

A HEAVY LOAD:

The Combined Housing and Transportation Burdens of Working Families



October 2006



*Dedicated to
Robert Reid, former executive director,
and Maria Sayers, former director of development,
with thanks for their years of service
to the Center for Housing Policy.*

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CENTER FOR HOUSING POLICY

OCTOBER 2006

A HEAVY LOAD:

The Combined Housing and Transportation
Burdens of Working Families

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by the John D. and Catherine T. MacArthur Foundation*



Message from the Center for Housing Policy Chairman Kent W. Colton

NATIONALLY, FOR EVERY DOLLAR a working family saves on housing, it spends 77 cents more on transportation. This was one of the dramatic findings from the Center's earlier study, *Something's Gotta Give*, which reflects the basic tradeoff many working families face between paying a greater share of their income for housing or enduring long commutes and high transportation costs. But how does this tradeoff play out at the local level? Are there metropolitan areas in which this tradeoff is more or less pronounced? Where do working families end up living within each area, and how does the availability of housing affect their choices? And how does the varying cost of housing and transportation within a region affect families' combined housing and transportation burdens?

To answer those questions, the Center conducted a new study whose results are summarized in this publication. **Among other innovations, this study presents, for the first time, the combined housing and transportation cost burdens of working families in 28 metropolitan areas at the neighborhood level.** It also provides an overview of where working families live in each of the 28 areas and how their location decisions affect their commute times and costs. The study provides a particularly detailed look at 10 metropolitan areas—Atlanta, Chicago, Dallas-Ft. Worth, Denver, Greater Los Angeles, New York City, Pittsburgh, Portland, the San Francisco Bay Area, and Washington D.C.-Baltimore. Detailed information on these and the other 18 metropolitan areas studied is available at: <http://www.nhc.org/index/heavyload>.

On average, the study found that working families in the 28 metropolitan areas spend about 57 percent of their incomes on the combined costs of housing and transportation, with roughly 28 percent of income going for housing and 29 percent going for transportation. While the share of income devoted to housing or transportation varies from area to area, the combined costs of the two expenses are surprisingly constant. In areas where families spend more on housing, they tend to spend less on transportation, and vice-versa. However, in

all the metropolitan areas there are neighborhoods where working families are saddled with both high housing and high transportation cost burdens.

In their search for lower cost housing, working families often locate far from their place of work, dramatically increasing their transportation costs and commute times. Indeed, for many such families, their transportation costs exceed their housing costs. Recent census data suggest this trend may be accelerating. Of the 20 fastest growing counties in the United States, 15 are located 30 miles or more from the closest central business district.

The study also found impacts on the community. As more and more working families commute to distant job centers from their homes, clogged and congested roads become the norm in surrounding communities.

A growing number of communities are identifying the lack of affordable housing and the increase in commute times and traffic congestion as priority issues. But they haven't always linked these two sets of issues. This study suggests it is imperative for cities and regions to consider housing and transportation policy together. The study also points to the importance of infill development that expands the supply of affordable housing in inner city and older suburban neighborhoods that have good access to traditional job centers; the development of more affordable housing near transportation hubs and suburban employment centers; providing good quality and reliable transit for suburb to suburb commuting, as well as for helping families in the outer suburbs get into the central city; and policies to encourage car sharing and to reduce the costs of car ownership for families who cannot easily get to work via public transit.

The Center hopes the information in this report will be a catalyst for the development of more integrated policymaking at the local, regional and national levels that helps to reduce the heavy load of housing and transportation for working families and the communities in which they live.

Acknowledgements

The Center for Housing Policy thanks the John D. and Catherine T. MacArthur Foundation for funding *A Heavy Load: The Combined Housing and Transportation Burdens of Working Families*. We also wish to thank the following contributors for their financial support of the Center.

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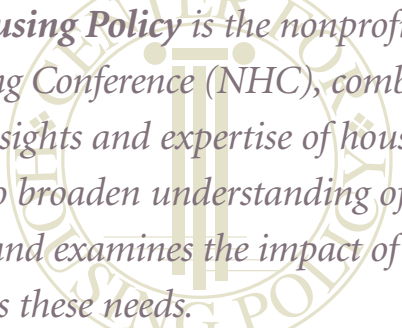
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The Center for Housing Policy is the nonprofit research affiliate of the National Housing Conference (NHC), combining state-of-the-art research with the insights and expertise of housing practitioners. The Center works to broaden understanding of America's affordable housing challenges and examines the impact of policies and programs developed to address these needs.

About the Contributors

The **Center for Neighborhood Technology** (CNT) is a nationally recognized leader in the promotion and development of more livable and sustainable communities. CNT strives to recognize, preserve and enhance the value of hidden assets and undervalued resources inherent in our urban environment to make households, neighborhoods and regions more efficient, more economically viable and more equitable. Over 28 years, this work has created leading policies and markets for dynamic new approaches to meeting the nation's housing, transportation, energy and environmental needs. CNT co-developed the Location Efficient Mortgage and the new Housing + Transportation Affordability Index, as well as other products that support sustainable communities.

The **Institute of Transportation Studies (ITS) at the University of California, Berkeley** is a nationally renowned center of transportation research that has a close working relationship with the California Department of Transportation. Each year nearly two hundred faculty, students and professional research staff participate in its many projects. The goal of ITS is to carry out basic and applied research and advanced professional training on all aspects of transportation with rigor and objectivity. It focuses especially on projects that address transportation policy, technology, the safety and performance of transportation systems, and relationships between transportation and the social, economic and natural elements of the environment.

The Center thanks the members of the Project Advisory Group for their contributions to this project:

Anne Canby, *Surface Transportation Policy Project*, Robert Dunphy, *Urban Land Institute*, Elizabeth Roberto, *U.S. Department of Transportation*, and Kathryn P. Nelson and John K. McIlwain, both of the *Center for Housing Policy Advisory Council*.

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Understanding the Housing and Transportation Constraints and Choices of Working Families

TYPICAL HOUSEHOLD BUDGET IN 28 METROPOLITAN AREAS (Expenses as a share of income)

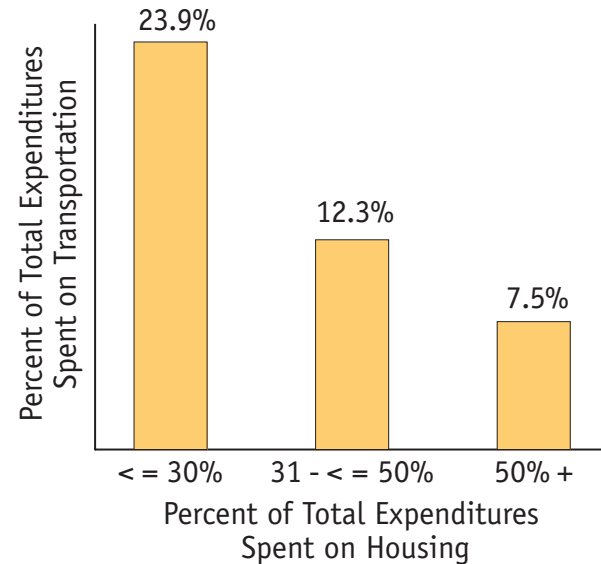
	All Households	Working Families Incomes \$20,000 – \$50,000
Housing	27.4%	27.7%
Transportation	20.2%	29.6%
Food	10.6%	15.1%
Healthcare	4.7%	7.7%

Note: Housing costs include mortgage payments, operating costs and utilities for homeowners and contract rent and utilities for renters; transportation costs include the cost of owning and operating a vehicle and the cost of public transit.

Source: Figures derived by the Center for Neighborhood Technology (CNT) and the Center for Housing Policy from the 2000 Census of the U.S. Census Bureau and the 2002 and 2004 Consumer Expenditure Surveys of the Bureau of Labor Statistics.

HOUSING AND TRANSPORTATION are the two largest expenses for most households in the 28 metropolitan areas in this study. For households of all income levels, 27 percent of income goes for housing alone and another one-fifth goes to the cost of getting around. Together these items account for almost 48 percent of household income. Working Families with incomes between \$20,000 and \$50,000 spend a similar percentage of income on housing; however, their transportation costs consume almost 30 percent of their income.

Households that Spend More of Their Budget on Housing Spend Less on Transportation

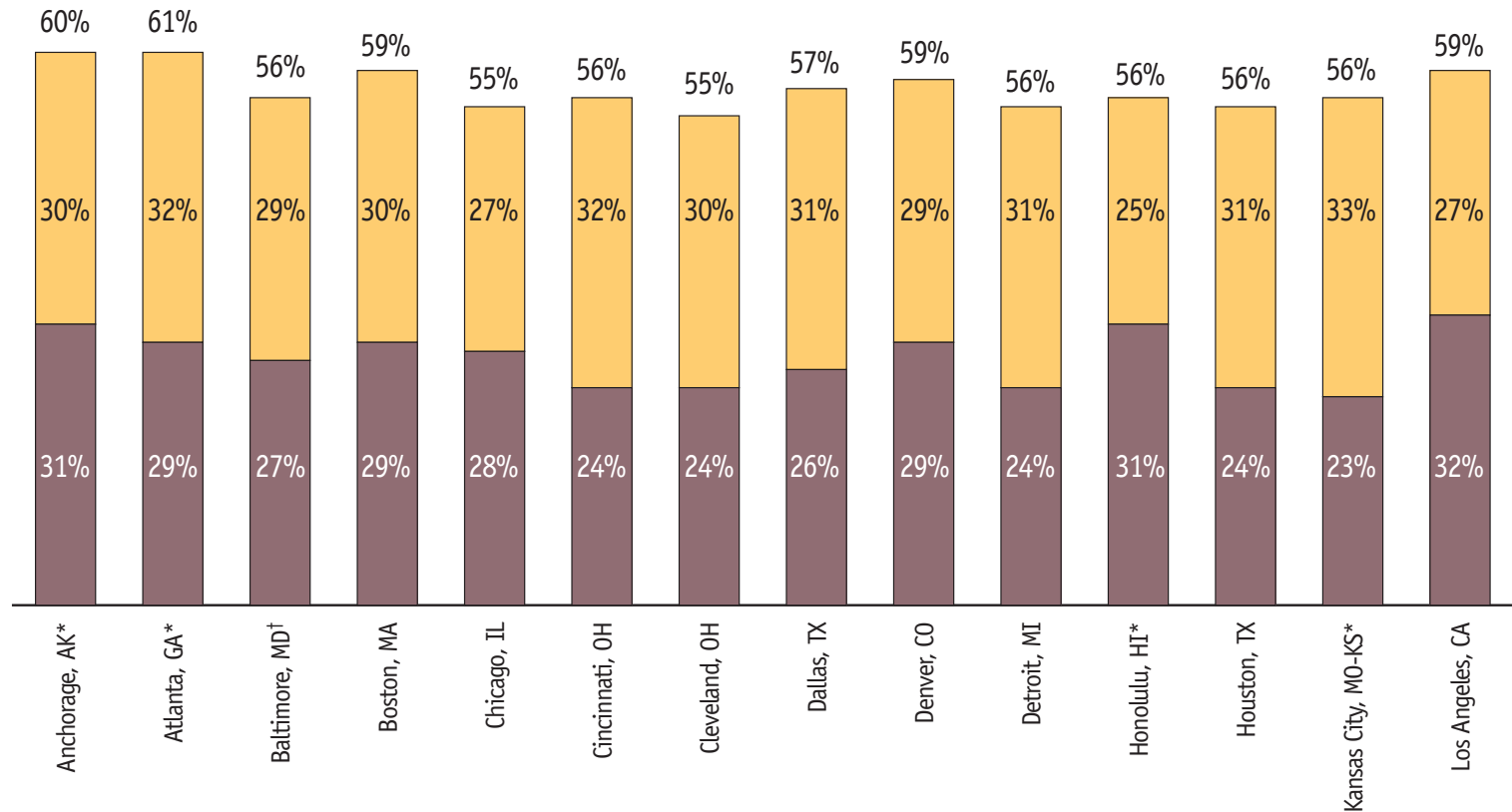


Source: Calculations of the 2002 Consumer Expenditure Survey by the Economic Policy Institute, *Something's Gotta Give*, Center for Housing Policy, 2005. Figures are for Working Families defined as households with incomes between full time minimum wage (\$10,712 per year) and 120% of the regional median.

WE KNOW FROM OUR PRIOR STUDIES that there is a clear trade off between the housing and transportation expenses of Working Families. Families that spend more than half of their total household expenditures on housing put 7.5 percent of their budget towards transportation. By contrast, families that spend 30 percent or less of their total budget on housing spend nearly one-quarter of their budget on transportation — three times as much as those in less affordable housing.

Our new study seeks to “get behind” this national figure and better understand how the combined housing and transportation burdens of Working Families vary from one metropolitan area to another, as well as along other key dimensions of “place.”

What Working Families¹ Spend



Source: Center for Neighborhood Technology calculations.

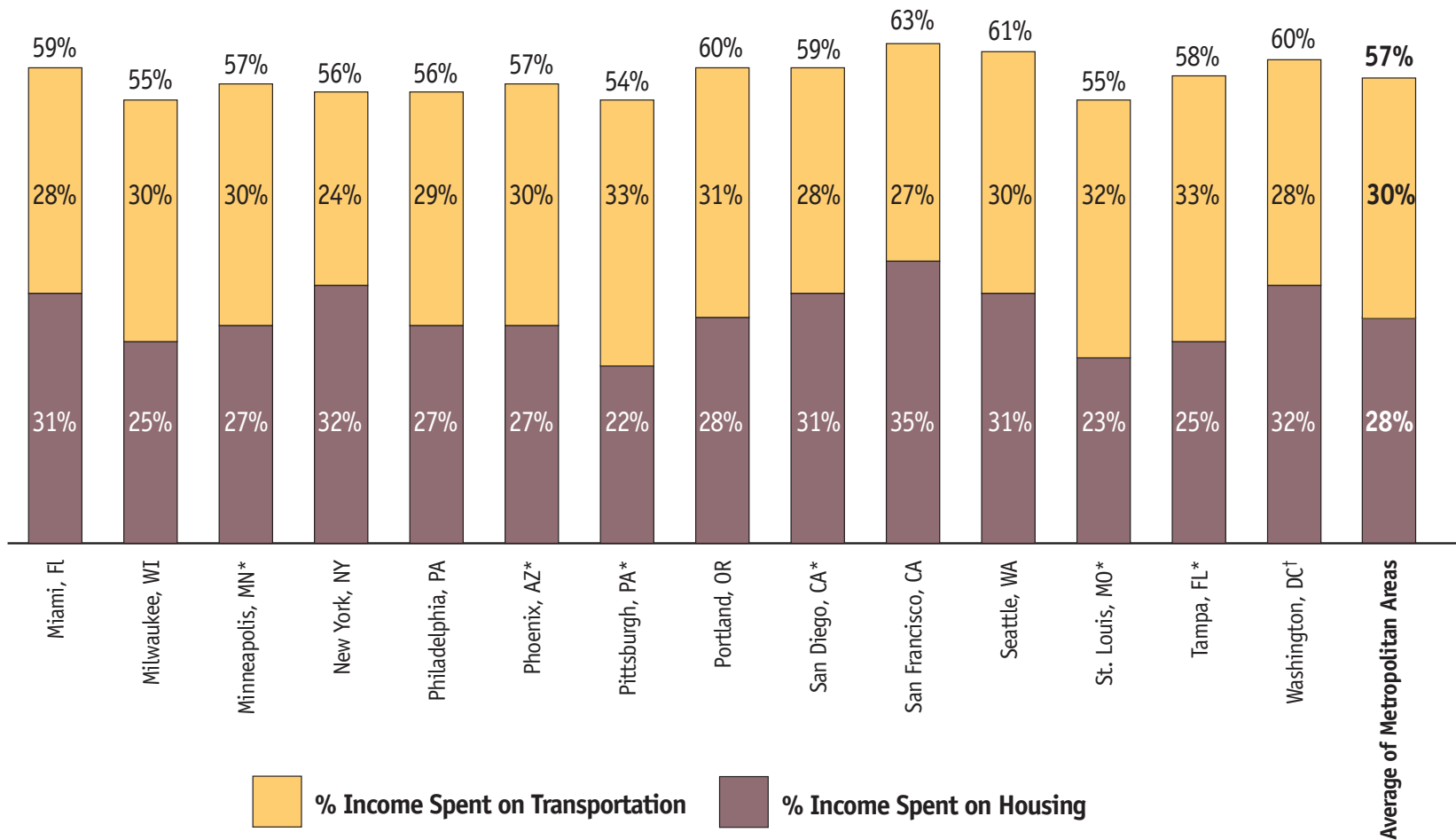
¹Working Families are households with incomes between \$20,000 and \$50,000.

NOTE: All areas are Consolidated Metropolitan Statistical Areas except as follows. Those marked "*" are Metropolitan Statistical Areas and those marked "†" are Primary Metropolitan Statistical Areas. Combined totals may reflect slight differences due to rounding.

Similar Burdens Across the Country

AS THIS VIEW ACROSS 28 METROPOLITAN AREAS SHOWS, the combined housing-transportation cost burden for families with incomes between \$20,000 and \$50,000 is remarkably similar from one area to another. Although these combined costs range from a low of 54 percent in Pittsburgh to a high of 63 percent in San Francisco, the combined totals in most metropolitan areas hover around the average of 57 percent.

on Housing and Transportation



The Big Tradeoff

NOTE THAT THE SPLIT IN THE SHARE OF HOUSING versus transportation expenditures varies from area to area but the totals for combined expenditures remain roughly the same. This reflects the tradeoff Working Families make in balancing these costs. In 17 of the 28 metro areas, average transportation costs for Working Families are as high as or higher than housing costs.

How Low-to-Moderate Income Workers¹ Get to Work

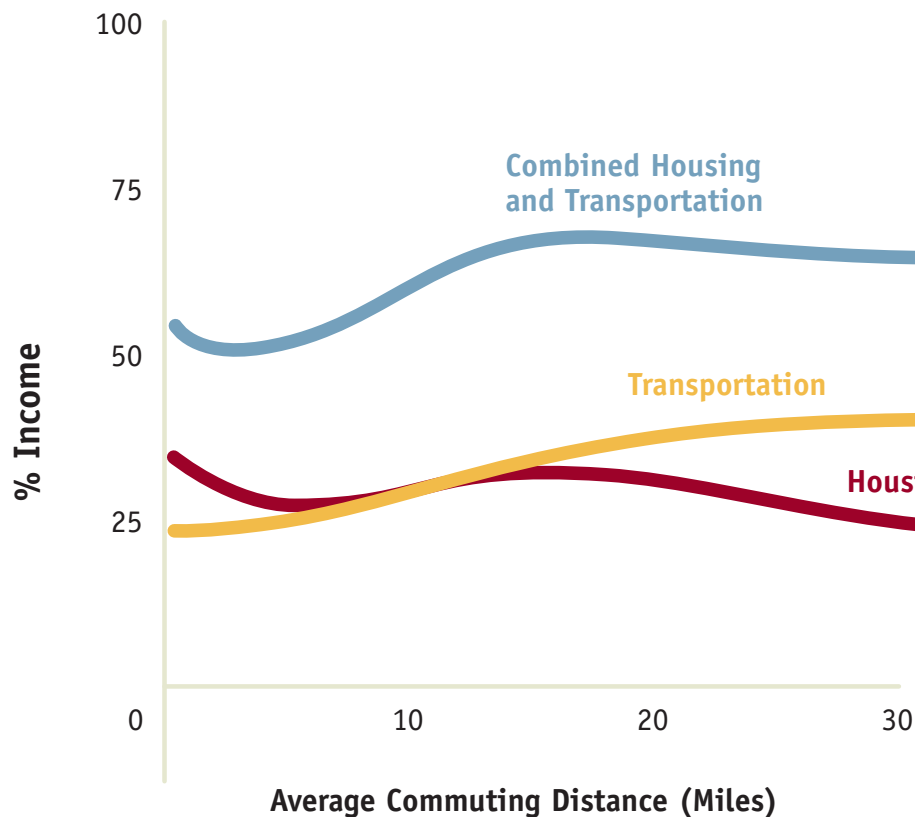
MOST LOW-TO-MODERATE INCOME WORKERS — more than 85 percent — drive to work in private vehicles. That said, some metro areas do offer alternatives. Commuters in Boston, Philadelphia, San Francisco and Washington D.C.- Baltimore, for example, ride extensive rail systems as well as buses to work. In New York, almost one-third of workers take public transit. Even where public transit is heavily used, however, many households own vehicles for errands, weekend trips and work trips for another family member. The figure on the right shows total average transportation costs for low-to-moderate income workers in each metropolitan area, taking all household transportation costs into account.

Place	Percent taking Private Vehicle	Percent taking Public Transit	Percent Walking or Biking	Percent Working from Home or Other	Average Total Transportation Cost
Anchorage, AK*	89%	3%	4%	4%	\$9,851
Atlanta, GA*	90%	5%	2%	3%	\$10,890
Baltimore, MD†	80%	13%	4%	3%	\$9,506
Boston, MA	80%	12%	5%	3%	\$10,036
Chicago, IL	79%	14%	4%	3%	\$9,144
Cincinnati, OH	90%	4%	3%	3%	\$10,714
Cleveland, OH	90%	4%	3%	3%	\$10,023
Dallas, TX	93%	2%	2%	3%	\$10,181
Denver, CO	87%	6%	4%	4%	\$9,408
Detroit, MI	92%	3%	3%	3%	\$10,318
Honolulu, HI*	77%	12%	7%	4%	\$8,170
Houston, TX	91%	4%	2%	3%	\$10,262
Kansas City, MO-KS*	93%	2%	2%	4%	\$10,872
Los Angeles, CA	85%	7%	4%	4%	\$8,871
Miami, FL	89%	5%	3%	3%	\$9,102
Milwaukee, WI	88%	6%	4%	3%	\$10,030
Minneapolis, MN*	85%	7%	4%	4%	\$10,030
New York, NY	58%	31%	8%	3%	\$7,880
Philadelphia, PA	79%	12%	5%	3%	\$9,518
Phoenix, AZ*	89%	3%	4%	4%	\$9,923
Pittsburgh, PA*	86%	8%	4%	3%	\$10,590
Portland, OR	84%	7%	4%	5%	\$10,383
San Diego, CA*	88%	5%	3%	4%	\$9,225
San Francisco, CA	77%	12%	6%	4%	\$9,065
Seattle, WA	82%	9%	5%	4%	\$9,903
St. Louis, MO*	92%	3%	2%	3%	\$10,543
Tampa, FL*	93%	2%	3%	3%	\$10,633
Washington, DC†	80%	13%	4%	3%	\$9,625

Source: Center for Neighborhood Technology calculations.

¹These are workers from Working Families with incomes between \$20,000 and \$50,000.

NOTE: All areas are Consolidated Metropolitan Statistical Areas except as follows. Those marked “*” are Metropolitan Statistical Areas and those marked “†” are Primary Metropolitan Statistical Areas. Comined totals may reflect slight differences due to rounding.



Source: Center for Neighborhood Technology calculations.

Many Working Families¹ that Move Far from Work to Find Affordable Housing End Up Spending Their Savings on Transportation

“DRIVE ‘TIL YOU QUALIFY” is an option used by many Working Families seeking affordable housing by moving to far-flung suburbs. Others, by necessity, live in inner-city or inner-suburban locations where affordable housing is located, but access to suburban jobs is limited. But for many Working Families their effort to save on housing expenses leads to higher transportation costs—and an even larger portion of their budget consumed by both items.

Within metropolitan areas, housing costs tend to fall as one moves further away from employment centers,* although housing in some neighborhoods close to suburban job centers commands a premium. There also are some pockets of affordable housing close to center city business districts. In the exurban areas that are the greatest distance to employment centers, prices are considerably lower or, at least, more or better quality housing can be purchased per dollar spent on housing.

Transportation costs, on the other hand, tend to increase along with commuting distance. At some distance, generally 12 to 15 miles, the increase in transportation costs outweighs the savings on housing—and the share of household income required to meet these combined expenditures rises.

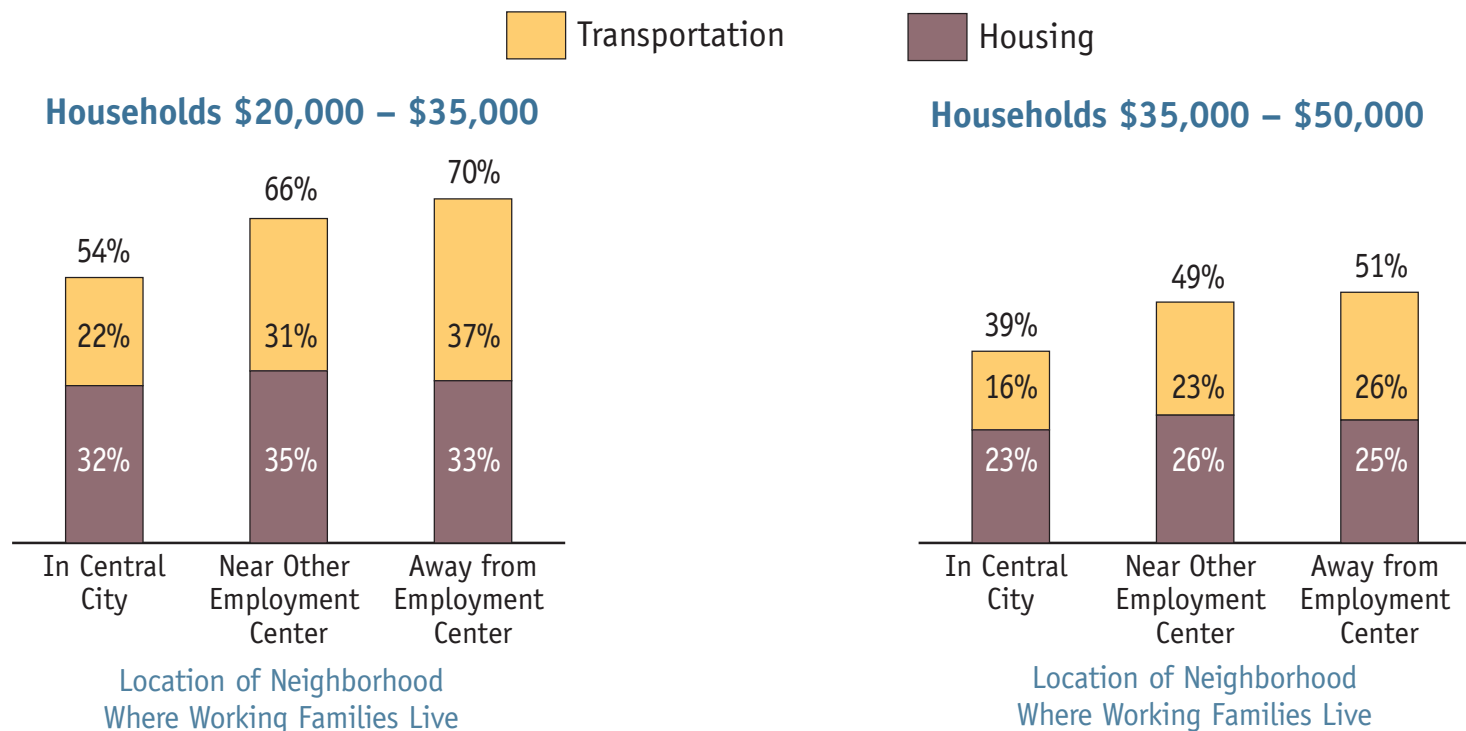
¹Working Families are households with incomes between \$20,000 and \$50,000.

*Employment centers are job locations with a minimum of 5,000 employees.

Life on the Fringes: the Further a Neighborhood is from Employment Centers the More Likely Transportation Costs Predominate

A TRIP FROM SUBURB TO CENTRAL CITY no longer describes the typical commute in many metropolitan areas of the country. As jobs have suburbanized, many commuters make their way from suburb to secondary city or from exurban community to other employment centers in the region as well as central city locations. As these graphs show, the combined cost of housing and transportation increases with distance to employment centers. For Working Families living in neighborhoods far from employment centers, especially those in the \$20,000 - \$35,000 bracket, combined housing and transportation costs consume a particularly large share of income, with transportation costs exceeding those for housing.

Share of Income Spent on Housing and Transportation



Source: Center for Neighborhood Technology calculations.

NOTE: Employment centers are job locations with a minimum of 5,000 employees.

Housing + Transportation = A More Complete Picture of Affordability in Neighborhoods

Neighborhood Types by Housing and Transportation Expenditures as a Share of Typical Household Incomes in Each Neighborhood

HIGH SHARE OF INCOME ON HOUSING

HIGH HOUSING COST BURDENS

Mixed Income Urban Community: Neighborhoods with high housing prices, but low transportation costs, and a mix of incomes with a slightly higher percentage of higher incomes. These places tend to be urban, near jobs and near alternative transportation options and are the most diverse.

*41% earn \$50,000 or more
Avg. Income: \$52,184*

HIGH HOUSING AND HIGH TRANSPORTATION COST BURDENS

Lower Income Urban/Inner-Suburban Community: Neighborhoods with low incomes and therefore above average expenditures on both housing and transportation relative to incomes. These places tend to be urban areas segregated by race and income, inner-suburbs with fewer jobs and, in some regions, outer suburbs or satellite cities away from jobs and services and close to rural areas.

*30% earn \$50,000 or more
Avg. Income: \$41,387*

LOW SHARE OF INCOME ON HOUSING

LOW HOUSING AND LOW TRANSPORTATION COST BURDENS

Wealthy Suburban Community: Neighborhoods with higher incomes and therefore below average expenditures on both housing and transportation. These places tend to be suburban.

*67% earn \$50,000 or more
Avg. Income: \$76,444*

HIGH TRANSPORTATION COST BURDENS

Moderate Income Exurb: Neighborhoods with moderate incomes and moderate housing prices but exceptionally high transportation costs due to long distances to services and employment. These places are primarily in exurban areas.

*52% earn \$50,000 or more
Avg. Income: \$58,529*

LOW SHARE OF INCOME ON TRANSPORTATION

HIGH SHARE OF INCOME ON TRANSPORTATION

NOTE:

The label "High" or "Low" does not refer to the dollar price of housing and transportation in a given neighborhood. Rather, "High" means these costs are a larger share of income compared to the regional average; "Low" means these costs are a smaller share of income compared to the regional average.

Source: Center for Neighborhood Technology calculations.

Who Lives Where — A Demographic Profile of Neighborhoods by Cost Burdens

HOUSEHOLDS IN HIGH HOUSING COST BURDEN NEIGHBORHOODS:

- Median income — \$43,824
- % Homeownership — 33% Renters — 66%
- % College graduates — 33%
- White — 58% Black — 20% Hispanic — 18%
- Average Household Size — 2.6
- % Married with Children — 18%
- % Single Parents — 10%

HOUSEHOLDS IN HIGH HOUSING AND HIGH TRANSPORTATION COST BURDEN NEIGHBORHOODS:

- Median income — \$31,718
- % Homeownership — 42% % Renters — 58%
- % College graduates — 13%
- White — 47% Black — 32% Hispanic — 25%
- Average Household Size — 3.21
- % Married with Children — 19%
- % Single Parents — 16%

HOUSEHOLDS IN LOW HOUSING AND LOW TRANSPORTATION COST BURDEN NEIGHBORHOODS:

- Median income — \$70,428
- % Homeownership — 75% % Renters — 25%
- % College graduates — 41%
- White — 81% Black — 6% Hispanic — 9%
- Average Household Size — 3.96
- % Married with Children — 29%
- % Single Parents — 5%

HOUSEHOLDS IN HIGH TRANSPORTATION COST BURDEN NEIGHBORHOODS:

- Median income — \$50,119
- % Homeownership — 73% Renters — 27%
- % College graduates — 20%
- White — 81% Black — 7% Hispanic — 13%
- Average Household Size — 4.35
- % Married with Children — 27%
- % Single Parents — 8%

Source: Center for Neighborhood Technology calculations.

Another View of Commuting Burdens: Time, Speed and Public Transit Use by Neighborhood

THE PREDOMINANTLY MODERATE-INCOME HOUSEHOLDS in **High Transportation Cost Burden** neighborhoods have the longest commute times and greatest distances to work, both by auto and by transit, contributing to very high transportation costs, whether measured by time or price. They also have the fewest alternative transportation options. A detailed study of six metro areas revealed that these are the neighborhoods with the greatest share of workers leaving home by 6:00 a.m. Two other neighborhood types — neighborhoods with **High Housing Cost Burdens** and **High Housing and High Transportation Cost Burdens** — are home to a greater number of residents who commute by (often slower) public transit.

HIGH HOUSING COST BURDENS

	Auto	Transit
Ridership	77%	23%
Time	27 min	46 min
Distance	8 miles	6 miles
Speed	18 mph	9 mph

	Auto	Transit
Ridership	89%	11%
Time	27 min	50 min
Distance	9 miles	8 miles
Speed	20 mph	10 mph

HIGH HOUSING AND HIGH TRANSPORTATION COST BURDENS

LOW HOUSING AND LOW TRANSPORTATION COST BURDENS

	Auto	Transit
Ridership	93%	7%
Time	27 min	52 min
Distance	10 miles	12 miles
Speed	21 mph	13 mph

	Auto	Transit
Ridership	97%	3%
Time	28 min	64 min
Distance	12 miles	19 miles
Speed	24 mph	17 mph

HIGH TRANSPORTATION COST BURDENS

Source: Center for Neighborhood Technology calculations.

The Important Role of Housing in Driving the Location Decisions of Working Families¹

In the Atlanta metropolitan area, Working Families with children, particularly married couples, are most likely to live in outer suburban and suburban fringe communities, where housing costs are higher than in inner-suburban areas and consume a larger share of income, as well. Single parent families, by contrast, are more likely to live in Atlanta's central city neighborhoods where housing is only slightly more affordable as a share of income. With most of Atlanta's jobs near or beyond the region's Perimeter Freeway, Working Families who live in downtown neighborhoods take almost twice as long to commute to their jobs by public transit as by private car.

In the Dallas–Ft. Worth region, households living in suburban fringe communities face the highest cost burdens (41 percent of income), while central city residents faced the lowest (29 percent). Working Families *without* children are more likely to live in and around Ft. Worth, where absolute housing costs are fairly low but incomes also are lower. Working married couples *with* children are much more likely to live in fringe suburban communities where housing consumes a very large share of their incomes. In no part of the metropolitan area does public transit offer commuter service that is competitive with private vehicles, reducing travel choices for everyone.

Chicago's Working Families are much more likely to live in its central city, secondary central city and inner suburban areas where they face lower absolute housing costs than in the rest of the region. The extensive rail and bus public transit system provides good corridor service from suburbia to downtown Chicago, but poor service to suburban job centers and employment opportunities in secondary central city neighborhoods. For Chicago's Working Families, excess public transit commute times compared to auto vary from a high of 147% in suburban fringe areas, to a low of 33% in central city areas.

In the Greater Los Angeles region, Working Families are far more likely to live downtown, in a secondary central city neighborhood such as Anaheim or Riverside, or in the region's close-in, older suburbs where housing is more affordable and transit service is better (if overcrowded). Among Working Families, public transit commute times exceed auto commute times by 70–75% just about everywhere. Households most consistently disadvantaged by the comparatively poor quality of public transit service are multiple-family households with and without children and single parents.

In the San Francisco Bay Area, Working Families also are more likely to live in inner suburban communities where they can enjoy reasonably good quality bus service. Good transportation comes at a price, however, as the Bay Area's inner suburban communities are generally home to its least affordable housing. Working Families also are found in certain central city neighborhoods, most notably in Oakland. Commuters who live in central city neighborhoods enjoy public transit service that offers comparable travel times to the private car. The relatively poor quality of suburban transit service in the region disadvantages working multiple-family households without children and single persons.

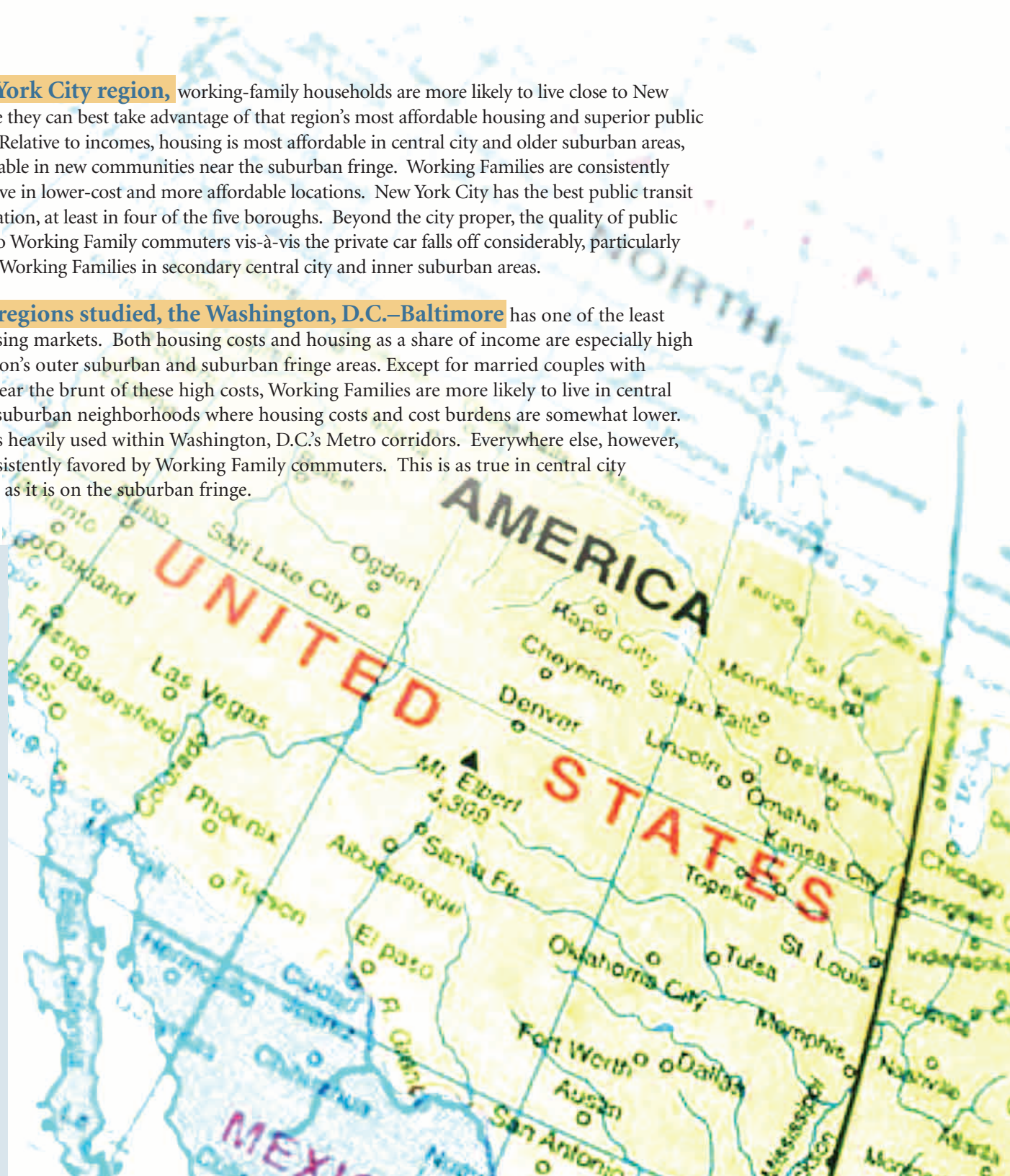
Source Footnote: Berkeley analysis of Working Families' residential choices. See the Center's Web site: <http://www.nhc.org/index/heavyload>.

¹Working Families in the Berkeley study are households that have incomes between the full-time minimum wage equivalent of \$10,712 and 120 percent of the local area median.

In the New York City region, working-family households are more likely to live close to New York City where they can best take advantage of that region's most affordable housing and superior public transit service. Relative to incomes, housing is most affordable in central city and older suburban areas, and least affordable in new communities near the suburban fringe. Working Families are consistently more likely to live in lower-cost and more affordable locations. New York City has the best public transit service in the nation, at least in four of the five boroughs. Beyond the city proper, the quality of public transit service to Working Family commuters vis-à-vis the private car falls off considerably, particularly disadvantaging Working Families in secondary central city and inner suburban areas.

Among the regions studied, the Washington, D.C.–Baltimore has one of the least affordable housing markets. Both housing costs and housing as a share of income are especially high among the region's outer suburban and suburban fringe areas. Except for married couples with children who bear the brunt of these high costs, Working Families are more likely to live in central city and inner suburban neighborhoods where housing costs and cost burdens are somewhat lower. Public transit is heavily used within Washington, D.C.'s Metro corridors. Everywhere else, however, the auto is consistently favored by Working Family commuters. This is as true in central city neighborhoods as it is on the suburban fringe.

While the location of Working Families within metropolitan areas varies from area to area, the search for affordable housing influences those location decisions in most of the areas studied. Sometimes, as in the cases of New York, Chicago, Los Angeles and Washington, D.C.–Baltimore, the more affordable neighborhoods also have good quality transit service. In Atlanta and Dallas–Ft. Worth, by contrast, Working Families have been pushed to the outer suburbs where transit service is essentially non-existent. And then there are the outliers like San Francisco where Working Families disproportionately live in neighborhoods with good transit service but must pay, by national standards, exorbitant housing prices and rents.



A Housing and Transportation Portrait of a Metro Area

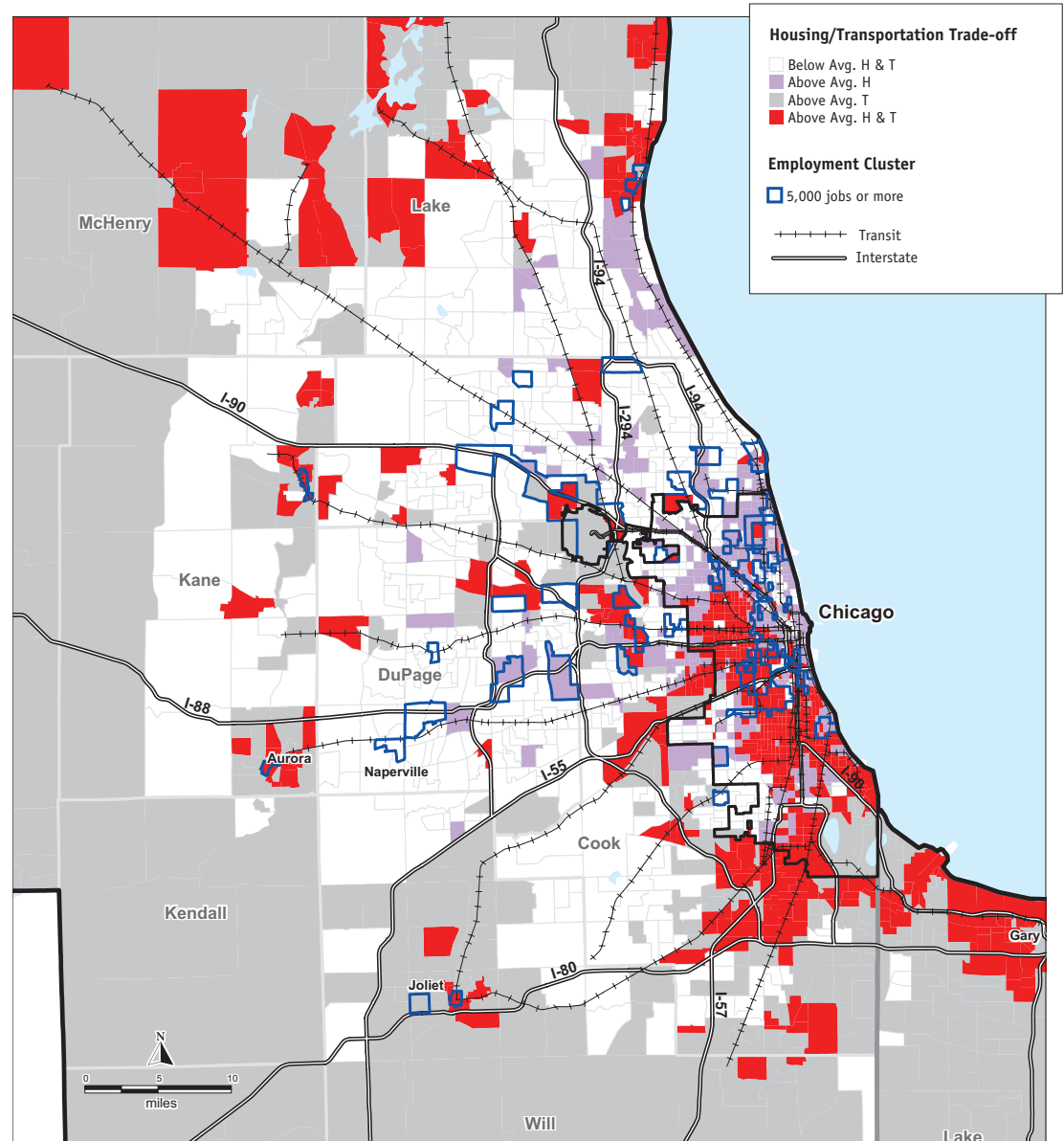
This map represents the cost burden of “place.” It shows the housing and transportation costs as a percentage of income in a neighborhood and also shows where neighborhoods are located in relation to area employment centers and the region’s transportation infrastructure. Note, in Chicago, there are few employment centers (blue outlines) within the **High Housing and High Transportation Cost Burden** areas (red) or in the **High Transportation Cost Burden** (gray) areas. Most of the employment centers are surrounded or within the **Low Housing and Low Transportation Cost Burden** (wealthier) areas or **High Housing Cost Burden** areas. This contributes to the high transportation costs of the other two neighborhood types whose workers typically have to travel to these job locations.

NOTE:

Neighborhood Maps for all 28 metropolitan areas can be accessed from the Center’s Web site:

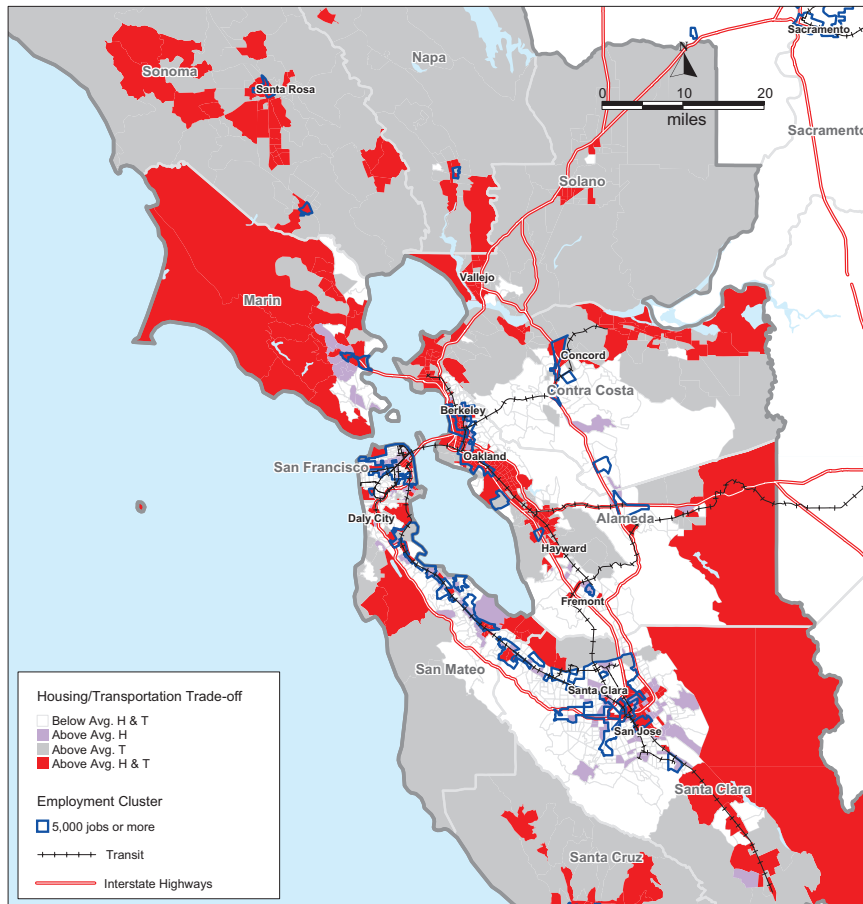
<http://www.nhc.org/index/heavyload>

Chicago: Average Household Expenditures on Housing and Transportation as a Percentage of Average Tract Income, 2000

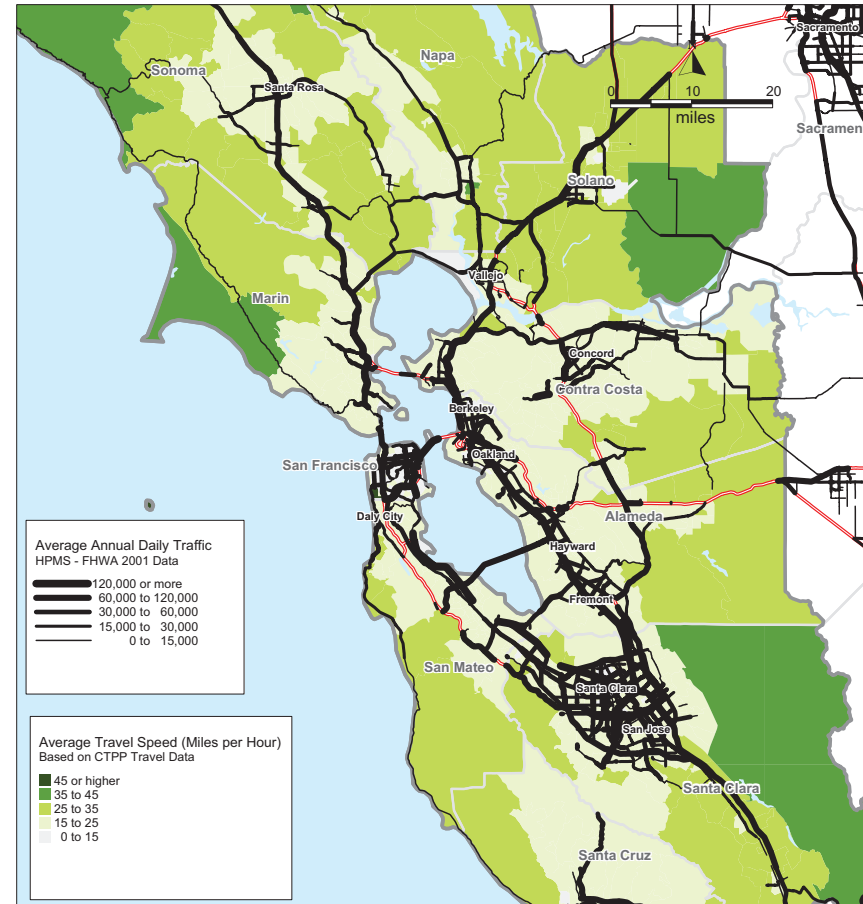


Source: Income and housing costs from 2000 Census of Population and Housing, Summary File 3 and PUMS 5%, P76 and P97. Retrieved 2006, from <http://www.census.gov>: <http://factfinder.census.gov/servlet/BasicFactsServlet>. PUMS 5% from PDQ Software, from <http://www.pdq.com>. Transportation costs based on 2000 data from a variety of national public sources and modeled by the Center for Neighborhood Technology and the Center for Transit-Oriented Development. Cities over 100,000 persons are labeled.

San Francisco: Average Household Expenditures on Housing and Transportation as a Share of Income in Relation to Employment Centers



San Francisco: Travel Speed in Relation to Average Annual Daily Traffic



Source: Income and housing costs from 2000 Census of Population and Housing, Summary File 3 and PUMS 5%, P76 and P97. Retrieved 2006, from <http://www.census.gov>: <http://factfinder.census.gov/servlet/BasicFactsServlet>. PUMS 5% from PDQ Software, from <http://www.pdq.com>. Transportation costs based on 2000 data from a variety of national public sources and modeled by Center for Neighborhood Technology and the Center for Transit-Oriented Development. Cities over 100,000 persons are labeled.

The Lack of Affordable Housing Can Lead to Region-Wide Congestion

These maps of the Bay Area — the most expensive housing market in the country — offer insight into how this happens. The map on the left shows households nearest employment centers are those in the **Low Housing and Low Transportation Cost Burden areas** (white). These tend to be higher income households. Working Families, on the other hand, cluster in the **High Housing and High Transportation Cost Burden** (red) and **High Transportation Cost Burden** neighborhoods (gray) — farthest from employment centers.

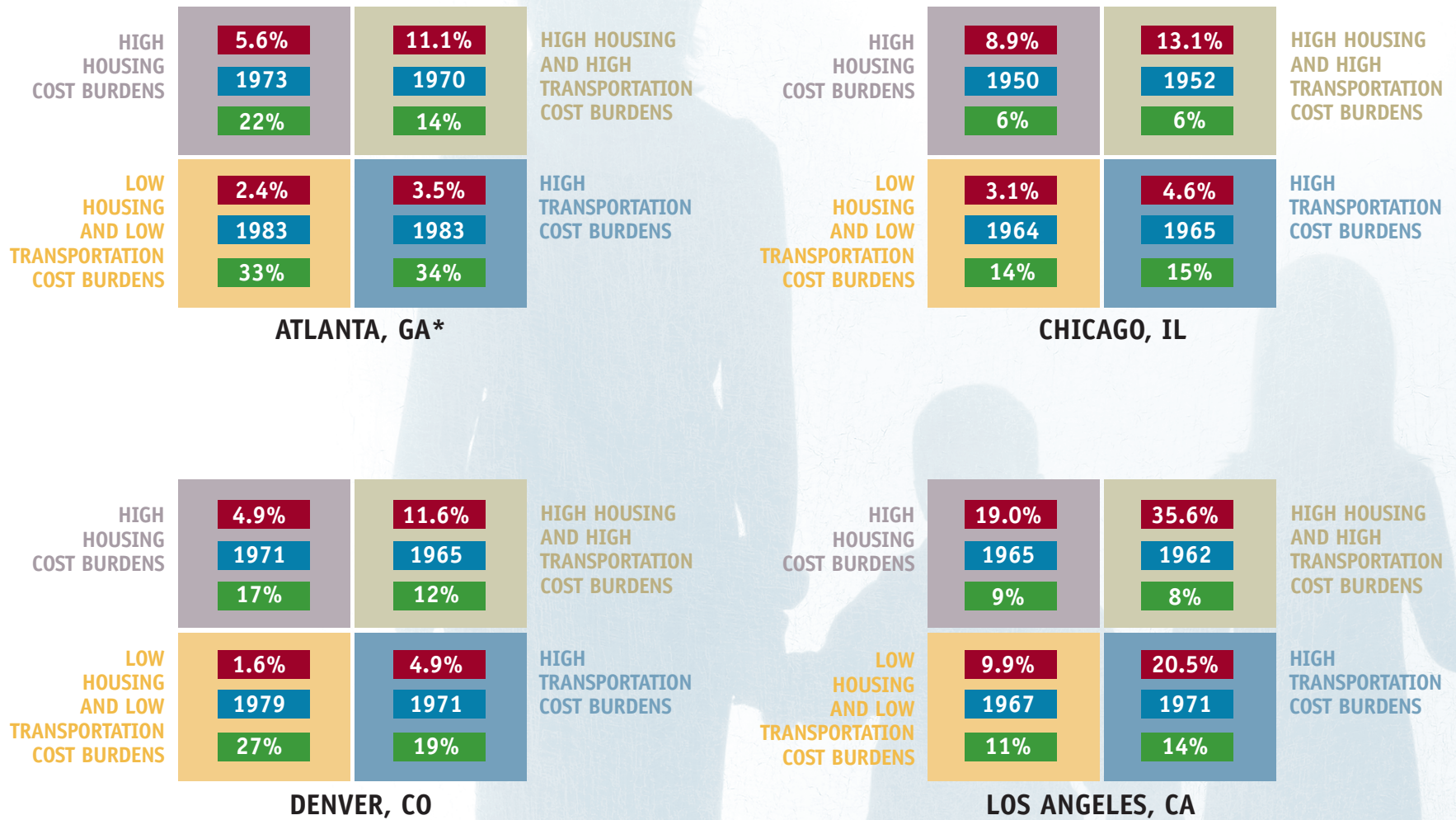
The congestion map on the right shows that Working Family commuters are able to begin the journey to work at a higher rate of speed because few workers are coming into these areas. Speed drops as commuters converge on the congested highways and roads near work places. The impact on the higher-income neighborhoods near employment centers is heavy traffic, possibly worse air quality and longer commute times despite the ability to locate closer to work. For the region as a whole, as more households commute to distant job centers or other work locations some distance from where they live, clogged and congested major roads are the norm. Among other costs are those for traffic safety and enforcement and capital improvements.

NOTE:

Congestion Maps for 7 other metropolitan areas — Atlanta, Chicago, Dallas, Denver, Los Angeles, Pittsburgh and Portland — as well as San Francisco can be accessed from the Center's Web site:

<http://www.nhc.org/index/heavyload>

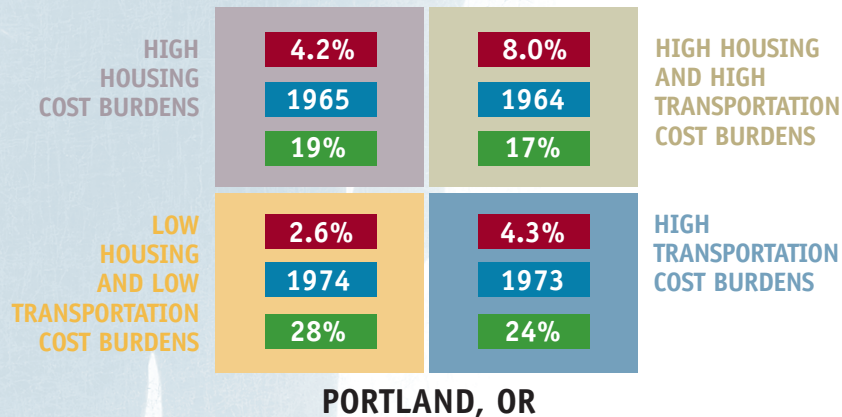
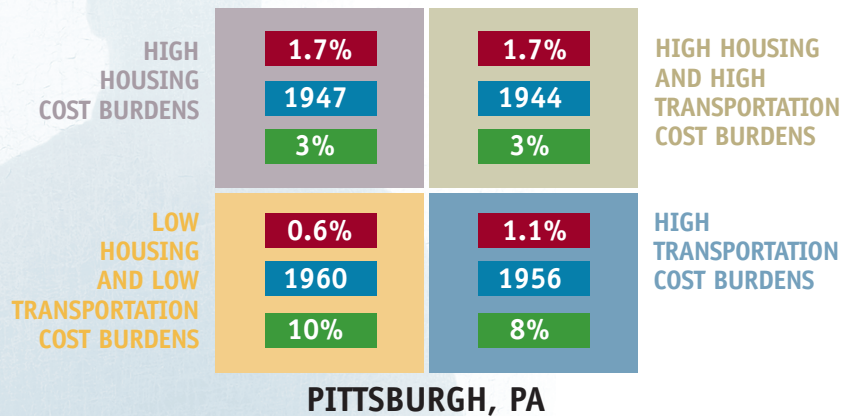
How the Combined Cost of Housing of Life of Working Families:



Source: Center for Neighborhood Technology calculations.

NOTE: Data are for households of all incomes in the metro areas. All areas are Consolidated Metropolitan Statistical Areas except those marked "*" are Metropolitan Statistical Areas.

and Transportation Affects the Quality A Closer Look at Six Metro Areas



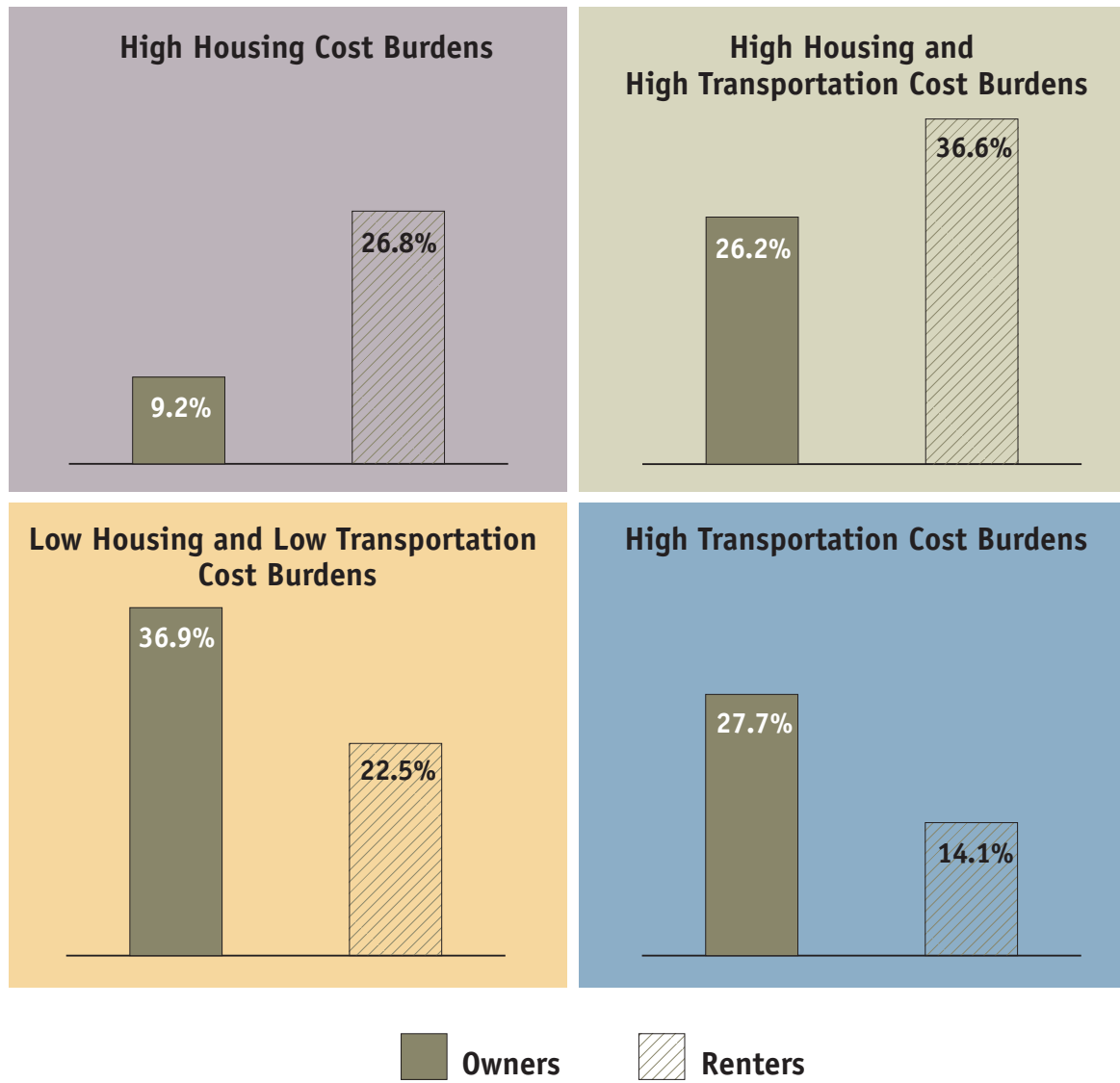
NOTE:

Crowding— In the four of the six metropolitan areas studied in detail, the rate of overcrowding is highest in the two neighborhood types where working households are clustered — neighborhoods with **High Housing and Transportation Cost Burdens** and those with **High Housing Cost Burdens**. The exceptions are Pittsburgh where there is little in the way of overcrowding in any of the four neighborhood types and Los Angeles where crowding rates are high in all neighborhoods. Of note in Los Angeles are the sprawling **High Transportation Cost Burden** neighborhoods where many working families reside and where one-in-five households are crowded.

Age of Housing Stock— Not surprisingly, older housing stock in these six metropolitan areas, tends to be found in the **High Housing and Transportation Cost Burden** and **High Housing Cost Burden** neighborhoods. Many of these neighborhoods are home to working families in central city and inner-suburban areas.

New Construction— A look at the percentage of units constructed since 1990 tells the flip side of the story about the housing stock. Newer housing tends to be found in **Low Housing and Low Transportation Cost Burden** neighborhoods where wealthier households reside and in **High Transportation Cost Burden** areas where higher transportation costs offset more affordable housing.

Where Working Family Owners and Renters Live: (Share residing in each neighborhood type)



Working Family renters generally have lower incomes and more limited neighborhood options than owners. **Working Family renters** tend to live in neighborhoods with the greatest mix of single-family and multi-family dwellings and where housing prices and transportation costs are lowest in absolute terms. Almost 37 percent live in neighborhoods with **High Housing and High Transportation Cost Burdens**, and another one-quarter live in neighborhoods with **High Housing Cost Burdens**. Often they accept units that are older, smaller and possibly in poor condition in exchange for lower transportation costs.

The location and supply of affordable homeownership units is different from that of rental units. This is reflected in the pattern of neighborhoods where **Working Family owners** are found — more than half live in either **High Transportation Cost Burden** or **High Housing and High Transportation Cost Burden** places. Many households in this group are moving to outer suburban and exurban areas to purchase lower-priced homes, but this often leads to higher transportation burdens and higher combined housing and transportation costs. Some 90 percent of **High Transportation Cost Burden** neighborhoods are far away from employment centers; on average, these neighborhoods are 31 miles from the nearest central city business district.

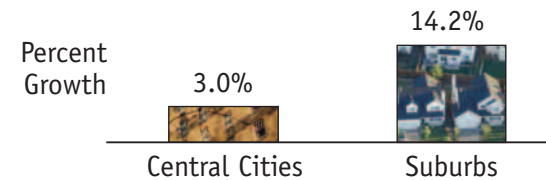
Is Where We've Been Where We're Headed? Some Trends are Likely to Continue

(1) Housing and Transportation Costs are Rising Faster than Incomes



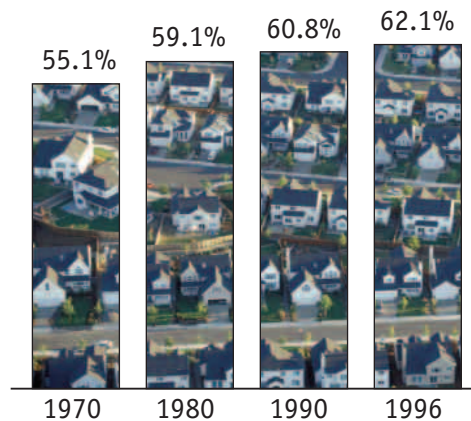
Source: Figures for housing and transportation price increases are from the Consumer Price Index for All Urban Consumers, Bureau of Labor Statistics. The income figure is the change in the national median and is from the U.S. Census Bureau.

(2) Faster Job Growth is Occurring in the Suburbs



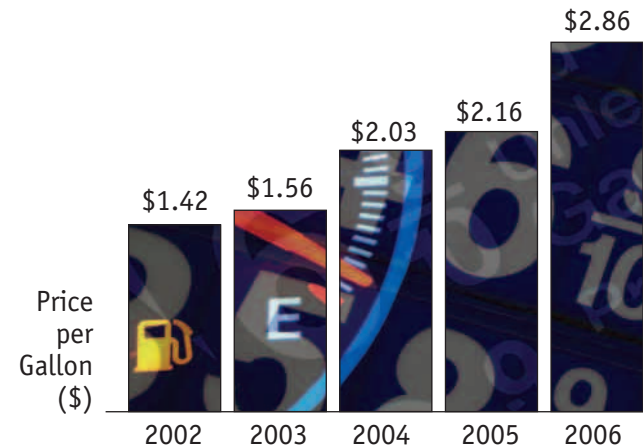
Source: *State of the Cities*, U.S. Department of Housing and Urban Development. Figures are for 77 metropolitan areas for the period 1991-1996.

(3) The U.S. Metro Population is Suburbanizing



Source: *State of the Cities*, U.S. Department of Housing and Urban Development.

(4) Gas Prices are on the Rise



Source: Energy Information Administration, U.S. Department of Energy. Figures are for the second week of June for each year.

Policies to Help Reduce Housing and Transportation Burdens

Working Families make complex decisions about where to live, balancing their preferences for features of their home against schools, neighborhood amenities and other factors. But clearly housing costs play a large role in influencing where families choose to live, even if choosing an area with lower housing costs means accepting longer commutes and higher transportation costs. These choices greatly affect families' quality of life. Moreover, the location and accessibility of affordable neighborhoods and transportation options plays a role in shaping the landscapes of our cities and towns.

The following are some of the Center for Housing Policy's recommendations for policies that would help address the issues raised in this report:

Consider housing and transportation policies together — It is essential for regions to coordinate their housing and transportation policies to ensure they fully reflect the needs of Working Families. Building affordable housing near existing and planned transit hubs is one example. Targeting public transportation improvements on areas with large numbers of moderate-income Working Families with long and expensive commutes to common work destinations is another.

Encourage infill development — The redevelopment of inner city and older suburban neighborhoods near job centers, or with good transportation access to job centers, can help more families reduce their transportation costs and commute times. By adopting policies to ensure that a substantial portion of these homes are affordable, policymakers can help more moderate-income Working Families reduce their overall housing-transportation burden. By increasing density, these strategies also can help add to the ridership base for public transit.

Target employment — Targeted job development in low- and moderate-income neighborhoods in central cities and inner-ring suburbs would help raise the incomes of households living there and reduce their overall housing-transportation burdens. In the long run, it also could help reduce transportation costs and alleviate congestion elsewhere in the region by reducing the number of commuters from these neighborhoods.

Contain/connect areas of sprawl — Good quality and reliable transit is important for suburb-to-suburb commuting as well as for helping families in the outer suburbs get into the central city. In order to compete with the automobile, substantial and visible improvements in transit service are needed. Given that the annual user costs of public transit are generally far less than the capital and operating costs of owning a late-model car, this approach may make sense in those locations where activity patterns and densities can support increased transit use. However, resources should not be diverted from areas where existing transit is heavily used.

Reduce the cost of commuting by car — Even if all of the optimal improvements in public transit were made, many Working Families still would need to commute by car. Policies to encourage car sharing or make car ownership more accessible and affordable (through subsidized loans or insurance, for example) could go a long way to reducing the transportation cost burdens of Working Families.

Preserve choice but revisit existing policies and incentives — Public opinion surveys consistently show that American households are split 50-50 between those who would prefer to live in a smaller or more costly home in order to have a shorter commute and those who would prefer to endure longer commutes for a less expensive or more spacious home. The key is providing choice — something that many Working Families presently are lacking.

Technical Appendix: Data Analysis and Methodology



Analysis of Housing and Transportation Costs By Neighborhood

As part of its larger report for The Center for Housing Policy, a team of researchers from the Chicago-based Center for Neighborhood Technology (CNT), with researchers from Virginia Tech, utilized a variety of data sources to develop housing and transportation cost estimates at the neighborhood level. These estimates were used in a number of analyses summarized in this publication. *The complete Center for Neighborhood Technology report is available online at <http://www.nhc.org/index/heavyload>.*

Data & Methods

To perform the analyses of housing and transportation costs by neighborhood it was necessary to obtain reliable measures of household income, rental and ownership housing costs, household transportation costs, jobs and employment locations and other socioeconomic measures of households by income and by place. The CNT study gathers or derives data for these measures for each of 29,607 census tracts (proxies for neighborhoods) from 28 metropolitan areas. These 28 metro areas were home to nearly 47.1 million households, or 45 percent of all U.S. Households in 2000.

Income and housing cost data were obtained from the 2000 Census. Income categories were adjusted using 5 percent sample data to approximate the average income in each census tract. Housing costs include mortgage payments, utilities and operating costs for homeowners and contract rent and utilities for renters.

However, the amount of money a household has to spend on transportation, especially for a specific location, was not as readily available. Transportation costs were estimated using a model which was peer reviewed and developed by a group of researchers in the Center for Transit-Oriented Development led by CNT.¹ While the model has been tested previously in the Minneapolis/St Paul metropolitan area, this study represents the first time it has been applied to 27 other metropolitan areas.

Household transportation costs consist of a combination of the costs of auto ownership, auto use and public transit use; separate estimates were made for each of these factors. These three components were the dependent variables in the model and are affected by the combination of seven independent variables describing the built environment (such as residential and job density, distance to employment centers, access to transit, access to amenities, among others) and two independent household variables (household size and income). The analysis showed that no one variable, such as

transit accessibility or household income, by itself completely explains transportation costs. Rather, it is the combination of these variables that explains how many autos a household owns, how many miles members drive each vehicle and how much transit they use.

To locate and define the size of the employment centers for a region, the Census Transportation Planning Package (CTPP) 2000 was used as part of a simple clustering analysis to determine where the centers of employment are within the region and the size of each employment center based on the number of employees within its boundaries. The minimum size of a “center” is 5,000 employees.

Finally, to define commuter characteristics and congestion, four different but related statistics were assembled. These were the mode of commute, the time of commute, the distance of commute and the average speed of commute. The first of these came from the long form in Census 2000. To obtain time, distance and average speed to get to work, data from the part 3 portion of the CTPP was exported to a GIS program to calculate the approximate distance and speed of commute. For each commuting mode — auto and public transportation — the weighted average of the time, distance and speed was estimated. These estimates provide a good surrogate for congestion.

Using all the data derived in this manner, it was possible to examine at the neighborhood level — for thousands of neighborhoods and millions of households — how location affects both housing and transportation affordability. Working families were defined as households receiving wages or salaries with incomes between \$20,000 and \$50,000. A series of cross-tabulations and multivariate analyses looked at how housing and transportation affordability is associated with the physical characteristics of regions and neighborhoods, such as housing density and location of jobs, as well as commuting patterns and traffic congestion. A complete set of results as well as a more detailed description of methodology are available in the full report.

¹See <http://www.brook.edu/metro/umi.htm> and <http://www.cnt.org/publications/Affordability-Index-White-Paper-Draft-0805.pdf> for more detailed discussion.

Analysis of Where Working Families Live in Seven Metro Areas

As part of its larger report for The Center for Housing Policy, a team of researchers from the Institute for Transportation Studies at the University of California at Berkeley analyzed the residential location and commuting decisions of working families in seven major metropolitan areas (see pp. 10 and 11 of this report) using the following data and methodology. *The complete Berkeley report is available online at <http://www.nhc.org/index/heavyload>.*

Data

Data came from a select set of individual and household observations from the 2000 Census Public Use Microdata Sample (PUMS). The Census Bureau groups these households in collections of urban neighborhoods and suburban communities called Public Use Microdata Areas (PUMAs). Individual PUMA boundaries generally contain 100,000 or more persons and include contiguous urban neighborhoods and suburban communities that offer a distinct set of housing and public service choices.

Working families were defined as households with incomes of at least the full-time minimum wage equivalent of \$10,712 up to 120 percent of the local area median. The analysis was done on recent mover households because the choices facing recent movers — and their decisions in response to those choices — provide a lens on actual household location decisions. Recent movers are households that have moved within the previous five years. As for housing costs, for homeowners these include principal and interest payments, property taxes and insurance and utilities; for renters they include contract rent and utilities.

Based on extensive statistical comparisons five distinct PUMA types were identified: (i) primary central city neighborhoods; (ii) secondary central city neighborhoods; (iii) inner suburbs; (iv) outer suburbs; and (v) fringe suburbs. Note that this list does not include rural, exurban or non-metropolitan PUMAs.

Analysis

Most households choose their residential location and commute mode simultaneously. For example, they may choose to live in a new home in an outer suburb in which the only convenient access to work is the private car. Or they may choose to live in an apartment tower in a central city neighborhood where they can

walk to work. Likewise, the analysis decomposed the residential location-commute mode choice into two choices: the choice of residential neighborhood first as represented by a particular PUMA type, followed by the choice of commute mode. In statistics parlance, the choice of commute mode is said to be “nested” within the choice of residential location.

The general structure of the nested PUMA type/commute mode model is as follows. First, the choice of PUMA Type (neighborhood) is estimated taking into account such factors as household income, household size, tenure (own or rent), gender, age of household, auto accessibility, among others. A central feature of this model is the inclusion of average high school test scores as summarized at the PUMA level. Particularly for families with children, the availability of a good public education is of paramount concern when deciding where to live; and although test scores are an imperfect measure of educational quality, they are the only such measure available for all seven metro areas.

Second, given the choice of PUMA, the commute mode is modeled based on such factors as number of autos per worker in the household, auto accessibility by occupation and demographic variables such as gender and age.

Using a statistical procedure known as multinomial logistical regression, separate models were tested for each metro area and different family types (for example, households with and without children). Once the various choice models were estimated statistically, the results were used with representative working family profiles to compare the housing location and commuting outcomes of working families with those of comparable families with higher incomes. Estimates for all household types and neighborhood types are presented for each of the seven metropolitan areas in the full report.

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