TOD for HSR Success along the Northeast Corridor

David Kooris, Vice President and CT Director
Regional Plan Association

With Support From: Lincoln Institute of Land Policy
October 17th, 2011
Possible Next-Gen High Speed Rail Alignments for New England Explored by Amtrak
Evaluative Criteria

- Speed and travel times
- Projected Ridership
- Development impact around stations
- Local transit connectivity
- Carbon reduction from concentration of growth in city centers
- Ease and cost of acquiring and constructing right of way
- Political realities
- Existing population centers
- Existing employment centers
- Existing auto congestion and travel patterns
Beyond the ¼ mile: Define a “primary impact area”
Infill Build-out Land Use Types

- Downtown Core (large cities)
- Downtown Core (small cities)
- Transition (large cities)
- Transition (small cities)
- Office
- Industrial
- Multifamily Residential
Large Downtown Core

Large Core with room to grow (Stamford, CT)
45 jobs/acre
7.5 du/acre

Large Core (White Plains, NY)
81 jobs/acre
9.2 du/acre
Small Downtown Core

Small Core room to grow (Woonsocket, RI)
11 jobs/acre
4 du/acre

Small Core (Bridgeport, CT)
35 jobs/acre
1.6 du/acre
Large City Transition

- Large City Transition (Palo Alto, CA)
  - 39 jobs/acre
  - 3.5 du/acre

- Large City Transition with room to grow (Danbury, CT)
  - 26 jobs/acre
  - 0 du/acre
Small City Transition

with room to grow
(Bridgeport, CT)
3.3 jobs/acre
2.2 du/acre

Small City Transition
(Stamford, CT)
24 jobs/acre
14 du/acre
Office

Office with room to grow (MetroWest, MA)
5.3 jobs/acre

Office (Route 128, MA)
25 jobs/acre
Industrial with room to grow (Springfield, MA) 2.6 jobs/acre

Office (Springfield, MA) 22 jobs/acre
Multi-family Residential

- Multi-family with room to grow (Springfield, MA) 13 du/acre
- Multi-family (Stamford, CT) 26 du/acre
Land Use Composition

![Graph and Diagram]
## Benchmark Numbers

<table>
<thead>
<tr>
<th>Land use type</th>
<th>Benchmark Jobs/acre</th>
<th>Benchmark DU/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core (large city)</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Core (small city)</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Transition (large city)</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Transition (small city)</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Office</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Industrial</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Multi-family Residential</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

*Large/small core is above/below 42 jobs/acre

*Large/small transition is above/below 24 jobs/acre
Meriden, CT

Meriden, CT Buildout Model

Legend
- Downtown Core
- Downtown Transition
- Industrial
- Downtown Transition, Multifamily
- Industrial, Multifamily

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>Build-Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs</td>
<td>5715</td>
<td>7790</td>
</tr>
<tr>
<td>Population</td>
<td>6712</td>
<td>19808</td>
</tr>
</tbody>
</table>
NE Corridor build-out Modeling

Meriden, CT Build-out Model

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>Build-out</th>
<th>Build-out, Modified Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs</td>
<td>5,715</td>
<td>7,790</td>
<td>11,280</td>
</tr>
<tr>
<td>Population</td>
<td>6,712</td>
<td>16,830</td>
<td></td>
</tr>
</tbody>
</table>
# NE Corridor build-out Modeling

Matrix of alternative routes built-up from different segment combinations.

Each alternative route has a different total build-out.
Population Density along the Corridor
U.S. High-Speed Rail Corridors: Comparable to Global Examples
Center of City: Lleida, Spain

**Lleida, Spain**
- City Population: 137,000
- Metro Population: 250,000
- Year Opened: 2003
- Frequency of Service: **41 trains daily**
- Distance to Major Destinations:
  - 2 hrs to Madrid; 1 hr to Barcelona

**Impact**
- Tourism grew 15% annually.
- Business conventions up 20%.
- New high-tech industrial park built nearby.

**Lessons Learned**
- Supporting urban design interventions beyond the immediate station area leveraged the role of the station as a seam between older and newer parts of the center city.
Lessons Learned

- Strategic location
- Comprehensive urban design plan and public realm investments.
- Connected to regional rail and local, regional bus network.
- Benefits to tourism, economy, region.

Center of City: Leida, Spain
Avignon, France
City Population: 95,000
Metro Population: 255,000
Year Opened: 2001
Frequency of Service: 65 trains daily
Distance to Major Destinations:
2 hrs 40 min to Paris; 1 hr to Lyon

Impact
The economic development impacts are unclear at best.
If anything, the historic center city station area may have declined.

Lessons Learned
Lack of integration with the historic center city, in part because of physical barriers, has created a competitive rather than complementary dynamic with the center city station area.
Lessons Learned

• Physical barriers separate station from city center prevented economic synergies.

• Unclear economic development impacts.
## Case Study – Exurban: Tarragona

### Tarragona, Spain (Camp de Tarragona Station)

- **City Population:** 155,000
- **Metro Population:** 676,000
- **Year Opened:** 2006
- **Frequency of Service:** 46 trains daily
- **Distance to Major Destinations:**
  - 2 hrs 40 min to Madrid; 30 min to Barcelona

### Impact

HSR connectivity with the rest of Europe has reinforced the role of Tarragona as an industrial center.

### Lessons Learned

Because the city is already well-connected to metropolitan Barcelona, and given the cost of bringing HSR into the center, the decision to locate HSR in an outlying but urbanizing part of the landscape makes sense in this case.
Lessons Learned

• Tarragona already has good links to Barcelona via conventional rail and bus.

• Because of existing connections, investment in bringing train into center may not be justified.
Special Use: CDG Airport, France

Special Use

Roissy, France (Airport Charles de Gaulle)

City Population: 2,500
Metro Population: 11.8M
Year Opened: 1994
Frequency of Service: 46 trains daily
Distance to Major Destinations: 22 miles to center of Paris; 2 hrs to Lyon; 3 hrs to Marseille

Impact
Economic development impacts are difficult to determine.

Lessons Learned
The station successfully serves its purpose as an intermodal center and as such helps distribute the benefits of international air travel to a variety of provincial centers.
Lessons Learned

• Complements air service by connecting airport to provincial destinations.
• Difficult to quantify economic impact.
• Frees up capacity at CDG for long haul flights.

Charles de Gaulle Airport Station.
High-Speed Rail
International Lessons for U.S. Policy Makers

PETRA Todorovich, Daniel Schned, and Robert Lane