

# Travel Demand in the Context of Growing Diversity

## Considerations for Policy, Planning, and Forecasting

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The United States is experiencing a period of change—the economy is struggling, fuel prices are erratic, environmental issues are prominent, roadway capacity has reached a peak in large urban areas, and demographics are undergoing major shifts. In the past five decades, changes in travel volumes and behavior have coincided with dramatic changes in the economy, culture, development patterns, and technology (1).

The growth in travel since the 1960s is a product of demographic and economic changes, including increases in vehicle ownership, the entrance of baby boomers—especially women—into the workforce, and growth in personal income (2). Recent data from the Highway Performance Monitoring System, Traffic Volume Trends, and preliminary results from the 2008 National Household Travel Survey, however, indicate that demand is slowing and occasionally declining.

Whether or not this is a continuing trend has yet to be determined, but the economic slowdown, an



Understanding the interaction of household size, automobile availability, and travel demand, and the differences and needs across specific population groups, is critical in assessing trends, the viability of programs, and the impacts of projects and policy.

aging population, an influx of new immigrant groups, the saturation of vehicle ownership, concerns about the environment, and unpredictable fuel

A naturalization ceremony at Mount Vernon, Virginia. According to the 2005 U.S. Census, immigrants make up about 12.1 percent of the country's population—the highest proportion in nearly 100 years. New immigrants' travel patterns differ at first from those of the U.S.-born population.



PHOTO: U.S. CITIZENSHIP AND IMMIGRATION SERVICES

costs could have an impact on travel demand in the United States. Some of these phenomena may exert more influence than others, but the growing diversity of the U.S. population and changes in the social norms of travel play important roles in shaping travel demand.

Highway finance, congestion, land use planning, air quality, fuel costs, oil dependency, global warming, the virtual marketplace, and infrastructure investment are some of the issues challenging the performance and use of the U.S. transportation system (3). Understanding the people who travel—especially the differences in travel demand and the needs across specific population groups—is critical in assessing current and future trends, the viability of programs, and the impacts of projects and policy on system users.

## Household Travel in Context

Household travel generates more than 80 percent of the total vehicle miles of travel in the United States; freight and commercial vehicles produce the remainder. Historically, when the rate of growth in travel exceeds the rate of population growth, several influences are at work, including the age distribution of the population, the levels of automobile ownership, licensure rates, household size, participation in the labor force, and real personal income per capita (4).

African-American, Hispanic, and—to some extent—Asian households vary from white households in terms of these key factors. Minority groups commonly have less ownership of automobiles, lower household income, greater household size, lower levels of participation in the labor force, lower rates of licensure, and a concentration of population in urban areas.

## Population Growth and Age Distribution

The white population in the United States is projected to remain relatively stable over the next 40 years; the current minority groups will be the main contributors to population growth. The number of Hispanics is expected to grow by 188 percent; the Asian population to grow by 213 percent, and the black population—Hispanic and non-Hispanic—is expected to grow to 61.4 million in size (4).

Significantly larger percentages of African-Americans, 29.2 percent, and of Hispanics, 31.9 percent, are under the age of 16, compared with 20.6 percent of whites and 21.6 percent of Asians. Minority populations therefore will have an increasing influence on travel needs, preferences, volumes, and behavior in the future as they enter the workforce and start families (3).



PHOTO: DAN BURDEN

Household travel—such as supermarket trips (*above*) and picking up children from school (*below*)—generates more than 80 percent of the total vehicle miles of travel in the United States.



PHOTO: DAVID PARIS, PARIS ASSOCIATES TRANSPORTATION CONSULTING

## Vehicle Availability and Licensure Rates

People in poorer households without a reliable vehicle, or with no vehicle at all, have a greatly reduced level of mobility. When they have vehicles, the vehicles are more likely to be older models, which often require more maintenance; moreover, the lower vehicle efficiency increases the cost of travel for the household.

A high percentage of African-American, Hispanic, and Asian households have no vehicle (Table 1). In

**TABLE 1 Zero-Vehicle Households (5)**

|                  |       |
|------------------|-------|
| White            | 7.3%  |
| African-American | 23.8% |
| Hispanic         | 17.2% |
| Asian            | 12.7% |
| All              | 10.3% |

Teens take a driver's education class. Driver licensure rates among African-American and Asian women are low compared with the rates for their male counterparts; licensure often is affected by cultural and economic factors.



the United States, 10.3 percent of all households have no vehicle; for African-American households, however, the rate is 23.8 percent and for Hispanic households, 17.2 percent. The availability of safe, alternative modes of travel will gain importance in transportation planning as these populations grow.

Licensure rates reveal age and gender differences. As shown in Table 2 (below), African-American and Asian women have very low rates of licensure compared with the rates for their male counterparts. Income constraints and cultural norms often influence licensing, especially for immigrant women, and must be considered when predicting the travel needs of minority populations (5).

**TABLE 2 Gender, Race, and Licensure Rates (5)**

|        | White | Black | Asian | Other |
|--------|-------|-------|-------|-------|
| Male   | 91.8% | 77.9% | 87.2% | 82.3% |
| Female | 88.8% | 72.0% | 76.6% | 70.3% |
| Total  | 90.2% | 74.4% | 81.9% | 76.2% |

## Household Size and Travel Rates

The interaction of household size, automobile availability, and travel demand is fundamental. For example, Table 3 (below) shows that Hispanic households produce the greatest amount of travel annually—5,000 trips per household per year—but the number of trips per person is among the lowest. This is a result primarily of higher-than-average household size.

Hispanic households also have the highest vehicle occupancy at 1.8 persons per vehicle trip. A large influx of new immigrants, combined with lower levels of vehicle ownership, concentration in urban centers, larger households, and lower incomes, contributes to the car sharing that is common among Hispanic households—a unique characteristic of their travel behavior.

## Mode Use

Blacks, Asians, and Hispanics are more frequent users of alternative modes of transportation than are whites (6). For example, Asians travel 6.5 times more

**TABLE 3 Annual Trip Rates, Vehicle Ownership, and Vehicle Occupancy**

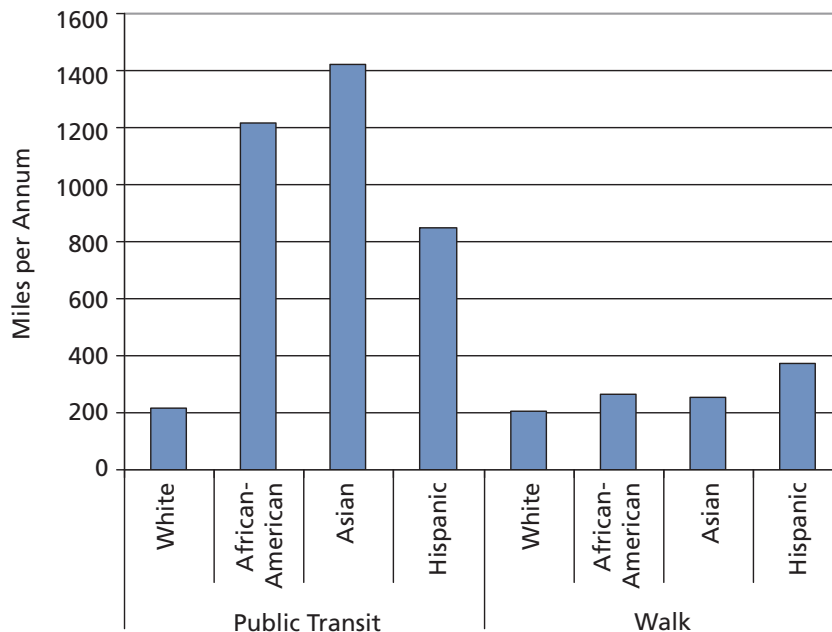
|                    | Trips per Household | Trips per Person | Vehicles per Household | Vehicle Occupancy |
|--------------------|---------------------|------------------|------------------------|-------------------|
| White Non-Hispanic | 3,693.9             | 1,525.2          | 1.99                   | 1.51              |
| Black Non-Hispanic | 3,609.5             | 1,318.9          | 1.38                   | 1.55              |
| Asian Non-Hispanic | 3,868.6             | 1,342.5          | 1.74                   | 1.58              |
| Hispanic           | 4,979.5             | 1,327.9          | 1.69                   | 1.80              |

Source: 2001 National Household Travel Survey, FHWA Office of Highway Policy Information



PHOTO: DAN BURDEN

Per person, Hispanics walk 75 percent more miles on average than all other ethnic groups.



Source: 2001 National Household Travel Survey, FHWA Office of Highway Policy Information

miles on transit per person per year than whites do. Hispanics walk 75 percent more miles on average per person than all other groups. The differences in transit and walk miles per person per year are shown in Figure 1 (above right).

Time spent commuting is often considered an indicator of quality of life, because more time spent in travel takes away from other home activities. Commuting time is a function of distance, congestion on the route, and mode of transportation. Of all races and ethnic groups, whites are the least likely to spend more than 1 hour commuting to work; only 10.6 percent of blacks, 10.3 percent of Asians, and 9.1 percent of Hispanics have commuting times of 1 hour or less (Table 4, below).

## Race, Ethnicity, and Immigration

In the United States, discussions of race and ethnicity often involve immigration. Although the recent economic downturn has slowed the pace of immigration, the U.S. Census showed in 2005 that an estimated 12.1 percent of the U.S. population were immigrants—the highest percentage since 1920 (Figure 2, page 8). This historic influx of new races, eth-

nicities, and cultures will have an impact on the demographic makeup of the U.S. population and on the distribution and characteristics of travel demand.

Policy and program plans therefore should incorporate an understanding of the different travel experiences, options, and needs of new immigrants. At first, immigrants travel differently from the population born in the United States, relying to a greater extent on transit, walking, and carpooling. As immigrants assimilate into society, their travel patterns assimilate and become more dependent on personal vehicles (7–11). Asian immigrants make a faster transition to automobile use than other immigrant groups. Even after 20 years as residents, however, Hispanic immigrants remain more likely to use transit than the population born in the United States; this may result from many factors, including lower automobile availability (Figure 3, page 8).

**FIGURE 1** Annual miles traveled via transit and on foot.

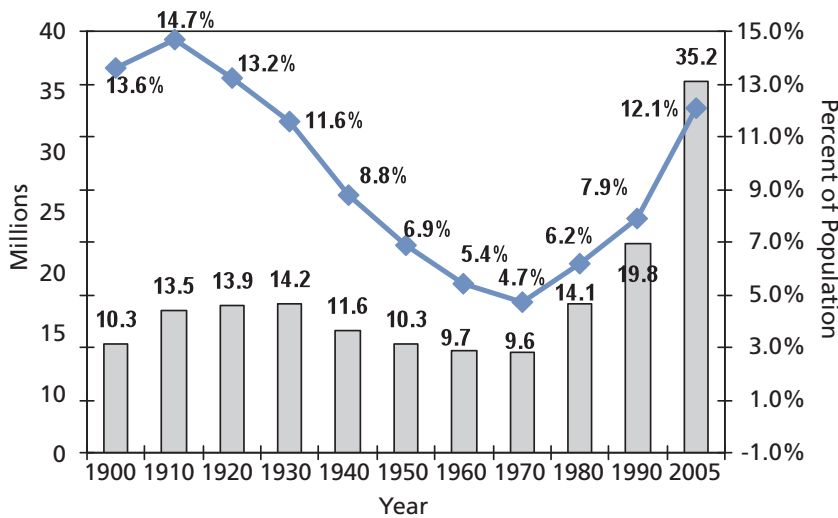
**TABLE 4** Commuting Time, All Modes (5)

|                   | <20 minutes | >60 minutes |
|-------------------|-------------|-------------|
| Whites            | 48.3%       | 7.1%        |
| African-Americans | 39.0%       | 10.6%       |
| Asians            | 38.6%       | 10.3%       |
| Hispanics         | 44.0%       | 9.1%        |



PHOTO: TIM ADAMS, TRANSITPEOPLE

Two girls ride a Los Angeles bus. Blacks, Asians, and Hispanics are more frequent users of alternative modes of transportation than are whites.



Source: Decennial Census for 1990 to 2000, Center for Immigration Studies and Analysis of March 2005 Current Population Survey Data

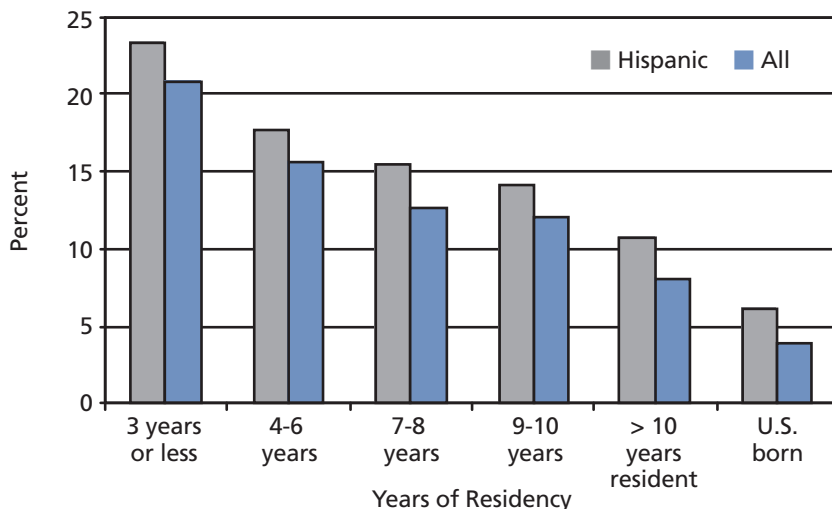
**FIGURE 2** Immigrants in the United States, 1900–2005.

## Prospects for the Future

The United States historically has been characterized as a melting pot, and if trends continue, current racial and ethnic minorities will fuel much of the future growth in travel demand. On average, minorities are more dependent on transit, have higher occupancy levels in automobiles, and have lower levels of vehicle ownership. Initiatives that focus on tolling, infrastructure development, land use planning, and highway finance can benefit from information about the travel behavior, options, and needs of minority groups.

Understanding the differences in travel behavior and the possible explanations for these differences can help in modeling travel demand, in finding the policies best suited for the travel needs of all popu-

**FIGURE 3** Immigrant households with zero vehicles, by years of U.S. residency.



Source: U.S. Census, Public Use Microdata Sample

lation groups, and in addressing concerns about environmental justice (12). As U.S. society increases in diversity in the next few decades, a significant portion of growth in travel demand will come from minority populations. The differences in travel behavior have wide-reaching consequences for short- and long-term policy development, planning, and travel demand forecasting.

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# Preparing the Transportation System for Demographic Changes

## Conference Explores Research Needs

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Approximately 110 researchers, practitioners, and policy makers gathered in Washington, D.C., in October 2008 to discuss the implications that a range of demographic changes may have for the U.S. transportation system. Supported by the U.S. Department of Transportation's Research and Innovative Technology Administration (RITA), organized by the Transportation Research Board (TRB), and oriented to university transportation centers, the Impact of Changing Demographics on the Transportation System Conference focused on the impact of four demographic forces on transportation over the next 20 years:

- ◆ Aging and demographic transition,
- ◆ Immigration internally and from abroad,
- ◆ Changing racial and ethnic mix, and
- ◆ Gender differences.

The program featured keynote speakers, breakout sessions, and an interactive poster session on the effects of the four demographic forces on transportation system demand and on safe mobility. Speakers highlighted national trends and recent studies from urban and rural areas throughout the country.

During the discussion sessions, participants identified knowledge gaps and issues for research. One critical knowledge gap is the scarcity of data on key demographic and transportation characteristics. Developing and maintaining these data at the national and local levels emerged as a priority for researchers, public agencies, and policy makers.

The breakout groups extensively discussed the effects of the aging of the baby boom generation on the transportation system. The actions and activities of this age group will have significant impacts on housing and land use patterns, use of travel modes, and safety. Many research ideas were identified to track the travel behavior of baby boomers and the changes that develop in their behavior over time and to obtain information on boomers' preferences for housing, social services, and cultural and recreational amenities that can influence travel patterns.



*Heather Contrino, FHWA, speaks at a plenary session of the Impact of Changing Demographics on the Transportation System Conference, October 2008, at the Keck Center of the National Academies, Washington, D.C.; her subject was "Demographics Matters: Travel Demand, Options, and Characteristics Among Minority Populations."*

Participants identified a variety of research needs to improve understanding of the relationship among family characteristics, age, social networks, and travel behavior in different population groups. The impacts of one-person households, nonwork travel, informal transportation services, and the driver safety risks associated with different groups were cited as other topics for further research.

Many participants favored a multidisciplinary approach in the research to address these and other questions. Several emphasized the need to provide elected and appointed officials with information to assist in decision making for public policy.

The conference proceedings will be released as a Transportation Research Circular on the TRB website; many presentations are posted online at <http://onlinepubs.trb.org/onlinepubs/archive/conferences/2008/ImpactDemographics/pdf/Program.pdf>.

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