IMPACT OF LIGHT-RAIL IMPLEMENTATION ON LABOR MARKET ACCESSIBILITY: A Transportation Equity Perspective

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Spatial Mismatch
Disproportionally affects low-wage workers
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Does spatial mismatch exist in the Twin Cities?

Locations of low-wage workers/jobs in 2002 relative to LRT and bus connections

Source: Census LEHD.
Before-After Comparison (Whole System)

- Accessibility definition
  - total # of low-wage jobs reachable within 30-min of transit travel
- Study area: transit-served areas
- Data source: Census Bureau LEHD Database (2002-2006)
Area Types

- Station areas

- Connection areas
  - direct bus-LRT connection;
  - LRT reachable within 30 mins;
  - Contain 22% of all the metro area pop
Before-after changes in low-wage job accessibility across different areas (%)

- Station Area
- Connection Area
- Regular Area

<table>
<thead>
<tr>
<th>Time</th>
<th>Station Area</th>
<th>Connection Area</th>
<th>Regular Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6 am</td>
<td>16.1k</td>
<td>0.6k</td>
<td>0.2k</td>
</tr>
<tr>
<td>7-8 am</td>
<td>14.2k</td>
<td>3.8k</td>
<td>0.7k</td>
</tr>
<tr>
<td>12-1 pm</td>
<td>16.1k</td>
<td>0.7k</td>
<td>0.8k</td>
</tr>
<tr>
<td>5-6 pm</td>
<td>11.4k</td>
<td>0.8k</td>
<td>-0.6k</td>
</tr>
<tr>
<td>8-9 pm</td>
<td>10.0k</td>
<td>1.6k</td>
<td>0.1k</td>
</tr>
</tbody>
</table>
Accessibility Changes: Morning Peak—7am-8am
Before-and-After Commuter Flow Analysis

Estimate changes in the home-to-work flow volume
Increased Accessibility ≠ Actual Gains?

• Not Necessarily

• Job accessibility of a neighborhood:
  – Amount of job opportunities reachable to workers living in the neighborhood

• For increased Accessibility = Actual Gains
  – Workers living in the station & connection areas
  – Those workers commute to jobs in the station & connection areas
## Total & Average Impact
**For Low-Wage Workers & Jobs**

<table>
<thead>
<tr>
<th>Area Categories</th>
<th>WORKERS Moving In</th>
<th>JOBS Moving In</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total workers</td>
<td>Average (Per BG Pair)</td>
</tr>
<tr>
<td>Downtown Hiawatha</td>
<td>103</td>
<td>0.123</td>
</tr>
<tr>
<td>North Hiawatha</td>
<td>593</td>
<td><strong>0.202</strong></td>
</tr>
<tr>
<td>South Hiawatha</td>
<td>124</td>
<td>0.047</td>
</tr>
<tr>
<td>Suburban Hiawatha</td>
<td>4</td>
<td>0.019</td>
</tr>
<tr>
<td>Connected Areas</td>
<td>14134</td>
<td>0.108</td>
</tr>
<tr>
<td>(blue areas)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Policy Implications

*Positive evidence on the role of LRT in promoting social equity*

1. The Hiawatha impact is regional in scale.

2. To transit planners:
   - Transit system integration/coordination is essential to the improvement of accessibility.

3. Low-wage workers and employers are able to take advantage of LRT, at least in the context of the Hiawatha line.

4. To land use planners:
   - Balancing jobs and housing: NOT necessarily on the same site (i.e., balance at the corridor level NOT the station level)
Acknowledgement

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