WHO'S ON BOARD 2014

MOBILITY ATTITUDES SURVEY

Prepared for TransitCenter

Submitted by RSG

TransitCenter

TransitCenter is an independent civic philanthropy dedicated to sparking innovations and supporting policies that improve public transportation. We believe new approaches to mobility and access are needed to shape the urban landscape and bolster the vitality of our cities. We empower transportation thinkers and policymakers, commission and conduct research, convene events, and produce publications in order to inform and improve the practice of planning, financing, and operating transit.

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Transit is personal.

LETTER FROM THE EXECUTIVE DIRECTOR

In 2013, advocates, planners, and policymakers were abuzz with the 10.7 billion rides taken on transit, an all-time U.S. record. Yet the discussion focused too much on the sheer number of rides, without a deep look at the riders themselves, and particularly the changing attitudes that are propelling recent ridership increases. We commissioned this survey to take that deeper look.

Americans interact with public transit every day, whether or not they are one of those 10.7 billion rides. Their opinions of it are shaped throughout childhood, over each commute home, at every bus stop, and in every traffic jam. Transit is personal. Unlike the sewer systems, the power grid, and telecommunications infrastructure, transit can evoke pride, frustration, and even fear. It can shape our most personal decisions about where we live and work.

To improve transit for the public, we—elected officials, policymakers, transit and transportation managers, and advocates—need to better understand public attitudes towards transit. With this significant sample of 12,000 representative Americans and the insight and expertise of our contractor RSG, we now have a snapshot into the perceptions of transit in 2014.

This snapshot reveals some surprises that may be even more significant than the ridership figures. For example, age is a bigger factor than what part of the country you live in when it comes to your attitude toward transit. Yet despite all the ballyhoo about young people being attracted to transit because of smartphones and apps, it turns out they think the most important attraction of transit is its reliability and speed. They prioritize having a bus that comes frequently over an app that tells them it's coming in an hour. And because you can't really talk about transportation without ultimately talking about land use, our survey also yielded significant insights about community design: According to our scientifically selected respondents, more Americans would like to live in mixed-use, walkable neighborhoods than actually do live in such places. That's significant news not just for transit planners, but for the real estate industry as well.

These responses energize our efforts and shape our future work. Whether you are one of the "Sons and Daughters of Suburbia," "Willing and Waiting" or a "Career-Driven Commuter," transit can and must improve to better suit your needs. And this effort is just the start. This survey will only become more valuable as we continue to reach out to all Americans and chart these changes in attitudes over time.

We thank our contractors Resource Systems Group (RSG, Inc.) and M&R Strategic Services for their professionalism in conducting this work. Additionally, I add my personal thanks to the Board of TransitCenter who early on recognized the importance of rigorous research to better inform public policies about transportation.

David Bragdon
Executive Director

Key Findings

Age is key.

Feelings about public transportation and urbanism vary much more by age than they do by region, with respondents under 30 the most enthusiastic about transit and the most likely to ride it.

While Millennials are embracing transit, Baby Boomers are shunning it.

Despite having grown up taking transit and being encouraged to do so, Baby Boomers have become averse to riding on trains and buses. Meanwhile, Millennials, who grew up riding in their parents' cars, are turning to transit in large numbers.

Parents are not averse to transit.

Starting a family doesn't have to mean giving up the transit pass. Parents are just as likely as non-parents to use transit (when factors like age and place of residence are controlled for).

Higher education does not have a big effect on transit use.

Americans with a bachelor's or graduate degree are no more or less likely to use transit than those who have not finished college (when other variables are controlled for). Current students are, unsurprisingly, much more likely to take transit than non-students who are otherwise similar to them.

People care most about the basics of transit service.

Travel time, reliability, and cost are much more important than features like Wi-Fi.

People who are offered transit benefits from an employer use them.

People offered pre-tax transit commuting benefits from their employers are over five times as likely to take transit regularly as employed persons who are not receiving benefits.

Personal values and personality characteristics have a considerable effect on travel preferences.

Core personality traits affect travel choices directly as well as indirectly, by affecting the type of neighborhood you choose to live in.

The top predictor of whether or not you use transit is what type of neighborhood you live in.

This is especially interesting when you consider that:

Many Americans would prefer to live in a different type of neighborhood than they do now.

Suburban, residential neighborhoods are the most common type of neighborhood that respondents live in, but mixed-use suburban neighborhoods (with a mix of housing, shops, and businesses) are the most desired. In fact, there is unmet demand for mixed-use urban, suburban, and small-town neighborhoods across all age groups. In short, while not all Americans want to move into inner cities, there is widespread demand for walkable cities, suburbs, and towns with more variety of residential and retail.

Executive Summary

The goal of this study is a definitive understanding of the differences in attitudes and behaviors among the US population with respect to public transportation and neighborhood choice. We aim to understand which characteristics and beliefs are behind those differences. To that end, we conducted a large online survey (11,842 respondents) across 46 Metropolitan Statistical Areas (MSAs) in the United States. The selected MSAs span the full geography of the U.S. and include some cities with well-developed transit systems and others with less developed transit system. The sample also ensured minimum quotas for all age groups, allowing the study to compare different generations, geographies, and neighborhood types.

The results reveal that the most important factors in determining whether someone is at least an occasional transit user are:

- **High population density of home neighborhood** (POSITIVE EFFECT)
- **Being employed or a student** (POSITIVE EFFECT)
- **Being an ethnic minority** (POSITIVE EFFECT)
- **High-quality local transit** (POSITIVE EFFECT)
- **High income** (NEGATIVE EFFECT)

Surprisingly, **education level and the presence of children in the home do not appear to have a strong association with transit use either way** when the other variables are controlled for. This suggests that despite high rates of transit use in college, most former students do not continue to ride transit after that experience. People with kids, meanwhile, may be just as willing as others to take transit when it is available in their neighborhoods.

We are able to explore what factors generally draw people to public transportation. **Travel time, reliability, and cost appear to be more important than "flashy" features like Wi-Fi**. Additionally, **people who are offered pre-tax transit commuter benefits by their employers are over five times as likely to take transit regularly** as employed persons who are not receiving benefits.

The large sample size allows for comparisons across geography, age group, quality of local transit, levels of transit use, levels of population density, and other characteristics. **We see the most variation across age groups**. Behavior changes considerably along the age spectrum, even when controlling for other factors such as employment, household income, and neighborhood type.

A central topic of this report is the behavior and attitudes of the Millennial generation as compared to older Americans. Whether the apparent change in travel preferences among Millennials is the result of a true generational change in attitudes—rather than an product of economic or social circumstances—is a topic of fierce debate. We see behavioral evidence to suggest that such a shift is indeed taking place: **Parents of school-age children who are under 30 are, it appears, more likely than parents of school-age children over 30 to use public transit, even when controlling for income.**

In addition to the links between demographics and behavior, the study also explores how attitudes and upbringing

Our analysis establishes a connection between deeply held values and travel behavior.

affect one's propensity to use public transportation. Our analysis establishes a connection between deeply held values and travel behavior, contributing to the broad conversation on what motivates an individual's travel preferences. While the type of neighborhood you live in emerges as the biggest single predictor of mode-choice, **personal values and attitudes have a considerable effect on travel preferences.** Values influence travel choices directly as well as indirectly, through an effect on neighborhood choice.

In an effort to identify distinct "types" of travelers, we use a statistical technique to group the sample into seven distinct groups based on their values and attitudes with respect to transit and housing. In particular, we identify a group of environmentally conscious, outgoing people, largely in their 30s and 40s, who are open to taking transit but find the service inconvenient or inadequate. We conclude that policymakers and transit providers could most easily increase transit ridership by focusing on this group.

We also look at the role of upbringing in mode choice. Investigating the childhood circumstances and travel patterns of Millennials (defined in the report as people under 30) and Baby Boomers (over 60) leads us to a paradox: **The Millennial generation seems to be defying its sheltered, suburban upbringing by delaying the acquisition of a driver's license and choosing transit. Meanwhile, Baby Boomers, who grew up using transit and were encouraged to do so, are defying their upbringing by avoiding transit now.**

Finally, we explore data surrounding each respondent's neighborhood type. The questionnaire asked a series of questions about the respondent's current, childhood, and ideal home locations. From this data, we are able to infer that **many respondents wish they lived in mixed-use neighborhoods, towns, and suburbs, rather than the residential areas they currently occupy.** We draw the conclusion that land-use and housing policy would better serve Americans if it were to favor mixed-use development.

Are new trends in transportation a fad, or the result of deeply held beliefs?

Study Overview

In recent years, a great amount of research and media attention has gone into understanding what factors lead people to use public transportation. There has been a particular interest in characterizing and explaining the transportation choices of Millennials. This generation born in the mid-80s to late 90s came of age during a major recession and has revealed a taste for urban living and public transportation. Millennials have been a frequent topic of scholars and journalists, who have published hundreds of articles documenting changes in attitudes and travel behavior.

This study, however, goes beyond Millennials. The goal of this study is a more definitive understanding of the differences in attitudes and behaviors among various markets and populations than what other research to date has allowed. Further, we aim to understand what characteristics and beliefs underlie those differences. Finally, we wish to determine whether positive attitudes related to transit and urbanism reach areas outside of dense, transit-friendly cities. The survey instrument and sampling plan for this study were designed with those objectives in mind.

The web-based survey instrument used for this study asks a variety of questions that provide insight into travel behavior. In addition to questions about demographics, geography, and travel behavior, we asked respondents about their attitudes toward different housing styles and modes of transportation. We also asked questions related to personality, beliefs, and the respondent's childhood neighborhood and experiences with transit growing up. This allows us to take a nuanced approach to describing the motivations behind locational choice and travel behavior. The attitudinal variables also help us to understand trends in transportation; is what we are seeing a fad, or the result of deeply held beliefs?

The study is designed to allow for comparison between groups across the country. The study was not designed to answer questions about the general characteristics or behavior of the population, such as "What percentage of the U.S. population takes public transportation?" Questions like these are already satisfactorily answered by publically available data sources, such as those provided by the U.S. Census Bureau. Instead, the study is designed to address questions about what characteristics lie behind differences in behavior, questions such as "How do attitudes toward transit in the South differ from those held by people living in the West?" and "What factors characterize young people who choose to use transit compared to those who don't?"

Sampling

This study uses a large sample of 11,842 respondents, which is larger than we have seen in the literature from other studies investigating generational travel behavior. The survey was administered entirely online to participants in an e-rewards program that provides incentives for taking surveys. The recruitment methods used comply with or exceed market research industry standards, such as those published by the global research society ESOMAR. These e-rewards online panels help to minimize some of the biggest problems associated with online sampling, namely self-selection bias (since panelists do not sign up for surveys about a specific topic) and "junk mail" perceptions. They also allow for tremendous control in geography and other respondent characteristics.[1] Respondents were selected and invited to participate based on age and geography (by home zip code).

We sought specific numbers of respondents in each of several categories. This technique, known as quota sampling, ensures a sufficient number of responses in each category to make meaningful statistical comparisons possible. For example, while the South may be more populous than the Midwest, we collected the same number of responses from each region. This allows us to compute statistics on the population of each region with a similar degree of accuracy.

The large and diverse sample allows us to look deeply at a number of questions relating to transit use and urbanism. We have the ability to gauge the importance of certain attitudes on mode choice and home-location choice. Some research has gone into quantifying the importance of attitudes, experiences, and personality characteristics in determining transit use, but these studies are often hampered by small or unrepresentative samples or are just focused on one particular generation (e.g., Millennials), thereby making comparisons impossible.[2]

We selected forty-six Metropolitan Statistical Areas (MSAs) to include in the study (Figure 1), geographically distributed throughout the country. For sampling purposes, we defined five "regions" and two levels of transit service. Four of the five regions—the South, West/Southwest, West Coast, and Midwest—were defined geographically. A fifth "region" was created to differentiate cities with mature and widely used transit systems—namely, New York City, Chicago, San Francisco, Philadelphia, and Washington, DC—which we refer to as "Traditional Cities." The two transit-service levels are defined as "transit progressive" and "transit deficient," and within each region we sought equal numbers of respondents from each type.

Transit-progressive cities were differentiated from transit-deficient cities using commuting transit-mode data from the U.S. Census Bureau. The threshold was not constant nationwide; instead, the cities with the best transit service in each region were defined as transit progressive. No such distinction was made for the "traditional cities," which were all were considered transit progressive.

1. Joel R. Evans and Anil Mathur, "The value of online surveys," Internet Research 15, no. 2 (2005): 195–219.
2. For example: "Millennials & Technology: A Survey Commissioned by Zipcar," last modified Feburary 27, 2013, http://www.slideshare.net/Zipcar_Inc/millennial-slide-share-final-16812323.
A. Nordlund and K. Westin, "Influence of values, beliefs, and age on intention to travel by a new railway line under construction in northern Sweden," Transportation Research Part A: Policy and Practice 48 (2013): 86–95, doi: 10.1016/j.tra.2012.10.008.

The two transit service levels are defined as "transit progressive" and "transit deficient."

FIGURE 1: **MAP OF SAMPLED METROPOLITAN STATISTICAL AREAS**

	Transit Progressive	Transit Deficient
REGION	MSAS FOR REGION	MSAS FOR REGION
Traditional Cities	Washington, DC Chicago New York San Francisco Philadelphia Boston	n/a
South	Raleigh Miami Atlanta Gainesville Savannah Durham Charlotte	Tampa Nashville Richmond Little Rock Knoxville
West/Southwest	Denver Salt Lake City Las Vegas Austin Reno Phoenix	El Paso Albuquerque Dallas/Fort Worth Boise Colorado Springs
West Coast	Portland Seattle Los Angeles	Fresno Stockton Redding Riverside
Midwest	Minneapolis/St. Paul Milwaukee Ames Madison Cleveland	Detroit Kansas City Des Moines Indianapolis Columbus
SUBTOTAL	7,200 Responses	4,800 Responses
TOTAL	12,000 Responses	

TABLE 1: **SAMPLED CITIES**

SEGMENT	< 30 Yrs Transit Progressive	< 30 Yrs Transit Deficient	30–60 Yrs Transit Progressive	30–60 Yrs Transit Deficient	> 60 Yrs Transit Progressive	> 60 Yrs Transit Deficient	TOTAL
Traditional Cities	800		800		800		2,400
South	400	400	400	400	400	400	2,400
West/Southwest	400	400	400	400	400	400	2,400
West Coast	400	400	400	400	400	400	2,400
Midwest	400	400	400	400	400	400	2,400
						TOTAL	12,000

TABLE 2: **SAMPLING GOALS**

Within each category, we sought approximately equal numbers of respondents of each gender and ensured that respondents came from a variety of self-reported neighborhood types (urban, suburban, rural, etc.). By focusing only on metropolitan statistical areas, we avoided respondents living in deep rural areas who would have no reasonable access to transit; in other words, even those in "rural" areas live within a modest distance (usually not more than an hour's drive) of a city. Including these suburban and peri-urban (on the fringe between the suburbs and the countryside) areas differentiates this study from many that have come before it, which have generally focused only on cities themselves. This allows us to investigate how geography affects transit attitudes; are people in suburbs less inclined to take transit, or do they simply lack transit service?

After removing some low-quality responses, including those from people who provided invariant responses to the battery of attitude questions and/or completed the survey in less than five minutes, the final usable sample size was 11,842.

Predictors of Transit Ridership

As a first step, we sought to identify characteristics that are associated with transit use. In other words, what types of people use transit? For the purposes of this analysis, we define a transit user as someone who uses public transportation at least once per week for any purpose. Table 3 and Figure 2 show the results of a regression model. In Figure 2, we see that the likelihood of being a transit user declines as a person gets older and eventually levels off. People under 40 are more likely than average to be transit users, with people over 40 less likely. In Table 3, we see the effects of several other variables.

The model helps to quantify some of the more important factors in determining whether someone is likely to be a transit user. It is a linear model, meaning it only helps to identify overall trends in how a variable relates to transit use. Greater population density is associated with more transit use, and higher incomes are associated with less. Employed persons are more likely to use transit, and students are nearly 10% more likely to use transit as others in similar situations. Ethnic minorities (described as "nonwhite") are more than 13% more likely to use transit, all other things being equal. A college degree is not itself a significant predictor of transit use.

Notably, according to the model, having children does not have a significant effect on the likelihood of taking transit. This is an important finding; those living with children and with access to transit are as willing to use transit as others who live in similar areas but do not have children. An important policy implication is that communities that are traditionally regarded as family-centric, and therefore as favoring cars, may in fact be ripe for transit service.

Having children does not necessarily make people less likely to ride transit.

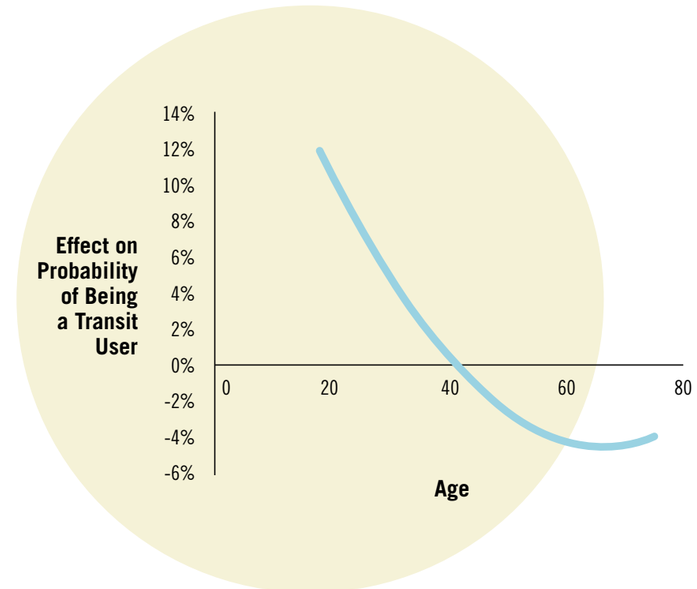


FIGURE 2: **AGE AND TRANSIT USE**

EFFECT ON PROBABILITY OF BEING A TRANSIT USER	
4.1%	for every doubling of zip code population density*
-1.4%	for every doubling of income*
6.6%	if respondent is employed full-time*
9.8%	if respondent is a student*
0.0%	if respondent lives in the Midwest
0.3%	if respondent lives in the South
-0.2%	if respondent lives in the West/Southwest
2.5%	if respondent lives on the West Coast*
11.1%	if respondent lives in one of the "traditional cities" (the New York, Washington, Boston, Philadelphia, San Francisco, and Chicago regions)*
13.1%	if respondent is nonwhite*
-0.9%	if respondent has a bachelor's or graduate degree
0.6%	if respondent has children at home

see chart above for effect of respondent's age
*denotes statistical significance

TABLE 3: **EFFECT ON PROBABILITY OF BEING A TRANSIT USER**

WHO'S RIDING TRANSIT?

In the charts below, we break out general transit use and transit commuting by several important categories. We can derive two major takeaways from Figure 3. First, we see that the "traditional cities" have the greatest share of transit users and commuters, followed by the West Coast cities. We also see that respondents under 30 are by far the most likely to use transit across all regions, with those over 60 the least likely. In Figure 4 and Figure 5, we see a marked difference in ridership based on race and ethnicity, with African Americans the most likely transit users and those of Hispanic or Latino origin much more likely than average to use transit.

Figure 6 shows an interesting trend with respect to income; while transit ridership generally falls with increasing income, those in the highest income category ($150,000+ in annual household income) are more likely to use transit than those in all but the lowest income group. Very high-income people are more likely to live in large and dense cities like New York, Chicago, DC, and San Francisco, where transit is a more viable option; their location, rather than mere personal preference for public transportation, explains why some wealthy people are more likely to use transit.

Regardless of how the sample is segmented, about twice as many people take transit occasionally as people who commute primarily by transit. The general consistency of this ratio can be seen in the figures below.

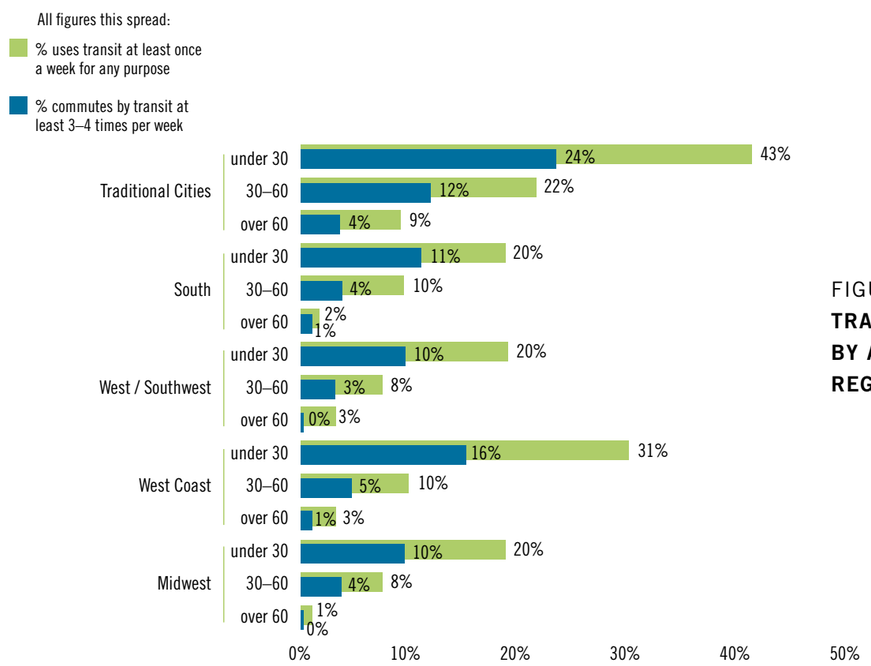


FIGURE 3: **TRANSIT USE BY AGE AND REGION**

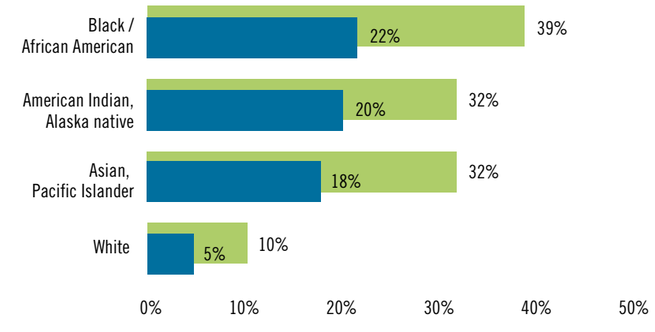


FIGURE 4: **TRANSIT USE BY RACE**

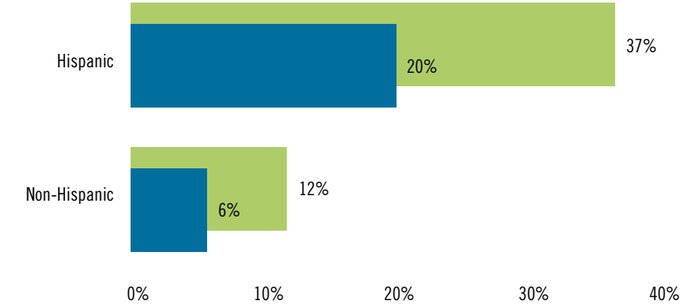


FIGURE 5: **TRANSIT USE BY HISPANIC OR LATINO ORIGIN**

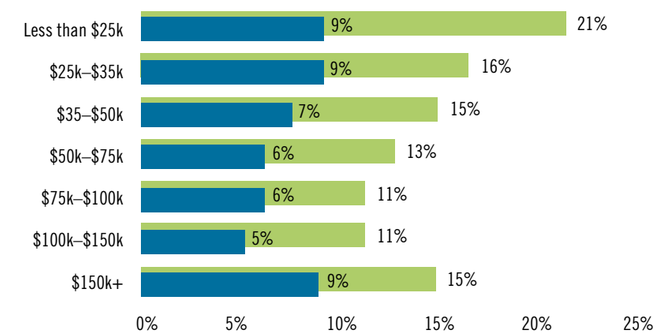


FIGURE 6: **TRANSIT USE BY INCOME**

ATTITUDES

In addition to the demographic and geographic characteristics explored above, the survey asked a range of questions about attitudes and experiences. These questions reveal some interesting differences between those who use transit and those who do not. Respondents were asked to evaluate statements on a five-point scale (strongly agree to strongly disagree), as shown in the example below.

Table 4 shows the results of another regression model with all of the same variables as the previous model, plus several variables based on attitudes. All of these are binary variables based on the questions described above. Respondents who agree or strongly agree are coded as a 1 and all others as a 0. The coefficients can be interpreted to mean that, all other things being equal, agreeing or strongly agreeing with the statement is associated with the indicated increase or decrease in the chances of being a transit user. In short, the regression model allows us to determine the importance of the attitudes in predicting transit use when controlling for other factors (age, income, etc.).

Interestingly, a desire to stay connected through communication technologies had no significant association with transit use. This may be because, while riders can be productive on transit, they find themselves just as or more able to use technology in the car. Additionally, a desire to minimize transportation costs was not associated with any increase in transit use; in other words, while people with low incomes are more likely to take transit, it is not generally seen as a way to save money.

According to the model, people are more likely to be transit users if they:

- Like social environments
- Like to try new things
- Like to be productive while traveling
- Grew up taking transit
- Dislike driving

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Most people who are important to me would prefer to drive less.	○	○	○	○	○

FIGURE 7: **RESPONSE SCALE**

EFFECT ON PROBABILITY OF BEING A TRANSIT USER	
1.4%	I like being out in the community where other people are out and about, like in parks or a shopping area*
-1.1%	It is important for me to have access to communication technology (cellular, Wi-Fi, etc.) throughout the day
2.7%	I like to make productive use of my time when I travel*
-0.2%	It is really important to me to minimize transportation costs when planning a trip
4.8%	I am happiest when trying new things*
4.2%	I grew up in a neighborhood that had convenient transit services*
6.5%	Leaving the driving to someone else is desirable for me*
5.8%	I took public transportation because I had no other options available to me*

*denotes statistical significance

TABLE 4: **REGRESSION WITH ATTITUDE VARIABLES**

COMMUTING CHOICES

One of the best predictors of commuting choice in the sample is the distance to and from work. Figure 8 shows that commutes between .5 and 2 miles are the most likely to be taken by transit, with the share of car commuting generally rising as distance increases. Some people commute by other modes (walking, biking, vanpooling, etc.), and some commute by different modes depending on the day; for this reason, the totals for each distance category may add up to more or less than 100%. Figure 9 shows that a high percentage of commuters who are offered transit benefits from their employers commute by transit at least three times per week. Among those who are not offered such benefits, very few regularly commute by transit. This is true in transit-progressive cities as well as transit-deficient cities.

FIGURE 8:
AUTO AND TRANSIT COMMUTING BY DISTANCE TO WORK

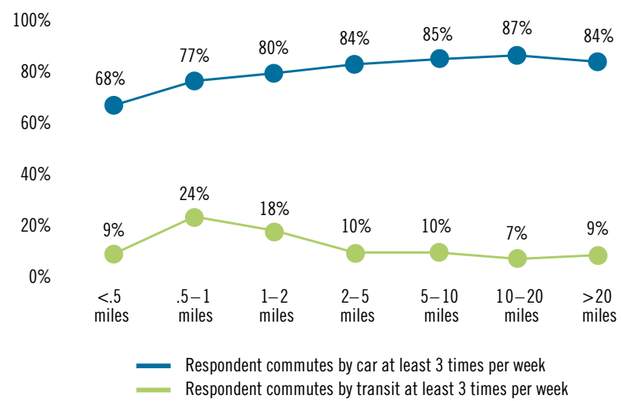
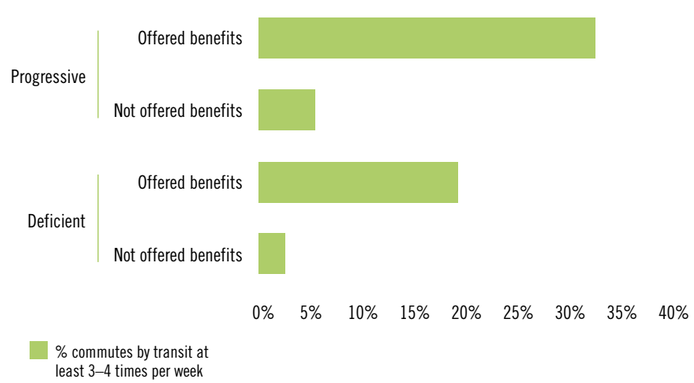


FIGURE 9:
TRANSIT BENEFITS AND COMMUTING



Transit benefits are associated with much higher ridership, even in transit-deficient cities.

MODE-CHOICE FACTORS

We asked two sets of questions related to the motivations behind choosing a certain mode of travel. The first set asks what factors might get the respondent to ride public transit more often. The second set asks, more generally, what factors go into the respondent's mode choice. We have ranked these responses by various segments, and the widest variation is across age categories.

For the transit questions (shown in Figure 10), shorter travel times, closer stations/stops, cost, and reliability top the list for all age groups. The Under 30 group is more concerned (though not terribly concerned) about the availability of Wi-Fi/cellular service. The younger respondents are less concerned about the proximity of stations to their home or workplace than older respondents. For the general factors affecting the choice of modes of transportation (Figure 11), the 30–60 and Over 60 groups move in lockstep, while the Under 30 group is more concerned with reliability and cost than older respondents. Transit agencies can interpret these results as showing that the basics of travel time, cost, and reliability are more important than "flashier" features like Wi-Fi.

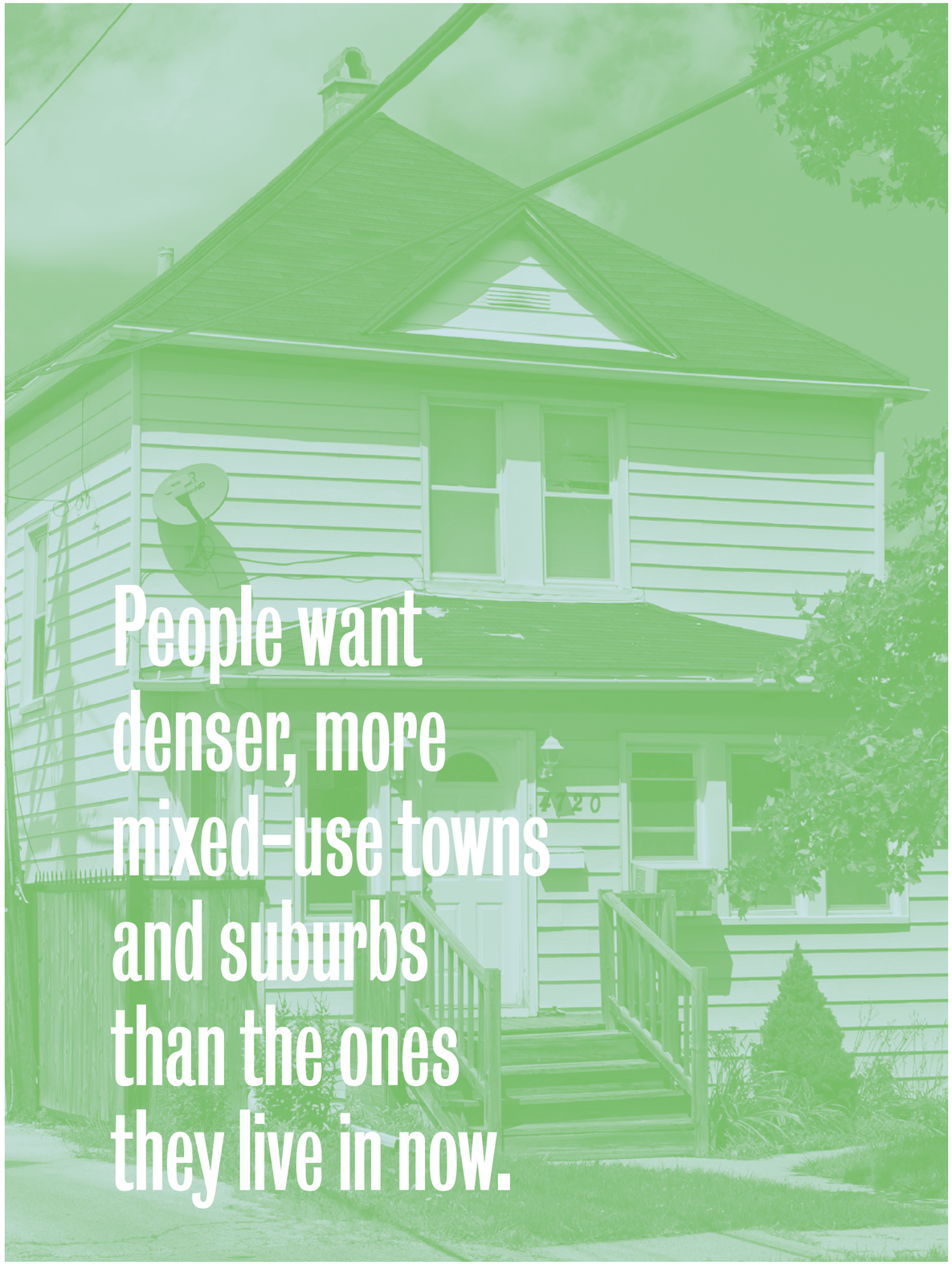
I WOULD RIDE TRANSIT MORE IF...	UNDER 30 (RANK)	30–60 (RANK)	OVER 60 (RANK)
it took less time	1	1	1
stations/stops were closer to my home/work	4	2	2
it were clearly the less expensive transportation option	3	3	3
the travel times were more reliable	2	4	4
there were different transit modes available	7	5	5
it ran more frequently	8	6	6
the stops/stations were safer	6	7	7
the buses/trains were cleaner/nicer	5	8	8
the hours of operation were extended	10	9	11
there were more parking available at the station	12	10	9
the seats were more comfortable	11	11	10
it offered reliable access to Wi-Fi/cellular	9	12	12

FIGURE 10: **POTENTIAL DRIVERS OF TRANSIT RIDERSHIP BY AGE**

The basics of travel time, cost, and reliability are more important than "flashier" features like Wi-Fi.

MODE-CHOICE FACTOR:	UNDER 30 (RANK)	30–60 (RANK)	OVER 60 (RANK)
Total travel time	2	1	1
Travel time reliability	1	2	2
Having a mode that allows me to be flexible in the times I travel	4	3	3
Traffic congestion	5	4	4
Cost	3	5	5
Environmental impact	6	6	6

FIGURE 11: **GENERAL MODE-CHOICE FACTORS**



People want denser, more mixed-use towns and suburbs than the ones they live in now.

Transportation and land use are inextricably linked, and any study of transit must also consider its context. We asked survey respondents to tell us about the living environments where they grew up, where they live now, and where they would live in an ideal world. Comparing responses to these questions provides us with a sense of how childhood experiences, current living situations, and personally held values all inform one another. Figure 12 shows a major disconnect between ideal neighborhood types and the types people currently occupy, which we explore further below.

To expand on the idea of a disconnect between where people live and where they would prefer to live, Figure 13 shows the percentage of respondents living in a given neighborhood type who view that same neighborhood type as ideal. The groups least likely to identify their current neighborhood type as their ideal are those who live in residential-only neighborhoods. This is true whether they are in urban, suburban, or small-town areas.

Similarly, those who grew up in mixed-use neighborhoods are more likely to value the same type of neighborhood later (Figure 14).

It is those in all-residential urban and suburban neighborhoods who are the most likely to reside in the same type of neighborhood currently as they did as children (Figure 15). In sum, the evidence suggests that many Americans wish they could live in more mixed-use communities, but find themselves unable to get out of the bedroom communities of their youth. This appears to be true in both transit-progressive and transit-deficient cities. This has important policy implications; Americans don't necessarily want cities, but better towns and suburbs with a mix of housing, shops, and businesses. Naturally, this has implications for public transportation, as mixed-use development tends to make transit more viable.

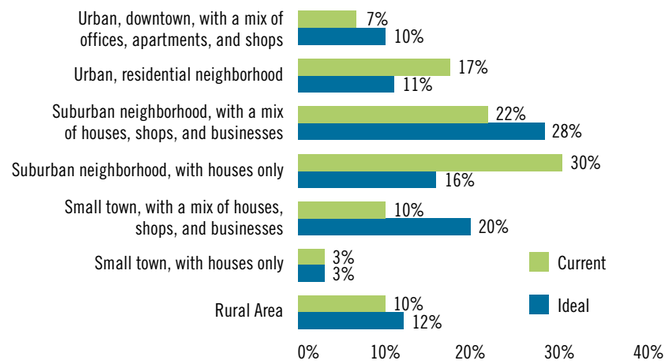


FIGURE 12:
CURRENT AND IDEAL NEIGHBORHOOD TYPE

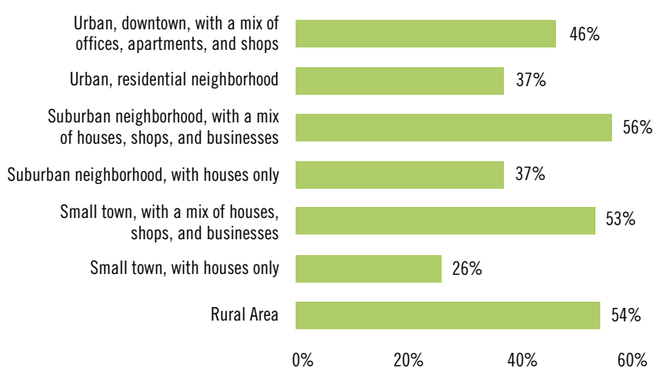


FIGURE 13:
CURRENT VS. IDEAL NEIGHBORHOOD TYPE

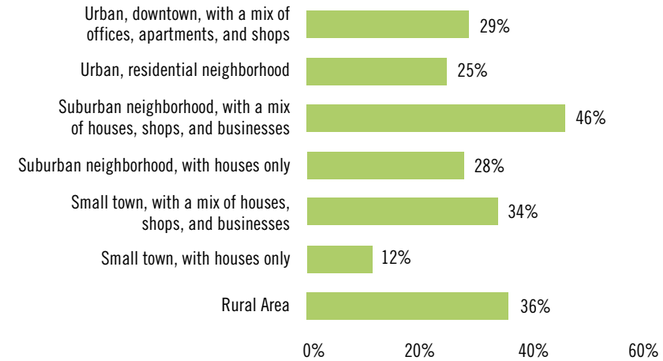


FIGURE 14:
CHILDHOOD VS. IDEAL NEIGHBORHOOD TYPE

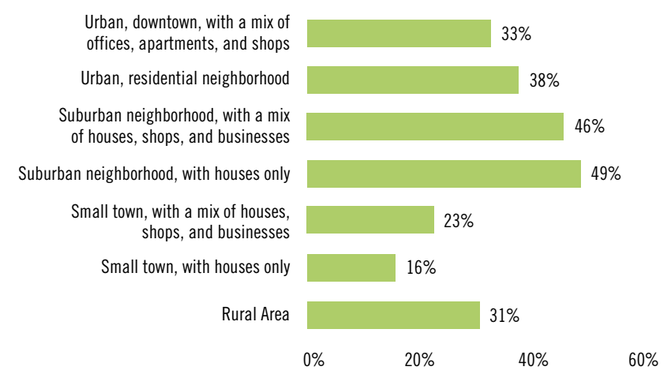


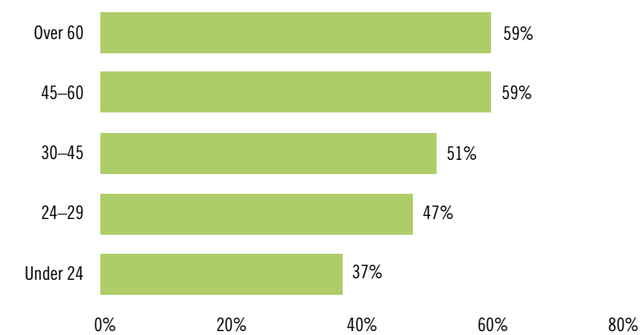
FIGURE 15:
CHILDHOOD VS. CURRENT NEIGHBORHOOD TYPE

Trading Places: Millennials and Boomers

Several recent studies have observed a trend in young people of putting off obtaining a driver's license much longer than previous generations.[3] Our data show the same; respondents under 30, and especially those under 24, are the least likely to have obtained their license at age 16 or before (all respondents were over 16), as shown in Figure 16.

3. Alexa Delbosc and Graham Currie, "Causes of Youth Licensing Decline: A Synthesis of Evidence," Transport Reviews 33, no. 3 (2013): 271–290.

FIGURE 16:
LICENSING AGE



AS FIGURE 17 SHOWS, THE MILLENNIALS IN THE SAMPLE ARE:

- Less likely to have been encouraged to walk or bike by their parents
- Less likely to have grown up within walking or biking distance of a commercial district
- Less likely to have grown up near convenient transit services
- Less likely to have traveled by themselves on public transit as children
- More likely to have parents who thought it was unsafe for them to ride transit
- More likely to have had friends who considered it "uncool" to ride transit

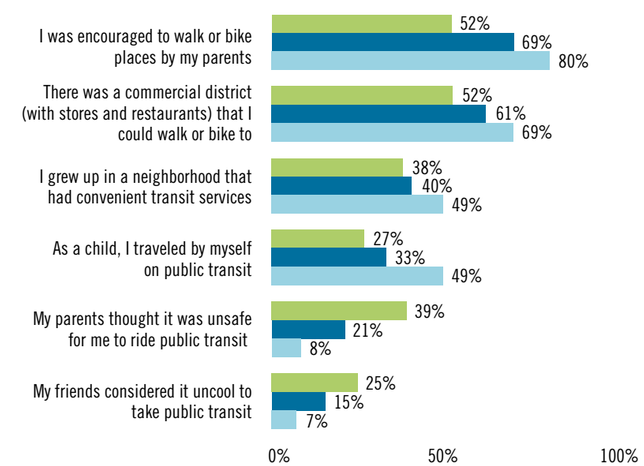


FIGURE 17:
CHILDHOOD EXPERIENCES BY AGE

Millennials are defying their upbringing by choosing transit.

Meanwhile, Baby Boomers are defying their upbringing by avoiding it.

Paradoxically, the cohort that is delaying getting a driver's license is the same cohort that grew up in the most car-centric environment. In other words, the Millennials are putting off driving and using transit more heavily (as shown in Figure 3) despite having been very accustomed to car travel and unaccustomed to transit in childhood. Furthermore, the under-30 age group is the most likely to wish to live in urban areas, as shown in Figure 18.

At the same time, the over-60 group shows very low rates of transit use despite growing up in a very transit-friendly environment. The Baby Boomer generation grew up in denser neighborhoods with more transit, were more likely to be encouraged to walk or bike, and less likely to see transit as a social stigma than younger people. Figure 18 shows that they are also the least likely group to want to live in urban areas. Millennials, it seems, are defying their upbringing by choosing transit. Meanwhile, Baby Boomers are departing from their upbringing by avoiding it.

Baby Boomers are less likely to want an urban environment, and they are less likely still to live in one, as shown in Figure 19. They are also the most likely group to have no access to public transportation where they live, as shown in Figure 20. Put simply, Baby Boomers don't live in—and largely don't want to live in—places well-served by transit.

This analysis raises three pressing questions. First, as the Baby Boomers age out of driving, how can their transportation needs be met in their current, non-urban setting? For those willing to relocate, what housing options are available to them in more transit-friendly environments? Finally, can we expect Millennials to continue to use transit as they age?

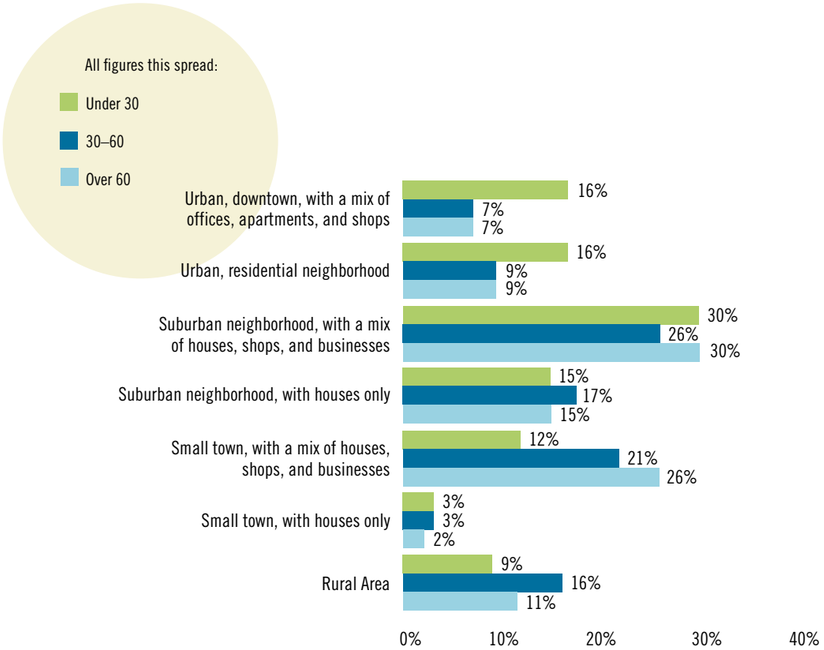


FIGURE 18:
IDEAL NEIGHBORHOOD TYPE BY AGE

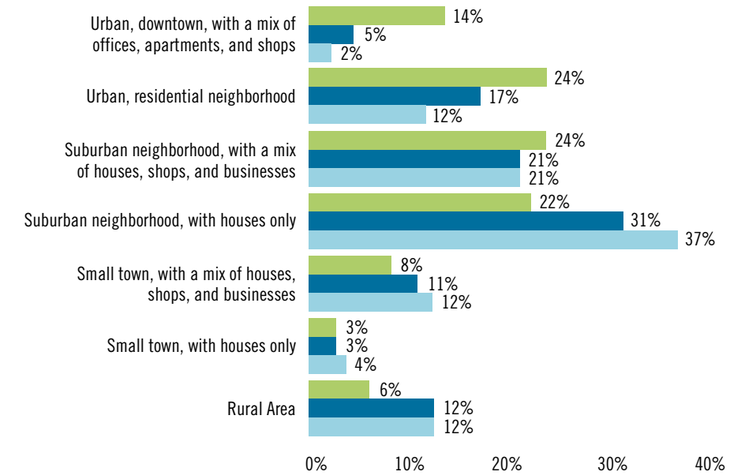


FIGURE 19:
CURRENT NEIGHBORHOOD TYPE BY AGE

Many Americans wish they could live in mixed-use communities, but find themselves unable to get out of the bedroom communities of their youth.

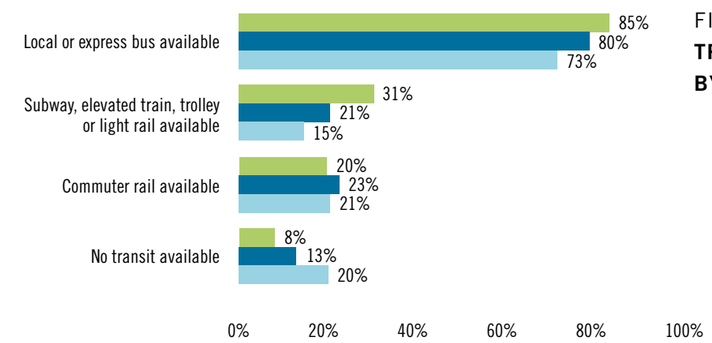


FIGURE 20:
TRANSIT ACCESS BY AGE

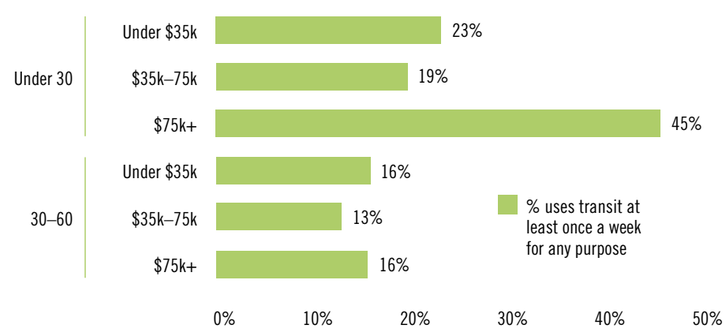
GENERATIONAL CHANGE

An open debate centers on whether the relatively high level of transit use among young people represents a true difference in values from older generations. It is often suggested that this trend is simply reflective of the economic reality, or the fact that most individuals' preferences change over time (and especially as they have children).[4] The best way to evaluate a trend in opinions or attitudes is with longitudinal data (data collected over many years on the same group or comparable groups of people), but there is no reliable longitudinal data source that specifically looks at attitudes toward transit.

Another way to investigate generational change is to see how people from different age cohorts, but in similar life situations, differ in their behavior. In Figure 21, we see the percentage of transit users (again defined as those using transit at least once per week for any purpose) among people with school-age children (5–15 years old) and compare Millennial parents to older parents across income levels. Those in the over-60 age group were omitted from this analysis, as there are very few with school-age children.

It is clear that at all income levels, the Millennial parents are more likely to be transit users than their older counterparts. This is evidence of a true change in attitudes toward public transportation. This shift is exceptional especially when considering the car-centric environment in which these Millennial parents were themselves reared.

FIGURE 21:
TRANSIT USE AMONG PARENTS OF DIFFERENT AGES BY INCOME



4. Robert Poole, "VMT Growth and the Millennial Generation," Surface Transportation Newsletter 116 (2013): http://reason.org/news/show/surface-transportation-news-116.

At all income levels, Millennial parents of school-age children are more likely to be transit users than their older counterparts.

America's Transportation "Types"

The wants, needs, and attitudes of Americans are hugely variable. For the purposes of discussion and analysis, it is often useful to group a population into discrete categories that can be characterized and compared to one another. This provides a useful framework for discussing policy and culture.

In order to identify categories of Americans based on their attitudes toward transit use and urbanism, we employed a technique called latent class cluster (LCC) analysis. LCC analysis allows us to find groups of people who share many of the same attitudes based on the full range of questions in the survey. These clusters then allow analysis of the social characteristics of each group. People within these groups tend to be alike in terms of demographics and behavior; it is, however, important to note that the groups are identified based on common attitudes, not on objective characteristics like age or income.

We identified (and named) seven segments in our LCC analysis, as shown in Figure 22. In Table 5, we show a set of key characteristics for each segment. The segments are based on dozens of attitudinal questions; the "key attitudes" represented in Table 5 are just a subset of the questions upon which the segment classifications are based.

Table 6 provides a more qualitative assessment of the various segments.

The largest segment we have identified in the sample is the **Career-driven Commuters**. People in this group may or may not have children, but their housing and transportation decisions center on getting to and from work as quickly and conveniently as possible. They are not likely to have had positive experiences with transit as children. They are, however, likely to live in large cities for the improved job prospects and sometimes find transit to be their best option. As a group, this segment will be motivated to switch to transit only when it is the faster, easier option. They are not eager to try new things and do not experience any social pressures to take transit (be it friends/family wanting them to drive less or a desire to help the environment). Their primary concern is travel time.

The next largest group we have termed **Devoted Drivers**. These stalwarts of automobile travel are nearing retirement age and are satisfied with their car-centric, suburban lifestyle. According to their own responses, there is little that can be done to draw this group onto transit. The **Bohemian Boomers** serve as a foil to the Devoted Drivers. The two groups are demographically similar and represent roughly equal portions

22% Career-driven Commuters

AGE RANGE OF MIDDLE 50%: **26–56**
DEMOGRAPHICS: **Somewhat Diverse**
TRANSIT: **Sometimes**
NEIGHBORHOOD: **Urban**
CHILDHOOD: **Non-Urban**
ECONOMICS: **Somewhat Cost-Conscious**
ENVIRONMENT: **Somewhat Concerned**

20% Devoted Drivers

AGE RANGE OF MIDDLE 50%: **55–70**
DEMOGRAPHICS: **Not at all Diverse**
TRANSIT: **Never**
NEIGHBORHOOD: **Non-Urban**
CHILDHOOD: **Somewhat Urban**
ECONOMICS: **Not Very Cost-Conscious**
ENVIRONMENT: **Unconcerned**

19% Bohemian Boomers

AGE RANGE OF MIDDLE 50%: **54–69**
DEMOGRAPHICS: **Not at all Diverse**
TRANSIT: **Rarely**
NEIGHBORHOOD: **Somewhat Urban**
CHILDHOOD: **Somewhat Urban**
ECONOMICS: **Somewhat Cost-Conscious**
ENVIRONMENT: **Somewhat Concerned**

16% Willing and Waiting

AGE RANGE OF MIDDLE 50%: **24–49**
DEMOGRAPHICS: **Diverse**
TRANSIT: **Often**
NEIGHBORHOOD: **Urban**
CHILDHOOD: **Somewhat Urban**
ECONOMICS: **Cost-Conscious**
ENVIRONMENT: **Concerned**

12% Sons and Daughters of Suburbia

AGE RANGE OF MIDDLE 50%: **28–59**
DEMOGRAPHICS: **Not at all Diverse**
TRANSIT: **Rarely**
NEIGHBORHOOD: **Somewhat Urban**
CHILDHOOD: **Non-Urban**
ECONOMICS: **Somewhat Cost-Conscious**
ENVIRONMENT: **Unconcerned**

8% Metro Moms and Dads

AGE RANGE OF MIDDLE 50%: **25–60**
DEMOGRAPHICS: **Diverse**
TRANSIT: **Often**
NEIGHBORHOOD: **Urban**
CHILDHOOD: **Urban**
ECONOMICS: **Cost-Conscious**
ENVIRONMENT: **Concerned**

3% Cosmopolitan Youth

AGE RANGE OF MIDDLE 50%: **23–31**
DEMOGRAPHICS: **Very Diverse**
TRANSIT: **Always**
NEIGHBORHOOD: **Very Urban**
CHILDHOOD: **Very Urban**
ECONOMICS: **Very Cost-Conscious**
ENVIRONMENT: **Very Concerned**

FIGURE 22:
LATENT CLASS CLUSTER SEGMENTS

America's Transportation "Types"

CATEGORY	CLUSTER	Career-driven Commuters	Devoted Drivers	Bohemian Boomers	Willing and Waiting	Sons & Daughters of Suburbia	Metro Moms and Dads	Cosmopolitan Youth
Demographics	**Cluster Size**	**22%**	**20%**	**19%**	**16%**	**12%**	**8%**	**3%**
	Average Age	**41**	**60**	**59**	**36**	**44**	**41**	**29**
	% Single	36%	10%	13%	45%	28%	29%	50%
	% Employed	60%	11%	8%	57%	64%	28%	65%
	% Hispanic	7%	3%	3%	13%	6%	15%	29%
	% White	85%	94%	92%	76%	88%	74%	56%
	% Born in US	94%	95%	94%	91%	95%	87%	88%
	% Earning Under $50k/Year (Household)	32%	34%	33%	39%	32%	41%	36%
	% With Kids at Home	24%	18%	21%	26%	26%	34%	32%
Neighborhood Types	% Live in Urban Neighborhood	52%	34%	41%	56%	40%	53%	65%
	% Transit-progressive Area	62%	56%	61%	62%	57%	61%	65%
	% Want to Live in Urban Neighborhood	23%	13%	17%	28%	14%	29%	49%
	% Grew Up in Urban Neighborhood	22%	26%	28%	29%	21%	35%	51%
Transit Use	% Frequent Transit Users	13%	2%	5%	25%	6%	27%	64%
	% Infrequent Transit Users	31%	16%	32%	35%	15%	33%	22%
	% Used Transit as Child	33%	36%	44%	39%	28%	39%	41%
	% With Positive Impression of Transit as Child	39%	40%	52%	48%	30%	59%	70%
Car	% Driver's License	92%	96%	94%	89%	96%	90%	90%
	% With Access to Car	84%	92%	91%	78%	90%	80%	86%
	% With License at 16 Years Old	53%	58%	55%	44%	59%	37%	22%
	% Can't Live without Car	28%	22%	27%	28%	22%	25%	24%
	% Can't Live without Smartphone	29%	13%	14%	36%	23%	36%	51%
Key Attitudes	I like being out in the community where other people are out and about, like in parks or a shopping area.	64%	54%	67%	78%	52%	83%	97%
	I am happiest when trying new things.	43%	31%	37%	65%	35%	74%	97%
	It is really important to me to minimize transportation costs when planning a trip.	64%	54%	64%	83%	67%	81%	96%
	Most people who are important to me would prefer to drive less.	27%	18%	24%	40%	22%	57%	90%
	I enjoy doing exciting things, even if they are dangerous.	33%	16%	21%	41%	27%	49%	85%
	I would switch to a different form of transportation if it would improve air quality.	28%	13%	28%	54%	13%	67%	97%
	It is important for me to have access to communication technology (cellular, Wi-Fi, etc.) throughout the day.	71%	57%	63%	82%	71%	82%	96%

Top ranked in row

2nd ranked

3rd or 4th ranked

5th, 6th, or 7th ranked

TABLE 5: **SEGMENT CHARACTERISTICS**

	Career-driven Commuters	Devoted Drivers	Bohemian Boomers	Willing and Waiting	Sons & Daughters of Suburbia	Metro Moms & Dads	Cosmopolitan Youth
Age Range of Middle 50%	26–56	55–70	54–69	24–49	28–59	25–60	23–31
Transit	sometimes	never	rarely	often	rarely	often	always
Neighborhood	urban	non-urban	somewhat urban	urban	somewhat urban	urban	very urban
Technology	like technology	indifferent to technology	indifferent to technology	love technology	like technology	love technology	enamored with technology
Economics	somewhat cost-conscious	not very cost-conscious	somewhat cost-conscious	cost-conscious	somewhat cost-conscious	cost-conscious	very cost-conscious
Demographics	somewhat diverse	not at all diverse	not at all diverse	diverse	not at all diverse	diverse	very diverse
Environment	somewhat concerned	unconcerned	somewhat concerned	concerned	unconcerned	concerned	very concerned
Childhood	non-urban	somewhat urban	somewhat urban	somewhat urban	non-urban	urban	very urban
Social	like to be out and about	don't need to be out and about	like to be out and about	love to be out and about	don't need to be out and about	love to be out and about	live to be out and about
Miscellaneous	high earners	least likely to have kids at home	most likely group to use transit occasionally	most likely to say they can't live without their car	most likely to have had negative childhood impression of transit	most likely to have kids at home	most likely to be employed or in school

TABLE 6: **QUALITATIVE SEGMENT CHARACTERISTICS**

of the sample. But the Bohemians, who are slightly more likely to have grown up in an urban area, are more enthusiastic about cities and transit. This group may be ripe for using more transit, as about a third are infrequent users who could be converted to more frequent users. They are also on the cusp of retirement and may be looking to move into denser settings where transit is available.

The **Willing and Waiting** are dabbling in an urban lifestyle after a suburban youth. This group is grappling with competing priorities: They want to help the environment and enjoy urban amenities, but also to live in large homes. They enjoy being in cities and riding transit, but often still find themselves relying on the convenience of the automobile. They are different from the **Career-driven Commuters** in that they have a true preference for transit that simply isn't being catered to. This group will experience even greater uncertainty as their children reach school age: will they have the suburban, car-dependent lifestyle of their youth, or will they find themselves walking the kids to school before getting on the bus? If you build walkable communities and reliable public transportation, they will come.

In the same age group as the Career-driven Commuters, but with the habits of Devoted Drivers, are the **Sons and Daughters of Suburbia**. This group is highly car-dependent and has no interest in living in the city or riding transit, even if it were improved. They grew up with picket fences and still haven't left, not even to improve their economic lot. The **Metro Moms and Dads** are from the same generation as the Sons and Daughters of Suburbia but cut from a different cloth; they are ethnically diverse and eager to live in urban areas and take transit. They are also the group most likely to earn under $50,000 in annual household income and are less likely than most groups to have access to a car.

Transit-loving urban Millennials make up the last and smallest group, the **Cosmopolitan Youth**. While adventure-seeking, they are not necessarily single, and many of them have young children. People in this group were late to get their driver's licenses and seem to have a deeper affinity for smartphones than for cars. They are wildly enthusiastic about transit now, but it may be a challenge to keep them riding transit as they age.

The Willing and Waiting are perhaps the most important group to analyze. They represent a large portion of the sample and still have many years of intensive travel ahead of them. While they are the least likely to have a driver's license, they are also the most likely to choose their car as the possession they can't live without. This suggests a population that is largely interested in and ready to ride public transportation, but whose needs are, in many cases, not being met. Transit advocates and policymakers ignore the Willing and Waiting at their own peril, as they may be the gatekeepers of true change in how Americans live and travel.

The Importance of Values and Attitudes

The perceived change in culture and attitudes toward transit and urbanism may make transit in the U.S. increasingly important. It is first useful, however, to establish some baseline connections between attitudes, neighborhood type, and mode choice. These connections will allow us to answer two related questions that are central to our understanding of travel behavior:

- **How do values influence neighborhood choice?**
- **How do values and neighborhood type together influence mode choice?**

The theory of how these factors interact is described in Figure 23.

A person's travel behavior will be determined by his or her attitudes toward different travel modes, the characteristics of his or her neighborhood, and his or her core values and preferences. An individual's attitude toward different travel modes will be influenced by his or her core values as well as residential location (i.e., neighborhood type), which is itself influenced by the core values. The central idea of the theory is that our core values—who we are as people—have a tremendous impact on how we ultimately choose to travel as well as where we choose to live.

In order to quantify the effects described in Figure 23, we employed a technique called structural equation modeling (SEM). SEM allows us to simultaneously determine how a number of latent (unobserved) factors, such as the ones in Figure 23, relate to one another. Each of the factors in the model is made up of several questions asked in the survey. Those relationships are shown in Figure 24. Twenty questions form the basis for the variables in the model.

The output of the structural equation model is a set of normalized coefficients; in other words, we can directly compare the importance of each latent factor. The model is shown in Figure 24. Notice that some of the latent variables can affect the outcome—green travel behavior—in more than one way. For example, valuing the environment is associated with a more positive attitude toward transit, which in turn is positively associated with green travel. Valuing the environment is also associated with a more negative attitude toward automobiles, which are negatively associated with green travel.

By combining the direct and indirect effects, we can determine the total explanatory power of each latent variable. These combined effects are shown in Figure 25. Urban form (i.e., neighborhood type) is far and away the most important predictor of travel behavior; in other words, where you live is the most important thing in determining how you travel, even when controlling for your attitudes. This suggests that transit-oriented development and policies that promote density are the most powerful way to encourage transit use. However, attitudes toward transit/automobiles, the environment, risk-taking, and—most of all—toward community and urbanism all affect people's propensity to use greener methods of transportation. Taken together, this suggests that most people will abandon their cars not when they are enticed onto transit, but when they are able to move to a mixed-use neighborhood.

Our research suggests that most people will abandon their cars not when they are enticed onto transit, but when they are able to move to a mixed-use neighborhood.

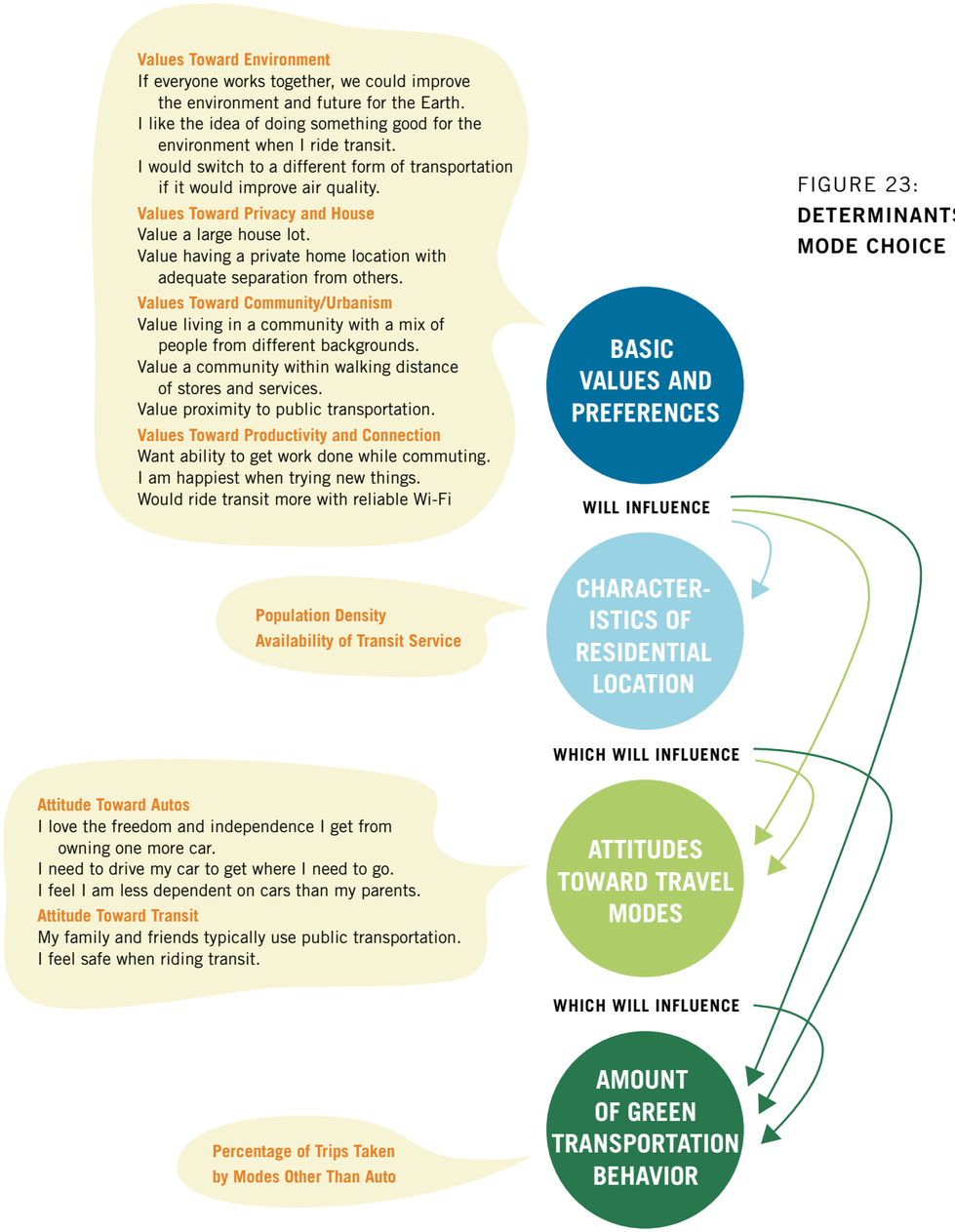


FIGURE 23:
DETERMINANTS OF MODE CHOICE

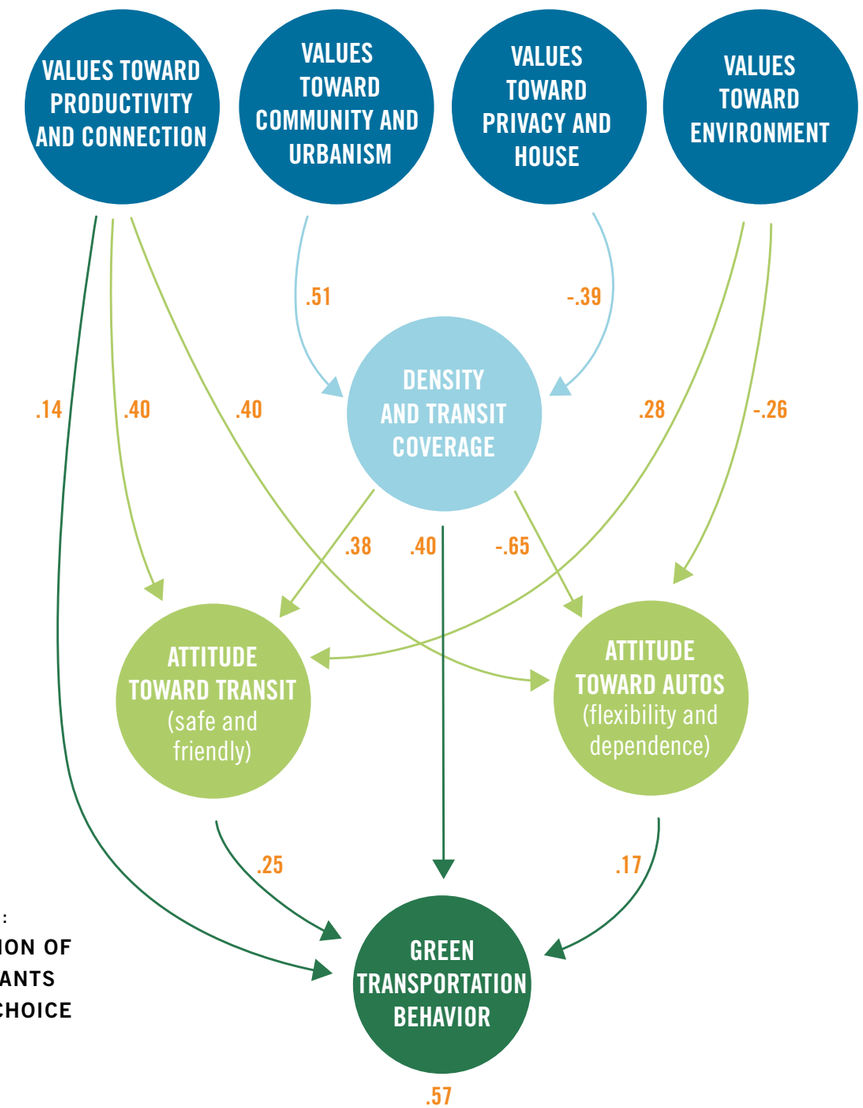


FIGURE 24:
COMPOSITION OF DETERMINANTS OF MODE CHOICE

The attractiveness of mixed-use neighborhoods is a major part of what drives people onto transit.

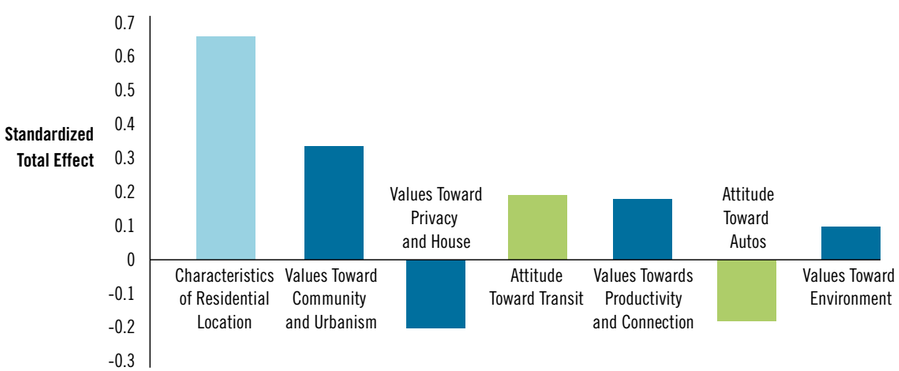


FIGURE 25:
TOTAL EXPLANATORY POWER OF LATENT VARIABLES

Conclusion

This study investigates two central questions: First, how do Americans differ from one another in how we use and think about public transportation? And second, how do our deeply held values and beliefs influence that behavior? The first question is straightforward; we can ask people how they travel and what they believe, and compare across categories. The second is complex; there are many confounding factors when trying to predict how thoughts and feelings affect behavior. One of our goals has been to establish evidence for a simple truth—that our deeply held values and attitudes have an important effect on the transportation and housing choices we make.

We've observed that it's not how people feel about transportation modes so much as neighborhoods that is driving transportation choices. This observation, along with the knowledge that many Americans would be happier in neighborhoods that are not exclusively residential, leads to a powerful conclusion: it is not transportation policy per se but, rather, land-use and housing policies designed to encourage mixed-use development that have the potential to draw large numbers of people out of cars and onto transit.

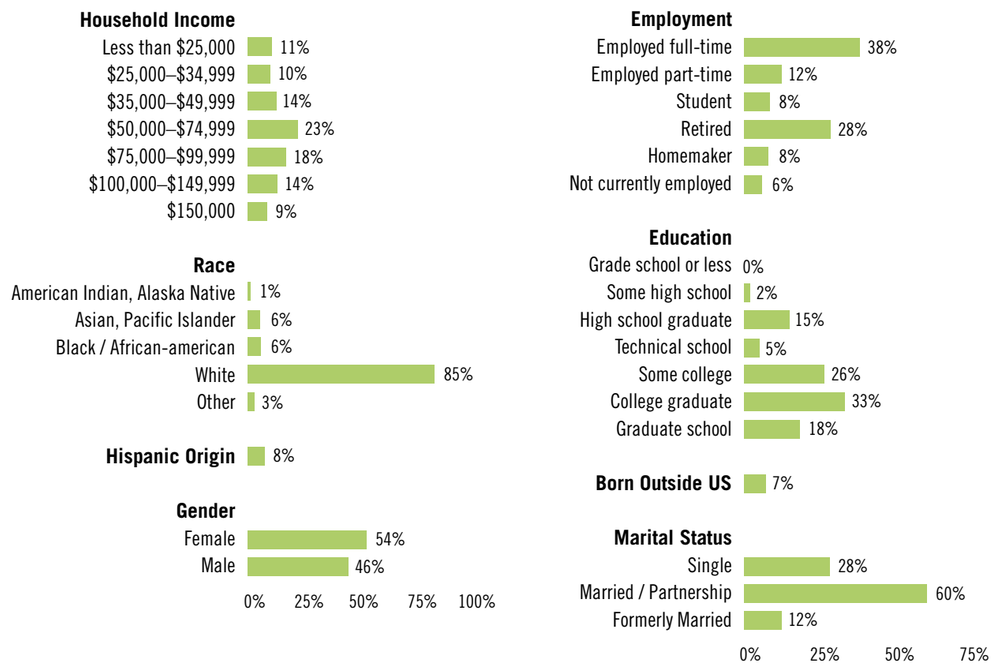
The United States is a heterogeneous nation. Attitudes and behaviors related to transportation and housing vary by region, population density, and the availability of options. By far the greatest variation, however, is by age group. These differences are evident across all regions, in cities with great transit as well as poor transit, and in dense areas as well as sparse ones. That Millennials think and behave differently than older Americans is clear.

No one can say with any certainty whether Millennials will change—and in doing so abandon public transportation—as they come of age. There is some suggestive evidence here, however, that the differences between Millennials and older Americans are very deep. As the cohort ages and has children, at least some are surely considering whether they will ever return to the car-centric lifestyle of their youth. It is incumbent upon policy makers, transit agencies, and citizen groups to seize the moment by accommodating and capitalizing on these attitudes and bringing those maturing Millennials (and many slightly older adults) into a car-free middle age.

The Baby Boomers, meanwhile, are very suburban and very accustomed to driving. As members of that generation age, transporting them presents a serious challenge. What is to become of a senior who can no longer drive but has no access to quality public transportation? A storm may be coming for suburban transit providers. Those Boomers that choose to move into denser areas for increased access must also be accommodated, and urban transit systems would be wise to prepare for increased senior ridership.

We hope that this study can be repeated over the years and the changes in both behavior and attitudes documented over time. Only then can we fully understand the changes taking place in the hearts and minds of American travelers. Our questionnaire was designed with this in mind, and we also recommend that governments invest in more frequent household travel surveys. Each time we ask the same set of questions, we will learn a great deal not only about the moment, but about the direction in which we are headed.

SAMPLE CHARACTERISTICS



ATTITUDE TABULATIONS

A full appendix, containing tabulations of all the attitudinal questions in the survey, can be found online at transitcenter.org. The data are broken out by transit quality (progressive vs. deficient) and region in the first set of tabulations and by environment (urban vs. non-urban) and age in the second set.

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