

Commuting in America 2013

The National Report on Commuting Patterns and Trends

Brief 1. Overview



AMERICAN ASSOCIATION OF
STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO
THE VOICE OF TRANSPORTATION



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About the AASHTO Census Transportation Planning Products Program

Established by the American Association of State Highway and Transportation Officials (AASHTO) and the U.S. Department of Transportation (U.S.DOT), the AASHTO Census Transportation Planning Products Program (CTPP) compiles census data on demographic characteristics, home and work locations, and journey-to-work travel flows to assist with a variety of state, regional, and local transportation policy and planning efforts. CTPP also supports corridor and project studies, environmental analyses, and emergency operations management.

In 1990, 2000, and again in 2006, AASHTO partnered with all of the states on pooled fund projects to support the development of special census products and data tabulations for transportation. These census transportation data packages have proved invaluable in understanding characteristics about where people live and work, their journey-to-work commuting patterns, and the modes they use for getting to work. In 2012, the CTPP was established as an ongoing technical service program of AASHTO.

CTPP provides a number of primary services:

- **Special Data Tabulation from the U.S. Census Bureau**—CTPP oversees the specification, purchase, and delivery of this special tabulation designed by and for transportation planners
- **Outreach and Training**—The CTPP team provides training on data and data issues in many formats, from live briefings and presentations to hands-on full day courses. The team has also created a number of electronic sources of training, from e-learning to recorded webinars to downloadable presentations.
- **Technical Support**—CTPP provides limited direct technical support for solving data issues; the program also maintains a robust listserv where many issues are discussed, dissected, and resolved by the CTPP community
- **Research**—CTPP staff and board members routinely generate problem statements to solicit research on data issues; additionally, CTPP has funded its own research efforts. Total research generated or funded by the current CTPP since 2006 is in excess of \$1 million.

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Project Team

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Brief 1. Overview

The *Commuting in America (CIA)* series of reports describing travelers and their commutes to work began in April 1984, using census data to describe the emerging patterns of commuting. The original intent of *CIA* was well stated by Frank François, former Executive Director of the American Association of State Highway and Transportation Officials (AASHTO), and the first *CIA* Steering Committee Chair. As prefaced by François in the first report, the goal of the *CIA* is “to serve as a common resource of factual information upon which policy-makers can draw in shaping transportation development actions and policies over the coming years...It does not purport to reflect the policy positions of any of the sponsoring organizations and should not be interpreted in this manner.” This initiative, *Commuting in America 2013 (CIA 2013)*, continues to adhere to this original intent and philosophy.

This brief is the first in a series that constitutes a body of knowledge describing commuting in America. Sponsored by AASHTO and carried out in conjunction with a National Cooperative Highway Research Program (NCHRP) project that provided supporting data, this body of work builds on three prior documents covering this topic that were issued over the past three decades. Unlike the prior reports, which were single volumes, this effort consists of a series of briefs, each of which addresses a critical aspect of commuting in America. Taken together, they comprise a comprehensive summary of American commuting. The briefs are disseminated through the AASHTO website. Accompanying data tables and an Executive Summary complete the body of information known as *CIA 2013*.

***Commuting in America 2013* consists of a series of Briefs and an Executive Summary available through the AASHTO website which also contains additional source data and research documentation.**

Also different for *CIA 2013* is the institutional structure through which this effort is supported. Prior reports were supported by the Transportation Research Board (TRB) and the Eno Foundation, whereas this report is supported as part of the AASHTO pooled-fund study which supports a broad array of initiatives associated with the Census Transportation Planning Products (CTPP). This multi-year initiative, of which *CIA 2013* is part, is targeted to provide data and analysis on commuting to work to support the information needs of the state and metropolitan transportation planning and policy community. Therefore, *CIA 2013* has a different process for peer review, editing, and production of reports. The information products have

***Commuting in America 2013* is sponsored by AASHTO with support from NCHRP and the stakeholder community.**

changed and now include a set of written reports and the introduction of a web-based *CIA 2013* portal for dissemination of written reports and supporting data.

CIA 2013 includes several changes in the data sources that support the technical analysis reported in *Commuting in America* products. Historically, the long-form survey, conducted as part of the decennial census, has been a primary data source to support much of the analysis presented in *CIA* products. However, the discontinuation of the long form after the 2000 Census and its replacement by the Bureau of the Census with the American Community Survey (ACS), which is conducted continuously and reported annually, results in a significant difference in one of the major data sources available to support these documents. The ACS data, released annually in September of the year following its collection, significantly shortens the time lag between data collection and release compared to long-form census commuting data, and the continuous collection of ACS data enables more frequent updating.

***Commuting in America 2013* transitions the *Commuting in America* series to use of the ACS data source.**

In addition to the development of *CIA 2013* products, the production effort serves as a basis for stakeholders to evaluate the most desirable cycle of report updates, new funding partnerships, additional content and data sources, new products, and new strategies for dissemination.

Finally, coupled with changes in delivery format, sponsorship, and principal data sources, this analysis is carried out at a point in time when there is growing evidence of significant modifications in travel behavior associated with demographic, economic, technological, and social-cultural changes. These modifications to behavior are impacting work-trip commuting and travel in general. Thus, *CIA 2013*, while incorporating numerous changes, still strives to sustain its historical mission of providing objective and useful information to assist transportation analysts and policymakers in understanding commuting travel as they carry out their responsibilities to address transportation needs and impacts.

The balance of this brief addresses several issues that are important to understanding and using the various products in the *CIA 2013* series. First, the structure of this initiative is described, and then the importance of commuting is discussed, followed by a discussion of the data sources underlying this effort.

AASHTO and Commuting in America 2013

AASHTO has always played a leadership role throughout the history of the *Commuting in America* series. *CIA 2013* is one of the products in a comprehensive effort being carried out by AASHTO to support transportation professionals and policymakers with the best



available data on commuting. This initiative, the CTPP program, has been long recognized as an important information resource. So much so that AASHTO initiated a pooled-fund program of activities to sustain the development of data as the CTPP program transitions from a decennial census-based collection to a continuing process that uses ACS data to better understand commuting behaviors. This overall AASHTO CTPP initiative is a multi-year effort involving data assembly and processing, data dissemination, training and communications, and research aimed at understanding and communicating the data and their implications, including the *CIA 2013* products. The overall effort is overseen by a stakeholder task force that governs the work program for and pooled-fund spending on CTPP. A comprehensive reporting of that program and its activities and products can be found on the CTPP website: <http://ctpp.transportation.org>.

CIA 2013 Project Team

The *CIA 2013* was developed under contract to AASHTO by a project team selected in response to a request for proposals issued by AASHTO. This team, led by Dr. Steven Polzin from the Center for Urban Transportation Research at the University of South Florida, includes the principal author of prior *Commuting in America* reports, Alan Pisarski. In addition, this project is being closely coordinated with NCHRP 8-36, Task 111, U.S. Commuting and Travel Patterns: Data Development and Analysis. This project, led by Cambridge Systematics (CS), was responsible for much of the data preparation and structuring of the data for *CIA 2013*. The CS team is led by Dr. Bruce Spear and Dr. Liang Long with the University of South Florida as a subcontractor and Alan Pisarski and Nancy McGuckin serving as consultants. The scopes of work for both the AASHTO and NCHRP studies call for close coordination between the two teams. In addition to supplying the national-level data needed for *CIA 2013*, the NCHRP project will provide supplemental tabulations of commuter characteristics and travel behavior for states and metropolitan areas. These supplemental tabulations will be disseminated through either AASHTO or TRB.

Numerous other professionals, including AASHTO staff members, NCHRP program staff, and professionals involved with several data programs, have collaborated to enable these products to be produced. In addition, AASHTO established an oversight committee to provide review of the deliverables associated with *CIA 2013*. That oversight team is directed by Dr. Matthew Hardy of AASHTO and includes Ken Cervenka, Federal Transit Administration (FTA); Susan Gorski, Michigan Department of Transportation; Tim Henkel, Minnesota Department of Transportation; Mark Freedman, consultant; Phil Mescher, Iowa Department of Transportation; Guy Rousseau, Atlanta Regional Commission; Greg Slater, Maryland State Highway Administration; and Mary Lynn Tischer, FHWA Office of Transportation Policy Studies.

The Importance of Commuting

Historically, understanding commuting has been a critical component of understanding total travel. Commuting travel patterns often define a large share of a household's total trip-making as measured in share of trips. As work trips are slightly longer than trips for other purposes, work-trip commuting comprises a slightly larger share of total person travel miles. Work trips most often occur during congested time periods and are the largest contributor to travel time delay. Work trips are sensitive to and suffer the consequences of travel delay and large variations in travel time reliability.

As Table 1-1 indicates, trips having an ending or starting point at work have declined as a share of all person trips over the past few decades as Americans have expanded their trip-making. However, work trips remain a significant share of total vehicle miles of travel and an important anchor of travel for other purposes. Work-trip characteristics are highly relevant in understanding the relationship between travel and demand on transportation capacity and infrastructure. The longer average trip length and propensity for work trips to occur during congested travel times has historically resulted in work trips consuming a disproportionate share of travel time relative to their share of trips or person miles of travel. Work trips tend to comprise a larger share of vehicle miles of travel as a result of their lower occupancy rates. Work trips occur during peak travel periods, and are more likely than other trips to utilize higher type facilities.

Table 1-1. Trend in Commute Trip Shares of All Travel

| | 1969 | 1977 | 1983 | 1990 | 1995 | 2001 | 2009 |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Share of Person Trips | 25.9% | 19.5% | 20.4% | 20.2% | 16.8% | 15.8% | 15.6% |
| Share of Person Miles of Travel | – | 19.9% | 20.1% | 22.7% | 20.2% | 18.1% | 19.0% |
| Share of Person Travel Time | – | 21.2% | 22.1% | 23.8% | 22.0% | 17.8% | 18.8% |
| Share of Vehicle Miles of Travel | 33.6% | 30.4% | 30.1% | 32.1% | 28.5% | 27.0% | 27.8% |

Source: NPTS/NHTS Survey Series.

Commuting significantly influences the temporal and geographic distributions of non-commuting travel, as trips to and from work often define an individual's or household's travel schedule. The geography between an individual's home and work is often the area where workers choose to carry out other activities, as awareness of the opportunities and the convenience of potentially linking trips to work trips influences activity destination choices.

Commuting constitutes nearly 16% of person trips, approximately 19% of person miles of travel and person travel time, but nearly 28% of vehicle miles of travel.

Work travel demand is significant in the context of total travel but its influence is far greater during peak commuting times and in peak commuting travel corridors. Work trips shape peak transportation service and infrastructure capacity needs as “rush hours” or peak periods continue to define the most common and, hence, most congested travel times. This peaking of demand, strongly associated with commuting to work, defines the capacity requirements of road and transit system investments. Transit, in particular, is dependent on and often targeted to meeting commuter travel needs. The cost of providing transportation infrastructure and services often is governed by needing to meet peak-period commuting demand.

Commuting to work also underpins the economic health of households and communities by impacting worker access to employment, and business competitiveness by shaping their access to workers and customers. The home-based work trip remains the most critical link in travel demand modeling and transportation land-use modeling and analysis. The regularity and stability of the work-trip commute results in it being important in influencing both household and business location decisions.

While commuting has become a smaller share of overall travel and continues to evolve and change in response to demographic, cultural, economic, technological, and other factors, it remains and is likely to continue to remain a very important factor in overall travel demand.

The continued interest in understanding commuting in America is heightened by several critical issues. Of particular interest are changes in the nature of work and commuting which are influencing critical transportation policy issues and investment priorities.



Changes in the Nature of Work and Commuting

Commuting has continued to evolve as the economy, culture, technology, and other factors influence the nature of work. Shifts across employment sectors are continuing. Historical shifts in employment from manufacturing and agriculture toward more diversification continue with growth in service-, information-, and technology-related employment sectors. These changes, coupled with technological and cultural changes, result in continued moves away from the traditional 9-to-5 weekday work environment. Diverse and sometimes flexible schedules, dispersed locations, and evolving employer–employee relationships influence the nature of commuting. The decades of dramatic employment growth as the very large baby boom generation, with unprecedented levels of female labor force participation, has given way to different phenomena such as immigration and migration driving workforce levels. Challenging economic conditions and improved health are leading to a rethinking of the historical age of retirement from the workforce. Ongoing changes to accommodate family-friendly work schedules and continuing trends toward seven-days-per-week (and sometimes 24-hours-per-day) retail and service opportunities and privatized and consulting models for securing labor (often provided from one’s home) continue to shape employment trends and commuting. Near ubiquitous high-speed Internet and availability of mobile communication devices is influencing the definition of being at work and holds out the prospect for fundamentally changing the agglomeration economies associated with commuting to a traditional workplace.

Changes in Critical Policy Issues and Priorities

The need for high-quality data on commuting has perhaps never been more critical. Over the past few years, multi-decade trends that have been relatively stable appear to be changing. The historical multi-decade declines in bicycle, pedestrian, and transit travel appear to have ended and show evidence of some rebound. Non-work travel appears to have stabilized or declined. A multi-decade trend in increasing auto availability may have peaked and reversed. Analysts are closely watching the relative pace of suburban growth as homeownership levels appear to have peaked and multi-family housing is showing relative strength. These trends may be shaping a “new normal” for commuting. Planners and policymakers must understand as much about commuting trends as possible. A key challenge will be distinguishing current economy-based reactions from real shifts in long-term trends.

Economic, environmental, and social factors also influence current and anticipated future critical transportation policy issues. Analysts and policymakers are seeking answers to a host of questions that capture interrelationships between transportation and evolving critical policy issues. In addition to questions about reducing traffic congestion, improving system performance, and increasing travel safety, policy makers are seeking to understand evolving issues such as:

- What is the interrelationship of commuting habits and fuel prices?
- How will new vehicle propulsion technologies affect commuting?
- What will the role of high occupancy toll or managed lanes play in meeting commuting needs?
- What will be the effect of improved technologies for communication on the need to travel to work?
- Will vehicle ownership levels and transit use change due to strategies such as car sharing?
- What strategies might be required for rural workers, lower-income groups, and minorities to attain high levels of accessibility to work?

There are also planners and analysts anxious to understand the consequences from young people with more modest auto availability, older adults who are more often choosing or being financially forced to remain in the workforce longer, a large number of homeowners with “upside-down” mortgages who are trapped in their homes and unable to relocate closer to employment opportunities, a challenging employment market requiring some persons to travel further to find suitable employment, and related issues involving commuting. These are among critical policy agenda items that comprehensive information on commuting can

Current socio-demographic, economic, and technological changes are impacting commuting and are likely to continue to do so in the future.

help inform. *CIA 2013* is intended to capture the best available data and develop information to support policy considerations such as these.



Principal Data Sources for CIA

The *Commuting in America* report series has focused on national trends in commuting and has provided information about aspects of commuting that relate to smaller-level geography including states and metropolitan areas. Thus, to the extent possible, the prior and current products rely on nationally-standardized and nationally-collected data. This consistency in data ensures that it can be aggregated to represent national totals and that smaller geographies can be compared consistently when sample sizes are sufficient to permit analysis at small levels of geography. The data needs are great: comprehensive information that is rich in detail with broad national coverage and comparable through time to permit identification and analysis of trends. In addition, commuting is a spatial phenomenon, and the geographic units selected for reporting aggregated individual trips are the key to correctly understanding the character of commuting. Each of these facets of the geographic descriptive structure is discussed below to assist the reader in understanding the meaning of some of the conventions and definitions used in this document and how they affect the ability to understand the commuting phenomenon.

This work is supported by several major data sources as well as supplemental data that more fully explore some aspects of commuting. The two single largest sources of data are materials collected by the Census Bureau through the American Community Survey (ACS) program and subsequently analyzed through the CTPP, and the data collected by the U.S. Department of Transportation (U.S.DOT) through the National Household Travel Survey (NHTS). Both of these national efforts have been underway for a number of decades, enabling both trends over time and peer comparisons across geography to enrich our understanding of commuting.

The year 2000 was the last decennial Census with a long-form survey questioning respondents about travel. The transportation community continues to adapt to changes in both demographic and travel information (including changes in sample size) available in the ACS. The key transportation questions transitioned to the ACS but with major changes in the sample size and collection schedule. The newest NHTS conducted in 2008–2009 is bolstered by add-on samples and an ever-growing list of questions about traveler, household, and travel characteristics.

Census-Based Commuting Data

The fundamental information sources for this undertaking are the data on the journey to work and related characteristics from the ACS and its predecessor, the decennial Census long-form surveys from 2000, 1990, 1980, 1970, and 1960. These are the sole nationwide detailed, geographically-comprehensive sources of data on commuting patterns. Their greatest strengths are the uniformity of the data collected nationwide and the wealth of demographic information associated with the work traveler. The data have improved over time and have become a rich source of fundamental work travel characteristics, including information on vehicles available, mode of travel to work, detailed residence and workplace geography, and socio-economic descriptors of the traveler and associated household. Without this source, this analysis would not be possible.

In addition to supporting national analyses such as *CIA 2013*, the main strength of the data set is that it provides small-area statistics for every segment of the nation down to units of geography measured in neighborhoods and even blocks to support local planning and analysis. Thus, in addition to providing national statistics, the geographic nuances of work trip travel patterns, such as a bus trip to work in a given community, reflect the geography, transportation network, and social-cultural characteristics of each community. In 1990, 2000, and, more recently, with the 2006–2010 ACS, these data have been specially produced





in the large-scale package of tabulations the CTPP requires to meet both state and metropolitan needs. The national-level tabulations from the Bureau of the Census used in this report represent the national summary portion of the CTPP package. More information on the CTPP package is available at <http://ctpp.transportation.org> and <http://www.trbcensus.com>.

As with all data, the census journey-to-work data involve a number of compromises. Their quality and scale of coverage are unequalled, but they rely on a modest sample; the ACS is sent to about three million addresses each year, resulting in about two million final interviews or slightly more than two percent of households annually. They gather information throughout the year (whereas prior long-form census data were collected and applied to the April survey time). The depth of coverage is modest, resulting in no information about several aspects of commuting:

- commute trips using more than one mode of travel to get to work,
- patterns of second-job travel of those with more than one job,
- variations in “usual” travel patterns such as those who work at home occasionally, and/or
- other trips linked to the work trip in a “trip chain” on the way to or from work—for instance, dropping off children at school, picking up laundry, food, etc.



Despite these caveats, the data are the best available source of fundamental work-travel characteristics nationwide. While the census data have changed over time, they have always retained definitional comparability from census to census to ACS, permitting meaningful comparisons over the years that the Bureau of the Census has included questions on commuting.

National Household Travel Survey

The second most important data resource for *CIA 2013* is the NHTS, conducted by the U.S.DOT. This survey, most recently conducted in 2009, is a nationwide data collection first initiated in 1969, with surveys in 1977, 1983, 1990, 1995, and 2001 filling out the series. The great value of the NHTS is that it complements the census data by providing greater breadth and depth of coverage of all household travel. It provides the linkage to other trip activity and to work-trip distances and speeds and addresses multimodal trips as well as multi-job and part-time job workers. It also adds valuable additional information on vehicles and their owners.

Data collection for NHTS involved a random sample of residential land-line telephone numbers from all 50 states and the District of Columbia. In 2009, for each valid telephone number, a recruitment interview was conducted. During the interview, the household was

assigned a date on which they were asked to report data on their travel. Travel days were assigned for all seven days of the week, including holidays, throughout the period. After the household's travel day had passed, a follow-up interview was conducted to collect the travel data.

In the 2009 NHTS, 150,147 households, 308,901 people, and 1,167,321 trips were sampled. These data came from both the national sample and 20 additional add-on samples that were purchased by various states, regional planning agencies, and metropolitan planning organizations. More information about the NHTS can be found at <http://nhts.ornl.gov>.

Other Data Sources

In addition to the two primary data sources mentioned above, several other data sources were used in preparation of *CIA 2013* materials.

The American Housing Survey of the Department of Housing and Urban Development and the Consumer Expenditure Survey of the Bureau of Labor Statistics, both conducted by the Bureau of the Census, have also been used to provide important insight into commuting. These surveys provide trend information on such important factors as housing attributes and vehicle operating costs. Newer Census products such as administrative records-based Longitudinal Employment Household Dynamics (LEHD) data have been used to shed light on geographic patterns of commuting. Other sources of cost information are the *Transportation Energy Data Book* of the Oak Ridge National Laboratories. *CIA 2013* also uses transit operating statistics from FTA's National Transit Database (NTD).

Throughout the *Commuting in America* series, individual figures and tables will include source notes specifying the data source. The AASHTO Commuting in America 2013 website (traveltrends.transportation.org) will also include a "data documentation" tab where more detailed notes on data sources will be available.

Commuting in America 2013 Briefs Series

The *CIA 2013* series will include the briefs listed below as well as a *CIA 2013* Executive Summary and supporting data files, all available at the *CIA 2013* website traveltrends.transportation.org. The website also includes a glossary of terms, documentation of data sources, and additional resources. The series of briefs included in *CIA 2013* are:

1. **Overview**—establishes institutional context, objectives, importance, data sources, and products to be produced.
 2. **The Role of Commuting in Overall Travel**—presents national trend data on the relative role of commuting in overall person travel; explores commuting as a share of trips, miles of travel, and travel time at the national level.
 3. **Population and Worker Trends**—provides very basic and key national demographic data.
 4. **Population and Worker Dynamic**—focuses on the dynamics of the population and workforce, including data on migration, immigration, and differential rates of growth.
 5. **The Nature and Pattern of Jobs**—defines employment and describes it in terms of its temporal, geographic, and other features.
 6. **Job Dynamics**—looks at trends as they relate to jobs, including work at home, full-time versus part-time, job mobility, and changes in the nature and distribution of job types.
 7. **Vehicle and Transit Availability**—reports on vehicle ownership and licensure levels and the availability of transit services. It also references factors influencing the availability of bike, walk, and carpool commute options.
 8. **Consumer Spending on Transportation**—reports on various trends related to household spending on transportation.
 9. **How Commuting Influences Travel**—explores how commuting travel influences overall travel trends temporally and geographically.
 10. **Commuting Mode Choice**—provides a summary of mode choice for commuting (including work at home).
 11. **Commuting Departure Time and Trip Time**—reports descriptive information on travel time and time left home, including national and selected additional data for metro area sizes.
 12. **Auto Commuting**—addresses trends in privately-owned vehicle (POV) and shared-ride commuting.
 13. **Transit Commuting**—addresses transit commuting.
 14. **Bicycling and Walking Commuting**—addresses bicycling and walking as commuting modes.
 15. **Commuting Flow Patterns**—addresses commuting flow patterns for metro area geographic classifications.
 16. **The Evolving Role of Commuting**—synthesizes and interprets materials developed in the prior briefs to paint a picture of the current role of commuting in overall travel and evolving trends to watch going forward.
- ES. CIA 2013 Executive Summary**



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