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Assessing MoDOT's Efforts to Provide the Right Transportation Solution

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Assessing MoDOT's Efforts to Provide the Right Transportation Solution

Prepared for the
Missouri Department of Transportation
Organizational Results

by

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The opinions, findings, and conclusions expressed in this publication are those of the principal investigators. They are not necessarily those of the Missouri Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration. This report does not constitute a standard or regulation.

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<p>16. Abstract</p> <p>In their effort to "provide a world-class transportation system that delights our customers," the Missouri Department of Transportation (MoDOT) has developed a Tracker system that assesses performance with tangible results. The set of goals includes the concept of "Fast projects that are of great value," and an important aspect of this Tracker measure is whether Missourians view MoDOT projects as the right transportation solution. To assess customer satisfaction with MoDOT projects, a mail survey was conducted in fall 2006 by the Institute of Public Policy in the Truman School of Public Affairs at the University of Missouri Columbia. Two waves of the survey were mailed with the first in November and the second in December. Almost 2,900 Missourians returned a valid survey questionnaire so the margin of error for the analysis is slightly smaller than plus or minus two percent.</p> <p>The results show that most Missourians are satisfied with the local MoDOT project chosen for this study. When asked about the specific features of the local project (such as safety, traffic flow, and ease of use), an overwhelming percent express attitudes in agreement with improvements in the roadway. For example, almost half "strongly agreed" and an additional 39% agreed that the "road is now safer" after the project. The lowest percent on the favorable side of any question on a specific feature of the project was the one on less congestion, and yet about 70% either agreed or strongly agreed that the road now has less congestion. Finally, when asked about whether this project was the "right transportation solution," more than two-thirds said that it was very much worth it, about 17% said somewhat worth it, and about 11% said they were not sure. Less than five percent said "not really worth it" or "not at all."</p>			
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Executive Summary

In their effort to “provide a world-class transportation system that delights our customers,” the Missouri Department of Transportation (MoDOT) has developed a Tracker system that assesses performance with tangible results. The set of goals includes the concept of “Fast projects that are of great value,” and an important aspect of this Tracker measure is whether Missourians view MoDOT projects as the right transportation solution. To assess customer satisfaction with MoDOT projects, a mail survey was conducted in fall 2006 by the Institute of Public Policy in the Truman School of Public Affairs at the University of Missouri Columbia. Two waves of the survey were mailed with the first in November and the second in December. Almost 2,900 Missourians returned a valid survey questionnaire so the margin of error for the analysis is slightly smaller than plus or minus two percent.

The basic research design for the project was to sample opinions on a variety of projects spread across the state. In particular, a small, medium, and large project from each of the ten MoDOT districts was selected by a regional manager for the project, and we drew a sample of residents from ZIP code areas adjoining the roadway where a project was recently completed. The sample included 400 addresses per project area for a total of 12,000 Missouri addresses receiving a copy of the survey. Despite this effort to keep the number of addresses even across the districts and projects, the response rate varied considerably by project area.

Each survey was focused on a particular project, which was briefly described on the survey, and most of the questions asked the respondent to address the question as it relates to the recently completed project. This design allows for an assessment of a wide array of project types in each region of the state. A battery of project-specific questions were asked, and they generally focused on whether the roadway after the completion of the project increased safety, improved traffic flow, and made it easier to navigate. In addition, a question was asked about the overall value of the particular project, an overall assessment of MoDOT performance and the greatest transportation problem facing Missouri. Finally, to analyze potential differences in attitudes across Missourians, the survey included several demographic factors, such as gender, rural/urban status, age, miles driven annually, and familiarity with the local project.

The results show that most Missourians are satisfied with the local MoDOT project chosen for this study. When asked about the specific features of the local project (such as safety, traffic flow, and ease of use), an overwhelming percent express attitudes in agreement with improvements in the roadway. For example, almost half “strongly agreed” and an additional 39% agreed that the “road is now safer” after the project. The lowest percent on the favorable side of any question on a specific feature of the project was the one on less congestion, and yet about 70% either agreed or strongly agreed that the road now has less congestion. Finally, when asked about whether this project was the “right transportation solution,” more than two-thirds said that it was very much worth it, about 17% said somewhat worth it, and about 11% said they were not sure. Less than five percent said “not really worth it” or “not at all.”

Background

MoDOT's mission is to "provide a world-class transportation system that delights our customers." The public's perception of MoDOT's performance is crucial to the long-term success of the agency, and an important aspect of the Tracker measure is whether Missouri citizens view MoDOT projects as the right transportation solution. The Tracker system assesses tangible results related to MoDOT's mission, and one of the tangible results is the concept of "Fast projects that are of great value." An element of this measure is an assessment of customer satisfaction with these projects.

In 2005, MoDOT commissioned a phone survey of 3,100 Missourians that included a question on citizen satisfaction, and it asked whether "completed projects are the right transportation solution." The results of this measure indicated that 5% of citizens said "all" projects were the right solution, and an additional 41% indicated "most" projects were. Concerns over this measure, however, led to its removal from the Tracker system.

First, there is considerable concern that this general measure is too vague to capture attitudes about current MoDOT performance or reflect satisfaction with recent projects. For example, the difference between "some" or "few" is open to interpretation, and it provides little information on which kinds of projects may be in the good or bad category. Second, it provides no real feedback on which dimensions of performance (such as safety, congestion, or quality of roads and bridges) affect a citizen's satisfaction. Third, the assessment of all projects in one measure does not allow one to discern differences across different demographic groups (such as younger or older drivers and males or females) or across different sections of the state (such as urban rural) that could provide information on where to target resources.

To assess customer satisfaction with MoDOT projects, a new survey was designed and implemented in fall 2006 by the Institute of Public Policy at the University of Missouri Columbia. The new approach focuses attention on a particular set of projects, and the sample includes only those citizens living in areas near the MoDOT projects of interest. Overall 30 different projects, ranging from small to large projects and spread evenly across the ten MoDOT districts in the state, were chosen, and questionnaires were mailed to about 12,000 citizens living near those projects. In addition, the survey examined attitudes on safety, congestion, and ease of use for a particular project in this list of 30 projects (see appendix D).

Project Locations

In assessing whether MoDOT is providing the right transportation solution, the survey focused on opinions about particular MoDOT projects rather than a statewide sample of whatever projects a respondent might know about. For example, a random sample using a phone survey would be likely to find hundreds of people familiar with big projects on major Interstate highways in the two large metro areas of the state, but would be less likely to find a suitable sample size for people aware of smaller urban projects or any projects in more sparsely populated sections of the state. Because MoDOT implements a variety of projects from small maintenance projects involving shoulder improvements to major bridge and highway expansions, such an approach would miss much of what MoDOT does.

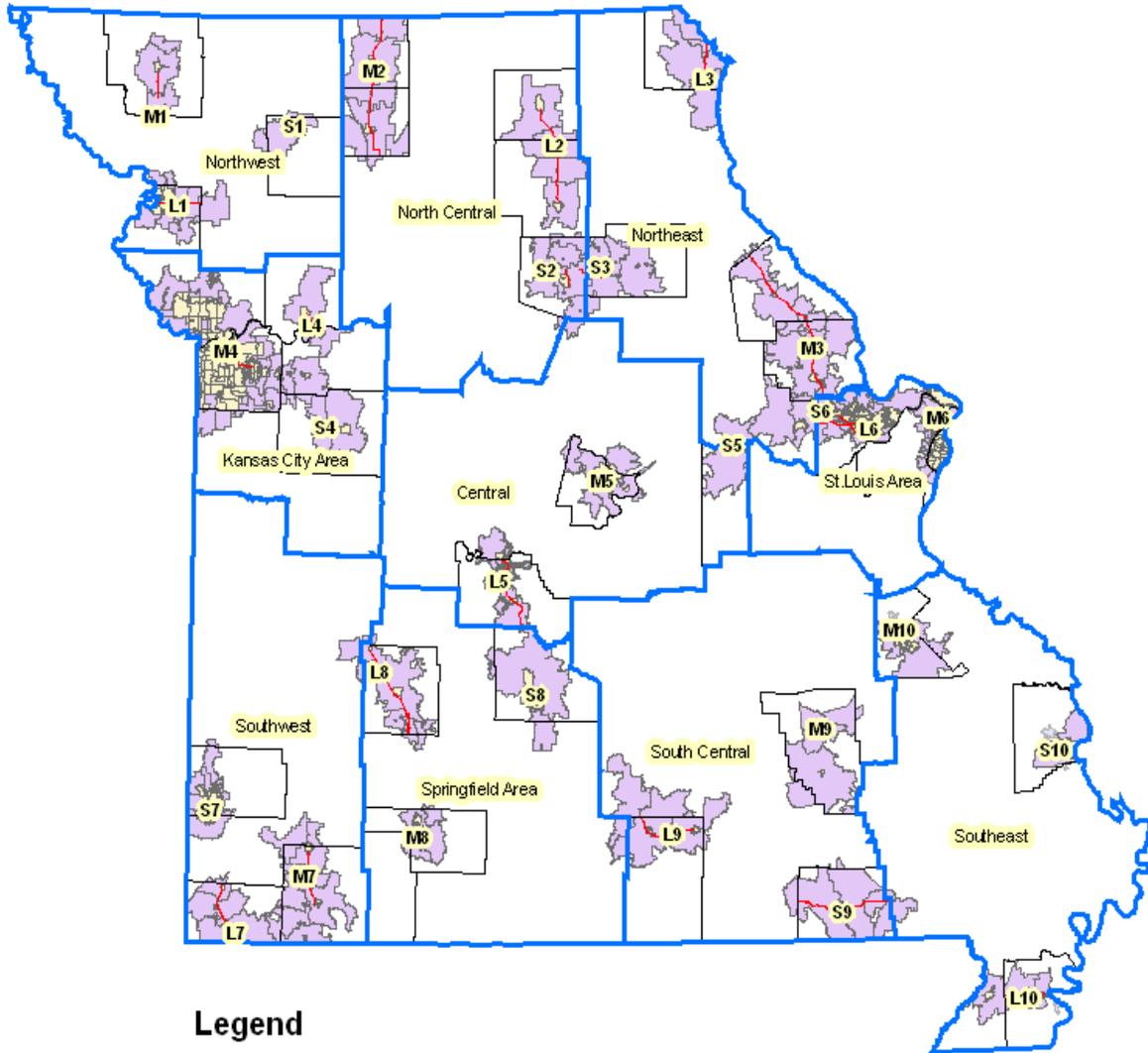
To provide a better picture of customer satisfaction for all kinds of projects in all MoDOT districts within the state, the survey sample was drawn from people living near 30 different road projects. A district level manager from each of the ten MoDOT regions picked three recently completed projects in the districts, with one each in the small, medium, and large project categories. Further, the district contact supplied descriptions of the three road improvement projects in the district. Once the project list had been approved by MoDOT, a sample of 400 people was drawn for each project area (for a total of 12,000).

Figure 1.1 illustrates the physical locations of the road fragments surrounding the area where road improvement projects took place. The map also displays ZIP codes that are closest to the construction projects for which the survey was conducted. The resulting list of 30 road improvement projects formed the basis for the survey. Each project was assigned a simple identifying code (“S1” for the small project in district 1, “M1” for the medium project in district 1, etc...). The codes are used in the map in Figure 1 and also used in sorting the responses to the survey. The survey sample for each project was drawn from the population in these areas. The selection of ZIP codes was conducted using the intersection tools supplied in ESRI’s ArcGIS 9.1, and the selection method used the population size in each ZIP code district to determine how many people were included in the final sample of 400 people per project area.

Maps of each MoDOT region were generated and distributed to each regional contact along with a list of the ZIP codes included in the maps. The regional contacts provided feedback as to the suitability of the selected ZIP codes based on their knowledge of the region. The aim of the research team was to identify a region to survey that contained a population most likely to be users of the roads where the improvement projects took place. The appropriate number of addresses for each ZIP code was obtained from a national survey sampling company. The ZIP code and the project description were linked in the database, and each survey questionnaire was printed with the relevant address and project description. The first wave of the survey was mailed November 1, 2006, and the second wave was mailed December 5, 2006. More details on the method are provided in the appendix.

Figure 1.1 - Project Locations

Tracker9g
ZIP Codes Intersecting Project Roads
and Nearby Cities



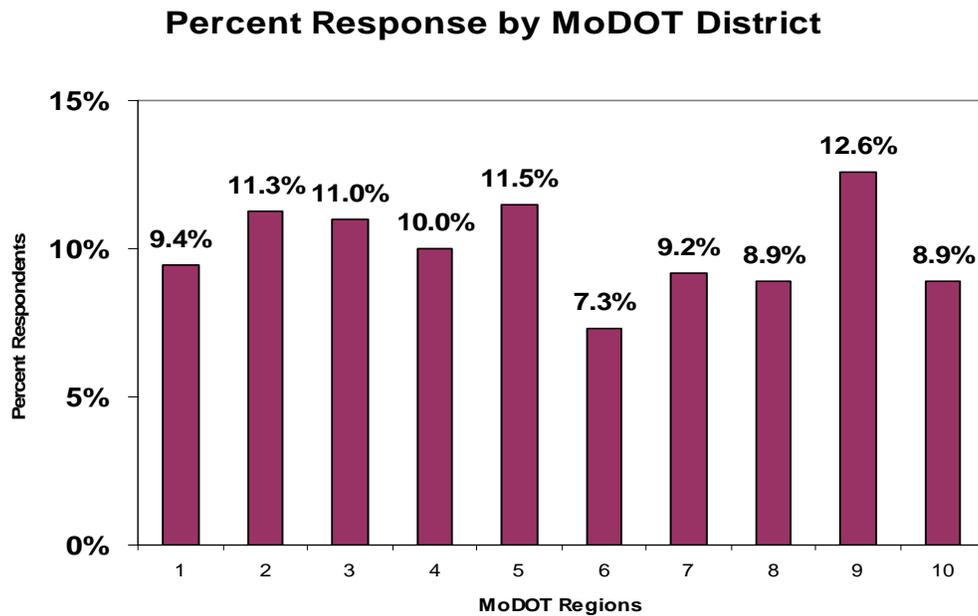
Legend

-  ZIP Codes Immediately Intersecting Project Roads or Nearby Cities
-  Nearby Cities
-  Road fragments around projects

Respondents

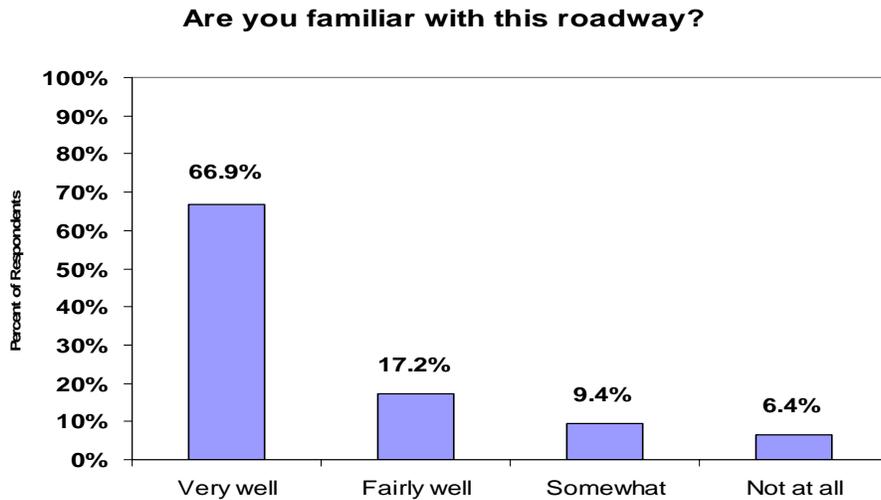
After accounting for undeliverable addresses and refused deliveries, the sample pool size was 11,431 from which 2,873 Missourians responded. The final response rate for this survey was 25.1 percent. The respondents were fairly evenly distributed across the ten MoDOT regions (see appendix E). Ranging from 7.3 percent of respondents from region 6 to 12.6 percent from region 9, each region contributed around 10 percent of the respondent pool (see figure 1.2).

Figure 1.2



Several questions were used to provide background information on the respondents and to allow comparisons across groups, such as age, gender, resident of a metro area or not, miles driven each year, how familiar the driver is with the roadway, and how often the respondent has used the roadway in the past month. The mean age of respondents was 56 years old, and it was calculated from the 2,543 respondents with valid data on the year of birth. The range was from 17 to 90 years old. In addition, more males responded (56.3%) than females (43.7%). In addition, the zip code data was used to classify drivers based on whether they live in a metro or non-metro area based on the MSA's determined by the Census Bureau. About 73% of respondents were from metro areas, and 27% were from non-metro areas. Respondents can also be divided by project size (as defined by MoDOT), and 31% reported on small projects, 34% were from medium size project areas, and 35% lived in areas near large projects. Annual miles driven may also be an important factor because respondents who drive a lot during the year may view Missouri roads differently than those who drive little. We divided the miles driven variable into four categories, and 30% had less than 10,000 miles, 49% were from 10,001 to 25,000, 15% were in the 25,001 to 45,000 category, and 5% were in a 45,001 and above category.

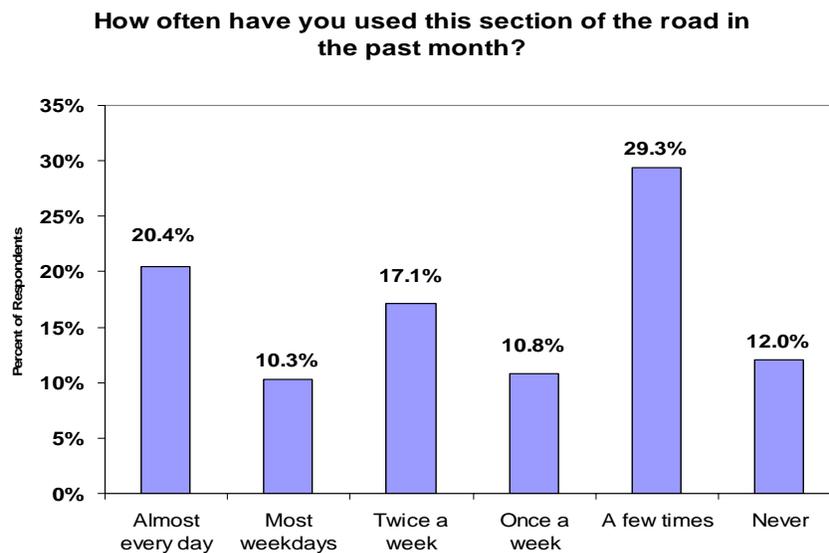
Figure 1.3



The vast majority of respondents were familiar with the local project used in the study (see figure 1.3). Two-thirds said they were very familiar, and another quarter said somewhat or fairly familiar. Only about six percent of respondents stated that they were not at all familiar with the highway improvement project on their survey.

Respondents were also asked to indicate how often they had used the specified section of roadway in the past month (see figure 1.4). About one in five participants use the roadway every day, and another ten percent use it most weekdays. Another quarter reported use of once or twice a week. Therefore, 57% of the respondents are regular users of the roadway. About 29% stated they traveled the specific section of roadway only “a few times” in the past month. Only 12 percent report never using the roadway section in the previous 30 days.

Figure 1.4



Project Assessment

To gain more precise information about factors affecting customer satisfaction with particular projects, the survey was designed to ask a battery of questions about safety, convenience, ease of use, and efficiency. Clearly, one could see a road segment after an improvement project as being less congested but at the same time seeing it as less safe or harder to navigate so it is important to root out these differences in opinion. The ideal situation for MoDOT performance would be a high score on all dimensions, but differences across the questions can provide meaningful input on potential areas of improvement. Finally, one question is asked of the citizen's assessment of the overall worth of the local project.

To make the evaluations more meaningful, the battery of questions was asked relative to a particular project in the local area for that citizen. Most citizens are likely to be familiar with only a small portion of the vast network of roads maintained by MoDOT so it is important to assess attitudes about a local project that is likely to be more familiar to the survey respondent. As described above in the project locations section and described further in the appendix, the survey was sent to a sample of citizens in areas near a particular project, and the project was described on the front page of the survey. The battery of questions was then asked relative to this project. The survey instrument is in the appendix.

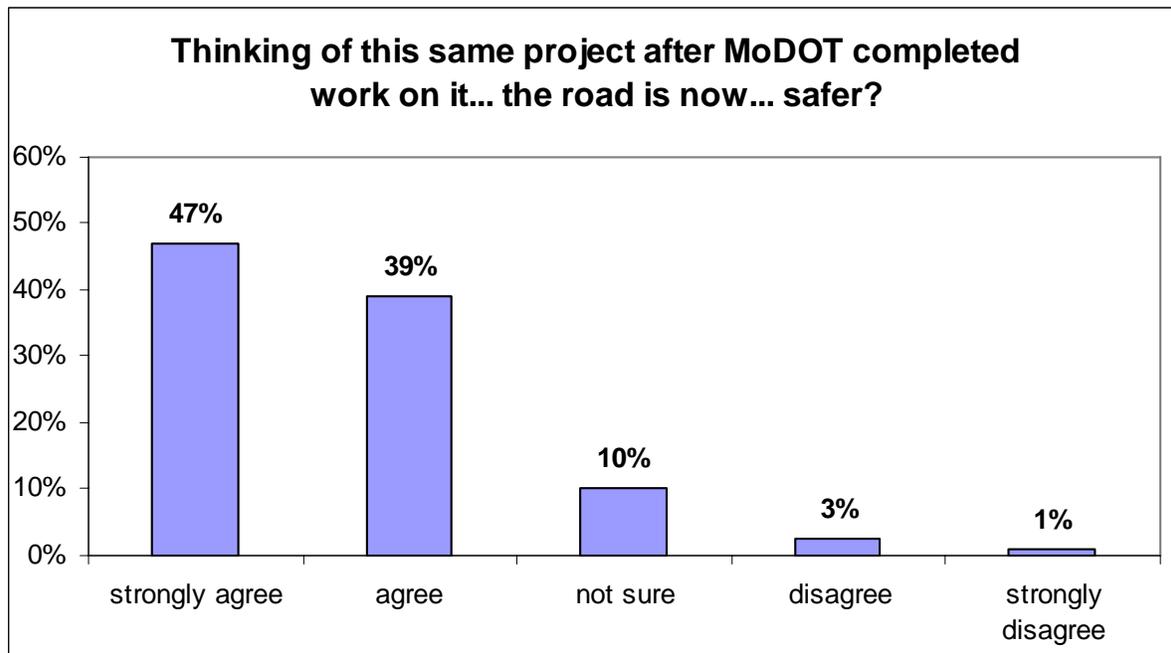
Providing the concrete example of a particular project for citizen assessment offers a number of benefits. First, we know which project the citizen is considering as they make an assessment. If a particular project was not named, different citizens could be considering different local projects. Second, the specific example makes it less likely that a single frustration in the distant past with another project will influence the citizen's assessment of current performance. Third, it makes it less likely that the survey respondent will confuse a MoDOT project with a city or county project in the area.

The survey also asked respondents for information that can be used to assess differences across the population. In particular, the results can be evaluated in terms of gender, urban versus rural residence, age, miles driven each year, and familiarity with the roadway. Significant differences in group scores on the evaluation dimensions can assist future strategic considerations for MoDOT leadership.

I. Safer

One of the goals of MoDOT in making improvements to the Missouri road system is to make roads safer. The perspective of Missourians is positive as they tend to recognize MoDOT's efforts to increase safety in the roadways evaluated for this study. As Figure 2.1 shows, an overwhelming percent of respondents strongly agreed or agreed (86%) that the roadway is now safer after the MoDOT project was completed. Ten percent were not sure, and only 4 percent disagreed or strongly disagreed.

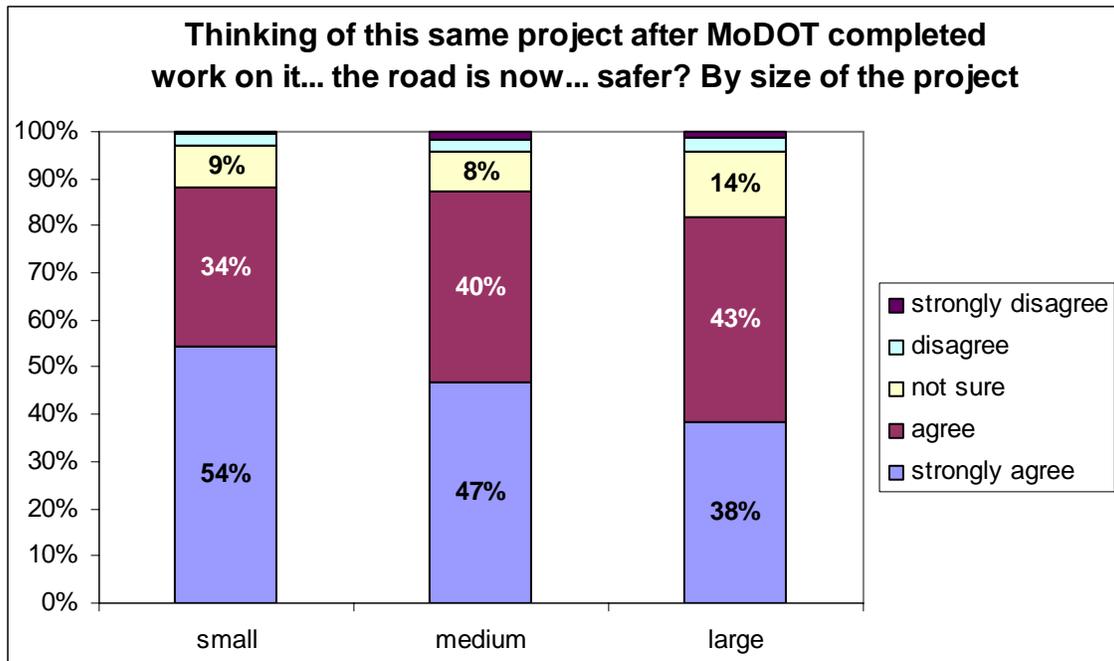
Figure 2.1 – Roadway is now safer



There are several questions to be asked of the responses illustrated in figure 2.1. For instance, were those who agree that the road is now safer very familiar with the roadway? How many miles do those respondents typically drive in a year? Are they primarily from metropolitan or non-metropolitan areas? The following series of figures compares responses to the question of “is the road now safer” in comparison to responses to select other questions.

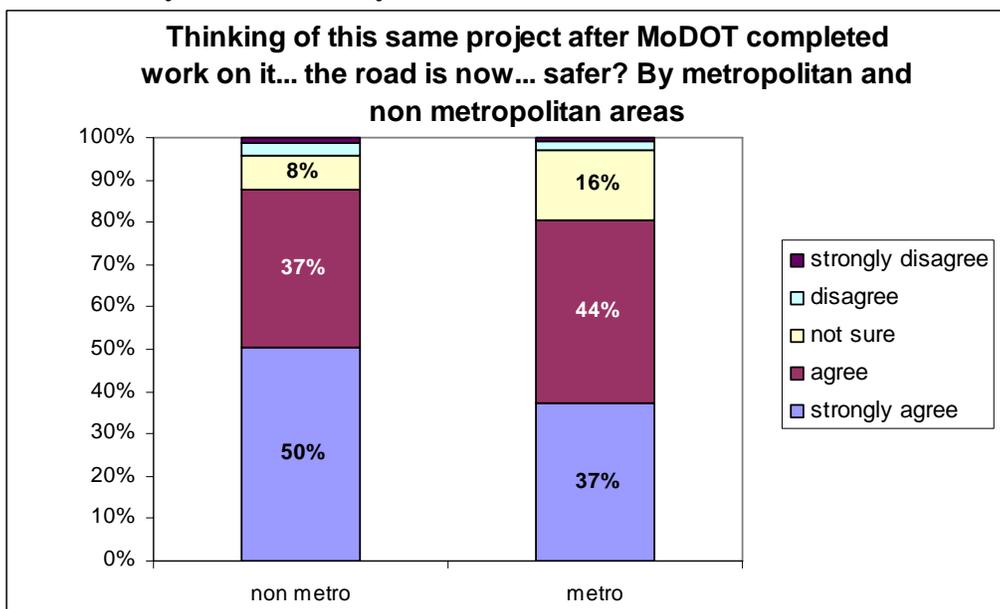
Figure 2.2 compares responses to this question by the size of the project. As shown in the chart, opinions differ significantly between small and large projects in terms of the “strongly agree” response. Fifty-four percent of respondents responding to questions about small projects strongly agreed that the road was now safer compared to 38 percent responding to questions on larger projects. However, if the two “agree” categories are examined together, the attitudes are very similar. Eighty-eight percent of respondents to small projects agree or strongly agree that the road is now safer compared to 87 percent from medium project areas and 82 percent from large project areas. Smaller projects are more likely to have a local impact while larger projects are typically associated with major Missouri roads and/or interstate highways so this may explain the observed differences.

Figure 2.2 - Roadway is now safer by size of the project



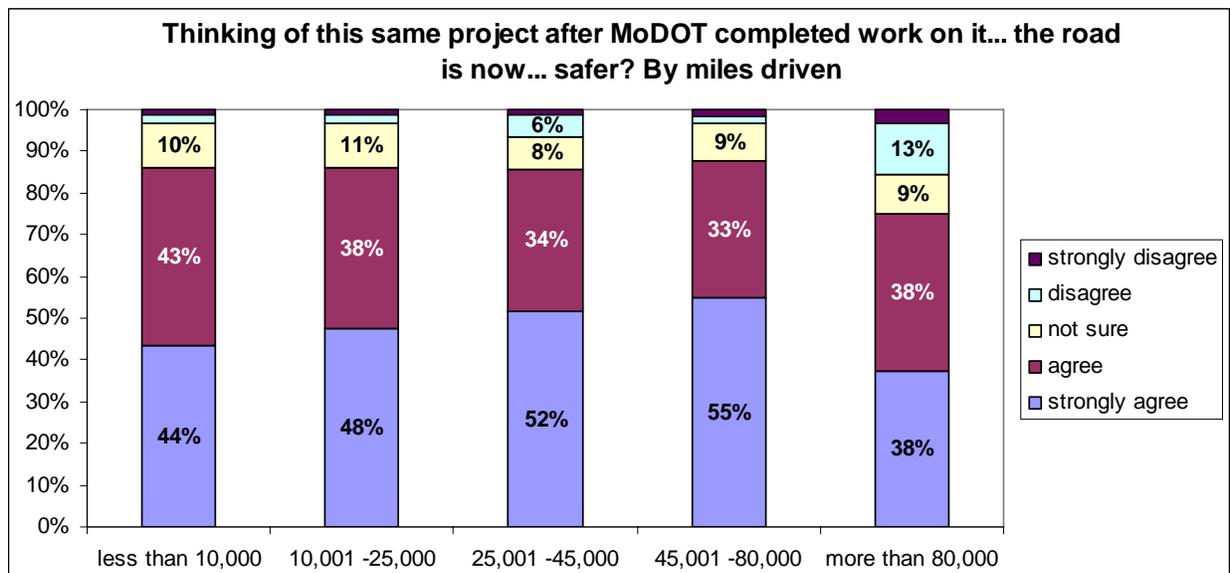
Comparing responses to this question by the metropolitan/non-metropolitan status of the respondent's residence permits identification of differences of opinion based on an urban/rural measure. Figure 2.3 illustrates the responses to the question "are the roads safer?" compared to metro/non-metro status. Eighty-seven percent of respondents from non-metro areas agreed or strongly agreed that the roads are now safer compared with 81 percent from metro areas. Further, the difference is even larger for the "strongly agree" category.

Figure 2.3 - Roadway is now safer by metro and non-metro areas



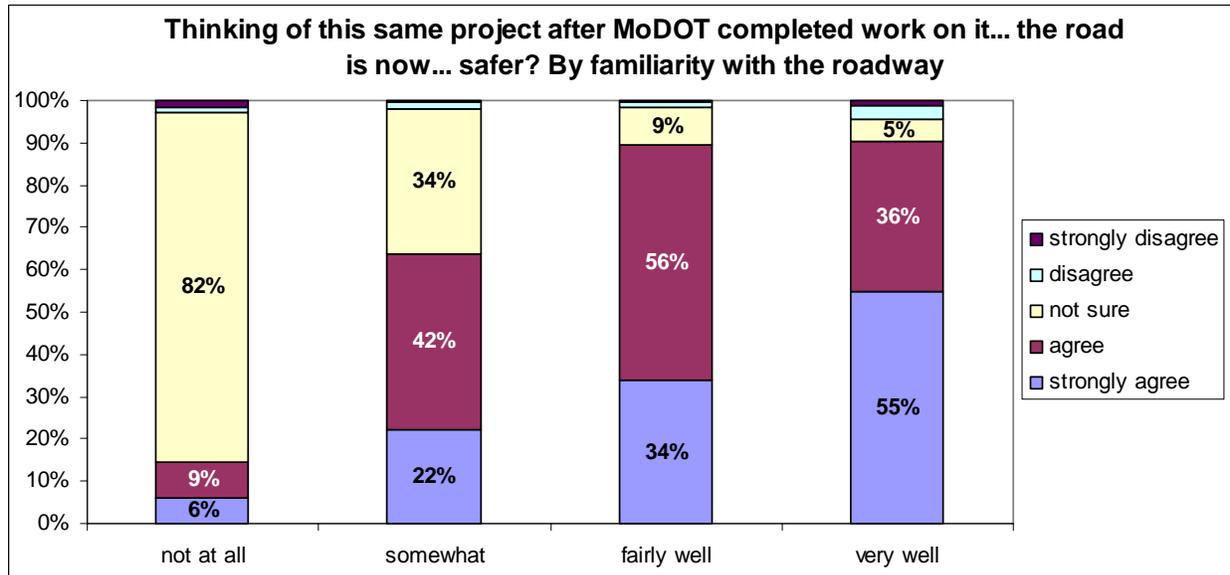
The number of miles driven per year and familiarity with the safety improvement project correlate with an increased perception of the roads being safer as a result of the MoDOT project as seen in figures 2.4 and 2.5, respectively. More than 50% of respondents who drive more than 25,000 miles (figure 2.4) and more than 55% of respondents who are very well familiar (figure 2.5) with the road strongly agreed that the roads are safer. Interestingly, the portion of respondents who agreed or agreed strongly showed little to no variation based on the number of miles driven each year. In each group driving 45,000 miles per year or less, 86 percent agreed or strongly agreed that the roads are safer and 88 percent of those driving between 45,000 and 80,000 agreed or strongly agreed. Overall, satisfaction was fairly similar, but the strength of agreement was correlated with higher annual mileage.

Figure 2.4 - Roadway is now safer by miles driven



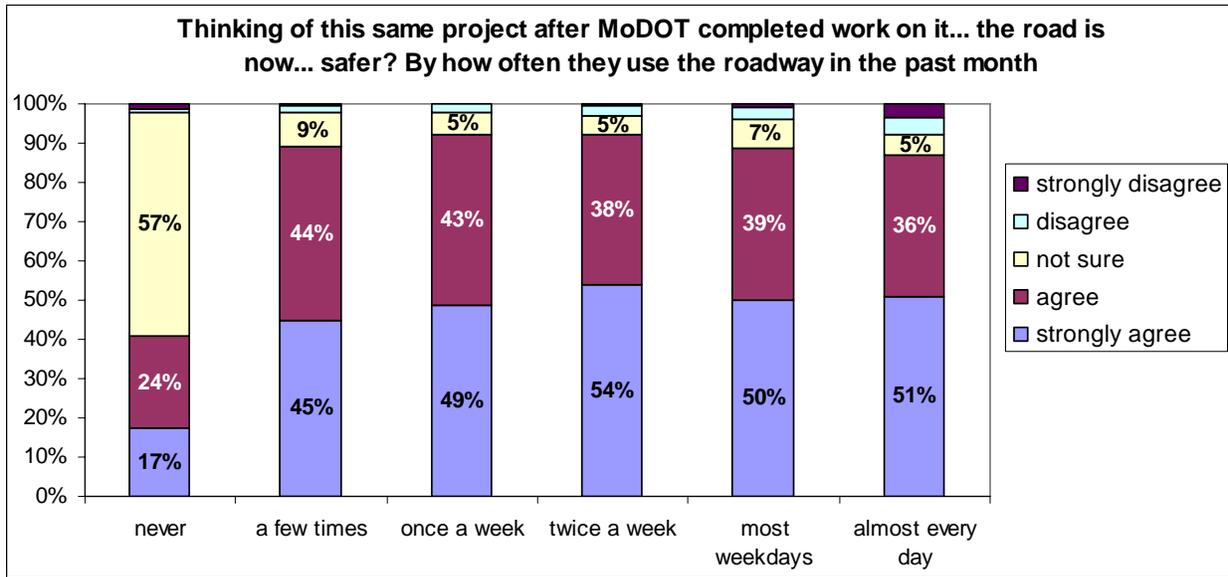
The same was not true for familiarity with the project. Much more variation exists between the four groups (figure 2.5). Generally, the more familiar a driver is with the roadway the more likely one is to strongly agree that it is safer. About 55% of those most familiar with the roadway strongly agreed. The combined agreement figure for the “fairly well” group was 81%, and it was 91% for the very familiar group. Also, it is interesting to note that respondents who were “not at all” familiar with the project overwhelmingly indicated that they were “not sure” (82%) if the project made the road safer.

Figure 2.5 - Roadway is now safer by familiarity with the roadway



Regular use of the roadway is also correlated with a higher likelihood of indicating the project made the road safer. Regardless of whether respondents used the road “a few times” in the past 30 days to “almost every day,” roughly 90 percent indicated they agreed or strongly agreed that the road was now safer because of the improvements (figure 2.6). The percent of respondents indicating they “strongly agree” varies more but stayed around the 50 percent mark. As seen previously, respondents who indicated they “never” used the road were overwhelmingly likely to indicate they were not sure if the project increased the safety of the road.

Figure 2.6 - Roadway is now safer by how often they use it in the past month



Finally, demographic characteristics of respondents do not make a significant difference in opinions on safety improvement in the roadways. As shown in figures 2.7 and 2.8 in appendix A, men as well as older groups were slightly more likely to see the roadway as safer, but both sexes and all groups of ages were in agreement that the roads are safer as a result of the project.

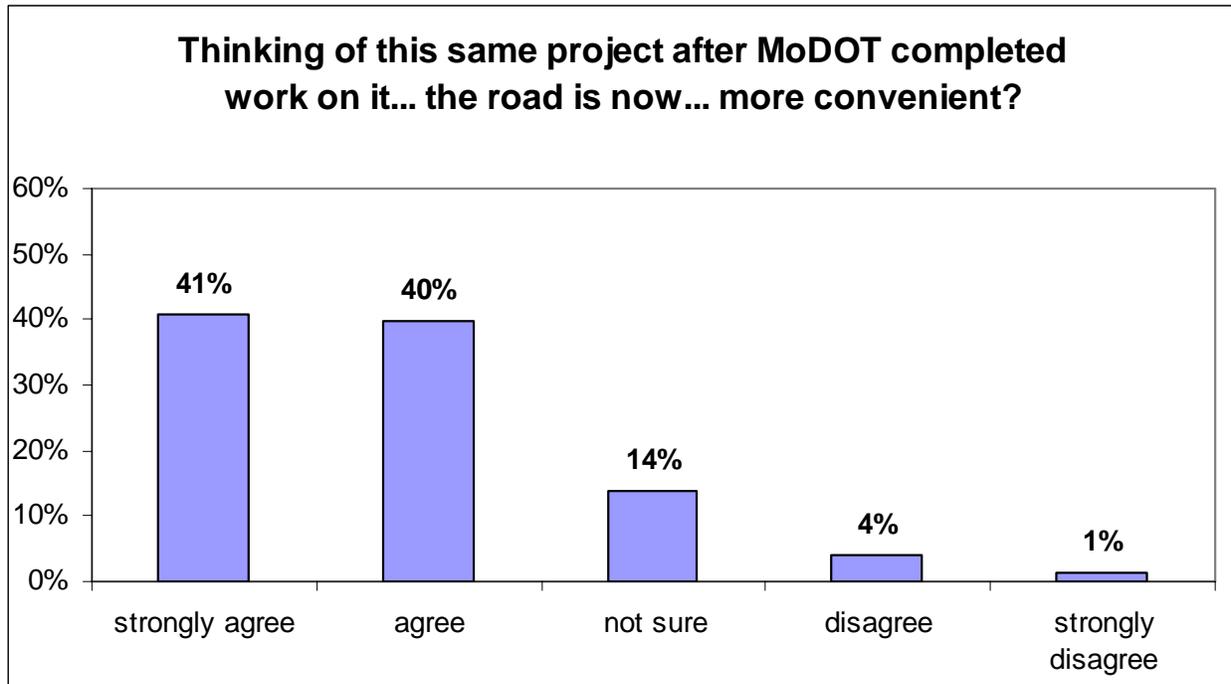
II. Improving traffic flow in the area

Another aspect that MoDOT projects sought to improve was the traffic flow. Three questions related to this issue were asked on the survey: whether the roadway is now “more convenient,” “less congested,” and “handles more traffic efficiently.”

II.1. More Convenient

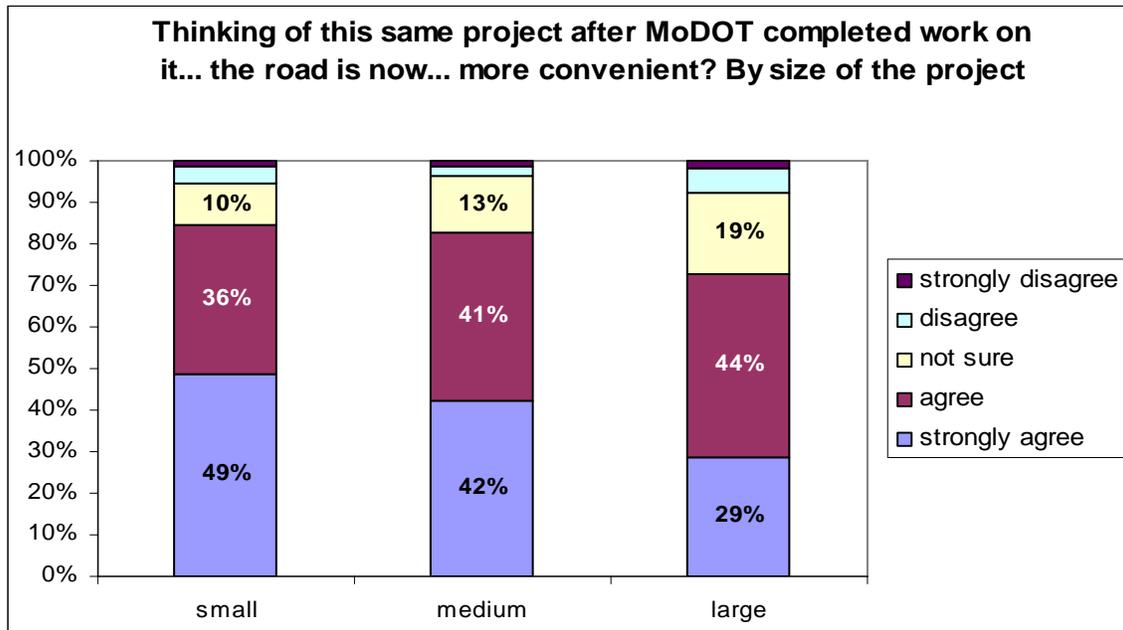
As seen in figure 3.1, eighty-one percent agree or strongly agreeing that the road is “more convenient” as a result of the MoDOT project. Only one in seven is not sure, and only about one in twenty disagrees or strongly disagrees.

Figure 3.1 – Roadway more convenient



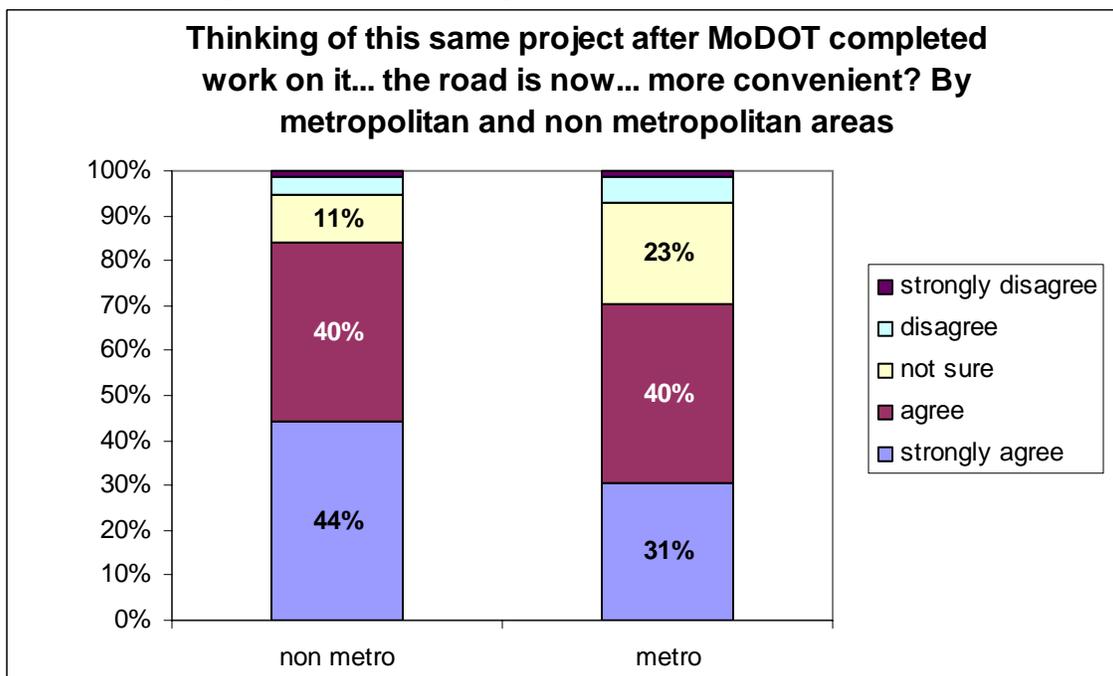
Project size is related to the assessment of convenience. For all project sizes at least three-quarters of respondents agreed or strongly agreed that it was more convenient after the project, but the small and medium categories were about ten percentage points higher than the large project category (see figure 3.2). Respondents in small project areas were more likely to agree strongly (49%) than medium project (42%) or large project (29%) areas that the roads were now more convenient.

Figure 3.2 – Roadway more convenient by size of the project



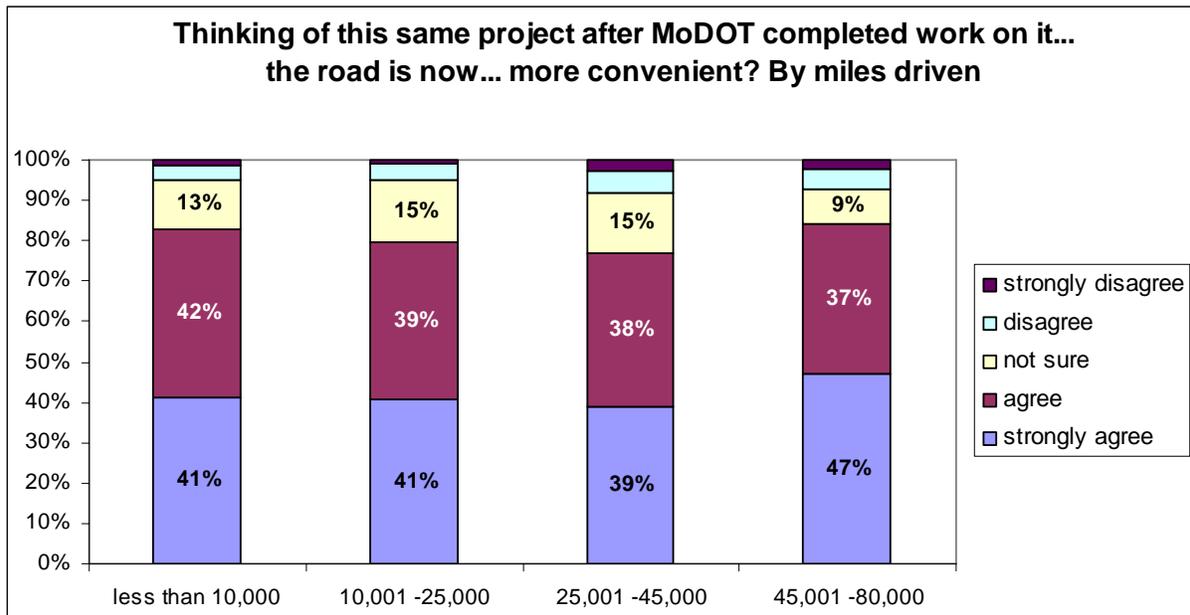
Location also matters, and figure 3.3 illustrates that respondents in non-metropolitan areas were more likely to see the improvement as making the roadway more convenient than those in metro areas. Seventy-one percent of respondents living in metro areas either agreed or strongly agreed as compared to 84 percent from non-metro areas.

Figure 3.3 – Roadway more convenient by metro and non-metro areas



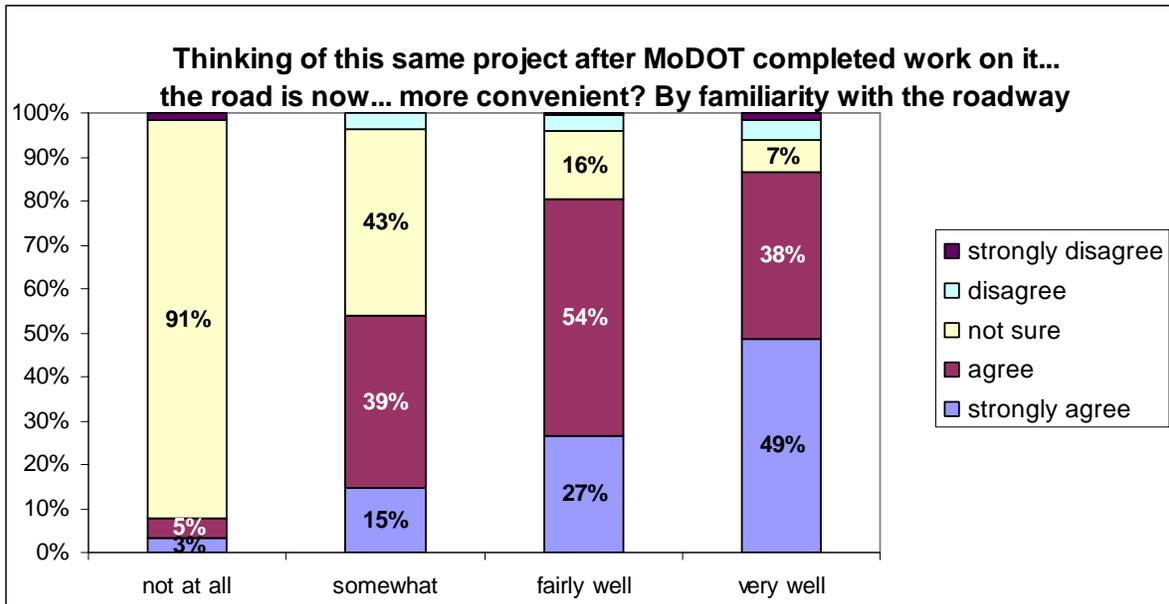
There is very little difference in perceptions of convenience based on how many miles respondents drive in a year. As shown in figure 3.4, the percent of respondents agreeing or strongly agreeing that the roads are now more convenient was around 80 percent regardless of how many miles respondents drive annually. However, a larger percentage of those driving 45,001 – 80,000 in a year strongly agreed that the roads were more convenient (47%) compared to the other three mileage categories (41% or less).

Figure 3.4 – Roadway more convenient by miles driven



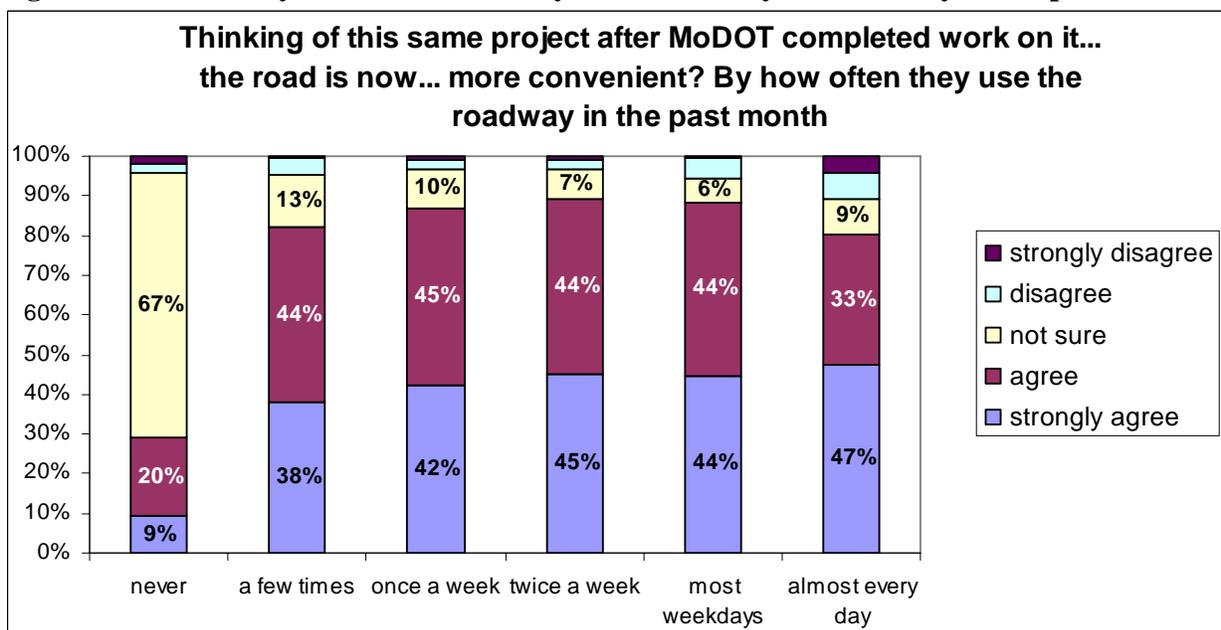
There is an extremely strong correlation between the perception that the roads are more convenient as a result of the MoDOT project and familiarity with the roadway. Figure 2.5 shows that only 15 percent of respondents who were “somewhat” familiar with the safety improvement project strongly agreed that the road was more convenient whereas 49 percent of those “very” familiar with the project strongly agreed that the road was more convenient. The combined agreement percents also follow this pattern, and it is clear that the weakest evaluations are from those least familiar with the roadway.

Figure 3.5 – Roadway more convenient by familiarity with the roadway



As figure 3.6 shows, similar to the responses illustrated in figure 2.6, there are only small difference in perception of convenience of the roadway based on how often the respondents used the road. Those who use the road more often were more likely to strongly agree (47%) than those who used the road only a few times in the past 30 days (38%) and are far more likely than those who have not used it at all in the past 30 days (9%).

Figure 3.6 – Roadway more convenient by how often they use roadway in the past month



Finally, the gender of respondents makes no difference on opinions regarding the convenience of the road as shown in figure 3.7 of Appendix A. Overall, both males and females are equally likely to agree or strongly agree that the road is more convenient because of the MoDOT project.

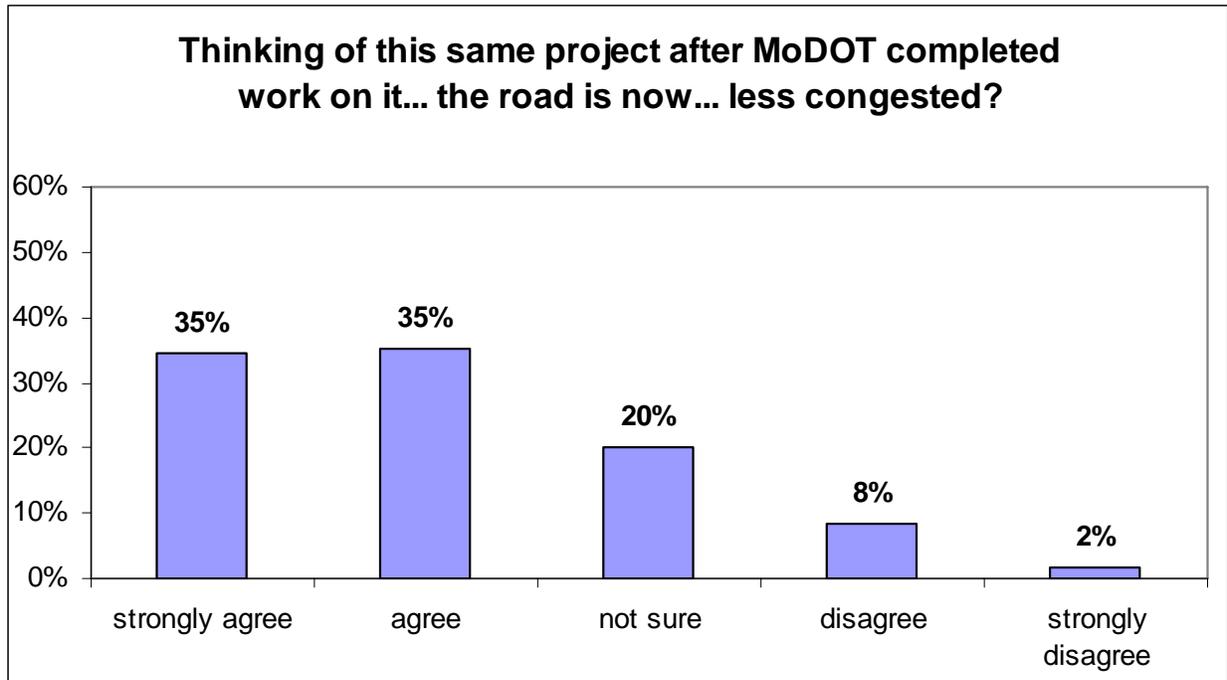
Additionally, age correlates positively with the perception of convenience as seen in figure 3.8 in Appendix A. In that sense, older groups are more likely to agree or strongly agree that the roads are more convenient than younger respondents. Seventy-eight percent of respondents aged 21 to 30 either agreed or strongly agreed that the roads were more convenient compared to 87 percent of those 81 or older.

II.2. Less Congested

Congestion is one aspect that MoDOT has less control over as compared to issues related to safety. In many cases projects are undertaken in areas that have experienced considerable traffic growth, which is likely to continue after the project is completed so congestion may not improve markedly despite safety improvements. In addition, many of the projects (listed in appendix C) involved mainly safety enhancements, such as shoulder work, may not affect congestion.

Generally, evaluations of congestion improvements are lower than other project features such as safety and convenience. As figure 4.1 shows, 70% of respondents agreed or strongly agreed with the congestion statement, but 81 percent agreed or agreed strongly that the road is more convenient (figure 3.1) and 86% saw it as safety (figure 2.1). In addition, group opinions are evenly divided between those who agree and those strongly agree. Only ten percent disagree that the road is less congested after the MoDOT project was completed, and about one in five are not sure. In general, among the dimensions upon which drivers were assessing the roadway projects, congestion improvements received the lowest evaluations. This lowest score must be viewed, however, within a context that shows more than two-thirds of participants assessed it positively.

Figure 4.1 – Roadway less congested



Project size and metro status are correlated with the convenience rating. As seen previously in figures 2.2 and 3.2, there is a negative correlation between the size of the project and the likelihood of agreeing or strongly agreeing with the statement that the road is now less congested. A whopping 84% agree on small projects, but the rate drops to 54% on large projects.

As one might expect given lower initial levels of congestion on many non-metro roadways, the non-metro respondents were most satisfied with improvements in congestion. Seventy-three percent of respondents from non-metro areas agreed or strongly agreed that the roads are less congested after the project compared to only 62 percent of respondents from metro areas (see figure 4.3).

Figure 4.2 – Roadway less congested by size of the project

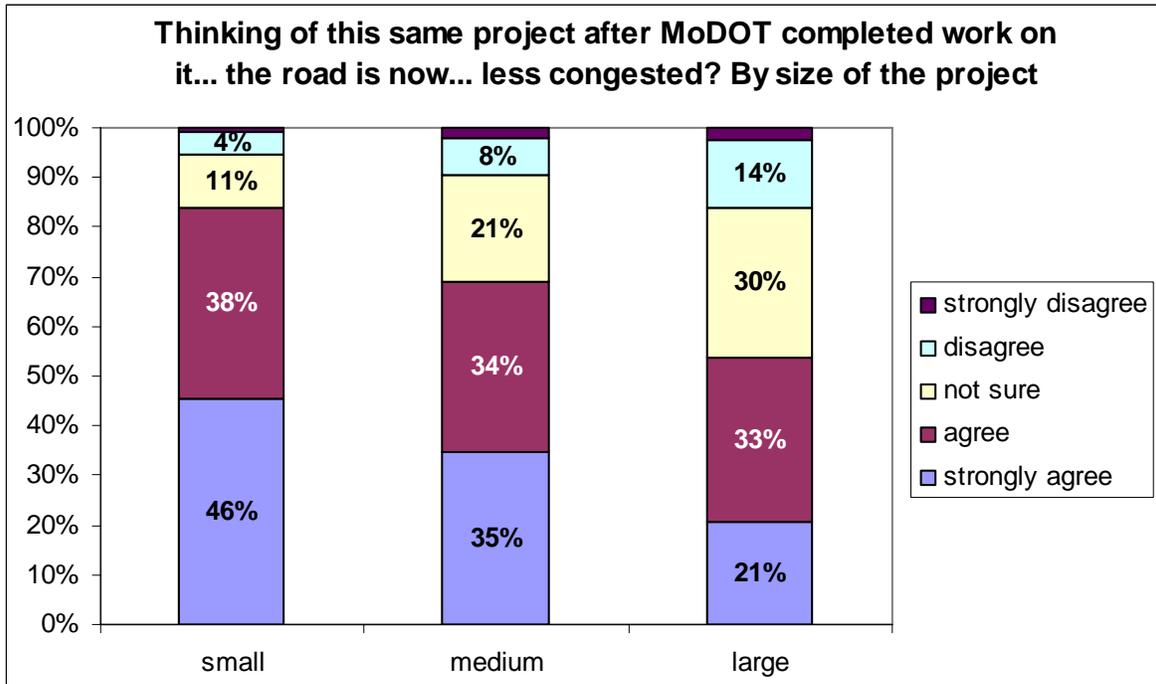
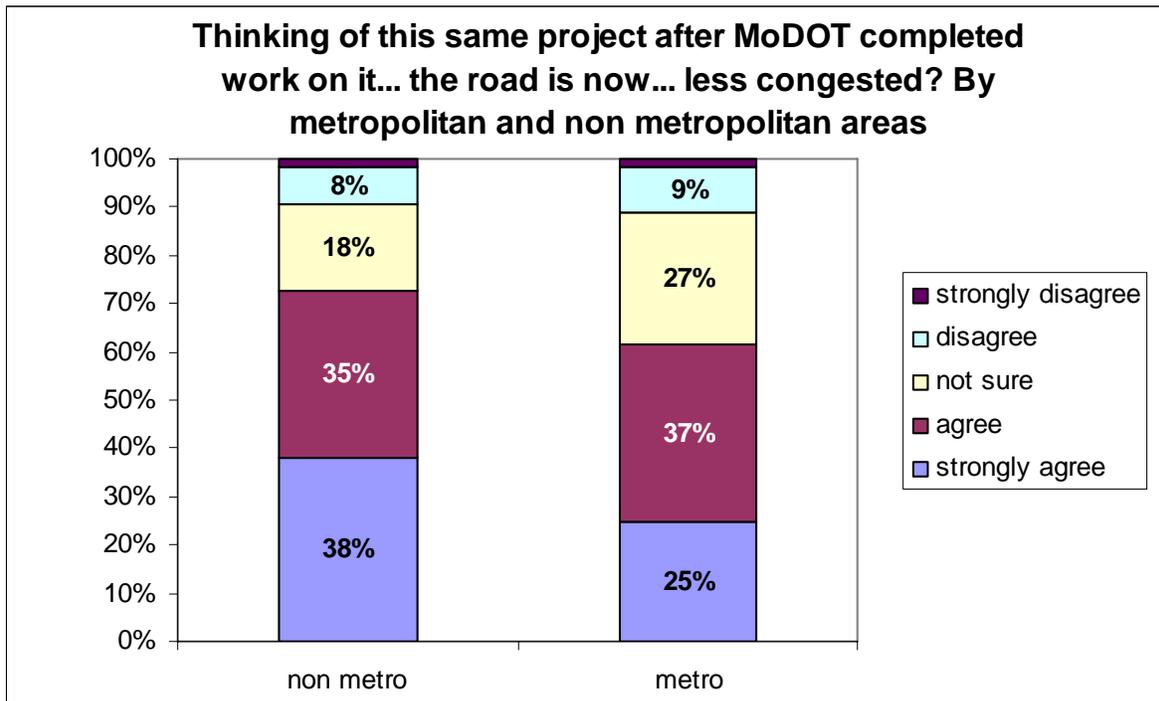
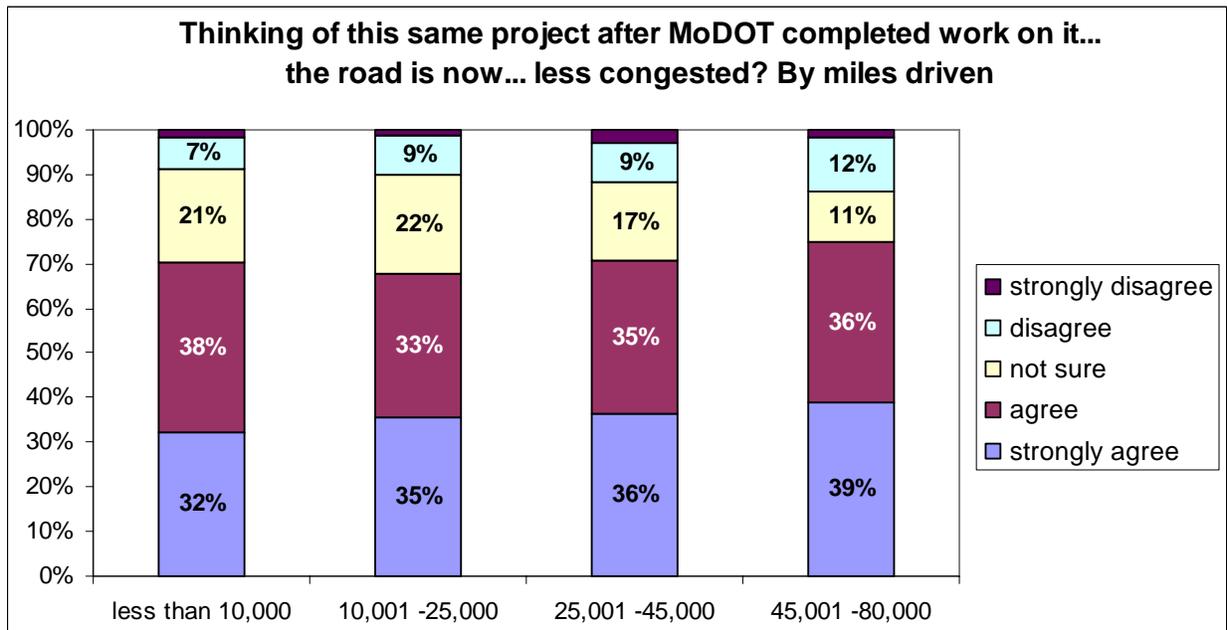


Figure 4.3 – Roadway less congested by metro and non-metro areas



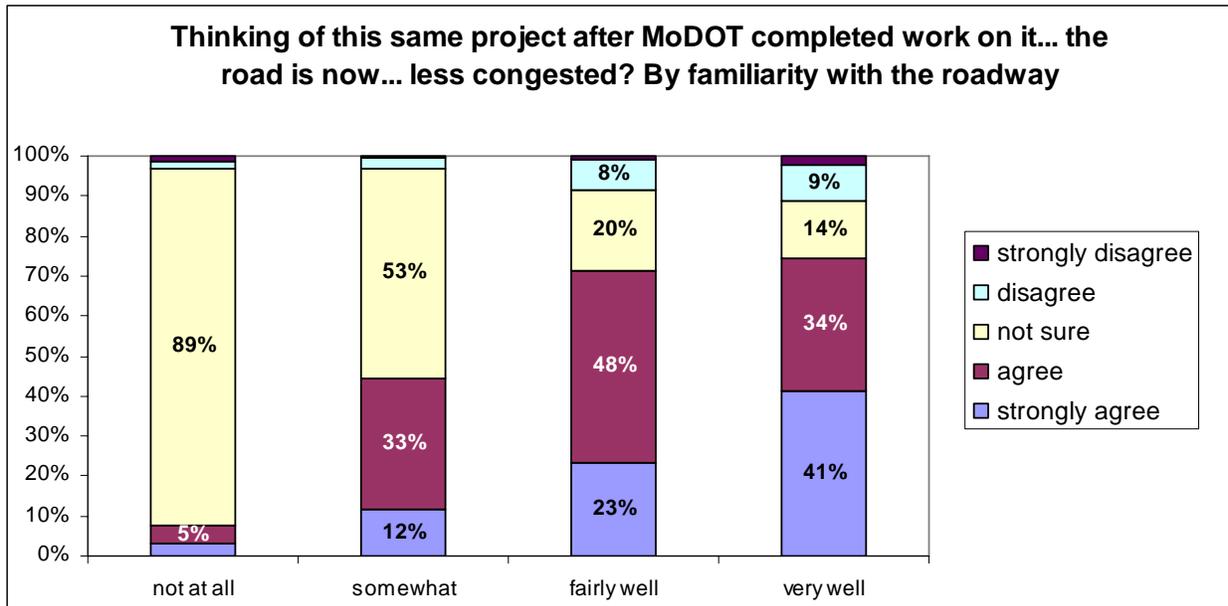
Respondents who drive more miles annually tend to have a greater perception that the roads are less congested as a result of the MoDOT projects. Seventy-five percent of those driving 45,001 to 80,000 miles per year agreed or strongly agreed that the roads were less congested compared to 70 percent of those driving less than 10,000 miles per year. The percentages agreeing in figure 4.4 below are lower than respondents from the same mileage groups that agreed or strongly agreed that the roads were more convenient (figure 3.4, approximately 80% in all categories).

Figure 4.4 – Roadway less congested by miles driven



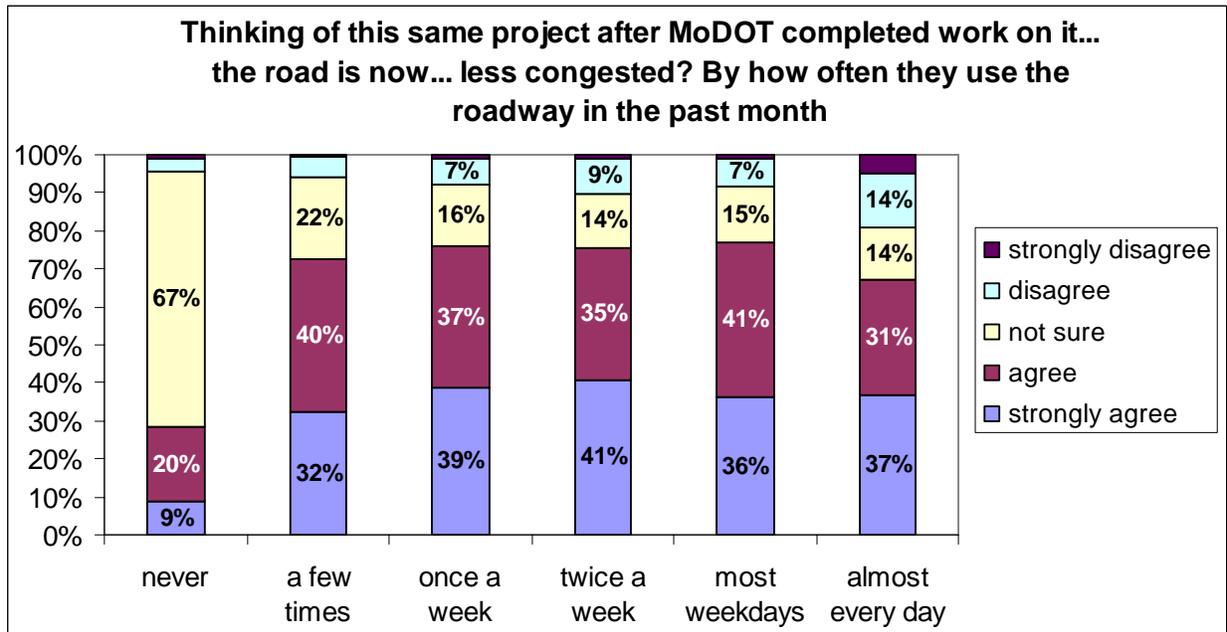
As figure 4.5 shows, there is a clear correlation between familiarity with the roadway in question and the perception that the road is less congested as a result of the MoDOT project. Among respondents who were “somewhat” familiar with the roadway, only 45 percent agreed or strongly agreed that the road is now less congested, but 75 percent of those “very” familiar with the roadway thought the road was now less congested. As with other performance factors, the drivers who were not at all familiar with the roadway revealed extremely high levels of ambivalence on whether the project improved congestion.

Figure 4.5 – Roadway less congested by familiarity with roadway



As shown in figure 4.6, the frequency with which respondents used the road in the previous 30 days had only a weak relation with opinions on congestion. Those who use it almost every day had more diverse opinions in comparison with those who use it less frequently. Those who use it every day were most likely to disagree or strongly disagree (about 18% combined), but they also had very similar figures to other regular users for the strongly agree category. On the other hand, they were lower on the agree category than all other users of the roadway, and they had the lowest percent of people saying they were not sure. As before, the drivers in the never category were quite likely to choose the “not sure” response.

Figure 4.6 – Roadway less congested by how often they use the roadway in the past month



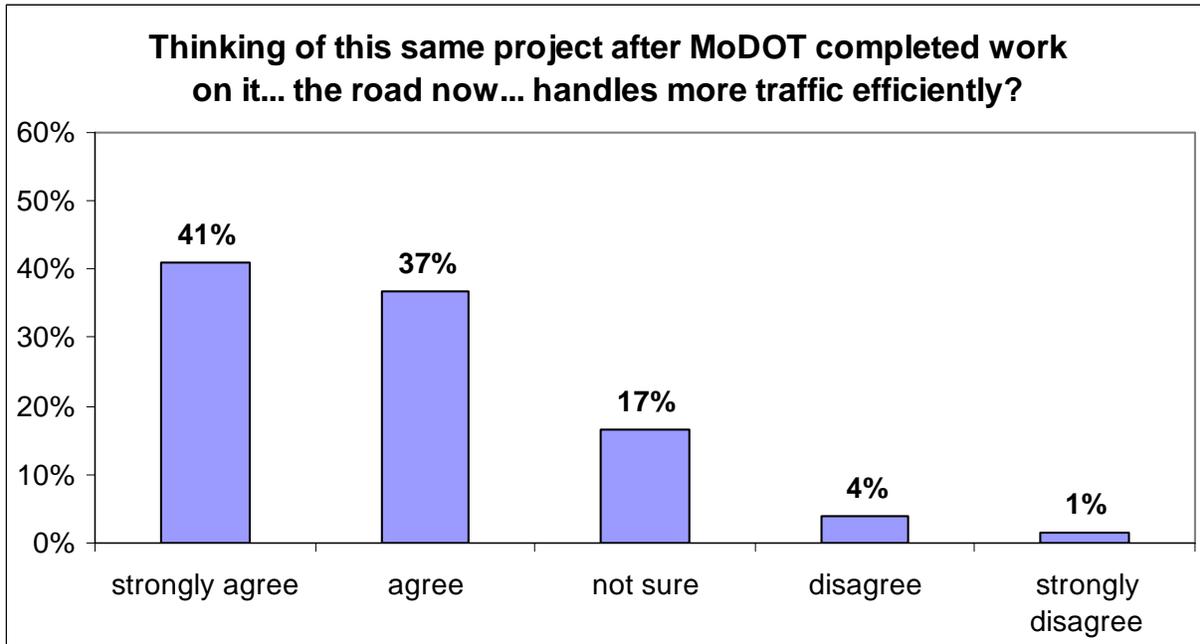
Finally, demographic characteristics also show interesting results. As shown in figure 4.7 of appendix A, 70 percent of both males and females either agreed or strongly agreed that the roads were less congested as a result of the MoDOT project. On the other hand, figure 4.8 in Appendix A shows that as respondents increase in age they are more likely to agree or strongly agree that the MoDOT project had a positive effect on congestion.

II.3. Handles More Traffic Efficiency

Respondents were also asked whether or not the MoDOT safety improvement project increased the efficiency with which traffic was handled. This question is related to the question about congestion, so we should expect to see similarities in responses.

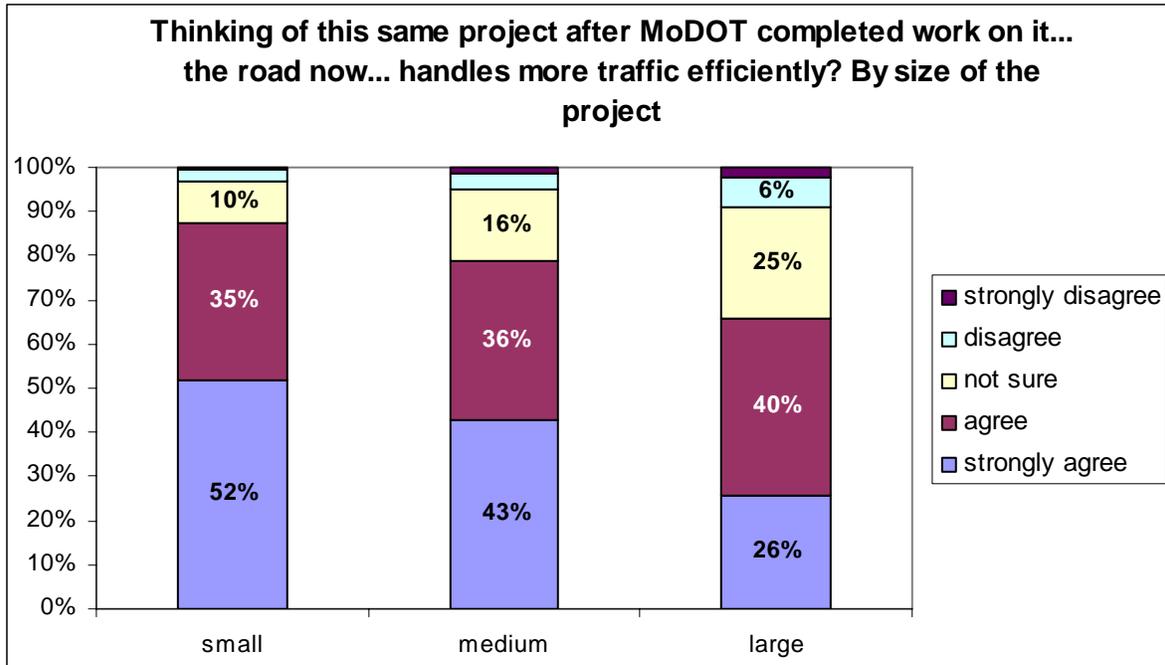
As figure 5.1 shows, 78 percent of respondents either agree or strongly agree that traffic is handled more efficiently after the roadway project. This is a stronger positive response than the 70 percent of respondents who said the same about congestion (figure 4.1). Only 5 percent disagree or disagree strongly that traffic is now handled more efficiently as compared to 10 percent who disagreed that congestion was improved (figure 4.1).

Figure 5.1 – Roadway handles more traffic efficiently



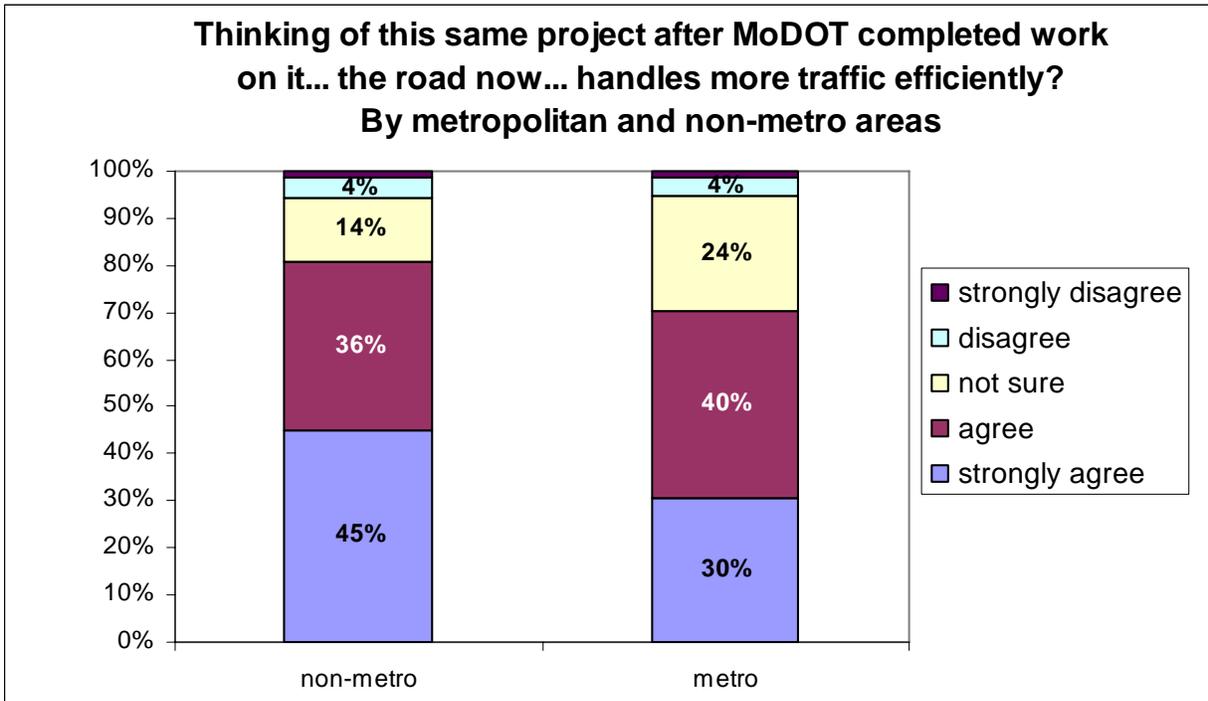
As seen previously, the size of the project seems to correlate negatively with the perception that traffic is handled more efficiently as a result of the MoDOT project (figure 5.2). Those responding to questions about large projects disagreed or strongly disagreed more (8%) that traffic is now handled more efficiently than did those responding to questions about medium projects (5%) or small project (3%). Conversely, respondents to questions about small projects were more inclined to agree or agree strongly (87%) that traffic now handles more efficiently than medium (79%) or especially large (66%) projects. The difference in the percent strongly agreeing was particularly strong in the comparison of respondents in the small project areas versus the large project areas with about twice as many in the small category (52% versus 26%).

Figure 5.2– Roadway handles more traffic efficiently by size of the project



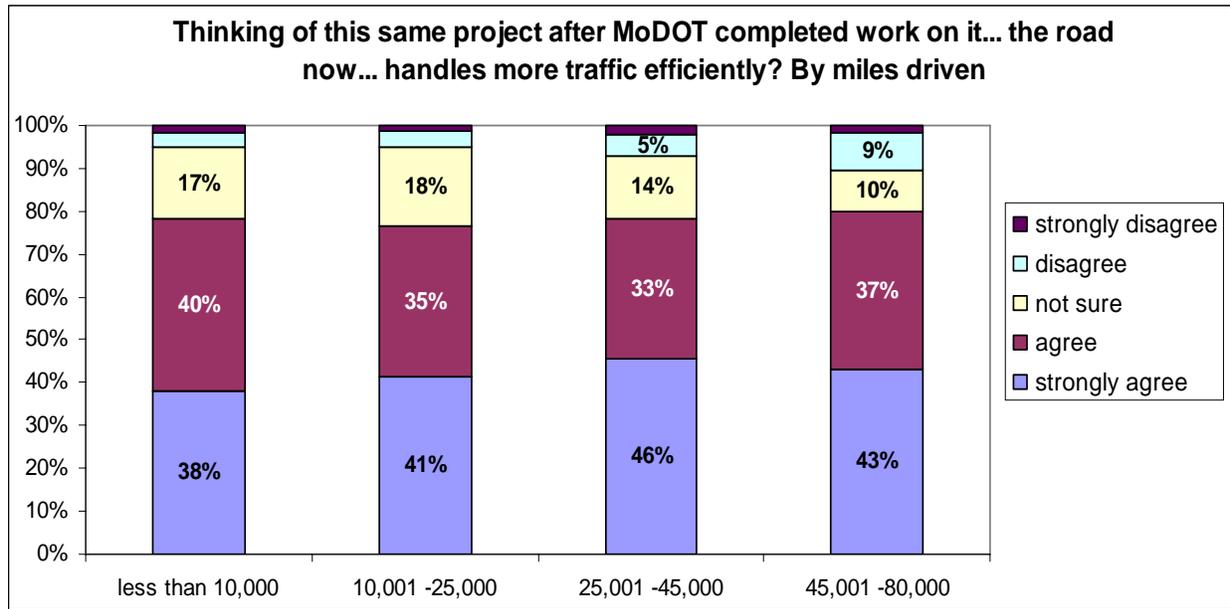
Also similar to previous trends identified for other performance characteristics, respondents from non-metropolitan areas were more inclined to agree or agree strongly that traffic was now handled more efficiently (81%) compared to 70 percent of respondents from metropolitan areas (figure 5.3). Interestingly, there is very little difference among those that disagree or disagree strongly between respondents from non-metro and metro areas (6% and 5% respectively). The largest discrepancy in opinion was among those respondents who were “not sure” (14% from non-metro and 24% from metro areas).

Figure 5.3– Roadway handles more traffic efficiently by metro and non-metro areas



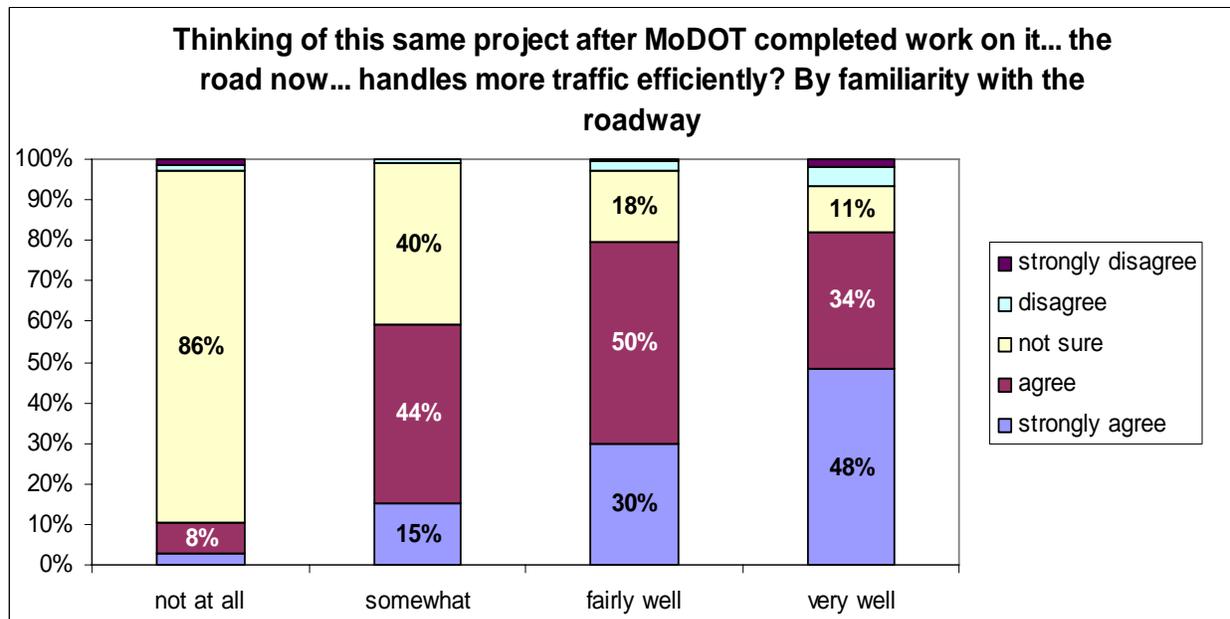
In addition (and similar to previous findings) there is little difference in the percent of respondents agreeing or strongly agreeing that the road handles traffic more efficiently based on the number of miles driven in a year. In fact, there is only a 3 percent range between the lowest percent agreeing or agreeing strongly (10,001 to 25,000 miles, 77%) to the highest group (45,001 to 80,000 miles, 80%). Interestingly, however, the group with the largest percentage agreeing or agreeing strongly also has the largest percent disagreeing or disagreeing strongly (10%) that the MoDOT project resulted in traffic being handled more efficiently. The groups driving the least miles per year had the larger percentages of respondents who were “not sure” whether traffic was now handled more efficiently or not (figure 5.4).

Figure 5.4– Roadway handles more traffic efficiently by miles driven



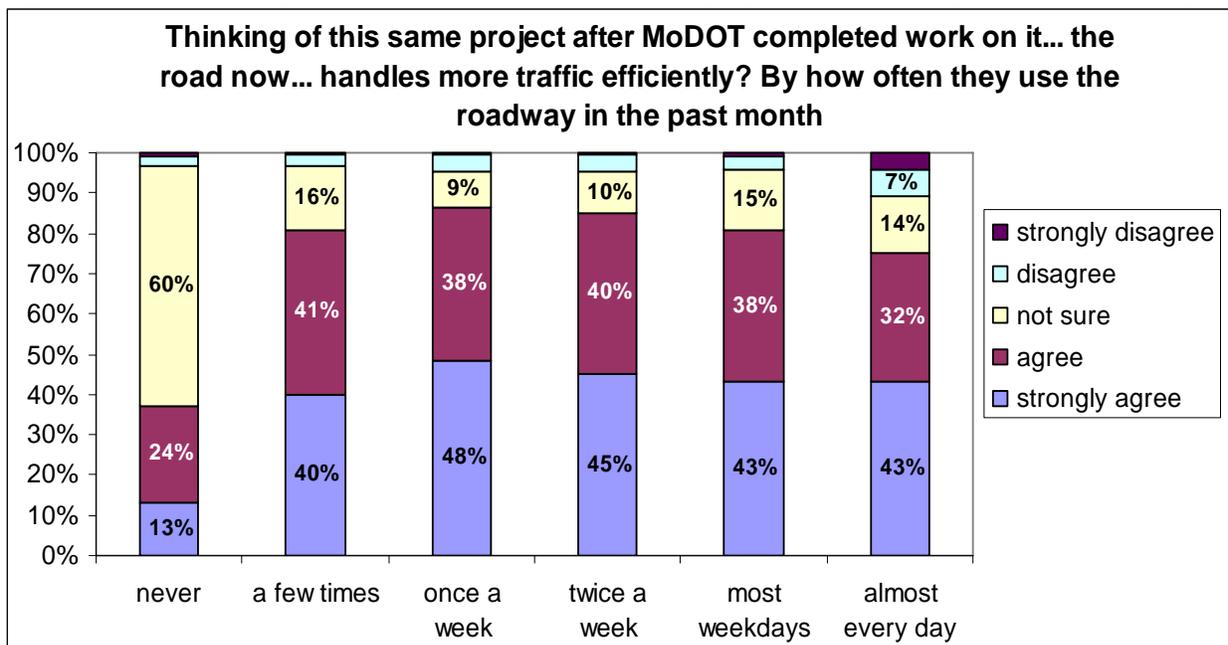
Moreover, as shown in figure 5.5, increased familiarity with the roadway in question correlates positively with an increased likelihood to agree or strongly agree that traffic is handled more efficiently as a result of the MoDOT projects. Not surprisingly, those respondents not at all familiar with the roadway were overwhelmingly unsure of the effect of the MoDOT project on the efficiency of traffic handling.

Figure 5.5– Roadway handles more traffic efficiently by familiarity with the roadway



Frequency of use of the roadway does not correlate with opinions regarding the effect of MoDOT projects on efficiency of traffic handling. As seen in figure 5.6 below, the percent of respondents agreeing or strongly agreeing that traffic now handles more efficiently gradually decreased from the group of respondents using the road “once a week” in the previous 30 days (83%) to those using the roadway “almost every day” (75%). Interestingly, the percent of respondents disagreeing or disagreeing strongly jumps from the 3 to 5 percent range among those respondents using the roadway less frequently to 11 percent among those using the roadway “almost every day.” This finding is significant in that the most frequent users of the roadway should notice improvement in traffic handling, but a fairly large percent of this same group did agree that traffic handling was improved.

Figure 5.6 – Roadway handles more traffic efficiently by how often they use the roadway



Finally, there are no differences among males and females either agreeing or strongly agreeing that traffic handles more efficiently as a result of the MoDOT projects. Seventy-eight percent of both genders agreed or agreed strongly. Only slight difference existed in the percent of respondents of each gender disagreeing or disagreeing strongly. Seven percent of males disagreed or disagreed strongly compared to only 4 percent of females and more females were “not sure” than males (figure 5.7 in Appendix A). Additionally, as seen previously, figure 5.8 in Appendix A shows that increasing age increases the inclination of respondents to agree or agree strongly that the MoDOT projects increased efficiency of traffic handling on the roadways.

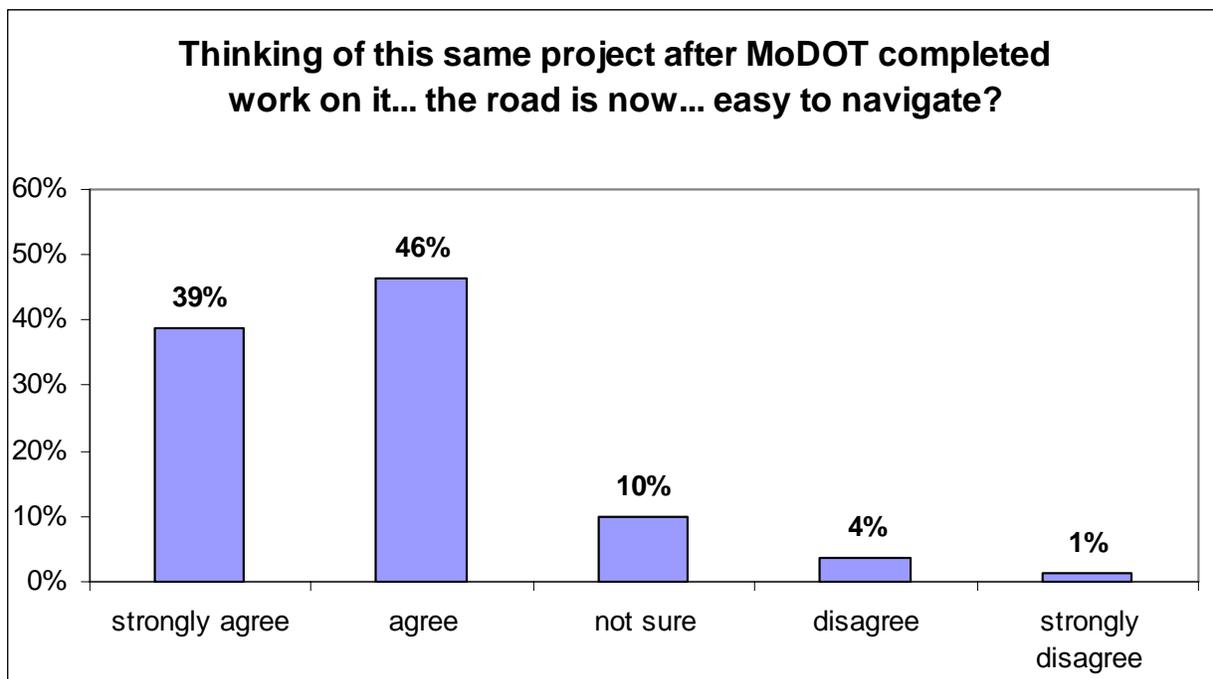
III. Driving environment

An additional goal of the MoDOT improvement projects was to improve the driving environment of the roadways by making them easier to navigate and easier to understand. The addition of improved signage, better striping, and shoulder improvements can all improve the driving environment. Three of the survey questions asked for perceptions of whether there was an improvement in the driving environment after the projects were completed.

III.1. Easy to Navigate

Respondents were asked if the roadway under consideration was now easier to navigate as a result of the MoDOT improvement project. The responses are illustrated in figure 6.1. Although fewer respondents strongly agreed (39%) than agreed (46%), overall 85 percent agreed that the roadway was now easier to navigate. Only 5 percent of respondents disagreed or strongly disagreed with this statement. The high percentage of positive responses on the ease of navigation is a strong affirmation that this goal is being met in the projects studied here.

Figure 6.1 – Roadway is now easy to navigate



Project size and whether the respondents live in metropolitan or non-metropolitan areas affects the inclination to agree that the roads are now easier to navigate as seen in figures 6.2 and 6.3. Whether the project was a small or medium sized project did not affect the respondents' view that the road was easier to navigate as 88 percent of respondents from each group agreed or strongly agreed that navigation was easier. However, only 78 percent of respondents asked about large projects agreed or strongly agreed that the same was true for the projects in their respective areas. Further, the large project group showed weaker levels of support with only

29% in the strongly agree category versus 43% in the others. Additionally, a larger percentage of respondents in large project areas disagreed or strongly disagreed that navigation was easier (8%) than did respondents from small or medium project areas (4% and 3% respectively), and the large project group was also more unlikely to be unsure.

Figure 6.2 – Roadway is now easy to navigate by size of the project

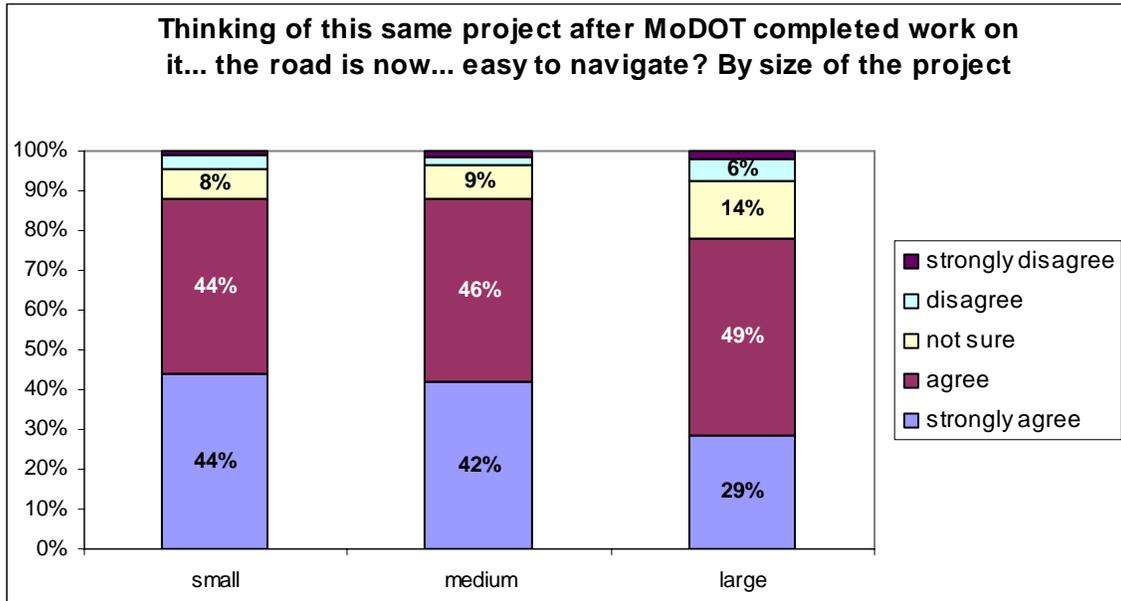
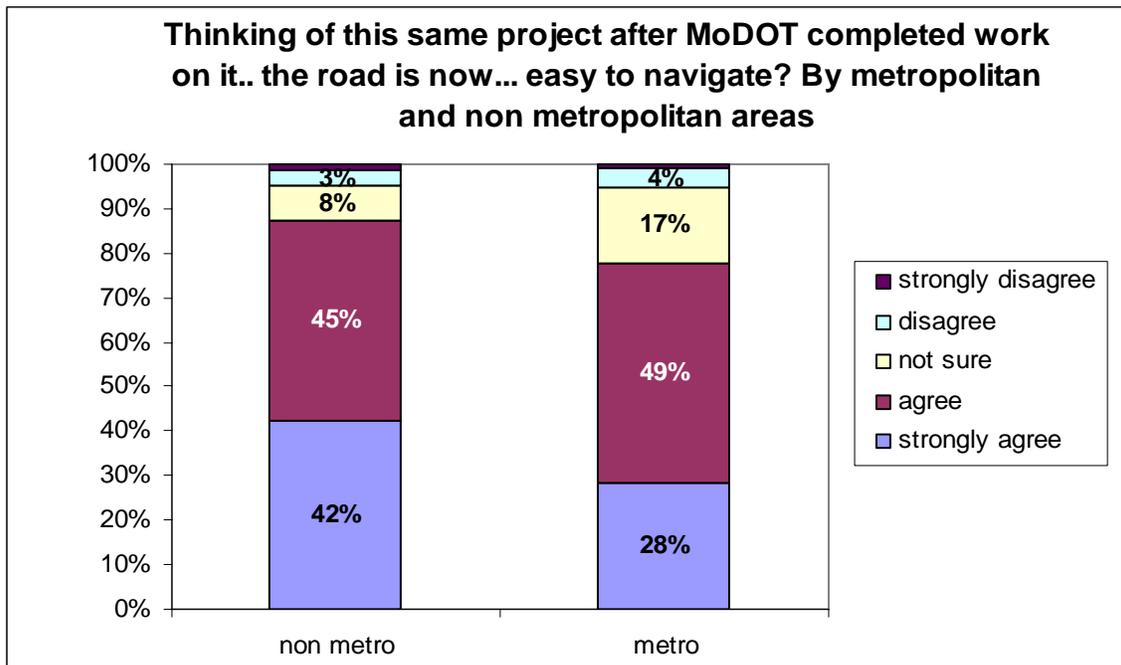
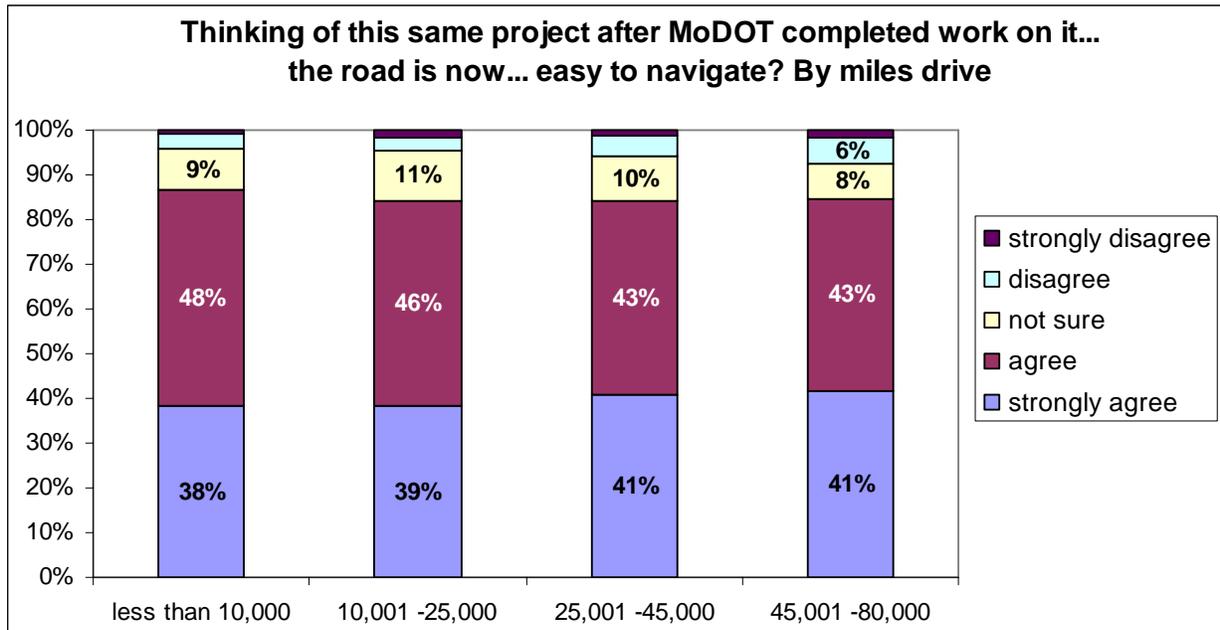


Figure 6.3 – Roadway is now easy to navigate by metro and non-metro areas



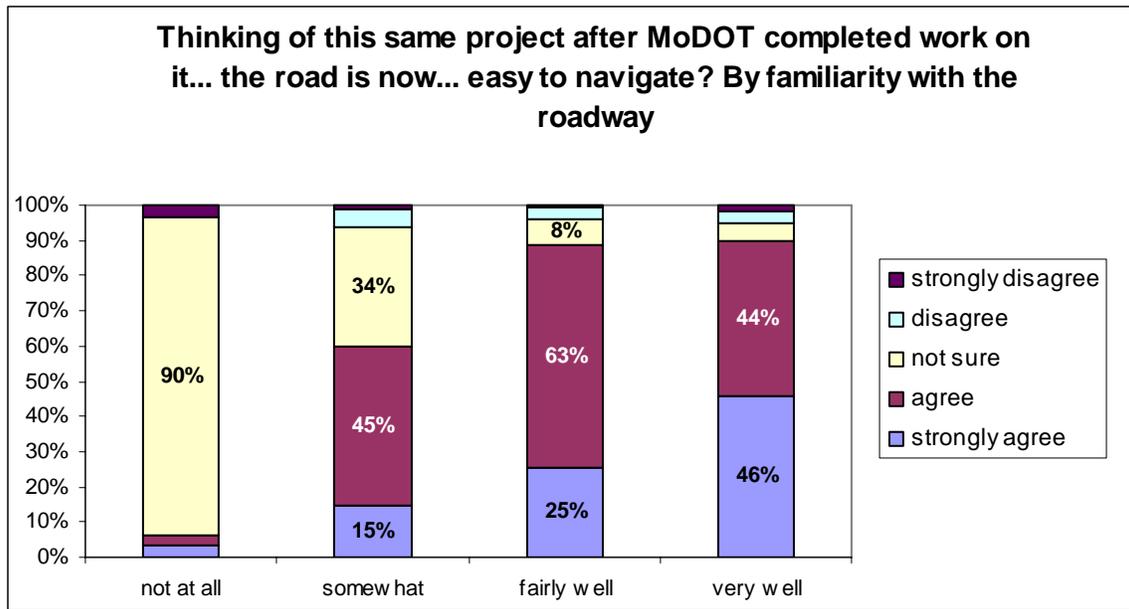
The number of miles driven does not significantly affect participants' responses. Figure 6.4 illustrates this slight difference. About 87% of respondents who drive less than 10,000 miles strongly agree that roadways are now easier to navigate compared to 85% of those who drive between 45,001 and 80,000 miles.

Figure 6.4 – Roadway is now easy to navigate by miles driven



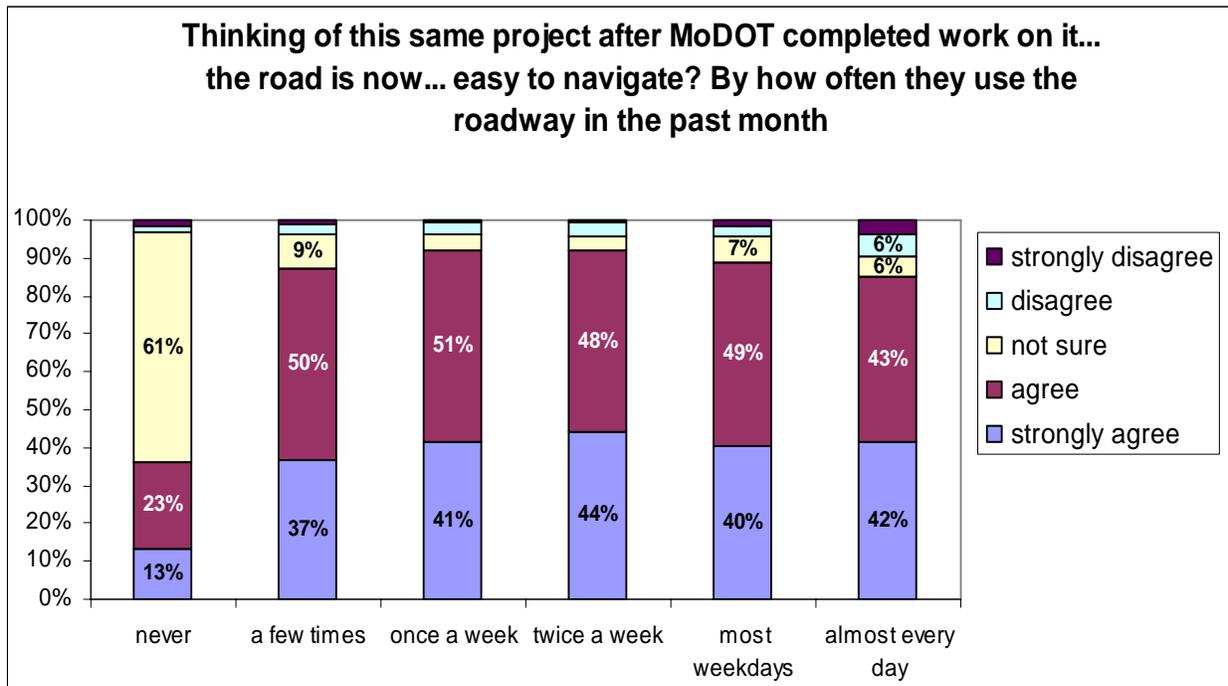
As figure 6.5 illustrates, familiarity with the roadway greatly affects the degree to which respondents agree or disagree that the roadway is now easier to navigate. Forty-six percent of those who are very familiar with the road, for example, strongly agree that the roadway is now easier to navigate, and 90 percent agree or agree strongly. Likewise, 88 percent of those “fairly” familiar with the road agreed or strongly agreed that the road is now easier to navigate. Only 60 percent of those who were “somewhat” familiar with the road agreed or strongly agreed that navigation is easier after the project, and only about six percent of the people in the lowest category of familiarity agreed or strongly agreed with the statement. Familiarity with the roadway is clearly a strong predictor of satisfaction with the ease of navigation.

Figure 6.5 – Roadway is now easy to navigate by familiarity with the roadway



When evaluating how frequency of use of a roadway affects participants’ responses, it is clear, as illustrated in Figure 6.6, that frequency does not make a large difference in responses other than for those who have not recently used the roadway. It is important to note, however, that of those who use a roadway almost every day, about 85% either agree or strongly agree that the roadway is now easier to navigate compared to a larger percentages (92% and 92%, respectively) of those who use the roadway only once or twice a week. Respondents who travel the roadway the most frequently have more mixed views than the other use categories with more in the disagree and strongly disagree responses, but the percentages are still overwhelmingly positive.

Figure 6.6 – Roadway is now easy to navigate by how often they use the roadway

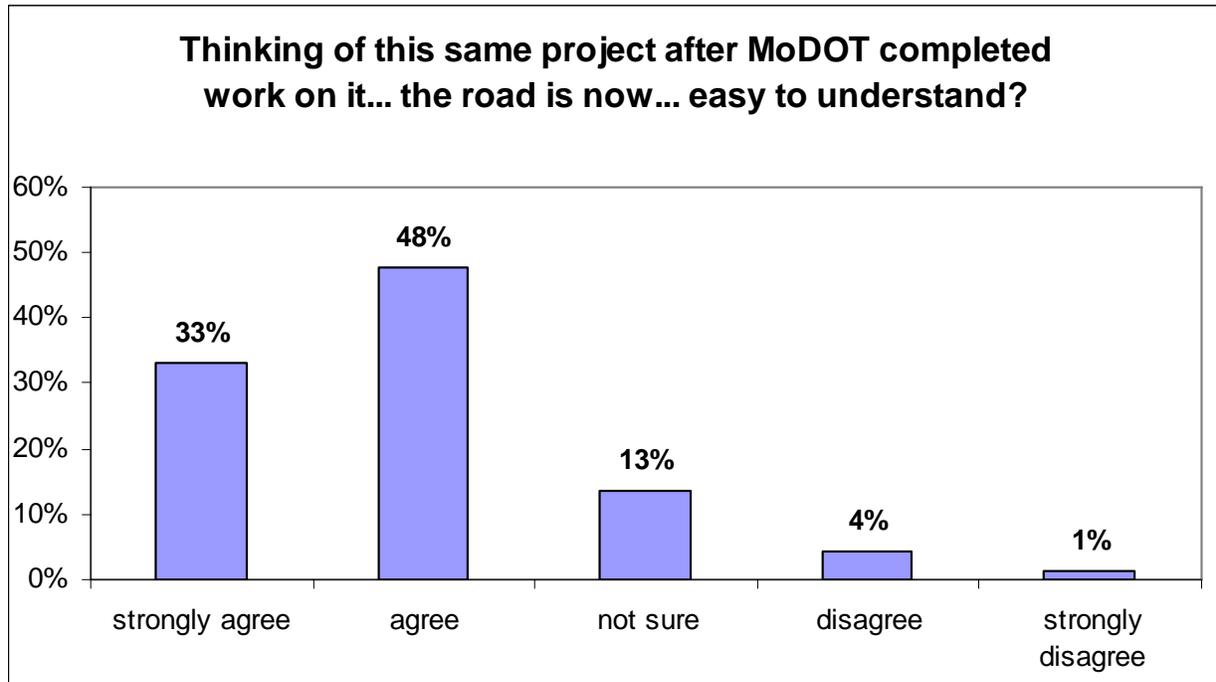


Finally, regarding the demographics of respondents, the gender of respondents does not affect participants’ responses. The vast majority of both male and female respondents either agree or strongly agree, with rates of 85% and 86%, respectively, that the roadway is easier to navigate since the MoDOT safety improvement projects were completed (as seen in figure 6.7 of Appendix A). Additionally, as seen previously, older respondents are more inclined to either agree or strongly agree in comparison with younger respondents. Whereas young persons in the 21 to 30 year-old group were in the 80 percent range, about 92 percent of older respondents older agreed (as seen in figure 6.8 of Appendix A).

III.2.Easy to Understand

Continuing with the concept of improvements to the driving environment, another question asked whether the roadway is now easier to understand as a result of the MoDOT project. As figure 7.1 shows, 81 percent of respondents agreed or strongly agreed and only 5% disagreed or strongly disagreed that the road is now easier to understand. The overall distribution of responses to this question is similar to the response from the question about the ease of navigation. The results for “easy to understand” are slightly weaker with a shift from the “strongly agree” category to the “agree” category, but the overall level of support from both questions suggest that MoDOT efforts, as documented by this study, have improved the driving environment for respondents.

Figure 7.1 – Roadway is easy to understand



Respondents' opinions differ depending upon the size of the project and/or the metropolitan/non-metropolitan status as illustrated in figures 7.2 and 7.3 below. Respondents in large project areas as well as those in metropolitan areas are significantly more likely to be on the negative side compared with respondents from smaller projects or non-metropolitan areas. Seventy-six percent of respondents from areas with large projects and 75 percent of those in metropolitan areas agreed or strongly agreed that the roadway is easier to understand. When compared to the responses of participants in areas with small projects and who come from non-metro areas (both 83%), the effect of both the size and the metropolitan status becomes apparent. The percent strongly agreeing makes an even stronger case in both situations as those respondents in large project areas and metro areas are much less likely to strongly agree.

Figure 7.2 – Roadway is easy to understand by size of the project

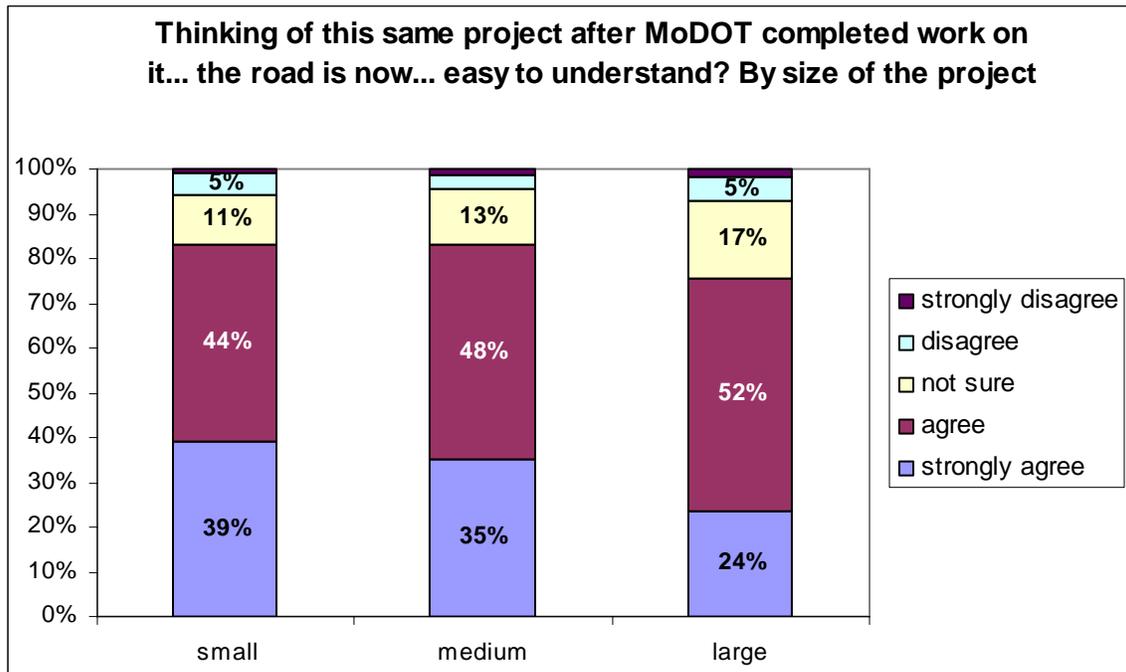
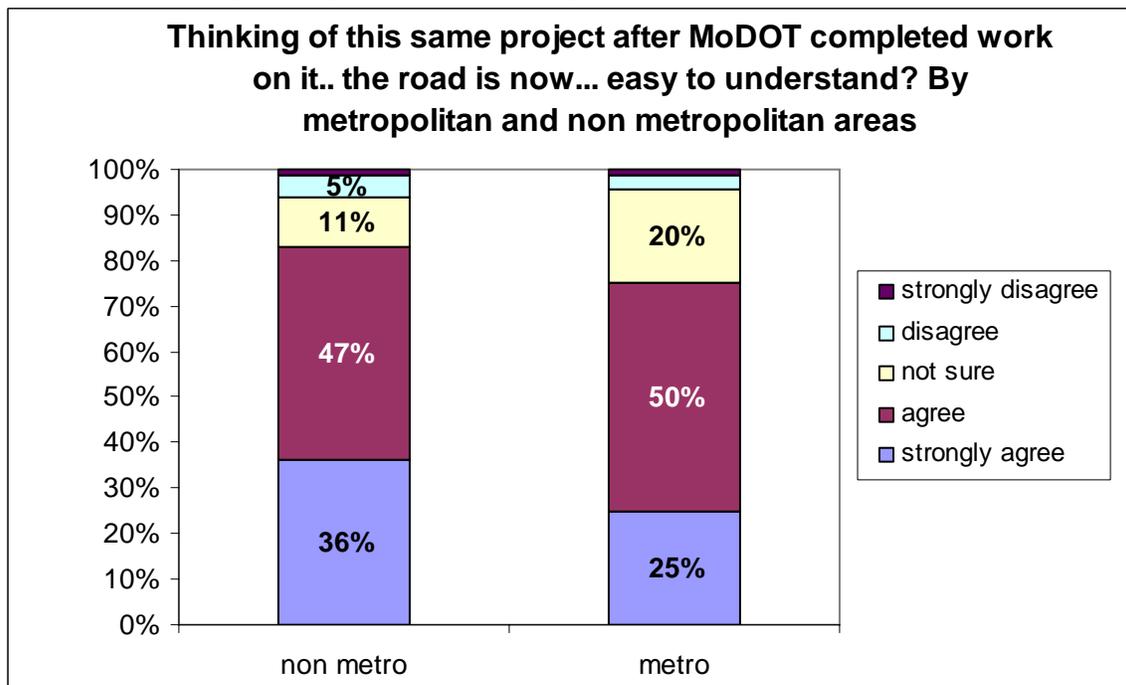
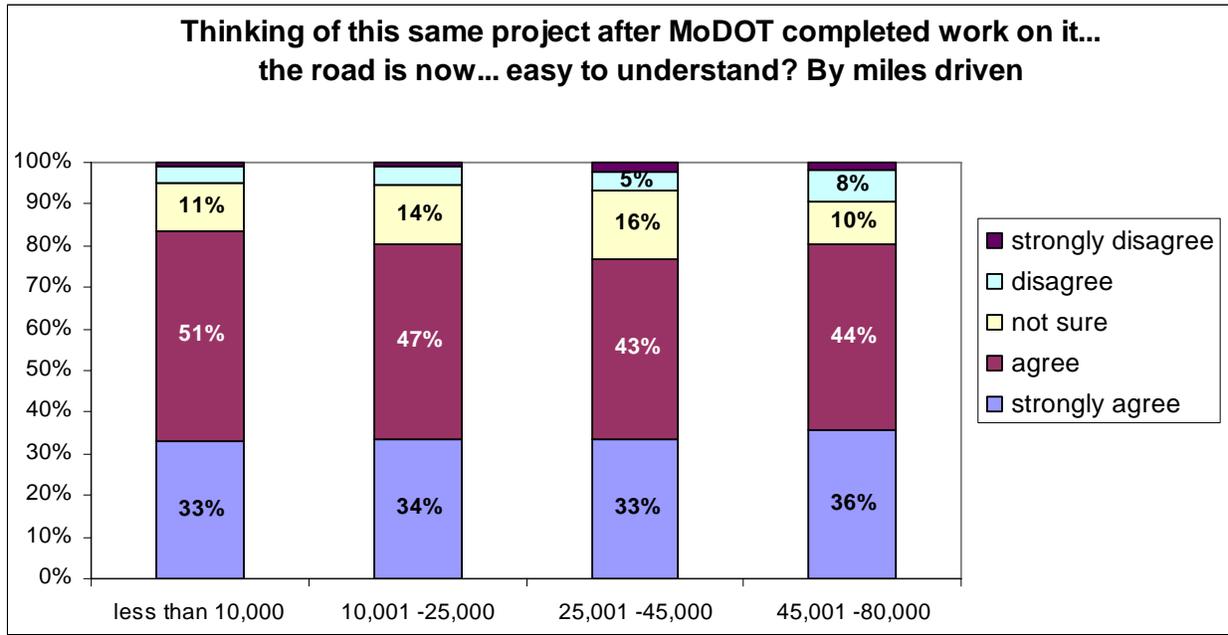


Figure 7.3 – Roadway is easy to understand by metro and non-metro areas



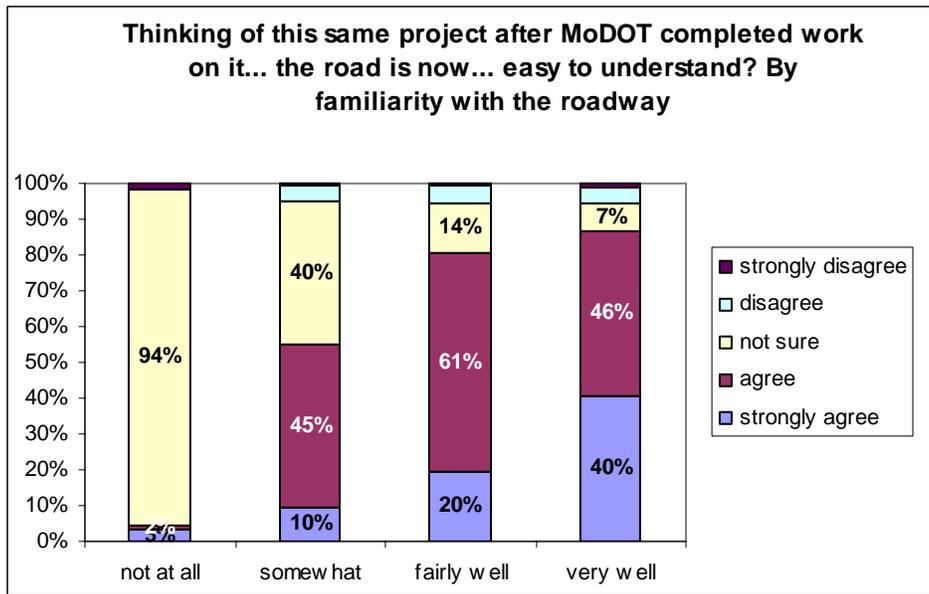
As illustrated in Figure 7.4, there are no substantial differences in ease of understanding on the basis of mileage driven in the past year. Generally, all groups agree at very high levels with only a slight dip in support from those in the 25,001-45,000 category.

Figure 7.4 – Roadway is easy to understand by miles driven



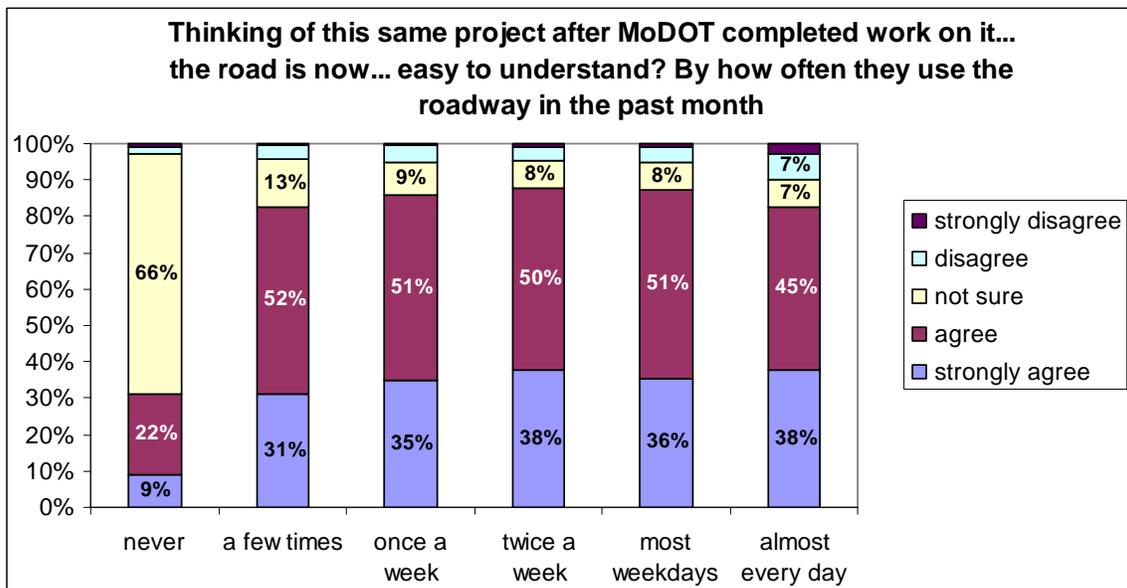
Familiarity with the road (Figure 7.5), however, has a strong impact. The less familiar a respondent is with the roadway, the less likely he or she is to strongly agree that the roadway is easy to understand. Those in the very familiar category had a high percent on strongly agree (40%) and on agree (46%). The “fairly familiar had a slightly lower overall level of agreement at 81%, but there was a clear shift from strongly agree to agree. The rate of uncertainty clearly increases as familiarity levels drop, and the level of agreement drops off to negligible levels for the least familiar drivers.

Figure 7.5 – Roadway is easy to understand by familiarity with the roadway



Finally, the frequency of the use of the roadway in the past month, illustrated in Figure 7.6, also seems to follow the trend, albeit with less drastic changes than in Figure 7.5. As seen in previous performance characteristics, respondents traveling the affected roadway the most frequently had slightly more mixed perceptions than other use categories. While the most frequent users had high levels of agreement that the road was now easier to understand (83%), they also had the highest level of disagreement. In general, those in the middle range of use were most likely to agree, but support drops off for those who use the roadway the least.

Figure 7.6 – Roadway is easy to understand by how often they use the roadway

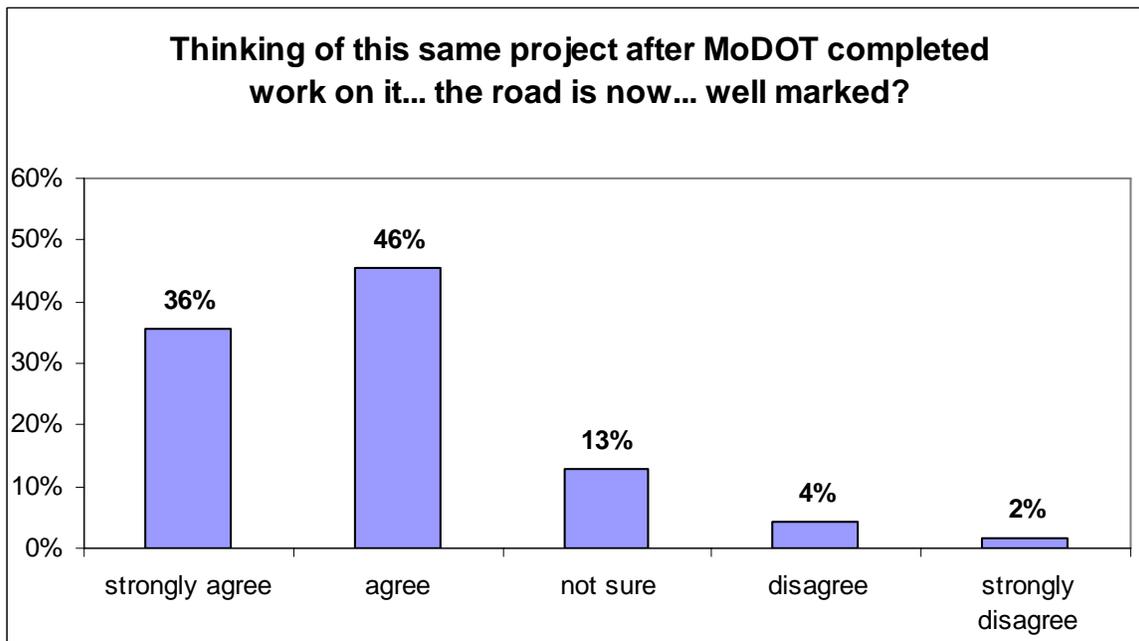


No differences are found in respondents' opinions when gender is considered. As shown in figure 7.7 of appendix A, there are no substantial differences among males and females in terms of the percentage of each gender agreeing or agreeing strongly that the road is now easier to understand (80% and 82% respectively). Also, similar to previous findings, age correlates with a more favorable perception of the safety improvement projects' success in making the roadway easier to understand. Eighty percent of respondents age 21 to 30 agreed or strongly agreed that the road was easier to understand while 84 percent of those 71 to 80 and 87 percent of those older than 81 agreed or strongly agreed (Figure 7.8 of Appendix A).

III.3. Well Marked

The final question related to the improvement of the driving environment focused on the markings used for the roadway. As figure 8.1 displays, 82 percent agreed or strongly agreed that the road was better marked as a result of the road improvement project. Overall agreement with this statement is slightly lower than the 85 percent for the idea that it is now easier to navigate, but the positive response is still affirming that the safety improvement project has the desired effect in improving the driving environment.

Figure 8.1 – Roadway is well marked



The size of the project as well as whether respondents were from metro or non-metro areas had an effect on respondents' perception that the roads were well marked in a trend seen previously. As shown in figure 8.2, fewer respondents in large project areas felt the roads were better marked (76%) as compared to respondents affected by small or medium projects (81% and 86% respectively). Likewise, figure 8.3 shows that 76 percent of respondents from metro areas agreed or strongly agreed that the roads were better marked compared to 83 percent from non-metropolitan areas. Trends for the strongly agree category were even more substantial.

Figure 8.2 – Roadway is well marked by size of the project

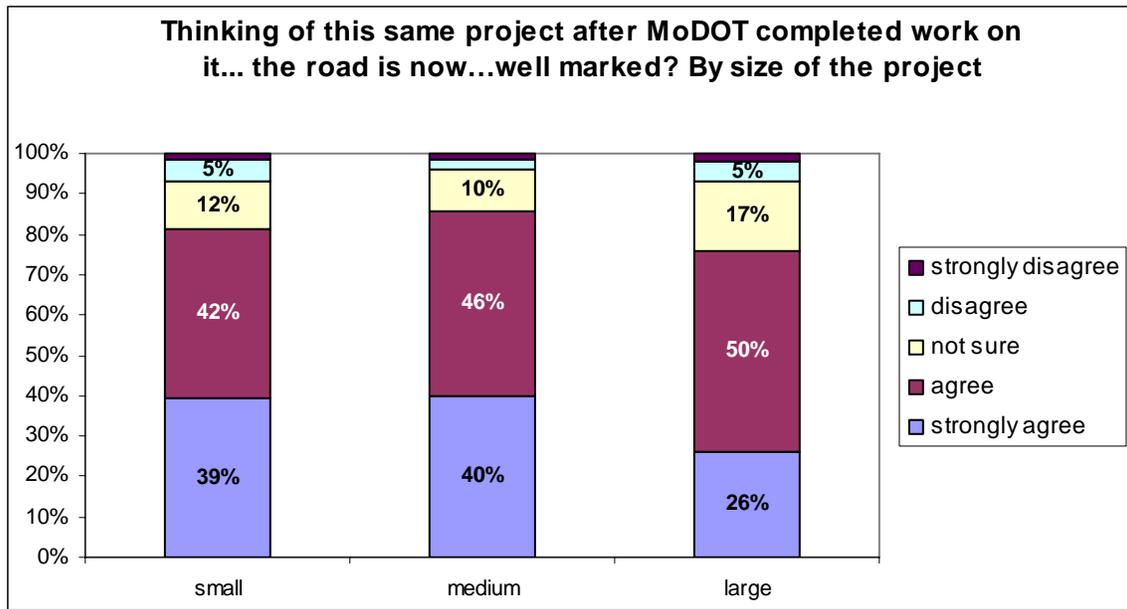
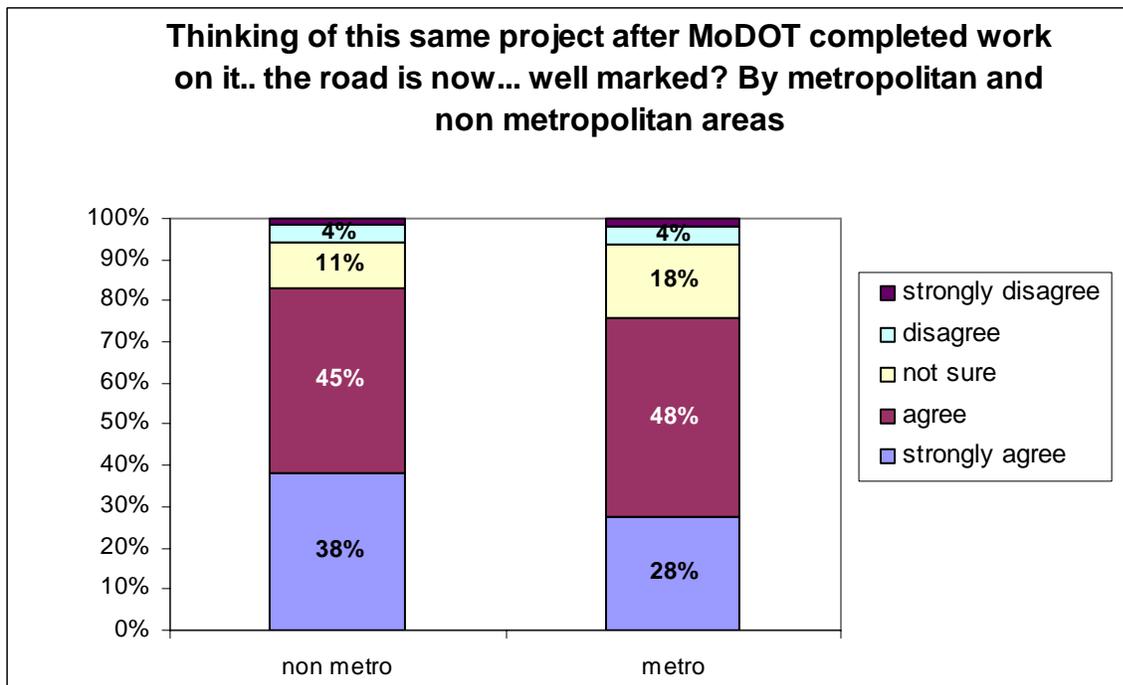


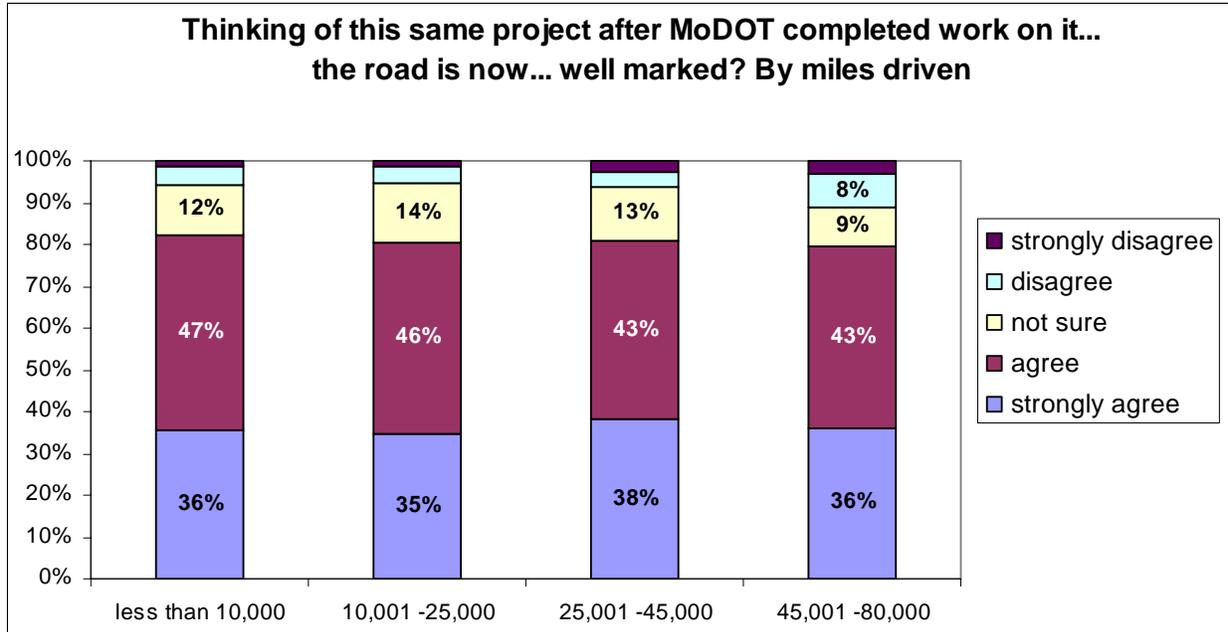
Figure 8.3 – Roadway is well marked by metro and non metro areas



Familiarity with the roadway in question as well as the number of miles driven in a year show trends similar to those found for other questions. As figure 8.4 illustrates, there is very little effect on the perception of the roadways being well marked after the projects completion based

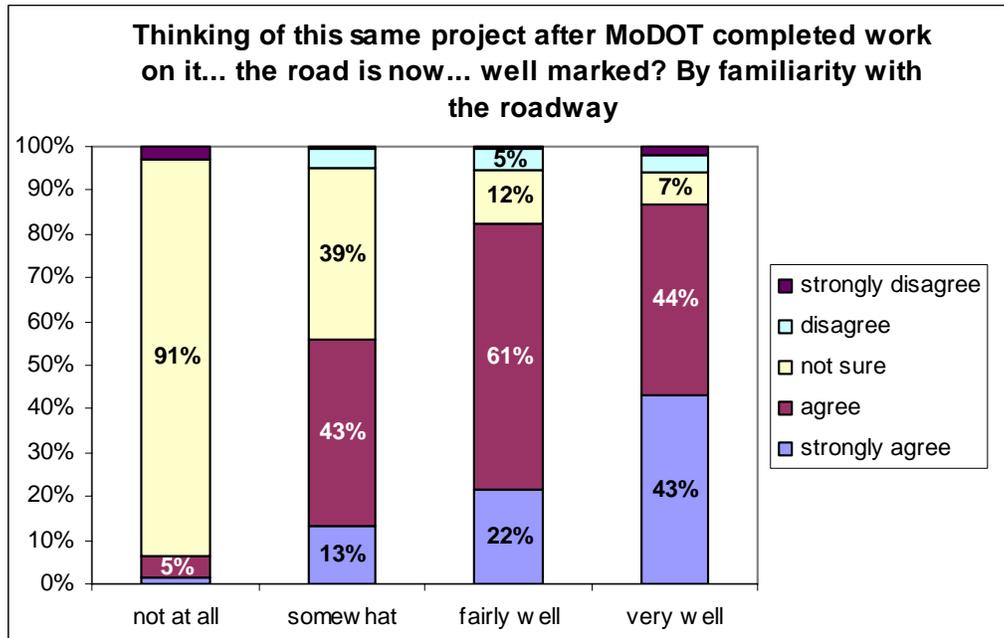
on how many miles the respondents drive in a typical year. Basically, slightly more than a third strongly agree, and overall agreement is near 80%.

Figure 8.4 – Roadway is well marked by miles driven



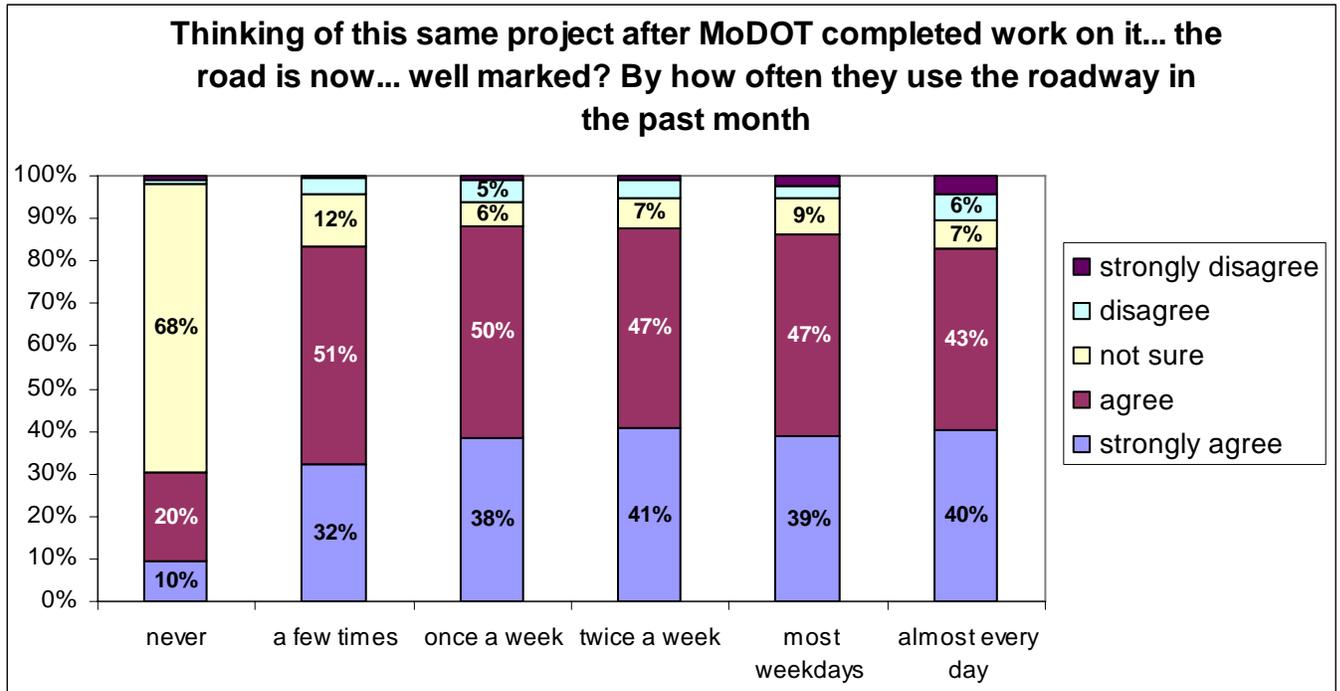
On the other hand, familiarity with the roadway continues to be a major predictor of attitudes about the project effects. Those respondents very familiar with the roadway in question agreed or strongly agreed at dramatically higher levels (87%) than those somewhat familiar with the roadway (56%) or not at all familiar with the roadway (6%). The very familiar respondents were also much more likely to strongly agree that the road is now well marked, and they had the lowest percent in the ‘not sure’ category. As in other cases, as familiarity drops, the percent of respondents choosing the “not sure” category increases dramatically.

Figure 8.5 – Roadway is well marked by familiarity with the roadway



Frequency of use of the section of road affected by the MoDOT improvement project has very little impact on perceptions that the road is better marked as a result. Those who use the road most frequently have slightly more negative perceptions with about ten percent disagreeing or strongly disagreeing versus single digits for all other use categories. The most frequent roadway users also exhibit slightly lower overall agreement levels than other categories of use, but at 83% support is still quite high (figure 8.6).

Figure 8.6 – Roadway is well marked by how often they use the roadway in the past month



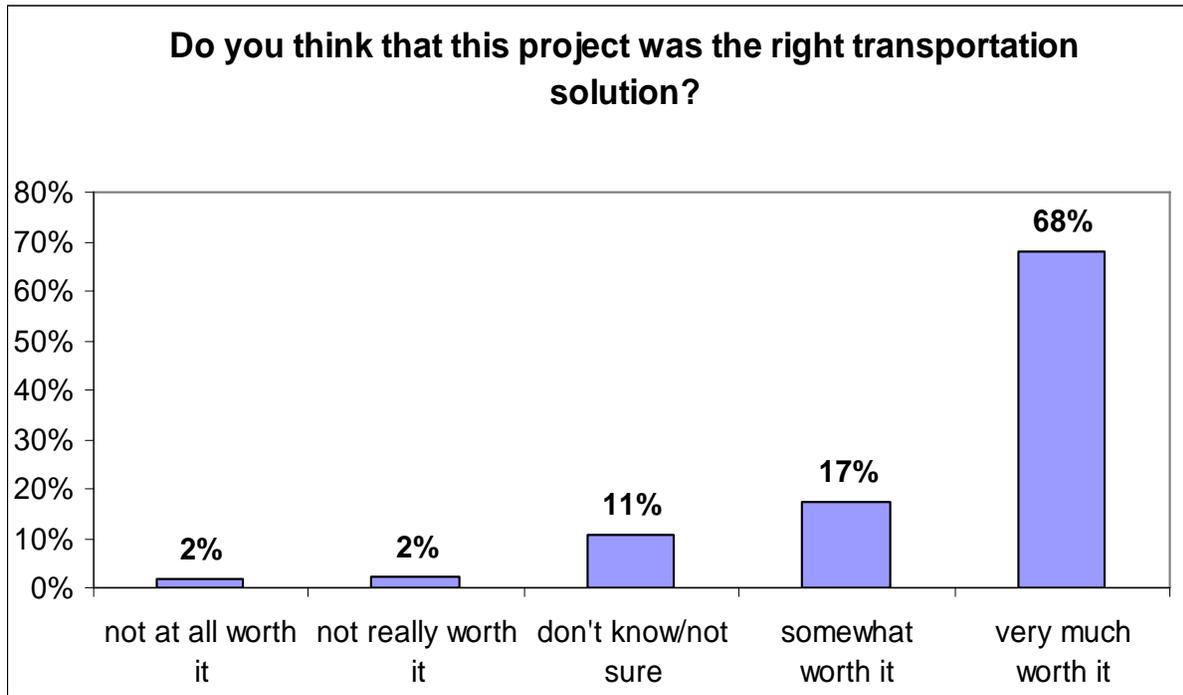
Finally, differences in perceptions based on the demographic categories of gender and age were not dramatic. The percent of males and females agreeing or agreeing strongly that the roads were now “well marked” were nearly equal (82% and 81% respectively). Also, as seen previously, increasing age increased the likelihood respondents perceived that the roads were better marked as a result of the MoDOT safety improvement projects. These statistics are illustrated in figures 8.7 and 8.8 in Appendix A.

IV. The Right Transportation Solution

The attitudes described above clearly indicate a high level of satisfaction with important goals related to MoDOT improvement projects, but an important component of the tangible result in the Tracker System is the concept of “Great Value.” Clearly, we may all enjoy the fine features of an expensive luxury vehicle, but we may not consider them a great value. Likewise, it is important to assess whether respondents who appear to see many great features of the projects see them as the right transportation solution in order to understand whether the project is a great value. Therefore, the questionnaire asked the respondent whether the local project was the right transportation solution, and it offered a set of responses from “not at all worth it” to “very much worth it.”

The overall perception of the projects in this survey is extremely positive as it is observed in figure 9.1. More than two-thirds of respondents said the local project was “very much worth it,” and an additional 17 percent said it was “somewhat worth it.” Overall, there are 85 percent of respondents who felt that the project in their area was the right transportation solution. About 11 percent were not sure, and only 4 percent felt that the project was “not really worth it” or “not at all worth it.”

Figure 9.1 – The right transportation solution



Even though the overall perception of the project as the right transportation solution is overwhelmingly positive, it is important to consider how different groups responded to this question. Similar to previous trends, respondents to questions about small, medium and large scale projects responded differently when asked if their local project was the “right transportation solution” as did respondents from metropolitan versus non-metropolitan areas. Eighty-nine percent of respondents in small project areas felt their project was “worth it” as opposed to eighty-one percent of respondents in large project areas (figure 9.2). Furthermore, the large project area respondents were much less likely to pick the highest category of worth (57%) versus those in medium (70%) and small (75%) project areas.

In addition, a larger percentage of respondents from non-metropolitan areas felt their project was “worth it” as compared to respondents from metropolitan areas (88% and 78%, respectively) as seen in figure 9.3). There was also a sizable gap in the difference between the two in picking the highest category of value with 71% in non-metro areas and 59% in metro areas.

Figure 9.2 – The right transportation solution by size of the project

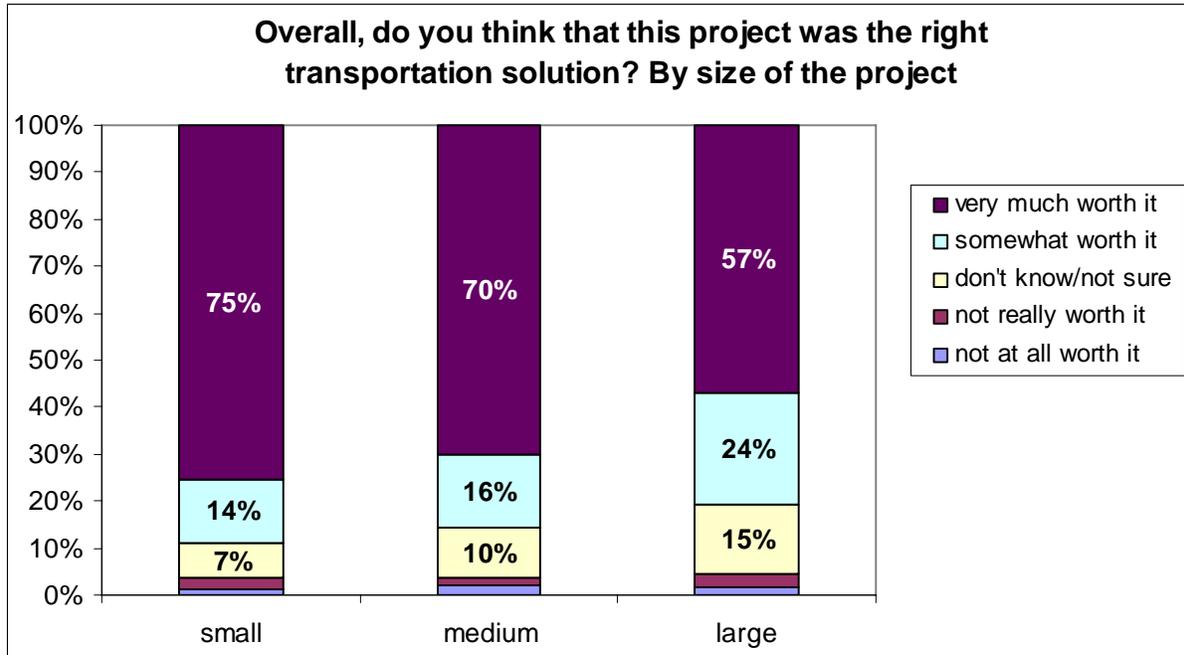
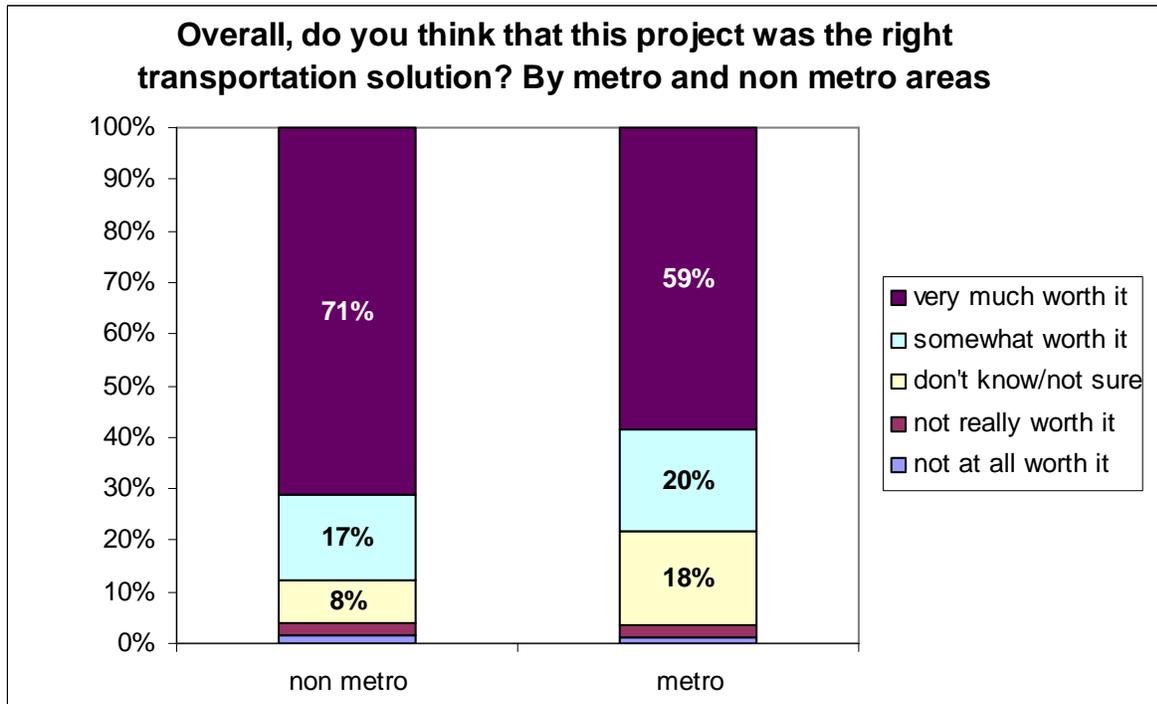
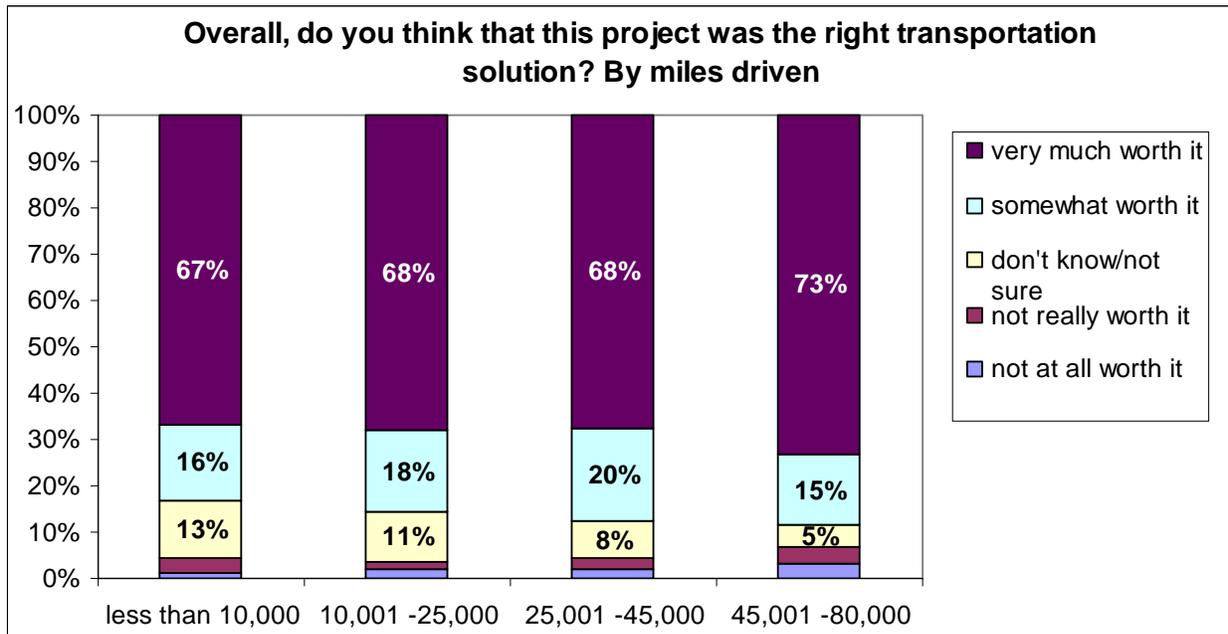


Figure 9.3 – The right transportation solution by metro and non metro areas



The number of miles respondents indicated they drove per year appears to correlate with their inclination to affirm the local project as the right transportation solution (figure 9.4). Those who drive the most have the highest percent in the “very much worth it” category at 73%, which is about five points higher than the other categories. They are also less likely to be unsure with only five percent in this category versus 13% unsure in the lowest mileage group.

Figure 9.4 – The right transportation solution by miles driven



Furthermore, familiarity with the roadway showed a strong correlation with the idea that the local project was the right transportation solution. Ninety-three percent of respondents who were very familiar with the local project indicated that the project was “worth it” compared to respondents who were only fairly or somewhat familiar with their projects (88% and 56% respectively) as seen in figure 9.5. The differences across groups was particularly strong for the highest measure of “very much worth it” as only 4% of the least familiar picked this highest category, but more than three-quarters of the most familiar drivers said the local project was very much worth it.

Figure 9.5 – The right transportation solution by familiarity of the roadway

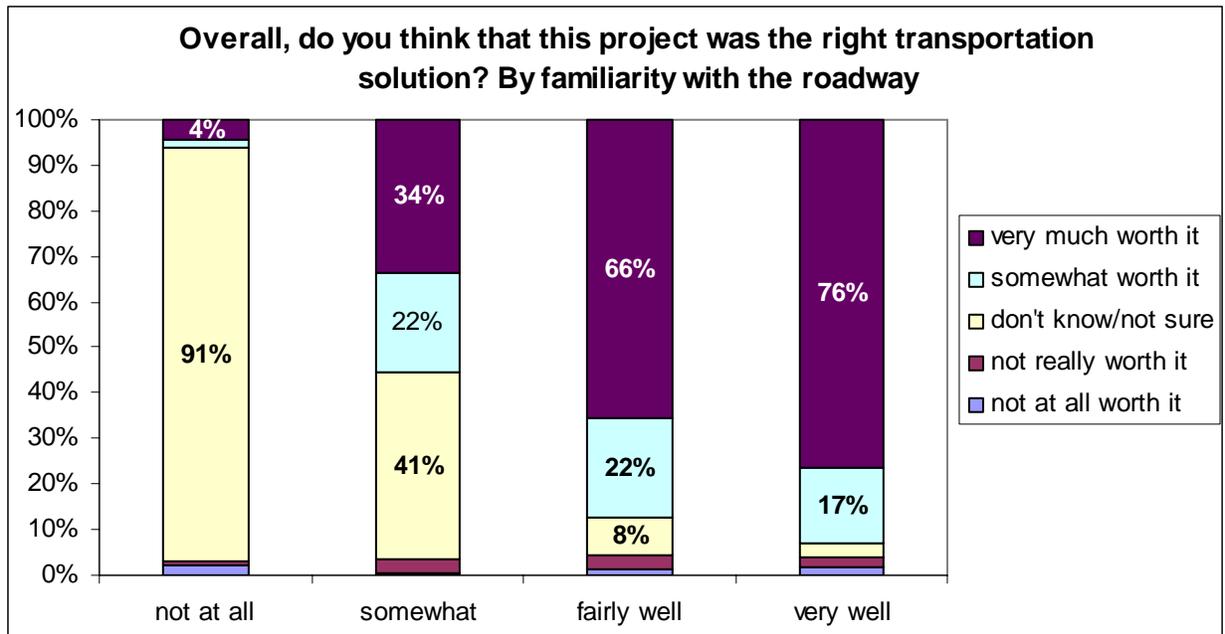
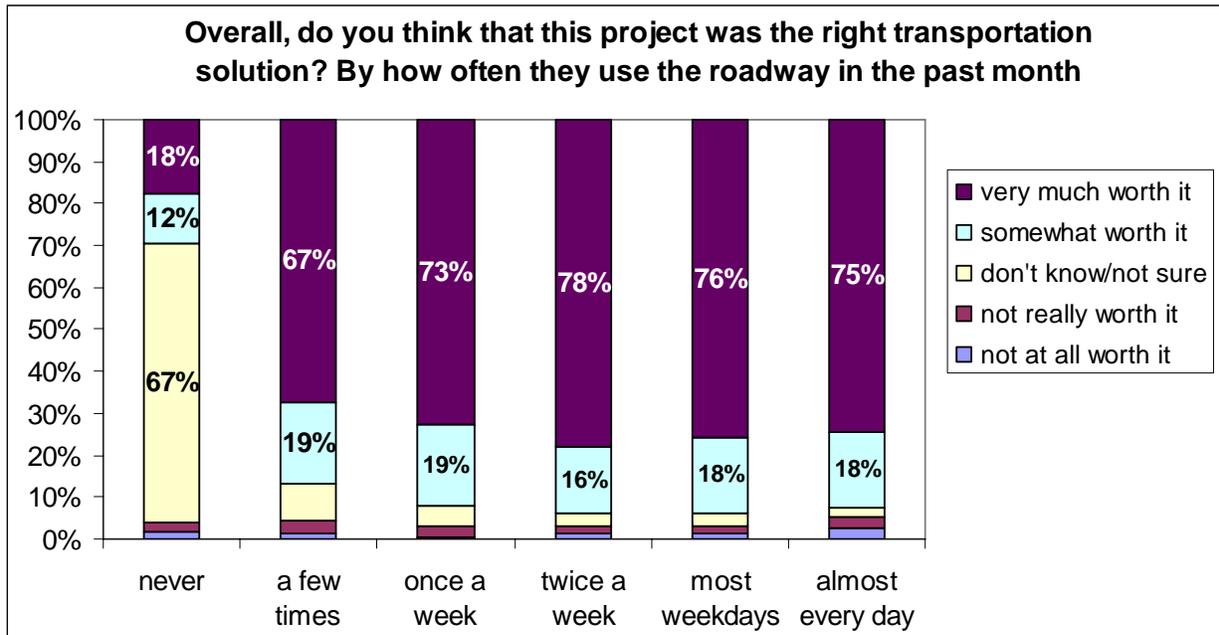


Figure 9.6 below illustrates less significant differences in perceptions of the projects being the “right transportation solution” when respondents’ frequency of use of the local roadway is compared. Respondents who use the road “almost every day” were only slightly less likely to say that their project was “worth it” (92%) than respondents using the roadway “twice a week,” or “most weekdays” (each 94%). Eighty-six percent of respondents using the roadway “a few times” in the previous 30 days indicated that their project was “worth it.” Only the rare users had low evaluations of the project, and they were mostly in the “unsure” category.

Figure 9.6 – The right transportation solution by how often they use the roadway in the past month



No significant differences are identified in respondents’ opinions in relation to gender. Eighty-six percent of males and 84 percent of females indicated they felt their project was the “right transportation solution” (figure 9.7 in Appendix A). However age had a slightly different impact on the response to this question. In general, as respondents’ age increased, they were more likely to indicate that their project was “worth it” with the exception of respondents aged 51 to 60. This group had the largest percentage of all the groups indicating that their local project was the right transportation solution (88%). Of the older groups (71 to 80 and older than 81) 84 percent and 86 percent respectively indicated that their projects were the right transportation solution compared to 82 percent of respondents ages 21 to 30 (figure 9.8 in Appendix A).

V. Overall Quality of Missouri’s transportation system

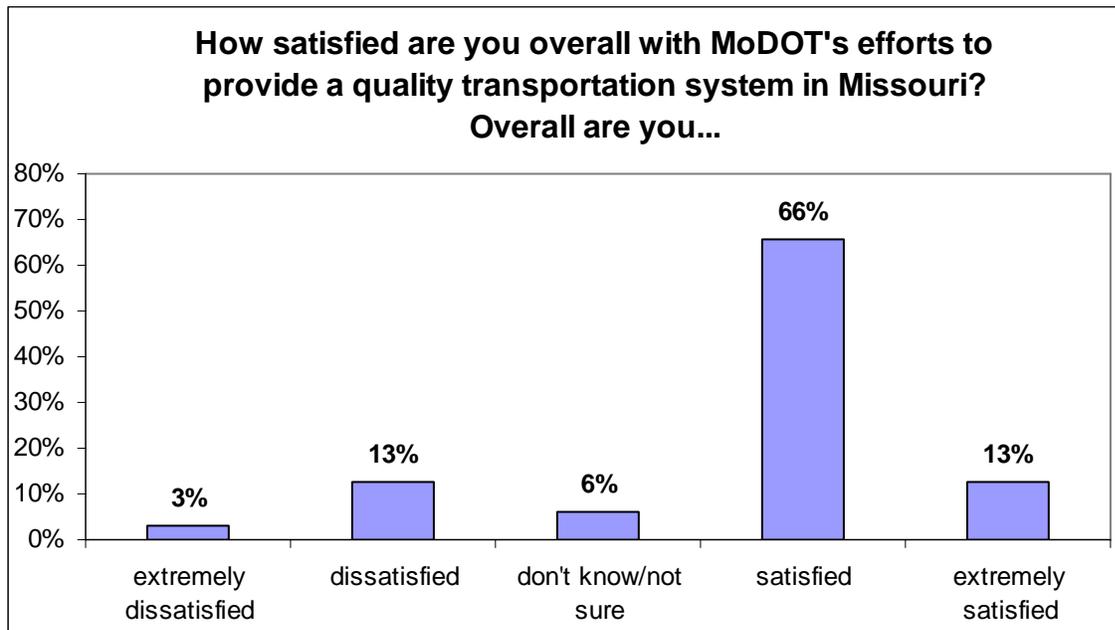
It is important to compare opinions about the assessment of the local project as the right transportation solution with a more general overall assessment of MoDOT. As noted above in the background section of the report, an earlier attempt in 2005 to assess customer attitudes about the right transportation solution used one overarching question about whether customers “feel completed projects are the right transportation solution” with a response set of “none, few, some, most, or all.” In that previous measure, only 5% of Missourians put MoDOT in the top category, and an additional 41% put them in a still desirable category of “most,” but the majority of respondents put them in the more negative response categories. This earlier result stands in stark contrast to the extremely positive valuation of the local projects in the current study.

It is difficult to assess this difference in results without asking a similar overall assessment of MoDOT’s efforts in the current study. Therefore, the survey asked a question on how satisfied the respondent was “overall with MoDOT’s efforts to provide a quality transportation system in

Missouri.” While using exactly the same response set might be useful for comparison, the poor validity of the previous response set led the research team to take a different approach. The responses of “none” to “all” are vague in many ways, but they are also problematic because there is no way to know how many projects for which any citizen is familiar (therefore, what do the categories mean for each respondent?). Further, it is difficult to tell whether a respondent is referring to local projects in this assessment of “all” projects or the possibility of unseen projects throughout the state. It is also difficult to know the meaning of “most” in this context in which it is the only choice between the extreme high of “all” and the seemingly low value of “some.” Therefore, the current survey used an alternative response set that simply asked whether the respondent was “extremely satisfied, satisfied, dissatisfied, or extremely dissatisfied” with MoDOT’s efforts to provide a quality transportation system in Missouri.”

The results, as shown in Figure 10.1, offer a very different view than the earlier 2005 survey question. The percent of respondents in the highest category is still relatively low at 13 percent, but it is more than twice as high as the “all” category in the older survey. Even more striking is that 66 percent of respondents in the new survey chose the “satisfied” category. The combination of the two positive categories adds up to nearly 80 percent of respondents with some level of satisfaction with MoDOT, which is in sharp contrast to the majority that picked the less desirable categories in the older survey.

Figure 10.1 – Overall, MoDOT provides a quality transportation system



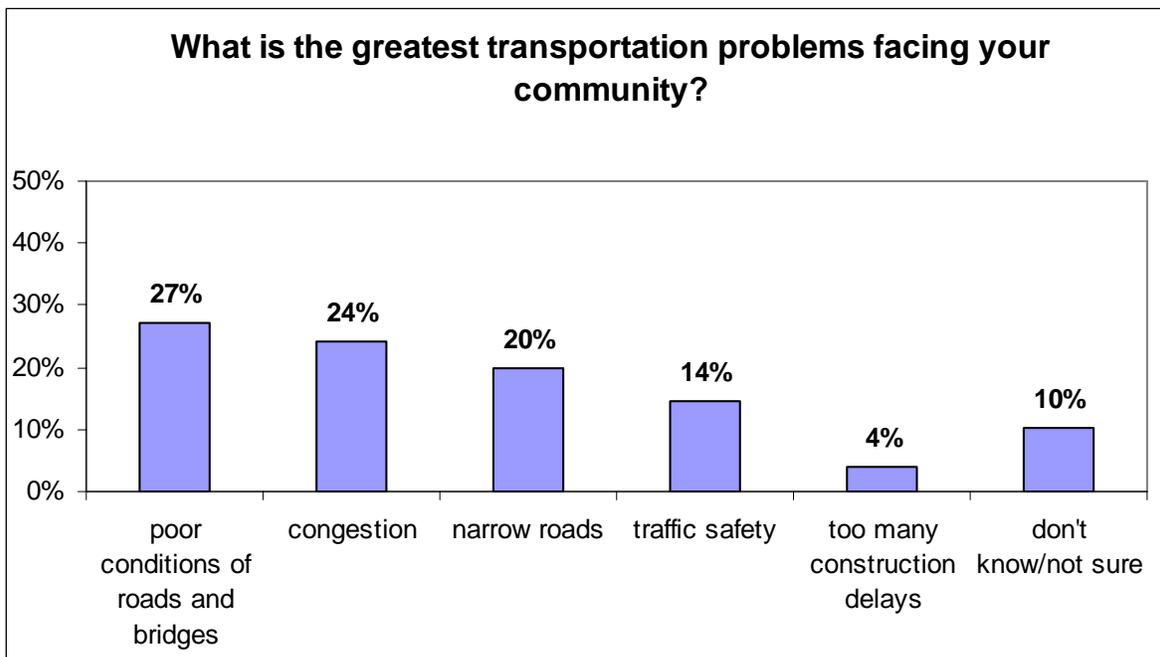
Although, there could be some concerns in comparing questions with different response categories and there was some potential for a “priming effect” in which the questions on the local projects elicited more positive responses to the later overall question, the results are still quite positive for MoDOT.

Another point on this overall measure of MoDOT is that a comparison of the results in figure 10.1 shows a different picture than the results in figure 9.1 for the local project. Whereas more than two-thirds of respondents offered the highest response category for the local project, less than 13% did so for the overall assessment. Clearly, there is room for improvement in the overall performance of MoDOT as measured by this question, but there is also likely to be a bit of parochialism at work. Residents see the great value for any local project, but they mistrust how their money is spent elsewhere. In many ways it is similar to the conventional wisdom on Congress that everyone hates Congress, but they love their own member of Congress. This is a tough attitude to overturn, and it is likely that this difference in the local project evaluation and the overall assessment would exist in most states and in most other time periods so this phenomenon could affect the choice of a measure for the Tracker System on customer satisfaction with “Projects of Great Value.”

Greatest Transportation Problem

As MoDOT moves forward making priorities that affect customer satisfaction, it will be important to know what citizens consider the greatest transportation problems in Missouri. To address this issue, a question was included on the survey that asked for the greatest problem facing their community. Respondents identified multiple transportation problems in their communities. As Figure 11.1 shows, the number one concern was poor conditions of roads and bridges closely followed by congestion and narrow roads. These concerns account for 71 percent of all responses. Traffic safety issues and construction delays account for 18 percent of respondents concerns, and about 10 percent were not sure of the biggest transportation problem.

Figure 11.1 – Greatest Transportation Problem



Conclusion

Overall, it appears that the Missourians living in areas near the MoDOT projects examined in this study were extremely positive about the projects. Across the spectrum of questions asked about various features of the projects such as safety, traffic flow, and driving conditions, typically two-thirds or more (and sometimes up to 86% of respondents) agreed that the projects offered the stated benefits. Safety received some of the highest agreement scores, but most of the features obtained values in the 80% or higher range. The desired goal with the greatest room for improvement was the congestion question, and yet about 70% agreed that the road had less congestion after the project.

The overall assessment of MoDOT appears to be somewhat sensitive to how the question is asked. Whereas the 2005 survey question using a vague response set produced a fairly dismal picture of MoDOT performance (with more than half choosing the less desirable categories), the current survey offered a striking contrast. On the overall measure used in the current survey, the highest category was at 13% (more than twice as high as the top category in the 2005 survey), and the two most favorable categories were chosen by 80% of respondents. Of even greater importance, a comparison with the evaluation of the local project is even more striking. More than two-thirds of respondents picked the top category of “very much worth it,” and an additional 17% picked the “somewhat worth it” response category. The overall percent in these two highest categories of valuation on whether the local project is the right transportation solution was 86%. Considering that the local project is the one that is most likely to be familiar to the citizen taking the survey, this extremely high valuation reflects well on MoDOT performance on these improvement projects.

Appendices

A. Additional figures

Figure 2.7.-Roadway is now safer by gender

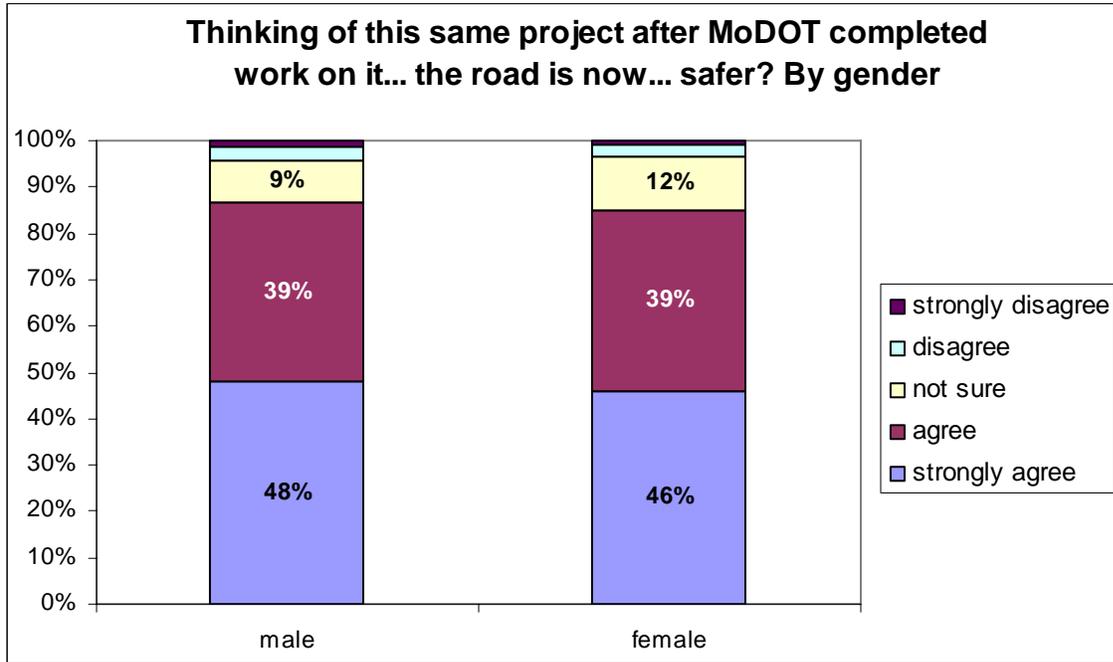


Figure 2.8.-Roadway is now safer by age

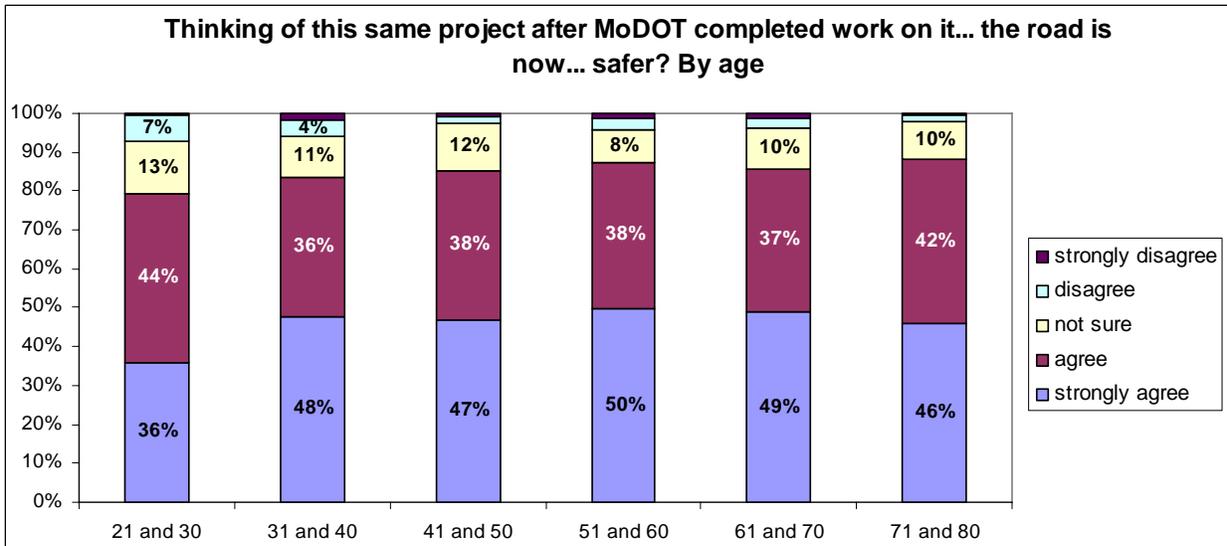


Figure 3.7 – Roadway more convenient by gender

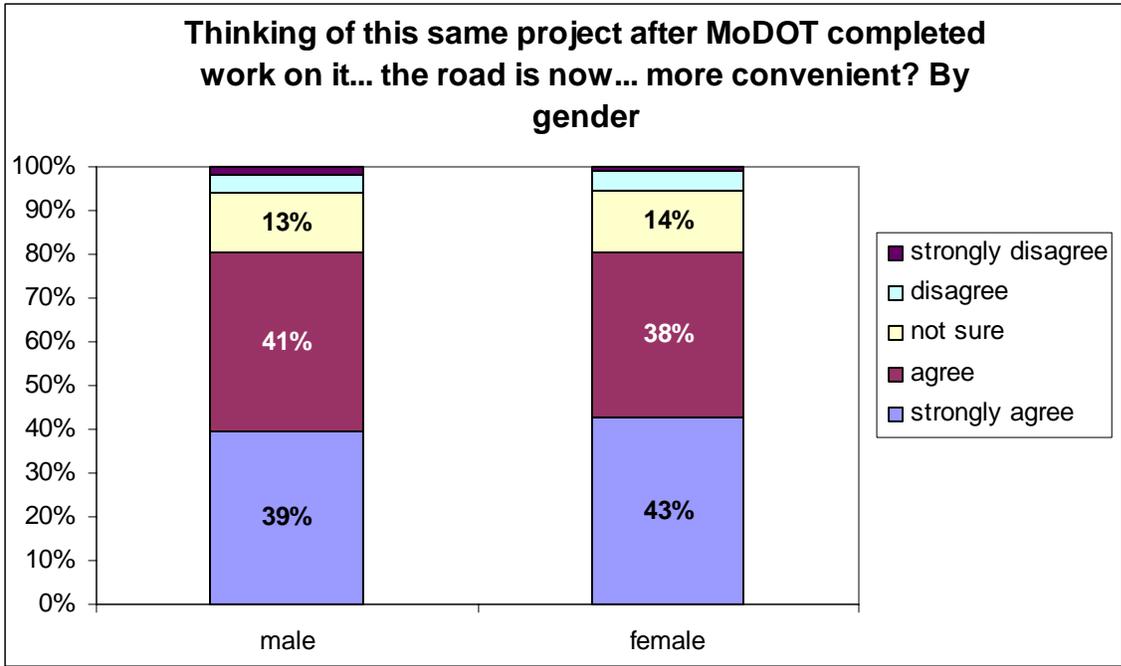


Figure 3.8 – Roadway more convenient by age

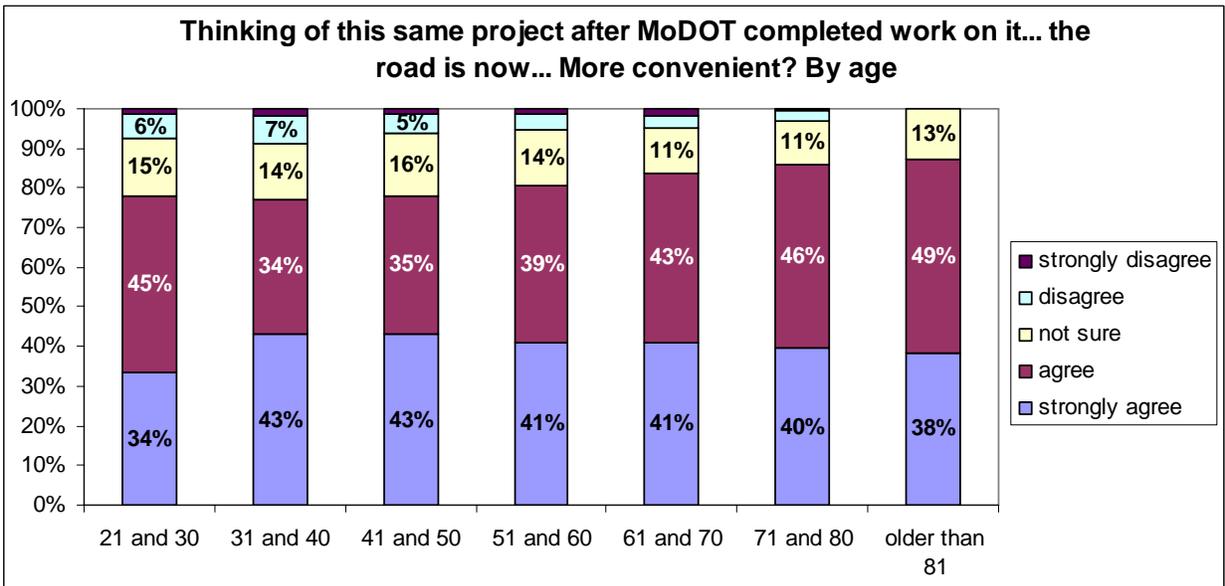


Figure 4.7 – Roadway is less congested by gender

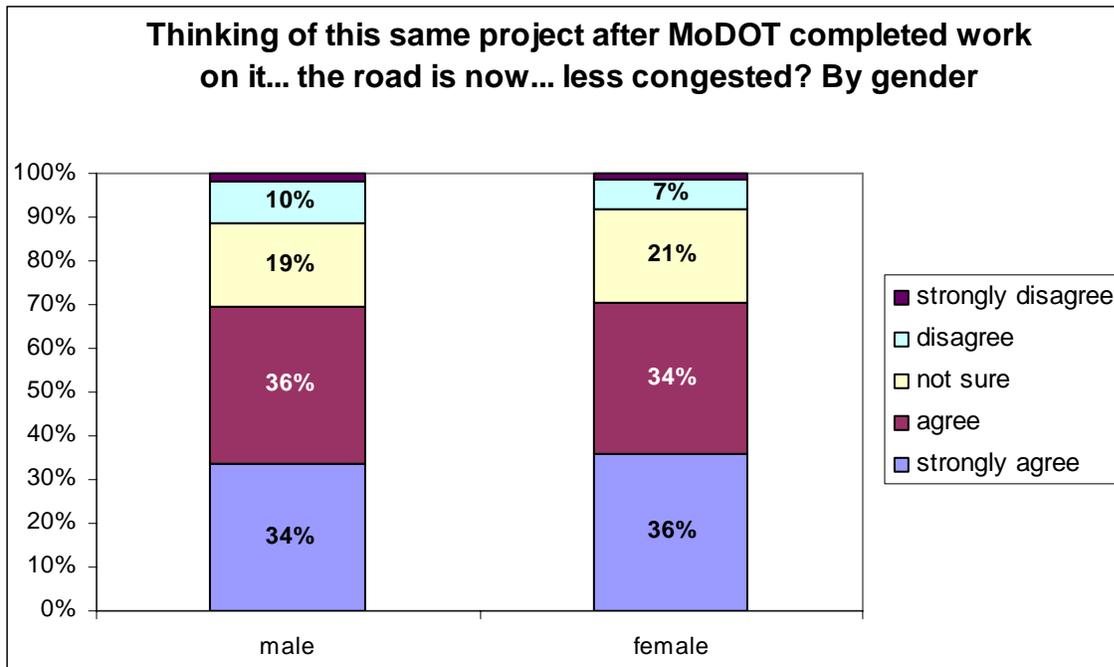


Figure 4.8 – Roadway is less congested by age

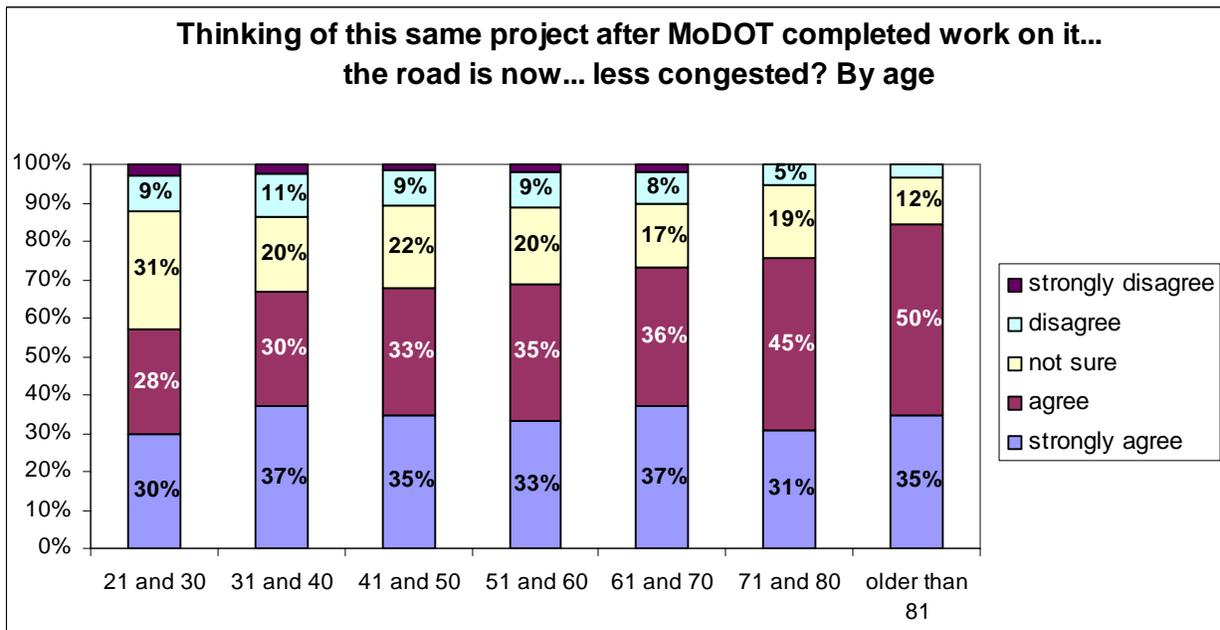


Figure 5.7– Roadway handles more traffic efficiently by gender

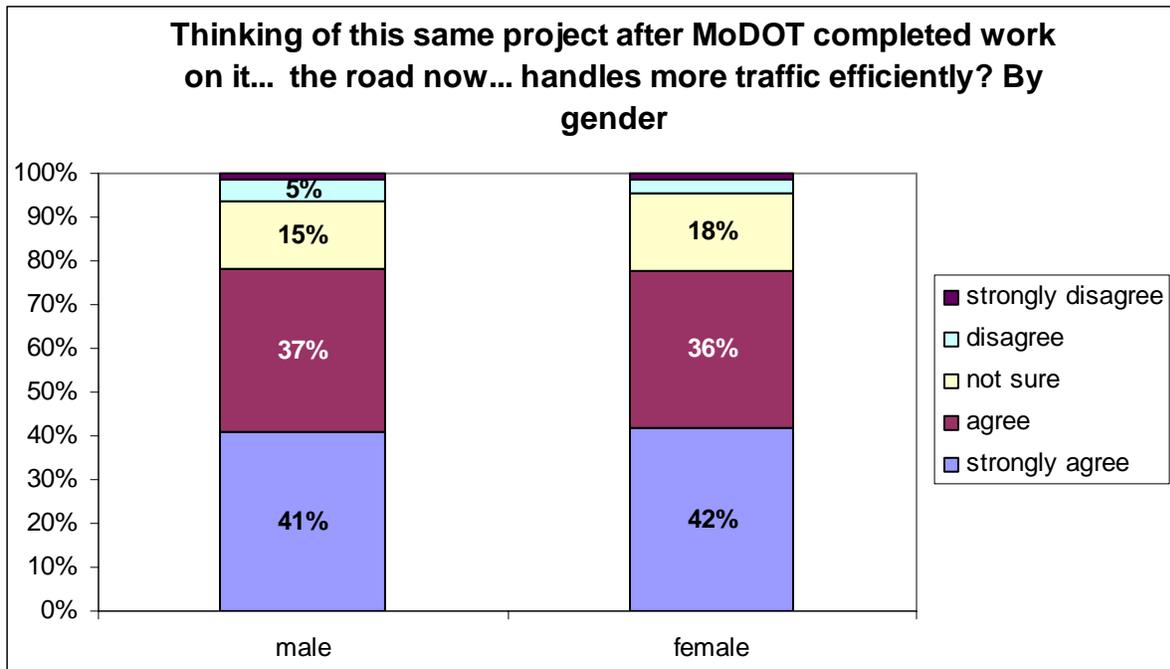


Figure 5.8– Roadway handles more traffic efficiently by age

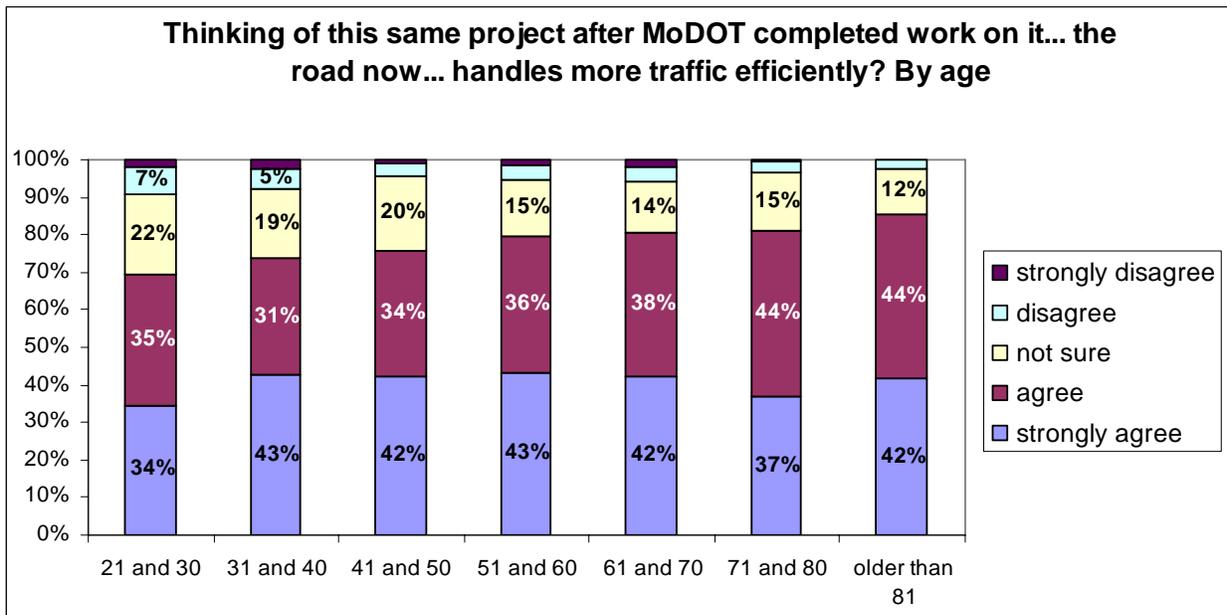


Figure 6.7 – Roadway is now easy to navigate by gender

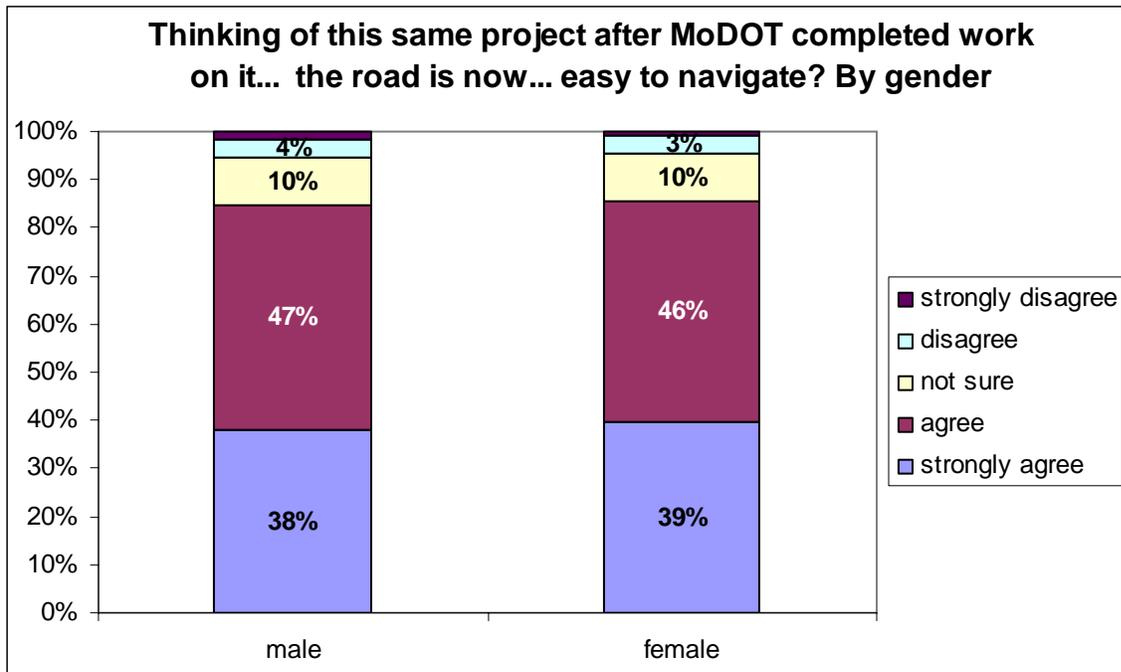


Figure 6.8 – Roadway is now easy to navigate by age

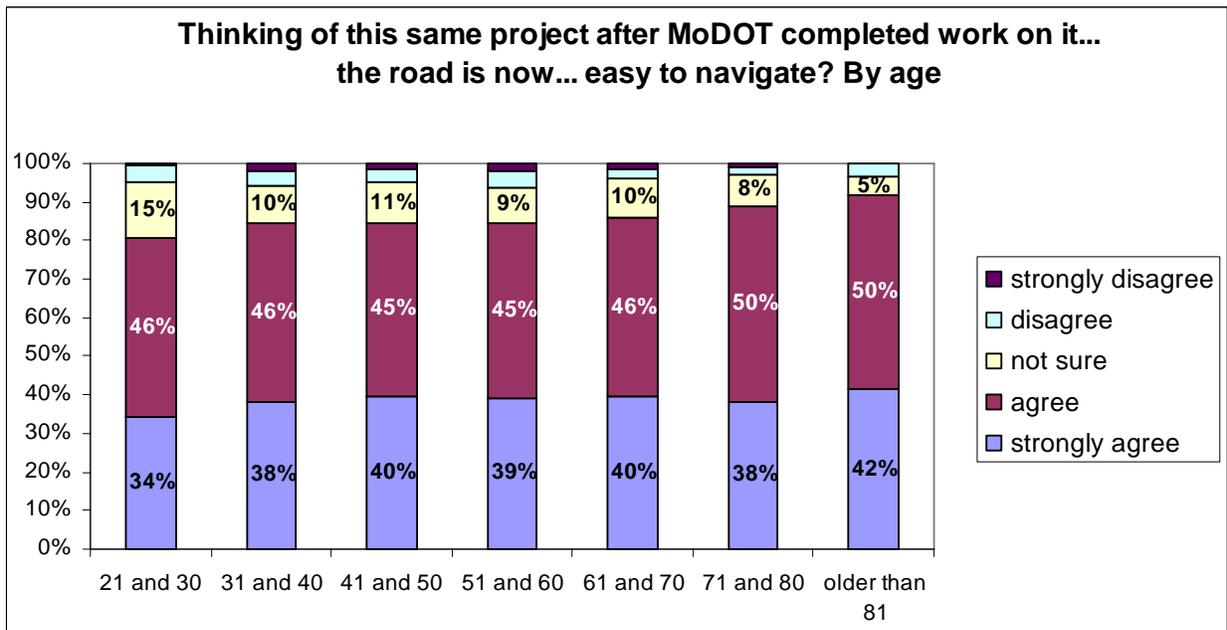


Figure 7.7 – Roadway is easy to understand by gender

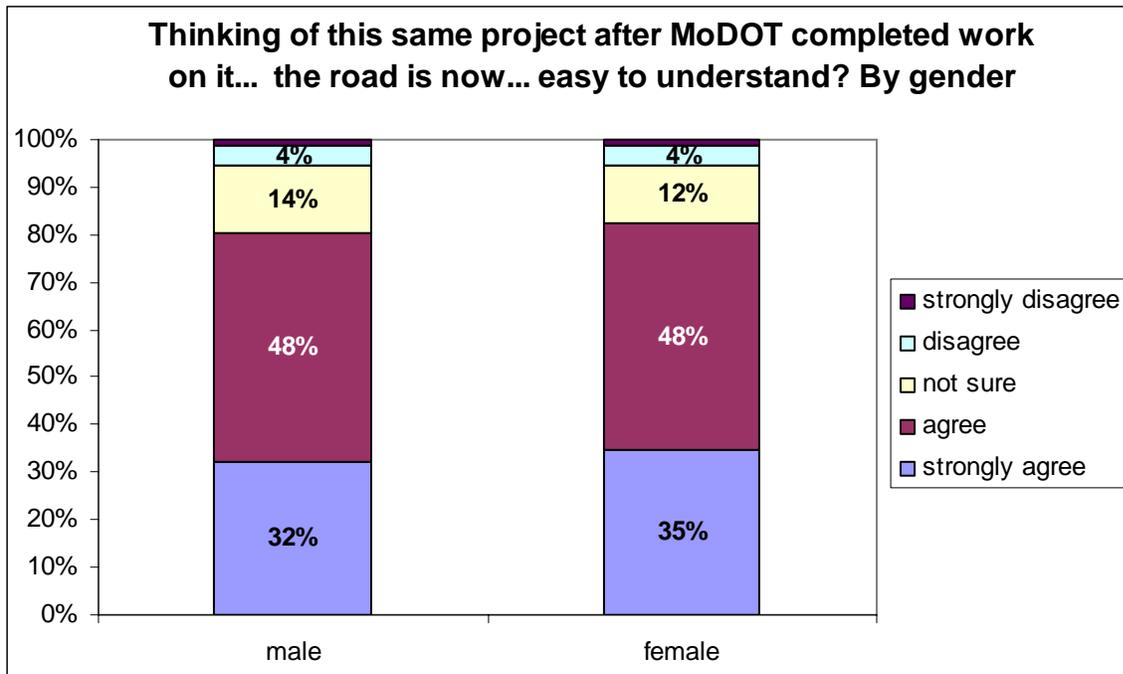


Figure 7.8 – Roadway is easy to understand by age

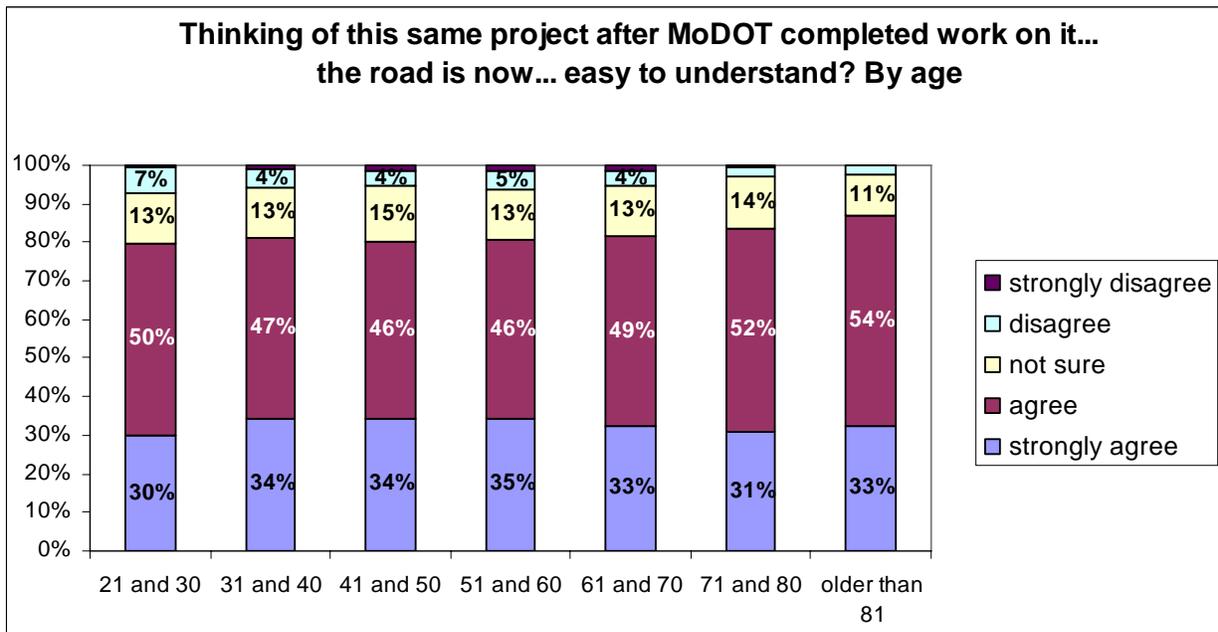


Figure 8.7 – Roadway is well marked by gender

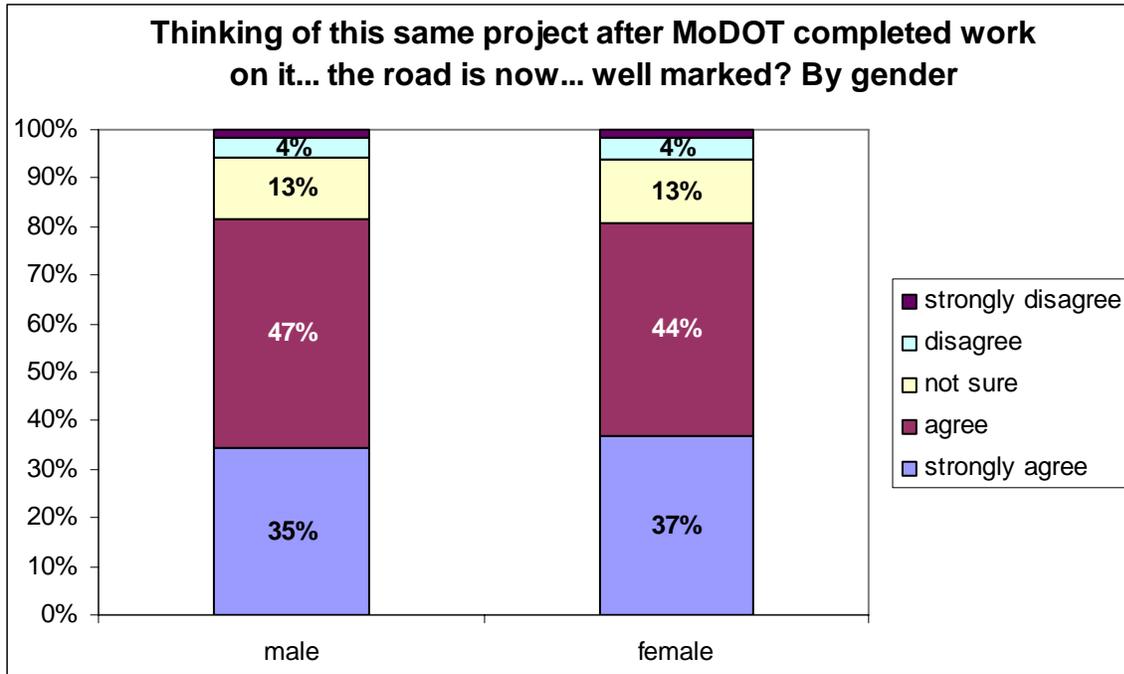


Figure 8.8 – Roadway is well marked by age

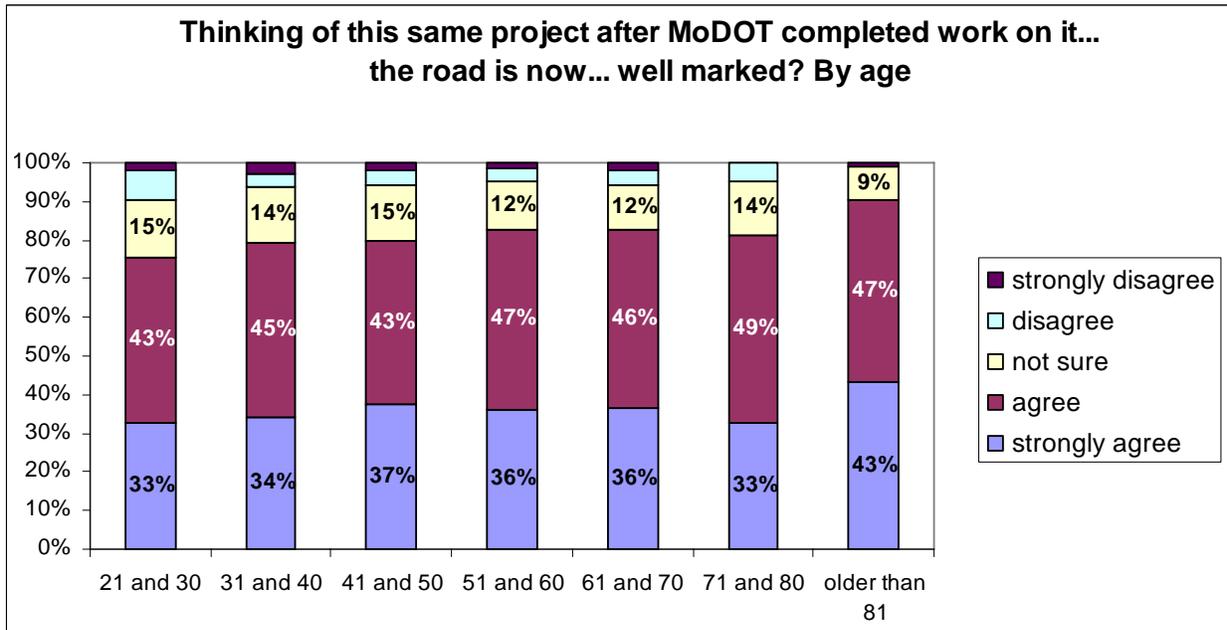


Figure 9.7 – The right transportation solution by gender

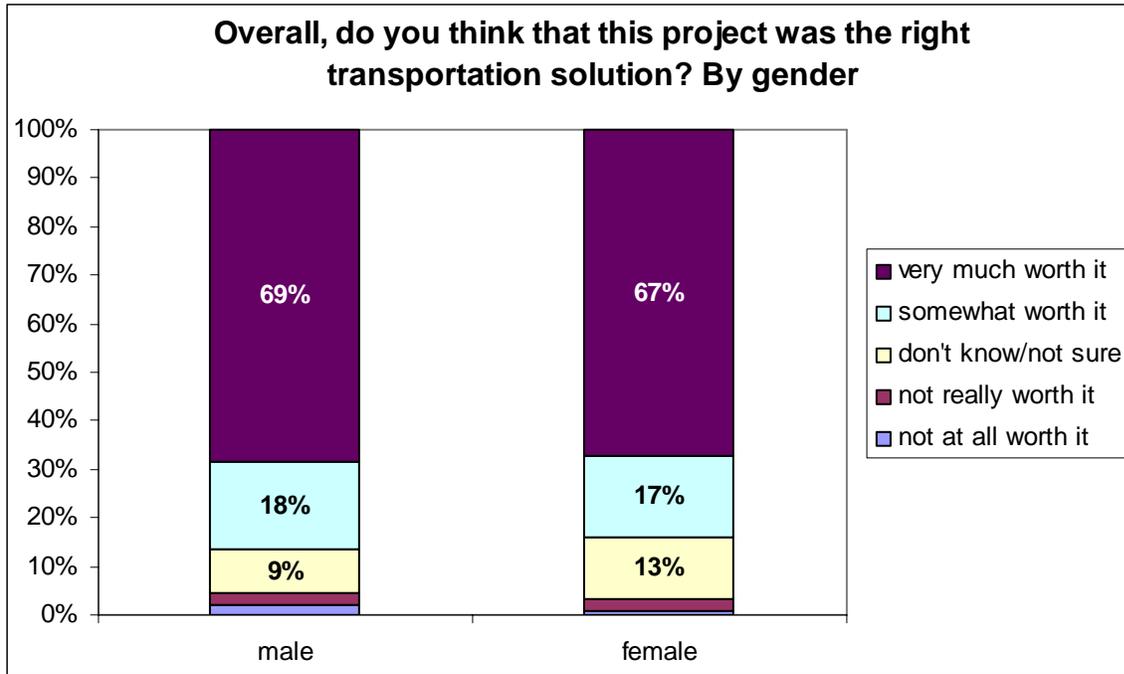


Figure 9.8 – The right transportation solution by age

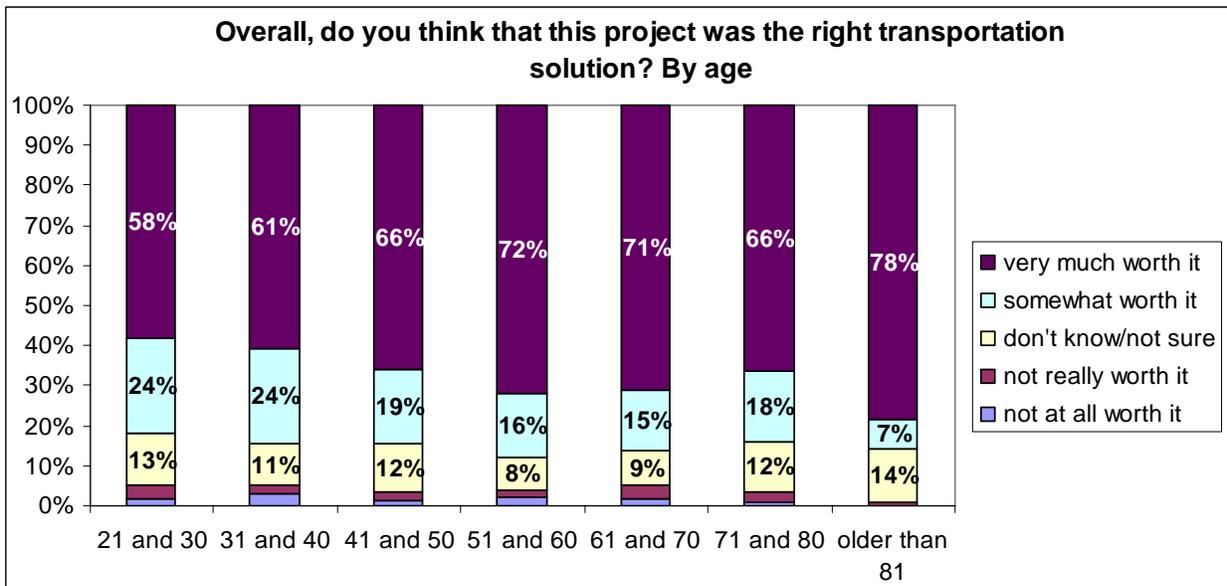


Figure 10.4 – Overall, MoDOT provides a quality transportation system by gender

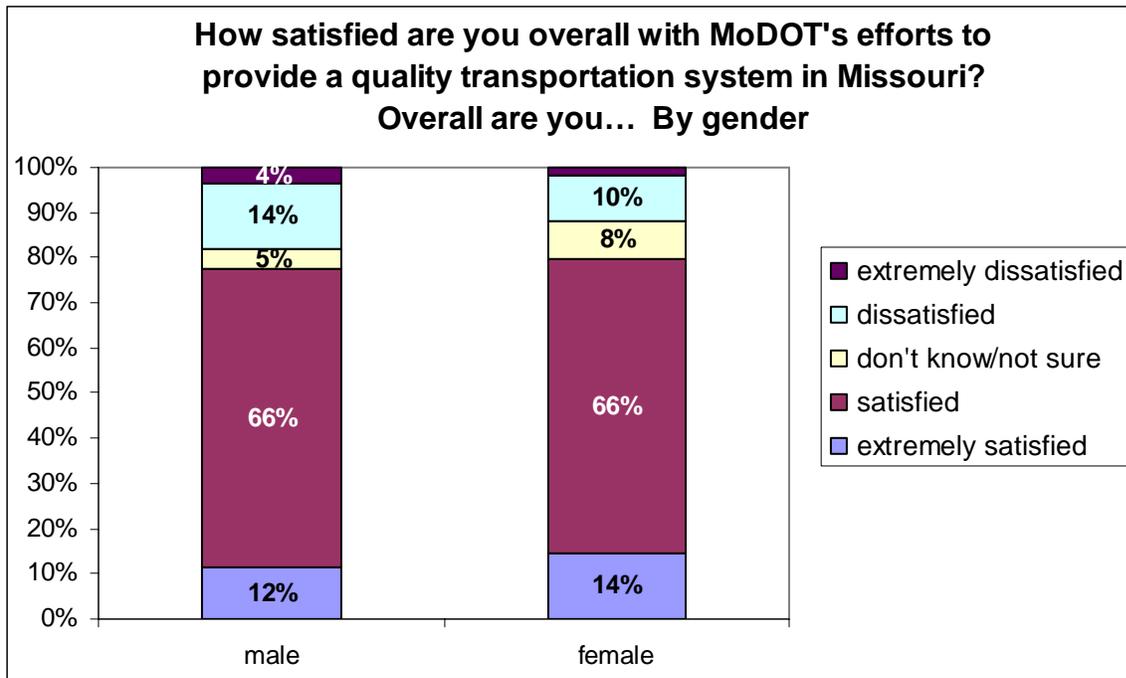
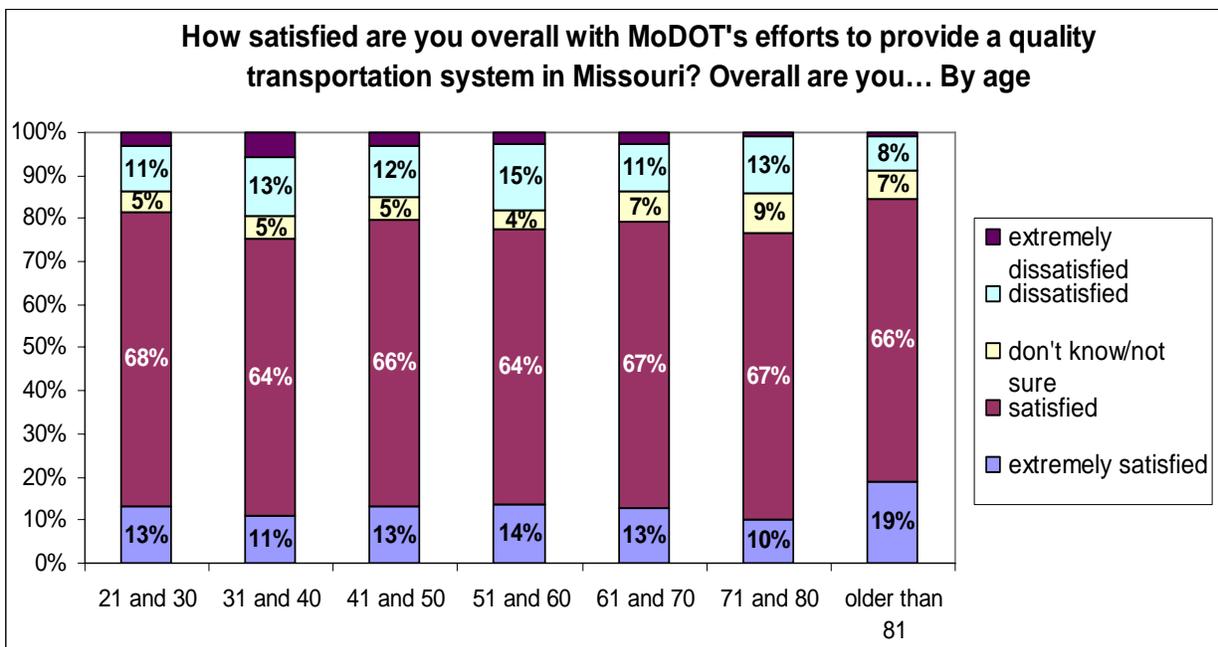


Figure 10.5 – Overall, MoDOT provides a quality transportation system by age



B. Methods and Technical Documentation

Sample Selection

The survey was distributed to members of the Missouri population who lived in reasonably close proximity to each of the 30 MoDOT road improvement projects. The research team determined that 400 people would be surveyed per project for a total sample size of 12,000 people. The sample of 400 people per project was selected from the ZIP codes immediately surrounding each project area. The percent of the sample drawn from each ZIP code was determined based on each ZIP code population and the percent of the total population of the project area each represented. For example, in the L1 project area, ZIP code 64506 represents 25% of the total population of the 8 ZIP codes selected as the survey area for that project. Therefore, 25% of the 400 person sample was drawn from that ZIP code, or 100 people. The calculations for each project sample were made using a Microsoft Access database and population data from the U.S. Census Bureau.

The addresses for the sample of 12,000 total participants were obtained from Marketing Systems Group (M-S-G). M-S-G randomly selected addresses from their database of validated mailing addresses based on the number of addresses requested by ZIP code. Each address was then assigned to the relevant project code.

The Assessment Resource Center (ARC) at the University of Missouri handled the printing and processing of the survey instrument. The survey was mailed out as a one-page scannable document to each of the 12,000 survey participants. Each survey contained a brief description of the project in question and a set of 10 questions about the participant's usage and satisfaction with the road improvement project. The ARC mailed the first wave of 12,000 on November 1st, 2006, and each survey contained a business reply envelope so the respondent could mail it back with no expense to them. Seventeen of the surveys were returned undeliverable or refused, creating a final sample size of 11,983. A total of 2,236 surveys were received from the first mailing for an initial response rate of 18.7%.

A second sample of 6,000 participants was drawn from the non-respondents to wave 1 and sent a second copy of the survey. The number of participants selected from each project area for wave 2 was weighted based on the number of responses received from each project area in wave 1. Project areas from which a large number of wave 1 surveys were received were sent fewer wave 2 surveys, and conversely, areas where few wave 1 surveys were returned were sent a larger number of wave 2 surveys. The 6,000 wave 2 surveys were mailed by the ARC on December 5th, 2006. Responses to the second wave had just started to arrive as this interim final report was prepared. For the statewide evaluation and demographic comparisons (such as gender and rural/urban splits), the sample size is sufficiently large so that we expect few changes as the second wave data arrives, but we are likely to see more variability per project area or MoDOT district.

C. Project Descriptions

District	Large	Medium	Small
1	Rte 36 in Buchanan County - Mill & resurface from Missouri River to e/o Rte. AC (SRI Project).	Nodaway US 71 - CIR and resurfacing from Maryville to Rte. A (NB Lanes)	Daviess Rte. B - Replace bridges over Cypress Creek & Little Cypress Creek with 0.8 miles of roadway relocation
2	Route 63 lane additions from Macon to Kirksville	Route 65 resurfacing in Mercer/Grundy Counties	Business Route 63 resurfacing in Moberly
3	J3P0422 Rte 27, Avenue of the Saints from Iowa south in Clark County.	J3D0600C Rte 61 diamond grinding and shouldering in Pike and Lincoln Counties.	J3S0482/483 Route YY bridge deck replacements in Monroe County.
4	J4P1102 Rte 13, new Missouri River Bridge at Lexington in Ray County.	J4I1352 & J4I1306 Pavement replacement and widening on I-70 from I-470 to Route 7.	J4P1726 Rte 50, Construct offset left and right turn lanes, and extend acceleration lanes at Rte 58 Intersection in Johnson County.
5	J5P0590E Rte 5 in Camden County, grading and bridge south of the Niangua.	J5U044J Rte 179 from Rte C to Rte B in Jefferson City.	J5P0523 Bridge deck replacement near winery in Hermann on Rte 100 in Gasconade County.
6	J6P0672D Rte 40 in St. Charles County.	J6P1563 Rte 367 in St. Louis County.	J6S1670 Rte N in St. Charles County.
7	J7P0601E/601H Rte 71 in McDonald County, grading and bridge project, part opened in 2004 and another part in 2005.	J7P0675/J7P0675B Two sections of Route 37 in Barry County between Monett and Cassville. 2+1, opened in 2005.	J7B71/J7S0708 Intersection improvement at 7 th Street and Rangeline Road in Joplin.
8	J8P0592 Rte 13 interchanges and widening project at Bolivar in Polk County.	J8S0700C Rte 160/13 resurfacing and turn lane project between Highlandville and the Finley River south of Nixa in Stone/Christian Counties.	J8S0512 Rte HH in Laclede County, bridge replacement at Cobb Creek south of Lebanon.
9	J9P0364C Route 60, Howell County (Willow Springs Bypass Completion)	J9P0427 Route 21, Reynolds County (Centerville Bridge Replacement)	J9M0059 Route 160, Ripley County (Resurfacing and shouldering)
10	JOP0035, 035D, 035E Most recent large section of the Rte 412 corridor upgrade to be completed in Pemiscot County.	JOP0591B Rte 67, Parkway Drive interchange in St. Francois County.	JOS090 Rte K, Farrar Drive intersection improvements in Cape Girardeau.

D. Survey Instrument



2006 Missouri Department of Transportation Survey



The resident's address was listed here so that it could show through an envelope window, and the zip code was linked to the project described below in red.

Dear Resident,

Please help us. The Missouri Department of Transportation is committed to providing you a world-class transportation experience, and we need your feedback on our progress in making Missouri roads smoother and safer. We know you expect MoDOT to get the best value out of every dollar spent, and the best way to measure our progress is to ask our customers. Therefore, we ask you to take a short survey on a recent MoDOT project in your area.

We are working with the Truman School of Public Affairs at the University of Missouri to develop and conduct this survey. Your responses will be kept confidential, and your participation is voluntary. If you prefer to not answer a question, please leave it blank and continue to the next question. The survey should take less than 5 minutes to complete, and you can return the survey to us in the postage paid envelope that is enclosed. Thank you for taking your time to help us get even better.

Sincerely,

Pete Rahn
Director, Missouri Department of Transportation

In recent years, MoDOT completed a project in your area on:

Route 40 in St. Charles County. The project constructed a new interchange at Route 40 and Route N and removed all at-grade crossings on Route 40 from west of Winhaven/ Route DD to east of Lake St. Louis Boulevard. The project will also accommodate and tie into phase 3 of the Route 364 extension.

We would like to ask for your opinion on this MoDOT project.

Please completely and carefully fill in each chosen circle with a #2 pencil or blue/black pen.

- | | |
|--|--|
| 1. Are you familiar with this roadway? | 2. How often have you used this section of the road in the past month? |
| <input type="radio"/> Not at all | <input type="radio"/> Never |
| <input type="radio"/> Somewhat | <input type="radio"/> A few times |
| <input type="radio"/> Fairly Well | <input type="radio"/> Once a week |
| <input type="radio"/> Very Well | <input type="radio"/> Twice a week |
| | <input type="radio"/> Most weekdays |
| | <input type="radio"/> Almost every day |

Please completely and carefully fill in each chosen circle with a #2 pencil or blue/black pen.

3. Thinking of this same project after MoDOT completed work on it, how would you rate each of the following?

The road is now ...	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Safer	<input type="radio"/>				
More Convenient	<input type="radio"/>				
Less Congested	<input type="radio"/>				
Easy to Navigate	<input type="radio"/>				
Easy to Understand	<input type="radio"/>				
Handles More Traffic Efficiently	<input type="radio"/>				
Well Marked	<input type="radio"/>				

4. Overall, do you think this project was the right transportation solution?

- Not at all worth it
- Not really worth it
- Somewhat worth it
- Very much worth it
- Don't know/ Not sure

5. How satisfied are you overall with MoDOT's efforts to provide a quality transportation system in Missouri? Overall are you...

- Extremely satisfied
- Satisfied
- Dissatisfied
- Extremely dissatisfied
- Don't know/ Not sure

6. What is the greatest transportation problem facing your community?

- Congestion
- Too many construction delays
- Poor conditions of bridges and roads
- Traffic safety
- Narrow roads
- Don't know/ Not sure

7. What is your gender?

- Male
- Female

8. In which 5-digit zip code do you live?

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

9. What year were you born?

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	
4	4	4	
5	5	5	
6	6	6	
7	7	7	
8	8	8	
9	9	9	

10. Approximately how many miles do you drive per year?

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

E. Response Rates by District and Project

District		Large	Medium	Small
1	Response	69 17.7%	100 25.6%	102 27.3%
	No Response	321	290	272
	Missing*	10	10	26
	Total	400	400	400
2	Response	131 33.9%	105 27.6%	88 23.2%
	No Response	256	275	291
	Missing*	13	20	21
	Total	400	400	400
3	Response	141 36.4%	108 27.3%	67 17.7%
	No Response	246	287	311
	Missing*	13	5	22
	Total	400	400	400
4	Response	125 32.3%	72 18.8%	90 23.4%
	No Response	262	312	294
	Missing*	13	16	16
	Total	400	400	400
5	Response	77 24.3%	118 30.7%	135 34.4%
	No Response	240	266	258
	Missing*	83	16	7
	Total	400	400	400
6	Response	65 16.6%	56 14.5%	89 22.5%
	No Response	327	329	306
	Missing*	8	15	5
	Total	400	400	400
7	Response	72 20.3%	97 25.9%	94 24.7%
	No Response	283	277	287
	Missing*	45	26	19
	Total	400	400	400
8	Response	123 31.5%	75 18.9%	57 14.6%
	No Response	267	321	333
	Missing*	10	4	10
	Total	400	400	400
9	Response	118 30.6%	138 38.3%	106 28.8%
	No Response	267	222	262
	Missing*	15	40	32
	Total	400	400	400
10	Response	78 20.5%	103 26.8%	74 19.2%
	No Response	303	281	312
	Missing*	19	16	14
	Total	400	400	400

* Missing includes undeliverable and refused mailings.

F. Right Transportation Solution by District and Project

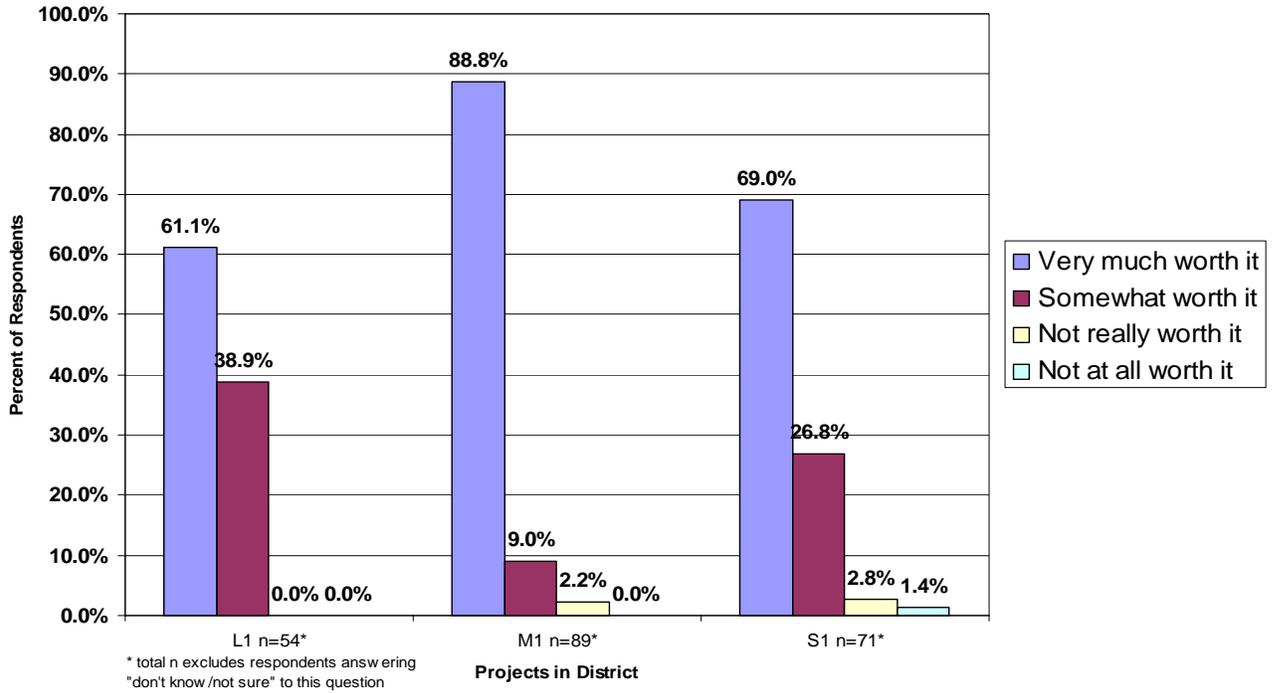
Upon request of MoDOT, the research team offers the results from the “right transportation solution” question for each project in each district in this appendix. We urge extreme caution in using the information in these graphs as the small sample size per project area poses a considerable problem for comparison across projects. The basic issue is that the sample size per project is rather small even though the overall sample size is huge at over 2,800 respondents. For example, for one of the projects only 57 people in the project area responded (versus 135 in another project area). The results for each project area in each district are listed in appendix E.

The margin of error on a survey of 50 people is plus or minus 14 percent, and this is the sample size that applies for many of the project areas as one can see in the table in appendix E. In practice, this means a score of 70 could really be an 84 or a 56 and still be within the statistically acceptable confidence band. This margin of error makes it difficult to really compare across the projects except for extreme cases with large differences (for example a score of 95% versus a score of 50%). Even a sample size of 100 has a margin of error of plus or minus ten percent so the only statistically valid comparisons would be if one project were more than twenty percentage points lower than another (for example, an 81 versus a 60).

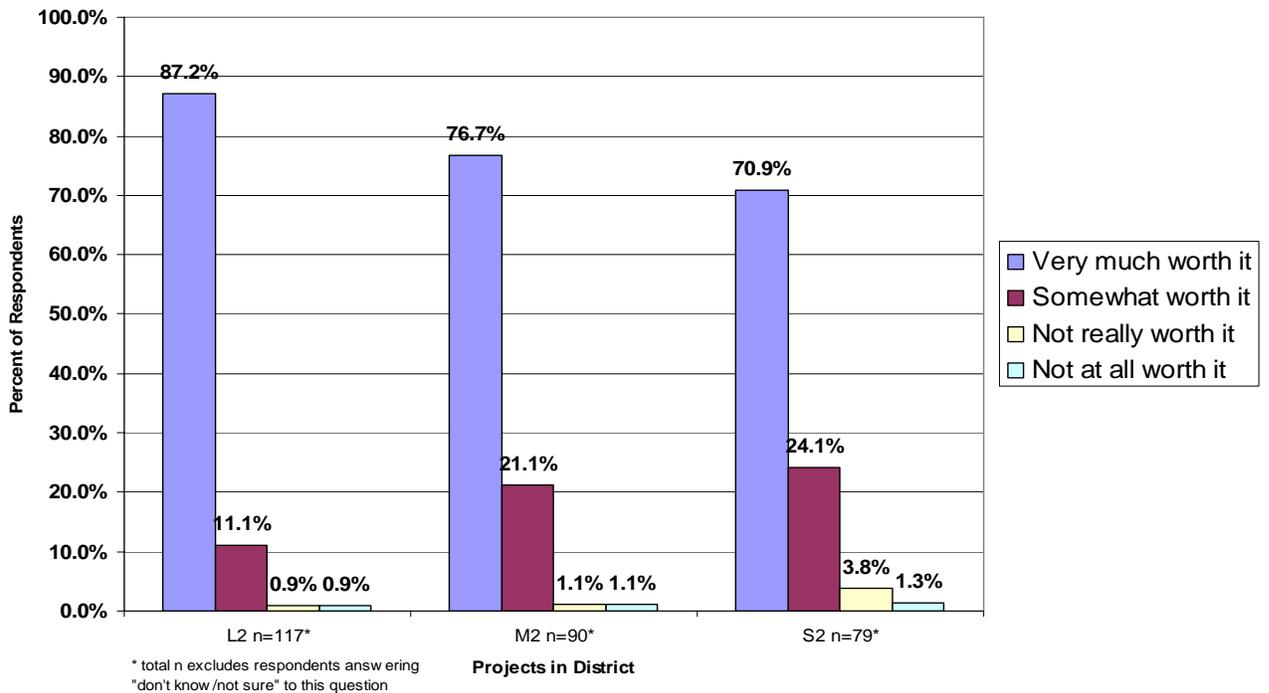
It is tempting for an analyst or manager to compare performance across the projects, but one must exercise extreme caution in doing so. For example, a difference of 67% for project X versus 61% on project Y is not statistically valid with the margin of error at the project level. Such a comparison would not be valid for an evaluation of project managers or to make serious decisions about future projects.

It is important to stress that the larger margins of error for the project specific scores are quite different than the extremely small margin of error for the overall project. The margin of error for a sample over 2,000 persons is plus or minus two percent so any difference of five or more percentage points is statistically valid for a comparison using all of the data. Therefore, we can say with 95% confidence that two group scores with a difference of five points or more are significantly different from one another. For example, the 13-point difference between metro and non-metro respondents for the “strongly agree” category on the “safer” question in figure 2.3 easily exceeds this threshold for statistical significance.

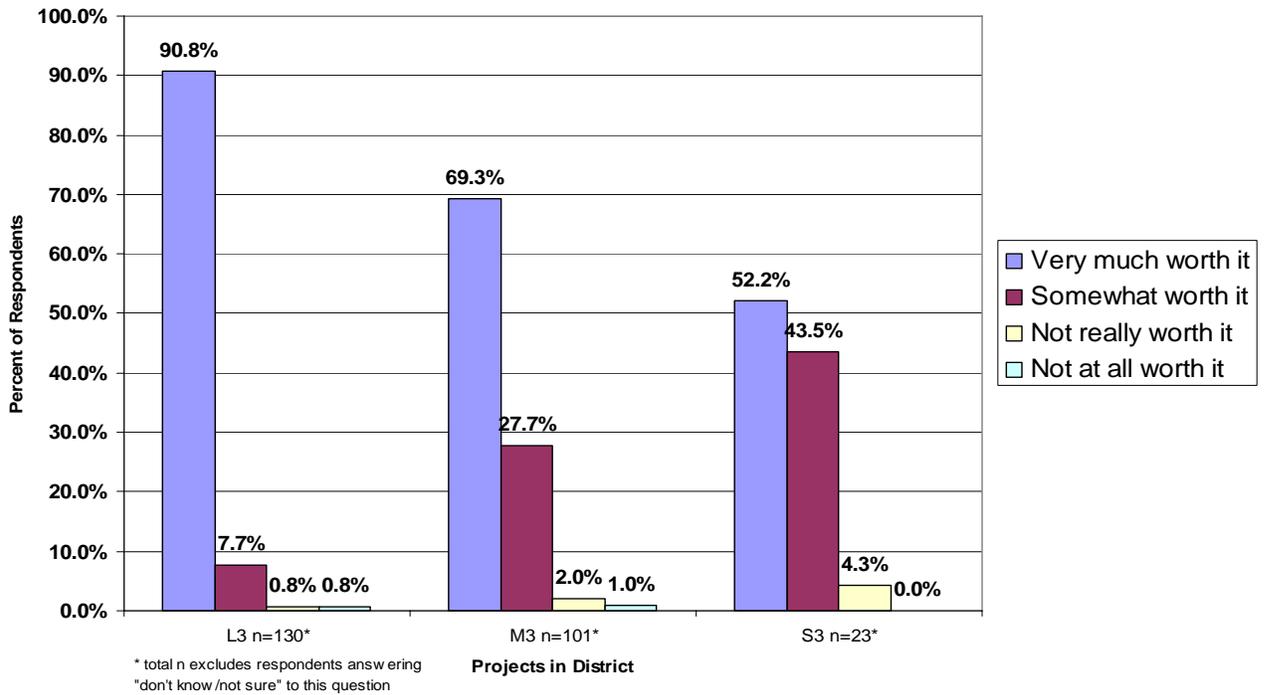
District 1
"Overall, do you think this project was the right transportation solution?"



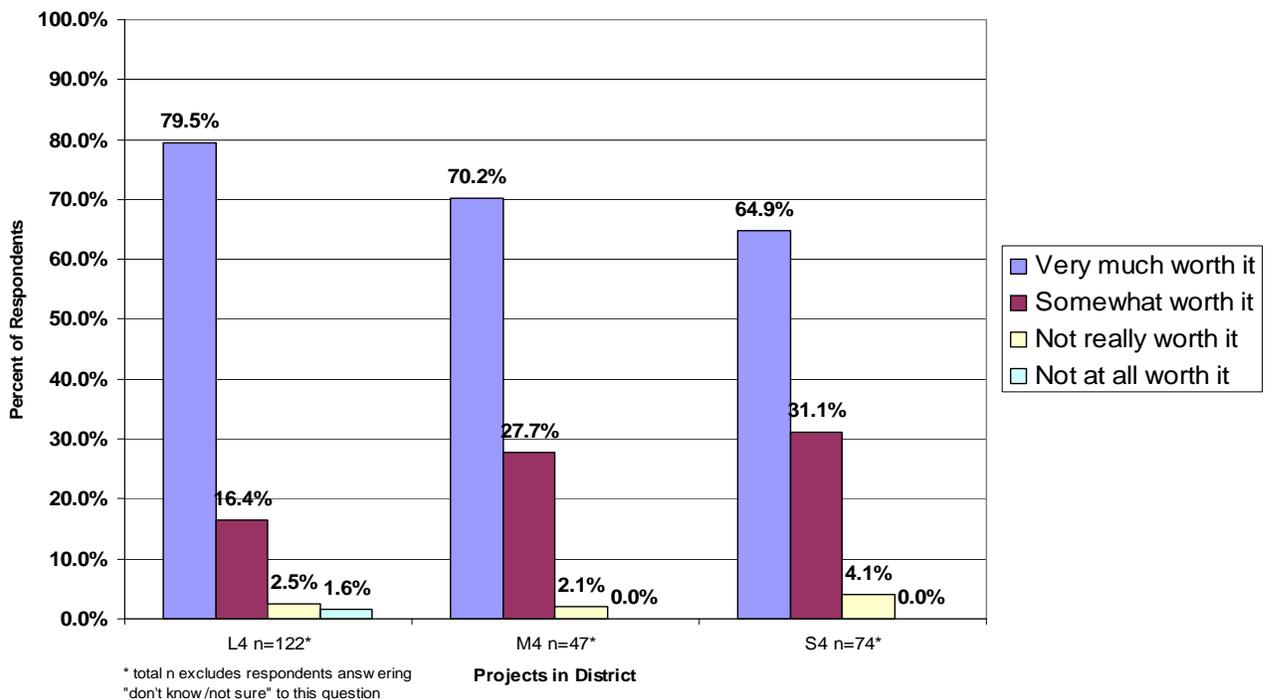
District 2
"Overall, do you think this project was the right transportation solution?"



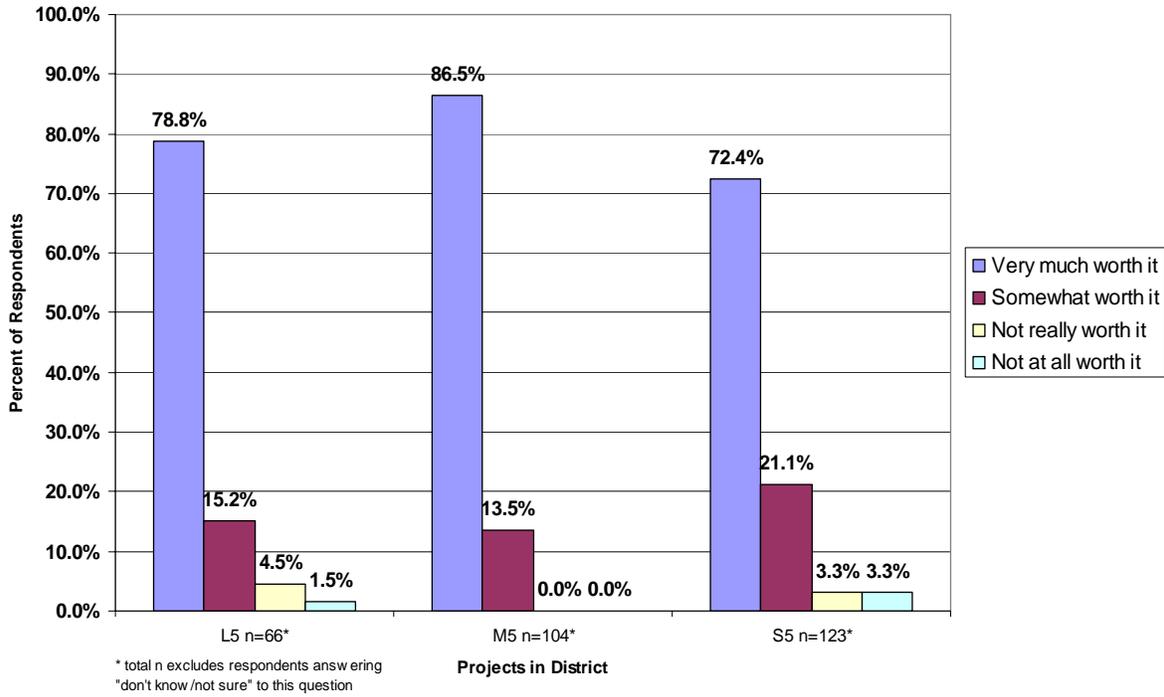
District 3
"Overall, do you think this project was the right transportation solution?"



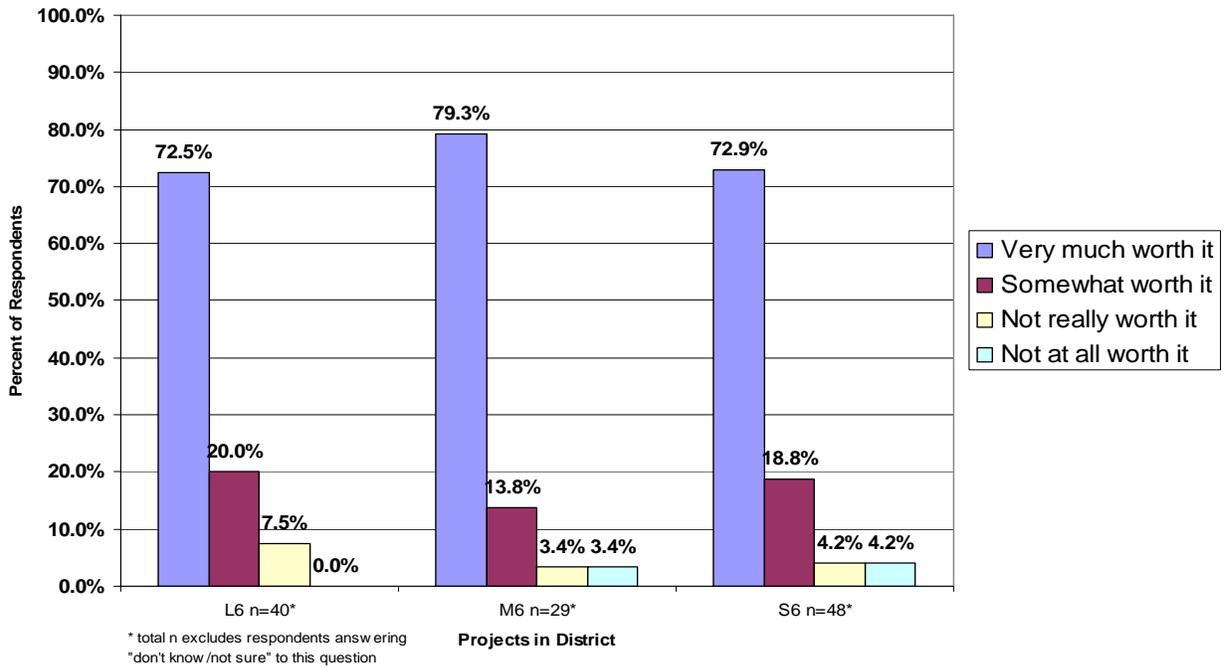
District 4
"Overall, do you think this project was the right transportation solution?"



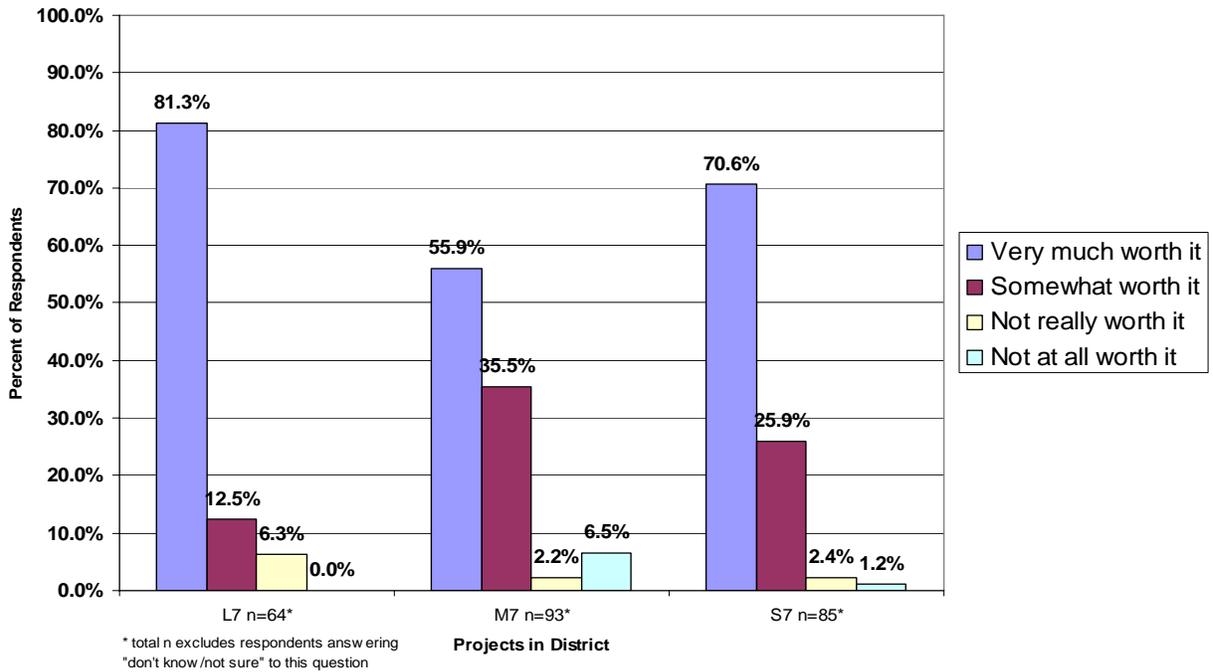
District 5
"Overall, do you think this project was the right transportation solution?"



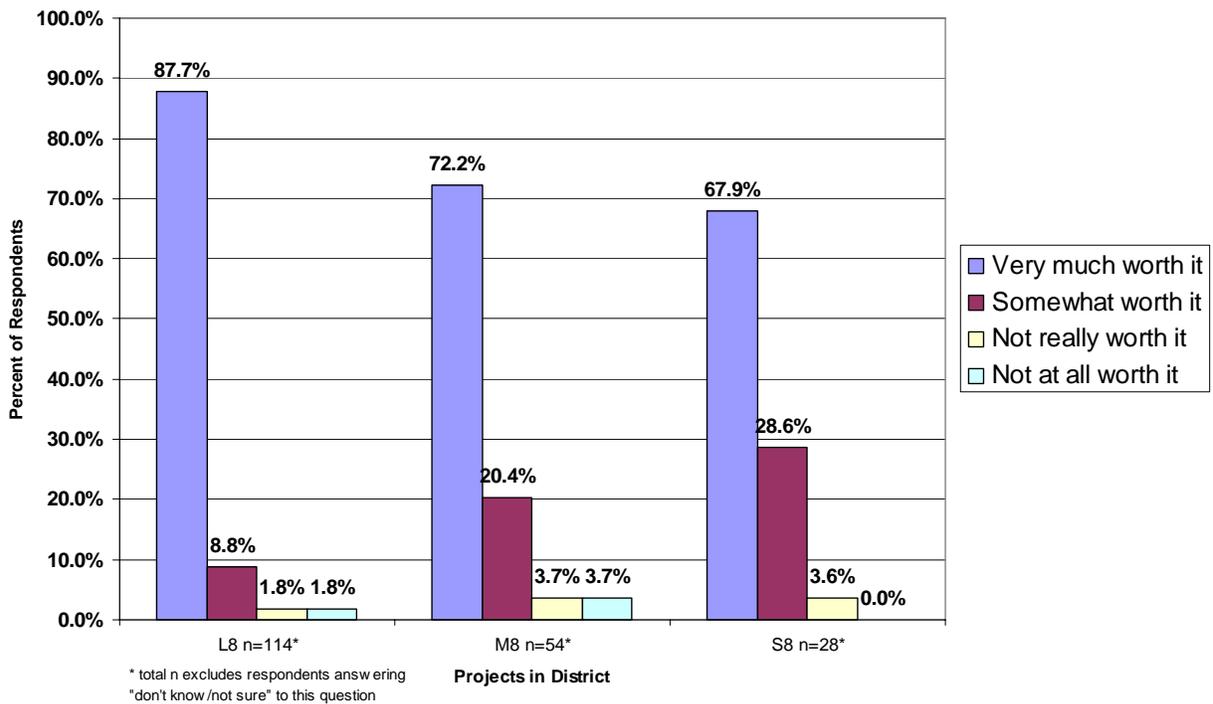
District 6
"Overall, do you think this project was the right transportation solution?"



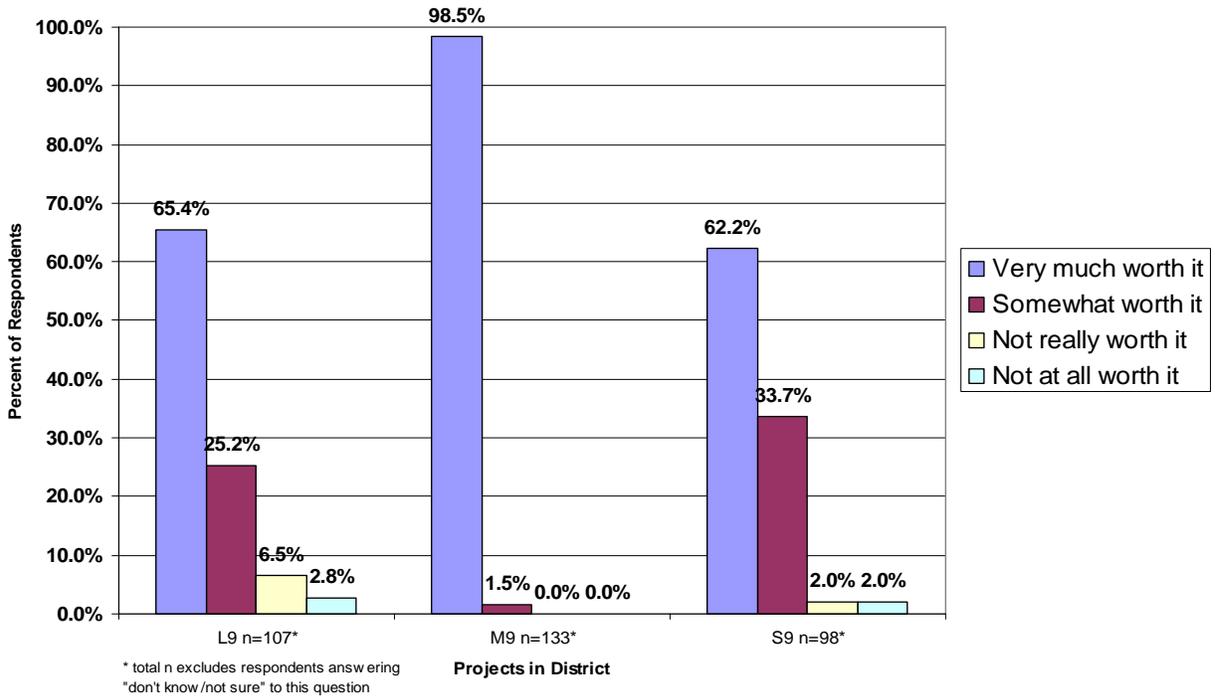
District 7
"Overall, do you think this project was the right transportation solution?"



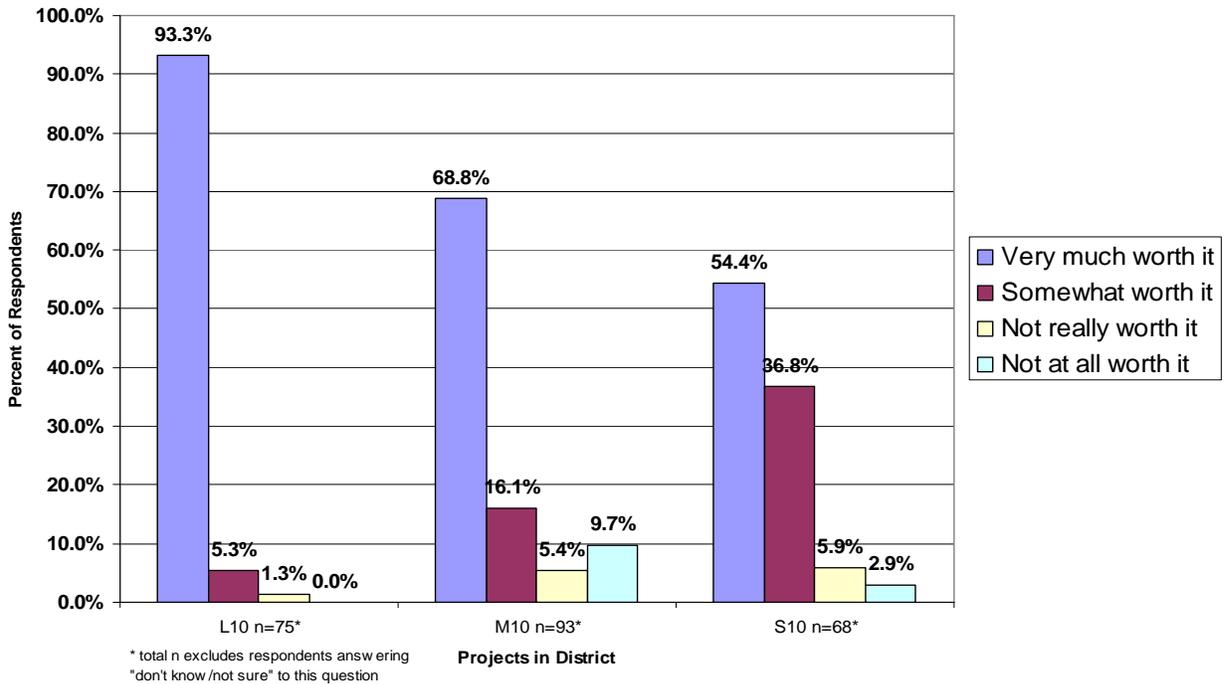
District 8
"Overall, do you think this project was the right transportation solution?"



District 9
"Overall, do you think this project was the right transportation solution?"



District 10
"Overall, do you think this project was the right transportation solution?"





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