

**Housing and Transportation:  
Redefining Affordability Research and Development**

**Technical Review Panel**

**Summary of Proceedings**

**Third Convening on June 1, 2012**

**Submitted: June 8, 2012**



**Technical Review Panel**

June 1, 2012

***Summary of Proceedings*****Attendees****Panelists\***

Andy Cotugno (Metro; Portland, WA)  
Leila Finucane Edmonds, J.D. (NeighborWorks America®; Washington, DC)  
Ed Goetz, PhD (University of Minnesota; Minneapolis, MN)  
Bart Harvey (Fannie Mae Board; Baltimore, MD)  
David Kack (Western Transportation Institute; Bozeman, MT)  
Kevin Kelly (Leon N. Weiner and Associates, Wilmington, DE)  
Chris Nelson, PhD (University of Utah; Salt Lake City, UT)  
Vince O'Donnell (LISC, Boston, MA)  
Rolf Pendall, PhD (Urban Institute; Washington, DC)  
Darren Smith (National Association of Realtors®; Washington, DC)

**Federal Agency Staff**

Shelley Poticha, HUD	Lilly Shoup, DOT
Neal Stolleman, Treasury	Yuh Wen Ling, DOT
Alastair Mcfarlane, HUD	Lee Sobel, EPA
Joshua Geyer, HUD	Beth Zgoda, EPA
Kevin Ramsey, EPA	

**Manhattan Strategy Team**

Taimur Amjad, MSG	Linda Young, CNT
Noreen Beatley, MSG	Peter Haas, PhD, CNT
Anna Cruz, MSG	María Choca-Urban, CNT
Amara Okoroafor, MSG	Sarah Campbell, CNT
Matthew Sussman, MSG	
John Bowen, MSG	
Andy Simpson, MSG	

**Presenters**

Lilly Shoup, DOT  
Yuh Wen Ling, DOT

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\* Technical Review Panelists not in attendance: Mtamanika Youngblood (Sustainable Development Strategies; Atlanta, GA), Tom Sanchez, PhD (Virginia Tech University, Blacksburg, VA) and Chris Zimmerman (Arlington County Board, Arlington, VA).

## Background

The Office of Sustainable Housing and Communities (OSHC), within the U.S. Department of Housing and Urban Development (HUD), in conjunction with the Department of Transportation (DOT) is working with the Manhattan Strategy Group (MSG) to develop an index that encompasses combined housing and transportation costs and explore how the index might be applied to core HUD program areas and the work of HUD partners and grantees. This project will enable HUD to be more strategic in pursuing data-driven policies that fulfill HUD's goal of redefining and increasing affordability in HUD-assisted communities.

MSG is working with the Center for Neighborhood Technology (CNT) to develop the Location Affordability Index to measure the combined cost of housing and transportation as a share of household income. The Index, along with a partner tool, My Transportation Cost Calculator, a customizable housing and transportation cost calculator will be hosted on the Location Affordability Portal. This Portal will offer resources and tools intended to help both policymakers and consumers make more informed planning and investment decisions.

This Technical Review Panel, composed of expert researchers and practitioners in housing, transportation, community development and related fields, was convened to guide the development and implementation of the Location Affordability Index (formerly the Housing and Transportation Affordability (HTA) Index). It reflects a diverse array of perspectives based on area of expertise, experience and geographic location. Over the course of the project, the Panel will provide insight and feedback on the data and methodology used to build the Index as well as guidance for potential applications of the tool at the federal and local level. The following summary of proceedings is from the third of five full-day convenings held in Washington, DC over the course of the project.

## Overview

On June 1, 2012, nine members of the Location Affordability Index Technical Review Panel met with staff from MSG, CNT, and representatives from several federal agencies including HUD and DOT to discuss the status of the Location Affordability Index project and provide input on key tasks scheduled for delivery in the next several months.

In particular, participants were updated on the progress to-date of the development of the Location Affordability Index, My Transportation Cost Calculator and the vehicle to highlight the tools, the Location Affordability Portal, as well as several other elements of the project, including the analysis of HUD programs. Lilly Shoup and Yuh Wen Ling of DOT also delivered a presentation outlining DOT's priorities with respect to development and implementation of the Index and DOT's planned involvement in the project.

Panelists were given the opportunity to ask questions of presenters, MSG staff and federal representatives and to share their perspectives on the critical issues that must be addressed in the methods, data and design implemented for the Index and Calculator. During these conversations, a number of action items and ideas for additional research were identified to guide the development of the Location Affordability tools.

At the end of the day, panelists were asked to share ideas for marketing and outreach opportunities that would supplement MSG's current strategy and to brainstorm potential applications of the tools. Although this conversation was relatively brief, panelists agreed to contribute additional thoughts via future conference calls.

## **Panel Proceedings**

### **Project Update and Introductions**

The meeting began with the introduction of a new panelist, Kevin Kelly of Leon N. Weiner and Associates. Mr. Kelly is replacing the seat vacated by Bob Nielsen of Shelterforce Properties in Reno, NV due to his inability to continue to participate on the Panel. Introductions were followed by a status update on project activities from Noreen Beatley, MSG's Project Director.

### **Website Design and Functionality**

John Bowen of MSG and Peter Haas of CNT provided an update on the design of the Location Affordability Portal site and the functionality of the tools contained within it. Panelists reviewed mockups for the main page of the Portal, as well as internal landing pages for the Location Affordability Index and My Transportation Cost Calculator. Panelists also reviewed preliminary versions of the tools, discussed the functionality of each tool and made recommendations for changes and new features that will be considered for inclusion. This feedback is summarized below.

#### **Cost Calculator**

Panelists questioned whether the map occupied too much space.

A panelist asked if functionality could be added to the calculator to allow users to see how costs would change if they "maximized their use of public transportation." This sparked an extended conversation among panelists and federal staff about the level of customization available to users in entering information on their use of alternative modes for commuting.

CNT observed that the commute trip is a small portion of total trips and that this information would probably not impact modeled estimates in a significant way. Panelists and federal staff generally agreed that giving users more flexibility and customized features, even if these features yielded little difference in cost estimates, is valuable both for the credibility of the site and for prompting users to think more about how their mode of transportation impacts their transportation costs.

Several panelists pointed out that even if the commute mode had a small impact on the costs, not using a car for the commute trip would shave a significant amount off of vehicle miles traveled (VMT), especially for households with longer commutes. Panelists would like to see this reflected in the reported values.

Several panelists said they want the calculator to allow users to get the values reflecting their household and travel characteristics to match their real behaviors as closely as possible.

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As part of this conversation, participants also asked if additional information on mode split could be included at the neighborhood level to help users more clearly understand how their behavior and costs compare to typical households in the area.

A number of panelists discussed the need for more information to help users understand what the values and costs displayed meant and how to make appropriate comparisons. Federal staff and CNT indicated that additional contextual information would be included in the final version of the calculator.

One panelist observed that the tool seemed very urban-centric and asked whether it would ultimately cover every tract/county in the country. CNT responded that although many rural counties are currently included in the model, there are some challenges in getting accurate estimates. CNT's current H+T<sup>®</sup> Affordability Index only covers metropolitan and micropolitan areas; the 940 metropolitan and micropolitan areas included in the scope of this project will cover approximately 94% of the population. FEDERAL RESPONSE: the goal is to eventually cover the entire country.

One panelist asked if it would make sense to allow users to enter VMT estimates for each car separately instead of a total household VMT.

One panelist remarked that, in light of requests for a high level of user customization, it might make sense to test two versions with differing levels of customization and track what drives more engagement among site users/testers. This recommendation may be incorporated into HUD's beta testing of the tools.

### **Location Affordability Index**

Panelists discussed which household types should be included in the Index. Two panelists mentioned that their organizations use up to 14 household typologies internally and could potentially share this information.

One panelist pointed out that a "typical" household could refer to mean, median or mode for household size in a region and that "2.3" is not an intuitive number for a typical household size.

Panelists observed that many regions have very significant income disparities, often found between the suburbs and central city; this suggests multiple income levels should be considered for inclusion in the Index.

Panelists also discussed how different households could be displayed by the tool. One panelist suggested that users be given the ability to select four household types of their choice from a larger menu for display.

Panelists asked about the ability to build a household type in the cost calculator which could be used generate regional estimates in the Location Affordability Index. Unfortunately, the level of computing power and time needed to produce "on-the-fly" regional estimates appears to preclude this feature.

Panelists also discussed additional ways to link or "bridge" the Calculator and Index tools, including potentially starting with a household type within the Index to build a more customized profile in the Calculator.

Panelists also discussed the importance of designing each tool to be as effective as possible for its intended audience without focusing on overlap in the functionality or information included in each, unless these additions make the tools more functional on their own.

Panelists asked about their ability to participate in the beta testing of the tools. Federal staff indicated that this should not be a problem.

## **Methods, Data and Variables**

CNT provided an update on their work to hone the methods, data and variables used to build the Location Affordability Index. Their presentation focused on priority areas identified by Econsult, HUD and DOT staff and panelists. These areas included:

- Revealing data, processes and calculations
- Calibrating the Index to 100
- Updating and improving housing data
- Inclusion of additional public data sources and/or new public data sources
- The ability to integrating local data
- Publishing regression analysis coefficients
- Calculating the Index according to statewide data
- Adopting a linear regression framework
- Creating a longitudinal dimension
- Addressing American Community Survey (ACS) margins of error
- Cost of parking
- Calibrating VMT data
- Auto cost and use data

## **DOT Presentation on Areas of Transportation Focus in the HTA Index**

Following CNT's presentation, Lilly Shoup and Yuh Wen Ling of DOT provided an update on their involvement in the project and DOT's priorities for the final product. In particular, they stressed the importance of transparency, long term data sustainability and the adaptability of the model as the key criteria for the Index to be useful for transportation applications. They also briefly discussed the contract modification that will have DOT staff more directly involved in certain project tasks, especially research on auto costs. Major recommendations included:

- Ensure CNT's AllTransit™ data can be effectively maintained/updated or replaced by federal staff in the future without compromising the Index.
- Clear communication about the limitations of the Census' Local Employment Dynamics (LED) OntheMap data.
- Avoid ACS block-group level data with significant quality issues.
- Use National Housing Travel Survey (NHTS) data to calibrate the model's VMT.
- Replace auto ownership and use cost with a sustainable federal data source.

## Methods, Data and Variables Discussion

Peter Hass of CNT lead the presentation and discussion of the methods, data and variables being considered and researched for incorporation into the Location Affordability Index. One element of CNT's presentation utilized the fourth power of transportation costs to create a 0-100 Index; Panelists were concerned that this measure could create an artificial variation by inflating the differences in the middle of the range. Federal staff and CNT pointed out that this allows for greater variation across a region, but acknowledged panelists' concerns.

Panelists discussed various ways to acquire more refined housing costs estimates, including simulating the distribution of household types to tracts/block groups using an established model, and then using this distribution to allocate housing costs based on Public Use Microdata Areas (PUMA) data for different income cohorts at the tract/block group level.

A staff member from the Environmental Protection Agency (EPA) suggested the possibility of using regional or sub-regional market housing data to develop a constant share adjustment of selected monthly owner costs (SMOC) and gross rent values from the ACS to keep things simple.

Panelists discussed how to incorporate characteristics of the housing stock, as well as household characteristics, such as the age of housing, to refine housing costs.

Panelists asked about the impact of housing subsidies on ACS housing cost data. It was suggested that HUD's Picture of Subsidized Households could be used to show where housing choice vouchers (HCVs) are distributed and adjust costs accordingly. A similar analysis could be done for the Low Income Housing Tax Credit (LIHTC) and HOME programs.

Panelists suggested incorporating HUD subsidies into estimates of housing costs and possibly transportation costs as well. This could potentially be accomplished using the distribution of subsidies as an independent variable to model housing costs (this may work as well for SMOC and transportation costs).

Panelists commented that there are ways to work with non-linear relationships in addition to the approaches used by CNT, including using bins.

Panelists discussed the problems posed by self-selection, but one panelist suggested that demographic studies have shown this issue to be overblown.

A panelist asked if the Index could take into account the relative appreciation of housing costs across a region based on more recent appraisals. The concern is that, even if transportation costs are properly calculated, if housing costs are not, then much of the Index's utility is lost since housing costs are larger. When a consumer tool is used in which people can compare their situation to similar households already located in an area this would probably not be an issue; however, for use as a policy tool, e.g., "where we are sending people out with section 8 vouchers," the housing costs need to be accurate. The potential for using new data being compiled by Fannie Mae and the Federal Housing Finance Agency (FHFA) on real time home values was discussed. The MSG team will look into when and if this data will be available for inclusion into the Index.

Panelists discussed the issue of current residents versus those moving *into* a community and how this distinction is relevant to both housing and transportation costs. While a household will bring behaviors developed elsewhere when they move to a neighborhood, these behaviors may change over time, especially for younger people. It was suggested that CNT could use variables about the length of tenure/recent moves found in the Census to incorporate elements of these differences as these characteristics may impact both transportation and housing costs. How recently a household moved could be an important predictive variable of housing and transportation costs. It was suggested that the cost calculator could be driven by recent movers, but household characteristics of interest would most likely be different for a policy tool. Some panelists commented that this approach would not work for neighborhoods experiencing rapid change, and that those are some of the places where it would be most important for policymakers to make policy decisions or interventions. If the FHFA is developing real-time price data it would be ideal to incorporate it into the model.

Panelists asked about the growing trend of telecommuting and how this will impact the Index. CNT indicated that commuters counts used within the Index do not include those employees working from home. Panelists suggested that that partial week commuting patterns should also be considered, especially for the Calculator.

Federal staff and panelists asked about the General Transit Feed Specification (GTFS) system and the sustainability of CNT's AllTransit™ Data, including the number of person hours needed to maintain and update the data. CNT responded that publicly available GTFS data is updated regularly for large agencies and these changes are easily incorporated. CNT is still developing an update schedule. A question was raised in regard to the number of hours needed to compile the data and create the database. CNT responded that, in terms of hours, hundreds were required to build the initial database, but updates would be significantly less time-intensive.

Federal staff asked specifically about data sharing agreements with transit agencies and proprietary concerns with respect to the transit data. CNT indicated that, out of hundreds of transit systems, only a few data sharing agreements were needed. The agreements have generally disclaimed liability on the part of the transit agency and requested CNT ask for current data when the database is updated.

DOT staff advised the panel that the Federal Transit Administration (FTA) is doing research to help transit agencies better incorporate GTFS data; a panelist referenced a current effort to help rural transit agencies use GTFS with simpler tools that do not require significant resources, consultants, etc.

## **HUD Program Analysis**

Matthew Sussman of MSG updated panelists on the status of the HUD program housing and transportation cost analysis. The presentation included information on the final selection of programs, subject matter experts that have been retained, the process of collecting program data from HUD and a discussion of the anticipated methodology. Presenters were asked for feedback on the general methodological approach as well as the specific geographic areas, time periods and household types that will be the focus of the analysis.

Panelists made a number of recommendations and suggestions during the presentation, including:

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- The analysis must include a Fair Housing element, and HUD’s role in enforcing the Fair Housing Act should be detailed for each program, in particular for LIHTC;
- The analysis should include HUD Income Limits as a household parameter;
- The analysis should employ both averages and ranges as measures of locational outcomes for subsidized households and comparison households;
- The analysis should consider that households receiving subsidies have a higher purchasing power/effective income due to the subsidy than unsubsidized households with the same income;
- The analysis should include assessment of different local policies affecting housing subsidies, such as state qualified allocation plans (QAPs);
- To the greatest extent possible the analysis should explore differences in locational outcomes for different subsidized groups, such as seniors versus families. It was acknowledged that these households have very different characteristics in terms of workforce participation and other household factors and may be distributed differently as a result of local politics and community opposition to affordable housing; and
- Panelists would like an opportunity to review the research methodology in more depth

### Applications and Marketing Discussion

Noreen Beatley of MSG and Maria Choca Urban of CNT delivered updates on marketing and outreach efforts for the project and applications of H+T<sup>®</sup> data observed to-date. Panelists were asked for their feedback on opportunities for articles and presentations as well as their perspective on the marketing strategy as a whole. Due to time constraints, panelists agreed to contribute additional input via conference calls and a review of materials focused on these topics. However, during the brief discussion, panelists provided several comments and made some recommendations, as summarized below:

- Explore the relative cost of subsidizing automobile transportation and try to account for the cost of time;
- Stress the educational aspect of the tools, particularly the fact that commuting represents a relatively small portion of transportation costs;
- The foreclosure impacts of drive-til-you-qualify, which reflect the importance of location efficiency measures, would be an interesting application. Panelists were only aware of anecdotal evidence to support the impact, and were unaware of any major study conducted to date.
- Remember that the policy environment around affordable housing issues is difficult. High density and especially affordable housing is often vehemently opposed at the local level in many communities, especially within suburban America. To make a positive impact, the project team needs to do more outreach to practitioners such as the National Association of Counties (NACo), National Council of State Housing Agencies (NCSHA), National Association of Home Builders (NAHB), U.S. Department of Agriculture (USDA), commercial developers, and chambers of commerce. These are groups with real stakes in the policy issues being discussed and they need to be included. **FEDERAL RESPONSE:** The Technical Review Panel is not the only channel of input; Direct outreach is being conducted to many of these groups and additional organizations mentioned will be added to outreach efforts
- Focus on implications for mortgage underwriting, but first determine how tools could be used given the level of individual variation. There is a need to consider actual transportation costs as well as area costs. If someone resides in a remote location but has a strong job in close proximity to their residence, and significant equity in their home that could represent a good loan; but a shaky job and less equity indicates a risky loan.

## **Next Steps**

Panelists agreed to participate in Doodle polls to determine the dates of the final two panel meetings as well as times for follow up calls to discuss critical tasks over the coming months.

## Recommended Actions

During the course of the convening, a number of critical issues were identified. The following list includes immediate next steps and high priority concerns raised by panelists as well as concrete items for further investigation or research. Although all recommended actions will be carefully considered by the MSG team in consultation with federal staff, time and resource constraints may limit the implementation of all recommendations.

- **Cost Calculator**
  - Provide more information/variation on commute options (e.g., 3 days/week, multiple modes) to allow users to check a box on mode choice (even though it is not an input into model); consider a way to prompt users to note if their mode use is significantly different from similar households in same neighborhood
  - Add housing cost field to top of site with other household characteristics
  - More explicit information on neighborhood mode split
  - Test two versions with differing levels of customization
  - Clearly indicate that numbers for similar households are estimates
  - Consider reducing the map size
  - Revise graphic approach to fields that are currently pre-populated
  - Better articulate comparisons to similar household
  - Create a bridge between the two tools: Index and Cost Calculator
  
- **Index**
  - Continue to research calibration of Location Efficiency Index
  - Continue to research household types to include in the Index and how to build the interface around these households
  - Determine if FHFA/Fannie Mae housing price data is available or will be available in the near future
  - Investigate possibility of using PUMA data to allocate housing costs for different income cohorts
  - Investigate constant share adjustment to update housing costs
  - Consider using bins to deal with non-linearity of model
  - Consider impact of subsidized housing on Census figures for market housing costs
  - Consider using the distribution of housing subsidies as an independent variable to model housing costs
  - Explore data for recent movers as compared to long-time residents
  
- **Program Analysis**
  - Include a discussion of Fair Housing
  - Use HUD Income Limits as one of the parameters for modeling households
  - Incorporate an assessment of state QAP policies
  - Explore differences in the household characteristics and locational outcomes for different subsidized groups, such as seniors versus families
  - Share methodology documentation and schedule follow up call with interested panelists and subject matter experts

- **Potential Applications**
  - Research relative cost of subsidizing automobile transportation for low income households
  - Focus on educational aspects
  - Evaluate Links between location efficiency, mortgage default and the housing crisis
  
- **Outreach and Marketing**
  - More direct outreach to other potentially impacted stakeholders such as NACo, NCSHA, NAR, NAHB, USDA, commercial developers, Chambers of Commerce