

**PERCEPTIONS OF HIGHWAY  
MAINTENANCE IN MONTANA IN  
2006: THE RESULTS OF A  
TELEPHONE SURVEY**

**FINAL REPORT**

**Prepared for the  
STATE OF MONTANA  
DEPARTMENT OF TRANSPORTATION**

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## EXECUTIVE SUMMARY

Trained interviewers at the Computer Assisted Telephone Interviewing Laboratory at Montana State University, Billings completed 1,000 interviews with randomly selected adult residents of Montana between October 3<sup>rd</sup> and November 6<sup>th</sup>, 2006. The purposes of this telephone survey were to obtain the perceptions the respondents held about the maintenance of interstate and state highways in Montana, and to determine what if any changes have occurred in these perceptions since a similar telephone survey was conducted in the fall of 2004.

For the purposes of the survey, highway maintenance was divided into eight categories: winter maintenance, maintaining a smooth highway surface, maintenance of roadsides, maintenance of signs, debris removal, rest area maintenance, striping maintenance, and winter road conditions reports.

When respondents were asked to rate the current state of each of these activities on a 1 to 4 scale where 1 = poor, 2 = fair, 3 = good and 4 = excellent, signage was rated highest with a mean of 3.07, winter roadway information was rated second at 2.94, rest area maintenance was third at 2.90, highway striping was fourth with a mean of 2.85, roadside maintenance fifth at 2.80, winter maintenance was sixth at 2.79, debris removal was seventh at 2.76, and smoothness of road surfaces was last at 2.61. The ratings of two of the eight maintenance activities showed a statistically significant decrease from 2004 to 2006. The rating for roadside maintenance decreased significantly from 2.88 in 2004 to 2.80 in 2006 and the rating of winter roadway information decreased significantly from 3.03 in 2004 to 2.94 in 2006.

When respondents were asked how important each of these activities were to them on a scale of 1 to 4 where 1 = not important, 2 = somewhat important, 3 = important, and 4 = very important, winter maintenance was rated most important with a mean importance rating of 3.70, followed by striping (3.58), winter roadway information (3.51), debris removal (3.47), surface smoothness (3.35), signage (3.28), rest area maintenance (3.19), and roadside maintenance (2.99). There was one statistically significant change in the importance ratings between 2004 and 2006. The importance of highway signage decreased from 3.37 in 2004 to 3.28 in 2006.

When respondents were asked to think about the allocation of MDT resources and assign a resource priority of low (1), medium (2), moderately high (3), or very high (4) to each activity, winter maintenance received the highest resource priority rating (3.66) followed by striping (3.42), winter roadway information (3.41), debris removal (3.28), signage (3.09), surface smoothness (3.08), rest area maintenance (3.06), and roadside maintenance (2.81). The resource priorities assigned to two of the eight maintenance activities decreased significantly from 2004 to 2006. The resource priority assigned to winter roadway information decreased from 3.51 in 2004 to 3.41 in 2006 and the resource priority assigned to surface smoothness decreased from 3.15 in 2004 to 3.08 in 2006.

Finally, these ratings were combined into a composite variable for each of the maintenance activities. The composite variable provides an indication of the level of attention and resources the respondents believed each maintenance activity should receive from MDT. The values of the composite variables as well as the rating of the components of each variable are summarized in the following table.

**COMPOSITE VARIABLE MEAN BY RANK OF  
RATING, IMPORTANCE, AND PRIORITY**

	Composite <u>Mean</u>	Rating <u>Rank</u>	Importance <u>Rank</u>	Priority <u>Rank</u>
Winter Maint	9.40	6	1	1
Striping	9.12	4	2	2
Debris Removal	8.94	7	4	4
Smoothness	8.77	8	5	6
Winter Road Info	8.36	2	3	3
Signage	8.27	1	6	5
Roadside Maint.	7.95	5	8	8
Rest Area Maint.	7.83	3	7	7

According to the respondents, MDT should now pay attention and provide resources to maintenance activities on interstates and state highways in Montana in the following order: winter maintenance, highway striping, debris removal, surface smoothness, winter roadway information, highway signage, roadside maintenance and rest area maintenance.

This represents a slight change from the order of composite variables resulting from the 2004 survey which was: winter maintenance, highway striping, debris removal, surface smoothness, highway signage, winter roadway information, rest area maintenance and roadside maintenance. The mean composite variable score for one of the eight maintenance activities decreased significantly from 2004 to 2006. The mean of the Surface Smoothness composite variable decreased from 8.91 in 2004 to 8.77 in 2006.

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## INTRODUCTION

This report summarizes the procedures and findings of a telephone survey conducted for the Montana Department of Transportation (MDT) by the Computer Assisted Telephone Interviewing Laboratory at Montana State University, Billings. This survey was a replication of nearly identical surveys conducted in October and November of 2004, October of 2002, September of 2000, October of 1998 and September of 1996. The purposes of this survey were to determine the perceptions of the maintenance of state highways and interstates in Montana held by adult Montanans and to determine if those perceptions had changed in the last 2 years. The survey was conducted from October 3<sup>rd</sup> to November 6<sup>th</sup>, 2006

The results of the 1996 survey are contained in *Perceptions of Highway Maintenance in Montana: The Results of a Telephone Survey*, the results of the 1998 study are contained in *Perceptions of Highway Maintenance in Montana in 1998: The Results of a Telephone Survey, Final Report*, the results of the 2000 study are contained in *Perceptions of Highway Maintenance in Montana in 2000: The Results of a Telephone Survey, Final Report*, the results of the 2002 survey are contained in *Perceptions of Highway Maintenance in Montana in 2002: The Results of a Telephone Survey, Final Report*, and the results of the 2004 survey are contained in *Perceptions of Highway Maintenance in Montana in 2004: The Results of a Telephone Survey, Final Report*.

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## METHODOLOGY

The survey was conducted by trained interviewers from the Computer Assisted Telephone Interviewing Laboratory (CATI Lab) at Montana State University, Billings. A random digit dialing sample was purchased from Genesys Sampling Systems (Ft. Washington, PA.) Telephone numbers were called back up to five times in an attempt to complete interviews. A total of 1000 interviews were completed requiring 8,615 telephone calls to 4,915 telephone numbers. Table One summarizes the disposition of all telephone calls and shows the most frequent disposition of telephone calls was an answering machine (24.2%) followed by no answer (22.8%) , then a completed interview (11.6%), and a refusal (10.2%).

Upon completion of all interviewing, the data was analyzed with the computer program Statistical Package for the Social Sciences (SPSS).

The results of the survey have a margin of error of about  $\pm 3\%$  when generalized to the entire state. The MDT has divided the state in five administrative districts, and the margins of error within these districts vary from  $\pm 6\%$  in the Missoula District to  $\pm 10\%$  in the Glendive District (see Appendix One for map of districts).

**TABLE ONE**  
**DISPOSITION OF ALL TELEPHONE CALLS**

Answering Machine	2,083	24.2%
No Answer	1,966	22.8%
Complete	1,000	11.6%
Refused	880	10.2%
Non Working Number	855	9.9%
Call Back	733	8.5%
Busy	427	5.0%
Non Residential Number	318	3.7%
Fax or Computer	283	3.3%
Wrong Category	38	0.4%
Hearing Problem	21	0.2%
Incompetent Respondent	9	0.1%
Language Problem	2	<0.1%
<b>TOTAL</b>	<b>8,615</b>	<b>100.0%</b>

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## FINDINGS

### Who Are the Respondents

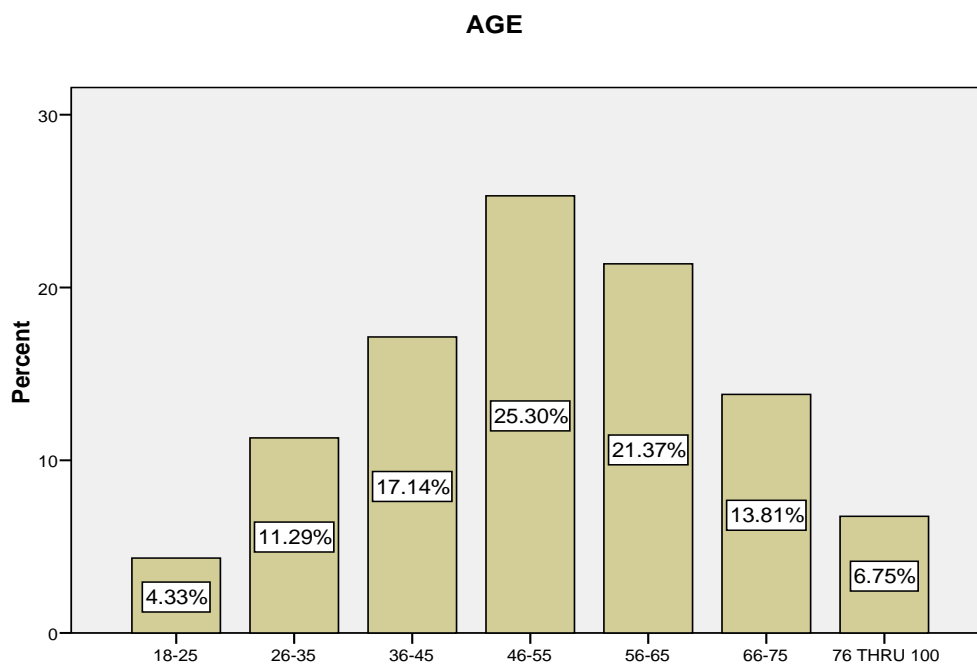
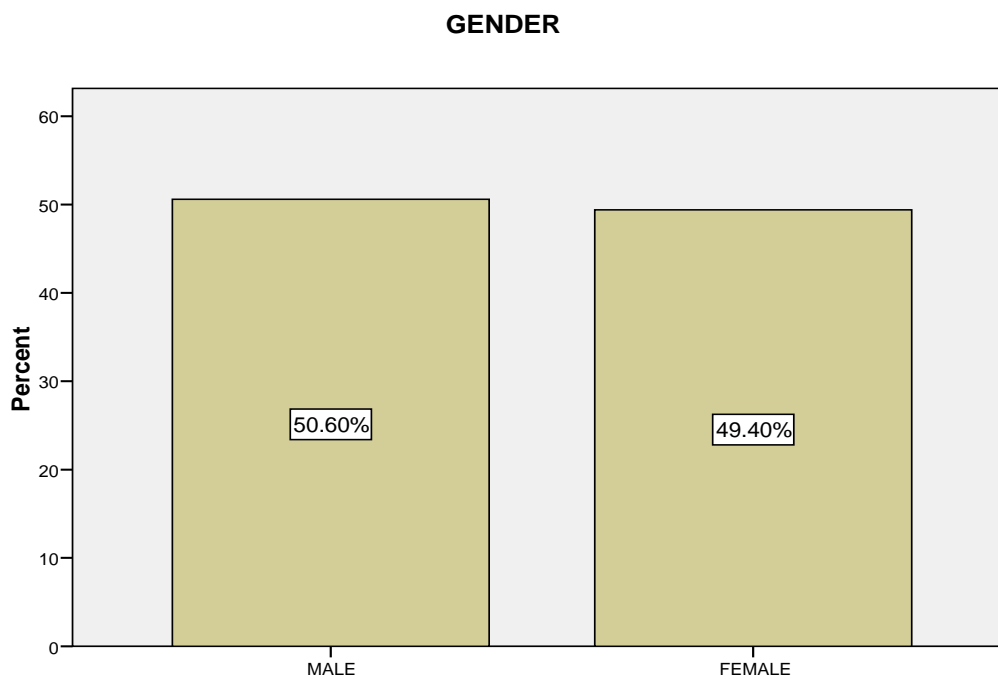
#### Demographic Characteristics

Figure One summarizes the basic characteristics of the 1,000 respondents. Figure One shows that about half the respondents were male and about half were female. The mean age of the respondents was 52.2; 15.6% of the respondents were thirty-five years old or less, 42% were 56 or over and the remainder of 42.4% were between 36 and 55.

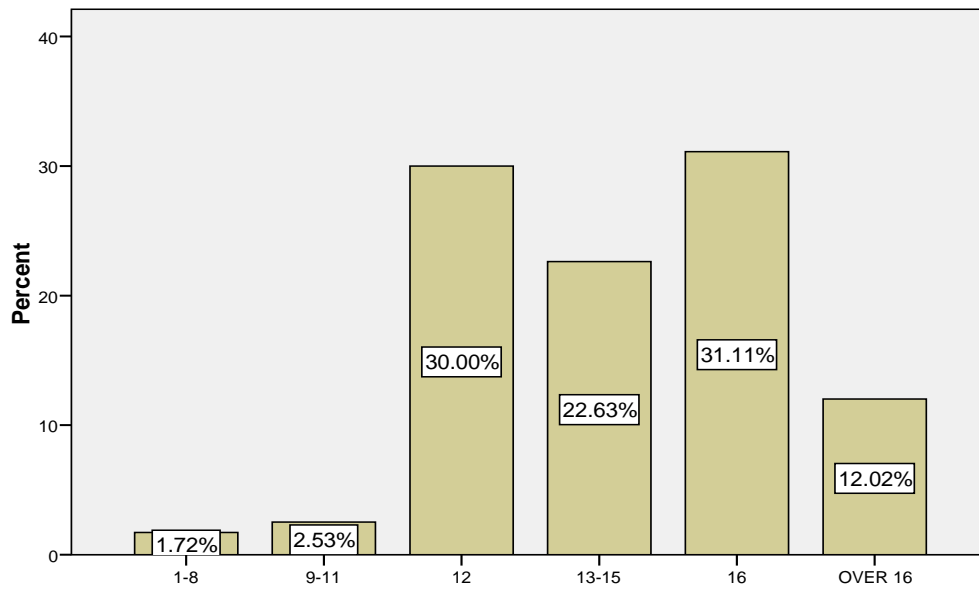
The mean educational attainment of the respondents was 14.3 years of education; 4.2% had not completed high school while 30% had completed just high school, 22.6% had completed some college and 43.1% had at least a college degree.

The mean length of time respondents had been in Montana was 35.4 years; 54.5% of the respondents reported they had lived in Montana over 30 years while 8.7% indicated they had been in Montana for 5 or less years.

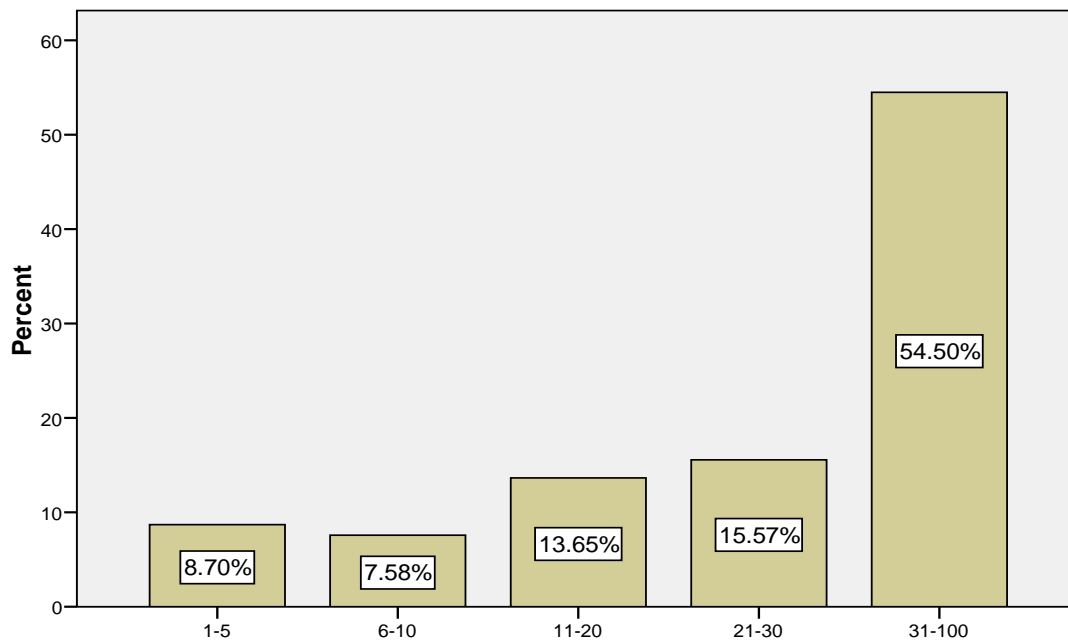
**FIGURE ONE**  
**DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS**



### EDUCATIONAL ATTAINMENT



### LENGTH OF RESIDENCE IN MONTANA



There were no statistically significant differences between the 2004 respondents and the 2006 respondents with respect to sex, age, education, or length of residence in Montana.

County and Administrative District of Residence

Table Two summarizes the respondents' county of residence, which was obtained by converting telephone prefixes. Table Two shows that all of Montana's 56 counties were represented by respondents. Twelve percent of the respondents lived in Yellowstone County, 10% lived in Missoula County, 9.2% lived in Flathead County, 8.1% lived in Lewis and Clark County, 8% lived in Gallatin County, and 7.1% lived in Cascade County. Discrepancies between the percentages of the sample that reside in each county as compared with the percentage of the population of Montana in that county can be explained by a number of factors such as: differences in percentages of households with telephones, self selection biases that differ by county, and changes in actual population figures since the last measurement of such figures.

**TABLE TWO**  
**LOCATION OF RESPONDENTS' RESIDENCES**

**County of Location**

Beaverhead	10	1.0%
Big Horn	4	0.4%
Blaine	10	1.0%
Broadwater	6	0.6%
Carbon	17	1.7%
Carter	2	0.2%
Cascade	71	7.1%
Chouteau	5	0.5%
Custer	10	1.0%
Daniels	7	0.7%
Dawson	20	2.0%
Deer Lodge	12	1.2%
Fallon	4	0.4%
Fergus	11	1.1%
Flathead	92	9.2%
Gallatin	80	8.0%
Garfield	2	0.2%
Glacier	8	0.8%
Golden Valley	5	0.5%
Granite	6	0.6%
Hill	20	2.0%
Jefferson	8	0.8%
Judith Basin	3	0.3%
Lake	30	3.0%

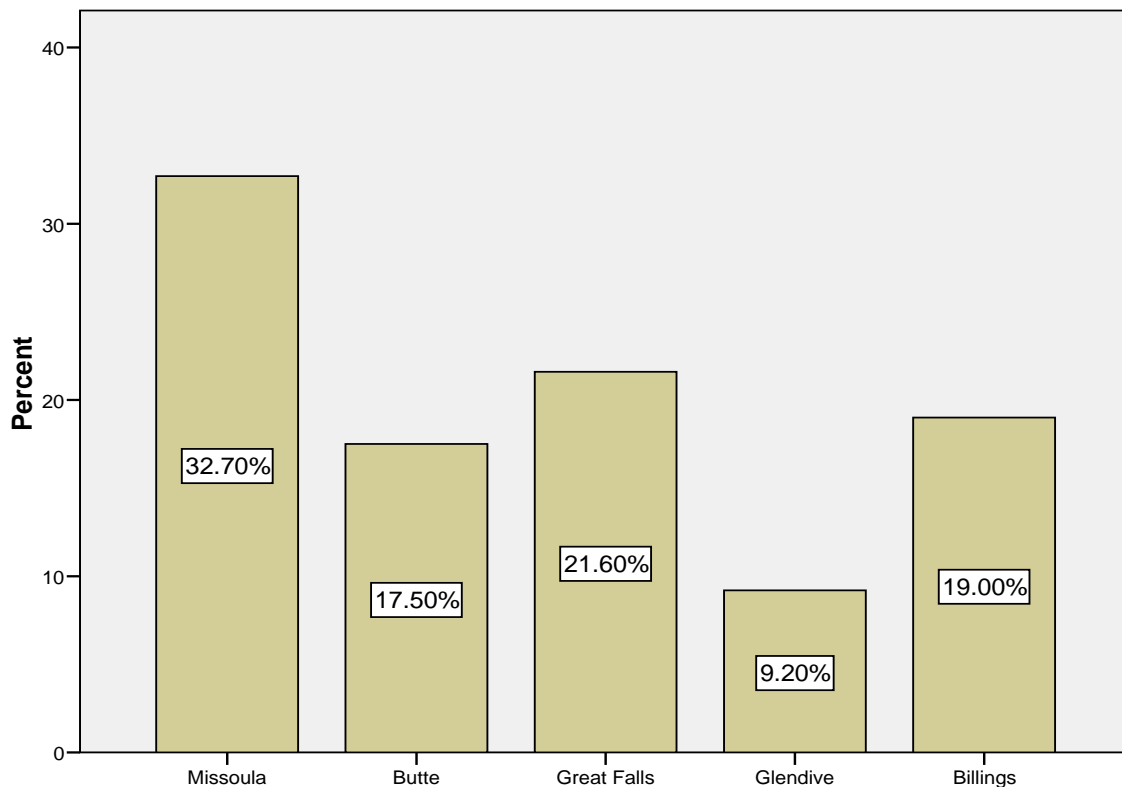


(Table Two Continued)

Lewis and Clark	81	8.1%
Liberty	4	0.4%
Lincoln	20	2.0%
McCone	3	0.3%
Madison	10	1.0%
Meagher	3	0.3%
Mineral	12	1.2%
Missoula	100	10.0%
Musselshell	7	0.7%
Park	21	2.1%
Petroleum	1	0.1%
Phillips	4	0.4%
Pondera	8	0.8%
Powder River	2	0.2%
Powell	4	0.4%
Prairie	6	0.6%
Ravalli	44	4.4%
Richland	4	0.4%
Roosevelt	6	0.6 %
Rosebud	6	0.6%
Sanders	19	1.9%
Sheridan	4	0.4%
Silver Bow	25	2.5%
Stillwater	5	0.5%
Sweetgrass	9	0.9%
Teton	7	0.7%
Toole	2	0.2%
Treasure	1	0.1%
Valley	10	1.0%
Wheatland	3	0.3%
Wibaux	2	0.2%
Yellowstone	124	12.4%
TOTAL	1000	100.0%

Figure Two shows that 32.7% of the respondents lived in District 1, Missoula; 17.5% lived in District 2, Butte; 21.6% in District 3, Great Falls; 9.2% in District 4, Glendive; and 19% in District 5, Billings. A map showing the MDT Administrative Districts is included in this report as Appendix One.

**FIGURE TWO  
ADMINISTRATIVE DISTRICT**



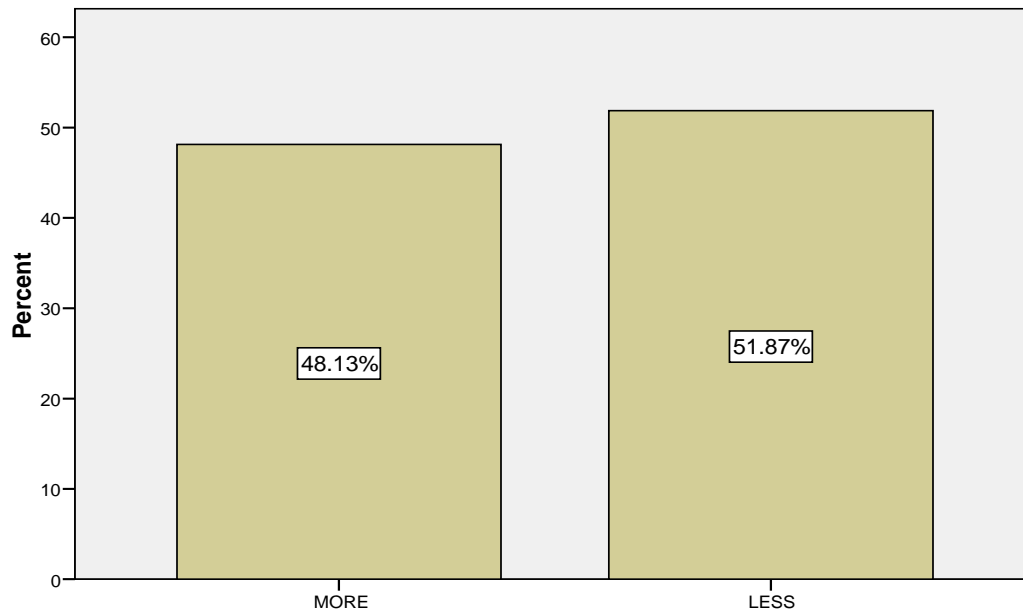
This survey was conducted by county line, as close to the Administrative Districts as possible. However, some counties are split between administrative districts, please refer to Appendix One.

#### Travel Characteristics

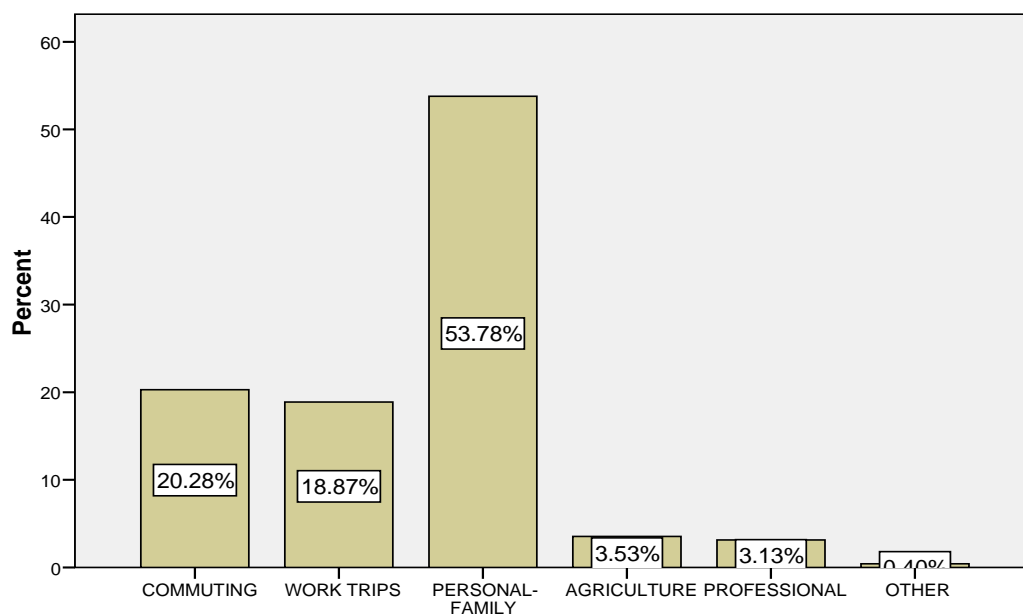
The respondents were asked several questions about their vehicle travel patterns. Figure Three summarizes the results of these questions. Figure Three shows that 48.1% of the respondents indicated they drive more than 15,000 miles per year while 51.9% drove less than 15,000 miles. Figure Three shows the most common trips made by respondents were personal or family errands (53.8%) followed by commuting (20.3%) and then work related trips (18.9%). Figure Three also shows that 77% of the respondents had driven in other states in the last 12 months. There were no statistically significant differences between the 2004 and 2006 respondents with respect to whether they drove more or less than 15,000 miles, typical trip or whether or not they had driven in other states.

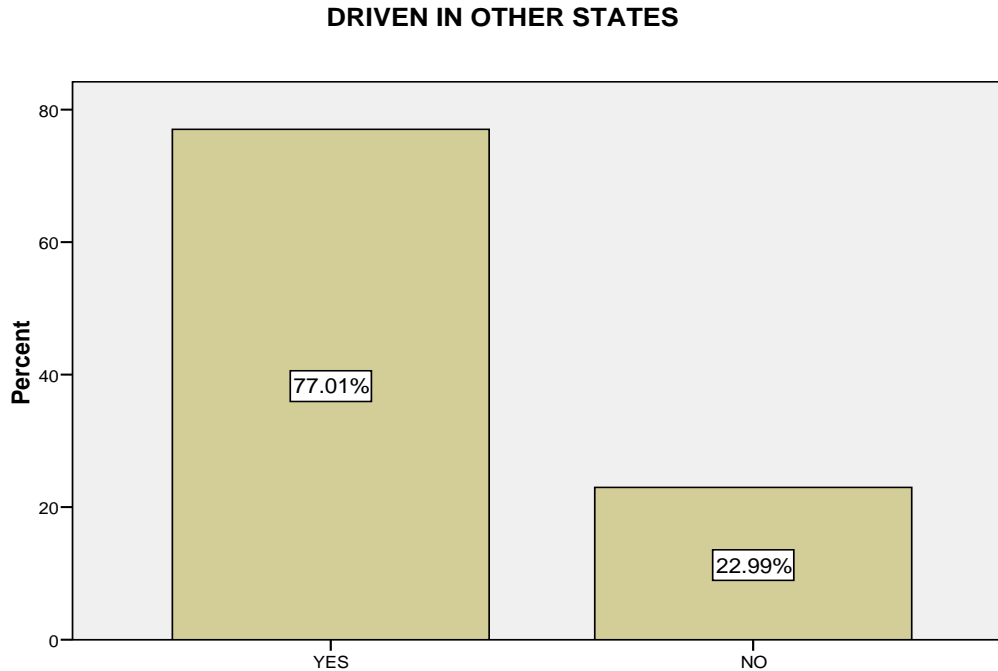
**FIGURE THREE  
RESPONDENT TRAVEL CHARACTERISTICS**

**MORE OR LESS THAN 15,000 MILES**



**TYPICAL TRIP**





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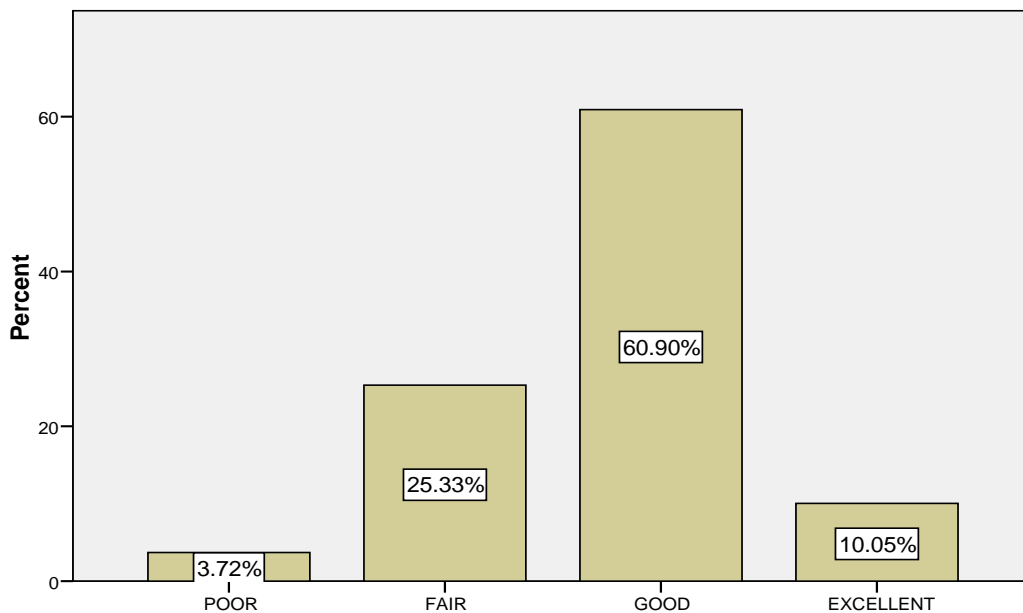
## General Perception of Montana Highways and Interstates

### Rating of Montana Highway Maintenance

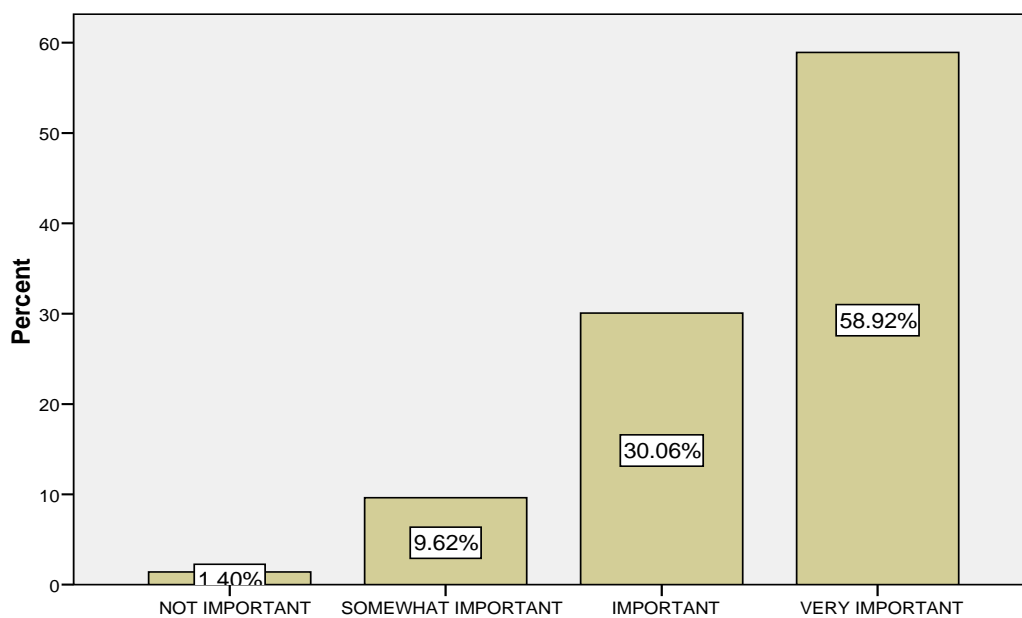
The respondents were asked to rate overall interstate and state highway maintenance in Montana using the responses poor, fair, good and excellent. Figure Four shows that 3.7% of the respondents rated overall maintenance as poor while 25.3% rated maintenance fair, 60.9% rated maintenance good and 10.1% rated maintenance excellent. The mean overall rating of maintenance on a 1 to 4 scale where 1 is poor, 2 is fair, 3 is good and 4 is excellent was 2.77.

**FIGURE FOUR  
GENERAL PERCEPTIONS OF MONTANA ROADWAYS**

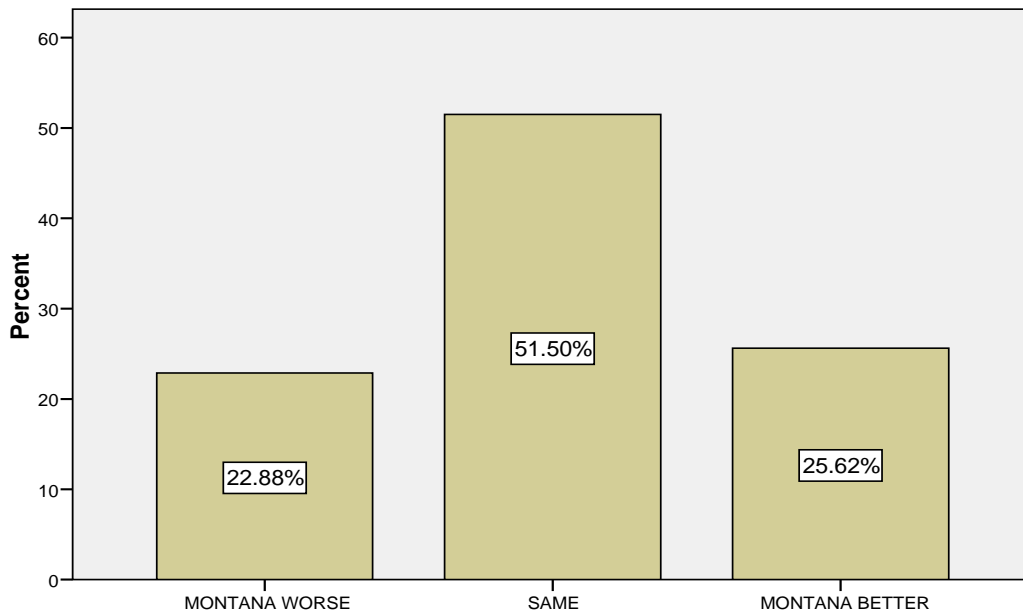
**GENERAL RATING OF MONTANA ROADWAYS**



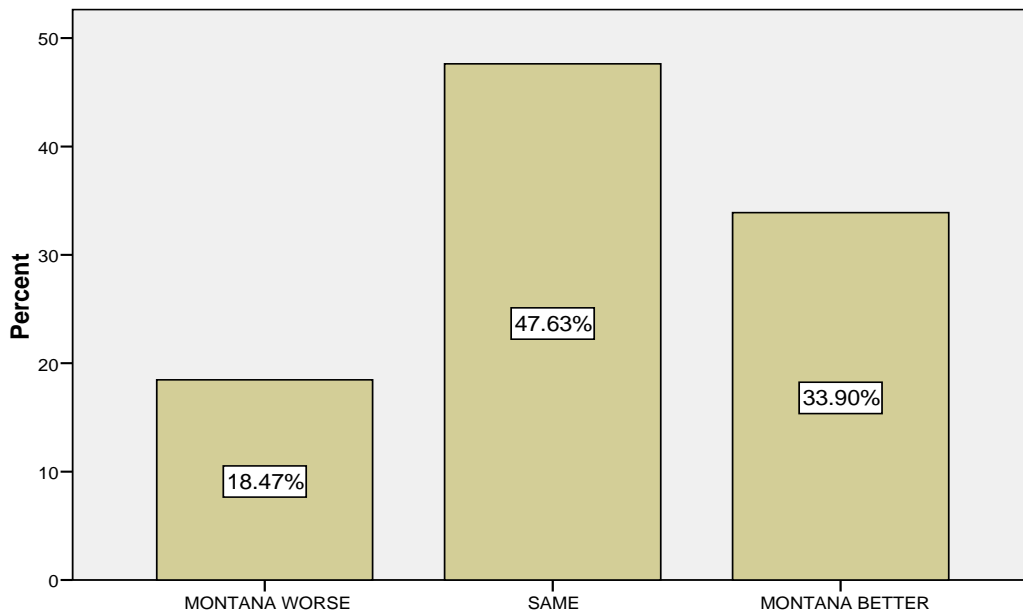
**IMPORTANCE OF HIGHWAY MAINTENANCE**



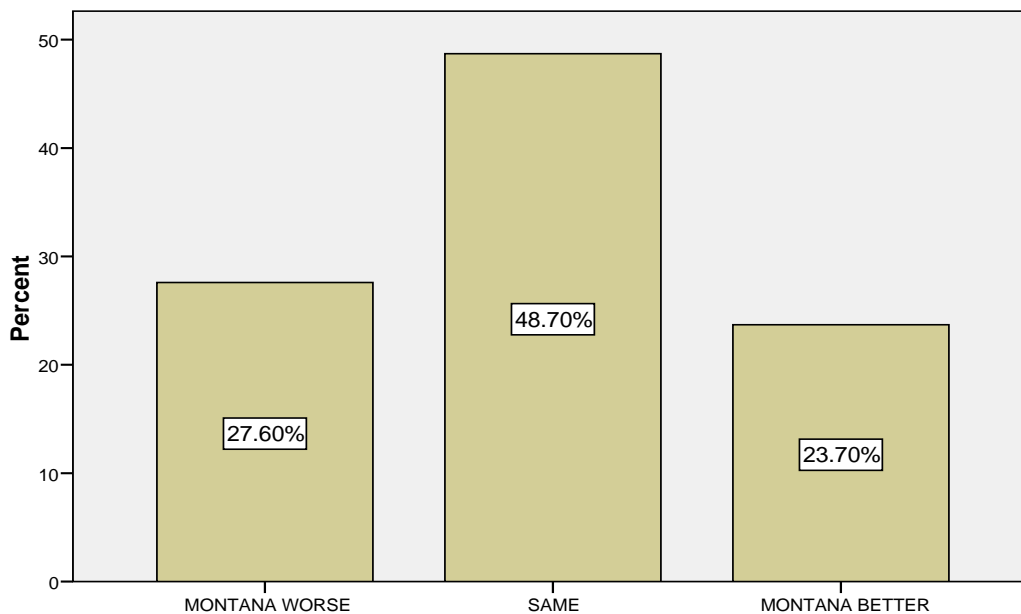
### GENERAL COMPARISON WITH OTHER STATES



### WINTER MAINTENANCE COMPARISON



### REST AREA COMPARISON



#### Statistically Significant Relationship between General Rating of Montana Highway Maintenance and Administrative District

To further investigate the perceptions of the respondents, all rating questions were cross tabulated with Administrative District, sex, age, educational attainment, length of Montana residence, the respondent's typical trip, whether the respondent had driven more or less than 15,000 miles, and whether or not the respondent had driven in other states within the last 12 months. A statistically significant relationship was deemed to exist when the probability of getting the observed outcome by chance was less than 5%. Only statistically significant relationships are reported in this report.

- Respondents living in the Billings and Great Falls district provided a higher general rating of highway maintenance than did respondents living in other Administrative Districts while those living in the Glendive district provided a lower general rating of highway maintenance than did respondents living in other districts.

#### Statistically Significant Relationships between General Rating of Montana Highway Maintenance and Demographic/Travel Variables

A statistically significant relationship was also found between the respondents' general rating of highway maintenance and educational attainment.

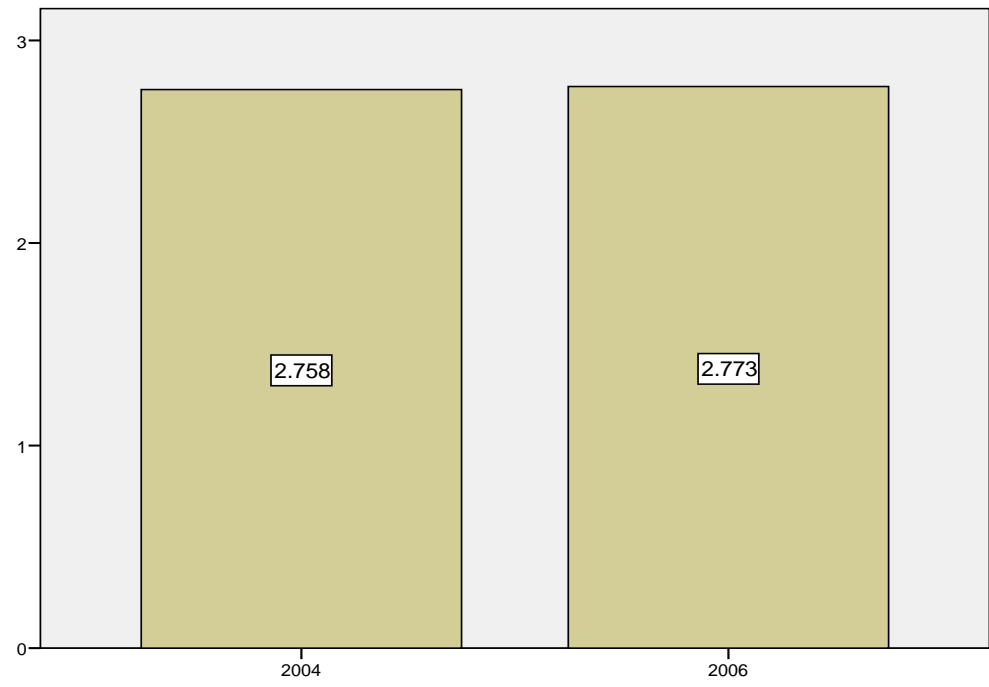
- Generally, the higher the educational attainment of the respondent, the higher their general rating of Montana roadway maintenance.

Comparison of 2004 and 2006 General Rating of Montana Highway Maintenance

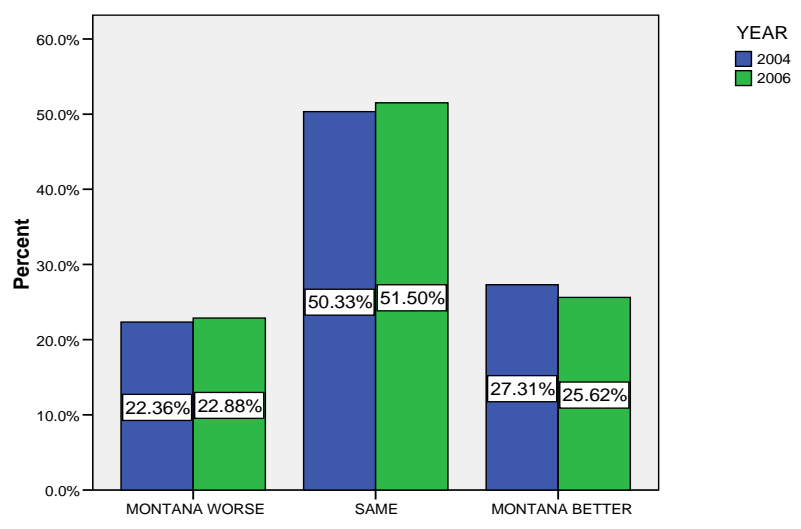
Figure Five provides a comparison of the 2004 and 2006 General Rating of Montana Highway Maintenance. Figure Five shows an increase in the general rating from 2.76 in 2004 to 2.77 in 2006. This difference in rating was not statistically significant.

**FIGURE FIVE  
GENERAL RATING OF HIGHWAY MAINTENANCE IN MONTANA**

**Comparison of 2004 & 2006 General Rating of Montana Highway Maintenance**

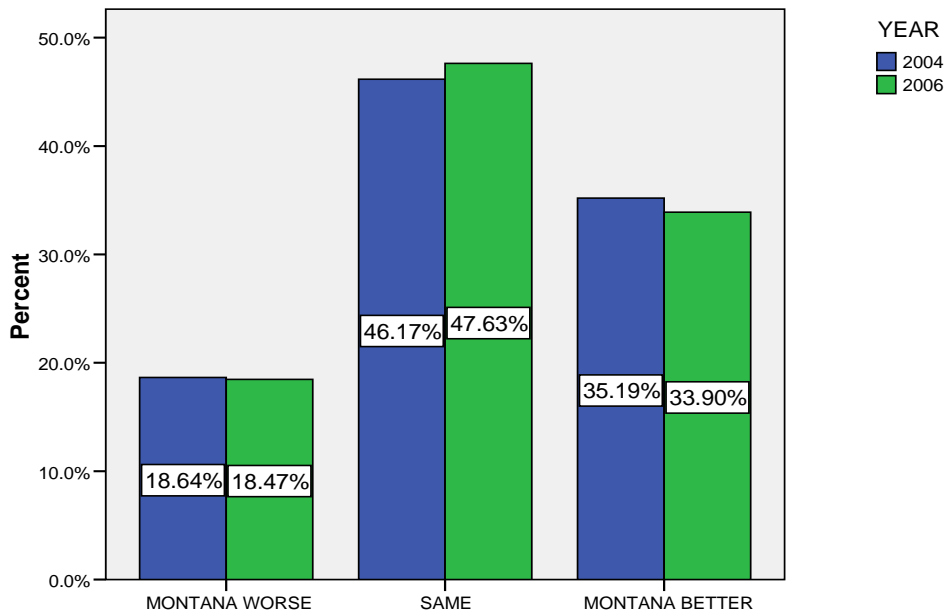


**General Comparison With Other States**

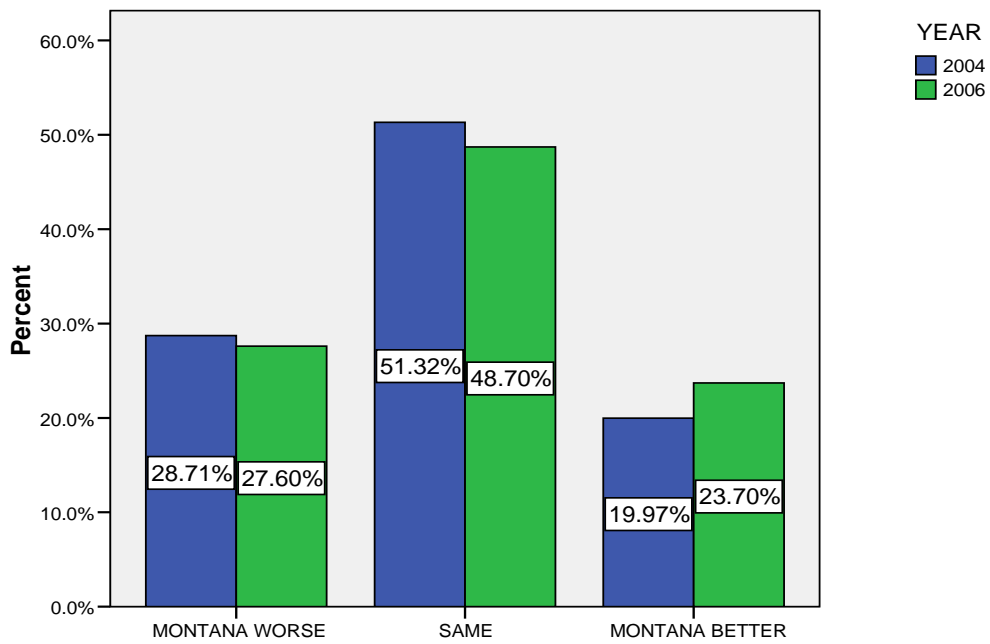




### Winter Maintenance Comparison with Other States



### Rest Area Maintenance Comparison with Other States



### Respondents' Opinion of the Personal Importance of Highway Maintenance

The respondents were also asked generally how important highway maintenance was to them and asked to answer with not important, somewhat important, important or very important. Figure Four shows that 58.9% of the respondents said very important, 30.1% said important, 9.6% said somewhat important, and 1.4% said not important. The mean overall importance of highway maintenance on a 1 to 4 scale where 1 is not important, 2 is somewhat important, 3 is important and 4 is very important was 3.46.

#### Statistically Significant Relationship between Importance of Highway Maintenance and Administrative District

- Respondents in the Butte district rated importance of highway maintenance higher than did respondents residing in other districts while respondents in the Missoula district rated importance of highway maintenance lower than respondents living in other districts.

#### Statistically Significant Relationships between Importance of Highway Maintenance and Demographic/Travel Variables

- Respondents between 46 and 65 rated the importance of highway maintenance higher than did younger and older respondents while respondents between 26 and 35 and those over 75 rated the importance of highway maintenance lower than did those from 18 to 25 and from 36 to 75.
- Respondents who reported they drove more than 15,000 miles per year rated the importance of highway maintenance higher than did respondents driving less than 15,000.
- Respondents who reported they had driven in other states in the last 12 months rated the importance of highway maintenance higher than did respondents who had not driven in other states.

#### Comparison of 2004 and 2006 Importance of Montana Highway Maintenance Rating

Figure Six provides a comparison of the 2004 and 2006 Importance of Montana Highway Maintenance rating. Figure Six shows a slight decrease in the rating of the importance of Montana highway maintenance from 3.49 in 2004 to 3.46 in 2006. This slight increase in rating was not statistically significant.

**FIGURE SIX  
COMPARISON OF 2004 AND 2006 IMPORTANCE  
OF MONTANA HIGHWAY MAINTENANCE**



General Comparison of Montana Highways with Highways in Other States

The respondents who had driven in other states in the last 12 months were asked to compare the general condition of Montana highways and interstates to those in the states they had driven. Figure Four shows that 51.5% of these respondents said the highways and interstates of Montana were about the same as those in the other states in which they had driven, 22.9% felt the roads in Montana were worse and 25.6% felt the roads in Montana were better.

Statistically Significant Relationships between Comparison of Montana Highway Maintenance with Highway Maintenance in Other States and Demographic/Travel Variables

- Respondents between 18 and 25 and those between 46 and 55 were more likely than younger or older respondents to believe the highway maintenance in Montana was worse than other states while respondents 66 and older were less likely than younger respondents to believe Montana highway maintenance was worse than other states. Respondents over 75 were more likely than younger respondents to believe highway maintenance in Montana was about the same as in other states. Respondents from 26

to 35 were more likely than younger or older respondents to believe highway maintenance in Montana was better than in other states.

#### Comparison of 2004 and 2006 Assessment of Montana Highway Maintenance versus Highway Maintenance in Other States

- Figure Five shows the way 2004 respondents and 2006 respondents who had driven in other states compared highway maintenance in Montana with highway maintenance in other states. There was no statistically significant difference in the 2004 and 2006 ratings.

#### Comparison of Montana Winter Maintenance with Winter Maintenance in Other States

The respondents who had driven in other states in the last 12 months were also asked to compare winter maintenance in Montana to winter maintenance in other states Figure Four shows 47.6% of these respondents, who had an opinion, believed winter maintenance was about the same in Montana as in other states while 33.9% believed winter maintenance was better in Montana and 18.5% believed winter maintenance was worse in Montana.

#### Statistically Significant Relationships between Comparison of Montana Highway Winter Maintenance with Highway Winter Maintenance in Other States and Administrative District

- Residents of the Glendive district were more likely than residents in other districts to believe winter maintenance was worse in Montana than in other states while respondents living in the Butte district, the Missoula district, and the Great Falls district were more likely than respondents in other districts to believe that winter maintenance in Montana was better than in other states. Respondents in the Billings district were the second most likely to believe winter maintenance in Montana was worse than in other states.

#### Statistically Significant Relationships between Comparison of Winter Maintenance and Demographic/Travel Variables

- No statistically significant relationships were found between the respondents comparison of Montana winter maintenance with winter maintenance in other states and any demographic or travel variables.

#### Comparison of 2004 and 2006 Assessment of Montana Highway Winter Maintenance versus Winter Maintenance in Other States

- Figure Five shows the way 2004 respondents and 2006 respondents who had driven in other states compared winter maintenance in Montana with winter maintenance in other states. There was no statistically significant difference in the 2004 and 2006 ratings.

### Comparison of Montana Rest Area Maintenance and Rest Area Maintenance in Other States

The respondents who had driven in other states within the last 12 months were also asked to compare rest area maintenance in Montana with rest area maintenance in the other states in which they had driven. Figure Four shows that 48.7% of respondents who had an opinion felt rest area maintenance was about the same in Montana as in other states, while 27.6% said rest area maintenance was worse in Montana and 23.7% said it was better in Montana.

#### Statistically Significant Relationships between Rest Area Maintenance Comparison and Demographic/Travel Variables

- Respondents who had lived in Montana over 10 years were more likely than those who lived in Montana 10 years or less to think rest area maintenance was worse in Montana than in other states. Respondents who had lived in Montana 10 or less years were more likely than those who had lived here longer to believe rest area maintenance was better in Montana than in other states
- Females were more likely than males to believe that rest area maintenance in Montana was better than rest area maintenance in other states while males were more likely than females to believe rest area maintenance in Montana was about the same as rest area maintenance in other states.

#### Comparison of 2004 and 2006 Assessment of Montana Rest Area Maintenance Versus Rest Area Maintenance in Other States

- Figure Five shows the way 2004 respondents and 2006 respondents who had driven in other states compared rest area maintenance in Montana with rest area maintenance in other states. There was no statistically significant difference in the 2004 and 2006 ratings of rest area maintenance.

### **Respondents Rating of Eight Maintenance Activities**

For the purposes of this survey, highway maintenance activities were divided into 8 categories: winter maintenance, maintaining a smooth highway surface, maintenance of roadsides, maintenance of signs, debris removal, rest area maintenance, striping maintenance, and winter road condition reports. The respondents were asked to rate each of these activities with the responses poor, fair, good, very good and excellent. Table Three summarizes the results of that rating. The ordering of the activities in Table Three is provided by the mean score for each item on a 1 to 4 scale where 1 = poor, 2 = fair, 3 = good, and 4 = excellent.

Also reported in Table Three are the standard deviation (SD) of the distribution of rating for each activity and the standard error of the mean (SE) for the ratings of each activity. While it is not possible to indicate what constitutes a statistically significant difference between means because each mean represents a separate variable, the standard

deviation and standard error of the ratings should assist in making any additional interpretations. The largest standard of error is 0.027 resulting in a 95% confidence interval of  $\pm .053$ . This means that if the difference between two means is greater than 0.11, each mean is outside of the 95% confidence interval of the other. Therefore a difference between means greater than 0.11 should be considered a real difference.

Table Three shows that the maintenance of highway signs is rated highest (3.07) followed by winter road information (2.94), rest area maintenance (2.90), striping (2.85), roadside maintenance (2.80), winter maintenance (2.79), debris removal (2.76), and highway surface maintenance (2.61). These ratings show that the maintenance of signs is rated highest. Then winter roadway information, followed by rest area maintenance and striping. Next, roadside maintenance, winter maintenance and debris are rated fairly close together. Surface smoothness is rated lowest of the eight maintenance activities.

**TABLE THREE**  
**RATING OF MAINTENANCE ACTIVITIES**

<u>Activity</u>	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Excellent</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>SE</u>
Signage	2.0%	11.0%	65.5%	21.6%	993	3.07	0.634	0.020
Information	4.8%	17.9%	55.7%	21.6%	810	2.94	0.765	0.027
Rest Area Maint.	5.9%	17.6%	57.1%	19.4%	814	2.90	0.772	0.027
Striping	5.9%	18.4%	60.0%	15.6%	998	2.85	0.746	0.024
Roadsides	7.9%	19.8%	56.9%	15.5%	990	2.80	0.792	0.025
Winter Maint.	8.2%	22.3%	52.0%	17.4%	959	2.79	0.826	0.027
Debris Removal	8.0%	23.4%	52.7%	15.8%	998	2.76	0.811	0.026
Surfaces	8.6%	30.2%	52.6%	8.7%	994	2.61	0.763	0.024

Statistically Significant Relationships between Rating of Maintenance Activities  
and Administrative District

- Respondents in the Glendive District rated striping higher than did respondents from other districts while respondents from the Missoula District rated striping lower than did respondents from other districts.
- Respondents living in the Missoula, Butte and Great Falls districts rated winter maintenance higher than did respondents living in the Glendive and Billings districts

Statistically Significant Relationships between Rating of Signage  
and Demographic/Travel Variables

- No statistically significant relationships were found between the rating of signage and demographic/travel variables.

Statistically Significant Relationships between Rating of Winter Roadway Information  
and Demographic/Travel Variables

- No statistically significant relationships were found between the rating of winter roadway information and demographic/travel variables.

Statistically Significant Relationships between Rating of Rest Area Maintenance and Demographic/Travel Variables

- Generally, the older the respondent, the higher they rated rest area maintenance.

Statistically Significant Relationships between Rating of Highway Striping and Demographic/Travel Variables

- Respondents who had lived in Montana for more than 30 years rated highway striping higher than did respondents who had lived in Montana for less than 30 years while respondents who had lived in Montana from 21 to 30 years rated highway striping lower than did respondents who had lived in Montana for less or more years.

Statistically Significant Relationships between Rating of Roadside Maintenance and Demographic/Travel Variables

- No statistically significant relationships were found between the rating of roadside maintenance and demographic/travel variables.

Statistically Significant Relationships between Rating of Winter Maintenance and Demographic/Travel Variables

- Respondents who drove less than 15,000 miles per year rated winter maintenance higher than did respondents who drove more than 15,000 miles per year.
- Respondents who indicated their typical trip involved professional driving rated winter maintenance lower than did respondents who reported a different type of typical trip while respondents whose typical trip was agriculturally related rated winter maintenance higher than did respondents who reported a different type of typical trip

Statistically Significant Relationships between Rating of Debris Removal and Demographic/Travel Variables

- Respondents between 18 and 25 rated debris removal lower than did younger or older respondents while respondents between 46 and 55 rated debris removal higher than did younger or older respondents.
- Respondents who drove less than 15,000 miles per year rated debris removal higher than did respondent who drove more than 15,000 miles per year.
- Respondents who had been in Montana 5 years or less and those who had been in Montana over 30 years rated debris removal higher than did respondents who had been in Montana from 6 to 30 years.

Statistically Significant Relationships between Rating of Surface Smoothness  
and Demographic/Travel Variables

- Generally, the older the respondent the higher they rated surface smoothness. However, respondents between 36 and 45 rated surfaces lower than did respondents between 26 and 35.

Comparison of 2004 and 2006 Ratings of the Eight Maintenance Activities

**FIGURE SEVEN  
COMPARISON OF 2004 AND 2006 RATINGS OF  
MAINTENANCE ACTIVITIES**

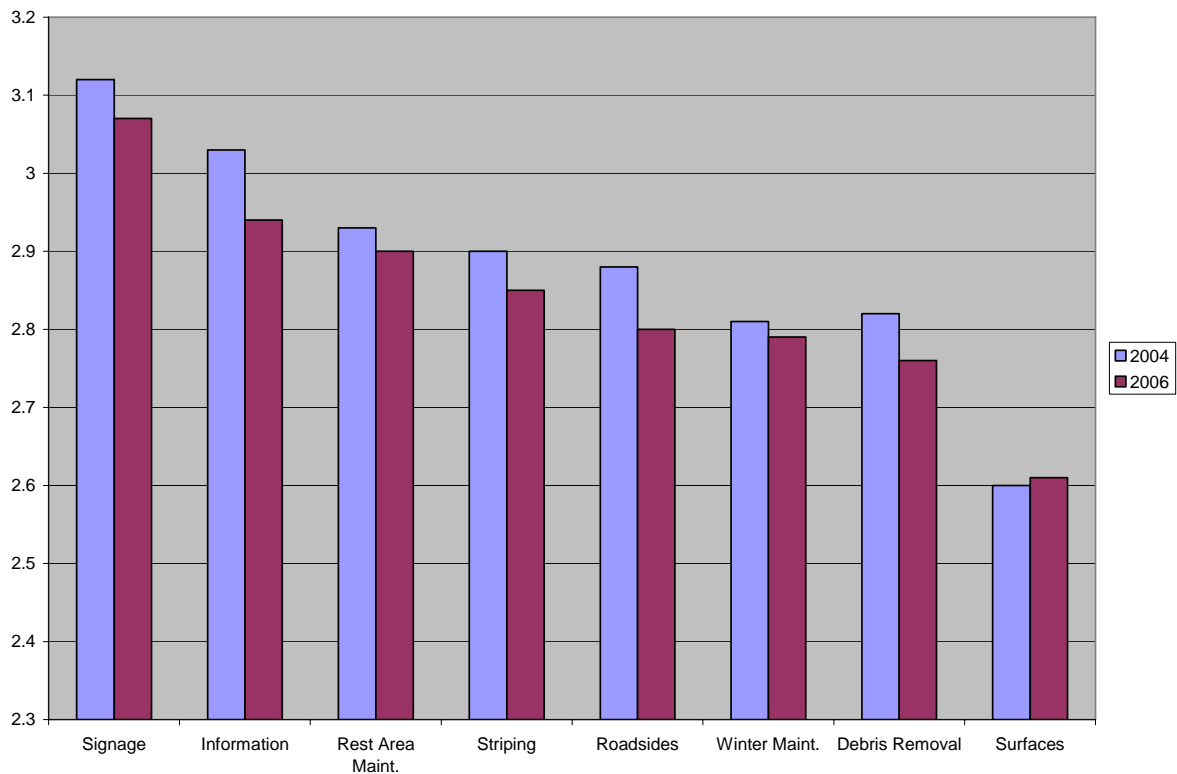


Figure Seven provides a comparison of 2004 and 2006 ratings of the eight maintenance activities. The ratings of two of the eight maintenance activities showed a statistically significant decrease from 2004 to 2006. The rating for roadside maintenance decreased significantly from 2.88 in 2004 to 2.80 in 2006 and the rating of winter roadway information decreased significantly from 3.03 in 2004 to 2.94 in 2006.

### **Importance of Highway Maintenance Activities to the Respondents**

The respondents were asked how important each of the eight maintenance activities was to them. They were asked to respond with not important, somewhat important, important and very important. Table Four summarizes the respondents' perception of the



importance of these different activities. The ordering of activities in Table Four is provided by the mean score of each activity on a 1 to 4 scale where 1 = not important, 2 = somewhat important, 3 = important and 4 = very important.

Table Four shows that winter maintenance is the most important maintenance activity to respondents with a mean of 3.70 followed by striping (3.58), winter roadway information (3.51), debris removal (3.47), surfaces (3.35), signage (3.28), rest area maintenance (3.19) and roadside maintenance (2.99). The standard deviation and standard error of the mean are presented for the importance ratings of each activity. The largest standard error is 0.030 with a resulting 95% confidence interval of  $\pm 0.059$  meaning that any difference between means greater than .12 can be considered a real difference. With this figure in mind, winter maintenance is clearly the most important to respondents followed by striping, then winter roadway information and debris removal. Next in terms of importance are surface smoothness, signage, and rest area maintenance. Roadside maintenance is clearly the least important of the eight maintenance activities to the respondents.

**TABLE FOUR**  
**IMPORTANCE OF MAINTENANCE ACTIVITIES**

<u>Activity</u>	<u>Not Important</u>	<u>Smwhat Import.</u>	<u>Import.</u>	<u>Very Import.</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>SE</u>
Winter Maint.	1.1%	3.2%	16.6%	79.0%	972	3.70	0.602	0.019
Striping	0.8%	4.7%	27.0%	67.5%	998	3.58	0.659	0.021
Information	2.7%	6.5%	25.4%	65.4%	878	3.51	0.773	0.026
Debris Removal	0.8%	8.3%	31.1%	59.8%	998	3.47	0.718	0.023
Surfaces	1.7%	9.1%	36.7%	52.5%	996	3.35	0.740	0.023
Signage	2.2%	11.5%	33.8%	52.5%	998	3.28	0.814	0.026
Rest Area Maint.	3.7%	15.5%	36.9%	44.0%	866	3.19	0.876	0.030
Roadsides	7.1%	21.3%	36.8%	34.8%	989	2.99	0.880	0.028

Statistically Significant Relationships between Importance of Maintenance Activities and Administrative District

- Respondents in the Glendive District rated the importance of signage higher than did respondents living on other districts and respondents living in the Butte district rated the importance of signage lower than did respondents in other districts.
- Respondents in the Glendive District rated the importance of highway roadside maintenance higher than did respondents living on other districts and respondents living in the Butte district rated the importance of roadside maintenance lower than did respondents in other districts.

Statistically Significant Relationships between Importance of Winter Maintenance and Demographic/Travel Variables

- Winter maintenance was more important to females than to males

- Respondents between 18 and 25 rated the importance of winter maintenance higher than older respondents while respondents over 65 rated the importance of winter maintenance lower than did younger respondents.
- Winter maintenance was more important to respondents who drove more than 15,000 per year than it was to those who did not drive that far.

Statistically Significant Relationships between Importance of Highway Striping and Demographic/Travel Variables

- Striping was the most important to respondents over 75 and the least important to respondents between 26 and 35

Statistically Significant Relationships between Importance of Winter Roadway Information and Demographic/Travel Variables

- Winter roadway information was more important to females than to males.

Statistically Significant Relationships between Importance of Debris Removal and Demographic/Travel Variables

- Debris removal was more important to females than to males
- In terms of the respondent's typical trip, debris removal was the most important to respondents whose typical trip was work related and least important to respondents whose typical trip was agriculturally related.

Statistically Significant Relationships between Importance of Surface Smoothness and Demographic/Travel Variables

- Surface smoothness was more important to females than to males.
- The older the respondent the higher they rated the importance of surface smoothness.
- Smooth highway surfaces were more important to respondents who were professional drivers than it was to respondents who said their most frequent trip was commuting, work related, personal or agriculturally related. In terms of typical trip, surface smoothness was least important to respondents reporting their typical trip was agriculturally related.

Statistically Significant Relationships between Importance of Highway Signage and Demographic/Travel Variables

- Highway signage was more important to female respondents than it was to male respondents.
- Highway signage was more important to respondents who had a college degree or postgraduate education than it was to respondents with less education.
- Highway signage was more important to respondents who drove less than 15,000 miles per year than it was to respondents who drove more than 15,000 miles per year.
- In terms of typical trip, signage was the most important to respondents who indicated their typical trip was personal or family related and those who were professional

drivers and was least important to respondents who said their typical trip was agriculturally or work related.

- Highway signage was more important to respondents who had not driven in other states in the last 12 months than it was to respondents who had.

#### Statistically Significant Relationships between Importance of Rest Area Maintenance and Demographic/Travel Variables

- Rest area maintenance was more important to females than to males.
- Rest area maintenance was more important to respondents over 45 than it was to respondents 45 and younger and it was most important in terms of age to respondents over 75.
- Rest area maintenance was more important to respondents who drove less than 15,000 miles per year than it was to those who drove more than 15,000 miles per year.
- Rest area maintenance was more important to respondents who were professional drivers than it was to respondents reporting a different typical trip. Rest area maintenance was the least important to respondents indicating their typical trip was work related or agriculturally related.

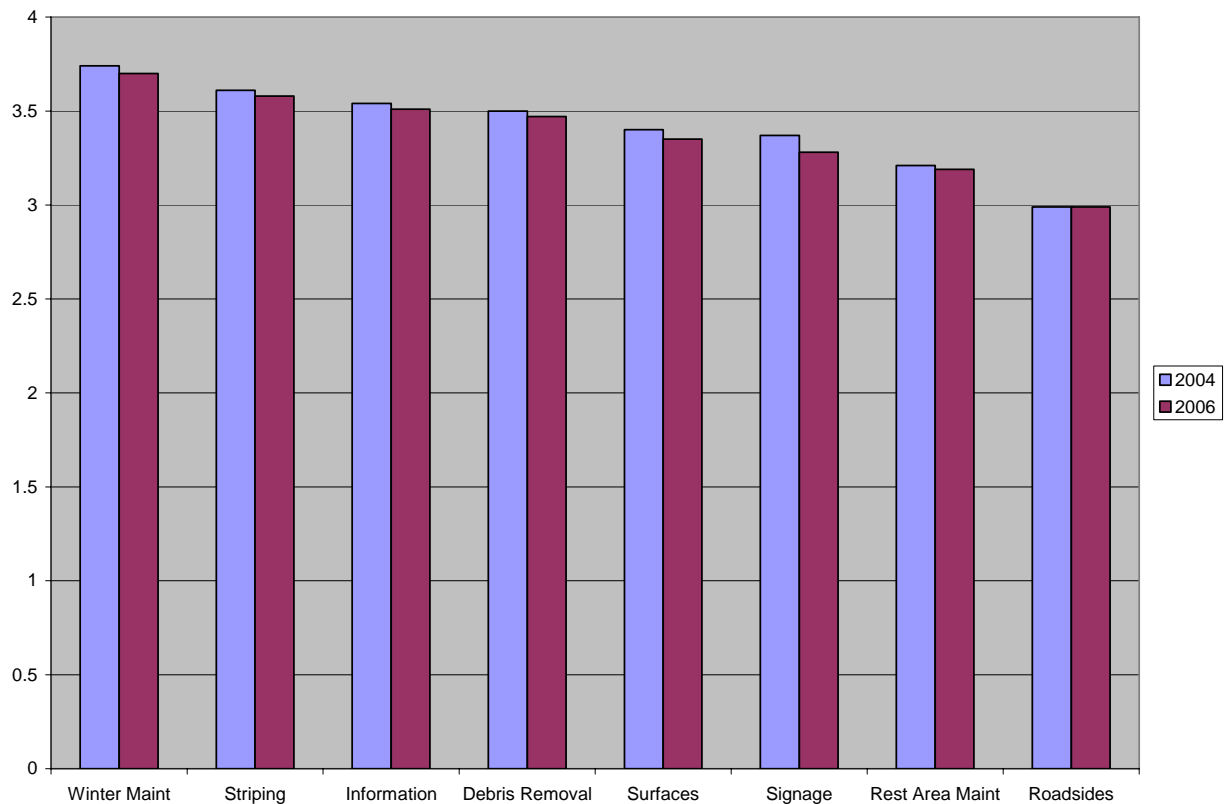
#### Statistically Significant Relationships between Importance of Roadside Maintenance and Demographic/Travel Variables

- Roadside maintenance was more important to respondents who had not driven in other states than it was to those who had.
- In terms of age, roadside maintenance was the most important to respondents over 65 and was the least important to respondents between 18 and 25.
- Roadside maintenance was more important to respondents who had been in Montana for over 20 years than it was for respondents who had been in Montana for less than time and was most important to respondents who had lived in Montana for more than 30 years.
- In terms of educational attainment, roadside maintenance was the most important to respondents whose highest educational attainment was graduating from high school and was least important to respondents who had attended some high school but had not graduated.
- In terms of typical trip, roadside maintenance was most important to respondents who said their typical trip was agriculturally related and least important to professional drivers.

#### Comparison of 2004 and 2006 Importance Rating for Eight Maintenance Activities

Figure Eight provides a comparison of the 2004 and 2006 importance ratings for the eight maintenance activities. There was one statistically significant change in the importance ratings between 2004 and 2006. The importance of highway signage decreased from 3.37 in 2004 to 3.28 in 2006.

**FIGURE EIGHT  
COMPARISON OF 2004 AND 2006 PERCEPTION OF IMPORTANCE OF  
MAINTENANCE ACTIVITIES**



### **Respondents' Perception of the Resource Priority Which Should Be Attached to Each Maintenance Activity**

The respondents were asked to think about the allocation of Department of Transportation resources and assign a resource priority of low, medium, moderately high, or very high to each of the maintenance activities. Table Five summarizes the results of the respondents' assignment of resource priorities. The ordering of activities in Table Five is provided by the mean resource priority score for each item on a scale where 1 = low, 2 = medium, 3 = moderately high and 4 = high. As Table Five shows, respondents awarded the highest resource priority to winter maintenance (3.66). Highway striping (3.42) and information about winter road conditions (3.41) and were next in terms of resource priorities. Debris removal (3.28) had the next highest priority rating. Signage (3.09), smoothness of roadway surface (3.08), and rest area maintenance (3.06) were next in terms of priorities for resource allocation. Clearly in last place in terms of the allocation of resources was roadside maintenance (2.81). The standard deviation and standard error of the mean are presented for each activity's resource priority mean. The largest standard error is 0.027 producing a 95% confidence interval of  $\pm 0.053$ . Therefore a difference between means greater than 0.11 is a real difference. With this figure in mind, the highest resource priority goes to winter maintenance followed by a tie

between striping and winter roadway information, then debris removal, then a tie between signage, surface smoothness, and rest area maintenance, and finally roadsides.

**TABLE FIVE**  
**RESOURCE PRIORITIES**

<u>Activity</u>	<u>Low</u>	<u>Medium</u>	Moderately <u>High</u>	Very <u>High</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>SE</u>
Winter Maint.	0.5%	3.2%	25.5%	70.7%	988	3.66	0.564	0.018
Striping	0.8%	11.3%	33.2%	54.7%	994	3.42	0.719	0.023
Information	2.1%	10.9%	31.3%	55.7%	940	3.41	0.766	0.025
Debris Removal	2.4%	15.0%	34.8%	47.8%	992	3.28	0.805	0.026
Signage	2.5%	21.6%	40.0%	35.9%	991	3.09	0.817	0.026
Surface	2.1%	15.0%	56.0%	26.9%	993	3.08	0.706	0.022
Rest Area Maint.	3.1%	20.6%	43.4%	32.9%	914	3.06	0.809	0.027
Roadsides	6.5%	26.9%	46.0%	20.7%	992	2.81	0.835	0.027

Statistically Significant Relationships between Resource Priorities Assigned to Maintenance Activities and Administrative District

- Respondents living in the Great Falls and Glendive districts placed a higher priority on winter roadway information than did respondents living in other districts.
- Respondents in the Glendive District assigned a higher priority to roadside maintenance than did respondents from other districts. Respondents living in the Butte and Missoula districts assigned a lower priority to roadside maintenance than did respondents from other districts.

Statistically Significant Relationships between Resource Priority Assigned to Winter Maintenance and Demographic/Travel Variables

- Females assigned a higher priority to winter maintenance than did males.
- Respondents who had driven in other states in the last 12 months assigned a higher resource priority to winter maintenance than did respondents who had not driven in other states.

Statistically Significant Relationships between Resource Priority Assigned to Roadway Striping and Demographic/Travel Variables

- Respondents over 55 assigned a higher resource priority to striping than did respondents 55 or younger.
- Generally, the higher the respondent's educational attainment the lower the resource priority they assigned to striping.
- Respondents who drove less than 15,000 miles per year assigned a higher resource priority rating to striping than did respondents who drove more than 15,000 miles per year.
- Respondents who said their typical trip was person or family related assigned a higher resource priority to striping than did respondents reporting other typical trips while

respondents indicating their typical trip was agriculturally related assigned a lower priority to striping than did respondents reporting a different typical trip.

Statistically Significant Relationships between Resource Priority Assigned to Winter Roadway Information and Demographic/Travel Variables

- Females assigned a higher resource priority to winter roadway information than did males.
- Respondents who said their typical trip was personal or family related and those whose typical trip was commuting assigned a higher resource priority to winter roadway information than did respondents reporting a different typical trip.

Statistically Significant Relationships between Resource Priority Assigned to Debris Removal and Demographic/Travel Variables

- Females assigned a higher resource priority to debris removal than did males.

Statistically Significant Relationships between Resource Priority Assigned to Signage and Demographic/Travel Variables

- Signage was assigned a higher priority by female respondents than by male respondents.
- Respondents between 66 and 75 assigned a higher priority to signage than did respondents who were older or younger while the lowest priority was assigned by respondents between 26 and 35.
- Respondents with an eighth grade or less level of education and those who were high school graduates assigned a higher priority to signage than did respondents with other levels of education. The lowest priority level was assigned by respondents who had completed some high school but had not graduated.
- In terms of typical trip, respondents who were professional drivers and those who said their typical trip was personal or family related assigned the highest resource priority to signage while respondents whose typical trip was agriculturally related assigned the lowest resource priority to signage.
- Respondents who had driven in other states in the last 12 months assigned a higher priority to signage than did those who had not driven in other states.
- Respondents who drove less than 15,000 miles per year assigned a higher priority level to signage than did respondents who reported driving more than 15,000 miles.

Statistically Significant Relationships between Resource Priority Assigned to Surface Smoothness and Demographic/Travel Variables

- Females assigned a higher resource priority to surface smoothness than did males.
- Respondents over 75 assigned a higher priority to surface smoothness than did younger respondents while respondents between 26 and 35 assigned the lowest priority.
- Respondents with an eighth grade or less level of education assigned a higher priority to surface smoothness than did respondents with a higher or lower level of education

while respondents with post graduate education assigned a lower priority resource to surface smoothness than did respondents with a lower level of educational attainment.

- Respondents who were professional drivers assigned a higher priority to surface smoothness than did respondents who reported a different type of typical trip.

#### Statistically Significant Relationships between Resource Priority Assigned to Rest Area Maintenance and Demographic/Travel Variables

- In terms of age, the highest priority for rest stop maintenance was assigned by respondents who were over 75 while the lowest priority was assigned by respondents between 26 and 35.
- Respondents reporting an eighth grade or less educational attainment assigned a higher priority to rest area maintenance than did respondents with more or less education while respondents with a college degree or post graduate education assigned a lower priority to rest area maintenance than did respondents with less education.
- Respondents who had driven in other states in the last 12 months assigned a higher priority to rest area maintenance than did respondent who had not driven in other states.

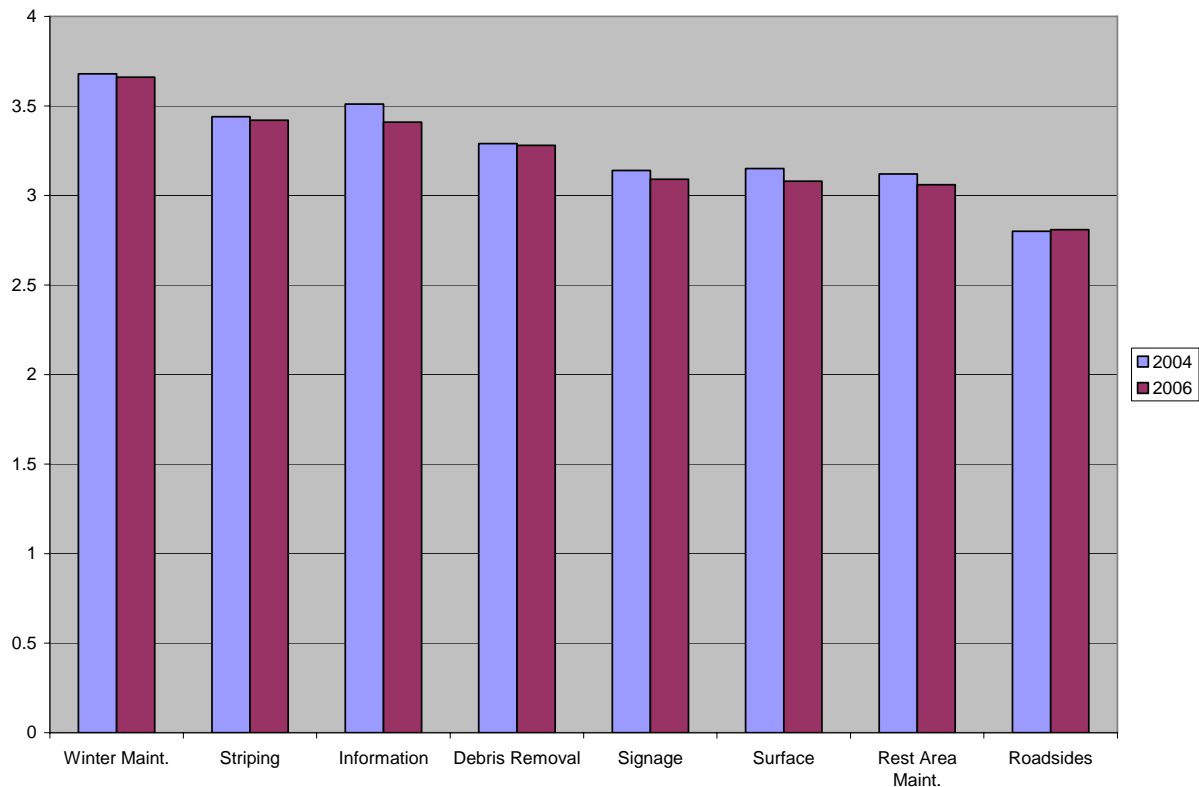
#### Statistically Significant Relationships between Resource Priority Assigned Roadside Maintenance and Demographic/Travel Variables

- Females assigned a higher resource priority to roadside maintenance than did males
- The older the respondent the higher the resource priority assigned to roadside maintenance.
- Respondents with post graduate education assigned a lower priority to roadside maintenance than did respondents with a lower educational level while the highest priority for roadside maintenance was assigned by respondents with an eighth grade or less educational attainment.
- Respondents who had lived in Montana for more than 30 years assigned a higher priority to roadside maintenance than did respondents who had lived in Montana for 30 years or less.
- Respondents who had not driven in other states in the last 12 months gave roadside maintenance a higher priority than those who had driven in other states.

#### Comparison of 2004 and 2006 Priorities Assigned to the Eight Maintenance Activities

Figure Nine provides a comparison of the 2004 and 2006 assignment of priorities to the eight maintenance activities. The resource priorities assigned to two of the eight maintenance activities decreased significantly from 2004 to 2006. The resource priority assigned to winter roadway information decreased from 3.51 in 2004 to 3.41 in 2006. The resource priority assigned to surface smoothness decreased from 3.15 in 2004 to 3.08 in 2006.

**FIGURE NINE  
COMPARISON OF 2004 AND 2006 RESOURCE PRIORITIES**



### Composite Variables for Each Maintenance Activity

To better understand the perceptions of the respondents toward each maintenance activity, a composite variable was constructed for each maintenance activity by combining the answers to the rating, importance, and resource priority questions. The first step in constructing these variables was to reverse the values assigned to the responses to the rating of each maintenance activity. After reversal, an excellent rating = 1, a good rating = 2, a fair rating = 3, and a poor rating = 4. Then, the composite variable for each maintenance activity was created by adding this reversed value for rating, the score on the importance question (1 = not important, 2 = somewhat important, 3 = important and 4 = very important) and the score on the resource priority question (1 = low, 2 = medium, 3 = moderately high, and 4 = high).

If a respondent had answered all three of the questions about a maintenance activity, the scores on the composite variable for that activity would range from 3 to 12. If the value of the composite variable were a 3, it would indicate an excellent rating of the activity, an answer of not important on the importance question and of low priority on the resource priority question. A score of 12 would indicate a poor rating, very important and a high resource priority. A score of less than 3 is possible if the respondent did not answer each question about a particular maintenance activity.



The higher the score on this composite variable, the lower the rating, the more important the activity is considered, and the higher the resource priority assigned to the activity. Thus, the higher the score on the composite variable, the more attention respondents believe should be paid to the maintenance activity.

Table Six summarizes the values of the composite variable created for each maintenance activity. Each of the eight composite variables of Winter Maintenance, Surface Smoothness, Striping, Debris Removal, Winter Road Information, Signage, Rest Area Maintenance and Roadside Maintenance occupies a column in Table Six. The ordering of columns in Table Six is based upon the mean score for each composite variable and ranges from Winter Maintenance with a mean score of 9.40 to Rest Area Maintenance with a mean score of 7.83. The standard deviation and standard error of the mean are presented for each composite variable. The largest standard error is 0.074 producing a 95% confidence interval of  $\pm 0.1450$ . Therefore, a difference between means of greater than .29 represents a real difference. Winter Maintenance has by far the highest composite score followed by Striping, Debris Removal and Surface Smoothness. Winter Roadway Information and Signage are next. The mean scores for the composite variables for Roadside Maintenance and Rest Area Maintenance are clearly the lowest.

**TABLE SIX**  
**VALUES OF COMPOSITE VARIABLES**

Value	Winter Maint	Striping	Debris Removal	Surface Smooth	Wtr Rd Info	Signage	Rd Side Maint	Restarea Maint
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.9%
2	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	1.9%
3	0.7%	0.1%	0.1%	0.2%	0.4%	0.4%	0.6%	3.1%
4	1.4%	0.2%	0.1%	0.4%	0.7%	0.6%	2.3%	2.4%
5	0.6%	1.1%	0.8%	1.2%	3.1%	2.8%	5.0%	3.3%
6	1.1%	2.8%	4.7%	4.3%	5.7%	9.0%	9.6%	9.3%
7	3.2%	7.7%	11.2%	11.3%	14.5%	15.2%	21.3%	14.0%
8	13.2%	17.3%	19.1%	24.4%	24.0%	24.6%	23.8%	23.7%
9	27.0%	29.4%	26.4%	29.2%	31.2%	26.6%	19.1%	22.0%
10	33.9%	27.5%	23.3%	16.1%	16.7%	16.5%	11.6%	13.3%
11	13.2%	9.4%	10.9%	9.4%	3.1%	3.5%	4.7%	4.2%
12	5.6%	4.4%	3.3%	3.4%	0.6%	0.7%	1.8%	1.9%
N	994	999	1000	999	951	999	997	928
Mean	<b>9.40</b>	<b>9.12</b>	<b>8.94</b>	<b>8.77</b>	<b>8.36</b>	<b>8.27</b>	<b>7.95</b>	<b>7.83</b>
SD	<b>1.526</b>	<b>1.425</b>	<b>1.505</b>	<b>1.497</b>	<b>2.208</b>	<b>1.498</b>	<b>1.739</b>	<b>2.123</b>
SE	<b>0.048</b>	<b>0.045</b>	<b>0.048</b>	<b>0.074</b>	<b>0.072</b>	<b>0.047</b>	<b>0.055</b>	<b>0.070</b>

In order to better explain the meaning of these composite variables as well as the respondents' perceptions of the eight maintenance activities, Table Seven shows the mean score of the composite variable for each activity as well as the relative position of each activity in the respondents' rating of how well each activity is currently being accomplished, the respondents' feeling on the importance each activity, and the resource priority assigned by the respondents to each maintenance activity.

The mean composite score for Winter Maintenance is the highest of all the composite variables because it is rated the most important maintenance activity by the respondents, is assigned the highest resource priority by the respondents, and is rated sixth by the respondents.

Striping ranks second in terms of mean composite variable score because it is second in importance and second in priority and rated fourth by respondents.

Debris removal rates third in terms of mean composite variable because it is fourth in importance and priority but seventh in rating.

Surface Smoothness is rated the next highest on the composite variable not so much because of its importance and resource priority, which fall in the middle of the rating for all maintenance activities, but because of the rating of the current condition of surface smoothness. Respondents rated surface smoothness last as compared with other maintenance activities.

Winter Roadway Information is rated fifth in terms of composite variable means, not because it is not given a high importance and resource priority value by the respondents, but because respondents currently rate it as being done well.

The Signage composite variable is sixth because it is ranked toward the bottom of the eight maintenance activities in terms of importance and priority and because the current condition of highways signs is rated higher than any other maintenance activity.

**TABLE SEVEN**  
**COMPOSITE VARIABLE MEAN BY RANK OF**  
**RATING, IMPORTANCE, AND PRIORITY**

	Composite <u>Mean</u>	Rating <u>Rank</u>	Importance <u>Rank</u>	Priority <u>Rank</u>
Winter Maint	9.40	6	1	1
Striping	9.12	4	2	2
Debris Removal	8.94	7	4	4
Smoothness	8.77	8	5	6
Winter Road Info	8.36	2	3	3
Signage	8.27	1	6	5
Roadside Maint.	7.95	5	8	8
Rest Area Maint.	7.83	3	7	7

The Roadside Maintenance composite variable is rated seventh because it ranks fifth in terms of rating but is ranked dead last in terms of importance and resource priority

Rest Area Maintenance is rated last in terms of composite variable means because of the relatively high rating of its current condition and because it is rated next to last in importance, and third from the last in priority.

Statistically Significant Relationships between Composite Variables  
and Administrative District

- Missoula district respondents had higher scores on the striping variable than did respondents living in other districts.

- Respondents living in the Great Falls and Glendive districts had higher mean on the Winter Roadway Information composite variable mean than did respondents from other districts while respondents living in the Butte district had a lower Winter Roadway Information composite variable mean than did respondents from other districts.
- Glendive district respondents scored higher on the roadside maintenance composite variable than did respondents from other district while respondents living in the Butte district scored lower on the roadside maintenance composite variable than did respondents in other districts.

Statistically Significant Relationships between Scores on Winter Maintenance Composite Variable and Demographic/Travel Variables

- Females had higher scores on the Winter Maintenance composite variable than did males.
- Respondents over 65 scored lower on the Winter Maintenance composite variable than did younger respondents and respondents over 75 scored the lowest. Respondents between 36 and 45 had a higher mean Winter Maintenance composite variable score than did older or younger respondents.
- Respondents who reported their typical trip as personal or family related and those who said it was agriculturally related scored lower on the Winter Maintenance composite variable than did respondents reporting a different type of typical trip. In terms of typical trip respondents who were professional drivers scored the highest on this composite variable.
- Respondents who reported driving more than 15,000 miles per year scored higher on the Winter Maintenance composite variable than did respondents who drove less than 15,000 miles.

Statistically Significant Relationships between Scores on Striping Composite Variable and Demographic/Travel Variables

- No statistically significant relationships were found between score on the Striping composite variable and any of the demographic or travel variables.

Statistically Significant Relationships between Scores on Debris Removal Composite Variable and Demographic/Travel Variables

- Females had higher scores on the Debris Removal composite variable than did males.

Statistically Significant Relationships between Scores on Surface Smoothness Composite Variable and Demographic/Travel Variables

- Females had higher scores on the Surface Smoothness composite variable than did males.

Statistically Significant Relationships between Scores on Winter Roadway Information Composite Variable and Demographic/Travel Variables

- Females scored higher on the Winter Roadway Information composite variable than did males.
- Commuters and professional drivers scored higher on the Winter Roadway information composite variable than did respondents whose most frequent trips were work related, personal or family related or agriculturally related.

Statistically Significant Relationships between Scores on Signage Composite Variable and Demographic/Travel Variables

- Female respondents scored higher on the Signage composite variable than did males.
- Respondents with a high school diploma as their highest level of education had a higher Signage composite variable mean score than did respondents with a higher or lower level of education.
- Respondents who indicated their typical trip was personal or family related and those who were professional drivers scored the highest on the Signage composite variable while those whose most frequent trip was agriculturally related scored the lowest.
- Respondents who reporting driving less than 15,000 miles per year scored higher on the signage composite variable than did respondents driving more than 15,000 miles per year.

Statistically Significant Relationships between Scores on Roadside Maintenance Composite Variable and Demographic/Travel Variables

- Generally, the older the respondent the higher they scored on the Roadside Maintenance composite variable.
- Respondents with a high school diploma scored higher on the Roadside Maintenance composite variable than did respondents with a different level of education. Respondents with a college degree and those with post graduate education scored lower on the Roadside Maintenance composite variable than did respondents with a lower level of education.
- Respondents who had been in Montana for 10 or less years scored lower on the Roadside Information composite variable than did respondents who had been in the state longer while respondents who had lived in Montana for more than 30 years scored the highest on the Roadside Maintenance Composite variable.

Statistically Significant Relationships between Scores on Rest Area Maintenance Composite Variable and Demographic/Travel Variables

- Females scored higher on the Rest Area Maintenance composite variable than did males.
- Respondents between 26 and 45 scored lower on the Rest Area Maintenance Composite variable than did older or younger respondents.

- In terms of typical trip, professional drivers scored the highest on the Rest Area composite variable while respondents whose typical trip was agriculturally related scored the lowest.

Comparison of the 2004 and 2006 Composite Variable Means  
for the Eight Maintenance Activities

**FIGURE TEN  
COMPARISON OF 2004 AND 2006 COMPOSITE VARIABLE MEANS**

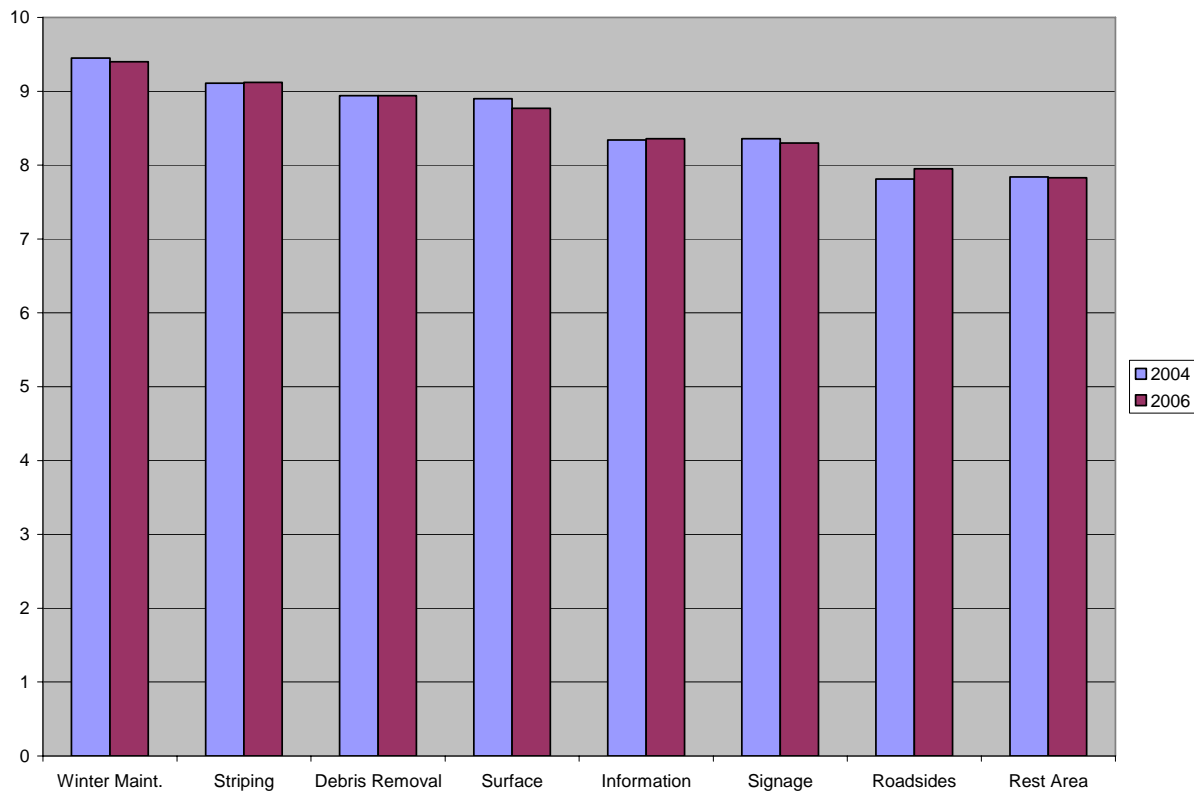


Figure Ten provides a comparison of the 2004 and 2006 composite variable means for the eight maintenance activities. The mean composite variable score for one of the eight maintenance activities decreased significantly from 2004 to 2006. The mean of the Surface Smoothness composite variable decreased from 8.91 in 2004 to 8.77 in 2006.

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**Respondents Perception of How the Montana Department of Transportation Could Do Better in the Area of Highway Maintenance**

The respondents were asked in the form of an open-ended question, what the Department of Transportation could do better in terms of maintenance. Three hundred twenty two respondents could not think of an answer to this question. The remaining 678 respondents provided 756 answers to the question of what the Montana Department of Transportation could do better. In the 2004 survey, 812 respondents provided 929

answers. The decrease in the number of respondents with suggestions for what the Department could do better as well as the decrease in actual suggestions from 2004 to 2006 could be interpreted as a decrease in complaints about maintenance of Montana highways..

Table Eight shows the most common answer to the question of what the department could do better was winter maintenance followed by surface smoothness, construction including traffic flow around construction, more lanes or wider roads, using sand rather than rocks for improving traction, the department is doing a good job now, striping, trimming weeds, stop using de-icers, road kill removal, debris removal on highways and roadsides and safety.

When these answers are compared to the responses in 2004, the number of comments about striping, keeping rest areas open, and road kill removal has decreased in 2006.

**TABLE EIGHT**  
**WHAT COULD THE TRANSPORTATION DEPARTMENT DO BETTER IN**  
**TERMS OF MAINTENANCE**

Winter Maintenance	135	17.9%
Make Surfaces Smoother	99	13.1%
Construction	50	6.6%
More lanes/Wider Roads	48	6.3%
Use Sand Not Rocks	41	5.4%
Doing a Good Job	36	4.8%
Striping	35	4.6%
Trim Weeds	34	4.5%
Liquid De-Icers are Bad	29	3.8%
Road Kill Removal	28	3.7%
Debris Removal/Roadsides	26	3.4%
Safety	25	3.3%
Rest Area Maintenance	23	3.0%
Signage	23	3.0%
Rest Area Open Year Around	21	2.8%
Speed Limits/Enforcement	13	1.7%
Funding	12	1.6%
More Rest Areas	12	1.6%
Hire More Workers	12	1.6%
Information	12	1.6%
Rest Area Security	11	1.5%
Better Lighting	8	1.1%
Barriers/Reflectors/Guard Rails	7	0.9%
Personnel Management	6	0.8%
More Protection for Animals	5	0.7%
Better Road Design	4	0.5%
Prisoners for Clean-up	1	0.1%
<b>TOTAL</b>	<b>756</b>	<b>100.0%</b>

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### **In What Maintenance Activities Does the Department of Transportation Currently Do a Good Job**

The respondents were also asked in an open-ended question what maintenance activities done by the MDT met or exceeded the respondent's expectations. Three hundred forty-five respondents could not think of anything MDT does that met or exceeded their expectations. The remaining 655 respondents provided 787 comments about what MDT does that meets or exceeds their expectations.

Table Nine shows that the most common answer to the question of what maintenance activities meet or exceed the respondents expectations is winter maintenance followed by a general comment that the Department is doing a good job and then general maintenance, improving roads and bridges, and surface smoothness.

**TABLE NINE  
MAINTENANCE ACTIVITIES THAT MEET OR EXCEED  
RESPONDENTS' EXPECTATIONS**

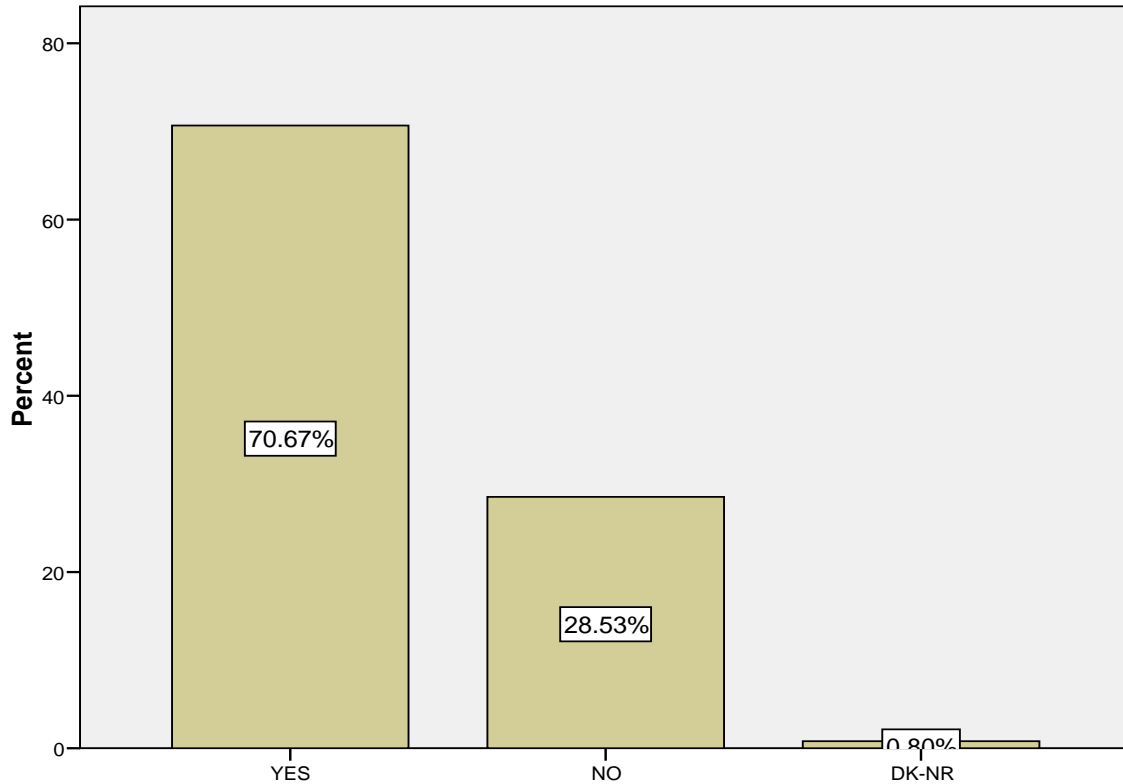
Winter Maintenance	198	25.1%
Doing a good job	195	24.8%
General Maintenance	79	10.0%
Improving Roads/Bridges	56	7.1%
Surface Smoothness	50	6.4%
Debris/Road Kill Removal	31	4.0%
Roadside Maintenance	28	3.6%
General Safety	27	3.4%
Striping	21	2.7%
Roadway Information	16	2.0%
Signage	16	2.0%
Rest Area Maintenance	16	2.0%
Employees	14	1.8%
Prompt Repair	13	1.6%
Website/Web Camera	12	1.5%
Are Improving	10	1.3%
Barriers	3	0.4%
Weed Control	2	0.3%
<b>TOTAL</b>	<b>787</b>	<b>100.0%</b>

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### **Willingness to Participate in a Follow Up Study**

Finally, the respondents were asked if they would be willing to participate in a follow up study. Figure 11 shows that 70.7% of the respondents indicated they would be willing to participate in a follow up study while 28.5% said they would not be and 0.8% said they did not know whether or not they would be interested in participating in a follow up study.

**FIGURE ELEVEN**  
**WILLINGNESS TO PARTICIPATE IN A FOLLOW UP STUDY**



The respondents who agreed to participate in a follow up study were then asked for their name, address and telephone number.

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## SUMMARY

Trained interviewers at the Computer Assisted Telephone Interviewing Laboratory at Montana State University, Billings completed 1,000 interviews with randomly selected adult residents of Montana between October 3<sup>rd</sup> and November 6<sup>th</sup>, 2006. The purposes of this telephone survey were to obtain the perceptions the respondents held about the maintenance of interstate and state highways in Montana, and to determine what if any changes have occurred in these perceptions since a similar telephone survey was conducted in the fall of 2004.



## **The Respondents**

About half the respondents were male and half were female. The mean age of the respondents was 52.2 with 15.6% of the respondents thirty-five years old or less, 42% were 56 or over, and the remainder of 42.4% between 36 and 55. The mean educational attainment of the respondents was 14.3 years of education, 4.2% had not completed high school, 30% had completed just high school, 22.6% had completed some college, and 43.1% had at least a college degree.

The mean length of time respondents had been in Montana was 35.4 years and 54.5% of the respondents reported they had lived in Montana over 30 years, while 8.7% indicated they had been in Montana for 5 or less years.

About 32.7% of the respondents lived in the Missoula District, 17.5% lived in the Butte District, 21.6% in the Great Falls District, 9.2% in the Glendive District, and 19% in the Billings District. Forty-eight percent of the respondents indicated they drive more than 15,000 miles per year, while 50.8% drove less than 15,000 miles. The most common trips made by respondents were personal or family errands (53.8%) followed by commuting (20.3%) and then work related trips (18.9%). Seventy-seven percent of the respondents indicated they had driven in other states within the last 12 months.

### **General Perception of Highway Maintenance**

When asked to rate overall highway maintenance, 3.7% of the respondents rated overall maintenance as poor while 25.3% said fair, 60.9% said good and 10.1% said excellent. Respondents in the living in the Billings and Great Falls districts rated general highway maintenance higher than did respondents in other districts while Glendive district residents rated general maintenance lower than did respondents from other districts. Generally, the higher the respondents educational attainment, the higher they rated Montana roadway maintenance. The very slight increase in the mean general rating of Montana highway maintenance from 2.76 in 2004 to 2.77 in 2006 was not statistically significant.

When asked to rate the importance of highway maintenance to them 58.9% of the respondents said very important, 30.1% said important, 9.6% said somewhat important, and 1.7% not important. General highway maintenance was more important to respondents between 46 and 65 as compared to younger or older respondents, to respondents who drove more as compared to less than 15,000 miles per year, and to respondents who had driven in other states in the last 12 months.

On a 1 to 4 scale labeled as not important, somewhat important, important and very important, the mean importance rating for general highway maintenance decreased very slightly from 3.49 in 2004 to 3.46 in 2006.

### **Comparison of Highway Maintenance in Montana with Other States**

Fifty-one percent of the respondents who had driven in other states within the last 12 months said the highways and interstates of Montana were about the same as the highways and interstates in the other states in which they had driven, while 22.9% felt the roads in Montana were worse and 25.6% felt the roads in Montana were better. Respondents between 18 and 25 and those between 46 and 55 were more likely than

younger or older respondents to believe the highway maintenance in Montana was worse than other states while respondents 66 and older were less likely than younger respondents to believe Montana highway maintenance was worse than other states. Respondents over 75 were more likely than younger respondents to believe highway maintenance in Montana was about the same as in other states. Respondents from 26 to 35 were more likely than younger or older respondents to believe highway maintenance in Montana was better than in other states.

There was no statistically significant difference between 2004 and 2006 respondents in comparing general maintenance in Montana to other states.

About 47.6% of the respondents who had driven in other states and who had an opinion believed winter maintenance was about the same in Montana as in other states, while 33.9% believed winter maintenance was better in Montana and 18.5% believed winter maintenance was worse in Montana. Residents of the Glendive district were more likely than residents in other districts to believe winter maintenance was worse in Montana than in other states while respondents living in the Butte, Missoula and Great Falls districts were more likely than respondents in other districts to believe that winter maintenance in Montana was better than in other states. There was no statistically significant difference between 2004 and 2006 respondents in comparing winter maintenance in Montana to other states.

Forty-nine percent of the respondents who had driven in other states in the last 12 months and who had an opinion, felt rest area maintenance was about the same in Montana as in other states, while 27.6% said rest area maintenance was worse in Montana and 23.7% said it was better in Montana. Respondents who had lived in Montana over 10 years were more likely than those who lived in Montana 10 years or less to think rest area maintenance was worse in Montana than in other states. Females were more likely than males to believe that rest area maintenance in Montana was better than rest area maintenance in other states while males were more likely than females to believe rest area maintenance in Montana was about the same as rest area maintenance in other states. There was no statistically significant difference between 2004 and 2006 respondents in comparing rest area maintenance in Montana to other states.

### **Respondent Perception of the Eight Maintenance Activities**

For the purposes of this survey, highway maintenance activities were divided into 8 categories: winter maintenance, maintaining a smooth highway surface, maintenance of roadsides, maintenance of signs, debris removal, rest area maintenance, striping maintenance, and winter road condition reports. The respondents were asked three different questions about each of these eight maintenance activities. First they were asked how good a job the Montana Department of Transportation (MDT) was doing with each of the eight maintenance activities and to respond with poor, fair, good, or excellent. Then they were asked how important each of the maintenance activities were to them and to respond with not important, somewhat important, important, or very important. Finally, the respondents were asked to think of the allocation of resources to each of the maintenance activities by the MDT and assign a resource priority of low, medium, moderately high, or very high to each of the eight maintenance activities.

A composite variable was then constructed for each of the maintenance activities by combining the answers to the three different questions asked about that activity. To

construct these variables, the first step was to reverse the values assigned to the responses to the rating of each maintenance activity. After reversal, an excellent rating = 1, a good rating = 2, a fair rating = 3, and a poor rating = 4. Then the composite variable for each maintenance activity was created by adding this reversed value for rating, the score on the importance question (1 = not important, 2 = somewhat important, 3 = important and 4 = very important), and the score on the resource priority question (1 = low, 2 = medium, 3 = moderately high, and 4 = high).

If a respondent had answered all three of the questions about a maintenance activity, the range of scores on the composite variable for that activity would be from 3 to 12. If the value of the composite variable were a 3, it would indicate an excellent rating of the activity, an answer of not important on the importance question and of low priority on the resource priority question. A score of 12 would indicate a poor rating, very important and a high resource priority. A score of less than 3 is possible if the respondent did not answer each question about a particular maintenance activity.

The higher the score on this composite variable, the lower the rating, the more important the activity is considered, and the higher the resource priority assigned to the activity. Thus, the higher the score on the composite variable, the more attention respondents believe should be paid to the maintenance activity.

The overall mean scores for each of the composite variables are: Winter Maintenance, 9.40; Highway Striping, 9.12; Debris Removal, 8.94; Smoothness of Surface, 8.77; Winter Roadway Information, 8.36; Highway Signage, 8.27; Roadside Maintenance, 7.95; and Rest Area Maintenance, 7.83. In 2004 the mean scores on the composite variables were: Winter Maintenance 9.45; Highway Striping, 9.11, Debris Removal, 8.94; Smoothness of Surface, 8.90; Winter Roadway Information, 8.34; Highway Signage, 8.36; Roadside Maintenance, 7.81 and Rest Area Maintenance, 7.84.

While the relative positions of Highway Signage and Winter Roadway Information composite variables and the relative positions of Roadside Maintenance and Rest Area maintenance were reversed from 2004 to 2006, only one of the eight composite variables changed significantly from 2004 to 2006. The mean of the Surface Smoothness composite variable decreased from 8.91 in 2004 to 8.77 in 2006.

### **Winter Maintenance**

The mean composite score for Winter Maintenance is the highest of all the composite variables because it is rated the most important maintenance activity by the respondents, is assigned the highest resource priority by the respondents, and is rated sixth by the respondents.

Females had higher scores on the Winter Maintenance composite variable than did males. Respondents over 65 scored lower on the Winter Maintenance composite variable than did younger respondents and respondents over 75 scored the lowest. Respondents who reported their typical trip as personal or family related scored lower on the winter maintenance composite variable than did respondents reporting a different type of typical trip while professional drivers scored the highest. Respondents who reported driving more than 15,000 miles per year scored higher on the Winter Maintenance composite variable than did respondents who drove less than 15,000 miles.

There was no statistically significant change between 2004 and 2006 in the way respondents compared winter maintenance in Montana to winter maintenance in other

states. There was no statistically significant difference between 2004 and 2006 in the general rating of winter maintenance in Montana, in the importance of winter maintenance or in the resource priority assigned to winter maintenance.

### **Highway Striping**

Striping ranks second in terms of mean composite variable score because it is second in importance, second in priority and is rated fourth. Missoula District respondents had higher scores on the striping variable than did respondents living in other districts. No statistically significant relationships were found between score on the Striping composite variable and any of the demographic or travel variables.

There was no statistically significant difference between 2004 and 2006 in the general rating of highway striping in Montana, in the importance of highway striping or in the resource priority assigned to highway striping.

### **Debris Removal**

Debris removal rates third in terms of mean composite variable because it is fourth in importance and priority but seventh in rating.

Females had higher scores on the Debris Removal composite variable than did males.

There was no statistically significant difference between 2004 and 2006 in the general rating of debris removal in Montana, in the importance of debris removal or in the resource priority assigned to debris removal.

### **Highway Surface Smoothness**

Surface Smoothness is rated the next highest on the composite variable not so much because of its importance and resource priority, which fall in the middle of the rating for all maintenance activities, but because of the rating of the current condition of surface smoothness. Respondents rated surface smoothness last as compared with other maintenance activities.

Females had higher scores on the Surface Smoothness Composite variables than did males.

The respondent's rating of surface smoothness and the respondent's perception of the importance of surface smoothness did not change significantly from 2004 to 2006. However the resource priority assigned to surface smoothness did decrease significantly from 3.15 in 2004 to 3.08 in 2006. As mentioned above, the Surface Smoothness composite variable was the only composite variable to change significantly from 2004 to 2006 and it decreased from 8.90 in 2004 to 8.77 in 2006.

### **Winter Roadway Information**

Winter Roadway Information is rated fifth in terms of composite variable means, not because it is not given a high importance and resource priority value by the respondents, but because respondents currently rate it as being done well. While the mean of the composite variable of winter roadway information increased in rank from sixth position

in 2004 to fifth position in 2006, the 2004 to 2006 change in value was not statistically significant.

Respondents living in the Great Falls and Glendive districts had higher mean on the Winter Roadway Information composite variable mean than did respondents from other districts while respondents living in the Butte district had a lower Winter Roadway Information composite variable mean than did respondents from other districts.

Females scored higher on the Winter Roadway Information composite variable than did males. Commuters and professional drivers scored higher on the Winter Roadway information composite variable than did respondents whose most frequent trips were work related, personal or family related or agriculturally related.

The mean rating for winter roadway information decreased significantly from 3.03 in 2004 to 2.94 in 2006. The rating of the importance of winter roadway information did not change from 2004 to 2006 but the resource priority assigned to winter roadway information decreased significantly from 3.51 in 2004 to 3.41 in 2006.

### **Highway Signage**

The Signage composite variable is sixth because it is ranked toward the bottom of the eight maintenance activities in terms of importance and priority and because the current condition of highways signs is rated higher than any other maintenance activity. While the value of the Signage composite variable dropped from fifth position in 2004 to sixth in 2006, the 2004 to 2006 change in value was not statistically significant.

Female respondents scored higher on the Signage composite variable than did males. Respondents with a high school diploma as their highest level of education had a higher Signage composite variable mean score than did respondents with a higher or lower level of education. Respondents who indicated their typical trip was personal or family related and those who were professional drivers scored the highest on the Signage composite variable while those whose most frequent trip was agriculturally related scored the lowest. Respondents who reporting driving less than 15,000 miles per year scored higher on the signage composite variable than did respondents driving more than 15,000 miles per year.

The respondent's rating of signage and the resource priority assigned to signage did not change significantly from 2004 to 2006. However, the rating of the importance of signage decreased significantly from 3.37 in 2004 to 3.28 in 2006.

### **Roadside Maintenance**

The Roadside Maintenance composite variable is rated seventh because it ranks fifth in terms of rating but is ranked dead last in terms of importance and resource priority. While the position of the Roadside Maintenance composite variable climbed from last place in 2004 to seventh place in 2006, the change in mean scores between 2004 and 2006 was not statistically significant.

Glendive district respondents scored higher on the roadside maintenance composite variable than did respondents from other district while respondents living in the Butte district scored lower on the roadside maintenance composite variable than did respondents in other districts. The older the respondent the higher they scored on the Roadside Maintenance Composite variable. Respondents with a high school diploma

scored higher on the Roadside Maintenance composite variable than did respondents with a different level of education. Respondents with a college degree and those with post graduate education scored lower on the Roadside Maintenance composite variable than did respondents with a lower level of education. Respondents who had been in Montana for 10 or less years scored lower on the Roadside Information composite variable than did respondents who had been in the state longer while respondents who had lived in Montana for more than 30 years scored the highest on the Roadside Maintenance Composite variable.

The respondent's rating of roadside maintenance decreased significantly from 2.88 in 2004 to 2.80 in 2006. However there was no statistically significant change from 2004 to 2006 in the importance given to roadside maintenance or the resource priority assigned to roadside.

### **Rest Area Maintenance**

Rest Area Maintenance is rated last in terms of composite variable means because of the relatively high rating of its current condition and because it is rated next to last in importance, and third from the last in priority. While the mean score on the Rest Area Maintenance composite variable dropped from seventh place in 2004 to last place in 2006, the change in mean scores between 2004 and 2006 was not statistically significant;

Females scored higher on the Rest Area Maintenance composite variable than did males. Respondents between 26 and 45 scored lower on the Rest Area Maintenance Composite variable than did older or younger respondents. In terms of typical trip, professional drivers scored the highest on the Rest Area composite variable while respondents whose typical trip was agriculturally related scored the lowest.

There was no significant difference between 2004 and 2006 in the way respondents compared rest area maintenance in Montana to rest area maintenance in other states. There was no statistically significant change from 2004 to 2006 in the respondent's rating for rest area maintenance, the rating of the importance of rest area maintenance or the resource priority assigned to rest area maintenance

### **2004 to 2006 Differences**

The following statistically significant differences were observed when comparing 2004 and 2006 data:

- The rating of roadsides decreased from 2.88 in 2004 to 2.80 in 2006.
  - The rating of winter roadway information decreased from 3.03 in 2004 to 2.94 in 2006.
  - The importance of highway signage decreased from 3.37 in 2004 to 3.28 in 2006
  - The resource priority assigned to surface smoothness decreased from 3.15 in 2004 to 3.08 in 2006.
  - The resource priority assigned to winter roadway information decreased from 3.51 in 2004 to 3.41 in 2006.
  - The mean of the Surface Smoothness composite variable decreased from 8.90 in 2004 to 8.77 in 2006.
-

## CONCLUSIONS AND IMPLEMENTATION

All statistically significant differences between 2004 and 2006 responses were in a negative direction and included decreases in the rating for roadside maintenance, and the rating of winter roadway information. The importance of highway signage decreased from 2004 to 2006. The resource priorities assigned to surface smoothness and winter roadway information decreased significantly from 2004 to 2006.

According to the respondents to this survey, the Montana Department of Transportation should now pay attention and provide resources to maintenance activities on interstate and state highways in Montana in the following order:

1. Winter Maintenance
2. Highway Striping
3. Debris Removal
4. Surface Smoothness
5. Winter Roadway Information
6. Highway Signage
7. Roadside Maintenance
8. Rest Area Maintenance

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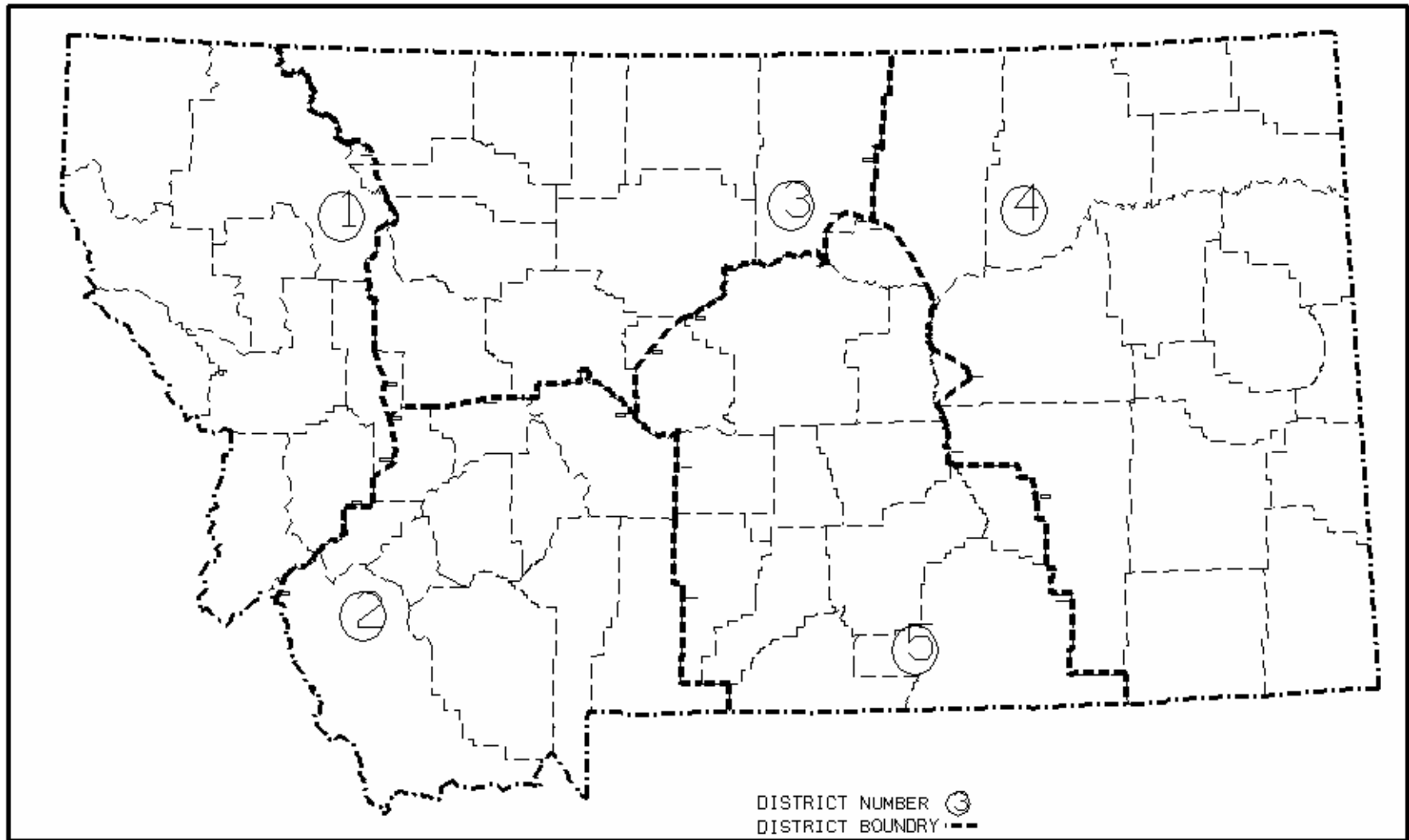
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**APPENDIX ONE:**  
**MAP SHOWING MDT ADMINISTRATIVE DISTRICTS AND**  
**MONTANA COUNTIES**



**APPENDIX TWO:  
TRANSPORTATION SURVEY QUESTIONS**

**Question Hello**

Hello, my name is \_\_\_\_\_ and I am calling from Montana State University, Billings. We are conducting a survey on attitudes and opinions of highway maintenance for the Montana Department of Transportation. The Department of Transportation wants the opinions of citizens of Montana about the condition of our roadways. Your participation in this survey will assist the department in establishing future priorities and enable the maintenance program to better use available resources. In order to interview the right person, I need to speak to the member of your household who is at home, over 18, and has had the most recent birthday. Would that be you? CTRL-END OR 3 DIGITS

**Question Instruct**

Before I ask the first question, let me explain that this survey deals only with maintenance of highways. Maintenance includes such things as maintaining the established roadway surface, snow and ice removal, removal of debris and litter, maintaining roadsides, repairing signs, re-painting roadway stripes and rest area maintenance. This survey does not deal with the construction of new highways nor construction of new rest stops. This survey only deals with interstates and state highways in Montana. We are not asking you about city streets or county roads, just interstates and state highways. Also, we are only interested in opinions based on your experiences with interstates and state highways in Montana in the last two years. Finally, your household was randomly selected by a computer and all your answers will remain anonymous. PRESS ANY KEY TO CONTINUE

**Question RateAll**

How would you rate overall interstate and state highway maintenance in Montana?

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpAll**

How important would you say interstate and state highway maintenance in Montana is to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateWint**

How would you rate winter maintenance of interstates and state highways in Montana? By winter maintenance, I mean snow and ice control including plowing, sanding, de-icing, and preventing drifting.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpWint**

How important would you say interstate and state highway winter maintenance is to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateSurf**

How would you rate the surface of Montana's interstates and state highways. In making this rating, consider ride quality which is affected by potholes, ruts, bumps, cracks, etc.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpSurf**

How important is the smoothness of Montana's interstates and state highways to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateSide**

How would you rate the management of interstate and state highway roadsides in Montana? Roadside management includes mowing shoulders and eliminating unwanted vegetation.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpSide**

How important is interstate and state highway roadside management in Montana to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateSign**

How would you rate the condition of interstate and state highway signs in Montana?

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpSign**

How important is the condition of interstate and state highway signs to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateRemv**

How would you rate the removal of debris such as litter, roadkill, and fallen rocks, on Montana's interstates and state highways?

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpRemv**

How important is the removal of debris on interstates and state highways in Montana to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateRest**

How would you rate the maintenance of rest areas on Montana interstates and state highways. Rest area maintenance includes cleaning rest areas and keeping rest areas in working order.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR



**Question ImpRest**

How important is interstate and state highway rest area maintenance to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateStrp**

How would you rate the condition of striping (lines) on Montana's interstates and state highways? Striping and lines include the middle lines, no-passing lines, left turn lanes, and shoulder lines.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpStrp**

How important is interstate and state highway striping to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question RateInfo**

How would you rate winter roadway information and the way it is provided by the Montana Department of Transportation? Roadway information is provided by a statewide 800 telephone number, highway advisory radio, and changeable message signs.

1. Poor
2. Fair
3. Good
4. Excellent
5. DK or NR

**Question ImpInfo**

How important is up to date winter interstate and state highway information to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. DK or NR

**Question PriWint**

Now I am going to go back through the list of maintenance activities. This time, I want you to think about allocation of resources to each of the activities. For each activity, please tell me if you think it warrants a low, medium, moderately high, or very high resource priority when deciding how state highway maintenance resources should be utilized. Remember, we are only dealing with interstates and state maintained roadways.

What resource priority should be placed on interstate and state highway winter maintenance in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriSurf**

What resource priority should be placed on smooth pavement on interstates and state highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriSide**

What resource priority should be placed on interstate and state highway roadside management in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriSign**

What resource priority should be placed on repairing and replacing signs on interstates and state highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriRemv**

What resource priority should be placed on debris removal on interstates and state highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriRest**

What resource priority should be placed on rest area cleanliness and maintenance on interstates and state highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriStrp**

What resource priority should be placed on roadway striping on interstates and state highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question PriInfo**

What resource priority should be placed providing accurate and up to date information about the current condition of state maintained highways in Montana?

1. Low
2. Medium
3. Moderately High
4. Very High
5. DK or NR

**Question OthState**

Just a couple of more questions about interstate and state highway maintenance.

Have you driven on roadways in states other than Montana in the last 12 months?

1. Yes
2. No
3. DK or NR

**Question GenComp**

How would you compare general roadway conditions of Montana's state maintained roadways with the general roadway conditions of state maintained roadways in other states? IF THEY SAY THEY HAVE BEEN IN MORE THAN ONE STATE, ASK FOR A GENERAL COMPARISON. IF THEY CANNOT DO THAT, HAVE THEM COMPARE WITH THE STATE THEY DROVE IN MOST RECENTLY.

1. Montana roadways worse
2. About the same
3. Montana better
4. DK or NR

**Question WintComp**

How would you compare winter maintenance of Montana's state maintained roadways with winter maintenance of state maintained highways in other states?

1. Montana winter maintenance worse
2. About the same
3. Montana better
4. DK or NR

**Question RestComp**

How would you compare rest area cleanliness and maintenance in Montana with rest area cleanliness and maintenance in other states?

1. Montana rest areas worse
2. About the same
3. Montana better
4. DK or NR

**Question Better**

The Department of Transportation is striving to improve maintenance operations. In your opinion what could the department do better?

TYPE IN ANSWER AND THEN CLICK THE NEXT BUTTON. YOU HAVE 3 LINES.

**Question GoodNow**

What is the department doing that meets or exceeds your expectations?

TYPE IN RESPONSE AND THEN CLICK THE NEXT BUTTON. YOU HAVE 3 LINES.

**Question Trips**

As you probably know different types of people have different types of opinions. The following questions are for statistical purposes only.

Which of the following types of trips would you say is most typical of your driving?

1. Commuting to and from work
2. Work related trips, that is trips that are made as a part of work activities.
3. Personal and family errands or trips
4. Agriculture related trips
5. Professional driving
6. Other
7. DK or NR

**Question HowFar**

Would you say you drive more or less than 15,000 miles per year?

1. More
2. Less
3. DK or NR

**Question Age**

How old are you?

TYPE IN THEIR AGE AND PRESS ENTER USE 100 FOR 100 OR OLDER AND 101 FOR DK OR NR.

**Question Educ**

What is the highest level of education you have completed?

TYPE IN ANSWER AND PRESS ENTER. 12 IS HIGH SCHOOL GRADUATE, 16 IS COLLEGE GRADUATE, 18 IS MASTERS DEGREE AND 20 IS DOCTORATE. USE 21 FOR DK OR NR

**Question InMT**

How long have you lived in Montana?

TYPE IN THEIR ANSWER AND PRESS ENTER USE 100 FOR 100 OR MORE  
AND 101 FOR DK OR NR.

**Question Sex**

RESPONDENTS SEX (DO NOT ASK)

1. MALE
2. FEMALE

**Question Followup**

The Montana Department of Transportation may make changes in the way it allocates resources based on the results of this study. Would you be willing to participate in a follow up study so that we can see if your opinions of highway maintenance change in the next two years?

1. Yes
2. No
3. DK or NR

**Question Address**

In order to include you in the follow up study, I will need your name, address and telephone number.

ENTER NAME ON ONE LINE; STREET ADDRESS ON THE NEXT LINE; CITY, STATE, AND ZIP CODE ON THE THIRD LINE; AND TELEPHONE NUMBER ON THE FOURTH LINE. PLEASE USE APPROPRIATE CAPITALIZATION AND SPELLING. YOU HAVE AN EXTRA LINE FOR ANY STRANGE THINGS IN THE ADDRESS.

**Question Bye**

That was the last question. Thank you very much for taking the time to answer these questions. Good bye and have a nice day (or evening).



## **Montana Department of Transportation**

Montana Department of Transportation web site: [www.mdt.mt.gov](http://www.mdt.mt.gov)

This survey and all preceding surveys are available at:

<http://www.mdt.mt.gov/publications/brochures.shtml#survey>

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