

Organizational Results Research Report

January 2007

OR07.007

Completed as Promised

# Assessing MoDOT's Efforts to Provide the Right Transportation Solution

Prepared by Missouri  
Transportation Institute and  
Missouri Department  
of Transportation

# FINAL REPORT

RI06-025

## Assessing MoDOT's Efforts to Provide the Right Transportation Solution

Prepared for the  
Missouri Department of Transportation  
Organizational Results

by

Lilliard Richardson, PhD  
Institute of Public Policy  
Truman School of Public Affairs  
University of Missouri - Columbia

Contributing Authors

Bret Sanders

Sara Alva Lizarraga

January 2007

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.

## TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. OR 07-007	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Assessing MoDOT's Efforts to Provide the Right Transportation Solution		5. Report Date January 2007	
		6. Performing Organization Code MoDOT	
7. Author(s) Missouri Department of Transportation		8. Performing Organization Report No. OR 07-007	
9. Performing Organization Name and Address Institute of Public Policy Truman School of Public Affairs University of Missouri - Columbia		10. Work Unit No. RI06-025	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Missouri Department of Transportation Organizational Results P. O. Box 270-Jefferson City, MO 65102		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code MoDOT	
15. Supplementary Notes			
16. Abstract <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>			
17. Key Words Customer survey, customer satisfaction, construction projects, transportation solutions		18. Distribution Statement No restrictions. This document is available to the public through National Technical Information Center, Springfield, Virginia 22161	
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. of Pages 72	22. Price

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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.

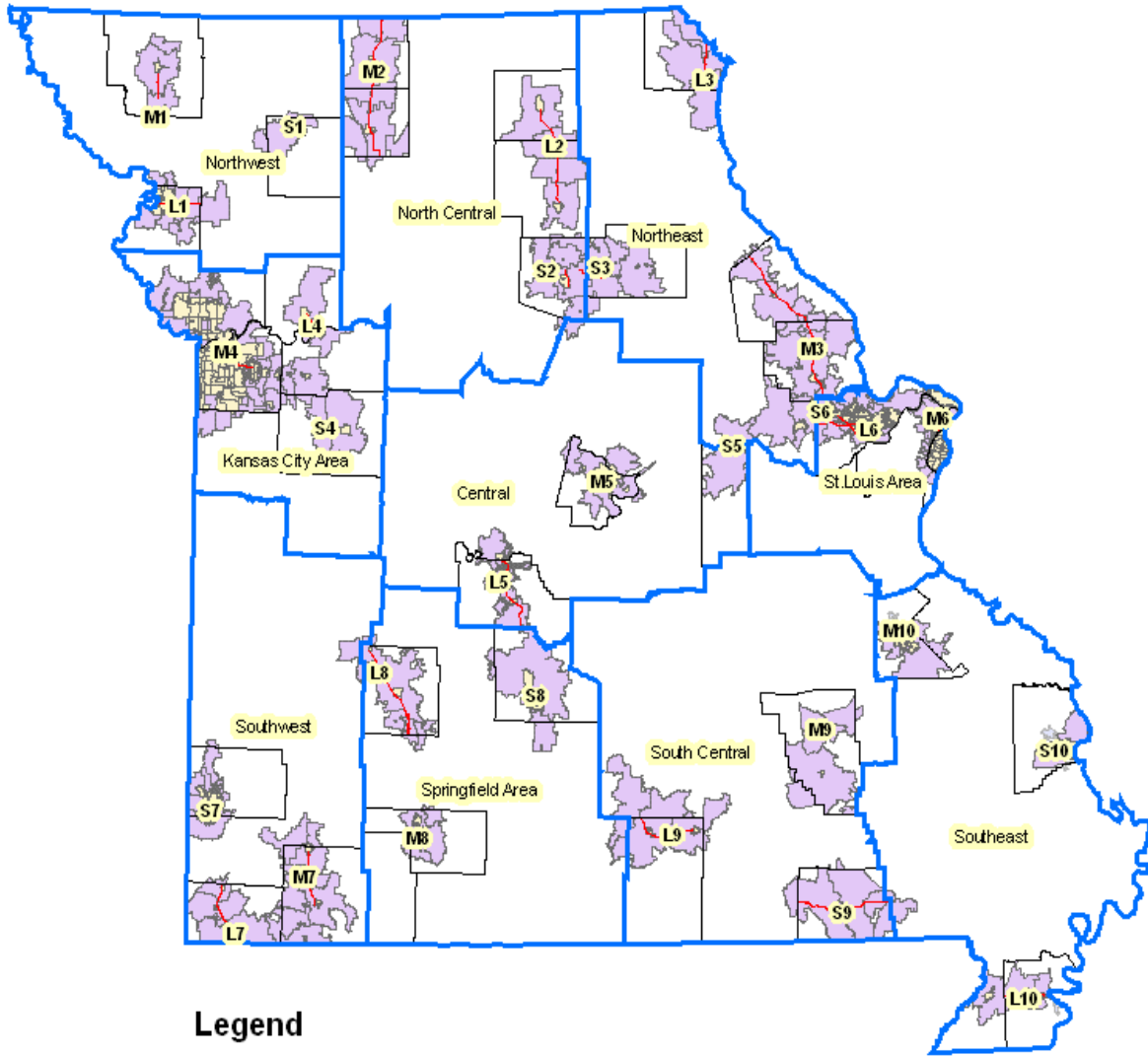
To provide a better picture of customer satisfaction for all kinds of projects in all MoDOT districts within the state, the survey sample was drawn from people living near 30 different road projects. A district level manager from each of the ten MoDOT regions picked three recently completed projects 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



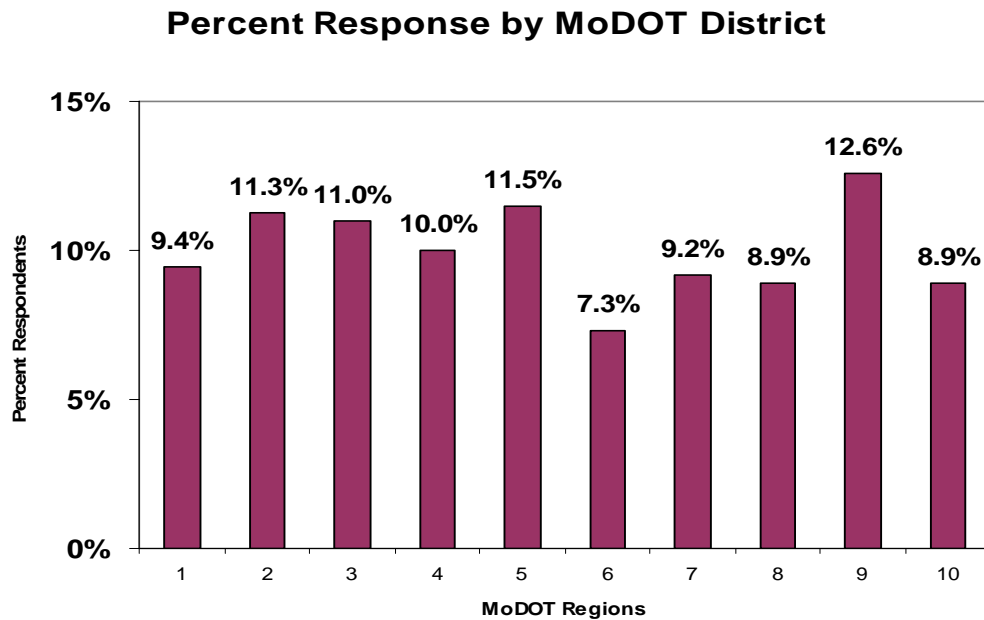
## Legend

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

## Respondents

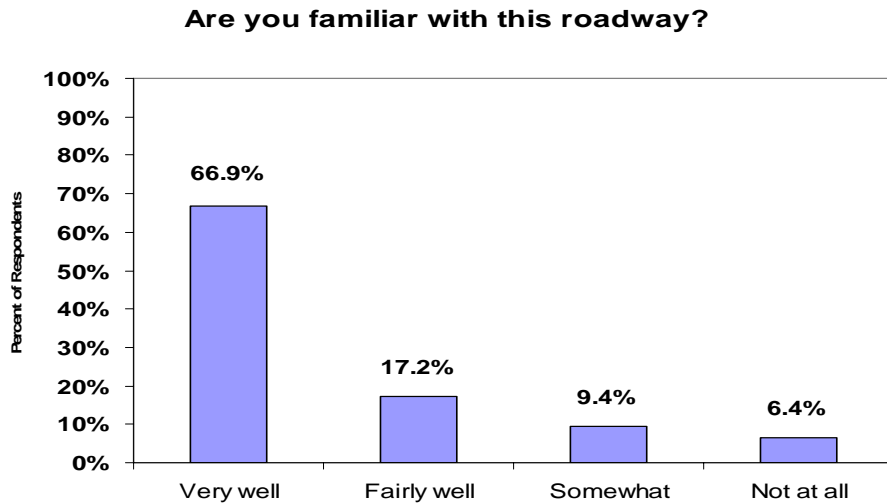
After accounting for undeliverable addresses and refused deliveries, the sample pool size was 11,431 from which 2,873 Missourians responded. The final response rate for this survey was 25.1 percent. The respondents were fairly evenly distributed across the ten MoDOT regions (see appendix E). Ranging 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.

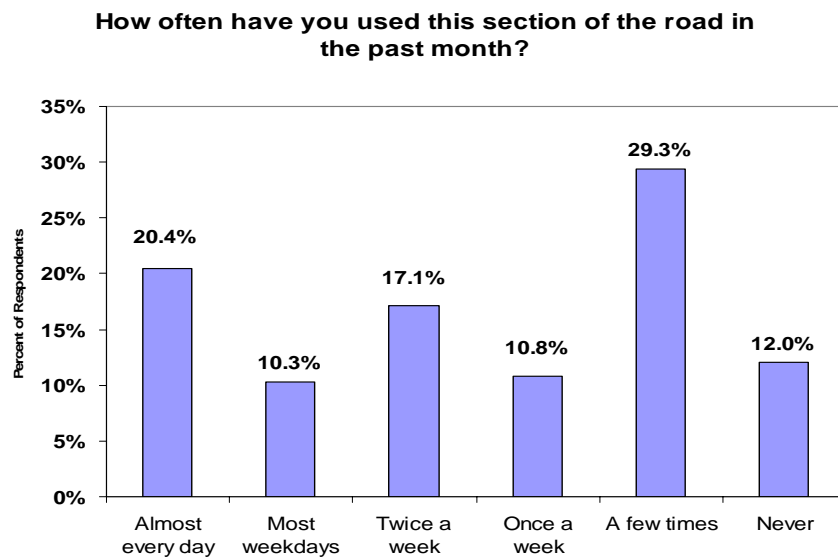
**Figure 1.3**



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.

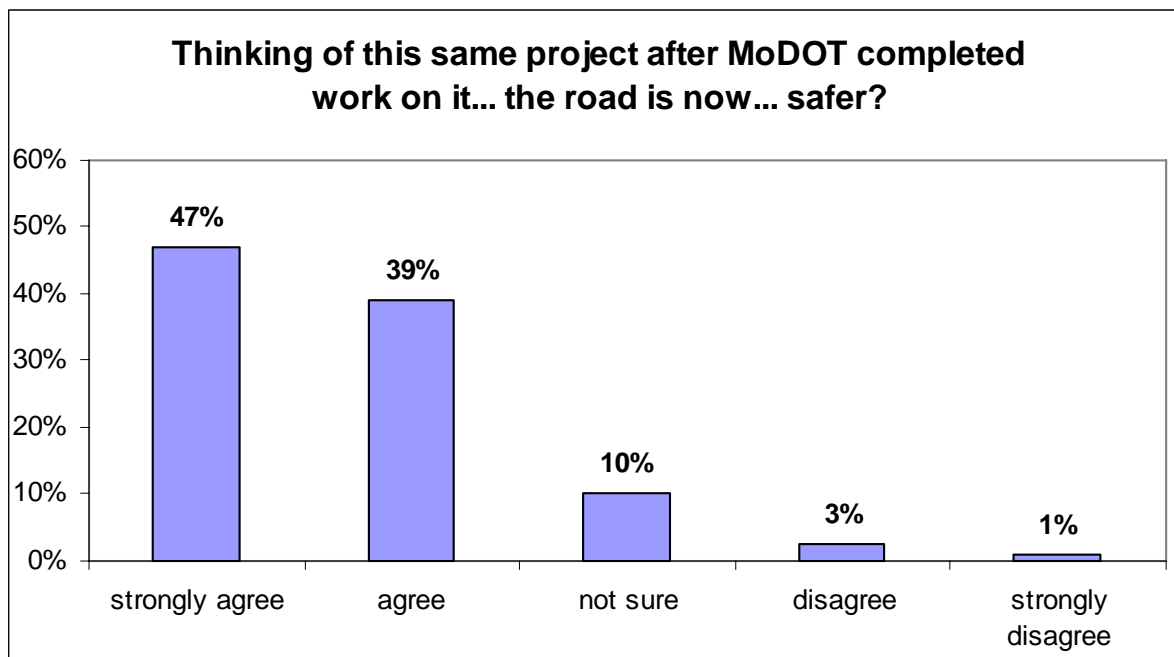
Providing the concrete example of a particular project for citizen assessment offers a number of benefits. First, we know which project the citizen is considering as they make an assessment. If a particular project was not named, different citizens could be considering different local projects. Second, 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.

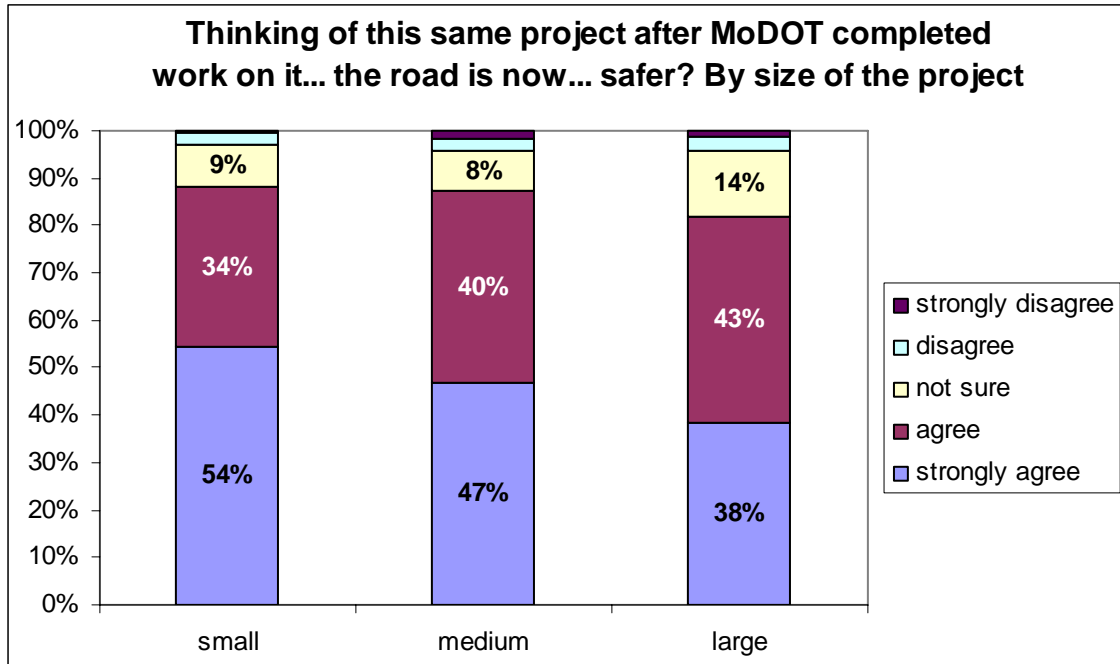
**Figure 2.1 – Roadway is now safer**



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.

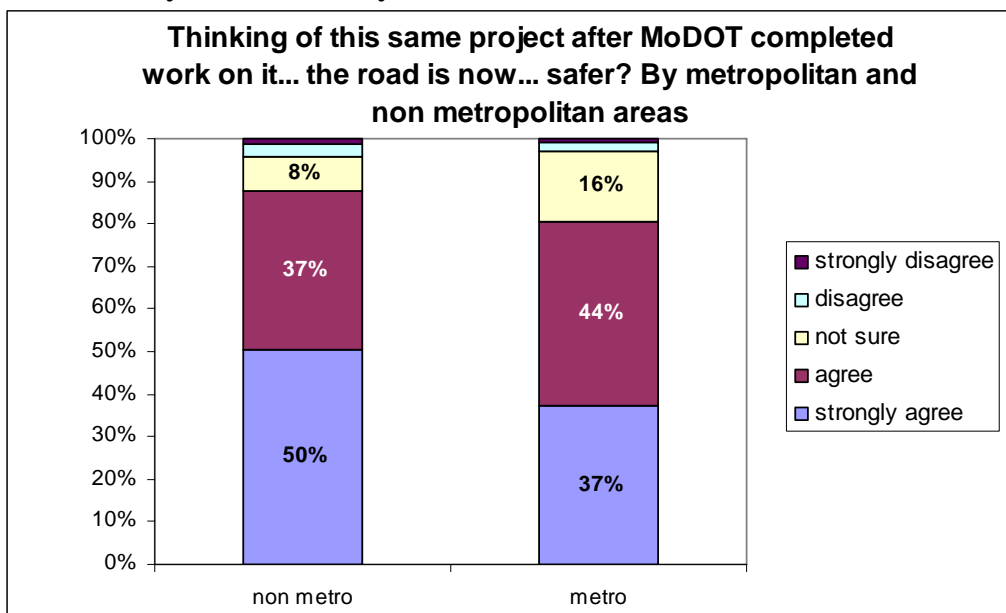
Figure 2.2 compares responses to this question by the size of the project. As shown in the chart, opinions differ significantly between small and large projects in terms of the “strongly agree” response. Fifty-four percent of respondents responding to questions about small projects strongly agreed that 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**



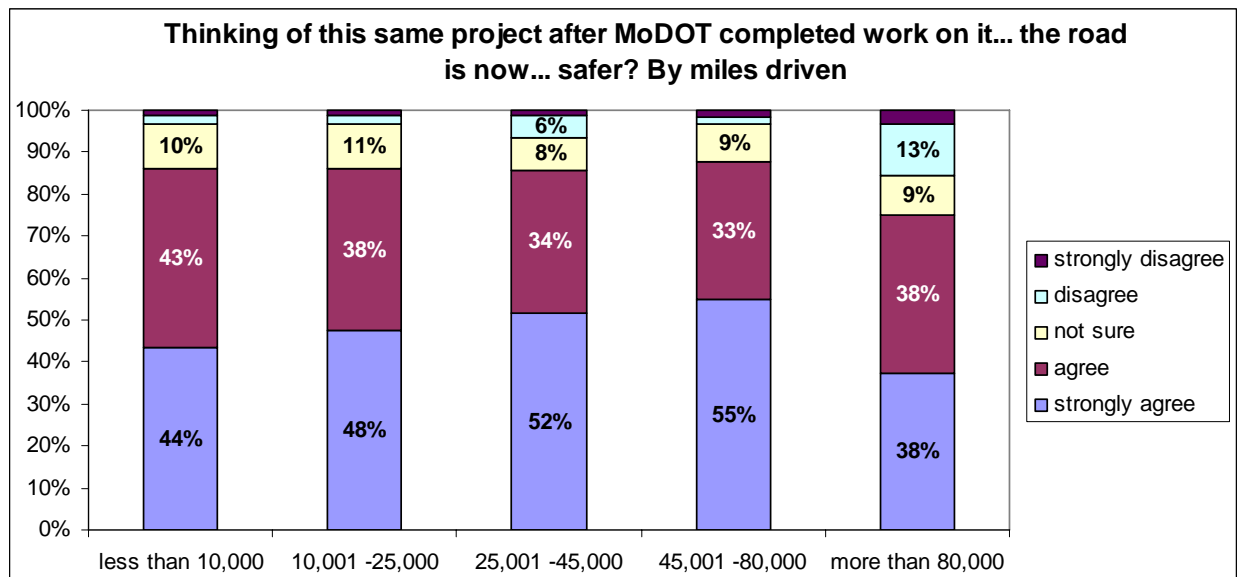
Comparing responses to this question by the metropolitan/non-metropolitan status of the respondent's residence permits identification of differences of opinion based on an urban/rural measure. Figure 2.3 illustrates the responses to the question "are the roads safer?" compared to metro/non-metro status. 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**



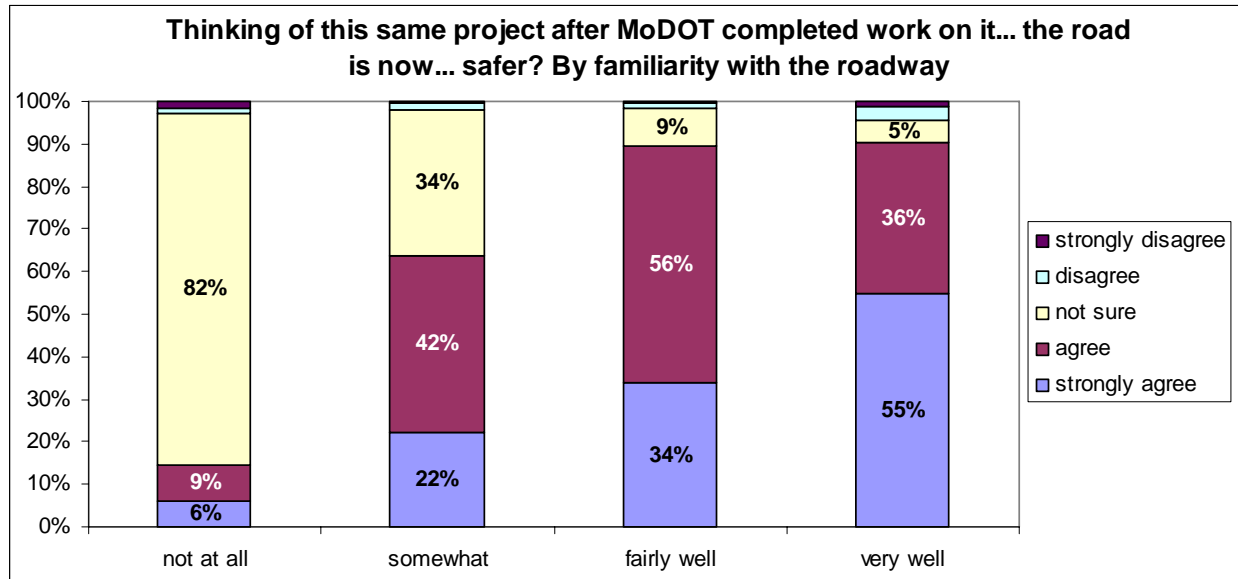
The number of miles driven per year and familiarity with the safety improvement project correlate with an increased perception of the roads being safer as a result of the MoDOT project as seen in figures 2.4 and 2.5, respectively. More than 50% of respondents who drive more than 25,000 miles (figure 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**



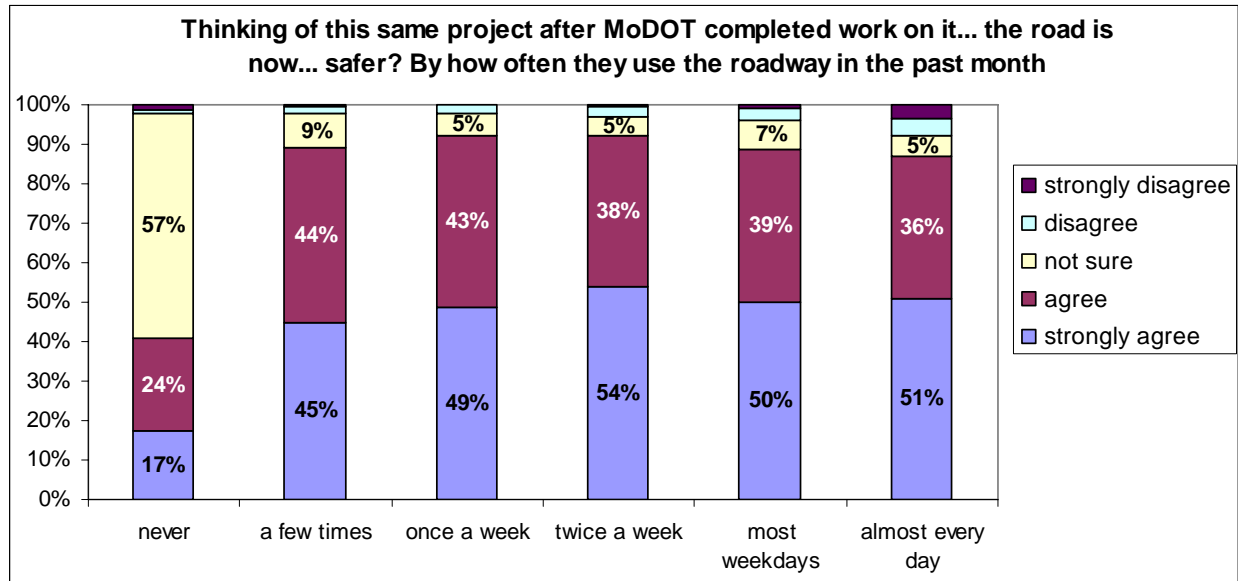
The same was not true for familiarity with the project. Much more variation exists between the four groups (figure 2.5). Generally, the more familiar a driver is with the roadway the more likely one is to strongly agree that it is safer. About 55% of those most familiar with the roadway strongly agreed. 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.

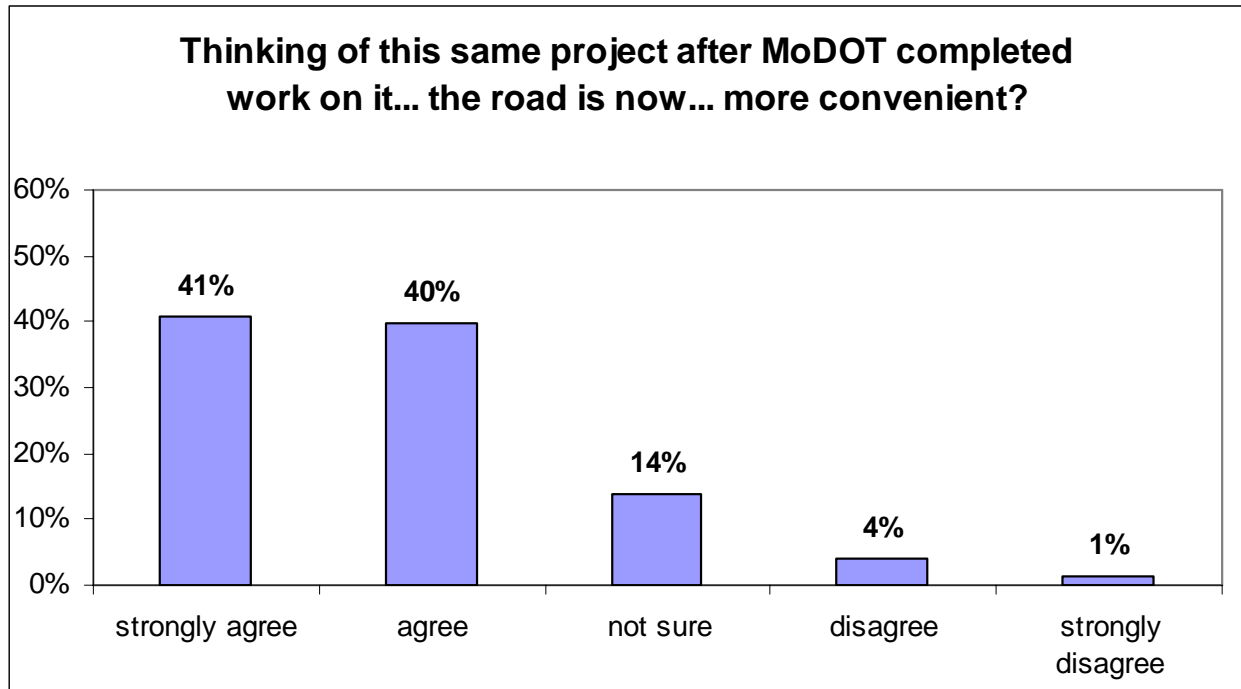
## ***II. Improving traffic flow in the area***

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.

















































































































