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Demographics Matter

Travel Demand, Options, and Characteristics Among Minority Populations

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The United States is in a significant period of change. The significant growth in travel that the US has experienced since the 1960's is a product of demographic and economic changes including increases in vehicle ownership, baby boomers and women entering the workforce, and dramatic growth in personal income. More recently however, data are painting a different picture. The economic slowdown, vehicle saturation, climate change, new immigrant population growth, and the aging population may be contributing to a slowing growth of travel demand in the US (3).

Race and ethnicity do matter in terms of travel choices, needs, and options. Many factors contribute to the differences we see in patterns of travel within population segments. Using data from the US Census Bureau and the National Household Travel Survey Program, this paper examines the demographic characteristics of minority populations and the resulting differences in their travel behavior.

Keywords: *demographics and travel; transportation policy; minority travel; travel demand; race and ethnicity*

People in the United States heavily rely on travel in their everyday lives. Whether it is for work, shopping, visiting friends, personal business, or relaxing, the ability to get around is a fundamental part of American's well-being. How much people travel, how they get there, and when and why they travel are dependent on various factors including household demographics, land use, resource availability (both household resources and transportation infrastructure), and cultural norms (Contrino & McGuckin, 2006). Although some factors may weigh in more heavily than others, people's lifestyle is an important role in determining travel options, travel demand, and travel choices. Understanding the people behind travel behavior data is critical in truly assessing current and future trends, program viability, and the impacts of projects and policy on different population groups.

The United States is in a significant period of change. The economy is struggling, fuel prices are erratic, environmental issues are front and center, capacity in large urban areas has peaked, and the makeup of the U.S. population is undergoing dramatic change. The past five decades have been characterized by significant changes in travel behavior that coincided with dramatic changes

in the economy, culture, development pattern, and technology (Polzin & Chu, 2007).

The significant growth in travel that the United States has experienced since the 1960s is a product of demographic and economic changes, including increases in vehicle ownership, baby boomers (especially women) entering the workforce, and the dramatic growth in personal income. More recently however, data from the Highway Performance Monitoring System from and Traffic Volume Trends and preliminary 2008 National Household Travel Survey results are painting a different picture. Some supporting evidence comes from recently published work showing that there may be a slowing of growth in residential-based vehicle miles of travel (Polzin, 2006). Whether or not this is a long-standing trend is yet to be determined, but factors such as the economic slowdown, an aging population, vehicle saturation, environmental concerns, and erratic fuel costs may be driving a leveling off of travel demand in the United States.

There are several methods for measuring and forecasting travel in the United States. Most focus on counting cars through traffic recorders and other intelligent transportation systems and modeling and forecasting demand

based on basic household demographics (e.g., vehicles and people per household). Race and ethnicity, along with many other household, personal, and trip characteristics, rarely come into play. This is because the other factors, such as household income, vehicle ownership, and worker status, are traditional inputs for travel demand forecasting and are used to account for demand by specific population groups. In addition, demographic forecasts, in general, are known to be subject to much uncertainty (Duthie, Cervenka, & Waller, 2007).

However, group-specific analyses of travel behavior are essential for informed policy and planning. People travel, not cars, and the decision making and circumstances that go into everyday trip making are complex and based on numerous factors. Although there is a great deal of uncertainty as to how the travel demand trend will continue, including how it will be affected by the economy and government policy, fundamental sociodemographic trends and known travel behaviors provide insight into the distribution and magnitude of future travel demand (Polzin & Chu, 2007).

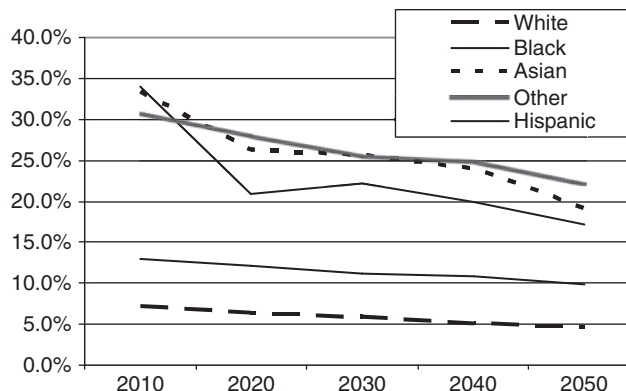
Highway finance, congestion, land use planning, air quality, fuel costs and oil dependency, global warming, the virtual marketplace, and infrastructure investment are just some of the current issues challenging the performance of the U.S. transportation system. There are always several viable approaches to transportation policy; however, understanding the people behind the demand provides key information on how and to what extent specific population groups will respond to and be affected by various initiatives.

As the population of the United States shifts to being more diverse, it is vital to understand the travel behavior of different population groups. This article presents a comparison of key travel characteristics with an emphasis on racial and ethnic groups and provides insights into the people behind travel demand and the importance and ethics of thinking in terms of demographics when considering new policies, programs, and projects.

Demographics Matter

More than 80% of total vehicle miles of travel in the United States is generated by household travel, whereas the remainder is produced by freight and commercial vehicles. The amount and characteristics of that travel are highly related to the characteristics of persons and households. Factors such as income, household size, vehicle ownership, and worker status are strong indicators of trip rates, mode choice, and time of day travel, all of which have important impacts on transportation planning and policy (Contrino & McGuckin, 2006).

Figure 1
Projected Population Growth
by Race and Ethnicity



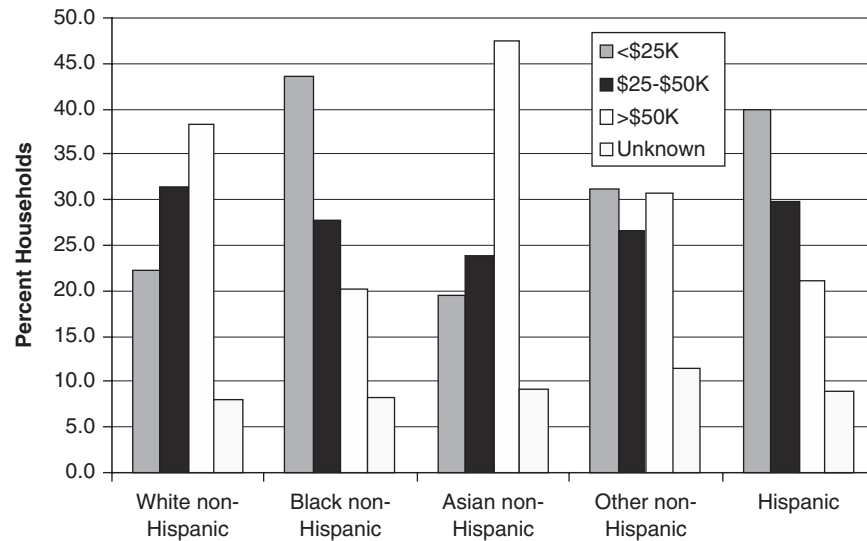
Source: U.S. Census Bureau, Interim Population Projections, Table 1b: Projected Population Change in the United States, by Race and Hispanic Origin: 2000 to 2050.

There has been much discussion and speculation over the past few years on the potential impacts of the aging population on future travel demand. By 2050, the number of persons age 65 and older in the United States is projected to rise from the current 12% to 21% of the population (Sun, 2007). The aging of the population, however, is more of a “White Phenomenon” which could shift growth in travel demand to emerging minority populations. “In 1990, 24 percent of the U.S. population was composed of people of color: 12 percent African American, 9 percent Hispanic, and 3 percent Asian” (Sun, 2007, p. 2). By 2050, 43% of the U.S. population is forecasted to be people of color (Hispanics, African Americans, and Asians), with more than one quarter of the people in the United States of Hispanic origin (McGuckin, 2008).

Although the White population in the United States is projected to remain relatively stable over the next 40 years, current minority groups will be the main contributors to population growth (Figure 1). The number of Hispanics is expected to grow 188%, the Asian population to grow 213%, and the Black population (both Hispanic and non-Hispanic) is expected to grow to 61.4 million in size (Sun, 2007).

As shown in Table 1, significantly larger percentages of African Americans (29.2%) and Hispanics (31.9%) are younger than 16, as compared to only 20.6% and 21.6% of Whites and Asians, respectively. This means that minority populations, although still lower in numbers, will have an increasing influence on travel needs, preferences, volumes, and behavior in future

Figure 2
Household Income Distribution by Race and Ethnicity (Percentage Households)



Source: 2001 National Household Travel Survey, Federal Highway Administration, Office of Highway Policy Information.

Table 1
Age Distribution by Race and Ethnicity

	< 16	16–65	65+
White non-Hispanic	20.6	64.9	14.5
African American non-Hispanic	29.2	62.7	8.2
Asian non-Hispanic	21.6	70.7	7.7
Hispanic	31.9	63.3	4.8
All	23.4	64.5	12

Source: Pisarski (2006).

years as they enter the workforce and start families (Polzin, 2006).

Historically, characteristics such as income, licensure rates, and auto ownership have correlate highly with the level of travel (Tal & Handy, 2005). Perhaps the most important of these is real income. Understanding how travel might change as real income changes is perhaps the single most critical issue in predicting future travel (Polzin & Chu, 2007). As shown in Figure 2, there are significant differences in household income levels across racial and ethnic groups. African Americans and Hispanics have the lowest average household incomes, with approximately 40% of households making less than \$25,000 annually. In contrast, 38% and 48% of White and Asian households, respectively, have incomes in excess of \$50,000 per year.

Another important determinant of travel demand is vehicle availability. People in poorer households without a reliable vehicle, or with no vehicle at all, may have a greatly reduced range of access to employment,

Table 2
Household Vehicle Characteristics by Race and Ethnicity

	Vehicle per Household	Average Vehicle Age	Average Vehicle MPG	Average Annual Vehicle Miles
White non-Hispanic	1.99	7.9	20.7	21,709
Black non-Hispanic	1.38	8.2	21.1	17,147
Asian non-Hispanic	1.74	6.7	22.9	19,198
Other non-Hispanic	1.90	9.1	20.5	20,420
Hispanic	1.69	8.5	21.3	22,778

Source: 2001 National Household Travel Survey, Federal Highway Administration, Office of Highway Policy Information.

competitive retail, and services. In addition, older vehicles require more maintenance, and lower vehicle efficiency increases the cost of travel by vehicle. Many more minority households depend on alternative modes such as transit, walking, biking, and carpooling (Contrino & McGuckin, 2006).

As shown in Table 2, African Americans and Hispanics have the lowest average number of vehicles per household. In addition, the average age of vehicles in these households is high in comparison with the White and Asian populations.

Table 3
Percentage Zero-Vehicle Households

	Percentage
White	7.3
Black	23.8
Hispanic	17.2
Asian	12.7
All	10.3

Source: Pisarski (2006).

Table 4
Licensure Rates by Race

Gender	Race			
	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

Source: Pisarski (2006).

The lower average number of vehicles per household is a product of the number of zero-vehicle households among African American and Hispanics (Table 3). Although 10.3% of all households have no vehicle in the United States, 23.8% of African American households and 17.2% of Hispanic households do not have a vehicle available for use. The availability of safe, alternative travel modes will become increasingly important in the transportation planning arena as the sizes of these populations grow.

Licensure rates are consistent with trends found in income and vehicle ownership, with African Americans having the lowest licensure rates. There is a gender difference as well. As shown in Table 4, both African American and Asian women experience very low licensure as compared to their male counterparts. Income constraints and cultural norms are often factors in licensing, especially for immigrant women, and must be considered when predicting the future travel of minority populations (Pisarski, 2006).

Intersection Among Race, Ethnicity, and Immigration

In the United States, it is difficult to talk about race and ethnicity without some discussion on immigration. The level of immigration now and as projected for the United States has not been seen since the early 1900s. This historic influx of new races, ethnicities, and cultures

has an important impact on both the demographic makeup of the U.S. population and the distribution and characteristics of travel demand across the county. As shown in Figure 3, in 2005 the Census Bureau estimated 35.2 million total immigrants in the United States, or 12.1% of the population, demonstrating a significant increase in the level of immigration over the past four decades.

Current trends will take the immigrant population to 68 million, 16.2% of the U.S. population, by 2050 (Contrino, 2007). Census high series projections estimate total immigrants at 114 million in 2050 (Figure 4).

Historically, population changes, in both demographics and geographic location, have had significant impacts on the size and distribution of travel demand (Sun, 2007). Currently, the United States is in the midst of both. If the big six states continue to be immigrant magnet states, California, New York, Texas, Florida, Illinois, and New Jersey can expect between 22 million and 52 million new immigrants by 2050 (Table 5).¹ This phenomenon not only has the potential of shifting the overall travel demand and behavior of the U.S. population but also creates a significant concentration of growing demand in select geographic areas.

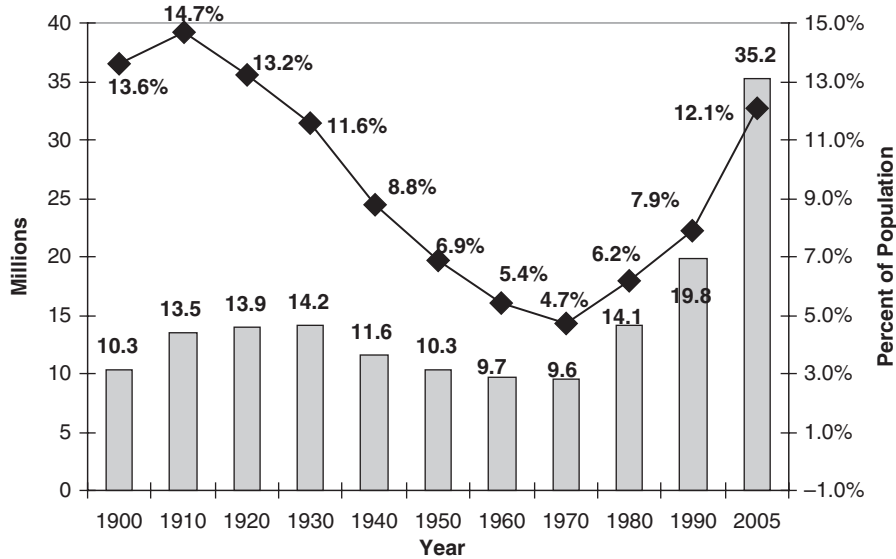
Research carried out to support the development of department of transportation forecasting models as well as other national research has shown a marked difference in travel behavior between the domestic population and immigrants. Thus, the pace of immigration will affect travel demand because immigrants generally travel fewer miles, make fewer vehicle trips, and take transit, walk, and bike more (Polzin & Chu, 2007).

Travel Behavior Among Minority Populations

Historically, factors that influence growth in travel beyond population growth have included the age and distribution of the population, auto ownership levels, licensure rates, household size, labor force participation, and real personal income per capita (Sun, 2007). As discussed in the previous section, African American, Hispanic, and to some extent Asian households vary considerably from White households on these key factors. Common among minority groups is lower auto ownership, lower household income, greater household size, lower levels of labor force participation, lower licensure rates, and population concentration in urban areas.

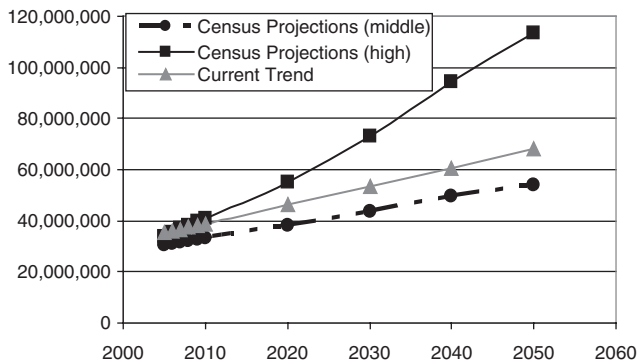
The differences in key measures of travel demand are shown in Table 6. One important thing to consider in reviewing Table 6 is the difference between the household

Figure 3
Immigrants in the United States, Number and Percentage of Population



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

Figure 4
Projected Annual Immigration (2000–2050)



Source: U.S. Census Bureau Projections, Middle and High Series.
 Note: Current trends assume current average of 731,000 new immigrants per year continues out to 2050.

and person annual trip rates. For example, Hispanic households produce the greatest amount of travel annually (5.0 thousand trips) but have one of the lowest number of trips per person (1.3 thousand trips). Asian households demonstrate a similar situation, with the second largest number of annual trips (3.9 thousand) annually and a much lower number of trips per person (1.3 thousand) as compared to the White population. White

households, in comparison, average 3.7 thousand households per year and 1.5 thousand trips per person, the highest level of person-based trip making among all the demographic groups.

In examining vehicle occupancy rates, a significant difference in travel behavior is apparent. As shown in the previous section, Hispanic and Black households have lower vehicle ownership and higher vehicle occupancy rates when compared to White households. Although all households have shown a significant increase in vehicle occupancy since 1995, Hispanic households in 2001 had the highest at 1.8 persons per vehicle trip. With the huge influx of new immigrants, predominantly Hispanic, combined with lower levels of vehicle ownership, concentration in urban centers, larger household size, and lower incomes, the common car sharing among Hispanic households demonstrates a real difference in travel behavior for this population.

Utilization of alternative modes of transportation is another important example of how travel behavior differs across racial and ethnic populations. As shown in Table 8, Blacks, Asians, and Hispanics are heavy users of alternative modes of transportation as compared to White households. White households average only 64 miles on bike, 216 miles on public transit, and 208 walking miles annually. In contrast, Black households average 1.2 thousand transit miles, and Hispanic households walk almost 400 miles per year.

Table 5
Change in Foreign-Born Population, 2000–2005

State	2000 Population	2005 Population	Change 2000–2005	% Change 2000–2005
California	8,809,641	9,647,768	838,127	9.5
New York	3,819,028	3,962,767	143,739	3.8
Texas	2,878,503	3,550,140	671,637	23.3
Florida	2,634,349	3,220,141	585,792	22.2
Illinois	1,518,500	1,703,548	185,048	12.2
New Jersey	1,459,007	1,655,837	196,830	13.5
Georgia	573,161	791,706	218,545	38.1
North Carolina	425,246	559,343	134,097	31.5
Arizona	654,746	854,356	199,610	30.5
Virginia	561,332	721,843	160,511	28.6
Maryland	512,040	644,978	132,938	26.0
Pennsylvania	495,017	621,896	126,879	25.6
Washington	608,622	757,235	148,613	24.4
Massachusetts	752,899	907,054	154,155	20.5

Source: Pew Hispanic Research Center, A Statistical Portrait of the Foreign-Born Population at Mid-Decade (2006).

Table 6
Annual Trip Rates and Vehicle Ownership by Race and Ethnicity

	Trips per Household	Trips per Person	Vehicle per Household
White non-Hispanic	3,693.9	1,525.2	1.99
Black non-Hispanic	3,609.5	1,318.9	1.38
Asian non-Hispanic	3,868.6	1,342.5	1.74
Other non-Hispanic	3,506.2	1,461.4	1.90
Hispanic	4,979.5	1,327.9	1.69

Source: 2001 National Household Travel Survey, Federal Highway Administration, Office of Highway Policy Information.

Table 7
Vehicle Occupancy by Race and Ethnicity

	1995	2001
White	1.48	1.51
African American	1.53	1.55
Asian	1.50	1.58
Hispanic	1.62	1.80

Source: 2001 National Household Travel Survey, Federal Highway Administration, Office of Highway Policy Information.

Average travel time is a function of both distance and mode of transportation. Time spent in travel is often considered to be one indicator of quality of life, meaning that more time spent in travel takes away from other home activities. Whites are the least likely of all races and ethnicities to spend more than 60 minutes in travel, as compared to 10.6% of Blacks, 10.3% of Asians, and 9.1% of Hispanics.

Table 8a
Annual Person Miles of Travel by Mode

	Mode	AVG_MILE
WHITE_NONHISP	Bike	63.79
WHITE_NONHISP	Public transit	216.21
WHITE_NONHISP	Walk	207.96
BLACK_NONHISP	Bike	35.83
BLACK_NONHISP	Public transit	1,217.58
BLACK_NONHISP	Walk	266.10
ASIAN_NONHISP	Bike	37.31
ASIAN_NONHISP	Public transit	1,423.78
ASIAN_NONHISP	Walk	254.65
HISPANIC	Bike	54.45
HISPANIC	Public transit	849.04
HISPANIC	Walk	373.87

Source: 2001 National Household Travel Survey, Federal Highway Administration, Office of Highway Policy Information.

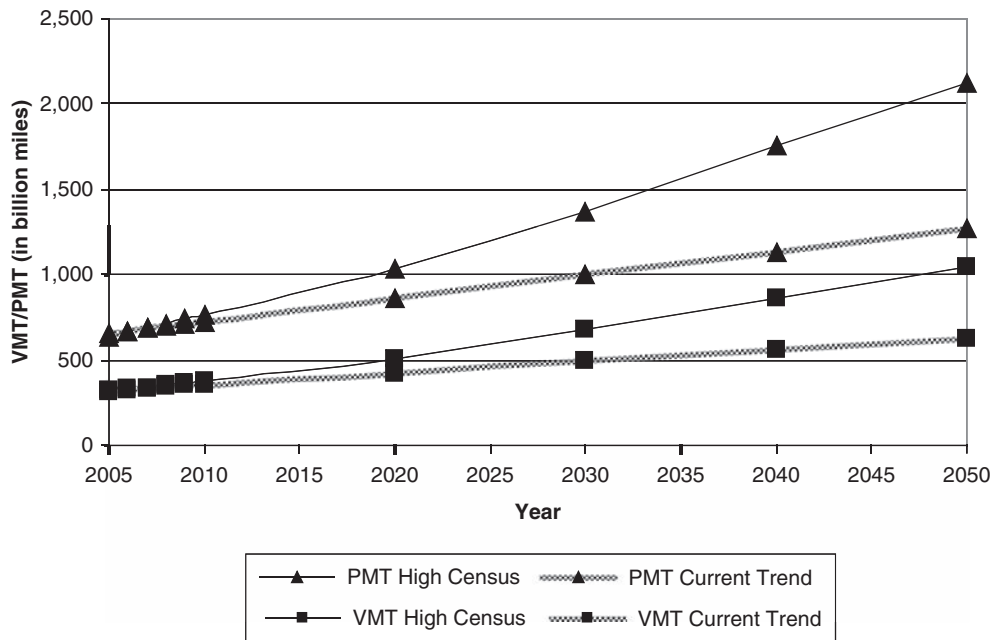
Table 8b
Travel Time by Race and Ethnicity

	Less Than 20 minutes	More Than 60 minutes
White	48.3	7.1
African American	39.0	10.6
Asian	38.6	10.3
Hispanic	44.0	9.1

Source: Pisarski (2006).

As much of the recent and future population growth in the United States will be from new immigrants, understanding the different travel experiences, options, and needs is important when considering various policy and

Figure 5
Projected Travel Demand From Immigrants (2005–2050)



Note: High Census is based on Census Bureau immigrant population projections using 1990 Decennial Census. Current trends assume current average of 731,000 new immigrants per year continues out to 2050. VMT and PMT estimates are based on the current travel of immigrants from the 2001 National Household Travel Survey. VMT = Vehicle Miles of Travel; PMT = Passenger Miles of Travel.

programmatic plans for the future. As shown in Figure 5, even the more conservative estimate (current trends) projects adding 730,000 new immigrants each year, which would add more than a 100,000 new transit riders in each year for the period between 2010 and 2050 (Contrino, 2007).

As immigrants assimilate into the United States, the share of trips made by vehicle increases. Asian immigrants make a faster transition to automobile use, whereas Hispanic immigrants remain more likely to use transit than the U.S.-born population even after 20 years in the United States (Blumenberg & Shiki, 2006).

Conclusions

America has always been a melting pot, and if current trends continue, current racial and ethnic minorities will fuel a lot of the future growth in travel demand. Because minorities on average are more transit dependent, have higher auto occupancies, and have lower levels of vehicle ownership, initiatives focusing on tolling, infrastructure development, land use planning, and highway finance can benefit from understanding the travel behavior, options, and needs of these important and growing groups in the U.S. population.

Understanding the differences in travel behavior and the possible explanations for these differences can help in modeling travel demand, finding policies best suited to meeting the travel needs of all population groups, and addressing environmental justice concerns (Tal & Handy, 2005). As U.S. society becomes more diverse over the next few decades, a significant portion of growth in travel demand will undoubtedly come from minority populations. Therefore, differences in travel behavior, such as those outlined in this article, have wide-reaching consequences for short- and long-term policy development, planning, and travel demand forecasting.

Note

1. Estimate uses current trend and high series projections assuming that the big six states continue to draw 66% of the immigrant population.

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