A Mile High Evaluation of Livability for Transit-Enriched Communities

Wesley Marshall, PhD, PE
www.wesleymarshall.com

University of Colorado Denver

Active Communities / Transportation Research Group
Compact

Mix of Uses

What do we look for in a good TOD?

Housing Choices

Travel Options

Public Spaces

Placemaking

Location Efficiency
How do we measure success?

It depends upon your perspective...
From the perspective of a Regional MPO

- Congestion Mitigation

eroded the ridership base, pushing Denver Tramway to the brink of financial ruin. Accordingly the state legislature created the publicly financed Regional Transportation District (RTD), which assumed control of the bus system in 1971 and has operated it ever since. In the 1990s RTD launched a state-of-the-art light-rail system to relieve pressure on clogged freeways. The trains incorporated all the latest technology, yet in some respects nothing had changed: this was still wheels on rails, swifter and cleaner than those old horse-drawn coaches but designed on the same principle. In a sense, Denver public transit had come back to the
From the perspective of a... Regional MPO

AM Peak Automobile Travel Times to Downtown Southeast Line: Lincoln

<table>
<thead>
<tr>
<th>Year</th>
<th>Mode</th>
<th>2006</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Bar chart showing travel times for transit and car in 2006 and 2009.]
AM Peak Automobile Travel Times to Downtown Southwest Line: Littleton-Mineral

From the perspective of a Regional MPO
From the perspective of a...
City

- Economic Development
From the perspective of a Transit Agency

- Ridership
From the perspective of a... National Government

- VMT
  - Why is VMT important?
    - Because VMT is typically a proxy for:
      - Low automobile ownership
      - Higher walking, biking, and transit usage
      - Better proximity to jobs

But all VMT is not created equal...
Low VMT could also be indicative of high unemployment rates, so it’s not always a good thing
But even a TOD with very low VMT per capita does not necessarily mean there is a regional benefit to the city...
If we want to see long-term, region-wide benefits, we need people that normally wouldn’t think they want to live in places like these to want to live in places like these....
From the perspective of... someone that lives there?

Livability
So what is... Livability?
U.S. DOT 6 Principles of Livability

1. Provide more transportation choices
2. Expand location- and energy-efficient housing choices
3. Improve economic competitiveness of neighborhoods
4. Target federal funding toward existing communities
5. Align federal policies and funding
6. Enhance the unique characteristics of all communities
“Livability refers to the degree to which a place, be it a neighborhood, town or city, supports quality of life, health and wellbeing for the people who live, work or visit. Cities considered to have a high degree of livability tend to have a high level of, and widespread accessibility to, amenity.”

“Livability refers to the subset of sustainability objectives that directly affect community members. They generally share the same objectives, but often with somewhat differing perspectives and priorities.”

- Todd Litman, *Well Measured*
Transportation Index for Sustainable Places (TISP)
What is Transportation?

*Commonly interpreted as mobility...* 

A ➔ B
What is Transportation?
What is Transportation?
When it comes to transportation, what gets measured, gets managed...
# Social Elements

<table>
<thead>
<tr>
<th>Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides Health and Safety</td>
</tr>
<tr>
<td>Promotes Social Equity</td>
</tr>
<tr>
<td>Includes Community Input</td>
</tr>
<tr>
<td>Meets Access Needs</td>
</tr>
</tbody>
</table>
# Economic Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordable for Individuals</td>
<td></td>
</tr>
<tr>
<td>Financed in an Equitable Manner</td>
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</tr>
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<td>Provides Efficient Movement for Economic Activity</td>
<td></td>
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<td>Resiliency to Economic Fluctuations</td>
<td></td>
</tr>
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</table>
Transportation Index for Sustainable Places (TISP)
Structural Model of the Index

The domains organize the elements according to the pillars of sustainability that are related to livability.

The final score is the weighted average of these indicators.

TILP Score

2 Domains

8 Elements

X Indicators
Scoring Livability for Light Rail Transit Stations in Denver, CO
## EXISTING LIGHT RAIL

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Opening Date</th>
<th>Capital Costs (millions)</th>
<th>Length (miles)</th>
<th>Number of New Stations</th>
<th>Number of Parking Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Corridor</td>
<td>1994</td>
<td>$116.5 (1994$)</td>
<td>5.3 miles</td>
<td>14 stations</td>
<td>1,577 spaces</td>
</tr>
<tr>
<td>Southwest Corridor</td>
<td>2000</td>
<td>$177 (2000$)</td>
<td>8.7 miles</td>
<td>5 stations</td>
<td>2,597 spaces</td>
</tr>
<tr>
<td>Central Platte Valley Spur</td>
<td>2002</td>
<td>$47.8 (2002$)</td>
<td>1.8 mile</td>
<td>4 stations</td>
<td>0 spaces</td>
</tr>
<tr>
<td>Southeast Corridor</td>
<td>2006</td>
<td>$879 (2006$)</td>
<td>19 miles</td>
<td>13 stations</td>
<td>7,344 spaces</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>35 miles</strong></td>
<td><strong>36 stations</strong></td>
<td><strong>11,518 spaces</strong></td>
</tr>
</tbody>
</table>

**Notes:**
- Capital costs are in their respective years (1994$, 2000$, 2002$).
- Parking spaces include both on-site and off-site options.
- The map shows the different lines and stations along the routes.
- Travel zones and fares are indicated in the legend on the right side of the map.
Denver Light Rail
Denver Light Rail
<table>
<thead>
<tr>
<th>Element</th>
<th>Meets Access Needs</th>
<th>Includes Community Input</th>
<th>Promotes Social Equity</th>
<th>Provides Health and Safety</th>
<th>Active Transport for the</th>
<th>Crashes</th>
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**Social Elements**
Violent Crimes

Welton Street Station Areas (half-mile radius)
Road Safety (Fatal & Injury Crashes)
Road Safety (Fatal & Injury Crashes)

Welton Street Station Areas
(half-mile radius)
Road Safety (Fatal & Injury Crashes)

Univ. of Denver Station Area (half-mile radius)
# Social Elements

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<th>Element</th>
<th>Variable</th>
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<tr>
<td>Provides Health and Safety</td>
<td>Active Transport</td>
</tr>
<tr>
<td></td>
<td>Crime</td>
</tr>
<tr>
<td></td>
<td>Crashes</td>
</tr>
<tr>
<td>Promotes Social Equity</td>
<td>Mixed Income</td>
</tr>
<tr>
<td></td>
<td>Mix of Races</td>
</tr>
<tr>
<td>Includes Community Input</td>
<td>-</td>
</tr>
<tr>
<td>Meets Access Needs</td>
<td>Access Amenities</td>
</tr>
<tr>
<td></td>
<td>Local Walkability</td>
</tr>
<tr>
<td></td>
<td>Access to Parks and Recreation Centers</td>
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Access to Parks and Recreation Centers
Access to Parks and Recreation Centers

Welton Street Station Areas (1-mile radius)
Access to Parks and Recreation Centers
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<th>Housing &amp; Transportation Costs</th>
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Housing Costs factored as a percent of income has widely been utilized as a measure of affordability. Traditionally, a home is considered affordable when the costs consume no more than 30% of household income.

Transportation Costs, % Income

Household Transportation Costs are calculated as the sum of Auto Ownership Costs, Auto Use Costs, and Public Transit Costs. Dividing these costs by Representative Regional Incomes illustrates the Cost Burden placed on a Typical Household by Transportation Costs.
Housing Costs - % Income

- Data Not Available
- Less than 30%
- 30% and Greater

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- 18 to 20%
- 20 to 28%
- 28% and Greater

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Show Block Group Boundaries

Univ. of Denver Station Area

Housing and Transportation Costs
## Economic Elements

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<td>Broadening Access to Local Job Opportunities</td>
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<tr>
<td>Resiliency to Economic Fluctuations</td>
<td>Regional Access to Jobs by Transit Vulnerability to Gas Prices</td>
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Regional Transit Access to Jobs

Welton Street Station Areas
(1-mile radius)
Regional Transit Access to Jobs

Univ. of Denver Station Area
(1-mile radius)
Welton Street Station Areas
(1-mile radius)
What can measuring Livability do for you?
Monthly Ridership vs. Livability Score

Livability Score

Monthly Ridership
TOD Parking vs. Livability Score

- Y-axis: Parking Supplied at TOD
- X-axis: Livability Score

The graph shows a positive correlation between TOD parking and livability scores, with higher livability scores correlating with increased parking supply.
Intersection Density vs. Livability Score

Livability Score

Intersection Density (per sq. mi.)

20 30 40 50 60

0 200 150 100 50 0

20 30 40 50 60
How Do We Build Transit-Enriched Communities?

Healthy
Safe
Community Input
Efficient Mobility
Affordable
Economic Activity
Resiliency
Accessibility
Social Equity
A Mile High Evaluation of Livability for Transit-Enriched Communities

For more information, contact:

Wesley Marshall, PhD, P.E.
wesley.marshall@ucdenver.edu