Options and New Tools to Help Cities Reduce Travel Demand and Improve the Local Economy

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Presentation Goals

- Review recent findings on what works in reducing travel demand
- Demonstrate new web tool for indexing true cost of housing + transportation, https://htaindex.cnt.org
- Suggest some options for cities to help take charge
- Review recent policies and laws at local, State and Federal levels that can help
When Coffee Came to London:
Lloyd’s Coffee House, Social Capital &
Urbanism Create the Insurance Industry,
1700s

852 Cities Signed Mayors
Climate Challenge to Date
What a Nourishing Economy Does—Reduces Risk, Increases Gain

![Graph showing the relationship between poverty, isolation, productivity, and connectedness.](image-url)
Some Very Recent Comments

• Will Americans get out of their cars?
• What can we do to stop the relentless increase in vehicle miles traveled?
• It’s much easier to sell cleaner cars and cleaner fuels than to reduce driving or increase transit…

https://htaindex.cnt.org
Chicago Household Demand Does Respond to the Cost of Driving

VMT per HH vs. Chicago Gas Prices 1980-2006

Movements of Chicago Gasoline Prices and VMT/HH Seem to Move in Opposite Directions
Some Recent Statistics

1st Quarter 2008

- Transit ridership up nationally 3.3 percent
- National VMT down nationally 2.3 percent
A Century of Revenue Ridership in Chicago

Vehicle Registrations

A Century of Mode-Shifting: Chicagoans Respond to Level and Quality of Service But We Still Haven’t Caught Up to Our Potential

Transit Revenue Rides per capita per year

Vehicle registrations
A Century of Policies, Events and both Good and Bad Decisions
Significant Trends We Cannot Avoid

- Energy prices—peak oil within 5 and possibly 2 years; today’s $100 oil will rise to between $177 and $504/barrel as early as 2012
- Climate change—increased electricity demand, crop cycle disruption, limits on water supplies and shipping season, possible limits on aviation
- Demographics—aging population, smaller households, immigration
- Technology—continued automation, information system integration
- Workforce—Demand for trained and skilled growing in excess of capacity
- Globalization—competition increasingly Bangalore and Shanghai not just Los Angeles, Phoenix and New York
Chicago MSA 2000-2008
Gas Prices Rose Twice as Fast as Income
Bypassing the Local Economy—Portion of Daily Traffic Traveling Freeways
Columbus, Ohio
Broad & High
Peak-Value at Streetcar Intersection

Note

• Increasing Density,

• Mixed-Use Development,

and

• Human Traffic Control
Umbrella
Transparency Drove the Market Through 1930, Note Peak-Value at Peachtree, Marietta & Decatur

- Transit-Oriented Atlanta
- Economically Legible Atlanta
Most Places Abandoned Their Transit Systems
America’s Inter-City System Was Largely Abandoned
And Public Policy Favored a Different Vision
Historical Precedent for Rapid Change—From 1885 to 1902

- America went from 1 electric street railway to 1 in every city of 5,000
- Rate of growth =to the Internet
- Demand boosted by important social movements—e.g. home economics
- Thousands of miles of local and inter-urban connecting in turn to the national inter-city rail networks

Getting to scale through network economies—when a large number of connected small investments are worth more than a few big ones
Street Benefit Districts Helped Cities Pay the Tab: “A Machine to Mine the Land”

- Los Angeles: 16.7%
- Chicago: 13.6%
- New York: 3%
Historical changes

- 1920, Food was 41 percent of HH expenditures, housing 27, transportation 3 percent

- Today food 16, housing 25-35, transportation 15-35 percent respectively
Buy Cars or Build Wealth?

- Car sales and savings move in opposite directions

- Will Rogers—”We’ll be the first generation in the history of the planet that drove to the poorhouse in an automobile” (1931)

No-cost car loans after 9/11 Made it worse
How the Market Views Chicago—
Price Waterhouse Coopers/ULI
Emerging Trends 2008, Surveys
Fund Managers Investing $717 Billion in Equity, Leveraging $3.3 Trillion in Debt

Top Picks for Development

- Build TOD … almost can’t miss”
- Think Green
- Focus on Mixed Use and Infill

Top Picks for Property Sectors

- Buy multifamily
- Buy or hold industrial
- Buy residential building lots
- Exercise caution in office and hotels
- Chill on retail
How the Market Views Chicago—PWC/ULI 2008
Commercial/MF Development Prospects Ratings

1 = Abysmal
5 = Fair
9 = Excellent

Cinci, Cleveland, Columbus
Chicago, San Antonio
New York, DC, Seattle, LA, Portland OR

Cities and Ratings:
- Cinci, Cleveland, Columbus: 5
- Chicago, San Antonio: 8
- New York, DC, Seattle, LA, Portland OR: 9
Transit-Oriented Locations
Favored by Changing Demographics

Chicago MSA—787,000 More Households Near Transit 2000-2030
Declining Importance of Journey to Work
Most Trips are Short Trips for Non-Work Purposes

- Family/Personal: 44%
- Social/Recreational: 27%
- Work: 18%
- School/Church: 10%
- Other: 1%

18% Work-Related
Sample Asset: Accessibility

- Density, Transit Access (Proximity, Frequency, Connectivity), and Amenities Determine Transportation Demand
- Statistics Used to Estimate Likely Travel Demand
- Demand is Verified by Measuring Vehicle Ownership and Extent of Use
- Demand is Then Valued in Dollars and Cents
Explain Using Regression?

\[
\frac{V_{eh}}{Hh} = 4.722 \left( 22.520 + \frac{H}{RA} \right)^{-0.3471} \left( 1 - e^{- \left( \frac{0.00011 \$}{P} \right)^{12386}} \right) \left( 1 + 1.0519 \frac{P}{H} \right) (Tr + 60.312)^{-0.2336}
\]

\[
\frac{VMT}{Veh} = 10386 \left( 0.5041 + \frac{H}{TA} \right)^{-0.0419} \left( 1 + 0.02759 \frac{P}{H} \right) \left( 1 - 0.0704 \sqrt{Ped} \right) - 0.01743 \left( \frac{\$}{P} - 22136 \right)
\]

\[
\frac{VMT}{Hh} = \frac{Veh}{Hh} \times \frac{VMT}{Veh}
\]
Curve has been shown to work for 52 US Regions, London, Paris, and 37 Japanese Cities.
Different parts of Chicago region more exposed than others

- Varies from under $1000-1900 in Cook County to $4000-$6000 in collar counties annually
- Function of available transportation choice
- Calculated using $4/gallon and 20 MPG
Mapping the Benefit

- Good transit access yields one less car per HH
- Lowers cost of living by $300-400/month
- Equivalent of increasing income 10-15 percent tax free
Looked at Potential Value Capture through Mortgage Lending

This map shows Affordability Using Standard PITI/Income Underwriting

This map changed Formula to Include Value of Location Efficiency

How much more of Cook County is Affordable for the Working Poor when we count Transportation Savings

Affordability Index for $20,000 Hh PITI/Income by Census Tracts
- 35% or More
- 25% to 35%
- Less Than 25%
- No Data

LEM Affordability Index for $20,000 Hh PITI/Income + Lenny by Census Tracts
- 45% or More
- 35% to 45%
- Less Than 35%
- No Data
Where Has it Been Tried

- LEM’s in Seattle, Chicago, San Francisco, and Los Angeles (Fannie Mae and local lenders)

- Take the T Home Mortgage in Boston (Fannie Mae and state housing finance)

- Smart Commute Mortgages in several dozen cities (Fannie Mae plus local lenders)
Another Approach
Indexing Truer Affordability and Relating it to Climate Change

How Housing Affordability is Usually 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

https://htaindex.cnt.org
Demographic & Price Trends Promote Urbanism and Demand Reduction

- Continuous drop in household size since 1790
- Aging in place
- “Married w/kids” only 23% of total
- Rising energy and gas prices
- Limited public funds to keep sprawling
Where We Build Matters:
Poor Locations Drive Up Emissions and Costs
What Working Families Spend on Housing and Transportation in 28 Metro Areas—Approaching Two-Thirds of Income
For Working Families, Transportation Doubles Housing Costs, A Truly Heavy Load and Sprawl Near Job Centers Only Helps Modestly

Source: Center for Neighborhood Technology calculations.
NOTE: Employment centers are job locations with a minimum of 5,000 employees.
Impact of Gas Prices on Households
June 2000 v June 2008

by Block Group: Model Data
Data not available
0 to 1,600 USD(s)
1,000 to 2,400 USD(s)
2,400 to 3,000 USD(s)
3,000 to 3,800 USD(s)
Greater than or Equal to 3,800
Monthly Household Transportation Expenditures
June 2000 v June 2008

Monthly Household Transportation Expenditures (2008 gas prices),
by Block Group Model Data
- Data not available
- 0 to 30 USD($) (3)
- 730 to 800 USD($) (3)
- 800 to 850 USD($) (3)
- 960 to 980 USD($) (3)
- Greater than or Equal to 990 USD($) (3)

Monthly Household Transportation Expenditures (2000 gas prices), Fuel efficiency is based on 2000 mpg.
Two Views of Affordability—
Standard versus Housing + Transportation

- 30% of Median Income
- 48% of Median Income
Effect of Drive ‘til You Qualify—Transportation Doubles Housing Cost, H+T Approaches 2/3 Income
VMT Determines Gasoline Use and Also Determines Carbon Emissions per HH
Cleveland MSA
0 – 2.4 Vehicles per HH
Cleveland MSA
10,000 to 27,000 Vehicle-Miles Traveled per HH per Year
Transit Ridership 0-14%
Cleveland MSA Residential Density
0 to 17 Households per Residential Acre
Cleveland MSA
Transit Connectivity Index 0-10
Cleveland MSA Monthly Household Transportation Expense is $601 to $1115
Transportation in Cleveland MSA is 15-34 Percent of Average Income
Where is the Affordable Housing: Showing Break at 30 Percent of AMI for Housing, 48 for H+T

- Housing Costs at 30% of Income
- Housing+ Trans Costs at 48%
Same View, Columbus

Housing at 30% of Income

Housing + Transportation at 48%
Same View, Cincinnati

Housing at 30% of Income

Housing + Transportation at 48%
Where Can a Median Income HH Afford to Live?

Housing at 30 Percent of Income OR

Housing + Transportation at 45 Percent

Htaindex.cnt.org
Two Views of Affordability in Metro Nashville Tennessee—

Housing at 30% of Income,

Housing + Transportation at 48% of Income

T-Cost: $648-1611/mon
VMT: 5500-26000/year
CO2: 2.75-13 Ton/HH

Htaindex.cnt.org
Milwaukee Journey to Work
Transit Mode Share—0-16 Percent;
30 %—Didn’t drive alone in City,
20 %—Didn’t drive alone in Region
Milwaukee HH Transportation Costs—$657-1757 Per Year
Two Views of Affordability: Housing at 30, H+T at 45 Percent of AMI
Using the New Index

Current

• SF—MTC set goal to reduce H+T by 10% in 2035, FHLB uses in AHP screen
• Atlanta—Mixed Income Communities Initiative reframed affordability goals
• IL—Business Location Efficiency Act screens tax credits and CMAP using to help suburbs meet goals
• Oakland & Chicago—Experimental counseling program uses data to help lower cost of living
• Chicago and nationally—used to support climate mitigation plans

Proposed

• Adopt new H+T affordability index and get HUD and DOT to use it
• Support enhanced counseling and information tools
• Disclose household transportation and energy costs—link to MLS, Google, etc.
• Underwrite location efficient and possibly carbon-neutral mortgages
A Closer Look in 2000—Again, Block Group Resolution Shows Working Family Migration to Exurbs

Chicago Region - 2000
Median Household Income is
80% of Area Median Income, $40,836

2000 Census Tracts
80 Percent of AMI, $40,836
County Boundary
* Metro Station
* Metro Rail Line
* Interstate Highway

N

0 10 20 miles

CNT

2000 Census Block Groups
80 Percent of AMI, $40,836
County Boundary
* Metro Station
* Metro Rail Line
* Interstate Highway

N

0 10 20 miles
The Effect of ‘Drive ‘til You Qualify’: High T Costs with Distance
It’s Not Over Yet—
-Gas Costs Keep Climbing,
-12 month’s foreclosures
Up 5% in Cook County IL
-Up 70% in surrounding collar counties
-Worst where income is low & VMT exposure is high
Range of Energy Intensities for Local/Regional Transport Options

<table>
<thead>
<tr>
<th>Transport Option</th>
<th>BTU/Passenger-Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycles</td>
<td>200</td>
</tr>
<tr>
<td>Moped/Scooter</td>
<td>400</td>
</tr>
<tr>
<td>Rail Rapid Transit</td>
<td>500</td>
</tr>
<tr>
<td>Plug In Hybrid Electric</td>
<td>911</td>
</tr>
<tr>
<td>Light Rail</td>
<td>1000</td>
</tr>
<tr>
<td>Vanpool</td>
<td>1100</td>
</tr>
<tr>
<td>Commuter Rail Electric</td>
<td>1536</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1750</td>
</tr>
<tr>
<td>Commuter Rail Diesel</td>
<td>2355</td>
</tr>
<tr>
<td>Air</td>
<td>2569</td>
</tr>
<tr>
<td>Personal Truck</td>
<td>3496</td>
</tr>
<tr>
<td>Diesel Local Buses</td>
<td>4057</td>
</tr>
<tr>
<td></td>
<td>4323</td>
</tr>
</tbody>
</table>
Carrying Capacities for Local/Regional Transport Options
Hourly Passengers/Lane-Direction

- Automobiles in Streets: 800
- Automobiles in Highways: 1500
- Local Bus-Single: 4500
- Local Bus-Articulated: 7500
- Regional Bus: 9500
- Streetcar-Single: 10500
- Light Rail: 12000
- Streetcar-Double: 21000
- Commuter Rail: 35000
- Rail Rapid Transit: 62000
The Value of TOD to the Chicago Climate Action Plan

- Transportation, energy and buildings
- Chicago better than suburbs but still needs to improve
- Reduced car use as important as cleaner vehicles
- Travel choice and urban form produce deep reliable results
Urban Form Supports Low-Carbon Travel: Convenient Remedy to an Inconvenient Truth

- Chicago has dense networks of sidewalks and streets
- The higher the connectivity, the lower the CO2 per HH
- Supports walking, biking, mixed-use land uses
- Helps avoid unnecessary car trips

Courtesy L. Frank & Steve Winklemann
Two Views of Chicago and CO2—Location Efficiency Reduces Per-Household Emissions, Changes “Cities are the Problem” to “Cities can be the Solution”
Same View: Bay Area
Efficiency Limited to Areas Around Bay
Transport Carbon in Tons of CO2/HH/Year

This Place Has
the
Disappearing
Carbon
Blues...

Location Efficiency & the Transect Reveals Carbon Benefits of Good Urban Form
Some Examples of Transportation Choices
Case Study: Car Sharing
Impact of 1 Shared Car per Block

- 112 cars per square mile, 25,000 Blocks total
- 37 users per car
- 4144 users per square mile, 915,824 users citywide
- Savings per user = 5,064 VMT/year
- Savings per user = 1.764 Metric Tons of CO2 equivalent per year
- Total annual savings = 1.62 Million MT
- Remove 400,000 cars from the roads
Filling In Missing Links by Adding Streetcar Circulation—Reduced Portland VMT & Transport Carbon 67%
Part of Portland Climate Plan (From Street Smart, CTOD 2006)

**STREETCARS ARE DEVELOPMENT-ORIENTED TRANSIT**

Developers say that the permanence of the fixed guideway helps mitigate the risk, and the higher densities and lower parking ratios typically permitted in downtowns make projects more profitable. These densities would not be possible, however, if there was no streetcar. Before the alignment was selected for the Portland streetcar land in the Pearl only captured 19 percent of all development in the CBD; after it was chosen the land captured 55 percent.

<table>
<thead>
<tr>
<th></th>
<th>Start of Service</th>
<th>Initial Track Miles</th>
<th>Initial System Cost Per Mile</th>
<th>Initial System Cost</th>
<th>Development Investment</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenosha</td>
<td>2000</td>
<td>2.0</td>
<td>3.10</td>
<td>6.20</td>
<td>150</td>
<td>2319.35%</td>
</tr>
<tr>
<td>Little Rock</td>
<td>2004</td>
<td>2.5</td>
<td>7.84</td>
<td>19.60</td>
<td>200</td>
<td>920.41%</td>
</tr>
<tr>
<td>Tampa</td>
<td>2003</td>
<td>2.4</td>
<td>20.13</td>
<td>48.30</td>
<td>1000</td>
<td>1970.39%</td>
</tr>
<tr>
<td>Portland (1)</td>
<td>2001</td>
<td>4.8</td>
<td>11.50</td>
<td>55.20</td>
<td>1046</td>
<td>1794.93%</td>
</tr>
<tr>
<td>Portland (Ext.)</td>
<td>2005</td>
<td>1.2</td>
<td>14.83</td>
<td>17.80</td>
<td>1353</td>
<td>7501.12%</td>
</tr>
</tbody>
</table>

**Table 1:** Private Returns on the Public Investment

Source: Reconnecting America
WHY STREETCARS AND WHY NOW?
BECAUSE STREETCARS ARE:

- relatively inexpensive -- recent streetcar systems have ranged in price from $6 million (Kenosha) to $55 million (Portland, Phase 1)
- uniquely suited to serve all the higher-density development occurring in downtowns across the U.S.
- hugely successful in promoting intense development and vibrant streetlife
- easily integrated into built environments because they can run in mixed traffic and share stops with buses (and don't require the massive infrastructure of stations, parking structures, bus bays and exclusive rights-of-way that make bigger rail systems difficult and expensive to build)
- and they feed regional transit systems, making transit more convenient by providing the “last mile” connection.
• Streetcar links several distinct districts
• Fares interchangeable with TriMet LRT and bus and with South Waterfront Tram
• $1.75 or $100 annual
• Operated by Portland Streetcar Inc.
• Runs every 13 minutes
THE STREETCAR WAS A WATERSHED EVENT IN PORTLAND’S DOWNTOWN

In the Pearl:
- 100 projects worth $2.3 billion, including 7,248 housing units and 4.6 million sq. ft. of commercial space
- 25 percent of housing is affordable
- Developers built at 90 percent of allowable density next to the line, twice as high as 3 blocks and further away
- Portland achieved its 20-year housing goal in 7 years, and issued a record number of building permits 7 years in a row

In South Waterfront:
- Connects to downtown via streetcar and to OHSU via aerial tram
- An even more ambitious redevelopment effort with 5,000 jobs and 3,000 housing units planned
- 4 residential towers are out of the ground
Portland South Waterfront Opening 2007

- Serves residential, recreational, business, institutional uses
- Links to LRT, bus and aerial tram
- Mixed income, mixed use TOD
Portland Aerial Tram—City’s new icon

- Links South Waterfront to Oregon Health Sciences Campus
- Private operating company
- 3,500 riders/day
- Links to streetcar, bus, LRT
Roosevelt Island Aerial Tramway NYC

- Spans East River
- Private operating company
- 4,000 riders/day
- Island is mostly carless
- Links to MTA
Seattle South Lake Union Streetcar

- Large waterfront development at north end of downtown
- Developer wanted link to main rail station
- Started December 2007
- City holding hearings on four more routes
Works in Small Areas: Freiburg Germany—Modest Density + Good Coverage + Ease of Use = Low Car Use + Affordability
TOD Is:

- **Location efficiency** — Dense, transit-accessible, & pedestrian-friendly
- **Rich Mix of Choices** — Wide range of mobility, housing and shopping options
- **Value Capture** — Frequent high-quality transit service, good connections between transit & community, local amenities supporting place-making, scorekeeping & attention to financial returns
- **Place-Making** — places for people, enriches existing qualities, provides new connections, works with landscape
- **Resolution of Tension between TODs as “Nodes” and “Places”** — Works to support travel networks and communities
TOD is not

- **Just for commuters** — Work-related trips just 18 percent of total travel
- **Auto-oriented transit** — Way too much land in Chicago devoted to park-and-ride lots
- **Just a place to sleep at night** — People need to shop, eat, visit without getting in a car
- **Only the transit property** — All successful TODs are joint developments between cities, transit operators, private investor/owners, and communities
TOD Opportunities in City of Chicago—198 Total CTA and Metra Rail Stations
### TOD Typology: Transit Level of Service Co-Varies with Density, Amenities, Form (New Transit Town, 2005)

<table>
<thead>
<tr>
<th>Type</th>
<th>Primary Activity</th>
<th>Density</th>
<th>Amenities</th>
<th>Form</th>
<th>Mode</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Downtown</td>
<td>Primary office</td>
<td>&gt;60</td>
<td>Meets</td>
<td>All modes</td>
<td>2 – 10 Minutes</td>
<td>Printers Row, Dearborn Park, Central Station, River West</td>
<td></td>
</tr>
<tr>
<td>Loop, Near South Side, Near North Side, parts of Near West Side</td>
<td>center, Entertainment, MF housing, Retail</td>
<td>standard and is growing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Neighborhood</td>
<td>Class B</td>
<td>&gt;20</td>
<td>Meets</td>
<td>Rapid rail, Streetcar, Rapid bus, Local bus</td>
<td>8-10 Minutes</td>
<td>All non-downtown Chicago areas’ CTA stations up to 8 miles out</td>
<td></td>
</tr>
<tr>
<td>All other Community Areas except W. Ridge, Edison Pl, Norwood Pl, Forest Glen, Danne, Montclare, Garfield Ridge, W. Elsdon, Clearing, W. Lawn, Ashburn, Mt. Greenwood, Morgan Park, W. Pullman, Riverdale, S. Deering, East Side, Hegewisch, Calumet Hts etc.</td>
<td>Commercial, Mixed use</td>
<td>standard unevenly, esp. near expressway medians but also older lines’ outer stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood Transit Zone</td>
<td>Neighborhood</td>
<td>&gt;7</td>
<td>Ditto</td>
<td>Local/regional bus, Commuter rail, Rapid rail, Paratransit</td>
<td>15-30 minutes peak, 30-60 min off-peak, See Metra schedule</td>
<td>Chicago neighborhoods &gt; 8 miles out Suburban neighborhoods served by Pace</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>Neighborhood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuter Town Center</td>
<td>Retail center</td>
<td>&gt;12</td>
<td>Ditto</td>
<td>Commuter rail, Rapid bus, Peak service Demand responsive</td>
<td></td>
<td>North Central Line EJE Line proposed KRM proposed</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>Retail center</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
28 Community Areas Need Enhanced Density to Meet TOD and Level of Service Standards

Distribution of Highest Density Tracts by TOD Types by Net Densities in Households/Residential Acre

- Hegewisch 8.4
- Beverly 8.8
- West Lawn 10.9
- W. Elodon 11.1
- Forest Glen 11.4
- Edison Park 11.4
- Ashburn 11.6
- E. Side 11.7
- Archer Hts. 11.9
- Woch Hto 12.1
- Montclare 12.9
- Clearing 13.2
- Burnside 14.1
- Jeff Park 15.4
- Portage Pk 15.4
- S. Doering 16.8
- Riverdale 15.9
- Roseland 15.9
- Auburn G 16.1
- Chicago Lawn 17.8
- W. Englewood 17.8
- Belmont Cragin 17.8
- Morgan Pk 18.2
- W. Pullman 18.2
- Hermosa 18.2
- Pullman 18.2
- W. Garfield Pk 18.6
- Austin 19
- Humboldt Pk 20.2
- North Park 21.7
- Albany Park 22.2
- Englewood 22.2
- Garfield Ridge 22.7
- N. Lawndale 25.3
- S. Lawndale 25.3
- E. Garfield Pk 25.4
- Brighton 26.9
- McKinley Pk 26.9
- New City 26.9
- Norwood Pk 27.2
- W. Englewood 27.8
- Fuller Pk 28.2
- Washington Pk 28.3
- Grand Blvd 28.4
- Calumet Hts 30
- S. Chicago 30
- Lincoln Sq 30.2
- W. Ridge 30.2
- Avalon Pk 30.2
- Chatham 30.2
- Gr. Grand Cross 30.2
- Logan Sq 33.1
- Bridgeport 35.3
- Dunning 35.7
- O'Hare 35.7
- Mt. Greenwood 39.7
- Oakland 41.5
- S. Shore 45.2
- Armour Sq 45.8
- Lower W. Side 45.8
- Douglas 55.1
- Avondale 55.7
- Irving Park 55.7
- North Center 55.7

TOD Typology Category

- Neighborhood Transit Zone: 7 to 20
- Urban Neighborhood: 20 to 60
- Urban Neighborhood: 60 to 150
- Downtown: 150 to 650
- Nearby West Side: 161
- Near South Side: 472
- Near North Side: 615
51 CTA Station Areas with Low Density Need to Improve--60% of City HHs Live Within 1/2 Mile of CTA Rail Stop, 15% emit 4-11 Tons/Year CO2, 39% emit 2.4-4.4 Tons, 6% emit 0-2.4 for transport—Excluding Loop

<table>
<thead>
<tr>
<th>&quot;L&quot; Station</th>
<th>Potential HH Areas</th>
<th>Residential HHs</th>
<th>Net Density TOC Areas</th>
<th>Net Density TOC</th>
<th>Carpool Per Household</th>
<th>Carpool Per HH</th>
<th>Area</th>
<th>Density</th>
<th>Distance</th>
<th>Emissions</th>
<th>Emissions</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHICAGO blue line</td>
<td>42,378</td>
<td>29,389</td>
<td>205,090</td>
<td>138,314</td>
<td>14,982 2</td>
<td>14,982 2</td>
<td>6.1 (1,00)</td>
<td>54,312 2</td>
<td>7.2 (1,00)</td>
<td>54,312 2</td>
<td>7.2 (1,00)</td>
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<td>42,045</td>
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<td>22,997</td>
<td>205,090</td>
<td>135,314</td>
<td>15,982 2</td>
<td>15,982 2</td>
<td>6.1 (1,00)</td>
<td>54,312 2</td>
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<td>205,090</td>
<td>138,314</td>
<td>14,982 2</td>
<td>14,982 2</td>
<td>6.1 (1,00)</td>
<td>54,312 2</td>
<td>7.2 (1,00)</td>
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<td>14,560</td>
<td>10,956</td>
<td>4,733 2</td>
<td>4,733 2</td>
<td>2.9 (1,00)</td>
<td>54,312 2</td>
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<td>10,956</td>
<td>4,733 2</td>
<td>4,733 2</td>
<td>2.9 (1,00)</td>
<td>54,312 2</td>
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<td>4,733 2</td>
<td>2.9 (1,00)</td>
<td>54,312 2</td>
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<td>SOUTHEAST Blue line</td>
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<td>4,733 2</td>
<td>2.9 (1,00)</td>
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<td>2.9 (1,00)</td>
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<tr>
<td>WOODRIDGE Green line</td>
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<td>2.9 (1,00)</td>
<td>54,312 2</td>
<td>7.2 (1,00)</td>
<td>54,312 2</td>
<td>7.2 (1,00)</td>
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</tbody>
</table>
Same View, Expressed in Tons of CO2 for Transport per HH per Year, Again, Note Breakpoints at 7-12 HH/Res Acre and above 20 HHs per Res/Acre
TOD Opportunities
Orange Line Stations

- Orange Line to Midway planned for I-55 Median
- Joint city-community planning rerouted to rail ROW through communities
- Stations planned as nodes—focus on bus connections and park-n-ride, limited commuter-only amenities
- Station area place making still to be accomplished
- Station area densities all in 10-20 HH/RA range, 4-10 Tons CO2/HH/Year
TOD Opportunities
Red Line and Green Line South

- CHA Transformation Plan
- Near South Side redevelopment well under way
- Blues District, Olympics dependent on good transit
- Olympics & USX & need for improved circulation suggest bringing streetcars back
- Large post-industrial tracts could be served by Red Line extensions and streetcars—see case study below
- Densities 7-20 HH/RA, 4-10 Tons/HH/Year
- Significant infill opportunity
TOD Opportunities
W. Side Green Line

- W. Side Green Line core of empowerment zone strategy
- Community-based development at Lake/Pulaski, city station investments at Conservatory, Cicero
- Large tracts of industrial land
- Station area densities low at 10-20 HH/RA, 4-10 Tons/HH/Year
- Significant land for job creation too
Using TOD to Provide Better Choices-Up to 95% Reduction

- Location efficiency
- Mixed Use
- Value Capture
- Place-making
- Regional network access
- NOT just a place for commuters

60% of City HHs Live Within Mile of Rail Stop,

15% emit 4-11 Tons/Year CO

39% emit 2.4-4.4 Tons,

6% emit 0-2.4 for transport
Calgary CA—500 passengers, 5-25 miles, 15-40 minute trips, no oil, zero GHGs—1st 100 % Wind Powered Transit System
Electric Traction Corridors—Multi-modal transportation, electric reliability and economic development strategy
Electric Trolley Buses

- Can operate on trolley lines or independently
- Same cost as hybrid diesels
- More fuel efficient
- Operating in Seattle, Boston, Philly, SF, Vancouver
- 10-15 % more revenue/bus
Smart Grid could change market for electric transportation

- Illinois Smart Grid Consensus Forum—Mayor Daley is co-chair, CNT staffs
- PHEVs in 2009
- Micro-grids soon
- Wind-electric now
- New shared infrastructure arrangements with utilities
- Customers and communities paid for demand shaping—now
- Federal interest declared in supporting
Dresden—Revived old US practice of using transit assets to solve local freight challenge
Avenue B Trolley from River North Charrette—Low-Rise, High Density, Mixed-Use Character
TOD Support Mechanisms in Other Cities and Regions

Large-scale planning, engagement and/or capital investment

- Transportation for Livable Communities—SF Bay Area
- Livable Centers Initiative—Atlanta
- Denver—RTD + DRCOG + City-Blueprint Denver
- LA—Los Angeles Neighborhood Initiative + MTA Joint Development
- San Jose’—Creative joint development=“trandominiums”

Program elements

- One-stop shop
- Expedited permitting
- Planning assistance
- Community involvement
- Incentives
- Both joint development and surrounding area
- Maximize economic, environmental, system benefits
- Designed to attract private investment at scale
What the City and CTA Can Do

• Push “where to build” as aggressively as “what to build”—City
• Expedite building permitting near transit—City & CPC
• Expedite planned development near transit—Ditto
• Market transit areas for employment—City, CTA, RTA
• Market transit benefit—RTA, CTA, Metra
• Use new transportation zone designation to reduce minimum parking—City
• Fill in missing links with car-sharing—Providers +City, CTA
• Improve pedestrian environment—City and CTA
• Use Joint Development creatively—CTA, Metra, RTA
• Increase convenience shopping on transit network—CTA & City
• Enhance transit level of service (frequency, connectivity, and hours)—CTA, RTA, Legislature
Most TOD is Neighborhood Scale Sample Larger Scale Mission Bay SF

- Note 3d Street F Line Streetcar runs down the center
- Grid-connected, mixed use
- Allows 1 car or less zoning
- Minimizes unnecessary parking
South Lake Union—Large Scale Redevelopment Linked to Downtown & Regional Rail by Streetcar

- Plan is for all homes, jobs to come with prepaid passes
- Streetcar opened in December 2007
- 1 car zoning
- LRT opens 2009
Reconnecting = Accelerated Value in Milwaukee

- 133% Citywide
- 144% TID
- 147% at ¼ mile PEF
- 288% at intersect footprint
Reconnecting =Accelerated Value in Portland

- 41% ½ Mile I-5 Buffer
- 213% ½ Mile I-405
- 397% Downtown Waterfront URA
- 460% ½ Mile Buffer TMWP
Two Savings Paths to Homeownership
(Avg. HH Expenditures for $35,536 Annual Income)

- **Current Savings**
  - IDA Programs
  - Savings: 0%
  - Other: 40%
  - Transp.: 21%
  - Utilities: 8%
  - Housing: 31%

- **Equity Express Savings**
  - IDAs plus Resource Efficiency Programs for Transportation, Energy, Infrastructure, etc.
  - Other: 40%
  - Housing: 31%
  - Transp.: 16%
  - Utilities: 6%
  - Savings: 7%

**Save $31/month from reduction in Other Expenditures**

**Save $212/month from reduced HH expenditures**

The Community benefits by increased local ownership, a cleaner environment, and additional capital.
No Time to Waste

- Climate protection is a very heavy lift
- Will require both technical and social ingenuity
- “No Ton Left Behind”
- Done right, it’s not a cost, it’s an investment that pays permanently
Capital Stock & Emissions of Homes and Vehicles

**Homes**
- 126 Million total units, 5.5 Million sold/year, 10/minute
- Net value of $17.3 Trillion
- Adding 1.8 million homes worth $800 Billion per year
- Losing $250 Billion/year to depreciation
- Emit 8.1 Tons/HH CO2e for electricity, 5.5 for natural gas per HH, 1.51 Billion Tons annually
- Doesn’t include HH waste

**Vehicles**
- 216 Million total, 55 million sold/year, 100/minute
- Net value of $1.4 Trillion
- Adding 58 million vehicles worth $774 Billion per year
- Losing $323 Billion/year to depreciation
- Emit 10.1 Tons/HH CO2e for gasoline or 1.12 Billion Tons annually
- Doesn’t include trips by aviation, bus, or train
What’s Being Tried
by States (NGA, National Commission, FHWA)

- Tax-based strategies to increase revenue (gas taxes, truck-weight fees, vehicle fees, or shifts to local sales and property taxes)
- Tolls and road-pricing strategies—existing vs. new capacity, price congestion, charge mileage
- Debt financing—federal & state credit enhancement
- Asset leases—P3 and concessions
- Shifting responsibilities to other levels of government—cities, MPOs, special service, charging impact fees, marginal prices, and TIFs, SSAs, BIDs
- Reducing the level of travel demand
- Managing assets more efficiently—life extension, right-sizing, reducing dependence on most expensive system elements
What States Are Trying—Travel Demand Reduction

• Coordination between land use and infrastructure planning—NJ ties to city planning to preserve capacity, CA increased sub-allocation to MPOs who tie investment to housing, PA right-sizing cuts road costs in half, use CSS to build faster, better & cheaper

• Use transit to reduce VMT—make use of federal tax credits ($100/month), MD adds state tax credit, MTC and NJ provide housing incentives near transit
What States Are Trying

- MA, CA, NJ using bond proceeds to support transit oriented development
- Most states are experimenting with flexibility to directly support streetcar, LRT or BRT
- Partnerships with both passenger and freight rail companies
- Leverage federal highway and transit block grants –GARVEEs, etc.
What We Could be Leveraging

• Experiment with flexibility—increase sub-allocation in exchange for new local revenue
• Encourage local ballot initiatives & other forms of participation
• Build better capacity at regional level
• Use 100 percent CMAQ shares to jump-start local transit investments
Recent Congressional Action

• December 2007 Energy Bill enabled 100% CMAQ
• HR6052 allows upcoming transit assistance to help offset fuel costs
• HR6078 passed committee yesterday, supports LEMs and green community demos
• Housing bill—new Housing Trust Fund, foreclosure assistance
Thank you!

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