

Project: [Public Transit in America: Observations from the 2017 National Household Travel Survey](#)

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Summary

The 2017 NHTS has some distinct survey design, sampling distribution, and collection differences, which are explored prior to delving into the transit market characteristics. The 2017 NHTS is an address-based sample survey, which is distributed on a national level. There were 13 add-on areas purchased by State Departments of Transportation or Metropolitan Planning Organizations. While the 2017 NHTS maintained the two-phase structure of the survey, a household recruitment and subsequent person level retrieval survey, the 2017 NHTS survey process was different than in past surveys. Previous NHTS surveys used Random Digit Dial (RDD) telephone sampling and only Computer-Assisted Telephone Interview (CATI) data collection, while the 2017 NHTS changed to Address Based Sampling (ABS) with mail-back as the primary recruitment survey response mode.

Since the 2017 NHTS collected data from a sample rather than the census of all households, all persons, and all travel they made during the data period is subject to sampling error. The size of sampling error depends largely on the size of the sample, i.e., the number of households and the number of persons in each sampled household in the final sample. Given changes in survey methods and more limited resources available for analysis, this report is structured differently than previous CUTR NHTS reports – less of a systematic analysis of public transportation travel and travelers and more of an exploration of key strategic issues relevant to public transportation’s future. The report is not necessarily comprehensive but rather targets issues of particular research and or policy interest.

The objective of this research is to afford transportation professionals, policy makers and the public the information necessary to form informed opinions and make judicious decisions regarding public transit. Public transportation has historically constituted approximately 2% of trips by household members in the U.S., a relatively modest share of all travel, making public transportation survey information particularly sensitive to sample sizes and the weighting strategies used for developing national estimates from survey data. More specifically, one of the concerns with the sample of transit trips relates to the fact that the transit travel choice is different than bike, walk, and drive choices in that the propensity to use transit is significantly influenced by the availability of service in the geography of the traveler. This availability of travel choice issue has significant variation across geography for public transportation because public transit is not ubiquitous as the level of service is highly influenced by geographic characteristics such as urban area size, density, and local decision making. The relevance of this differential transit availability is important due to the non-uniform sampling rates across geography that are inherent in a survey strategy that has add-on samples. This observation is not intended to discredit all that can be gleaned from available data, but it is shared as a caution to analysts.

Survey results indicated that public transit mode share increased from 2.0% in 2009 to 2.54% in 2017, an increase of approximately 27% in mode share. This mode share increase was curious in the context of the fact that actual transit ridership counts declined approximately 4% between the respective survey periods in spite of growing population and expanded service. Ridership has declined an additional approximate 4% since the 2017 NHTS survey, according to the National Transit Database (NTD). An area of interest for public transportation policy makers is the understanding of market segments and the extent to which various markets are using public transportation. Among the metrics that give insight into the ability of public transportation to capture additional markets are the distribution of auto ownership characteristics and income levels amongst public transportation users. The zero-vehicle household component of the market has been almost half of all riders over the past three survey cycles. The share of travel by this segment has remained high, but it has declined modestly with the most recent survey. An analysis of zero vehicle household transit use by income reveals that zero-vehicle households that make transit trips, might have adequate resources to own vehicles, but may have chosen to forgo vehicle ownership. The ability to attract higher income individuals to public transportation indicates that the services are sufficiently attractive to appeal to individuals who are likely to have other choices for travel. There has been meaningful growth in the share of transit riders who come from higher income households, most significantly in the rail mode. This is indicative of numerous factors including the prevalence of higher incomes in some of the larger Metropolitan areas that provide rail services and reflects the fact that these services typically offer higher speed travel that often cater to destinations such as central business districts and airports that are frequent destinations for higher income individuals.

Worker status is another element that adds insight with respect to the public transportation market, as work trips account for a significant share of total transit trips, and account for the second highest mode share for all trip purposes. Age is another population characteristic element that effects the public transit market. Daily per capita trips increase through the 36-45 age group, while the share of transit trips increases only through the 16-25 age group. The NHTS data set provides an opportunity to gain insight on Transportation Network Company (TNC) users and begin to explore interrelationships between public transportation and TNC use.

Finally, travel speed is a critical factor in mode choice and, not surprisingly, roadway speeds have declined since prior survey years. The evidence on transit speeds is mixed with bus slowing some and rail getting a little faster. The comparative data on the components of overall travel time on transit shows that the largest share of the increase in average transit trip times between 2009 and 2017 is attributable to in-vehicle travel time. Access and egress times also increased on average from 2009, but the average wait time decreased slightly. The overall transit travel time increased 13.8% in 2017. The collective consequence of the information presented suggests analysts continue to monitor evolution of transit markets and transit's competitiveness going forward. The data provides some strong evidence of changes in transit markets that appear consistent with broader socioeconomic and demographic phenomenon and transit service deployment initiatives in recent years. These changes may have implications with respect to policies that influence the pricing, funding and service allocations for public transportation.

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