Development of 220 mph High Speed Rail Service for Illinois

Mark C. Walbrun, PE
TranSystems Corporation
Study Purpose

- Worldwide Use of High Speed Rail Technology
  - Japan, France, Italy, Germany, Spain, China, UK
- Feasibility of 220 mph Alternative to 110 mph Chicago – St. Louis
- Alternative Alignment to Serve Champaign and Decatur
- Use of Railroad Corridors for HSR Right of Way
- Develop Cost Estimate & Phasing Plan
Design Criteria

- Trains Based on UIC Standards (Non-FRA Compliant)
- Requires Separate Dedicated Alignment
- Same Criteria as California and Florida HSR Systems
Key Findings

- Feasible for HSR to Share Existing 100 ft Railroad Right of Way
- Grade Separated Alignment Can Be Created Providing Benefits to Both Communities and Railroads
- Chicago – St’ Louis Travel Time 1h52m for a non-stop train
- Infrastructure Cost $11.5B
Background

Chicago-St. Louis Corridor - 1937

- 3 main routes
- 4h55m service operated on 2

<table>
<thead>
<tr>
<th>Historical Route (1937)</th>
<th>Miles</th>
<th>Through trips</th>
<th>Fastest Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago &amp; Alton</td>
<td>283.9</td>
<td>6</td>
<td>4:55</td>
</tr>
<tr>
<td>Wabash</td>
<td>285.7</td>
<td>3</td>
<td>5:15</td>
</tr>
<tr>
<td>Illinois Central</td>
<td>294.2</td>
<td>3</td>
<td>4:55</td>
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</table>

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Miles</th>
<th>Through trips</th>
<th>Fastest Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amtrak in 2009</td>
<td>283.9</td>
<td>6</td>
<td>5:20</td>
</tr>
<tr>
<td>Final EIS Chicago-St. Louis HSR Project (Jan. 2003)</td>
<td>283.9</td>
<td>3</td>
<td>4:00</td>
</tr>
<tr>
<td>Current Study, 220 mph Express Service via Champaign/Decatur/Springfield</td>
<td>306.9</td>
<td>Hourly</td>
<td>1:52</td>
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</tbody>
</table>
Chicago – St. Louis Routing via Champaign

- Champaign and the Research Activities at UIUC Have Increased Prominence and Need for Connectivity to Business Centers
- At 220 mph the Extra Distance to Serve Champaign Takes and Additional 6 minutes
- Use of the Former Illinois Central Railroad Right-of-Way Allows for Very Fast Operations
The Alignment

- Urban Segments
- Rural Segments
**O’Hare Western Terminal**

- Significant Ridership Base
- NW Suburbs Have 2.5M Population, Same as St. Louis
- Allows Full Air-Rail Integration
- Space Available for Adding Tracks Next to Metra
- 3 Key Flyovers Required
- Enables Lower Cost Site for Fleet Storage & Maintenance
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Urban Segments - Chicago

Serves

- Union Station
  - Amtrak, Metra, CTA, Loop
- McCormick Place
  - Largest Convention Center in US
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Urban Segments - Champaign

- UIUC Access
- Serves New “Illinois Terminal” Station
Urban Segments - Decatur

- ADM Headquarters
- Proposed Routing Avoids Complexity of RR Yards East of Downtown
- Operation via I-72 Alignment is Also an Option
Urban Segments - Springfield

- Planned to Use 10th Street Corridor
- Potential Interchange Station with Existing Amtrak Service
- Serves State Capital
Urban Segments – St. Louis

- A “Greenfield” Metro East station is proposed, as well use of new Gateway station
Rural Segments

- Plan is based on purchase of portion of ROW from Railroads
- Existing railroads would generally be separated as well
- Grade separation achieved through construction of separation for about half of the crossings and closing the others; essentially same strategy as utilized in construction of Interstates
- Possible alternative would be construction of a new alignment which would probably have lower cost but, more complex environmental
Garnering Stakeholder Support

- Cities Served
- Rural Communities
- Railroads
- Contractors
- Airlines
- Tourism

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>UNIT COST</th>
<th>TOTAL COST</th>
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<tbody>
<tr>
<td>Railroad Construction</td>
<td>$7,990,769,499</td>
<td>63.4%</td>
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<tr>
<td>Trackwork</td>
<td>$1,902,185,017</td>
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<tr>
<td>Electrification</td>
<td>$1,265,620,140</td>
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<tr>
<td>Signaling</td>
<td>$353,750,800</td>
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<tr>
<td>Bridges</td>
<td>$690,787,900</td>
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<tr>
<td>Flyovers</td>
<td>$799,876,213</td>
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<tr>
<td>Property &amp; ROW</td>
<td>$305,402,040</td>
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<tr>
<td>Allocated Engineering, Final Design, PM, CM (12%)</td>
<td>$601,466,408</td>
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<tr>
<td>Allocated Contingency (35%)</td>
<td>$2,071,680,981</td>
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</table>

| Roadway Construction | $4,618,009,882 | 36.6% |
| Rural Grade Separations (Type I & II) | $231,046,920 | |
| Urban Grade Separations (Trench & Embankment) | $2,641,558,485 | |
| Bridge, Roadway (Includes Sub Structure) | $6,888,000 | |
| At-Grade Crossing Protection | $ | |
| Utilities & Environmental | $174,745,935 | |
| Allocated Engineering, Final Design, PM, CM (12%) | $366,508,721 | |
| Allocated Contingency (35%) | $1,197,261,921 | |

TOTAL PRELIMINARY COSTS | $12,609,000,000 | 100%
## Travel Time / Cost / Phasing

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>APPROXIMATE SEGMENT COST (in Millions)</th>
<th>APPROXIMATE CUMULATIVE COST (in Millions)</th>
<th>APPROXIMATE SEGMENT TRAVEL TIME (Min.)</th>
<th>APPROXIMATE CUMULATIVE TRAVEL TIME FROM UNION STATION TIME (Hrs.:Min.)</th>
<th>EXPRESS RUN APPROXIMATE SEGMENT TRAVEL TIME (Min.)</th>
<th>EXPRESS RUN APPROXIMATE CUMULATIVE TRAVEL FROM UNION STATION TIME (Hrs.:Min.)</th>
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<tbody>
<tr>
<td>O’Hare Airport to Chicago Union Station</td>
<td>$1,012</td>
<td>$1,012</td>
<td>22</td>
<td>-</td>
<td>22</td>
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<tr>
<td>Chicago Union Station to McCormick Place</td>
<td>$119</td>
<td>$1,131</td>
<td>3</td>
<td>0:03</td>
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<td>McCormick Place to Kankakee</td>
<td>$2,719</td>
<td>$3,850</td>
<td>21</td>
<td>0:24</td>
<td>43</td>
<td>0:43</td>
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<td>Kankakee to Champaign</td>
<td>$2,818</td>
<td>$6,668</td>
<td>26</td>
<td>0:50</td>
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<tr>
<td>Champaign to Decatur</td>
<td>$1,741</td>
<td>$8,409</td>
<td>15</td>
<td>1:05</td>
<td>32</td>
<td>1:15</td>
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<td>Decatur to Springfield</td>
<td>$1,358</td>
<td>$9,767</td>
<td>18</td>
<td>1:23</td>
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<td>Springfield to Metro East</td>
<td>$1,861</td>
<td>$11,629</td>
<td>27</td>
<td>1:50</td>
<td>37</td>
<td>1:52</td>
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<td>Metro East to Downtown St. Louis</td>
<td>$904</td>
<td>$12,533</td>
<td>14</td>
<td>2:04</td>
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</tbody>
</table>

Costs include ROW acquisition, but not trains, stations, maintenance facilities
Ridership Estimates

- Fare Systems Studied - $46 Standard Class Chicago – St. Louis
- Estimated Passenger Miles per Year – 581,578,000
- Estimated Passenger Trips per Year – 3,000,000
- PM/TM – 399, Train Capacity 500, 80% Load Factor
- Revenue - $125 million per Year
Benefits Estimates

- Construction Jobs over 7 years – 26,224
- O&M Permanent Jobs – 904
- New Job Creation – 16,390
- Value of Time Savings - $35.6 million per year
- Vehicle Accident Reduction - $56.3 million per year
- Consumer Travel Savings - $42.8 million per year