“The Trip Not Taken”
Reducing Your Carbon Footprint through Integrated Transit and Land Use Planning

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“The Trip Not Taken”

- Attracting households to areas with mixed land use and good transit service reduces vehicle miles traveled (VMT).
The Challenge: VMT $\rightarrow$ GHG

- Transportation GHG is a “three-legged stool”:
  - Vehicle Efficiency (MPG)
  - Greenhouse Gas (GHG) Profile of Fuel
  - Vehicle Miles Traveled (VMT)

- Even w/ Low-Carbon Fuel and Vehicles (2030):
  - VMT up 60%
  - GHG up 40%
    - 2030 Goal for Climate Stabilization: 40% DOWN
The Opportunity: The “Trip Not Taken”

- Integrating transit with land use reduces VMT by:
  - Shifting modes (from SOV to transit/bike/pedestrian)
  - Reducing trips (in frequency and distance)

- Can we measure and capture the carbon benefits?
  - Additionality (Did it happen because of GHG policy?)
  - Verifiability (Can everyone achieve the same result?)
2040 Growth Concept

• Urban growth boundary
• Focused on centers
• High capacity transit connections between centers
• Multi-modal and coordinated
Streetcar in 2040 Growth Concept

Portland Streetcar acts as:
- circulator (11.3 mile loop)
- shaper of high-density land use
- economic development tool
- connector to regional light rail
TOD and The Trip Not Taken

- Convenient travel options (transit/bike/pedestrian)
- Mix of destinations within walking or streetcar range
- Active environments enhance interest and safety, reinforcing use of travel options
- Benefits aren’t captured by traditional travel forecast models
Light Rail and The Trip Not Taken
Survey says...

Integrated transit and land use reduces VMT...

...and reduces auto ownership.

Source: Metro Travel Survey ‘94-'95
Counting the “Trip Not Taken”

• Eastside Loop (3.3 mi) is expected to attract 3,432 more households by 2025 than without streetcar investment.
• From “Portland Streetcar Development Impacts” study by E.D. Hovee & Company (Nov. 2005)
# VMT Savings

<table>
<thead>
<tr>
<th></th>
<th>High Density</th>
<th>Suburban</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daily Vehicle Miles</strong></td>
<td>9.8</td>
<td>21.79</td>
</tr>
<tr>
<td><strong>Annual Vehicle Miles</strong></td>
<td>23,159,000</td>
<td>51,493,000</td>
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<tr>
<td><strong>Vehicle Miles Saved</strong></td>
<td>28,334,000</td>
<td></td>
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<tr>
<td><strong>% Savings</strong></td>
<td><strong>55%</strong></td>
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</tbody>
</table>

Source: E.D. Hovee & Company, LLC
Trip Not Taken ➔ GHG Reductions

- Measuring Eastside Loop carbon footprint
- Metrics recognize benefits of TOD on VMT

Figure 14-1A  Looking South onto the Project Area

From the north end of the Lloyd District (approximately Broadway) with Rose Garden and Oregon Convention Center mid-photo and the Central Eastside District in the background.
## Carbon Footprint

<table>
<thead>
<tr>
<th></th>
<th>High Density</th>
<th>Suburban</th>
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</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>14,883</td>
<td>33,050</td>
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<tr>
<td>Development</td>
<td>31,021</td>
<td>45,087</td>
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<tr>
<td>Combined</td>
<td>45,904</td>
<td>78,167</td>
</tr>
<tr>
<td>% Savings</td>
<td><strong>41%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: E.D. Hovee & Company, LLC
“Cost Effectiveness” is Incomplete

- Transit investments can change land use and travel patterns
  - Reduces VMT and infrastructure costs
  - Real benefits are not captured
- FTA’s travel forecasting methods require identical land use for all alternatives
  - Level playing field for comparison
  - Does not reflect auto VMT reduction benefit
Next Steps

- Inform development of carbon footprint standards:
  - Industry benchmarking → reduction targets
  - Influence rulemaking:
    - Climate Policy
    - T-Bill
    - Regional