

# The Value of Doing it Together—Low Carbon Cities and the Challenge of Climate Change

Scott Bernstein

Congress for a New Urbanism

May 20, 2007

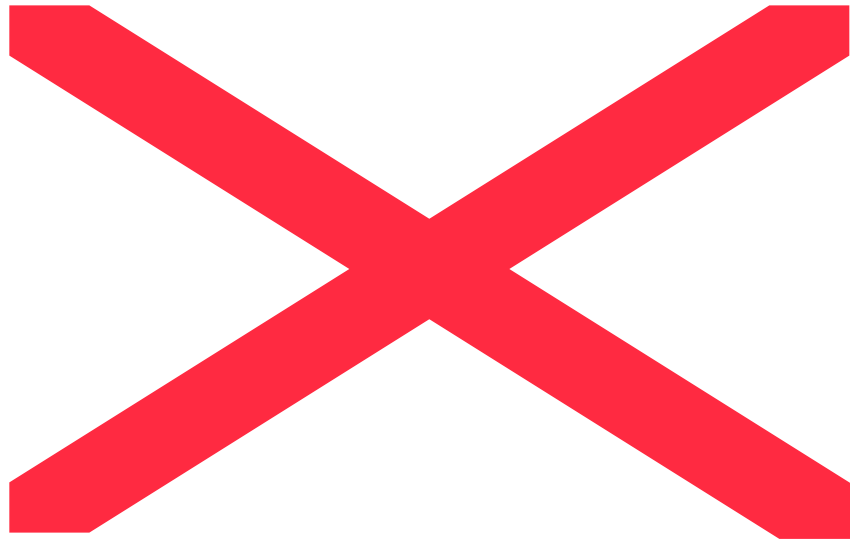
# Response to 2030 Challenge

- Accept the problem
- Take it seriously
- Reframe it
- Take it further

# Key Questions

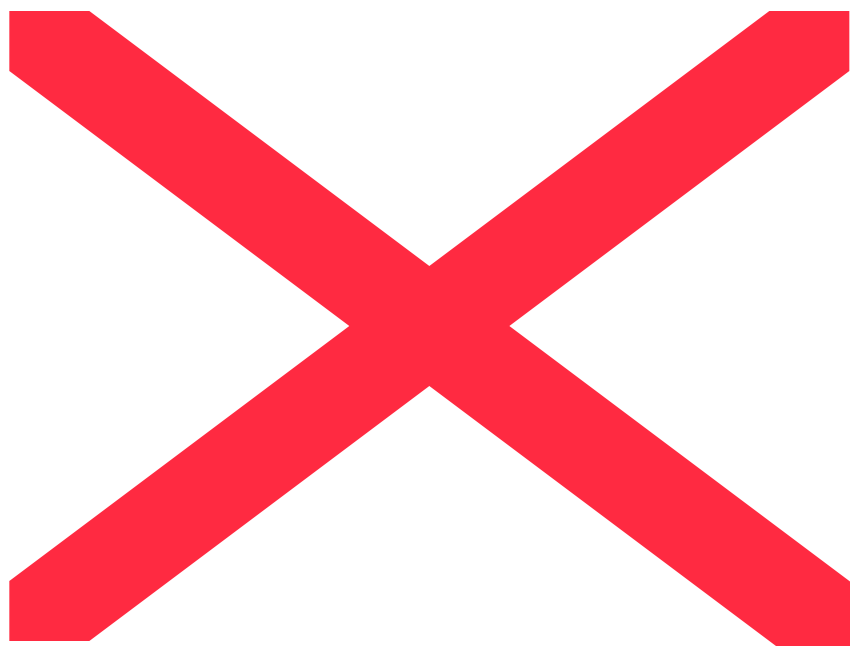
- What to build
- Where to build it
- With what speed
- What kinds of institutions to ensure performance

# Sorting Things Out



# Different ways to group these costs

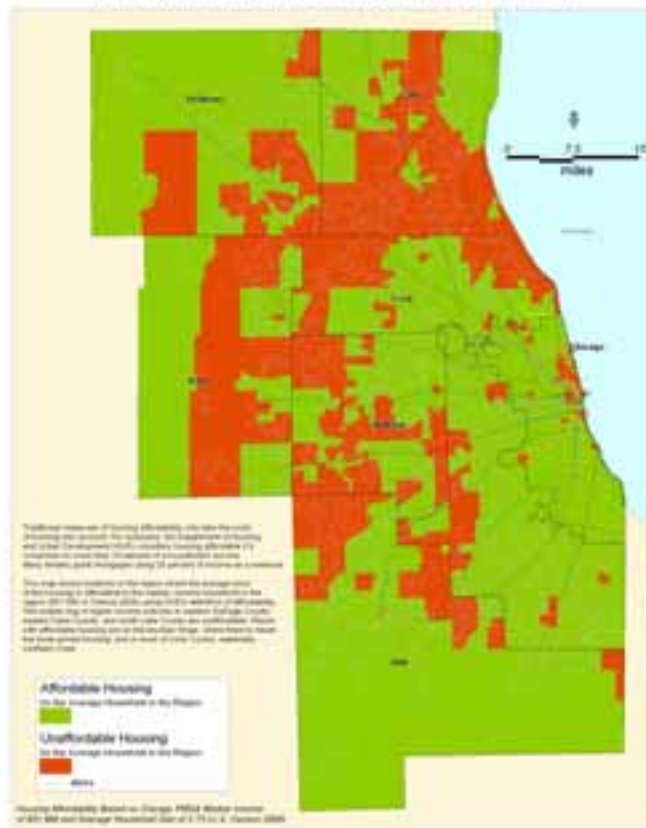
- EM attributes industrial/power/commercial to buildings sector
- We can also do this with transportation expenses



# Where Is the Affordable Housing Really??

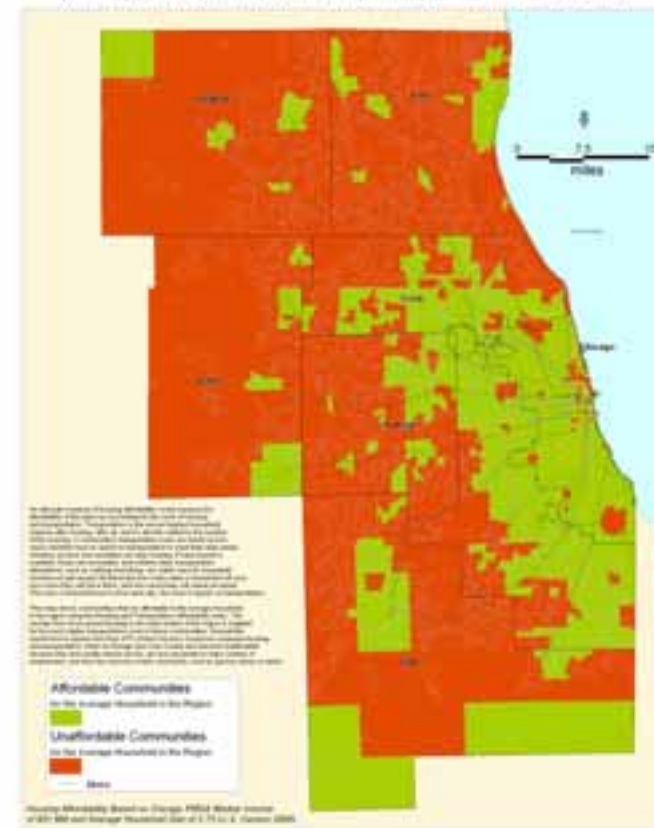
## Traditional View of Housing Affordability

(Housing Costs Only as a percentage of Household Income)

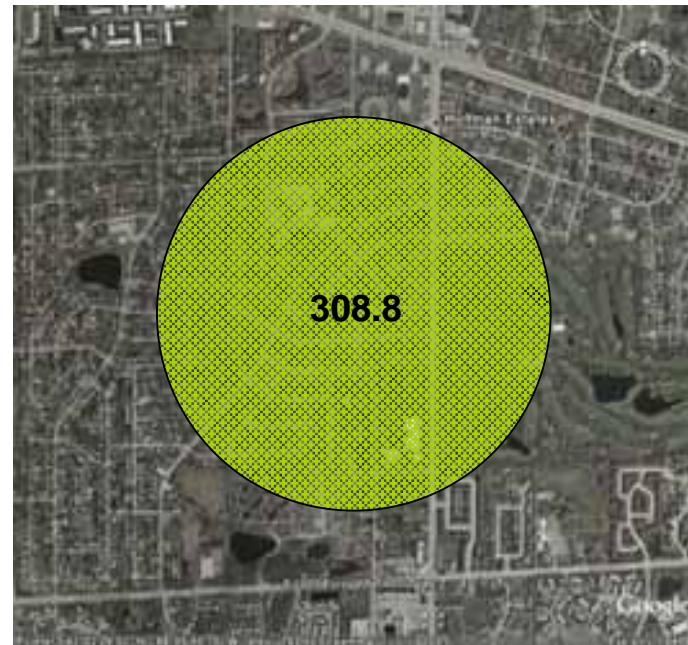


## The New View of Housing Affordability

(Housing & Transportation Costs as a percentage of Household Income)

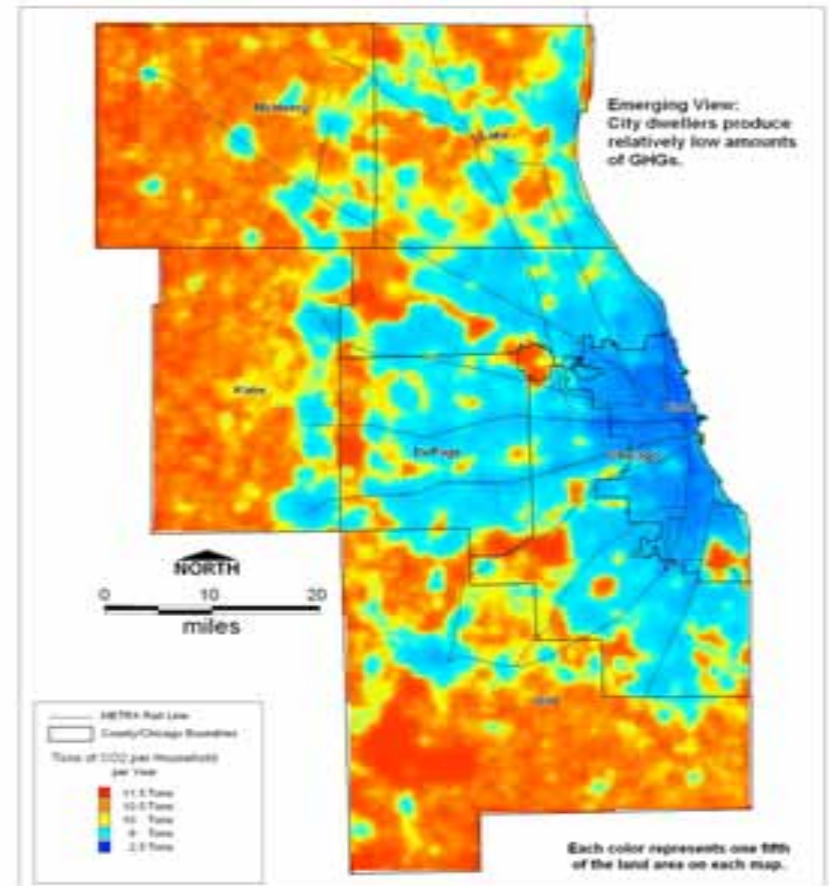
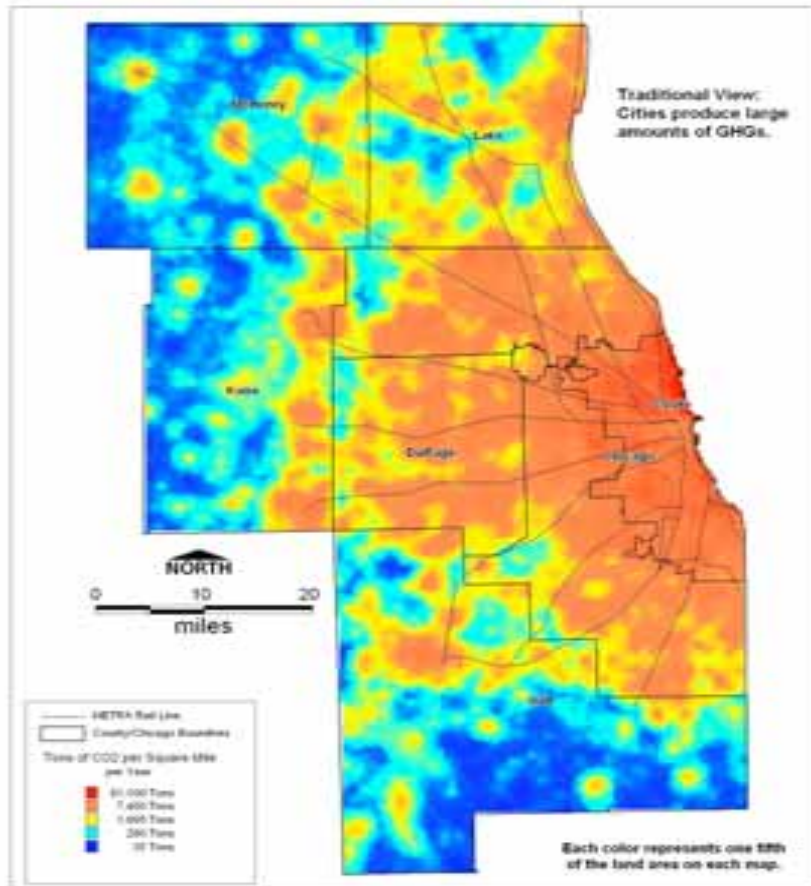


# CNT GHG Emissions - Cumulative

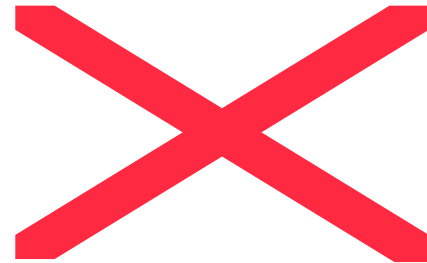
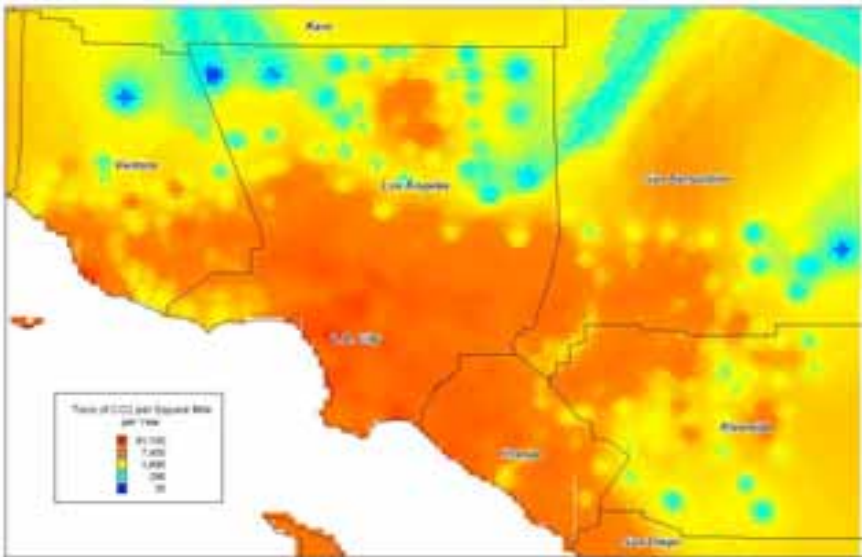




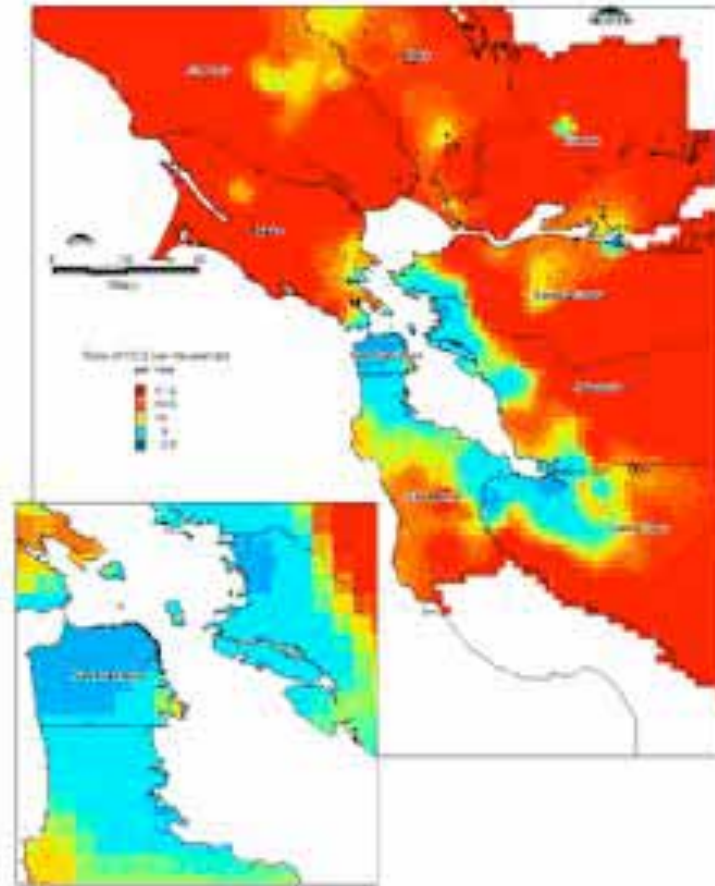
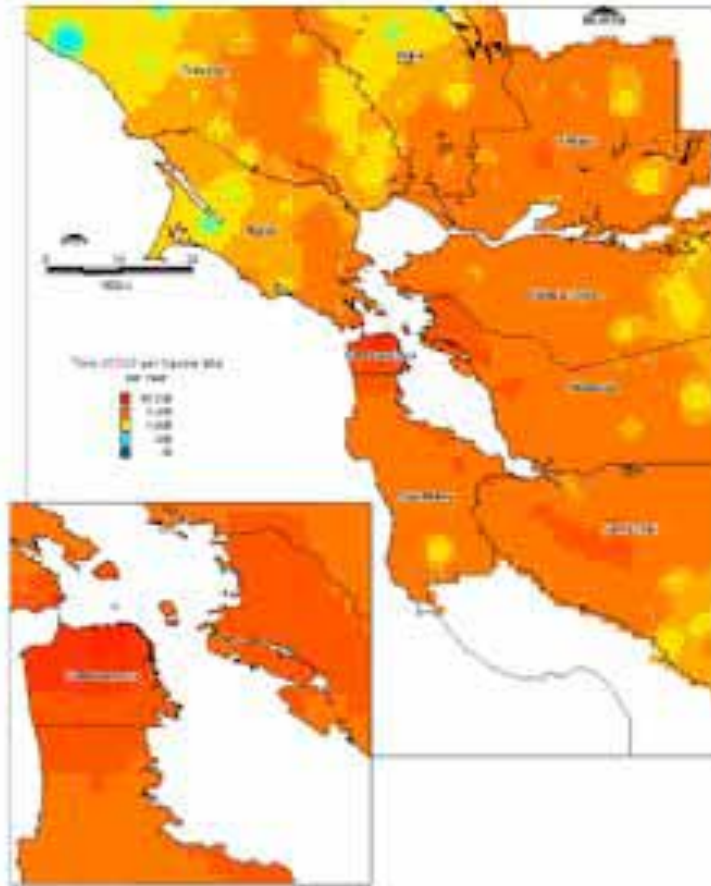
# Showing the Benefits: Two Views of Emissions



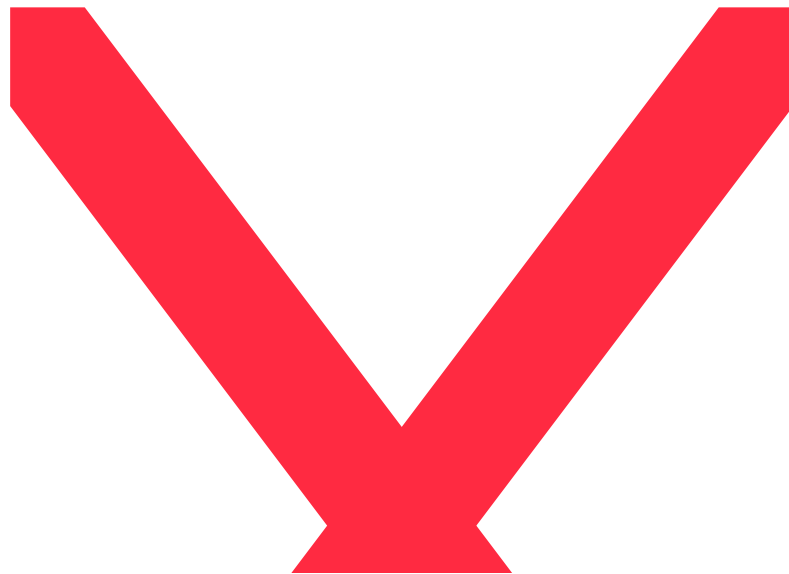
# Two Views of Los Angeles



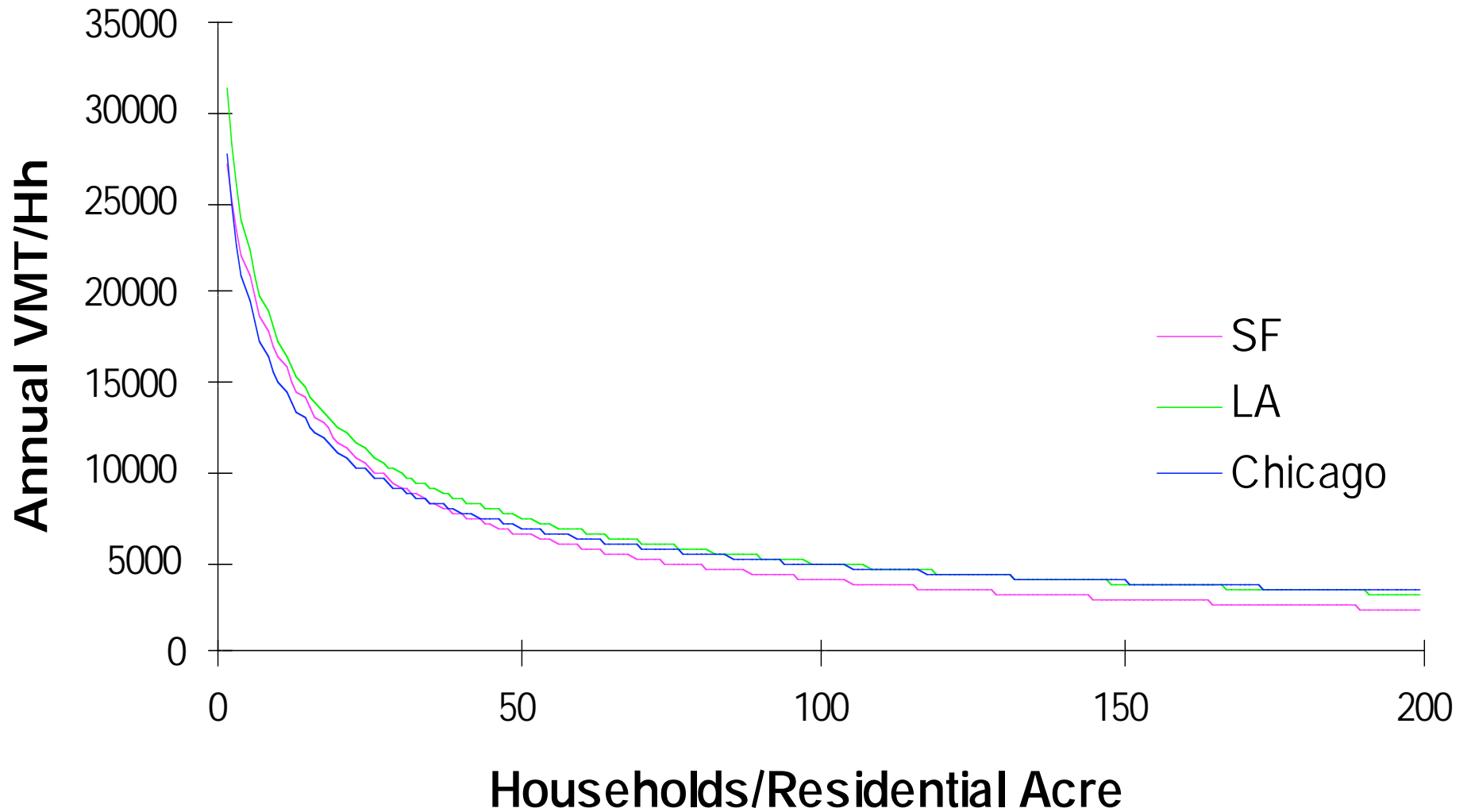
# Two Views of San Francisco



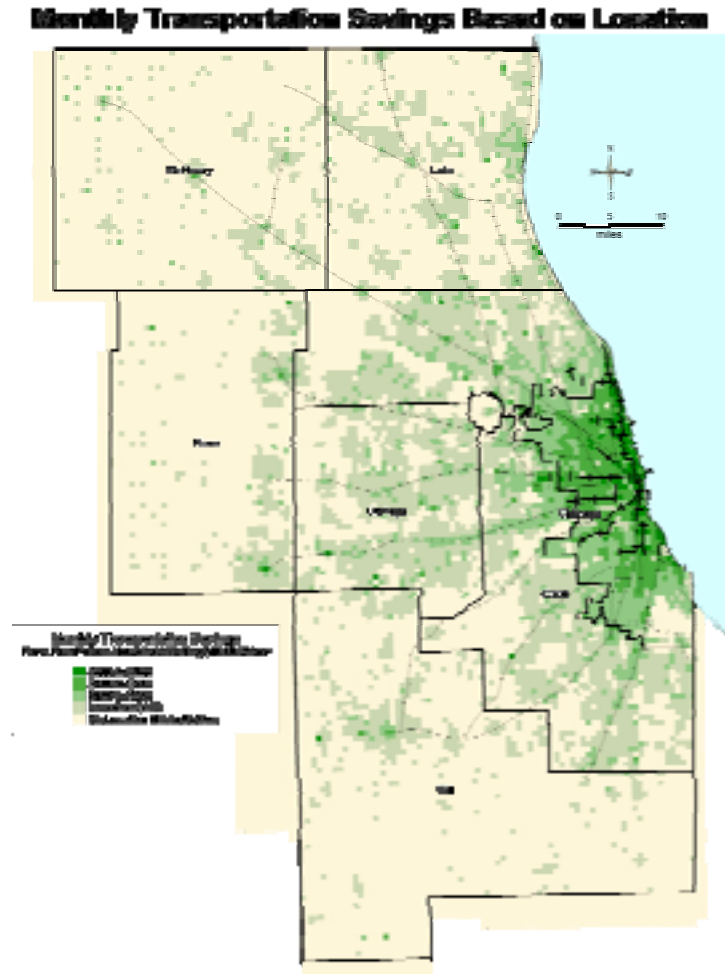
# Explain Using Regression?



# Showing the Benefit Graphically

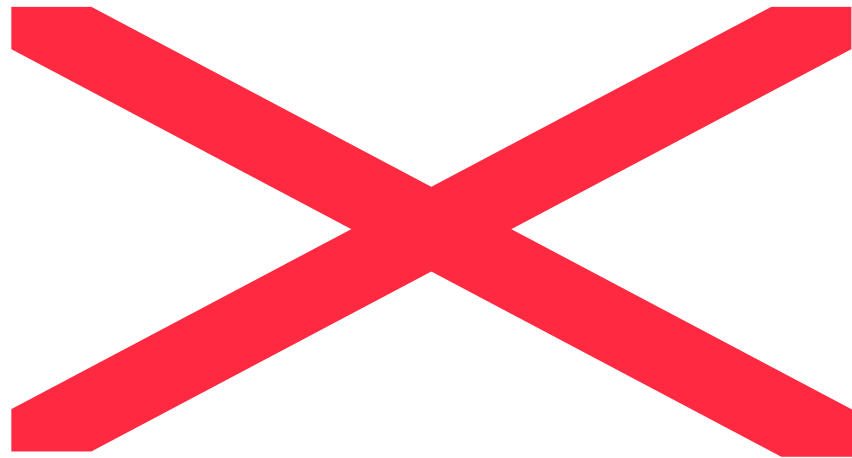


# The Value of Getting It Right

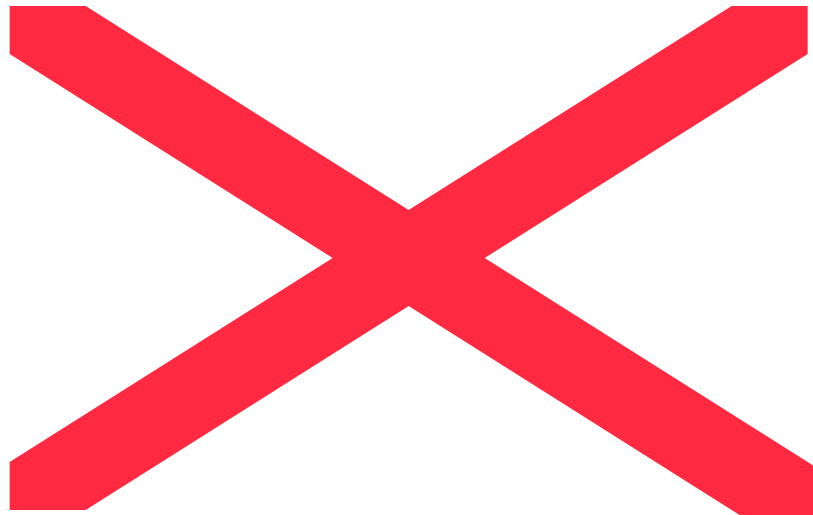


- In the green areas, households own one less car than the regional average
- Saves \$400 per household per month
- Boosts disposable income 10-12 % for bottom two income quintiles

# Urban Convenience Matters



# Urban Connectivity Counts





# Different Burdens in Different Places

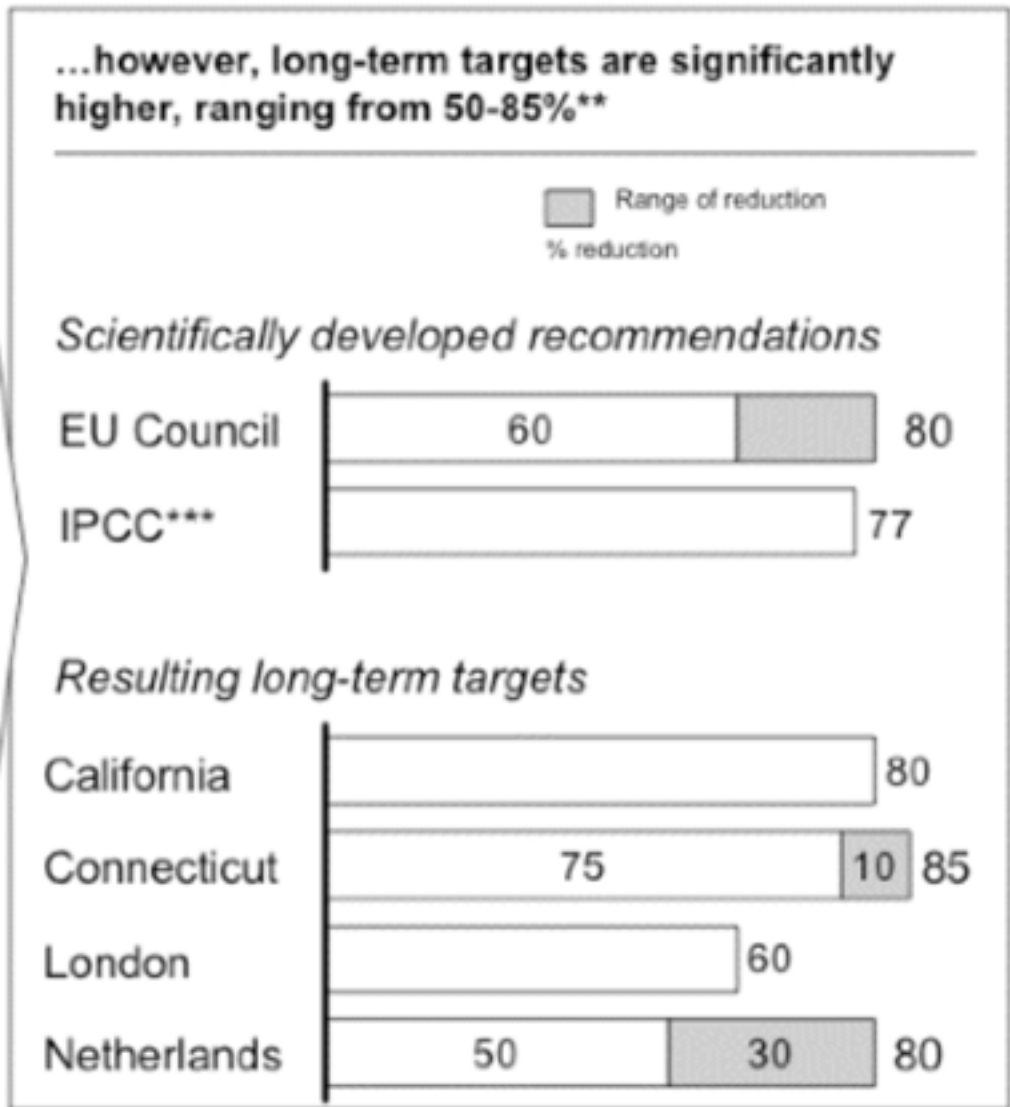
~~38% of income~~

25% of income

18% of income



# Different places, profiles, strategies

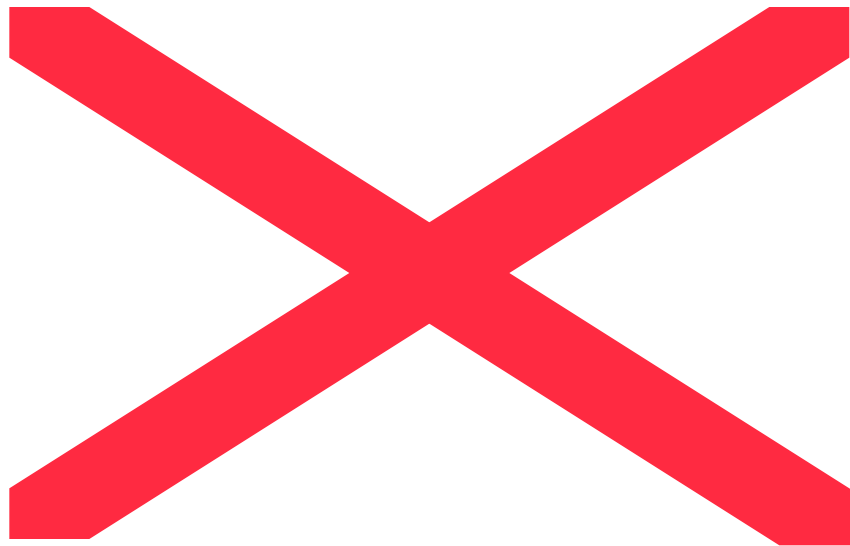


\* All reduction are off 1990 levels, except Melbourne (1996), CA, (unknown)

\*\* CT, EU Environmental Council are off 1990 levels, IPCC, CA, Netherlands (unknown), London (2000),

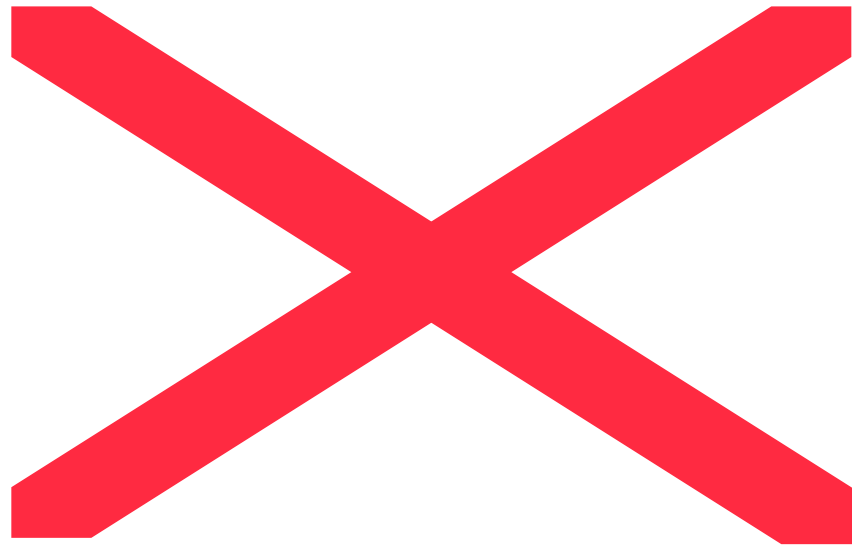
\*\*\* By 2100

Meeting 80% is a Heavy Lift

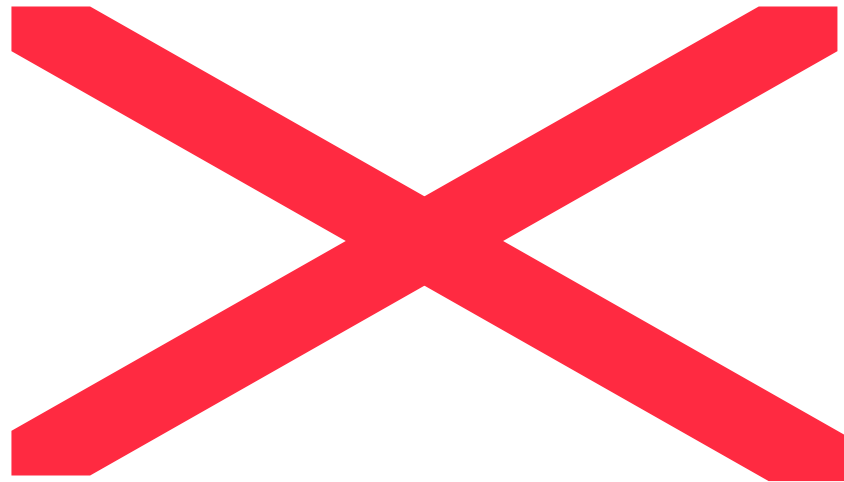




# Buy Cars or Build Wealth?



**“Zero Percent Loans Drive Economy” :  
Detroit Free Press, August 2002**

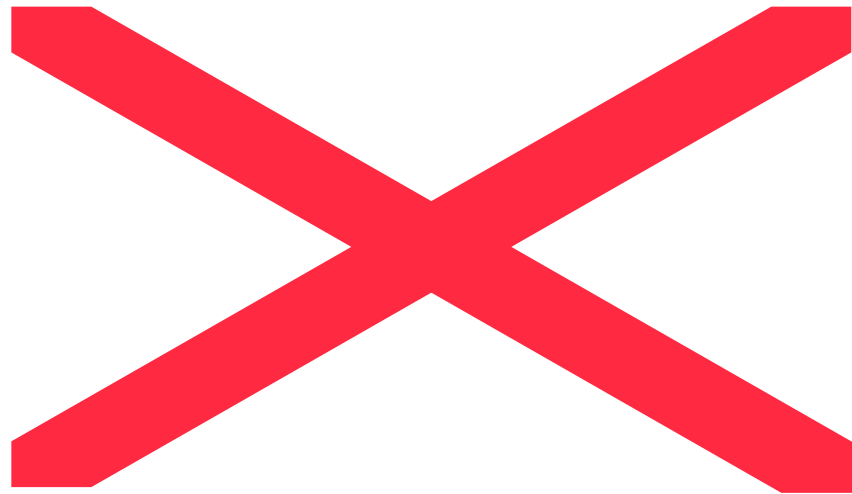


# An Expert Opinion

- “We’ ll be the first generation in the history of the planet that drove to the poorhouse in an automobile”

Will Rogers

Traffic Increasing Much Faster  
than Population, Road Capacity, Wiping  
Out Vehicle Efficiency Gains





# Some notes on the built environment

- Represents the bulk of tangible wealth in the US
- Approximately one-half buildings and one-half land and infrastructure
- Mostly built to last, particularly the land and infrastructure
- Two-thirds of US freight for construction materials

# Why this works

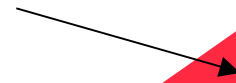
- Shared walls
- Shared infrastructure
- Legacy assets
- Where you build is as important as what you build

# Recent work on

- Relative value of vmt reduction
- Approximately equal to the value of reductions from CAFÉ and better fuels
- “VMT reduction as significant as cleaner cars and fuels”—Socolow and Pacala, Science Magazine 2005

# Bigger Homes, Smaller Households

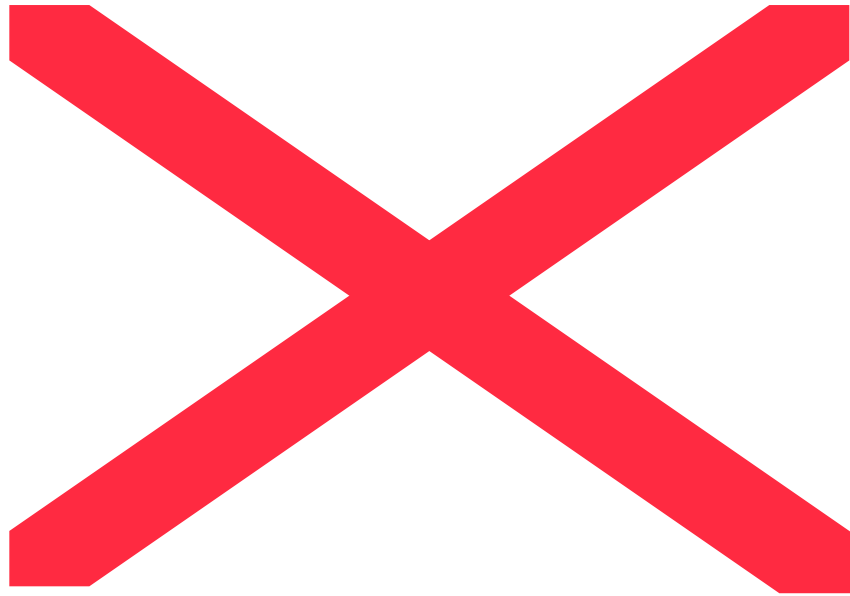
Home size increases by 41%



Household size shrinks by 20%

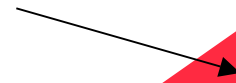


Continuous Drop in HH Size since  
1790



# Bigger Homes, Smaller Households

Home size increases by 41%

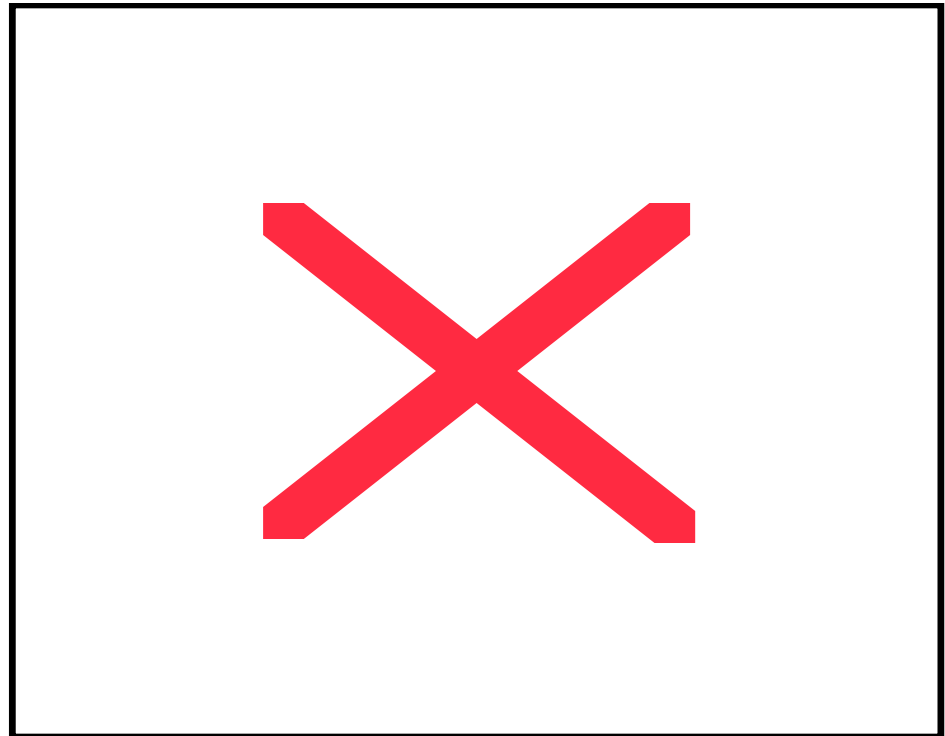


Household size shrinks by 20%

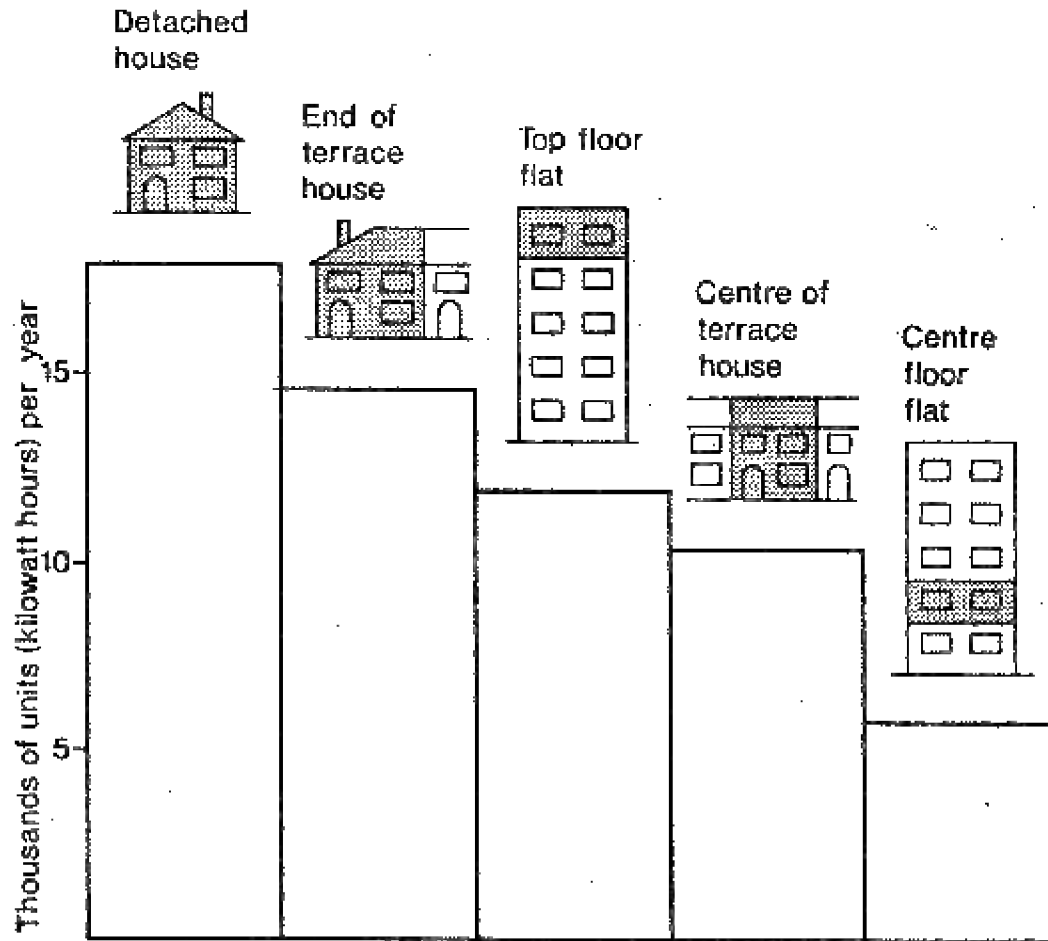


# Thermal Efficiency Increases with Density and Geometry

- With row housing, each addition unit pairing savings at least two heat loss surfaces compared to single family
- Potential savings of 32-43 percent over component efficiency alone

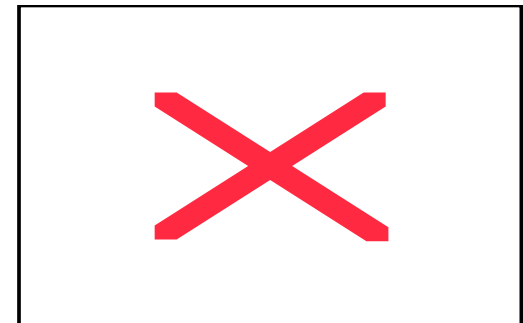


# Detached Homes Least Efficient



All the houses and flats in the diagram are the same size and have the same proportion of window to outside wall

- Detached homes use about 3 times as much energy as a middle unit of a multi-family building



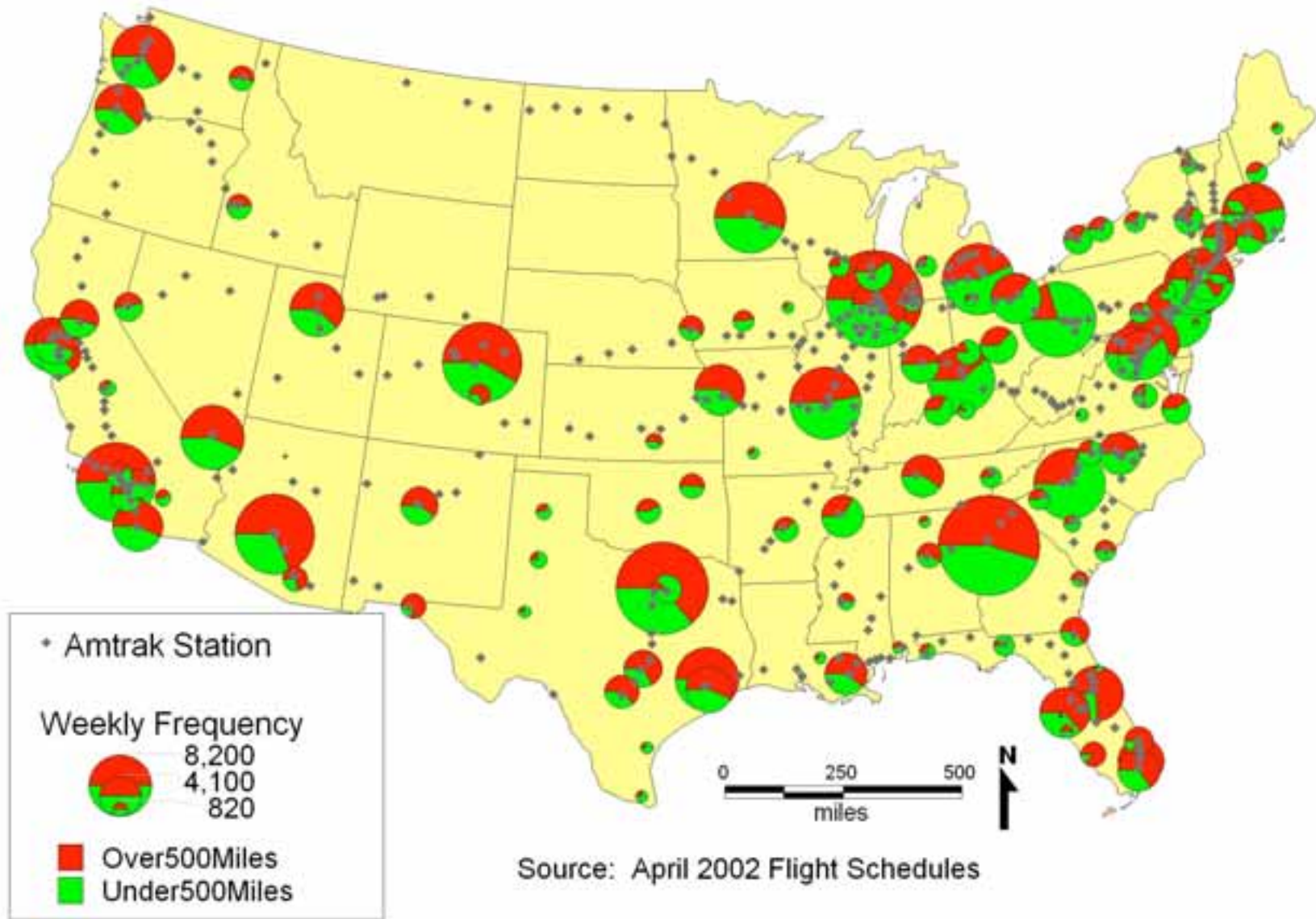


# Challenges to Urbanism

- Long distance travel
- Freight
- Last mile
- Behavior



## Short Flights vs Long Flights for The Major Hubs



# The Fences are Coming Down

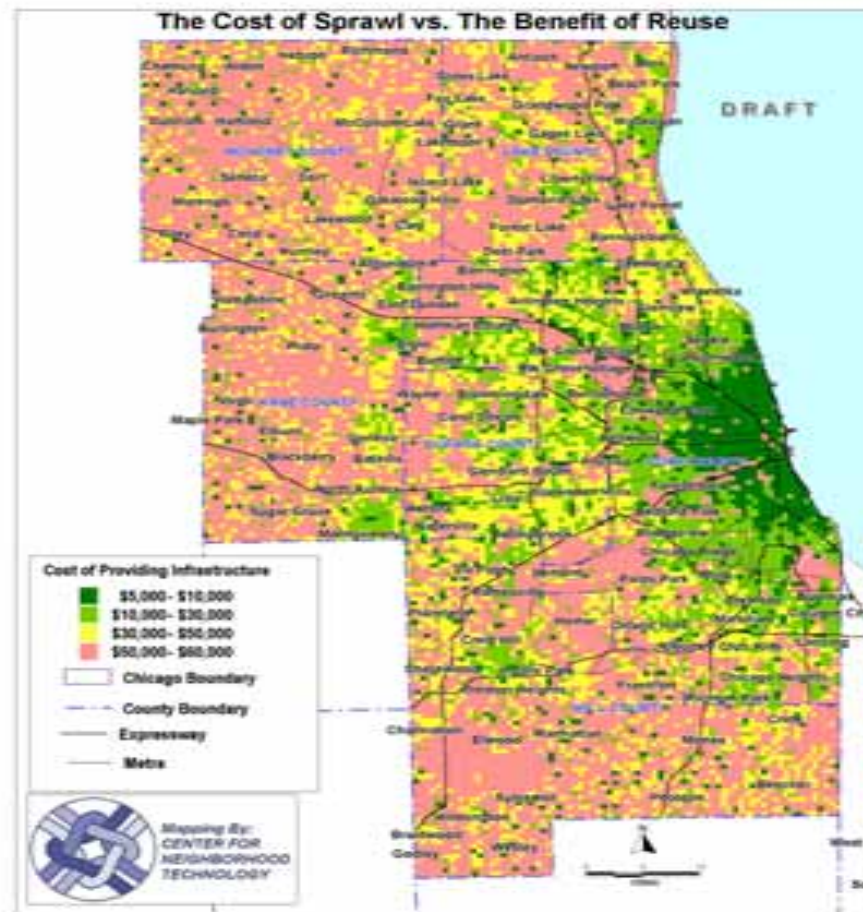


## Creating Airport Cities

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# Sample Benefits: Infrastructure and Rights of Way



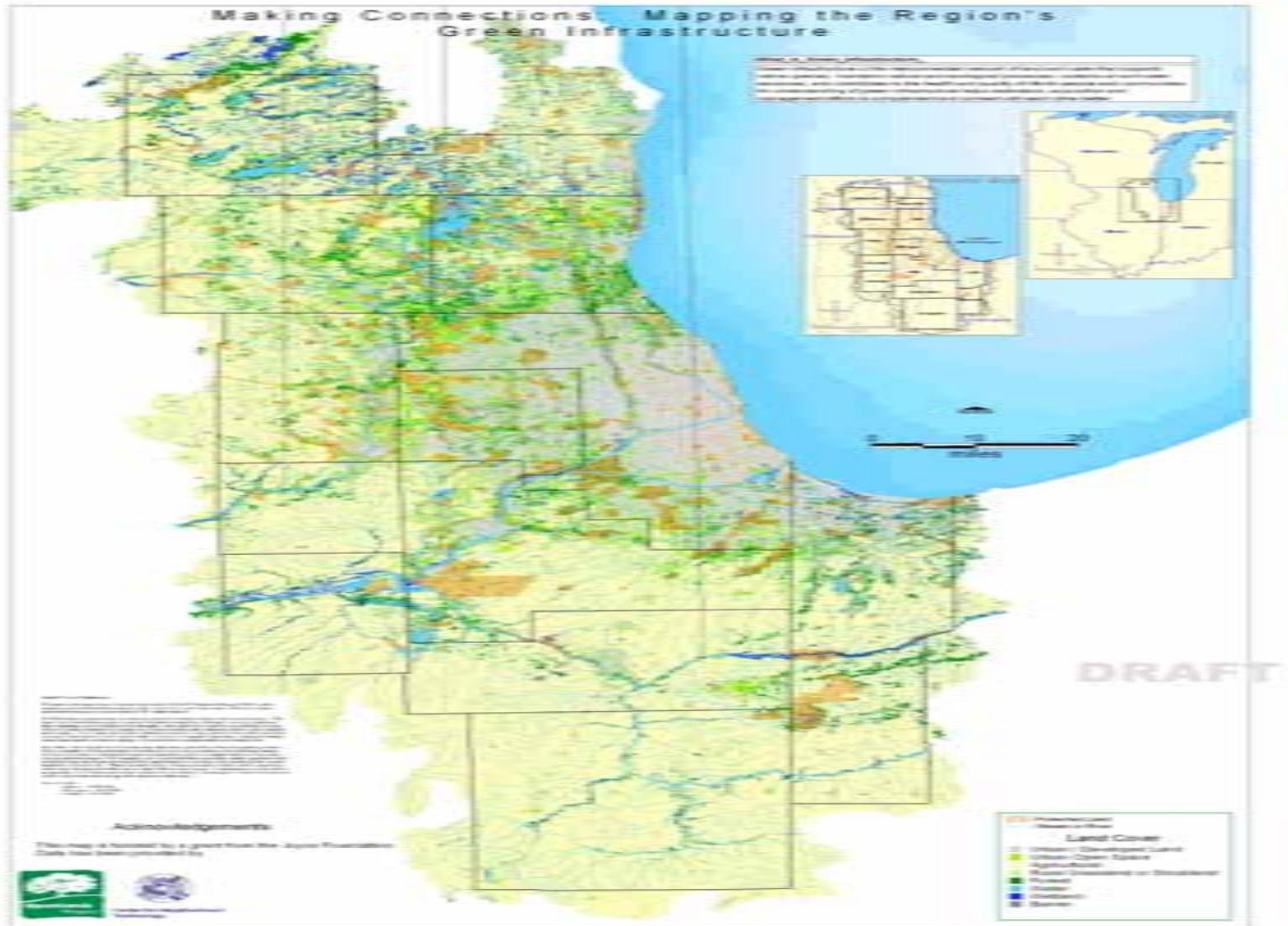
# Fixing It First

- Total increase in housing 1970-1999 was 2.4% per year
- Total increase in commercial space was 2.4% per year
- Population increased by 1.1% per year
- Households increased by 1.5% per year
- Roads increased by 2.7% per year
- Jobs increased by 2% per year

# Fixing It First

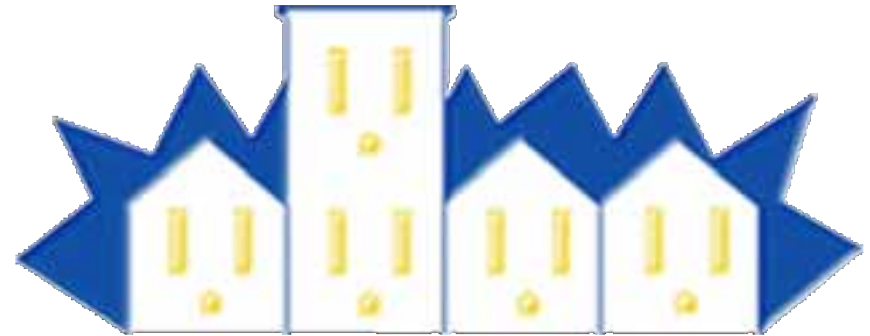
- 80% of all housing that will exist in 2020 exists today
- Similar portions for infrastructure and non-residential stocks
- Depreciation of existing stocks equals or exceeds growth
- Life extension is worth more than production

# Green Infrastructure



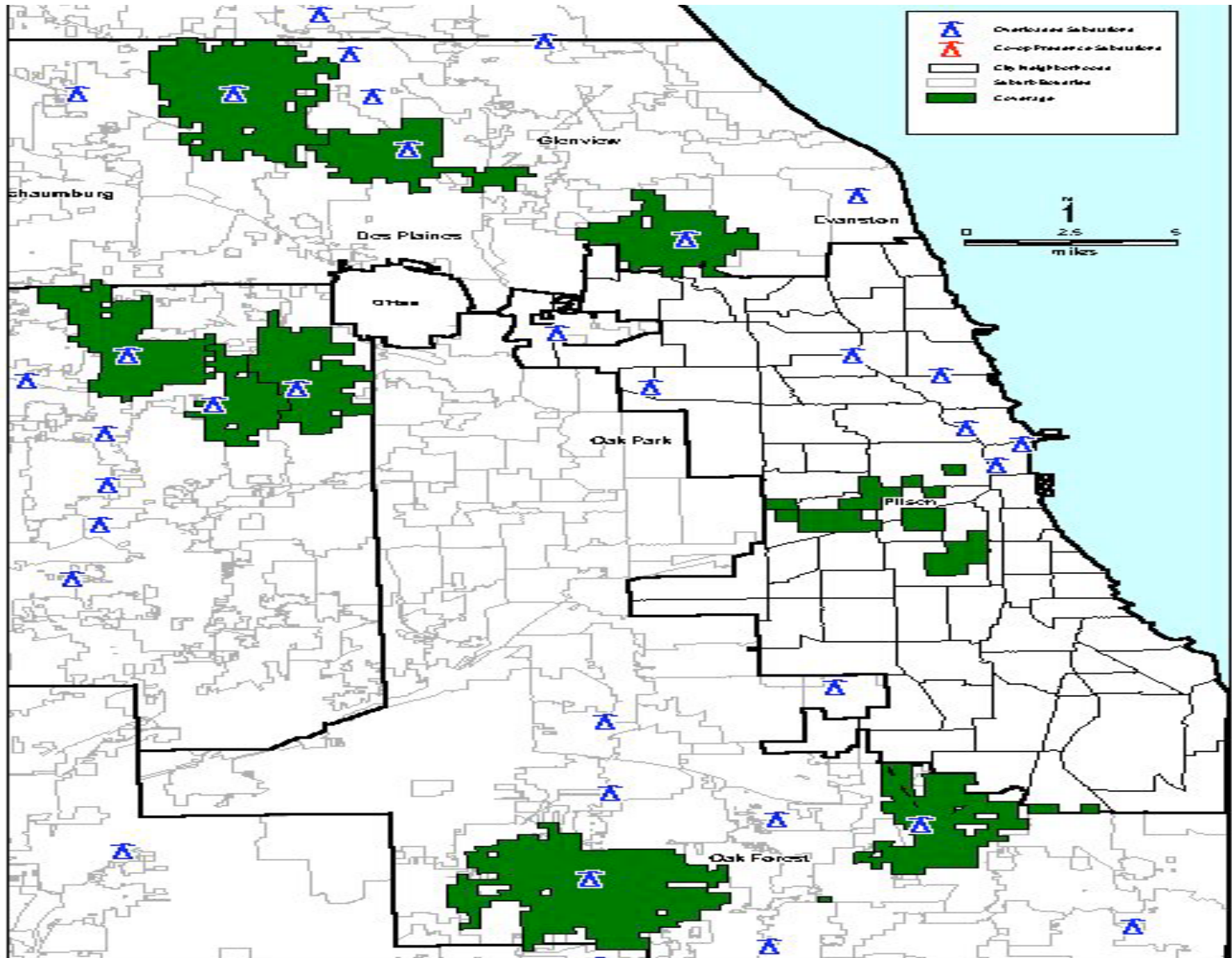


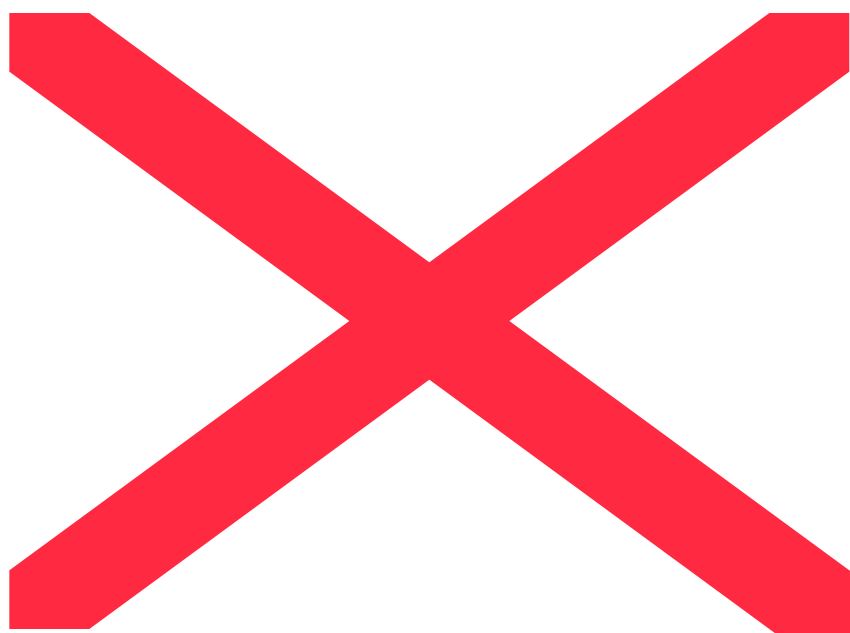
# The Energy-Smart Pricing Plan



Community Energy Cooperative

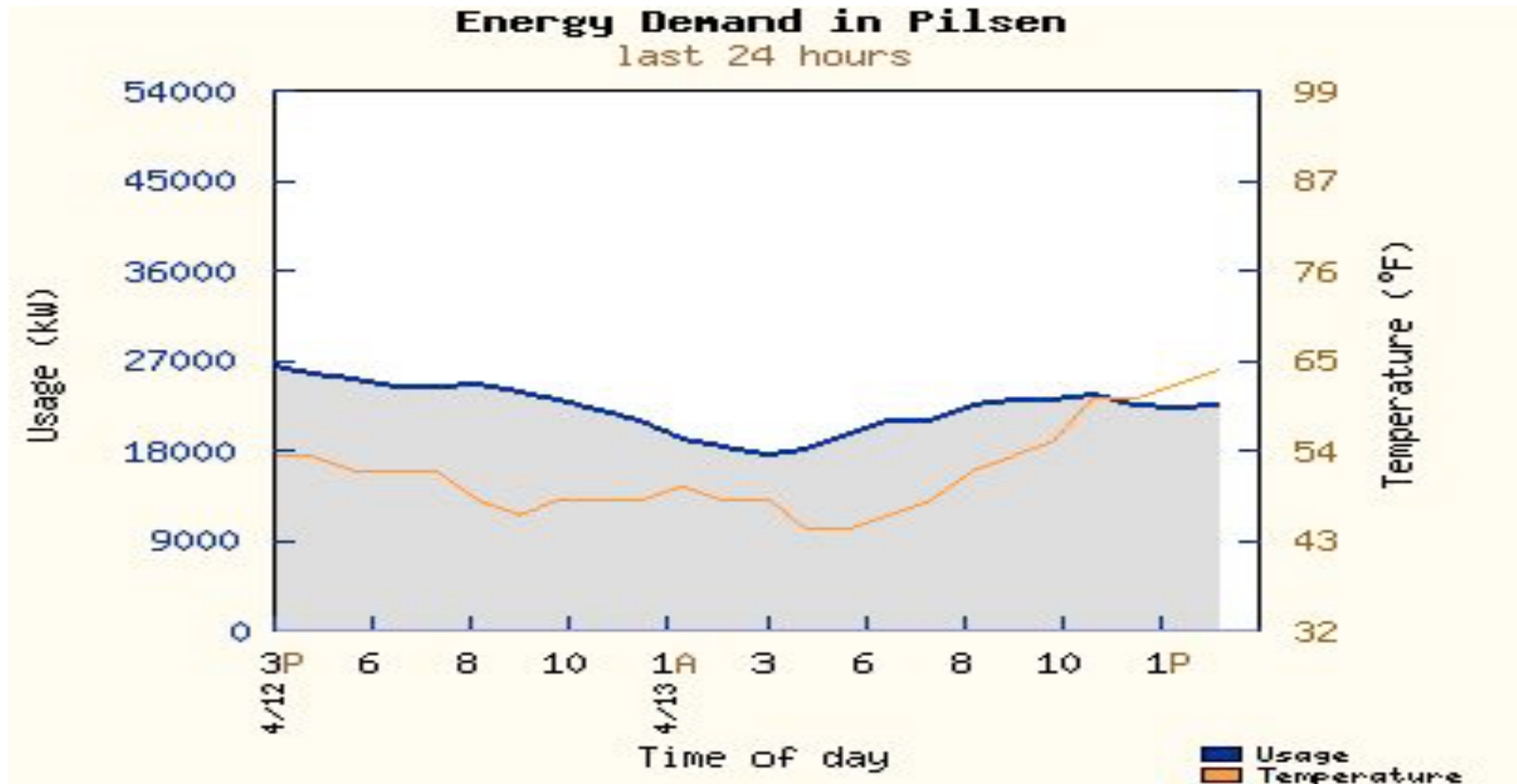
**ComEd**







# Real Time Community Energy Demand In Pilsen





- Hourly wholesale price in Northern Illinois was less than 2.8 cents per kWh for 98.8% of the hours.
- During the remaining 1.2% of the hours, the price ranged from 2.9 cents to \$7
- Potential savings = \$1 Billion/year.

# Last mile

- Requires access to shopping, particularly to food
- Short distance transport—better buses, revived streetcars, universal car sharing (17 cars removed from each one out there, net of 16= 93 percent VMT and carbon reduction)

# Car Sharing: Pay as You Go Driving



Like.  
**Owning A Car**  
**Only Better**



# How it Works

- A kind of “riders club,” an “HMO for riders,” or “premium last mile” transit service
- Organization buys cars, members use them
- Typical bill is \$125/month
- Savings of \$200-\$400 per month for users
- Each cars supports 20-40 households
- Each car removes 17 from the road
- 58 percent sell or delay purchase

# TOD Connection



- In older cities, commuter and freight trains share track and may share yards.
- Reconfiguring freight yard may allow for TOD
- Land swaps make both TOD and COD possible

# Potential Scale

- 3,280 intermodal yards in the U.S. (NTAD 2003),
  - 2,636 are within an Metro Areas
  - 644 in rural areas (non MSA).
- Small innovations for relatively small investments, e.g. re-routing trucks, reducing idling times, etc. can:
  - reduce emissions
  - benefit freight movements
  - reduce congestion

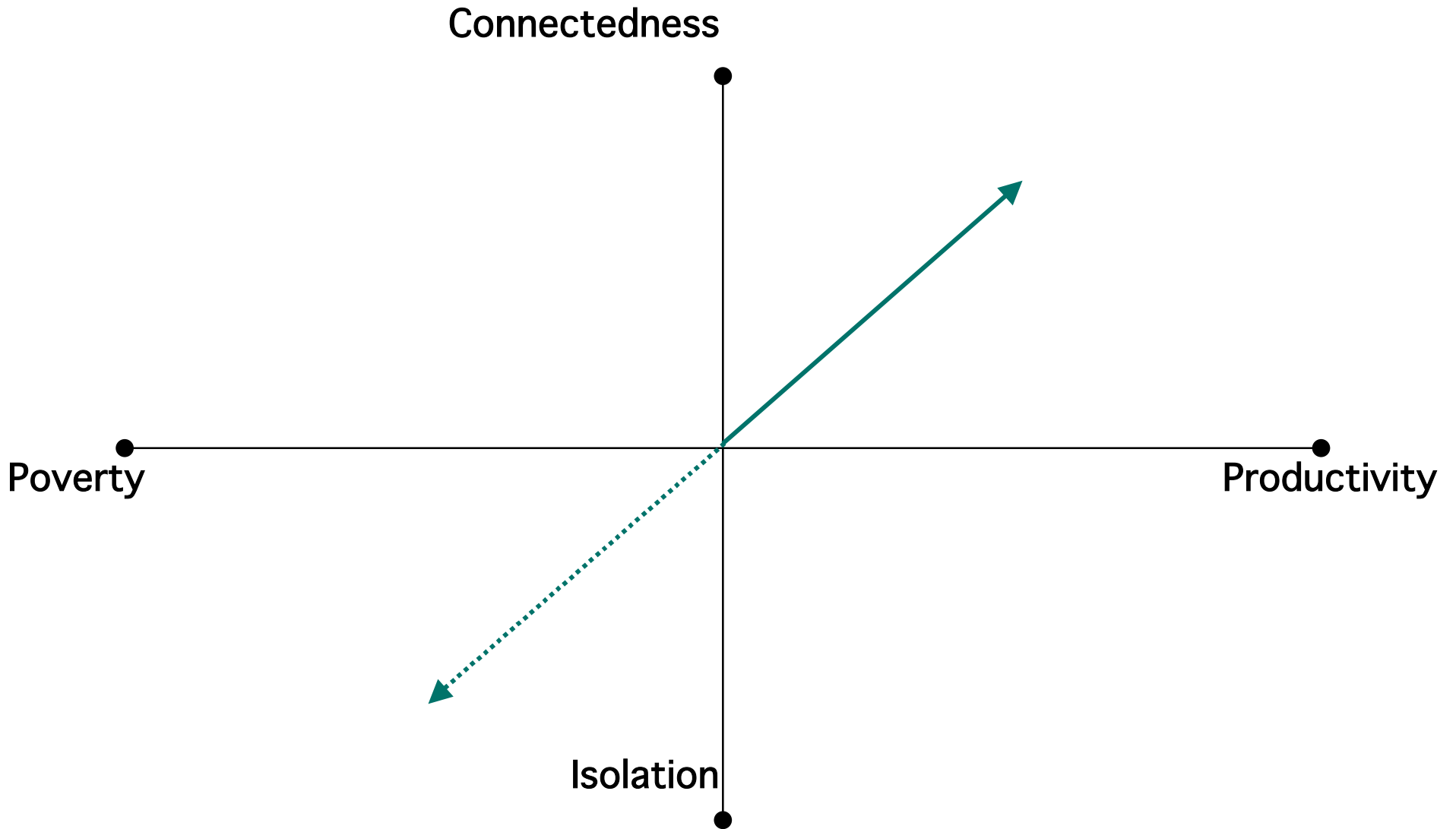
# Policy Implications

- Freight yards are an implicit public-private partnership:
  - Private ownership but public good and service
  - Needs to be included in economic development and transportation planning
- Moving freight yards to urban periphery may create more truck between exurban areas and urban core

# Our big challenges

- Learning how to approach rapid growth
- Learning how to sustain
- Making it pay for everyone

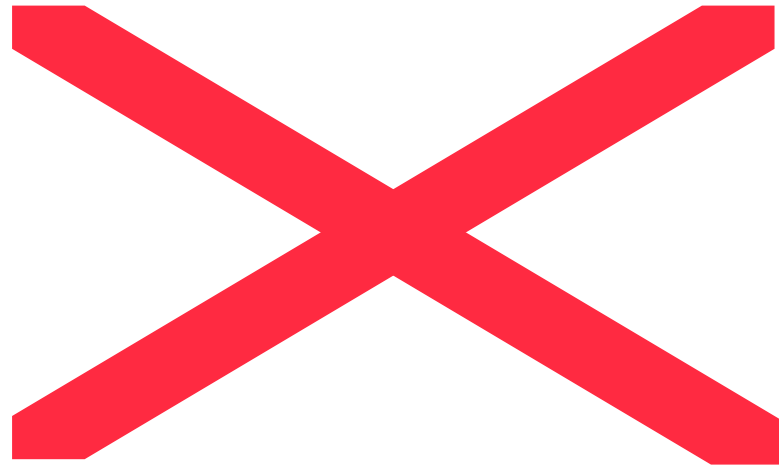
# What a Nourishing Economy Does



# Elements of an Urban Climate Strategy

- Rich in information
- Shifts demand not just changes supply
- Distributed resources—network economies, values and rewards a large number of small activities
- Bundles the necessary elements of the opportunities
- Reduces carbon footprint
- Reduces the cost of living
- Can result in actual asset accumulation

# A Possible Generic Policy





# Choices for CNU

- Set bold goals for cities and regions sufficient to get us to the mitigation goal
- Learn to partner with organizations that can help measure and verify performance and help improve our practice
- Partner to adopt more rigorous and systemic policies and market practices that support that collective performance

# Thank You!

- [scott@cnt.org](mailto:scott@cnt.org)
- [www.cnt.org](http://www.cnt.org)