Brief 7. Vehicle and Transit Availability
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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This brief is the seventh in a series of briefs that constitute a body of knowledge describing commuting in America. This body of work, sponsored by AASHTO and carried out in conjunction with a National Cooperative Highway Research Program (NCHRP) project that provided supporting data, builds on three prior documents covering this topic that were issued over the past three decades. Unlike the prior reports that were single volumes, this effort consists of a series of briefs, each of which addresses a critical aspect of commuting in America. These briefs, taken together, 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 *Commuting in America 2013* (CIA 2013).

A key factor in understanding how commuters select the mode of transportation they use to get to work is their access and ability to use the various modes of travel. In particular, auto and transit availability and cost are important factors in commute trip mode choice. Brief 7, *Vehicle and Transit Availability* explores this issue in the following pages.
Commuting in America 2013: The National Report on Commuting Patterns and Trends
Licensure Levels

The only national source that can address the availability of licenses to drive a vehicle with the necessary associated demographic detail is the National Household Travel Survey (NHTS). State-level sources are available through state transportation agencies but generally lack further detail regarding the age and other characteristics of license holders. The data in Figure 7-1 indicate that, among the working-age population in America, having a driver’s license is nearly ubiquitous. The highest licensure levels tend to occur between ages 30 and 60, with steep declines after approximately age 75. The lower level of female licensure in older age cohorts is partially attributable to the lower licensure attainment levels of females in prior generations rather than different levels of license relinquishing.

![Figure 7-1. Persons Ages 16+ with Driver’s Licenses](https://www.fhwa.dot.gov/policyinformation/statistics/2011/dl22.cfm)

When stratified by race and ethnicity, as shown in Figure 7-2, a clearer picture emerges. Lower licensure levels among minorities over the age of approximately 60 bring down the overall licensure levels for older-age cohorts. Hispanics, in particular, show low licensure levels for persons over age 55. In addition, gender disparity is far lower among the White Non-Hispanic segments. For the White Non-Hispanic population, there is a 3 percentage point disparity between men and women; that difference rises to 6 percentage points among African-Americans, 8 points among Asians, and 20 points among Hispanics. These differences often reflect the cultural traditions of the various demographic segments.

More than 89 percent of the population ages 16+ hold driver’s licenses. Licensure levels increase through early adulthood.

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1 FHWA does have breakdown by state on age and gender; what is not available is race and ethnicity. See [https://www.fhwa.dot.gov/policyinformation/statistics/2011/dl22.cfm](https://www.fhwa.dot.gov/policyinformation/statistics/2011/dl22.cfm).
Figure 7-2. Persons with Driver’s Licenses Ages 16+ by Race and Ethnicity
Source: 2009 NHTS.

Worth noting is that sharp increases have occurred in the percentages of women having driver’s licenses over the NHTS survey series (1969–2009). This reflects, in part, the changing working roles of women and the aging and declining size of age cohorts in which women had historically been far less likely to have licenses. Note that while there are still gaps among immigrant populations, females actually exceed males in license-holding among the White Non-Hispanic, African-American, and American Indian worker populations.
Access to Vehicles

At the outset, it is important to establish that both the American Community Survey (ACS) of the U.S. Bureau of the Census and the NHTS provide data on vehicles, and both sources are used here. Significantly, neither survey treats the subject based on vehicles owned, but rather on where access to vehicles is possible on a regular basis; consequently, the statistics presented here will vary from other sources of vehicle ownership statistics.2

The trend in the growth of available vehicles is shown in Figure 7-3. The increase from 2000–2010 was approximately the same as in the decades from 1960–1970 and 1980–1990. Interestingly, the 2000–2010 decade is the only one where driving age population grew more than personal vehicle numbers. This trend reflects a number of factors, including a modest population growth rate for the adult population, challenging economic times, and some evidence of saturation in the availability of vehicles relative to the adult population. Perhaps some changes in alternatives to travel, such as communication substituting for travel and renewed interest in and availability of options such as transit, bike, and walk, helped dampen interest in expanding auto ownership.

Figure 7-3. Additional Vehicles and Driving Age Population per Decade

Source: Decennial Census, ACS 2010.

Figure 7-4 presents a clearer picture of the 50-year trend in changes to the household vehicle fleet. The number of households with one vehicle remained roughly constant for 30 years, but after 1990 it began to increase, perhaps attributable to the influx of immigrant populations and growth in single-adult households. Note that, for the most part, the great

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2 The ACS asks about vehicles that are kept at home for use by members of the household. The NHTS refers to vehicles owned, leased, or available for regular use by members of the household.
changes were in the two-and three-vehicle households. Households with two vehicles increased from about 10 million to more than 40 million in the period, and households with three or more vehicles increased an incredible amount, from 1.3 million to more than 22 million, almost 20 times the 1969 figure.

![Household Vehicle Ownership, 50-Year Trend](image)

**Figure 7-4.** Household Vehicle Ownership, 50-Year Trend

*Source: Census, ACS 2010.*

Perhaps the most significant trend is the slight decline in the absolute number of households with zero vehicles to about 10 million in spite of growth in the total number of households. The share of households with zero vehicles has declined substantially since 1960. Figure 7-5 makes that clear, showing that the zero-vehicle household was more than 20 percent of all households in 1960 and is now down below 10 percent despite the surge in immigrants.
Another facet of the picture is the relatively stable structure of household ownership of vehicles since 1980, as depicted in Figure 7-5, with a small increase in three-vehicle households since 2000. It would appear that there is a relatively stable distribution of households by vehicle ownership level related to workers per household, stage in the life cycle, and incomes. This pattern may also reflect the relative stabilizing of household size trends after 1980, after sharp declines in earlier decades.

Annual zero-vehicle household data available through the ACS show some interesting trends since 2007 in response to economic conditions. Following decades of decline, the number of zero-vehicle households has started to increase from the historic low of 8.7 percent of households in 2007. As of 2011, the share of zero-vehicle households increased to 9.3 percent, with 34.1 percent being single-vehicle households, 37.5 percent being two-vehicle households, and 19.1 percent being three-or-more-vehicle households.

Vehicle ownership (which indicates the prospects of access to a vehicle for commuting) is related to the density of development. Figure 7-6 depicts examples of the intensiveness of development for four ranges of population density used in analysis in this and other briefs in the series.

The multi-decade trend of declining zero-vehicle households appears to have played itself out. The most current data suggest that the count of zero-vehicle households is now increasing. An aging population, challenging economic times, and increased availability of other travel options may be contributing to the reversal of this trend.

Figure 7-5. Trend in Share of Households by Vehicles in Household
Source: Census, ACS 2010.
Figure 7-6. Examples of Population Density Categories Used in Analyzing Commuting

Figure 7-7 shows vehicle ownership distribution by four categories of population density: areas under 2,000 persons/square mile, encompassing most rural and outer sectors of metropolitan areas; areas with 2,000–4,000 persons/square mile, encompassing many suburban areas; areas with 4,000–10,000 persons/square mile, focusing on central cities and built-up inner suburbs; and areas of 10,000+ persons/square mile, characteristic of dense urban cities.

At 10,000 persons/square mile, almost 30 percent of households have no access to a vehicle. At the other end of the density scale, just over 4 percent of households are without access to any vehicles. These values and those in the other density groups dropped sharply in the early 1990s but have remained relatively stable since 1995, with some indication of increases in zero-vehicle households in all density groupings in recent years. It also appears that the share of households with two or more vehicles showed declines from 2001 to 2009 in all density groups.

A review of historical patterns indicates that the percentage of households by density class remained relatively stable over NHTS survey periods, with increases in share largely in the lower-density categories. To provide a sense of scale, in 2009, roughly 46 percent of the population lived at levels below 2,000 persons/square mile, another 19 percent were in the 2,000–4,000 range, 23 percent were in the 4,000–10,000 range, and 12 percent were in the range above 10,000.

Vehicle availability also varies in the race/ethnicity classification, with Non-White households having higher percentages of zero-vehicle households, as noted in Figure 7-8. However, as shown in Figure 7-9, over several decades, these relationships have changed, with the
share of African-American households without vehicles declining by more than half, from 43 to 20 percent since 1970. Similarly, Hispanic households with zero vehicles in the same period declined by almost half—from 21.8 to 12.6 percent. The national share of households without vehicles is now down to approximately 9 percent from 17.5 percent in 1970.

Figure 7-8. Recent Trend in Households with Zero Vehicles by Racial/Ethnic Group

It should be noted that race/ethnicity, development density, income, presence of travel alternatives, and other factors related to propensity to be zero-vehicle households are often highly correlated, and additional analysis is required to fully discern the relative contributions of the various factors to vehicle ownership decisions.

Figure 7-9. Long-Term Trend in Households with Zero Vehicles by Racial/Ethnic Group
Source: Decennial Census, ACS 2010.
Pinpointing the locations of zero-vehicle households is something of a statistical challenge. The NHTS stratifies households without vehicles into metropolitan area size groupings, as summarized in Table 7-2. The basic pattern is one of increasing shares of households without vehicles as metropolitan area size increases at the same time that all areas have seen across-the-board declines, with 2009 levels roughly half of those in 1977.

Table 7-2. Percent of Households without a Vehicle by Area Type

<table>
<thead>
<tr>
<th>Area Type</th>
<th>1977</th>
<th>2009</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural, not in MSA</td>
<td>12.2%</td>
<td>5.6%</td>
<td>45.8%</td>
</tr>
<tr>
<td>&lt; 250,000</td>
<td>13.7%</td>
<td>6.3%</td>
<td>45.7%</td>
</tr>
<tr>
<td>250,000–499,999</td>
<td>12.2%</td>
<td>5.6%</td>
<td>46.1%</td>
</tr>
<tr>
<td>500,000–999,999</td>
<td>14.0%</td>
<td>8.3%</td>
<td>59.4%</td>
</tr>
<tr>
<td>1–2.9 million</td>
<td>14.2%</td>
<td>7.2%</td>
<td>50.7%</td>
</tr>
<tr>
<td>3+ million</td>
<td>26.1%</td>
<td>12.6%</td>
<td>48.4%</td>
</tr>
<tr>
<td>All</td>
<td>15.3%</td>
<td>8.7%</td>
<td>56.8%</td>
</tr>
</tbody>
</table>

Source: NHTS, select years.

As vehicle availability has changed, so, too, has the nature of the vehicle fleet. Over the past few decades, there has been a dramatic increase in the age of the vehicle fleet. This has potential impacts on safety, energy efficiency, emissions, and operating costs. Aside from these potential negative effects of the aging fleet, there is a more positive influence. First and foremost, it shows that the vehicle fleet is lasting longer than in the past and that vehicles can be amortized over longer periods. This has been one of the most significant, and least recognized, technological changes in transportation over the past 50 years. That longevity means less waste and less need to produce new steel, plastic, etc., to construct vehicles. A major part in the growth in the overall household fleet has been that new vehicles often are added to the household rather than replacing an older vehicle. Another effect is that the potential fleet of viable vehicles available at low cost to potential new buyers has expanded greatly.
Figure 7-10 shows that aging trend, with a significant decline in the share of new vehicles and those up to 5 years of age to about half of the share held in 1977. The share of those vehicles 6–9 years of age has remained amazingly stable throughout the period, at about 25 percent of the private fleet. The dramatic change has been in vehicles of 10+ years of age, rising from about 17 percent of the fleet in 1977 to almost 40 percent in 2009, a period of over 30 years. This has resulted in a sharp rise in the average age of the fleet, from 6.6 years in 1977 to 9.4 years by 2009. In 2013, industry sources report the average age of the light vehicle fleet is 11.4 years old.³

As household vehicle fleet sizes have grown, they have also aged.

Figure 7-10. Share of Vehicle Fleet by Vehicle Age

It is important to understand vehicle availability in households with workers. Figure 7-11 shows the distribution of workers by vehicle availability in their households. Note that whereas 9 percent of all households have no vehicles, only 3 percent of households with workers have no vehicles, indicating that large segments of the households without vehicles are often older single-person households usually out of the labor force.

**Figure 7-11.** Distribution of Workers by Household Vehicle Availability  
Table 7-3 perhaps provides a more effective measure, matching the number of cars with the number of workers at the household level. What it shows is that only in about 17.5 million cases (11.5 percent) do workers live in a household where there are more workers than cars. In 66.5 million cases, the number of vehicles equals the number of workers, and in 67+ million cases, vehicles available for use exceed the number of workers. Overall, this indicates that, in 2009, roughly 133 million workers (88 percent) had access to a vehicle for their potential use.

**Table 7-3. Workers and Vehicles**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Workers in households</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with zero vehicles</td>
<td>4,879,640 (5.3%)</td>
<td>4,451,685 (3.8%)</td>
<td>4,634,908 (3.5%)</td>
<td>5,267,352 (3.6%)</td>
<td>5,138,372 (3.4%)</td>
</tr>
<tr>
<td>Workers in households</td>
<td>16,111,965 (17.3%)</td>
<td>14,271,110 (12.1%)</td>
<td>18,210,775 (13.8%)</td>
<td>18,053,121 (12.4%)</td>
<td>12,357,761 (8.2%)</td>
</tr>
<tr>
<td>exceeds vehicles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workers in households</td>
<td>42,158,414 (45.3%)</td>
<td>57,374,073 (48.5%)</td>
<td>71,565,369 (54.3%)</td>
<td>70,970,088 (48.9%)</td>
<td>66,463,188 (43.9%)</td>
</tr>
<tr>
<td>equals vehicles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicles exceed</td>
<td>29,868,981 (32.1%)</td>
<td>42,246,181 (35.7%)</td>
<td>37,286,315 (28.3%)</td>
<td>50,981,556 (35.1%)</td>
<td>67,413,776 (44.5%)</td>
</tr>
<tr>
<td>workers in household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>93,019,000 (100.0%)</td>
<td>118,340,000 (100.0%)</td>
<td>131,700,000 (100.0%)</td>
<td>145,270,000 (100.0%)</td>
<td>151,370,000 (99.99%)</td>
</tr>
</tbody>
</table>

Note: The 1977 data had workers recoded to *Summary of Travel Trends*, based on activity last week, age, and ‘HAVEJOB’.
Access to Other Modes
In the case of auto travel, the roadway system ensures access from home to work for those persons who have access to a vehicle; hence, the prior discussion focused on vehicle availability. Measuring access to other modes—bike, walk, shared ride, and transit—are more difficult to define and quantify based on available data. For example, bike and walk are means of travel that virtually anybody can take advantage of; however, a variety of social, demographic, and built-environment characteristics influence the practical decisions regarding use of bike and walk means of travel. Shared ride is technically available to anybody but its use can be enhanced in areas with rideshare programs and more intensive development, making the probability of convenient ridesharing more likely.

Walk Accessibility
The ability to walk to work is not constrained by regulatory requirements (driver's license) or personal capital investments (automobile) but rather by the distances involved; the physical capabilities of the traveler; the availability and quality of sidewalks, paths, trails, etc.; the ability to transport required items (tools, supplies, etc.); and the willingness to commit the time necessary to travel by walking. There are no national databases that provide quantitative measures of these characteristics such that the availability or the viability of the walk travel option for given commutes can be evaluated. (See Brief 9, How Commuting Influences Travel, for insight into walk behaviors and commuting mode descriptive characteristics.)

Bicycle Accessibility
As with walking, bicycle use for commuting is not constrained by licensure requirements. The personal capital investment is modest but, like walking, the extent of a continuous and safe roadway or alternative travel path for bike commuting and the commuter’s willingness and ability to make the time and physical stamina commitment is the biggest constraint to bicycle commuting. Weather and built-environment characteristics can influence the safety and ease for someone choosing to bike to work. As is the case with walk access, there are no national metrics that provide a rich measure of the viability of bicycle choices for work commuting. Brief 14, Bicycling and Walking Commuting, provides descriptive information on actual bike commuting and conveys a sense of the accessibility of the bike option based on things such as trip length distributions for all commuting vs. bicycle commuting.

Shared-Ride Commuting
The availability of shared-ride commuting is dependent upon the willingness of a vehicle owner/driver to accommodate a shared-ride traveler. In some areas, park-and-ride, preferential parking, and other facilities are provided for prospective carpool and van pool users, but there are no measures of the availability of this option for workers.
Transit Accessibility

A critical consideration in the use of transit for commuting is the presence of transit service connecting a traveler’s place of residence and workplace. The availability of transit for a work trip is dependent upon the network and schedule of services and is beyond the immediate control of travelers, absent their willingness to change residence and work locations to ensure that they live and work on a transit line. Discussions regarding the extent of the use of public transportation need to be informed by an understanding of the availability of transit to carry out trips. As is the case with other non-personal vehicle modes, measures of availability are not readily available for public transportation at an aggregate national level. However, there is some information that can shed light on and provide perspective regarding availability of public transportation.

Various communities do have various measures of the share of work trip commutes for which public transportation is available. Other studies—for example, a 2012 Brookings Institute analysis of accessibility of public transportation—explored various measures of employment accessibility for large metro areas in the United States.4 A summary of that report’s findings notes the following:

An analysis of data from 371 transit providers in the nation’s 100 largest metropolitan areas reveals that:

- Over three-quarters of all jobs in the 100 largest metropolitan areas are in neighborhoods with transit service. Western metro areas like Los Angeles and Seattle exhibit the highest coverage rates, while rates are lowest in Southern metro areas like Atlanta, Georgia and Greenville, North Carolina. Regardless of region, city jobs across every metro area and industry category have better access to transit than their suburban counterparts.

- The typical job is accessible to only about 27 percent of its metropolitan workforce by transit in 90 minutes or less. Labor access varies considerably from a high of 64 percent in metropolitan Salt Lake City to a low of 6 percent in metropolitan Palm Bay, Florida, reflecting differences in transit provision, job concentration, and land use patterns. City jobs are consistently accessible to larger shares of metropolitan labor pools than suburban jobs, reinforcing cities’ geographic advantage relative to transit routing.

As the discussion suggests, the specifics of measuring public transportation accessibility include making assumptions across a host of variables, such as the geographic market relative to a transit stop that should be counted as accessible (the Brookings work used a 3½-mile buffer and a 90-minute total travel time to define transit as being accessible), the temporal availability of transit service (the hours of operation relative to employment stop

and start times), and the interconnectedness of the network in terms of transferring opportunities and difficulties (such as wait time, cost, walk distance). Most metrics of transit accessibility focus on walk access and egress; including measures of bicycle and park-and-ride access further complicate the measurement challenge. The Brookings study measures overall accessibility from a place of residence to places of employment; it does not enumerate transit availability for the actual specific home and work trips of the resident population.

Another analysis of transit accessibility evaluated the share of resident population and employment locations within proximity of transit service. Residential accessibility was measured as the straight-line distance to a bus route (not stop) and a rail stop. It also measured employment addresses based on distances from bus routes and rail stops. Unlike the Brookings work, this analysis did not include temporal availability of service but similarly focused on walk access. This work used 2001 NHTS data and a national geocoded transit route network structure representing conditions in the mid-1990s. The results provided a comprehensive national measure of transit availability.

Figure 7-12 shows the distribution of residents from transit expressed as the cumulative distribution of households by distance to a bus route. As shown in the figure, approximately 50 percent of U.S. households are within approximately 0.7 miles of a bus route. Figure 7-13 shows similar information for places of employment. Approximately 50 percent of employees’ places of work are within 0.2 miles of a bus route. As workplaces are typically denser and a target market for transit, it is expected that they are more accessible to transit. That same research reported that only 30 percent of commuters outside of New York City had both their work and home locations within 0.45 miles of a bus route.

Researchers estimated that only 30 percent of commuters outside New York City have both their work and home locations within 0.45 miles of a bus route.
Figure 7-12. Cumulative Distribution of Distance from U.S. Residences to Bus Routes

Figure 7-13. Cumulative Distribution of Distance from U.S. Employment Locations to Bus Routes

While there are no trend data for evaluating change in the availability of transit with respect to residents and employment, there are data on the general availability of transit service. Figure 7-14 shows the trend since 1996, indicating that the revenue miles of transit service increased by 75 percent. Additional insight might be available by measuring changes in the transit agency service area population as reported to the National Transit Data program (if adjusted for overlapping agency service areas and validated), which asks agencies to report population within 0.75 miles of transit service.

Figure 7-14. Trend of Revenue Miles for All Modes of Transit Service, United States
Source: American Public Transportation Association, *2012 Fact Book, Appendix A.*
Summary

Availability of the various travel options is acknowledged in both theory and statistical analysis as a critical element in the mode choice decisions of travelers. These availability factors also influence residential location and travel destination choices of travelers and location decisions of businesses and other activities. The work trip, as one of the longer and most common trips of households, is, accordingly, influenced by mode availability considerations. Given the relatively mature U.S. transportation system, overall travel option availability changes modestly over time; however, there are variations across markets. While the road network is relatively ubiquitous, transit service availability varies substantially. For example, transit is far more readily available in Chicago, Washington, and New York than it is in Fort Myers, Peoria, and El Paso. Similarly, some areas have a favorable climate, a built environment, and a culture that better accommodate bike and walk means of commuting.
**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 Dynamics**—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**