NextGen NHTS
NEWSLETTER

Issue Highlights

NHTS Program Updates

Recent FHWA NHTS program activities have included convening a virtual NextGen NHTS technical advisory committee (TAC) meeting, hosting a webinar on the NextGen O-D data component, and releasing a second update to the 2017 NHTS dataset. Continue reading to learn about highlights from each.

NextGen NHTS TAC Meeting

The second NextGen NHTS TAC meeting was held virtually on December 9, 2020. The meeting provided pooled fund members with updates on the NextGen NHTS program, with a focus on the origin-destination (O-D) data component. The O-D data component has three products: (1) national O-D truck data, (2) national O-D passenger data, and (3) add-on O-D passenger data. The national O-D truck and national O-D passenger datasets provide trip counts within and across FHWA's 582 O-D zones, while the add-on O-D passenger data summarize trips at the county level, block-group level, or at a custom geography developed by the purchasing agency. The TAC provided input on the O-D product specifications, including thoughts on how to define the "halo" zone (i.e., the geography immediately adjacent to the study area). TAC members also helped clarify the product descriptions and attributes to be appended to the trip counts.

> **QUICK TIP:** The national O-D products summarize travel across 582 O-D zones. For more information, visit FHWA's Travel Analysis Framework webpage.

NextGen NHTS O-D Data Component Webinar

This winter, FHWA held a NextGen NHTS O-D data component webinar on December 15, 2020. A total of 56 attendees participated, representing a mix of State transportation departments and MPOs. The webinar opened with an introduction to the NextGen NHTS pooled fund by Danny Jenkins of FHWA before its key focus: an in-depth presentation of the O-D data component by Dr. Lei Zhang, director of the University of Maryland team. It concluded with a moderated Q&A session.

The table (right) provides a summary of the 2020 O-D product specifications. All three O-D products report on the average annual number of O-D inter- and intra-zonal trips. The products differ in the level of descriptors or attributes appended to the trip counts.

2017 NHTS Version 1.2 Data Release

FHWA is pleased to announce a minor update to the 2017 NHTS data, now available for download at http://nhts.ornl.gov. The updates in Version 1.2 (V1.2) include:

- Adding an adjusted trip distance variable (*TRPMILES*) to the trip file for use in analyzing distance-traveled trends with past NHTS surveys. This variable accounts for differences in calculated versus estimated distance traveled when comparing 2017 distance metrics to those from earlier surveys.

NextGen NHTS 2020 O-D Product Specifications.

Product Specification	Product		
	National O-D Truck	National O-D Passenger	Add-on O-D Passenger
Trip count	Annual	Annual[a]	Annual, monthly, weekday/weekend, hour of day
Coverage	50 States and DC	50 States and DC	Agency-specified
Zone	582 FHWA zones	582 FHWA zones	Agency-specified
Distance	8 categories[b]	8 categories[b]	8 categories[b]
Travel mode[c]	N/A	Air, rail, vehicle, other	Air, rail, car, bus, walk, bike, other
Trip purpose[c]	N/A	Work, non-work	Home-based work, home-based other, work-based other, other
Demographics[c]	N/A	N/A	Age, gender, income

[a]For 2021 onward, trip count will include annual and monthly data. [b]Categories include 0–10, 10–25, 25–50, 50–75, 75–100, 100–150, 150–300, and >300 mi. [c]Denotes imputed data. N/A = Not applicable.

- Adding variables provided by the U.S. Energy Information Administration (EIA) on fuel economy and fuel use to the vehicle file.
- Adding variables from Claritas, LLC to the trip file to enhance location details about the origins and destinations of travel.
- Adding the variable *VEHTYPE* to the trip file.
- Making a minor change to the variable *PTUSED* in the person file.

For more information about the data updates, please see the *NHTS Version 1.2 Release Notes* at https://nhts.ornl.gov/documentation.

Want to Join the Pooled Fund?

The TAC comprises pooled fund participants and other representatives to guide travel behavior and other data collection work, advocate new technology and new method adaptation, and promote transparency for both the data and data methods. Current TAC members include:

- Baloka Belezamo, Arizona DOT
- Habte Kassa, Georgia DOT
- Lisa Shemer, Maryland DOT/State Highway Administration
- Karen Faussett, Michigan DOT
- Mark Grainer, New York State DOT
- Tae-Guy Kim, North Carolina DOT
- Rebekah Anderson, Ohio DOT
- Laura Chaney, Oklahoma DOT
- Becky Knudson, Oregon DOT
- David Lee, Tennessee DOT

- Peng Xiao, Virginia DOT
- Guy Rousseau, Atlanta Regional Commission
- Vladimir Livshits, Maricopa Association of Governments
- Kenneth Joh, Metropolitan Washington Council of Governments
- Nicole Cernohorsky, Oahu MPO
- Brian Tefft, AAA Foundation for Traffic Safety
- Megan Beardsley/Amy Bunker, U.S. Environmental Protection Agency

Participation in the NextGen NHTS pooled fund effort is on a rolling basis. Pooled fund partners can purchase additional core survey data and O-D data in their regions. For more information about joining at any time, contact the FHWA National Travel Behavior Data Program Manager Danny Jenkins at daniel.jenkins@dot.gov.

NHTS DATA SPOTLIGHT:

Trends in Fuel Economy

As with the 2001 and 2009 data collection cycles, the release of the V1.2 update to the 2017 NHTS included the addition of fuel economy variables. These variables, calculated by EIA, include fuel economy information for each vehicle in the vehicle file as well as fuel consumption and fuel cost estimates based on how each household reported driving that vehicle. They can be used to view trends over time within the Nation's vehicle fleet (in addition to the best estimate of annual miles variable (*BESTMILE*) added previously in Version 1.1). The NHTS dataset provides the richness to analyze these variables with respect to many demographics and vehicle characteristics. For example, these variables can provide insights on fuel efficiency and average fuel cost by vehicle type and annual fuel cost by household income, all of which are explored more closely here.

## What are current vehicle fuel efficiency trends?

The 2017 NHTS data confirm conventional wisdom that autos, on average, are more fuel efficient than vans, SUVs, and pickup trucks. There is also evidence of a gradual improvement of mean fleet miles per gallon over time across most vehicle types.
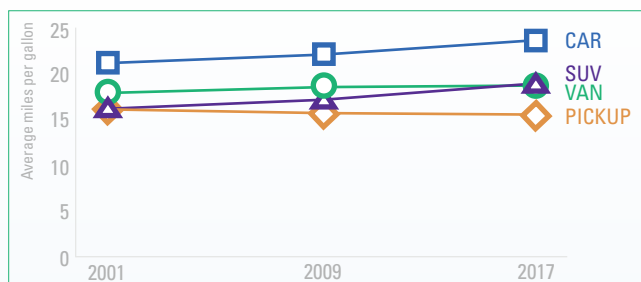
Harmonic Mean of Miles per Gallon by Vehicle Type.

How much do households pay annually for fuel?

According to 2017 NHTS data, the average gas price paid by survey respondents rose from $1.33 per gallon in 2001 to $3.04 per gallon in 2009. This price increase led average annual fuel costs to more than double from 2001 to 2009 alone. By 2017, the average annual fuel cost decreased for all vehicle types.
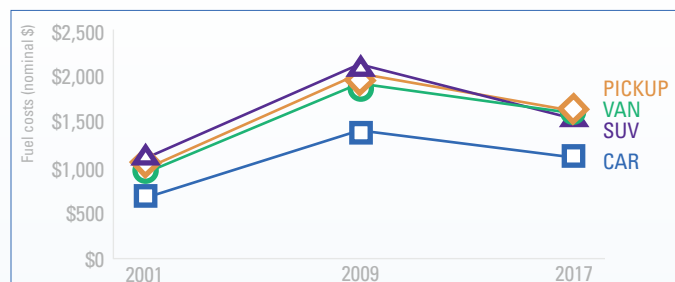
Average Annual Fuel Cost by Vehicle Type.

How does household income affect fuel costs and miles driven?

The 2017 NHTS data continue to show that fuel costs and miles driven generally rise as household income increases. Interestingly, miles per gallon per vehicle has been relatively flat as income has grown. In 2017, for vehicles owned by households with an income less than $25,000, mean miles per gallon was 20.28, whereas for households with an income greater than $200,000, mean miles per gallon was 20.94. Two conflicting sets of statistics explain this anomaly. As expected, as a household's income increases, the average age of its vehicles decrease, with increasing fuel efficiency in newer vehicles. However, higher-income households are also more likely to buy SUVs with lower fuel efficiency than their lower-income counterparts, offsetting most potential gains in fuel economy.
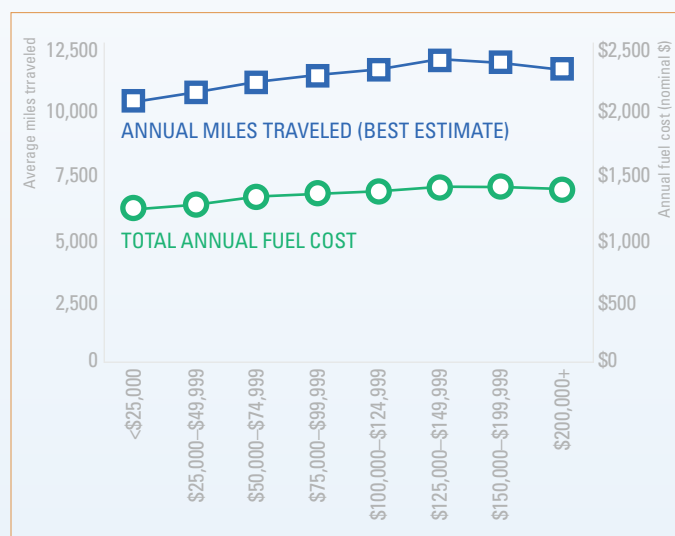
Average Annual Miles Driven and Annual Fuel Cost per Vehicle by Household Income.

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NHTS's Essential Role in Understanding COVID-19's Effect on Transportation

The 2017 NHTS has been used to support analyses on COVID-19's effects on daily commute, vehicle miles traveled (VMT) and associated vehicle emissions, and travel patterns based on income.

The COVID-19 pandemic has wreaked havoc on almost every aspect of our lives over the past 11 months, and its impact on our Nation's transportation system is no exception. Although it is still too early to tell whether these changes in travel patterns will be with us for the short term or will become the new norm, many researchers rely on NHTS data to estimate the impact of the virus on daily travel.

A frequent statistic cited from the NHTS is VMT. According to the 2017 NHTS, approximately 86 percent of Americans drove to work. Between lay-offs, mandated closures, and the shift to working from home, these workplace-related changes led to a significant drop in VMT associated with the daily commute. Telecommuting has been hailed by many transportation modelers and environmentalists as a thin silver lining around the dark, ominous cloud of COVID-19. A May 2020 article cited NHTS data, contending that if only 25 percent of Americans began to telework one day a week, then VMT would drop by 1 percent. This is quite significant given that drivers traveled more than 3.2 trillion miles in 2018.

This dramatic drop in VMT was also associated with a corresponding decrease in vehicle emissions. The reduction of vehicle emissions was the subject of several NHTS-supported reports and press articles. In April 2020, reporters from *E&E News* posed the question of how long this phenomenon would last and concluded that, regardless, this will be a watershed moment in the environmental movement. An April 2020 blog cited analysis combing the NHTS and StreetLight Data that saw a 68 to 72 percent reduction in VMT during the early days of the pandemic.

NHTS data were also utilized in a May 2020 paper that explored urban versus rural and low-income versus high-income travel patterns. The researchers used these demographic data in conjunction with trip purpose to help develop a model of human mobility before and during the pandemic. They undertook the work to provide a "realistic ground truth" against which the many models created using mobility data from various sources can be compared. By relying on a tried-and-true methodology employed by the NHTS, the authors were able to identify biases in these other models.

For more examples of how NHTS supported COVID-19–related analyses, check out the most recent *NHTS Compendium of Uses*.

Stay Connected

To learn more about NextGen NHTS, join the pooled fund, or provide suggestions, please visit our website at http://nhts.ornl.gov or contact:

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