

Coming Home

The benefits of housing choice for low-wage
commuters in Austin, Texas

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Executive Summary

Austin, Texas has sustained a steady pace of growth for more than 70 years, and has seen its population double twice since 1970. It has gone from a small city whose workforce was dominated by moderate income state and university workers, to a diversified regional economy with greater extremes of wealth and poverty. Its low cost of living and large public university helped spawn a unique culture and music scene. Over time, the pressures of growth have caused the city to expand outward, pushing development into surrounding towns and natural areas. By 2014, Austin had transformed from one of the most affordable small cities in the country, to the 11th largest city in the nation, and the least affordable housing market in the state of Texas¹. Its role in the region has also shifted, as the city's share of the five county region's population has fallen from 63% in 1970 to 46% in 2010.

These changes have reduced the housing choices available to low and moderate income households. Rents have risen dramatically, particularly in areas close to downtown Austin or the University of Texas. Property values - and taxes - have skyrocketed in Austin's historically affordable central neighborhoods in recent years. Census data reveal the ongoing demographic transformation of central east Austin neighborhoods, particularly the area historically designated as a "negro district" prior to court rulings outlawing racial discrimination in housing and public accommodations.

While the broad outlines of change are well documented, we know little about how low income workers view their housing choices and their commute to work. They may prefer suburban locations for their housing types and school districts. Does their current home location indicate such a decision? Or, are they unhappy with the time and money spent on long commutes? If given an affordable choice, would they prefer to live more centrally, closer to work? If so, would they prefer neighborhoods with better access to transit and services? With a mix of housing types? What impact could provision of housing affordable to low wage workers in central Austin have on the time and cost of their commute?

The answers to these questions also have significance for the broader community. Lack of housing affordable to low and moderate income households may reduce the attractiveness of the region to new employers, threatening ongoing economic growth. Long commutes, including time spent sitting in traffic, reduce the quality of life not only of commuters but of all who breathe the air in the region. Long commutes contribute to worsening air quality and the incidence of respiratory problems, such as asthma. Finally, ongoing decentralization of regional population draws people away from the network of social services and community institutions established to serve residents, compromising service delivery and informal social networks.

This report details the findings of a survey of central Austin workers working full time for modest salaries and commuting at least 10 miles to work in central Austin. We surveyed 928 people who live more than 10 miles from the city center, earn less than \$60,000 per year and work for two of the city's largest local employers - The City of Austin and the University of Texas at Austin. Those surveyed were randomly selected from a list of over 5,000 employees meeting our wage and commute criteria. The response rate was 34.5 percent.

¹ US Census 2012

The purpose of the survey was to understand the extent to which respondents' residential locations were indicative of their preferences for suburban or rural living, and the factors that shape their thinking about where to live. We queried respondents about their interest in moving closer to work and on the factors that would shape their thinking about the urban neighborhoods and homes they would prefer. We also calculated the potential cost and time savings to households of moving from their current home location to more centrally located areas targeted for mixed use development under the city's new comprehensive plan, *Imagine Austin*. Finally, we compared resulting commute distances, per capita, to regional goals. Our analysis reveals several key findings:

Substantial interest in urban living | A substantial share of low wage workers commuting at least ten miles to work - 48 percent - would move closer to work if they could. Of those not interested in moving, 88 percent listed the cost of housing as among their primary reasons for not moving.

Generational divide in attitudes | Consistent with national opinion polling, we found a generational divide in attitudes about urban living and commuting: 65 percent of those ages 18-34 were willing to move. Given the age profile of our region and the ongoing migration to the region, this is an especially important finding.

Children not a deterrent to urban living | At the same time, and contrary to these same national polls, attitudes toward moving did not vary significantly based on whether or not respondent households included school age children.

Lowest income households most interested in moving | Those with the lowest incomes were significantly more interested in living closer to work. Households with annual incomes below \$60,000 (roughly 80% of regional median income for a family of four in 2012) were significantly more likely to be interested in moving than those with incomes above this level. Seventy percent of households with incomes below \$40,000 were interested in moving closer to work.

We queried those interested in moving about the neighborhood and housing characteristics they would prefer if they moved. Key findings include:

Support for mixed use communities | Support for neighborhoods that include stores and services, nearby transit, sidewalks, and bike paths was strong, with between 77 and 94 of respondents saying such features would make them more likely or much more likely to move.

Support for mixed tenure communities | A majority of movers reported being more likely to move to neighborhoods with a mix of housing types and that included owners and renters.

Movers would prefer single family homes with private yards | While movers are interested in mixed use, mixed income neighborhoods, they envision living in single family homes.

We also calculated the benefits of moving, under three scenarios. Using residents' current home and work locations, as well as the make, model and year of the cars they use to commute, we were able to estimate the benefits to households and to the broader community of living closer to work. Those interested in moving were assigned a new home location, at one of five activity centers designated in *Imagine Austin*. Key findings include:

Scenario 1: A shorter car commute | On average, movers continuing to commute by car would reduce annual commute miles by 7,736, reducing commute costs by \$4,370 per year, the equivalent of 7.3 percent of a \$60,000 annual income.

Scenario 2: Commuting by transit | For movers electing to commute by bus from their new location, the net cost savings would increase to \$5,631 per year, or 9.4 percent of a \$60,000 annual income.

Scenario 3: Transit commute, one less car | For movers electing to commute by bus and to get rid of the commute car, net savings would rise to \$9,231 per year, or 15.4 percent of a \$60,000 annual income.

Reductions in environmental impacts associated were also estimated. All three scenarios would reduce daily commute distances to levels well below national averages and also local targets. This, in turn, would reduce tailpipe emissions of pollutants, which are linked to respiratory health problems, and also of greenhouse gas.

These findings have important implications for current planning discussions. Moving forward will require that we: 1) better integrate land use, housing and transportation planning, 2) align budget processes across these domains, 3) revise development rules and review processes, and 4) develop metrics to judge project proposals and reward progress toward integrated goals - both locally and regionally.

I. Introduction

The pace and spread of growth

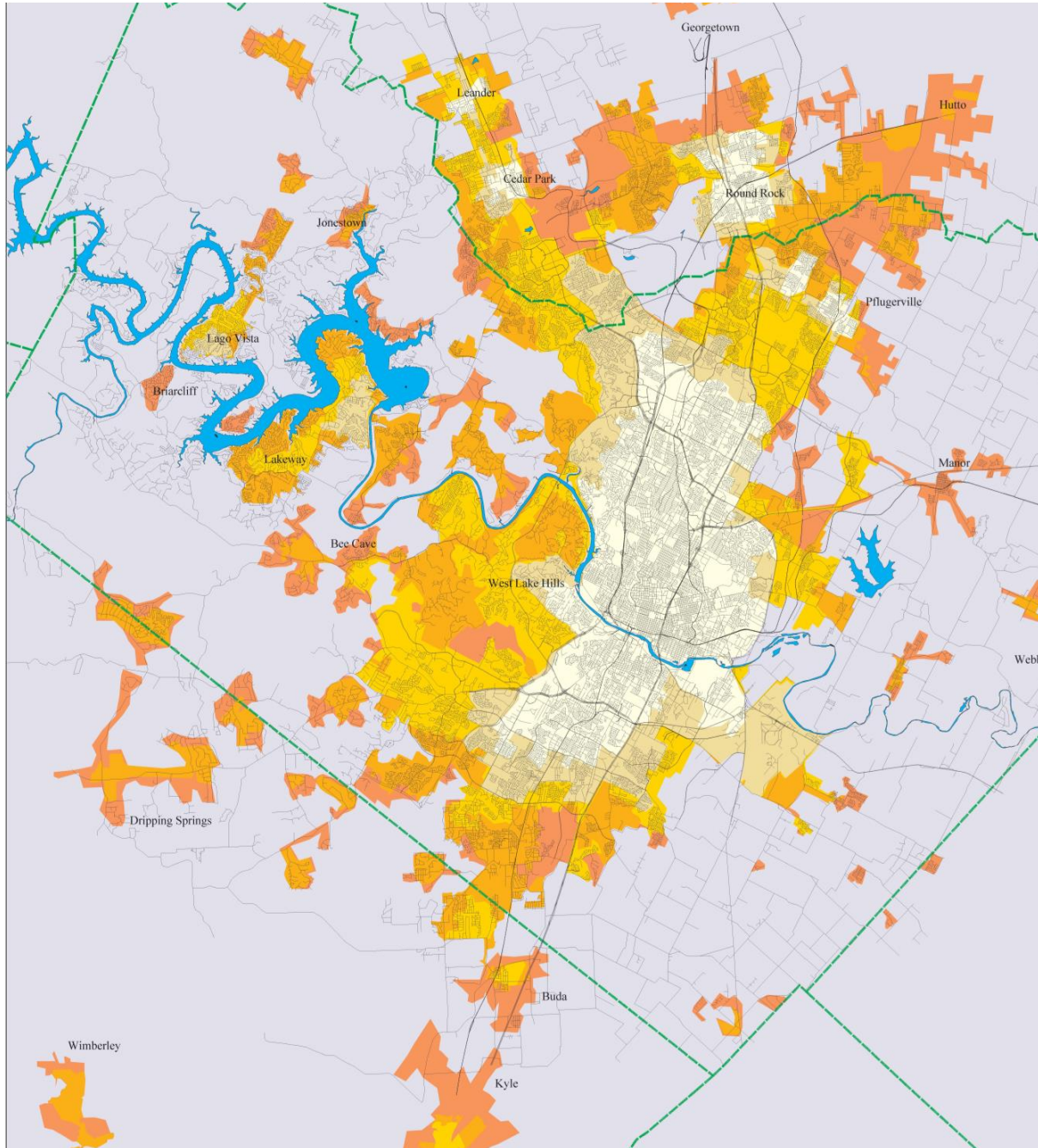
Austin, Texas has sustained a steady pace of growth for more than 70 years, doubling its population twice since 1970. It has gone from a city whose workforce was dominated by moderate income state and university workers, to a diversified regional economy with greater extremes of wealth and poverty. Its low cost of living and large public university helped spawn a unique culture and music scene. Over time, the pressures of growth have caused the city to expand outward, pushing development into surrounding towns and natural areas (Figure 1). By 2014, Austin had transformed from one of the most affordable small cities in the country, to the 11th largest city in the nation, and the least affordable housing market in the state of Texas¹. Its role in the region had also shifted, as the city's share of the five county region's population fell from 63% in 1970 to 46% in 2010 (Table 1, Figure 2). By 2011, the region was the fastest growing of the nation's largest metropolitan areas, with an annual growth rate of 3.9%. By 2016, the population of the region is expected to exceed 2.1 million².

Table 1: Population Growth in the Austin metropolitan area, 1970-2010

POPULATION	1970	1990	2010
City	251,808	465,622	790,390
Travis County	295,516	576,407	1,024,266
5 county Metropolitan Statistical Area (MSA)	398,938	846,227	1,716,289
City share of MSA	63%	55%	46%
Source: Ryan Robinson, City Demographer, Department of Planning, COA, January 2014. The 5 counties included in the MSA figures are Travis, Hays, Caldwell, Bastrop and Williamson.			

¹ US Census 2012

² US Census Bureau, Texas State Data Center, cited by CAPGOG: <http://www.capcog.org/data-maps-and-reports/central-texas-regional-data/#ProjectedPopulationGrowth>

Figure 1: Austin Urbanized Area, 1970-2004¹

Austin's Urbanized Area Over Time

1970 through 2004

- Urbanized from 2000 to 2004
- Urbanized from 1990 to 2000
- Urbanized from 1980 to 1990
- Urbanized from 1970 to 1980
- Urbanized before 1970

¹ Map created by Ryan Robinson, City of Austin Demographer.

Changes in the regional economy and wages

The region's rapid growth and shifting wage structure has been driven, in part, by the rise of new sectors in the regional economy and the reduced share of overall employment comprised by government workers. Between 1991 and 2011, the share of regional population employed by state and local government fell from 29 percent to 23 percent (Texas Workforce Commission 2011). Manufacturing employment fell from third to eleventh place between 2001 and 2011 (Table 2).

These shifts brought with them changes in the share of households at both the upper and lower ends of the income distribution. While the rise of the technology industry has been much heralded as an engine of regional growth and wealth, there has been a parallel rise in service sector jobs with low average wages. Of the ten largest occupational categories in the MSA (accounting for 177,290 jobs), only 2 have annual incomes above \$60,000 (Table 3)¹. By 2010, the Austin MSA was the tenth most unequal, in terms of income distribution, in the country².

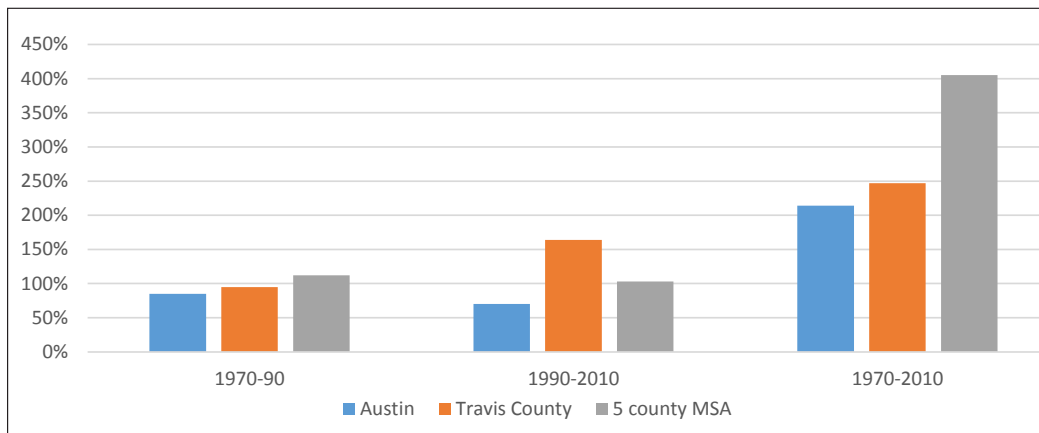


Figure 2: Population Growth in Central Texas - City, County & MSA, 1970-2010

¹ US Bureau of Labor Statistics, OES. The two occupations above \$60,000 were Registered Nurses, annual income \$63,420, and General and Operations Managers, annual income \$114,680. The other eight occupations on the list were service occupations and had wages between \$18,600 and \$32,570 per year.

² Austin's gini coefficient was .46, based on 2010 ACS data. The Gini Index is a measure of income inequality, ranging from 0 (complete equality) to 100 (complete inequality). Higher values indicate that the metro area is more unequal in terms of how income is distributed among households. Lower values mean that income is more equally distributed. See www.diversitydata.org.

Table 2: Austin's Changing Economy

	JOBS RANK	
	2001	2011
Government	1	1
Retail	2	3
Manufacturing	3	11
Prof, Sci, Tech Services	4	2
Health Care, Social Asst	5	4
Finance, Insurance	10	7
Real Estate	12	10
Source: "Growing Pains of Austin, Brian Kelsey, Civic Analytics, Jan 2013. Data from US Bureau of Economic Analysis. Rank based on share of total jobs, GDP.		

Table 3: Largest Occupations, Austin-Round Rock-San Marcos MSA, 2012

Occupation	Jobs	Growth 2010-20	Annual Wage
Retail salespersons	27,780	17.8%	\$ 25,500
Office clerks, general	24,160	17.0%	\$ 29,700
Food Prep and service, including fast food	21,860	28.1%	\$ 19,310
Customer Service Reps	17,640	22.5%	\$ 31,490
Waiters	16,770	28.1%	\$ 18,600
Cashiers	16,500	17.9%	\$ 20,500
Sec and Admin Asst, except legal, medical, executive	14,850	9.9%	\$ 32,570
General and Oper Managers	13,970	10.2%	\$114,680
Janitors, cleaners (except maids and housekeeping)	12,400	24.4%	\$ 20,980
Registered nurses	11,360	32.1%	\$ 63,420
Source: Bureau of Labor Statistics, Texas Workforce Commission, 2012.			

Rising housing costs in central Austin

When combined with shifts in housing prices, there is evidence that these changes are reducing the housing choices of low and moderate income households, both in terms of where they can afford to live and whether or not they can buy - or continue to own - a home. By 2013, according to Austin Investor Interests, central city rents had reached record highs, averaging \$1.15 per square foot, with new units coming online priced over 20% higher. Units downtown were priced even higher - between \$1,275 and \$1,875 for a 750 square foot apartment (\$1.39-\$2.50/square foot). At the same time lower-end rental property owners are upgrading their units to compete for higher income tenants, thus contributing to the shortage of apartments affordable to low income renters¹. The rate of increase has been building: on average, rents in the Austin area rose 6.5% in 2011, and 7.5% in 2012².

A 2009 study of the city's housing market quantified the gap between what low income households could afford and the rents prevailing in the market at that time. The authors found a 38,000 unit shortfall of rental housing affordable to households with incomes below \$20,700. Compounding the pressures on the rental market was the shortage of homes affordable to first time homebuyers, which caused more people to stay in the rental market. The recent foreclosure crisis has added to this imbalance by pushing owners losing their homes to foreclosure back into the rental market³.

1 Robin Davis, Austin Investor Interests, quoted in story by Nathan Bernier, KUT, 7/24/13.

2 Hendricks and Partners, cited in TAMU 2012 Texas Metro Market Overview: Austin-Round Rock-San Marcos, <http://recenter.tamu.edu/mreports/2012/AustinRRock.pdf>.

3 City of Austin, Neighborhood Housing and Community Development. Comprehensive Housing Market Study, 2009.

Neighborhood and cultural change

A recent study of the largest 100 metropolitan areas in the nation found that Austin has the 9th highest level of economic segregation¹. The city's historic pattern of racial and economic segregation is being reconfigured as centrally located, historically African-American and Hispanic neighborhoods are experiencing substantial redevelopment and are becoming increasingly home to affluent and white residents. Twenty percent of housing units in Austin's historically segregated central east neighborhoods (roughly equivalent to zip code 78702) were built after the year 2000. The value of taxable property in this area rose more than 200 percent between 2005 and 2012, and the white population rose from 11.2% to 33.5% during the 2000s² (See Figure 3).

As eastside neighborhoods change, minority residents of these neighborhoods are leaving and potential new low-income or minority immigrants are going elsewhere. There is evidence of an outward migration of African-American households from eastside neighborhoods to northeastern suburbs³. Low income settlements are emerging in unincorporated areas in the region. Such areas are often isolated from transit networks and social services⁴.

1 Bischoff and Reardon, Residential Segregation by Income, 1970-2009. 2013.

2 US census, 2000; ACS 2008-2010.

3 Ryan Robinson, Top ten demographic trends in Austin, Texas. <http://www.austintexas.gov/page/top-ten-demographic-trends-austin-texas>

4 Allard, Scott. Access to Social Services: the Changing Urban Geography of Poverty and Service Provision. Washington, DC: The Brookings Institution, 2004. This study looks at the spatial access to social services in three cities: Chicago, DC, and LA.

A recent study found a 142% increase in the number of poor central Texans living in the suburbs between 1970 and 2011, along with increases in the share of the suburban poor that are immigrants¹. At the same time, suburban areas offering homes affordable to first time homebuyers are locating increasingly farther from the city center (Figure 4).

¹ Brookings Metropolitan Center, Confronting suburban poverty in America. Confrontingsuburbanpoverty.org.

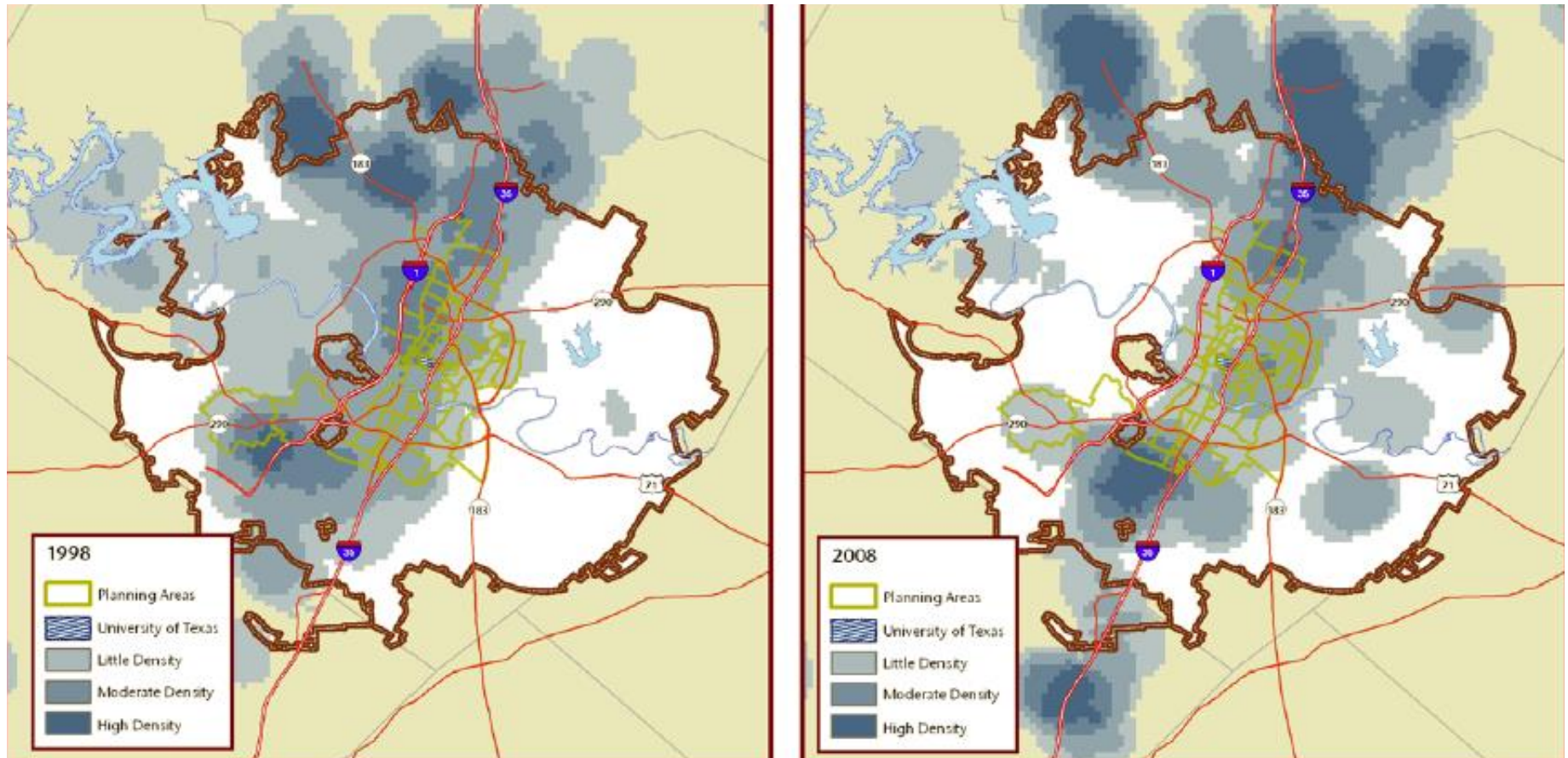
Median SF Value Change by ZIP Code: 2005 to 2012

Percent Change

- Less than 50%
- 50% to 100%
- 100% to 150%
- 150% to 200%
- 200% Plus

Figure 4: Location of Detached Single Family Units Affordable to 51% to 80% Median Family Income Households¹

Austin Region 1998 - 2008



Note: 51-80% of MFI is the income range of \$34,554 to \$55,280. Assumes that households seek housing units near the top of their affordability threshold. Thus, units shown in these maps are priced between \$111,874 and \$178,165. "Density" as used in the maps means more units in a given geographic area. It does not imply density of land use.

¹ MLS and BBC Consulting. Exhibit ES-3 in City of Austin, Comprehensive Housing Market Study, Austin, Texas, 2009.

Employment and commuting

In contrast to the outward spread of residential subdivisions, the pattern of employment has remained more spatially concentrated within particular zones of the city - especially the central business district. The divergence in residential and employment patterns is seen in regional transportation patterns. Workers in central Texas tend to drive farther and spend more time commuting than workers in comparably sized metropolitan regions. Close to 48 percent of

regional workers crossed a county line to commute to work in 2010¹. On average, Travis County workers drove 23.4 miles daily in 2012². This is above the national figure of 21.6 miles for 2011. On measures of how congestion adds to commute time, Austin is well above the average for a city of its size and had a “travel time index” higher than Houston, Dallas and San Antonio in 2010. Austin’s congestion travel time places it closer to the commutes of residents of much larger cities³.

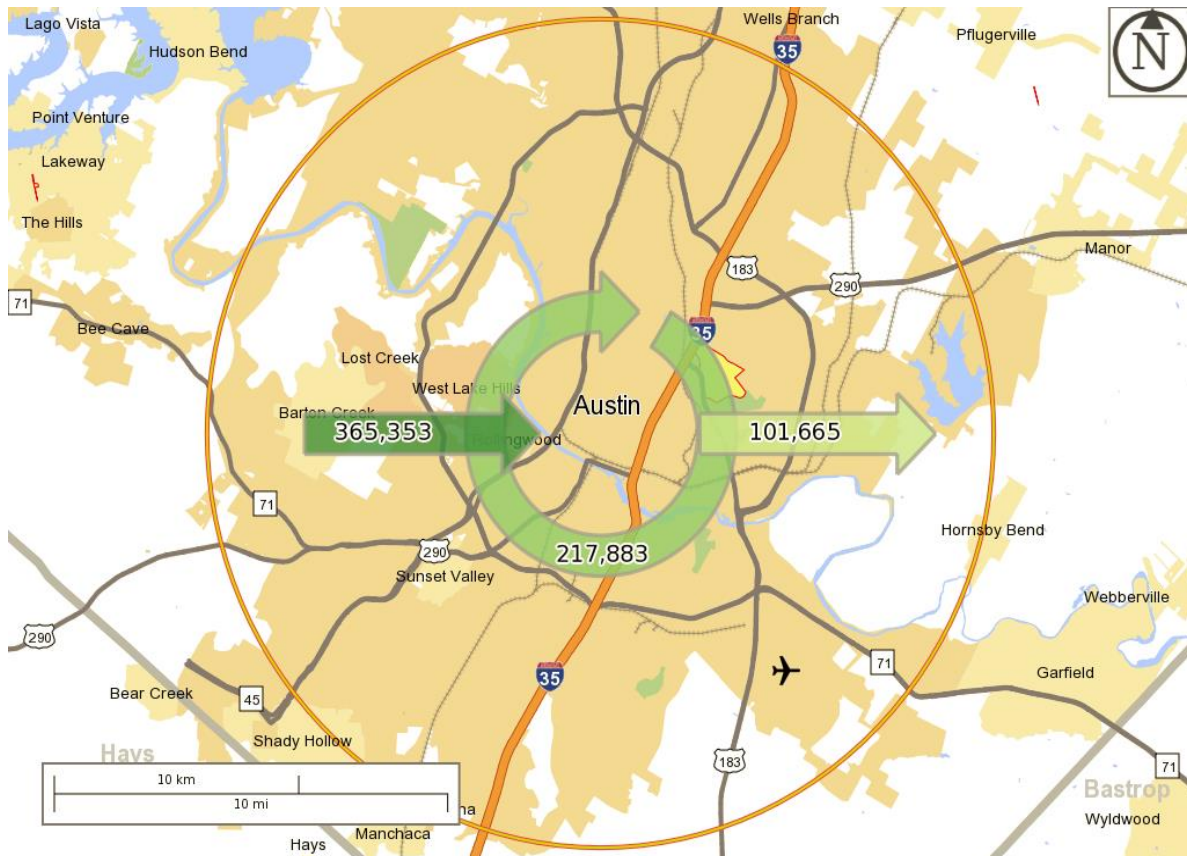


Figure 5: Workers Commuting into and out of Central Austin, TX

¹ US Census, cited by CAPCOG. <http://www.capcog.org/data-maps-and-reports/central-texas-regional-data/#commutingpatterns>

2 CAN Dashboard, Vehicle Miles Traveled, 2012.

3 Texas Transportation Institute, cited by CTSIP, 2012.

Figure 5 highlights the commuting patterns into and out of Austin. Over sixty two percent of those employed within a ten mile radius of city hall (365,353) commute into it from suburban locations. Sixty percent of workers employed in this zone earning less than \$40,000 - for whom a long commute is a heavy financial burden - live outside of this ten mile boundary.

Yet the cost of remaining in the central city, for low income workers, is increasingly unaffordable. As shown in Table 3a, on average, households with low incomes face very high housing costs relative to the size of their incomes. For all but the highest income households, homeownership is unaffordable. Figure 6 maps the location

affordability of particular neighborhoods for a three person renter household with an annual income of \$33,000. Only a few neighborhoods, in central east Austin, show average rents affordable to these households. This likely reflects the concentration of subsidized housing in this area.

On average, a renter household at this income level in the region would spend 56 percent of their monthly income on housing and transportation costs. Research on metropolitan areas around the country finds a growing disconnect between rising housing and transportation costs and stagnating incomes for households earning between 50 and 100 percent of regional median household income¹.

Household composition and income	Tenure	Housing percent of household income	Transportation percent of household income	H + T percent of household income	Miles driven annually
<i>Single, very low income</i> (\$11,139) national poverty line 1 person, 1 commuter	Renter	74%	44%	118%	9,626
	owner	135%	44%	179%	
<i>Low income</i> (\$33,250) 50% of regional median income 3 people, 1 commuter	Renter	32%	24%	56%	15,912
	Owner	52%	24%	76%	
<i>Single worker</i> (\$22,485) 100% of regional median income 1 person, 1 commuter	Renter	40%	25%	65%	10,670
	owner	74%	25%	99%	
<i>Single professional</i> (\$44,970) 200% of regional income 1 person, 1 commuter	Renter	23%	15%	38%	11,699
	owner	46%	15%	61%	
<i>Retirees</i> (\$46,049) 80% of regional median income 2 people, 0 commuters	Renter	23%	13%	36%	10,429
	owner	44%	13%	57%	
<i>Dual income family</i> (\$86,342) 120% of regional median income 4 people, 2 commuters	Renter	17%	15%	32%	24,269
	owner	26%	15%	41%	
Benchmark/goal		30%	15%	45%	
Source: US Department of HUD, Location Affordability Index. Average costs as a percent of income in Austin-Round Rock MSA.					

Table 3a: Location Affordability in the Austin-Round Rock MSA, by household type and tenure

¹ Losing Ground: The Struggle of Moderate-Income Households to Afford the Rising Costs of Housing and Transportation. Center for Housing Policy and Center for Neighborhood Technology, October 2012. Appendix 2.

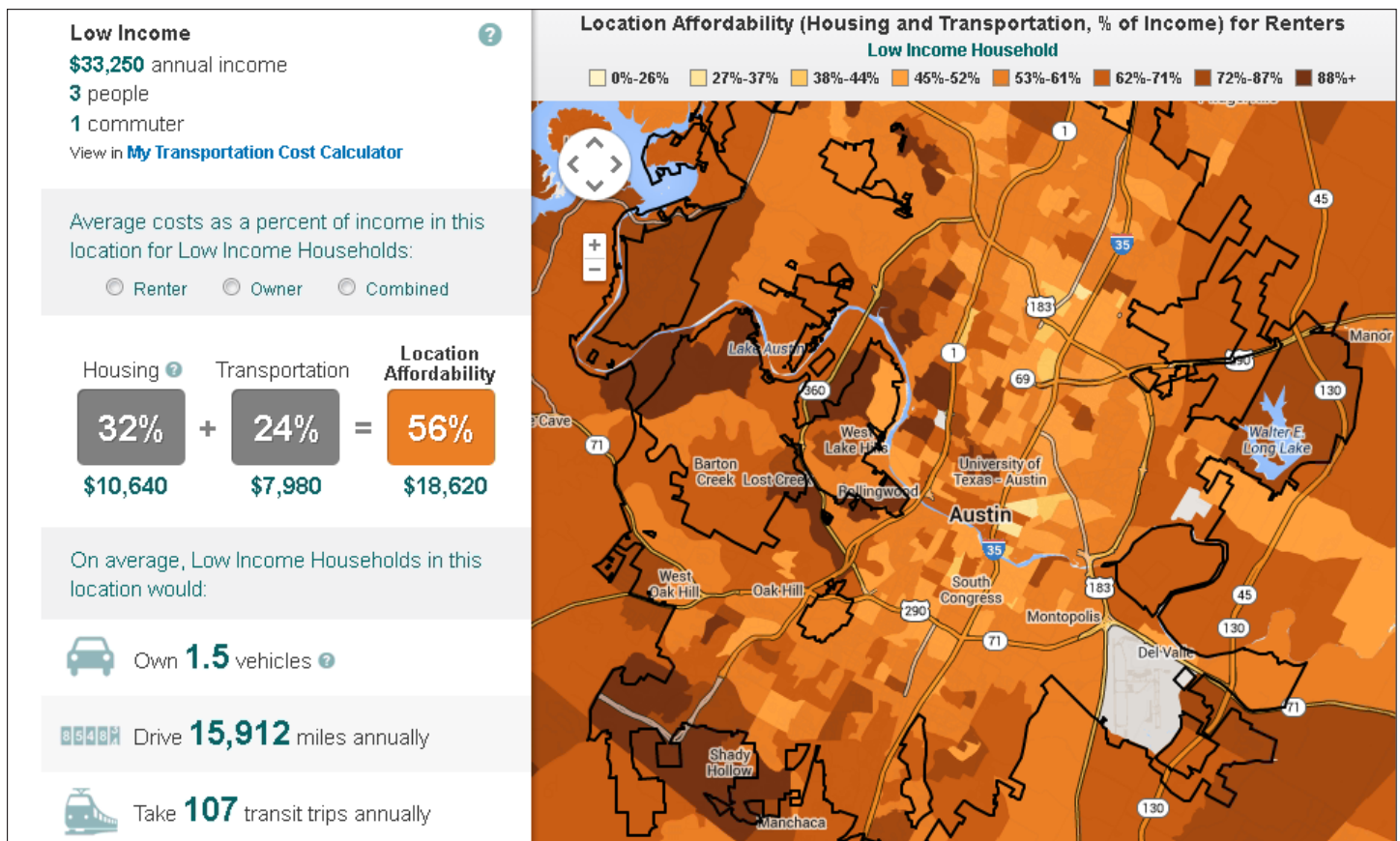


Figure 6: Location Affordability for Low Income Renter Households, Austin, Texas, 2010

There is a growing divergence between housing costs in and around central Austin and the prices that workers can afford. To cope with this, many workers have no choice but to move farther from central Austin and thus farther from many jobs. Though housing is more likely to be available at affordable prices farther from the city center, the price of commuting increases with distance and

the increased time spent commuting is damaging to the quality of life of workers and their families. The housing and quality-of-life hurdles posed by long commutes may undermine the region's other locational advantages. Such patterns highlight the importance of incorporating a broader range of housing types, at a range of prices, and near transit, in central Austin.

II. Do workers want to live closer to work? What shapes their decisions?

Demographic change and urban form

The desirability of particular types of housing, and of particular types of locations, is strong tied to the types of households found in a region, and their needs. Nationally, household demographics are shifting such that three-quarters of the demand for new housing by 2035 will be generated by households without children. In addition, the share of households headed by minorities, whose incomes are considerably lower than whites, on average, is rising. Together these two trends predict a sharp shift away from postwar patterns of suburban homeownership¹.

Nelson, in a recent analysis of the central Texas region prepared for the CAPCOG, finds some evidence of these shifts. More than 60% of regional growth between 2010 and 2035 will be attributable to seniors and minorities, and only 29% of household growth will be households with children. Thirty one percent of growth will be of single person households. The share of growth accounted for by heads of households in peak earning years (age 35-64) is projected to decline from 50% to 44%, while the share attributed to “starter households” (where householders are under age 35, and incomes are lower) is projected to comprise 24% of growth, while the share attributed to elderly households will also rise to 32%².

Attitudes toward homeownership and commuting

Given the likely decline in homeownership and rising concern about commuting costs, researchers have begun studying attitudes towards new forms

of development. Several recent surveys have gathered evidence regarding how attitudes about housing and neighborhood characteristics vary by demographic characteristics¹. Nelson reviewed data from these national surveys, focusing on the views of the demographic groups likely to comprise a large share of the market for new housing. He focused on attitudes toward neighborhoods much like Austin’s Mueller neighborhood, where homes are developed in proximity to shops, transit, and other services, and streets are designed to accommodate cars, pedestrians, and bicyclists.

Nationally, about half of Americans would support such communities and would want to live in them. Strongest support was found among households whose heads were under 35 or over 70 and among lower income households (defined as below 80 percent of regional median income). In Texas, overall support for living in such communities mirrored the national survey. However, the demographics of groups most in support were somewhat different. It was single person households and younger households who were most interested in living in such communities, while householders over 55 and those with children were more likely to prefer conventional suburban communities. Interestingly, in Texas, there were no strong differences in preferences by household income (Table 4).

¹ CAPCOG, Sustainable Places Project: Market Trends, Preferences and Opportunities 2010 to 2035, November 2012, 10.

² CAPCOG, November 2012.

¹ Porter and Novelli, cited in CAPCOG.

	WANT TO LIVE IN SMART GROWTH COMMUNITIES	
Group	US	Texas
All	47%	48%
Age		
18-34	51%	52%
35-54	45%	48%
55-69	47%	39%
70+	56%	40%
Income		
Low income	45%	48%
Mid income	41%	47%
High income	39%	47%
Household type		
Single HH	48%	54%
HH with children	46%	40%
No children in HH	46%	49%
Source: Porter Novelli, reported in CAPCOG, 2012. Percentages indicate sum of respondents who “would somewhat support” through “would definitely support”		

Table 4:
Willingness to Live
in Smart Growth
Communities, US
and Texas

COMMUNITY TYPE	US	TEXAS
Community A: Houses are built far apart on larger lots and you have to drive to get to schools, stores, restaurants, park/playground, recreation areas	43%	46%
Community B: Houses are built close together on smaller lots and it is easy to walk to schools, stores, restaurants, parks/playgrounds, recreation areas.	56%	54%
Source: Table 2.6 in CAPCOG, adapted from NAR 2011.		

**Table 5: Community
Preference Tradeoff**

The National Association of Realtors did a similar study, asking respondents to choose between housing options. While Texans were somewhat more likely to prefer conventional suburban neighborhoods than were U.S. residents as a whole, the majority supported new, “smart”

neighborhoods (table 5). From American Housing Survey data, Nelson estimated that about 20 percent of Texans in the state’s four largest metropolitan areas currently have the option of living in such neighborhoods¹.

¹ CAPCOG, 29, footnote 28.

While residents were interested in communities that offered shorter commutes and easy access to services, they were not willing to give up their single family homes. In fact, Texans were especially resistant to apartment or townhouse living. (Table 6).

How might these preferences translate to Central Texas, given our demographics and our housing and commuting costs? Given our younger demographic profile, as well as the increase in the share of minority households in our region, we can expect that fewer households will be able to afford to purchase a home, unless offerings change. But are our residents interested in different housing types? In more urban living? How do they view the trade-offs between commute costs and housing and neighborhood characteristics? How, in particular, do those most strongly affected by high commuting costs - low income households - view these choices? These are the questions that motivated us to carry out our own survey.

Survey of low income commuters working in central Austin

Austin has recently adopted a new comprehensive plan, Imagine Austin. The vision put forward in this plan mirrors many aspects of the new forms of development about which respondents were queried in the surveys described above. From the description of our current growth patterns and of our demographic make-up it seems likely that incorporating new housing choices into central corridors and activity centers, as envisioned in the plan, could have some appeal for those currently struggling with long and costly commutes. In order to understand the views of residents of our region, and to gauge the potential impact that living closer to work could have for both households and the larger region, we fielded a survey targeted at low income workers commuting from their homes on the outskirts of Austin to a central city workplace.

Table 6: Trading Off Housing Attributes

PREFERENCE TRADEOFF QUESTION	US	TEXAS
<i>Please select the community where you would prefer to live:</i>		
Smaller house/lot, shorter commute	59%	56%
Larger house/lot, longer commute	39%	42%
<i>Please select the community where you would prefer to live:</i>		
Mix of houses/businesses easy to walk	58%	57%
Houses only, drive to businesses	40%	42%
<i>Please select the community where you would prefer to live:</i>		
Apartment/townhouse, easy walk	38%	35%
Single family house, drive	59%	63%
Source: Table 2.8 in CAPCOG, from NAR 2011.		

Table 7: Profile of Survey Respondents Compared to City and Region

GROUP	RESPONDENTS	AUSTIN	MSA
Age of Householder			
20-34	27%	37.4%	29.8
35-54	52%	38.2%	41.9
55-69	20%	24.4	28.3
70+	<1%		
Income			
Very Low income < \$40,000	15%	38.8%	33.2
Low income \$40-\$60,000	29%	17%	17.0
Mid & High income > \$60,000	56%	44.2%	49.7
Household type			
Single HH	12%	33.8%	27.6%
HH with children	39%	28.5%	34.7%
No children in HH	61%	71.5%	65.3%
Total responses	267		
<p>Source: Data for income and household type are from the American Community Survey for 2012. Data for age of householder and presence of children are from Census 2010. The final sample size reflects the exclusion of households found to live within ten miles of their workplace from the dataset as well as deletion of those no longer employed by UT or COA. While workers surveyed made less than \$60,000, they often lived in households with other workers and thus incomes above \$60,000.</p> <p>Note: Survey missing values ranged between 7-12% on individual questions and were not used in the calculation of percentages.</p>			

To identify the population to survey we contacted employers located in central Austin employing workers full time at wages below \$60,000 - roughly 80 percent of regional median income for a family of 4 in 2012. After reaching out to multiple employers, two of the largest city employers - the City of Austin and the University of Texas - agreed to participate in our survey. To construct our survey population, we compiled lists of all workers employed full time by both

employers with wages below \$60,000 and who live in zip codes roughly beyond a ten mile radius of downtown. Over 5,300 workers met our criteria. From these lists we randomly drew a sample of 945 workers. Our response rate was 34.5 percent, a reasonable response rate for a mail survey (see appendix).

The demographics of our survey population differ from the city and regional populations in certain ways that may bear on our findings. Several differences are driven by the fact that we were surveying workers rather than the general population, and also focusing on those known to have wages below 80 percent of regional median income. First, more of our respondents were of prime working age than city and regional household heads in general. Second, we found relatively few respondents with household income below \$40,000 per year. The larger share of city and regional populations falling into this category likely reflects the inclusion of household heads not in the labor force due to disability or retirement. Our respondents are also more likely to have children and much less likely to live alone than are city or regional residents.

In short, the profile of our survey population - older, on average, and more likely to have children - would lead us to expect them to be less interested in moving closer to work than respondents to US and Texas surveys have been.

Yet, despite these factors, we found strong support for moving closer to work - which means into central Austin. First, when we asked residents "if you could live closer to your workplace in Austin, would you?" 48 percent answered "yes" - paralleling the support for living in more compact communities found in the surveys described earlier. We will explore whether the desire to move can be interpreted as a desire to live in more compact, walkable communities below.

The profile of those interested in moving closer to work - young but not childless

Explanations for changing attitudes toward homeownership and driving have emphasized

the youth and life stage of those less interested in suburban homeownership. The assumption is that once these households have children, they will move to the suburbs and buy a house with a yard, in a good school district. The findings of the national and Texas surveys are consistent with this narrative: support was strongest among young workers and lowest among householders with children, especially in Texas (see Table 8). Indeed, the generational divide between younger and older households is more pronounced in our survey: 65 percent of respondents ages 18-34 said they would be willing to move, while only 31% of those age 55 or older said so. This is consistent with other national surveys reporting changing attitudes toward homeownership and driving among Millennials¹. Similarly, single person householders, like their national and state counterparts, were highly likely to be willing to move.

On the other hand, assumptions about life stage and the presence of children are not borne out in our survey. In fact, the majority of householders with children surveyed were interested in moving - well above the percentages found in US and Texas surveys. We will explore this finding below.

Finally, we explored the relationship between income and the decision to move. The cost of housing was clearly a dominant factor in respondents' views. Both those willing to move and those not willing to move cited the cost of housing as highly important to their decision.

¹ Federal Highway Administration 2007. MacArthur Foundation, How Housing Matters. Survey, April 2013. http://www.macfound.org/media/files/HHM_Hart_report_2013.pdf Transportation and the New Generation: Why Young People Are Driving Less and What it Means for Transportation Policy. Frontier Group, US PIRG Education Fund, April 2012.

For those interested in moving, it was the most important factor. Nelson speculated that minority households, because of their lower average incomes, would be less likely to be homebuyers. But he had no information about their attitudes about where they would prefer to live. We found that the majority of both Black and Hispanic householders were interested in moving closer to work.

While all were concerned about the cost of housing, it was those with the lowest incomes who were most interested in moving. Seventy percent said they would move if they could¹.

We examined a number of additional factors to understand how those willing to move differed from those not willing to move. The strongest differences, in terms of statistical significance, were age related: Those under age 50 were significantly more likely to be willing to move, as were those who had lived in their home less than four years. Strong differences were found between those with low and very low incomes and those with household incomes above \$60,000. Strong differences were also found based on the type and tenure of housing households currently lived in, with those renting or living in multifamily housing significantly more likely to want to move.

POPULATION	US	TEXAS	SURVEY
All	47%	48%	48%
AGE			
18-34	51%	52%	65%
35-54	45%	48%	44%
55-69	47%	39%	31%
70+	56%	40%	NA
INCOME			
Very low income (<\$40k)	--	--	70%
Low income (<\$60k)	45%	48%	56%
Mid income	41%	47%	43%
High income	39%	47%	43%
RACE/ETHNICITY			
Black	50%	--	--
Hispanic	47%	--	--
HOUSEHOLD TYPE			
Single HH	48%	54%	53%
HH with children	46%	40%	51%
No children in HH	46%	49%	48%

Source: US and Texas data from Porter Novelli, reported in Nelson. Percents indicate sum of respondents who “would somewhat support” through “would definitely support.” Survey columns indicate percent who indicated they would move closer to their central Austin workplace if they could. N=267.

Table 8:
Attitudes Towards
Living in Mixed
Use, Compact
Communities

¹ We did not gather detailed information on income levels above \$60,000.

WHAT IMPACT WOULD THE FOLLOWING FACTORS HAVE ON YOUR DECISION TO MOVE?	MORE LIKELY TO MOVE
<i>If new neighborhood...</i>	
Included stores and services that you use routinely (banks, grocery stores, pharmacies, neighborhood eateries).	94%
Was in walking distance to public transportation.	80%
(If you have children) Had bike paths or sidewalks safe for children.	77%
Included a good public school.	62%
Note: Includes “more likely” and “much more likely” responses.	

Table 9:
Neighborhood
Features Desired
by Movers

What kind of neighborhoods appeal to movers?

It is possible that our respondents are not interpreting the question about moving closer to work to mean living in a different type of neighborhood. To gauge whether this is true, we asked those willing to move about the specific neighborhood and housing characteristics that would matter to them in their decisions to move.

More detailed questions revealed that respondents were indeed interested in mixed use neighborhoods, with more pedestrian and child-friendly urban design features, and that were transit accessible (Table 9). In addition, 62 percent indicated that they would be more likely to move if a neighborhood included a good school.

At the same time, questions about the character

istics of the housing they would prefer revealed that respondents were still very attached to living in single family homes with private yards (Table 10). While a majority indicated that they were more likely to move if a neighborhood offered a mixed of housing types and included owners and renters, support for these features was much weaker.

We also queried those who said they were not willing to move closer to work on the reasons for that decision. The reasons given are a mix of satisfaction with one’s current home and neighborhood, concerns about the affordability of more centrally located neighborhoods, and concerns about safety and density (Tables 11 and 12). Interestingly, concerns related to children did not appear to be important factors in respondents’ lack of interest in moving. Among the

Table 10:
Housing
Characteris-
tics Desired by
Movers

WHAT IMPACT WOULD THE FOLLOWING FACTORS HAVE ON YOUR DECISION TO MOVE?	MORE LIKELY TO MOVE
<i>If your new neighborhood...</i>	
Allowed you to live in a single family home.	94%
Allowed you to have a private yard.	91%
Had a mix of types of housing.	54%
Included both owners and renters.	50%
Note: Includes “more likely” and “much more likely” responses.	

questions pertaining to the wellbeing of children, only the question on school quality elicited majority support. Since this question was asked of all respondents - whether they have children or not - this stronger response may be related to concerns about property resale values in areas they could afford. Finally, concerns about the impact of moving on the commute of another worker in the household or on one's commute in future jobs were not important factors, with only around one-third of respondents indicating it would be a factor in their decisions.

Table 11: Reasons not to move - Neighborhood

I WOULD NOT CONSIDER MOVING CLOSER TO WORK BECAUSE...	AGREE OR STRONGLY AGREE
I like my neighborhood.	93%
I do not want to live in a more densely developed area.	83%
The neighborhood would not be as safe.	71%
I have friends and/or relatives living nearby.	68%
The stores and services I use routinely are close by.	67%

Table 12: Reasons not to move - Cost

I WOULD NOT CONSIDER MOVING CLOSER TO WORK BECAUSE...	AGREE OR STRONGLY AGREE
The housing would be more expensive.	88%
I do not want to have to pay more taxes.	80%

Table 13: Reasons not to move - Children

I WOULD NOT CONSIDER MOVING CLOSER TO WORK BECAUSE...	AGREE OR STRONGLY AGREE
The schools would not be as good.	61%
<i>(If you have children)</i> Moving would disrupt my children's friendships.	43%
<i>(If you have children)</i> My children would not be able to get around as independently.	37%

Summary

Forty-eight percent of survey respondents were willing to move closer to work. As in national and state surveys linking demographic characteristics to attitudes regarding neighborhood and housing preferences, we found that it was younger, single householders that were most interested in moving back to the city. However, unlike these other surveys, we found that the majority of householders with children living at home were also interested in moving. And we found that those with the lowest incomes had the strongest interest in moving closer to work.

More detailed questions revealed more about the features that movers would desire in their new neighborhoods and homes. There was strong support for mixed use neighborhoods, where residents could easily access transit and where their children could safely walk and play. At the same time, while the majority found the idea of living in an area with a mix of housing types and tenures appealing, almost all respondents hoped themselves to be the residents of single family homes, with private yards.

In addition to concerns about higher costs, those not interested in moving tended to be satisfied with their current situation, concerned about the safety and density of neighborhoods closer to work and, to a lesser extent, the quality of schools in those neighborhoods.

III. What are the potential benefits of housing low income commuters closer to work?

Now that we have established that there is interest on the part of low income households - including those with children - in living closer to work, we turn to a discussion of the benefits of providing greater housing choices for these households. In other words, why does it make sense for Austin to invest in providing homeownership or rental options to low income households in central locations? We will discuss these benefits in terms of both the benefits to the households themselves and also those to the broader community.

Benefits to low income households

As noted earlier, commutes in our region are lengthening. Longer commutes bring both higher costs in terms of gasoline and car maintenance and in terms of time spent commuting. Reducing commute costs for households whose budgets are already tight has the potential to help them to meet other essential costs, and to potentially reduce their need for other social supports. Perhaps they can now afford quality childcare, or enroll their child in a sports program. Or they can afford to take a course at Austin Community College or take a family vacation. They would have more money to spend on housing costs. Reducing the time spent commuting will improve the quality of life of commuters and their families, enabling them to spend time on things more important to them and to their families than commuting. Finally, considerable research documents the negative health effects of long commutes, including adverse effects on physical activity, cardiorespiratory fitness, obesity, and risk for high cholesterol and blood pressure¹.

¹ Hoehner, Christine M. Carolyn E. Barlow, Peg Allen and Mario Schootman. "Commuting distance, cardiorespiratory fitness, and metabolic risk," American Journal of Preventive Medicine. 42 (6): 571-578. 2012. Cited in US EPA, SMART Growth and Economic Success: The Business Case. Nov 2013; Crabtree, Steve. "Wellbeing Lower Among Workers With Long Commutes." Gallup, Inc. August 13, 2010. <http://www.gallup.com/poll/142142/Wellbeing-Lower-Among-Workers-Long-Commutes.aspx>; Wener, Richard E., and Gary W. Evans. "Comparing Stress of Car and Train Commuters." Transportation Research Part F: Traffic Psychology and Behaviour 14(2): 111-116. 2011.

Benefits to the economy

The availability of housing affordable to the range of workers in the regional workforce, as well as the impact of commuting on quality of life, can act as deterrents to employers looking to locate in the region. A recent study discusses the economic advantages to businesses of providing locations with housing and transportation options. While much of the research emphasizes the importance of urban settings to educated workers¹, there is also evidence of the impact of long commutes and congestion costs on labor availability and costs. Congestion can limit the geographical area from which workers are willing to commute and require that employers pay higher wages². Finally, researchers note that companies in central locations with multiple options for how employees and customers can reach them have a competitive advantage over more far flung locations³.

Benefits to the environment

Finally, longer commutes and greater congestion produce harmful effects on the environment through increased emission of greenhouse and noxious gases that affect regional air quality. Reducing the aggregate number of "vehicles

¹ Sander, William, and William A. Testa. "Education and the Location of Work: A Continued Economic Role for Central Cities?" The Annals of Regional Science. 2012. Cited in US EPA, 2013.

² Tomer, Adie. Where the Jobs Are: Employer Access to Labor by Transit. Brookings. 2012. <http://www.brookings.edu/research/papers/2012/07/11-transit-jobs-tomer> Cited in US EPA, 2013.

³ US EPA, 2013.

miles travelled” in a region can contribute to improvements in air quality, particularly in regions where automobiles are the major contributor to air pollution.

Estimating the Impacts of Moving Closer to Work

In order to estimate the benefits of moving, we asked our survey respondents to provide their home and work addresses, as well as information about how often they commute alone and the make and model of the car they use to commute. We used this information to estimate the time and cost of their current commute. On average, those willing to move reported spending 42 minutes driving in each direction of their commute, or 84 minutes per day. They drive, on average, 21.3 miles in each direction, or 42.6 miles per day.

To estimate the benefits of moving, we first needed to be able to estimate a new commute distance and time based on an actual route. To do this, we “moved” respondents to new locations in Austin. We assigned movers to new neighborhoods using five sites identified in the Imagine Austin plan as places that the city is currently developing or planning to develop mixed-use projects in over the next 15 years (see Map 1). We selected four medium-sized sites (planned capacity of 10,000-30,000 residents) and one large site (planned capacity of 25,000-45,000 residents). Having selected the five potential housing sites, we assigned respondents who currently live south of the Colorado River to the southernmost site, Riverside Station. Respondents living north of the river and east of I-35 were assigned to the easternmost site, Mueller Station. Respondents living north of the river and west of I-35 were assigned randomly to one of the three remaining sites located in north-central Austin: North Burnet/Gateway Station, Crestview Station, and

Highland Mall Station (see Map 2).

Three commuting scenarios

Once we had assigned households to new home locations, we estimated how long it would take to commute to work from their new home by car. This enabled us to then estimate the time and cost savings associated with their shorter commutes. To be consistent, and to ensure that our estimates were conservative, we used a computer mapping application available through Google to re-estimate current commute times and then used the same process to estimate new potential commute times. Since the commute times calculated by Google were, on average, about 15 minutes shorter for a one-way commute than self-reported commute times, we may be underestimating the time savings associated with commutes.

We also estimated the reduction in gasoline consumption based on the age, make and model of car that respondents drive. We were also able to estimate reductions in tailpipe emissions that contribute to air pollution (carbon monoxide and nitrogen oxides) and to greenhouse gas production (carbon dioxide).

Finally, we estimated commuting costs, including fuel costs and the costs of insurance, maintenance and other costs of automobile ownership. For scenarios that include transit, we included the cost of a monthly bus pass. (See the appendix for a more detailed explanation of our methodology).

Scenario 1: a shorter commute by car

Living at one of these more central locations would reduce the miles workers would commute 7,736 fewer miles per year. This would in turn

reduce commute times by at least 172 hours over the course of a year, roughly cutting commute time in half.

The reduction in driving would result in an average driving distance of only 11.7 miles per day - well below the target average of 21 “vehicle miles travelled” per commuter adopted by the Community Action Network¹.

On average, those continuing to commute by car would save \$4,370 annually, or \$364 per month. For a household earning \$60,000, this would constitute 7.3% of annual income before taxes. For a household earning \$40,000, this is equivalent to almost 11 percent of annual income. For a household earning \$20,000, it would be 21.8 percent of annual income.

Scenario 2: commuting by bus

Since public transit lines serve all these central locations, we estimated the impact of commuting via transit, instead of by car, from respondents’ homes to workplaces. This resulted in a reduction in miles driven to zero, bringing further reductions in tailpipe emissions and costs.

On average, those switching to the bus would save \$5,631 compared to the costs of their current commute. This is the equivalent of 9.4 percent of a \$60,000 income, or 14 percent of a \$40,000 income. For a household earning \$20,000 per year, it would be 28 percent of annual income.

The average duration of a commute by public transportation that respondents would experience is 29 minutes, as estimated by CapMetro’s trip planner. Compared to our conservative estimate of current commute times, commuting by

bus does not save time. However, compared to the time that respondents themselves report spending on their commutes today, moving closer to work and taking the bus would save them 22 minutes each way, every day, or more than 183 hours a year.

By switching to the bus, these commuters would reduce their daily “vehicle miles travelled” to zero.

Scenario 3: community by bus, owning one less car

Our final scenario considers the impact of commuting by bus and getting rid of one car. In this scenario, we add savings in costs associated with owning a car. The net savings to households rise to \$9,231. This is equivalent to 15.4 percent of an annual income of \$60,000, 23 percent of an annual income of \$40,000 or a whopping 46.2 percent a \$20,000 income.

Time and VMT savings would be the same as in the second scenario. Presumably, the sale of the commute car would also result in a reduction in non-work driving too, generating further reductions in tailpipe emissions.

¹ CAN Dashboard, 2012. Vehicle Miles Travelled.

Benefit	Savings		
	Scenario 1	Scenario 2	Scenario 3
Yearly reduction in miles driven (per commuter)	7,736 miles	10,669 miles	10,669 miles
Yearly commuting costs saved, including fuel costs (per commuter)	\$4,370	+\$6,027 -\$ 396 (bus pass) = \$5,631	\$6,027 +\$3,600 (car savings) -\$ 396 (bus pass) =\$9,231
Percent of \$60,000 annual income	7.3%	9.4%	15.4%
Percent of \$40,000 annual income	11.0%	14.0%	23.0%
Yearly tailpipe emissions saved (per 100 commuters)			
Nitrogen oxides (NOx)	103 Kg	142 Kg	142 Kg
Carbon monoxide (CO)	892 Kg	1,230 Kg	1,230 Kg
Carbon dioxide (CO ₂)	338 tons	473 tons	473 tons
Yearly travel time saved (per commuter)*	172 hrs.	-6.25 hours	-6.25 hours
Yearly gasoline saved (per commuter)	352 gallons	487 gallons	487 gallons
Note: Scenarios two and three don't include all Movers because some of them do not work in transit-accessible places. They were left out of this portion of the analysis, as they would have to continue commuting by car. Also, the \$396 yearly bus fee covers only the regular bus. Some commuters would likely take the rail, which requires a more expensive pass. Finally, some employers--UT Austin and City of Austin included--provide transit fare for their employees; these would be added savings to the commuters. ⁱ *Time savings are based on google generated estimates of commute times, which were much lower than times reported by commuters.			

Table 14:
Benefits of Reduced
Commutes: three
scenarios

Summary

Were housing affordable to low income households to be available in central Austin, our survey suggests that the benefits to households choosing to move would be considerable. Based on our analysis of current commute costs and three scenarios for moving closer to work, we find that the savings in commute costs could be as high as \$9,231. For households with annual income below \$60,000, the savings would constitute a significant share of income, reducing the pressures on household budgets.

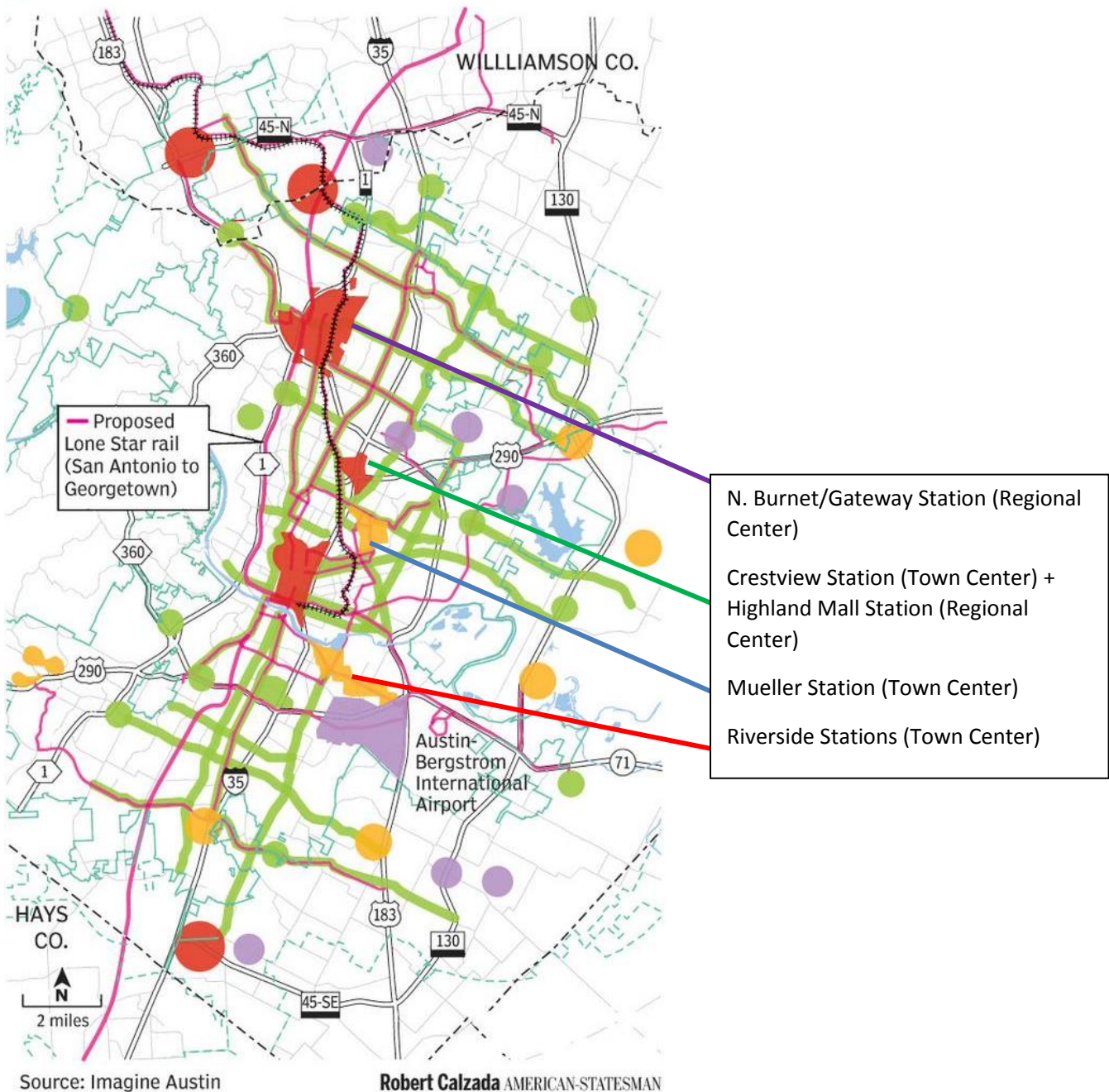
Estimates of time savings for movers ranged greatly, due to differences in commute times reported by respondents and those estimated by commuters themselves. Those continuing to

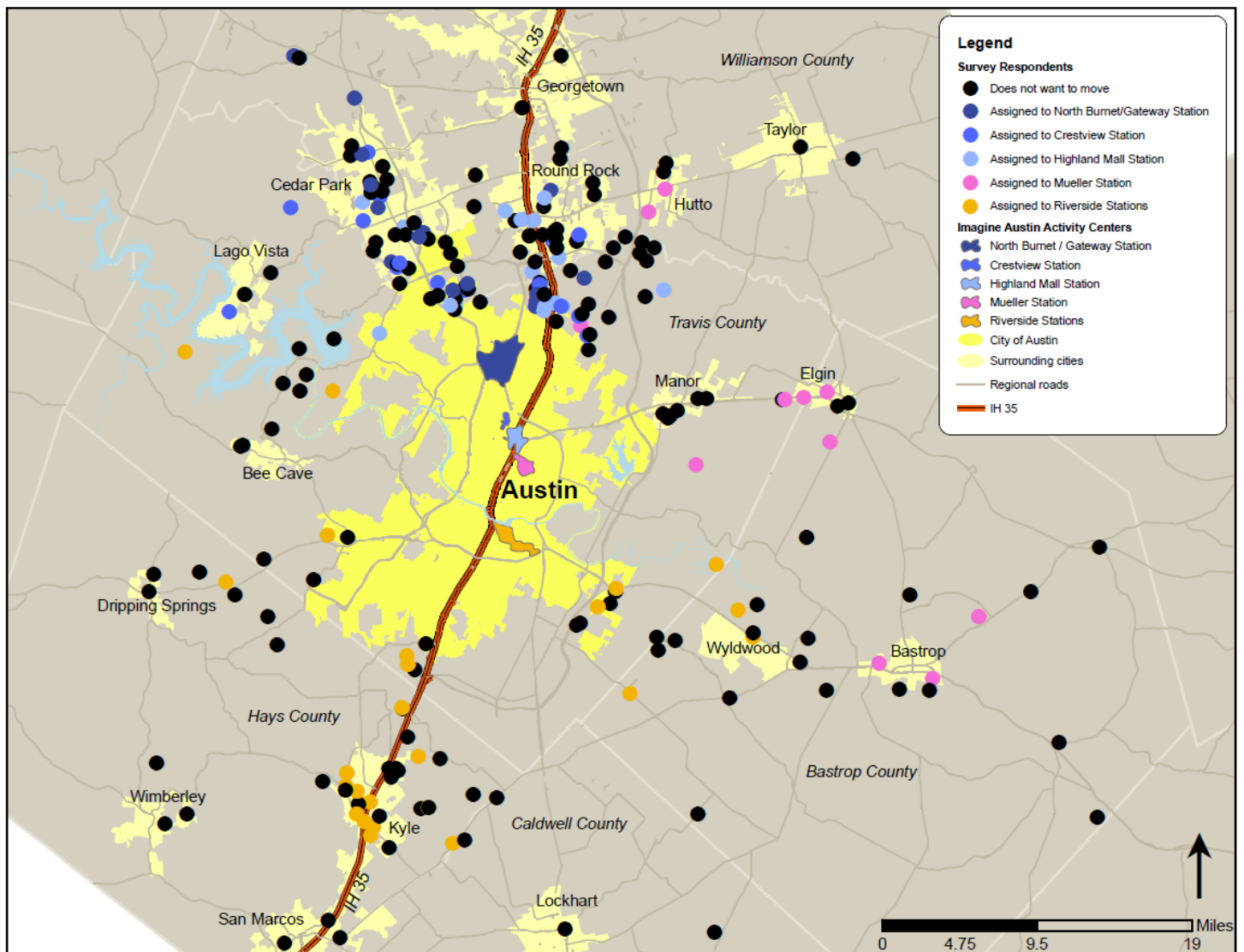
commute by car would see a substantial drop in commute times, of at least 40 minutes per day, possibly more. Time spent commuting by transit would average around 29 minutes in each direction—an improvement compared to self-reported commute times but a slight increase compared to google's estimates of baseline commute times.

Finally, all three scenarios promise reductions in "vehicle miles travelled" and thus in tailpipe emissions, including gases that produce toxic pollutants and also greenhouse gas. All three scenarios would reduce daily driving well below the per capita goals established by the Community Action Network for regional commuters.

Land use

- Regional center
- Town center
- Neighborhood center
- Mixed-use corridor
- Job center
- High capacity transit
- City of Austin
- - - Austin extra-territorial jurisdiction
- + + + + + MetroRail

Map 1: Imagine Austin Activity Centers



Map 2: Survey Respondants -Current and Assigned Locations

IV. Where do we go from here?

While there is currently great interest and understanding of the importance of created “mixed use” areas around transit stations and bus stops, there is less emphasis or understanding of the importance of ensuring that significant numbers of households with low to moderate incomes live in these location efficient. Our survey has established that many low wage commuters would prefer to live closer to work, and are interested in living in the types of communities envisioned by *Imagine Austin*. The potential benefit to these households and to the broader community are significant. For households, the reduction in commuting costs would be substantial, particularly for the lowest income households. An extra \$364-\$769 per month could help families meet other important expenses, such as health care, or child care, or go part way toward meeting the higher housing costs in central Austin. The reduced time spent commuting could yield health and quality of life benefits for these commuters. There would be benefits to the region in the form of reduced driving and tailpipe emissions, and in increased ridership for transit systems. Finally, making it possible for low and moderate income workers to live within easy access to key job centers would contribute to regional productivity and support our existing physical and institutional infrastructure.

We drew our random sample from a larger population of 5,230. If we generalize our results back to this population, we estimate that more than 2,500 low income workers at these two employers would be interested in living closer to work. To the extent that these workers represent the larger population of low income commuters, there are likely thousands more. What would it take to provide housing choices to these household - younger, low income households, many with children - in Austin?

Integrating planning for land use, housing and transportation

While city plans around the country now routinely call for land use and zoning practices that will enable people to carry out their daily tasks with less driving, planning, housing and transportation functions are typically housed in separate departments within cities with their own cultures and goals. Increasing housing choices will require integrating land use planning with transportation and housing planning. Specifically, it would mean ensuring that housing for current low income residents is preserved, while new opportunities are also created.

The creation of cross-department teams to implement *Imagine Austin's* priority programs is a positive step toward more integrated planning. Next steps should include more detailed discussion of how goals of different departments can be better aligned and what processes are required to ensure that conflicts between goals are identified and addressed. For example, preservation of existing rental housing may be seen as a priority for the achievement of housing goals, but as an impediment to urban design goals for transit corridors. Joint planning can identify ways to better integrate preserved buildings into district or corridor plans.

At the regional level, linking the CAMPO planning process to land use planning in member jurisdictions will be an important step in integrating goals. The Sustainable Places Project has recently developed a scenario planning process that can be linked to broader regional goals and could provide a basis for regional conversations about fostering better balance between jobs and housing, and connections to transportation systems.

Align budget processes to leverage benefits

It will also require coordinating the various processes governing the funds for each domain, including capital budgets, federal transportation budget requests, federal housing block grants and the use of development incentives. Planning and budgeting for these areas have historically been disconnected. Subsidies for affordable housing have historically been primarily federally funded, and have followed planning and compliance processes aimed at federal compliance. Federal transportation funds are governed by regional bodies with sometimes competing goals. Nonetheless, some regions have been successful in integrating land use and transportation planning¹.

Increasingly, competitive federal awards for housing and transportation projects require coordination between transportation and housing. For example, in the competition for federal transportation funding under the “new starts” program, communities that can demonstrate that they are prioritizing transit investment in areas with low income, transit dependent populations, and also have a plan in place and a record of progress toward preservation and development of affordable housing near transit will score best. Current discussions between Austin’s *Project Connect* and Neighborhood Housing and Community Development office are highlighting the need for a housing preservation plan that can be linked to transit goals.

Revise development rules and review processes

Austin is in the process of identifying aspects of its land development code that must be revised in order to achieve the goals of its newly adopted comprehensive plan, *Imagine Austin*. A key aspect of this revision should be to ensure that rules are designed to integrate goals and that review processes used to implement them should anticipate any conflicts between goals and have clear procedures for working through them in a coordinated way.

In particular, the new land development code will need to facilitate the addition of more types of housing in the areas of town designated for growth, and that are well served by transit. In addition to mixed use multifamily buildings, these might include small lot single family homes, and attached homes like the row houses or “Mueller houses” found in the Mueller neighborhood. It can also facilitate the addition of small, secondary units or “alley flats” behind single family homes, throughout the city. The addition of these housing types was recommended as a strategy for improving access to homeownership in the 2009 study of Austin’s housing market commissioned by the City of Austin’s Neighborhood Housing and Community Development Office.

Develop metrics to judge proposals and reward progress toward integrated goals - both locally and regionally

Finally, success will be more likely if we agree upon measures of success toward goals and are accountable for our progress toward them.

¹ See Handy, Susan. Transportation - Land Use Coordination in the Austin Region: Keys to Making it Happen. UTSOA/CSD. 2009. <http://soa.utexas.edu/files/csd/Handy-FinalOnlinePDF.pdf>

Our region has developed several sets of metrics for benchmarking progress toward city or regional goals, including the Community Action Network's Dashboard, the Central Texas Sustainability Indicators Project and the Opportunity Indices developed as part of the Opportunity Mapping project¹. At the project level, the Sustainable Places Project has developed a scenario planning tool useful in understanding some of the consequences of different development decisions². All of these provide useful data to draw upon for development of metrics linking progress on housing, transportation and land use. What is lacking is a conversation about metrics linked to integrated planning processes.

The range of activities employers can pursue can range from small grants to enable employees to purchase a home, to development of rental housing for employees.

Encourage private sector role in developing solutions

Public resources are limited and creative solutions will require partnerships with private sector actors. For example, employers concerned about the ability of their workers to live near work in other regions have developed initiatives to enable their employees to live closer to work. For example, the University of Chicago's Employer Assisted Housing program enabled many employees to live within walking distance of work, increasing employee satisfaction and the strength and stability of the neighborhoods surrounding campus³.

1 CAN Community Dashboard, <http://www.cancommunitydashboard.org/> ; Central Texas Sustainability Indicators Project, <http://soa.utexas.edu/csd/research/sustainability-indicators> ; Opportunity Mapping, <http://www.greendoors.org/programs/docs/Geography-of-Opportunity-Austin-2013.pdf> .

2 The Sustainable Places Project: <http://www.sustainable-placesproject.com/>.

3 Employer Assisted Housing, University of Chicago. <http://www.metroplanning.org/work/project/8/subpage/1>

Acknowledgements

The authors would like to thank the UT and City of Austin employees who took the time to answer the survey and whose comments helped us to improve the clarity of some of the survey questions. We also thank the staff members at the University of Texas and the City of Austin who made it possible for us to draw our sample and distribute the survey. In particular, we thank John Moore at the University of Texas, and Karen Sharp, Paul Lloyd and Rebecca Giello at the City of Austin. We thank City Manager Mark Ott for his support and his willingness to encourage city employees to respond. For research assistance, we thank Marla Torrado and Isabelle Headrick. We drew inspiration for the study from a study of similar issues conducted for the Asheville region by researchers at the University of North Carolina's Center for Urban and Regional Studies. We thank Bill Rohe, one of the research team, for discussing their work with us. Finally, we appreciate the support of Chad Coburn at the Capital Area Council of Governments. This project was part of the larger Sustainable Places Project that CAPCOG administered, with funding from the US Department of Housing and Urban Development's Office of Sustainable Housing and Communities.

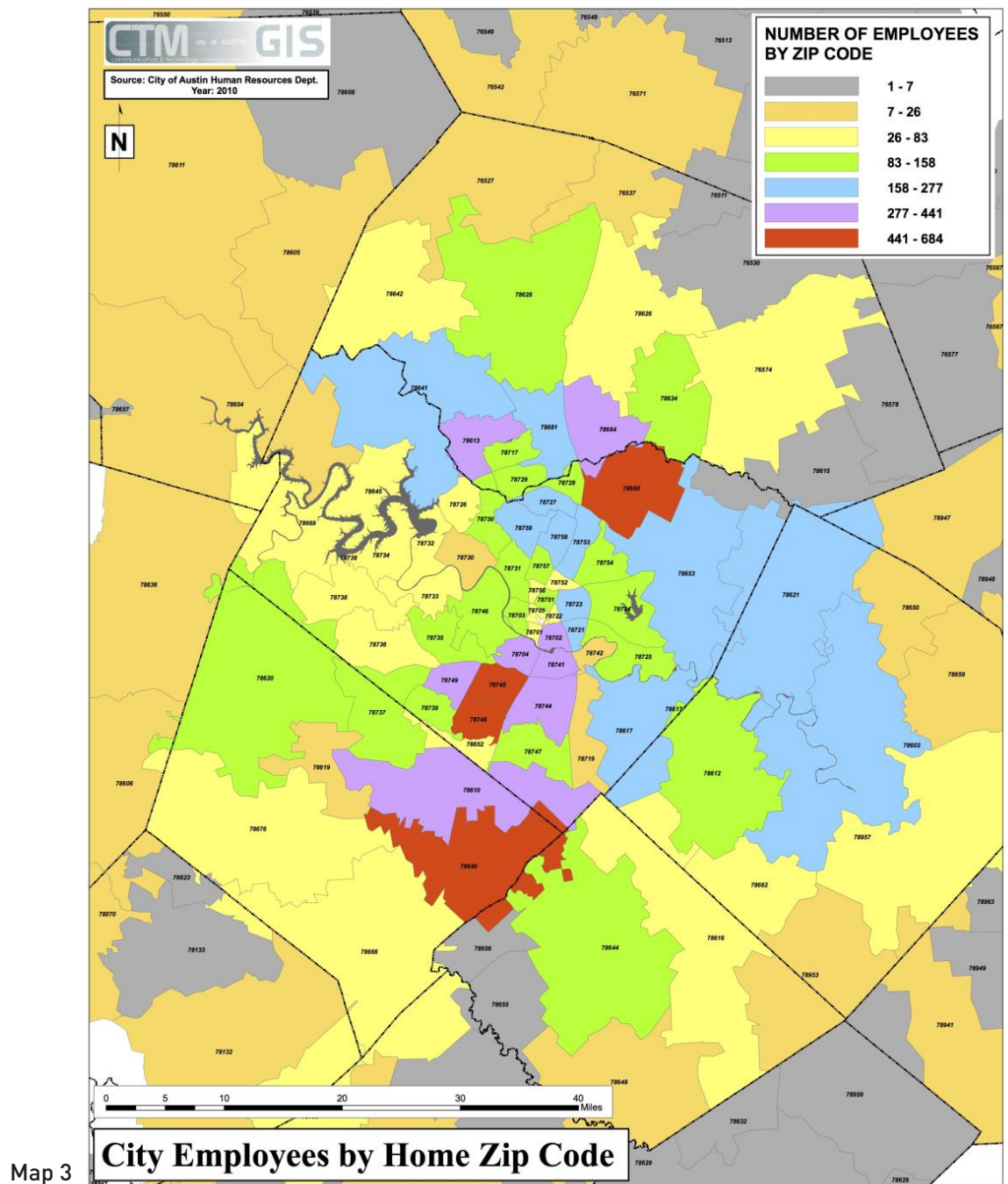
Appendix

Methodology for Conducting the Survey

To determine the percentage of low- and medium-wage workers who would be willing to move to central Austin from the urban fringe and beyond, we conducted a survey of 928 workers who live more than 10 miles from the city center and earn less than \$60 thousand per year working for either one of two large local employers, The City of Austin and the University of Texas at Austin. The University of Texas survey was conducted by campus mail, while the City of Austin survey was distributed via email and, for those without email addresses, via departmental mail. Those receiving hard copy surveys had the option of completing and submitting those or responding to an online version. Those contacted by email responded to an online survey. The response rate was 34.5 percent. Respondents were asked for their home and work addresses, and those who reported that they already live within 10 miles of their workplaces were not included in our analysis. The number of survey respondents included in our analysis was 267.

Employer	Met criteria	Sample drawn	No longer employed*+	Adjusted sample	Responses	Response rate
UT	2181	446	9	437	208	47.6%
COA	3165	499	8	491	112	22.8%
Overall	5346	945	13	928	320	34.5%
Notes: + indicates surveys returned because person was no longer an employee. In addition, 53 surveys were removed from our analysis because respondents indicated that they lived within 10 miles of their workplaces. The effective sample size was thus 267.						

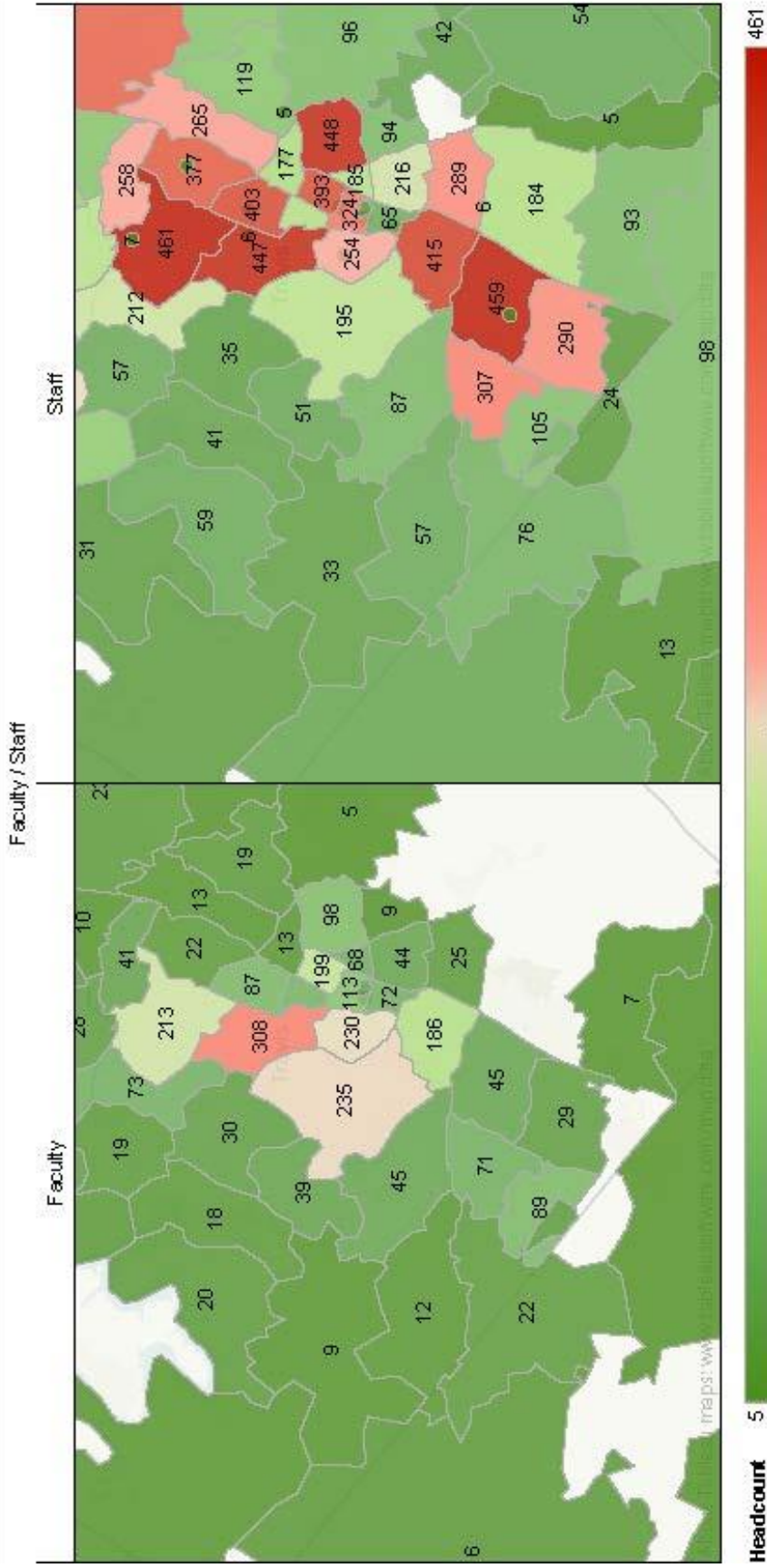
The survey asked respondents about their commuting habits (including how often they drive alone to work), the effects that their commute has on their quality of life and finances, their willingness to move closer to work, and the major factors they consider when considering a move closer to work. Demographic questions were also included in the survey.



This map shows the number of City of Austin employees that live in each Austin area zip code. The number of city employees living more than 10 miles from central Austin is in the thousands.

Source: City of Austin Human Resources Department, 2010.

September 2013 Headcounts



Data Source: Historical Employee Data (1995, 2000, 2010) and Current Employee Data

Date Data Effective: September 25, 2013

Date Created: October 10, 2013

Notes: The headcounts in the trend data only include Benefits Eligible employees while the 2013 mpa includes all faculty and staff, regardless of benefits eligibility. Any zip code with less than 5 employees were excluded. Only zip codes in the following counties were included: Bastrop, Blanco, Burnet, Caldwell, Hays, Travis and Williamson. Zip Codes are self-reported by the individual employee.

Methodology for conducting the impact analysis

To calculate the potential savings (economic, environmental, and quality-of-life) of shorter commute distances, we used information attained in the survey and applied it to potential scenarios.

The survey asked respondents for their home and work addresses and for the make, model, and year of their cars. It also asked them how often they drive alone to work as opposed to carpooling or using other modes of transportation. With respondents' home and work addresses, we used an application programming interface (API) created by Google Inc. to access Google's trip calculator, which printed out commute distances for each survey respondent. We reviewed this printout and investigated the outlying results. In most cases, these outlying results were in fact errors due to an error in one of the addresses. In these cases, the address errors were corrected and the calculator was run again.

For the purposes of the impact analysis, each respondent who said they would chose to move closer to work if they could was assigned to one of five potential housing sites in central Austin. These five sites were selected from among the Activity Centers listed in Austin's 2011 comprehensive plan, *Imagine Austin*. These Activity Centers are places that the city is currently developing or planning to develop mixed-use developments in over the next 15 years. We selected four medium-sized sites (planned capacity of 10,000-30,000 residents) and one large site (planned capacity of 25,000-45,000 residents). Having selected the five potential housing sites, we assigned respondents who currently live south of the Colorado River to the southernmost site, Riverside Station. Respondents living north of the river and east of I-35 were assigned to the easternmost site, Mueller Station. Respondents living north of the river and west of I-35 were assigned randomly to one of the three remaining sites located in north-central Austin: North Burnet/Gateway Station, Crestview Station, and Highland Mall Station. These sites are located close enough to each other that distinguishing between them for the purposes of these assignments was not practical or necessary. The reason we made the potential housing site assignments geographically as described above is because we believe that people who move into central Austin are likely to seek housing options that are nearest to where they currently live and where they are most likely to have existing community ties.

Once we had made the housing assignments, we used the same Google trip calculator to estimate respondents' new driving commute distances under Scenario 1: Driving. By subtracting the new (scenario based) driving commute distances from their actual current commute distances, we calculated the savings in commuting VMT for each respondent. All of our subsequent impact calculations for Scenario 1 were made from this VMT savings number, and were done following the methodology used by Rohe et al. They are described in the subsequent sections, along with the methodologies for calculating savings in Scenario 2: Transit and Scenario 3: Transit + Car-drop.

Calculating Distance, Time, and Monetary Savings

Commuting distance savings were calculated by subtracting potential scenario-based commute distances from actual current commute distances. In accordance with Rohe et al.'s methodology, time savings were calculated assuming a 45 mph driving rate. Because much rush-hour commuting takes place at rates less than 45 mph, this method results in a conservative estimate of time savings to each commuter.

As described above, driving distances for Scenario 1: Driving were calculated by Google trip calculator and subtracted from respondents' current commutes to calculate savings. By definition, Scenario 2: Transit and Scenario 3: Transit + Car-drop presuppose no driving commute, so the driving distance savings in these two scenarios are equal to respondents' current commutes. Commute times for these two scenarios were calculated by CapMetro's trip planner, which reports duration estimates for transit trips around Austin. In a few cases, respondents' work places are not accessible by public transit; these respondents were not included in the analysis for Scenario 2 or Scenario 3.

Financial savings associated with a reduction in miles driven were calculated using the Internal Revenue Service (IRS) standard mileage rate, which is generated each year to calculate the deductible costs of operating an automobile for business. In 2013, the rate was 56.5 cents per mile driven. (http://www.irs.gov/publications/p334/ch08.html#en_US_2013_publink1000313502). For Scenario 1: Driving, this rate was multiplied by the yearly savings in miles driven that would accrue to respondents by their moving to one of the Activity Centers. For Scenario 2: Transit, the 56.5 cents per minutes rate was multiplied by respondents' current yearly commute distance to calculate savings. The cost of 12 monthly bus passes (at \$33 each) was subtracted from these savings to calculate net savings under this scenario. Net savings for Scenario 3: Transit + Car-drop, was calculated from the Scenario 2 savings plus additional savings of \$3600, which the Victoria Transport Policy Institute estimates as the fixed yearly cost of owning a vehicle. (<http://www.vtpi.org/tca/tca0501.pdf>).

Environmental Pollutant Savings

The reductions in nitrogen oxide (NO_x) and carbon monoxide (CO) emissions that would result from shorter commutes were calculated for each individual respondent, according to data provided by the EPA Office of Transportation and Air Quality for the specific cars (make, model, and year) that respondents reported driving (<http://www.epa.gov/otaq/crttst.htm>). Once again, Rohe et al.'s methodology was followed.

To calculate carbon dioxide (CO₂) emissions reductions, we used Rohe et al.'s figure of 19.4 lbs of CO₂ resulting from every gallon of gasoline combusted in a car. Fuel efficiency data for each respondent's car was gathered from the EPA and Department of Energy Efficiency and Renewable Energy's website (<http://www.fueleconomy.gov/>). In each of the above cases, total emissions savings are a product of the emissions rate reported by the EPA and the driving miles saved under each scenario.

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