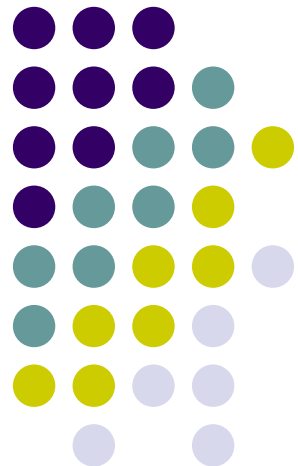
Housing & Transportation Affordability Index:

A New Tool for Measuring the True Affordability of Housing Choice



CENTER FOR
TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR
NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

Presentation Overview

- Background and Purpose of the Index
- Model Overview and Methods
- Using the Model: Twin Cities Pilot Results and Implications for Individual Households
- Proposed Uses and Benefits

Background & Purpose

- Affordability is about housing costs ***and*** other associated costs of living associated with location, especially transportation costs
- Due to development patterns and lack of transportation choice:
  - Transportation is the 2nd highest expenditure after housing
  - For working families, housing and transportation consume > 50% of household budgets

Photo Credit: NorthstarTrain.org

Background & Purpose

- While local housing costs are known, household transportation costs, by neighborhood, were not—until now.

  ---*This **new** "Affordability Index" models transportation costs by neighborhood*

- Knowing transportation costs provides another tool in the strategies to improve affordability for households; the Affordability Index helps to answer:
  - Where to build or live?
  - What to build?
  - Who benefits, and by how much?

Background & Purpose

- The H+T Affordability Index is based on the "location efficiency" research we began in 1994. The key findings were:
  - Neighborhoods are "location efficient" when they have convenient and accessible transportation and include or are proximate to jobs, services, retail, schools, and other needs
  - Households who live in "location efficient" neighborhoods--regardless of household size and income--own fewer vehicles and drive fewer miles, and therefore have lower transportation expenditures

Background: Comparison of Location Efficient Value & H+T Affordability Index

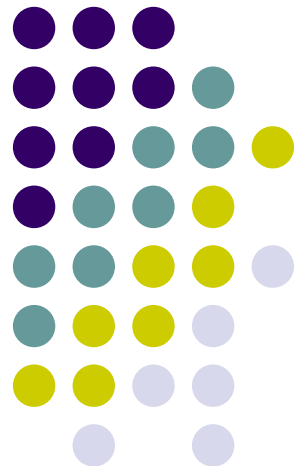
Location Efficient Value

- Limited to 3 metro areas
  (San Francisco, L.A., Chicago)
- Used data sets that were hard-to-get and very large
  (Vehicle odometer readings)
- Difficult to calculate, replicate
- Primarily one application: mortgage underwriting, e.g. *Location Efficient Mortgage®*

H+T Affordability Index

- Validates LE study, but uses widely available data in order to easily replicate and update
  Available for 42+ metro areas
- Focused on economic implications of findings
- Explicitly links transportation planning to housing affordability

Model Overview and Methods



Model Overview

- The H+T Affordability Index adds known housing costs to modeled transportation costs to identify the percent of income that households spend on “H+T:”

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

Reported Housing Costs

- The model uses existing values for housing costs:
  - Home Ownership Costs:
    - Census reported “Selected Monthly Owner Costs”
  - Rents:
    - Census reported “Gross Rents”

Modeled Transportation Costs

MODEL INPUTS
9 Independent Variables

7 Local Environment:

Households/residential acre
Household/total acre
Avg. block size in acres
Transit Connectivity Index
Distance to employment centers
Job density (jobs per square mile)
Access to amenities

2 Household

Household income
Household size

Model

HOUSEHOLD "T" COSTS:
3 Dependent Variables

Auto ownership
+
Auto usage
+
Transit usage

Total Transportation Costs

Independent Variables

Variable	Source	Model Use
Households/ residential acre	Census 2000	Provides a measure of density which influences auto ownership and use
Households/ total acre	Census 2000	Provides a measure of density which influences auto ownership and use
Average block size in acres	Census/ TIGER/Line®	Block size contributes to walkability of the area, which influences auto ownership and transit use
Transit Connectivity Index	FTA 1995 Bus Routes Transit DB, transit agencies	Availability and extent of transit influences transit use
Distance to employment centers	2000 Census Transportation Planning Package (CTPP)	Distance to nearby jobs influences auto ownership and auto use
Job density- jobs /sq.mi.	Jobs and locations from CTPP 2000	Number of nearby jobs influences probability of working at the nearby employment center
Access to amenities	Service jobs in CTPP 2000	Access to services in walking distance influences auto use and ownership, as well as transit availability and use
Household income	Census 2000	Influences auto ownership and use
Household size	Census 2000	Influences auto ownership and use

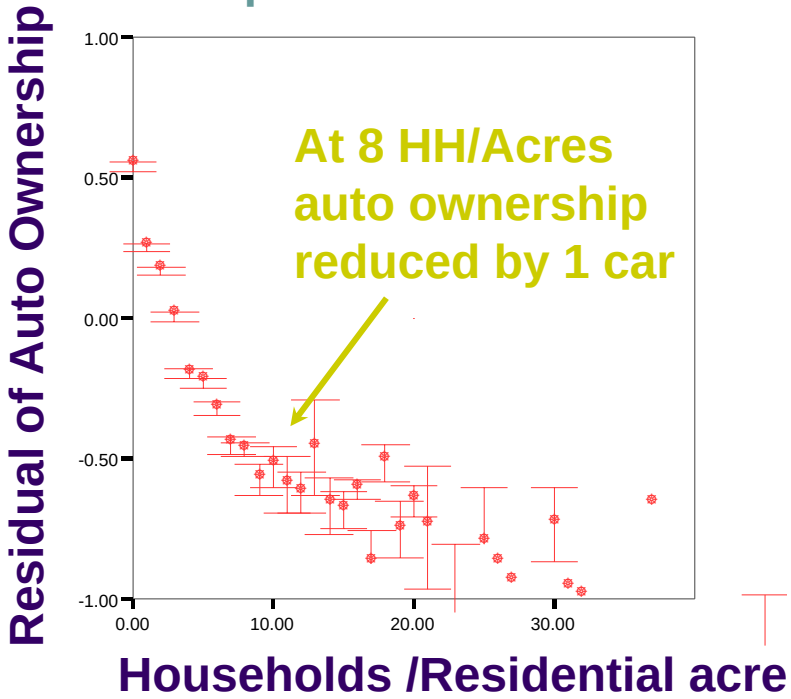
Dependent Variables

Variable	Source
Auto Ownership Costs (vehicles per household)	Modeled from independent household and local environment variables
Auto Use Costs (annual miles driven per household)	Modeled using the 2001 National Household Transportation Survey reported VMT fitted to the independent variables
Transit Costs (rides per day)	Modeled from independent household and local environment variables

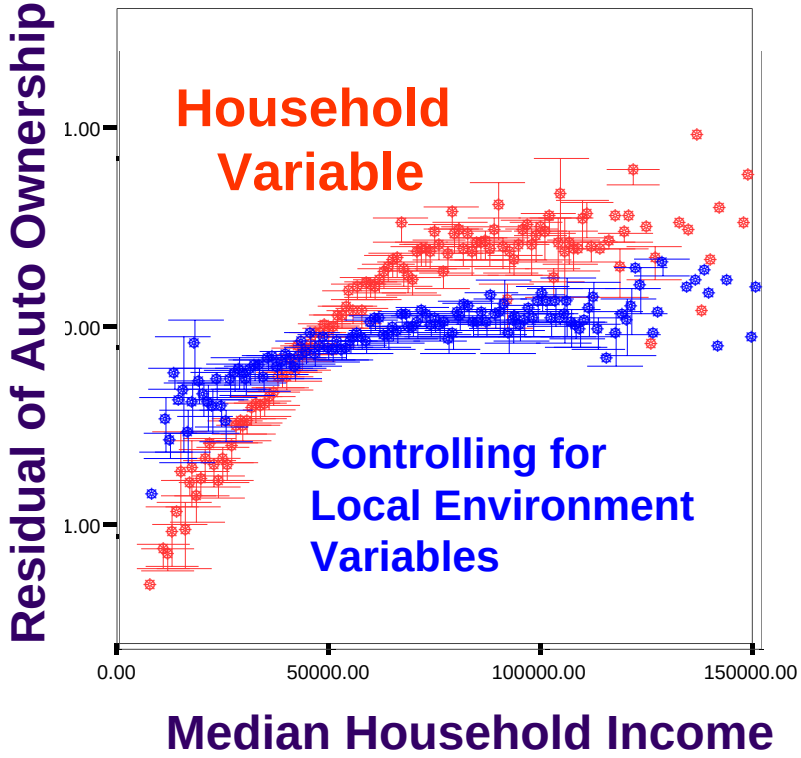
Model Mechanics

- Used multiple regression modeling to “fit” each dependent variable to the independent variables and then controlled for household size and income

“Fit” Example for an Independent Variable



Fit of HH Variable Controlling for Local Environment Variables



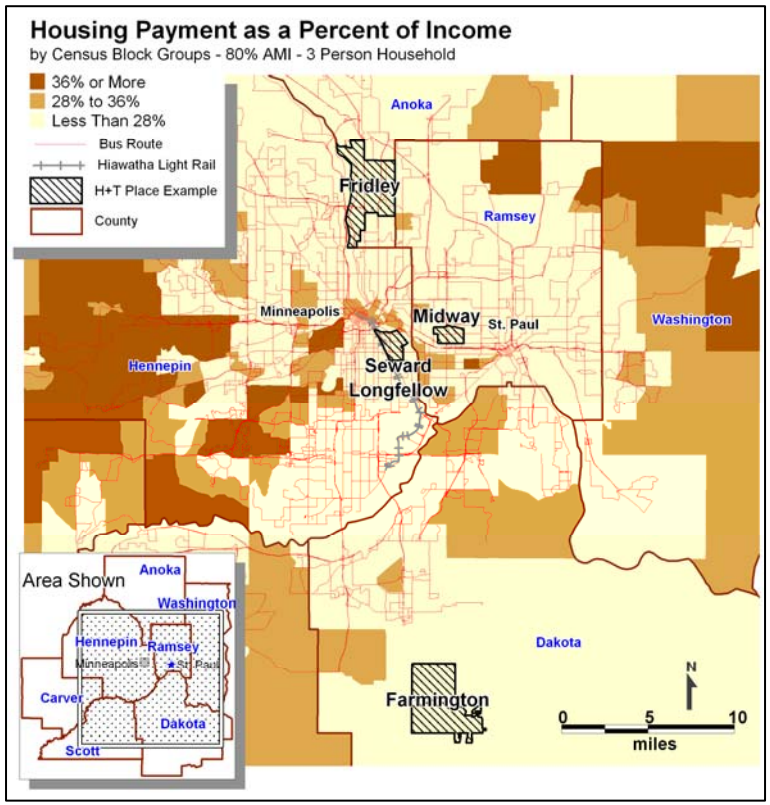
CENTER FOR TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

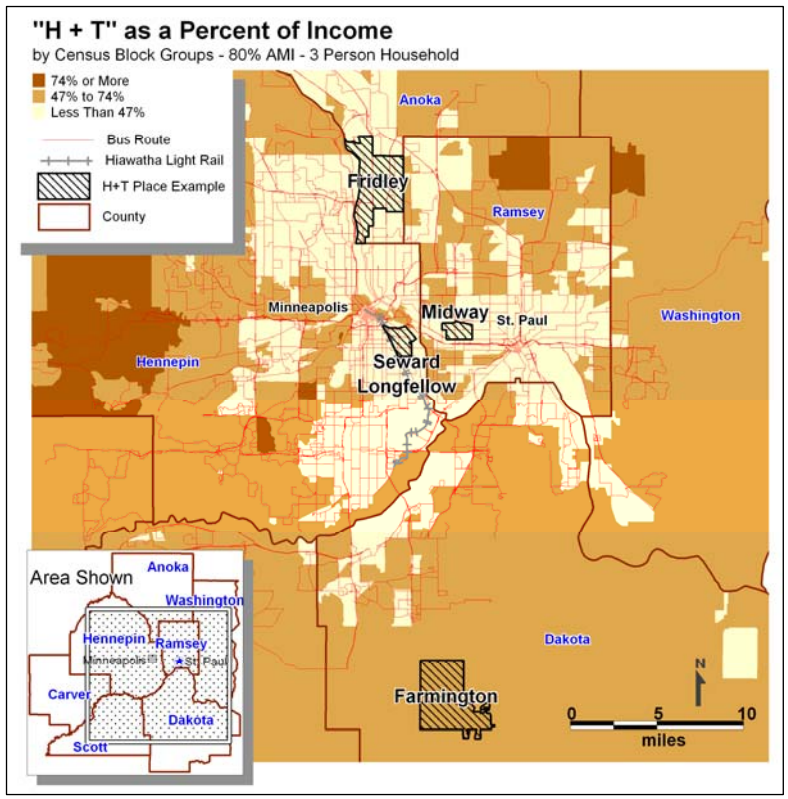
Comparing Affordability Indices

- Where can a 3-person household earning 80% of the Twin Cities AMI afford to live?

Considering Only Housing Prices



Considering Housing Prices *and* Transportation Costs



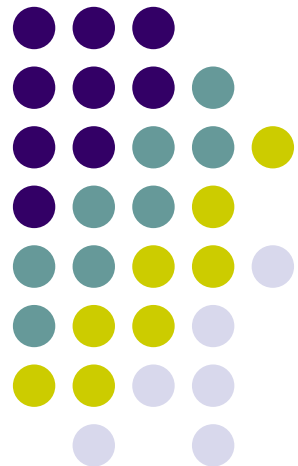
CENTER FOR TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

Model Summary

- The total transportation costs can now be:
  - Mapped by neighborhood
  - Combined with housing costs and mapped together by neighborhood
  - Studied to see how development patterns and investments in transportation choice impact household transportation costs

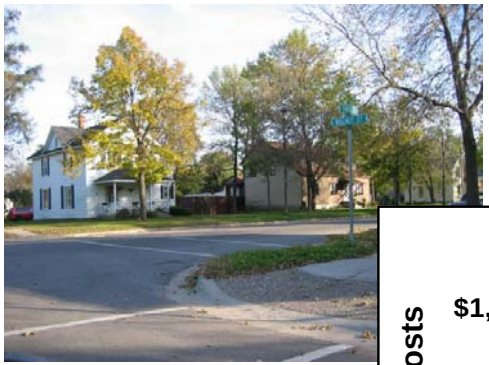
Using the Model: Twin Cities Pilot Results & Implications for Households



Background on the Twin Cities

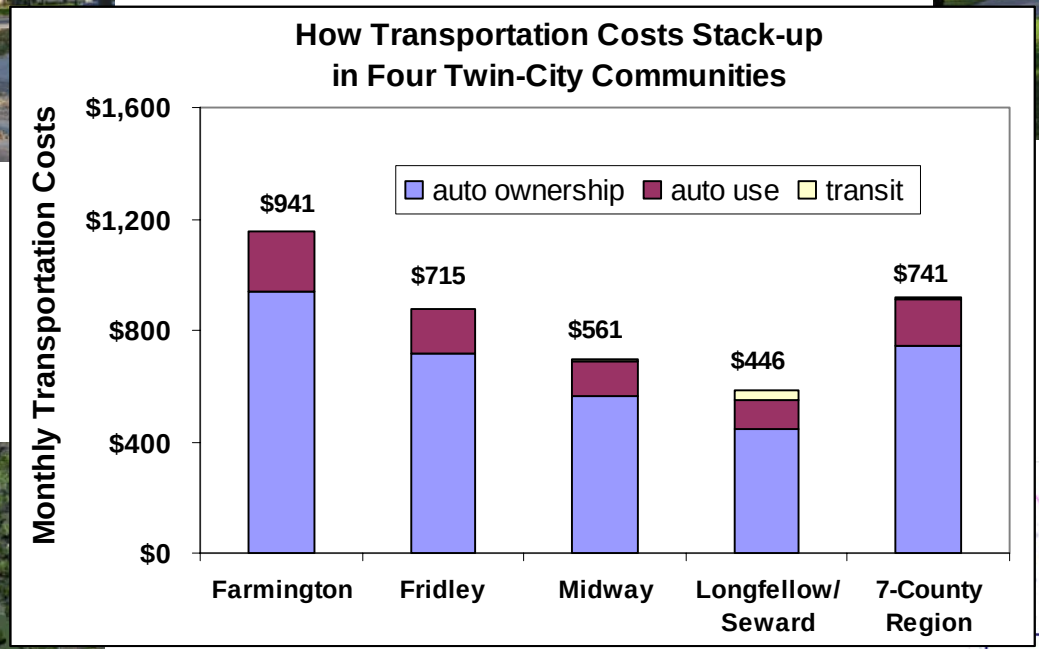
- Developed around street cars and had one of the best systems in the country
- But transportation choice diminished with the demise of the street cars:
  - Bus service declined and highway development and auto ownership flourished
  - New growth areas “opted out” of transit tax, and low density development couldn’t support quality transit
- The result:
  - By 2003: 50% of Twin City households spent > $9,200 on transportation, and 40% earned < $45,000

Monthly Transportation Costs Throughout the Region



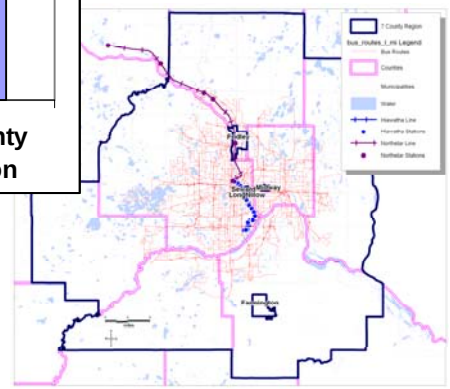
Farmington:
$941/month
$11,292/year

Midway, St. Paul:
$561/month
$6,732/year



Fridley:
$715/month
$8,580/year

7-County Region:
$741/month
$8,892/year

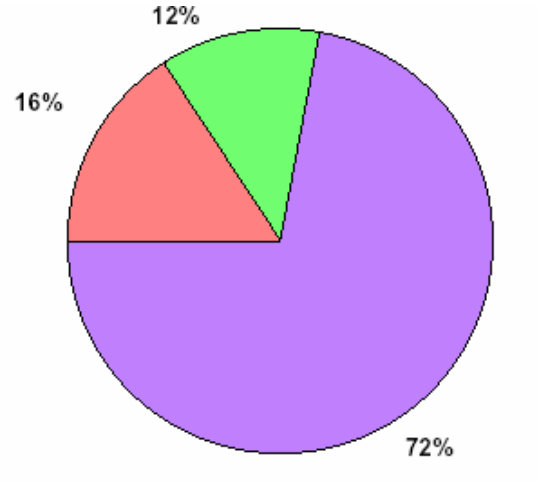


CENTER FOR
TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR
NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

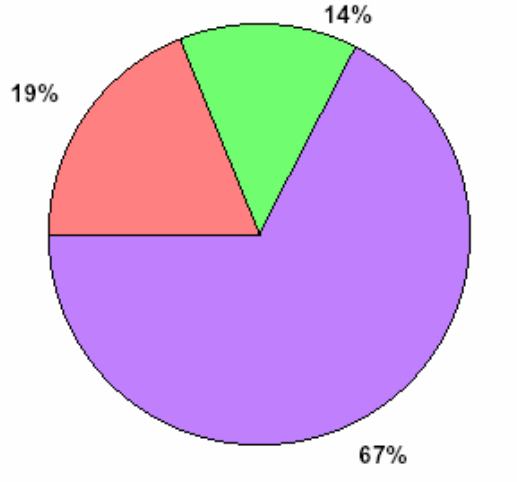
Cost of Living in 3 Twin Cities Neighborhoods

- Household Budget for a Family of 3 Earning $56,690/yr



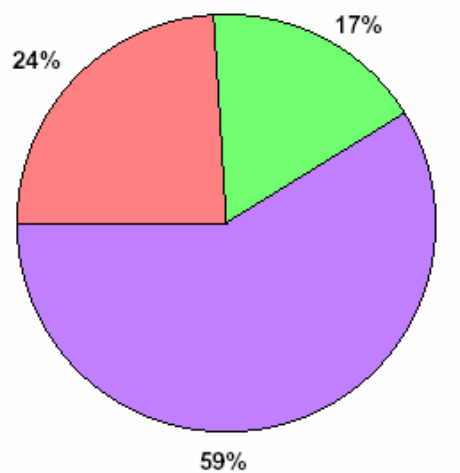
Midway Neighborhood

T = 16% of expenses



Fridley Neighborhood

T = 19% of expenses



Farmington

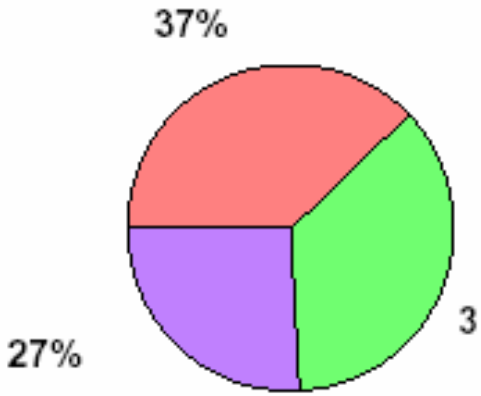
T = 24% of expenses

CENTER FOR TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

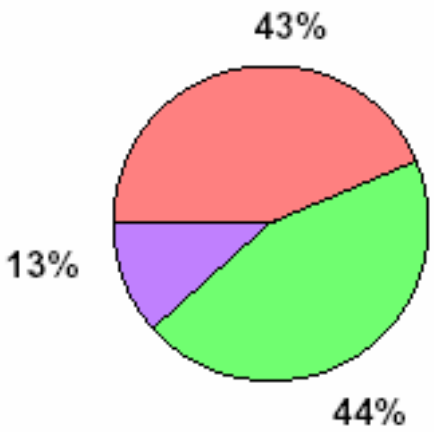
Cost of Living in 3 Twin Cities Neighborhoods

- Single Person Household Budget Earning $16,830/yr



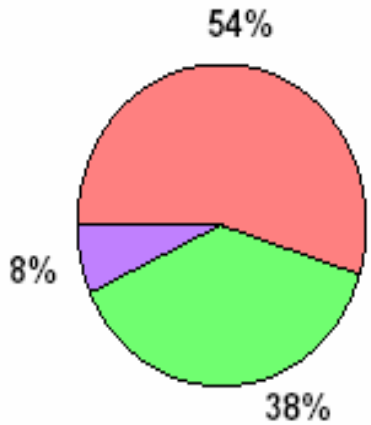
Midway Neighborhood

T = 37% of expenses



Fridley Neighborhood

T = 43% of expenses



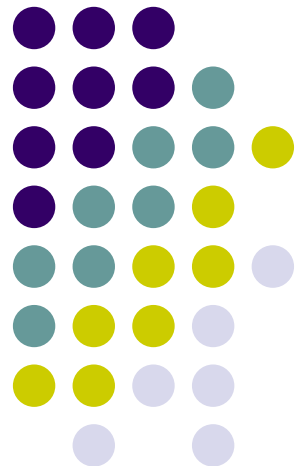
Farmington

T = 54% of expenses

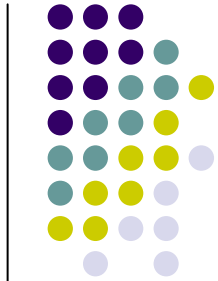
CENTER FOR
TRANSIT-ORIENTED DEVELOPMENT

CENTER FOR
NEIGHBORHOOD TECHNOLOGY
STRATEGIES FOR LIVABLE COMMUNITIES

Proposed Uses and Benefits



Proposed Uses

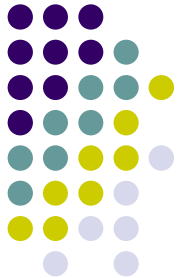


- Community Groups
  - Use in campaigns for transit, community reinvestment, affordable housing, and smart growth
- Business Groups
  - Common cause between community groups, government, and business for making better choices about development and public investment
  - New tool for realtors and bankers to understand, market and capitalize on relative affordability of different neighborhoods

Proposed Uses

- Transit Agencies
  - Savings benefit to households could support requests for funding
  - Determine the impact of service cuts
  - Promote transit ridership with savings campaigns
- Government Agencies
  - Legislate alignment between and across government jurisdictions: state, MPO, counties, cities
  - Cost of living influences state housing plans and transportation investment decisions
  - Support changes to local ordinances that would better support transit use, e.g., parking requirements, building heights, density, etc.

Benefits of H+T Affordability Index



- Fosters Transportation Choice
  - Lowers household transportation costs
  - Increases job accessibility
  - Reduces congestion
  - Channels growth to transit-served areas
  - Avoids road and sewer construction
- Builds Wealth
  - For households, by lowering costs
  - For regions, by reducing infrastructure costs and inefficient development patterns