

8/21/2013

TCI  
SCOPING  
PAPER  
SERIES

COMBINED HOUSING AND TRANSPORTATION  
COSTS AS A PROPORTION OF MEDIAN INCOME

**Prepared for the Georgetown Climate Center  
and the Transportation and Climate Initiative**

**Rutgers University  
Environmental Analysis and Communications Group**

## **Introduction**

Unlike measures of cost, which focus exclusively on individual or household expenditures, indicators related to affordability seek to relate dollars spent to income (EPA, 2011). Of these, metrics of housing affordability abound, but traditionally account for only the carrying costs and rent associated with securing and maintaining a residence. As a result, a common assumption is that a neighborhood can be deemed “affordable” if the people who live there pay no more than 30% of their incomes on housing. Using this standard alone, more than three quarters of neighborhoods in the US can be called affordable (CNT, 2012). Similarly, a number of studies have been conducted on transportation affordability in various locations (EPA, 2012), but their narrow focus means that they fall far short of providing a comprehensive measure of a locale’s affordability.

Housing and transportation represent, on average, the two largest categories of household expenditures. For every dollar spent on housing, most families spend 77 cents on transportation (Lipman, 2006). When the costs of housing and transportation are considered together, and a benchmark affordability level of 45% of household income is set, the percentage of US neighborhoods that can be described as being affordable to their residents drops dramatically, to just 28% (CNT, 2012).

The decision regarding where to live is made based on a panoply of considerations. Some are under a household’s control, such as personal preferences for a suburban-style built environment, characterized by large lawns and single family homes, or for more urban locations, with smaller living spaces and easier access to amenities. Other factors are largely beyond a household’s control, such as the conditions of the built environment, and the realities of the job and housing markets. Necessary expenditures on housing and transportation can be quite

influential when deciding where to live; and the magnitudes of these two costs are often inversely related to one another.<sup>1</sup> This is because the closer one lives to urban and employment centers, the less time and money is spent on transportation (Lipman, 2006). Cervero and Duncan (2006) concluded that balancing the proximity of jobs and housing through land use planning has the potential to significantly reduce vehicle miles traveled (VMT) and contribute to the reduction in motorized travel.<sup>2</sup> The cost of housing in these proximate locations, however, is usually greater than at the suburban fringe (Lipman, 2006).

Wishing to avoid the housing cost premium associated with neighborhoods closer to the urban core, many working class families move farther from their places of employment into outer fringe suburbs. Ross and Svajlenka (2011) found that in the Washington, DC region, housing costs were out of reach for low- and mid-skill workers in areas identified as offering strong transit access. Even where transit accessible areas supported lower transportation costs by reducing car ownership, wages were often not high enough to offset the housing cost burden.

Interestingly, because of the nature of the housing/transportation relationship, this decision often fails to reduce combined expenditures in these categories, but it does extend commute times and distances (Lipman, 2006); thereby increasing VMT and transportation sector emissions. This trend is only exacerbated by the fact that such far flung areas are typically less well served by transit than urban centers and their immediate surroundings, making personal vehicles the primary mode of travel.

---

<sup>1</sup> In a study of 28 metropolitan areas nationwide, it was determined that the average household spent 57% of their income on transportation and housing combined, and that due to the nature of the relationship between residence location, price, and transportation needs, that ratio was relatively stable across study areas (Lipman, 2006).

<sup>2</sup> This subject is covered in more detail under the proximity scoping paper "Proportion of Jobs / Housing within X Miles of Transit & Proximity to Amenities."

Central to decreasing greenhouse gas emissions from the transportation sector – a primary goal of the Transportation and Climate Initiative (TCI) – is the reduction of vehicle miles traveled; hence, the adoption of an indicator that captures both elements of the housing-transportation expenditures dynamic could prove highly beneficial.

Housing and transportation affordability (HTA) provides additional insights into communities' affordability, making it a potentially valuable tool in efforts to identify areas that are either a) prime examples of livable communities, as exemplified by their affordability to residents, or b) areas in which residents bear untenable costs of living, and are therefore rife for policy interventions and/or investments designed to mitigate housing and transportation expenses.

When particularly affordable locations are identified using and HTA, these “model communities” could serve as example case studies, yielding a host of potential land use and other approaches, proven to yield an affordable mix of housing and transportation options. In contrast, policy interventions and investments could be targeted at those study areas found to be inordinately costly with regard to housing and travel.

Although this metric can be applied at a variety of scales, it is arguably most meaningful when used to study smaller spatial extents. This is because as the size of the study area increases neighborhood and community-level values are combined, a process which can wipe out important value differences. For example, a state-level analysis would include information on cities, where housing costs are high but transportation is less expensive; suburbs, where housing costs less, but longer commutes mean greater transportation expenditures; and rural areas, where homes may be reasonably priced, but the distances to employment centers is considerable. Such an approach would facilitate gross comparisons with other states' overall HTA, but would

obliterate the variations that exist within each state with regard to the outcomes of these very different developmental patterns.

Like all of the other indicators considered throughout this paper series, “the devil is in the details.” In the case of HTA, the “devil” takes the form of available approaches’ inability to track this indicator in a timely fashion, as well as the fact that considerable resources may be needed to apply them. The following section describes the available methodologies and highlights the advantages and disadvantages of each. Based on this information, recommendations for the application of this indicator in the TCI context are presented.

## **Analytical Approaches**

The most often cited approach for measuring HTA is to use the Housing and Transportation Affordability Index Tool (HTAIT), created by the Center for Neighborhood Technology (CNT). The HTAIT is an online tool and is free to access and use. Data on housing and transportation costs are available for neighborhoods in approximately 900 micro- and metropolitan areas, which are home to roughly 89% of the US population. The tool typically omits rural, sparsely populated areas (CNT, 2012), and its appropriateness for any particular study area within the TCI region must be determined on the basis of data availability.

The Index takes into account a number of neighborhood characteristics, including: residential and gross density; measures of walkability, including block size; as well as transit and job access. Household characteristics, such as income and household size, are also considered. Finally, data on auto ownership and usage, as well as public transportation reliance are combined to yield total transportation costs. Taken together, these data points yield a score for each neighborhood, which reflects their individual affordability with regard to housing and transportation (CNT, 2012).

Although appealing because it is readily available and provides a user-friendly interface, the applicability of the HTAIT is limited due to the data which are used to populate it. Information gathered through the US Census' 2009 American Community Survey informs much of the housing-focused portions of the Index, while 2007 data from the American Automobile Association and National Transit Database feed into the transportation-centered components. As a result, the Index should be treated as a snapshot in time with regard to HTA, rather than an evolving, real-time indicator that can be relied upon to gauge the effectiveness of ongoing and proposed TCI-related policies and investments (CNT, 2012).

If an application is conceived in which a baseline HTA is desired for a locale for which the HTAIT contains data, this source should certainly be consulted. If, however, the effects of new or ongoing policy, investment, regulation, or other action on an area’s HTA are of interest, it will be necessary to conduct an original assessment of this metric. Available data sources for this type of analysis include the US Census Bureau’s American Community Survey (ACS)<sup>3</sup>, and the Community Planning and Development (CPD) Maps (HUD, 2012).

The CPD, which is made available by HUD, consists of a map-based interface and allows users to access community-level housing and economic conditions, which are largely drawn from two sources: 2005-2009 ACS estimates of demographic variables, and custom tabulations of Census data that are made available specifically to HUD called the Comprehensive Housing Affordability Strategy. Step-by-step instructions on calculating HTA using these sources are provided in HUD’s Guidance on Performance Measurement and Flagship Sustainability Indicator Fact Sheets, made available through the Department’s Office of Sustainable Housing and Communities (HUD, 2012).

<b>Advantages</b>	<b>Disadvantages</b>
Provides a more comprehensive picture of community/neighborhood affordability than can be obtained by considering either housing or transportation data in isolation	Easily-applied metrics are “snapshots” and rely on somewhat dated data
Can be used to identify areas that are exemplars of affordability or in need of interventions to enhance affordability	Unless state or local data can be obtained for use in place of federally-available information, it will be difficult to gauge the impact of any specific intervention, policy, or investment decision on a target community’s affordability

---

<sup>3</sup> For a detailed discussion of the ACS, please see the Travel Mode Share paper in this series.

## **Recommendations**

HTA is an appropriate indicator for determining baseline affordability of communities/neighborhoods within TCI. Data are readily available, and analyses can be carried out by following the detailed instructions in HUD's Guidance on Performance Measurement and Flagship Sustainability Indicator Fact Sheets; however, the loss of specificity incurred when "scaling up" to larger study areas, as well as the inherent difficulty of measuring trends and gauging the impacts of specific policy and investment decisions, make it a less than ideal approach for monitoring continued progress toward TCI's stated goals.



## **References**

1. Center for Neighborhood Technology. 2012. *H+T Index Methodology*. Available at: <http://www.htaindex.org/downloads/HTMethods.2011.pdf>
2. Cervero, Robert and Duncan, Michael. 2006. *Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing?* Journal of the American Planning Association, 72:4, 475-490.
3. Lipman, Barbara. 2006. *A heavy load: The combined housing and transportation burdens of working families*. Center for Housing Policy. Available at: <http://www.reconnectingamerica.org/assets/Uploads/pubheavyload1006.pdf>
4. Ross, Martha and Prchal Svajlenka, Nicole. 2011. *Connecting to Opportunity: Access to Jobs via Transit in the Washington, D.C. Region*. Available at: <http://www.brookings.edu/research/papers/2012/11/%7E/media/D3589634EEC94C09B895AB17D126DC1F.aspx>
5. U.S. Department of Housing and Urban Development Office of Sustainable Housing and Communities (HUD). 2012. *Guidance on performance measurement and flagship sustainability indicator fact sheet*. Available at: <http://portal.hud.gov/hudportal/documents/huddoc?id=OSHCPeefMeasFlagSustInd.pdf>
6. US EPA. 2011. *Guide to sustainable transportation measures*. EPA 231-K-10-004. Available at: [http://www.epa.gov/smartgrowth/pdf/Sustainable\\_Transpo\\_Performance.pdf](http://www.epa.gov/smartgrowth/pdf/Sustainable_Transpo_Performance.pdf)