Tools for Performance-Based Transit-Oriented Development

New Partners for Smart Growth Conference, February 3, 2011

Sam Zimbabwe, Center for Transit-Oriented Development Director
Reconnecting America
• 6-year old partnership dedicated to improving practice through technical assistance, research + policy reform

• Creating a national marketplace for TOD, working with cities, transit agencies, developers, investors + communities

• Developing new tools and collaborative and equitable planning models

• On-line Clearinghouse of TOD + Transit Best Practices
Some Tools

• H+T© Affordability Index (CNT Lead)
  – Redefine affordability, but in the mean time find the monetary value of location efficiency

• TOD Database
  – Connect with tons of data for the area around transit stations (actual and planned)

• Developing Performance-Based Station Types
  – Performance bases categorization of transit stations and what intensity of use shows
H+T© Affordability Index

6 Neighborhood Variables
- Residential Density
- Gross Density
- Average Block Size in Acres
- Transit Connectivity Index
- Job Density
- Average Time Journey to Work

3 Household Variables
- Household Income
- Household Size
- Commuters per Household

Car Ownership + Car Usage + Public Transit Usage

TOTAL TRANSPORTATION COSTS

© Center for Neighborhood Technology
H+T Broadly Embraced
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.
PENNY WISE POUND FUELISH

New Measures of Housing + Transportation Affordability

CNT
MARCH 2010
Key H+T Findings

H + T Index reveals hidden transportation costs, providing a true measure of affordability.

Compact, mixed use neighborhoods close to jobs, stores, and transit have lower average household transportation costs.

Cheaper housing in exurban areas, far from jobs and stores, have high transportation costs.
TOD Database
Launched in 2010
CTOD TOD Database
(Total = 4,610 Transit Stations)

Includes:
- Heavy Rail
- Rail Rapid Transit
- Light Rail
- Trolley
- Streetcar
- Bus Rapid Transit
- Monorail
- Skyway

Source: 2003 National Transit Atlas Database, Transit Agencies, Federal Transit Administration, CNT (Stations as of December, 2007)
Spans 3,767 Existing Stations Across 7 Service Types

Existing Stations Service Type

- Monorail
- People Mover
- BRT
- Light Rail
- Trolley/StreetCar/Cable Car
- Commuter Rail
- RRT

Stations

0 200 400 600 800 1000 1200 1400 1600
Data at a Neighborhood Level

- GIS used to proportionally assign the data
- Drilling down to the neighborhood using census tracts, block groups and blocks

Census Boundaries don’t align perfectly with Transit Zones, particularly Census Tracts. Blocks allow us to drill down to greater detail.
Putting the TOD Database to Work – 2009-10 Upgrades

• Held workshops and webinars for potential users – over 200 reviewers
• Developed hands-on users group
• Collected and incorporated reviewer feedback
• Drafted users guide
• Public Launch – first 2 weeks over 1,200 users, 15,000 reports generated
TOD Database Demo

Home Page

http://Toddata.cnt.org
Uses for TOD Database

• National research
  – Soon with demographic trend analysis
• Regional and Local decision-making
  – Regional analysis
  – Station-level analysis
• New data-driven tools
Result

- Neighborhoods near transit today are more racially and economically diverse than the regional average.
- By 2030, estimated that over 14 million households will have a potential demand for living near transit.
- 40% of these households will make less than 50% of median income.
Using the TOD Database:
Effect of Hiawatha Line on Employment


- Hiawatha Line opened in 2004
- More job growth in Transit Shed than Region
- Greater % of Region’s jobs are located in the Transit Shed in 2008 than in 2002
Developing Strategic TOD Plans for Deploying Underutilized Assets

TOD Typology for Chicago’s South Suburbs
Helping Justify Reduced Parking in TOD Areas

Percentage of Housing Units Without a Car Available
- 0%
- 1-10%
- 11%-25%
- 25%-50%
- 50%+
- No Data

Legend
- Transit Lines
  - Orange: Subway
  - Red: Subway
  - Brown: Expo
  - Gold: Gold
  - Blue: Blue
  - Green: Green
  - Red: Metrolink
- Major Roads
- Freeways
- LA City Boundary
- Half Mile Radius

Zero Cars Available
Identifying Regional Disparities & Local Retail Market Potential
Developing Performance-Based TOD Metrics
Normative Metrics

• Metrics Construction
  – The average of all stations in each place type

• Normative metric for each type
  – Travel characteristics
  – Transit access
  – Block size
  – Auto Ownership
  – Transportation Cost
### Developing Normative Metrics

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Balanced</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest VMT</td>
<td>11%</td>
<td>11%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>19%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>28%</td>
<td>23%</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>48%</td>
<td>39%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>69%</td>
<td>63%</td>
<td>57%</td>
</tr>
</tbody>
</table>

**Pedestrian/Bike/Transit Commute Share**
(Residents Traveling to Their Jobs)

*National Average: 8.2%*
## Developing Normative Metrics

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Balanced</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest VMT</td>
<td>48%</td>
<td>47%</td>
<td>42%</td>
</tr>
<tr>
<td>31%</td>
<td>23%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>18%</td>
<td>12%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>12%</td>
<td>8%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Highest VMT</td>
<td>6%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

*National Average: 8.2%*  
*Workplace Pedestrian/Bike/Transit Commute Share (Workers Traveling to Their Jobs)*
## Developing Normative Metrics

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Balanced</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest VMT</td>
<td>1.8</td>
<td>1.8</td>
<td>1.7</td>
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<tr>
<td></td>
<td>1.5</td>
<td>1.5</td>
<td>1.3</td>
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<tr>
<td></td>
<td>1.2</td>
<td>1.3</td>
<td>1.2</td>
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<tr>
<td>Lowest VMT</td>
<td>0.8</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**National Average:** 1.9

**Household Automobile Ownership (By Residents):**
### Developing Normative Metrics

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Balanced</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest VMT</td>
<td>$10,800</td>
<td>$10,789</td>
<td>$10,971</td>
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<tr>
<td></td>
<td>$9,357</td>
<td>$9,479</td>
<td>$9,580</td>
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<tr>
<td></td>
<td>$8,237</td>
<td>$8,644</td>
<td>$8,557</td>
</tr>
<tr>
<td></td>
<td>$6,714</td>
<td>$7,170</td>
<td>$7,344</td>
</tr>
<tr>
<td>Lowest VMT</td>
<td>$5,038</td>
<td>$4,792</td>
<td>$5,349</td>
</tr>
</tbody>
</table>

**Household Annual Transportation Costs**

(For Residents)
Evaluating Individual Locations
Evaluating Individual Locations

### What factors can lower VMT in East Liberty?

<table>
<thead>
<tr>
<th>Metric</th>
<th>East Liberty</th>
<th>Compared to Normative Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Block Size</td>
<td>3.2 acres/block</td>
<td>![Lower than norm]</td>
</tr>
<tr>
<td>Residential Density</td>
<td>15.5 units/acre</td>
<td>![Higher than norm]</td>
</tr>
<tr>
<td>Employment Proximity*</td>
<td>64,760 jobs nearby</td>
<td>![Lower than norm]</td>
</tr>
<tr>
<td>Transit Access Index*</td>
<td>71 transit opportunities</td>
<td>![Higher than norm]</td>
</tr>
</tbody>
</table>