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Travel Behavior of Immigrant Groups in California

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Travel Behavior of Immigrant Groups in California

Abstract

California is the destination for over one-quarter of immigrants to the United States, and immigrants now make up over one-quarter of the state's population, with nearly half of immigrants originating in Mexico. To ensure that transportation systems and services adequately meet the needs of recent immigrants, planners need a firm understanding of the travel behavior of immigrant groups. This paper reports on key findings from a three-phased study: (1) analysis of data on commute travel of California immigrants from the 1980, 1990, and 2000 Censuses; (2) focus groups with recent Mexican immigrants in six California regions on their transportation experiences and needs in six California regions; and (3) interviews with community-based organizations in nine California regions on the transportation needs and wants of Mexican immigrants. Analysis shows that the car is the most important means of transportation for immigrants; nearly two-thirds of all immigrants use single occupancy vehicles as their primary commute mode, either as drivers or as passengers. However, a disproportionate share of immigrants, particularly those new to the US, commutes by public transit. Mexican immigrants report both advantages and disadvantages of driving and transit, while walking and bicycling help to fill gaps left by these other modes. These findings point to a long list of potential strategies for agencies and organizations to consider in efforts to more effectively meet the transportation needs of Mexican and other immigrants in California.

Travel Behavior of Immigrant Groups in California

Executive Summary

Introduction

California is in the midst of a demographic transformation. In 2002, almost 300,000 new immigrants entered California, the intended destination of 27 percent of all immigrants to the United States (California Department of Finance, 2002; U.S. Department of Homeland Security, 2004). More startling than data on the number of annual entrants to California is the cumulative effect of immigration on the composition of the California population. Data from the 2000 U.S. Census show that more than one-quarter of the California population is foreign-born. Forty-four percent of the foreign-born population comes from Mexico and another 22 percent from Asia (U.S. Bureau of Census, 2004).

This demographic transformation raises an important question for transportation planners in the state: How can we ensure that transportation systems and services adequately meet the needs of an increasingly diverse population? To answer this question, planners need a firm understanding of the travel behavior of immigrant groups, taking into consideration cross-cutting demographic characteristics such as age, income, and gender. Immigrants experience much higher rates of poverty, poor education, and poor vehicle access than US-born persons, conditions that add to their transportation challenges.

The objective of this study was to provide Caltrans and other transportation agencies in the state with an essential foundation for the design and targeted marketing of transportation systems and services to produce better outcomes for the diverse and dynamic population of California. Our research had three components: (1) an investigation of the commute travel of California immigrants using data from the 1980, 1990, and 2000 Censuses; (2) an exploration of the transportation experiences and needs of Mexican immigrants using focus groups in six California regions; and (3) an inquiry to transportation needs and wants of Mexican immigrants, collected from interviews with community-based organizations in nine California regions. Results were compiled on an interactive CD-ROM. See http://path.berkeley.edu/PATH_Downloads/Presentations/Travel-Behavior/index.html

Key Findings

- *Commute mode*

The car is the most important means of transportation for immigrants; nearly two-thirds of all immigrants use single occupancy vehicles as their primary commute mode. Carpooling is also an important commute mode for immigrants in California, with nearly twice as many immigrants as US-born persons relying on carpooling as their primary commute mode. However, a disproportionate share of

immigrants, particularly those new to the US, rely on public transit. Forty-seven percent of all transit commuters in the state are foreign born. However, immigrants are less reliant on public transit than they were in previous decades – 11 percent in 1980 compared to 8 percent in 2000. The decline in transit use among immigrants can be explained by two trends: (1) the rapid assimilation to auto use with years in the US, and (2) the decline in transit use among recent immigrants to California. Despite these trends, transit commuters are disproportionately immigrants.

- *Auto Assimilation*

For Mexican immigrants, the car is an important and necessary mode of transportation – auto access means more freedom, more job opportunities, and a better quality of life; for some it is a symbol of greater social status. Cars are also essential for commutes to work in industries that involve variable work sites (e.g., construction), the need to carry equipment (e.g., landscaping), and early or late shifts (e.g., service work). Having children also adds to the need for a car. Auto access is not a simple yes/no situation. Those living in households without a car often get rides from others or borrow cars, and few are truly transit dependent.

Conversely, living with someone who has a car does not guarantee access to that car. Barriers to auto access include the costs of buying and maintaining a car, inability to get a driver's license, risk of vehicle confiscation, inability to get insurance, and having no way to learn how to drive.

- *Public Transit Pros and Cons*

Transit plays an important role for meeting transportation needs for daily activities in addition to commuting to work for Mexican immigrants. They appreciate many qualities of transit, including the low cost compared to driving and comfort in comparison to walking. Disadvantages to transit include the transit fare costs of traveling with children, difficulty traveling with packages, lack of safe and comfortable shelters, lack of safety on buses, long waits, and limited schedules and routes. Unreliability and limited service hours are of particular concern for immigrants using transit to get to work. Women in particular are concerned with safety at stations, treatment by bus drivers and passengers, and inability to communicate in English.

- *Carpooling Pros and Cons*

Among Mexican Immigrants, carpooling is often preferable to taking public transit for commuting to work for reasons of reliability and speed as well as comfort. In addition to work, carpools are organized for traveling to large supermarkets, flea markets, churches, and other destinations. However, depending on others for rides may be problematic with respect to discomfort in asking for a ride, a sense of indebtedness to others, unreliability of the driver, and the risk of a breakdown or being pulled over while on a trip made on the passenger's behalf.

- *Role of Walking and Bicycling*

Walking is an important mode for Mexican immigrants, especially those with limited access to cars, and is used to get children to school, go to the park, and do limited shopping. For this group, walking is seen both as a way to save money and a way to get exercise, but it only works when destinations are close. A lack of safe sidewalks, speeding in residential areas, and a lack of safe signal crossings are deterrents. Some Mexican immigrants rely on biking to save costs or when transit service is not available, but barriers to bike travel include lack of bike lanes, difficult road conditions, and hot weather.

Strategies

These findings provide insights into the transportation issues affecting California immigrants and possible strategies to address them (Table ES-1). These strategies fall into two general approaches to improving the degree to which the needs of California's immigrants, particularly those from Mexican, are met. The first strategy is to make car travel more attainable, the other is to enhance the quality of transit service. These strategies are not necessarily incompatible, and indeed efforts in both areas would only improve conditions for immigrants. However, if lean budgets should limit these efforts, then there are several reasons to give priority to transit service, including the reliance of transit agencies on immigrants for their ridership and the importance of providing alternatives to driving for all residents of California. These alternatives should include walking and bicycling as well, both important modes for immigrants and often used in conjunction with transit.

Future Research

Additional research is needed to further our understanding of immigrant travel. Future research on immigrant travel would benefit from expanded data sets and travel surveys that would enable a more accurate statistical look at mode choices, driving ability, trip frequencies, auto access, etc. Many topics merit further research: the travel needs of elderly immigrants; region-specific spatial distributions of jobs and residences as they affect the commuting patterns and needs for transit services; trends in travel for areas in transition from one immigrant group to another or from immigrant to non-immigrant predominance; the extent of driving without a license that is occurring and how license issues impact travel choices; the potential of advanced intelligent transportation technologies, including real time traveler information, to improve transit service or facilitate carpooling; rigorous before and after studies of programs designed to serve the travel needs of immigrants. Many other interesting and important questions remain on the understudied topic of the travel needs of immigrants.

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U.S. Department of Homeland Security (2002). *Yearbook of Immigration Statistics. 2003*. Washington, DC: Office of Immigration Statistics.

Table ES-1. Possible Strategies

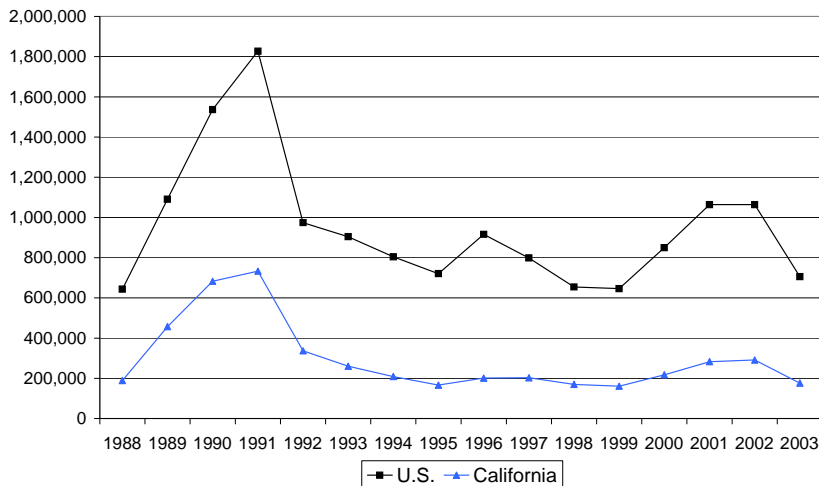
1. Improve Public Transit
1.1. Orient transit services to better accommodate their commute hours
1.2. Encourage supplemental public transit systems
1.3. Reduce costs
1.4. Improve comfort and ease of transit use
1.5. Market transit
1.6. Improve transit linkages between residence and workplace
2. Make Car Travel Safer and More Attainable
2.1. Help increase driving ability
2.2. Facilitate car ownership
2.3. Facilitate carpooling and carsharing
2.4. Improve safety of driving in rural areas
3. Improve Pedestrian Experience
3.1. Improve pedestrian infrastructure
3.2. Provide density of destinations
3.3. Improve quality of pedestrian experience
4. Improve Bicycling Experience
4.1. Increase access to bicycles
4.2. Increase the safety and comfort of bicycling
5. Adapt Land Use Patterns to Support Alternative Transportation
5.1. Ensure adequate access to basic services within the community.
5.2. Ensure transit access to public services outside of the community.

Travel Behavior of Immigrant Groups in California

1. Introduction

California is in the midst of a demographic transformation. In 2002, almost 300,000 new immigrants entered California, the intended destination of 27 percent of all immigrants to the United States (California Department of Finance, 2002; U.S. Department of Homeland Security, 2004 (Figure 1).¹ Over nine percent of immigrants to the US intend to settle in the Los Angeles-Long Beach metropolitan area (U.S. Department of Homeland Security, 2004).² Although immigration to California tapered off in 2003 (U.S. Department of Homeland Security, 2003), population forecasts suggest that international migration to California will continue to be an important source of population growth in the state (Lee, Miller and Edwards, 2003). California will continue to attract immigrants from throughout the world and will become increasingly diverse, racially and ethnically.

Figure 1. Legal Immigration to the United States and California



Source: U.S. Department of Homeland Security (2004). *2003 Yearbook of Immigration Statistics*. Office of Immigration Statistics, September

More startling than data on the number of annual entrants to California is the cumulative effect of immigration on the composition of the California population. Data from the 2000 U.S. Census show that more than one-quarter of the California population is foreign-born. Forty-four percent of the foreign-born

¹These figures underestimate the total percentage of immigrants to California since they exclude unauthorized or “illegal” immigration. The U.S. Immigration and Naturalization Service (2003) estimates that 2.2 million unauthorized immigrants resided in California in 2000, up from 1.5 million in 1990.

² In fiscal year 2003, 703,542 legal immigrants were granted lawful permanent residents in the U.S.; of these, 64,422 stated their intent to live in Los Angeles (U.S. Department of Homeland Security, 2004).

population comes from Mexico and another 22 percent from Asia (U.S. Bureau of Census, 2004). The foreign-born population comprises over one-third of the population in Los Angeles, over one-quarter of the population in the San Francisco Bay Area, and over one-fifth of the population in the Southern, Coastal, and Central Valley areas.

This demographic transformation raises an important question for transportation planners in the state: How can we ensure that transportation systems and services adequately meet the needs of an increasingly diverse population? To answer this question, planners need a firm understanding of the travel behavior of immigrant groups, taking into consideration cross-cutting demographic characteristics such as age, income, and gender. Immigrants experience much higher rates of poverty, poor education, and poor vehicle access than US-born persons, conditions that add to their transportation challenges.

In this study, we explored the needs, constraints, attitudes, and preferences that influence travel choices and the outcomes of those travel choices for immigrants in California. The objective of the study was to provide Caltrans and other transportation agencies in the state with an essential foundation for the design and targeted marketing of transportation systems and services to produce better outcomes for the diverse and dynamic population of California.

Our research had three components: (1) an investigation of the commute travel of all California immigrants using data from the 1980, 1990, and 2000 Censuses; (2) an exploration of the transportation experiences and needs of Mexican immigrants using focus groups in six California regions; and (3) an inquiry to transportation needs and wants of Mexican immigrants, collected from interviews with community-based organizations in nine California regions. We focus on Mexican immigrants because they represent nearly half of California's immigrants. Results from all three components were compiled on an interactive CD-ROM; contents include maps, data tables, summary sheets, papers, and reports. In this paper, we report key findings synthesized from these efforts and suggest strategies to better meet the needs of immigrants in California.

2. Literature Review

Very little academic scholarship has focused on the travel patterns and behavior of immigrants. Much of the research on California immigrants has focused on their economic assimilation and, therefore, has centered on educational attainment, labor market participation, income, and poverty status. A second body of research has focused on the effects of immigration on the California economy. In the following sections we review the small existing body of research on the travel behavior of immigrants. Additionally, we examine the residential location, economic and employment patterns, and public service utilization of

immigrants, highlighting the potential implications of these factors for travel behavior.

Travel Mode

A number of scholars find that assimilation decreases immigrants' propensity to use public transit. Myers (1996) has written the major piece of scholarship on immigration and transportation. Using data from the 1980 and 1990 Public Use Microdata Samples (PUMS) of the U.S. Census, he shows that recent immigrants are far more reliant on public transit than older immigrant cohorts. Over time, however, immigrants improve their economic status and become increasingly reliant on personal vehicles. Purvis (2003) draws from the 2000 Public Use Microdata Sample to analyze immigrants in the San Francisco Bay Area. Similarly, he finds that immigrants' use of public transit declines with time spent in the US. Using data from the 2001 National Household Travel Survey, Casas et al. (2004) divide Hispanics into three categories – US born, “Newcomer Hispanics” who have lived in the US less than one-third of their lives, and “Settled Hispanics” who have lived in the US more than two-thirds of their lives. They also find that “Newcomer Hispanics” rely more heavily on public transit compared to both native-born and “settled” Hispanics.³ Finally, Heisz and Schellenberg (2004) examine the public transit use of immigrants in three Canadian cities (Montreal, Toronto, and Vancouver). They, too, find that the initially high rates of public transit use among immigrants erode over time.

Despite these findings, public transit continues to play an important role for immigrants, particularly those new to the US. Myers (1996) finds that the share of transit users in Southern California who were recent immigrants increased from 27 to 42 percent from 1980 to 1990. In his study of the San Francisco/Bay Area, Purvis (2003) finds that immigrants comprise 32 percent—more than one-third—of all transit commuters in the region, not surprising considering the influx of recent immigrants to California. Further, Heisz and Schellenberg (2004) find a cohort effect related to public transit use. New cohorts of recent immigrants have higher rates of transit use than earlier cohorts. This is likely the result of changes in sending regions and related differences in the characteristics of immigrant cohorts, particularly with respect to educational attainment. Recent immigrants to California from Mexico and Central America tend to arrive with very low levels of education (McCarthy and Vernez, 1998).

Finally, a recent study suggests that cultural differences may also influence the use of transit services. In focus groups with Latino, Somali, and Hmong immigrants in Minnesota, Douma (2004) finds that Latino immigrants are more open to transit and “social” types of travel, compared to Hmong immigrants who place a greater value on privacy.

³In comparing data between the NHTS and the Current Population Survey of the U.S. Census, the authors also find that the NHTS significantly undercounts Hispanic immigrants and, in particular, newcomer immigrants.

Vehicle Ownership

Studies show that auto ownership among immigrants increases with length of residence in the US; however, immigrant households—regardless of their length of residence—remain more likely than native-born households to live in zero-vehicle households. Using data from the 1990 Public Use Microdata Sample (PUMS), McGuckin and Srinivasan (2003) find a positive relationship between length of time in the US and auto ownership. They find that new immigrants are twice as likely to live in households without vehicles as immigrants who have lived in the US for ten years or more. However, their study shows that even after a decade in the US, immigrants are still twice as likely to live in households without automobiles compared to the US-born population.

Casas et al. (2004) report similar findings for Latino households. They find that the percentage of zero-vehicle households among Hispanic immigrants declines substantially with time spent in the US. Almost one-quarter of “newcomer immigrants” live in households without automobiles compared to 13 percent of “settled immigrants.” They also find that older immigrants and native-born Latinos are significantly more likely to own newer—and perhaps more reliable—vehicles. Similar to the findings of McGuckin and Srinivasan (2003), Casas et al. find that “settled immigrants,” those living in the country more than two-thirds of their lives, are still twice as likely as non-Hispanics to live in households without automobiles.⁴

Explanations for low auto ownership rates among recent immigrants are varied. Income is clearly an important factor. Immigrants—particularly recent immigrants—have low incomes and, therefore, are less likely than other population groups to afford automobile ownership, both the purchase and the maintenance expenses. Also, many recent immigrants do not have automobiles because they do not know how to drive. Some immigrants may be less likely than others to have had drivers’ licenses, driven cars, or owned automobiles in their countries of origin. There are also cultural differences associated with driving. For example, women outside of the US are much less likely to possess driver’s licenses or to know how to operate vehicles than women in the US (Pisarski, 1999).

Immigrants may also face administrative obstacles to obtaining drivers’ licenses in the US; this, too, may decrease the likelihood of auto ownership. Historically, states have had responsibility for the issuance of driver’s licenses and the establishment of driver’s rules. As of March 2005, driver’s license applications in 47 states, including California, required Social Security Numbers for those who have been assigned or are eligible for one (National Immigration Law Center,

⁴Aponte (1996) finds that Mexican men have strikingly higher car ownership rates (also lower unemployment rates) than African American men despite their lower schooling and English proficiency. The car ownership rate for African American men was 66% compared to 82% among Mexican men, a rate 2% points less than that for white men (84%). Unemployment rates for black, Mexican, and white men were 32%, 7%, and 16%, respectively.

2005).⁵ All but twelve states, including California, require “lawful presence,” meaning that immigrants must present evidence that they were lawfully admitted to the US. Anecdotal evidence suggests that legal immigrants may have difficulty providing the necessary documents. Further, some states, most recently New York, are denying license renewals and suspending the licenses of non-citizens who fail to provide documents (a Social Security card or a visa) “deemed satisfactory by a motor vehicles clerk” (Bernstein, 2005).

But the issue of driver’s licenses is clearly most pressing for illegal immigrants. In most states undocumented immigrants are not eligible for driver’s licenses. This issue has been highly controversial in California where in 2003 the State Legislature repealed SB60, a bill allowing illegal immigrants to obtain driver’s licenses. Public opinion polls in the state clearly support this decision. A recent Field Poll shows that 62 percent of California residents oppose granting undocumented immigrants the right to obtain a California driver’s license (DiCamillo and Field, 2005).⁶

Finally, low automobile ownership rates may be due to immigrants’ disproportionate residential location in central-city neighborhoods. Many of these neighborhoods have well-established ethnic communities (as we discuss below) as well as extensive public transit service.

Intercity Travel

Anecdotal evidence suggests that there has been a growth in ethnic providers of inter-city transportation services. A number of newspaper articles have profiled ethnic inter-city bus carriers, particularly on the east coast (Fass, 2001; Newman, 2005). For example, Chinese buses make regular trips between Chinatowns in New York, Boston, and Washington, D.C. As Newman (2005) reports, Chinatown buses first emerged approximately eight years ago, transporting Chinese workers to restaurant jobs in nearby cities. Over time, their ridership has both expanded and diversified.

“Camionetas” serve a similar purpose in many Hispanic communities. Camionetas are informal van services used primarily by Hispanic immigrants for inter-regional and transnational travel. While the presence of this service is widely acknowledged by journalists (Hegstrom, 2003; Lewis 2001; Moreno, 1998), few scholars have examined the extent and role of this type of informal service. In a report sponsored by the Texas Department of Public Safety, Ellis (2001) chronicles some of the safety problems associated with camionetas, including the use of high mileage vehicles, the operation of vehicles for unsafe

⁵ In California, persons who are legally authorized to be in the state but are ineligible for a social security number are entitled to DMV documents (NILC, 2004).

⁶ The Field poll shows that there is a “large ethnic divide” on this issue. Latinos in the state are in favor of providing driver’s licenses to undocumented immigrants by a two to one margin. Furthermore, 49 percent of residents support issuing undocumented immigrants a different kind of driver’s licenses that would allow them to drive but would clearly identify their legal status.

periods of time, the presence of defective seat belts, and low usage rates of seat belts.

More recently, Valenzuela (2004) examined camioneta services in Los Angeles. He found that camionetas provide many benefits usually associated with private transit services, “flexible routes and timing, more tailored destinations, better in-vehicle amenities, and faster trips due to the smaller vehicles.” Camioneta service often is more expensive than Greyhound service, but typically provides faster service. Further, from Los Angeles, camionetas provide service as far as New York, Mexico, and Central America. The travelers reported they use the service from 1 to 60 times a year and 70 percent use the service for work-related travel. More than half of all survey respondents had a car available for their daily travel needs and only six of the 150 respondents reported using transit to get to work.

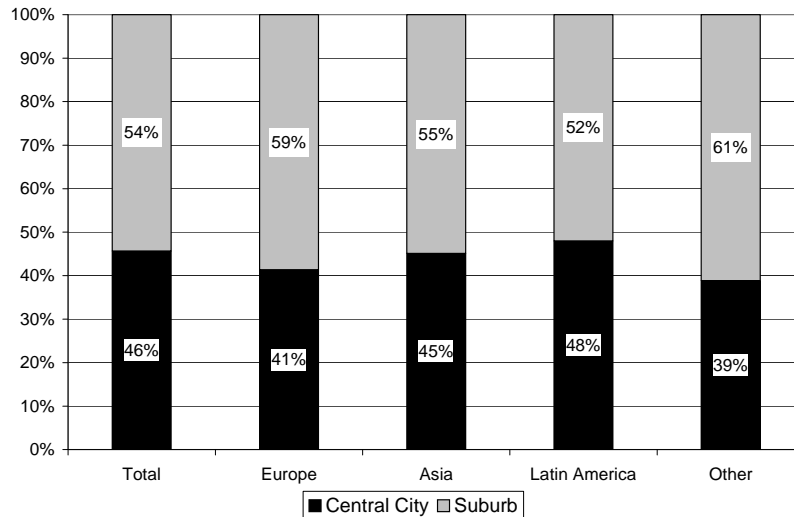
In California, farm worker transportation is an important issue. Following a series of accidents that involved farm labor vehicles, the California Highway Patrol conducted an enforcement sweep throughout the state. They pulled over 118 vehicles of which 36 (31%) were found to have serious safety violations. These violations included unregistered vehicles, defective lights, and license-related offenses, including driving without a license (Ingram, 1999). The growing number of injuries and fatalities of farm workers in the San Joaquin Valley, many of them immigrants, served as the impetus for a Farm Worker Transportation Services Pilot Project (FTSPP) funded as part of the Job Access and Reverse Commute program. The FTSPP program provides vanpool, fixed-route, and Dial-A-Ride service to farm worker families for employment-related, childcare, health and/or social purposes.

Residential Location

Where immigrants choose to live has important implications for their travel. Recently arrived immigrants—particularly those with low-incomes—are more likely to live in dense central-city neighborhoods. However, over time, immigrants tend to move to suburban areas, and increasingly, even new immigrants are starting out in the suburbs, often in ethnic enclaves. Overall, a majority of the foreign-born population in California lives in suburban rather than central city areas (Figure 2).

Because public transit networks tend to be well developed there, central-city immigrants, are more likely to use public transit and to travel short distances. However, the effect of a suburban residential location on the travel patterns of immigrants is much less certain. Overall travel distances tend to be longer in the suburbs than in the central city since suburban employment is more spatially dispersed relative to central-city employment. In contrast, travel times tend to be shorter for suburban commuters since a high percentage of suburban residents commute within the suburbs. Suburban commute times are also reduced by the widespread use of automobiles as well as less congested streets and highways.

Figure 2. Central City Residence of Foreign-Born Population by Region of Birth (U.S., 2004)



Source: U.S. Census Bureau (2004). Current Population Survey.

But if suburban immigrants are more likely than other suburban residents to maintain employment in traditional, central-city ethnic enclaves, their travel distances might be longer than those of other suburban workers. For example, an article in the *Los Angeles Times* tells the story of Jung-In Lee who moved from Koreatown in Los Angeles to the City of Walnut where she found better schools and lower crime rates. The article states that “Lee often spent three hours a day commuting to and from her Koreatown job in publishing” and “during her time in the suburbs, she was so stressed out from the commute that she barely had time to enjoy their four-bedroom ‘dream house.’” In contrast, low-wage suburban immigrants may commute shorter distances than other low-wage suburban workers if they both live and work in suburban ethnic enclaves.

Immigrants’ access to and use of services also varies by the spatial location of services relevant to particular immigrant groups. In a study of services for immigrant women in Toronto, Truelove (2000) finds that the suburbanization of immigrants negatively affects their access to services typically concentrated in central-city areas. While Truelove (2000) focuses on social services, the finding likely applies also to transit services. Immigrants who move to suburban neighborhoods will have less access to the extensive transit networks typically found in central cities. This may make little difference if—along with a suburban residence—immigrants also acquire automobiles. However, if suburban immigrants are more reliant on public transit than native-born suburban residents, they will also be more isolated from jobs, services, and other destinations.

3. Method and Conceptual Framework

The study involved three components: (1) an investigation of the commute travel of California immigrants using data from the 1980, 1990, and 2000 Censuses; (2) an exploration of the transportation experiences and needs of Mexican immigrants using focus groups in six California regions; and (3) an inquiry to transportation needs and wants of Mexican immigrants, collected from interviews with community-based organizations in nine California regions. Details on the methodology for each step are reported elsewhere (Blumenberg and Song, 2008; Blumenberg and Shiki, 2008; Lovejoy and Handy, 2007). However, it is important here to note several limitations in our methods, and to present the conceptual basis for our approach.

Limitations

Because few travel surveys record the immigration status of respondents, the census data are the best data source to examine the travel of immigrants largely because of its large sample size and the wealth of detailed information on immigrants. However, the census data have some important limitations, the most significant of which is the lack of information on travel other than the commute. Further, the data sets do not include information on the transportation barriers facing immigrants or their service preferences.

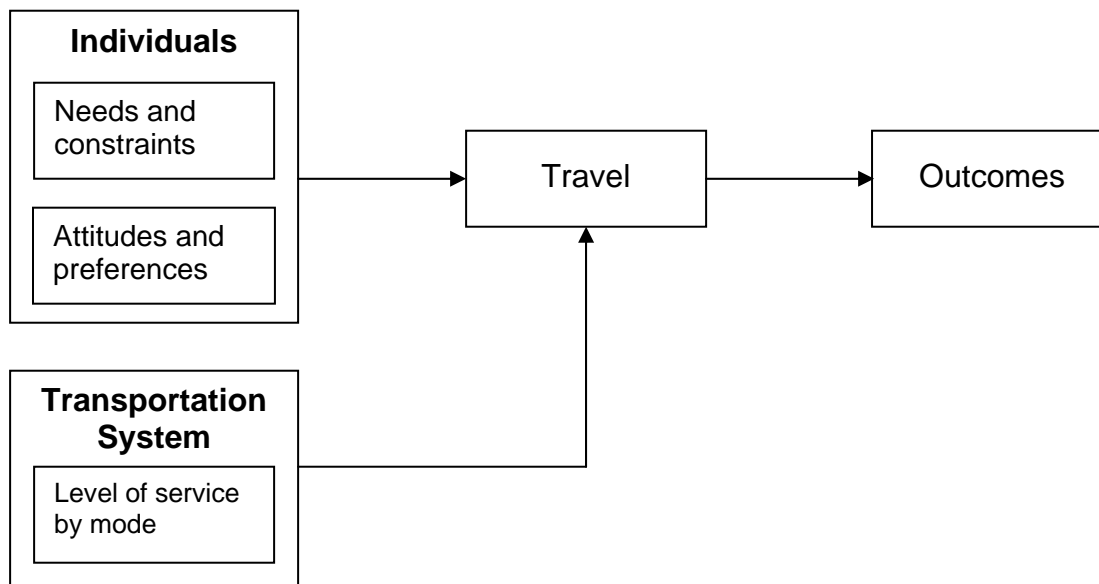
Therefore, we supplemented the analysis of census data with focus groups and interviews to investigate the travel behaviors and preferences of Mexican immigrants. We focused on Mexican immigrants because they comprise 44 percent of the total immigrant population in California, the experiences of different immigrants are likely to be different in a variety of ways, and the project budget did not enable us to conduct multiple sets of focus groups in other languages. Through the focus groups and interviews, we also explored all travel purposes as we might expect travel behaviors and preferences to vary by purpose. Of course, the findings from both the focus groups and interviews with community-based organizations are limited by small samples and the content of conversations was steered by questionnaire guides or dominant speakers. As such, content and frequency of comments from participants may not accurately reflect the views of the broader Mexican-immigrant population. Nevertheless, these efforts enabled us to explore questions of “why” and “to what end” raised by the analysis of the census data, as discussed below.

Conceptual Basis

Planners need a better understanding of the travel behavior of diverse demographic groups within the state. An analysis of travel patterns for different population groups, as measured through travel surveys, is just one step towards that understanding. Planners also need to understand what factors contribute to the travel choices that individuals within these population groups make. These factors include an individual’s need for travel (e.g. getting to work, going

shopping, getting children to school) as well as his constraints on travel (e.g. limits on time, limits on income, inability to drive) and his attitudes and preferences for travel in general and by different modes. Given these factors and the level of service provided by the transportation system, an individual makes choices about travel (e.g. whether or not to travel, where to go, what mode to use, what route to use) that lead to a variety of outcomes for him (e.g. an ability to earn an income, put dinner on the table, get an education) (Figure 3). Although these factors vary from individual to individual, they may show some consistency for individuals who share demographic characteristics. With a better understanding of the factors influencing travel choices, planners can develop a transportation system that effectively and efficiently produces better outcomes for the diverse demographic groups of California.

Figure 3. Conceptual Model



The standard model of travel behavior, based on economic theory, assumes that individuals seek to maximize their utility, where the utility of travel is primarily in bringing people to spatially segregated activities, such as work, school, and shopping (e.g. Domencich and McFadden 1975). That is, people try to optimally meet their needs for travel, such as getting to work, going shopping, and getting children to school, subject to whatever constraints they face. Constraints include their own constraints, such as limits on time, limits on income, or the inability to drive, and constraints imposed by the transportation system, such as the level of service provided by different modes.

However, this optimization process is complicated for several reasons. First, shorter term choices for everyday travel are affected by longer-term choices, such as auto ownership and job location. Second, the types of considerations that make a particular choice optimal for someone are likely to be unique to that

individual and to her particular circumstance. Furthermore, some of the considerations that are thought to be relevant for travel choices do not necessarily fit into the traditional notion of “rational” decision-making implied by economic theory. This rich set of considerations might include factors such as ability or willingness to pay, family responsibilities, residential location, risk aversion, perceptions of safety or comfort, previous travel experiences, cultural norms, sensitivity to features of the built environment, the desire to impress peers, and self-efficacy.

Because of the non-rational nature of some of these considerations, theories from the field of psychology are a useful supplement to utility-maximization in framing travel behavior choices. In particular, the “theory of planned behavior” (e.g. Ajzen 1991) and “social cognitive theory” (e.g. Bandura 1986) both contribute useful frameworks for understanding the travel behavior of immigrants. The theory of planned behavior identifies three different types of beliefs that play an important role in explaining behavior: beliefs about likely outcomes of a behavior (e.g. if I go alone, I will get lost), normative beliefs about whether others approve or disapprove (e.g. driving a sports car is cool), and beliefs about factors that will facilitate or constrain particular behaviors (e.g. bus stops are dangerous places to spend time). Social cognitive theory recognizes that an individual’s behavior is not simply a product of her personal characteristics and the environment, as given inputs to a behavioral outcome, but rather that an individual’s behavior can influence her personal characteristics (e.g. riding the bus changes her feelings about the bus) and can influence her environment (e.g. by riding the bus she is making it more crowded for others, and/or serving as an example for someone in her peer group who might then feel encouraged to ride the bus). The notions of “outcome expectations” and “self-efficacy” also come from social cognitive theorists, referring to, respectively, expecting something to happen based on previous experience, observations, hear-say, or gut feelings; and confidence about the ability to accomplish something (Baranowski, Perry et al. 2002). These concepts are useful in explaining many aspects of behavior that seem to fall outside of the utility-maximizing framework, such as resistance to riding transit due to associated stigmas.

These theories provide a useful framework for examining the travel choices of immigrants. For example, some of the “rational” factors emphasized in the utility-maximizing theory, such as travel time and travel cost, should play a significant role. An undocumented immigrant with very low income will face dramatic constraints in his transportation choices as well as job- and residential-location choices. At the same time, planned behavior and social cognitive theories may help explain why a previously transit-dependent immigrant who now has options might choose either to continue riding transit or to purchase and drive a car.

We might expect similarities along demographic lines for several reasons. First, whatever demographic characteristics a demographic group has in common may be associated with other choices its members also have in common. For

example, individuals with similar income levels or educational attainment may choose to live in the same neighborhoods, choose from the same pool of jobs, shop at the same nearby grocery stores, and make the same decisions about how to travel between these activities. Demographic commonalities may be associated with particular attitudinal and belief-oriented responses as well. A second reason we might expect similarities along demographic lines may have little to do with the characteristic they have in common, and more to do with the fact that they share a community, for whatever reason. For example, specific communities may produce normative beliefs that are specific to that particular culture or group, such as whether it is appropriate for women to travel alone or how much stigma there is about riding transit. Furthermore, outcome expectations may be shared within a specific community, making the choices within that community more similar to each other than to the rest of the population. For example, a belief that it is dangerous to take rides in taxis may lead to limited use of that mode by a particular group.

4. Key Findings on Immigrant Travel

Travel and Commute Mode Trends

Most immigrants in California, like most non-immigrants, travel by car. However, a disproportionate share of immigrants, particularly those new to the US – rely on public transit. This trend, coupled with high rates of immigration, has fueled a 19 percent increase in the number of transit commuters in the state since 1980. Forty-seven percent of all transit commuters in the state are foreign born, suggesting that without immigrants, the number of transit commuters in California would be at least half of what it is today.

However, the increase in transit commuters has not kept pace with the growth in the California population. Similarly, the increase in immigrant transit commuters, while significant, has not kept pace with the growth in the foreign-born population. Consequently, immigrants are less reliant on public transit than they were in previous decades – 11 percent in 1980 compared to 8 percent in 2000. The decline in transit use among immigrants can be explained by two trends: (1) the rapid assimilation to auto use with years in the U.S. and (2) the decline in transit use among recent immigrants to California. Despite these trends, transit commuters are still disproportionately immigrants.

Autos

The car is the most important means of transportation for immigrants; nearly two-thirds of all immigrants use single occupancy vehicles as their primary commute mode. Car usage varies by country of origin. Some immigrant groups—immigrants from Iran (94%), Korea (94%), Vietnam (93%), and Taiwan (93%)—travel by car in rates higher than U.S.-born commuters (91%). Other immigrant groups—particularly immigrants from Latin America—are less reliant on cars. For

example, only 75 percent of Guatemalans and 83 percent of Mexican immigrants rely on cars.

Overall, newly arrived immigrants are more highly transit dependent than US born commuters. However, they assimilate to autos quickly once in the US, and much of this assimilation occurs after the first five years in the US. The rate at which immigrants assimilate to auto use varies by race and ethnicity. Hispanic immigrants most quickly assimilate to auto use; however, their rates of transit use are so much higher than for other racial and ethnic groups that they remain more likely to use transit than U.S.-born white commuters even after 20 years in the US. In contrast, after five years in the US, Asian immigrants are about as likely to commute by transit as US-born white commuters.

Findings from exploratory research on Mexican-immigrant travel help to elucidate the trend in auto assimilation. For this group, the car is an important and necessary mode of transportation – auto access means more freedom, more job opportunities, and a better quality of life; for some it is a symbol of greater social status. Cars are also essential for commutes to work in industries that involve variable work sites (e.g., construction), the need to carry equipment (e.g., landscaping), and early or late shifts (e.g., service work). Having children also adds to the need for a car.

Auto access is not a simple yes/no situation. Those living in households without a car often get rides from others or borrow cars, and few are truly transit dependent. Conversely, living with someone who has a car does not guarantee access to that car. Mexican immigrants who know how to drive sometimes borrow cars, but they often feel uncomfortable asking and worry about getting into accidents, having the car confiscated if pulled over, or having a breakdown.

Mexican immigrants with limited car access find it difficult to get to healthcare facilities, out-of-town destinations, recreational places, and any destinations at off-peak times; they spend more time commuting, and their employment and educational opportunities are more limited. Limited car access may affect women and children, in particular, who have to find alternative modes of travel when their husbands take the car to work.

Barriers to auto access include the costs of buying and maintaining a car, inability to get a driver's license, risk of vehicle confiscation, inability to get insurance, and having no way to learn how to drive.

Public Transit

Transit plays a critical transitional service for immigrants, especially their first five years of living in the US. Moreover, although recent immigrants rapidly transition to auto commuting, many—particularly Hispanic immigrants—remain reliant on transit many years after immigrating to the US. Consequently immigrants transit-

commute at rates twice that of US-born commuters – 8 percent compared to 4 percent. Transit usage varies by country of origin.

Given these figures, it is not surprising that a disproportionate percentage (47%) of transit commuters are immigrants. And in some metropolitan areas this figure is much higher. For example, in Orange and Los Angeles, immigrants comprise two-thirds of all transit commuters.

The focus group and interview findings on Mexican immigrant travel suggest that transit plays an important role for meeting transportation needs for daily activities in addition to commuting to work. They appreciate many qualities of transit, including the low cost compared to driving and comfort in comparison to walking.

Reported disadvantages to transit include the transit fare costs of traveling with children, difficulty traveling with packages, lack of safe and comfortable shelters, lack of safety on buses, long waits, and limited schedules and routes. Unreliability and limited service hours are of particular concern for immigrants using transit to get to work. Women in particular are concerned with safety at stations, treatment by bus drivers and passengers, and inability to communicate in English.

Carpooling

Carpooling is an important commute mode for immigrants in California – nearly twice as many immigrants (22%) as US-born persons (12%) rely on carpooling as their primary commute mode. Carpooling also varies by country of origin. Among the top ten immigrant groups in California, Mexican immigrants use carpooling the most (29%) and Iranian immigrants rely on it the least (11%).

The rates of carpooling among immigrants decline with years in the US; but after 20+ years in the US, Hispanic and Asian immigrants carpool at rates higher than for US-born whites. Carpooling rates among Mexican immigrants vary across metropolitan areas and are highest, at least in the first 5 years, in Fresno and Orange Counties, both metropolitan areas with limited public transit networks.

Findings from exploratory research on Mexican-immigrant use of carpools reveal that carpooling is often preferable to taking public transit for commuting to work for reasons of reliability and speed as well as comfort. In addition to work, carpools are organized for traveling to large supermarkets, flea markets, churches, and other destinations. However, depending on others for rides may be problematic with respect to discomfort in asking for a ride, a sense of indebtedness to others, unreliability of the driver, and the risk of a breakdown or being pulled over while on a trip made on the passenger's behalf.

Walking/ Biking

While few immigrants report walking as their primary commute mode – 3.5% of immigrants versus 2.8% of US-born persons – walking is still an important alternative means of travel, particularly for non-work travel.

The focus group and interview findings indicate that walking is an important mode for Mexican immigrants, especially those with limited access to cars, and is used to get children to school, go to the park, and do limited shopping. For this group, walking is seen both as a way to save money and a way to get exercise, but it only works when destinations are close. A lack of safe sidewalks, speeding in residential areas, and a lack of safe signal crossings are deterrents.

Some Mexican immigrants rely on biking to save costs or when transit service is not available, but barriers to bike travel include lack of bike lanes, difficult road conditions, and hot weather.

Land Use

Many immigrants enter the US through central-city neighborhoods that serve as ports of entry for new immigrants. We calculated the distribution of the US- and foreign-born populations by density quintiles across Public Use Microdata Areas (PUMAs), geographic units developed by the U.S. Census.⁷ We find that only 13 percent of the US-born population lives in the densest neighborhoods compared to almost 30 percent of immigrants. These dense urban areas also tend to be neighborhoods with extensive transit networks and service. However, with time in the US, immigrants are more likely to live outside of the central city in neighborhoods where transit service is more limited.

Immigrants are more likely to choose alternative modes of travel than US-born commuters regardless of metropolitan area. But the rates at which they rely on alternative modes of travel—and substitute one mode for another—vary by metropolitan structure. There tends to be less variation in transit commuting between immigrants and US-born commuters in dense metropolitan areas, where transit use can more easily substitute for driving than in more spatially dispersed areas where using transit is far less convenient. In Los Angeles, even Mexican immigrants with cars made regular use of transit; in San Jose and Fresno they did not.

For Mexican immigrants, land use plays an important role by determining the distances from home to destinations, including work and others, as well as the quality of travel by alternative modes. Long distances are often cited as a reason for needing a car or getting a ride. For nearby destinations, the quality of the built environment influences the safety and comfort of walking. For immigrants

⁷ See <http://www.census.gov/geo/www/tiger/glossry2.pdf> page A19 for a description of PUMAs

without car access, having destinations within walking distance adds to their quality of life.

5. Issues and Strategies

These findings provide the basis for a list of transportation issues affecting California immigrants and possible strategies to address them (Table 1). This list is not intended as a list of recommendations for specific communities but rather a general list of strategies that communities might consider in their efforts to better meet the transportation needs of Mexican immigrants in California. Several issues deserve further investigation, as described below.

Our findings point to two general strategies for improving the degree to which the needs of California's immigrants, particularly those from Mexican, are met. The first strategy is to make car travel more attainable, the other is to enhance the quality of transit service.

- **Make car travel more attainable.** In most neighborhoods cars are the preferred mode of travel as they allow convenient access to numerous destinations. Yet many immigrants arrive in California having had little driving experience or without the ability to obtain a driver's license. Particularly in neighborhoods outside of the central city, automobiles provide immigrants with better access to jobs and services and should be promoted. Access to cars might be provided in a variety of ways, including carpooling facilitation and car-sharing programs.
- **Enhance the quality of transit service.** Public transit is a critical service in helping new immigrants transition to life in the US; many immigrants enter the US through ports of entry located in the central city where public transit works best. In these neighborhoods that transit agencies may see the need for additional service. In less densely population areas, transit service is still important to immigrants whose access to cars is limited.

These strategies are not necessarily incompatible, and indeed efforts in both areas would only improve conditions for immigrants. However, if lean budgets should limit these efforts, then there are reasons to give priority to transit service. Transit commuters are disproportionately immigrants; without them, the number of transit commuters in California would be at least half of what it is today. But transit agencies are likely to face a decline in transit ridership in the future due to (a) the projected slowing of immigration to California combined with (b) the assimilation of current immigrants to auto use. Declines in ridership make it hard to maintain quality of service, let alone improve it. But improving transit service is important not just from the standpoint of meeting the needs of immigrants. The combination of volatile gas prices and new environmental policies (such as the California Global Warming Solutions Act) magnify the importance of providing alternatives to driving for all residents of California.

These alternatives should include walking and bicycling as well, both important modes for immigrants and often used in conjunction with transit. All of these modes need supportive land use patterns to be viable. Many communities in California have adopted policies that help to change land use patterns in ways that are more supportive of transit, walking, and bicycling. Examples include smart growth policies and transit-oriented development programs. These efforts, though directed at much broader societal and environmental concerns, may help to address the mobility needs of immigrants as well. In addition, communities might consider land use strategies targeted specifically to immigrants.

Table 1. Issues and Possible Strategies

1. Improve Public Transit	
1.1. Orient transit services to better accommodate their commute hours	
<i>ISSUES</i> A substantial number of immigrants work in the service industry and factories; and they often work early-morning, late-night, and third-shift work schedules. Because their work schedules are different from standard commute hours, access to work is problematic. Agents of change may want to orient transit services to better accommodate their commute hours.	<i>STRATEGIES</i> - Extend hours of service earlier and later to accommodate work schedules, - Increase frequency of service during commute hours specific to immigrant communities and reliability of arrival times, and - Implement rapid bus lines on most frequent routes, especially to common work places and shopping areas.
1.2. Encourage supplemental public transit systems	
<i>ISSUES</i> Many Mexican-immigrant communities, and likely other immigrant communities, may be isolated from major transit routes, making transit inaccessible or an unviable option for individuals traveling with packages or children, and traveling in times of extreme weather conditions. This may affect women and children at home in particular. Agents of change might consider options to encourage supplemental public transit systems and higher quality transit systems.	<i>STRATEGIES</i> - In areas with concentrations of newly arrived immigrants, increase number of routes, destinations served, frequency of service, and reliability of arrival times; and improve coordination of transfers between routes; - Provide ride-home shuttle services at grocery stores and round-trip rides to healthcare facilities; and - Implement a shuttle system that links residential areas with major transit routes.
1.3. Reduce costs	
<i>ISSUES</i> The cost of traveling by transit may be burdensome for many Mexican immigrants. This is potentially the case for other immigrant groups as well. Instead of reducing fares for everyone, agents of change might consider options to reduce costs for the most burdened transit riders:	<i>STRATEGIES</i> - Reduce costs for children and families, and - Subsidize transit passes for workers and students.

1.4. Improve comfort and ease of transit use	
ISSUES Newly arrived immigrants, women, and seniors may avoid traveling on transit systems because of concern of personal safety, discrimination by fellow passengers or transit operators, and inability to effectively communicate in English. Finding exact change for transit fares may also be a particular annoyance and barrier to riding transit. Agents of change may want to improve comfort and ease of transit use.	STRATEGIES - Require cultural sensitivity training and basic language skills for bus drivers; - Improve bus shelters with shade, seats, protection from traffic, protection from crime; - Improve nighttime security on vehicles and at stops; and - Implement pre-paid swipe cards.
1.5. Market transit	
ISSUES Immigrants may encounter language barriers and might not have access to transit information. While the Mexican-immigrant community and possibly many other immigrant communities learn through an informal network system of communication, it may be worth the while for agents of change to market transit to immigrant communities to boost ridership and facilitate their comfort with transit use.	STRATEGIES - Provide information at bus stops, including schedules, maps with nearby destinations, and real-time information, in Spanish or other languages; - Provide transit information to all non-profit organizations and libraries; - Advertise transit systems via Hispanic media: radio, billboards, newsletters, newspapers, Spanish television; and - Promote transit use across all income and ethnic groups to build support for improved transit and to reduce dependence of transit ridership on recent immigrants.
1.6. Improve transit linkages between residence and workplace	
ISSUES In some communities, immigrants may cluster in residence and workplace. For these communities, agents of change might consider options to improve transit linkages between residence and workplace to improve workplace accessibility.	STRATEGIES - Identify residential and workplace clusters of immigrant communities and increase transit linkages, - Subsidize shuttle systems to improve linkages between neighborhoods and large transit systems, and - Implement rapid bus lines on most frequented routes, especially to common work places and shopping areas.
2. Make Car Travel Safer and More Attainable	
2.1. Help increase driving ability	
ISSUES Immigrants may not know how to drive when they arrive into the United States. Inadequate resources may make the learning process difficult; this may disproportionately affect women. Agents of change may want to help increase their driving ability.	STRATEGIES - Provide opportunities for driver's training, and - Provide mechanism for acquiring driver's license and insurance regardless of immigration status.

2.2. Facilitate car ownership	
ISSUES More immigrants are low-income or impoverished as compared to U.S.-born persons. This may make car ownership burdensome or unviable for many. Agents of change may help to facilitate car ownership.	STRATEGIES - Provide financial assistance for purchasing vehicles and auto insurance, - Provide auto-repair training and facilities, - Lift the vehicle asset limitation associated with public assistance programs; and - Encourage a retired fleet vehicle program to make available low-cost vehicles.
2.3. Facilitate carpooling and carsharing	
ISSUES While many immigrants rely on carpooling as their primary commute mode, and others use it as an alternative mode, it may be worthwhile for agents of change to facilitate carpooling and carsharing.	STRATEGIES - Develop an organized carpool or vanpool system, with dedicated vehicles and community volunteers to drive to specific work locations; and - Implement carsharing programs.
2.4. Improve safety of driving in rural areas	
ISSUES Transit may be scarce in rural areas and the automobile may be the only mode of transportation for some; these areas may also have poor road and highway conditions. Agents of change may want to improve safety of driving in rural areas.	STRATEGIES - Provide signage of all highway turnoffs, - Post notices of potholes or flooding, - Provide Spanish translation of signs in key areas, and - Improve highway lighting.
3. Improve Pedestrian Experience	
3.1. Improve pedestrian infrastructure	
ISSUES Immigrant communities may not be well designed for pedestrian travel. Mexican immigrants have expressed concern regarding the danger that car traffic poses to walkers. Agents of change might consider options to improve pedestrian infrastructure to promote safety and comfort with walking.	STRATEGIES - Provide sidewalks and signal-protected crossings, - Enforce speed limits and implement traffic calming, and - Improve egress from schools and grocery stores.
3.2. Provide density of destinations	
ISSUES Although not a primary commute mode for the majority of immigrants, walking may be an important alternative mode of transportation for those without access to transit or autos. To facilitate pedestrian travel, agents of change might consider options to provide density of destinations.	STRATEGIES - Plan for schools, workplaces, parks, supermarkets, laundromats, and healthcare within walking distance of residential areas.

3.3. Improve quality of pedestrian experience	
<i>ISSUES</i> Walking is also a leisure and health-conscious activity for many Mexican immigrants and potentially other immigrant groups. However, the built environment may discourage these activities. To facilitate walking, agents of change may want to improve quality of pedestrian experience.	<i>STRATEGIES</i> - Make walking more pleasant through beautification, landscaping, benches, trees; and - Make walking safer through lighting.
4. Improve Cycling Experience	
4.1. Increase access to bicycles	
<i>ISSUES</i> Bicycling is an inexpensive mode that can effectively meet middle-distance needs, i.e. traveling to destinations too far for walking and not well served by transit. It is also an important physical activity. Agents of change may want to increase access to bicycles.	<i>STRATEGIES</i> - Work with police departments and bicycle shops to provide low-cost used bicycles to immigrants, along with training in bicycle repair and access to repair facilities.
4.2. Increase the safety and comfort of bicycling	
<i>ISSUES</i> Many communities where immigrants live have limited bicycle infrastructure, making biking less safe as an alternative mode of transportation. Agents of change might consider options to increase the safety and comfort of bicycling.	<i>STRATEGIES</i> - Maintain and improve existing bicycle infrastructure - Provide more extensive networks of bicycle lanes and other facilities - Provide free helmets and training in bicycle safety, particularly for children
5. Adapt Land Use Patterns to Support Alternative Transportation	
5.1. Ensure adequate access to basic services within the community.	
<i>ISSUES</i> Although immigrants are more dependent on walking as a mode of transportation, many immigrant communities do not have basic services within walking distance. Agents of change may work to ensure adequate access to basic services within the community.	<i>STRATEGIES</i> - Conduct audits of available versus needed services - Review zoning policies in immigrant communities - Provide incentives for needed services to locate in immigrant communities
5.2. Ensure transit access to public services outside of the community.	
<i>ISSUES</i> Public services important to immigrants are sometimes located in areas not accessible by transit. Agents of change might consider possibilities to ensure transit access to public services outside of the community.	<i>STRATEGIES</i> - Give high priority to transit access in deciding where to locate public services important to immigrants.

6. Opportunities for Future Research

There are several opportunities for future research that will further our understanding of immigrant travel. These include both needs and opportunities for future research.

Future research on immigrant travel would benefit from expanded data sets and travel surveys that would enable a more accurate statistical look at mode choices, driving ability, trip frequencies, auto access, etc. One need is to measure immigrant status as part of travel surveys (for example, in travel diary surveys conducted by regional transportation planning agencies). Another need is to expand large-sample national surveys to include data on travel for purposes other than the commute. Finally, a new way of measuring car access should be developed.

Many topics merit further research. The travel needs of elderly immigrants, for example, could be significantly different from those of younger immigrants or than native-born elderly. Region-specific spatial distributions of jobs and residences as they affect the commuting patterns and needs for transit services for immigrants are not well understood. Studies of the trends in travel for areas in transition from one immigrant group to another or from immigrant to non-immigrant predominance could yield important insights. Our understanding of the extent of driving without a license that is occurring and how license issues impact travel choices is limited. The potential advanced intelligent transportation technologies, including real time traveler information, to improve transit service and facilitate carpooling for immigrants has not been studied. Programs targeted at improving transportation services for immigrants should be evaluated through rigorous before and after studies. Many other interesting and important questions remain on the understudied topic of the travel needs of immigrants.

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