

# TranPlanMT 2019

## Public Involvement Survey



**VISION ZERO**

zero deaths • zero serious injuries

MONTANA DEPARTMENT  
OF TRANSPORTATION

VOLUME 1  
Survey Analysis  
November 2019

State of Montana  
Department of Transportation

Bureau of Business and Economic Research  
University of Montana—Missoula



## EXECUTIVE SUMMARY

The purpose of the 2019 TranPlanMT Public Involvement Survey is to examine Montanans' perceptions and opinions regarding:

1. The current condition of the state transportation system;
2. Possible actions that could improve the state transportation system; and
3. The quality of service Montana Department of Transportation (MDT) provides to its customers.

The survey was conducted by the Bureau of Business and Economic Research (BBER) at the University of Montana—Missoula, and resulted in 1,401 responses to household questionnaires sent out between June 8 and August 8, 2019.

### 2019 SNAPSHOT

In 2019, Montanans were:

- Moderately satisfied with the state's overall transportation systems;
- The most satisfied with the physical condition of Montana's airports; and
- The least satisfied with the state's local transit bus services.

In term of service availability:

- The most satisfied with availability of air transportation to destinations outside Montana; and
- The least satisfied with the availability of passenger rail service.

Regarding transportation system problems:

- Road pavement conditions are considered a problem by the most respondents, followed by traffic congestion; and
- Adequate road signage and freight and economic vitality are considered problems by the fewest respondents.

Montanans prioritize the following the highest for their potential to improve the state's transportation system:

- Road pavement conditions;
- Wildlife crossings and barriers; and
- Interstate and major highways.

Close to three-fourths of Montanans feel they receive about \$200-\$260 or more per year in value from the state transportation system. If the MDT budget were to decrease, survey respondents prioritize the following for budget cuts:

- Bicycle pathways;
- Pedestrian walkways;
- Local transit buses; and
- Rest areas.

Among the communications tools used by MDT, the following were deemed the most useful:

- Variable message highway signs;
- Websites, social media, mobile apps; and
- Radio and television.

Additionally:

- Two-thirds of respondents think a primary seat belt law in Montana would save lives; and
- Eighty-seven percent of respondents think that speed limits in work zones are either too high or just right.
- Overall customer service and performance grade was the same as in 2017, in the B to C range.

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2019 TranPlanMT  
Public Involvement Survey  
Volume 1



## SECTION 1: INTRODUCTION

### METHODS SUMMARY

The 2019 TranPlanMT Public Involvement Survey is a household survey that has been conducted biennially since 1997. Its purpose is to examine Montanans' perceptions and opinions regarding:

1. The current condition of the state transportation system;
2. Possible actions that could improve the state transportation system; and
3. The quality of service Montana Department of Transportation (MDT) provides to its customers.

The survey is designed to help MDT policy-makers and planners examine the efficiency, capacity and flexibility of Montana's transportation system to meet current needs and future demands.

The mail-administered survey is one of several MDT public involvement processes. Based on a representative sample of Montana residents, MDT staff can assess public opinion and, thanks to availability over time, monitor trends.

This report constitutes Volume 1 of the 2019 TranPlanMT Public Involvement Survey report. It contains the complete survey analysis to all questions on the survey questionnaire. Volume 2 contains tabulated responses to all survey questions, broken out by respondent characteristics.

### Survey Improvements

The 2019 Public Involvement Survey was administered by mail, as was the 2017 survey. All previous iterations were administered by telephone. The change in survey administration mode has resulted in significantly improved response rates (2015 – 27%; 2017 – 40%; 2019 – 40%) and sampling from mailing address lists rather than telephone number lists, which have eroded in quality over recent years. Additional improvements include a change in the scale of satisfaction ratings for the first nine questions, from a scale of 1 through 10 on older surveys to a scale of 0 through 10 on the two most recent surveys. This change results in a balanced rating scale. Combined, these changes resulted in improved precision of the survey estimates.

A drawback to the changes, however, is that the estimates produced based on the 2017 and 2019 surveys are not directly comparable to those conducted in prior years. First, a mailed survey is self-administered, whereas a telephone survey is administered by an interviewer, causing respondents to process questions differently depending on the mode of delivery. The primary difference between responses to questions from a self-administered and an interviewer-administered format is that the latter results in more positive responses than the former<sup>1</sup>. Thus, the change from interviewer-administered to self-administered survey mode resulted in a decline in the average scores across all items with a positive/negative response scale. Readers are cautioned to keep this in mind when assessing survey trends.

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<sup>1</sup> Dillman, Smyth, & Christian (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys*. Hoboken, NJ: John Wiley & Sons, Inc.

Second, the above-mentioned change from 1-10 to 0-10 response scales also resulted in lower average scores, as it enabled survey participants to respond with a “0” to any item. MDT requested that BBER adjust the 2015 survey responses that used the 1-10 response scale to a 0-10 scale to make them as comparable as possible to the 2017 and 2019 data. BBER made this adjustment using the linear stretch method.<sup>2</sup> Readers should keep in mind that the adjusted 2015 statistics reported here represent plausible estimates of how 2015 respondents would have answered if they encountered a 0-10 scale, as opposed to the 1-10 scale in the actual 2015 survey.

### The Respondents

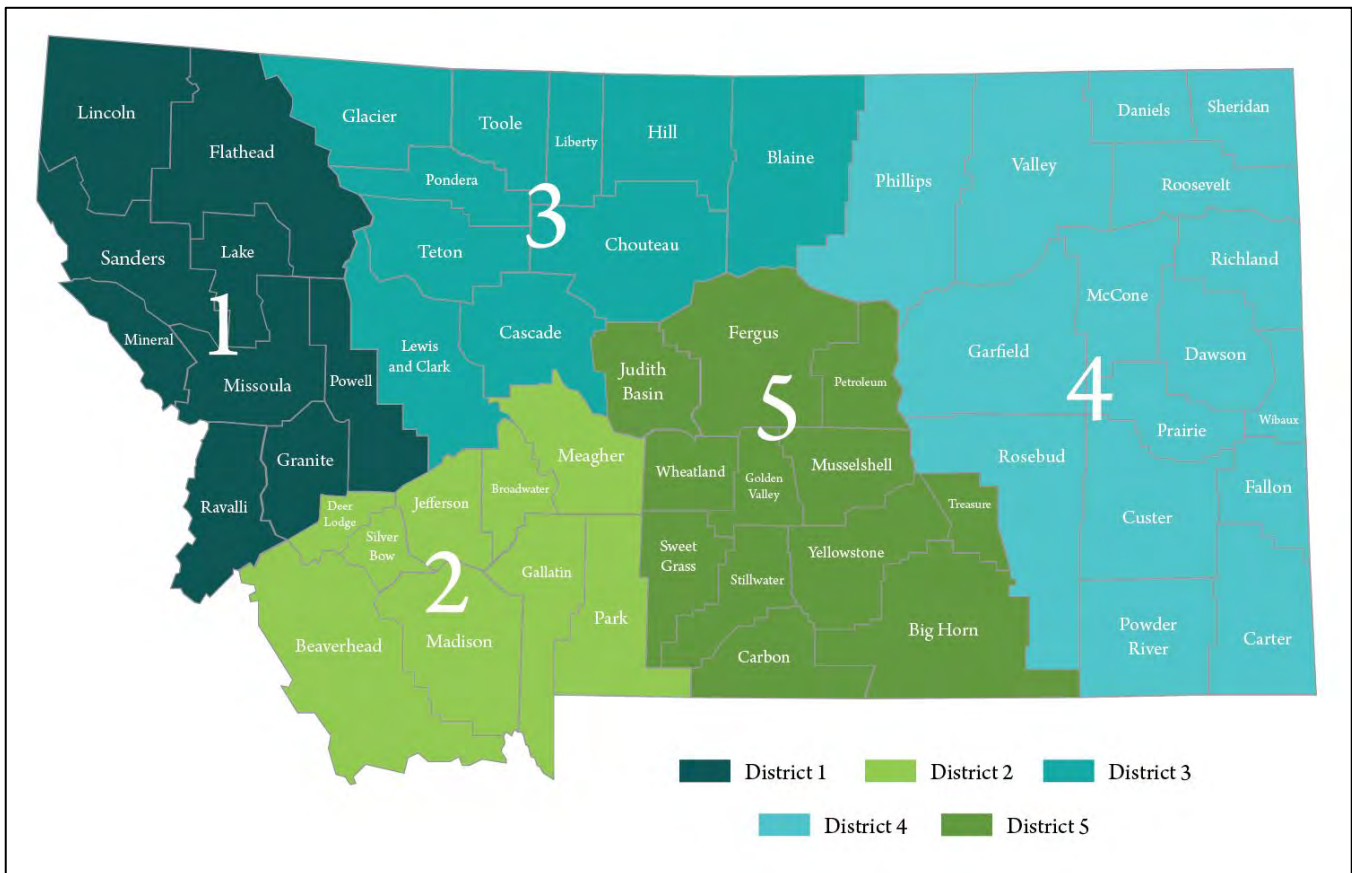
Table 1.1, below, describes the survey respondents.

**Table 1.1: 2019 Survey respondent demographic characteristics**

Characteristic		Unweighted		Weighted	
		Frequency	Percent	Frequency	Percent
<b>Sex</b>	Male	710	51%	700	50%
	Female	691	49%	701	50%
<b>Age</b>	18-34	125	9%	400	29%
	35-49	250	18%	310	22%
	50-64	447	32%	384	27%
	65+	579	41%	307	22%
<b>Region</b>	Missoula	275	20%	452	32%
	Butte	312	22%	275	20%
	Great Falls	259	19%	280	20%
	Glendive	254	18%	107	8%
	Billings	301	22%	287	21%
<b>Race</b>	White	1,327	95%	1,273	91%
	American Indian	62	4%	76	5%
	Other	12	1%	52	4%
<b>Household income</b>	< \$50,000	498	36%	689	49%
	\$50,000 - \$99,999	593	42%	437	31%
	\$100,000+	310	22%	275	20%
<b>Educational attainment</b>	High school or less	265	19%	529	38%
	Some college or 2-year degree	516	37%	482	28%
	Bachelor’s degree or higher	620	44%	390	91%

<sup>2</sup> De Jonge, T., Veenhoven, R., & Arends, L. (2014). Homogenizing Responses to Different Survey Questions on the Same Topic: Proposal of a Scale Homogenization Method Using a Reference Distribution. *Social Indicators Research*, 275-300.

**Figure 1.1: MDT’s transportation regions**



DISTRICT	UNWEIGHTED RESPONSES	WEIGHTED RESPONSES
District 1—Missoula	275	452
District 2—Butte	312	275
District 3—Great Falls	259	280
District 4—Glendive	254	107
District 5—Billings	301	287



**SECTION 2: ATTITUDES ABOUT MONTANA’S TRANSPORTATION SYSTEM**

**“HOW WOULD YOU RATE YOUR SATISFACTION WITH THE OVERALL TRANSPORTATION SYSTEM IN MONTANA?”**

Montana’s transportation system was ranked on a scale from 0 to 10, with 0 representing *very unsatisfied* and 10 representing *very satisfied*. The psychological midpoint of the 0-10 scale is 5. The distance of the mean score above or below 5 is a measure of the strength of satisfaction or dissatisfaction. When asked about satisfaction with the overall transportation system, the mean response was 5.9, indicating moderate satisfaction (Table 2.1).

**Table 2.1: Level of satisfaction with the overall transportation system in Montana**

	Mean	95% confidence interval		N
		Lower limit	Upper limit	
Overall transportation system	5.9	5.7	6.0	1,391

**“HOW WOULD YOU RATE THE PHYSICAL CONDITION OF THE FOLLOWING ITEMS IN MONTANA?”**

Each component of Montana’s transportation system was rated using the same 0-10 scale. Table 2.2 shows the mean for each component with an upper and lower bound. Differences in satisfaction between components are statistically significant when confidence levels do not overlap.

- With a mean score of 7.0, airports ranked the highest in terms of satisfaction.
- Interstate highways and rest areas with mean scores of 6.7 and 6.6, respectively, also ranked high in terms of satisfaction.
- Montanans reported the least satisfaction with bicycle paths and local transit buses (5.7 and 5.5, respectively).

All items have mean satisfaction scores above 5, indicating the majority of Montanans are satisfied with the physical condition of transportation system components.

**Table 2.2: Satisfaction with physical condition of transportation system components**

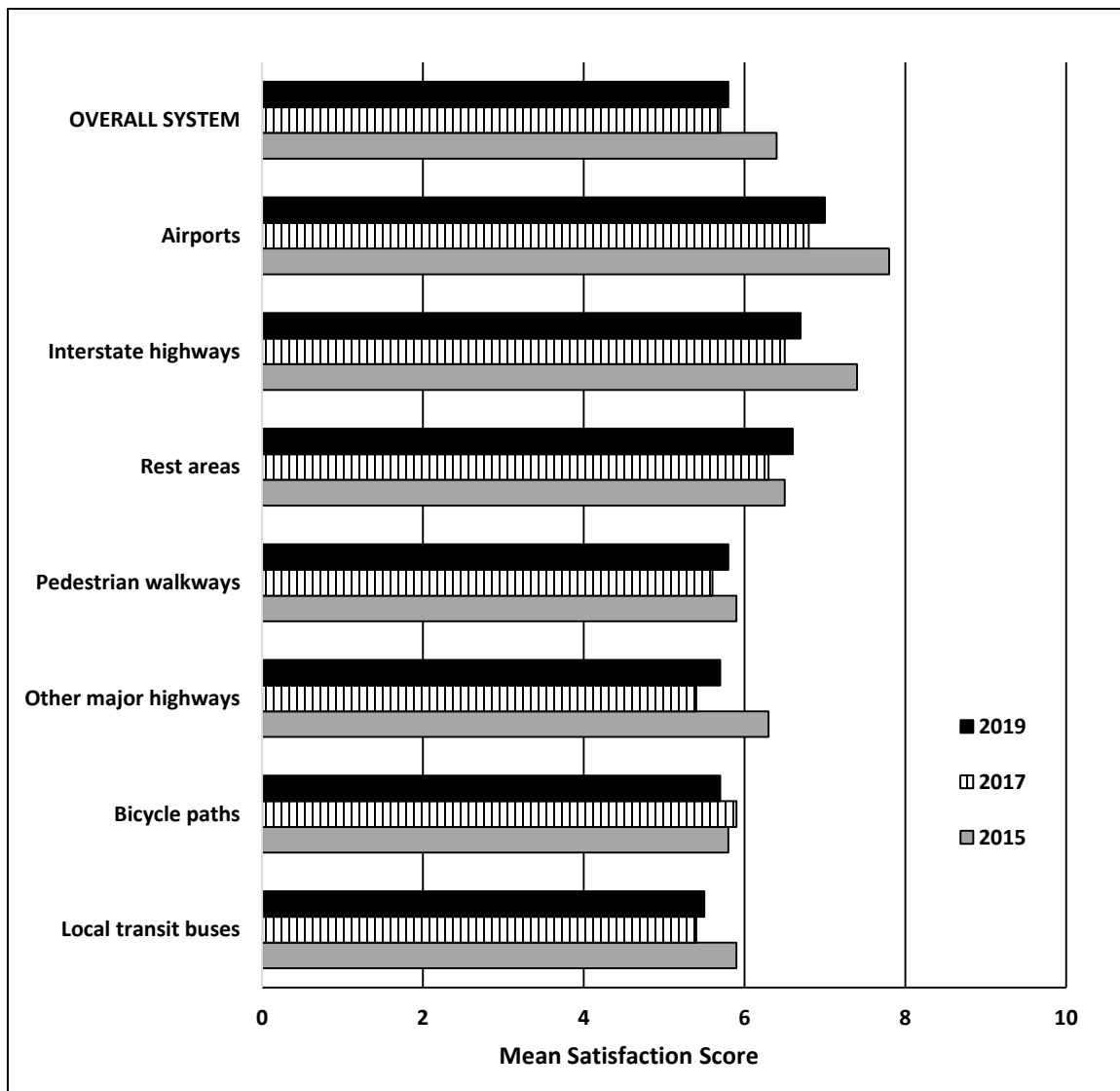
	Mean	95% CONFIDENCE INTERVAL		N
		Lower limit	Upper limit	
Airports	7.0	6.8	7.2	1,376
Interstate highways	6.7	6.5	6.9	1,370
Rest areas	6.6	6.4	6.8	1,392
Pedestrian walkways	5.8	5.6	6.0	1,372
Other major highways	5.7	5.6	5.9	1,382
Bicycle paths	5.7	5.5	6.0	1,361
Local transit buses	5.5	5.3	5.7	1,019

Trends

In each of the iterations of this survey, respondents were asked identical questions regarding their satisfaction with the physical condition of various transportation system components. In discussed in the “Survey Improvements” section on pages 1 and 2, the rating scale changed in from a scale of 1 to 10 to a scale of 0 to 10 in 2017. In order to enable comparisons of the 2017 and 2019 results to the 2015 results, 2015 survey responses underwent a “linear stretch” to account for the change in scale.

As shown in Figure 2.1 there was some reduction in satisfaction scores between the adjusted 2015 and the 2017 responses; however, little change can be observed between 2017 and 2019. In all three survey years, the satisfaction with the physical condition of airports was rated the highest, and satisfaction with the physical condition of local transit buses was rated the lowest.

**Figure 2.1: Trends in satisfaction with physical condition of transportation system components**

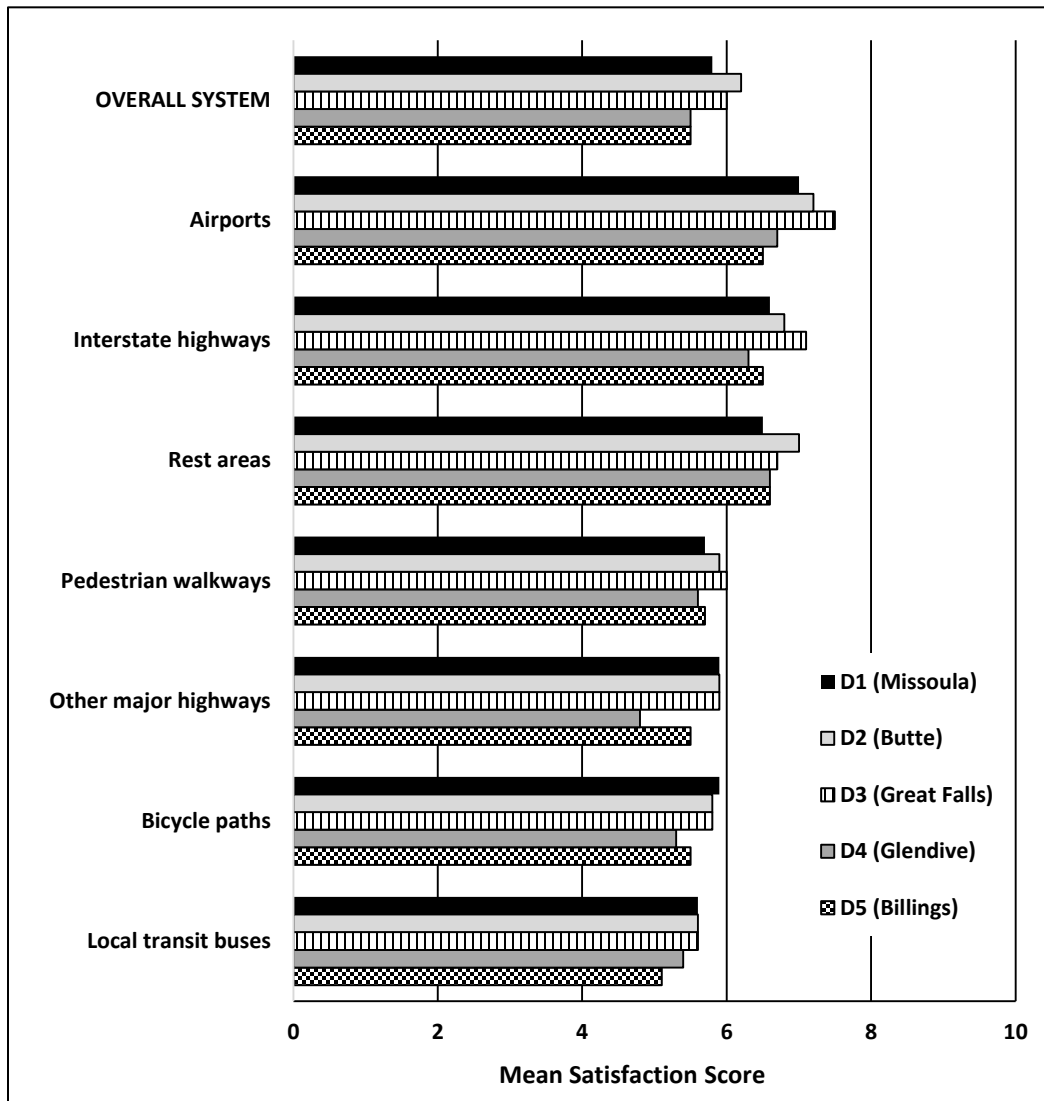


Districts

The means presented in Table 2.2 and Figure 2.1 are compared across MDT transportation districts in Figure 2.2. Generally, there is relative consensus in ranking between the districts.

- District 1 (Missoula) was more satisfied than any of the other districts with the condition of bicycle pathways.
- District 2 (Butte) was more satisfied with the condition of rest areas.
- District 3 (Great Falls) was more satisfied with the condition of airports and interstate highways.
- District 4 (Glendive) was less satisfied with the condition of the majority of transportation system components.
- District 5 (Billings) was less satisfied with the condition of airports and local transit buses.

**Figure 2.2: District comparison of satisfaction with physical condition of transportation system components**





**“HOW WOULD YOU RATE YOUR SATISFACTION WITH THE AVAILABILITY OF SERVICE FOR THE FOLLOWING ITEMS?”**

Respondents were asked to use the same 0-10 scale to rank their satisfaction with the availability of several transportation system service components. As mentioned above, 0 represents “very unsatisfied” and 10 represents “very satisfied” (Table 2.3).

- Satisfaction with the availability of air transportation to destinations outside of Montana ranked the highest, with a mean of 5.7.
- Satisfaction with the availability of freight rail services and local bus or van services also ranked relatively high, both at 5.2.
- Satisfaction with the availability of transit for the elderly or disabled (4.9), inter-city bus services (4.4), and passenger rail service (4.1) all ranked below 5, indicating varying levels of dissatisfaction.

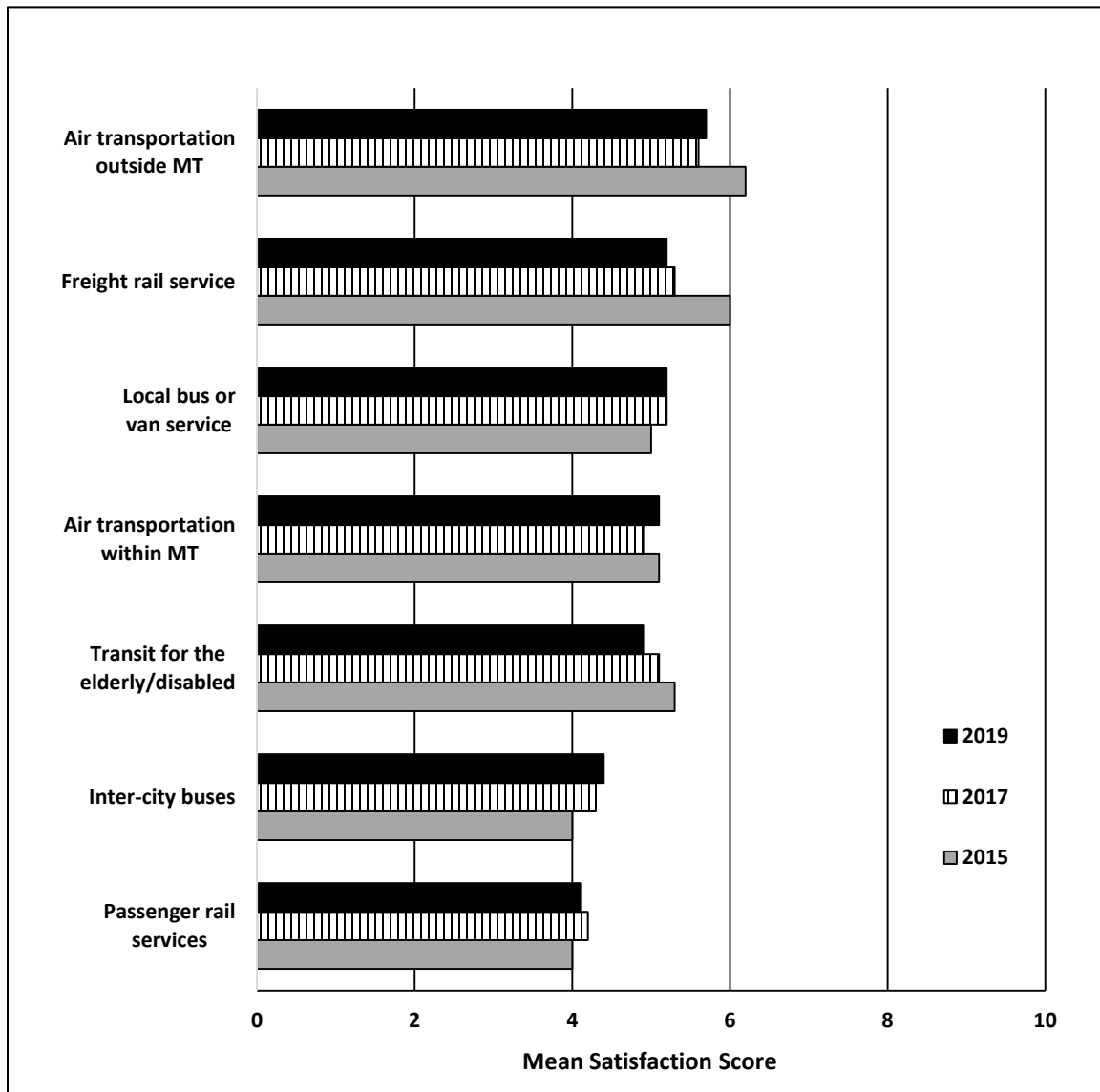
**Table 2.3: Satisfaction with availability of services**

	Mean	95% confidence interval		N
		Lower limit	Upper limit	
Air transportation outside Montana	5.7	5.5	6.0	1,221
Freight rail service	5.2	4.9	5.5	794
Local bus or van service	5.2	5.0	5.5	944
Air transportation within Montana	5.1	4.9	5.4	1,058
Transit for the elderly or disabled	4.9	4.7	5.2	899
Inter-city buses	4.4	4.1	4.7	894
Passenger rail service	4.1	3.8	4.4	921

Trends

When satisfaction levels with the availability of services are compared over time, there was great consistency between the three survey years compared here. Inter-city buses and passenger rail services continue to score the lowest, while satisfaction with the availability of air service to destinations outside Montana continues to score the highest, closely followed by availability of freight rail services (Figure 2.3).

Figure 2.3: Trends in Satisfaction with availability of services

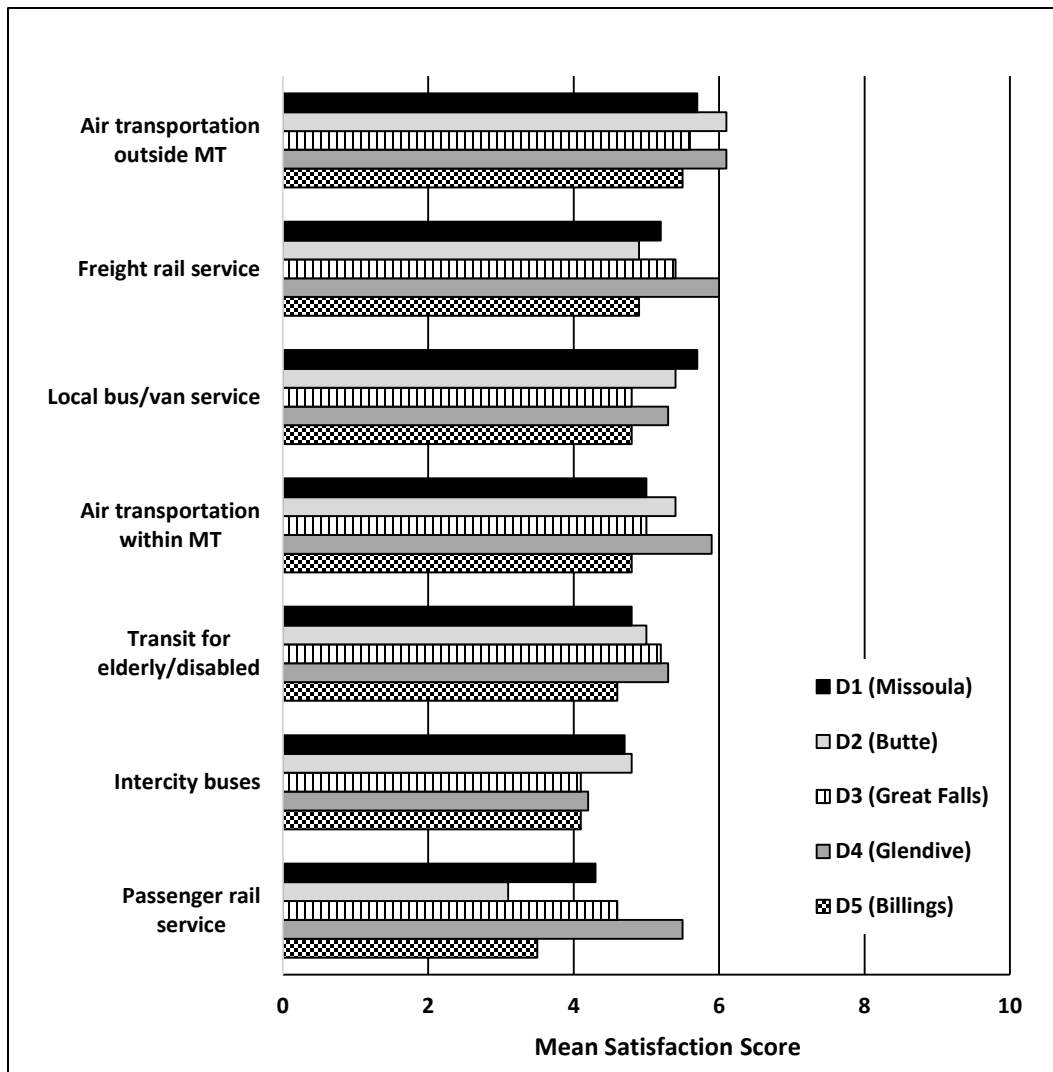


Districts

Figure 2.4 shows the mean levels of satisfaction with the availability of the same seven transportation services.

- District 1 (Missoula) was more satisfied with the availability of local bus and van services than any of the other districts.
- District 2 (Butte) was more satisfied with the availability of inter-city buses.
- District 3 (Great Falls) was tied with District 5 as the least satisfied with local bus and van service.
- District 4 (Glendive) was more satisfied with the availability of freight rail services, air transportation to destinations within Montana, transit for the elderly or disabled, and passenger rail service.
- District 5 (Billings) was less satisfied with the availability of practically all services.

**Figure 2.4: District comparison of satisfaction with availability of services**



**“HOW MUCH OF A PROBLEM IN MONTANA, IF AT ALL, ARE THE FOLLOWING?”**

Montanans rated possible problems with aspects of the state transportation system on a scale from 1 to 4, where 1 represented *not a problem* and 4 represented a *serious problem* (Table 2.4).

- Overall, none of the problems listed were rated as being more than a moderate problem.
- Road pavement conditions were rated as a serious problem by 23 percent of respondents, and remain the highest ranked problem within the transportation system.
- Sixty percent rated adequate road signage as *not a problem*.
- Over one-third of respondents did not know if freight and economic vitality, or the ability to manage specific emergency situations constituted a problem.

**Table 2.4: Montana transportation system problems**

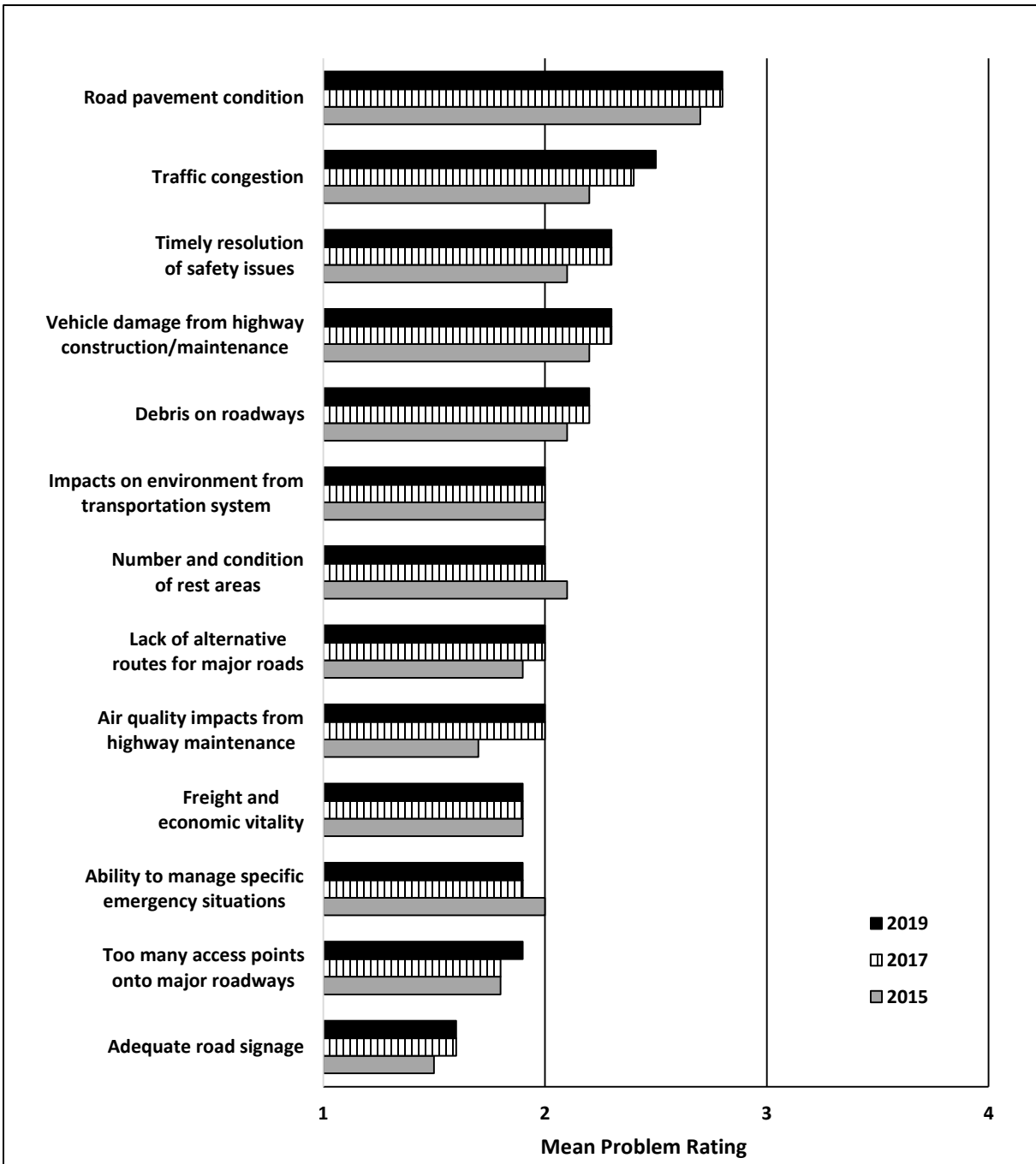
	Serious problem	Moderate problem	Small problem	Not a problem	Don't know	Mean	N
Road pavement condition	23%	39%	26%	9%	2%	2.8	1,353
Traffic congestion	14%	34%	35%	16%	2%	2.5	1,361
Vehicle damage from highway construction and maintenance	12%	27%	33%	21%	7%	2.3	1,277
Timely resolution of safety issues	9%	23%	28%	18%	22%	2.3	1,057
Debris on roadways	8%	22%	46%	21%	3%	2.2	1,339
Air quality impacts from highway maintenance	4%	21%	39%	30%	6%	2.0	1,289
Lack of alternative routes for major roads	7%	22%	34%	31%	7%	2.0	1,280
Number and condition of rest areas	7%	19%	31%	24%	10%	2.0	1,249
Impacts on the environment from transportation system	8%	17%	26%	30%	19%	2.0	1,125
Too many access points onto major roadways	5%	17%	33%	36%	9%	1.9	1,250
Ability to manage specific emergency situations	4%	13%	25%	27%	31%	1.9	955
Freight and economic vitality	4%	13%	22%	25%	37%	1.9	877
Adequate road signage	3%	11%	24%	60%	2%	1.6	1,353

Note: Totals may not add to 100% due to rounding.

Trends

When ranking the degree to which transportation system components constitute a problem, there is again great consistency between 2017 results and 2019 results. The only changes from 2017 to 2019 are the higher ranking of traffic congestion and of the number of access points onto major roadways (Figure 2.5).

Figure 2.5: Trends in ranking of transportation system problems

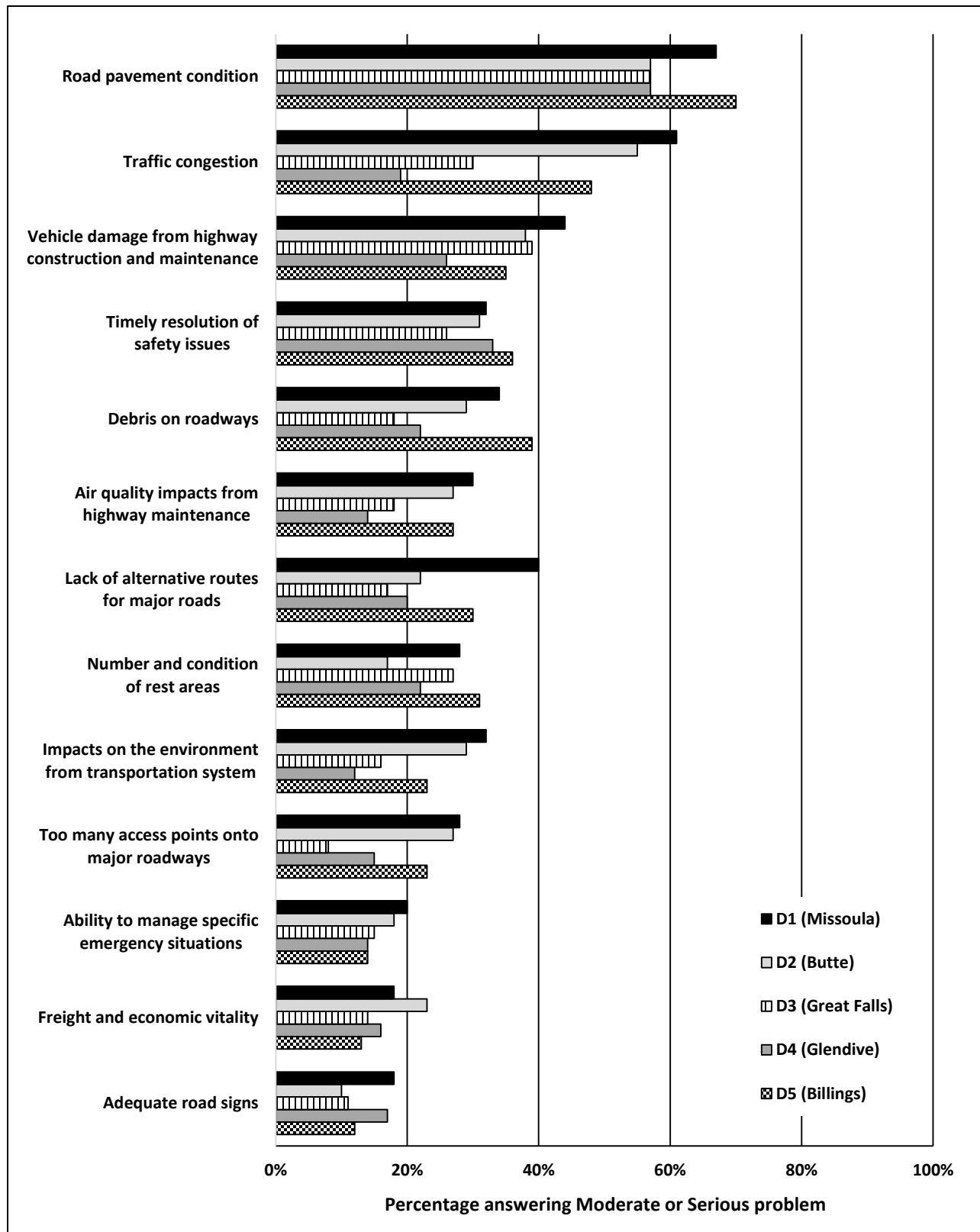


### Districts

When compared across Montana transportation districts, there is great variation in the problem ranking of various system components (Figure 2.6).

- In District 1 (Missoula), the greatest problems were thought to be more road pavement conditions (rated as a *moderate problem* or *serious problem* by 67% of respondents), followed by traffic congestion (61%) and vehicle damage (44%).
- In District 2 (Butte), the greatest problem was also thought to be road pavement conditions (57%), followed by traffic congestion (55%) and vehicle damage (38%).
- In District 3 (Great Falls), the greatest problem was thought to be road pavement conditions as well (57%), followed by vehicle damage (39%) and traffic congestion (30%).
- In District 4 (Glendive), the greatest problem as also Road pavement condition (57%), followed by timely resolution of safety issues (33%) and vehicle damage (26%).
- In District 5 (Billings) as well, the greatest problem was road pavement conditions (70%), followed by traffic congestion (48%) and debris on roadways (39%).

Figure 2.6: District comparison of ranking of transportation system problems



**“WHAT PRIORITY SHOULD MDT ASSIGN THE FOLLOWING ACTIONS?”**

Respondents were asked to use a scale from 1 to 5 to prioritize 15 possible actions that could be undertaken to improve Montana’s transportation system. A value of 1 represented *very low priority*, while a value of 5 represented *very high priority*. As indicated in Table 2.4, previously, most transportation system issues are considered small problems; however, Montanans assign a medium priority or a somewhat high priority to addressing these problems (Table 2.5).

**Table 2.5: Prioritization of actions for improving the Montana transportation system**

	Very high priority	Somewhat high priority	Medium priority	Somewhat low priority	Very low priority	Mean	N
Road pavement condition	30%	39%	27%	4%	1%	3.9	1,369
Wildlife crossing and barriers	25%	28%	25%	13%	8%	3.5	1,374
Interstate and major highways	16%	33%	34%	14%	3%	3.5	1,366
Roadside vegetation	20%	27%	30%	18%	5%	3.4	1,379
Transportation safety	21%	26%	30%	18%	6%	3.4	1,367
Keeping the public informed	22%	27%	27%	17%	6%	3.4	1,366
Promotion of local transit systems	14%	21%	35%	19%	11%	3.1	1,369
Traffic congestion	13%	23%	32%	22%	10%	3.1	1,364
Adequate pedestrian facilities	14%	24%	30%	21%	12%	3.1	1,363
Existing passenger rail service	17%	19%	29%	20%	15%	3.0	1,382
Scheduled airline services	14%	22%	30%	20%	14%	3.0	1,375
Semi-truck parking and facilities	12%	18%	36%	23%	11%	3.0	1,375
Improve rest areas	9%	20%	33%	27%	12%	2.9	1,367
Regulate highway approaches	5%	12%	33%	32%	17%	2.6	1,368
Adequate bicycle facilities	11%	16%	23%	27%	24%	2.6	1,363

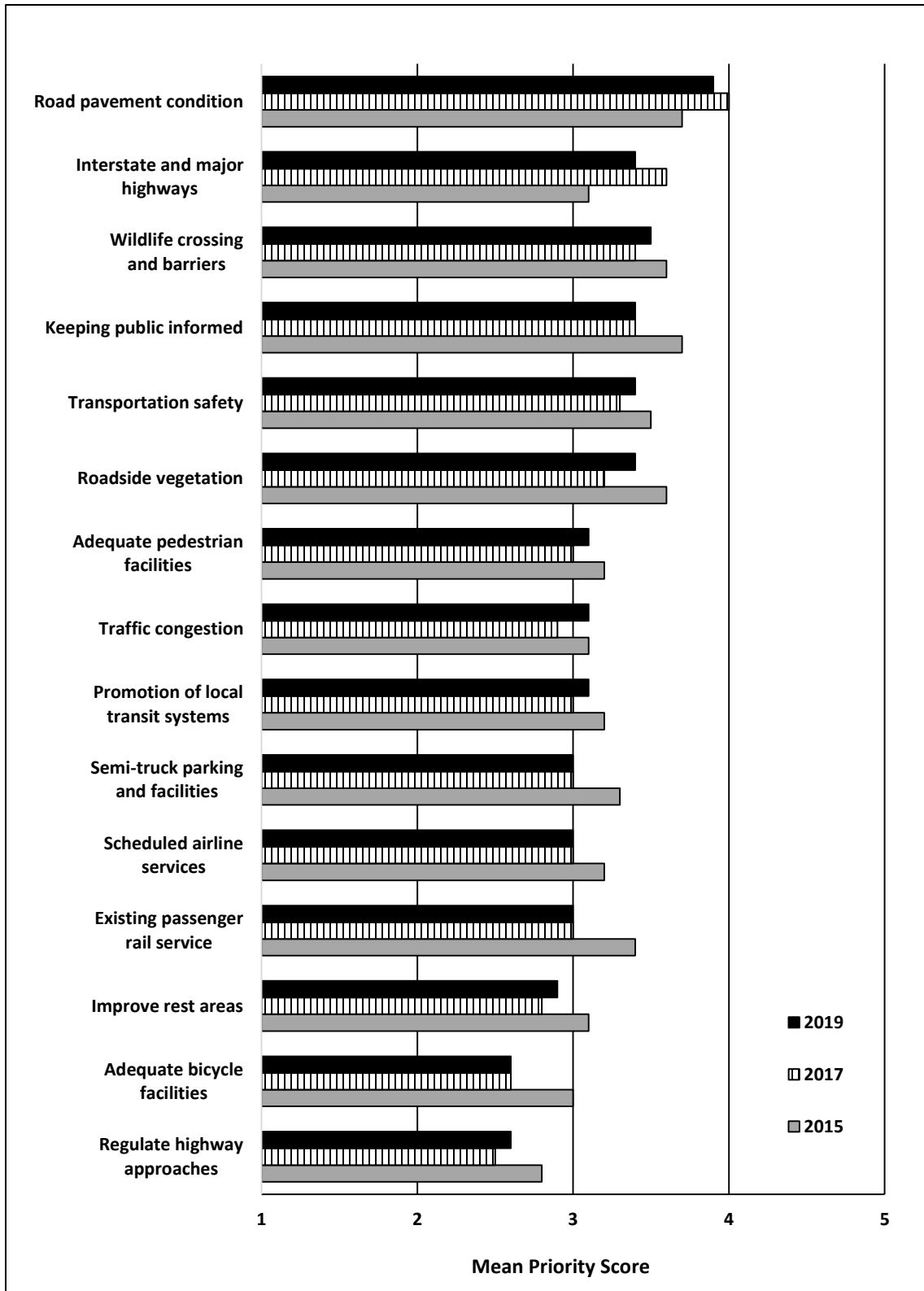
Note: Totals may not add to 100% due to rounding.



### Trends

Results for the 2019 survey were again consistent with those resulting from the 2017 survey. As was the case in previous years, road pavement conditions received the highest priority ranking of all the items listed, followed by interstate and major highways. Adequate bicycle facilities and the regulation of highway approaches saw the lowest priority ranking. A number of other items received slightly higher priority rankings in 2019, compared to 2017. These include wildlife crossings and barriers; transportation safety; roadside vegetation; adequate pedestrian facilities; traffic congestion; and improved rest areas. None of these changes were statistically significant (Figure 2.7).

Figure 2.7: Trends in priority of actions for improving transportation system

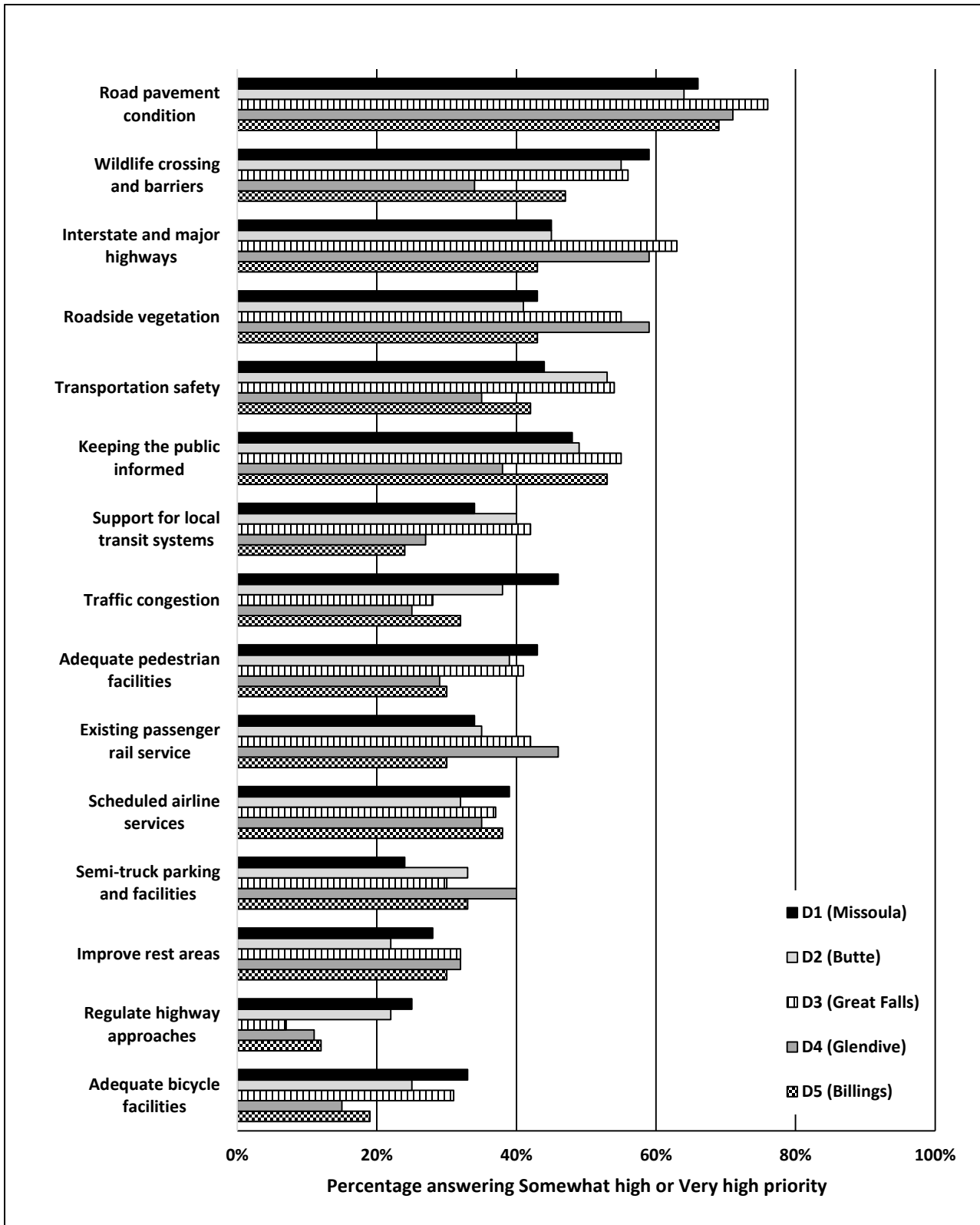


## Districts

When compared across Montana transportation districts, there is consensus on some items, whereas other items see greater divergence. For example, road pavement condition received a relatively uniform priority score across districts, compared to traffic congestion and keeping the public informed, where the variation between districts was far greater (Figure 2.8).

- Within District 1 (Missoula), the highest priority was given to maintaining road pavement conditions (66% ranked this item as *somewhat high priority* or *very high priority*), followed by wildlife crossings and barriers (59%), and keeping the public informed (48%).
- In District 2 (Butte), the highest priority was also given to maintaining road pavement conditions (64%), followed by wildlife crossings and barriers (55%) and transportation safety (53%).
- Respondents in District 3 (Great Falls) gave the highest priority to maintaining road pavement conditions (76%) as well, followed by maintaining interstates and major highways (63%), and wildlife crossings and barriers (56%).
- Within District 4 (Glendive), the highest priority was also given to maintaining road pavement conditions (71%), followed by maintaining interstates and major highways, and maintaining roadside vegetation (59% each).
- Respondents in District 5 (Billings) also gave the highest priority to maintaining road pavement conditions (69%), followed by keeping the public informed (53%) and wildlife crossings and barriers (47%).

Figure 2.8: District comparison of priority of actions for improving transportation system



### SECTION 3. MDT SYSTEM FUNDING PRIORITIES

#### “WHAT VALUE DO YOU PERCEIVE GETTING FROM MONTANA’S TRANSPORTATION SYSTEM?”

The average Montanan pays between \$200 and \$260 per year in state and federal fuel taxes to support transportation infrastructure in the state. Survey respondents were asked if they felt they received greater or lesser value per year from the Montana transportation system (Table 3.1).

- Overall, close to three-fourths of respondents indicated they receive about \$200-\$260 or more in value per year.
- In District 3 (Great Falls), 84 percent of respondents indicated they get about \$200-\$260 or more in value from the transportation system.
- More respondents in District 4 (Glendive) than in any of the other districts feel they get less value than \$200-\$260 per year.

**Table 3.1: Perceived value from Montana’s transportation system**

	More value	About \$200-\$260	Less value	N
Total sample	21%	52%	27%	1,343
District 1: Missoula	23%	49%	28%	431
District 2: Butte	19%	56%	25%	261
District 3: Great Falls	24%	60%	16%	263
District 4: Glendive	16%	43%	41%	105
District 5: Billings	17%	51%	32%	283

*Note: Totals may not add to 100% due to rounding.*

**“WHICH OF THE FOLLOWING TRANSPORTATION SYSTEM ITEMS, IF ANY, SHOULD BE FUNDED AT A LOWER LEVEL?”**

Respondents were also asked which aspects of the Montana transportation system, if any, they would like to see funded at a lower level if overall funding for MDT were to decrease (Table 3.2).

- With the exception of bicycle pathways and pedestrian walkways, the majority of respondents think the listed items should be funded at the same level as it is currently.
- The greatest percentage of respondents (64%) think bicycle pathways should be funded at a lower level.
- Some respondents ranked certain items to receive greater funding than current levels, with maintenance receiving the greatest percentage of such rankings.

**Table 3.2: Funding priorities by transportation system component**

	Fund at lower level	Fund at same level	Fund at higher level	N
Bicycle pathways	64%	25%	12%	1,347
Pedestrian walkways	49%	38%	13%	1,346
Local transit buses	40%	49%	11%	1,347
Rest areas	30%	60%	11%	1,345
Interstate highways	9%	66%	25%	1,347
Other major highways	7%	65%	28%	1,341
Maintenance	4%	58%	38%	1,329

*Note: Totals may not add to 100% due to rounding.*

Survey respondents had the option to suggest additional areas where they prefer lower funding in the event that MDT faces overall reduced funding. The suggestions were not necessarily related to the Montana transportation system (Table 3.3).

**Table 3.3: Other areas suggested for reduced funding**

Suggested area for reduced funding	Number of Responses
Non-transportation related items*	23
Bike or pedestrian trails	11
MDT administration, government or management	9
Rest areas	9
Other transportation-related items**	9
Surface maintenance, potholes or chip seal	6
Debris cleanup	4
Chemicals, magnesium chloride or sanding material	4

\* Variety of comments not related to MDT and its efforts.

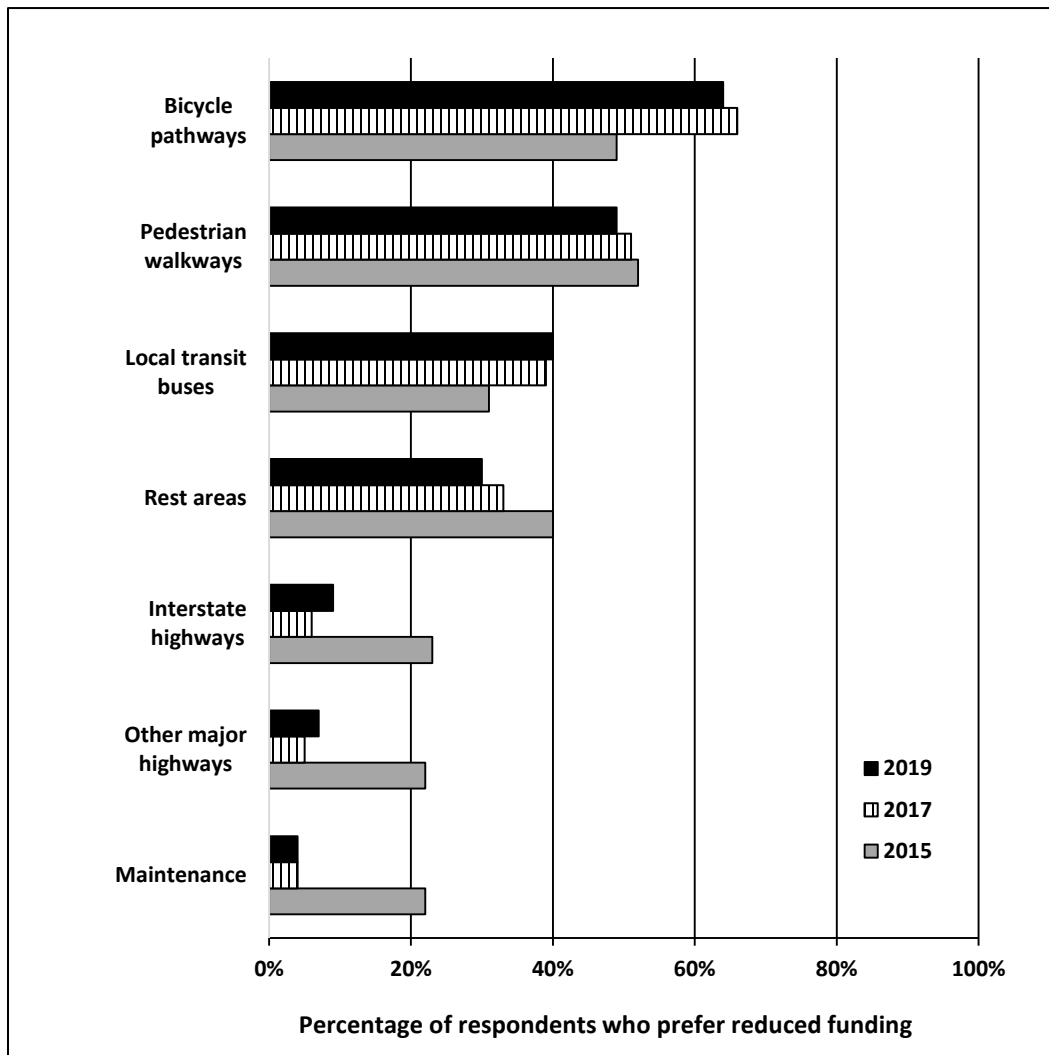
\*\* Variety of transportation-related comments, each mentioned fewer than four times.

Trends

Since 2015, the relative order of preference for the various area in which to decrease funding has changed noticeably. While 2019 survey respondents had opinions that were similar to those in 2017, in most cases these constituted great changes compared to 2015 survey results (Figure 3.1).

- Bicycle pathways were favored by the greatest percentage of respondents during 2017 and 2019, and by the second greatest in 2015; however, the difference since 2015 is significant.
- Preference for reducing funding for pedestrian walkways was the item most consistent over time.
- Both in 2017 and 2019, interstate highways, other major highways, and maintenance were favored for reduced funding by fewer than 10 percent, whereas in 2015, all these were favored for reduced funding by over 20 percent.

**Figure 3.1: Trends in preferred areas of funding decreases**



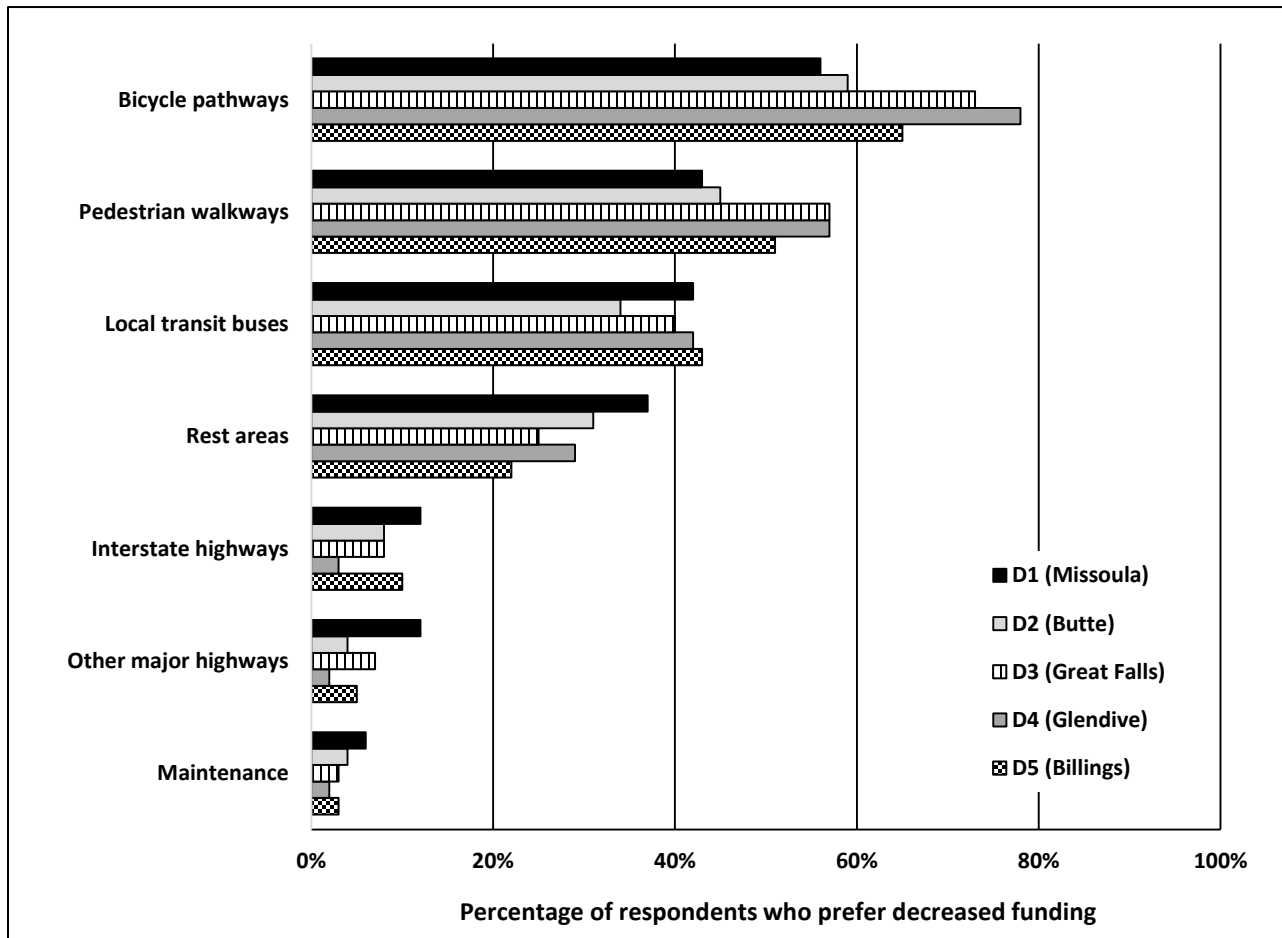


Districts

When comparing transportation districts, the relative order of preference for the various components to decrease funding is largely consistent across districts (Figure 3.2).

- District 1 (Missoula) had the greatest percentage of respondents who favored funding decreases for rest areas, interstate highways, other major highways, and maintenance.
- District 2 (Butte) had the lowest percentage of respondents who favored funding decreases for local transit buses.
- District 3 (Great Falls) tied with District 4 (Glendive) for the greatest percentage of respondents who favored funding decreases for pedestrian walkways.
- District 4 (Glendive) had the greatest percentage of respondents who favored funding decreases for bicycle pathways.
- District 5 (Billings) had the lowest percentage of respondents who wanted funding decreases for rest areas.

**Figure 3.2: District comparison of preferred areas of funding decreases**





## SECTION 4. COMMUNICATION TOOLS

### “HOW USEFUL ARE EACH OF THE FOLLOWING TOOLS TO HELP LEARN ABOUT MDT ACTIVITY IN LOCAL COMMUNITIES?”

Montana residents were asked to rate the usefulness of selected public communications tools used by MDT. Each tool was rated on a scale from 1 to 5, where 1 represented *not at all useful* and 5 represented *extremely useful* (Table 4.1).

- Of the 10 tools listed, respondents ranked variable message highway signs as the most useful, with 50 percent rating them as *very useful* or *extremely useful*. Websites, social media and mobile apps were a close second, with 47 percent.
- Radio and television, maps, and pictures and graphics were also found to be *moderately useful* or better.
- Local public meetings were ranked the least useful with over half of respondents (58%) deeming them only *slightly useful* or *not at all useful*.

**Table 4.1: Usefulness of MDT’s communications tools**

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful	Mean	N
Variable message highway signs	13%	37%	33%	12%	5%	3.4	1,362
Websites, social media, apps for mobile devices	18%	29%	29%	14%	12%	3.3	1,363
Radio and television	9%	32%	32%	18%	9%	3.2	1,365
Maps	10%	27%	34%	21%	9%	3.1	1,362
Pictures and graphics	7%	26%	35%	23%	9%	3.0	1,353
Special mailings	8%	17%	34%	26%	15%	2.8	1,359
Computer simulated displays	9%	21%	31%	23%	16%	2.8	1,358
Toll-free call in number	8%	17%	23%	27%	25%	2.6	1,371
Newspapers	6%	16%	31%	28%	19%	2.6	1,359
Public meetings in local communities	4%	11%	28%	34%	24%	2.4	1,362

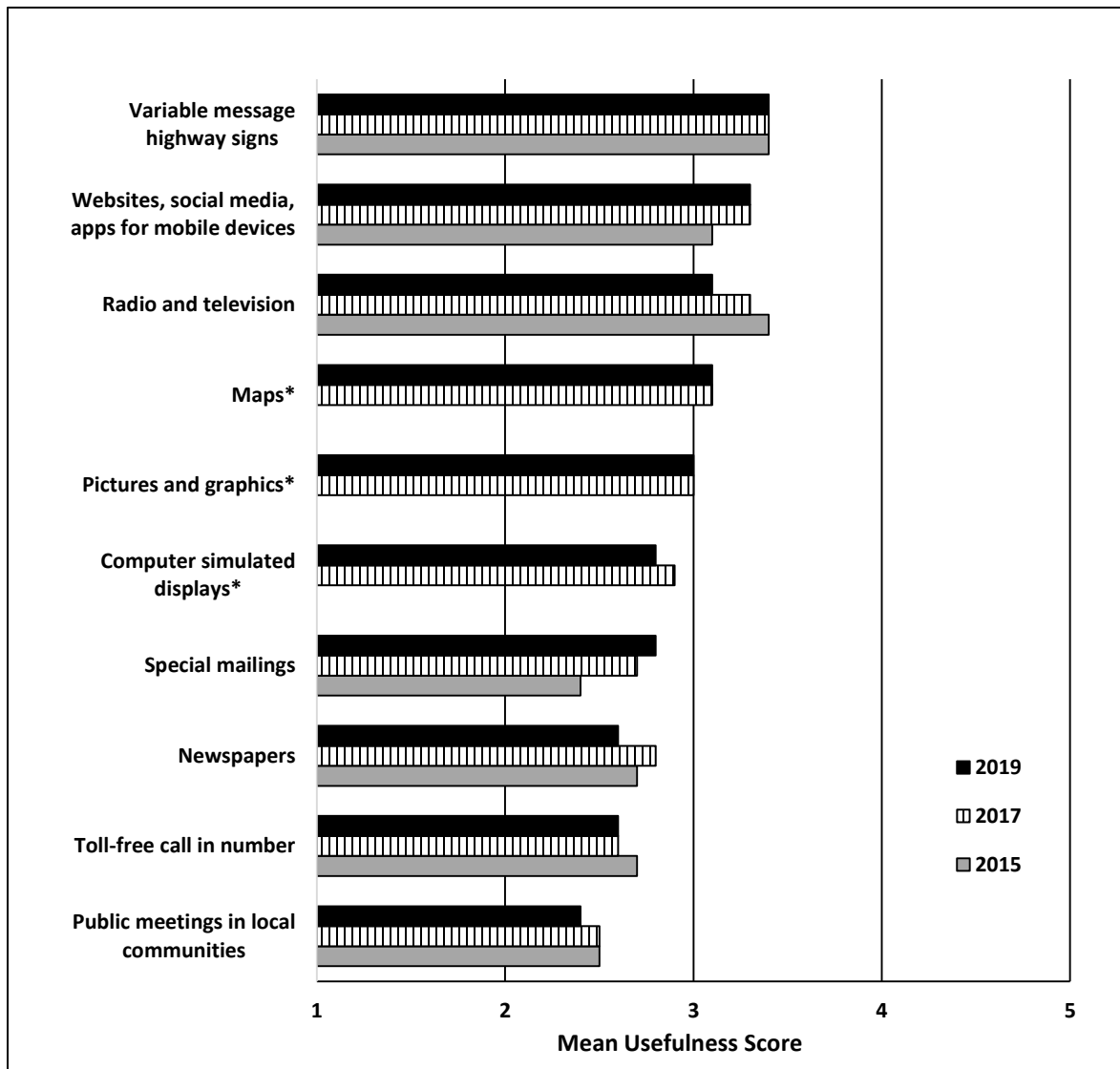
Note: Totals may not add to 100% due to rounding.

Trends

The public involvement survey has asked respondents to rate the usefulness of a variety of public communications tools since 2013. Only the tools that were included on the 2019 survey are reported here; the list includes three items that were not included on the 2015 survey: maps, pictures and graphics, and computer-simulated displays (Figure 4.1)

- Variable message highway signs remain the most useful tool in MDT’s communications arsenal.
- Radio and television, while still considered useful, lost ground between 2015 and 2019.
- Special mailings were considered more useful in 2019 than in 2015.
- Newspapers, toll-free call-in numbers, and public meetings were considered less useful by 2019.

**Figure 4.1: Trends in usefulness of MDT’s communications tools**



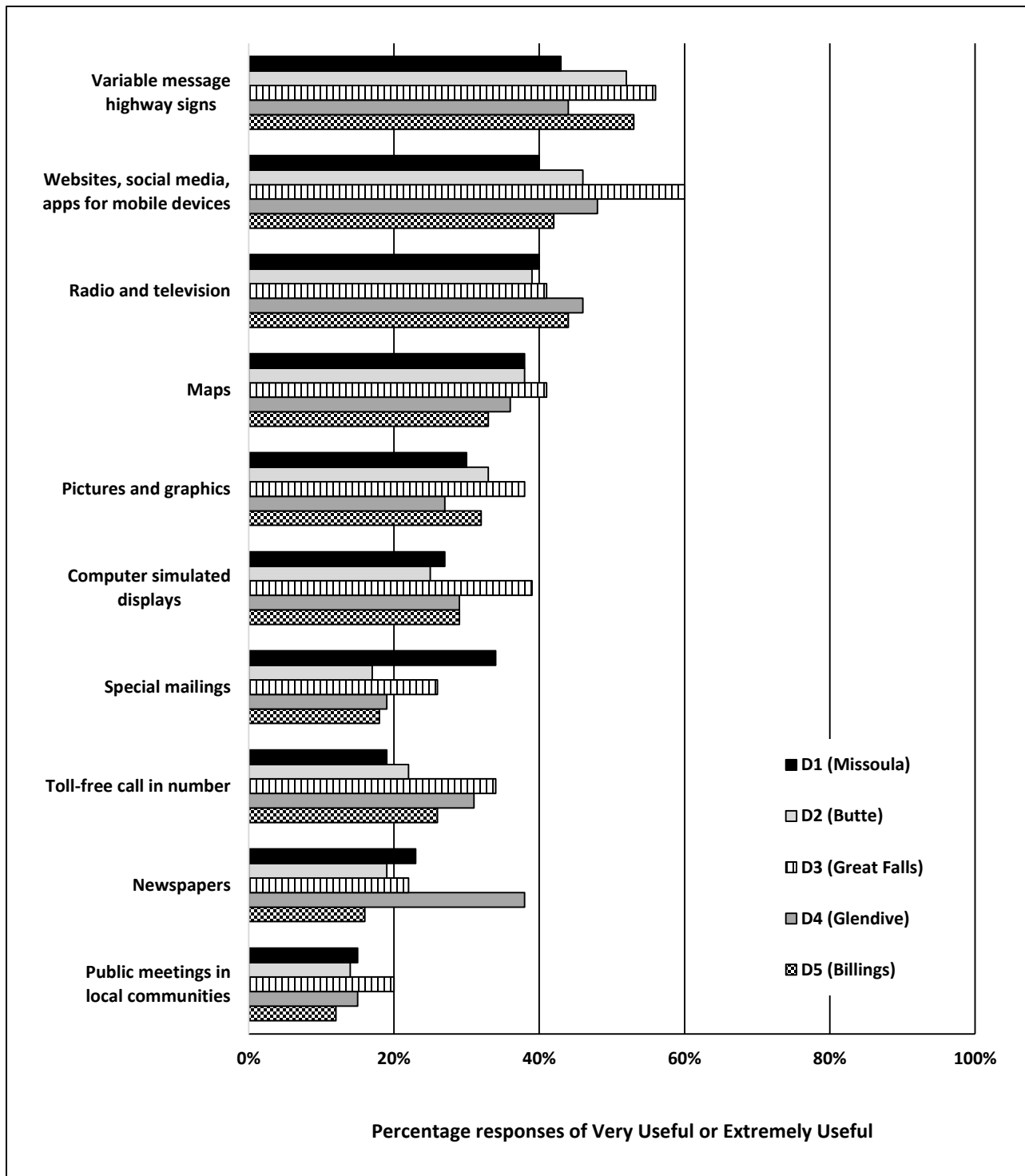
Note: Items marked with an asterisk (\*) were not included in the 2015 survey.

## Districts

When compared across transportation districts, there is significant variation in how useful each communication tool is perceived to be (Figure 4.2).

- District 1 (Missoula) residents found special mailings significantly more useful than any of the other districts.
- District 2 (Butte) residents found special mailings the least useful among the districts.
- District 3 (Great Falls) residents saw the greatest usefulness among the districts in a number of communication tools, including variable message highway signs; websites, social media and mobile apps; maps; pictures and graphics; computer-simulated displays toll-free call-in numbers and public meetings.
- District 4 (Glendive) residents considered newspapers significantly more useful than do any of the other districts. They also find pictures and graphics the least useful of all the districts.
- District 5 (Billings) residents found maps, newspapers and public meetings the least useful among the districts.

Figure 4.2: District comparison of usefulness of MDT's communications tools



**“HAVE YOU FELT INFORMED ABOUT MDT’S BUSINESS IN RECENT YEARS?”**

When asked whether they have felt informed about MDT business more, about the same, or less in recent years, more than two-thirds of respondents (69%) answered that they felt they were informed at about the same level (Table 4.2).

- District 3 (Great Falls) had the greatest percentage of respondents (25%) who indicated they felt more informed in recent years.
- District 4 (Glendive) had the greatest percentage of respondents (25%) who indicated they felt less informed in recent years.

**Table 4.2: Feeling informed about MDT’s business in recent years**

	More informed	About the same	Less informed	N
Total sample	17%	69%	14%	1,369
District 1: Missoula	14%	73%	12%	437
District 2: Butte	18%	66%	16%	270
District 3: Great Falls	25%	67%	8%	272
District 4: Glendive	14%	61%	25%	106
District 5: Billings	13%	70%	17%	284

*Note: Totals may not add to 100% due to rounding.*





## SECTION 5: OVERALL MDT CUSTOMER SERVICE AND PERFORMANCE

The 2019 TranPlanMT Public Involvement Survey includes a number of questions regarding overall MDT performance and responsiveness to public input. Respondents were asked to grade MDT on a scale from F (0) to A (4).

### “WHAT GRADE WOULD YOU GIVE MDT ON THE QUALITY OF SERVICE IT PROVIDES IN EACH OF THE FOLLOWING AREAS?”

Overall, the grades that MDT received for their performance and customer service were approximately the same in 2019 and in 2017 (Table 5.1).

- With the exception of responsiveness to ideas and concerns from the public, all performance and customer service items received the grade of B by the largest percentage of respondents.
- Public notification about local construction projects received the largest percentage of A grades among all the items, at 19 percent.

**Table 5.1: Overall performance and customer service grades**

Component	A	B	C	D	F	Don't know	Mean	N
Quality of service provided by MDT	12%	52%	32%	4%	1%	0%	2.7	1,363
MDT's sensitivity to environment	15%	45%	30%	8%	2%	0%	2.7	1,362
Convenience of travel through work zones	15%	41%	31%	9%	3%	0%	2.6	1,370
Public notification about local construction projects	19%	34%	31%	12%	5%	0%	2.5	1,371
Highway maintenance and repair	11%	45%	29%	11%	4%	0%	2.5	1,361
Responsiveness to ideas and concerns from the public	3%	15%	26%	8%	3%	46%	2.1	743

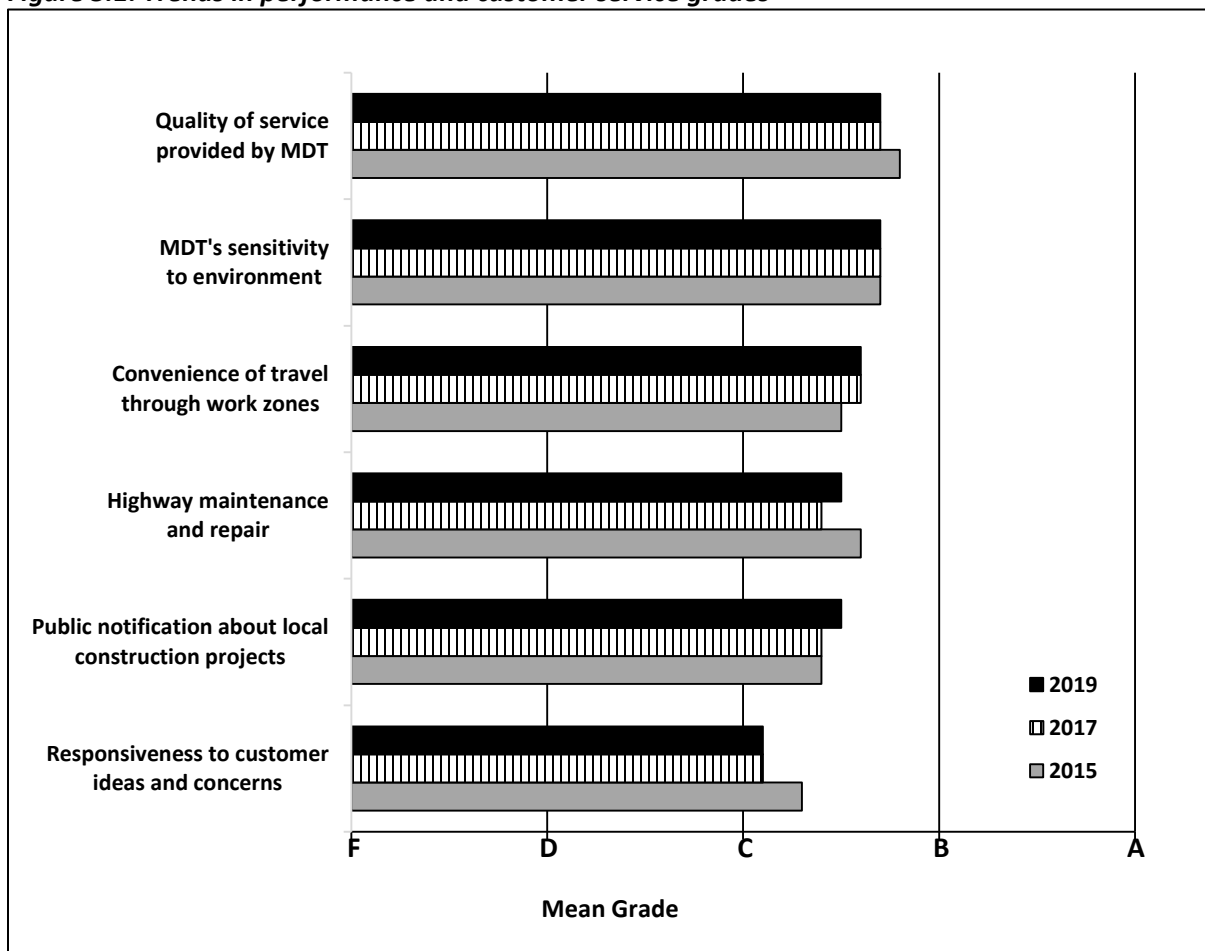
*Note: Totals may not add to 100% due to rounding.*

Trends

When comparing the grades MDT has received for its performance and customer service over time, there have been only a few changes between 2017 and 2019. Mean grades are consistently between the grades of C and B (Figure 5.1).

- The quality of the overall service that MDT provides continues to be most highly rated, an overall grade of C+ in 2017 and 2019.
- MDT’s sensitivity to the environment continues to be highly rated in 2019 as well, also with a mean grade of C+.
- Convenience of travel through work zones, along with highway maintenance and repair, and public notification about local projects each received a C grade.
- Responsiveness to public input continues to receive a low rating, dropping from C in 2015 to C- in 2017 and 2019.

**Figure 5.1: Trends in performance and customer service grades**

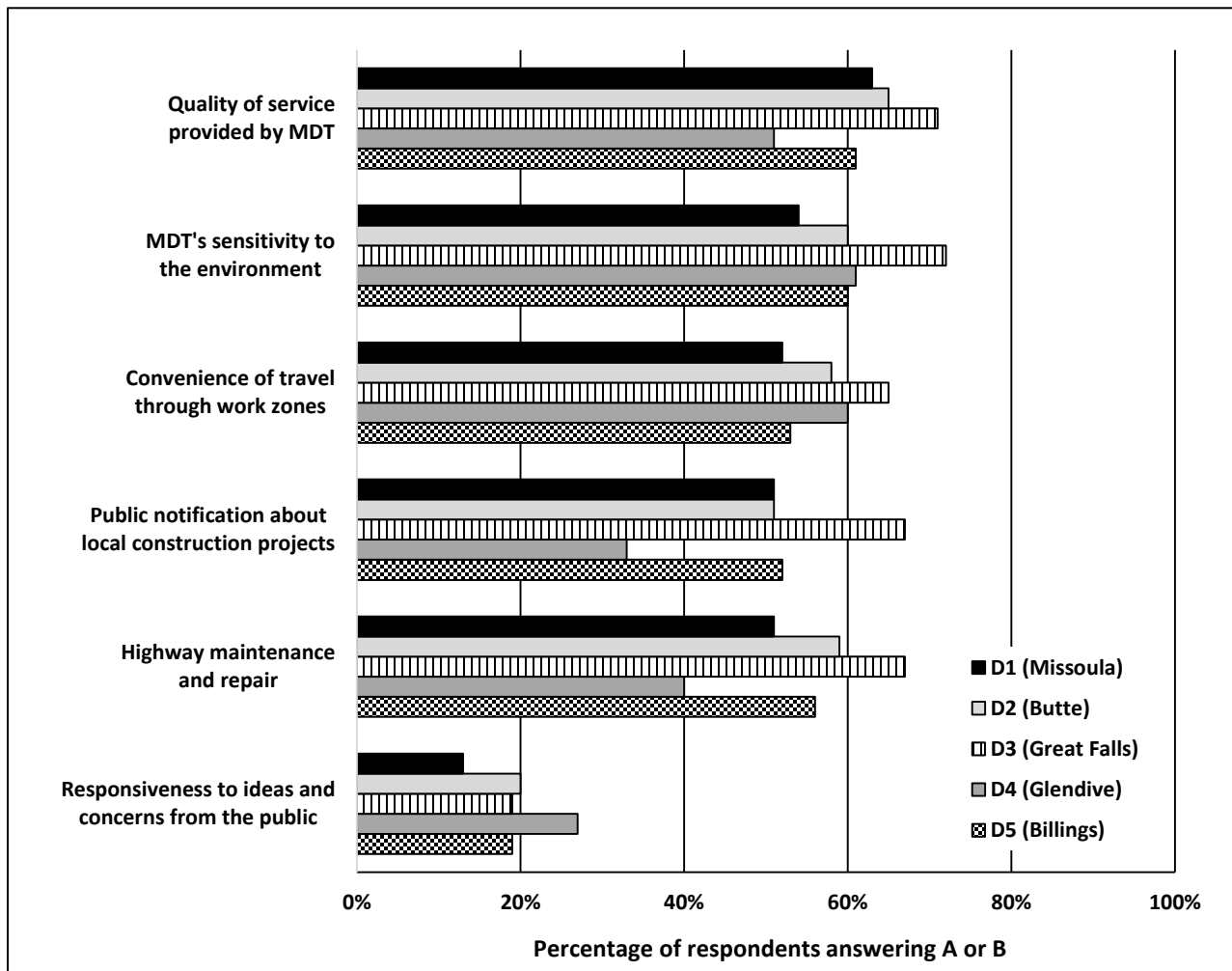


Districts

There are some differences between districts in terms of grading of MDT’s performance and customer service (Figure 5.2).

- Among all districts, District 1 (Missoula) gave the lowest percentage of As and Bs for the convenience of travel through work zones and for responsiveness to public input.
- District 2 (Butte) had neither the highest nor the lowest percentages of As and Bs for any of the listed performance items.
- District 3 (Great Falls) had the greatest percentage of As and Bs for every performance item across the board, except for responsiveness to ideas and concerns from the public.
- District 4 (Glendive) had the highest percentage of As and Bs for responsiveness to public input.
- District 5 (Billings) gave neither the highest nor the lowest grades for any of the listed performance items.

**Figure 5.2: District comparison of performance and customer service grades (% who gave grades of A or B)**





## SECTION 6: OTHER ISSUES

### “WOULD A PRIMARY SEAT BELT LAW SAVE LIVES?”

When asked if a primary seat belt law in Montana had the potential to save lives, approximately two-thirds of respondents indicated that they think it would (Table 6.1).

- District 1 (Missoula) had the largest percentage of respondents thinking a primary seat belt law would save lives.
- District 4 (Glendive) had the largest percentage of respondents thinking a primary seat belt law would not save lives.

**Table 6.1: Opinions regarding outcome of a primary seat belt law**

	Law will save lives	Law will not save lives	N
Total sample	67%	33%	1,349
District 1: Missoula	74%	26%	437
District 2: Butte	66%	34%	254
District 3: Great Falls	68%	32%	272
District 4: Glendive	47%	53%	100
District 5: Billings	62%	38%	286

*Note: Totals may not add to 100% due to rounding.*

**“ARE SPEED LIMITS IN WORK ZONES TOO HIGH OR TOO LOW?”**

Overall, survey respondents considered speed limits in work zones on Montana roads to be just right (Table 6.2).

- District 1 (Missoula) had the highest percentage of respondents who think work zone speed limits are too low (15%).
- District 5 (Billings) had the highest percentage of respondents who think work zone speed limits are too high (6%).

**Table 6.2: Opinions regarding speed limits in work zones**

	Speed limit too high	Speed limit just right	Speed limit too low	N
Total sample	4%	83%	14%	1,360
District 1: Missoula	2%	83%	15%	442
District 2: Butte	5%	82%	13%	255
District 3: Great Falls	5%	82%	13%	276
District 4: Glendive	3%	85%	12%	106
District 5: Billings	6%	81%	13%	281

*Note: Totals may not add to 100% due to rounding.*

## **SECTION 7. DISTRICTS**

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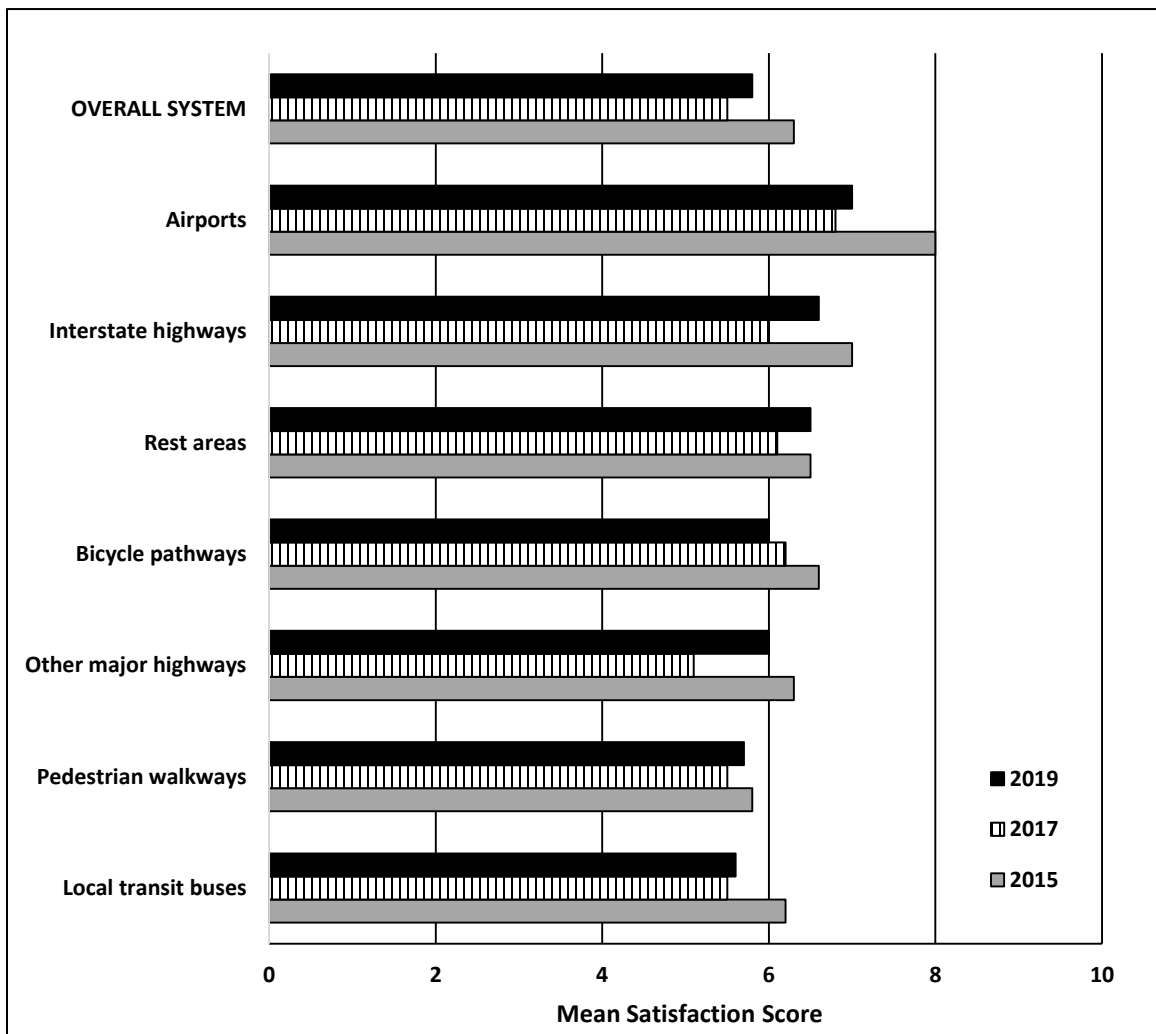
**DISTRICT 1—MISSOULA**

**Satisfaction with Physical Condition of Transportation System (District 1)**

With a mean score of 5.8, residents of District 1—Missoula indicated that they were satisfied with the physical condition of the overall transportation system (Figure 7.1a).

- Respondents were the most satisfied with the physical condition of airports (7.0), followed by interstate highways (6.6) and rest areas (6.5).
- Respondents were the least satisfied with the physical condition of local transit bus service (5.6), pedestrian walkways (5.7) and other major highways (6.0).
- The greatest differences between 2017 and 2019 were seen in the areas of satisfaction with the condition of interstates and other major highways, both of which experienced improved scores.

**Figure 7.1a: Satisfaction with physical condition of transportation system components (District 1)**

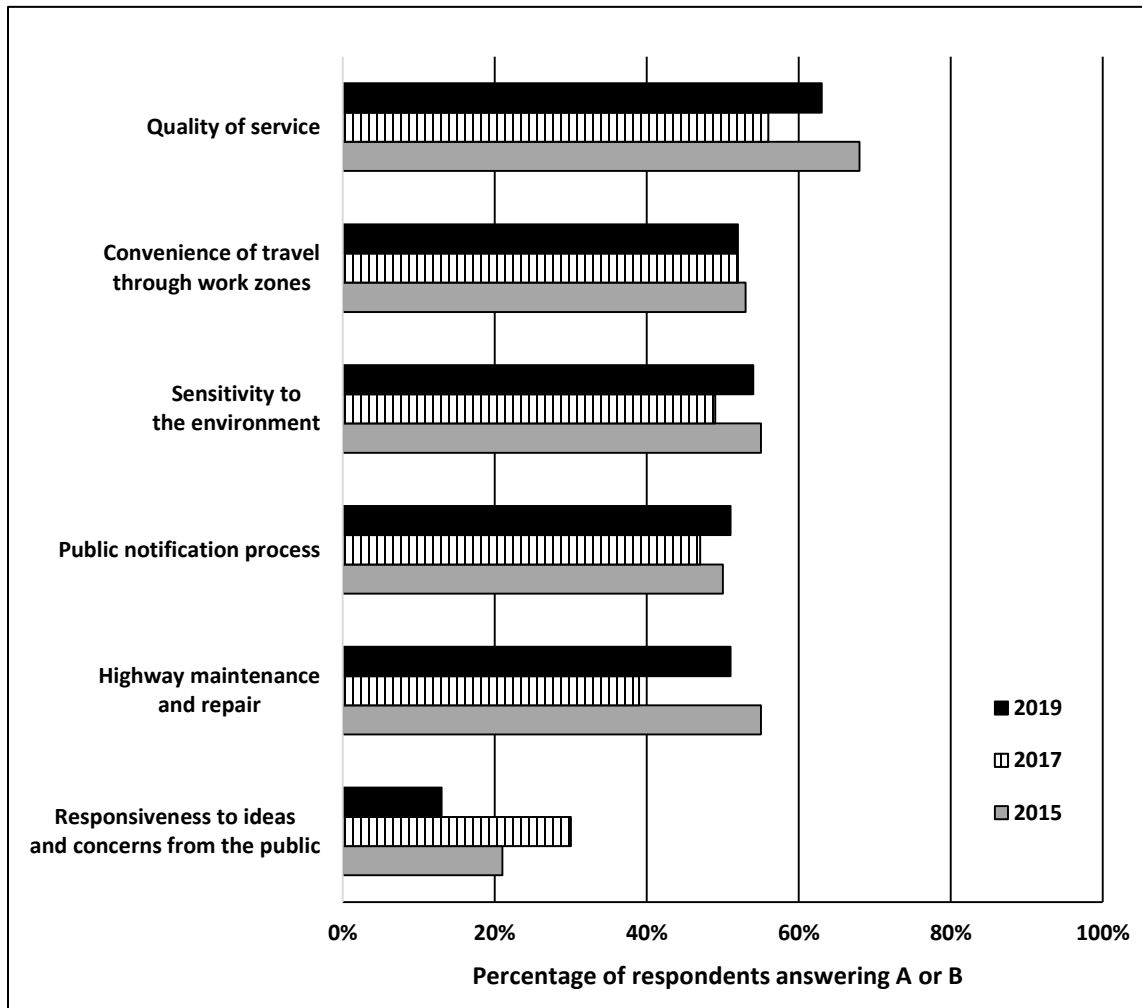


Grading Aspects of MDT’s Functions (District 1)

Respondents in District 1—Missoula graded MDT’s performance in a number of transportation system areas (Figure 7.1b).

- Sixty-three percent of respondents gave MDT the grade of A or B with respect to the quality of the service the Department provides.
- Thirteen percent gave MDT the grade of A or B with respect to the Department’s responsiveness to the public’s ideas and concerns.
- The greatest difference between 2017 and 2019 occurred in the area of responsiveness to public input, which saw a drop in the percentage of As and Bs by more than half.
- There was also great improvement between 2017 and 2019 with respect to the grades given for highway maintenance and repair.

**Figure 7.1b: Performance and customer service grades (District 1)**

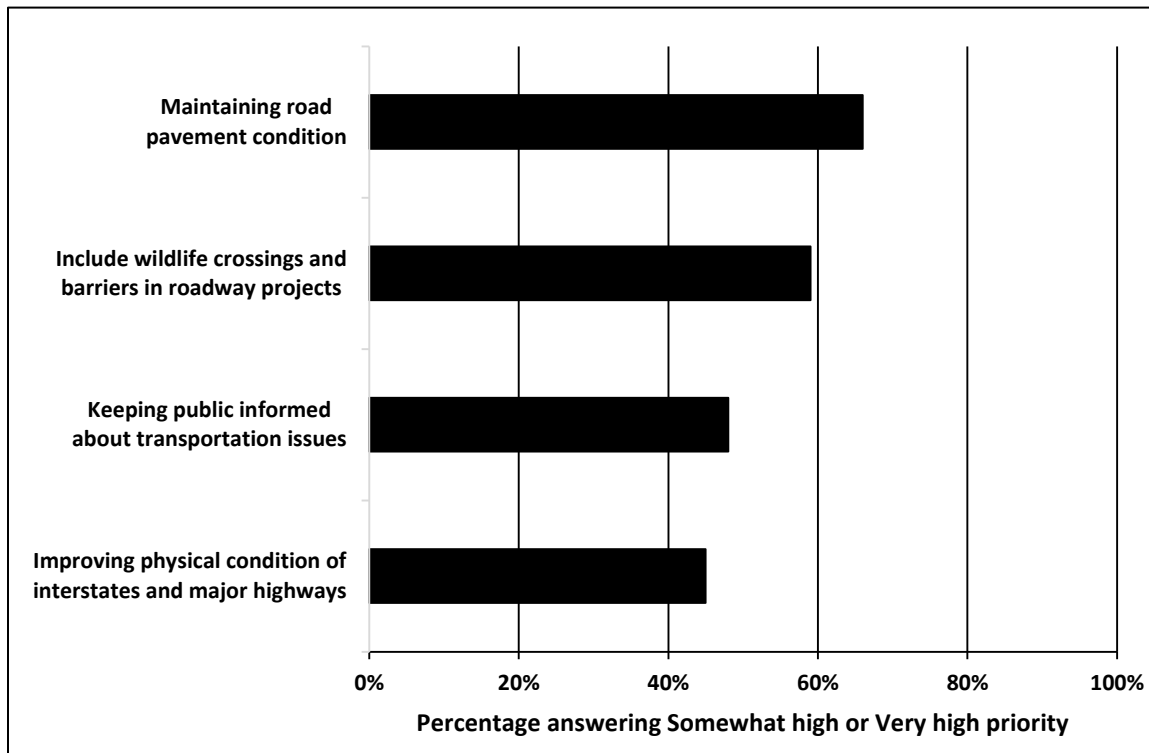


### Priority of Actions for Improving Montana’s Transportation System (District 1)

From a list of possible actions that can be undertaken to improve the transportation system in the state, respondents in District 1—Missoula ranked the following four the highest (Figure 7.1c).

- Maintaining road pavement conditions received the highest priority rating, with 66 percent deeming it either a *somewhat high priority* or a *very high priority*.
- Including wildlife crossings and barriers in roadway projects ranked second (59%)
- Keeping the public informed about transportation issues was rated as a *somewhat high priority* or a *very high priority* by 48 percent of respondents, while improving the physical condition of interstates and major highways received this rating by 45 percent.

**Figure 7.1c: Priority of actions for improving transportation system (District 1)**

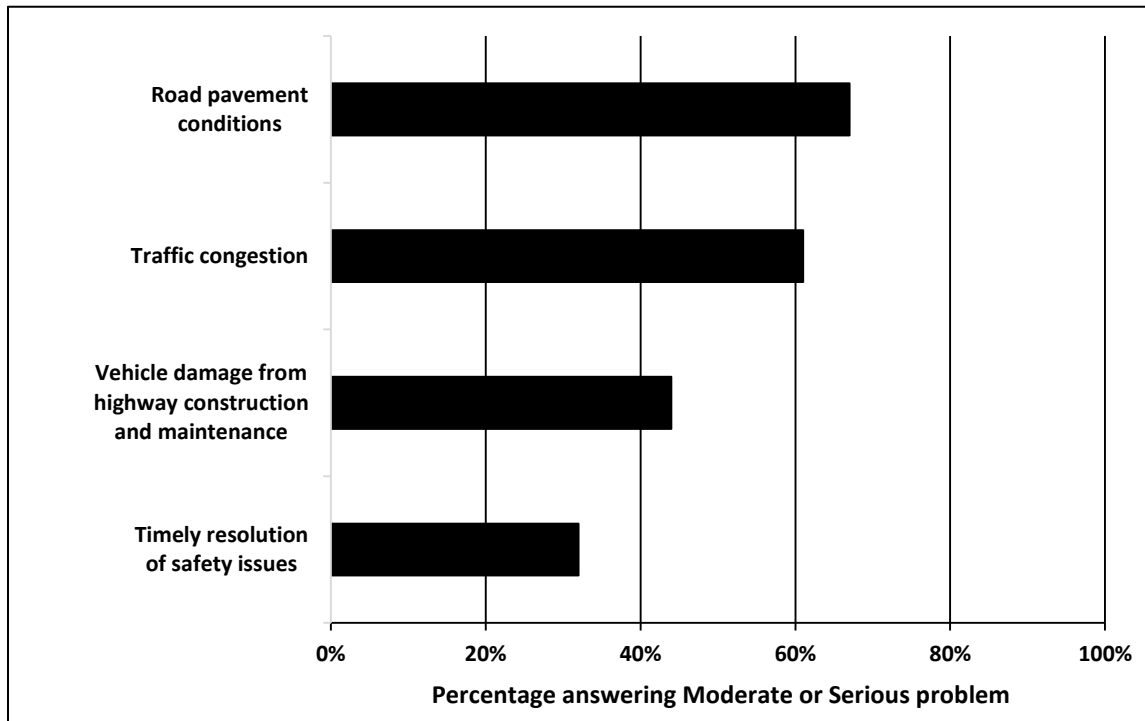


### Ranking of Issues Seen as Problems with the Montana Transportation System (District 1)

Survey respondents in District 1—Missoula also considered a list of issues that may be seen as problems with the state’s transportation system (Figure 7.1d).

- Road pavement conditions were considered to be either a *moderate problem* or a *serious problem* by the greatest percentage of District 1 respondents, at 67 percent.
- Traffic congestion (62%) rounded out the list along with vehicle damage incurred from highway construction and maintenance (44%), and timely resolution of safety issues (32%).

**Figure 7.1d: Ranking of transportation system problems (District 1)**

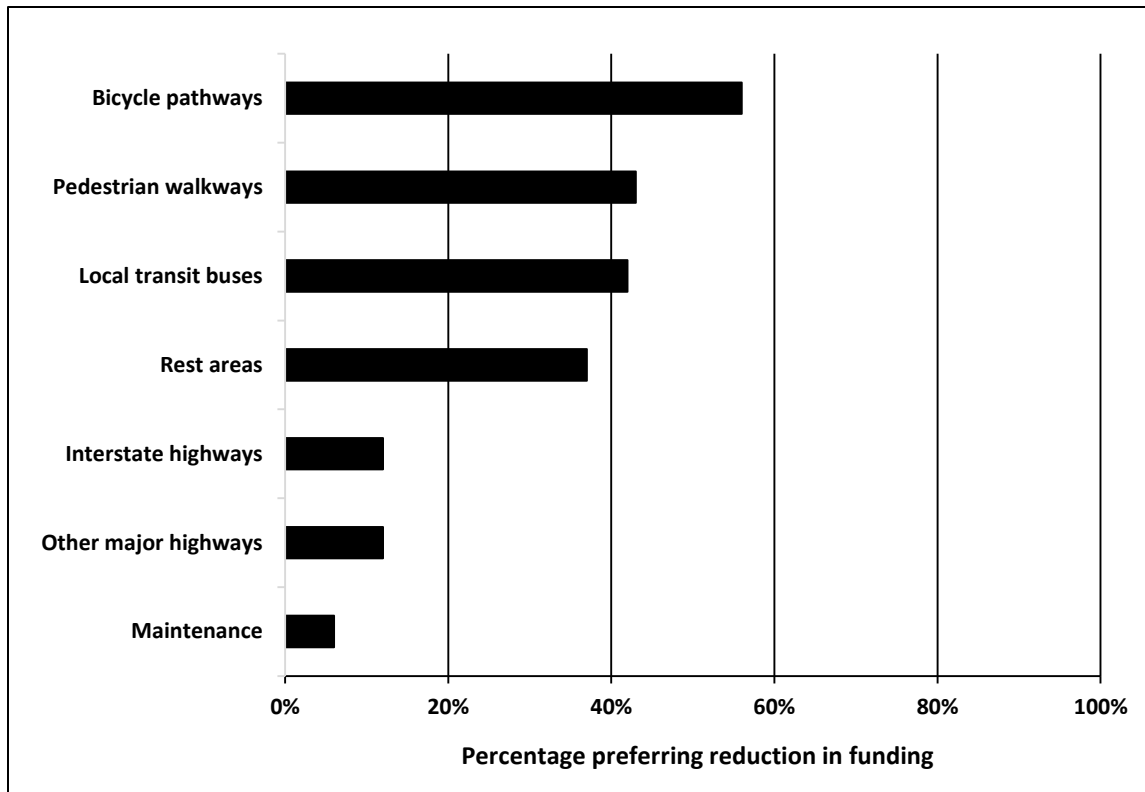


### Areas Favored for Decreases in Funding (District 1)

In the event of future decreases in the MDT budget, District 1—Missoula survey respondents indicated the areas within the Montana transportation system where they preferred funding to be reduced (Figure 7.1e).

- For residents of District 1—Missoula, the majority (56%) indicated they would prefer to see reduced funding for bicycle pathways.
- Transportation system maintenance was favored for receiving reduced funding by only a small percentage (6%).

**Figure 7.1e: System components where respondents prefer decreased funding (District 1)**





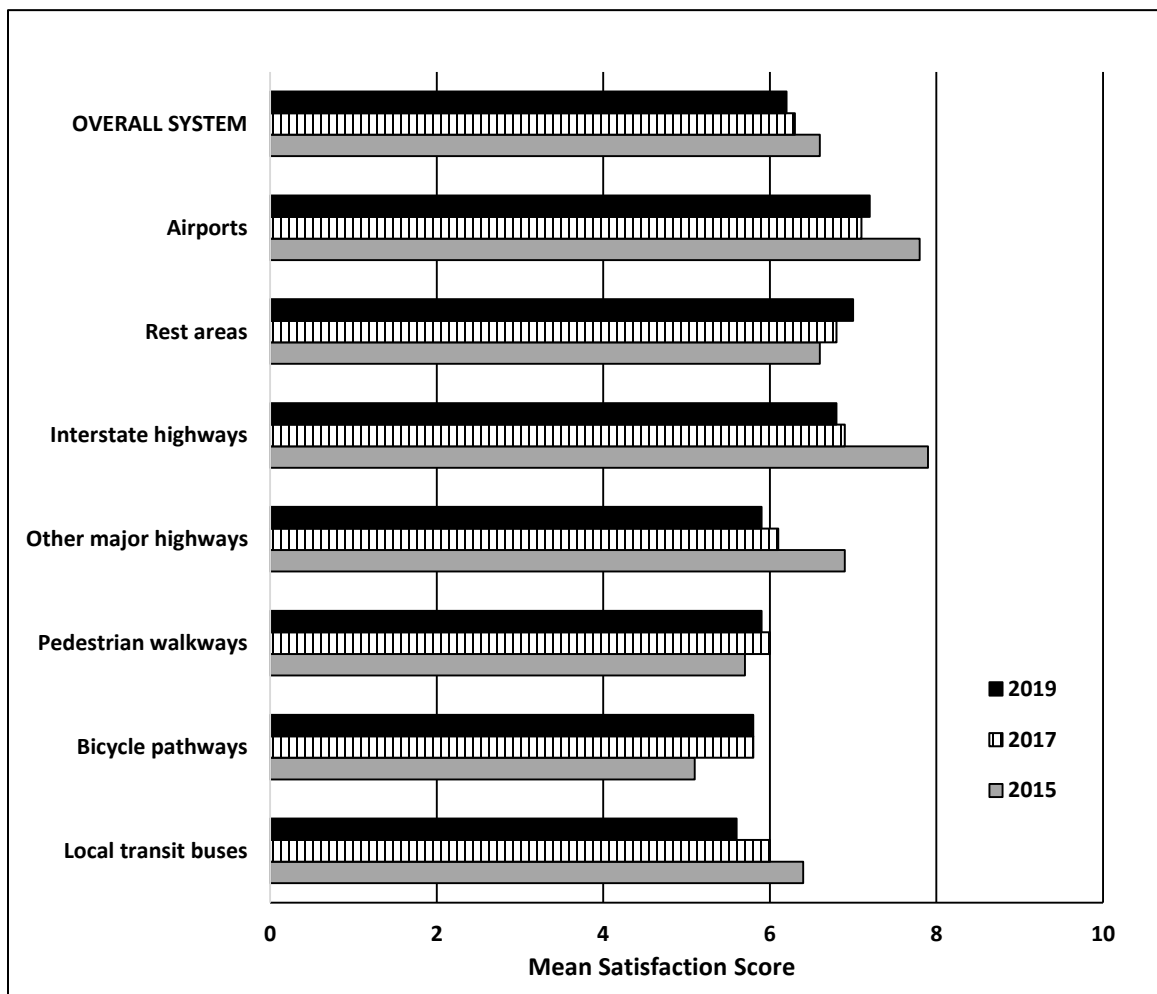
**DISTRICT 2—BUTTE**

**Satisfaction with Physical Condition of Transportation System (District 2)**

With a mean score of 6.2, residents of District 2—Butte indicated that they were satisfied with the physical condition of the overall transportation system (Figure 7.2a)

- Respondents were the most satisfied with the physical condition of airports (7.2), followed by rest areas (7.0) and interstate highways (6.8).
- Respondents were the least satisfied with the physical condition of local transit bus service (5.6) and bicycle pathways (5.8).
- There were no major changes in satisfaction scores between 2017 and 2019.

**Figure 7.2a: Satisfaction with physical condition of transportation system components (District 2)**

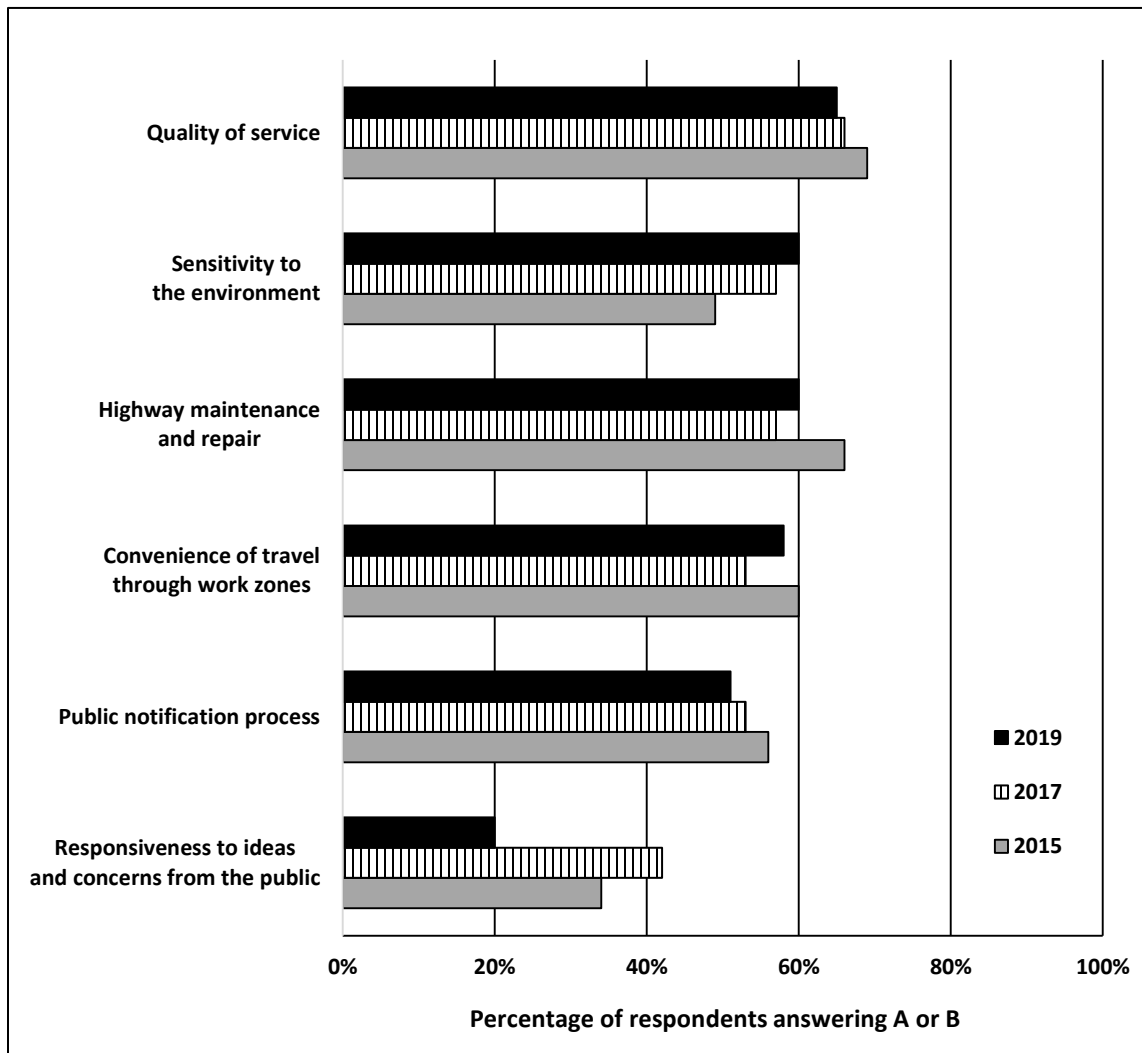


Grading Aspects of MDT’s Functions (District 2)

Respondents in District 2—Butte graded MDT’s performance in a number of transportation system areas (Figure 7.2b).

- Sixty-five percent of respondents gave MDT the grade of A or B with respect to the quality of the service the Department provides.
- Twenty percent gave MDT the grade of A or B with respect to the Department’s responsiveness to the public’s ideas and concerns.
- The greatest difference between 2017 and 2019 occurred in the area of responsiveness to public input, which saw a drop in the percentage of As and Bs by more than half.

**Figure 7.2b: Performance and customer service grades (District 2)**



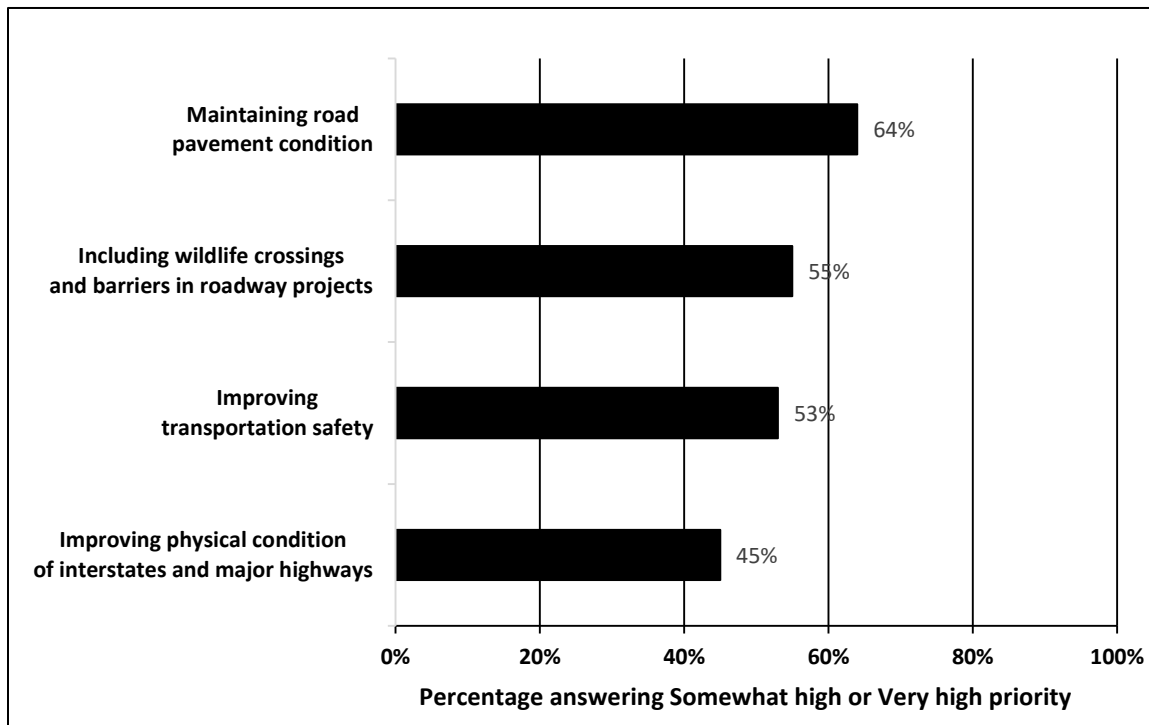


### Priority of Actions to Improve Montana’s Transportation System (District 2)

From a list of possible actions that can be undertaken to improve the transportation system in the state, respondents in District 2—Butte ranked the following four the highest (Figure 7.2c).

- Maintaining road pavement conditions received the highest priority ranking with 64 percent giving either a *somewhat high priority* or a *very high priority*.
- Including wildlife crossings and barriers in roadway projects, and improving transportation safety both ranked close together, at 55 percent and 53 percent, respectively.
- Improving the physical condition of interstates and major highways ranked fourth, at 45 percent.

**Figure 7.2c: Priority of actions for improving transportation system (District 2)**

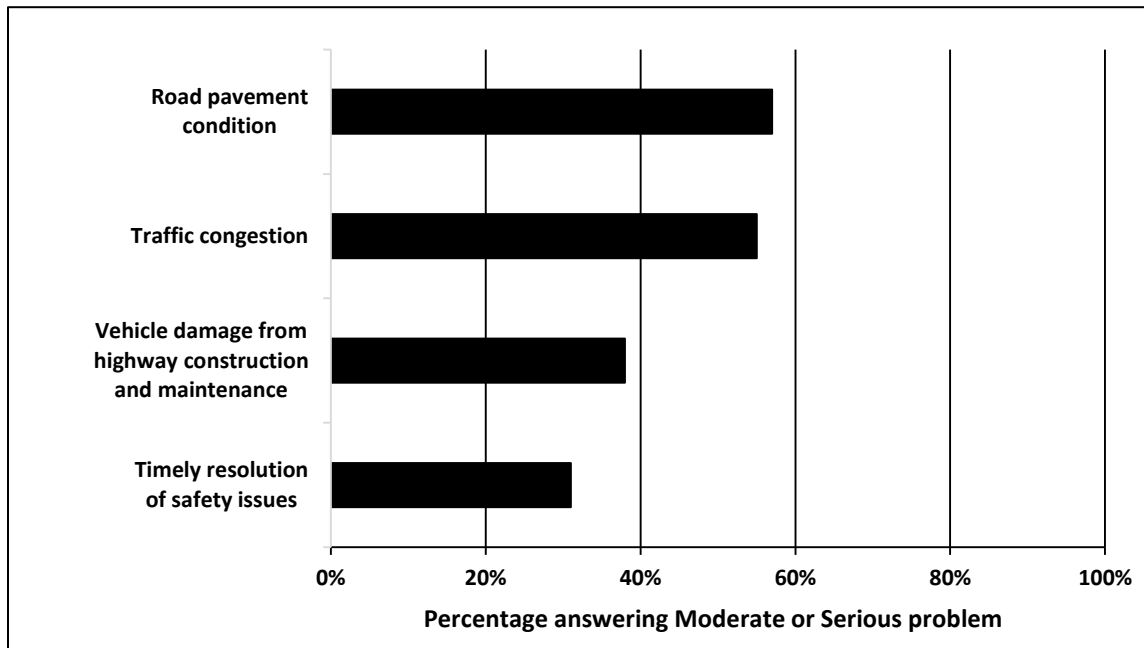


### Ranking of Issues Seen as Problems with the Montana Transportation System (District 2)

Survey respondents in District 2—Butte also considered a list of issues that may be seen as problems with the state’s transportation system (Figure 7.2d).

- Road pavement conditions was considered to be either a *moderate problem* or a *serious problem* by the greatest percentage of District 2 respondents, at 57 percent.
- Traffic congestion, vehicle damage incurred from highway construction and maintenance, and timely resolution of safety issues were seen as a *moderate problem* or a *serious problem* by 55 percent, 38 percent and 31 percent, respectively.

**Figure 7.2d: Ranking of transportation system problems (District 2)**

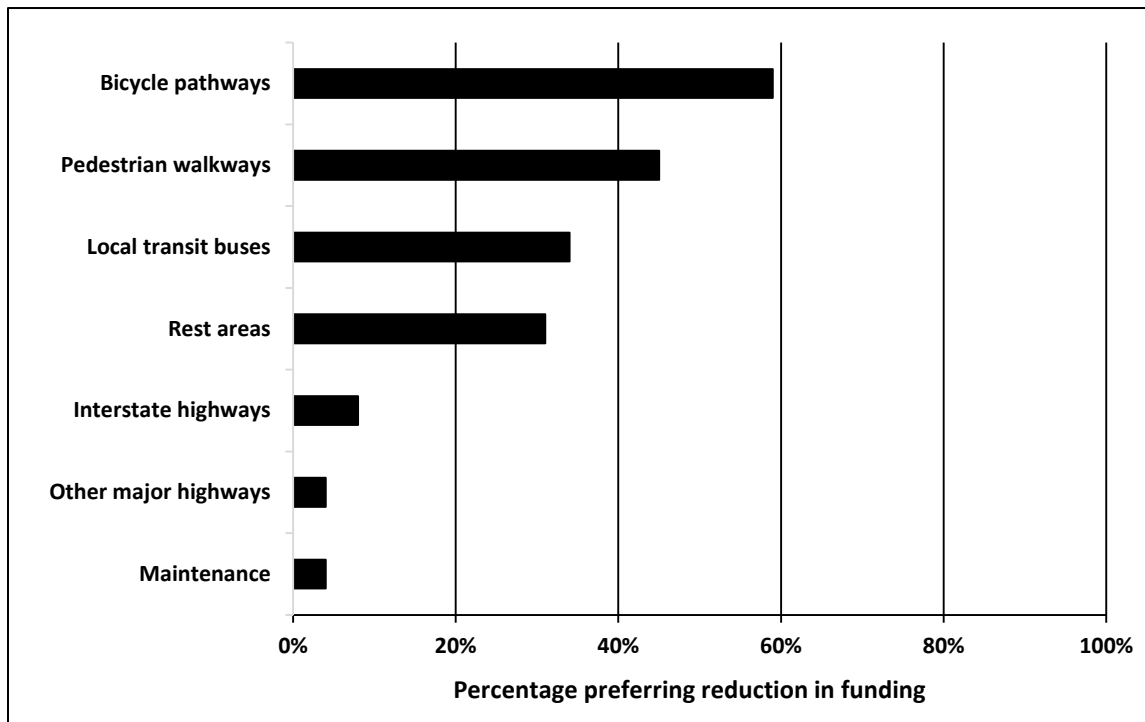


### Areas Favored for Decreases in Funding (District 2)

In the event of future decreases in the MDT budget, District 2—Butte survey respondents indicated the areas within the Montana transportation system where they preferred funding to be reduced (Figure 7.2e).

- For residents of District 2—Butte, the majority (59%) indicated that they would prefer to see reduced funding for bicycle pathways.
- Transportation system maintenance was favored for receiving reduced funding by only a small percentage (4%).

**Figure 7.2e: System components where respondents prefer decreased funding (District 2)**





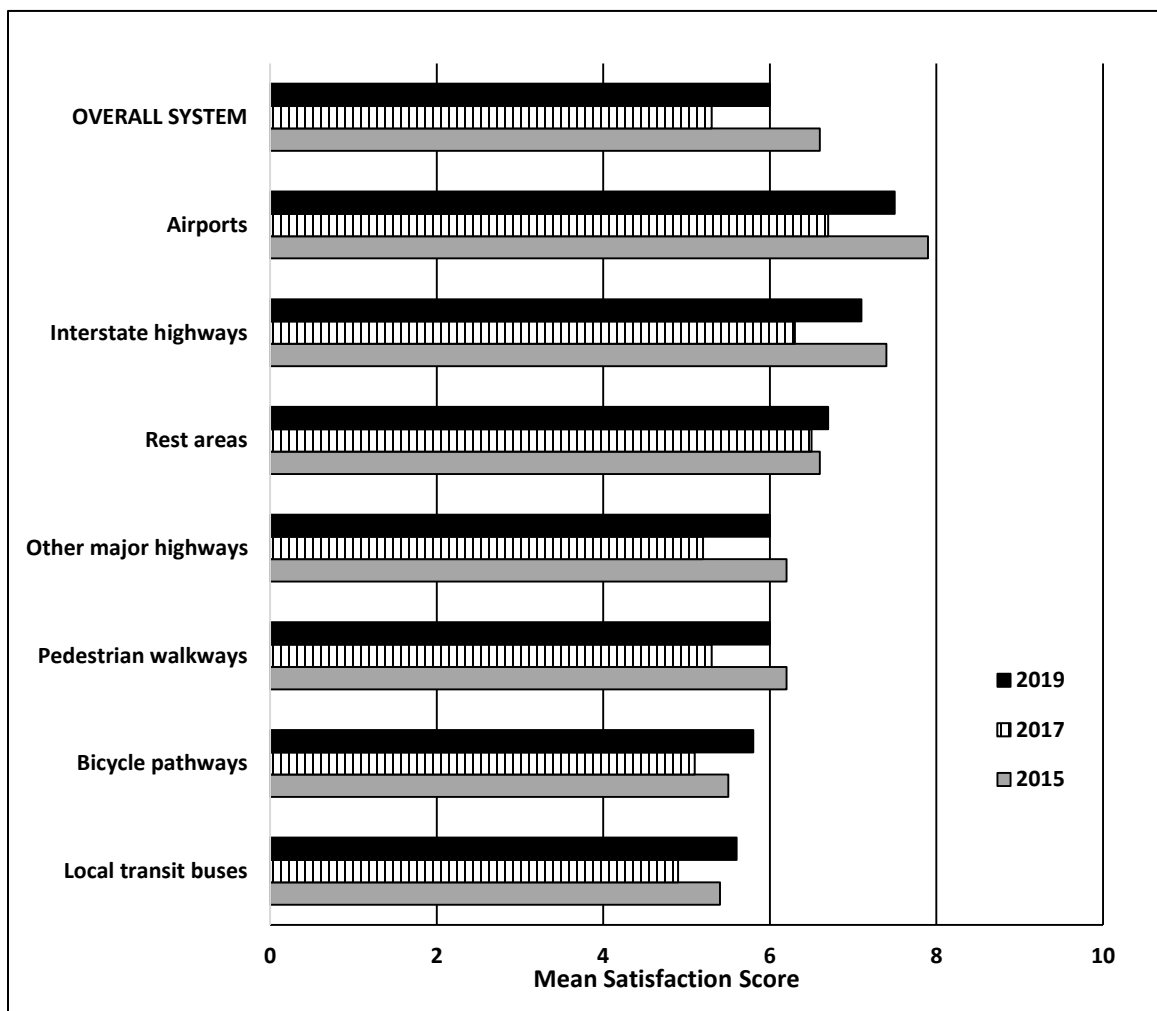
### DISTRICT 3—GREAT FALLS

#### Satisfaction with Physical Condition of Transportation System (District 3)

With a mean score of 6.0, residents of District 3—Great Falls indicated that they were satisfied with the physical condition of the overall transportation system (Figure 7.3a).

- Respondents were the most satisfied with the physical condition of airports (mean score of 7.5), followed by interstate highways (7.0) and rest areas (6.7).
- Respondents were the least satisfied with the physical condition of local transit bus service (5.6) and bicycle pathways (5.8).
- Between 2017 and 2019, satisfaction scores for all surveyed components improved.

**Figure 7.3a: Satisfaction with physical condition of transportation system components (District 3)**

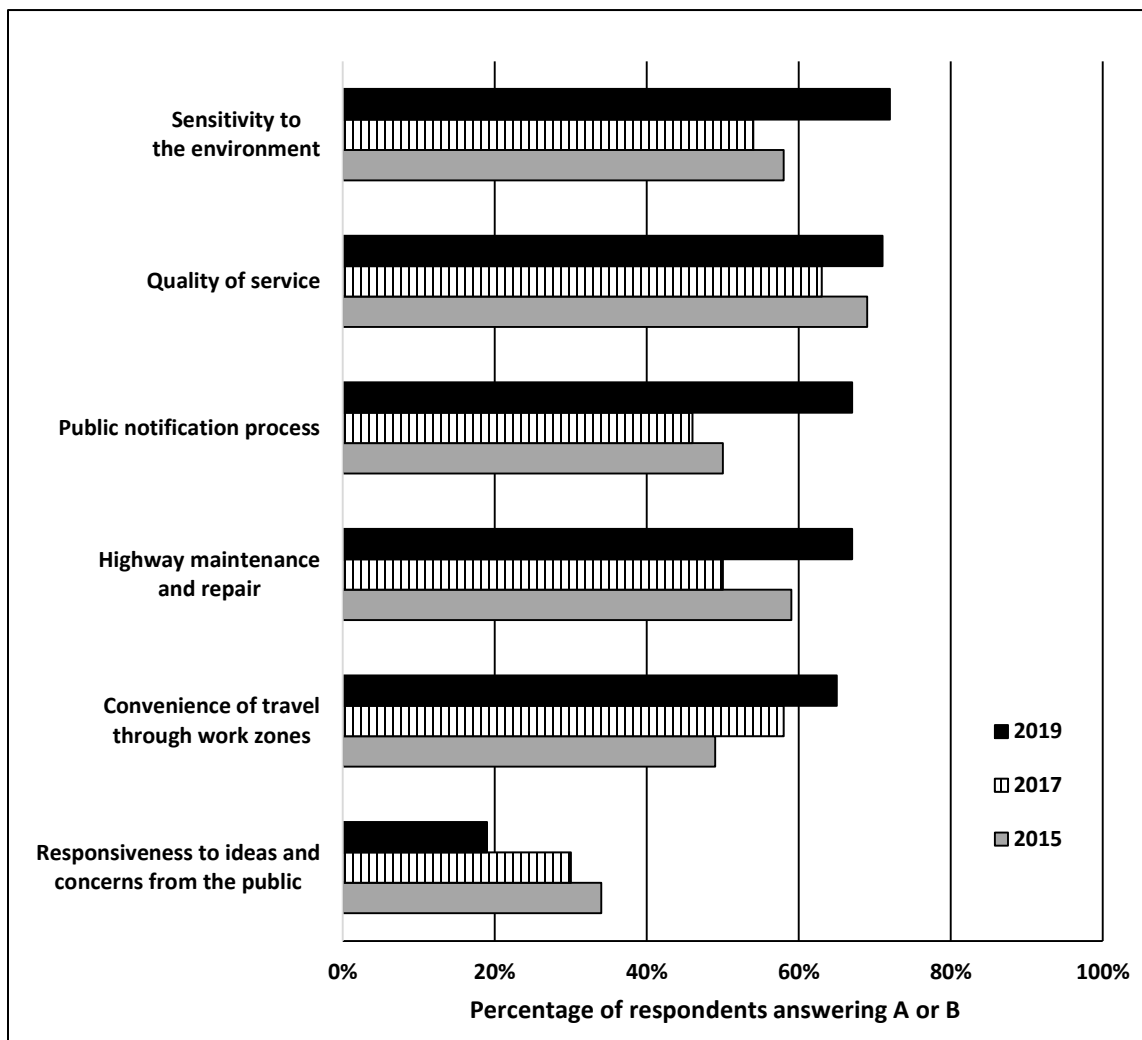


Grading Aspects of MDT’s Functions (District 3)

Respondents in District 3—Great Falls graded MDT’s performance in a number of transportation system areas (Figure 7.3b).

- Seventy-two percent of respondents gave MDT the grade of A or B with respect to the Department’s sensitivity to the environment.
- Nineteen percent gave MDT the grade of A or B with respect to the Department’s responsiveness to the public’s ideas and concerns.
- Between 2017 and 2019 there was great improvement in the grades given for sensitivity to the environment, public notification processes and highway maintenance and repair. Grades for responsiveness to public input dropped.

**Figure 7.3b: Performance and customer service grades (District 3)**

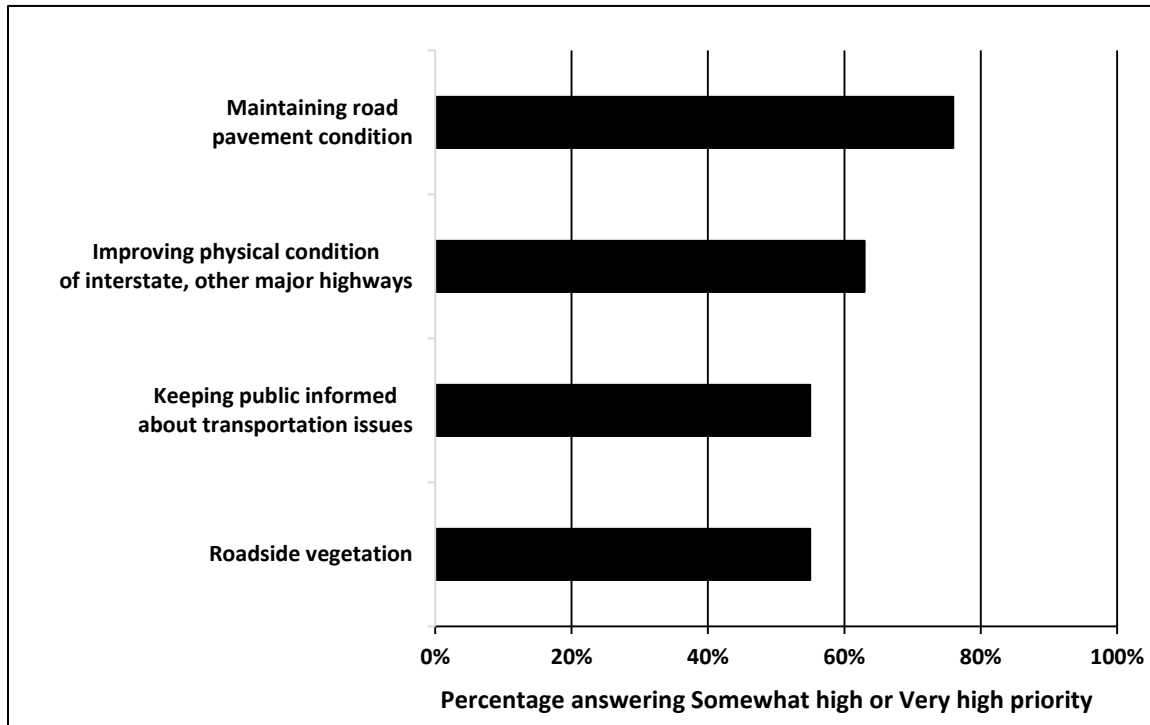


### Priority of Actions to Improve Montana’s Transportation System (District 3)

From a list of possible actions that can be undertaken to improve the transportation system in the state, respondents in District 3—Great Falls ranked the following four the highest (Figure 7.3c).

- Maintaining road pavement conditions received the highest priority ranking with 76 percent seeing it as a *somewhat high* priority or a *very high* priority.
- Improving the physical condition of interstates and major highways received the second-highest priority rating, at 63 percent.
- Keeping the public informed about transportation issues, and managing roadside vegetation tied for third, at 55 percent.

**Figure 7.3c: Priority of actions for improving transportation system (District 3)**

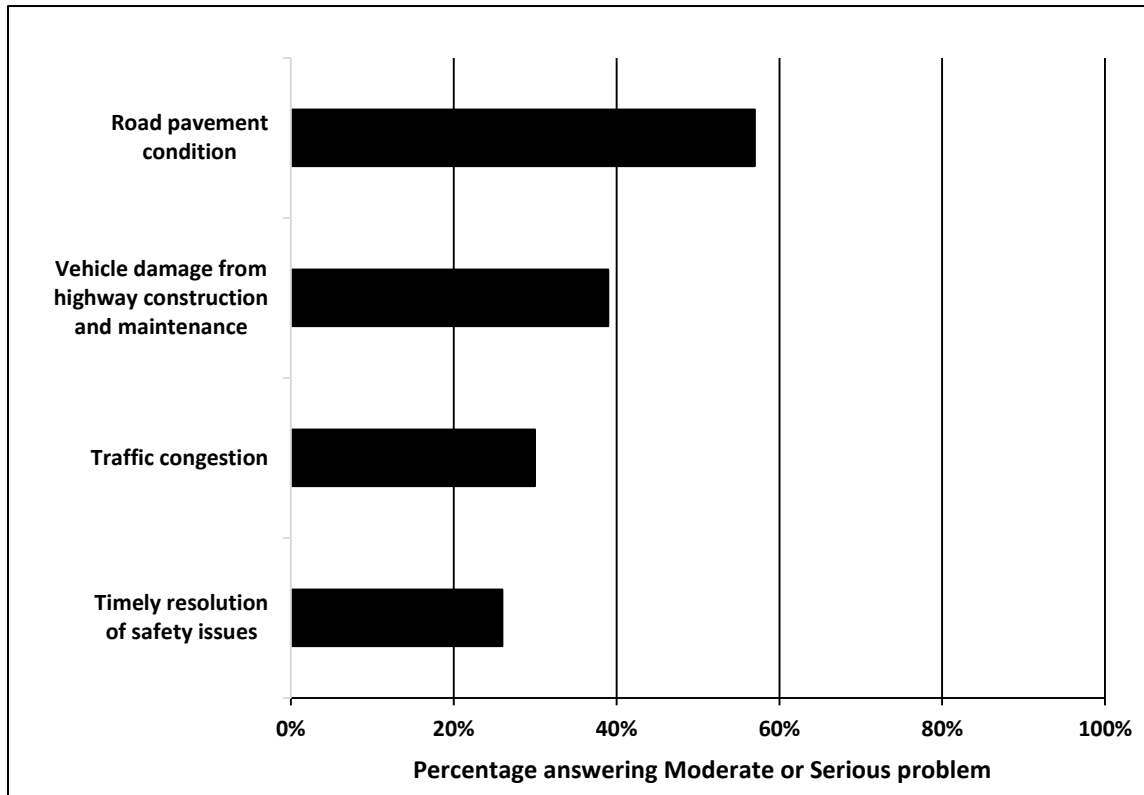


### Ranking of Issues Seen as Problems with the Montana Transportation System (District 3)

Survey respondents in District 3—Great Falls also considered a list of issues that may be seen as problems with the state’s transportation system (Figure 7.3d).

- Road pavement condition was considered to be either a *moderate problem* or a *serious problem* by the greatest percentage of District 3—Great Falls respondents, at 57 percent.
- Vehicle damage incurred from highway construction and maintenance (39%), traffic congestion (30%), and the timely resolution of safety issues (26%) rounded out the list.

**Figure 7.3d: Ranking of transportation system problems (District 3)**



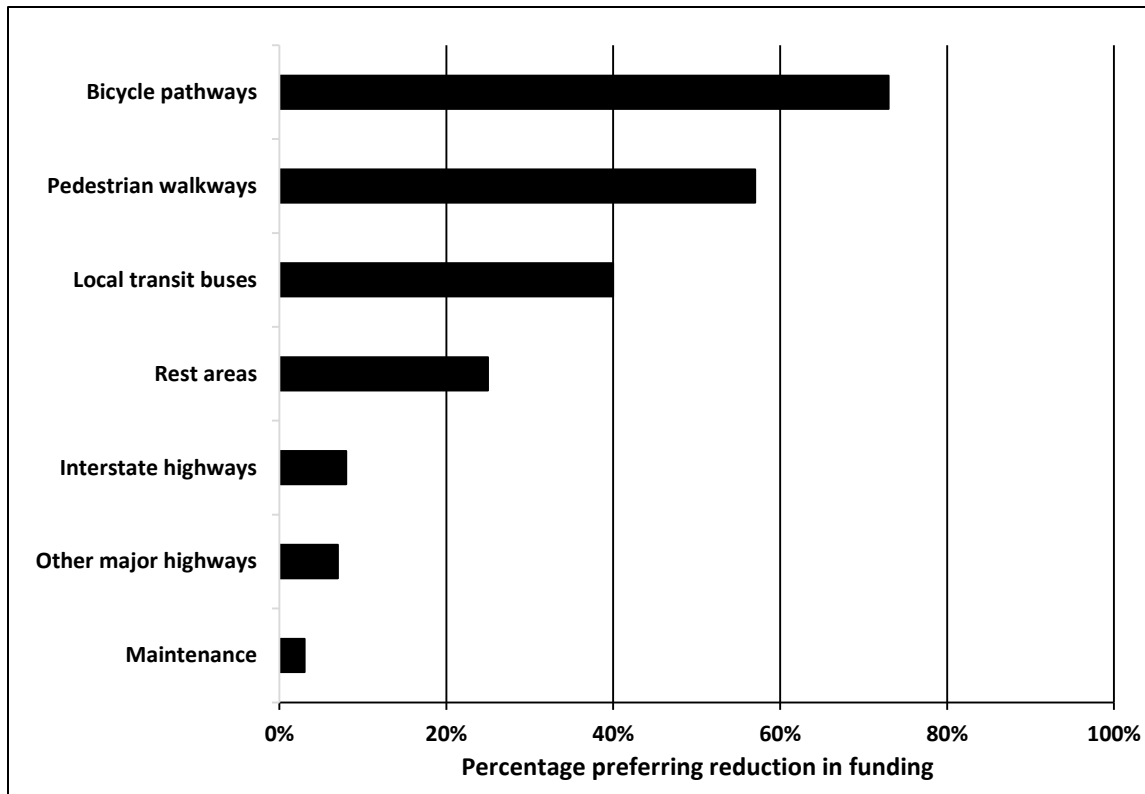


### Areas Favored for Decreases in Funding (District 3)

In the event of future decreases in the MDT budget, District 3—Great Falls survey respondents indicated the areas within the Montana transportation system where they preferred funding to be reduced (Figure 7.3e).

- For residents of District 3—Great Falls, the majority (73%) indicated that they would prefer to see reduced funding for bicycle pathways.
- Transportation system maintenance was favored for receiving reduced funding by only a small percentage (3%).

**Figure 7.3e: System components where respondents prefer decreased funding (District 3)**





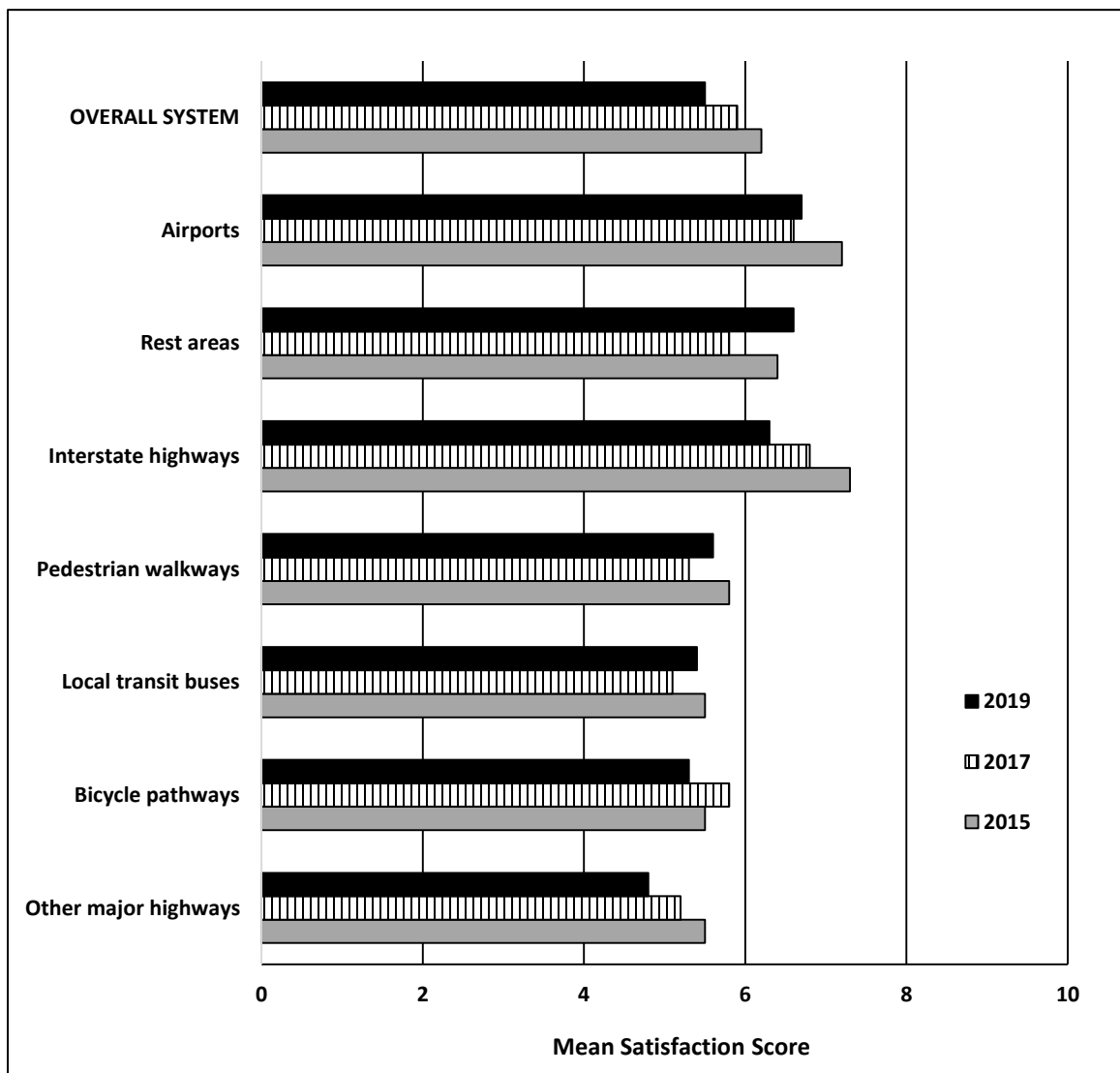
### DISTRICT 4—GLENDDIVE

#### Satisfaction with Physical Condition of Transportation System (District 4)

With a mean score of 5.5, residents of District 4—Glendive indicated that they were satisfied with the physical condition of the overall transportation system (Figure 7.4a)

- Respondents were the most satisfied with the physical condition of airports (mean score of 6.7), followed by rest areas (6.6) and interstate highways (6.3).
- Respondents were the least satisfied with the physical condition of other major highways (4.8).
- The major change occurring between 2017 and 2019 was an improvement in satisfaction with the condition of rest areas.

**Figure 7.4a: Satisfaction with physical condition of transportation system components (District 4)**

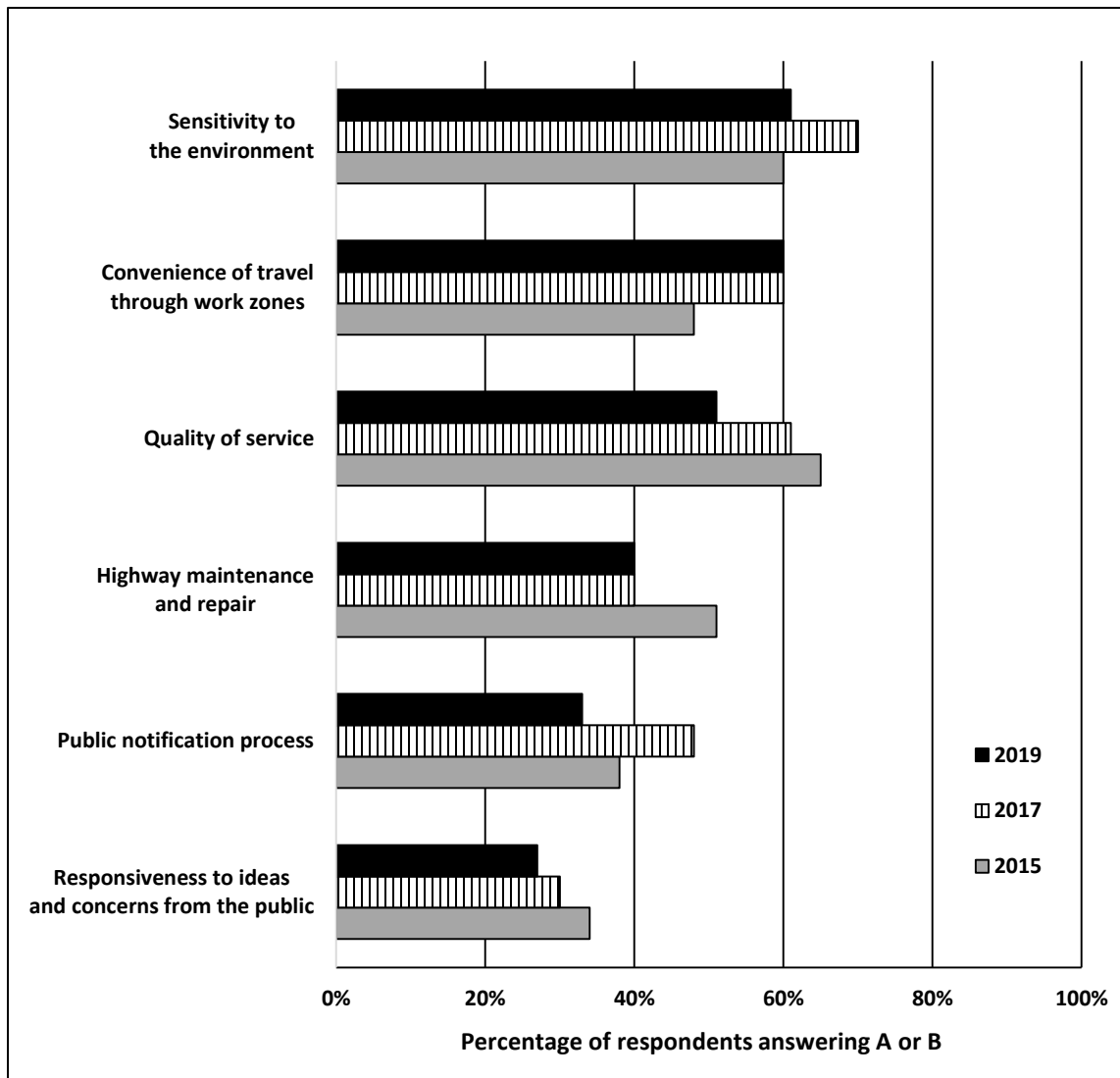


Grading Aspects of MDT’s Functions (District 4)

Respondents in District 4—Glendive graded MDT’s performance in a number of transportation system areas (Figure 7.4b).

- Sixty-one percent of respondents gave MDT the grade of A or B with respect to the Department’s sensitivity to the environment.
- Twenty-seven percent gave MDT the grade of A or B with respect to the Department’s responsiveness to the public’s ideas and concerns.
- The major change between 2017 and 2019 was a drop in the grades given for MDT’s quality of service.

**Figure 7.4b: Performance and customer service grades (District 4)**

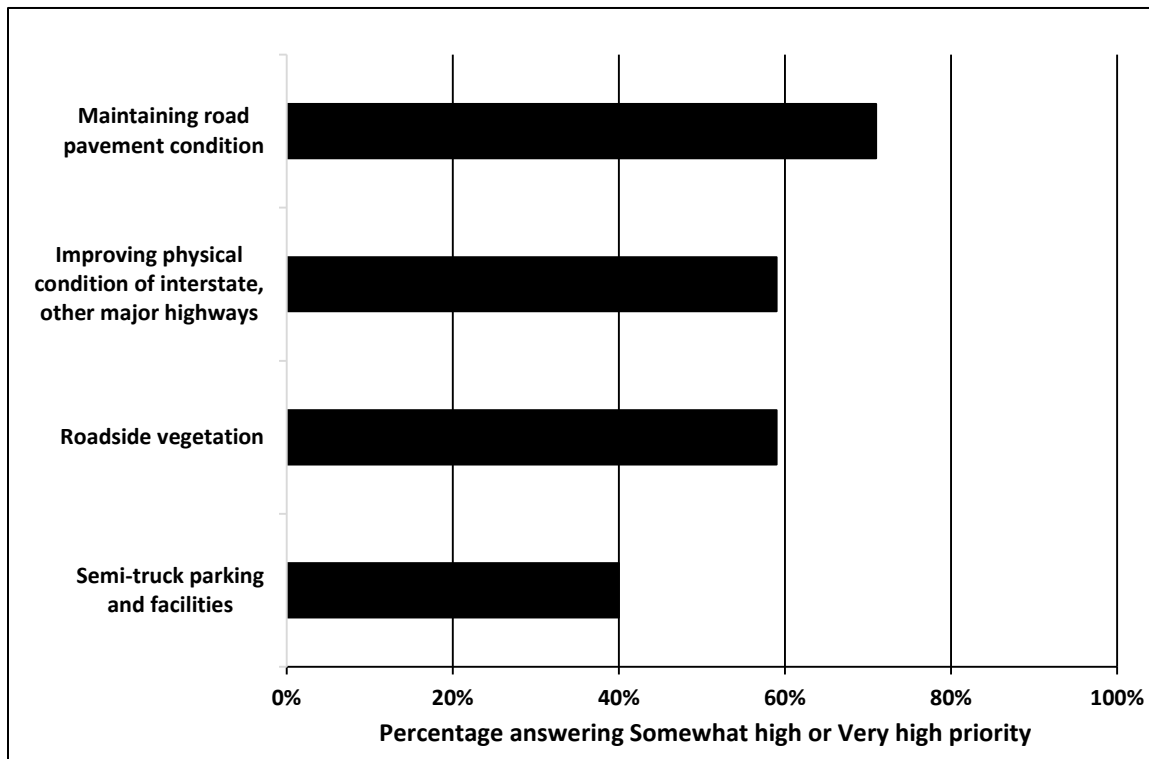


### Priority of Actions to Improve Montana’s Transportation System (District 4)

From a list of possible actions that can be undertaken to improve the transportation system in the state, respondents in District 4—Glendive ranked the following four the highest (Figure 7.4c).

- Maintaining road pavement conditions received the highest priority ranking with 71 percent giving it a *somewhat high priority* or *very high priority*.
- Two items tied for the second-highest ranking: Improving the physical condition of interstates and major highways, and maintaining roadside vegetation—each with 59 percent.
- Semi-truck parking and facilities rounded out the list with 40 percent.

**Figure 7.4c: Priority of actions for improving transportation system (District 4)**

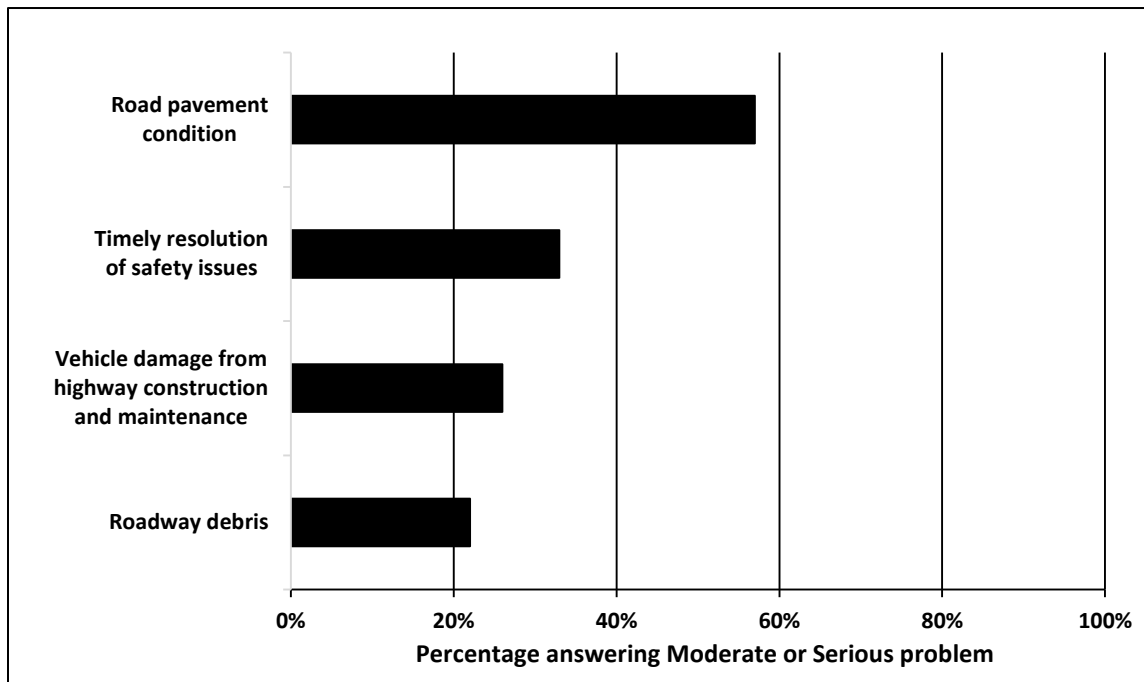


### Ranking of Issues Seen as Problems with the Montana Transportation System (District 4)

Survey respondents in District 4—Glendive also considered a list of issues that may be seen as problems with the state’s transportation system (Figure 7.4d).

- Road pavement condition was considered either a *moderate problem* or a *serious problem* by the greatest percentage of District 4 respondents, at 57 percent.
- Timely resolution of safety issues (33%), vehicle damage incurred from highway construction and maintenance (26%), and roadway debris (22%) rounded out the list.

**Figure 7.4d: Ranking of transportation system problems (District 4)**

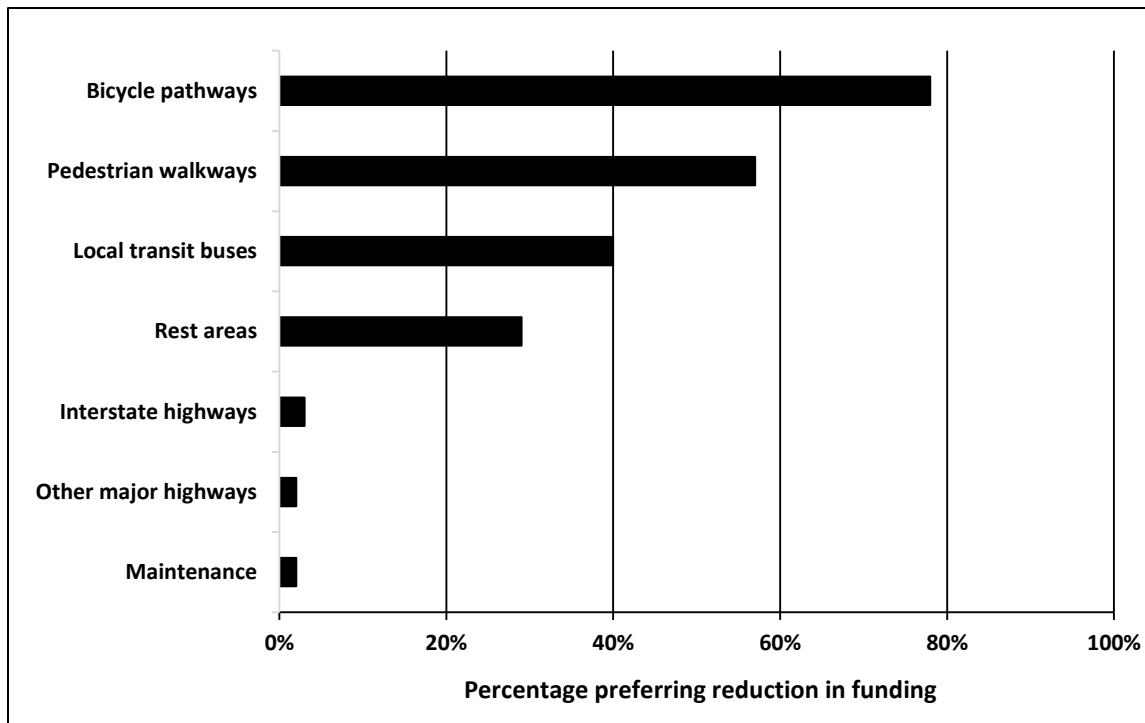


### Areas Favored for Decreases in Funding (District 4)

In the event of future decreases in the MDT budget, District 4—Glendive survey respondents indicated the areas within the Montana transportation system where they preferred funding to be reduced (Figure 7.4e).

- For residents of District 4—Glendive, the majority (78%) indicated that they would prefer to see reduced funding for bicycle pathways.
- Transportation system maintenance was favored for receiving reduced funding by only a small percentage (2%).

**Figure 7.4e: System components where respondents prefer decreased funding (District 4)**







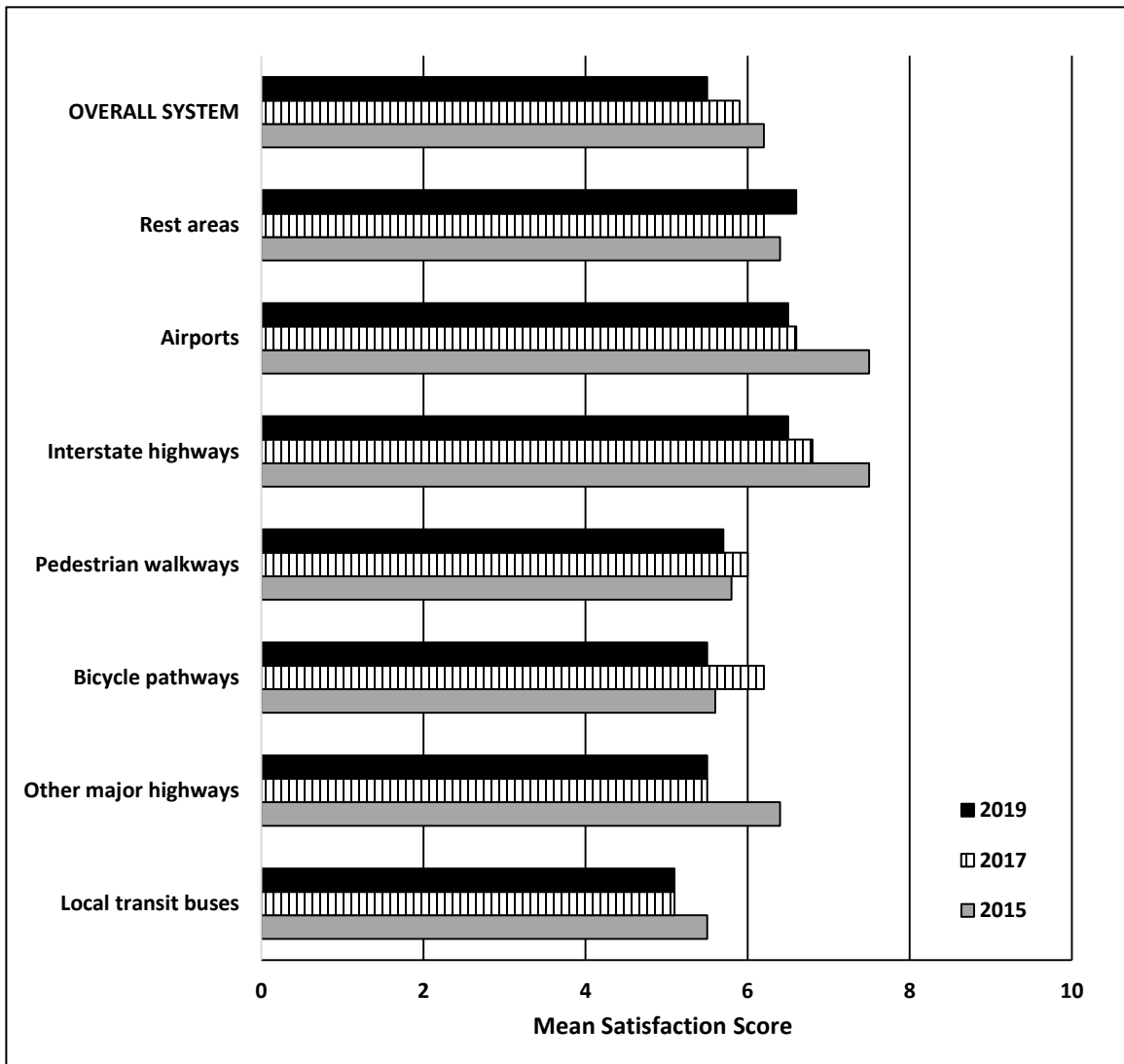
**DISTRICT 5—BILLINGS**

Satisfaction with Physical Condition of Transportation System (District 5)

With a mean score of 5.5, residents of District 5—Billings indicated that they were satisfied with the physical condition of the overall transportation system (Figure 7.5a)

- Respondents were the most satisfied with the physical condition of rest areas (mean score of 6.7), followed by airports and interstate highways (both 6.5).
- Respondents were the least satisfied with the physical condition of local transit buses (5.1).
- No great changes in levels of satisfaction occurred between 2017 and 2019.

**Figure 7.5a: Satisfaction with physical condition of transportation system components (District 5)**

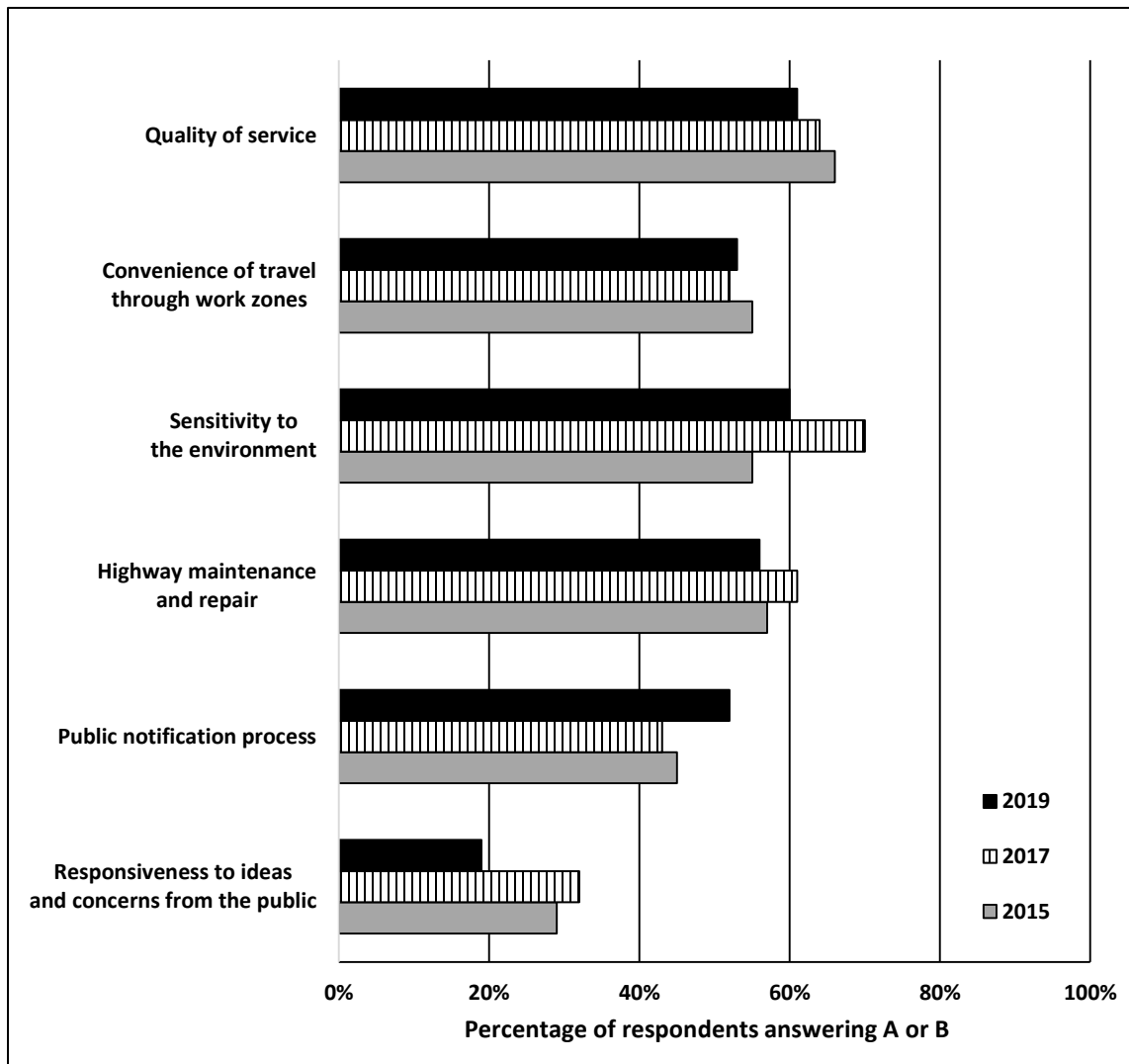


### Grading Aspects of MDT's Functions (District 5)

Respondents in District 5—Billings graded MDT's performance in a number of transportation system areas (Figure 7.5b).

- Sixty-one percent of respondents gave MDT the grade of A or B with respect to the Department's quality of service.
- Nineteen percent gave MDT the grade of A or B with respect to the Department's responsiveness to the public's ideas and concerns.
- The major changes between 2017 and 2019 were a worsening of grades in the area of environmental sensitivity and in responsiveness to public input.

**Figure 7.5b: Performance and customer service grades (District 5)**

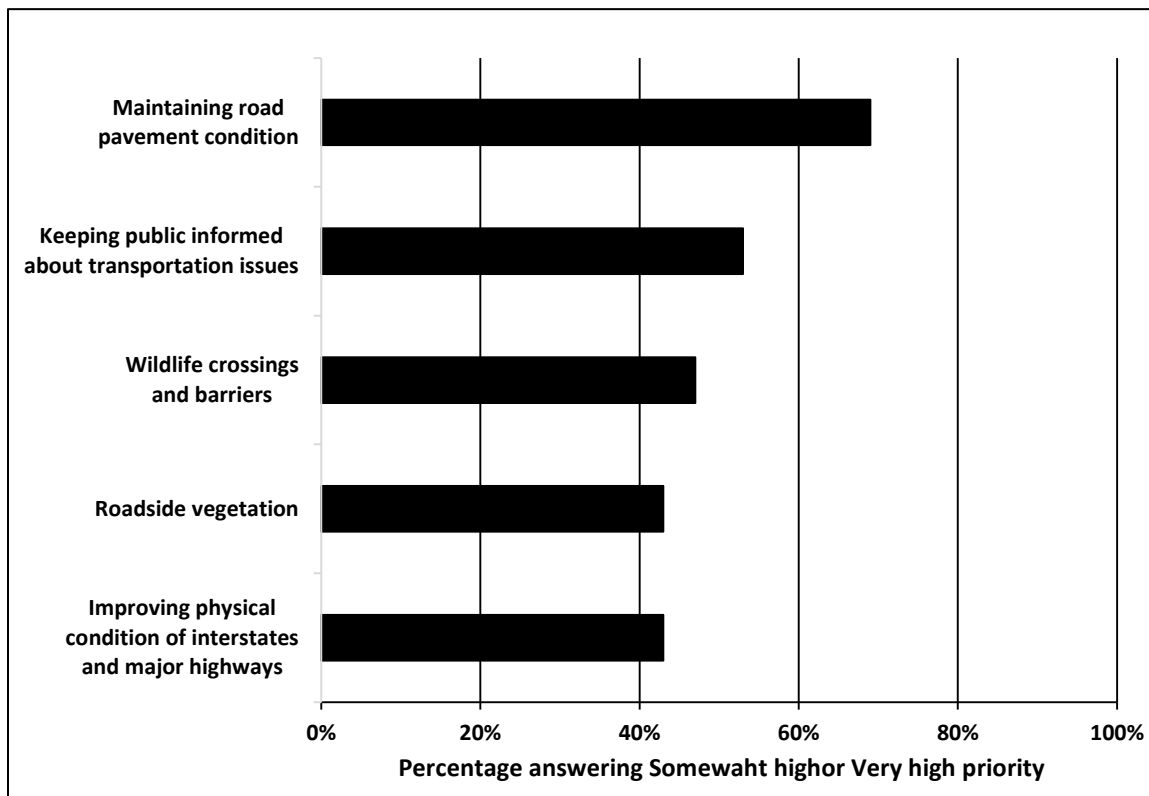


### Priority of Actions to Improve Montana’s Transportation System (District 5)

From a list of possible actions that can be undertaken to improve the transportation system in the state, respondents in District 5—Billings ranked the following four the highest (Figure 7.5c).

- Maintaining road pavement conditions received the highest priority ranking with 69 percent giving it a *somewhat high priority* or *very high priority*.
- Keeping the public informed about transportation issues ranked second (53%), followed by wildlife crossings and barriers (47%).
- Two items tied for the fourth ranking, both with 43 percent: managing roadside vegetation, and improving the physical condition of interstates and major highways.

**Figure 7.5c: Priority of actions for improving transportation system (District 5)**

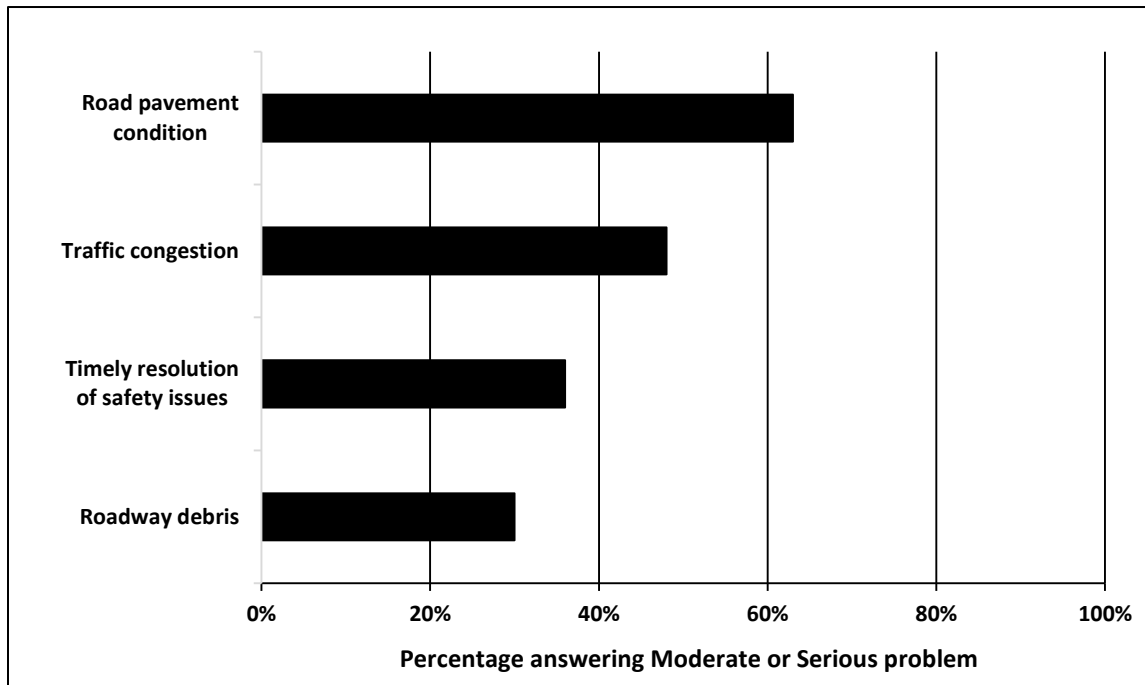


### Ranking of Issues Seen as Problems with the Montana Transportation System (District 5)

Survey respondents in District 5—Billings also considered a list of issues that may be seen as problems with the state’s transportation system (Figure 7.5d).

- Road pavement condition was considered to be either a *moderate problem* or a *serious problem* by the greatest percentage of District 5 respondents, at 63 percent.
- Three additional items ranked high on the list of potential problems: Traffic congestion (48%), timely resolution of safety issues (36%), and roadway debris (30%).

**Figure 7.5d: Ranking of transportation system problems (District 5)**

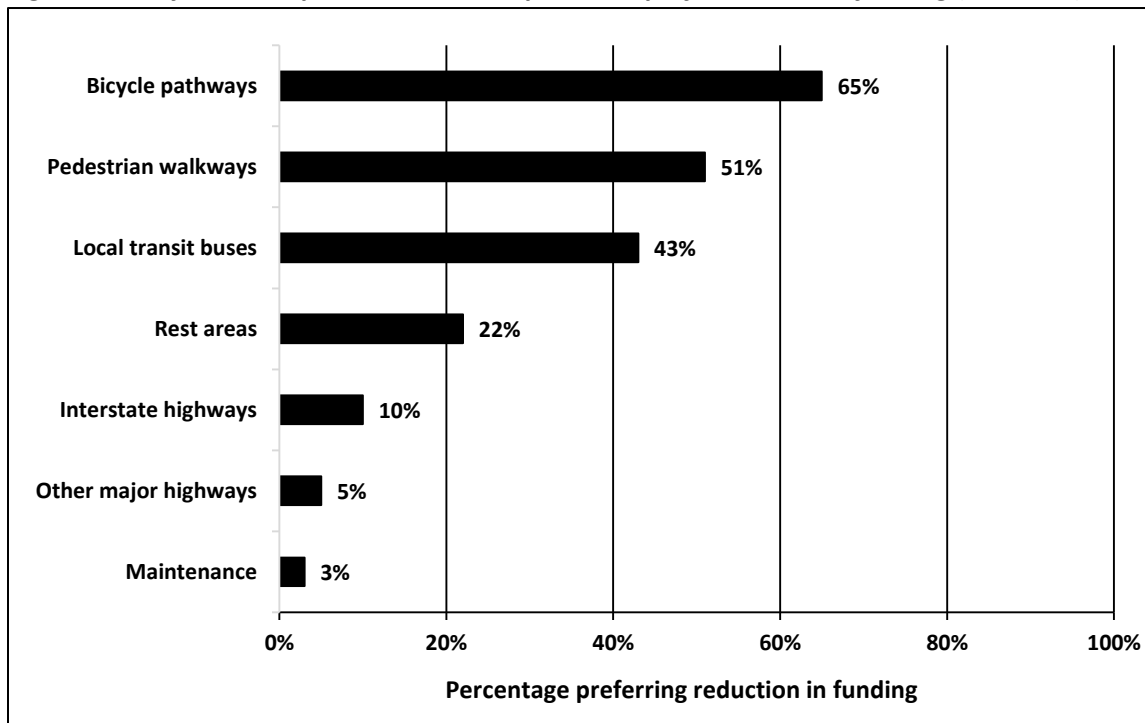


### Areas Favored for Decreases in Funding (District 5)

In the event of future decreases in the MDT budget, District 5 survey respondents indicated the areas within the Montana transportation system where they preferred funding to be reduced (Figure 7.5e).

- For residents of District 5—Billings, the majority (65%) indicated that they would prefer to see reduced funding for bicycle pathways.
- Transportation system maintenance was favored for receiving reduced funding by only a small percentage (3%).

**Figure 7.5e: System components where respondents prefer decreased funding (District 5)**





## SECTION 8: SURVEY METHODOLOGY

### Survey Administration

The MDT Public Involvement Survey was administered from June 8, 2019 through August 8, 2019. Contacting 3,502 eligible respondents resulted in 1,401 survey participants, for a response rate of 40 percent. This response rate is typical for a rigorously conducted, address-sampled mail survey (Dillman, Smyth, & Christian, 2014).

The survey was administered by mail with responses collected either via the Internet or via a hardcopy questionnaire. Sampled potential respondents received up to four mail contacts during the survey administration period:

1. An introductory letter inviting participation via an Internet link provided.
2. A follow-up letter thanking respondents and reminding non-respondents that they could participate via the Internet link provided.
3. A 8.5" x 11" questionnaire packet mailed to non-respondents only, inviting them to participate via an Internet link provided or by completing a hardcopy questionnaire and returning it in the stamped envelope provided.
4. A second 8.5" x 11" questionnaire packet mailed to non-respondents only, again inviting participation via an Internet link provided or by completing a hardcopy questionnaire and returning it in the stamped envelope provided.

### Questionnaire Design

The questionnaire was authored by MDT, with BBER formatting the hardcopy questionnaire. In addition, BBER programmed and tested the Internet version of the questionnaire using software provided by Qualtrics, Inc. MDT was the final approval authority for the questionnaire. A copy of the final questionnaire is included in Appendix A of this report.

### Sampling

The study population consisted of adults ages 18 and older who lived in an occupied dwelling listed in the U.S. Postal Service Delivery Sequence File. BBER sampled 4,000 potential respondents, 800 from each of MDT's 5 districts. Sampling was conducted using an addressed-based, random sample of residences purchased from Dynata, Inc. The sample was stratified by MDT district and by census tracts with the highest proportions of American Indian residents. Within households, random sampling was conducted using the most recent birthday method. This survey yielded an overall sampling error rate of +/- 4 percent.

## Weighting

The data presented in this report are weighted to produce estimates representative of the adult Montana population and adults in each MDT district. Survey weights are required to bridge the sample to the actual population as potential respondents in each sample strata had different probabilities of selection<sup>3</sup>. Survey weights were calibrated to population totals obtained from the U.S. Census Bureau's American Community Survey 2013-2017 data<sup>4</sup>.

## Data Set Preparation

Following collection and data entry, 100 percent of mailed questionnaires were verified for data entry accuracy. Appropriate data labels were added as well as composite variables and flags to facilitate analysis. Missing values for the weighting variables, necessary for calibration to the 2013-2017 ACS 5-year estimates, were imputed using the multiple imputation method<sup>5</sup>. Data were processed using three statistical software packages: IBM SPSS Statistics Version 25 (2017), SAS Version 9.4 (2018), and Statistics Canada's G-EST Version 2.01 (2018).

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<sup>3</sup> Heeringa and Berglund (2014). *Multiple Imputation of Missing Data Using SAS*. Cary, NC: SAS Institute Inc.

<sup>4</sup> Valliant and Dever (2018). *Survey Weights: A Step-by-step Guide to Calculation*. College Station, TX: Stata Press.

<sup>5</sup> Rubin, D. B. (1987). *Multiple Imputation for Nonresponse in Surveys*. New York, New York: John Wiley & Sons, Inc.







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