics, several were instrumental in interpreting Q2. The frequency of driving on rural two-lane highways (Q1a), when run against Q2, was notable. Respondents who drove 7 days per week (coded 107) were much more likely ("yes" for 74.5% of them) to have noticed changes in the pavement since the start of winter (Q1a x Q2). Likewise, those who drove over 70,000 miles per year (Q13 x Q2) noticed changes to a greater extent (76.8%). Vehicle characteristics also played a role, namely questions 11 and 12. For Q2 x Q11, 80.6 percent of motorists driving sport utility vehicles noticed changes, much higher than for other vehicle types. A validity check was provided by Q2 x Q12 in that respondents who rated the ride of their vehicle as "poor or very poor", were more likely to perceive changes in the pavement since the start of winter.

Respondent demographics also were somewhat of a factor. Age, Q500 x Q2, exhibited interesting dynamics, with the likelihood of noticing changes increasing steadily through age 50 (up to 64.5%) but falling off somewhat for age 65 and over (44%). Income was also worth noting, Q512 x Q2, with respondents reporting total household incomes of \$30,000 or less being less likely to notice changes in the pavement since the start of winter (46.7% vs. others well over 50%).

### **Q3 (Noticed Pavement Changes on Specific Highway Stretches) Xtabs**

Interpreting Q2 Xtabs becomes more complete when Q3 Xtabs are considered. Recall the close ties between responses to Q2 and Q3. In Q3 respondents had an opportunity to focus more specifically on pavement changes they had noticed. Since a "no" answer to Q3 involved a skip to Q8, questions 6 and 7 were incomplete for the purpose of Xtab breakouts. As might be expected, respondents who noticed changes on specific stretches of highway were somewhat more likely (15.9% vs. 10.9%) to avoid such stretches (Q3 x Q8). Consistent with the Q2 Xtab, vehicle type (Q3 x Q11) revealed a greater extent of noticing changes on the part of motorists driving sport utility vehicles (77.4%). That respondents who drove mid-size cars were more likely to notice changes on specific stretches (66.3%), Xtab Q3 x Q11a, is open to speculation. Consistent with Q2, however, noticing changes was inversely related to rating the ride of the vehicle, Q3 x Q12; those rating their vehicle's ride as "poor" were more likely to notice changes.

In terms of respondent demographics, age, Q500 x Q3, did not reveal a pattern as clear as that for Q2. While noticing changes again fell for respondents over 65, the age group with the highest percentage of "yes" responses (68.1%) was 35 to 50 years of age. Income, on the other hand, was more consistent with Q2, since the percentage noticing changes was again lowest (49.5%) for those reporting household incomes of \$30,000 or less (Q512 x Q3).

For questions 2 and 3, noticing pavement changes and more particularly, on specific highway stretches, the Xtabs, in sum, revealed relationships which facilitated interpretation in the analysis. Vehicle, driving and demographic characteristics all were involved to some extent in evaluating the response patterns.

## **Q6 (Opinion on Way the Road Rides in Winter) Xtabs**

The overall tolerance threshold was first addressed in Q6 when respondents expressed their opinions as to whether the ride on the specific stretch of highway they drove in the winter was too rough or at least tolerable. This had the advantage of making their opinion pavement-specific for a designated stretch of highway.

In general, the Xtabs for Q6 provided relatively little help in interpretation of the response patterns. For many of the Xtabs there were no distinct differences in answers across response categories. Education and income were the only demographics to shed some light on the analysis. Based on the Xtab Q508 x Q6, tolerance for the way the road rides in winter steadily increased with succeeding levels of education. In short, the higher the education, the more the tolerance. Similarly, income exhibited a positive relationship (Q512 x Q6). As income increased, so did tolerance. Apparently, motorists with more education, and correspondingly higher income, were more inclined to be tolerant of a rougher ride in winter.

## **Q7 (More Tolerant of Rough Ride in Winter?) Xtabs**

The central focus of the winter ride survey was Q7, asking respondents whether they were more tolerant of a rough ride in winter than they would be the rest of the year. In this case the Xtabs proved to be more useful in interpreting the tolerance dimension. When Q7 was run against the preceding Q6, the resulting Xtab (Q6 x Q7) was in line with expectations. There was a consistency in respondents' tolerance; those who found the ride tolerable in Q6 were much more likely to be tolerant of the rough ride in winter. Further consistency was evidenced when Q8 was factored in. As would be expected from Q7 x Q8, respondents who were more tolerant (Q7) were much less likely to avoid specific strategies of highway because of an intolerable ride in winter.

With regard to vehicle and driving characteristics, the annual mileage is related to tolerance. As Q13 x Q7 indicates, respondents who drove less than 10,000 miles per year (coded 99) exhibited the most tolerance (91.1% yes) of the ride in the winter. In contrast, those driving 14,000 to 18,000 miles per year were much less tolerant (62.9% yes). Less driving may mean less aggravation. While there were no significant differences in tolerance across vehicle types (most drivers more tolerant regardless of vehicle type), ride ratings of the vehicles did play a key role. As a validity check, one would expect respondents rating the ride of their vehicle as "poor or very poor" to be less tolerant of the rougher ride in winter, which was the case (Q7 x Q12).

In terms of respondent demographics, drivers under 35 years of age were somewhat less tolerant (70.2% yes) as compared with the other age groups (Q500 x Q7). As with Q6, there was a consistency in tolerance in that respondents with higher levels of education (codes 7 and 8 college grads) were more tolerant of the ride in winter (Q508 x Q7). Likewise, Q512 x Q7 shows further consistency since drivers reporting household incomes of \$30,000 or less were less tolerant than those with higher incomes. As such, education and income are further tied to the question of tolerance.

Finally, gender was a factor worth noting in that as Q7 x Q998b shows, male drivers tended to be somewhat more tolerant of the ride in winter than did female drivers (81.4% vs. 69.9%).

## **Q8 (Avoid Specific Stretches Because of Intolerable Ride) Xtabs**

The behavioral factor of avoidance was added to the tolerance dimension in Q8. As a check for further consistency Q8 was run against Q6 (way road rides too rough or tolerable). As can be seen from Q6 x Q8, respondents who felt that the road was too rough tended to avoid the specific stretch of highway (26.0% yes) as compared with those who felt it was tolerable (only 11.1% yes). This was totally consistent with the Xtab Q7 x Q8. In short, most of the respondents were tolerant of the rougher ride in winter and did not avoid specific highways.

In terms of driving and demographic characteristics, the Xtabs lend further insight on avoidance. A review of Q1a x Q8 indicates that respondents who drove most frequently (coded 107 for 7 days per week) were more likely to avoid specific stretches of highway (23.5% yes) than those who drove less frequently (e.g., 10.8% yes for those driving several days per month). In contrast, neither the vehicle type nor the vehicle ride rating revealed any significant differences in patterns of responses for the 69 motorists who avoided specific highway stretches. Although the frequencies were smaller, age enters in, as Q508 x Q8 reveals, with drivers either under 35 or 65 and over being somewhat more likely to avoid specific stretches.

Once again, education and income came into play, but with less consistency than in the case of questions 6 and 7. For education, Q500 x Q8, the group that were more likely to avoid specific highway stretches were respondents with some college or technical school (25.2% yes for code 6 vs. less than 15% yes for the other 3 groups). Income, on the other hand, exhibited a much clearer relationship. As Q512 x Q8 reveals, avoidance was inversely related to income, i.e., as income increased, avoidance decreased. This is consistent with the findings from Xtabs for questions 6 and 7 in that the higher the income, the more the tolerance, and hence, the less the avoidance of specific stretches of highway in the winter.

### **Future Work**

One of the study goals is to compare the informal tolerance levels from the winter ride surveys with threshold levels derived from broader survey data developed later in Phases 2 or 3 of the project. The highways identified as tolerable in this winter ride survey will be compared to any of the same highways identified later during normal weather. Obviously, the same stretches have to show up in either phase for that to be done.

Because no actual observations were taken by the states as to the extent of the roughness caused by winter weather, a targeted survey could be considered when the third phase of the overall project is undertaken. The states would have to measure the extent of the rough winter ride, during which time, a special targeted survey could be conducted regarding just those targeted highways. While this was originally not estimated, it could still be considered. The states will have to decide whether the extent of intolerance warrants a special survey.

### **CONCLUSIONS**

In terms of the major objective, the Minnesota Winter Ride Survey yielded a primary finding: Minnesota respondents were predominantly tolerant of the pavement's rougher ride in winter. Approximately three-fourths (76.3%) of the 232 respondents who had noticed a change in the pavement's roughness indicated that they were more tolerant of this rough ride in winter than they would be the rest of the year. Of the 177 motorists who subsequently answered an

open-ended question on the main reason they would tolerate the rougher ride, the primary reason cited was that there was nothing they could do about it; it was expected in winter. Since intolerance may lead to avoidance, it was revealing to find that only 15.9 percent of the drivers surveyed reported avoiding specific stretches of highway due to perceived rough ride in winter. As previously noted, open-ended responses regarding Minnesota highways and specific stretches avoided are provided in Appendices C and D.

With regard to respondents' perceptions and tolerance, Xtab analysis shed additional light on relationships among responses. Driving and vehicle characteristics impacted the extent to which respondents noticed changes in the pavement's ride since the outset of winter. It should be reiterated that 61.9 percent of the respondents drove cars, with the next largest vehicle groups being pickup trucks (18.7%) and minivans/vans (9%). Only 4.6 of the motorists rated their vehicle's ride as "poor" or "very poor." The Xtabs revealed that those who drove more frequently on rural two-lane highways, accumulating greater annual mileage, and those with poorer riding vehicles were more likely to notice changes. Less likely to note changes were respondents with household incomes \$30,000 or less. The likelihood of evaluating the change in the pavement's ride as tolerable, as opposed to too rough, increased with the rise in education level and income.

Several respondent characteristics, in addition to education and income, played a role in interpreting overall tolerance for the rougher ride of the pavement in winter. Males tended to be somewhat more tolerant than females. Consistent with noticing changes in the pavement, those in the lower range in annual miles driven were more tolerant. It followed, therefore, that respondents who drove more frequently were more likely to avoid specific stretches. As would be expected, motorists whose vehicles had poorer rides were less tolerant of the winter roughness. Neither the vehicle type nor the vehicle ride rating, on the other hand, influenced the avoidance reported by the small group of 69 Minnesota motorists. Reasonable tolerance was far and away the tone reflected by most of the respondents who drove the rural two-lane highways in Minnesota.

Findings in the Minnesota Winter Ride Survey, overall, were reasonably consistent. Survey responses, together with results of the analysis, have provided insights into the perceptions and tolerance of motorists who have driven Minnesota's rural two-lane highways in winter.



## **Appendix A**

### **SURVEY CODEBOOK**

deck01

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question 0m                    column(s) 6-6

In order to do that, can you tell me how many adults 18 or older live in your household ?

1. 1 ADULT
2. 2 ADULTS
3. 3 ADULTS
4. 4 ADULTS
5. 5 ADULTS
6. 6 ADULTS
7. 7 ADULTS
8. 8 OR MORE ADULTS
9. REFUSED / DK

\*\*\*\*\*

\*\*\*\*\*

question 0o                    column(s) 7-7

First, how many MEN living there are 18 or older ?

\*\*\*NOTE: IF THIS Q IS NOT ANSWERED, YOU MUST ENTER "9"!

0. NONE
1. ONE
2. TWO
3. THREE OR MORE
9. REFUSED / DK

\*\*\*\*\*

\*\*\*\*\*

question 0p                    column(s) 8-8

And how many WOMEN living there are 18 or older ?

\*\*\*NOTE: IF THIS Q IS NOT ANSWERED, YOU MUST ENTER "9"!

0. NONE
1. ONE
2. TWO
3. THREE OR MORE
  
9. REFUSED / DK

\*\*\*\*\*

\*\*\*\*\*

question 1a column(s) 9-11

How many days per week or per month do you drive on rural two lane highways in Minnesota, not including county or local roads ?

(RURAL ROADS: THESE ARE RURAL TWO-LANE STATE HIGHWAYS IN RURAL AREAS WITH EITHER A STATE OR U.S. DESIGNATION. WE ARE NOT TALKING ABOUT HIGHWAYS IN CITIES, COUNTY ROADS OR INTERSTATES.)

000. NEVER ( skip to q 8 )

101. 1 DAY PER WEEK

102-106

107. 7 DAYS PER WEEK

200. LESS THAN ONCE A MONTH

201. 1 DAY PER MONTH

202-230

231. 31 DAYS PER MONTH

333. DON'T DRIVE IN WINTER ( skip to q 8 )

998. DON'T KNOW/NOT SURE

999. REFUSED

\*\*\*\*\*

\*\*\*\*\*

question 2 column(s) 12

Have you noticed any changes in the pavement on any of these highways since the beginning of winter ? We're talking about bare pavement, not those covered with snow or ice.

( This refers to rural two-lane highways in Minnesota. )

1. YES

2. NO

8. DON'T KNOW/NOT SURE ( skip to q 8 )

9. REFUSED ( skip to q 8 )

^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 3 column(s) 13

Have you noticed stretches of these highways where the pavement's roughness or ride has changed since the beginning of winter ?

1. YES

2. NO ( skip to q 8 )

8. DON'T KNOW/NOT SURE ( skip to q 8 )

9. REFUSED ( skip to q 8 )

^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 4 column(s) 14-16

On what highway have you noticed this (these) changes in ride ?

- 001. HIGHWAY 1
- 002-370
- 371. 371
- 998. DON'T KNOW/NOT SURE
- 999. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 5 column(s) 17-17

Can you tell me on what stretch of the highway you noticed this change (these changes) ? That is, between what towns or crossroads is this stretch ?

- 1. REPOSE
- 8. DON'T KNOW/NOT SURE
- 9. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*

question 6 column(s) 18

In your opinion, is the way this road rides in the winter too rough, or is it at least tolerable ?

- 1. ROUGH
- 2. TOLERABLE
- 8. DON'T KNOW/NOT SURE
- 9. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 7 column(s) 19

Are you more tolerant of this rough ride in winter than you would be the rest of the year ?

- 1. YES
- 2. NO ( skip to q 8 )
- 8. DON'T KNOW/NOT SURE ( skip to q 8 )
- 9. REFUSED ( skip to q 8 )
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 7a                    column(s) 20-21

Please give me a reason why you would tolerate  
a rougher ride in winter ?

1st response

- 00. OTHER
- 01. DIFFICULT TO MAINTAIN / REPAIR IN WINTER
- 02. FREEZING WEATHER CHANGES THE ROAD - HEAVES, CRACKS
- 03. THERE IS SNOW ON THE GROUND
- 04. NOTHING I CAN DO ABOUT IT - EXPECT IT - IT IS WINTER -  
USED TO IT
- 05. HAVE TO DRIVE - WORK, SCHOOL
- 07. VEHICLE RUNS ROUGHER IN COLD WEATHER - POORER  
SUSPENSION
- 98. DON'T KNOW
- 99. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 7a                    column(s) 22-23

Please give me a reason why you would tolerate  
a rougher ride in winter ?

2nd response

- 00. OTHER
- 01. DIFFICULT TO MAINTAIN / REPAIR IN WINTER
- 02. FREEZING WEATHER CHANGES THE ROAD - HEAVES, CRACKS
- 03. THERE IS SNOW ON THE GROUND
- 04. NOTHING I CAN DO ABOUT IT - EXPECT IT - IT IS WINTER -  
USED TO IT
- 05. HAVE TO DRIVE - WORK, SCHOOL
- 07. VEHICLE RUNS ROUGHER IN COLD WEATHER - POORER  
SUSPENSION
  
- 98. DON'T KNOW
- 99. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 8                    column(s) 24

Do you avoid any specific stretches of highway because  
of an intolerable ride in the winter ?

- 1. YES
- 2. NO ( skip to q 11 )
- 8. DON'T KNOW/NOT SURE ( skip to q 11 )
- 9. REFUSED ( skip to q 11 )

\*\*\*\*\*

\*\*\*\*\*

question 9                    column(s) 25-27

What highway do you avoid in winter because of  
an intolerable ride ?

- 001. HIGHWAY 1
- 002-370
- 371. 371
- 998. DON'T KNOW/NOT SURE
- 999. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 10                    column(s) 28-28

Can you tell me which stretch of the highway you avoid ?  
That is, between what towns or crossroads is this stretch ?

- 1. RESPONSE
- 8. DON'T KNOW/NOT SURE
- 9. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 11                    column(s) 29-29

What kind of vehicle do you NORMALLY drive ? Do you usually  
drive a minivan or van, a pickup truck, a sports utility vehicle,  
a car, or some other vehicle ?

( IF R DRIVES MORE THAN ONE VEHICLE, HAVE HIM/HER CHOOSE  
VEHICLE DRIVEN MOST OFTEN IN WINTER )

- 1. MINIVAN/VAN ( skip to q 12 )
- 2. PICKUP TRUCK ( skip to q 12 )
- 3. SPORTS UTILITY VEHICLE ( skip to q 12 )
- 4. CAR
- 5. OTHER (SPECIFY\_\_\_\_\_) ( skip to q 12 )
- 6. DO NOT DRIVE ( skip to q 500 )
- 7. COMMERCIAL TRUCK ( skip to q 12 )
- 8. DON'T KNOW/NOT SURE ( skip to q 12 )
- 9. REFUSED ( skip to q 12 )

\*\*\*\*\*

\*\*\*\*\*

question 11a                    column(s) 30

Is that considered a compact, a mid-size, or a full-size car ?

1. COMPACT
2. MID-SIZE
3. FULL-SIZE
8. DON'T KNOW/NOT SURE
9. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 12                    column(s) 31

How would you rate the roughness of the ride of your vehicle ?  
Would you say it has a very good ride, a good ride, an average  
ride, a poor ride, or a very poor ride ?

( THIS REFERS TO HOW MUCH THEY FEEL THE BUMPS ON THE ROAD  
WHEN DRIVING )

1. VERY GOOD RIDE
2. GOOD RIDE
3. AVERAGE RIDE
4. POOR RIDE
5. VERY POOR RIDE
8. DON'T KNOW/NOT SURE
9. REFUSED
- ^. Inap

\*\*\*\*\*

\*\*\*\*\*

question 13                    column(s) 32-34

About how many miles do you drive annually ?

000. LESS THAN 100 MILES
- 001-009
010. 1000 MILES
- 011-099
100. 10,000 MILES
- 101-699
700. 70,000 MILES OR MORE
998. DON'T KNOW/NOT SURE
999. REFUSED
- ^. Inap

\*\*\*\*\*  
\*\*\*\*\*

question 500                    column(s) 35-37

Next I have a few background questions to help us interpret  
the results of this survey. In what year were you born ?

- 898. 1898
- 899-978
- 979. 1979
- 998. DON'T KNOW
- 999. REFUSED

\*\*\*\*\*  
\*\*\*\*\*

question 501                    column(s) 38-39

How many years have you lived in Minnesota ?

- 00. LESS THAN 1 YEAR
- 01-88
- 89. 89 YEARS OR MORE
- 97. ALL MY LIFE
- 98. DON'T KNOW
- 99. REFUSED

\*\*\*\*\*  
\*\*\*\*\*

question 502                    column(s) 40-41

In what county do you reside ?

- 01. AITKIN
- 02. ANOKA
- 03. BECKER
- 04. BELTRAMI
- 05. BENTON
- 06. BIG STONE
- 07. BLUE EARTH
- 08. BROWN
- 09. CARLTON
- 10. CARVER
- 11. CASS
- 12. CHIPPEWA
- 13. CHISAGO
- 14. CLAY
- 15. CLEARWATER
- 16. COOK
- 17. COTTONWOOD
- 18. CROW WING



19. DAKOTA
20. DODGE
21. DOUGLAS
22. FARIBAULT
23. FILLMORE
24. FREEBORN
25. GOODHUE
26. GRANT
27. HENNEPIN
28. HOUSTON
29. HUBBARD
30. ISANTI
31. ITASCA
32. JACKSON
33. KANABEC
34. KANDIYOHI
35. KITTSON
36. KOOCHICHING
37. LAC QUI PARLE
38. LAKE
39. LAKE OF WOODS
40. LE SEUR
41. LINCOLN
42. LYON
43. MCLEOD
44. MAHNOMEN
45. MARSHALL
46. MARTIN
47. MEEKER
48. MILLE LACS
49. MORRISON
50. MOWER
51. MURRAY
52. NICOLLET
53. NOBLES
54. NORMAN
55. OLMSTED
56. OTTER TAIL
57. PENNINGTON
58. PINE
59. PIPESTONE
60. POLK (SPELL)
61. POPE (SPELL)
62. RAMSEY
63. RED LAKE
64. REDWOOD
65. RENVILLE
66. RICE

- 67. ROCK
- 68. ROSEAU
- 69. ST. LOUIS
- 70. SCOTT
- 71. SHERBURNE
- 72. SIBLEY
- 73. STEARNS
- 74. STEELE
- 75. STEVENS
- 76. SWIFT
- 77. TODD
- 78. TRAVERSE
- 79. WABASHA
- 80. WADENA
- 81. WASECA
- 82. WASHINGTON
- 83. WATONWAN
- 84. WILKIN
- 85. WINONA
- 86. WRIGHT
- 87. YELLOW MEDICINE

\*\*\*\*\*  
 \*\*\*\*\*

question 505                    column(s) 42-44

What is your zip code ?

(CODED IN COLUMNS 42 TO 46, RUN IN COLUMNS 42-44)

- 550. 55000
- 551-566
- 567. 56700

\*\*\*\*\*  
 \*\*\*\*\*

question 508                    column(s) 47-48

What is the highest grade or year of school you completed ?

- 01. EIGHTH GRADE OR LESS
- 02. SOME HIGH SCHOOL
- 03. HIGH SCHOOL GRAD OR GED CERTIFICATE
- 04. SOME TECHNICAL SCHOOL OR VOCATIONAL TRAINING
- 05. TECHNICAL SCHOOL GRADUATE
- 06. SOME COLLEGE OR ASSOCIATE DEGREE
- 07. COLLEGE GRADUATE
- 08. POST GRAD OR PROFESSIONAL DEGREE
- 00. OTHER
- 98. DON'T KNOW/NOT SURE
- 99. REFUSED

\*\*\*\*\*  
\*\*\*\*\*

question 512                      column(s) 49-51

And, just roughly, what was your total household income last year, from all sources, BEFORE TAXES ?

(INTERVIEWER: BE SURE TO INCLUDE INCOME FROM WORK, GOV'T BENEFITS, PENSIONS, AND ALL OTHER SOURCES.)

(coded in thousands of dollars)

- 000. LESS THAN \$1,000
- 001. \$1,000 TO \$1,999
- 002-009
- 010. \$10,000 TO \$10,999
- 011-599
- 600. \$600,000
- 998. DON'T KNOW
- 999. REFUSED

\*\*\*\*\*  
\*\*\*\*\*

question 513                      column(s) 52-53

Then {would|>|could} you tell me in which of the following GROUPS your total household income falls, from all sources, last year, BEFORE TAXES ? Please stop me when I reach your household income: was it under \$10,000, \$10,000 to less than \$20,000, \$20,000 to less than \$30,000, \$30,000 to less than \$40,000, \$40,000 to less than \$50,000, \$50,000 to less than \$60,000, \$60,000 to less than \$70,000, \$70,000 to less than \$80,000, or \$80,000 or more ?

- 01. UNDER \$10,000
- 02. \$10 TO LESS THAN \$20,000
- 03. \$20 TO LESS THAN \$30,000
- 04. \$30 TO LESS THAN \$40,000
- 05. \$40 TO LESS THAN \$50,000
- 06. \$50 TO LESS THAN \$60,000
- 07. \$60 TO LESS THAN \$70,000
- 08. \$70 TO LESS THAN \$80,000
- 09. \$80,000 OR MORE
- 98. DON'T KNOW/NOT SURE
- 99. REFUSED
- ^. Inap

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\*\*\*\*\*

question 513w                    column(s) 54

Do you have more than one telephone number in your household ?

DIFFERENTIATE BETWEEN TELEPHONE NUMBERS AND TELEPHONE SETS IF NECESSARY.

- 1. YES
- 2. NO ( skip to q 998b )
- 8. DON'T KNOW/NOT SURE ( skip to q 998b )
- 9. REFUSED ( skip to q 998b )

\*\*\*\*\*

\*\*\*\*\*

question 514                    column(s) 55-55

How many residential telephone numbers do you have ?

- 1. 1 NUMBERS
- 2. 2 NUMBERS
- 3. 3 NUMBERS
- 4. 4 NUMBERS
- 8. DON'T KNOW
- 9. REFUSED
- ^. INAP

\*\*\*\*\*

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question 998b                    column(s) 56

SEX OF RESPONDENT

- 1. MALE
- 2. FEMALE

\*\*\*\*\*

\*\*\*\*\*

question 998e                    column(s) 57-57

INTERVIEWER: IN WHAT LANGUAGE WAS THIS INTERVIEW DONE ?

- 1. ENGLISH
- 2. SPANISH
- 3. MIXED ENGLISH/SPANISH
- 4. R IS TTY USER/USED WI RELAY OPERATOR
- 0. OTHER

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deck02

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question 998m                    column(s) 6

INTERVIEWER: PLEASE ENTER YOUR GENDER

- 1. MALE
- 2. FEMALE

\*\*\*\*\*  
\*\*\*\*\*

question region                column(s) 7-8

REGION

- 00. 0
- 01. 1
- 02. 2

\*\*\*\*\*  
\*\*\*\*\*

question areacode              column(s) 9-11

AREA CODE

- 218. 218
- 320. 320
- 507. 507
- 612. 612

\*\*\*\*\*  
\*\*\*\*\*

question exchange              column(s) 12-14

TELEPHONE EXCHANGE

- 000. 000
- 001-998
- 999. 999

\*\*\*\*\*

## **Appendix B**

### **Response Frequencies**

Q0M Number of adults 18 or older in househol

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 ADULT	1	122	28.2	28.2	28.2
2 ADULTS	2	271	62.6	62.6	90.8
3 ADULTS	3	28	6.5	6.5	97.2
4 ADULTS	4	9	2.1	2.1	99.3
5 ADULTS	5	3	.7	.7	100.0
Total		433	100.0	100.0	

Valid cases 433 Missing cases 0

Q0O Number of MEN there 18 or more

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NONE	0	75	17.3	17.3	17.3
ONE	1	328	75.8	75.8	93.1
TWO	2	26	6.0	6.0	99.1
THREE OR MORE	3	4	.9	.9	100.0
Total		433	100.0	100.0	

Valid cases 433 Missing cases 0

Q0P Number of WOMEN there 18 or more

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NONE	0	68	15.7	15.7	15.7
ONE	1	330	76.2	76.2	91.9
TWO	2	29	6.7	6.7	98.6
THREE OR MORE	3	6	1.4	1.4	100.0
Total		433	100.0	100.0	

Valid cases 433 Missing cases 0

Q1A Days per week or per month drive rural M

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEVER	0	38	8.8	8.8	8.8
1 DAY PER WEEK	101	36	8.3	8.3	17.1
	102	34	7.9	7.9	25.0
	103	28	6.5	6.5	31.5
	104	11	2.5	2.5	34.0
	105	36	8.3	8.3	42.4
	106	27	6.2	6.3	48.6
7 DAYS PER WEEK	107	102	23.6	23.6	72.2
LESS THAN ONCE A MON	200	4	.9	.9	73.1
1 DAY PER MONTH	201	23	5.3	5.3	78.5
	202	28	6.5	6.5	85.0
	203	14	3.2	3.2	88.2
	204	7	1.6	1.6	89.8
	205	10	2.3	2.3	92.1
	206	1	.2	.2	92.4
	208	1	.2	.2	92.6
	210	5	1.2	1.2	93.8
	215	2	.5	.5	94.2
	220	1	.2	.2	94.4
	225	1	.2	.2	94.7
	230	5	1.2	1.2	95.8
DONT DRIVE IN WINTER	333	14	3.2	3.2	99.1
DONT KNOW/NOT SURE	998	4	.9	.9	100.0
REFUSED	999	1	.2	Missing	
	Total	433	100.0	100.0	

Valid cases 432 Missing cases 1

Q2 Changes in pavement since start of winte

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	218	50.3	57.2	57.2
NO	2	157	36.3	41.2	98.4
DONT KNOW/NOT SURE	8	6	1.4	1.6	100.0
	.	52	12.0	Missing	
	Total	433	100.0	100.0	

Valid cases 381 Missing cases 52

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Q3 Pavement roughness or ride changed

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	232	53.6	61.9	61.9
NO	2	137	31.6	36.5	98.4
DONT KNOW/NOT SURE	8	6	1.4	1.6	100.0
	.	58	13.4	Missing	
	Total	433	100.0	100.0	

Valid cases 375 Missing cases 58

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Q4 On what hwy have you noticed changes

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
HIGHWAY 1	1	1	.2	.4	.4
	2	3	.7	1.3	1.7
	3	1	.2	.4	2.2
	4	1	.2	.4	2.6
	5	6	1.4	2.6	5.2
	6	2	.5	.9	6.0
	7	9	2.1	3.9	9.9
	10	13	3.0	5.6	15.5
	11	1	.2	.4	15.9
	12	7	1.6	3.0	19.0
	13	3	.7	1.3	20.3
	14	10	2.3	4.3	24.6
	15	6	1.4	2.6	27.2
	16	3	.7	1.3	28.4
	17	1	.2	.4	28.9
	19	7	1.6	3.0	31.9
	20	1	.2	.4	32.3
	22	5	1.2	2.2	34.5
	23	6	1.4	2.6	37.1
	28	1	.2	.4	37.5
	29	1	.2	.4	37.9
	30	1	.2	.4	38.4
	34	1	.2	.4	38.8
	35	10	2.3	4.3	43.1
	36	3	.7	1.3	44.4
	37	1	.2	.4	44.8
	38	1	.2	.4	45.3
	43	1	.2	.4	45.7
	45	1	.2	.4	46.1
	47	2	.5	.9	47.0
	48	2	.5	.9	47.8
	52	6	1.4	2.6	50.4
	53	1	.2	.4	50.9
	55	7	1.6	3.0	53.9

56	1	.2	.4	54.3
59	10	2.3	4.3	58.6
60	1	.2	.4	59.1
61	7	1.6	3.0	62.1
63	1	.2	.4	62.5
65	7	1.6	3.0	65.5
67	1	.2	.4	65.9
68	1	.2	.4	66.4
71	6	1.4	2.6	69.0
75	1	.2	.4	69.4
77	1	.2	.4	69.8
81	2	.5	.9	70.7

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Q4 On what hwy have you noticed changes

89	1	.2	.4	71.1	
94	4	.9	1.7	72.8	
99	1	.2	.4	73.3	
100	1	.2	.4	73.7	
101	2	.5	.9	74.6	
169	16	3.7	6.9	81.5	
200	1	.2	.4	81.9	
210	5	1.2	2.2	84.1	
212	1	.2	.4	84.5	
218	5	1.2	2.2	86.6	
238	1	.2	.4	87.1	
242	1	.2	.4	87.5	
280	2	.5	.9	88.4	
316	1	.2	.4	88.8	
371	3	.7	1.3	90.1	
DONT KNOW/NOT SURE	998	23	5.3	9.9	100.0
.	201	46.4	Missing		
Total	433	100.0	100.0		

Valid cases 232 Missing cases 201

Q5 Change is on what stretch of hwy

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
REPONSE	1	212	49.0	91.4	91.4
DONT KNOW/NOT SURE	8	20	4.6	8.6	100.0
.		201	46.4	Missing	
Total		433	100.0	100.0	

Valid cases 232 Missing cases 201

Q6 Way road rides too rough or tolerable

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
ROUGH	1	77	17.8	33.2	33.2
TOLERABLE	2	153	35.3	65.9	99.1
DONT KNOW/NOT SURE	8	2	.5	.9	100.0
.	.	201	46.4	Missing	
	Total	433	100.0	100.0	

Valid cases 232 Missing cases 201

Q7 More tolerant of ride in winter

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	177	40.9	76.3	76.3
NO	2	49	11.3	21.1	97.4
DONT KNOW/NOT SURE	8	6	1.4	2.6	100.0
.	.	201	46.4	Missing	
	Total	433	100.0	100.0	

Valid cases 232 Missing cases 201

Q7A\_1 Why tolerate rougher in winter (1st)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
OTHER	0	6	1.4	3.4	3.4
DIFFICULT TO MAINTAI	1	32	7.4	18.1	21.5
FREEZING WEATHER CHA	2	39	9.0	22.0	43.5
THERE IS SNOW ON THE	3	26	6.0	14.7	58.2
NOTHING I CAN DO ABO	4	67	15.5	37.9	96.0
HAVE TO DRIVE - WORK	5	1	.2	.6	96.6
VEHICLE RUNS ROUGHER	7	4	.9	2.3	98.9
DONT KNOW	98	2	.5	1.1	100.0
.	.	256	59.1	Missing	
	Total	433	100.0	100.0	

Valid cases 177 Missing cases 256

Q7A\_2 Why tolerate rougher in winter (2nd)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DIFFICULT TO MAINTAI	1	5	1.2	25.0	25.0
FREEZING WEATHER CHA	2	5	1.2	25.0	50.0
THERE IS SNOW ON THE	3	1	.2	5.0	55.0
NOTHING I CAN DO ABO	4	6	1.4	30.0	85.0
HAVE TO DRIVE - WORK	5	1	.2	5.0	90.0
DONT KNOW	98	2	.5	10.0	100.0
.	.	413	95.4	Missing	
Total		433	100.0	100.0	

Valid cases 20 Missing cases 413

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Q8 Avoid spec stretches because intol ride

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	69	15.9	15.9	15.9
NO	2	359	82.9	82.9	98.8
DONT KNOW/NOT SURE	8	5	1.2	1.2	100.0
Total		433	100.0	100.0	

Valid cases 433 Missing cases 0

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Q9 Hwy you avoid in winter because intol ri

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
HIGHWAY 1	1	1	.2	1.6	1.6
	5	3	.7	4.7	6.3
	7	1	.2	1.6	7.8
	8	2	.5	3.1	10.9
	10	6	1.4	9.4	20.3

	11	1	.2	1.6	21.9
	12	5	1.2	7.8	29.7
	14	3	.7	4.7	34.4
	18	1	.2	1.6	35.9
	19	1	.2	1.6	37.5
	22	2	.5	3.1	40.6
	23	2	.5	3.1	43.8
	27	1	.2	1.6	45.3
	35	2	.5	3.1	48.4
	36	1	.2	1.6	50.0
	48	1	.2	1.6	51.6
	55	2	.5	3.1	54.7
	59	5	1.2	7.8	62.5
	61	1	.2	1.6	64.1
	65	2	.5	3.1	67.2
	71	2	.5	3.1	70.3
	81	1	.2	1.6	71.9
	94	2	.5	3.1	75.0
	96	1	.2	1.6	76.6
	169	3	.7	4.7	81.3
	210	2	.5	3.1	84.4
	212	1	.2	1.6	85.9
	218	1	.2	1.6	87.5
	280	1	.2	1.6	89.1
	284	1	.2	1.6	90.6
	287	1	.2	1.6	92.2
DONT KNOW/NOT SURE	998	5	1.2	7.8	100.0
	.	364	84.1	Missing	
REFUSED	999	5	1.2	Missing	
		-----	-----		
	Total	433	100.0	100.0	

Valid cases 64 Missing cases 369

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Q10 Stretch of hwy you avoid

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
REPONSE	1	64	14.8	92.8	92.8
DONT KNOW/NOT SURE	8	5	1.2	7.2	100.0
	.	364	84.1	Missing	
		-----	-----	-----	
	Total	433	100.0	100.0	

Valid cases 69 Missing cases 364

-----  
Q11 Kind of vehicle you NORMALLY drive

Valid Cum

Value Label	Value	Frequency	Percent	Percent	Percent
MINIVAN/VAN	1	39	9.0	9.0	9.0
PICKUP TRUCK	2	81	18.7	18.7	27.7
SPORTS UTILITY VEHIC	3	34	7.9	7.9	35.6
CAR	4	268	61.9	61.9	97.5
OTHER (SPECIFY)	5	2	.5	.5	97.9
DO NOT DRIVE	6	2	.5	.5	98.4
COMMERCIAL TRUCK	7	7	1.6	1.6	100.0
		-----	-----	-----	
	Total	433	100.0	100.0	

Valid cases 433 Missing cases 0

-----

Q11A Is that a compact, a mid- or full-size

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
COMPACT	1	74	17.1	27.6	27.6
MID-SIZE	2	114	26.3	42.5	70.1
FULL-SIZE	3	77	17.8	28.7	98.9
DONT KNOW/NOT SURE	8	3	.7	1.1	100.0
.	.	165	38.1	Missing	
		-----	-----	-----	
	Total	433	100.0	100.0	

Valid cases 268 Missing cases 165

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Q12 Rate roughness of ride of this vehicle

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY GOOD RIDE	1	84	19.4	19.5	19.5
GOOD RIDE	2	181	41.8	42.0	61.5
AVERAGE RIDE	3	146	33.7	33.9	95.4
POOR RIDE	4	16	3.7	3.7	99.1
VERY POOR RIDE	5	4	.9	.9	100.0
.	.	2	.5	Missing	
		-----	-----	-----	
	Total	433	100.0	100.0	

Valid cases 431 Missing cases 2

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Q13 About how many miles do you drive annual

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	5	5	1.2	1.2	1.2
	6	1	.2	.2	1.4
1000 MILES	10	6	1.4	1.4	2.8
	12	1	.2	.2	3.0
	13	1	.2	.2	3.2
	18	1	.2	.2	3.5
	20	11	2.5	2.6	6.0
	25	2	.5	.5	6.5
	28	1	.2	.2	6.7
	30	6	1.4	1.4	8.1
	35	1	.2	.2	8.4
	40	2	.5	.5	8.8
	50	18	4.2	4.2	13.0
	55	2	.5	.5	13.5
	60	5	1.2	1.2	14.6
	65	1	.2	.2	14.8
	70	8	1.8	1.9	16.7
	72	1	.2	.2	16.9
	73	1	.2	.2	17.2
	75	2	.5	.5	17.6
	78	1	.2	.2	17.9
	80	9	2.1	2.1	20.0
	85	1	.2	.2	20.2
	90	4	.9	.9	21.1
10,000 MILES	100	37	8.5	8.6	29.7
	110	3	.7	.7	30.4
	115	5	1.2	1.2	31.6
	120	36	8.3	8.4	39.9
	125	1	.2	.2	40.1
	130	7	1.6	1.6	41.8
	135	5	1.2	1.2	42.9
	140	3	.7	.7	43.6
	150	75	17.3	17.4	61.0
	160	8	1.8	1.9	62.9
	170	5	1.2	1.2	64.0
	180	5	1.2	1.2	65.2
	200	30	6.9	7.0	72.2
	210	1	.2	.2	72.4
	220	1	.2	.2	72.6
	225	1	.2	.2	72.9
	240	2	.5	.5	73.3
	250	21	4.8	4.9	78.2
	275	1	.2	.2	78.4
	300	26	6.0	6.0	84.5
	320	1	.2	.2	84.7
	350	11	2.5	2.6	87.2

Q13 About how many miles do you drive annual

	367	1	.2	.2	87.5
	400	6	1.4	1.4	88.9
	450	2	.5	.5	89.3
	460	1	.2	.2	89.6
	500	8	1.8	1.9	91.4
	520	2	.5	.5	91.9
	600	3	.7	.7	92.6
70,000 MILES OR MORE	700	3	.7	.7	93.3
DONT KNOW/NOT SURE	998	29	6.7	6.7	100.0
.		2	.5	Missing	
	Total	433	100.0	100.0	

Valid cases 431 Missing cases 2

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Q500 In what year were you born

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	907	1	.2	.2	.2
	909	6	1.4	1.4	1.6
	910	1	.2	.2	1.9
	911	1	.2	.2	2.1
	912	1	.2	.2	2.4
	913	2	.5	.5	2.8
	914	1	.2	.2	3.1
	915	2	.5	.5	3.5
	916	1	.2	.2	3.8
	917	1	.2	.2	4.0
	918	2	.5	.5	4.5
	919	2	.5	.5	4.9
	921	9	2.1	2.1	7.1
	922	4	.9	.9	8.0
	923	3	.7	.7	8.7
	924	4	.9	.9	9.6
	925	4	.9	.9	10.6
	926	4	.9	.9	11.5
	927	2	.5	.5	12.0
	928	3	.7	.7	12.7
	929	3	.7	.7	13.4
	930	2	.5	.5	13.9
	931	7	1.6	1.6	15.5
	932	5	1.2	1.2	16.7
	933	3	.7	.7	17.4
	934	4	.9	.9	18.4
	935	4	.9	.9	19.3
	936	2	.5	.5	19.8
	937	5	1.2	1.2	20.9
	938	5	1.2	1.2	22.1
	939	7	1.6	1.6	23.8
	940	6	1.4	1.4	25.2
	941	3	.7	.7	25.9



942	6	1.4	1.4	27.3
943	4	.9	.9	28.2
944	7	1.6	1.6	29.9
945	3	.7	.7	30.6
946	9	2.1	2.1	32.7
947	1	.2	.2	32.9
948	9	2.1	2.1	35.1
949	7	1.6	1.6	36.7
950	10	2.3	2.4	39.1
951	9	2.1	2.1	41.2
952	5	1.2	1.2	42.4
953	6	1.4	1.4	43.8
954	10	2.3	2.4	46.1

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Q500 In what year were you born

955	15	3.5	3.5	49.6
956	9	2.1	2.1	51.8
957	10	2.3	2.4	54.1
958	10	2.3	2.4	56.5
959	10	2.3	2.4	58.8
960	8	1.8	1.9	60.7
961	10	2.3	2.4	63.1
962	8	1.8	1.9	64.9
963	11	2.5	2.6	67.5
964	17	3.9	4.0	71.5
965	9	2.1	2.1	73.6
966	12	2.8	2.8	76.5
967	6	1.4	1.4	77.9
968	8	1.8	1.9	79.8
969	17	3.9	4.0	83.8
970	11	2.5	2.6	86.4
971	9	2.1	2.1	88.5
972	6	1.4	1.4	89.9
973	16	3.7	3.8	93.6
974	5	1.2	1.2	94.8
975	3	.7	.7	95.5
976	6	1.4	1.4	96.9
977	8	1.8	1.9	98.8
978	3	.7	.7	99.5
1979	2	.5	.5	100.0
REFUSED	999	8	1.8	Missing
Total		433	100.0	100.0

Valid cases 425 Missing cases 8

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Q501 How many years have you lived in Minneso

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
LESS THAN 1 YEAR	0	3	.7	.7	.7
	1	2	.5	.5	1.2
	2	4	.9	.9	2.1
	3	5	1.2	1.2	3.2
	4	4	.9	.9	4.2
	5	3	.7	.7	4.8
	6	4	.9	.9	5.8
	7	4	.9	.9	6.7
	8	1	.2	.2	6.9
	9	4	.9	.9	7.9
	10	4	.9	.9	8.8
	12	3	.7	.7	9.5
	13	3	.7	.7	10.2
	14	3	.7	.7	10.9
	15	2	.5	.5	11.3
	16	5	1.2	1.2	12.5
	17	1	.2	.2	12.7
	18	9	2.1	2.1	14.8
	19	5	1.2	1.2	15.9
	20	17	3.9	3.9	19.9
	21	4	.9	.9	20.8
	22	2	.5	.5	21.2
	23	8	1.8	1.8	23.1
	24	6	1.4	1.4	24.5
	25	8	1.8	1.8	26.3
	26	1	.2	.2	26.6
	27	3	.7	.7	27.3
	28	6	1.4	1.4	28.6
	29	1	.2	.2	28.9
	30	7	1.6	1.6	30.5
	31	1	.2	.2	30.7
	32	10	2.3	2.3	33.0
	33	8	1.8	1.8	34.9
	34	2	.5	.5	35.3
	35	11	2.5	2.5	37.9
	36	2	.5	.5	38.3
	37	3	.7	.7	39.0
	38	3	.7	.7	39.7
	39	6	1.4	1.4	41.1
	40	5	1.2	1.2	42.3
	41	6	1.4	1.4	43.6
	42	4	.9	.9	44.6
	43	3	.7	.7	45.3
	45	4	.9	.9	46.2
	46	1	.2	.2	46.4
	48	3	.7	.7	47.1

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Q501 How many years have you lived in Minneso

50	6	1.4	1.4	48.5
52	2	.5	.5	49.0

	54	2	.5	.5	49.4
	55	1	.2	.2	49.7
	58	1	.2	.2	49.9
	59	3	.7	.7	50.6
	60	3	.7	.7	51.3
	61	1	.2	.2	51.5
	62	1	.2	.2	51.7
	65	1	.2	.2	52.0
	67	2	.5	.5	52.4
	71	2	.5	.5	52.9
	72	1	.2	.2	53.1
	73	1	.2	.2	53.3
	74	2	.5	.5	53.8
	75	2	.5	.5	54.3
ALL MY LIFE	97	198	45.7	45.7	100.0
			-----	-----	
	Total	433	100.0	100.0	

Valid cases 433 Missing cases 0

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Q502 In what county do you reside ?

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AITKIN	1	1	.2	.2	.2
ANOKA	2	31	7.2	7.2	7.4
BECKER	3	4	.9	.9	8.3
BELTRAMI	4	4	.9	.9	9.2
BENTON	5	3	.7	.7	9.9
BIG STONE	6	1	.2	.2	10.2
BLUE EARTH	7	6	1.4	1.4	11.5
BROWN	8	5	1.2	1.2	12.7
CARLTON	9	1	.2	.2	12.9
CARVER	10	10	2.3	2.3	15.2
CASS	11	6	1.4	1.4	16.6
CHIPPEWA	12	3	.7	.7	17.3
CHISAGO	13	2	.5	.5	17.8
CLAY	14	7	1.6	1.6	19.4
CROW WING	18	3	.7	.7	20.1
DAKOTA	19	29	6.7	6.7	26.8
DOUGLAS	21	3	.7	.7	27.5
FILLMORE	23	1	.2	.2	27.7
FREEBORN	24	1	.2	.2	27.9
GOODHUE	25	3	.7	.7	28.6
GRANT	26	2	.5	.5	29.1
HENNEPIN	27	91	21.0	21.0	50.1
HOUSTON	28	1	.2	.2	50.3
HUBBARD	29	1	.2	.2	50.6
ISANTI	30	3	.7	.7	51.3
ITASCA	31	3	.7	.7	52.0
JACKSON	32	1	.2	.2	52.2
KANABEC	33	1	.2	.2	52.4
KANDIYOHI	34	3	.7	.7	53.1

KOOCHICHING	36	1	.2	.2	53.3
LAKE	38	2	.5	.5	53.8
LE SEUR	40	1	.2	.2	54.0
LYON	42	4	.9	.9	55.0
MCLEOD	43	7	1.6	1.6	56.6
MAHNOMEN	44	1	.2	.2	56.8
MARSHALL	45	5	1.2	1.2	58.0
MARTIN	46	3	.7	.7	58.7
MEEKER	47	3	.7	.7	59.4
MILLE LACS	48	3	.7	.7	60.0
MORRISON	49	2	.5	.5	60.5
MOWER	50	7	1.6	1.6	62.1
MURRAY	51	1	.2	.2	62.4
NICOLLET	52	5	1.2	1.2	63.5
NOBLES	53	1	.2	.2	63.7
OLMSTED	55	10	2.3	2.3	66.1
OTTER TAIL	56	7	1.6	1.6	67.7

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Q502 In what county do you reside ?

PENNINGTON	57	3	.7	.7	68.4
PINE	58	2	.5	.5	68.8
POLK	60	1	.2	.2	69.1
POPE	61	1	.2	.2	69.3
RAMSEY	62	43	9.9	9.9	79.2
REDWOOD	64	3	.7	.7	79.9
RICE	66	5	1.2	1.2	81.1
ROSEAU	68	11	2.5	2.5	83.6
ST LOUIS	69	12	2.8	2.8	86.4
SCOTT	70	6	1.4	1.4	87.8
SHERBURNE	71	5	1.2	1.2	88.9
SIBLEY	72	1	.2	.2	89.1
STEARNS	73	7	1.6	1.6	90.8
STEELE	74	4	.9	.9	91.7
STEVENS	75	1	.2	.2	91.9
SWIFT	76	3	.7	.7	92.6
TODD	77	4	.9	.9	93.5
WABASHA	79	1	.2	.2	93.8
WASECA	81	2	.5	.5	94.2
WASHINGTON	82	10	2.3	2.3	96.5
WILKIN	84	1	.2	.2	96.8
WINONA	85	4	.9	.9	97.7
WRIGHT	86	9	2.1	2.1	99.8
YELLOW MEDICINE	87	1	.2	.2	100.0
		-----	-----	-----	
	Total	433	100.0	100.0	

Valid cases 433 Missing cases 0

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Q505      What is your zip code ?

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	55008	2	.5	.5	.5
	55009	1	.2	.2	.7
	55014	1	.2	.2	.9
	55016	1	.2	.2	1.2
	55021	4	.9	.9	2.1
	55025	1	.2	.2	2.3
	55033	2	.5	.5	2.8
	55037	1	.2	.2	3.0
	55040	1	.2	.2	3.2
	55043	1	.2	.2	3.5
	55044	2	.5	.5	3.9
	55046	1	.2	.2	4.2
	55052	1	.2	.2	4.4
	55056	1	.2	.2	4.6
	55060	2	.5	.5	5.1
	55063	1	.2	.2	5.3
	55066	1	.2	.2	5.5
	55068	2	.5	.5	6.0
	55069	1	.2	.2	6.2
	55075	4	.9	.9	7.2
	55076	2	.5	.5	7.6
	55082	3	.7	.7	8.3
	55101	5	1.2	1.2	9.5
	55102	4	.9	.9	10.4
	55104	3	.7	.7	11.1
	55105	2	.5	.5	11.5
	55106	2	.5	.5	12.0
	55107	1	.2	.2	12.2
	55108	2	.5	.5	12.7
	55110	5	1.2	1.2	13.9
	55112	7	1.6	1.6	15.5
	55113	3	.7	.7	16.2
	55116	3	.7	.7	16.9
	55118	3	.7	.7	17.6
	55119	4	.9	.9	18.5
	55122	1	.2	.2	18.7
	55123	6	1.4	1.4	20.1
	55124	2	.5	.5	20.6
	55127	1	.2	.2	20.8
	55128	3	.7	.7	21.5
	55129	1	.2	.2	21.7
	55198	1	.2	.2	21.9
	55291	1	.2	.2	22.2
	55301	1	.2	.2	22.4
	55302	1	.2	.2	22.6
	55303	12	2.8	2.8	25.4

Q505      What is your zip code ?

55304	3	.7	.7	26.1
55306	2	.5	.5	26.6
55308	2	.5	.5	27.0
55309	3	.7	.7	27.7
55311	1	.2	.2	27.9
55313	3	.7	.7	28.6
55316	2	.5	.5	29.1
55317	3	.7	.7	29.8
55318	2	.5	.5	30.3
55326	1	.2	.2	30.5
55330	2	.5	.5	30.9
55331	3	.7	.7	31.6
55336	1	.2	.2	31.9
55337	4	.9	.9	32.8
55343	1	.2	.2	33.0
55344	1	.2	.2	33.3
55345	2	.5	.5	33.7
55346	1	.2	.2	33.9
55347	1	.2	.2	34.2
55350	5	1.2	1.2	35.3
55353	1	.2	.2	35.6
55355	2	.5	.5	36.0
55362	1	.2	.2	36.3
55369	3	.7	.7	37.0
55371	1	.2	.2	37.2
55372	2	.5	.5	37.6
55376	1	.2	.2	37.9
55378	3	.7	.7	38.6
55379	1	.2	.2	38.8
55382	2	.5	.5	39.3
55386	1	.2	.2	39.5
55387	1	.2	.2	39.7
55388	1	.2	.2	40.0
55397	1	.2	.2	40.2
55403	3	.7	.7	40.9
55404	1	.2	.2	41.1
55405	3	.7	.7	41.8
55406	3	.7	.7	42.5
55407	3	.7	.7	43.2
55408	2	.5	.5	43.6
55411	1	.2	.2	43.9
55412	1	.2	.2	44.1
55413	1	.2	.2	44.3
55414	2	.5	.5	44.8
55416	7	1.6	1.6	46.4
55417	4	.9	.9	47.3
55418	1	.2	.2	47.6
55419	3	.7	.7	48.3
55420	6	1.4	1.4	49.7
55421	2	.5	.5	50.1

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Q505      What is your zip code ?

55422	5	1.2	1.2	51.3
55423	2	.5	.5	51.7

55424	1	.2	.2	52.0
55425	2	.5	.5	52.4
55427	4	.9	.9	53.3
55428	2	.5	.5	53.8
55430	2	.5	.5	54.3
55431	1	.2	.2	54.5
55432	1	.2	.2	54.7
55433	3	.7	.7	55.4
55434	4	.9	.9	56.4
55435	2	.5	.5	56.8
55437	2	.5	.5	57.3
55438	1	.2	.2	57.5
55441	2	.5	.5	58.0
55442	3	.7	.7	58.7
55443	2	.5	.5	59.1
55444	3	.7	.7	59.8
55448	2	.5	.5	60.3
55449	2	.5	.5	60.7
55543	1	.2	.2	61.0
55616	2	.5	.5	61.4
55657	1	.2	.2	61.7
55705	1	.2	.2	61.9
55719	1	.2	.2	62.1
55720	1	.2	.2	62.4
55732	1	.2	.2	62.6
55741	1	.2	.2	62.8
55746	1	.2	.2	63.0
55760	1	.2	.2	63.3
55769	1	.2	.2	63.5
55803	2	.5	.5	64.0
55806	2	.5	.5	64.4
55810	1	.2	.2	64.7
55811	2	.5	.5	65.1
55901	6	1.4	1.4	66.5
55902	1	.2	.2	66.7
55906	1	.2	.2	67.0
55912	4	.9	.9	67.9
55929	1	.2	.2	68.1
55953	1	.2	.2	68.4
55960	1	.2	.2	68.6
55963	1	.2	.2	68.8
55964	1	.2	.2	69.1
55974	1	.2	.2	69.3
55975	1	.2	.2	69.5
55982	1	.2	.2	69.7
55987	4	.9	.9	70.7
56001	4	.9	.9	71.6
56003	4	.9	.9	72.5

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Q505      What is your zip code ?

56007	1	.2	.2	72.7
56010	1	.2	.2	73.0
56026	1	.2	.2	73.2
56031	1	.2	.2	73.4

56037	1	.2	.2	73.7
56044	1	.2	.2	73.9
56048	1	.2	.2	74.1
56057	1	.2	.2	74.4
56073	4	.9	.9	75.3
56082	1	.2	.2	75.5
56085	1	.2	.2	75.8
56088	1	.2	.2	76.0
56093	1	.2	.2	76.2
56131	1	.2	.2	76.4
56143	1	.2	.2	76.7
56181	1	.2	.2	76.9
56187	1	.2	.2	77.1
56201	1	.2	.2	77.4
56208	1	.2	.2	77.6
56209	1	.2	.2	77.8
56215	2	.5	.5	78.3
56229	1	.2	.2	78.5
56241	1	.2	.2	78.8
56243	1	.2	.2	79.0
56258	2	.5	.5	79.4
56264	1	.2	.2	79.7
56265	1	.2	.2	79.9
56267	1	.2	.2	80.1
56276	1	.2	.2	80.4
56282	1	.2	.2	80.6
56283	3	.7	.7	81.3
56288	1	.2	.2	81.5
56295	1	.2	.2	81.8
56303	1	.2	.2	82.0
56307	1	.2	.2	82.2
56308	3	.7	.7	82.9
56334	1	.2	.2	83.1
56339	1	.2	.2	83.4
56342	1	.2	.2	83.6
56345	1	.2	.2	83.8
56347	3	.7	.7	84.5
56352	1	.2	.2	84.8
56353	1	.2	.2	85.0
56358	1	.2	.2	85.2
56361	2	.5	.5	85.7
56364	1	.2	.2	85.9
56374	1	.2	.2	86.1
56377	1	.2	.2	86.4
56378	1	.2	.2	86.6
56379	3	.7	.7	87.3

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Q505      What is your zip code ?

56401	5	1.2	1.2	88.5
56466	1	.2	.2	88.7
56470	1	.2	.2	88.9
56474	1	.2	.2	89.1
56501	3	.7	.7	89.8
56516	1	.2	.2	90.1



56520	1	.2	.2	90.3
56523	1	.2	.2	90.5
56528	1	.2	.2	90.8
56529	1	.2	.2	91.0
56531	1	.2	.2	91.2
56544	1	.2	.2	91.5
56560	7	1.6	1.6	93.1
56567	1	.2	.2	93.3
56571	1	.2	.2	93.5
56576	1	.2	.2	93.8
56601	4	.9	.9	94.7
56628	1	.2	.2	94.9
56633	1	.2	.2	95.2
56639	1	.2	.2	95.4
56649	1	.2	.2	95.6
56701	3	.7	.7	96.3
56714	5	1.2	1.2	97.5
56738	5	1.2	1.2	98.6
56751	1	.2	.2	98.8
56756	5	1.2	1.2	100.0
Total	433	100.0	100.0	

Valid cases 433 Missing cases 0

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Q508 Highest grade or year of school complete

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
EIGHTH GRADE OR LESS	1	8	1.8	1.9	1.9
SOME HIGH SCHOOL	2	9	2.1	2.1	3.9
H S GRAD OR GED	3	149	34.4	34.6	38.5
SOME TECH OR VOC SCH	4	19	4.4	4.4	42.9
TECH SCHOOL GRAD	5	10	2.3	2.3	45.2
SOME COLLEGE OR AA D	6	94	21.7	21.8	67.1
COLLEGE GRADUATE	7	102	23.6	23.7	90.7
POST GRAD OR PROF DE	8	40	9.2	9.3	100.0
REFUSED	99	2	.5	Missing	
Total		433	100.0	100.0	

Valid cases 431 Missing cases 2

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Q512 Roughly, total household income last yr

Valid Cum

Value Label	Value	Frequency	Percent	Percent	Percent
\$1,000 TO \$1,999	1	2	.5	.5	.5
	2	1	.2	.3	.8
	3	1	.2	.3	1.1
	4	1	.2	.3	1.3
	5	1	.2	.3	1.6
	6	3	.7	.8	2.4
	7	1	.2	.3	2.7
	8	2	.5	.5	3.2
	9	3	.7	.8	4.0
\$10,000 TO \$10,999	10	6	1.4	1.6	5.6
	12	6	1.4	1.6	7.2
	14	3	.7	.8	8.0
	15	2	.5	.5	8.5
	16	5	1.2	1.3	9.8
	17	1	.2	.3	10.1
	18	7	1.6	1.9	11.9
	19	1	.2	.3	12.2
	20	15	3.5	4.0	16.2
	22	2	.5	.5	16.7
	23	1	.2	.3	17.0
	24	2	.5	.5	17.5
	25	12	2.8	3.2	20.7
	26	3	.7	.8	21.5
	27	5	1.2	1.3	22.8
	28	2	.5	.5	23.3
	29	1	.2	.3	23.6
	30	29	6.7	7.7	31.3
	32	5	1.2	1.3	32.6
	33	3	.7	.8	33.4
	34	4	.9	1.1	34.5
	35	18	4.2	4.8	39.3
	36	8	1.8	2.1	41.4
	38	3	.7	.8	42.2
	40	16	3.7	4.2	46.4
	41	1	.2	.3	46.7
	42	2	.5	.5	47.2
	43	2	.5	.5	47.7
	44	2	.5	.5	48.3
	45	9	2.1	2.4	50.7
	46	2	.5	.5	51.2
	47	2	.5	.5	51.7
	48	2	.5	.5	52.3
	49	2	.5	.5	52.8
50	25	5.8	6.6	59.4	
52	2	.5	.5	59.9	
53	1	.2	.3	60.2	

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Q512      Roughly, total household income last yr

55	4	.9	1.1	61.3
56	1	.2	.3	61.5
57	1	.2	.3	61.8
60	14	3.2	3.7	65.5

	65	7	1.6	1.9	67.4
	70	9	2.1	2.4	69.8
	73	1	.2	.3	70.0
	74	1	.2	.3	70.3
	75	17	3.9	4.5	74.8
	80	11	2.5	2.9	77.7
	85	2	.5	.5	78.2
	90	6	1.4	1.6	79.8
	100	7	1.6	1.9	81.7
	110	3	.7	.8	82.5
	120	2	.5	.5	83.0
	140	1	.2	.3	83.3
	150	3	.7	.8	84.1
	192	1	.2	.3	84.4
	200	4	.9	1.1	85.4
	250	1	.2	.3	85.7
	270	1	.2	.3	85.9
	300	1	.2	.3	86.2
	400	1	.2	.3	86.5
DONT KNOW	998	51	11.8	13.5	100.0
REFUSED	999	56	12.9	Missing	
	Total	433	100.0	100.0	

Valid cases 377 Missing cases 56

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Q513 Income group total household income

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
UNDER \$10,000	1	6	1.4	9.2	9.2
\$10 TO LESS THAN \$20	2	17	3.9	26.2	35.4
\$20 TO LESS THAN \$30	3	7	1.6	10.8	46.2
\$30 TO LESS THAN \$40	4	4	.9	6.2	52.3
\$40 TO LESS THAN \$50	5	5	1.2	7.7	60.0
\$50 TO LESS THAN \$60	6	4	.9	6.2	66.2
\$60 TO LESS THAN \$70	7	4	.9	6.2	72.3
\$70 TO LESS THAN \$80	8	3	.7	4.6	76.9
\$80,000 OR MORE	9	5	1.2	7.7	84.6
DONT KNOW/NOT SURE	98	10	2.3	15.4	100.0
	.	326	75.3	Missing	
REFUSED	99	42	9.7	Missing	
	Total	433	100.0	100.0	

Valid cases 65 Missing cases 368

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Q513W More than one telephone number in HH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	50	11.5	11.6	11.6
NO	2	382	88.2	88.4	100.0
REFUSED	9	1	.2	Missing	
	Total	433	100.0	100.0	
Valid cases	432	Missing cases	1		

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Q514 How many res phone numbers

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 NUMBERS	1	6	1.4	12.0	12.0
2 NUMBERS	2	36	8.3	72.0	84.0
3 NUMBERS	3	7	1.6	14.0	98.0
4 NUMBERS	4	1	.2	2.0	100.0
	.	383	88.5	Missing	
	Total	433	100.0	100.0	
Valid cases	50	Missing cases	383		

Q998B SEX OF RESPONDENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MALE	1	224	51.7	51.7	51.7
FEMALE	2	209	48.3	48.3	100.0
	Total	433	100.0	100.0	
Valid cases	433	Missing cases	0		

Q998E INTERVIEWER: LANGUAGE CONDUCTED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
OTHER	0	1	.2	.2	.2
ENGLISH	1	432	99.8	99.8	100.0

		Total	433	100.0	100.0
Valid cases	433	Missing cases	0		

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Q998M INTERVIEWER: YOUR GENDER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MALE	1	189	43.6	43.6	43.6
FEMALE	2	244	56.4	56.4	100.0
		-----	-----	-----	
	Total	433	100.0	100.0	

  

Valid cases	433	Missing cases	0
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REGION REGION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0	0	271	62.6	62.6	62.6
1	1	142	32.8	32.8	95.4
2	2	20	4.6	4.6	100.0
		-----	-----	-----	
	Total	433	100.0	100.0	

  

Valid cases	433	Missing cases	0
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AREACODE AREA CODE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
218	218	76	17.6	17.6	17.6
320	320	53	12.2	12.2	29.8
507	507	68	15.7	15.7	45.5
612	612	236	54.5	54.5	100.0
		-----	-----	-----	
	Total	433	100.0	100.0	

  

Valid cases	433	Missing cases	0
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## EXCHANGE TELEPHONE EXCHANGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	221	1	.2	.2	.2
	222	1	.2	.2	.5
	224	1	.2	.2	.7
	228	1	.2	.2	.9
	229	1	.2	.2	1.2
	234	1	.2	.2	1.4
	235	1	.2	.2	1.6
	236	6	1.4	1.4	3.0
	238	1	.2	.2	3.2
	252	1	.2	.2	3.5
	253	2	.5	.5	3.9
	254	1	.2	.2	4.2
	259	3	.7	.7	4.8
	261	1	.2	.2	5.1
	263	6	1.4	1.4	6.5
	269	2	.5	.5	6.9
	272	1	.2	.2	7.2
	273	1	.2	.2	7.4
	274	1	.2	.2	7.6
	278	1	.2	.2	7.9
	281	1	.2	.2	8.1
	282	2	.5	.5	8.5
	285	1	.2	.2	8.8
	286	2	.5	.5	9.2
	287	4	.9	.9	10.2
	288	1	.2	.2	10.4
	289	1	.2	.2	10.6
	290	1	.2	.2	10.9
	291	1	.2	.2	11.1
	293	1	.2	.2	11.3
	295	1	.2	.2	11.5
	298	1	.2	.2	11.8
	322	1	.2	.2	12.0
	325	1	.2	.2	12.2
	331	2	.5	.5	12.7
	334	5	1.2	1.2	13.9
	335	1	.2	.2	14.1
	338	2	.5	.5	14.5
	345	1	.2	.2	14.8
	346	1	.2	.2	15.0
	351	2	.5	.5	15.5
	352	2	.5	.5	15.9
	354	4	.9	.9	16.9
	356	1	.2	.2	17.1
	357	1	.2	.2	17.3
	358	1	.2	.2	17.6

EXCHANGE TELEPHONE EXCHANGE

363	1	.2	.2	17.8
367	1	.2	.2	18.0
373	1	.2	.2	18.2
376	1	.2	.2	18.5
377	3	.7	.7	19.2
378	1	.2	.2	19.4
384	1	.2	.2	19.6
385	1	.2	.2	19.9
386	1	.2	.2	20.1
387	2	.5	.5	20.6
388	3	.7	.7	21.2
389	1	.2	.2	21.5
398	1	.2	.2	21.7
421	1	.2	.2	21.9
422	5	1.2	1.2	23.1
423	3	.7	.7	23.8
424	7	1.6	1.6	25.4
425	3	.7	.7	26.1
426	2	.5	.5	26.6
427	3	.7	.7	27.3
429	2	.5	.5	27.7
430	1	.2	.2	27.9
431	3	.7	.7	28.6
433	3	.7	.7	29.3
434	2	.5	.5	29.8
436	1	.2	.2	30.0
437	1	.2	.2	30.3
438	1	.2	.2	30.5
440	1	.2	.2	30.7
441	4	.9	.9	31.6
442	1	.2	.2	31.9
443	1	.2	.2	32.1
444	1	.2	.2	32.3
445	1	.2	.2	32.6
447	2	.5	.5	33.0
448	2	.5	.5	33.5
451	6	1.4	1.4	34.9
452	2	.5	.5	35.3
454	3	.7	.7	36.0
456	2	.5	.5	36.5
457	4	.9	.9	37.4
458	1	.2	.2	37.6
459	1	.2	.2	37.9
463	1	.2	.2	38.1
464	1	.2	.2	38.3
467	1	.2	.2	38.6
468	1	.2	.2	38.8
469	1	.2	.2	39.0
474	4	.9	.9	40.0
477	2	.5	.5	40.4

480	1	.2	.2	40.6
484	1	.2	.2	40.9
485	1	.2	.2	41.1
490	1	.2	.2	41.3
495	1	.2	.2	41.6
496	2	.5	.5	42.0
497	1	.2	.2	42.3
498	1	.2	.2	42.5
521	1	.2	.2	42.7
522	1	.2	.2	43.0
523	5	1.2	1.2	44.1
525	1	.2	.2	44.3
528	5	1.2	1.2	45.5
529	2	.5	.5	46.0
532	2	.5	.5	46.4
533	1	.2	.2	46.7
534	1	.2	.2	46.9
535	2	.5	.5	47.3
537	2	.5	.5	47.8
541	1	.2	.2	48.0
544	1	.2	.2	48.3
546	1	.2	.2	48.5
551	1	.2	.2	48.7
552	1	.2	.2	49.0
553	1	.2	.2	49.2
559	3	.7	.7	49.9
560	3	.7	.7	50.6
561	3	.7	.7	51.3
564	1	.2	.2	51.5
566	1	.2	.2	51.7
567	1	.2	.2	52.0
571	2	.5	.5	52.4
576	1	.2	.2	52.7
578	1	.2	.2	52.9
587	6	1.4	1.4	54.3
588	2	.5	.5	54.7
589	1	.2	.2	55.0
591	1	.2	.2	55.2
625	2	.5	.5	55.7
628	2	.5	.5	56.1
629	1	.2	.2	56.4
632	1	.2	.2	56.6
633	4	.9	.9	57.5
634	1	.2	.2	57.7
637	3	.7	.7	58.4
641	1	.2	.2	58.7
643	1	.2	.2	58.9
644	2	.5	.5	59.4
645	2	.5	.5	59.8
646	1	.2	.2	60.0

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EXCHANGE TELEPHONE EXCHANGE

647	1	.2	.2	60.3
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653	1	.2	.2	60.5
674	2	.5	.5	61.0
676	1	.2	.2	61.2
679	1	.2	.2	61.4
681	4	.9	.9	62.4
682	2	.5	.5	62.8
683	1	.2	.2	63.0
684	1	.2	.2	63.3
685	1	.2	.2	63.5
686	1	.2	.2	63.7
688	1	.2	.2	64.0
689	2	.5	.5	64.4
690	2	.5	.5	64.9
692	1	.2	.2	65.1
693	2	.5	.5	65.6
698	1	.2	.2	65.8
699	3	.7	.7	66.5
720	1	.2	.2	66.7
721	1	.2	.2	67.0
722	4	.9	.9	67.9
724	4	.9	.9	68.8
728	3	.7	.7	69.5
729	2	.5	.5	70.0
730	1	.2	.2	70.2
732	4	.9	.9	71.1
735	2	.5	.5	71.6
736	2	.5	.5	72.1
738	1	.2	.2	72.3
741	1	.2	.2	72.5
743	2	.5	.5	73.0
744	1	.2	.2	73.2
751	3	.7	.7	73.9
753	1	.2	.2	74.1
755	4	.9	.9	75.1
757	3	.7	.7	75.8
758	1	.2	.2	76.0
759	1	.2	.2	76.2
762	1	.2	.2	76.4
763	2	.5	.5	76.9
767	2	.5	.5	77.4
770	1	.2	.2	77.6
771	1	.2	.2	77.8
774	2	.5	.5	78.3
776	2	.5	.5	78.8
777	1	.2	.2	79.0
779	1	.2	.2	79.2
780	2	.5	.5	79.7
784	2	.5	.5	80.1
786	1	.2	.2	80.4

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789	2	.5	.5	80.8
794	1	.2	.2	81.1
796	1	.2	.2	81.3

798	1	.2	.2	81.5
822	1	.2	.2	81.8
823	1	.2	.2	82.0
824	5	1.2	1.2	83.1
828	3	.7	.7	83.8
829	2	.5	.5	84.3
831	1	.2	.2	84.5
832	1	.2	.2	84.8
834	2	.5	.5	85.2
835	4	.9	.9	86.1
837	1	.2	.2	86.4
843	2	.5	.5	86.8
845	1	.2	.2	87.1
847	4	.9	.9	88.0
851	1	.2	.2	88.2
857	2	.5	.5	88.7
861	1	.2	.2	88.9
864	1	.2	.2	89.1
866	1	.2	.2	89.4
869	1	.2	.2	89.6
870	2	.5	.5	90.1
872	1	.2	.2	90.3
873	1	.2	.2	90.5
874	1	.2	.2	90.8
879	1	.2	.2	91.0
881	1	.2	.2	91.2
884	2	.5	.5	91.7
885	2	.5	.5	92.1
888	1	.2	.2	92.4
892	1	.2	.2	92.6
894	1	.2	.2	92.8
895	2	.5	.5	93.3
906	1	.2	.2	93.5
922	1	.2	.2	93.8
924	1	.2	.2	94.0
926	2	.5	.5	94.5
927	1	.2	.2	94.7
928	3	.7	.7	95.4
931	1	.2	.2	95.6
932	1	.2	.2	95.8
933	1	.2	.2	96.1
934	2	.5	.5	96.5
935	1	.2	.2	96.8
937	1	.2	.2	97.0
941	1	.2	.2	97.2
947	1	.2	.2	97.5
948	1	.2	.2	97.7

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EXCHANGE TELEPHONE EXCHANGE

953	1	.2	.2	97.9
955	1	.2	.2	98.2
963	1	.2	.2	98.4
967	1	.2	.2	98.6
974	1	.2	.2	98.8

975	1	.2	.2	99.1
983	1	.2	.2	99.3
984	1	.2	.2	99.5
985	1	.2	.2	99.8
986	1	.2	.2	100.0

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Total	433	100.0	100.0

Valid cases      433      Missing cases      0

## **Appendix C**

### **VERBATIM RESPONSES**

**Question 4 - On what highway have you noticed this (these) changes in ride ?**

/00002.r\ 4 \169, bass lake rd.

/00004.r\ 4 \38

/00005.r\ 4 \hwy 81, up by oseo

/00007.r\ 4 \hwy 10,23 the older sections, hwy 169

/00008.r\ 4 \hwy 55 hwy 12

/00009.r\ 4 \hwy 71

/00012.r\ 4 \state 218

/00014.r\ 4 \238

/00015.r\ 4 \state 23

/00016.r\ 4 \13 south

/00018.r\ 4 \county 16

/00020.r\ 4 \hwy 169

/00021.r\ 4 \68, 19,23

/00022.r\ 4 \d

/00025.r\ 4 \210 in Branyard/371

/00027.r\ 4 \d

/00029.r\ 4 \35W

/00030.r\ 4 \hwy12, hwy22, hwy7, 4 north,

/00032.r\ 4 \169

/00036.r\ 4 \hwy 37 hwy 53(any other)hwy 169

/00040.r\ 4 \hwy7

/00044.r\ 4 \hwy 7

/00045.r\ 4 \35 w

/00047.r\ 4 \hwy 55

/00048.r\ 4 \d

/00049.r\ 4 \94

/00050.r\ 4 \52

/00051.r\ 4 \100

/00052.r\ 4 \94,280 94 near 61E

/00054.r\ 4 \7/15]

/00057.r\ 4 \d

/00058.r\ 4 \59

/00060.r\ 4 \#56/#63

/00061.r\ 4 \101

/00062.r\ 4 \14

/00064.r\ 4 \59 60

/00065.r\ 4 \#210/#6/#371

/00066.r\ 4 \169

/00067.r\ 4 \#12

/00068.r\ 4 \hwy 22/ hwy 14/ hwy 60

/00069.r\ 4 \36

/00072.r\ 4 \hwy 10

/00074.r\ 4 \10

/00075.r\ 4 \19 30

/00076.r\ 4 \60 15

/00077.r\ 4 \5

/00078.r\ 4 \13

/00079.r\ 4 \hwy 12,hwy 7, roads in the cities, 71,23

/00081.r\ 4 \35

/00084.r\ 4 \13

/00086.r\ 4 \19

/00087.r\ 4 \d

/00089.r\ 4 \242; 65; University Avenue

/00090.r\ 4 \12

/00091.r\ 4 \14

/00092.r\ 4 \75

/00093.r\ 4 \hwy 65

/00095.r\ 4 \10

/00097.r\ 4 \35

/00101.r\ 4 \16,18,42

/00105.r\ 4 \759/ 7/ 23/

/00107.r\ 4 \hwy 10

/00110.r\ 4 \10/ 169

/00111.r\ 4 \hwy 52, 55, 35west,

/00112.r\ 4 \22

/00113.r\ 4 \14

/00114.r\ 4 \ hwy 10

/00115.r\ 4 \4/34/49/35/59/10

/00116.r\ 4 \road5

/00117.r\ 4 \d

/00119.r\ 4 \d

/00122.r\ 4 \94

/00123.r\ 4 \53

/00124.r\ 4 \10

/00128.r\ 4 \59

/00132.r\ 4 \5

/00135.r\ 4 \169

/00136.r\ 4 \35E

/00138.r\ 4 \d

/00145.r\ 4 \61

/00146.r\ 4 \61

/00147.r\ 4 \67

/00149.r\ 4 \316/50/58

/00152.r\ 4 \19  
/00153.r\ 4 \15  
/00154.r\ 4 \71 and 19  
/00158.r\ 4 \34  
/00159.r\ 4 \7  
/00161.r\ 4 \371  
/00163.r\ 4 \45 61  
/00165.r\ 4 \15 or 19?  
/00167.r\ 4 \on highway 1 and hw 38  
/00168.r\ 4 \10 169 94 694 494  
/00169.r\ 4 \65  
/00172.r\ 4 \d  
/00173.r\ 4 \highway 43  
/00174.r\ 4 \high 169 and high 100  
/00177.r\ 4 \10  
/00178.r\ 4 \hwy 23  
/00179.r\ 4 \35w  
/00180.r\ 4 \hwy 22  
/00182.r\ 4 \71  
/00184.r\ 4 \hwy 94 100  
/00188.r\ 4 \210 and 10  
/00189.r\ 4 \2  
/00194.r\ 4 \hwy 59 & a little on hwy 62  
/00195.r\ 4 \hwy 71  
/00196.r\ 4 \d  
/00197.r\ 4 \hwy 65  
/00198.r\ 4 \hwy 169  
/00201.r\ 4 \State hiway 22, st 7 us 212, st 15  
/00202.r\ 4 \14



/00205.r\ 4 \hwy 55,  
/00209.r\ 4 \71  
/00210.r\ 4 \35 90  
/00216.r\ 4 \19  
/00219.r\ 4 \14  
/00220.r\ 4 \us hwy 12 & minn 15  
/00226.r\ 4 \MN30  
/00227.r\ 4 \hwy 89  
/00230.r\ 4 \hwy 36  
/00231.r\ 4 \hwy 169, 7 ,8.  
/00232.r\ 4 \hwy20  
/00233.r\ 4 \hwy 12, 23, 71  
/00234.r\ 4 \d  
/00236.r\ 4 \hwy 218  
/00238.r\ 4 \35 w north bound  
/00239.r\ 4 \29  
/00241.r\ 4 \15 to 14  
/00244.r\ 4 \hwy 23  
/00245.r\ 4 \169/22  
/00246.r\ 4 \14/13  
/00247.r\ 4 \MN7, US12  
/00249.r\ 4 \61  
/00252.r\ 4 \hw55/hw61  
/00253.r\ 4 \15,55  
/00254.r\ 4 \169  
/00255.r\ 4 \71  
/00255.r\ 4 \71,55  
/00256.r\ 4 \3

/00257.r\ 4 \218  
/00258.r\ 4 \65 and 218 and 105  
/00260.r\ 4 \218  
/00261.r\ 4 \200  
/00262.r\ 4 \11/32/59/72/71  
/00263.r\ 4 \169  
/00265.r\ 4 \52  
/00267.r\ 4 \10  
/00268.r\ 4 \169  
/00269.r\ 4 \5  
/00273.r\ 4 \hw210  
/00274.r\ 4 \55  
/00280.r\ 4 \61  
/00281.r\ 4 \36  
/00282.r\ 4 \23  
/00283.r\ 4 \494,94,52,55  
/00284.r\ 4 \hwy 23,19,14  
/00285.r\ 4 \19  
/00286.r\ 4 \94  
/00289.r\ 4 \371  
/00290.r\ 4 \d  
/00291.r\ 4 \17, 212  
/00300.r\ 4 \65  
/00302.r\ 4 \15  
/00304.r\ 4 \highway 14  
/00306.r\ 4 \7  
/00307.r\ 4 \hwy 35w, (any other) 18 west hinkley  
/00308.r\ 4 \hwy 2-18 any other, hwy14  
/00311.r\ 4 \hwy 169

/00312.r\ 4 \hwy 52 north

/00313.r\ 4 \169

/00318.r\ 4 \d

/00320.r\ 4 \d

/00322.r\ 4 \hw99

/00323.r\ 4 \hw55

/00324.r\ 4 \101 south of dayton to corcoran/39 by albertville

/00326.r\ 4 \5

/00328.r\ 4 \35 w

/00329.r\ 4 \61 outside of Hastings; Hwy 20 in Goodhue county, hwy 19

/00331.r\ 4 \19

/00332.r\ 4 \23, 71 and 12

/00335.r\ 4 \48

/00336.r\ 4 \hwy 15, hwy 64

/00338.r\ 4 \d

/00340.r\ 4 \19

/00341.r\ 4 \Highway 10

/00343.r\ 4 \371 south

/00347.r\ 4 \10

/00353.r\ 4 \hwy 52 hwy 494

/00354.r\ 4 \Hwy 48

/00356.r\ 4 \West River Road doesn't know any #s or letters

/00359.r\ 4 \Hwy 55

/00361.r\ 4 \hw65

/00363.r\ 4 \55,52,1,10,

/00365.r\ 4 \16

/00367.r\ 4 \280,51

/00369.r\ 4 \highway 7, and some of the city roads.

/00370.r\ 4 \59  
/00374.r\ 4 \59 and 2  
/00375.r\ 4 \hwy 14  
/00376.r\ 4 \6  
/00377.r\ 4 \169  
/00378.r\ 4 \hwy 47, (any other) hwy 10  
/00379.r\ 4 \hwy212,  
/00381.r\ 4 \210/53/2/  
/00382.r\ 4 \hwy12  
/00384.r\ 4 \hwy 169 & hwy 22  
/00385.r\ 4 \14 west of mancatto  
/00387.r\ 4 \63, county road 12, 247  
/00390.r\ 4 \81/41  
/00391.r\ 4 \hwy 65 and 118  
/00392.r\ 4 \hwy 2  
/00393.r\ 4 \c c:all roads have changes <> d  
/00394.r\ 4 \rural anoka  
/00395.r\ 4 \d  
/00396.r\ 4 \d  
/00398.r\ 4 \47  
/00400.r\ 4 \61  
/00401.r\ 4 \highway centeniaal  
/00402.r\ 4 \Cloquet --the road runs east and west between Cloquet and Duluth  
/00403.r\ 4 \14  
/00404.r\ 4 \22/83/35w/10  
/00405.r\ 4 \hwy 61 and 494  
/00406.r\ 4 \7  
/00408.r\ 4 \77  
/00409.r\ 4 \d

/00411.r\ 4 \28 and 31` & 3

/00413.r\ 4 \218 [ae] 3, 56

/00414.r\ 4 \6

**Question 5 - Can you tell me on what stretch of the highway you noticed this change (these changes)? What is, between what towns or crossroads is this stretch ?**

/00002.r\ 5 \say from emily to outing,hwy 6 (any other?) no

/00004.r\ 5 \gran rapids to effie

/00005.r\ 5 \did not notice

/00007.r\ 5 \169 just after the new section (after the 2 lane) hwy10 st. cloud area hwy23 get over toward the foley area get back to the old sections of the hwys are broken up

/00008.r\ 5 \hwy 55 from annandale east bound

/00009.r\ 5 \between sauk center to long prairie

/00012.r\ 5 \lyle ans austin

/00014.r\ 5 \St. Anthony & Upsala

/00015.r\ 5 \between hinckly south to cty

/00016.r\ 5 \pryor lake, south of 42

/00018.r\ 5 \houston and 76 intersection

/00020.r\ 5 \jordan and lesur

/00021.r\ 5 \ 68 marshall, mineolla

/00022.r\ 5 \d

/00025.r\ 5 \Baxter thru Braynard

/00027.r\ 5 \btwn st paul and stillwater

/00029.r\ 5 \deluth and minneapolis

/00030.r\ 5 \between litchfield and hutchingson, grove city and painsville

/00032.r\ 5 \highway 17 to Bass Lake Road

/00036.r\ 5 \hibbing and deleuth, hibbing and grand rapids

/00040.r\ 5 \bet. vinehill rd. and hwy7(its a four lane highway)

/00044.r\ 5 \between 494 and 101

/00045.r\ 5 \duluth to hwy 23

/00047.r\ 5 \Rockford and mInniapolis

/00048.r\ 5 \Right downtown at the stoplight, maybe highway 29 at the stoplight

s

/00049.r\ 5 \35w interchange

/00050.r\ 5 \south st paul to west st paul

/00051.r\ 5 \between golden valley and st. louis park

/00052.r\ 5 \st paul(94 near 61)/280 near minneapolis

/00054.r\ 5 \hw7,minneapolis to hutchinson

/00057.r\ 5 \d

/00058.r\ 5 \morris to fergus falls

/00060.r\ 5 \#56:from frwy 90-Dodge Center

/00061.r\ 5 \betw chamhassen & hwy 7

/00062.r\ 5 \Mankato and Otana

/00064.r\ 5 \d

/00065.r\ 5 \#210-right in Baxter//

/00066.r\ 5 \d

/00067.r\ 5 \between Ortonville, and the Holloway corner...the 12/59 corner.

/00068.r\ 5 \ -

/00068.r\ 5 \22= south of makato to mapleton 14= makato and rochester 60= mankato and farabault

/00069.r\ 5 \between stillwater and n st paul

/00072.r\ 5 \clear lake and st cloud

/00074.r\ 5 \anoka nad elk river

/00075.r\ 5 \19 between st michael and hanover 30 btn corcoran and maple grove.

/00076.r\ 5 \hwy 60 - east of windom, and just south of neu ulm. hwy 15 - between neu ulm and medalia.

/00077.r\ 5 \the whole road; esp in sherbourn county

/00078.r\ 5 \bet waterville and montgomery

/00079.r\ 5 \hwy 12 btwn willmar and litchfield

/00081.r\ 5 \between maryland And minneapolis on 35

/00084.r\ 5 \prior lake prague

/00086.r\ 5 \bet redwood falls and morton

/00087.r\ 5 \north st paul exit off of english st north

/00089.r\ 5 \242: Blaine and Coon Rapids; 65: Blaine into Ham Lake; University Blvd Blaine into Fridley

/00090.r\ 5 \bet mentor and red lake falls

/00091.r\ 5 \sleepy eye to springfield

/00092.r\ 5 \between moorehead and wolverton

/00093.r\ 5 \bet. isanti and minn, st. paul.

/00095.r\ 5 \st.cloud area, around the area

/00097.r\ 5 \St. Paul to Rush City

/00101.r\ 5 \prior lake and burnsville on 42, between route 18 and route17 on hwy 16

/00105.r\ 5 \759= watson and monpvideo 7= monovideo and st cloud 23= clara city and wilmer

/00107.r\ 5 \from silver lake rd to lane or cub's grocery store

/00110.r\ 5 \10=coon rapids and ramsey 169=onaka to maple grove

/00111.r\ 5 \between rosemont and eagan,(any other?) no

/00112.r\ 5 \between mankato and st. peter

/00113.r\ 5 \between two harbors and brimson

/00114.r\ 5 \rice and st cloud

/00115.r\ 5 \((34) perum and 35, (35) denton and verges,

/00116.r\ 5 \between Blakely and state highway 25

/00117.r\ 5 \back road between melrose and lawn prarie

/00119.r\ 5 \between county 42 and country rd 17 cross street is 160th

/00122.r\ 5 \Albany to St. Cloud

/00123.r\ 5 \Cloquet and Ibbing

/00124.r\ 5 \Big Lake to Clear Lake

/00128.r\ 5 \just north of marshall, industrial park area in marshall

/00132.r\ 5 \from eden prairie to 494

/00135.r\ 5 \between highway 41 south to jordan, and 212 between cologne and ba umgart.



/00136.r\ 5 \under maryland ave, under the bridge on 35E

/00138.r\ 5 \d

/00145.r\ 5 \sembroda and goodfield

/00146.r\ 5 \between redwing and rahrasa

/00147.r\ 5 \from granite falls to clarkfield

/00149.r\ 5 \between 61 and hastings, between redwing and goodhue and between 61 and 52 on highway 50

/00152.r\ 5 \btwn redwood falls and ivan hills

/00153.r\ 5 \between sac rapids and st. cloud

/00154.r\ 5 \east of redwood falls and n olivia on 71 east red wood falls to morten on 19

/00158.r\ 5 \btwn detroit lakes andpark rapids

/00159.r\ 5 \silver lake and hutchinson

/00161.r\ 5 \right outside of little falls

/00163.r\ 5 \scanland to carleton on 45 north of two harbors to silver bay 61 carelton to cromwell on 210 carelton to 23 on 210

/00165.r\ 5 \d

/00167.r\ 5 \close to 286 to county road.

/00168.r\ 5 \10 between fredly to ramsey 169 from anoka to brooklandcenter 94 from brookline center to minneapolis 694 from new hope to maple grove 494 maple grove to minnetonka

/00169.r\ 5 \bunker hill and 105th.

/00172.r\ 5 \towards ely

/00173.r\ 5 \exit 252 going into wanona

/00174.r\ 5 \camplin and brookly n park, and betw brooklyn center and golden valley on highway 100

/00177.r\ 5 \clear lake to st cloud on hwy 10

/00178.r\ 5 \between folley and mora

/00179.r\ 5 \62st to burnsville

/00180.r\ 5 \glencoe to bisquee

/00182.r\ 5 \North of Welmir

/00184.r\ 5 \hwy 94= where 280 comes in

/00188.r\ 5 \Motley to Staples  
/00189.r\ 5 \Bemidji and Bagley

/00194.r\ 5 \betw avoca & fouda

/00195.r\ 5 \jackson ands windom

/00196.r\ 5 \d

/00197.r\ 5 \columbia hgts and minneapolis

/00198.r\ 5 \edina and LeSuer

/00201.r\ 5 \the esegments i would go w/ would be between hutchinson and glencoe  
(22) between hutchinson and st cloud==er actually, fer 15, say brounton to st  
cloud. (ok, ae) from hutchinson to minneapolis on st hiway7. (ok( and on 212  
from gelncoe to minneapolis (ok, ae) no

/00202.r\ 5 \stockton and lewiston

/00205.r\ 5 \bet. maple lake to painsville

/00209.r\ 5 \Wadena to Sebeta

/00210.r\ 5 \35 toward Austin betw Elbertly & Austin, & Elbertly & Rochester 90  
toward Sioux Falls

/00216.r\ 5 \hwy 19 from cty rd 13 to New Prague

/00219.r\ 5 \waseca to makato

/00220.r\ 5 \east of Dissel on hwy 12

/00226.r\ 5 \east of amboy 5 miles

/00227.r\ 5 \rosell and grygla

/00230.r\ 5 \betw snelling ave in st paul & us694 in oakdale.

/00231.r\ 5 \between longville & Outing

/00232.r\ 5 \deerwood and mora

/00233.r\ 5 \23 = new london and wilmore, 12 = wilmore and witchfield, 71 = it's  
being resurfaces, north going to belgrade, south of wilmore

/00234.r\ 5 \between excelsior and chanhanson

/00236.r\ 5 \austin to lyle

/00238.r\ 5 \hwy 35 n between forest lake to wyoming

/00239.r\ 5 \park rapids to wadeena

/00241.r\ 5 \new ulm

/00244.r\ 5 \claire city and raymond

/00245.r\ 5 \btn. St. Peter and Mankato

/00246.r\ 5 \14+wauseca and owattana, 13=waterville and wauseca

/00247.r\ 5 \Hutchinson and silverlake, US12=cloquet and howard lake

/00249.r\ 5 \between interstate 694 and frost parkway on hwy 61.

/00252.r\ 5 \winona redwing on 61 hw52 rochester to hastings

/00253.r\ 5 \15,between kimbel and st cloud.55,between south haven annandale

/00254.r\ 5 \between new hope and plymouth

/00255.r\ 5 \71,belgrade to redwood falls.55,from glenwood to belgrade

/00256.r\ 5 \between 97 and pillar road

/00257.r\ 5 \between austin and iowa

/00258.r\ 5 \between minn. and iowa border and coming up on glennville, on 218 between owatonna and austin, the above info is for 65

/00260.r\ 5 \between austin and owatona

/00261.r\ 5 \ramer to jacobson

/00262.r\ 5 \59 between deep river falls and fergus falls, 11 between and roosevelt and bedet and internation falls

/00263.r\ 5 \between calumet and snowball and then between pengilly and nashwal  
k

/00265.r\ 5 \between hastings and coates

/00267.r\ 5 \d

/00268.r\ 5 \between maple grove and st louis park

/00269.r\ 5 \eden prairie to the crosstown/jct 5 and 494

/00273.r\ 5 \fox hole to fergus falls

/00274.r\ 5 \between loretto and medina

/00280.r\ 5 \new port to cottage grove

/00281.r\ 5 \d

/00282.r\ 5 \bet mora and hinckley

/00283.r\ 5 \55 imber grove and rosemont, 494 several spot leaving or going into the city 94 leaving or going into the city

/00284.r\ 5 \from Marshall to minneapolis

/00285.r\ 5 \west hgwy 13 past nEw Prague

/00286.r\ 5 \11th ave going north to grant

/00289.r\ 5 \int of 210 and soouth brainerd

/00290.r\ 5 \d

/00291.r\ 5 \between chaska & lion's tap on 212

/00300.r\ 5 \going on hwy 65 going north thru hamlake and east bethel

/00302.r\ 5 \d

/00304.r\ 5 \between wasca and meridan

/00306.r\ 5 \on 7, between 44 and cty 41 on 5, between cyt 451 and cyt17

/00307.r\ 5 \from the mora exit up until pine city, (the other) from hinkley for 4 miles out

/00308.r\ 5 \d

/00311.r\ 5 \betw garrison wigwam bay

/00312.r\ 5 \west st. paul, 52

/00313.r\ 5 \near La Soeur

/00318.r\ 5 \over the champlin bridge and in champlin, onoka and out in ramsy and in new hope ,boone

/00320.r\ 5 \d

/00322.r\ 5 \between lecenter and st peter

/00323.r\ 5 \between elbow lk and 94(near evansville)

/00324.r\ 5 \101 btw dayton and corcoran/39 west of albertville westbound lane

/00326.r\ 5 \between Wakonia and Eden Prairie

/00328.r\ 5 \areas under bridges or over passes--forest lake has one and an/o between hwy 118 and lexington ave

/00329.r\ 5 \61-between Hastings and Cannon Falls; Hwy-Cannon falls to hwy 52  
19-Cannon falls to Redwing

/00331.r\ 5 \Cannon Falls to Red Wing and Cannon Falls to Northfield

/00332.r\ 5 \23-Spicer to Clara City; 71-Spicer to Wilmar; 12-Cockato to Bens  
on

/00335.r\ 5 \between Hinckley & Danbury

/00336.r\ 5 \hwy 15: btwn 22 west up to Puposky. hwy 64: btwn Akeley and Motley

.

/00338.r\ 5 \d

/00340.r\ 5 \35w and new prague

/00341.r\ 5 \from Fargo to LAke Park, eastbound

/00343.r\ 5 \d

/00347.r\ 5 \around st cloud

/00353.r\ 5 \494 s st paul to eden prairie 52 thompson to 94

/00354.r\ 5 \Hinkley to the river from 35W to wi border, grand casino for 10-15 miles rough all the way to the river, once hit Wi its a world of difference

/00356.r\ 5 \d

/00359.r\ 5 \Golden Valley and Plymouth

/00361.r\ 5 \county rd14 and main st(hw65)

/00363.r\ 5 \eagen ingergrove heights and rush city and bemidgi and walker

/00365.r\ 5 \spring valley sturtville

/00367.r\ 5 \new brighton to cleavlend 280

/00369.r\ 5 \between Hutch and Silver Lake.

/00370.r\ 5 \Bijou and Winger

/00374.r\ 5 \59 it'd be from #2 down to Manoman, and Hwy 2

/00375.r\ 5 \from north mankato to nicollett. bet the golf couse

/00376.r\ 5 \between watertown and lyndale

/00377.r\ 5 \between shakpe and bellplane

/00378.r\ 5 \between anoka and ramsey

/00379.r\ 5 \bet. sentry ave. to hadley

/00381.r\ 5 \hwy 2 between duluth and grand rapids hwy 53 between duluth and virginia hwy 210 between carlton and aitken

/00382.r\ 5 \between ortonville and benson/willmar

/00384.r\ 5 \betw mancato and st peter.

/00385.r\ 5 \Mancato and Nicollet

/00387.r\ 5 \63-between county 12-247 and rochester

/00390.r\ 5 \81 -robinsdale to minneapolis 41 -laurey ave to ne 4th st

/00391.r\ 5 \hwy 65-from bunkerlake blvd south to 121st hwy 118-heading west past the exit for 85th ave

/00392.r\ 5 \between cass lake and ball club town, another bad area is between grand rapids and duluth

/00393.r\ 5 \d

/00394.r\ 5 \bT oak grove and St. francis

/00395.r\ 5 \woodburn and rochester

/00396.r\ 5 \d

/00398.r\ 5 \from ogilvie to st. francis

/00400.r\ 5 \from two harbors to lutson

/00401.r\ 5 \between morehead and dillworth

/00402.r\ 5 \state highway duluth to cloquet

/00403.r\ 5 \Mankato to New Ulm

/00404.r\ 5 \22east into elk river/83 armstrong blvd (not 63)/10 northtown area/ 35w hwy 10 to county rd c

/00405.r\ 5 \hwy 61 in the town of hastings, 494 towards 94

/00406.r\ 5 \lester prairie and hutchinson

/00408.r\ 5 \77 near Brainerd between Brainerd and Nisswa

/00409.r\ 5 \d

/00411.r\ 5 \31 & 28 & 3 the older parts that have not been resurfaced The roads are so bad, esp the local roads that I can't remember specifically which sections of state highway are bad

/00413.r\ 5 \cty 3 is between cty 218 and Rose Creek. cty 218 N towards I-90

/00414.r\ 5 \ministrista to hwy 6

**Question 7a - Please give me a reason why you would tolerate a rougher ride in winter ?**

/00002.r\ 7a\well i guess the maintainence of the highway is understandable more difficult in the winter, considering early nov. rain and freeze thaw s cycles is difficult to keep up

/00005.r\ 7a\b/c of the weather its normal the frost and stuff need to be patched because of weather conditions it is difficult to fix

/00007.r\ 7a\b/c its harder to fix it efficiently

/00008.r\ 7a\some of the problems are caused by freezing and thawing and the road changes due to that

/00009.r\ 7a\the freezing and thawing process

/00012.r\ 7a\the weather conditions realize its harder to keep roads up in winter

/00014.r\ 7a\they can't do anything about till spring, I realize this.

/00015.r\ 7a\because of the season its expected

/00016.r\ 7a\this is minnesota, to be expected city of minneapolis way worse, I expect to hit holes in the winter, I'm used to it

/00018.r\ 7a\expect changes from ground thawing and freezing

/00020.r\ 7a\because i expect it. (explain?) well use to it being rough due to ice and snow and because of pot holes and stuff due to the weather

/00021.r\ 7a\da the weather the frost coming on the road, they make potholes on the road

/00022.r\ 7a\bc of ice and snow build up.

/00027.r\ 7a\just bc i know that w snow and ice that the roads are not always up to what they need to be

/00029.r\ 7a\harder to maintain the roads in winter ]

/00030.r\ 7a\well not much you can do b/c the frost is pushing the road up

/00032.r\ 7a\ground freezes, so it shifts the concrete.

/00036.r\ 7a\can't do much about the frost, (anything else?)

/00040.r\ 7a\living an area like this always have the pot holes, thereis not much you can do with

/00044.r\ 7a\weather takes a toll on the pavement, it expands and swells in winter

/00045.r\ 7a\well becuz of the snow and ice fall, sometimes they cant get down with the snowplowes to get that stuff off

/00047.r\ 7a\its an all over rougher ride

/00048.r\ 7a\b/c not much that they can do about iyt in the winter, ae, no.

/00050.r\ 7a\for me I drive rear wheel drive car when rougher better traction than smooth pavement

/00051.r\ 7a\you have to accept the challenges that the weather presents you have no choice

/00052.r\ 7a\i know what the elements do to the rdways(ms)thawing and freezing puts stress on the roads

/00054.r\ 7a\nothingf that can be done about it in the winter time(ms)road conditions such as potholes.

/00057.r\ 7a\because it is icky out here it is minnesota and it is winter

/00060.r\ 7a\Because you hit the ice and it gets pretty rough, and when you hit the bare stretches it's still pretty rough. R-ask Q. "You're more used to it, and it's not going to be repaired until spring anyway.

/00061.r\ 7a\just normal winter driving is rougher, ice patches, snow pack; you slow down because the road is slippery or wet

/00062.r\ 7a\Because you can't help the conditions.

/00064.r\ 7a\sometimes the crews can't keep everything just so; More? no

/00065.r\ 7a\Because you've got to put up with the frost heaves...you have to tolerate more in the winter.

/00067.r\ 7a\It's got to be the frost that's heaving the roads.

/00068.r\ 7a\expect roads in worst shape bc of weather

/00069.r\ 7a\bc the suspension in the car is colder

/00072.r\ 7a\i think it has a lot to do with having trucks, and not enough upkeep.

/00074.r\ 7a\realize a lot of work to keep the highways open

/00075.r\ 7a\because of the frost and what it does to roads

/00076.r\ 7a\well i realize that weather conditions can cause deterioration of road surfaces and can cause heaving in the wintertime more than in the summertime.

/00077.r\ 7a\because it's winter

/00079.r\ 7a\we just expect it anyone that drives a lot notices .

/00086.r\ 7a\bc they will fix it in the in the spring

/00087.r\ 7a\because of the weather changes and this is a reason why it's rough

/00089.r\ 7a\Bc I expect it during a minnesota winter

/00090.r\ 7a\used to traveling the road for ice fishing

/00091.r\ 7a\you ain't going to get all the snow off



/00093.r\ 7a\you expect it because of the weather. it heaves the rds and what have you

/00095.r\ 7a\because of the wear & tear it takes in winter; bc of the salt and whatnot

/00097.r\ 7a\It seems as though in the summer they keep it tarred and maintained better, which can be understood.

/00110.r\ 7a\know itis harder for road to be repaired

/00111.r\ 7a\b/c its expected, (any thing else?) no

/00112.r\ 7a\because of the weather

/00113.r\ 7a\expected with the snow and ice

/00114.r\ 7a\you expect it in mn/vehicle is stiffer due to weather

/00115.r\ 7a\expect the road conditions to be poor

/00116.r\ 7a\because I know they can't get in to fix it while its cold

/00119.r\ 7a\because winter weather creates rougher conditions for the road

/00122.r\ 7a\frost

/00123.r\ 7a\You just expect it, because of the surface.

/00128.r\ 7a\because its been a hard winter on the roads.

/00135.r\ 7a\knowing that the ground is changing from frost, when it is warmer, the pavement tends to spread itself out more.

/00136.r\ 7a\it's expected that rougher conditions occur in the winter.

/00138.r\ 7a\bc of the conditions we have of rain & freezing & thawing & that cracks them up, it's bc of the weather

/00145.r\ 7a|i expect the rougher ride in the winter. don't go out unless i have to.

/00146.r\ 7a|i've lived here all my life, and winter just does that.

/00147.r\ 7a|i guess we just take that it is going to be that way (because of the colder weather) .

/00149.r\ 7a\because this climate is very hard on roads.

/00152.r\ 7a\bc just used to it , happens every year

/00153.r\ 7a\because there is not a great deal that can be done about the changes in the road, it's just one of the things that goes along with winter.

/00154.r\ 7a\it seems normal, these things happen you dont expect it to be any

better

/00158.r\ 7a\there's not much they can do about it bc because the frost heaves it up

/00159.r\ 7a\snow cold weather

/00162.r\ 7a\more diff weather condition than the rest of the year

/00165.r\ 7a\because you expect to have a rougher ride in winter with snow and ice on the highway

/00168.r\ 7a\because of snow and ice and theu cant maintain

/00169.r\ 7a\with winter there is more snow, so you're more concerned about the snow and the sliding.

/00173.r\ 7a\realize with cold weather

/00177.r\ 7a\because i know they can't keep in the winter

/00178.r\ 7a\bc you expect that they cant get out to fix it bc of the condions of the weather.

/00179.r\ 7a\because of the snow and ice

/00180.r\ 7a\because of the snow andit is hard for them to repair it and when the snow comees and go and with the salt

/00184.r\ 7a\cause it's minnesota and i understand the reason why

/00188.r\ 7a\Because its winter

/00189.r\ 7a\because the fact they can't be repaired in winter

/00196.r\ 7a\bc of snow and ice there are holes in pavement

/00197.r\ 7a\bc there is snow on the ground, and there is much we can do ab it.

/00198.r\ 7a\bc of the physical changes that happen between hwy and in the summertime we hope that you'll fix it.

/00199.r\ 7a\well i know how tough the winter is on the roads, with all the salt and freezing and frost thats going on. and we know that they just cant get to it just that fast.

/00202.r\ 7a\well i realize that the gournd contracts and the hiways poull together a little bit and they have to ripple up a little bit I can udnersatnd that thbat's just how it goes.

/00216.r\ 7a\its expected

/00224.r\ 7a\I figure it must be the cold & ice

/00227.r\ 7a\well, it's winter not much you can do about it. this is n. mn. rds.

cracking is just a fact of live, not much you can do about it.

/00231.r\ 7a\I know that the roads get messed from the cold & thats the way it is in any col cold state like Minnesota, potholes and etc.

/00233.r\ 7a\i realize conditions are worse and you can't do any work in winter

/00234.r\ 7a\it's mn. so you know there is gonna be either ice or the road or potholes it is just something that happens.

/00236.r\ 7a\i suppose because in the winter there is snow and ice and they sand the rds.

/00239.r\ 7a\i don't know, you expect it in winter

/00244.r\ 7a\i guess just used to mn. roads in the winter, rough and ruddy. usually don't pull a trailer like i do in the summer

/00249.r\ 7a\i know it's tough to keep the roads clean. the physics of potholes and pavement are just that - you can't do too much about it to kee them from forming. you just have to be more tolerant of roughness, especially toward the end of winter - when you get freezing and thawing and refreezing.

/00252.r\ 7a\because i assume the hw maintence dept cant' do a lot about it in the winter (ms)can't do a lot about the quality of the roads

/00253.r\ 7a\circumstances or harder in the winter

/00254.r\ 7a\because we expect it! (more) no, no

/00255.r\ 7a\weather conditions afect the roads

/00256.r\ 7a\it's been that way for 19 years

/00258.r\ 7a\i'm used to worsening road conditions (ae) nah

/00260.r\ 7a\you know that the roads are going to be rough in the winter time

/00261.r\ 7a\once frost gets out the roads improve

/00263.r\ 7a\it's kind of expected with the heating of the ground (more) no that's fine

/00267.r\ 7a\because of thsnow and ice

/00269.r\ 7a\your going over snow and ice and used to it

/00273.r\ 7a\i guess because i know that certain things cant get done in the winter time (ms) patching is more difficult,the materials dont stay in the holes as well

/00274.r\ 7a\because of the snow and ice.

/00280.r\ 7a\the snow and stuff

/00281.r\ 7a\i know it is more difficult to get out and repair it

/00282.r\ 7a\minnesota, we get up evry yr

/00283.r\ 7a\more aware when you drive in the winter, and because of the weather

/00284.r\ 7a\because they have ice on them

/00285.r\ 7a\it is Minn and the weather you expect it

/00289.r\ 7a\the way it is in the winter, still better than the side streets

/00290.r\ 7a\you know it's snowing

/00291.r\ 7a\just that i know that the crews can't get out there to fix em in the winter

/00300.r\ 7a|i guess i just expect the weather to be a factor in the road surfa ce.

/00302.r\ 7a\cause it's winter it's going to be rough

/00304.r\ 7a\just bec the roads are so wretched anyway. i am just concerned w ice and snow removal. that's the first priority.

/00306.r\ 7a\cause of the weather

/00307.r\ 7a\b/c you have to expect that in the winter before the thaw there are rough roads

/00311.r\ 7a\because the heave caused by the frost

/00312.r\ 7a|i know they can't work on the roads in the winter (who) dot

/00313.r\ 7a\I just understand the chgallenges of keeping the roads good in winter.

/00318.r\ 7a\dk, just have to go slower in the winter

/00320.r\ 7a\because mother naturee just kinda makes it that way(ms) snow and ice accumulate in the winter and nt in any other season of the yr

/00323.r\ 7a\because your car rides rougher at 20 bbelow anyhow(ms) iyour car stiffer in the winter

/00324.r\ 7a\just due to the fact of life in minnesota that frost in winter you have to go along with the elements that cause this

/00326.r\ 7a\because I expect the roads to be rougher in the winter, ice slush, sand. and lack of plowing ther are bump and grooves.

/00329.r\ 7a\I guess I just expect it more because of what that road is going through bc of temperature changes and I think the surface is easier to control in the summer

/00331.r\ 7a\I work in construction and a familiar with the havoc frost can cause

/00332.r\ 7a\Bc you are used to it in the winter. I've lived in Minnesota all my life and it happens almost every year

/00335.r\ 7a\because I realize they re road conditions that make the road the way it is.

/00336.r\ 7a\it can go either way.. i can tolerate it b/c i know in the winter its hard to keep the road clear. but just from a safety standpoint its tougher in the winter b/c you have worse driving cond all the time

/00338.r\ 7a\you have to be bc its winter and nothing can be done

/00340.r\ 7a\pot holes are a part of MN winter

/00343.r\ 7a\you get used to it, you still notice it but you dont have a choice

/00347.r\ 7a\i've lived here my whole life, im used to it

/00353.r\ 7a\road conditions in winter and you're more prepared to drive

/00354.r\ 7a\Just bc you can't get away from it you've got to expect it to some extent

/00356.r\ 7a\just cause of ice and snow i guess

/00361.r\ 7a\well cause its more expected in the winter(ms)in the wintertime there's more heaving in the pavement than in the summer

/00363.r\ 7a\not a 100 degrees and the air conditioner is not broken

/00365.r\ 7a\not all that bad, pick ups are not that bad

/00367.r\ 7a\d

/00369.r\ 7a\Well, b/c of the damage to the road because of the salt and you expect the damagfe each year.

/00370.r\ 7a\weather

/00372.r\ 7a\have no choice,its just there

/00375.r\ 7a|i understand the winter

/00376.r\ 7a\car is stiffer

/00378.r\ 7a\b/c of the weather, there is nothing you can do about it

/00381.r\ 7a\bc i expect it to be that way. im a minnasota native

/00382.r\ 7a\b/c in the winter the ground heave. expectations

/00384.r\ 7a\bc i know they cant do alot about it when its freezing and thawing

.

/00385.r\ 7a\well because there's going to be some swells in the winer time that

you can't prevent

/00387.r\ 7a\because of the weather conditions, its harder to maintain

/00390.r\ 7a\freezing and refreezing know roads don't stay patched very well

/00391.r\ 7a\ice builds up on the roads, you can't always get everything off

/00392.r\ 7a\main thing is in the summertime hwy 2 have rough ruts fr grain truck traffic and when its raining those ruts fill up with water and they dont drain properly and a light weight vehicle will hydroplane on those puddles.

/00393.r\ 7a\expect it with the condidiotn of the seasons, because of snow ice, roads are sledged up,

/00394.r\ 7a\execpt the weather condiditons to be worse

/00395.r\ 7a\becuase of snow and ice

/00396.r\ 7a\its expected more (why) weather snow ice and salt.

/00398.r\ 7a\kind of expected, its minnesota, (wht) ground change it hapens every year

/00401.r\ 7a\bcuase ofthe difficulty in maintaining roads

/00402.r\ 7a\because of the big potholes and if there's a passing lane you don't really feel the bumps until it begins to than

/00404.r\ 7a\i know it is going to be like that/ because snopw build up and potholes standard winter conditions

/00405.r\ 7a\we know that they can't do anything about it until slpring

/00406.r\ 7a\bc i think they can't fix it i winter

/00408.r\ 7a\driving sloweer

/00409.r\ 7a\bc of the weather conditotions from day to day

/00411.r\ 7a\bc the option is to not have the snow removed I'd rather have a rough ride than ice and snow

/00413.r\ 7a\I have to [ms] there's ice and snow on the road, which fill in the ruts, gets 10 times worse when it melts.

/00414.r\ 7a\snow and potholes and just expect with the weather conditons

**Question 9 - What highway do you avoid in winter because of an intolerable ride ?**

/00006.r\ 9 \284

/00009.r\ 9 \hwy 287

/00016.r\ 9 \city streets, hwys pretty good

/00024.r\ 9 \bad weather/had accident in past so scared to drive

/00025.r\ 9 \210/371 north

/00038.r\ 9 \23

/00041.r\ 9 \don't go on any hwy i just drive in town

/00052.r\ 9 \94

/00059.r\ 9 \65 (right lane is rough so drives in left lane)

/00061.r\ 9 \d

/00070.r\ 9 \35w going south

/00071.r\ 9 \494, 394, 694

/00072.r\ 9 \i try to avoid the right lane

/00077.r\ 9 \94

/00081.r\ 9 \hwy 35 between marylan st and minneapolis ... and arcade ave

/00091.r\ 9 \d

/00093.r\ 9 \65 north

/00118.r\ 9 \169

/00125.r\ 9 \212

/00132.r\ 9 \5

/00138.r\ 9 \96

/00140.r\ 9 \55

/00156.r\ 9 \7

/00157.r\ 9 \5

/00167.r\ 9 \highway 1

/00170.r\ 9 \8

/00178.r\ 9 \a part hwy 23

/00190.r\ 9 \19

/00191.r\ 9 \35E

/00197.r\ 9 \hwy280

/00201.r\ 9 \trnk hiway 22 from hutchinson to glencoe

/00207.r\ 9 \71 South

/00218.r\ 9 \61

/00224.r\ 9 \35 E

/00225.r\ 9 \55

/00233.r\ 9 \71 south of wilmar

/00239.r\ 9 \169

/00246.r\ 9 \14

/00258.r\ 9 \the section of 218 that i mentioned, i'll get on the freeway instead

/00259.r\ 9 \94,35w

/00272.r\ 9 \goodhugh co 8

/00283.r\ 9 \94, 36, 35 those are bad ones

/00292.r\ 9 \hwy 5

/00293.r\ 9 \i90

/00294.r\ 9 \hw22

/00301.r\ 9 \county road 11

/00307.r\ 9 \hwy18

/00318.r\ 9 \boone ave btwn 169 and 81

/00319.r\ 9 \35e

/00328.r\ 9 \35W between 118 and lexington ave

/00337.r\ 9 \35 E south toward downtown st paul

/00341.r\ 9 \Highway 10

/00343.r\ 9 \210 east of brainerd

/00344.r\ 9 \Lyndale, around there. If there's a storm i dont go out driving

/00350.r\ 9 \cty road 3 to alexandria



/00352.r\ 9 \hwy 27

/00354.r\ 9 \Hwy 48

/00362.r\ 9 \12, 2

/00363.r\ 9 \spaghetti junction at rush hour

/00368.r\ 9 \highway 10

/00374.r\ 9 \59

/00375.r\ 9 \hwy 14 all of it

/00387.r\ 9 \d

/00390.r\ 9 \81

/00395.r\ 9 \d

/00403.r\ 9 \14 between Mankato and Nicolet

/00404.r\ 9 \city road irvine blvd snow build up so bad rough couldn'tdrive on  
it

**Question 10 - Can you tell me on what stretch of the highway you avoid? What is, between what towns or crossroads is this stretch ?**

/00006.r\ 10 \to coloen

/00009.r\ 10 \between long prairie and great eagle

/00016.r\ 10 \north of cross town to hwy 94

/00024.r\ 10 \d

/00025.r\ 10 \371 north between nisswa & pine river

/00038.r\ 10 \st cloud, coldsprings

/00041.r\ 10 \35 south

/00052.r\ 10 \between maplewood/woodbury and minn94

/00059.r\ 10 \several miles before blaine

/00061.r\ 10 \d

/00070.r\ 10 \between hwy 10 and downtown minneapolis

/00071.r\ 10 \Brookdale to MAple Grove

/00072.r\ 10 \clear lake and st cloud

/00077.r\ 10 \monticello to minneapolis

/00081.r\ 10 \maryland and minneapolis and arcade st

/00091.r\ 10 \neu ulm

/00093.r\ 10 \going to big sandy lake north of macgregor

/00118.r\ 10 \from maple grove to plymouth

/00125.r\ 10 \between norwood and glencoe

/00132.r\ 10 \between eden prairie and 494

/00138.r\ 10 \from new brighton to 35e

/00140.r\ 10 \27 & morris

/00156.r\ 10 \d

/00157.r\ 10 \d

/00167.r\ 10 \by king road

/00170.r\ 10 \new brighton to rosdale

/00178.r\ 10 \east of olilvie.

/00190.r\ 10 \Redwood and Morton

/00191.r\ 10 \going through Minneapolis/St. Paul north to south

/00197.r\ 10 \hennipen

/00201.r\ 10 \hutchinson and glencoe

/00207.r\ 10 \Park Rapids to Menaga

/00218.r\ 10 \totally avoid newport in the winter

/00224.r\ 10 \from cty rd E to Maryland street

/00225.r\ 10 \hiawatha, betw lake & 26th st

/00233.r\ 10 \wilmore to redwood falls

/00239.r\ 10 \flying cloud airport to shakopee

/00246.r\ 10 \entire road, wauseca and owattana if it is possible

/00258.r\ 10 \see ans to prev. for road 218

/00259.r\ 10 \within minneapolis

/00272.r\ 10 \bet cannon falls and white rock on co 8

/00283.r\ 10 \d

/00292.r\ 10 \stillwater to oakdale

/00293.r\ 10 \west of fair mont

/00294.r\ 10 \between litchfield and hutchinson

/00301.r\ 10 \between highway 10 and 94

/00307.r\ 10 \from hinkley to creshal

/00318.r\ 10 \btwn 169 and 81

/00319.r\ 10 \between county rde to 94(south)

/00328.r\ 10 \35 W between 118 and Lexington ave

/00337.r\ 10 \white bear lake to downtown st paul

/00341.r\ 10 \between Lake Park and Glendon

/00343.r\ 10 \brainerd to pillager

/00344.r\ 10 \around Lyndale

/00350.r\ 10 \alexandria to long prarie

/00352.r\ 10 \osakis and long prairie

/00354.r\ 10 \hinkley and the river

/00362.r\ 10 \swift and rosell

/00363.r\ 10 \downtown St paul

/00368.r\ 10 \minneapolis and anoka

/00374.r\ 10 \the same

/00375.r\ 10 \mankoto to nicollett

/00387.r\ 10 \between interstate 35 and mlic lake

/00390.r\ 10 \robinsdale into minneapolis

/00395.r\ 10 \hamptom nad hastings

/00403.r\ 10 \14 between Mankato and Nicolet in the Nicolet area in the area they call a bump which is way more than a bump and the shoulderis deteriorating now too. This is in the west bound lane

/00404.r\ 10 \irvine blvd southeast of 22

## **Appendix D**

**SPECIFIC STRETCHES OF HIGHWAY IDENTIFIED BY 10 OR MORE DRIVERS IN  
RESPONSE TO QUESTION 5**

**MINNESOTA**  
**Sections With Poor Ride Noticed Most Frequently**

Highway	Frequency	Participant #	From	To
10	13	7	St. Cloud	area
		72	Clear Lake	St. Cloud
		74	Anoka	Elk River
		95	St. Cloud	area
		107	Silver Lake Road	Cub's Grocery
		110	Coon Rapids	Ramsey
		114	Rice	St. Cloud
		168	Fridley	Ramsey
		188	Motley	Staples
		341	Fargo	Lake Park eastbound
		347	around	St. Cloud
		363	Eagen Inger Heights Bemidji	Rush City Walker
		378	Anoka	Ramsey
		404	Northtown	area
14	10	62	Mankato	Otana
		68	Mankato	Rochester
		113	Two Harbors	Brimson
		202	Stockton	Lewiston
		219	Waseca	Mankato
		241	New Ulm	
		246	Wauseca	Owattana
		284	Marshall	Minneapolis
		304	Wasca	Meridian
		375	North Mankato	Nicollet (between the golf course)
		385	Mankato	Nicollet
		403	Mankato	NewUlm
35	10	29	Duluth	Minneapolis

		45	Duluth	23
		81	Maryland	Minneapolis
		97	St. Paul	Rush City
		111	Rosemont	Eagan
		115	Denton	Verges
		136	under Maryland Avenue under 35E Bridge	
		179	62 St	Burnsville
		210	Elbertly Elbertly	Austin Rochester
		238	Forest Lake	Wyoming
		307	Mora exit Hinkley	Pine City 4 miles out
		328	Forest Lake	118/Lexington Avenue
		404	Hwy 10	County Road C
59	10	58	Morris	Fergus Falls
		128	North of Marshall	(industrial park area)
		262	Deep River Falls	Fergus Falls
		370	Bijou	Winger
		374	Hwy #2	Manoman
169	16	2	Emily	Outing
		7	after new sectoin	(after 2 lane)
		20	Jordan	Lesur
		32	Hwy #17	Bass Lake Road
		36	Hibbing Hibbing	Duluth Grand Rapids
		110	Onaka	Maple Grove
		135	41s	Jordan
		168	Anoka	Brookland Center
		174	Camplin	Brooklyn Park
		198	Edina	Lesuer
		231	Longville	Outing

		245	St. Peter	Mankato
		254	New Hope	Plymouth
		263	Calumet Pengilly	Pengilly Nashwalk
		268	Maple Grove	St. Louis Park
		311	Garrison	Wigwam Bay
		313	Leseur	
		377	Shokapee	Bellplane
		384	Mankato	St. Peter