2019 Attitudes and Perceptions of Transportation in Michigan Survey

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Table of Contents

List of Tables

List of Figures

List of Appendix A Tables: Michigan Prosperity Regions

List of Appendix A Figures: Michigan Prosperity Regions

Executive Summary

The Attitudes and Perceptions (A&P) Survey provides the Michigan Department of Transportation (MDOT) with an in-depth understanding of citizens' opinions regarding the state's transportation system and serves as a critical input into the development of MDOT's statewide long-range transportation plan. Conducted on a regular basis since 2006, the focus of the 2019 survey was to assist with the state's long-range transportation plan, Michigan Mobility 2045.

As in 2017, WestGroup Research (WGR) administered the survey in 2019 using a multi-mode approach to data collection to ensure a representative sample. The survey was conducted in a multi-phased approach that combined the use of mail, inbound and outbound phone, outbound email, and inbound web allowing randomly selected Michigan adults to participate in the study. Also, in 2019, an online panel company was used to help target hard-to-reach populations (e.g., younger residents and minorities). In total, 1,501 Michigan residents' surveys were analyzed and included in this report. These surveys were completed between January 2, 2019 and February 16, 2019. Quotas were set by MDOT region and Michigan prosperity region. The reported data has been weighted by Census estimates for region, age, gender, and ethnicity to ensure results are representative of the full population of Michigan adults. The overall margin of error for the study is +/- 2.6% at the 95% level of confidence.

The main body of the report focuses on overall statewide results, tracking results by year (when available), results by MDOT region, and, when appropriate, significant results by demographic groups and other key subgroups. Please see Appendix A for results by Michigan prosperity region.

Quality of Transportation in Michigan

As in 2017, only a small proportion of residents (21%) believed the quality of transportation is better compared to three years ago. However, the proportion rating it as "worse" increased significantly in 2019 (30%, up from 22% in 2017). Poor road conditions and maintenance was the most commonly cited reason for feeling the transportation quality in Michigan is "worse" than it was three years ago. All other complaints were mentioned by less than one in 10 residents. The residents who rated quality as "better" gave three primary reasons for their positive perception: roads are improving/getting better, roads or highways are being repaired, and bus service is improved and/or there are more bus routes.

- Michigan residents were again most likely to rate the quality of transportation in Michigan as "the same" as it was three years ago (40%). Although the proportion of Michigan residents rating the quality of transportation as "better" remained stable at 21%, the proportion rating it as "worse" than three years ago increased significantly to 30% (up from 22% in 2017).
- The proportion of residents who rated the quality of transportation as "better" than three years ago ranged from 12% to 27% across the seven regions, with the highest percentages from Grand and Metro Region residents and the lowest from residents in the University Region.

- In most regions, 27% to 30% of residents rated the quality as "worse" than three years ago with the Southwest and Bay Regions at somewhat higher levels (35% and 38% said "worse," respectively).
- Another way to analyze the perception of the quality of transportation in Michigan compared to three years ago is to calculate a "Net Better Score" for each region. When the percentage of "worse" ratings is subtracted from the "better" percentage, Michigan as a whole received a Net Better Score of negative nine (-9). The Net Better Score ranged from zero to negative nineteen (-19) across the seven MDOT regions.

Improvement on Federal Transportation Planning Requirements

U.S. Department of Transportation requires states to incorporate 10 planning requirements into their long-range transportation plans. Residents were asked to indicate the level of improvement needed on each of the 10 planning requirements – a great deal, some, only a little, or not at all.

A majority of Michigan residents indicated MDOT needs at least some improvement on all 10 of the planning requirements with the largest proportions wanting a "great deal" or "some" improvement on <u>maintaining the existing transportation system</u> and <u>enhancing the transportation system to support the economic prosperity of Michigan</u> (both at 80%). These were the top two requirements needing the most improvement across all regions.

- Residents were most likely to indicate that "<u>*a great deal*</u>" of improvement is needed to *maintain the existing transportation system* (49%) and *protect and enhance the environment, promote energy conservation, improve quality of life* (46%).
- A three-quarters majority also felt at least some improvement is needed to increase *the safety of the transportation system for all* (76% a great deal + some), *enhance the transportation system to support economic prosperity of Michigan* (80%), *promote efficient management and operation of the transportation system* (76%), and *improve the reliability of the transportation system* (75%).
- Residents expressed the least concern for *improving connections between different transportation modes* (68% a great deal + some) and *increasing the security of the transportation system for all users* (67%).

2019 Priority of Michigan Transportation Issues

Residents were provided a list of 14 transportation issues and asked to indicate how high of a priority the State of Michigan should place on each item. The highest ranked issue, by a significant margin over the other issues, was for <u>Michigan to maintain its existing roads</u> (92%; 65% ranked it a "very high priority" and another 27% as a "high priority"). This is not surprising based on the recurrent theme of dissatisfaction with the conditions and maintenance of roads and the transportation system.

- *Maintaining existing roads* and *reducing traffic congestion* were the two top priority issues for residents in all MDOT regions with the exception of residents in Superior and North, who were less inclined to be concerned about reducing traffic congestion.
- Following the dominating issue of *maintaining existing roads* are the distant second and third priorities of *reducing traffic congestion* (68%) and *expanding transportation services for seniors and persons with disabilities* (64%).
- *Preparing Michigan for self-driving cars* received the lowest priority rankings with only 26% rating it as a high or very high priority and one-half (51%) indicating it should not be a priority (low or very low priority).

Long-Range Transportation Plan Participation Methods

A majority of residents expressed interest in participating in a long-range transportation planning process through at least one of the five methods presented. The low percentage (16%) of residents who reported they "would not participate" demonstrates a high level of engagement in transportation issues among Michigan residents.

- Residents expressed the most interest in participating a long-range transportation planning process via the U.S. mail (38%), email (38%), and/or through an interactive website (37%). Superior and North Regions' residents were more likely to want to participate by attending a meeting in person or over the phone.

Transportation Information Sources for Michigan Residents

Residents continued to most often rely on television, radio and smartphone traffic or map apps for information about Michigan transportation issues (46%, 37% and 37%, respectively), however, there were significant declines in usage for two of these sources (television and radio) compared to 2017. Compared to 2017, mentions dropped for all of the major sources with the exception of social media which increased significantly this year to 25% mentioning (up from 17% previously).

Self-Driving Vehicles

Residents were asked a series of questions about their perceptions of the safety and impact self-driving cars would have on their community and to evaluate whether self-driving vehicles would cause an increase, decrease or have no impact on the number of crashes, severity of crashes, vehicle emissions, traffic congestion, travel times, insurance rates, and fuel economy.

Michigan residents generally held a negative perception of self-driving vehicles. More than half (58%) reported they would not feel safe sharing the roadways with self-driving vehicles; additionally, residents were more likely to believe self-driving vehicles will have a negative impact on their community (48% somewhat + very negative) than a positive impact (37% very + somewhat positive). Compared to 2017, residents were more likely to have an opinion regarding

the impact they perceive self-driving vehicles will have on key measures (number and severity of crashes, traffic congestion, insurance rate, fuel economy) and that opinion was more negative for four of the five measures. The only "bright spot" was an uptick in the percentage who believed self-driving cars will increase fuel economy.

Metro and University Regions' residents were more likely than residents in the other five regions of the state to feel the impact of self-driving vehicles will be positive. Residents in the North Region were most skeptical and least likely to feel "safe" sharing the roads with self-driving vehicles.

- Only 38% of Michigan residents reported they would feel "very" or "somewhat safe" sharing roadways in their community with self-driving vehicles. Nearly one-third (31%) would "not feel at all safe."
- The proportion of residents who would feel safe sharing roads with self-driving vehicles ranged from 30% for the North Region to 41% for the Metro Region.
- Michigan residents were more likely to report believing self-driving vehicles will have a negative impact on their community rather than a positive impact (48% vs. 37%).
- Residents in the Superior and North Regions of the state were less likely than residents in the other areas of the state to believe there will be a positive impact on the severity and number of crashes or on traffic congestion and travel times. Residents in the Metro and Bay Regions were most optimistic about the impact of self-driving vehicles on insurance rates.

Fees/Tolls

Nearly three in five Michigan residents indicated willingness to pay some type of fee for an improved travel experience (59%). As in 2017, roughly one-third reported they would pay a toll for access to high-quality, better maintained roads (36%) and/or access to an alternative roadway with faster travel times (32%). This year, one in four residents indicated they would pay for ride-hail services such as Uber or Lyft and 13% would pay a fee to use bike and electric-scootering sharing services.

- Willingness to pay a fee or toll ranged from 52% to 65% across the seven MDOT regions**.** Residents in the Metro Region were the most willing to pay, with 42% willing to pay for access to high-quality, better maintained roads (vs. 27% to 35% for other regions).
- As expected, willingness to pay fees of any kind was significantly higher among residents who commute to work.

Online Shopping/Packages Delivered to Home

One-third of Michigan residents reported having packages delivered to their home at least weekly from online shopping. More than one-half receive packages at least monthly (58%; 33% weekly or more frequently + 25% monthly). An additional 36% "occasionally" received packages from shopping online. Only 6% reported "never" shopping online.

Online shopping habits were similar across MDOT regions and weekly or more frequent online shopping deliveries ranged from 30% for Southwest Region to 42% for Superior Region. North Region residents were most likely to say they "never" receive on-line shopping deliveries (10% vs. 4% to 8% for other regions).

Likelihood to use Passenger Rail/Amtrak

A majority of Michigan residents (60% to 71%) reported being "very" or "somewhat likely" to use passenger rail service/Amtrak if any of five proposed improvements were made. The most appealing improvement was "additional routes serving more communities around Michigan" (71%). Likelihood to ride rail ranged from 60% to 64% for the other four improvements - faster trains, improved on-time arrival, upgraded train cars and increased train frequency.

For all five potential improvements, Metro Region residents most often reported being "very" or "somewhat likely" to use passenger rail/Amtrak for all (64% to 76% compared to 49% to 71% for other regions).

MDOT Region Highlights

Summary observations by MDOT region are presented below. Summary tables for each region are presented in Chapter XI.

Note: The perception of the quality of transportation in Michigan compared to three years ago was analyzed by calculating a "Net Better Score" for each region. This was calculated by simply subtracting the percentage who rated the quality of transportation as "worse" than three years ago from the percentage who rated it as "better" (Better-Worse = Net Better).

Bay: Residents in the Bay Region were most concerned with the maintenance and repair of the existing roads in the region. They had the lowest Net Better Score of the seven regions and the reasons for the low rating focus on the poor road conditions and repairs; this score dropped 21 points from 2017 (2019 Net Better -19; 2017 Net Better +2). Maintenance of the roads was the federal planning requirement most likely to be selected as needing improvement and it was also selected as the issue that should be the highest priority for the state. Additionally, they were most likely to be willing to pay additional fees in order to access high quality, better maintained roads.

Grand: Residents in the Grand Region had the highest Net Better Score of the seven regions due to perceived improvement of roads and bus services; although this score was down 14 points from 2017 (2019 Net Better 0; 2017 Net Better +14). However, they were still most concerned with maintaining the existing roads and protecting/enhancing the environment. The area most likely to be rated as needing improvement among Grand Region residents was to maintain the existing transportation system/roads, which also happened to be their highest priority. Lastly, they were tied with the residents in the North Region to be most likely to consider participating in a long-range transportation plan activity, but were least likely of residents across all seven regions to be willing to pay any sort of additional travel fees.

Metro: Residents in the Metro Region were most concerned with enhancing and improving the reliability of the transportation system and improving road maintenance. Although still a negative score, these residents had one of the higher Net Better Scores across the seven regions due to perceived improved bus services and highways; this score was only a slight decrease compared to 2017 (2019 Net Better -4; 2017 Net Better -1). Residents in this region placed the highest priority on maintaining the existing roads. They were most likely to indicate willingness to participate in a long-range transportation plan by responding to an email and were more likely than residents across all seven regions to be willing to pay any sort of additional travel fees; particularly to access better-maintained road.

North: Residents in the North Region had a negative Net Better Score. This was driven largely by perceptions of poor road conditions; this was a notable decline of 23 points compared to 2017 (2019 Net Better -14; 2017 Net Better +9). In addition to road maintenance, the areas in need of the most improvement within the state noted by the residents in this region were to enhance the transportation system in support of the state's economic prosperity and to promote efficiency within the transportation system. North Region residents were also more likely than residents in the other six regions to indicate expanding the transportation services for seniors or persons with disabilities should be a high priority for the state. Lastly, they were tied with the residents in the Grand Region to be most likely to consider participating in a long-range transportation plan activity.

Southwest: Residents in the Southwest Region believed the state needs to focus on improving the roads and maintaining the existing transportation system. In fact, this region was tied with the Bay Region for having the lowest Net Better Score, primarily due to poor roads and repairs; this score was down 13 points in comparison to 2017 (2019 Net Better -19; 2017 Net Better -6). According to these residents, the areas in most need of improvement were enhancing the transportation system to support economic prosperity and maintaining the existing system, that latter of which was also their highest priority. Reducing traffic congestion was also a priority for these residents. Consequently, it is not surprising they were most likely to be willing to pay an additional travel fee for access to alternative roadways with faster travel times compared to all other MDOT regions.

Superior: As with residents in the other regions, a majority of residents in the Superior Region also believed the effort most in need of improvement, and hence a high priority, was the maintenance of the existing roads/transportation system and the improvement of the efficiency and operation of the transportation system. A notable proportion of these residents, however, also felt that

making highway turning and passing lanes should be a high priority issue for the state. Interestingly, this was the only region to be highly likely to pay a fee for using a ride-hail service and also believed traffic congestion and travel times will decrease due to self-driving vehicles. The Net Better Score dropped six points from 2017 (2019 Net Better -8; 2017 Net Better -2).

University: Road conditions were the highest concern for residents living in the University Region. They were highly likely to select it as the area with the highest priority, and it was also the primary driver of their "worse" rating for the quality of the transportation system in the state. The Net Better Score dropped eight points compared to 2017 (2019 Net Better -17; 2017 Net Better -9). Similar to residents living in the other regions, they felt the federal planning requirements of maintaining the existing transportation system and enhancing the transportation system in a way that builds its economic prosperity need improvement. Traffic congestion was selected as a high priority by a majority of University Region residents as well. Additionally, they were more likely to indicate willingness to participate in a long-range transportation plan activity through an interactive website than residents in the other six MDOT regions.

I.   Introduction

A.   Background and Methodology

The Attitudes and Perceptions (A&P) Survey provides the Michigan Department of Transportation (MDOT) with an in-depth understanding of citizens' opinions regarding the state's transportation system and serves as a critical input into the development of MDOT's statewide long-range transportation plan. Conducted on a regular basis since 2006, the focus of the 2019 survey was to assist with the state's long-range transportation plan, Michigan Mobility 2045.

As in 2017, WestGroup Research (WGR) administered the survey in 2019 using a multi-mode approach to data collection to ensure a representative sample. The survey was conducted in a multi-phased approach that combined the use of mail, inbound and outbound phone, outbound email, and inbound web allowing randomly selected Michigan adults to participate in the study. Also, in 2019, a supplemental online panel sample was used to help target hard to reach populations (e.g., younger residents and minorities).

In 2019, WGR engaged the services of Dr. Ram Pendyala to consult on the sampling and weighting plans and analysis for this project. Dr. Pendyala is a professor and the Transportation Systems Interim Director at the School of Sustainable Engineering and the Built Environment as well as the Director of Teaching Old Models New Tricks – a USDOT Tier 1 University Transportation Center – at Arizona State University.

In total, 1,501 Michigan residents' surveys were analyzed and included in this report. These surveys were completed between January 2, 2019 and February 16, 2019. Quotas were set by MDOT region and Michigan prosperity region. The reported data has been weighted by Census estimates for region, age, gender, and ethnicity to ensure results are representative of the full population of Michigan adults. The overall margin of error for the study is +/- 2.6% at the 95% level of confidence.

B.   Sampling Plan, Methodology, and Weighting

1.   Sampling Plan

Key parameters for the survey included:
   a.   Universe: All Michigan residents, age 18 or older
   b.   Geography: The state of Michigan, divided into seven MDOT regions, with further stratification into 10 prosperity regions
   c.   Sample Size:
      • Initial target: 1,400 completed surveys statewide
      • Total Responses: 1,501 completed surveys statewide
   d.   Language: English survey with Spanish accommodation available online and via telephone

The study area for this survey was the state of Michigan. Geographically, this included seven MDOT regions that are further divided into 10 Michigan prosperity regions. The relationship between these two geographic groups is illustrated in Figure 1 on page 4.

The sample size and stratification was determined at the prosperity region level. Goals were set to provide sufficient statistical power in analyzing and applying the results. The original sample allocation and the final sample distribution is shown in Table 1.

Table 1: Regional Sample Goals, Actual Response, and Weighting Results

MDOT Region #	Prosperity Region #	Prosperity Region	2010 Census %	Quota Goals	Final Survey #	Survey # (weighted)	Final Survey % (weighted)
1	1	Upper Peninsula Prosperity Alliance	3%	125	118	46	3.1%
2	2	Northwest Prosperity Region	3%	100	101	48	3.3%
2	3	Northeast Prosperity Region	2%	100	101	32	2.1%
3	4	West Michigan Prosperity Alliance	16%	200	206	232	15.6%
4	5	East Central Michigan Prosperity Region	6%	100	102	86	5.8%
4	6	East Michigan Prosperity Region	8%	125	105	122	8.2%
6	7	South Central Prosperity Region	5%	100	91	71	4.8%
5	8	Southwest Prosperity Region	8%	125	121	114	7.7%
6	9	Southeast Michigan Prosperity Region	10%	125	154	160	10.8%
7	10	Detroit Metro Prosperity Region	39%	300	402	574	38.6%
TOTAL		Statewide	100%	1,400	1,501	1,485	100%

2. *Survey Methodology and Response*

WGR utilized 20,725 records of enhanced landline/cell phone sample; meaning the sample of phone numbers was enhanced with address and e-mail (where available) and conformed to the Telephone Consumer Protection Act (TCPA) requirements. All samples were flagged with the census block group associated with the residential address on record. As data collection progressed, status by both prosperity and MDOT regions, as well as age, ethnicity, and gender, was monitored.

Invitation letters and a paper copy of the survey instrument were mailed to 5,000 households. The invitation letter provided a unique ID number for each household. Residents were offered three options for responding to the survey: 1) return the survey instrument via an enclosed postage-paid envelope, 2) access the survey through a unique survey URL, or 3) call a toll-free number to complete the survey via phone with a WGR interviewer. The remaining 15,725 records were used to contact residents either through outbound phone calls from the WGR phone center and/or outbound email invitations to complete the survey online.

In total, 1,526 residents completed surveys, which translates to a 6% response rate overall for the study (n=1,252, excluding the panel completes). A small portion of these households (n=25) did not provide any demographic information and as a result weights were not assigned to these records. These records were removed from the final sample base used for analysis, which was 1,501.

Response Method	Total # Completes
Total Completes	**1,526**
Return Mail Paper Surveys	**520**
Telephone Surveys	**589**
Inbound completes	34
Outbound completes	555
Online Surveys	**417**
Paper/Email invitation completes	143
Panel completes	274

Figure 1: Map of MDOT Regions and Michigan Prosperity Regions
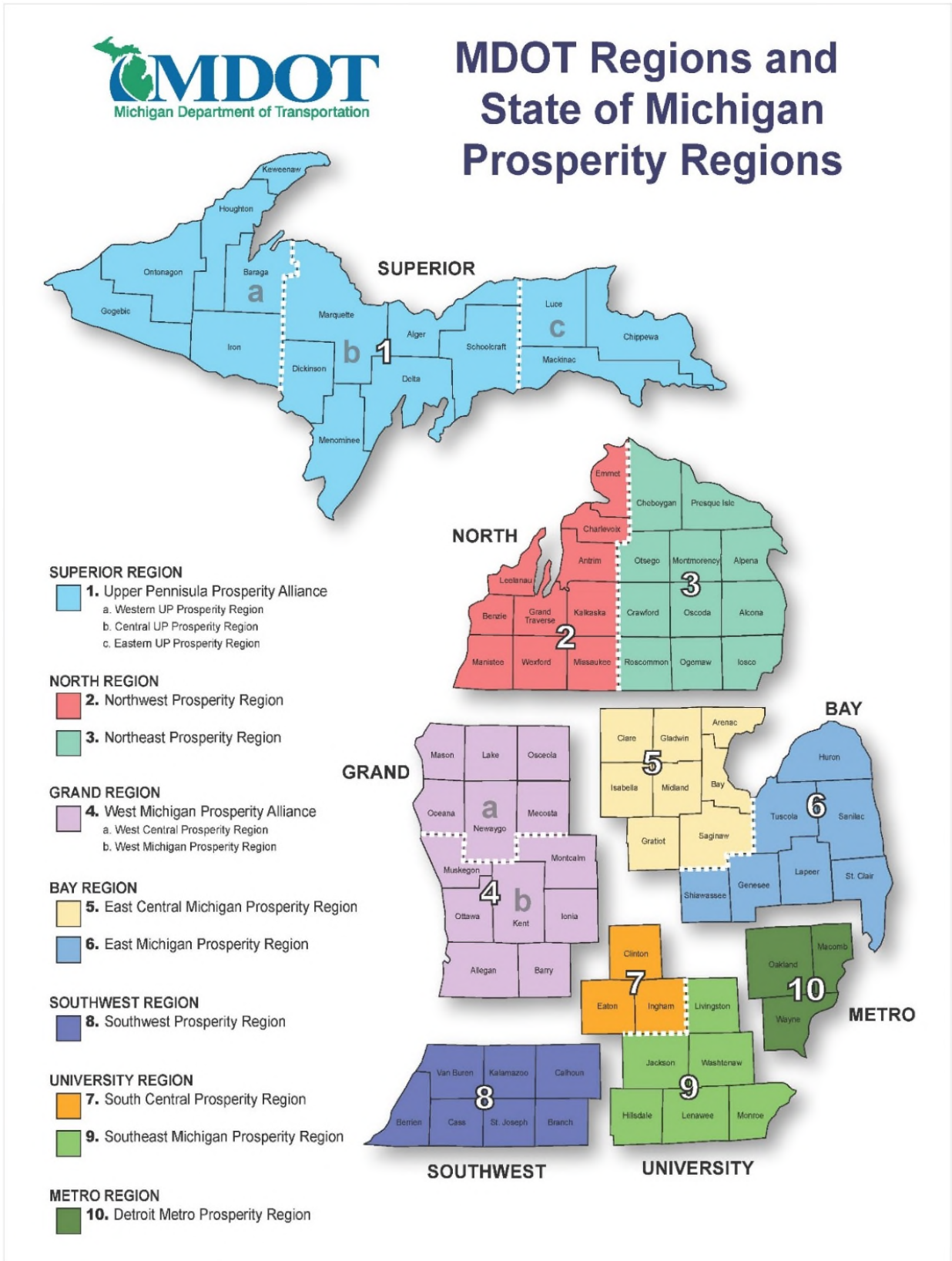
The demographic attributes of respondents were monitored throughout the data collection process, starting with the evaluation of the mail survey and outbound telephone survey responses. As it became clear that males, White residents, and older residents were more likely to respond using one of those two data collection modes, a shift was made to online surveying (through the panel sample) to target a higher response from females, non-white and younger residents. Residents were not targeted based on income, but it was observed that households with higher incomes were slightly more likely to respond via mail or telephone and lower income households had a higher representation among the panel respondents (they were also younger).

Table 2 below shows that using multiple data collection modes effectively yielded a more balanced and representative sample than if the study had relied on a single data collection mode.

Table 2: Response Mode Usage by Demographic Categories*

Demographic Category	Total	Mail	Telephone	Email/ online	Online Panel
Total Sample	100%	33%	36%	10%	21%
Male	100%	37%	37%	11%	15%
Female	100%	29%	35%	9%	27%
18 to 34	100%	10%	40%	5%	45%
35 to 44	100%	11%	50%	10%	29%
45 to 54	100%	24%	52%	14%	10%
55 to 64	100%	46%	31%	14%	9%
65+	100%	70%	17%	7%	6%
White: Non-Hispanic	100%	41%	38%	11%	10%
Black/African American	100%	8%	22%	2%	68%
White: Hispanic	100%	8%	41%	5%	46%
Other	100%	12%	26%	4%	58%
Less than $50,000	100%	30%	32%	4%	34%
$50,000 or more	100%	33%	39%	13%	15%

*Weighted data

3. Weighting Plan and Procedures

As in 2017, the results were weighted to represent the full population of Michigan adults, stratified by Prosperity Region. The Claritas 2018 Estimates based on the 2010 Census served as the source of population control totals to be used in the weighting process, providing the adult population totals for each Prosperity Region. Because the Claritas 2018 Estimates did not include information on income, marginal control distributions for income were derived from the American Community Survey (ACS), relying on the 2017 ACS 1-year estimates for the income data. These census estimates are the latest vintage currently available and released by the Census Bureau.

In the 2017 Attitudes and Perceptions Survey, the survey sample was weighted by age, gender, and race to approximate the adult population in the state. In 2019, the variable of income was added to the questionnaire. This variable was also considered for inclusion in the weighting plan. The final survey results on these key demographic variables were reviewed with MDOT to determine whether additional weights were needed and, if so, for which of the four characteristics. A general concern in creating weights based on demographic characteristics was that a particular population subgroup might be significantly under-represented, to the point that attempting to create a weight might cause "skews" in the survey results that introduce more error than intended due to very large weights. In those cases, categories were collapsed or aggregated, or certain control variables were omitted altogether, to avoid issues that may have arisen when dealing with very small numbers in specific cells of a joint distribution of control variables

An analysis of the unweighted data indicated that demographic weights were needed, and the WGR team calculated them using iterative proportional fitting (IPF). IPF, also known as "raking," is a systematic approach to create multi-dimensional weights at the Prosperity Region Level[1]. The joint distributions (cell counts) derived from this procedure were used to determine distribution of adults according to gender (male, female), age (18-34, 35-44, 45-54, 55-64, 65+), and race.

For the 2019 survey, weighting was done by region in order to enhance representativeness of the sample at the Prosperity Region Level (besides the state level). Weighting a survey data set to match overall statewide distributions does not necessarily mean that the subsamples within each region will be representative of the population characteristics within the specific region. In order to facilitate region-level analysis and appropriate cross-region comparisons, it was considered prudent to weight the sample to match region-level control distributions. Marginal control distributions were derived for each of the 10 regions for three variables (age, gender and ethnicity) using Claritas 2018 Estimates from Census data.

The full documentation of the weighting plan and the weight creation effort are provided in the appendices at the end of this report.

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[1] For a description of the technical approach, see
https://www.researchgate.net/publication/293125498_Putting_Iterative_Proportional_Fitting_on_the_researcher%27s_desk

Table 3: Demographic Sample Response and Weighting Results

Demographic Variable	Census %	Final Survey #	Survey # (weighted)	Final Survey % (weighted)	Margin of Error
Gender					
Male	49%	785	685	49%	+/- 3.8%
Female	51%	715	723	51%	+/- 3.7%
Age					
18 to 34	29%	248	405	29%	+/- 5.0%
35 to 44	15%	208	209	15%	+/- 6.9%
45 to 54	16%	259	229	16%	+/- 6.6%
55 to 65	18%	320	252	18%	+/- 6.3%
Age 65+	22%	396	312	22%	+/- 5.7%
Race					
White: Non-Hispanic	76%	1,203	1,069	76%	+/- 3.1%
Black/African American	13%	177	184	13%	+/- 7.4%
White: Hispanic	4%	43	58	4%	+/- 13.1%
Native American	1%	46	8	1%	+/- 35.4%
Asian Pacific Islander	3%	39	43	3%	+/- 15.2%
Other	3%	7	47	3%	+/- 14.6%

C.   Report Format

The main body of the report focuses on overall statewide results, tracking results by year, results by MDOT region, and results by demographic groups and other key subgroups. Please see Appendix A for results by Michigan prosperity region.

In some cases, MDOT region names are abbreviated to accommodate format requirements. Thus, throughout the report, the reader will occasionally see the following three MDOT region abbreviations: Super for Superior, SW for Southwest, and Univ for University.

D.   Significance Testing

Throughout this report, superscript letters (^{ABC}) serve to indicate that a number is significantly different at the 95% confidence interval than either the prior study period figure or the corresponding subgroup figure. When making comparisons between 2017 and 2018, an asterisk will be used to indicate a significant shift from 2017 to 2019.

The following table contains an example of using superscript letters to indicate differences between multiple subgroups, in this case MDOT regions. Underneath the Superior Region column, marked by the letter A, the superscript letter "C" that follow 26% indicate that residents in the Superior Region were significantly more likely than those in the Grand (C) Region to report purchasing online items *weekly* (i.e., 26% is significantly higher than 14%). As the footnote explains, the superscript letter is always indicating which column the figure is significantly <u>higher</u> than. This method is used for all tables comparing regions and key subgroups.

Table 4: Significant Difference Example for Region Data

Frequency	Total	Superior (A)	North (B)	Grand (C)	Bay (D)	Southwest (E)	University (F)	Metro (G)
Weekly	19%	26%^{C}	21%	14%	17%	16%	20%	21%

^{ABCDEFG} Indicates significantly higher percentage than corresponding region(s) at 95% level of confidence.

II.   Quality of Transportation in Michigan

A.   Quality of Transportation Compared to Past by Year

As in 2017, Michigan residents were most likely to rate the quality of transportation in Michigan as "the same" as it was three years ago (40%). Although the proportion of Michigan residents rating the quality of transportation as "better" remained stable at 21%, the proportion rating it as "worse" than three years ago increased significantly to 30% (up from 22% in 2017). Slightly fewer residents rated quality as "the same" (40% down from 43%), and significantly fewer declined to answer this year (9% not sure, down from 13%).

Prior to 2017, this question asked residents to compare the current system to five years ago, which means additional historical comparison cannot be reliably made.

Figure 2: Quality of Transportation Compared to Three/Five Years Ago by Year

Quality of Transportation Compared to Three/Five** Years Ago
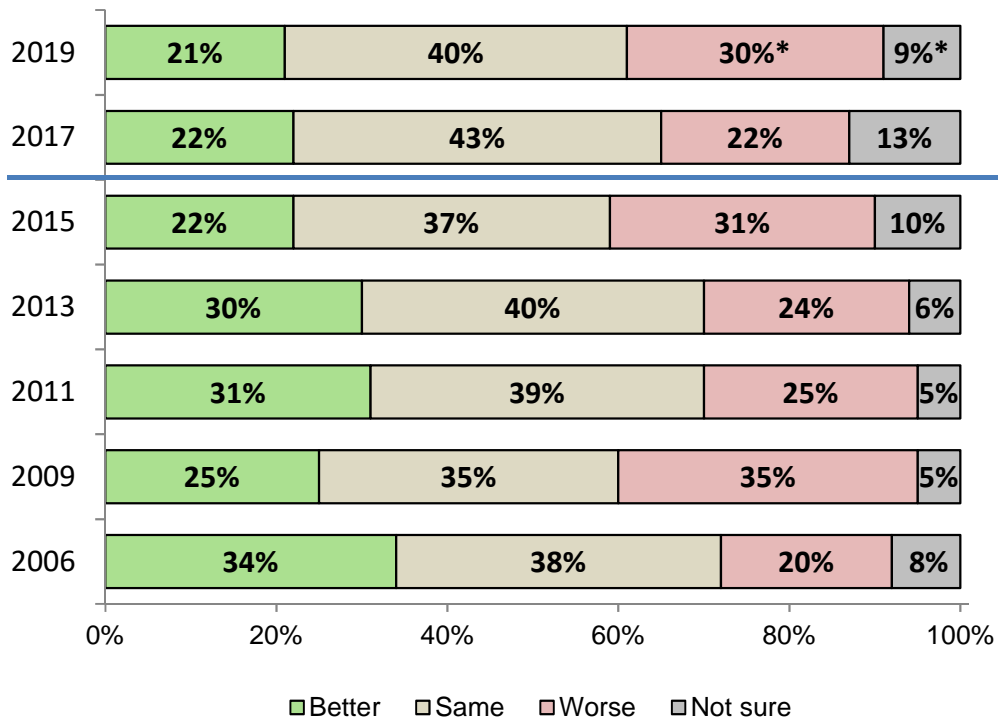
Year	Better	Same	Worse	Not sure
2019	21%	40%	30%*	9%*
2017	22%	43%	22%	13%
2015	22%	37%	31%	10%
2013	30%	40%	24%	6%
2011	31%	39%	25%	5%
2009	25%	35%	35%	5%
2006	34%	38%	20%	8%

□ Better   □ Same   □ Worse   □ Not sure

Q1: Is the quality of transportation in Michigan better, the same, or worse than it was three years ago?
*Percentage is significantly different from 2017
**Prior to 2017, the question was asked to compare the quality of transportation to five years ago.

B.   Quality of Transportation Compared to Three Years Ago by MDOT Region

In most regions, 27% to 30% of residents rated the quality as "worse" than three years ago; however, the proportion of "worse" ratings was elevated among residents of the Southwest and Bay Regions (35% and 38%). Of note, in 2017 the "worse" ratings ranged from 21% to 24%.

The proportion who rated the quality of transportation as "better" than three years ago ranged from 12% to 27% across all seven regions (In 2017 the range was 14% to 30%). Residents of the Grand and Metro Regions were most likely to give a "better" rating, and University and North Region residents were the least likely to do so.

Overall, approximately one-third to one-half of residents in each of the MDOT regions reported the quality of transportation in Michigan as "the same" as three years ago (34% to 48%) or they were unsure if it had changed (5% to 13% "not sure").

Figure 3: Quality of Transportation Compared to Three Years Ago by MDOT Region
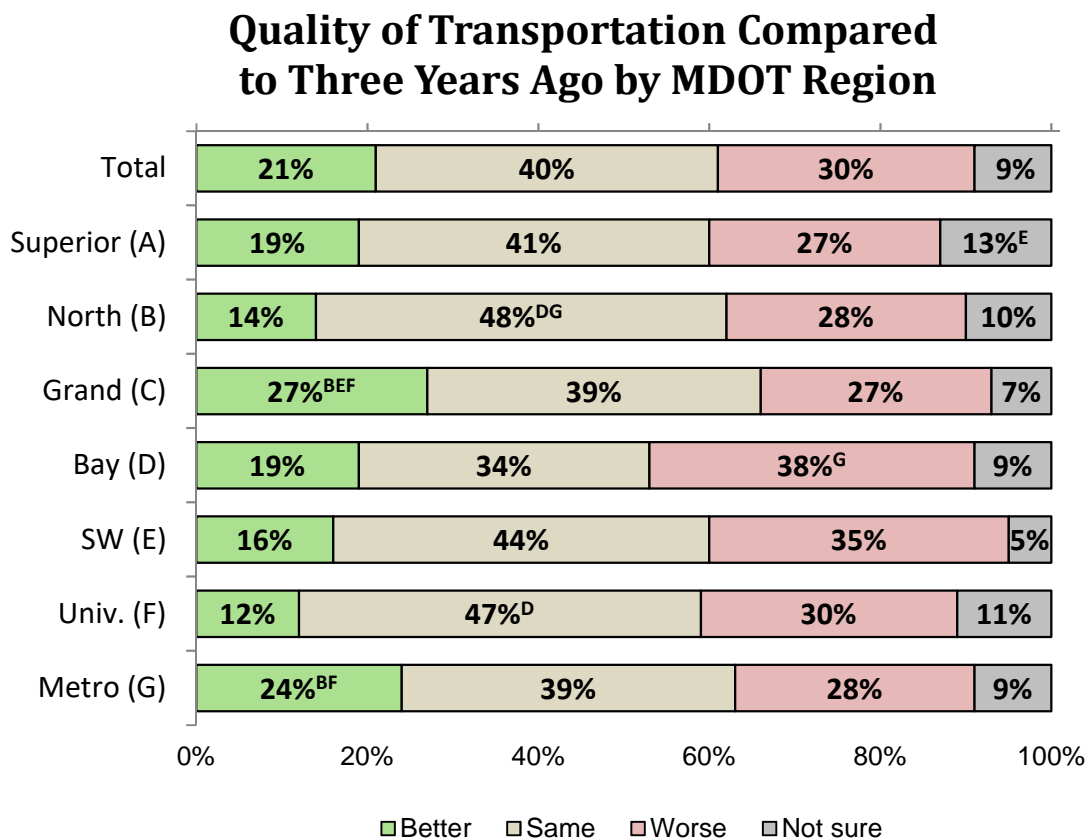
Quality of Transportation Compared to Three Years Ago by MDOT Region

Region	Better	Same	Worse	Not sure
Total	21%	40%	30%	9%
Superior (A)	19%	41%	27%	13%E
North (B)	14%	48%DG	28%	10%
Grand (C)	27%BEF	39%	27%	7%
Bay (D)	19%	34%	38%G	9%
SW (E)	16%	44%	35%	5%
Univ. (F)	12%	47%D	30%	11%
Metro (G)	24%BF	39%	28%	9%

☐ Better   ☐ Same   ☐ Worse   ☐ Not sure

Q1: Is the quality of transportation in Michigan better, the same, or worse than it was three years ago?
ABCDEFG Indicates significantly higher percentage than the corresponding region(s).

Another way to analyze the perception of the quality of transportation in Michigan compared to three years ago is to calculate a "Net Better Score" for each region. As shown below, when the percentage of "worse" ratings is subtracted from the "better" percentage, **Michigan as a whole received a Net Better Score of negative nine (-9); this is compared to the overall Net Better Score of "0" in 2017.** The Grand Region ranked the highest with a "zero" Net Better Score (both better and worse ratings were at 27%). Metro ranked second with a Net Better Score of -4, followed by Superior with -9. Southwest and Bay Regions had the lowest Net Better Scores with both at -19.

Figure 4: Net Better Score by MDOT Region (Better Minus Worse)

Net Better Score by MDOT Region
(Better *Minus* Worse)
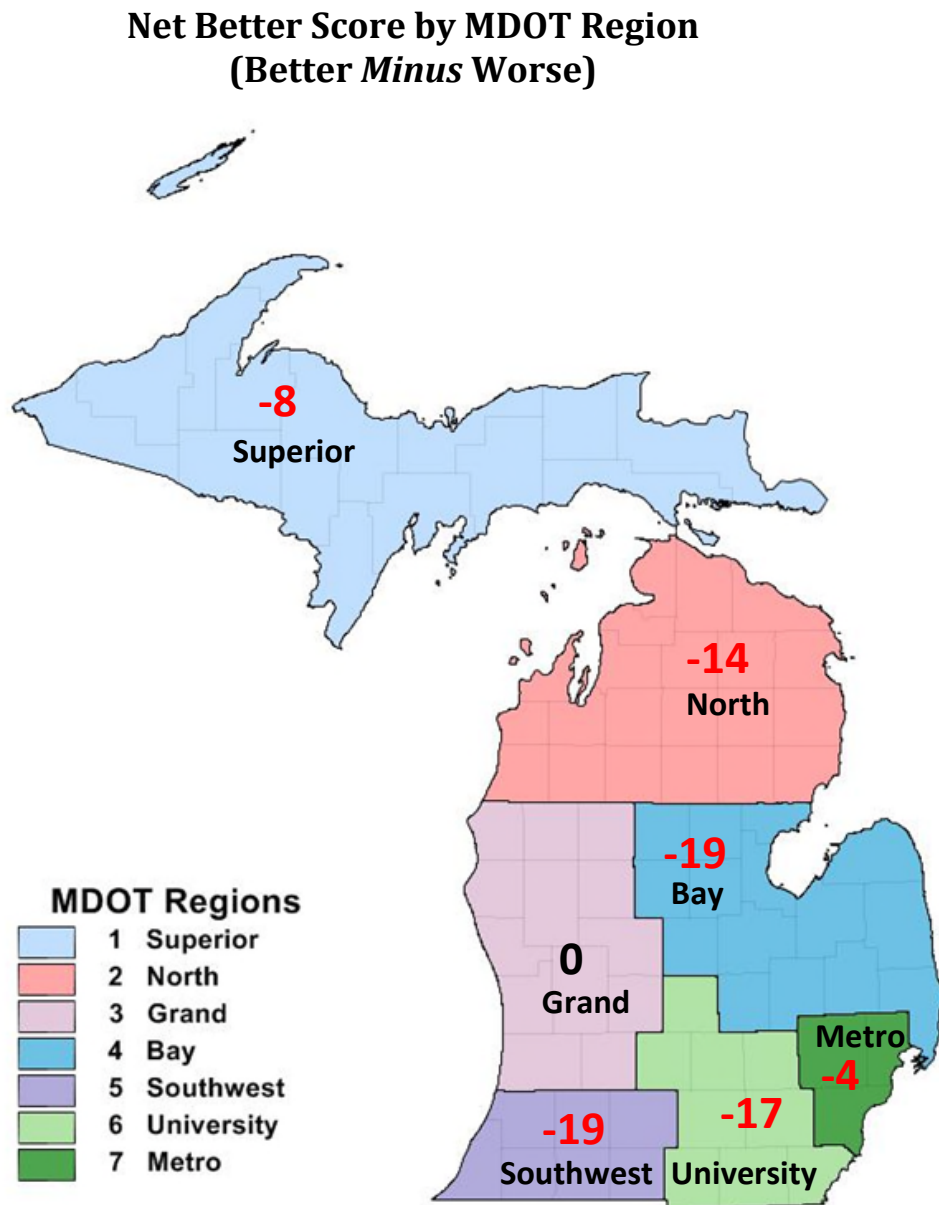
C.   Reasons for Quality of Transportation Ratings

1a.   Reasons Quality of Transportation "Better than Three Years Ago"

The 21% of Michigan residents who rated the quality of transportation as "better" than it was three years ago, gave three primary reasons for this positive perception: roads are improving/getting better (22%), roads or highways are being repaired (21%), and bus service is improved and/or there are more bus routes (20%).

Figure 5: Reasons for "Better" Rating Overall

Reasons for "Better" Rating Overall*

Reason	Percentage
Roads are getting better/ improving	22%
Roads/ highways are fixed	21%
Improved bus service / more bus routes	20%
Like the new buses/ SMART buses	6%
More ride share rides available (Uber/Lyft)	5%
Poor road conditions/ maintenance	5%
Cars have better technology/ always improving	4%
Traffic flow is good/ no problems	4%
Better with the increased speed limit	4%
Need to improve bus service / more bus routes	3%
Good job of maintaining winter roads/ snowy roads	2%
Traffic congestion has gotten worse	2%
Poor construction/ unnecessary road closures	2%
Like the Q line	2%
Do not use public transportation	2%
Don't know/Did not answer	6%

Q1a: Please explain the reason for your answer.
Based to those who answered and rated transportation quality as "better" n=292
All responses 2% or higher included in graph.
*Open-ended question, coded response percentages will not add up to 100%.

1b.   Reasons for "Better Than Three Years Ago" Rating by MDOT Region

North Region residents were significantly more likely than residents in nearly all other regions to report *improving roads* **as the reason for rating the quality of transportation in Michigan as being better than it was three years ago** (49% mentioned compared to 15% to 34% mentioning the other six MDOT regions). There are no other statistically meaningful differences to report.

Table 5: Reasons for "Better" Rating by MDOT Region*

Reasons	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Roads are getting better/ improving	22%	**15%**	**49%**ᴬᶜᴰᴱᴳ	**22%**	**20%**	20%	**34%**	18%
Roads/ highways are fixed	21%	11%	**12%**	19%	**24%**	**37%**	**18%**	**20%**
Improved bus service/ more bus routes	20%	12%	11%	**20%**	11%	**34%**	15%	**24%**
Like the new buses/ SMART buses	6%	-	-	4%	3%	-	4%	9%
More ride share rides available (Uber/Lyft)	5%	-	7%	-	6%	-	8%	6%
Poor road conditions/ maintenance	5%	6%	4%	6%	9%	5%	-	3%
Cars have better technology/ always improving	4%	-	-	6%	6%	2%	-	5%
Traffic flow is good/ no problems	4%	-	-	2%	4%	6%	8%	4%
Better with the increased speed limit	4%	3%	3%	9%	1%	-	-	3%
Need to improve bus service/ more bus routes	3%	-	-	-	5%	-	1%	6%
Good job of maintaining winter roads/ snowy roads	2%	**13%**	6%	-	4%	-	-	2%
Traffic congestion has gotten worse	2%	-	-	6%	2%	-	-	1%
Poor construction/ unnecessary road closures	2%	6%	-	6%	-	-	-	1%
Like the Q Line	2%	-	-	-	-	-	-	4%
Do not use public transportation	2%	-	-	3%	-	-	-	2%
Don't know/Did not answer	6%	3%	9%	1%	5%	5%	9%	7%

Q1a: Please explain the reason for your answer.
 ᴬᴮᶜᴰᴱᶠᴳ Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.
 *Open-ended question, coded response percentages will not add up to 100%.
 Reasons with two highest percentages marked in **bold** for each region.

2a.   Reasons Quality of Transportation "Worse than Three Years Ago"

More than two-thirds (68%) of residents who rated the quality of transportation as "worse" than it was three years ago indicated they did so because of *poor road conditions*. Just under one in ten complained of *repairs not lasting* (9%), *needing improved bus service or more routes* (9%), and or *traffic congestion being worse* (8%). Note: 30% of all residents gave a rating of "worse".

Figure 6: Reasons for "Worse" Rating Overall

Reasons for "Worse" Rating Overall*

Reason	Percentage
Poor road conditions/maintenance	68%
Repairs don't last long	9%
Need to improve bus service / more bus routes	9%
Traffic congestion has gotten worse	8%
Poor construction/ unnecessary road closures	6%
Cars damaged by roads	5%
Bridges need repair	5%
Slow to do repairs/ takes years	5%
Haven't noticed a difference/ no improvements	4%
Too many distracted drivers	3%
Roads in other states (WI, OH, IL) are better than ours	3%
Wasteful / MDOT doesn't spend wisely	2%
Don't know/Did not answer	2%

Q1a: Please explain the reason for your answer.
Based to those who answered and rated transportation quality as "worse" overall n=423
All responses 2% or higher included in graph.
*Open-ended question, coded response percentages will not add up to 100%.

2b.   *Reasons for "Worse Than Three Years Ago" Rating by MDOT Region*

Poor road conditions was the number one reason for rating the quality of satisfaction as "worse" than three years ago across all seven MDOT regions. Mentions of poor road conditions were elevated among residents of the Southwest and University Regions (82% and 79%) and somewhat lower among Metro Region residents (59%).

While residents of the Southwest Region were most likely to mention that *repairs don't last* (20%), Metro residents were more likely to complain about a need for *improved bus service and/or more routes* (14%). Grand residents stood out for having the most complaints about *traffic congestion* getting worse (14%) and for a significantly higher percentage of residents noting that they *have not noticed improvements* (13% vs. 0% to 6% for other regions).

Table 6: Reasons for "Worse" Rating by MDOT Region*

Reasons	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Poor road conditions/ maintenance	68%	**75%**	**73%**	57%	**74%**[G]	**82%**[CG]	**79%**[CG]	**59%**
Repairs don't last long	9%	4%	7%	10%	**12%**	**20%**[AG]	**9%**	5%
Need to improve bus service/ more bus routes	9%	**7%**	6%	6%	8%	3%	2%	**14%**[EF]
Traffic congestion has gotten worse	8%	4%	5%	**14%**	7%	7%	4%	10%
Poor construction/ unnecessary closures	6%	-	7%	9%	8%	5%	4%	5%
Cars damaged by roads	5%	2%	2%	6%	3%	10%	3%	7%
Bridges need repair	5%	6%	**8%**	4%	4%	6%	8%	3%
Slow to do repairs/ takes years	5%	6%	6%	5%	2%	4%	1%	7%[F]
Haven't noticed a difference/ no improvements	4%	-	4%	13%[BEFG]	6%	2%	3%	2%
Too many distracted drivers	3%	-	2%	-	2%	-	4%	5%
Roads in other states (WI, OH, IL) are better than ours	3%	-	3%	5%	2%	-	6%	2%
Wasteful/MDOT doesn't spend money wisely	2%	-	3%	4%	2%	8%	4%	-
Don't know/Did not answer	2%	**9%**	2%	4%	1%	-	-	2%

Q1a: Please explain the reason for your answer.
  [ABCDEFG] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.
  *Open-ended question, coded response percentages will not add up to 100%.
  .
  Reasons with two highest percentages marked in **bold** for each region.

III.   Improvement on Federal Transportation Planning Requirements

A.   2019 Improvement on Federal Transportation Planning Requirements

U.S. Department of Transportation requires states to incorporate 10 planning requirements into their long-range transportation plans. Residents were asked to indicate the level of improvement needed on each of the 10 planning requirements.

Residents were most likely to indicate that "a great deal" of improvement is needed to *maintain the existing transportation system* (49%; 80% a great deal + some) and *protect and enhance the environment, promote energy conservation, improve quality of life* (46%; 76% a great deal + some). A three-quarters majority also felt at least some improvement is needed to *increase the safety of the transportation system for all* (76% a great deal + some), *enhance the transportation system to support economic prosperity of Michigan* (80%), *promote efficient management and operation of the transportation system* (76%), and *improve the reliability of the transportation system* (75%).

Figure 7: Improvement on Planning Requirements
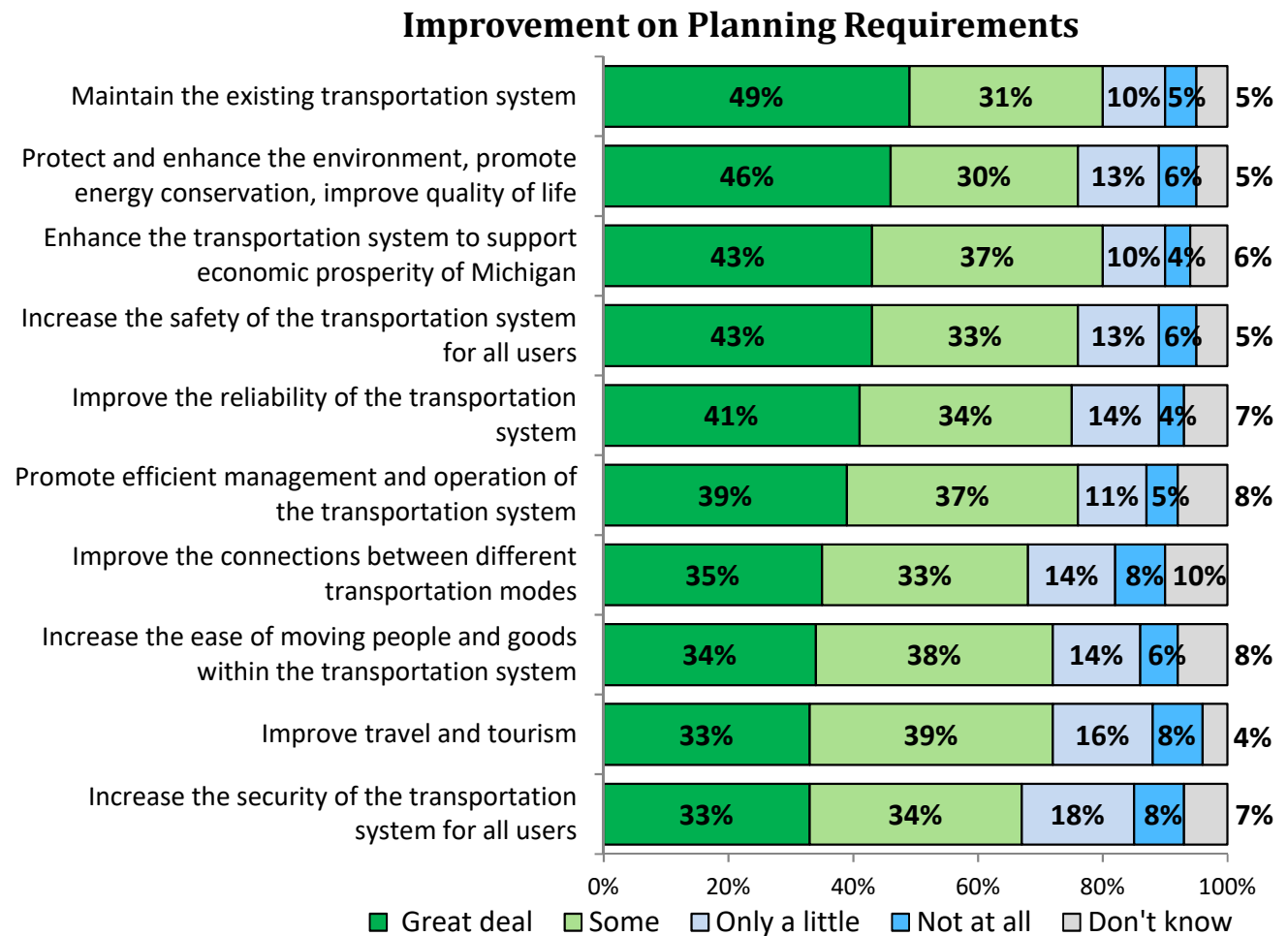
Improvement on Planning Requirements

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

Table 7: Improvement on Planning Requirements

Planning Requirements	Great Deal + Some	A Great Deal	Some	Only a little	Not at all	Don't know
Maintain the existing transportation system	**80%**	49%	31%	10%	5%	5%
Enhance the transportation system to support economic prosperity of Michigan	**80%**	43%	37%	10%	4%	6%
Increase the safety of the transportation system for all users	**76%**	43%	33%	13%	6%	5%
Promote efficient management and operation of the transportation system	**76%**	39%	37%	11%	5%	8%
Protect and enhance the environment, promote energy conservation, improve quality of life	**76%**	46%	30%	13%	6%	5%
Improve the reliability of the transportation system	**75%**	41%	34%	14%	4%	7%
Increase the ease of moving people and goods within	**72%**	34%	38%	14%	6%	8%
Improve travel and tourism	**72%**	33%	39%	16%	8%	4%
Improve the connections between different transportation modes	**68%**	35%	33%	14%	8%	10%
Increase the security of the transportation system for all users	**67%**	33%	34%	18%	8%	7%

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

B.   Improvement on Federal Transportation Planning Requirements by Region

Maintaining the existing transportation system and *enhancing the transportation system* were the top two planning requirements noted to be in need of "a great deal" or "some" improvement by residents in most MDOT regions. *Increased safety of the transportation system* was called out for improvement most notably by residents in the Grand and Metro Regions of the state. Metro residents also were more likely than others to indicate a need for improvement in *promoting efficient management and operation of the transportation system*, as well as *improving the reliability of the transportation system. Protecting and enhancing the environment, promoting energy conservation and improving quality of life* was more likely to be highlighted for improvement among residents living in the Grand Region than among those in other regions.

Table 8: 2019 Improvement on Planning Requirements by MDOT Region:
Summary of "A Great Deal" + "Some"

Planning Requirements	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Maintain the existing transportation system	80%	**77%**	72%	**83%**ᴮ	**79%**	**78%**	**82%**ᴮ	**81%**ᴮ
Enhance the transportation system to support economic prosperity of Michigan	80%	71%	**76%**	**79%**	73%	**79%**	**79%**	**85%**ᴬᴮᴰ
Increase the safety of the transportation system for all users	76%	**72%**	66%	78%ᴮ	**76%**	72%	73%	80%ᴮ
Promote efficient management and operation of the transportation system	76%	**72%**	**74%**	74%	72%	67%	73%	**81%**ᴰᴱᶠ
Protect and enhance the environment, promote energy conservation, improve quality of life	76%	67%	**73%**	**81%**ᴬ	**76%**	**73%**	74%	75%
Improve the reliability of the transportation system	75%	70%	66%	74%	70%	66%	**75%**	**81%**ᴬᴮᴰᴱ
Increase the ease of moving people and goods within the transportation system	72%	67%	60%	70%	70%	70%	73%ᴮ	77%ᴮ
Improve travel and tourism	72%	70%	68%	73%ᴱ	72%	61%	72%	74%ᴱ
Improve the connections between different transportation modes	68%	60%	61%	71%ᴰ	56%	60%	66%	74%ᴬᴮᴰᴱᶠ
Increase the security of the transportation system for all users	67%	58%	54%	61%	64%	58%	63%	76%ᴬᴮᶜᴰᴱᶠ

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.
Three highest percentages for "improvements needed" shown in bold text for each region.
ᴬᴮᶜᴰᴱᶠᴳ Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

C. Improvement on Federal Transportation Planning Requirements by Key Subgroups

Males were more likely than females to indicate improvement is needed to *maintain the existing transportation system* (84% vs. 78% a great deal + some), whereas females were more likely to indicate improvement is needed for the *connections between different transportation modes* (71% vs. 65%) and *increased security for the transportation system* (72% vs. 60%).

Improvement to the reliability of the transportation system, *increased ease in moving people and goods*, and *improved travel and tourism* were more likely to be selected for a "great deal" or "some" improvement by residents ages 55 and older than by younger residents.

Table 9a: 2019 Improvement on Planning Requirements by Key Subgroups:
Summary of "A Great Deal" + "Some"

Planning Requirements	Total 2019	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Maintain the existing transportation system	80%	84%[B]	78%	77%	82%	82%
Enhance the transportation system to support economic prosperity of Michigan	80%	78%	82%	77%	81%	81%
Increase the safety of the transportation system for all users	76%	75%	78%	73%	75%	79%
Promote efficient management and operation of the transportation system	76%	75%	76%	71%	77%	78%
Protect and enhance the environment, promote energy conservation, improve quality of life	76%	73%	78%	76%	77%	75%
Improve the reliability of the transportation system	75%	73%	77%	70%	76%	78%[C]
Increase the ease of moving people and goods within the transportation system	72%	73%	72%	68%	72%	76%[C]
Improve travel and tourism	72%	71%	73%	65%	72%	77%[C]
Improve the connections between different transportation modes	68%	65%	71%[A]	64%	68%	70%
Increase the security of the transportation system for all users	67%	60%	72%[A]	62%	70%	68%

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

[ABCDE] Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

Higher income residents were more likely than lower income residents to indicate improvement is needed to *maintain the existing transportation system* (84% vs. 76% a great deal + some), whereas residents with lower household incomes were more likely to indicate improvement is needed for *increased security for the transportation system* (71% vs. 64%)*.* Similarly, White/other residents were more likely than Black or Hispanic residents to indicate improvement is needed to *maintain the existing transportation system* (82% and 86% vs. 73% and 77%). Black residents were more likely to indicate improvement is needed in *the connections between transportation modes* (81%) and the *security of the transportation system for all users* (77%).

Table 9b: 2019 Improvement on Planning Requirements by Key Subgroups (Continued): Summary of "A Great Deal" + "Some"

Planning Requirements	Total 2019	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Maintain the existing transportation system	80%	76%	84%^A	82%^D	73%	77%	86%^D
Enhance the transportation system to support economic prosperity of Michigan	80%	78%	82%	80%	80%	74%	83%
Increase the safety of the transportation system for all users	76%	77%	76%	76%	77%	75%	81%
Promote efficient management and operation of the transportation system	76%	74%	78%	76%	74%	82%	70%
Protect and enhance the environment, promote energy conservation, improve quality of life	76%	79%	75%	76%	73%	78%	77%
Improve the reliability of the transportation system	75%	78%	75%	75%	81%	66%	74%
Increase the ease of moving people and goods within the transportation system	72%	70%	74%	72%	75%	74%	74%
Improve travel and tourism	72%	72%	72%	71%	74%	73%	73%
Improve the connections between different transportation modes	68%	70%	66%	65%	81%^C	69%	72%
Increase the security of the transportation system for all users	67%	71%^B	64%	65%	77%^C	65%	74%

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

^{ABCDEF} Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

IV. Michigan Transportation Issues

A. 2019 Priority of Michigan Transportation Issues

Residents were provided a list of 14 transportation issues and asked to indicate the priority the State of Michigan should place on each item. **The highest ranked issue, by a significant margin over the other issues, was for Michigan *to maintain its existing roads* (92%, 65% rating is as a "very high priority" and another 27% as a "high priority").** Rounding out the top three issues with roughly two-thirds of residents ranking them as "very high" or "high" priorities were *reducing traffic congestion* (68%) and *expanding transportation services for seniors and persons with disabiliti*es (64%).

While no other issues were rated as a high priority by more than one-half of residents, just under-one half gave high priority ratings to *expanding public transportation/bus service* (49%), *adding sidewalks and paths to make it easier and safer to walk* (49%), *adding highway turning and passing lanes* (48%) and *adding lanes to increase capacity on state highways* (48%).

Preparing Michigan for self-driving cars received the lowest priority rankings with only 26% rating it as a high or very high priority and one-half (51%) stating it should be a low or very low priority (23% "low" and 28% "very low priority"). The complete list is shown in Table 10 on the next page.

Figure 8: Top 5 Priority Michigan Transportation Issues

Top 5 Priority Michigan Transportation Issues
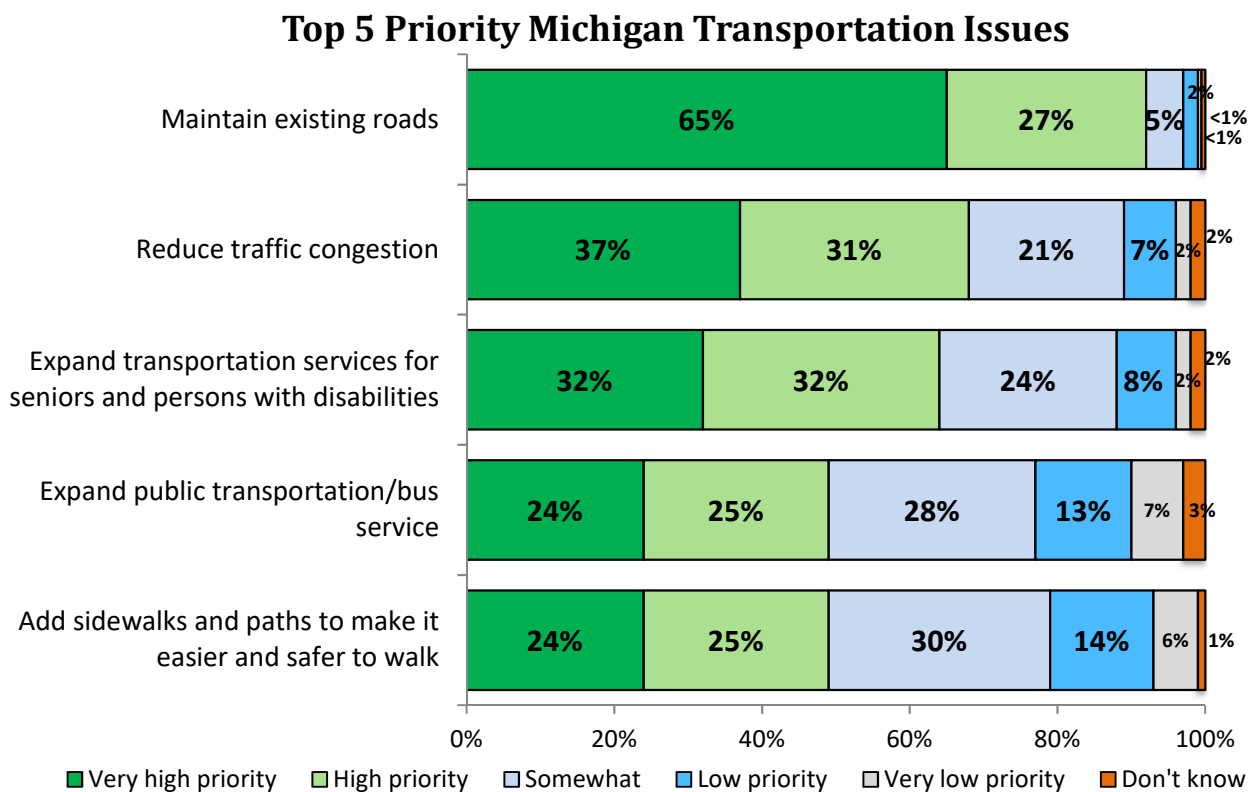
Q7: What type of priority should Michigan place on each of the following issues?

Table 10: Priority of Michigan Issues

Priorities	Very high + High	Very High Priority	High Priority	Somewhat of a priority	Low Priority	Very low Priority	Don't know
Maintain existing roads	92%	65%	27%	5%	2%	.5%	.5%
Reduce traffic congestion	68%	37%	31%	21%	7%	2%	2%
Expand transportation services for seniors and persons with disabilities	64%	32%	32%	24%	8%	2%	2%
Expand public transportation/bus service	49%	24%	25%	28%	13%	7%	3%
Add sidewalks and paths to make it easier and safer to walk	49%	24%	25%	30%	14%	6%	1%
Add highway turning and passing lanes	48%	17%	31%	31%	14%	5%	2%
Add lanes to increase capacity on state highways	48%	23%	25%	31%	15%	5%	1%
Make it easier for businesses to move goods and materials	46%	15%	31%	34%	11%	4%	5%
Improve passenger bus service between cities	43%	20%	23%	31%	15%	7%	4%
Improve passenger rail service	42%	20%	22%	30%	16%	8%	4%
Add facilities to make bicycle travel easier and safer	39%	16%	23%	31%	19%	10%	1%
Improve freight rail service to support local industries	36%	12%	24%	37%	14%	5%	8%
Improve air travel by upgrading airport facilities	33%	13%	20%	30%	23%	10%	4%
Prepare Michigan for self-driving cars	26%	12%	14%	18%	23%	28%	5%

Q7: What type of priority should Michigan place on each of the following issues?

B.   Priority of Michigan Transportation Issues by Region

Maintaining existing roads **and** *reducing traffic congestion* **were the two top priority issues for residents in all MDOT regions with the exception of residents in Superior and the North, who were less inclined to be concerned about reducing traffic congestion.** Residents in the North, Grand, Metro, and Superior Regions were highly likely to indicate that *expanding transportation services for seniors and persons with disabilities* should be a high priority and residents in the Superior Region felt that *adding highway turning and passing lanes* should be a high priority. In general, residents in the Metro Region tended to place a higher priority on public transit services than residents in other regions of the state.

Table 11: 2019 Priority of MI Issues by MDOT Region:
Summary of "Very High" + "High"

Priorities	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Maintain existing roads	92%	**91%**	**89%**	**91%**	**94%**	**95%**	**91%**	**92%**
Reduce traffic congestion	68%	47%	**53%**	66%[AB]	66%[AB]	60%	68%[AB]	**76%[ABCDEF]**
Expand transportation services for seniors and persons with disabilities	64%	**61%**	**61%**	71%[DEF]	**60%**	51%	**56%**	69%[DEF]
Expand public transportation/bus service	49%	44%	36%	51%[BF]	41%	39%	40%	59%[ABDEF]
Add sidewalks and paths to make it easier and safer to walk	49%	54%	44%	50%	43%	**56%[D]**	45%	51%
Add highway turning and passing lanes	48%	**62%[BDEFG]**	47%	57%[EF]	47%	44%	45%	47%
Add lanes to increase capacity on state highways	48%	43%	35%	51%[B]	42%	51%[B]	55%[BD]	47%[B]
Make it easier for businesses to move goods and materials	46%	53%[F]	50%	51%	43%	49%	40%	47%
Improve passenger bus service between cities	43%	40%	36%	40%	30%	38%	37%	53%[ABCDEF]
Improve passenger rail service	42%	31%	36%	42%	33%	39%	39%	49%[ABDF]
Add facilities to make bicycle travel easier and safer	39%	38%	38%	37%	33%	50%[D]	38%	39%
Improve freight rail service to support local industries	36%	50%[DEF]	45%[DF]	38%	28%	34%	28%	40%[DF]
Improve air travel by upgrading airport facilities	33%	47%[BCDEF]	26%	34%	26%	33%	28%	38%[BDF]
Prepare Michigan for self-driving cars	26%	5%	14%[A]	24%[AB]	23%[AB]	26%[AB]	25%[AB]	32%[ABD]

Q7: What type of priority should Michigan place on each of the following issues?
Top three "priorities" by region shown in bold text.
[ABCDEFG] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

C.   Priority of Michigan Transportation Issues by Key Subgroups

Female residents tended to place a higher priority on improving public transportation and multi-modal services, whereas males were more likely to place a higher priority on issues related to roads and vehicles.

Residents ages 18 to 34 were more likely than older residents to place a high priority on *expanding public transportation services, adding sidewalks and paths for walking, adding bicycle facilities for easier and safer travel*, as well as *preparing the state for self-driving vehicles*. Those ages 35 to 54 placed a high priority on *making it easier for businesses to move goods and services*, im*proving bus services between cities,* and *preparing for self-driving vehicles*.

Table 12a: 2019 Priority of MI Issues by Key Subgroups:
Summary of "Very High" + "High"

Priorities	Total 2019	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Maintain existing roads	92%	91%	93%	86%	94%^{C}	95%^{C}
Reduce traffic congestion	68%	68%	68%	63%	70%	70%
Expand transportation services for seniors and persons with disabilities	64%	57%	71%^{A}	66%	65%	63%
Expand public transportation/bus service	49%	42%	56%^{A}	55%^{E}	51%	45%
Add sidewalks and paths to make it easier and safer to walk	49%	41%	56%^{A}	54%^{E}	52%	48%
Add highway turning and passing lanes	48%	48%	49%	51%	47%	49%
Add lanes to increase capacity on state highways	48%	52%^{B}	44%	47%	52%	47%
Make it easier for businesses to move goods and materials	46%	47%	46%	40%	52%^{C}	47%
Improve passenger bus service between cities	43%	36%	49%^{A}	45%	46%^{E}	39%
Improve passenger rail service	42%	38%	46%^{A}	40%	42%	43%
Add facilities to make bicycle travel easier and safer	39%	33%	44%^{A}	48%^{DE}	35%	34%
Improve freight rail service to support local industries	36%	37%	36%	32%	39%	38%
Improve air travel by upgrading airport facilities	33%	30%	36%^{A}	33%	36%	31%
Prepare Michigan for self-driving cars	26%	29%^{B}	23%	32%^{E}	28%^{E}	22%

Q7: What type of priority should Michigan place on each of the following issues?
   ^{ABCDE} Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

Lower income residents tended to place a higher priority on improving public transportation and multi-modal services, whereas higher income residents were more likely to place a higher priority on issues related to roads and vehicles. In general, minority residents tended to place a higher priority on issues related to public transportation and multi-modal services than White residents.

Table 12b: 2019 Priority of MI Issues by Key Subgroups (Continued):
Summary of "Very High" + "High"

Priorities	Total 2019	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Maintain existing roads	92%	89%	93%^{A}	95%^{DF}	86%^{F}	95%^{F}	73%
Reduce traffic congestion	68%	63%	72%^{A}	69%	69%	80%^{F}	58%
Expand transportation services for seniors and persons with disabilities	64%	72%^{B}	59%	61%	80%^{CF}	72%	64%
Expand public transportation/bus service	49%	55%^{B}	48%	43%	77%^{C}	63%^{C}	63%^{C}
Add sidewalks and paths to make it easier and safer to walk	49%	55%^{B}	46%	46%	66%^{CF}	60%	46%
Add highway turning and passing lanes	48%	47%	50%	45%	59%^{C}	77%^{CF}	50%
Add lanes to increase capacity on state highways	48%	43%	52%^{A}	46%	50%	60%	52%
Make it easier for businesses to move goods and materials	46%	47%	47%	45%	59%^{CF}	42%	42%
Improve passenger bus service between cities	43%	51%^{B}	38%	26%	70%^{C}	51%	66%^{C}
Improve passenger rail service	42%	45%	41%	39%	59%^{C}	44%	47%
Add facilities to make bicycle travel easier and safer	39%	44%^{B}	36%	34%	55%^{C}	57%^{C}	54%^{C}
Improve freight rail service to support local industries	36%	41%^{B}	34%	33%	49%^{C}	48%	42%
Improve air travel by upgrading airport facilities	33%	37%^{B}	31%	29%	49%^{C}	51%^{C}	43%^{C}
Prepare Michigan for self-driving cars	26%	26%	28%	22%	41%^{C}	40%	35%^{C}

Q7: What type of priority should Michigan place on each of the following issues?

^{ABCDEF} Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

V.   Long-Range Transportation Plan Participation Methods

A.   Long-Range Transportation Plan Participation Methods Overall

A majority (84%) of Michigan residents indicated they would participate in a long-range transportation planning process (only 16% selected "would not participate"). **Residents expressed the most interest in participating via the U.S. mail (38%), email (38%), and/or through an interactive website (37%).**

Figure 9: Long-Range Transportation Plan Participation Methods Overall
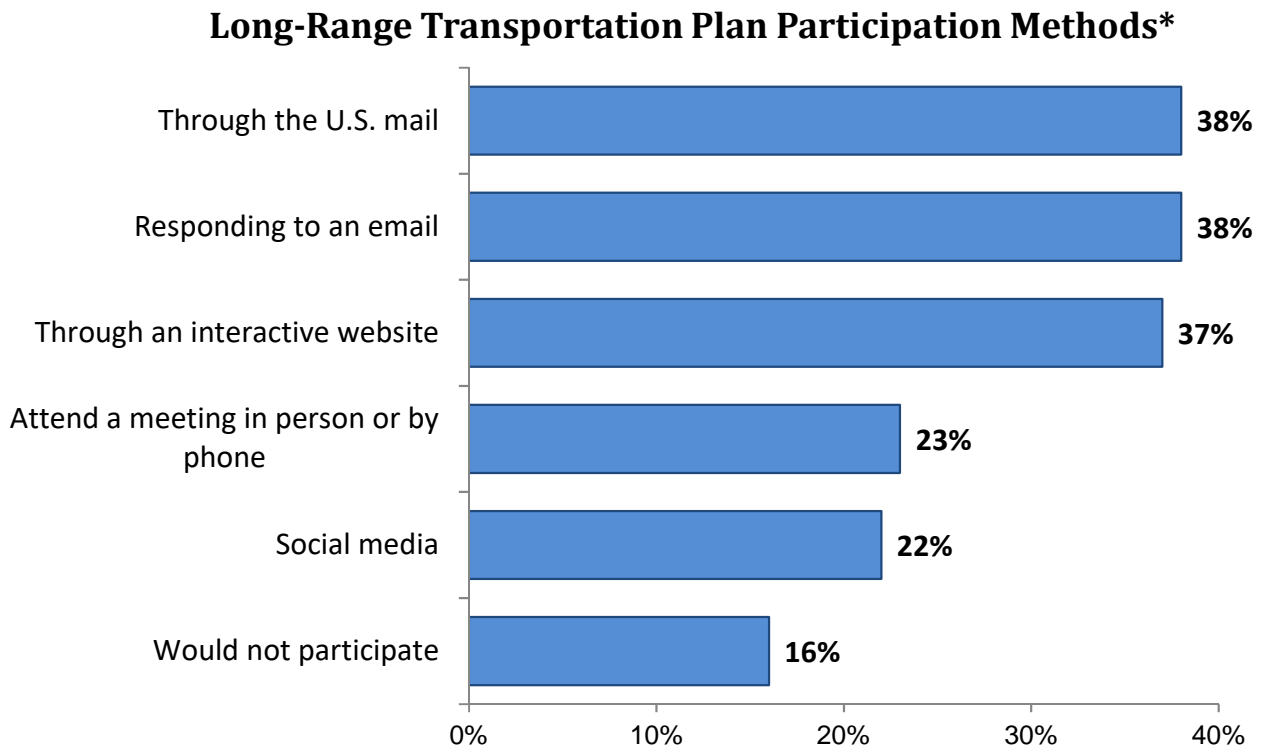
Long-Range Transportation Plan Participation Methods*

Q3: In which of the following ways would you most likely participate in a long-range transportation planning process? Select all that apply.
*Multiple responses allowed, response percentages will not add up to 100%.

B.   Long-Range Transportation Plan Participation Methods by MDOT Region

U.S. mail, email and an interactive website were the top three methods of participation selected across all regions except for Superior and North Regions where residents were more likely to want to participate by attending a meeting in person or over the phone.

The top three participation methods by region are in **bold**.

Table 13: Long-Range Transportation Plan Participation Methods by MDOT Region

Participation Methods	Total 2019	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Through the U.S. mail	38%	**43%**	**41%**	**40%**	**44%**	**42%**	**36%**	**35%**
Responding to an email	38%	29%	**37%**	**36%**	**42%**A	**38%**	**36%**	**38%**
Through an interactive website	37%	**32%**	33%	**33%**	**34%**	**39%**	**42%**	**37%**
Attend a meeting in person or by phone	23%	**31%**EF	**35%**CDEFG	23%	24%	17%	19%	23%
Social media	22%	23%	26%F	20%	25%F	29%F	17%	22%
Would not participate	16%	18%	15%	15%	19%	16%	18%	16%

Q3: In which of the following ways would you most likely participate in a long-range transportation planning process? Select all that apply.
ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

C.   Long-Range Transportation Plan Participation Methods by Key Subgroups

Males and females selected the same top three methods, however men were more likely to prefer participating in a long-range transportation plan through the U.S. mail (42% vs. 35%) or by attending a meeting (27% vs. 20%). Women expressed a greater interest in participating via social media (28% vs. 16% for men). As might be expected, older residents were more interested in participating via the U.S. mail and those under 55 preferred an interactive website or social media. Notably, 35 to 54-year-olds stood out for their significantly stronger preference to participate by responding to an email and for being the least likely to indicate they would not participate at all.

While higher income residents showed a stronger preference for email or an interactive website, lower income residents were significantly more likely to say they would not participate at all. Additionally, White residents preferred the U.S. mail and Black residents expressed a stronger interest in attending a meeting or engaging via social media.

Table 14a: Long-Range Transportation Plan Participation Methods by Key Subgroups

Participation Methods	Total 2019	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Through the U.S. mail	38%	42%^{B}	35%	22%	39%^{C}	49%^{CD}
Responding to an email	38%	37%	38%	34%	44%^{CE}	36%
Through an interactive website	37%	36%	37%	44%^{E}	46%^{E}	25%
Attend a meeting in person or by phone	23%	27%^{B}	20%	19%	26%	24%
Social media	22%	16%	28%^{A}	39%^{DE}	25%^{E}	10%
Would not participate	16%	16%	17%	17%^{D}	10%	20%^{D}

Q3: In which of the following ways would you most likely participate in a long-range transportation planning process? Select all that apply.
^{ABCDE} Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup.

Table 14b: Long-Range Transportation Plan Participation Methods by Key Subgroups

Participation Methods	Total 2019	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Through the U.S. mail	38%	37%	40%	41%^{DF}	31%	29%	28%
Responding to an email	38%	29%	44%^{A}	38%	37%	39%	36%
Through an interactive website	37%	28%	43%^{A}	37%	31%	41%	37%
Attend a meeting in person or by phone	23%	22%	25%	22%	36%^{CF}	21%	21%
Social media	22%	26%	21%	20%	30%^{C}	36%	20%
Would not participate	16%	19%^{B}	13%	17%	14%	14%	22%

Q3: In which of the following ways would you most likely participate in a long-range transportation planning process?
^{ABCDE} Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup

VI.   Transportation Information Sources for MI Residents

A.   Information Sources for Michigan Transportation Issues by Year

Residents continued to most often rely on television, radio and smartphone traffic or map apps for information about Michigan transportation issues (46%, 37% and 37%, respectively). Compared to 2017, mentions dropped for all of the major sources with the exception of social media which increased significantly this year to 25% mentioning (up from 17% previously). Mentions declined significantly for radio and the MDOT website.

Figure 10: Information Sources for Michigan Transportation Issues by Year
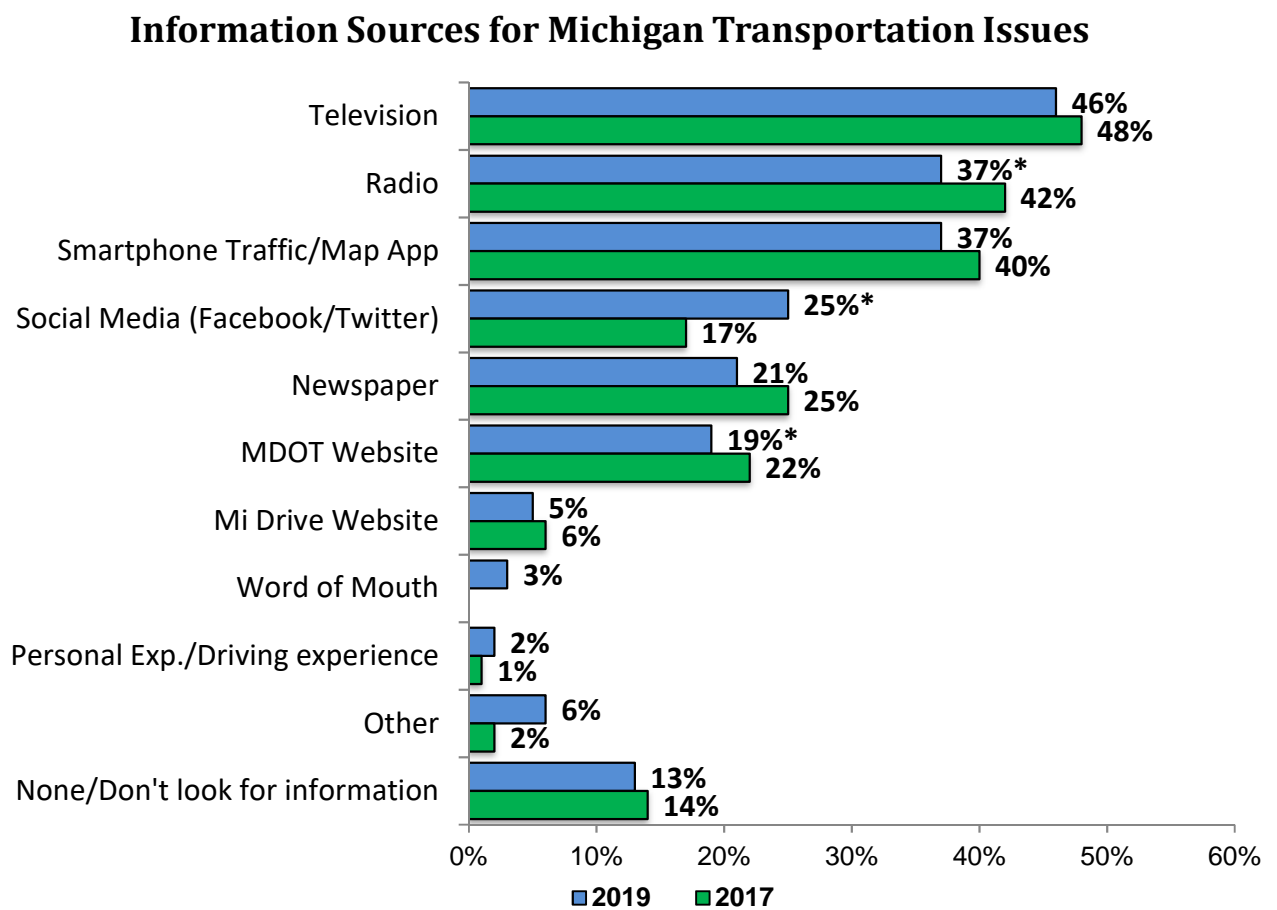
Information Sources for Michigan Transportation Issues

Q2: Where do you go to obtain information on transportation issues in Michigan? Select all that apply.
*Percentage is significantly different from 2017
**Multiple responses allowed, response percentages will not add up to 100%.

B.   Information Sources for Michigan Transportation Issues by MDOT Region

Television, radio and smartphone traffic/map apps were the top three sources for information on Michigan transportation issues for residents in six of the seven MDOT regions. Of note, the Mi Drive website was most popular among residents in Southwest Region (mentioned by 11%).

The top three information sources by region are in **bold**.

Table 15: Information Sources for Michigan Transportation Issues by MDOT Region

Information Sources	Total 2019	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Television	46%	**47%**	**44%**	**44%**	**49%**	**48%**	**41%**	**48%**
Radio	37%	**32%**	**32%**	**35%**	**34%**	**36%**	**37%**	**39%**
Smartphone Traffic/ Map App	37%	**28%**	**29%**	**36%**	**32%**	30%	**33%**	**44%**^{ABDEF}
Social Media (Facebook/Twitter)	25%	25%	28%	25%	28%	25%	27%	23%
Newspaper	21%	24%	28%^{FG}	21%	22%	25%	18%	19%
MDOT Website	19%	16%	15%	19%	15%	**30%**^{ABCDFG}	19%	18%
Mi Drive Website	5%	3%	5%	6%	5%	11%^{AFG}	4%	5%
Word of Mouth	3%	2%	3%	4%^E	1%	1%	3%	3%
Personal Experience	2%	7%^G	2%	2%	2%	2%	4%	1%
Other	6%	4%	7%	9%^{DEG}	4%	3%	6%	5%
None/Don't look for information	13%	13%	14%	13%	15%	12%	17%^G	10%

Q2: Where do you go to obtain information on transportation issues in Michigan? Select all that apply.
^{ABCDEFG} Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.
*Multiple responses allowed, response percentages will not add up to 100%.

C. Information Sources for Michigan Transportation Issues by Key Subgroups

While men were significantly more likely to obtain information on Michigan transportation issues from the radio or newspaper, social media was significantly more popular among women.

Older residents were more likely to report turning to television, radio and newspapers for information while younger residents were more likely to say they rely on traffic/map apps or social media. Notably, 18 to 34-year-old residents were most likely to rely on the MDOT website for this information and significantly more likely to do so than those aged 55 or older.

Table 16a: Information Sources for Michigan Transportation Issues by Key Subgroups

		Gender		Age		
Information Sources	**Total 2019**	**Male (A)**	**Female (B)**	**18-34 (C)**	**35-54 (D)**	**55+ (E)**
Television	46%	47%	45%	30%	44%^{C}	59%^{CD}
Radio	37%	43%^{B}	31%	38%	33%	39%^{D}
Smartphone Traffic/ Map App	37%	38%	36%	46%^{E}	43%^{E}	26%
Social Media (Facebook/Twitter)	25%	21%	30%^{A}	44%^{DE}	27%^{E}	11%
Newspaper	21%	24%^{B}	18%	10%	14%	33%^{CD}
MDOT Website	19%	17%	21%	26%^{E}	18%	14%
Mi Drive Website	5%	5%	5%	5%	6%	5%
Word of Mouth	3%	3%	3%	2%	3%	3%
Personal Experience	2%	3%^{B}	1%	<1%	3%^{C}	3%^{C}
Other	6%	6%	6%	5%	8%^{E}	4%
None/Don't look for information	13%	11%	14%	11%	12%	14%

Q2: Where do you go to obtain information on transportation issues in Michigan? Select all that apply.
^{ABCD} Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup.

The radio, smartphone traffic maps or apps and Mi Drive website were significantly more popular information sources among residents from higher income households.

White and Hispanic residents were significantly more likely than Black residents to report listening to the radio for transportation related information. Additionally, newspapers were significantly more popular among White residents than Black or Hispanic residents.

Table 16b: Information Sources for Michigan Transportation Issues
by Key Subgroups (Continued)

Information Sources	Total 2019	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Television	46%	46%	46%	47%	46%	46%	40%
Radio	37%	28%	44%A	38%D	24%	46%D	31%
Smartphone Traffic/ Map App	37%	29%	43%A	37%	37%	24%	42%
Social Media (Facebook/Twitter)	25%	28%	25%	24%	28%	30%	30%
Newspaper	21%	19%	21%	22%DE	13%	9%	24%
MDOT Website	19%	17%	21%	18%	21%	17%	20%
Mi Drive Website	5%	3%	7%A	6%	4%	9%	4%
Word of Mouth	3%	4%	2%	3%	2%	4%	3%
Personal Experience	2%	2%	2%	2%	2%	1%	6%
Other	6%	6%	6%	6%	6%	3%	9%
None/Don't look for information	13%	16%B	10%	12%	16%	19%	11%

Q2: Where do you go to obtain information on transportation issues in Michigan? Select all that apply.
ABCD Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup.

VII.   Self-Driving Vehicles

A.   Perceived Safety When Sharing Roads with Self-Driving Vehicles

1.   Perceived Safety When Sharing Roads with Self-Driving Vehicles Overall

Only 38% of Michigan residents reported they would feel safe sharing roadways in their community with self-driving vehicles (11% very safe + 27% somewhat safe). Nearly one-third (31%) would "not feel at all safe".

Figure 11: Perceived Safety When Sharing Roads with Self-Driving Vehicles

Perceived Safety When Sharing Roads with Self-Driving Vehicles
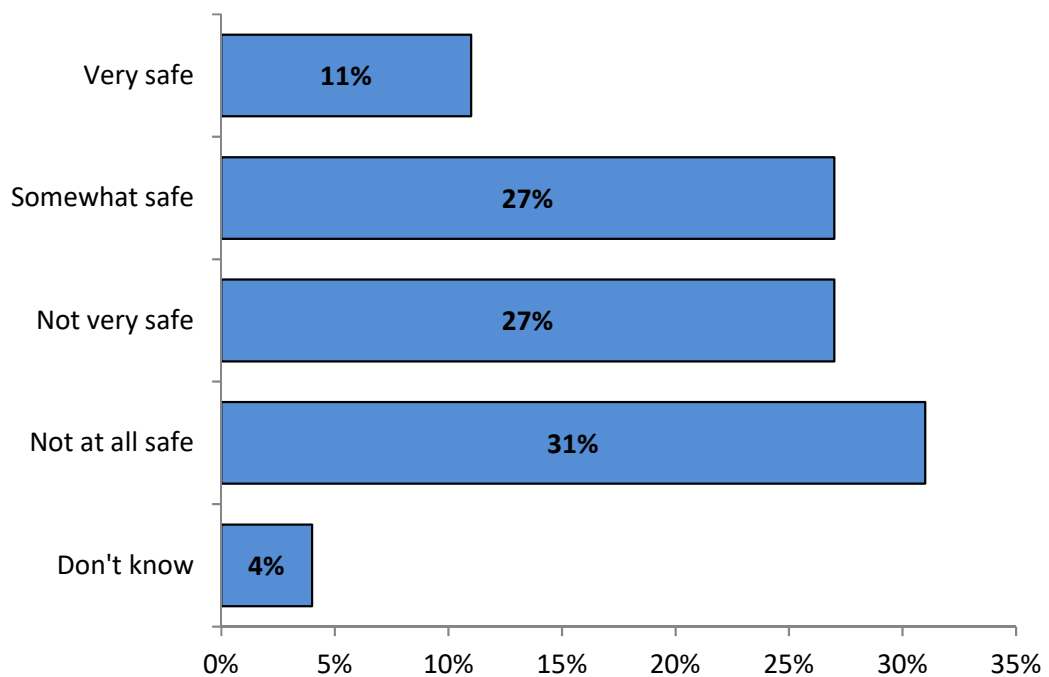
Category	Percentage
Very safe	11%
Somewhat safe	27%
Not very safe	27%
Not at all safe	31%
Don't know	4%

Q8a: How safe do you think you will feel sharing the roadways in your community with self-driving vehicles? Would you say you would feel…

2.   Perceived Safety When Sharing Roads with Self-Driving Vehicles by MDOT Region

The proportion of residents who indicated they would feel safe sharing roads with self-driving vehicles ranged from 30% for the North Region to 41% for the Metro Region. Residents in the Metro and Southwest Regions were the most likely to feel safe (41% "very safe" + "safe" and 40%, respectively). Residents in the North Region were most likely to indicate they would feel "not at all safe" sharing roads with self-driving vehicles (41%).

Table 17: Perceived Safety When Sharing Roads with Self-Driving Vehicles by MDOT Region

Perceived Safety	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Very + Somewhat safe	**38%**	**36%**	**30%**	**32%**	**39%**	**40%**	**36%**	**41%BC**
Very safe	11%	10%	7%	9%	13%B	11%	8%	13%BF
Somewhat safe	27%	26%	23%	23%	26%	29%	28%	28%
Not very safe	27%	23%	26%	30%	23%	21%	30%	29%
Not at all safe	31%	36%	41%FG	35%	33%	34%	29%	26%
Don't know	4%	5%	3%	3%	5%	5%	5%	4%

Q8a: How safe do you think you will feel sharing the roadways in your community with self-driving vehicles? Would you say you would feel…

ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

3.   Perceived Safety When Sharing Roads with Self-Driving Vehicles by Key Subgroups

Males, residents under age 55, and those with higher household incomes were more likely than residents in the comparative groups to indicate they would feel safe sharing the roadways in their communities with self-driving vehicles. Additionally, non-white residents were more likely than White residents to indicate they would feel safe sharing the road with self-driving vehicles.

Table 18a: Perceived Safety When Sharing Roads with Self-Driving Vehicles by Key Subgroups

Perceived Safety	Total	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Very + Somewhat safe	**38%**	**44%ᴮ**	**32%**	**48%ᴱ**	**40%ᴱ**	**31%**
Very safe	11%	16%ᴮ	6%	18%ᴱ	12%ᴱ	6%
Somewhat safe	27%	28%	26%	30%	28%	25%
Not very safe	27%	25%	30%	29%	23%	29%
Not at all safe	31%	27%	34%ᴬ	19%	33%ᴬ	35%ᴬ
Don't know	4%	4%	4%	4%	4%	5%

Q8a: How safe do you think you will feel sharing the roadways in your community with self-driving vehicles? Would you say you would feel…
ᴬᴮᶜᴰᴱ Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.

Table 18b: Perceived Safety When Sharing Roads with Self-Driving Vehicles by Key Subgroups (Continued)

Perceived Safety	Total	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Very + Somewhat safe	**38%**	**34%**	**42%ᴬ**	**35%**	**45%ᶜ**	**45%**	**47%**
Very safe	11%	8%	14%ᴬ	11%	13%	11%	7%
Somewhat safe	27%	26%	28%	25%	32%	34%	40%ᶜ
Not very safe	27%	25%	29%	26%	32%	30%	30%
Not at all safe	31%	37%ᴮ	24%	33%ᴰᶠ	21%	23%	21%
Don't know	4%	4%	5%	5%	2%	2%	2%

Q8a: How safe do you think you will feel sharing the roadways in your community with self-driving vehicles? Would you say you would feel…
ᴬᴮᶜᴰᴱᶠ Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.

B.   Perceived Impact of Self-Driving Vehicles on Community

1.   Perceived Impact of Self-Driving Vehicles on Community Overall

Michigan residents were more likely to report believing self-driving vehicles will have a *negative* impact on their community (48% somewhat + very negative) rather than a positive impact (37% very + somewhat positive).

Figure 12: Perceived Impact of Self-Driving Vehicles on Community Overall

Perceived Impact of Self-Driving Vehicles on Community

Q8b: In general, what type of impact do you think self-driving vehicles will have on your community? Would you say the impact would be:

2.   Perceived Impact of Self-Driving Vehicles on Community by MDOT Region

Metro and University Regions' residents were more likely than residents in the other five regions of the state to indicate they feel the impact of self-driving vehicles will be positive. However, in all regions the percentage of residents feeling the impact will be negative exceeded the percentage of residents believing the impact of self-driving vehicles on their communities will be positive. Residents in the North Region were most skeptical (60% somewhat + very negative).

Table 19: Perceived Impact of Self-Driving Vehicles on Community by Region

Perceived Impact	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Very + Somewhat positive	**37%**	**31%**	**26%**	**32%**	**34%**	**34%**	**38%**[B]	**43%**[ABC]
Very positive	12%	10%	6%	12%	12%[B]	10%	9%	13%[B]
Somewhat positive	25%	21%	20%	20%	22%	24%	28%	30%[BC]
Somewhat negative	25%	30%	27%	32%[DG]	21%	24%	26%	22%
Very negative	23%	29%	32%[EFG]	22%	26%	20%	21%	22%
No impact	5%	4%	7%	4%	7%	9%	7%	5%
Don't know	10%	6%	8%	10%	13%	13%	9%	8%

Q8b: In general, what type of impact do you think self-driving vehicles will have on your community? Would you say the impact would be:

[ABCDEFG] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

3.   *Perceived Impact of Self-Driving Vehicles on Community by Key Subgroups*

Similar to the safety ratings, males, residents under age 55, higher income residents and non-white residents were more likely than those in the comparative groups to also believe self-driving vehicles would have a positive impact on their communities.

Table 20a: Perceived Impact of Self-Driving Vehicles by Key Subgroups

Perceived Impact	Total	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Very + Somewhat positive	**37%**	**41%**[B]	**33%**	**49%**[DE]	**40%**[E]	**29%**
Very positive	12%	15%[B]	8%	17%[E]	13%[E]	7%
Somewhat positive	25%	26%	25%	32%[E]	27%	22%
Somewhat negative	25%	24%	26%	25%	23%	26%
Very negative	23%	20%	25%	18%	24%	24%
No impact	5%	7%	4%	3%	6%	7%[C]
Don't know	10%	8%	12%	5%	7%	14%[CD]

Q8b: In general, what type of impact do you think self-driving vehicles will have on your community? Would you say the impact would be:
[ABCDE] Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.

Table 20b: Perceived Impact of Self-Driving Vehicles by Key Subgroups (Continued)

Perceived Impact	Total	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Very + Somewhat positive	**37%**	**33%**	**42%**[A]	**34%**	**44%**[C]	**53%**[C]	**53%**[C]
Very positive	12%	9%	15%[A]	11%	13%	13%	12%
Somewhat positive	25%	25%	27%	23%	31%[C]	41%	41%[C]
Somewhat negative	25%	25%	25%	25%[F]	30%[F]	23%	12%
Very negative	23%	26%[B]	19%	24%	17%	21%	19%
No impact	5%	6%	5%	6%	5%	1%	11%
Don't know	10%	9%	9%	11%[DEF]	4%	1%	5%

Q8b: In general, what type of impact do you think self-driving vehicles will have on your community? Would you say the impact would be:
[ABCDE] Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.
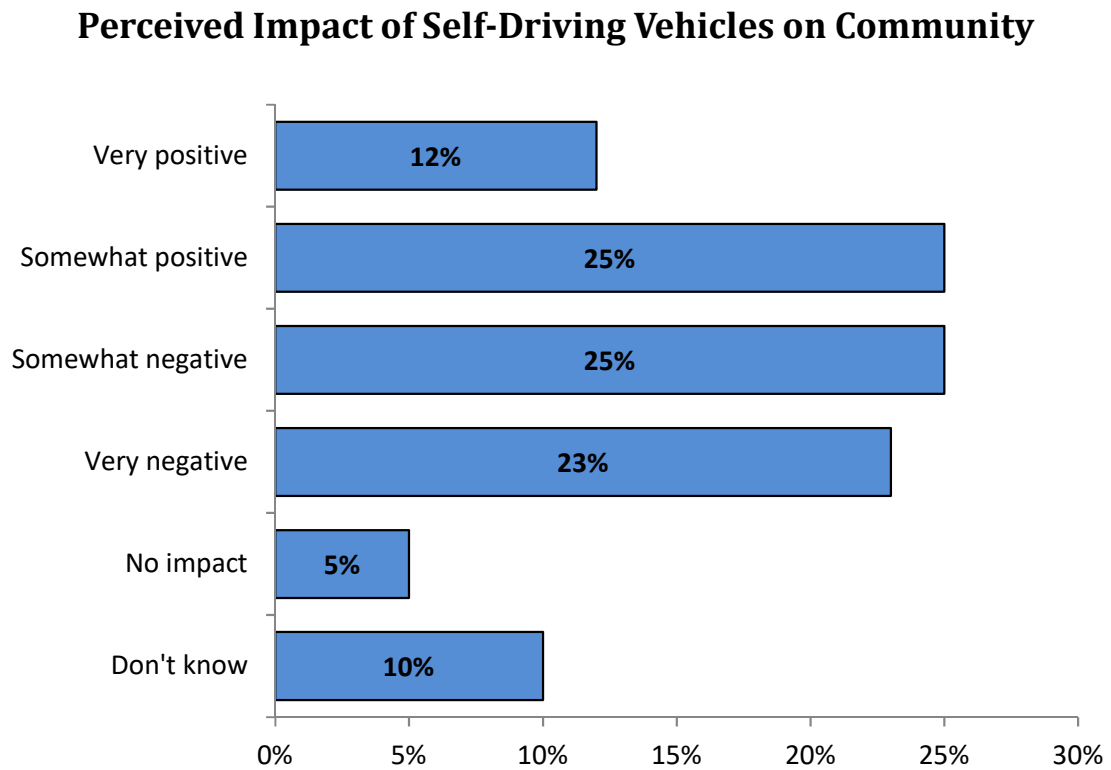
C.   Specific Impact of Self-Driving Vehicles

1.   Specific Impact of Self-Driving Vehicles by Year

Overall, Michigan residents continued to either have a negative opinion or be uncertain about the impact of self-driving vehicles on key measures in 2019, as they were in 2017. In four of the five instances evaluated, the opinion in 2019 was significantly more negative than in 2017. Residents were more likely in 2019 than in 2017 to believe that self-driving vehicles would negatively increase the severity and number of crashes, traffic congestion and travel times, and insurance rates. Residents, however, were more likely to believe that the fuel economy of vehicles would positively increase rather than decrease.

Figure 13: Specific Impact of Self-Driving Vehicles by Year

Specific Impact of Self-Driving Vehicles by Year

		Decrease	No Impact	Increase	Don't know
The severity of crashes	2019	31%	13%	41%*	15%
	2017	31%	13%	27%	29%
The number of crashes	2019	30%	10%	49%*	11%
	2017	33%	11%	33%	23%
Traffic congestion and travel times	2019	24%	26%	34%*	16%
	2017	27%	23%	24%	26%
Insurance rates	2019	19%	11%	54%*	16%
	2017	19%	10%	37%	34%
Fuel economy	2019	18%	29%	35%	18%
	2017	16%	23%	33%	28%

Legend: ■ Decrease   □ No Impact   ■ Increase   □ Don't know
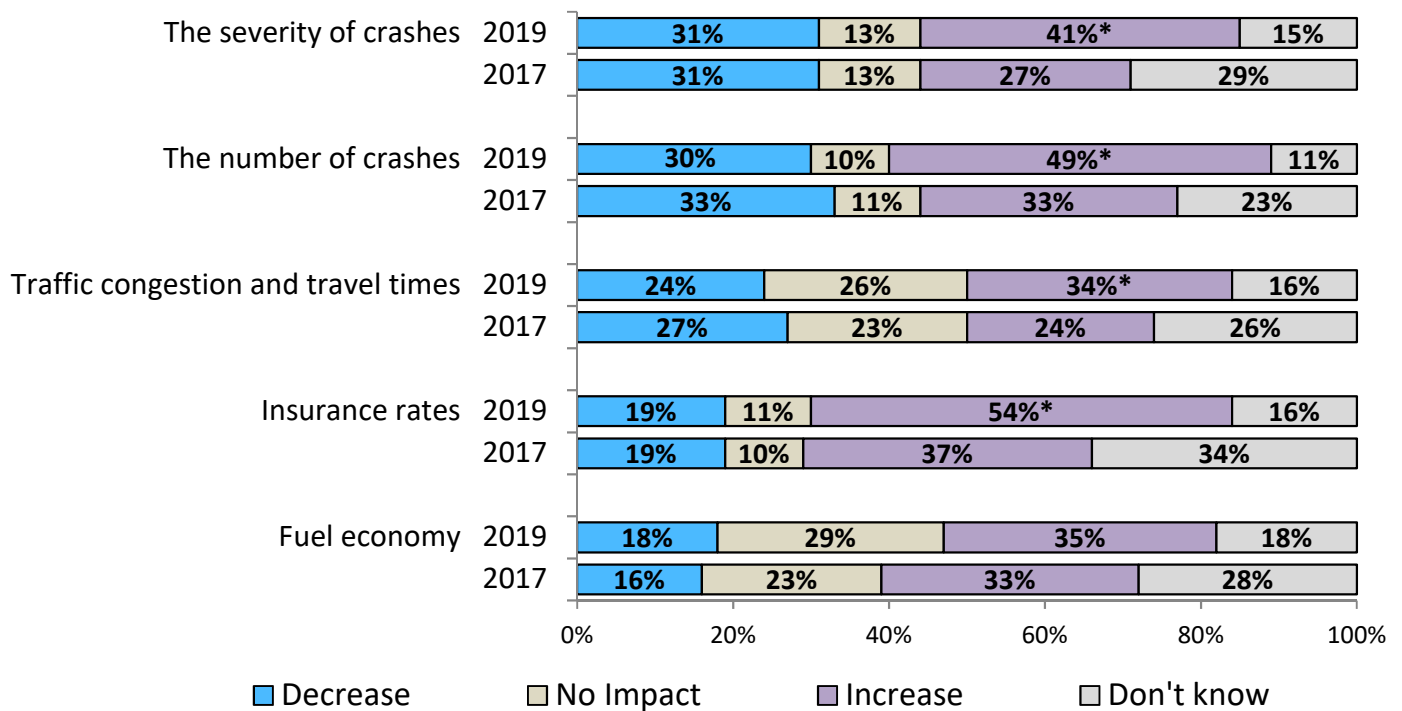
*Percentage is significantly different from 2017

Q8c: Please indicate if you think self-driving vehicles will increase, decrease, or have no impact on each of the following items.

2.   Specific Impact of Self-Driving Vehicles by MDOT Region

As noted on the broader issues of safety and overall impact of self-driving vehicles earlier, residents in the Superior and North Regions of the state were less likely than residents in the other areas of the state to believe there will be a positive impact on the severity and number of crashes or on traffic congestion and travel times. Residents in the Metro and Bay regions were most optimistic about the impact of self-driving vehicles on insurance rates.

Table 21: Perceived Impact of Self-Driving Vehicles by MDOT Region:
Summary of Positive Impact

	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Impact - Decrease								
The severity of crashes	31%	17%	24%	26%	34%^{AB}	32%^{A}	32%^{A}	33%^{AB}
The number of crashes	30%	16%	22%	29%^{A}	29%^{A}	29%^{A}	29%^{A}	32%^{AB}
Traffic congestion and travel times	24%	17%	15%	24%^{B}	25%^{B}	23%	21%	27%^{AB}
Insurance rates	19%	10%	15%	17%	22%^{A}	17%	17%	22%^{AB}
Impact - Increase								
Fuel economy	35%	30%	37%	37%	35%	28%	36%	36%

Q8c: Please indicate if you think self-driving vehicles will increase, decrease or have no impact on each of the following items.
^{ABCDEFG} Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

3.   *Specific Impact of Self-Driving Vehicles by Key Subgroups*

Again, similar to all other questions regarding self-driving vehicles, males, residents under age 50, and those with higher income were all more likely than those in the comparative groups to believe there will be a positive impact from self-driving vehicles on all evaluated issues. There were no significant differences between ethnicities.

**Table 22a: Perceived Impact of Self-Driving Vehicles by Key Subgroups:
Summary of Positive Impact**

	Total	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Impact - Decrease						
The severity of crashes	31%	39%[B]	23%	40%[E]	32%[E]	25%
The number of crashes	30%	36%[B]	23%	40%[E]	33%[E]	21%
Traffic congestion and travel times	24%	28%[B]	19%	36%[DE]	25%[E]	16%
Insurance rates	19%	25%[B]	14%	27%[E]	22%[E]	13%
Impact - Increase						
Fuel economy	35%	40%[B]	30%	43%[E]	38%[E]	28%

Q8c: Please indicate if you think self-driving vehicles will increase, decrease or have no impact on each of the following items.
[ABCDE] Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.

**Table 22b: Perceived Impact of Self-Driving Vehicles by Key Subgroups:
Summary of Positive Impact (Continued)**

	Total	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Impact - Decrease							
The severity of crashes	31%	24%	37%A	30%	34%	43%	22%
The number of crashes	30%	22%	35%A	29%	28%	47%	27%
Traffic congestion and travel times	24%	21%	27%A	23%	22%	39%	26%
Insurance rates	19%	16%	23%A	18%	25%	28%	17%
Impact - Increase							
Fuel economy	35%	30%	39%A	34%	34%	46%	41%

*Q8c: Please indicate if you think self-driving vehicles will increase, decrease or have no
impact on each of the following items.*
ABCDEF Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence
level.

VIII. Fees/Tolls

A.   Willing to Pay Travel Fees by Year

Nearly three in five (59%) Michigan residents indicated being willing to pay some type of fee for an improved travel experience (41% selected "none"). As in 2017, roughly one-third reported they would pay a toll for access to high-quality, better maintained roads (36%) and/or for access to an alternative roadway with faster travel times (32%).

In 2019, one in four (24%) residents reported being willing to pay for ride-hail services such as Uber or Lyft and 13% say they would pay a fee to use bike and electric-scootering sharing services.

Figure 14: Willing to Pay Travel Fees
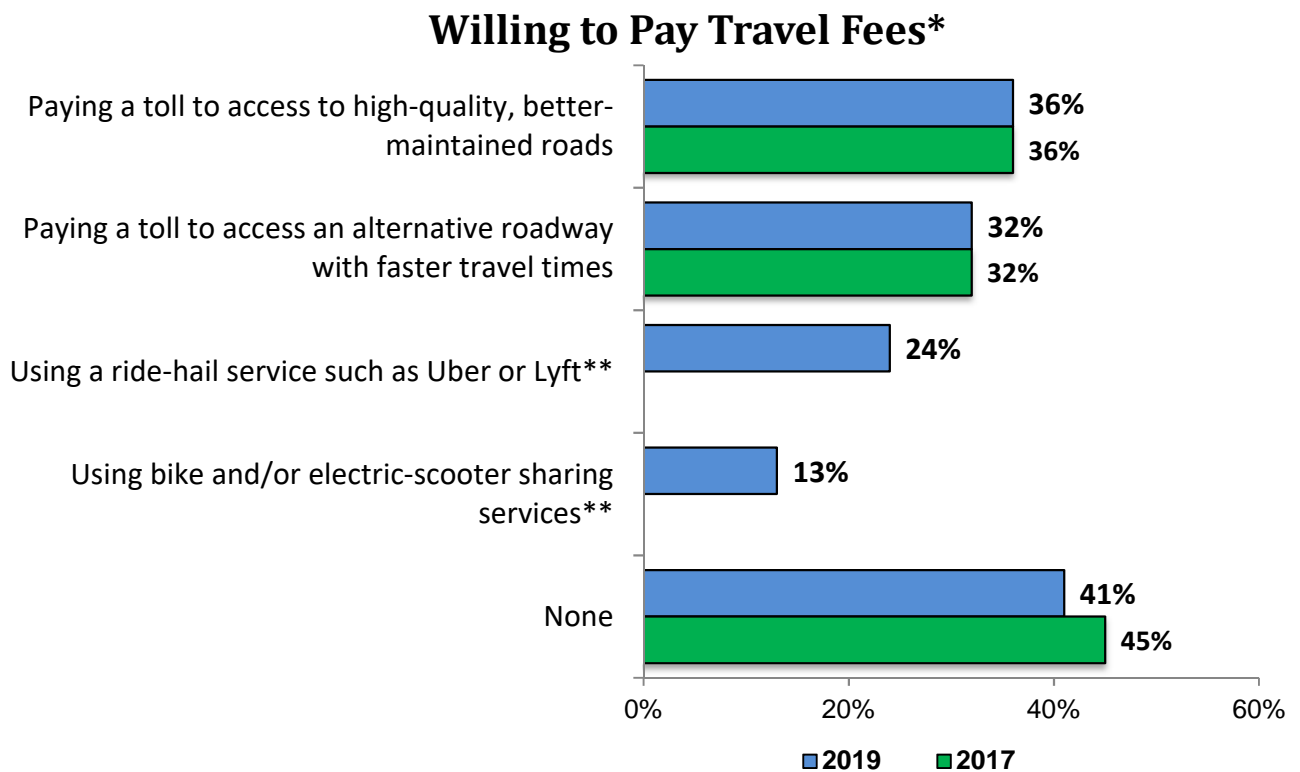
Willing to Pay Travel Fees*

Category	2019	2017
Paying a toll to access to high-quality, better-maintained roads	36%	36%
Paying a toll to access an alternative roadway with faster travel times	32%	32%
Using a ride-hail service such as Uber or Lyft**	24%	
Using bike and/or electric-scooter sharing services**	13%	
None	41%	45%

■ 2019   ■ 2017

Q4: *For which of the following, if any, would you be willing to pay a fee for an improved travel experience?* Select all that apply.
*Multiple selections allowed; percentages will not add to 100%.
**Not asked in 2017.

B.   Willing to Pay Travel Fees by MDOT Region

Overall interest in the travel fee options ranged from 52% to 65% across the seven MDOT regions. Residents in the Metro Region were the most willing to pay fees, with 42% willing to pay for access to high-quality, better maintained roads (vs. 27% to 35% for other regions). While there were no statistically significant differences, interest in paying a toll for access to an alternative roadway with faster travel times ranged from 25% for the North Region to 35% for the Southwest Region.

Ride-hail services were most desirable to those in the Superior (32%) and Metro (27%) Regions. Bike and/or scooter-share services were significantly more popular among residents of Southwest Region than in any other region (26% vs. 9% to 14%).

Table 23: Willing to Pay Travel Fees by MDOT Region

Toll Road Scenarios*	Total	Superior (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Paying a toll to access to high-quality, better-maintained roads	36%	28%	33%	27%	34%	33%	35%	42%[ABC]
Paying a toll to access an alternative roadway with faster travel times	32%	32%	25%	29%	32%	35%	31%	33%
Using a ride-hail service such as Uber or Lyft	24%	32%[CD]	23%	19%	18%	27%	24%	27%[CD]
Using bike and/or electric-scooter sharing services	13%	11%	13%	14%	10%	26%[ABCDFG]	9%	13%
None	41%	42%	43%	48%[G]	46%[G]	38%	42%	35%

Q4: *For which of the following, if any, would you be willing to pay a fee for an improved travel experience?* Select all that apply.

[ABCDEFG] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

*Multiple selections allowed; percentages will not add to 100%.

C.   Willing to Pay Travel Fees by Key Subgroups

As shown below, willingness to pay fees of any kind was significantly higher among residents who commute to work. Younger residents were generally more likely to be willing to pay travel fees of any kind. Non-white residents were more likely than White residents to pay for ride-hail services such as Uber and Lyft (40% and 32% vs. 21%). In addition, residents from households with annual incomes of $50,000 or higher were significantly more likely than those earning less to pay a toll to access an alternate roadway with faster travel times (37% vs. 25%). There were no significant differences between male and female residents.

Table 24a: Willing to Pay Travel Fees by Key Subgroups

Travel Fee Scenarios*	Total	Gender		Age			Work Outside the Home	
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)	Yes (F)	No (G)
Paying a toll to access to high-quality, better-maintained roads	36%	34%	38%	42%^{E}	39%^{E}	29%	38%^{G}	29%
Paying a toll to access an alternative roadway with faster travel times	32%	32%	32%	38%^{E}	38%^{E}	23%	35%^{G}	24%
Using a ride-hail service such as Uber or Lyft	24%	24%	24%	34%^{DE}	24%	18%	26%^{G}	19%
Using bike and/or electric-scooter sharing services	13%	13%	13%	20%^{E}	14%^{E}	8%	15%^{G}	7%
None	41%	42%	39%	28%	36%	51%^{CD}	35%	52%^{F}

Q4: *For which of the following, if any, would you be willing to pay a fee for an improved travel experience?* Select all that apply.
^{ABCDEFG} Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.
*Each scenario was a separate question; response percentages will not add up to 100%.

Table 24b: Willing to Pay Travel Fees by Key Subgroups (Continued)

Travel Fee Scenarios*	Total	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Paying a toll to access to high-quality, better-maintained roads	36%	33%	37%	35%	36%	40%	35%
Paying a toll to access an alternative roadway with faster travel times	32%	25%	37%^{A}	32%	30%	36%	34%
Using a ride-hail service such as Uber or Lyft	24%	26%	23%	21%	32%^{C}	40%	32%
Using bike and/or electric-scooter sharing services	13%	14%	13%	11%	16%	20%	29%^{CD}
None	41%	43%	38%	43%^{D}	33%	29%	32%

Q4: *For which of the following, if any, would you be willing to pay a fee for an improved travel experience?*
Select all that apply.

^{ABCDEF} Indicates significantly higher percentage compared to corresponding subgroup(s) at 95% confidence level.

*Each scenario was a separate question; response percentages will not add up to 100%.

IX.   Online Shopping/Packages Delivered to Home

A.   Online Shopping Habits of Michigan Residents Overall

One-third (33%, 19% weekly + 11% every few days + 3% daily) of Michigan residents reported having packages delivered to their home at least weekly from online shopping. More than one-half received packages at least once a month (58%; 33% weekly or more frequently + 25% monthly). An additional 36% "occasionally" received packages from shopping online. Only 6% reported "never" shopping online.

Figure 15: Online Shopping Habits of Michigan Residents Overall
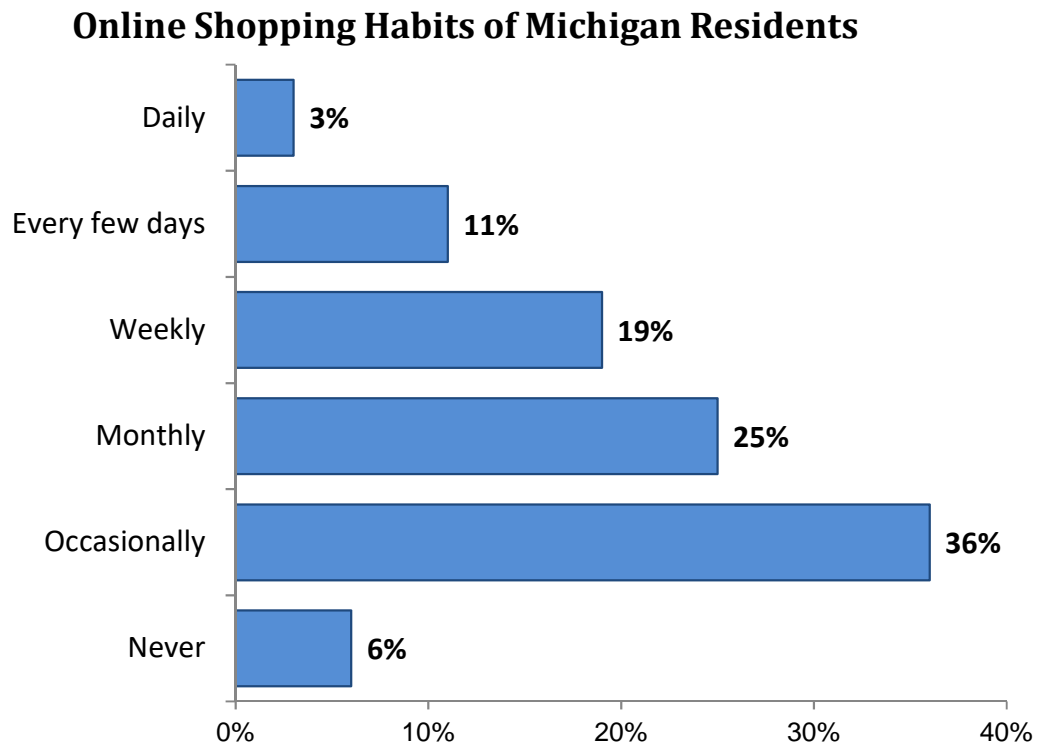
Online Shopping Habits of Michigan Residents

Category	Percentage
Daily	3%
Every few days	11%
Weekly	19%
Monthly	25%
Occasionally	36%
Never	6%

Q9: On average, how often do you have packages delivered to your home from online/Internet shopping?

B.   Online Shopping Habits of Michigan Residents by MDOT Region

Online shopping habits were similar across MDOT regions with few meaningful differences. Weekly or more frequent online shopping ranges from 30% for Southwest Region to 42% for Superior Region. One in ten (10%) North Region residents reported "never" receiving on-line shopping deliveries compared to 4% to 8% for all other regions.

Table 25: Online Shopping Habits of Michigan Residents by MDOT Region

Frequency	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Daily	3%	-	2%	5%	4%	3%	2%	3%
Every few days	11%	16%	10%	12%	9%	11%	9%	12%
Weekly	19%	26%^{C}	21%	14%	17%	16%	20%	21%
Monthly	25%	19%	17%	25%	26%^{B}	27%^{B}	27%^{B}	26%^{B}
Occasionally	36%	32%	41%	39%	39%	35%	38%	32%
Never	6%	7%	9%^{F}	5%	5%	8%	4%	6%

Q9: On average, how often do you have packages delivered to your home from online/Internet shopping?
ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

C.   Online Shopping Habits of Michigan Residents by Key Subgroups

As expected, residents under 55 reported shopping online significantly more frequently than those 55 and older (40% reported receiving packages at least weekly vs. 23%). Older residents were significantly more likely to report "never" having deliveries from online shopping or only receiving them occasionally. Men and women reported similar online shopping habits with 35% of men suggesting they receive packages at least weekly compared to 31% of women.

Unsurprisingly, higher income residents reported receiving online shopping deliveries more frequently than those with annual household incomes below $50,000 (42% at least weekly vs. 22%, respectively). Of note, Hispanic residents received online packages the most frequently – 42% at least weekly compared to 35% for White residents and 28% for Black residents.

Table 26a: Online Shopping Habits of Michigan Residents by Key Subgroups

Frequency	Total 2019	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Daily	3%	3%	3%	6%^E	4%	1%
Every few days	11%	12%	10%	12%	13%^E	8%
Weekly	19%	20%	18%	22%^E	23%^E	14%
Monthly	25%	22%	28%^A	34%^{DE}	26%^E	20%
Occasionally	36%	36%	36%	24%	30%	47%^{CD}
Never	6%	7%	5%	2%	4%	10%^{CD}

Q9: On average, how often do you have packages delivered to your home from online/Internet shopping?
^{ABCDE} Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup.

Table 26b: Online Shopping Habits of Michigan Residents by Key Subgroups (Continued)

Frequency	Total 2019	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Daily	3%	2%	4%^A	4%^E	3%	1%	2%
Every few days	11%	7%	14%^A	11%^F	10%	19%	5%
Weekly	19%	13%	24%^A	19%	15%	22%	18%
Monthly	25%	25%	27%	24%	30%	19%	35%
Occasionally	36%	44%^B	29%	36%	36%	34%	37%
Never	6%	9%^B	2%	6%	6%	5%	3%

Q9: On average, how often do you have packages delivered to your home from online/Internet shopping?
^{ABCDEF} Indicates significantly higher percentage at the 95% confidence level than corresponding subgroup.

X.   Likelihood to use Passenger Rail/Amtrak

A.   Likelihood to use Passenger Rail/Amtrak Overall

A majority of Michigan residents (60% to 71%) reported being "very" or "somewhat likely" to use passenger rail service/Amtrak if any of the proposed improvements were made. The most appealing improvement was "additional routes serving more communities around Michigan" with 71% being very likely (44%) or somewhat likely (27%) to use rail if this change were made.

Figure 16: Likelihood to use Passenger Rail/Amtrak Overall

Likelihood to use Passenger Rail/Amtrak

	Very likely	Somewhat likely	Not very likely	Not at all likely	Don't know
Additional routes serving more communities around Michigan	44%	27%	11%	14%	4%
Faster trains to reduce travel times between destinations	35%	29%	13%	17%	6%
Improved on-time arrival at your destination	35%	28%	12%	19%	6%
Upgraded train cars for passenger seating and café car	28%	33%	15%	19%	5%
Increased frequencies of trains on existing routes	27%	33%	14%	20%	6%

Table 27: Likelihood to use Passenger Rail/Amtrak Overall

Improvements	Very + Somewhat likely	Very likely	Some-what likely	Not very likely	Not at all likely	Don't know
Additional routes serving more communities around Michigan	71%	44%	27%	11%	14%	4%
Faster trains to reduce travel times between destinations	64%	35%	29%	13%	17%	6%
Improved on-time arrival at your destination	63%	35%	28%	12%	19%	6%
Upgraded train cars for passenger seating and café car	61%	28%	33%	15%	19%	5%
Increased frequencies of trains on existing routes	60%	27%	33%	14%	20%	6%

Q6: How likely would you be to use passenger rail/Amtrak if the following were improved?

B.   Likelihood to use Passenger Rail/Amtrak by MDOT Region

For all five potential improvements, Metro Region residents most often reported being "very" or "somewhat likely" to use passenger rail/Amtrak for all (64% to 76% compared to 49% to 71% for other regions).

Table 28: 2019 Likelihood to use Passenger Rail/Amtrak by MDOT Region: Summary of "Very Likely" + "Somewhat Likely"

Improvements	Total	Super (A)	North (B)	Grand (C)	Bay (D)	SW (E)	Univ (F)	Metro (G)
Additional routes serving more communities around Michigan	71%	68%	71%	70%	65%	63%	70%	76%DE
Faster trains to reduce travel times between destinations	64%	58%	52%	64%B	55%	59%	66%BD	71%ABDE
Improved on-time arrival at your destination	63%	52%	53%	62%	54%	68%ABD	64%B	69%ABD
Upgraded train cars for passenger seating and café car	61%	54%	52%	58%	50%	62%D	63%BD	66%BD
Increased frequencies of trains on existing routes	60%	53%	49%	62%B	53%	58%	59%B	64%BD

Q6: How likely would you be to use passenger rail/Amtrak if the following were improved?
ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

C.   Likelihood to use Passenger Rail/Amtrak by Key Subgroups

For all five potential improvements, females were significantly more likely than males to say they would be "very" or "somewhat likely" to use passenger rail if the changes were made (66% to 76% of women vs. 54% to 66% of men). Residents under 55, those with lower incomes and minority residents were typically significantly more likely than their comparative groups to be "very" or "somewhat likely" to use passenger rail if the potential improvements were made.

Table 29a: 2019 Likelihood to use Passenger Rail/Amtrak by Key Subgroups: Summary of "Very Likely" + "Somewhat Likely"

Improvements	Total	Gender		Age		
		Male (A)	Female (B)	18-34 (C)	35-54 (D)	55+ (E)
Additional routes serving more communities around Michigan	71%	66%	76%A	77%E	71%	68%
Faster trains to reduce travel times between destinations	64%	60%	69%A	74%E	67%E	56%
Improved on-time arrival at your destination	63%	57%	70%A	73%DE	63%	57%
Upgraded train cars for passenger seating and café car	61%	54%	67%A	66%E	62%E	55%
Increased frequencies of trains on existing routes	60%	54%	66%A	65%E	61%	56%

Q6: How likely would you be to use passenger rail/Amtrak if the following were improved?
ABCDE Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

Table 29b: 2019 Likelihood to use Passenger Rail/Amtrak by Key Subgroups: Summary of "Very Likely" + "Somewhat Likely"

Improvements	Total	Income		Ethnicity			
		<$50K (A)	$50K+ (B)	White (C)	Black (D)	Hispanic (E)	Other (F)
Additional routes serving more communities around Michigan	71%	76%B	69%	69%	80%C	78%	82%C
Faster trains to reduce travel times between destinations	64%	64%	65%	61%	76%C	77%C	77%C
Improved on-time arrival at your destination	63%	71%B	60%	58%	83%C	75%C	83%C
Upgraded train cars for passenger seating and café car	61%	66%B	58%	56%	75%C	75%C	75%C
Increased frequencies of trains on existing routes	60%	66%B	57%	56%	77%C	73%	65%

Q6: How likely would you be to use passenger rail/Amtrak if the following were improved?
ABCDE Indicates significantly higher percentage than corresponding subgroup at 95% confidence level

XI.   Conclusions and MDOT Region Summaries

A.   Conclusions

While the largest proportion of residents believed the quality of the Michigan transportation system has stayed the same in the past 3 (three) years, overall perceptions of the quality of transportation were more negative than expressed in 2017, with the primary driver of this negative rating being residents' complaints about poor road conditions and maintenance. In light of this finding, it is not surprising that maintaining the transportation system was one of the transportation planning requirements most in need of improvement.

While maintenance was among the top-rated improvements desired by residents in all MDOT regions, it is important to note that other transportation modes and planning requirements were also rated as needing a "great deal" of improvement or selected as issues that should be a high priority within the state transportation system. These key issues included a focus on improving the transportation system so that the environment, overall quality of life and prosperity of the state is better along with addressing the issue of local traffic congestion and providing alternative transportation services for underserved populations such as seniors and persons with disabilities.

Many residents, however, also indicated they would be willing to pay a fee in order to access better maintained and higher quality roadways. This demonstrates there is a foundation of support for fees and shows that at least a portion of Michigan residents understand that improved road maintenance comes at a cost and that they are willing to help subsidize it.

As in 2017, there was a high level of disparity between MDOT regions with the ratings given for the quality of transportation in the state. While there was a decline in scores in all seven regions, the biggest declines were observed in regions that had the highest scores in 2017 – Bay Region, Grand Region, and the North Region. It would be prudent to review what may have happened in those regions to bring about such a substantial shift in perceptions.

Michigan residents expressed a desire to participate in a long-range transportation planning process. Their preferred methods of participation were split fairly evenly between U.S. mail, email and an interactive website. In addition, residents rely on both traditional sources (TV, radio) and digital sources (apps, social media) for information about Michigan transportation issues. Therefore, MDOT will need to educate and engage the public through a variety of channels to maximize public participation in a long-range transportation planning process.

Michigan residents continued to hold an uncertain opinion of self-driving vehicles. A majority believed self-driving vehicles would have a negative impact or expressed a general lack of knowledge about these vehicles. This presents an opportunity to increase public dialogue to improve understanding about the impact these vehicles will have on the local communities and the state overall.

A majority of Michigan residents indicated they were embracing the availability of online shopping and home delivery on at least a monthly basis. Clearly residents see and take advantage of the value and convenience of shopping from home rather than making trips to the store. This behavior shift points to a need for the state to plan for additional delivery vehicles/services on roads as online shopping increases.

Finally, residents showed notable interest in using Amtrak service as a travel option if improvements are made to the system, particularly if additional routes are added.

Table 30: Summary of Statewide Key Metrics 2017 vs. 2019

Key Metrics	2019 Total	2017 Total
Perception of Quality of Transportation (Better)	**21%**	**22%**
Quality of Transportation Net Better Score*	-9	0
Top 2 Reasons for Better Rating		
Roads are getting better/ improving	22%	NA
Roads/ Highways are fixed	21%	NA
Top 2 Reasons for Worse Rating		
Poor road conditions/maintenance	68%	NA
Repairs don't last long	9%	NA
Top 3 Areas to Obtain Transportation Information		
Television	46%	48%
Radio	37%	42%
Smartphone Traffic/Map App	37%	40%
Top 3 Positive Impacts from Self-Driving Vehicles		
Fuel economy (Increase)	35%	33%
The severity of crashes (Decrease)	31%	31%
The number of crashes (Decrease)	30%	32%
Willingness to Pay Fees	59%	55%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

B.   MDOT Region Summaries

1.   Overview of Bay Region

Residents in the Bay Region were most concerned with the maintenance and repair of the existing roads in the region. They had the lowest Net Better Score of the seven regions and the reasons for the low rating focus on the poor road conditions and repairs; this score dropped 21 points from 2017 (Net Better +2). Maintenance of the roads was the federal planning requirement most likely to be selected as needing improvement and it was also selected as the issue that should be the highest priority for the state. Additionally, they were most likely to be willing to pay additional fees in order to access high quality, better maintained roads.

Table 31: Bay Region Summary

Key Metrics	Bay
Quality of Transportation Net Better Score*	**-19**
Top 2 Reasons for Better Rating	
Roads/ Highways are fixed	24%
Roads are getting better/ improving	20%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	74%
Repairs don't last long	12%
Top Rated Planning Requirements	
Maintain the existing transportation system	79%
Protect and enhance the environment, promote energy conservation, improve quality of life	76%
Top 2 Issues with High Priority	
Maintain existing roads	94%
Reduce traffic congestion	66%
Willing to Participate in Long-range Transportation Plan	**81%**
Top Method: Through the U.S. mail	44%
Top 2 Areas to Obtain Transportation Information	
Television	49%
Radio	34%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	35%
The severity of crashes (Decrease)	34%
Willingness to Pay Travel Fees	**54%**
Top Reason: To access high-quality, better-maintained roads	34%
Top frequency of Packages Delivered: Occasionally	**39%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	65%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

2. **Overview of Grand Region**

Residents in the Grand Region had the highest Net Better Score of the seven regions due to perceived improvement of roads and bus services; although this score was down 14 points from 2017 (Net Better +14). However, they were still most concerned with maintaining the existing roads and protecting/enhancing the environment. The area most likely to be rated as needing improvement among Grand Region residents was to maintain the existing transportation system/roads, which also happened to be their highest priority. Lastly, they were tied with the residents in the North Region to be most likely to consider participating in a long-range transportation planning process, but were least likely of residents across all seven regions to be willing to pay any sort of additional travel fees.

Table 32: Grand Region Summary

Key Metrics	Grand
Quality of Transportation Net Better Score*	**0**
Top 2 Reasons for Better Rating	
Roads are getting better/ improving	22%
Improved the bus service/ more bus routes	20%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	57%
Traffic congestion has gotten worse	14%
Top Rated Planning Requirements	
Maintain the existing transportation system	83%
Protect and enhance the environment, promote energy conservation, improve quality of life	81%
Top 2 Issues with High Priority	
Maintain existing roads	91%
Expand transportation services for seniors/persons with disabilities	71%
Willing to Participate in Long-range Transportation Plan	**85%**
Top Method: Through the U.S. mail	40%
Top 2 Areas to Obtain Transportation Information	
Television	44%
Smartphone Traffic/Map App	36%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	37%
The number of crashes (Decrease)	29%
Willingness to Pay Travel Fees	**52%**
Top Reason: To access alternative roadway with faster travel times	29%
Top frequency of Packages Delivered: Occasionally	**39%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	70%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

3.   **Overview of Metro Region**

Residents in the Metro Region were most concerned with enhancing and improving the reliability of the transportation system and improving road maintenance. Although still a negative score, these residents had one of the higher Net Better Scores across the seven regions due to perceived improved bus services and highways; this score was only a slight decrease compared to 2017 (Net Better -1). Residents in this region placed the highest priority on maintaining the existing roads. They were most likely to indicate willingness to participate in a long-range transportation planning process by responding to an email and were more likely than residents across all seven regions to be willing to pay any sort of additional travel fees; particularly to access better-maintained road.

Table 33: Metro Region Summary

Key Metrics	Metro
Quality of Transportation Net Better Score*	**-4**
Top 2 Reasons for Better Rating	
Improved the bus service/ more bus routes	24%
Roads/ Highways are fixed	20%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	59%
Need to improve bus service/ more bus routes	14%
Top Rated Planning Requirements	
Enhance the transportation system to support MI prosperity	85%
Maintain the existing transportation system	81%
Improve the reliability of the transportation system	81%
Top 2 Issues with High Priority	
Maintain existing roads	92%
Reduce traffic congestion	76%
Willing to Participate in Long-range Transportation Plan	**84%**
Top Method: Responding to an email	38%
Top 2 Areas to Obtain Transportation Information	
Television	48%
Smartphone Traffic/Map App	44%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	36%
The severity of crashes (Decrease)	33%
Willingness to Pay Travel Fees	**65%**
Top Reason: To access high-quality, better-maintained roads	42%
Top frequency of Packages Delivered: Occasionally	**32%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	76%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

4.   Overview of North Region

Residents in the North Region had a negative Net Better Score. This was driven largely by perceptions of poor road conditions; this was a notable decline of 23 points compared to 2017 (Net Better +9). In addition to road maintenance, the areas in need of the most improvement within the state were to enhance the transportation system in support of the state's economic prosperity and to promote efficiency within the transportation system. North Region residents were also more likely than residents in the other six regions to indicate expanding the transportation services for seniors or persons with disabilities should be a high priority for the state. Lastly, they were tied with the residents in the Grand Region to be most likely to consider participating in a long-range transportation planning process.

Table 34: North Region Summary

Key Metrics	North
Quality of Transportation Net Better Score*	**-14**
Top 2 Reasons for Better Rating	
Roads are getting better/ improving	49%
Roads/ Highways are fixed	12%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	73%
Bridges need repair	8%
Top Rated Planning Requirements	
Enhance the transportation system to support MI prosperity	76%
Promote efficient management and operation of the transportation system	74%
Top 2 Issues with High Priority	
Maintain existing roads	89%
Expand transportation services for seniors/persons with disabilities	61%
Willing to Participate in Long-range Transportation Plan	**85%**
Top Method: Through the U.S. mail	41%
Top 2 Areas to Obtain Transportation Information	
Television	44%
Radio	32%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	37%
The severity of crashes (Decrease)	24%
Willingness to Pay Travel Fees	**57%**
Top Reason: To access high-quality, better-maintained roads	33%
Top frequency of Packages Delivered: Occasionally	**41%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	71%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

5.   Overview of Southwest Region

Residents in the Southwest Region believed the state needs to focus on improving the roads and maintaining the existing transportation system. In fact, this region was tied with the Bay Region for having the lowest Net Better Score, primarily due to poor roads and repairs; this score was down 13 points in comparison to 2017 (Net Better -6). According to residents, the areas in most need of improvement were enhancing the transportation system to support economic prosperity and maintaining the existing system, that latter of which was also their highest priority. Reducing traffic congestion was also a priority for these residents. Consequently, it is not surprising they were most likely to be willing to pay an additional travel fee for access to alternative roadways with faster travel times compared to all other MDOT regions.

Table 35: Southwest Region Summary

Key Metrics	Southwest
Quality of Transportation Net Better Score*	**-19**
Top 2 Reasons for Better Rating	
Roads/ Highways are fixed	37%
Improved the bus service/ more bus routes	34%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	82%
Repairs don't last long	20%
Top Rated Planning Requirements	
Enhance the transportation system to support MI prosperity	79%
Maintain the existing transportation system	78%
Top 2 Issues with High Priority	
Maintain existing roads	95%
Reduce traffic congestion	60%
Willing to Participate in Long-range Transportation Plan	**84%**
Top Method: Through the U.S. mail	42%
Top 2 Areas to Obtain Transportation Information	
Television	48%
Radio	36%
Top 2 Positive Impacts from Self-Driving Vehicles	
The severity of crashes (Decrease)	32%
The number of crashes (Decrease)	29%
Willingness to Pay Travel Fees	**62%**
Top Reason: To access an alternative roadway with faster travel times	35%
Top frequency of Packages Delivered: Occasionally	**35%**
Top Reason to Increase Likelihood to use Amtrak	
Improved on-time arrival at your destination	68%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

6.   Overview of Superior Region

The Net Better Score dropped six points from 2017 (Net Better -2). As with residents in the other regions, a majority of residents in the Superior Region also believed the area most in need of improvement, and hence a high priority, was the maintenance of the existing roads/transportation system and the improvement of the efficiency and operation of the transportation system. A notable proportion of these residents, however, also felt that making highway turning and passing lanes should be a high priority issue for the state. Interestingly, this was the only region to be highly likely to pay a fee for using a ride-hail service and also believed traffic congestion and travel times will decrease due to self-driving vehicles.

Table 36: Superior Region Summary

Key Metrics	Superior
Quality of Transportation Net Better Score*	**-8**
Top 2 Reasons for Better Rating	
Roads are getting better/ improving	15%
Good job of winter maintenance	13%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	75%
Improve bus service/ more bus routes	7%
Top Rated Planning Requirements	
Maintain the existing transportation system	77%
Promote efficient management and operation of the transportation system	72%
Top 2 Issues with High Priority	
Maintain existing roads	91%
Add highway turning and passing lanes	62%
Willing to Participate in Long-range Transportation Plan	**82%**
Top Method: Through the U.S. mail	43%
Top 2 Areas to Obtain Transportation Information	
Television	47%
Radio	32%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	30%
Traffic congestion and travel times (Decrease)	17%
Willingness to Pay Travel Fees	**58%**
Top Reason: Using a ride-hail service such as Uber or Lyft	32%
Top frequency of Packages Delivered: Occasionally	**32%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	68%

*" Net Better Score" = the "better" percentage minus the "worse" percentage

7.   Overview of University Region

Road conditions were the highest concern for residents living in the University Region. They were highly likely to select it as the area with the highest priority, and it was also the primary driver of their "worse" rating for the quality of the transportation system in the state. The Net Better Score dropped eight points compared to 2017 (Net Better -9). Similar to residents living in the other regions, they felt the federal planning requirements of maintaining the existing transportation system and enhancing the transportation system in a way that builds its economic prosperity need improvement. Traffic congestion was selected as a high priority by a majority of University Region residents as well. Additionally, they were more likely to indicate willingness to participate in a long-range transportation planning process through an interactive website than residents in the other six MDOT regions.

Table 37: University Region Summary

Key Metrics	University
Quality of Transportation Net Better Score*	**-17**
Top 2 Reasons for Better Rating	
Roads are getting better/ improving	34%
Roads/ Highways are fixed	18%
Top 2 Reasons for Worse Rating	
Poor road conditions/maintenance	79%
Repairs don't last long	9%
Top Rated Planning Requirements	
Maintain the existing transportation system	82%
Enhance the transportation system to support MI prosperity	79%
Top 2 Issues with High Priority	
Maintain existing roads	91%
Reduce traffic congestion	68%
Willing to Participate in Long-range Transportation Plan	**82%**
Top Method: Through an interactive website	42%
Top 2 Areas to Obtain Transportation Information	
Television	41%
Radio	37%
Top 2 Positive Impacts from Self-Driving Vehicles	
Fuel economy (Increase)	36%
The severity of crashes (Decrease)	32%
Willingness to Pay Travel Fees	**58%**
Top Reason: To access high-quality, better-maintained roads	35%
Top frequency of Packages Delivered: Occasionally	**39%**
Top Reason to Increase Likelihood to use Amtrak	
Additional routes serving more communities around Michigan	70%

*"Net Better Score" = the "better" percentage minus the "worse" percentage

Appendix A

Results by Michigan Prosperity Regions

Results by Michigan Prosperity Regions

In most cases, the Michigan prosperity region names are abbreviated due to formatting constraints in tables and figures. The table below explains the abbreviations used throughout the appendix for each prosperity region.

Table A-1: Michigan Prosperity Region Abbreviations

Prosperity Region #	Michigan Prosperity Region	Abbreviations	MDOT Region
1	Upper Peninsula Prosperity Alliance	UP	Superior Region
2	Northwest Prosperity Region	NW	North Region
3	Northeast Prosperity Region	NE	North Region
4	West Michigan Prosperity Alliance	W	Grand Region
5	East Central Michigan Prosperity Region	EC	Bay Region
6	East Michigan Prosperity Region	E	Bay Region
7	South Central Prosperity Region	SC	University Region
8	Southwest Prosperity Region	SW	Southwest Region
9	Southeast Michigan Prosperity Region	SE	University Region
10	Detroit Metro Prosperity Region	DM	Metro Region

MDOT began reporting findings by both the original MDOT regions and the Michigan prosperity regions in 2015. The following map shows how the 10 prosperity regions fit into the seven MDOT regions. Four of the geographic regions are the same; however, three MDOT regions encompass two Michigan prosperity regions. Thus, the results shown in this section will largely be the same as was shown in the main body of the report.
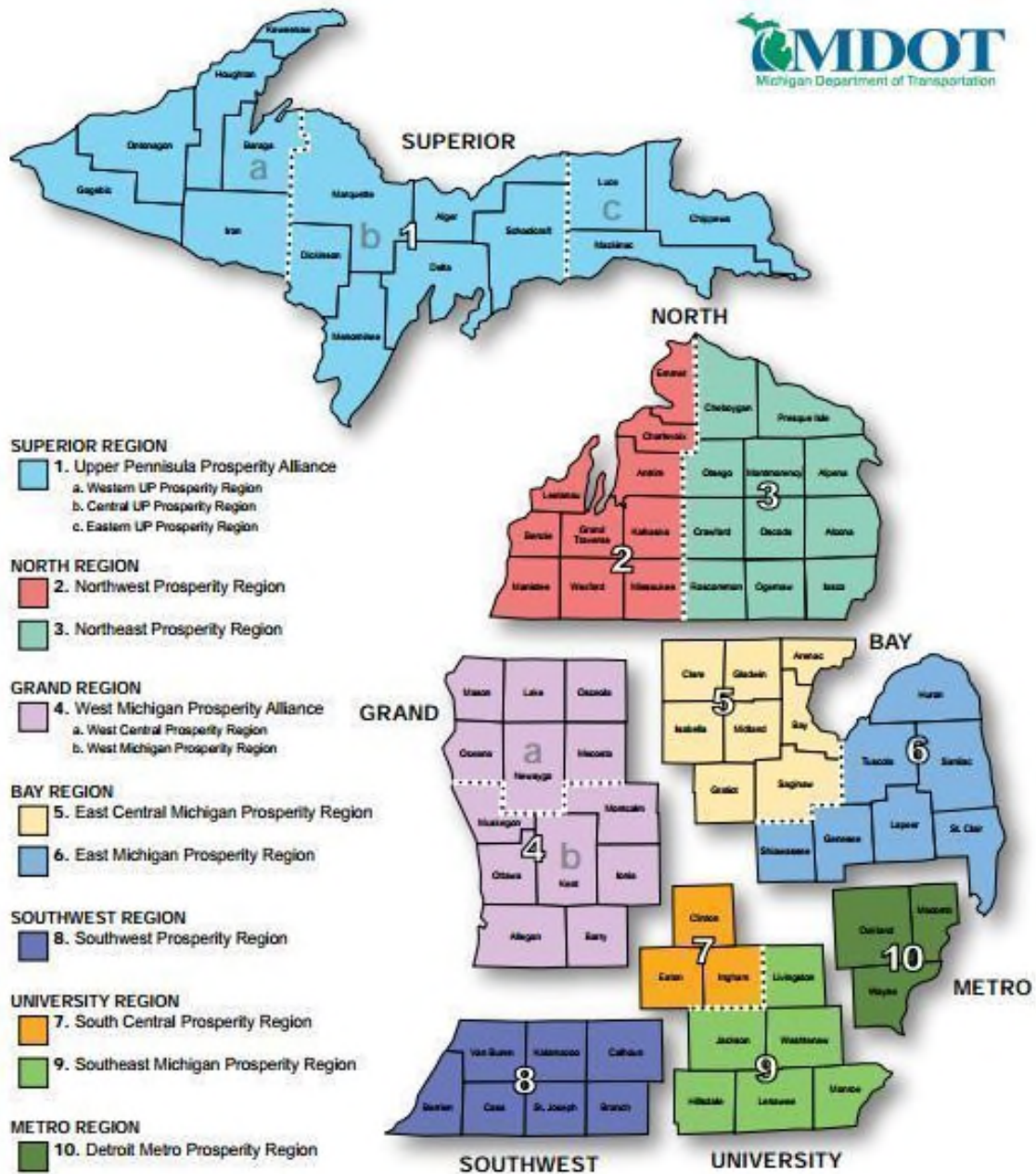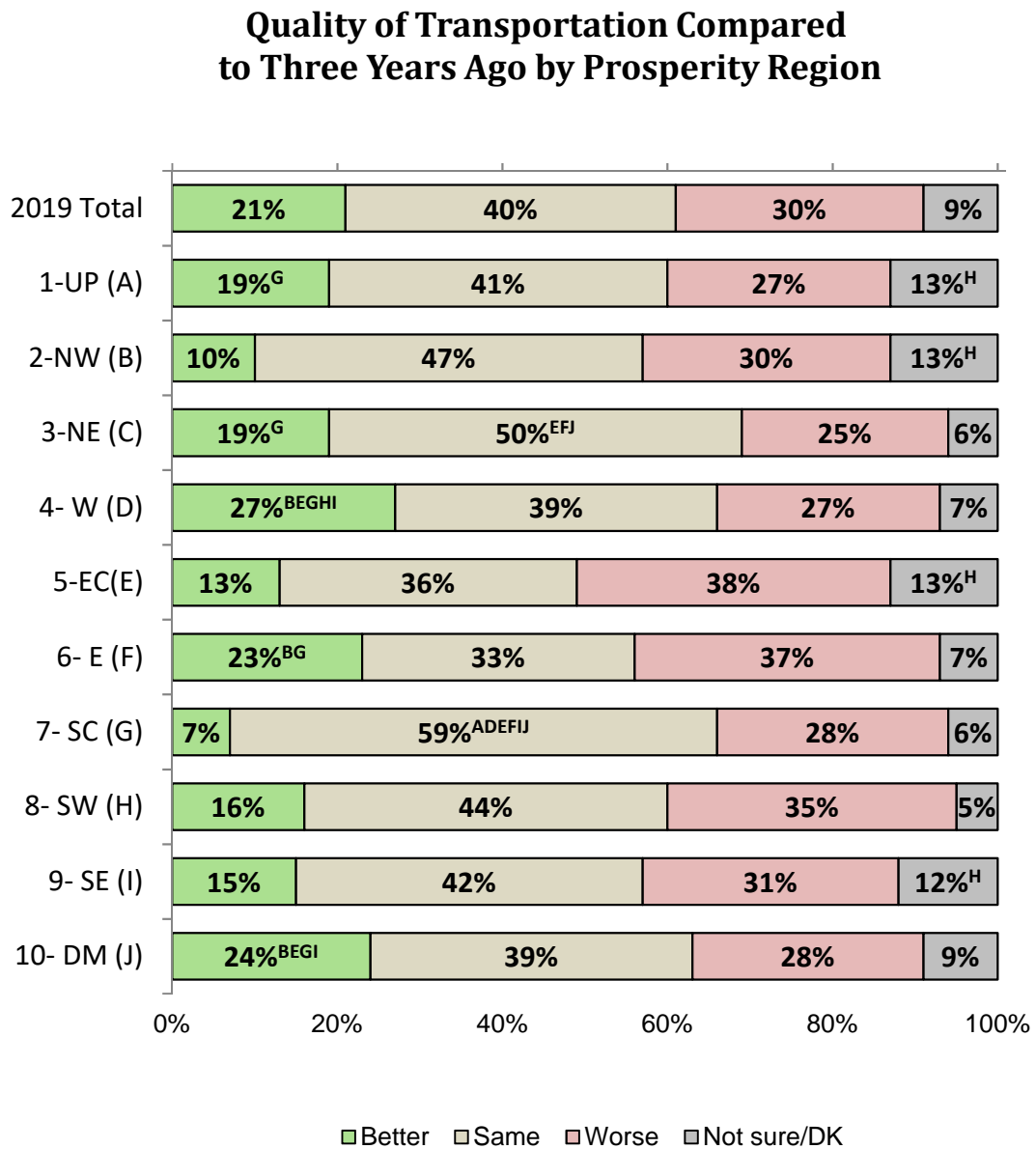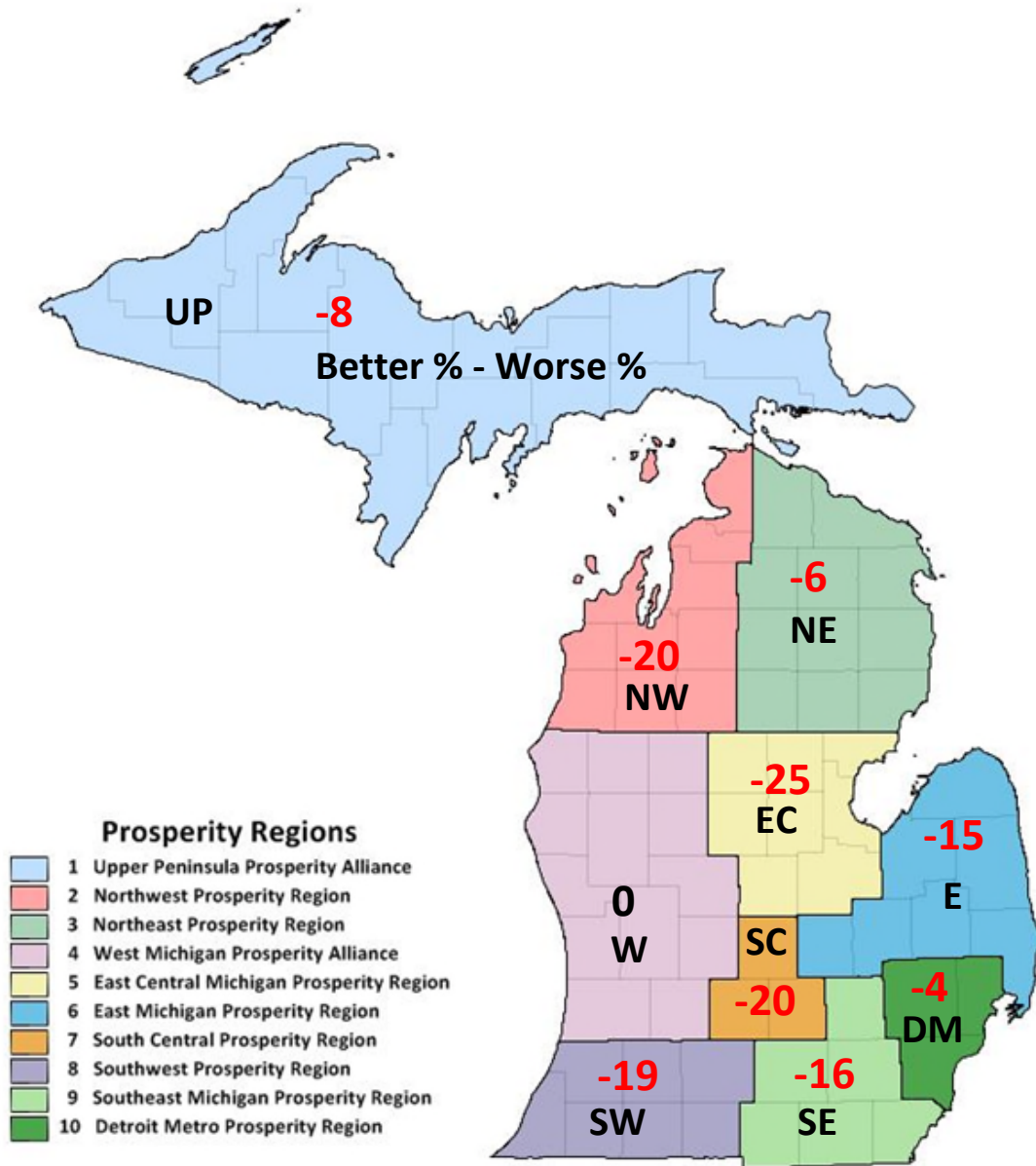
Figure A-1: Michigan Prosperity Regions

Figure A-2: Quality of Transportation in Michigan by Prosperity Region

Quality of Transportation Compared to Three Years Ago by Prosperity Region

Region	Better	Same	Worse	Not sure/DK
2019 Total	21%	40%	30%	9%
1-UP (A)	19%[G]	41%	27%	13%[H]
2-NW (B)	10%	47%	30%	13%[H]
3-NE (C)	19%[G]	50%[EFJ]	25%	6%
4- W (D)	27%[BEGHI]	39%	27%	7%
5-EC(E)	13%	36%	38%	13%[H]
6- E (F)	23%[BG]	33%	37%	7%
7- SC (G)	7%	59%[ADEFIJ]	28%	6%
8- SW (H)	16%	44%	35%	5%
9- SE (I)	15%	42%	31%	12%[H]
10- DM (J)	24%[BEGI]	39%	28%	9%

□Better □Same □Worse □Not sure/DK

[A-J]Indicates significantly higher percentage compared to other sub-group(s) at the 95% confidence level.

Figure A-3: Net Better Score by Prosperity Region
(Better % *Minus* **Worse %)**

UP   **-8**
Better % - Worse %

-6
NE

-20
NW

-25
EC

-15
E

0
W

SC

-20

-4
DM

-19
SW

-16
SE

Prosperity Regions
1 Upper Peninsula Prosperity Alliance
2 Northwest Prosperity Region
3 Northeast Prosperity Region
4 West Michigan Prosperity Alliance
5 East Central Michigan Prosperity Region
6 East Michigan Prosperity Region
7 South Central Prosperity Region
8 Southwest Prosperity Region
9 Southeast Michigan Prosperity Region
10 Detroit Metro Prosperity Region

Q3: Is the quality of transportation in Michigan better, the same, or worse than it was three years ago?

**Table A-2: Improvement on Planning Requirements by Prosperity Region:
Summary of "A Great Deal" + "Some"**

MDOT Goals	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Maintain the existing transportation system	80%	77%	67%	79%	83%B	83%B	77%	84%B	78%	81%B	81%B
Enhance the transportation system to support economic prosperity of Michigan	80%	71%	73%	79%	79%	72%	74%	82%	79%	77%	85%AB EF
Increase the safety of the transportation system for all users	76%	72%	65%	69%	78%B	76%	75%	79%B	72%	71%	80%BE I
Promote efficient management and operation of the transportation system	76%	72%	71%	78%	74%	74%	71%	77%	67%	71%	81%BH I
Protect and enhance the environment, promote energy conservation, improve quality of life	76%	67%	77%	65%	81%AC	75%	77%	79%	73%	72%	75%
Improve the reliability of the transportation system	75%	70%	64%	70%	74%	68%	71%	76%	66%	74%	81%AB CEFH
Increase the ease of moving people and goods within the transportation system	72%	67%B	52%	73%B	70%B	72%B	69%B	73%B	70%B	72%B	77%B
Improve travel and tourism	72%	70%	62%	77%BH	73%H	72%	72%	75%	61%	70%	74%BH
Improve the connections between different transportation modes	68%	60%	59%	64%	71%EF	55%	56%	72%EF	60%	63%	74%AB EFHI
Increase the security of the transportation system for all users	67%	58%	50%	60%	61%	67%B	62%	61%	58%	63%B	76%AB CDFGHI

Q5: In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

[A-J] Indicates significantly higher percentage compared to other sub-group(s) at the 95% confidence level.

Table A-3: 2019 Priority of MI Issues by Prosperity Region:
Summary of "Very High" + "High"

MDOT Goals	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Maintain existing roads	92%	91%[G]	87%	91%[G]	91%[G]	89%	98%[A] BCDEGJ	78%	95%[G]	97%[B] DEGJ	92%[G]
Reduce traffic congestion	68%	47%	52%	55%	66%[A] B	55%	75%[A] BCEH	61%	60%	71%[A] BCE	76%[A] BCDEGH
Expand transportation services for seniors and persons with disabilities	64%	61%	56%	68%[H]	71%[B] EGHI	58%	61%	53%	51%	57%	69%[B] GHI
Expand public transportation/bus service	49%	44%[C]	41%[C]	28%	51%[C] EI	34%	45%[C]	44%[C]	39%	39%	59%[A] BCEFGHI
Add sidewalks and paths to make it easier and safer to walk	49%	54%	42%	48%	50%	44%	42%	45%	56%	45%	51%
Add highway turning and passing lanes	48%	62%[B] EGHIJ	45%	48%	57%[E] HI	34%	55%[E]	46%	44%	44%	47%[E]
Add lanes to increase capacity on state highways	48%	43%	30%	44%[B]	51%[B] E	33%	48%[B] E	51%[B] E	51%[B] E	56%[B] E	47%[B] E
Make it easier for businesses to move goods and materials	46%	53%[I]	46%	56%[EI]	51%[I]	40%	45%	49%	49%	37%	47%
Improve passenger bus service between cities	43%	40%	38%	33%	40%	29%	31%	42%	38%	34%	53%[A] BCDEFHI
Improve passenger rail service	42%	31%	37%	34%	42%	32%	34%	43%	39%	36%	49%[A] BCEFI
Add facilities to make bicycle travel easier and safer	39%	38%	38%	39%	37%	28%	36%	33%	50%[E] G	40%	39%
Improve freight rail service to support local industries	36%	50%[E] FHI	42%[FI]	49%[E] FHI	38%[I]	32%	26%	37%	34%	25%	40%[FI]
Improve air travel by upgrading airport facilities	33%	47%[B] DEFGHI	21%	34%[B]	34%[B]	31%	23%	27%	33%	29%	38%[B] F
Prepare Michigan for self-driving cars	26%	5%	17%[A]	8%	24%[A]	18%[A]	27%[A] C	25%[A] C	26%[A] C	25%[A] C	32%[A] BCE

Q7: What type of priority should Michigan place on each of the following issues?
[A-I] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

Table A-4: Participation in Long-Range Transportation Plan by Prosperity Region

Participation Methods	Total 2019	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Through the U.S. mail	38%	43%	35%	50%[IJ]	40%	42%	46%	43%	42%	33%	35%
Responding to an email	38%	29%	37%	36%	36%	33%	49%[A] [EG]	32%	38%	37%	38%
Through an interactive website	37%	32%	35%	31%	33%	33%	34%	40%	39%	43%	37%
Attend a meeting in person or by phone	23%	31%[E] [HI]	38%[D] [EHIJ]	31%[E] [HI]	23%[I]	17%	28%[I]	33%[E] [HI]	17%	13%	23%[I]
Social media	22%	23%[I]	29%[I]	21%	20%	20%	29%[I]	27%[I]	29%[I]	12%	22%[I]
Would not participate	16%	18%	17%	13%	15%	20%	18%	11%	16%	22%	16%

Q3: In which of the following ways would you most likely participate in a long-range transportation planning process? Select all that apply.

[A-I] Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

Table A-5: Information Sources for Michigan Transportation Issues by Prosperity Region

Information Sources	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Television	46%	47%	42%	48%	44%	48%	49%	46%	48%	38%	48%
Radio	37%	32%	34%	28%	35%	29%	37%	30%	36%	39%	39%[C]
Smartphone Traffic/ Map App	35%	28%	29%	22%	34%	33%	30%	27%	29%	33%	42%[A] [BCFGH]
Social Media (Facebook/Twitter)	25%	25%	32%[E]	23%	25%	19%	34%[EJ]	28%	25%	26%	23%
Newspaper	21%	24%	34%[C] [DEGIJ]	20%	21%	14%	27%[E]	19%	25%	18%	19%
MDOT Website	19%	16%	17%	10%	19%	15%	15%	25%[E]	30%[A] [BCDEFIJ]	17%	18%
Mi Drive App/Website	5%	3%	4%	7%	6%	9%	3%	3%	11%[A] [FGJ]	5%	5%
Word of Mouth	3%	2%	4%	2%	4%[H]	2%	1%	3%	1%	3%	3%
Personal Experience	2%	7%[J]	2%	3%	2%	2%	3%	4%	2%	3%	1%
Other	6%	4%	4%	9%[F]	9%[F] [HJ]	8%[F]	1%	4%	3%	9%[FH]	5%[F]
None/Don't look for information	13%	13%	12%	16%	13%	20%[J]	11%	22%[J]	12%	15%	10%

Q2: Where do you go to obtain information on transportation issues in Michigan? Select all that apply.

[A-J] Indicates significantly higher percentage compared to other sub-group(s) at the 95% confidence level.

**Table A-6: Perceived Safety When Sharing Roads with Self-Driving Vehicles
by Prosperity Region**

Perceived Safety	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Very + Somewhat safe	**38%**	**36%ᶜ**	**36%ᶜ**	**22%**	**32%**	**32%**	**43%ᶜ**	**39%ᶜ**	**40%ᶜ**	**34%**	**41%ᶜᴰ**
Very safe	11%	10%	9%	3%	9%ᶜ	10%	15%ᶜᴳ	5%	11%ᶜ	9%	13%ᶜᴳ
Somewhat safe	27%	26%	26%	19%	23%	22%	28%	34%ᶜ	29%	25%	28%
Not very safe	27%	23%	22%	30%	30%	26%	22%	26%	21%	31%	29%
Not at all safe	31%	36%	40%	44%ᴵᴶ	35%	35%	32%	29%	34%	30%	26%
Don't know	4%	5%	3%	4%	3%	7%	3%	6%	5%	5%	4%

*Q8a: How safe do you think you will feel sharing the roadways in your community with self-driving vehicles?
Would you say you would feel…*
ᴬ⁻ᴵ Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

**Table A-7: Perceived Impact of Self-Driving Vehicles on Community
by Prosperity Region**

Perceived Impact	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Very + Somewhat positive	**37%**	**31%**	**27%**	**24%**	**32%**	**27%**	**39%ᶜ**	**39%**	**34%**	**37%**	**43%ᴬᴮᶜᴰᴱ**
Very positive	12%	10%ᶜ	9%ᶜ	1%	12%ᶜ	7%	15%ᶜᴳ	6%	10%ᶜ	10%ᶜ	13%ᶜᴳ
Somewhat positive	25%	21%	18%	23%	20%	20%	24%	33%ᴮ	24%	27%	30%ᴮᴰᴱ
Somewhat negative	25%	30%ᶠ	29%	25%	32%ᶠᴶ	25%	18%	32%	24%	24%	22%
Very negative	23%	29%	29%	36%ᴰᴳᴴᴵᴶ	22%	27%	25%	16%	20%	23%	22%
No impact	5%	4%	6%	8%	4%	5%	7%	5%	9%	7%	5%
Don't know	10%	6%	9%	7%	10%	16%ᴬ	11%	8%	13%	9%	8%

*Q8b: In general, what type of impact do you think self-driving vehicles will have on your community? Would you
say the impact would be:*
ᴬ⁻ᴵ Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

**Table A-8: Perceived Impact of Self-Driving Vehicles by Prosperity Region:
Summary of Positive Impact**

Impact - Decrease	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
The severity of crashes	31%	17%	25%	23%	26%	27%	40%ABCD	28%	32%A	34%A	33%A
The number of crashes	30%	16%	25%	17%	29%AC	27%	29%A	30%A	29%A	29%A	32%AC
Traffic congestion and travel times	24%	17%	13%	17%	24%B	22%	26%B	14%	23%	24%B	27%ABG
Insurance rates	19%	10%	16%	13%	17%	19%	25%AG	13%	17%	19%	22%AG
Impact - Increase											
Fuel economy	35%	30%	33%	41%H	37%	36%	34%	36%	28%	36%	36%

Q8c: Please indicate if you think completely self-driving vehicles will increase, decrease or have no impact on each of the following items.
A-J Indicates significantly higher percentage compared to other sub-group(s) at the 95% confidence level.

Table A-9: Willing to Pay Travel Fees by Prosperity Region

Toll Road Scenarios	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Paying a toll to access to high-quality, better-maintained roads	36%	28%	32%	24%	27%	33%	35%	35%	33%	34%	42%AD
Paying a toll to access an alternative roadway with faster travel times	32%	32%	23%	30%	29%	30%	34%	30%	35%	32%	33%B
Using a ride-hail service such as Uber or Lyft	24%	32% CDE	27% E	17%	19%	15%	20%	27%	27%E	23%	27%C DE
Using bike and/or electric-scooter sharing services	13%	11%	14%	10%	14%	7%	12%	13%	26%ABC DEFGIJ	7%	13%I
None	41%	42%	41%	46%	48% J	48% J	44%	38%	38%	33%	35%

Q4: For which of the following, if any, would you be willing to pay a toll road? Select all that apply.
A-J Indicates significantly higher percentage compared to other sub-group(s) at the 95% confidence level.

Table A-10: Online Shopping Habits of Michigan Residents by Prosperity Region

Frequency	Total 2019	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Daily	3%	-	2%	3%	5%	2%	6%	1%	3%	2%	3%
Every few days	11%	16%E	11%	7%	12%	8%	10%	8%	11%	9%	12%
Weekly	19%	26%DE	18%	26%DE	14%	14%	19%	17%	16%	22%	21%
Monthly	25%	19%	18%	15%	25%	29%C	24%	26%	27%C	27%C	26%C
Occasionally	36%	32%	41%	40%	39%	40%	37%	42%	35%	37%	32%
Never	6%	7%	10%	9%	5%	7%	4%	6%	8%	3%	6%

Q9: On average, how often do you have packages delivered to your home from online/Internet shopping?
ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

Table A-11: 2019 Likelihood to use Passenger Rail/Amtrak by Prosperity Region:
Summary of "Very Likely" + "Somewhat Likely"

MDOT Goals	Total	UP (A)	NW (B)	NE (C)	W (D)	EC (E)	E (F)	SC (G)	SW (H)	SE (I)	DM (J)
Additional routes serving more communities around Michigan	71%	68%	77%C H	63%	70%	65%	64%	66%	63%	72%	76%C FH
Faster trains to reduce travel times between destinations	64%	58%	56%	47%	64%C	57%	53%	63%C	59%	67%C F	71%A BCEFH
Improved on-time arrival at your destination	63%	52%	56%	49%	62%	60%	50%	63%	68%A CH	64%C	69%A BCF
Upgraded train cars for passenger seating and café car	61%	54%	52%	52%	58%	51%	49%	65%	62%	63%F	66%B CEF
Increased frequencies of trains on existing routes	60%	53%	49%	49%	62%B	56%	51%	60%	58%	59%	64%B CF

Q6: How likely would you be to use passenger rail/Amtrak if the following were improved?
ABCDEFG Indicates significantly higher percentage compared to corresponding region(s) at 95% confidence level.

Appendix B

Questionnaire

MDOT
Michigan Department of Transportation

Michigan 2045 Mobility

2019 Transportation Survey

Please fill in the circle that best represents your answer or write in the space provided below the question. Use the enclosed postage paid envelope to mail back your completed questionnaire. *We appreciate your input.*

Please use blue or black ink and fill in all circles **completely.**

Example: Will you fill in all circles completely?   ● Yes   ○ No

1. Is the quality of transportation in Michigan better, the same, or worse than it was three years ago?

Better   Same   Worse   Not Sure
○   ○   ○   ○

1a. Please explain the reason for your answer.

_____

_____

2. Where do you go to obtain information on transportation issues in Michigan? *Select all that apply.*

○ Television   ○ Radio   ○ MDOT Website

○ Mi Drive Website   ○ Smartphone Traffic/Map App   ○ Social Media (Facebook/Twitter)

○ Newspaper   ○ Other_____   ○ None/Don't look for information

3. In which of the following ways would you most likely participate in a long-range transportation planning process? *Select all that apply.*

○ Responding to an email   ○ Social media   ○ Through the U.S. mail

○ Attend a meeting in person or by phone   ○ Through an interactive website   ○ Would not participate

4. For which of the following, if any, would you be willing to pay a fee for an improved travel experience? *Select all that apply.*

○ Using a ride-hail service such as Uber or Lyft   ○ Paying a toll to access high-quality, better-maintained roads

○ Using bike and/or electric-scooter sharing services   ○ Paying a toll to access an alternative roadway with faster travel times   ○ None

5. In relation to Michigan's transportation system, please indicate how much improvement you feel the state of Michigan needs to make on these issues.

Issues	I think Michigan needs to improve....				
	A Great Deal	Some	Only a Little	Not at All	Don't Know
Enhance the transportation system to support economic prosperity of Michigan	O	O	O	O	O
Increase the safety of the transportation system for all users	O	O	O	O	O
Increase the security of the transportation system for all users	O	O	O	O	O
Increase the ease of moving people and goods within the transportation system	O	O	O	O	O
Protect and enhance the environment, promote energy conservation, improve quality of life	O	O	O	O	O
Improve the connections between different transportation modes	O	O	O	O	O
Promote efficient management and operation of the transportation system	O	O	O	O	O
Maintain the existing transportation system	O	O	O	O	O
Improve the reliability of the transportation system	O	O	O	O	O
Improve travel and tourism	O	O	O	O	O

6. How likely would you be to use passenger rail/Amtrak if the following were improved?

Improvements	Very likely	Some-what likely	Not very likely	Not at all likely	Don't Know
Increased frequencies of trains on existing routes	O	O	O	O	O
Upgraded train cars for passenger seating and café car	O	O	O	O	O
Improved on-time arrival at your destination	O	O	O	O	O
Faster trains to reduce travel times between destinations	O	O	O	O	O
Additional routes serving more communities around Michigan	O	O	O	O	O

This survey is sponsored by MDOT and conducted by WestGroup Research P2

7. What type of priority should Michigan place on each of the following issues?

Issues	Very high priority	High priority	Some-what of a priority	Low priority	Very low priority	Don't Know
Add lanes to increase capacity on state highways	O	O	O	O	O	O
Add facilities to make bicycle travel easier and safer	O	O	O	O	O	O
Add highway turning and passing lanes	O	O	O	O	O	O
Add sidewalks and paths to make it easier and safer to walk	O	O	O	O	O	O
Expand public transportation/bus service	O	O	O	O	O	O
Expand transportation services for seniors and persons with disabilities	O	O	O	O	O	O
Improve air travel by upgrading airport facilities	O	O	O	O	O	O
Improve freight rail service to support local industries	O	O	O	O	O	O
Improve passenger bus service between cities	O	O	O	O	O	O
Reduce traffic congestion	O	O	O	O	O	O
Maintain existing roads	O	O	O	O	O	O
Make it easier for businesses to move goods and materials	O	O	O	O	O	O
Improve passenger rail service	O	O	O	O	O	O
Prepare Michigan for self-driving cars	O	O	O	O	O	O

8a. How safe do you think you will feel sharing the roadways in your community with self-driving vehicles? Would you say you would feel....

Very safe	Somewhat safe	Not very safe	Not at all safe	Don't know
O	O	O	O	O

8b. In general, what type of impact do you think self-driving vehicles will have on your community? Would you say the impact would be:

Very positive	Somewhat positive	Somewhat negative	Very negative	No impact	Don't know
O	O	O	O	O	O

8c. Please indicate if you think self-driving vehicles will increase, decrease, or have no impact on each of the following items:

	Increase	Decrease	No Impact	Don't Know
The number of crashes	O	O	O	O
The severity of crashes	O	O	O	O
Traffic congestion and travel times	O	O	O	O
Fuel economy	O	O	O	O
Insurance rates	O	O	O	O

9. On average, how often do you have packages delivered to your home from online/Internet shopping?

Daily	Every few days	Weekly	Monthly	Occasionally	Never
O	O	O	O	O	O

The final questions are to ensure all MI residents are represented; answers are combined into similar groups.

10. If you have a paid job outside the home, which of the following best describes how you get to work now? *Select all that apply.*

- O Do not work outside home
- O Do not work
- O Bicycle
- O Drive alone to work
- O Ride bus or take other public transport
- O Walk
- O Carpool
- O Ride share service (Uber, Lyft, etc.)

11. What was your total household income before taxes over the past 12 months?

Less than $25,000	$25,000-$49,999	$50,000-$74,999	$75,000-$99,999	$100,000 or more
O	O	O	O	O

12. How would you describe your race? *Select all that apply.*

- O White/Caucasian
- O Black/African American
- O Hispanic/Latino
- O Native American
- O Asian/Pacific Islander
- O Other: _____

13. What is your gender?

- O Male
- O Female

14. What is your age?

_____ Years

This survey is sponsored by MDOT and conducted by WestGroup Research P4

Appendix C

Demographic Attributes by Response Mode

As the demographic attributes of respondents were monitored throughout the data collection process, adjustments were made to the outbound efforts so that under-responding population segments were targeted. The table below shows that using multiple data collection modes effectively yielded a more balanced and representative sample than if we had relied on a single data collection mode. The shading in the table shows the demographic groups with the highest response for each data collection mode.

- Residents who were age 55 and older, White, and/or male were more likely than the comparative groups to respond via the mailed survey.
- Residents under age 55 and non-white were more likely to be contacted for survey completion through outbound telephone calls.
- Residents ages 45 and older, males, White residents, and higher income residents were contacted and more likely to respond via the online survey either in response to the initial mailed survey invitation or a follow up emailed invitation.
- The panel service was used to target females, residents under age 45, non-white residents, and those with lower household incomes.

Demographic Representation by Response Mode*

Demographic Attribute	Total Sample (n=1485)	Mail (n=480)	Telephone (n=523)	Email/ online (n=138)	Online Panel (n=309)
Male	49%	56%	50%	54%	35%
Female	51%	44%	50%	46%	65%
18 to 34	29%	9%	31%	15%	59%
35 to 44	15%	5%	20%	17%	20%
45 to 54	16%	12%	23%	24%	8%
55 to 64	18%	26%	15%	27%	8%
65+	22%	48%	10%	17%	6%
White: Non-Hispanic	78%	96%	83%	93%	37%
Black/African American	14%	3%	9%	3%	45%
White: Hispanic	5%	1%	5%	2%	10%
Asian Pacific Islander	3%	<1%	2%	1%	10%
Native American	1%	<1%	1%	1%	4%
Less than $25,000	18%	15%	16%	5%	32%
$25,000 - $49,999	22%	24%	20%	10%	29%
$50,000 - $74,999	21%	21%	21%	20%	20%
$75,000 - $99,999	17%	17%	20%	18%	12%
$100,000 or more	22%	23%	23%	47%	7%

*Weighted data NOTE: Multiple responses were allowed for race; may not add to 100%.

Appendix D

Sampling Plan

Michigan Department of Transportation
2019 Attitudes and Perceptions Survey
Sampling Plan

The purpose of this document is to provide a sampling plan for the 2019 Michigan Department of Transportation (MDOT) Attitudes and Perceptions Survey. The plan includes details on the study area definition, sample size, stratification, and sampling frame.

Key parameters for the survey include:
1. Universe: All Michigan residents, age 18 or older
2. Geography: state of Michigan, divided into 7 MDOT Regions, with further stratification into 10 Prosperity Regions
3. Sample Size and Stratification: 1,400 completed surveys statewide
4. Language: English survey with Spanish taglines for mail survey, translated into Spanish for phone and web.

STUDY AREA DEFINITION

The study area for this survey is the State of Michigan. Geographically, this includes seven MDOT Regions which are further divided into 10 prosperity regions. The relationship between these two geographic groups is illustrated in Figure 1 on the next page.

SAMPLE SIZE AND STRATIFICATION

The sample size and stratification are established at the prosperity region level. Goals were set to provide sufficient statistical power in analyzing and applying the results. The specific allocation is shown in Table 1.

Each sample will be flagged with its corresponding prosperity region and MDOT Region, using the following codes:

MDOT Regions (NEW_REG_NUM)   Prosperity Regions (RPI_NUM)
1=Superior   1=Upper Peninsula Prosperity Alliance

2=North   2=Northwest Prosperity Region
                                          3=Northeast Prosperity Region

3=Grand   4=West Michigan Prosperity Alliance

4=Bay   5=East Central Michigan Prosperity Region
                                          6=East Michigan Prosperity Region

5=Southwest   8=Southwest Prosperity Region

6=University   7=South Central Prosperity Region
                                          9=Southeast Michigan Prosperity Region

7=Metro   10=Detroit Metro Prosperity Region

Figure 1: Study Area

MDOT Regions and State of Michigan Prosperity Regions

SUPERIOR REGION
1. Upper Pennisula Prosperity Alliance
   a. Western UP Prosperity Region
   b. Central UP Prosperity Region
   c. Eastern UP Prosperity Region

NORTH REGION
2. Northwest Prosperity Region
3. Northeast Prosperity Region

GRAND REGION
4. West Michigan Prosperity Alliance
   a. West Central Prosperity Region
   b. West Michigan Prosperity Region

BAY REGION
5. East Central Michigan Prosperity Region
6. East Michigan Prosperity Region

SOUTHWEST REGION
8. Southwest Prosperity Region

UNIVERSITY REGION
7. South Central Prosperity Region
9. Southeast Michigan Prosperity Region

METRO REGION
10. Detroit Metro Prosperity Region

For all prosperity regions except the Detroit Metro Prosperity Region, the sample will be drawn proportionate to population for the entire prosperity region. Sample for the Detroit Metro Prosperity Region will be further stratified by county prior to the draw, as noted in Table 2. The county-level draws will help to ensure a minimum number of completes from each county (proportionate to the population of each county), however the sample sizes from each county will not support any county-level analysis.

SAMPLING FRAME
WestGroup Research will purchase sample from Marketing Systems Group (MSG). The sample will come from MSG's advanced landline/cell-phone sample. The sample will be enhanced with address and email (where available) along with key demographics (gender, age, ethnicity where available) that conforms to the Telephone Consumer Protection Act (TCPA) requirements.

We anticipate purchasing 15,000 records for use in this study. Of these, all will have addresses appended. In addition, MSG estimates that names will be available for most samples and emails available for 20 percent of the records. For administration, 5,000 randomly selected residents will receive a mail survey and the remaining 10,000 records will be used to supplement the mail survey returns to balance the regional and demographic quotas. See the Survey Design memo for more details on the use of these enhancements (provided under separate cover).

All samples will be flagged with the block group associated with the residential address on record. As data collection progresses, status by both Prosperity and MDOT Regions as well as age, ethnicity, gender and income level will be monitored. Should any one group begin to lag, the census data will be used to flag priority cases for outbound telephone or email contact, or a panel company may be utilized to target key hard-to-reach households. This does not guarantee a fully representative sample, but can help to prioritize limited resources in an attempt to secure participation from a wide range of adult Michigan residents.

Table 1 – Sample Size and Stratification

MDOT Region	Prosperity Region	Population	Adult (18+) Population	Adult (18+) Population %	2017 Sample	2017 Margin of Error @ 95% CI	2019 Sample	2019 Margin of Error @ 95% CI	MDOT Region Total	Margin of Error @ 95% CI
Superior	Upper Peninsula Prosperity Alliance	352,910	245,642	3%	125	8.8%	125	8.8%	125	8.8%
North	Northwest Prosperity Region	305,373	245,438	3%	100	9.8%	100	9.8%	200	6.9%
	Northeast Prosperity Region	202,495	167,795	2%	100	9.8%	100	9.8%		
Grand	West Michigan Prosperity Alliance	1,614,355	1,234,968	16%	200	6.9%	200	6.9%	200	6.9%
Bay	East Central Michigan Prosperity Region	560,196	447,528	6%	100	9.8%	100	9.8%	225	6.5%
	East Michigan Prosperity Region	783,681	663,217	8%	125	8.8%	125	8.8%		
Southwest	Southwest Prosperity Region	791,471	609,168	8%	125	8.8%	125	8.8%	125	8.8%
University	South Central Michigan Prosperity Region	481,489	382,334	5%	100	9.8%	100	9.8%	225	6.5%
	Southeast Prosperity Region	1,016,262	809,777	10%	125	8.8%	125	8.8%		
Metro	Detroit Metro Prosperity Region*	3,880,610	3,022,604	39%	300	5.7%	300	5.7%	300	5.7%
Statewide	Statewide	9,988,842	7,828,471	100%	1,400	2.6%	1,400	2.6%	1,400	2.6%

SOURCE: Claritas 2018 Estimates based on 2010 Census
*Sample order for the Metro Prosperity Region will be stratified by County (Macomb, Oakland, Wayne).

Table 2 – Detroit Metro Prosperity Region Sample Sub-stratification

County	Adult (18+) Population	Adult (18+) Population %	2019 Sample Goals
Macomb	877,400	24%	73
Oakland	996,105	28%	83
Wayne	1,744,298	48%	145
Total	3,617,803	100%	300

Appendix E

Weighting Procedure

Michigan Department of Transportation
2019 Attitudes and Perceptions Survey
Weighting Procedure

The purpose of this document is to outline the approach for the weighting of the 2019 Attitudes and Perceptions (A&P) Survey. This approach draws from the weighting objectives listed in the request for proposals (RFP). This memo is intended to serve as a companion to the Sampling Plan, and so it does not replicate details presented in the earlier memo.

As in 2017, the results were weighted to represent the full population of Michigan adults, stratified by Prosperity Region. The Claritas 2018 Estimates based on the 2010 Census served as the source of population control totals to be used in the weighting process, providing the adult population totals for each prosperity region. Because the Claritas 2018 Estimates did not include information on income, marginal control distributions for income were derived from the American Community Survey, relying on the 2017 ACS 1-year estimates for the income data. These census estimates are the latest vintage currently available and released by the Census Bureau.

In the 2017 Attitudes and Perceptions Survey, the survey sample was weighted by age, gender, and race to approximate the adult population in the state. In 2019, the variable of income was added to the survey questions. This variable was also considered for inclusion in the weighting plan. The final survey results on these key demographic variables were reviewed with MDOT to determine whether additional weights are needed and if so, for which of the four characteristics. A general concern in creating weights based on demographic characteristics is that a particular population subgroup might be significantly under-represented, to the point that attempting to create a weight might cause "skews" in the survey results that introduce more error than intended due to very large weights. In those cases, categories are collapsed or aggregated, or certain control variables are omitted altogether, to avoid issues that may arise when dealing with very small numbers in specific cells of a joint distribution of control variables.
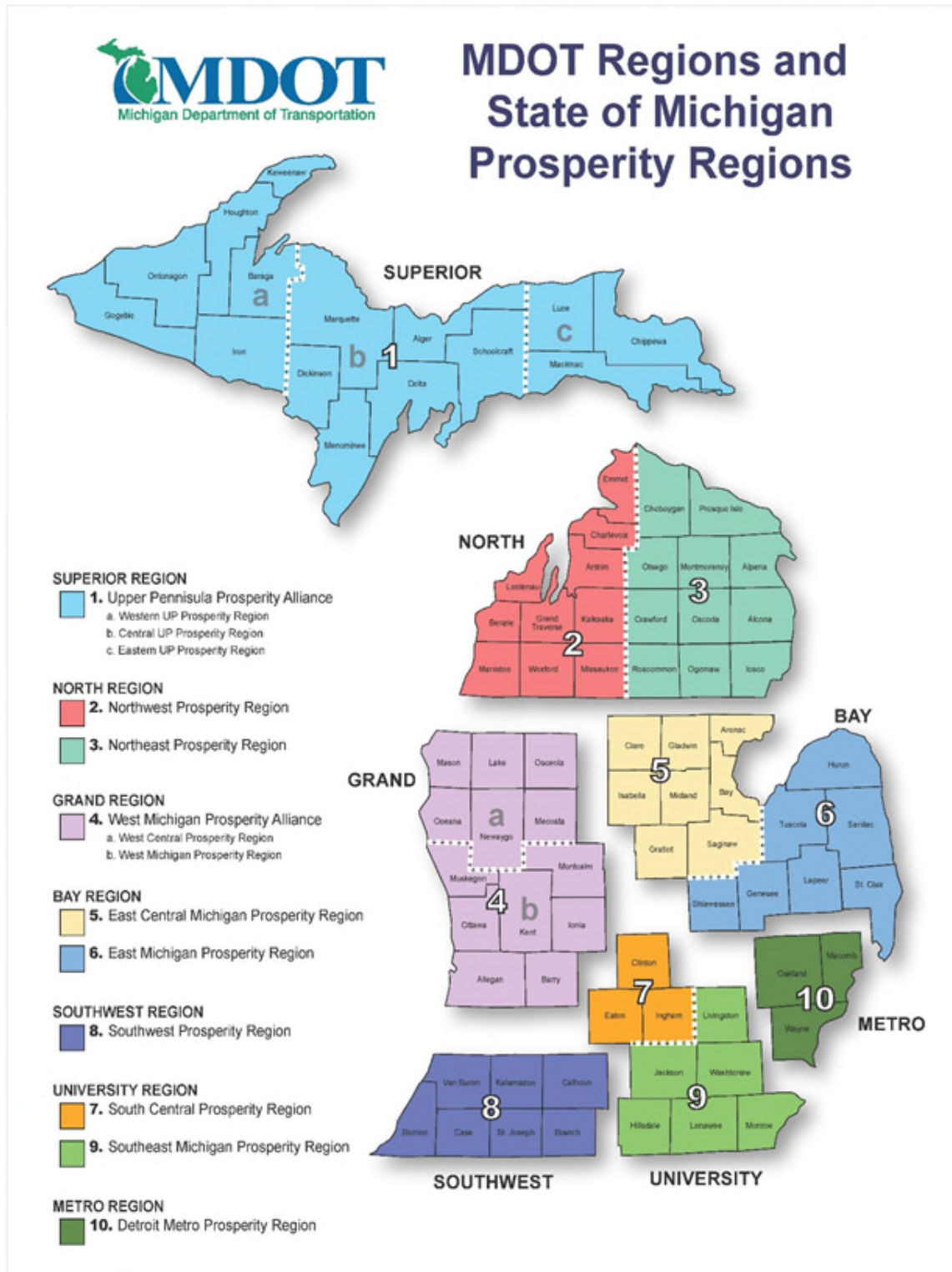
Table 1: Population Distribution by Region Used as Foundation for Weighting

MDOT Region	Prosperity Region	Population	Adult (18+) Population	Adult (18+) Population %
Superior	Upper Peninsula Prosperity Alliance	352,910	245,642	3%
North	Northwest Prosperity Region	305,373	245,438	3%
	Northeast Prosperity Region	202,495	167,795	2%
Grand	West Michigan Prosperity Alliance	1,614,355	1,234,968	16%
Bay	East Central Michigan Prosperity Region	560,196	447,528	6%
	East Michigan Prosperity Region	783,681	663,217	8%
Southwest	Southwest Prosperity Region	791,471	609,168	8%
University	South Central Michigan Prosperity Region	481,489	382,334	5%
	Southeast Prosperity Region	1,016,262	809,777	10%
Metro	Detroit Metro Prosperity Region*	3,880,610	3,022,604	39%
Statewide	Statewide	9,988,842	7,828,471	100%

SOURCE: Claritas 2018 Estimates based on 2010 Census

Figure 1: Study Area

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BAY REGION
5. East Central Michigan Prosperity Region
6. East Michigan Prosperity Region

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8. Southwest Prosperity Region

UNIVERSITY REGION
7. South Central Prosperity Region
9. Southeast Michigan Prosperity Region

METRO REGION
10. Detroit Metro Prosperity Region

An analysis of the unweighted data indicated that demographic weights were needed, and the WGR team calculated them using iterative proportional fitting (IPF). IPF, also known as "raking", is a systematic approach to create multi-dimensional weights at the Prosperity Region Level[1]. The joint distributions (cell counts) derived from this procedure were used to determine distribution of adults according to gender (male, female), age (18-34, 35-44, 45-54, 55-64, 65+), income, and race. The exact categories of race were finalized after reviewing the survey results due to concerns over small incidences of certain population subgroups according to census.

The IPF process uses unweighted survey distributions to seed the raking procedure. The process steps are as follows:

1. The IPF algorithm first creates a weight that adjusts the data on gender (male/female) – WEIGHTG1.
2. WEIGHTG1 is then applied to the unweighted survey data and the distribution of age is generated and compared to census. A second weight is created to adjust for age - WEIGHTA1. WEIGHTA1 is multiplied by WEIGHTG1 to create WEIGHTX1.
3. WEIGHTX1 is then applied to the unweighted survey data and the distribution of race is generated and compared to census. A third weight is created to adjust for race – WEIGHTR1. WEIGHTR1 is multiplied by WEIGHTX1 and applied to the data.
4. OPTIONAL: A fourth weight for income will be created if necessary, following the same logic and procedures as described in the steps above.
5. The second round of IPF then compares gender to census when weighted with WEIGHTX1. WEIGHTG2 is created as needed, multiplied by WEIGHTX1, and applied to the data.
6. This process is repeated until "convergence" is reached, where the resulting weighted distributions are generally in line with census distributions for all variables controlled in the analysis.

For the 2019 survey, weighting was done by region in order to enhance representativeness of the sample at the Prosperity region level (besides the state level). Weighting a survey data set to match overall statewide distributions does not necessarily mean that the subsamples within each region will be representative of the population characteristics within the specific region. In order to facilitate region-level analysis and appropriate cross-region comparisons, it was considered prudent to weight the sample to match region-level control distributions. Claritas 2018 Estimates from Census data, marginal control distributions were derived for each of the 10 regions for four variables:

- Gender
    - Male
    - Female
- Age
    - 18-34 years
    - 35-44 years
    - 45-54 years
    - 55-64 years
    - 65+ years
- Race
    - White Hispanic
    - White Non-Hispanic
    - Black/African-American

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[1] For a description of the technical approach, see
https://www.researchgate.net/publication/293125498_Putting_Iterative_Proportional_Fitting_on_the_researcher%27s_desk

- o Asian/Pacific Islander
- o Native American
- o Other
- Annual Household Income
  - o Less than $25K
  - o $25K to less than $50K
  - o $50K to less than $75K
  - o $75K to less than $100K
  - o $100K and above

A mapping of counties to regions was used to create the marginal control distributions at the region level. The Claritas 2018 Estimates provides detailed marginal control distributions for various population characteristics at the county level. By mapping counties to regions, it is possible to derive control distributions for the regions (and the state as a whole).

The standard iterative proportional fitting (IPF) procedure was applied to derive marginal joint distributions for the control variables of interest. The IPF procedure was applied to each region, a joint distribution was derived for each region, and then the survey records within each region were weighted to match the IPF-derived joint distribution. Through this weighting method, the weighted survey sample now replicates both population characteristics at each region level and for the state as a whole. In addition, the richness of the sample allowed controlling for more disaggregate representation of race and age than in the past.

Multiple trials were conducted to optimize the weighting process. In general, information must be available in the survey records for the control variables of interest; if there is missing data on any of the control variables, then that record is discarded and not included in the final sample for which weights are derived. When three controls were used – age, race, and gender – it was possible to derive weights for 1408 records of the original sample of 1526 records. When a comparison of income distributions was conducted, it was found that the income distribution match (both within each region and for the state as a whole) was not perfect.

In a second trial, the project team added income as a control variable, and derived weights for four control variables. This trial yielded a final sample of just 1328 records of the original 1526 records, essentially creating a loss of about 200 records relative to the original sample. The weighted sample of 1328 records matched the population characteristics on all attributes (age, gender, race, and income), but this match comes at a rather steep cost in terms of loss of sample. If imputation of weights were to be done, then imputation would be done for nearly 200 records, which is a rather large number of records and hence may compromise the integrity of the weighting process.

Given that the weighted income distribution with three control variables (age, race, and gender) was not heavily skewed relative to the population income distribution, the project team felt that it would be best to proceed with a three-variable weighting scheme. Weights were derived for the 1408 records, creating a robust sample whose weighted distributions mimic the population distributions quite well at both the region and state levels.

Following the computation of these weights, additional records (which were missing demographic characteristics and hence not included in the original weight computation) were recovered through a weight imputation process. Essentially, records were sorted by FIPS code, method of data retrieval, and gender (very little missing data). After sorting records based on these attributes, those records that were missing weights were given the weight of the nearest neighbor or matching record for which a weight was computed through the IPF weighting process. By utilizing this weight imputation process, it was possible

to recover a number of additional records, yielding a final sample of 1500 records with weights. It was not possible to recover all the way up to 1526 records because some records simply contained absolutely no demographic data at all, or had missing gender, and it was considered unwise to try and guess the nearest neighbor for imputation purposes in the context of such records. A comparison of weighted sample distributions derived on the 1500 records against the population distributions showed that the imputation process did not produce any adverse effects – while successfully recovering a number of sample records that can be used for subsequent analysis purposes.

Because an imputation process was adopted, the weighted sample size is slightly smaller at 1485. In other words, there are 1500 records with a weight value; 92 of these records (1500 minus 1408) have imputed weights. When weights are imputed (through the nearest neighbor imputation approach), the weighted total will not exactly equal the original sample size of 1500. If all 1500 records had complete data (about socio-demographic variables) and had a "native" weight computed through the IPF process, then the weighted total would indeed match 1500 exactly. However, when 92 of the records have no "native" weight, but are rather provided an imputed weight from a nearest neighbor, then the weighted sample size (weighted total) will not exactly equal 1500. The weighted total equals 1485; given that this figure is quite close to the number of records (1500), there is no adverse effects of the imputation procedure. Distributions derived from the weighted sample (which equals 1485) mimic true distributions in the population at large, and hence any statistical analysis based on the weighted sample may be considered sufficiently reliable to derive robust inferences and conclusions.