

# Rethinking Affordability: *The Inherent Value of TOD*

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**A**ffordability has never been just about housing costs. Researchers have long known it's the interaction between housing and transportation costs that provides a more meaningful measure of affordability. But while housing costs are well-understood, transportation costs are often dramatically underestimated — and now, with gasoline prices rising dramatically, these costs are escalating. Transportation is the second largest household expenditure after housing, ranging from 15 percent to almost a quarter of the average household's expenditures. These costs, like housing costs, vary widely within metro areas, though generally speaking housing is cheaper the further one lives from the Central Business District, while transportation becomes more expensive.

A growing body of research has shown a strong relationship between increased density, transit access and pedestrian friendliness on the one hand, and reduced vehicle miles traveled and automobile ownership on the other. With the cost of driving now pegged at 50 cents per mile and the annual cost of auto ownership averaging about \$10,000 a year, the transportation savings that can result from living in a dense transit-friendly community can be considerable. The industry standard of allowing no more than 30 percent of household income to be directed to housing expenditures could have wildly different results for families that are auto-dependent versus those that have more transportation options.

But the combined costs aren't considered in the housing affordability standards used to allocate low-income housing tax credits or vouchers for other affordable housing programs. Neither are they considered — except with the

Location Efficient Mortgage — when lenders score individual home loan applications. Reframing nationally accepted affordability measures to combine both housing and transportation costs at a typical rate of 45 percent could allow low income households to more easily qualify for homeownership and provide a substantial incentive to the private sector to invest in transit-oriented locations.

Because of this, the Center for Transit Oriented Development is developing a single measure of affordability that integrates housing and transportation costs into an "affordability index." This new tool will take into account the tradeoffs that households make between housing and transportation costs and the savings that come from living in "location efficient" communities. The intent is to provide policy-makers, lenders and investors with the data needed to make better decisions about which neighborhoods are truly affordable, and illuminate the implications of their policy and investment choices.

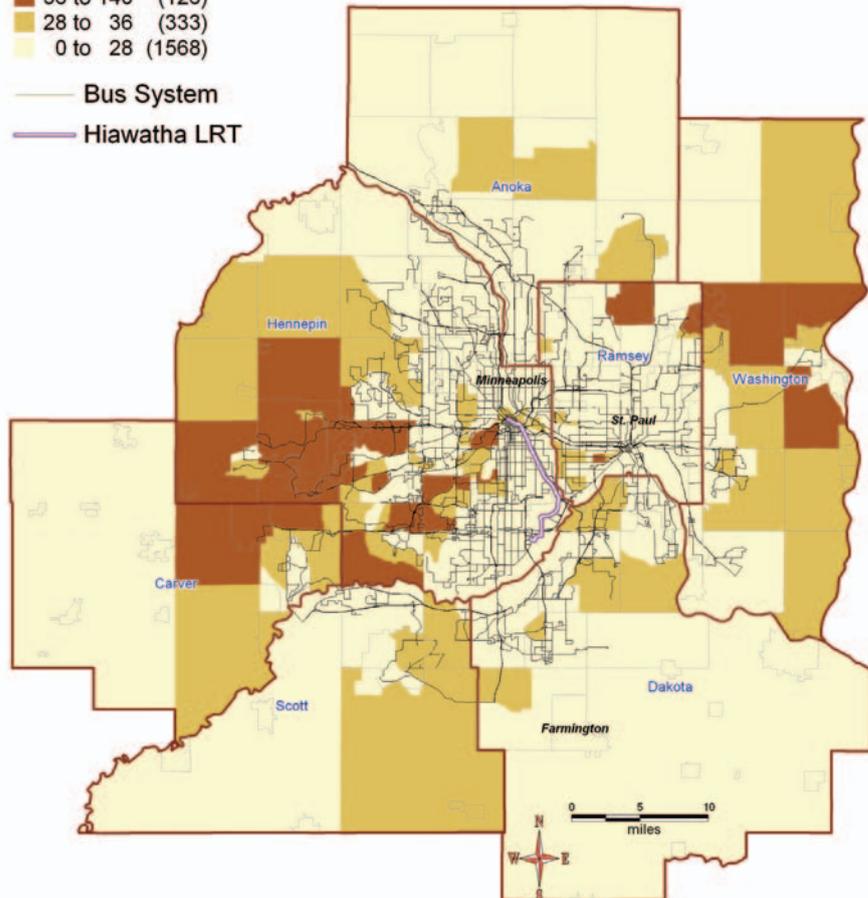
## Promoting Affordable Neighborhoods

The affordability of a house should be considered in the context of the affordability of the neighborhood in which it is located. An

## Housing Payment as a Percent of Income by Census Block Groups - for 80% AMI - 3 Person Household

■ 36 to 140 (126)  
■ 28 to 36 (333)  
■ 0 to 28 (1568)

— Bus System  
— Hiawatha LRT



The map above shows those areas of the Twin Cities that are affordable (light yellow) when one considers housing costs only. (Those earning 80 percent of area median income would spend 0-28 percent of income in light yellow areas, 28-36 percent in orange areas, etc.) The map on the right shows areas that are affordable when one considers the costs of housing and transportation combined.

affordable neighborhood is "location efficient" — convenient to shopping, services, jobs, and with transportation alternatives besides the auto. We consider convenience, or location efficiency, as a measure of affordability because the level of convenience is directly tied to a household's transportation costs. Currently, the average U.S. household spends 19 percent of its budget on transportation, nearly one in five dollars, but this average varies a great deal by place: Among metropolitan areas in the 2003 Consumer Expenditure Survey, average household transportation expenditures in Houston topped the list at 21 percent, while those in Baltimore ranked lowest at 14 percent, a difference that equates to \$4,286 annually.

Cost comparisons among metro areas bring to light the importance

of thinking more broadly about transportation, particularly in terms of the impact on household budgets and regions. But because these comparisons are at a large geography they don't show why costs vary by location or how they vary within a metropolitan area. Therefore, it's difficult for a household to know which neighborhoods in a region are more affordable in the broadest sense, or for a policymaker to know where resources should be focused to enhance affordability.

Household income and household size are the primary determinants of transportation demand. Larger and wealthier households tend to own more vehicles and drive more miles — the two factors that have the biggest impact on transportation costs. Yet even among wealthy households neighborhood characteristics influence how much is spent on transportation, since the characteristics of place also shape transportation demand. Factors including density, walkability, the availability and quality of transit service, the accessibility of amenities like grocery stores, dry cleaners, daycare and movie theaters, and the number of accessible jobs shape how residents get around and where they go.

The affordability index calculates the sum of the average housing costs plus the average transportation costs for a neighborhood (or census block group). The simplified formula for the index is shown in the next column, where total housing costs include current housing sales prices and rents, and total transportation costs equal the sum of the costs for auto ownership, auto use, and transit. The index can be used to calculate an average for a neighborhood, or it can be adjusted for an individual household to reflect household income and the price they intend to pay for a new home.

$$\text{Affordability Index} = \frac{\text{Housing Costs} + \text{Transportation Costs}}{\text{Income}}$$

CTOD is utilizing the work done to develop the Location Efficient Mortgage, which is backed by Fannie Mae. This work was completed by a group of researchers including members of the CTOD team who analyzed the travel behavior and transportation costs of millions of households in the San Francisco Bay Area, Southern California, Seattle and Chicago, and generated models that predict auto ownership and vehicle miles traveled based on the residential density, transit availability and pedestrian friendliness of the neighborhoods where they lived.

CTOD is developing a new model that can be applied to regions with fixed-guideway transit systems using several datasets — including CTOD's database with information about the demographic, land use and transportation characteristics of neighborhoods located within a half mile radius of 4,000 existing and planned transit stations across the U.S. — to create a calculator that combines the housing and transportation costs of any geographic location in these metropolitan regions. At the scale of the neighborhood one will be able to look up a combined measure of median housing costs (rental and for-sale) and transportation costs, and compare the measure with measures in other locations in the region and in other regions.

We are testing the affordability index in the Minneapolis-St. Paul region to refine the methodology and determine the ways in which it can be used to affect regional housing location and financing decisions.

We are working with the McKnight Foundation and the Brookings Institution to use the index to help bring TOD to scale in the region and to direct affordable housing and transit initiatives to truly affordable neighborhoods. The goal is to help inform policy and funding decisions as the Minneapolis-St. Paul area invests in new transit lines, creates new jobs and addresses affordability issues. The index can be used to help make the case that truly affordable housing should be located in affordable places, and that places where transportation costs are high need more transportation options.

If all the participants in the housing market — developers, renters and buyers, regulators, elected officials, planners — started thinking more about the affordability of neighborhoods than about the affordability of housing units, we might see less sprawl and more transit-supportive infill development. We might see more investment in transit, and bike- and pedestrian-friendly environments. It might be easier for planners to justify higher densities and lower parking requirements, and for government to make decisions about policy and investment in a holistic context that takes into account more of the factors that influence affordability.

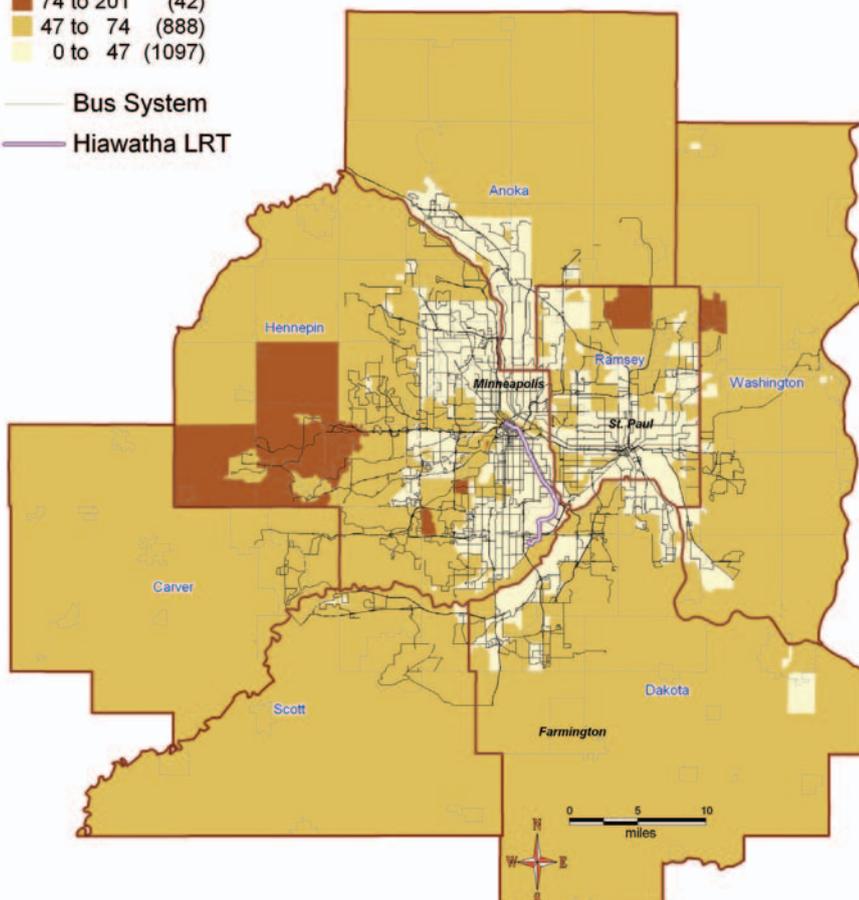
### Applying the Index in the Twin Cities

Twenty-five miles south of Minneapolis is the small but growing town of Farmington, population 12,365, where 81 percent of the housing has been constructed just since 1990. In the 2000 U.S. Census, the reported median housing value

## "H + T" as a Percent of Income by Census Block Groups - for 80% AMI - 3 Person Household

- 74 to 201 (42)
- 47 to 74 (888)
- 0 to 47 (1097)

- Bus System
- Hiawatha LRT



*Affordability continued*

was \$146,000 and the median household income was \$61,864, both slightly higher than in the region as a whole (\$141,000 and \$54,304, respectively). In 2000, households region-wide were paying about 18 percent of before-tax income toward their mortgages; in Farmington they were paying 22 percent.

Farmington's housing appears moderately affordable for a household earning the median income or slightly higher. However, when we applied the affordability index, we got a clearer idea of what it might actually cost to live in a town where the average household owns two cars, there is no metro bus service, and the nearest large employment centers are located in the two counties to the north. The table below shows what the housing, transportation, and combined housing-plus-transportation costs would be for two households — one in Farmington and the other in a centrally located Minneapolis neighborhood — earning 80 percent of the area median income, \$43,443.

While housing costs in these two communities vary only 5 percent, transportation costs vary a whopping 24 percent, which adds up to a 19 percent difference in the total housing-plus-transportation cost equation — a significant difference in affordability. Of course the type of housing and availability of neighborhood amenities should also be considered. But application of the affordability index to the entire Minneapolis-St. Paul region reveals that there are many other places where housing seems

affordably priced until transportation costs are added in, and suddenly other neighborhoods, where housing is more expensive, turn out to be more affordable.

The maps on the preceding pages illustrate the difference in affordability when one considers only housing costs and when one considers the combined cost of housing and transportation. Both maps depict the cost for households earning 80 percent of the area median income. The map on the left shows the monthly mortgage cost as a percentage of income. The yellow areas are those that would traditionally be deemed affordable — they are in accord with the lending guideline that require households spend no more than 28 percent of their income on housing. Except for the areas directly west and east of Minneapolis and St. Paul, the majority of the region's housing appears affordable for this income group.

Using the affordability index, we categorize as affordable any place where the combined costs of housing and transportation are less than or equal to 47 percent of income. We arrived at this figure by adding the average U.S. household transportation cost — 19 percent of the household budget — to the lending guideline of 28 percent. The map on the right uses the affordability index to add transportation costs to housing costs. Note that the area considered affordable has been reduced substantially.

The presence or absence of transit helps explain the difference in affordability. The bus system, shown on the map on the right, is extensive, offers frequent service, and is well-used in the core of the region. Even without fixed-rail transit (the 2000 Census preceded the opening of the region's Hiawatha light rail line), 8 percent of the workers in the Minneapolis-St. Paul region commuted by something other than an auto — by bus or bicycle or on foot. And non-auto commute rates were much higher in the cities of Minneapolis and St. Paul, 23 percent and 15.4 percent, respectively. The combined costs of housing and transportation are most affordable in areas well-served by public transit. ❖

**Table 1. Affordability Measures for a Household Earning 80 Percent of the Area Median Income**

	Farmington	Central - Minneapolis
Annual Household Income (2000 Census)	\$43,443	\$43,443
Average 1999 Monthly Mortgage Payment (HMDA)	\$811	\$970
Monthly Auto Ownership Costs (AI Model for 2000)	\$941	\$187
Monthly Auto Use Costs (AI Model for 2000)	\$241	\$47
Monthly Transit Costs (AI Model for 2000)	\$0	\$65
Total Transportation Costs (AI Model for 2000)	\$1155	\$299
Transportation Cost as Percentage of Income	32%	8%
Housing Cost as Percentage of Income	22%	27%
Combined Housing/Transportation Costs as Percentage of Income	54%	35%

This building in a walkable transit-rich Chicago neighborhood was rehabbed with low-income housing tax credits in 1990 but went market-rate when the credits expired. Increased demand for housing like this drives up prices. The index can be used to argue affordability should be preserved.

