

# TRB Data Panel

## How Do We Know Its Affordable?

Strategies for Enhancing Public Knowledge

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TRB, January 22 2012

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# The Challenge

- Household travel is expensive, and varies widely across metro regions measured at local scale
- Official data sources don't provide direct measurements of contributions to travel demand at small areas, such as urban form, nor resulting measures such as VMT/HH

# Why This is Important *aka* The Value Proposition

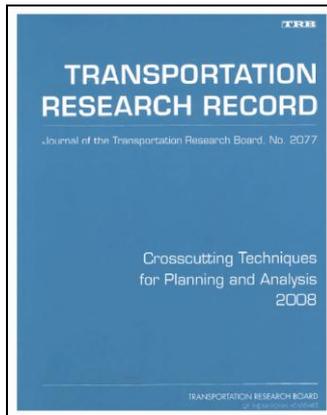
- Cost of living rising faster than incomes
- Economic recovery strategy requires targeting but tools to identify potential household and community benefits require small area data
- Similar concerns during Depression led to invention of GDP
- The payoff is significant e.g. one less vehicle/hh == 10 percent increase in disposable income, increased tax base, regional jobs access
- More efficient use of scarce public resources
- Support necessary leverage of private investment in infrastructure
- Achieve economic security— household economic counseling and foreclosure prevention
- Get alignment between economic and environmental goals, e.g. climate protection
- In presence of small area economic benefits data, people vote to tax themselves for improvement if also to be implemented by local agencies
- Suggests strongly that a pathway to renewed investment in infrastructure is to tie it to locally implemented investments that reduce cost-of-living

# Step One: Defining and Measuring Location Efficiency

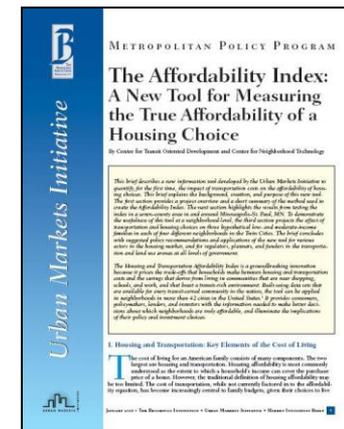
- Travel demand is a function of convenience
- Requires measuring land use, transportation choice, household characteristics and travel demand on a small area basis
- Proposition is that convenience predicts travel demand controlling for income & HH size
- Several innovative data sources developed
- Example—Use of odometer readings taken bi-annually in all non-attainment areas through Enhanced Inspection/Maintenance
- We collected millions of “clean” readings in SF, LA and Chicago
- This is data already paid for but hardly used

# How is Location Efficiency Determined- Explain Using Regression? (Memorize This...Or..... )

## Veh/Hh, VMT/Veh and VMT/Hh in metropolitan San Francisco

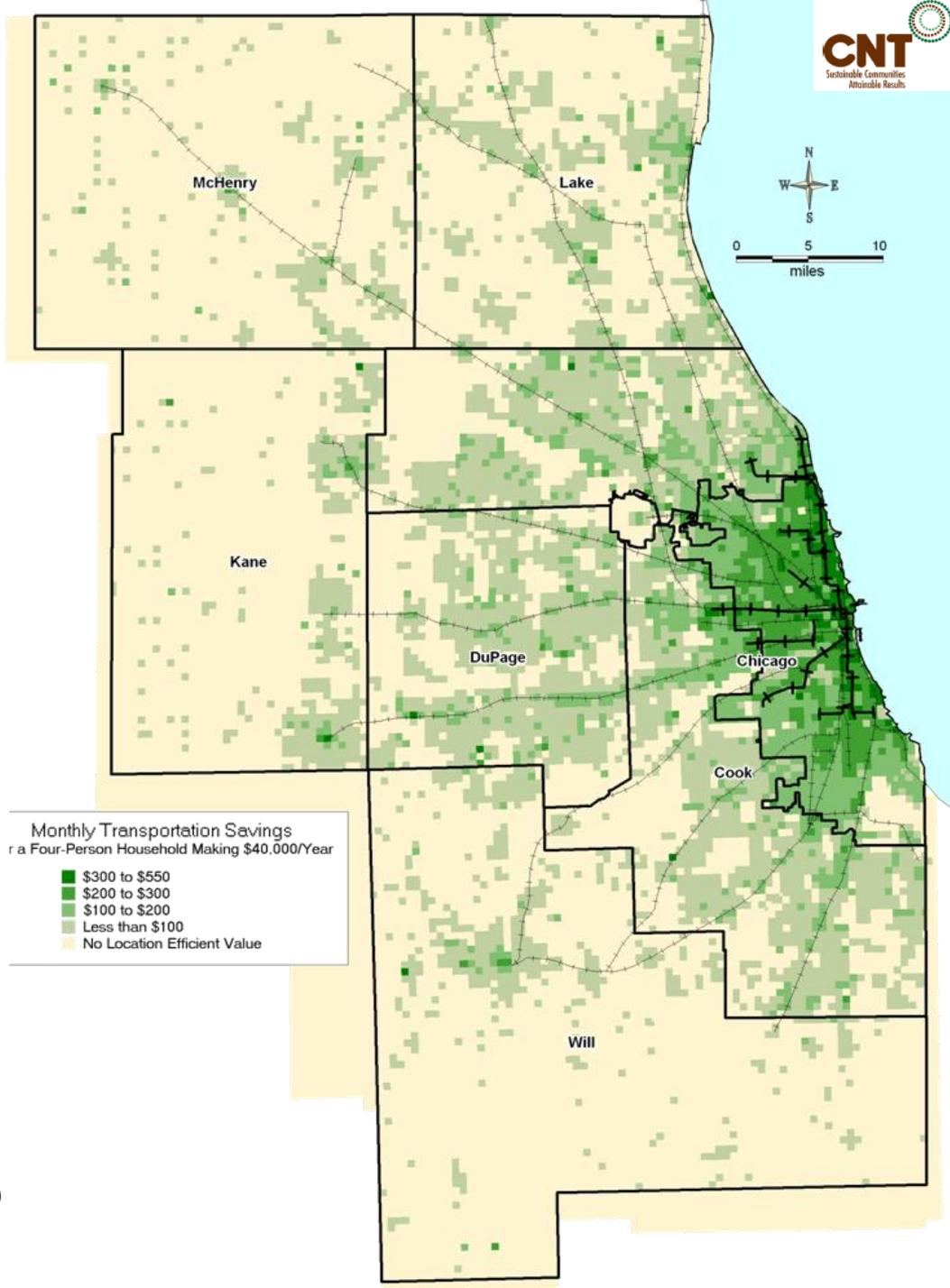
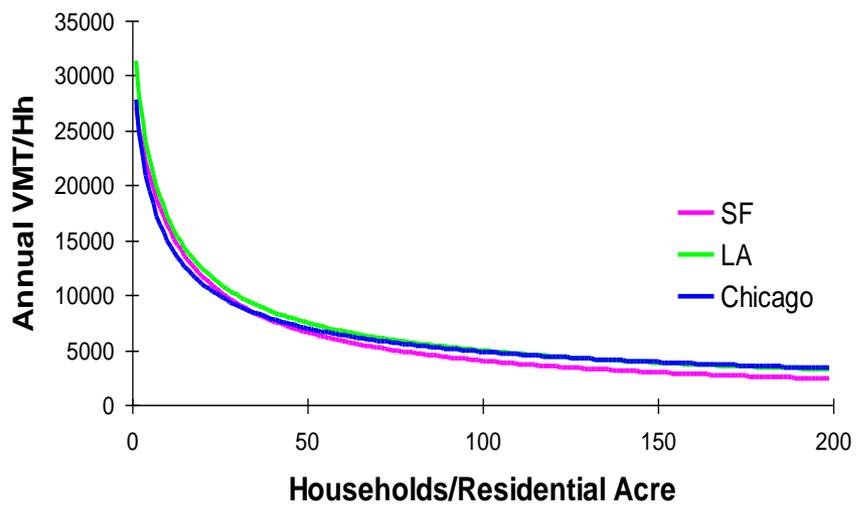


*Peer-reviewed by  
Brookings and National  
Academy of Sciences 2008*



# Even Easier to See: Mapping the Benefit

- Good transit access yields one less car per household
- Lowers cost of living by \$5-8,000
- Equivalent of increasing income 10-20 percent tax free



# Step Two—Try It Out—Location Efficient Mortgage Demo 2000-2005, Well Received, No Foreclosures, Outperformed Market

## Chicago Tribune

18 Section 1

Sunday, June 4, 2000

### Skip the car, buy a house

There's a lot of hand-wringing nowadays about suburban sprawl and the need for "smart growth."

But like the weather, nobody's doing much about it.

Much of the home-buying public still opts for wide-open spaces along the metropolitan fringe. And despite thoughtful warnings from civic and regional groups, political realities in Illinois militate against significant governmental action.

Now comes a modest but innovative pilot program that just might make a small difference. Maybe even a big difference—if it educates the public about the true cost of living "out there."

It's called the Location Efficient Mortgage, or LEM, and it has been developed by environmental groups such as Chicago's Center for Neighborhood Technology along with Fannie Mae, the government-chartered, stockholder-owned repurchaser of home mortgages.

It works like this: Participating lenders, in evaluating applicants, take into consideration how close the dwelling is located to public transportation. If it's so close the applicant can live without a car, or a working couple can get by with just one, the estimate of dispos-

able income is increased, and with it, the size of the mortgage for which they qualify.

A couple jointly earning \$60,000 and buying into Chicago's transit-rich Edgewater neighborhood, for instance, would qualify for a home selling for \$212,218. Out in the boonies, under traditional guidelines, the limit would be \$158,364.

And there are sweeteners. LEMs are not subject to income limits and they offer more flexibility, including lower down payments, than conventional mortgages. The City of Chicago, moreover, is offering vouchers worth \$900 toward the purchase of energy-efficient appliances to the first 100 LEM borrowers.

Downsides? There's mandatory counseling. And for now it's limited to Chicago and three West Coast cities.

The ultimate value of LEM, however, may be to show, in ways people readily understand, that sprawl does impose costs. Some of that cost is paid, knowingly and gladly, by those who choose to live "out there." Much of it, however, is hidden, and paid indirectly by those who live "back here."

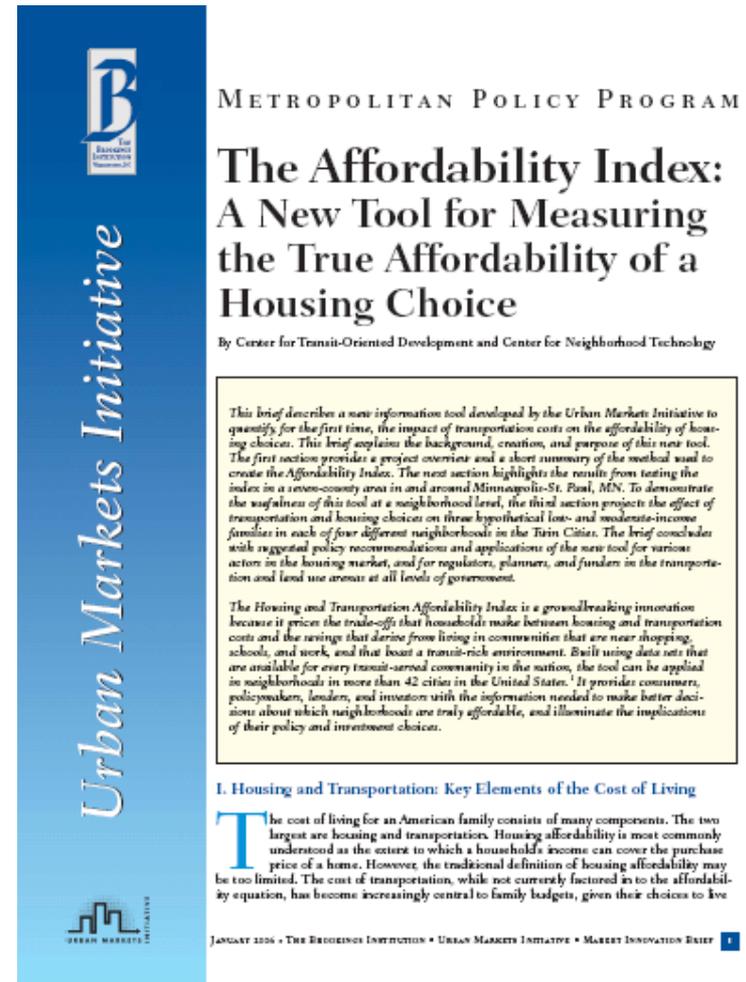
For more information about LEMs call 1-800-732-6643.

# Step Three— Indexing Truer Affordability

## How Housing Affordability is Calculated—Then and Now

- Historically: Traced to 19th Century ideal—A Week’s Pay for a Month’s Rent
- Today benchmark affordability is defined as housing costs/Income less than or equal to 30 Percent of target population AMI
- Problem—Doesn’t include cost of transportation

<https://htaindex.org>



**Urban Markets Initiative**

**METROPOLITAN POLICY PROGRAM**

**The Affordability Index:  
A New Tool for Measuring  
the True Affordability of a  
Housing Choice**

By Center for Transit-Oriented Development and Center for Neighborhood Technology

*This brief describes a new information tool developed by the Urban Markets Initiative to quantify for the first time, the impact of transportation costs on the affordability of housing choices. This brief explains the background, creation, and purpose of this new tool. The first section provides a project overview and a short summary of the method used to create the Affordability Index. The next section highlights the results from testing the index in a seven-county area in and around Minneapolis-St. Paul, MN. To demonstrate the usefulness of this tool at a neighborhood level, the final section projects the effect of transportation and housing choices on three hypothetical low- and moderate-income families in each of four different neighborhoods in the Twin Cities. The brief concludes with suggested policy recommendations and applications of the new tool for various actors in the housing market, and for regulators, planners, and funders in the transportation and land use arenas at all levels of government.*

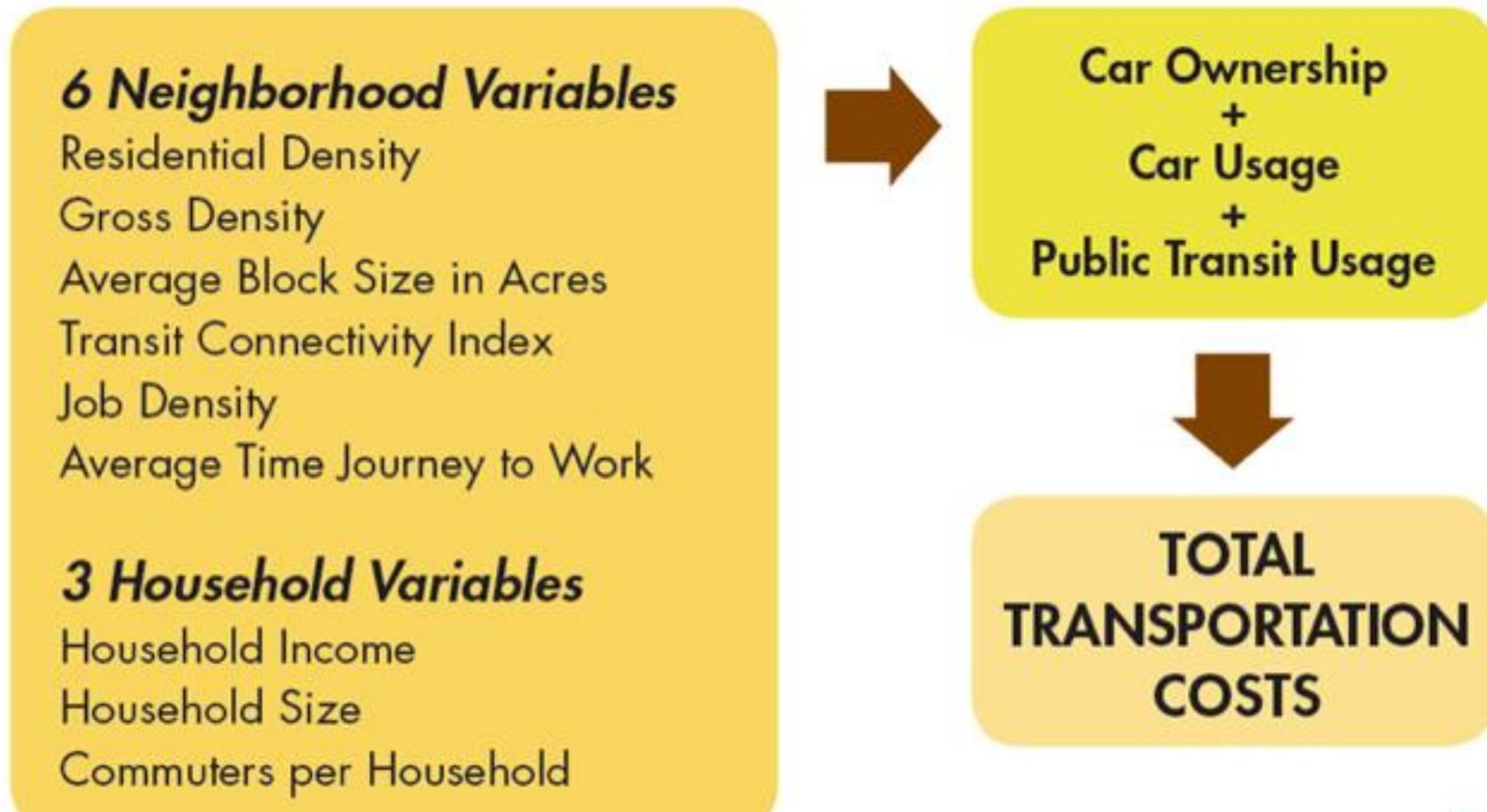
*The Housing and Transportation Affordability Index is a groundbreaking innovation because it prices the trade-offs that households make between housing and transportation costs and the savings that derive from living in communities that are near shopping, schools, and work, and that boast a transit-rich environment. Built using data sets that are available for every transit-served community in the nation, the tool can be applied in neighborhoods in more than 42 cities in the United States. It provides consumers, policymakers, lenders, and investors with the information needed to make better decisions about which neighborhoods are truly affordable, and illuminate the implications of their policy and investment choices.*

**I. Housing and Transportation: Key Elements of the Cost of Living**

**T**he cost of living for an American family consists of many components. The two largest are housing and transportation. Housing affordability is most commonly understood as the extent to which a household's income can cover the purchase price of a home. However, the traditional definition of housing affordability may be too limited. The cost of transportation, which not currently factored in to the affordability equation, has become increasingly central to family budgets, given their choices to live

JANUARY 2006 • THE BRIDGES INSTITUTION • URBAN MARKETS INITIATIVE • MARKET INNOVATION EXIST 1

# Step Four—Stepping Back from Homeownership to Affordability

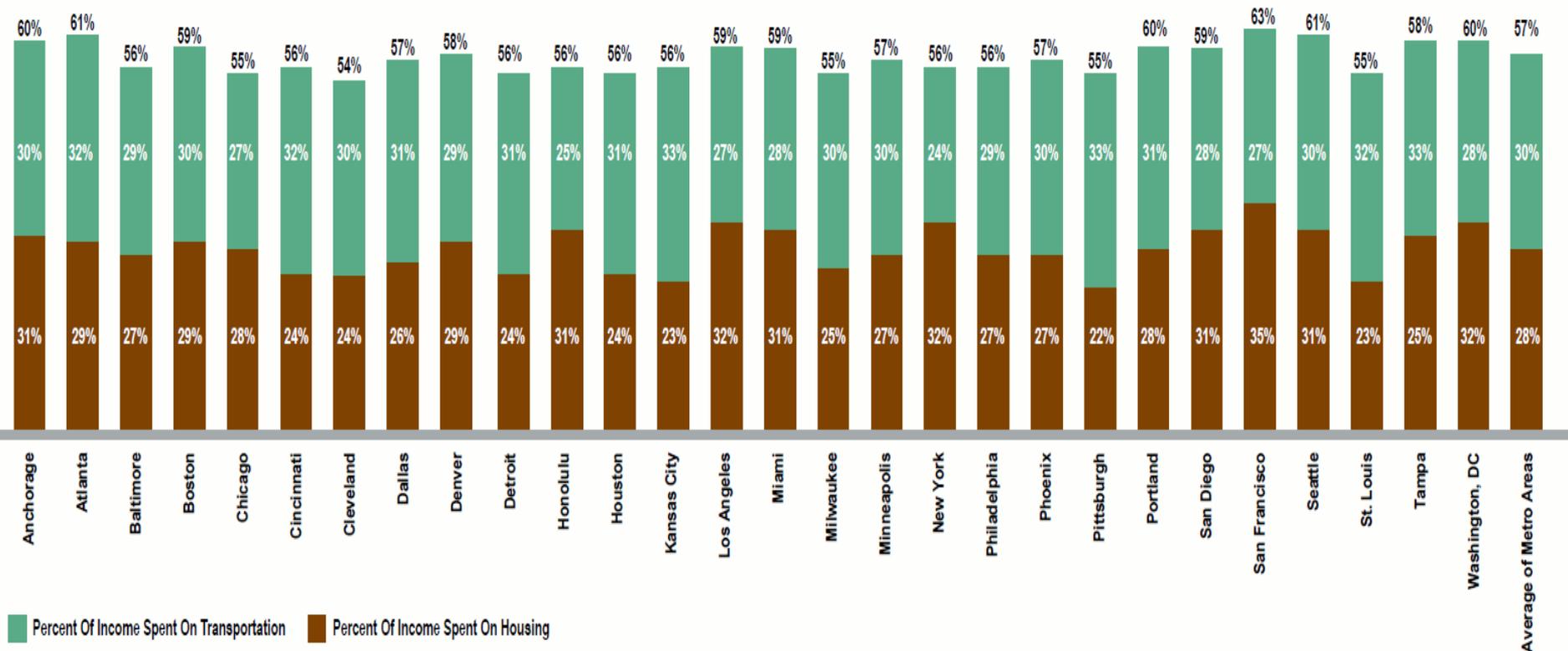


# A HEAVY LOAD:

The Combined Housing and Transportation Burdens of Working Families



# Housing + Transportation Costs Vary by Place Across the US

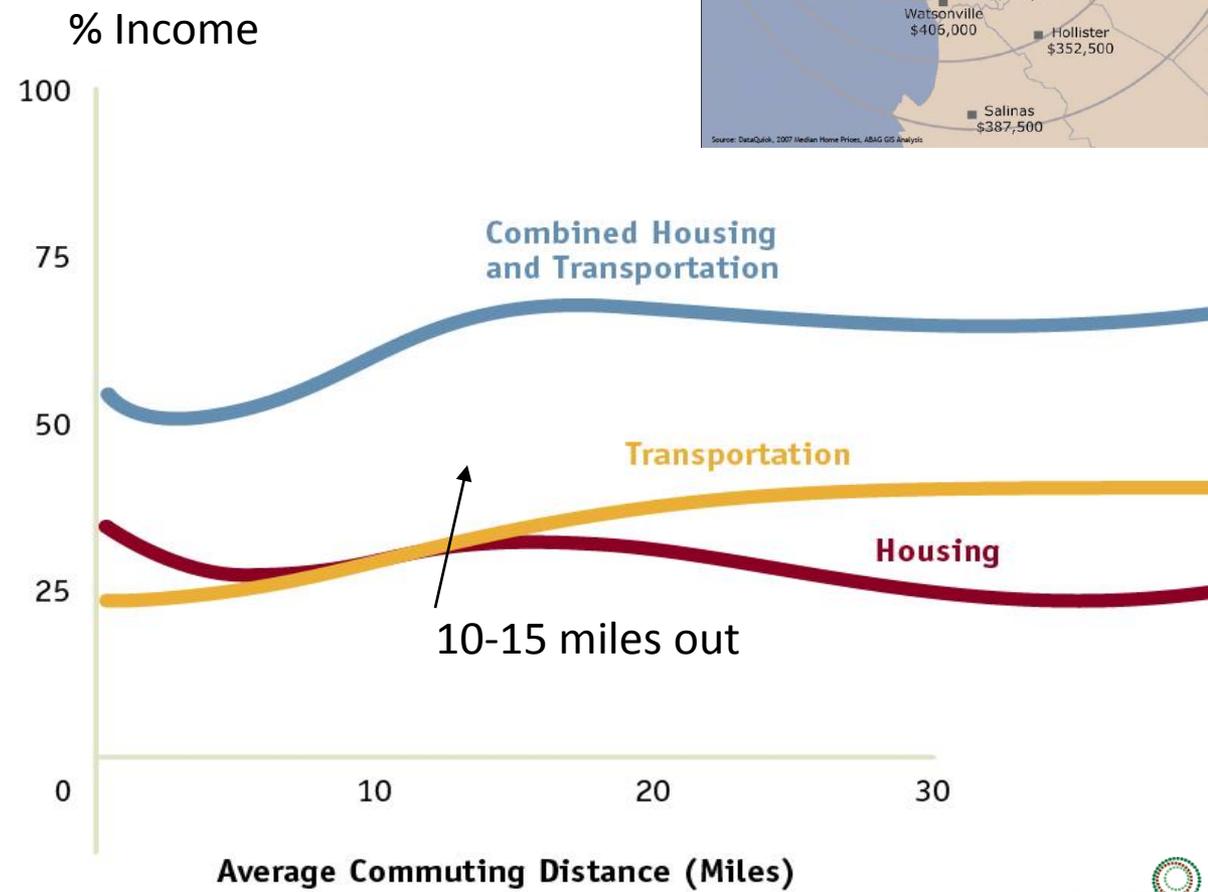


Percentages for working families with incomes between \$20k - \$50k



# Step Five—Worlds Collide—Effect of ‘Drive ‘til You Qualify’ —Transport Costs Can Exceed Housing Costs for HHs Earning \$20-\$50,000

- Lack of transportation costs in listings = hidden costs
- Transportation emissions can also equal or exceed emissions from residential energy
- Creates “driving to green buildings” challenge



source: Center for Neighborhood Technology calculations.

# Step Six—Make it Available <http://htaindex.org>



True Affordability and Location Efficiency

## H+T<sup>SM</sup> Affordability Index

[Maps](#) [About](#) [Press](#) [Method](#) [Mailing List](#)

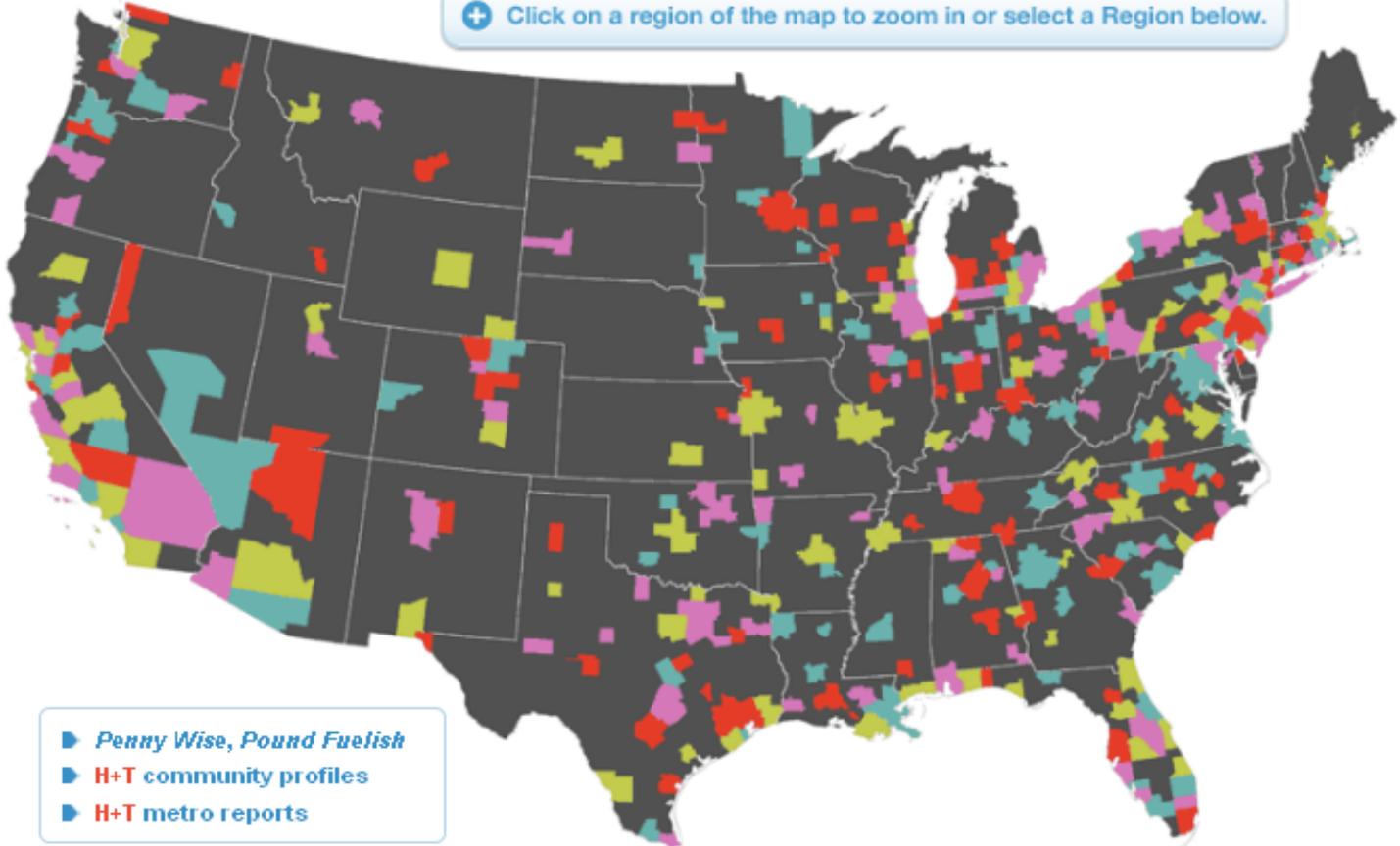
For more information about CNT please visit the CNT website.



The Housing + Transportation Affordability Index is an innovative tool that measures the true affordability of housing based on its location.

Americans traditionally consider housing affordable if it costs 30 percent or less of their income. The Housing + Transportation Affordability Index, in contrast, offers the true cost of housing based on its location by measuring the transportation costs associated with place.

+ Click on a region of the map to zoom in or select a Region below.



Alaska



Hawaii



Puerto Rico

- ▶ Penny Wise, Pound Foolish
- ▶ H+T community profiles
- ▶ H+T metro reports

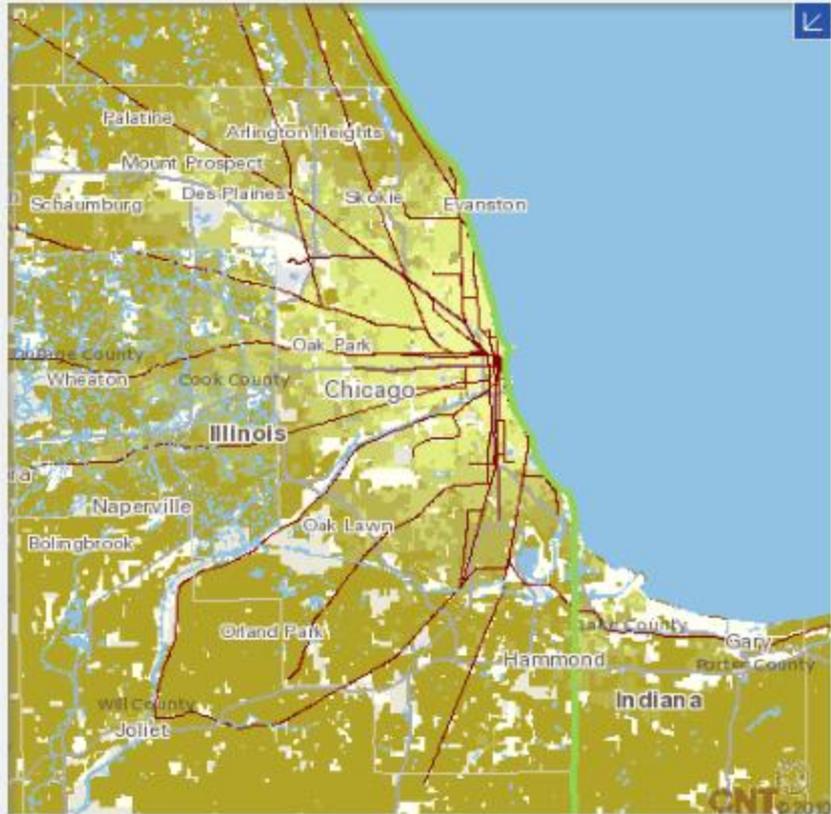
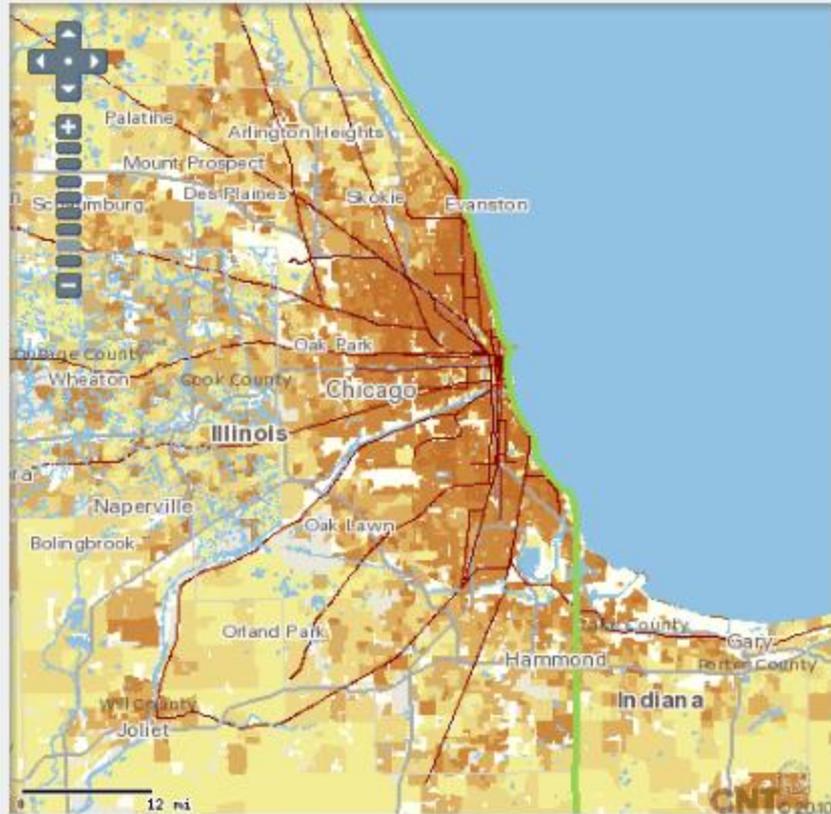
# Chicago MSA Mirror Images—Net Net Density 0-347 HH/RA v. 6600 to 30,400 VMT/HH/Year

## Residential Density ▼ Change

Household Density		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,970 with data)	5,583 (5,583 with data)
Minimum	0 HHs/Res. Acre	0 HHs/Res. Acre
Average	11 HHs/Res. Acre	12 HHs/Res. Acre
Maximum	347 HHs/Res. Acre	347 HHs/Res. Acre
Households	2,971,690	2,739,718

## Vehicle Miles Traveled (VMT) per Household ▼ Change

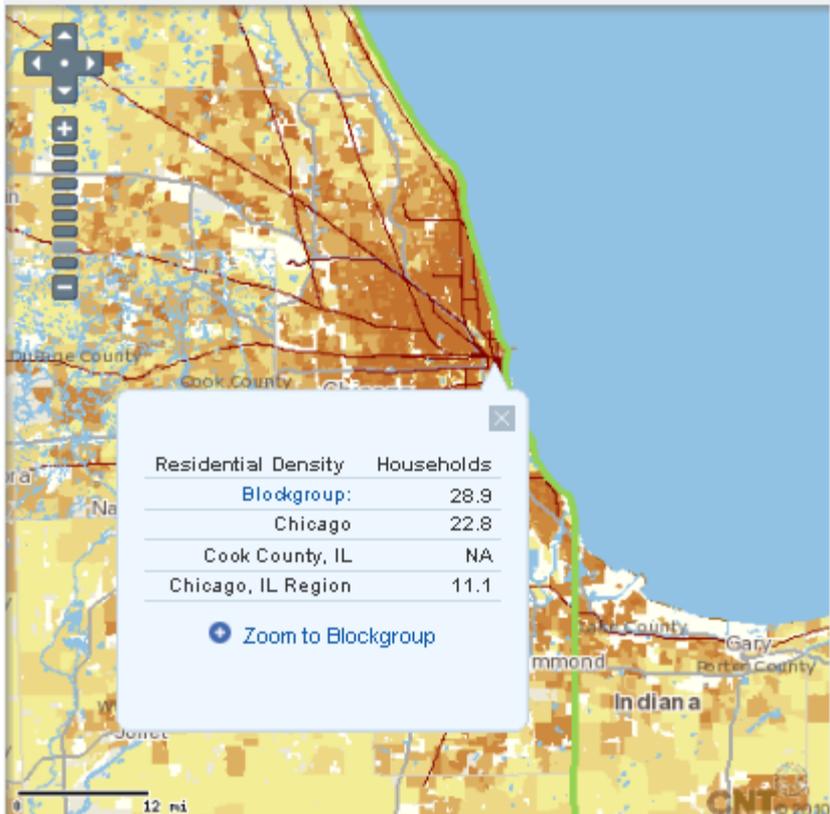
Vehicle Miles Traveled (VMT) per Household		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	5,583 (5,511 with data)
Minimum	6,600 Annual Miles	6,600 Annual Miles
Average	16,567 Annual Miles	15,886 Annual Miles
Maximum	30,399 Annual Miles	29,453 Annual Miles
Households	2,971,528	2,739,556



# One-Click Shows Area of Lowest VMT

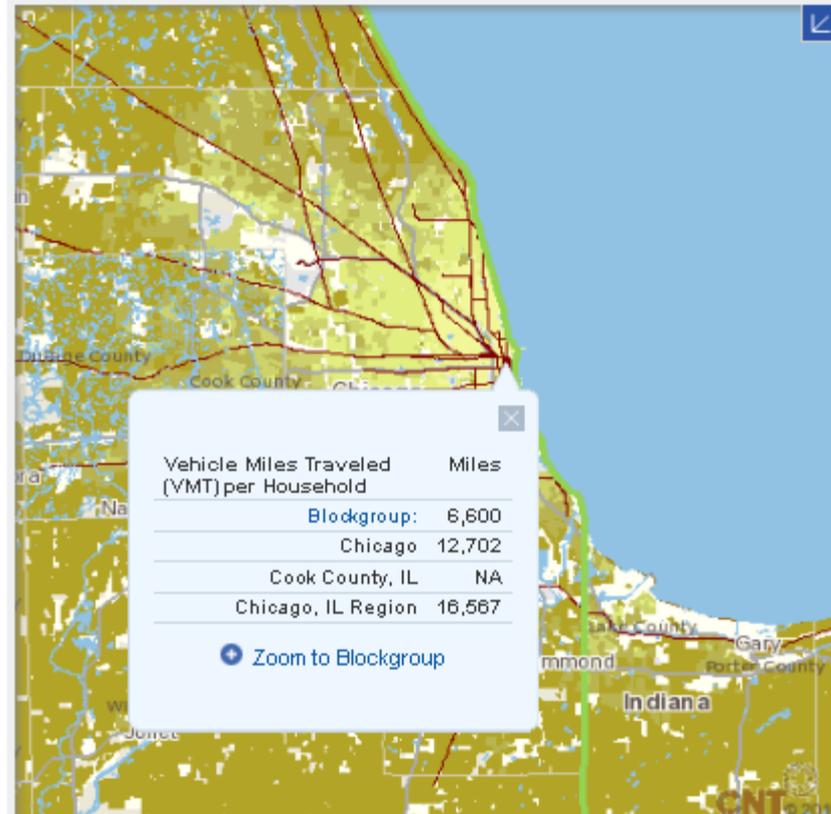
## Residential Density ▼ Change

Household Density		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,970 with data)	5,585 (5,585 with data)
Minimum	0 HHs/Res. Acre	0 HHs/Res. Acre
Average	11 HHs/Res. Acre	12 HHs/Res. Acre
Maximum	347 HHs/Res. Acre	347 HHs/Res. Acre
Households	2,971,690	2,741,118



## Vehicle Miles Traveled (VMT) per Household ▼ Change

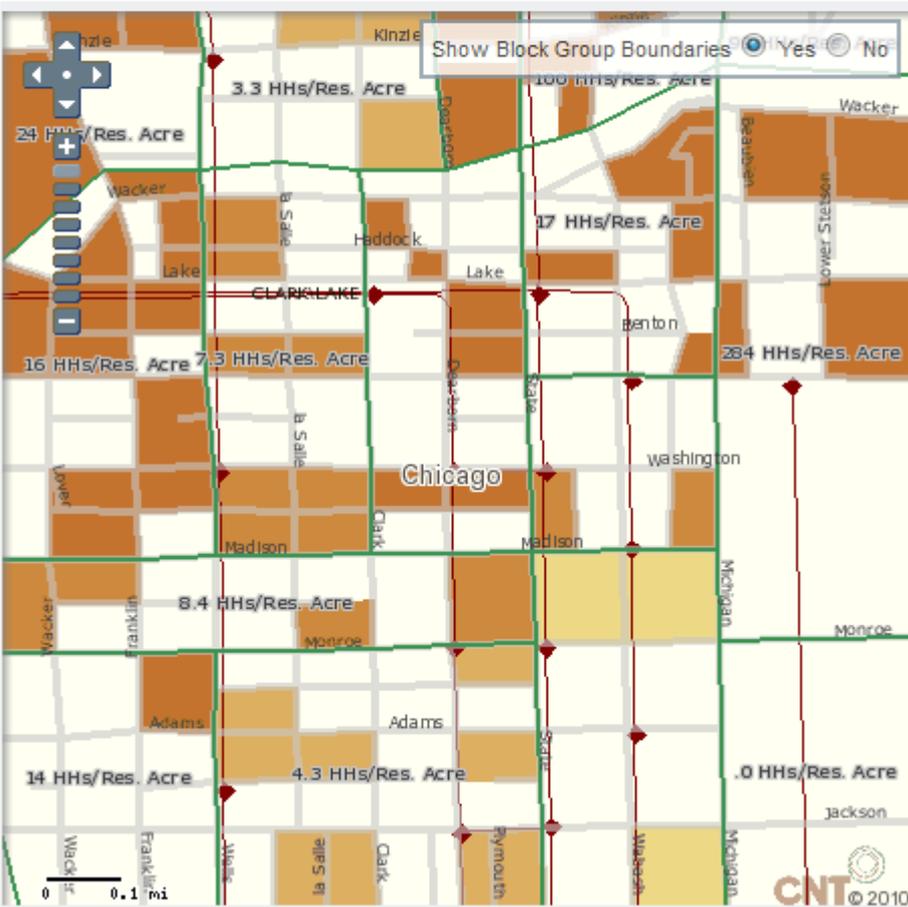
Vehicle Miles Traveled (VMT) per Household		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	5,585 (5,513 with data)
Minimum	6,600 Annual Miles	6,600 Annual Miles
Average	16,567 Annual Miles	15,886 Annual Miles
Maximum	30,399 Annual Miles	29,453 Annual Miles
Households	2,971,528	2,740,956



# A Second Click Shows Small Area With Data

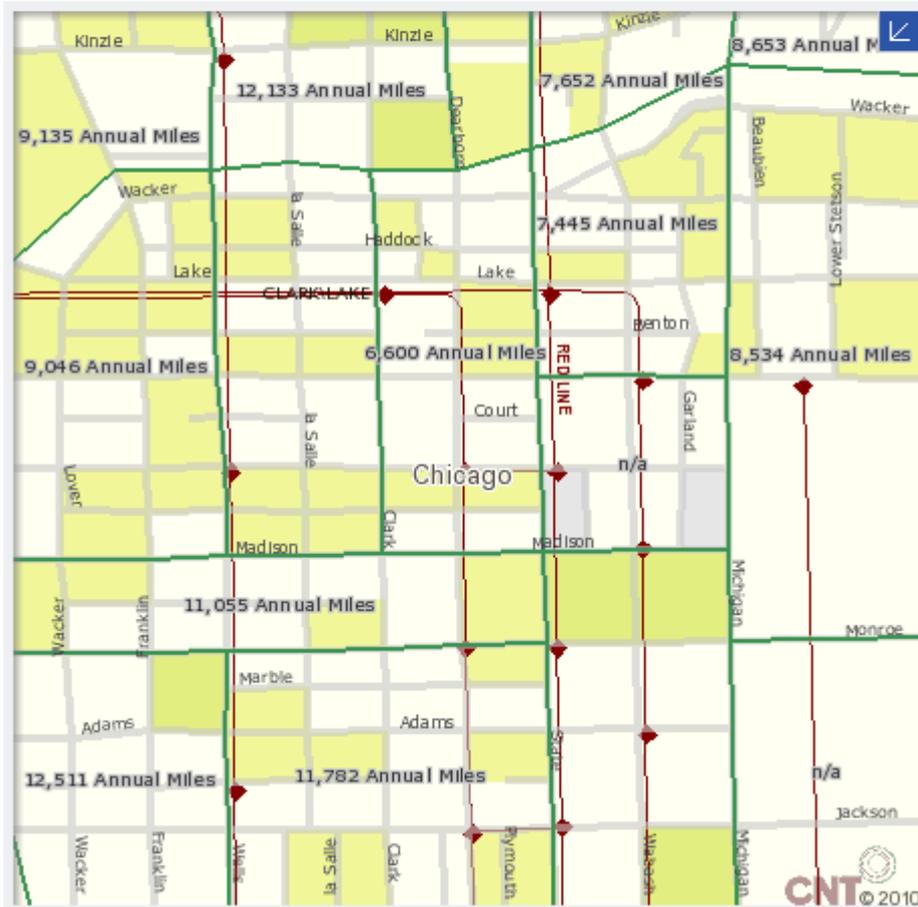
**Residential Density** ▼ Change

Household Density	Region	Viewable Area on Map Below
Block Groups	5,970 (5,970 with data)	14 (14 with data)
Minimum	0 HHs/Res. Acre	3 HHs/Res. Acre
Average	11 HHs/Res. Acre	165 HHs/Res. Acre
Maximum	347 HHs/Res. Acre	284 HHs/Res. Acre
Households	2,971,690	7,017



**Vehicle Miles Traveled (VMT) per Household** ▼ Change

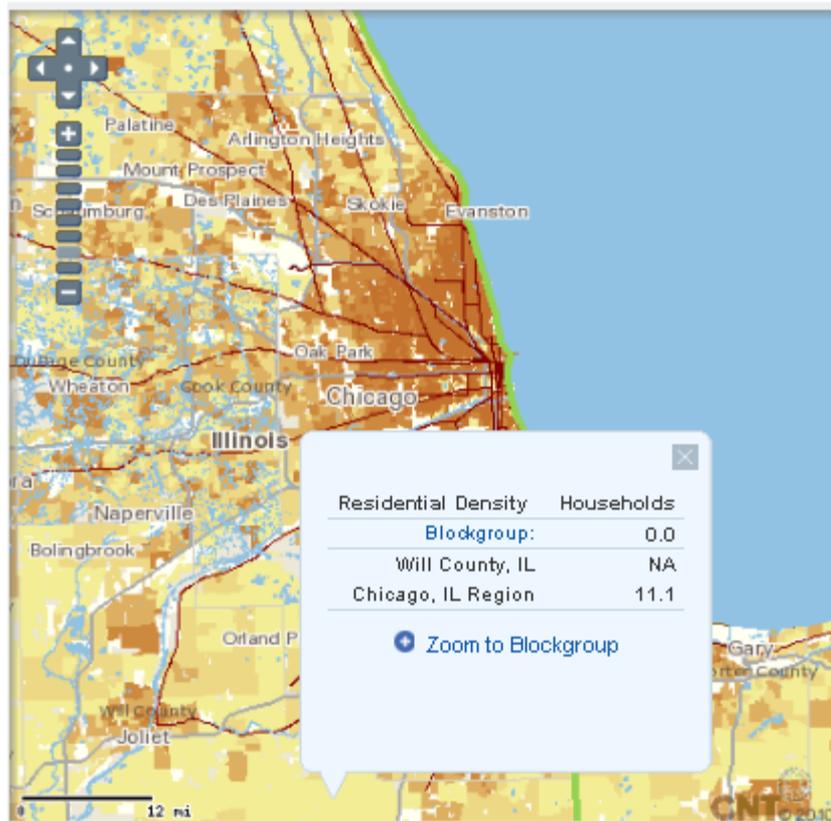
Vehicle Miles Traveled (VMT) per Household	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	14 (13 with data)
Minimum	6,600 Annual Miles	6,600 Annual Miles
Average	16,567 Annual Miles	8,509 Annual Miles
Maximum	30,399 Annual Miles	12,959 Annual Miles
Households	2,971,528	7,017



# One Click Shows Area of Highest VMT

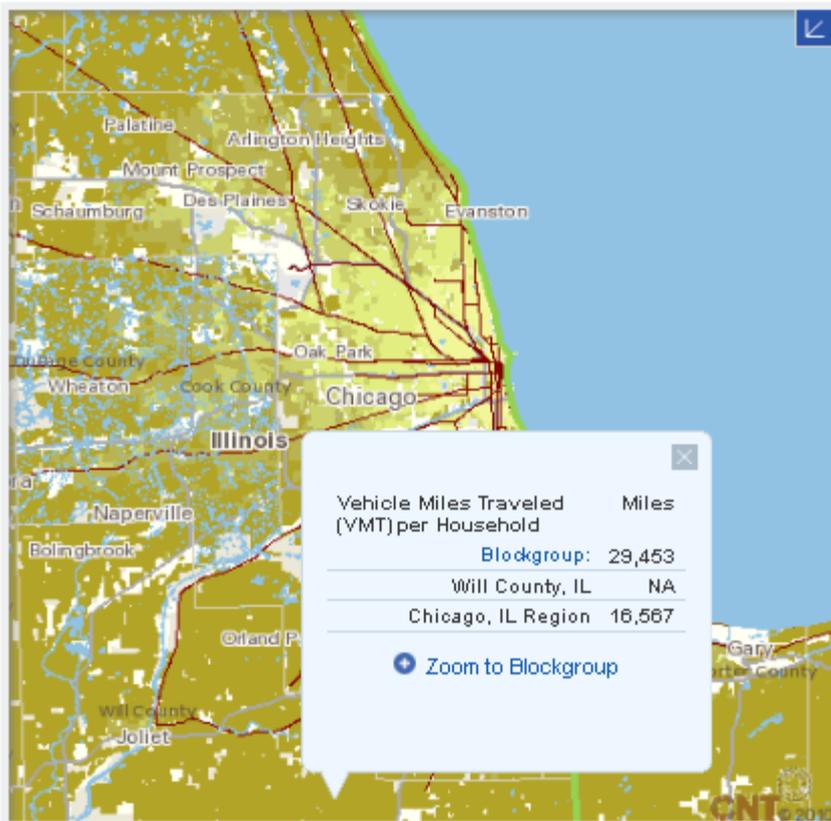
## Residential Density Change

Household Density		Viewable Area on Map Below
Statistics	Region	
Block Groups	5,970 (5,970 with data)	5,583 (5,583 with data)
Minimum	0 HHs/Res. Acre	0 HHs/Res. Acre
Average	11 HHs/Res. Acre	12 HHs/Res. Acre
Maximum	347 HHs/Res. Acre	347 HHs/Res. Acre
Households	2,971,690	2,739,718



## Vehicle Miles Traveled (VMT) per Household Change

Vehicle Miles Traveled (VMT) per Household		Viewable Area on Map Below
Statistics	Region	
Block Groups	5,970 (5,898 with data)	5,583 (5,511 with data)
Minimum	6,600 Annual Miles	6,600 Annual Miles
Average	16,567 Annual Miles	15,886 Annual Miles
Maximum	30,399 Annual Miles	29,453 Annual Miles
Households	2,971,528	2,739,556



# Another Shows Urban Form or Lack Thereof

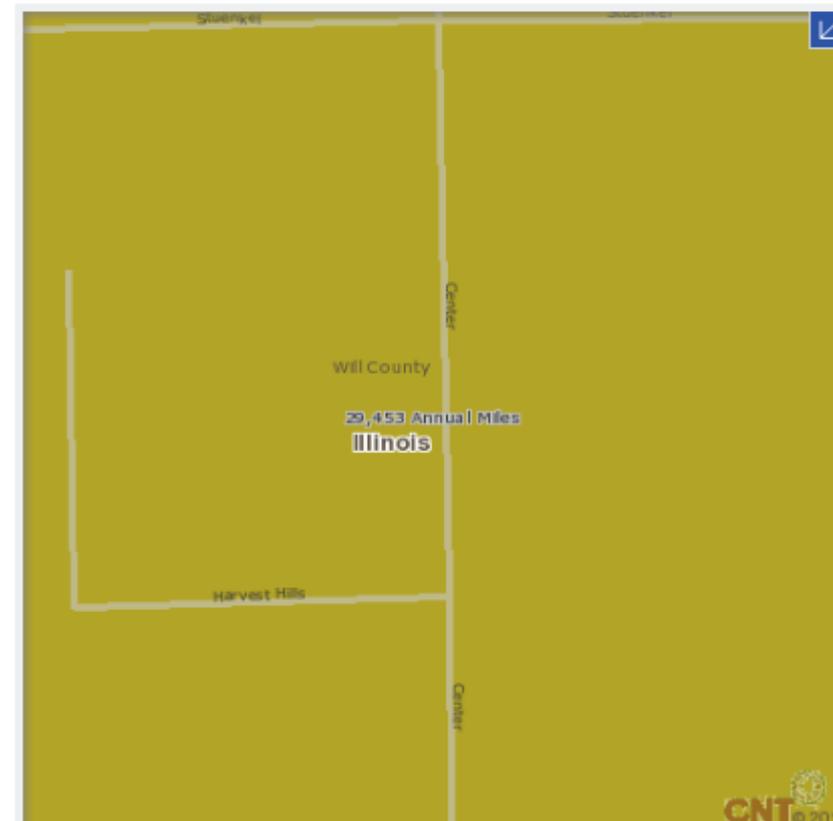
## Residential Density ▼ Change

Household Density		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,970 with data)	1 (1 with data)
Minimum	0.0 HHs/Res. Acre	0.0 HHs/Res. Acre
Average	11.1 HHs/Res. Acre	0.0 HHs/Res. Acre
Maximum	347.3 HHs/Res. Acre	0.0 HHs/Res. Acre
Households	2,971,690	821

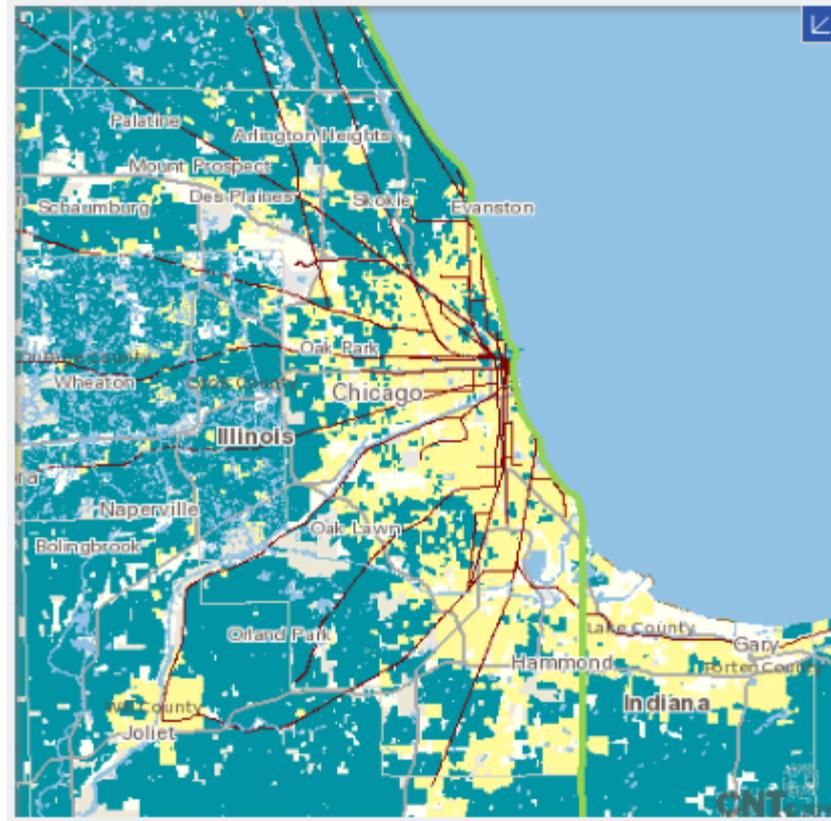
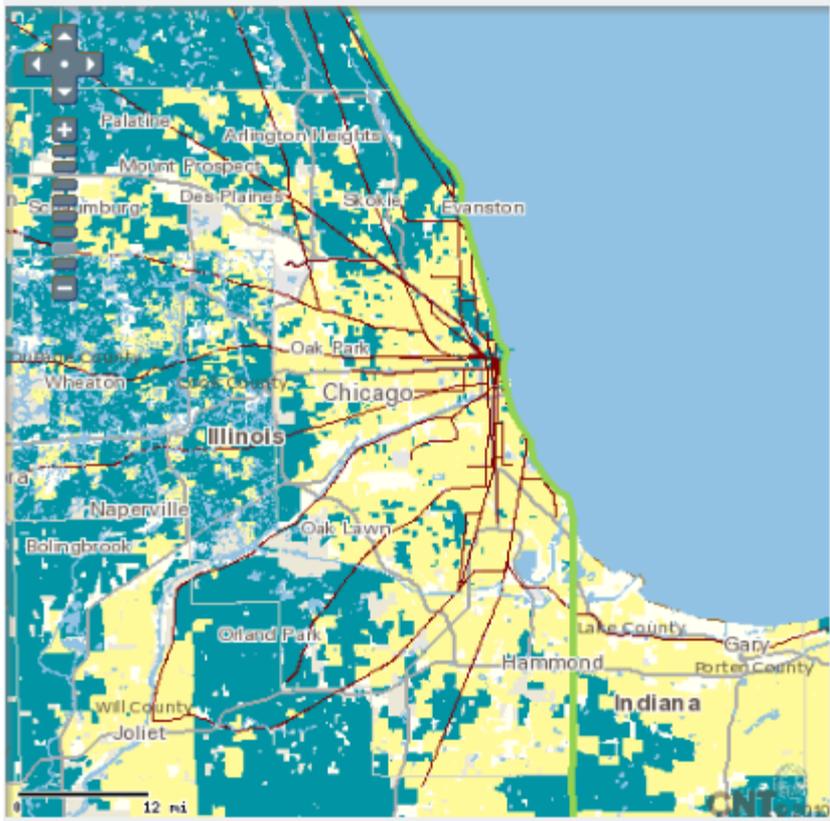
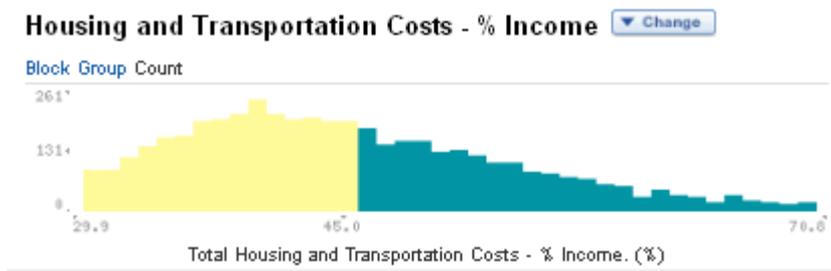


## Vehicle Miles Traveled (VMT) per Household ▼ Change

Vehicle Miles Traveled (VMT) per Household		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	1 (1 with data)
Minimum	6,600 Annual Miles	29,453 Annual Miles
Average	16,567 Annual Miles	29,453 Annual Miles
Maximum	30,399 Annual Miles	29,453 Annual Miles
Households	2,971,528	821



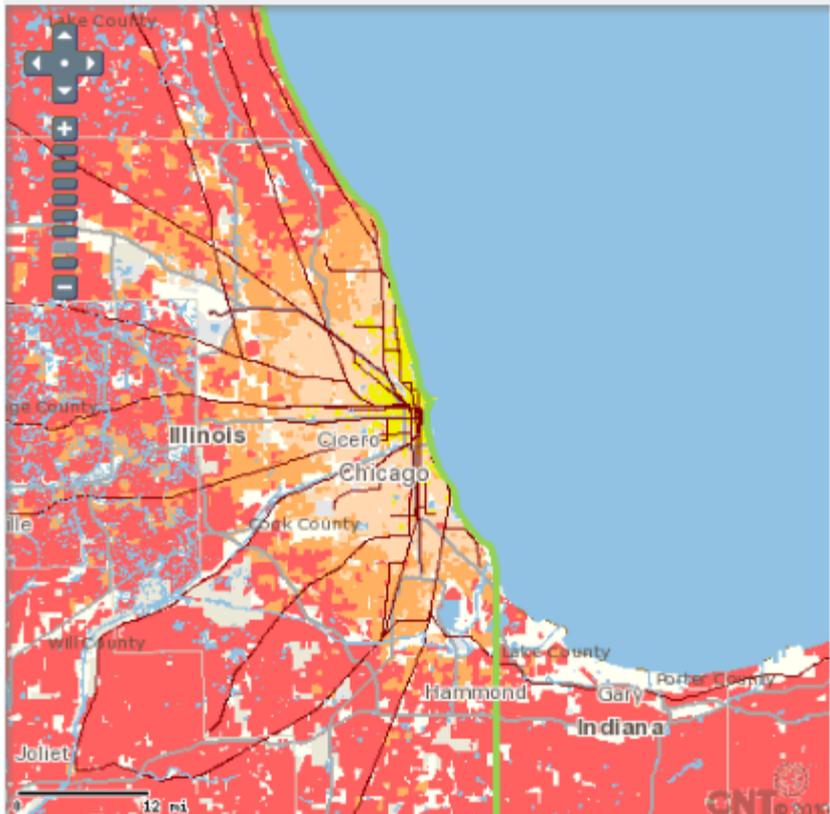
# Explaining the “affordability squeeze” in Chicago...400,000 additional HHs financially stressed



# In most efficient areas, cost of living increase from spike kept to 2%, in least efficient areas increased 9%

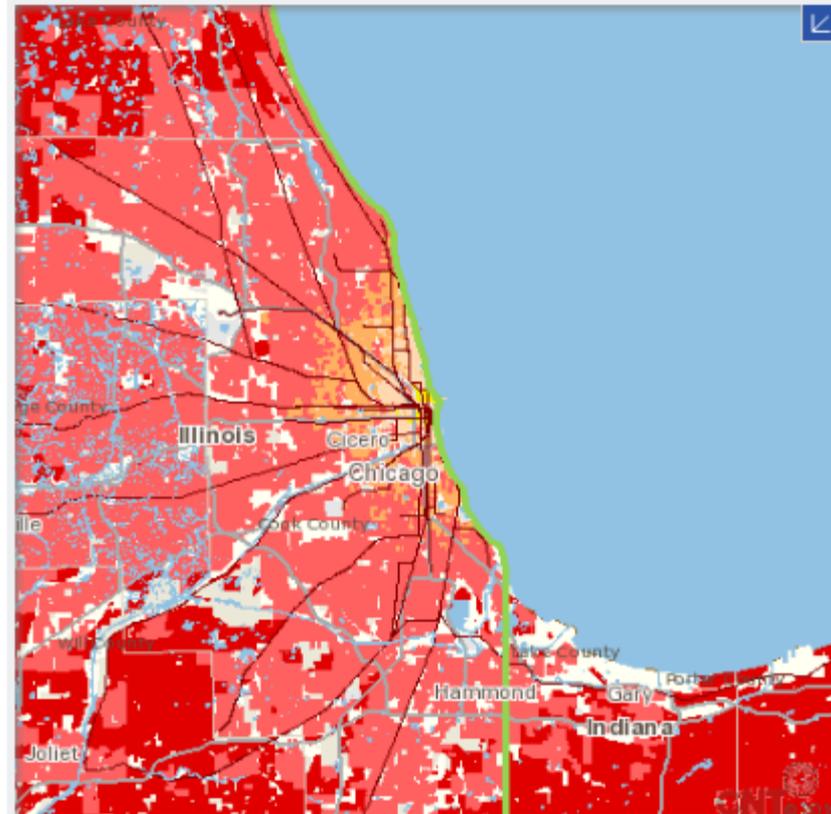
## Monthly Transportation Expenses % Income - 2000 gas Change

Monthly Transportation Expenses % Income - 2000 gas Fuel Efficiency of 20.3 mpg		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	5,463 (5,391 with data)
Minimum	9.7 %	9.7 %
Average	19.1 %	18.7 %
Maximum	27.9 %	28.0 %
Households	2,971,528	2,645,762



## Monthly Transportation Expenses % Income - 2008 gas Change

Monthly Transportation Expenses % Income - 2008 gas Fuel Efficiency of 20.3 mpg		
Statistics	Region	Viewable Area on Map Below
Block Groups	5,970 (5,898 with data)	5,463 (5,391 with data)
Minimum	12.6 %	12.6 %
Average	23.4 %	22.8 %
Maximum	35.8 %	35.6 %
Households	2,971,528	2,645,762



# We Can Use This Knowledge To—

- Protect consumers against “hidden” costs by providing better information
- Analyze trends & compare across HH types
- Define housing needs for public policy purposes
- Encourage coordination of housing and transportation policies
- Inform sub-Federal planning efforts
- Predict the ability of a household to pay rent or mortgage
- Improve financial / housing counseling
- Help make the case for and package alternative financing for accelerated transit system build-out

# Index is Being Adopted At Several Levels

- HUD and DOT are using to screen sustainable communities and TIGER grant applications
- MPOs in Bay Area, Chicago, DC and elsewhere using to re-screen, prioritize LRTP investments
- Experimental counseling tools—Phoenix, East Bay, Chicago
- MTC in Bay Area used to justify helping capitalize TOD investment fund
- State of IL. new act requires five agencies to screen investments
- City of El Paso TX now uses to direct affordable housing to areas of low transportation costs
- Portland, others using to help create a typology of TODs that takes affordability and equity into account

# Newer Applications

- DC Office of Planning uses to construct “what if” scenarios e.g. around proposed streetcar network
- Walk Score co-reports affordability through an API with the Affordability Index
- National TOD Data Base <http://toddata.cnt.org>
- Updated using ACS 2005-2009 block groups in February
- Transportation Energy Index
- Mobile apps— <http://abogo.cnt.org> delivers simplified affordability and GHG data
- Working with HUD to put in public domain as federal data set
- TIGER grants screened by end user costs
- Inter-agency committee redefining poverty
- Foreclosure prevention
- Teaching curriculum and guidance for planning schools

# What We've Learned

- It's possible to enhance currently available high-resolution social and economic data—makes a strong case e.g. for a “national atlas” release of I & M data
- It's worth it—especially in the context of economic recovery and demand for (a) cost of living reduction & (b) infrastructure investment
- Success means building demand
- “Democracy means paying attention”

# Thank You

- [Scott@cnt.org](mailto:Scott@cnt.org)
- [www.cnt.org](http://www.cnt.org)
- <http://htaindex.org>