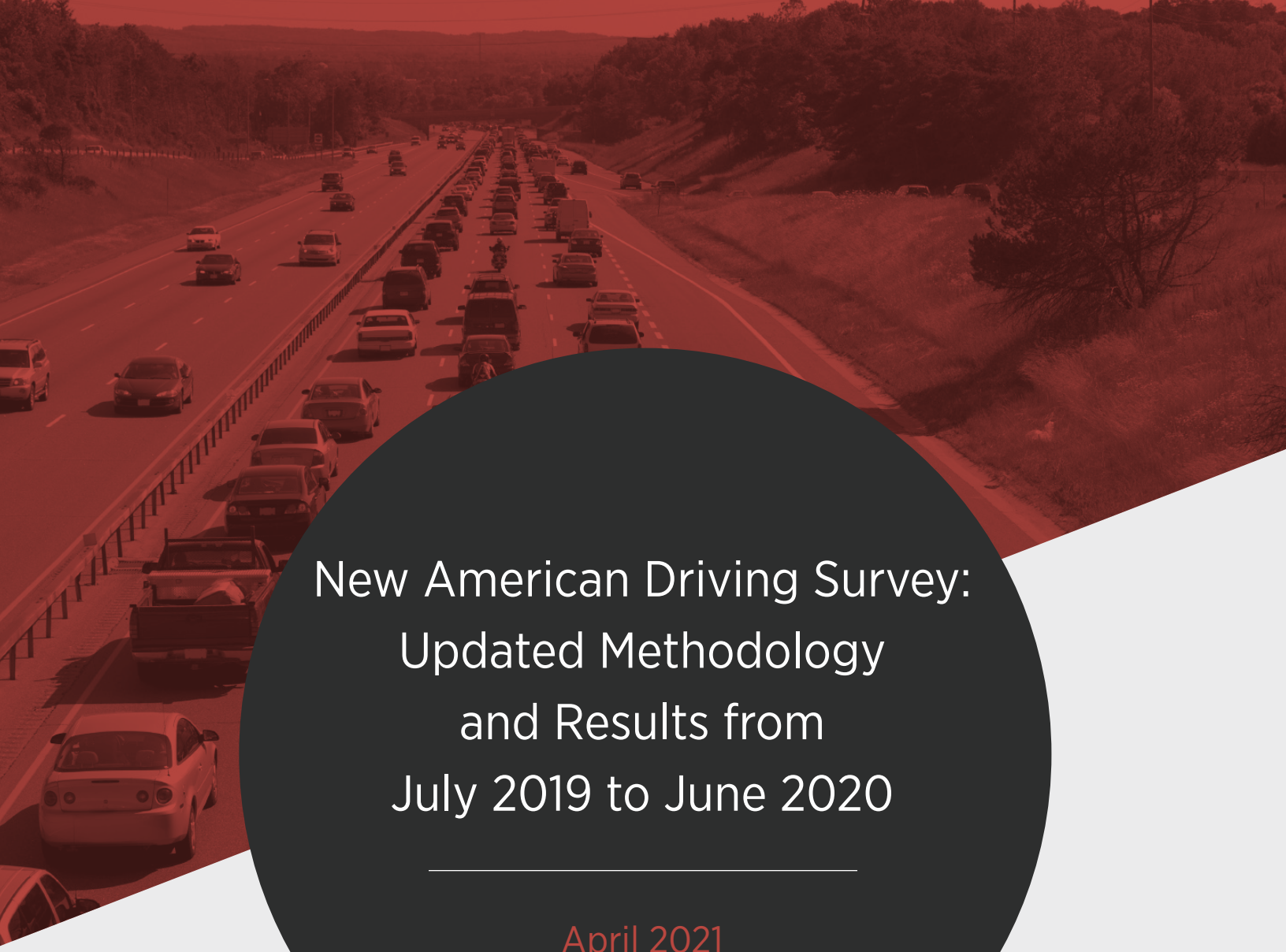

New American Driving Survey: Updated Methodology and Results from July 2019 to June 2020

April 2021

607 14th Street, NW, Suite 201 | Washington, DC 20005 | 202-638-5944

AAA Foundation for Traffic Safety

Title

New American Driving Survey: Updated Methodology and Results from July 2019 to June 2020

Authors

AAA Foundation for Traffic Safety

Foreword

The AAA Foundation for Traffic Safety is dedicated to saving lives through research and education. Fundamental to our research is the ability to quantify traffic risks. Estimating risks related to travel requires data regarding not only the motor vehicle crashes and the number of people who are involved, injured, and killed in crashes, but also data regarding people's exposure to risk, such as the number of miles that they travel.

To supplement the data needs, AAA Foundation initiated the American Driving Survey in May 2013 and collected national-level data regarding driving patterns of the American public until December 2017. In 2018, the AAA Foundation, with support from external experts in fields such as market research and public opinion, revamped and modernized the data collection approach. The New American Driving Survey, using a new methodology, was launched in July 2019 and data have been collected since. Although the COVID-19 pandemic clearly had an impact on travel patterns in the United States since March 2020, information presented in this technical report should still be a useful reference for transportation professionals and researchers.

C. Y. David Yang, Ph.D.

Executive Director
AAA Foundation for Traffic Safety

About the Sponsor

AAA Foundation for Traffic Safety
607 14th Street, NW, Suite 201
Washington, D.C. 20005
202-638-5944
www.aaafoundation.org

Founded in 1947, the AAA Foundation for Traffic Safety in Washington, D.C. is a nonprofit, publicly supported charitable research and education organization dedicated to saving lives by preventing traffic crashes and reducing injuries when crashes occur. Funding for this report was provided by voluntary contributions from AAA/CAA and their affiliated motor clubs, individual members, AAA-affiliated insurance companies and other organizations or sources.

Table of Contents

Executive Summary

Introduction

Fundamental to the research that the AAA Foundation for Traffic Safety (AAA Foundation) performs is the ability to quantify traffic risks. Quantifying traffic risks requires two different types of data: (a) motor vehicle crashes and number of people who are involved, injured, and killed in those crashes, and (b) driving risk exposure, such as how many miles people travel.

To address the need for driving exposure information in relation to driver, vehicle, and trip characteristics, the AAA Foundation initiated the American Driving Survey in May of 2013 and collected national-level data on the driving habits and patterns of the American public. After five years of data collection, the survey methodology was re-examined and new techniques for data collection were evaluated. As a result, the AAA Foundation launched the new, modernized American Driving Survey, entitled the New American Driving Survey, in July 2019.

Methods

The New American Driving Survey used NORC's AmeriSpeak®, a large probability-based panel designed to be representative of the U.S. household population, including all 50 states and the District of Columbia. The panel recruitment procedures consist of two phases: (a) an initial recruitment using United States Postal Service (USPS) mailings, telephone contact, and modest incentives, and (b) a more elaborate non-response follow-up recruitment using FedEx mailings, enhanced incentives, and in-person visits by field interviewers. This two-stage process improves the panel representation by including hard-to-reach groups such as young adults (18 to 34 year-olds), racial/ethnic minorities, lower-income households, etc.

The survey began on July 1, 2019, and data have been continuously collected on every day of the year since. This report uses data collected between July 1, 2019 and June 30, 2020. The survey was conducted in English and Spanish via web (using computers, tablets, or smartphones) and phone with a sample aged 16 years and older. Respondents were asked a series of questions regarding all their travel over a 24-hour (one day) period beginning the day before the survey. The questions asked when each trip was taken (time), where they began and ended the trip, why they made the trip (trip purpose), and how they traveled (transportation mode). If respondents drove themselves, they were also asked to report the distance and duration of the trip and the vehicle type they drove. These questions were repeated for every trip they reported from 3 AM on the previous day to 2:59 AM on the survey day.

Results

A majority of survey respondents overwhelmingly chose to take the online survey (90%)—computers (39%), smartphones (48%) and tablets (2%)—with only 10% taking the survey

via interviews by telephone. The greatest difference in the characteristics of respondents, in relation to interview mode, is that respondents who completed the survey by telephone tended to be older than those who completed it online. Meanwhile, the majority (73%) of respondents were recruited at the initial stage. Compared with these respondents, those recruited in the non-response follow-up were more likely to be Hispanic, have lower education levels, and/or live in metropolitan areas.

The data indicate that about 9-in-10 U.S. residents ages 16 or older drove at least occasionally and made an average of 2.5 driving trips daily during 2019–2020. They spent approximately 59 minutes a day driving and drove, on average, nearly 30 miles daily. These data also show the differences in driving patterns by socio-demographic factors. For example, middle-aged drivers made more trips, spent more time driving, and drove more miles than teens or older drivers. Men drove more often, more time, and more miles than women. Also, the average daily number of trips, minutes, and miles were higher for married people than for the widowed.

Using data from the U.S. Census Bureau, the number of drivers ages 16 or older in the United States was estimated at 246.3 million between 2019 and 2020. Additionally, it was estimated that they made nearly 225 billion trips, spent about 89 billion hours driving, and drove almost 3 trillion miles.

Important Reminder

As a continuous effort to address the need for driving exposure information, the AAA Foundation for Traffic Safety adopted a new methodology to improve its data collection efficiency, reliability, and representativeness. It is suggested that the results included in this report not be compared with those reported in the previous publications, as the survey methodologies in previous years were significantly different from those reported herein. However, as the study continues collecting data, aggregated data collected over multiple years will improve data precision and provide insights into changes in driving patterns over time.

Background

History and purpose

Information about driving exposure is critical to understanding motor vehicle traffic safety risks and trends in safety. While data derived from aggregate counts of vehicles on a particular road or in a state are readily available, they lack contextual information such as details about the drivers, the vehicles, and their trips.

Historically, the Federal Highway Administration's National Household Travel Survey (NHTS) had been the data source that traffic safety professionals relied on for understanding in-depth information about driving exposure in relation to the characteristics of drivers. However, the NHTS was only conducted approximately every 6 to 8 years; to date it has only been conducted four times since 1995. In spite of the large gaps between surveys, the NHTS was an effective data source for numerous years. This changed, however, with the impact of the Great Recession of December 2007–June 2009: the annual number of motor vehicle traffic fatalities fell to record lows. During this time period, only one NHTS was conducted. This was neither sufficient to understand all of the ways that travel had changed during the recession and in the years that followed, nor how these changes in travel contributed to changes in traffic safety.

To address the need for current information regarding driving exposure in relation to driver, vehicle, and trip characteristics, the AAA Foundation developed and implemented a data collection system to collect national-level data on the driving habits and patterns of the American public. This data collection system, the *American Driving Survey* (ADS), was launched in May 2013. Although not attempting to replicate the NHTS in size, the AAA Foundation hoped to fill the data gap by implementing the annual ADS to provide, at minimum, some limited person-level data on driving exposure between NHTS survey years. The ultimate aim was to estimate the size of the driving population and the amount of driving completed.

Previous sampling and reporting

The survey consisted of daily telephone interviews with a representative sample of the United States population, conducted in either English or Spanish by either landline or cellular phone. Approximately 3,000 telephone interviews were conducted each year until December 2017. The survey comprised an overlapping dual-frame (landline/cell phone) telephone survey sample design. The landline sample was generated through the Marketing Systems Group GENESYS sampling system, which produced a strict single-state, and Equal Probability Selection Method (epsem) sample of telephone numbers. Similar to the landline sample, a list of cellular telephone numbers was generated randomly.

When an eligible adult was reached by telephone, he or she was asked to report the age and sex of all household members and the frequency with which they drove. After this, one or more household members were selected from among all household members who were at least 16 years old and drove at least occasionally, and the selected household member was

asked to report detailed information about all of the driving that they did over a 24-hour period the day before the interview. Teenage drivers, drivers ages 75 years or older, and drivers who reported driving "almost every day" were oversampled. Respondents reported all of the places to which they drove, the trip duration in minutes and length in miles, the type of vehicle they drove, and the number of passengers who accompanied them.

Data were weighted to project the survey sample onto the entire population of the United States. By aggregating results from interviews conducted each day, the data were used to estimate the average and total amount that Americans drove each year and to characterize their daily driving behaviors. Results of the first one-year period of data collection were published in the report, American Driving Survey: Methodology and Year 1 Results, May 2013–May 2014 (AAA Foundation, 2015). A subsequent report was published in the AAA Foundation Brief, American Driving Survey: 2015–2016, which included results from January 1, 2015 through December 31, 2016 (AAA Foundation, 2018). The last report, using the above noted methodology was produced in the research brief, American Driving Survey: 2014–2017, and included results from the entire survey period (AAA Foundation, 2019).

Changing directions

After several years of data collection, response rates began to decrease. Among factors speculated for contributing to the low response rates included the increase in automated telemarketing calls reducing interest in survey participation, calls flagged as "spam" and not answered, and telephone number blocking technologies. While the low response rates did not necessarily render the survey inaccurate, it did create operational difficulties. Ultimately, the AAA Foundation determined that the survey's methodology needed to be re-examined and modernized.

In 2017, the AAA Foundation began to re-examine the methodology of the ADS to improve its quality and efficiency. In June 2018, the AAA Foundation convened an expert panel of eight statisticians and methodologists (authorities in the travel survey arena) to discuss recruitment options and data collection methods for a new ADS (the names and affiliations of these experts are listed in Appendix 1). Discussions among panelists were broken into three sections: innovative data collection methods, recruitment challenges and potential approaches, and an open discussion regarding various issues that might need consideration (e.g., incentives, how frequently the survey should take place, etc.).

The expert panel examined various data collection methods (other than the original ADS method of telephone surveys) including self-administered surveys (web-based/online) and passive data collection approaches (e.g., travel log recorded via GPS, smartphone apps, etc.). Panelists discussed advantages, disadvantages, concerns around recruitment challenges, and potential approaches to addressing these concerns with both methods. Based on these discussions and feedback, the AAA Foundation decided to transition to a mixed-mode survey that would be administered to a pre-recruited, nationally representative panel.

Approach for the New American Driving Survey

Survey panel

The New American Driving Survey used NORC's AmeriSpeak® (NORC at the University of Chicago, 2020), which is a large probability-based panel designed to be representative of the U.S. household population, including all 50 states and the District of Columbia. U.S. households are randomly selected and sampled using area probability and address-based sampling, with a known, non-zero selection probability from the NORC National Sample Frame. The sampled households are then contacted by U.S. mail, telephone, and field interviewers (face-to-face). The panel provides approximately 97% coverage of the U.S. household population. Those excluded from the sample include people with P.O. Box–only addresses, some people with addresses not listed in the USPS Delivery Sequence File, and some people living in newly constructed dwellings.

The panel recruitment procedures consist of two phases: (a) an initial recruitment using USPS mailings, telephone contact, and modest incentives, and (b) a more elaborate non-response follow-up recruitment using FedEx mailings, enhanced incentives, and in-person visits by field interviewers. For the initial recruitment, sample households are invited to join the panel by visiting a website or by calling. For the non-response follow-up recruitment, a stratified random sample is selected from the non-respondents of the initial recruitment. A new recruitment package with an enhanced incentive offer is then sent to the selected units. Meanwhile, field interviewers make personal, face-to-face visits to the pending cases to encourage participation.

This two-stage process improves the panel representation by including hard-to-reach groups such as young adults (18 to 34 year olds), racial/ethnic minorities, lower-income households, etc. NORC's research (Bilgen et al., in press) indicates that respondents recruited through the non-response follow-up often show different characteristics from initial respondents in numerous surveys. For example, they tend to be more conservative politically, less knowledgeable about science, and less interested in current events or topics in news reports. Since these demographic characteristics are associated with considerable survey variables, non-response follow-up recruitment helps achieve a more balanced panel and reduce potential non-response bias in sample estimates (Bilgen et al., 2018).

Nearly 62% households in the AmeriSpeak panel were recruited from the initial stage, while 38% recruited via the non-response follow-up stage (Dennis, 2019).

Survey mode

Members of households recruited into the AmeriSpeak® panel (hereafter "panelists") can complete the survey by either web or phone; a majority prefer web response. The web-mode participants can complete the survey using computers, tablets, or smartphones in which the survey system renders an optimized presentation of questions. The telephone mode supports panelists without internet access or who prefer to complete surveys by speaking to an interviewer rather than completing the survey online. This mixed-mode data collection improves response rates and representativeness of the overall sample.

Survey administration

The survey began on July 1, 2019, and data have been continuously collected daily since. This report uses data collected between July 1, 2019, and June 30, 2020. The survey was conducted in English and Spanish via web and phone with a sample aged 16 years and older, using the following procedures:

- Respondents were asked a series of questions regarding all their travel over a 24-hour (one day) period beginning the day before the survey. The questions include the following:
  - When was each trip taken? (time)
  - Where did each trip begin and end?
  - Why was the trip made? (trip purpose)
  - How did they travel? (transportation mode)
- If respondents drove themselves (i.e., the transportation mode is "I drove a vehicle (I was the driver)"), they were also asked to report the distance and duration of the trip and the vehicle type they drove.
- These questions were repeated for every trip they reported from 3 AM on the previous day to 2:59 AM on the survey day.

The full survey instrument is available in Appendix 2 of this report.

The survey administration aimed to have 5,000 completed interviews within a one-year period, thus collecting an average of 14 completed interviews per day for each day of the year (366 days—2020 was a leap year). Every week, the collected sample was broken down by day of the week and the coverage analyzed. This ensured that the distribution of interviews across days of the week was reasonably uniform as shown in Table 1.

Of panelists invited to participate in the New American Driving Survey, nearly 3 out of 10 (28.3%) completed it. Accounting for all stages of sampling and response from the initial invitation to join the AmeriSpeak panel through completion of the New American Driving Survey, the final response rate (defined as AAPOR Response Rate 3 (American Association for Public Opinion Research, 2016)) was 5.4%.

Table 1. Completed responses distribution by day of the week

Day of the week	Sample Size (n)	%
Sunday	729	14.2
Monday	697	13.6
Tuesday	770	15.0
Wednesday	752	14.7
Thursday	715	14.0
Friday	745	14.5
Saturday	717	14.0
Total	**5,125**	**100.0**

Weighting

For surveys based on sample, weights are applied to the data to reduce survey bias when estimating population parameters of interest (e.g., means or totals). The standard weighting process consists of three steps (Valliant et al., 2013; Lavallée and Beaumont, 2015): (a) computing a design weight to account for the selection probabilities under the sample design, (b) adjusting for unknown eligibility, non-response, and sampling frame coverage, and (c) calibrating to the known distribution of the target population using a set of demographic variables. Using these procedures, this study developed three weights—panel base weights, study-specific weights, and study-specific base weights—which are described below. The statistics from weighted ADS data, thus, represent estimates of the travel behavior of all U.S. residents ages 16 years and older.

Panel base weights

The panel base weights were computed as the inverse of the selection probability from the national sampling frame to represent the probability of being selected as an AmeriSpeak panelist. The sample design and recruitment protocol for the AmeriSpeak Panel involved unequal sampling rates across the sampling strata and additional subsampling of initial non-responding housing units for in-person non-response follow-ups. The panel base weights reflect all the variations in panel sample selection and were adjusted to account for unknown eligibility, non-response, and frame coverage.

To produce the final household panel weights, the household-level non-response adjusted weights were post-stratified to match the number of households per census division obtained from the most recent U.S. Census Bureau, Current Population Survey. Final household weights were assigned to each eligible adult in the recruited household. These person-level weights were then adjusted to compensate for non-responding adults within a recruited household. Finally, panel weights were raked to external population totals associated with a set of variables including age, gender, census division, race/ethnicity, education, housing tenure (homeowner or other), and household phone status.

Study-specific weights

Study-specific weights represent the probabilities of being selected from among all AmeriSpeak panelists to participate in the New American Driving Survey. The weights were developed to adjust unequal selection probabilities from the panel, differential non-response across subpopulations, and frame coverage limitations.

Study-specific base weights

Study-specific base weights were the product of the final panel base weight and the study-specific weights; they reflect the cumulative probabilities of being selected as the study sample. Since not all sampled panel members responded to the interview, an adjustment was made for non-respondents based on variables including age, gender, census division, race/ethnicity, education, and metropolitan status.

Further, an additional day-of-the-week weight was applied to ensure that travel on each day of the week was represented equally in the weighted sample.

Data cleaning and processing

Data cleaning and processing comprised two main steps. First, NORC examined the database to identify respondents who did not meaningfully complete the survey, including those who skipped an excessive number of questions and those who completed the survey at a rate suggestive of "clicking through" the survey without actually reading and responding to the questions. A small number of respondents who skipped more than half of all survey questions or who completed the questionnaire in less than one-third of the median completion time was excluded at this stage.

Next, the AAA Foundation examined the trip data reported by the respondents to identify any for which the distance or duration of the trip was missing (reported as "Don't Know" or skipped) or in which the reported distance and duration were clearly incompatible with one another (e.g., a trip whose length was reported as 50 miles and duration was reported as 1 minute). Trip distance and trip duration were considered incompatible if the calculated average speed for the trip was greater than 100 miles per hour for trips longer than 5 miles or less than 5 miles per hour for trips longer than 1 hour. These thresholds were used to respect respondents' intentions even in the event of minor errors in estimation while not allowing obvious data entry errors to influence the results excessively.

At this stage, out of a total of 13,384 driving trips, 149 trips (1.1% of all driving trips) had missing distance, 382 (2.9%) had missing duration, and 48 (0.4%) had missing both distance and duration. An additional 412 trips (3.1% of all driving trips) had incompatible distances and durations. Entering a number intended as minutes into the field for hours, (e.g., entering 5 hours when 5 minutes was likely intended) appeared to have been the major source of incompatible combinations of distance and duration. When distance and duration were incompatible, they were treated as missing data. In addition, one respondent was excluded because the respondent reported a large number of long trips totaling over 7,000 miles, which could not plausibly have been completed in a single day.

Missing trip distance and duration were imputed so that trips that respondents clearly intended to report could still be counted. Missing data were imputed using the following procedures:

- If a trip with missing distance or missing duration (but not both) was within ±20% of the distance or duration of the previous trip or the following trip, and either the previous or the following trip had complete data, then the missing value was imputed as the value from that trip. (For example, if a respondent drove from home to work and reported a valid distance and duration, but then reported an invalid distance or invalid duration for the reverse trip, the value from the trip with complete data was used).
- To impute missing trip distances or missing trip durations for trips not imputed in the previous step but having only one or the other missing, trips were divided into 6 categories based on distances: <5 miles, 5–10 miles, 10–25 miles, 25–50 miles, 50–100 miles, and >100 miles. The median average speed was computed for all trips in each category. This value was used to impute missing trip distance or trip duration.
- If both distance and duration were missing for a trip, the distance and duration were imputed using the mean distance and mean duration, respectively, of all other valid trips that the respondent reported.

- If a respondent reported neither distance nor duration for any trip (n= 9), the respondent was excluded from statistical analyses of trips, trip distances, and trip durations.

The analysis in this report used a total of 13,330 driving trips that included the imputed data using the above-mentioned procedures.

Impact of COVID-19 pandemic

In March 2020, the World Health Organization declared the disease caused by the SARS-CoV2 virus (COVID-19) to be a pandemic. In the United States, individual states and their localities responded by prohibiting large-scale gatherings, closing in-person schools, and issuing stay-at-home orders. This resulted in a surge of teleworking and use of virtual learning/meetings, telematics, online shopping, and delivery services. Accordingly, many people adjusted their usual travel modes from driving to walking and cycling to accomplish small, local errands. These restrictions and changes in people's movements and routines led roadways and highways to become largely empty.

The National Highway Traffic Safety Administration (NHTSA) released a report about early estimates of motor vehicle fatalities for the first half of 2020. It said that, despite a 2% decrease, the fatality rate per 100 million vehicle miles traveled increased, compared with the corresponding period in 2019. NHTSA specifically cited that "the historical drop in vehicle miles traveled was due to the COVID-19 pandemic stay-at-home orders" (National Center for Statistics and Analysis, 2020). A subsequent NHTSA report specifically reviewed national changes in roadway travel and drivers' behaviors since the declaration of COVID-19 pandemic (Wagner et al., 2020), concurring that traffic volumes, as well as general trip taking and transit use, were reduced.

In the future, once additional data becomes available from the New ADS, the AAA Foundation intends to examine the pandemic's impact on travel patterns.

First Year Results from the New American Driving Survey

As described in the previous section, randomly selected respondents on each day reported the information for all trips they made during a 24-hour period before the survey day (3:00 AM–2:59 AM on the next day). Then, the responses collected over all days of the year (July 1, 2019–June 30, 2020) were weighted and averaged to produce daily and annual national estimates. Thus, all statistics, other than the sample size (n) in the subsection Sample and Table 1, are based on weighted data.

It is important to note that the results in this report should not be compared with previous ADS reports published by AAA Foundation for Traffic Safety (i.e., to assess changes over time). This is because the survey methodologies in previous years were significantly different from those reported herein. Further, and importantly, in March 2020 the World Health Organization declared the rapidly spread of COVID-19 to be a pandemic. This global pandemic is thought to have significantly impacted travel patterns in the United States due to quarantine orders. Thus, caution should be taken in interpreting these data. The primary objective of this report is to present the new methodology and subsequent data for the administration of the New American Driving Survey.

Sample

Survey mode distribution

As shown in Table 2, the survey respondents overwhelmingly chose to take the survey online (90%)—computers (39%), smartphones (48%) and tablets (2%)—with only 10% taking the survey via interviews by telephone.

The biggest difference in the characteristics of respondents, in relation to interview mode, is that respondents who completed the survey by telephone tended to be older than those who completed the survey online. For example, 82% of phone respondents were 50 years or older. Among those who completed the survey by computer, respondents aged 50 to 64 had the highest percentage (31%), followed by middle-aged adults aged 35 to 49 (20%) and older adults aged 65 to 74 (18%). Among those who completed the survey by smartphone, 78% were aged 25 to 64, while 82% of those who completed the survey with tablets were aged 35 to 74 years.

Among computer respondents, more were male, while for other survey modes (smartphone, tablet, and phone) the majority were female. Additionally, among phone respondents, there were proportionally more non-Hispanic blacks (22%) than those among other respondent modes. With regards to education level, a majority of online respondents—over 70% across all types of online modes—were highly educated, having a college-level education and/or a college degree. Among phone respondents, a greater proportion had a high school degree, GED (General Educational Development), or less. Finally, compared with online respondents, those who completed the survey by phone were more likely to be widowed and live outside metropolitan areas.

Table 2. Survey Respondents Distributions by Survey Mode in Relation to Selected Demographic Characteristics

Survey Mode	Online						Telephone	
	Computer		Smartphone		Tablet			
	n	column %	n	column %	n	column %	n	column %
Total	2,018	NA	2,478	NA	109	NA	519	NA
Age								
16 to 19	37	2	128	5	0	0	3	1
20 to 24	124	6	254	10	2	2	8	2
25 to 34	310	15	748	30	9	8	28	5
35 to 49	399	20	714	29	22	20	57	11
50 to 64	629	31	459	19	38	35	131	25
65 to 74	373	18	148	6	29	27	148	29
75+	146	7	27	1	9	8	144	28
Gender								
Male	1,138	56	1,143	46	48	44	227	44
Female	880	44	1,335	54	61	56	292	56
Race/Ethnicity								
White	1,436	71	1,394	56	80	73	262	50
Black	153	8	338	14	6	6	115	22
Hispanic	237	12	511	21	14	13	93	18
Asian, non-Hispanic	97	5	80	3	1	1	2	0
2+, non-Hispanic	62	3	114	5	6	6	29	6
Other	33	2	41	2	2	2	18	3
Education Level								
Less than high school (HS)	63	3	222	9	2	2	76	15
HS or GED*	282	14	484	20	21	19	173	33
Some college	823	41	1,119	45	40	37	196	38
College degree or higher	850	42	653	26	46	42	74	14
Marital Status								
Married	1,095	54	1,121	45	56	51	182	35
Living with a partner	116	6	281	11	8	7	16	3
Widowed	79	4	66	3	8	7	103	20
Divorced/Separated	273	14	315	13	23	21	90	17
Never married	455	23	695	28	14	13	128	25
Census Region								
Northeast	320	17	349	15	17	16	68	14
Midwest	456	24	537	22	27	26	136	27
South	635	33	853	36	33	31	189	38
West	522	27	651	27	28	27	105	21
Place of Residence								
Metro	1,696	84	2,064	83	94	86	400	77
Non-metro	322	16	414	17	15	14	119	23

* GED stands for General Educational Development.

Respondents from initial recruitment and non-response follow-up

Table 3 shows that the majority (73%) of survey respondents were recruited at the initial stage. Compared with these respondents, a greater proportion of those recruited in the non-response follow-up were Hispanic, had lower education levels, and/or lived in metropolitan areas.

Table 3. Survey Respondents Distributions by Recruitment Type in Relation to Selected Demographic Characteristics

	Initial Recruitment		Non-Response Follow-up	
	n	column %	n	column %
Total	3,729	NA	1,396	NA
Age				
16 to 19	119	3	49	4
20 to 24	285	8	103	7
25 to 34	743	20	352	25
35 to 49	874	23	318	23
50 to 64	910	24	347	25
65 to 74	536	14	163	12
75+	262	7	64	5
Gender				
Male	1,850	50	706	51
Female	1,879	50	690	49
Race/Ethnicity				
White	2,373	64	800	57
Black	454	12	158	11
Hispanic	523	14	332	24
Asian, non-Hispanic	142	4	38	3
2+, non-Hispanic	160	4	51	4
Other	77	2	17	1
Education Level				
Less than HS (or HS age)	237	6	126	9
HS or GED*	686	18	272	20
Some college	1,591	43	587	42
College degree or higher	1,215	33	409	29
Marital Status				
Married	1,782	48	673	48
Living with a partner	267	7	154	11
Widowed	199	5	57	4
Divorced/Separated	521	14	180	13
Never married	960	26	332	24
Census Region				
Northeast	562	16	192	14
Midwest	885	25	271	20
South	1,200	34	511	38
West	927	26	379	28
Place of Residence				
Metro	2,995	80	1,260	90
Non-metro	734	20	136	10

* GED stands for General Educational Development.

Driving population characteristics

Table 4 shows the estimated proportion of the U.S. population who reported they drove at least occasionally (as opposed to never driving) in relation to selected demographic characteristics. Overall, approximately 9 out of 10 U.S. residents ages 16 or older reported they drove at least occasionally. In relation to age, this proportion increased until ages 35 to 49 years with the highest proportion being 97%; the driving proportion decreased after this age group. Thus, the youngest and oldest age groups were less likely to report driving than other age groups. Men reported a slightly higher driving than women (94% vs. 93%), and non-Hispanic whites (96%) were more likely to drive than respondents of other races. As the education level increased, the proportion of the driving population also increased with nearly all people with a college or higher degree reported at least occasionally driving (97%). Married people were the most likely to drive, while those widowed were the least likely to drive.

People in the Midwest and South reported a bit more driving than those in the Northeast and West. People living in non-metropolitan areas were more likely to report driving (96%) than those who lived in metropolitan areas (93%).

Table 4. Percent of U.S. Residents Age 16+ Who Drive at Least Occasionally, in Relation to Selected Demographic Characteristics, 2019–2020

Characteristic	Percentage
Total	94%
Age	
16 to 19	86%
20 to 24	91%
25 to 34	94%
35 to 49	97%
50 to 64	95%
65 to 74	94%
75+	87%
Gender	
Male	94%
Female	93%
Race/Ethnicity	
White	96%
Black	88%
Hispanic	90%
Asian, non-Hispanic	92%
2+, non-Hispanic	92%
Other	91%
Education Level	
Less than HS (or HS age)	85%
HS or GED*	91%
Some college	96%
College degree or higher	97%
Marital Status	
Married	96%
Living with a partner	95%
Widowed	86%
Divorced/Separated	94%
Never married	89%
Census Region	
Northeast	90%
Midwest	95%
South	94%
West	93%
Place of Residence	
Metro	93%
Non-metro	96%

* GED stands for General Educational Development.

Daily driving: trips, distance, and duration

Table 5 shows that U.S. drivers made an average of 2.5 driving trips daily. In relation to age, the average number of daily driving trips increased as drivers became older until ages 35 to 49 and decreased after this age group. Thus, the youngest and oldest had the lowest number of daily driving trips (1.7 and 1.8, respectively). These numbers were higher for men than for women, but lower for Hispanics than other races. People with a college or higher degree and/or married people made, on average, more trips than their counterparts. In addition, people who lived in the Midwest and/or in non-metropolitan areas made more trips per day than those who lived in other regions or in metropolitan areas.

On average, drivers spent approximately 59 minutes driving each day. Middle-aged drivers spent more time driving than teens or older drivers. The mean driving duration was higher for men than for women, higher for non-Hispanic blacks than other races (except Other category in race), and higher for people with a college or higher degree than for those without those degrees. With regards to marital status, drivers who were married or living with a partner reported the most time driving on a daily basis.

People in the Northeast spent more time driving than those in other regions. Also, people who lived in non-metropolitan areas spent more time driving than those who lived in metropolitan areas.

Table 5 also illustrates that U.S. drivers drove, on average, nearly 30 miles a day. Drivers ages 35 to 64 drove more than the average, and 75 or older drove the least miles per day (12.4). Similar to results on other metrics, men drove more miles than women. Non-Hispanic white drivers drove more miles than non-Hispanic blacks, Hispanics, and Asians. Drivers with some college degree or higher drove more miles than those with a high-school education or a GED or those without degrees (including high-school students). Married people drove substantially more miles than those who were widowed, and people in the South and/or non-metropolitan areas drove more miles than those in other regions and/or metropolitan areas.

Table 5. Average Daily Number of Driving Trips, Minutes, and Miles Made by U.S. Drivers in Relation to Selected Demographic Characteristics, 2019–2020

	Trip	Minute	Mile
Total	2.5	59.3	29.5
Age			
16 to 19	1.7	44.3	24.6
20 to 24	2.2	47.6	23.1
25 to 34	2.7	65.1	29.6
35 to 49	2.9	66.7	34.5
50 to 64	2.7	68.6	35.2
65 to 74	2.2	54.7	27.8
75+	1.8	29.3	12.4
Gender			
Male	2.6	68.1	35.2
Female	2.4	51.0	24.1
Race/Ethnicity			
White	2.6	58.8	31.0
Black	2.5	63.1	29.7
Hispanic	2.1	53.2	22.8
Asian, non-Hispanic	2.2	57.6	26.7
2+, non-Hispanic	2.6	51.4	24.3
Other	3.3	135.3	57.6
Education Level			
Less than HS	1.8	59.4	21.6
HS or GED*	2.4	74.1	28.2
Some college	2.7	72.1	32.2
College degree or higher	2.7	76.1	31.7
Marital Status			
Married	2.7	68.3	34.9
Living with a partner	2.4	64.7	29.3
Widowed	1.8	32.0	14.1
Divorced/Separated	2.4	53.7	28.6
Never married	2.3	49.4	23.5
Census Region			
Northeast	2.5	61.4	28.2
Midwest	2.6	57.9	28.4
South	2.5	58.8	31.6
West	2.5	56.7	27.1
Place of Residence			
Metro	2.5	59.2	28.7
Non-metro	2.8	59.8	35.2

* GED stands for General Educational Development.

Annual estimates

Using Census statistics (2019), Table 6 presents the estimates for the U.S. driving population and their annual driving trips, duration, and distance driven. The number of drivers ages 16 or older in the U.S. was 246.3 million. Additionally, they made nearly 225 billion trips, spent about 89 billion hours for driving, and drove almost 3 trillion miles.

Table 6. Daily and Annual Estimates of Driving Population, Driving Trips, Driving Duration, and Distance Driven, United States, 2019–2020

Population Age 16+ (millions)	263.4
Drivers	
% of population who drive	93.5
Number of drivers (millions)	246.3
Driving Trips	
Daily trips (per driver, mean)	2.5
Annual trips (per driver, mean)	912.5
Annual trips (total all drivers, billions)	224.7
Time Spent Driving	
Daily (mean per driver, minutes)	59.3
Annual (mean per driver, hours)	360.7
Annual (total all drivers, billions of hours)	88.8
Miles Driven	
Daily (mean per driver, miles)	29.5
Annual (mean per driver, miles)	10,767.5
Annual (total all drivers, trillions of miles)	2.7

Concluding Remarks

In 2019, the AAA Foundation for Traffic Safety adopted a new survey methodology for recruiting and interviewing respondents. The new survey panel used to recruit participants provides approximately 97% coverage of the U.S. household population. Further, compared with previous years, the new survey methodology allows respondents to complete the survey through multiple modes (telephone interview and online survey via computers, tablets, or smartphones). These changes were made to improve the efficiency, reliability, and representativeness of the American Driving Survey. This report describes the new approach and provides the results from July 2019 to June 2020, the first year of data collection using the updated methodology.

Results indicate that 9-in-10 U.S. residents ages 16 or older—an estimated 246.3 million across the nation—drove at least occasionally and made an average of 2.5 driving trips per day. Further, respondents spent approximately 59 minutes driving each day and drove nearly 30 miles on average per day. These data also revealed that overall, males drove more than females, middle-aged respondents drove more than older and younger respondents, and non-Hispanic white respondents drove more than other races.

The results included in this report should not be compared with those reported in previous ADS reports. Survey methodologies in previous years were significantly different from those reported herein. Further, the global pandemic starting early 2020 clearly had a major impact on driving patterns, thus the study period from July 2019 through June 2020 is fundamentally unlike the same period in any prior year with respect to travel.

The AAA Foundation for Traffic Safety's New American Driving Survey will continue to track information regarding driving exposure in relation to driver, vehicle, and trip characteristics annually. As this work continues in future years, aggregating multiple years' data will improve the precision of estimates and provide valuable information about changes in the driving patterns of U.S. residents over time, including the impact of the recent coronavirus pandemic on travel patterns.

References

Bilgen, I., Dennis, J. M., & Ganesh, N. (2018). Nonresponse Follow-up Impact on AmeriSpeak Panel Sample Composition and Representativeness. *NORC at the University of Chicago*, Retrieved from https://amerispeak.norc.org/Documents/Research/Bilgen_etal_WhitePaper1_NRFU_SampleComposition_AAPOR_2018_2.pdf

Bilgen, I., Dennis, J. M., & Ganesh, N. (In Press). Measuring the Impact of Nonresponse Follow-up on Research Data. *NORC at the University of Chicago*.

Dennis, J. M. (2019). Technical Overview of the AmeriSpeak Panel NORC's Probability-Based Household Panel. *NORC at the University of Chicago*, Retrieved from https://amerispeak.norc.org/Documents/Research/AmeriSpeak%20Technical%20Overview%202019%2002%2018.pdf

Kim, W., Añorve, V. & Tefft, B.C. (2019). American Driving Survey, 2014–2017. *AAA Foundation for Traffic Safety*.

Lavallée, P. & Beaumont, J.-F. (2015). Why We Should Put Some Weight on Weights. *Survey Insights: Methods from the Field, Weighting: Practical Issues and 'How to' Approach, Invited article*, Retrieved from https://surveyinsights.org/wp-content/uploads/2015/02/Why-We-Should-Put-Some-Weight-On-Weights.pdf

National Center for Statistics and Analysis. (2020). *Early estimate of motor vehicle traffic fatalities for the first half (Jan–Jun) of 2020* (Crash•Stats Brief Statistical Summary. Report No. DOT HS 813 004). Washington, DC: National Highway Traffic Safety Administration.

NORC at the University of Chicago. *About AmeriSpeak from NORC*, Retrieved from https://www.amerispeak.org/about-amerispeak

The American Association for Public Opinion Research. (2016). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 9th edition. AAPOR.

Tefft, B.C. (2018). American Driving Survey, 2015–2016. *AAA Foundation for Traffic Safety*.

The United States Census Bureau. *National Population by Characteristics: 2010–2019*, Retrieved from https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-detail.html

Triplett, T., Santos, R., & Rosenbloom, S. (2015). American Driving Survey Year One May 2013–May 2014. *AAA Foundation for Traffic Safety*.

Valliant, R., Dever, J. A., & Kreuter, F. (2013). *Practical Tools for Designing and Weighting Survey Samples*. New York: Springer.

Wagner, E., Atkins, R., Berning, A., Robbins, A., Watson, C., & Anderle, J. (2020). *Examination of The Traffic Safety Environment During The Second Quarter of 2020: Special Report* (Report No. DOT HS 813 011). National Highway Traffic Safety Administration.

Appendix 1: List of Expert Panel Participants

PARTICIPANT	AFFILIATION
Kyeongsu Kim	Connetics Transportation Group
Scott E Le Vine	Centre for Transport Studies—Imperial College London
Giovanni Circella, Ph.D.	Institute of Transportation Studies—University of California, Davis
Chanyoung Lee, Ph.D., AICP	Center for Urban Transportation Research—University of South Florida
Guy Rousseau	Atlanta Regional Commission
Stacy G. Bricka, Ph.D.	Consultant
Jeffrey LaMondia, Ph.D.	Department of Civil Engineering—Auburn University
Kenneth Joh, Ph.D., AICP	Department of Transportation Planning—Metropolitan Washington Council of Governments

Appendix 2: Survey Instrument

The following questionnaire is a reader friendly interpretation of the New American Driving Survey Computer Assisted Telephone Interview (CATI) instrument as well as Computer Assisted Web Interview (CAWI) instrument.

INTRODUCTION

Thank you for agreeing to participate in our new survey. This survey is part of a research project being conducted to make transportation safer. Because this survey is about events that occurred yesterday, please plan to complete the survey all at one time.

To thank you for sharing your opinions, we will give you a reward after completing the survey. As always, your answers are confidential.

[START OF SURVEY]

Would you like to take this survey in English or Spanish?

English

Spanish

Q2.

How often do you usually drive a car or other motor vehicles?

Would you say that you usually drive…

1. Every day or nearly every day
2. Once a week
3. Once or twice a month
4. A few times a year
5. Never

[SHOW IF Q2=5, DON'T KNOW, IMPLICIT REFUSAL, SKIP]

Q2a.

Have you ever driven before?

1. Yes
2. No

[SHOW IF Q2a = 1]

Q2b.

Do you think you will drive again sometime, or have you stopped driving for good?

1. I will drive again sometime
2. I do not plan to ever drive again

[SHOW IF Q2a = 2]

Q2c.

Do you think you might drive sometime in the future?

1. Yes
2. No

[SHOW IF AGE = 16 to 25]

Q3.

Do you have a driver's license, learner's permit, or neither?

1. Driver's license
2. Learner's permit
3. Neither

[SHOW IF Q2=1,2,3,4]

Q4.

Counting cars, vans, minivans, SUVs, pickup trucks, and motorcycles, how many vehicles do you own or are otherwise available for your use?

____ vehicles [0 – 10: IF MORE THAN 10, PLEASE JUST ENTER "10"]

Q7.

Did you work for pay yesterday?

1. Yes
2. No

[SHOW IF Q7 = 1 and Q2=1, 2, 3, 4]

Q8.

Does your job include driving a vehicle during the course of performing your work?

Please do not include your travel between home and your place of employment (commute).

1. Yes
2. No

The following questions concern trips you made from 3 AM yesterday through 3 AM this morning.

"Trips" refer to any time you traveled by vehicle, public transportation, or walking for one block or more on a public street, road, or sidewalk to go from one place to another. *We are interested in the travel itself,* so if you think about going to the store and then back home, please consider that 2 trips:

getting to the store,

and then going home.

Also, you may have made connections during your travel. For example, if you drove from home to the train station, rode the train, and then walked to your final destination, we would like you to consider that 3 trips:

Your drive from home to the train station,

Your train ride from one train station to another train station, and

Your walk from the train station to your final destination.

Finally if you went for a walk, jog, bike ride, or drive, please count that as a trip, even if you started and ended at the same place.

P1A.

Please think about how many trips you made from 3 AM yesterday through 3 AM this morning.

How many trips did you take that began between the following hours?

Please enter an answer for each box below. Enter "0" if you did not take any trips during the time period listed.

[77 FOR DON'T KNOW & 99 FOR REFUSED]

How many trips began between:	[numbox, Range: 0-50, 77, 98, 99] P1A_1 to _6 Number of Trips
3 AM – 6:59 AM	
7 AM – 10:59 AM	
11 AM – 2:59 PM	
3 PM – 6:59 PM	
7 PM – 10:59 PM	
11 PM – 2:59 AM	
Total number of trips	SUM_P1A. [auto-sum P1A_1 to _6]

[IF ALL P1A_1 TO P1A_6=77, 98, 99, TERMINATE THE SURVEY]

Thank you for your time today. Unfortunately you are not eligible for this study.

[SHOW IF ANY P1A_1 TO P1A_6> 0]

For each trip, we will be asking you about when and where you went. When possible it would be helpful if you could provide a brief description of the places you went to.

Again, "trips" refer to any time you traveled by vehicle, public transportation, or walking for one block or more on a public street, road, or sidewalk to get from one destination to another.

[SHOW IF ANY (P1A_1 to P1A_6) = 1 to 50]

P2.

Now, we are going to ask a few specific questions about trips that you took yesterday.

You indicated that you took:

[P1A_1] trips from 3 AM to 6:59 AM,

[P1A_2] trips from 7 AM to 10:59 AM,

[P1A_3] trips from 11 AM to 2:59 PM,

[P1A_4] trips from 3 PM to 6:59 PM,

[P1A_5] trips from 7 PM to 10:59 PM,

[P1A_6] trips from 11 PM to 2:59 AM

For a total of [SUM_P1A] trip(s) yesterday:

If you don't need to include additional trips, please click "Continue" after the prompt.

[77 FOR DON'T KNOW & 99 FOR REFUSED FOR START LOCATION AND END LOCATION]

	P2A_1-_50 Start Location	P2B_1-_50 End Location	P2C1_1-_50 P2C2_1-_50 P2C3_1-_50 What time did you begin this trip?	P2E_1-_50 Why did you take this trip?	P2F_1-_50 How did you travel?
Trip #1					
Trip #2					
Trip #3					
Trip #4					
…					
Trip #46					
Trip #47					
Trip #48					
Trip #49					
Trip #50					

P2C1_1 - _50, response options: Hours	P2C2_1-_50, response options: Minutes	P2C3_1-_50, response options: AM/PM	P2E_1-_50 response options:	P2F_1-_50 response options:
0 1 2 3 4 5 6 7 8 9 10 11 12	00 05 10 15 20 25 30 35 40 45 50 55	AM PM	**1. Commute to/from work** **2. Business/work trip** **3. School-related** **4. Medical** **5. Errands** **6. Social/pleasure** **7. Other**	**1. I drove a vehicle (I was the driver)** **2. Personal vehicle driven by someone else** **3. Public transportation (bus, train, subway, etc.)** **4. Taxi or rideshare (Uber, Lyft, etc.)** **5. Walk or bicycle** **6. Other transportation (airplane, boat, etc.)**

SHOW IF ANY P2F_1-_50 = 1

Now we're going to ask you more about yesterday's trips where you said you drove.

LOOP P3_1 to P3_50 PAGE

SHOW IF corresponding P2F_1-_50 = 1

SHOW P3D, P3E, P3G, P3H, P3J ON THE SAME SCREEN

Please tell us more about Trip #[n]. We're showing you some of the same information you provided earlier to help you remember.

Starting location: [P2A]

Ending location: [P2B]

Starting time: [P2C1] : *[P2C2] [P2C3]*

P3D/P3E. How long did you spend driving? [DROPDOWN: 0-24] Hours [DROPDOWN: 0-59] Minutes

P3G. How many miles did you drive on this trip? [NUMBOX, ALLOW DECIMALS 0.00 – 10,000] miles

P3H. What type of vehicle did you drive?

1. Car
2. Pick-up truck
3. Van
4. Minivan
5. SUV
6. Motorcycle
7. Something else

P3J. How many passengers rode with you? [DROPDOWN: 0, 1, 2, 3, 4, 5, 6, 7 or more]

CREATE DATA-ONLY VARIABLE: TOTMIN_DRIVEN [NUMERIC]

COMPUTE TOTMIN_DRIVEN=SUM(P3D_1 TO P3D_50)*60 + SUM(P3E_1 to P3E_50)

SHOW IF TOTMIN_DRIVEN>1440

TIMECHECK.

You said you drove for more than 24 hours yesterday; this seems incorrect. Please review your trips and re-enter hours and minutes if incorrect.

Show if P2F_1=1	Trip #1	Starting at [P2C1_1] : [P2C2_1] [P2C3_1], you drove for [P3D_1] hours and [P3E_1] minutes	HOURSNEW_1. [NUMBOX, RANGE: 0-24, 77, 98, 99] Hours	MINSNEW_1 [NUMBOX, RANGE: 0-59, 77, 98, 99] Minutes
Show if P2F_2=1	Trip #2	Starting at [P2C1_2] : [P2C2_2] [P2C3_2], you drove for [P3D_2] hours and [P3E_2] minutes	HOURSNEW_2. [NUMBOX, RANGE: 0-24, 77, 98, 99] Hours	MINSNEW_2 [NUMBOX, RANGE: 0-59, 77, 98, 99] Minutes
	…			
Show if P2F_49=1	Trip #49	Starting at [P2C1_49] : [P2C2_49] [P2C3_49], you drove for [P3D_49] hours and [P3E_49] minutes	HOURSNEW_49. [NUMBOX, RANGE: 0-24, 77, 98, 99] Hours	MINSNEW_49 [NUMBOX, RANGE: 0-59, 77, 98, 99] Minutes
Show if P2F_50=1	Trip #50	Starting at [P2C1_50] : [P2C2_50] [P2C3_50], you drove for [P3D_50] hours and [P3E_28] minutes	HOURSNEW_50. [NUMBOX, RANGE: 0-24, 77, 98, 99] Hours	MINSNEW_50 [NUMBOX, RANGE: 0-59] Minutes

CREATE DATA-ONLY VARIABLE: MILES_DRIVEN [numeric, range 0-10,000]

COMPUTE MILES_DRIVEN=SUM(P3G_1 TO P3G_50)

SHOW IF MILES_DRIVEN>720

MILES_CHECK.

You indicated that you drove [MILES_DRIVEN] miles yesterday. Please review the information you provided below.

Show if P2F_1=1	Trip #1	Starting at [P2C1_1] : [P2C2_1] [P2C3_1], you drove for [P3D_1] hours and [P3E_1] minutes and completed [P3G_1] miles.
Show if P2F_2=1	Trip #2	Starting at [P2C1_2] : [P2C2_2] [P2C3_2], you drove for [P3D_2] hours and [P3E_2] minutes and completed [P3G_2] miles.
	…	
Show if P2F_49=1	Trip #49	Starting at [P2C1_49] : [P2C2_49] [P2C3_49], you drove for [P3D_49] hours and [P3E_49] minutes and completed [P3G_49] miles.
Show if P2F_50=1	Trip #50	Starting at [P2C1_50] : [P2C2_50] [P2C3_50], you drove for [P3D_50] hours and [P3E_28] minutes and completed [P3G_50] miles.

Are the total [MILES_DRIVEN] miles you drove yesterday correct?

1 Yes
2 No

[SHOW IF MILES_CHECK=2]

MILESNEW.

Please enter the correct number of miles you drove below; to the right of any trip that should be updated.

Show if P2F_1=1	Trip #1	Starting at [P2C1_1] : [P2C2_1] [P2C3_1], you drove for [P3D_1] hours and [P3E_1] minutes and completed [P3G_1] miles.	MILESNEW_1. [numbox]
Show if P2F_2=1	Trip #2	Starting at [P2C1_2] : [P2C2_2] [P2C3_2], you drove for [P3D_2] hours and [P3E_2] minutes and completed [P3G_2] miles.	MILESNEW_2. [numbox]
	…		
Show if P2F_49=1	Trip #49	Starting at [P2C1_49] : [P2C2_49] [P2C3_49], you drove for [P3D_49] hours and [P3E_49] minutes and completed [P3G_49] miles.	MILESNEW_49. [numbox]
Show if P2F_50=1	Trip #50	Starting at [P2C1_50] : [P2C2_50] [P2C3_50], you drove for [P3D_50] hours and [P3E_28] minutes and completed [P3G_50] miles.	MILESNEW_50. [numbox]

R1.

Thinking about everyone who is currently living in your household, how many <u>other</u> people age 16 or older live in your household, <u>not</u> including yourself? Please do not include college students living away from home or military who are deployed and living somewhere else.

Please enter 10, if there are 10 or more persons age 16 or older living in your household

_____ (0-10)

SHOW IF R1 > 0

R2. Not including yourself, please complete the following information about the other people in your household age 16 or older:

[777 FOR DON'T KNOW & 999 FOR REFUSED]

	[PROMPT] [numbox: rng 16-109] R2_1 Age (16 and older)	**[PROMPT] [dropdown: Male, Female] R2_2 Gender**	**[PROMPT] [dropdown: (1) Almost every day; (2) Sometimes (3) Rarely (4) Never] R2_3 How often does this person drive?**
Person 1: Oldest person			
Person 2: Next oldest			
	…		
Person 9: Next oldest			
Person 10: Next oldest			

Q1.

How would you describe the area where you live?

1. Out in the country
2. Small town
3. Medium-sized town
4. Small city
5. Large city

QFINAL1.

Thank you for your time today.

END.