TCRP H-31

Understanding How Individuals Make Travel and Location Decisions, Implications for Public Transportation

A Presentation for Railvolution 2005
By Karla Karash
Presentation Outline

- Background on the research
- Why people would move to a TOD
- Some findings related to work
- Findings related to TOD and the ways that people travel
The Team

• Lead investigators: Karla H. Karash, Matthew Coogan and Thomas Adler
• TranSystems Corporation
• Mathew Coogan and Associates
• Resource Systems Group, Inc.
• Simon & Simon Research and Associates
• Susan A. Shaheen, Ph.D.
• Battelle Memorial Institute
• Dr. Icek Aizen
Objectives of the Research

- Use a different approach to understanding decision-making
- Come up with some practical advice for transit agencies
- Determine why someone would choose a TOD or Compact Neighborhood, and then whether they would walk or take transit
Theory of Planned Behavior

- Normative Influences
- Attitude towards the Behavior
- Perceived Behavioral Control

Intent

Behavior
Attitude towards the Behavior

Normative Influences

Perceived Behavioral Control

Conditions/change in my personal life

The environment affects ease of attaining a behavior

Intent

Behavior
Research Tasks & Progress

• Extensive literature review
• Interviews with experts in the field
• 2 Sets of focus groups
  – Younger set: Ages 20-30
  – Older set: Ages 55 and above
• 2 Larger surveys using an Internet Panel
The Internet Panel

- 865 Participants
  - Compensated with Vermont Maple Syrup or Ben and Jerry’s Ice cream
  - All are considering moving or have moved in the last 2 years
  - All are in a metropolitan area with good transit (rail)
  - A good many are members of the New Jersey Transit e-panel
Questions Asked

- What factors were important in their last move
- What their childhood neighborhood was like
- Modes used including walking and transit
- Attitudes towards the environment and exercise
- Attitudes towards and intent to move to a Compact Neighborhood
- Tradeoff questions examining choice of neighborhood
Definition of Compact Neighborhood (CN) or TOD

- Housing Mix in 1/3 mile
- Transit in 1/3 mile
- Commercial Areas in 1/3 mile
Some Results

- CN
- Not CN

- Urban Townhouse
- Suburban House

- Transit
- Auto
How the Model Worked

- Subjective norm and attitude were about equally ranked.
- Perceived behavioral control was significant, but less influential than subjective norm and attitude.
Highest Correlations

- Others important to me thought it was OK
- Being in walking distance of shops
- Being able to afford a place
Other Factors Were Important

- What my family thinks
- Being able to do with fewer cars
- Having transit
- Making friends with neighbors
What Did We Learn about Work?

• 32% -- change in job or school location was primary or at least a significant reason for moving.
• 53% -- commute distance was primary or at least a significant reason for selecting their home over others available.
Being Convenient to Work

Importance in Location Selection

%
Distance from Work or School

Distance from Work or School

0 2 4 6 8 10 12 14 16 18 20

% =<1/3 1/3-1 1-2 2-5 5-10 10-20 20-30 > 30

<=1/3 1/3-1 1-2 2-5 5-10 10-20 20-30 > 30
High Convenience vs. Commute

Distance in Miles

- < 1/3
- 1/3-1
- 1-2
- 2-5
- 5-10
- 10-20
- 20-30
- >30

%
CN by Commute Distance

The chart illustrates the distribution of CN (Commute Network) and non-CN (non-Commute Network) commuters across different commute distance categories. The categories are:

- <1/3
- 1/3-1
- 1-2
- 2-5
- 5-10
- 10-20
- 20-30
- >30

The y-axis represents the number of commuters, ranging from 0 to 25. The bars show the number of CN and non-CN commuters in each distance category.
What Did We Learn About how People Travel and TOD?

• Created a “urban values/green values” attitude factor by combining 17 statements that were highly correlated
  – Positive statements towards moving to a Compact Neighborhood
  – Pro-environment statements
  – Pro staying active statements
• Divided sample down the middle based on answers to the 17 statements.
Green Mode Definition

- Public Transportation
- Walk
- Bike
<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Green Mode Share for work trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact Neighborhood</td>
<td>60%</td>
</tr>
<tr>
<td>Other Location</td>
<td>36%</td>
</tr>
</tbody>
</table>
### Mode Share by Attitude

<table>
<thead>
<tr>
<th>Non-green Values</th>
<th>Green Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>29% Green Mode Share for work trips</td>
<td>49% Green Mode Share for work trips</td>
</tr>
</tbody>
</table>

*Attitude Towards the Behavior*
<table>
<thead>
<tr>
<th>Location</th>
<th>Non-green Values</th>
<th>Green Values</th>
<th>Attitude Towards the Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compact Neighborhood</strong></td>
<td>29% Green Mode</td>
<td>54% Green Mode</td>
<td>Ease of Attaining Behavior</td>
</tr>
<tr>
<td>Share for non-work trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Location</strong></td>
<td>10% Green Mode</td>
<td>20% Green Mode</td>
<td></td>
</tr>
<tr>
<td>Share for non-work trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-green Values</td>
<td>Green Values</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Compact Neighborhood</strong></td>
<td>27% Transit Share</td>
<td>43% Transit Share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for work trips</td>
<td>for work trips</td>
<td></td>
</tr>
<tr>
<td><strong>Other Location</strong></td>
<td>21% Transit Share</td>
<td>32% Transit Share</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for work trips</td>
<td>for work trips</td>
<td></td>
</tr>
</tbody>
</table>

**Ease of Attaining Behavior**

**Attitude Towards the Behavior**
<table>
<thead>
<tr>
<th>Non-green Values</th>
<th>Green Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compact Neighborhood</strong></td>
<td><strong>Compact Neighborhood</strong></td>
</tr>
<tr>
<td>14% Transit Share for non-work trips</td>
<td>26% Transit Share for non-work trips</td>
</tr>
<tr>
<td><strong>Non-green Values</strong></td>
<td><strong>Non-green Values</strong></td>
</tr>
<tr>
<td><strong>Other Location</strong></td>
<td><strong>Other Location</strong></td>
</tr>
<tr>
<td>2% Transit Share for non-work trips</td>
<td>5% Transit Share for non-work trips</td>
</tr>
<tr>
<td>Non-green Values</td>
<td>Green Values</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Compact Neighborhood</td>
<td></td>
</tr>
<tr>
<td>12 Utilitarian Walk Trips Per Month</td>
<td>23 Utilitarian Walk Trips Per Month</td>
</tr>
<tr>
<td>Other Location</td>
<td></td>
</tr>
<tr>
<td>5 Utilitarian Walk Trips Per Month</td>
<td>11 Utilitarian Walk Trips Per Month</td>
</tr>
<tr>
<td>Ease of Attaining Behavior</td>
<td>Non-green Values</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Compact Neighborhood</td>
<td>126 minutes walking per week for fun</td>
</tr>
<tr>
<td>Other Location</td>
<td>155 minutes walking per week for fun</td>
</tr>
</tbody>
</table>

Attitude Towards the Behavior
Partial Conclusions

- There is a large group of people that has positive attitudes towards some aspects of urban living and also might be called pro-environment.
- Travel behavior is dependent both on these attitudes and on the constraints of life cycle and location.
Top Ratings of Location & Overall

Distance in Miles

< 1/3 1/3-1 1-2 2-5 5-10 10-20 20-30 >30

%
Types of Statements Contributing

- Living in a neighborhood where I could exercise by walking or bicycling would be (extremely desirable/extremely undesirable)
- Having neighbors close by and making friends with neighbors would be...
- To live within walking distance to stores, restaurants, a public library and a school would be...
- To be able to take public transportation to work or for other trips would be...
- For my household to need to own fewer cars would be...
- Having frequent bus or other transit (train or trolley) services (not important at all/extremely important)
- I am concerned about global warming and or climate change (strongly agree/strongly disagree)
- I think I should spend more time walking, just to be healthier.
- Protecting the environment should be given top priority, even if it means an increase in taxes.
# Distribution of our Sample

<table>
<thead>
<tr>
<th>Non-green Values</th>
<th>Green Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact Neighborhood</td>
<td>Compact Neighborhood</td>
</tr>
<tr>
<td><strong>64 Participants</strong></td>
<td><strong>115 Participants</strong></td>
</tr>
<tr>
<td>Non-green Values</td>
<td>Green Values</td>
</tr>
<tr>
<td>Other Location</td>
<td>Other Location</td>
</tr>
<tr>
<td><strong>382 Participants</strong></td>
<td><strong>261 Participants</strong></td>
</tr>
</tbody>
</table>