Economic Benefits of Rail Investment

NHHS Rail Project

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October 25, 2011
Topics for Today’s Presentation

- Two dimensions of economic impacts of rail: by mode and type of impact
- Case study of Knowledge Corridor Passenger Rail Feasibility Study (MA)
- Supporting initiatives
  - Station development and intermodal facilities
  - Economic development strategy
- Implications for NHHS Rail Project in Connecticut
High Land Use Effects

- Frequency, Type, and Scale of Service is Land Use Supportive
- LRT Serves as New “Access” to Development
- Principal Impact Area – ¼ (125 Acres) to ½ Mile (500 Acres) Radius
- Compact, Walkable Mixed Use Results
Impacts by Mode: Streetcar

High to Very High Land Use Effects
- Highly Land Use Supportive
- Development Follows the Streetcar Line
- Redevelopment Catalyst
- Principal Impact Area – Three Blocks Each Side of Line
- Compact, Walkable, Mixed Use Pedestrian-producing Results
Impacts by Mode: Commuter Rail

Low to Mid Land Use Effects – Increased Emphasis now for TOD Planning

- Frequency, Type, and Scale of Service is Land Use Supportive
- Existing Railroad Lines and Industrial Uses
- Station Spacing 5 to 10 miles
- Large Park and Ride Facilities are Negatives
- Modest Customer Base for Retail Uses
- Nominal Residential and Office Uses
- Longer-term Development Period
Transportation and Economic Impacts

• 1st Order Benefits – Transportation benefits for existing residents and businesses
  – Access, mobility, travel cost

• 2nd Order Benefits – TOD (mostly residential and retail) development surrounding train station
  – Facilitated by zoning and other land use development incentives
  – Reflects a re-distribution of land use clustered near station/CBD

• 3rd Order Benefits – Regional/corridor economic impacts of fixed guideway projects attracting businesses
  – Increased competitiveness for business location choices, and access to labor and key markets (e.g., NYC, Boston)
  – Requires close coordination with local/regional economic development strategies
    • Target industries (not “just” land use policy near station)
  – Less commonly observed or measured (jobs, # of businesses), though predicted by economic models
Regional Rail Case Study – Knowledge Corridor in Massachusetts

MA Knowledge Corridor Restore Vermonter

- Proposed Vermonter Route: East Northfield to Springfield, 49 route miles
- Current Vermonter Route: East Northfield to Springfield, 60.4 route miles

NHHS Rail – Economic Benefits of Rail Investment
Regional TOD Case Study – Pioneer Valley

- 29% increase in population within 5 miles of stations
- 46% increase in population within 2 miles of stations
  - Opportunities for ridership, TOD, multi-modal connections
## Assessment of Development Supporting Conditions

<table>
<thead>
<tr>
<th>Evaluation Category</th>
<th>Description</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Market Strength</td>
<td>Are properties in the analysis zone selling well and do they have high absorption rates or healthy lease rates?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Expected Improvement in Accessibility</td>
<td>Will the project make the analysis zone more convenient and easy to travel to? What alternative access modes are available now?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Residential Desirability</td>
<td>Does the analysis zone have the capacity to attract residential development?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Commercial Desirability</td>
<td>Does the analysis zone have the capacity to attract commercial development?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Supportive Zoning</td>
<td>Does the analysis zone have transit-oriented zoning (which encourages increased development densities, endorses mixed-use development, reduces parking requirements and is pedestrian friendly)?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Available Land for Development or Redevelopment</td>
<td>Does the analysis zone have properties available for development or redevelopment?</td>
<td>L / M / H</td>
</tr>
<tr>
<td>Major Attractions</td>
<td>Does the analysis zone contain (or is close to) major attractions that create a destination for riders?</td>
<td>L / M / H</td>
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<tr>
<td>Public Sector Investment / Support</td>
<td>Does the analysis zone have public sector support and ongoing or proposed public sector investment in place to support operations? Will all necessary infrastructure be in place?</td>
<td>L / M / H</td>
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<tr>
<td>Private Sector Investment / Support</td>
<td>Does the analysis zone have private sector support and ongoing or proposed private development projects in place, which will support TOD?</td>
<td>L / M / H</td>
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</table>
Northampton Land Use Development Patterns Centered on Station Location

City of Northampton Current Land Use

Legend
- Active Rail Service
- 0.5-mile Station Buffer
- 1-mile Station Buffer
- Water
- Land Use Unknown
- Residential
- Developable Land - Residential
- Undevelopable - Residential
- Commercial/Retail
- Developable Land - Commercial
- Undevelopable - Commercial
- Industrial
- Developable Land - Industrial
- Undevelopable - Industrial
- Institutional/Public Facilities/Conservation
- Forest/Agricultural/Recreational

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Northampton Land Use Development Patterns Centered on Station Location

NHHS Rail – Economic Benefits of Rail Investment
Interview Findings – Northampton

• Main Strengths:
  – Vibrant downtown economy – cultural attraction
  – Stable population – willingness to use trains
  – Large retail & service sector and higher-end jobs

• Main Constraints:
  – Somewhat limited developable land and parking
  – High land costs

• Strong regional connections to universities, artist community, NYC

• Not a 9-to-5 traditional business center
Employment Impacts by City and Scenario: 2030

NHHS Rail – Economic Benefits of Rail Investment
## Summary of Induced Employment and Population Results – 2015 and 2030

<table>
<thead>
<tr>
<th></th>
<th>Enhanced Employment</th>
<th>Enhanced Population</th>
<th>Commuter Employment</th>
<th>Commuter Population</th>
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<tbody>
<tr>
<td>Greenfield</td>
<td>32</td>
<td>128</td>
<td>61</td>
<td>243</td>
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<tr>
<td>Northampton</td>
<td>177</td>
<td>707</td>
<td>307</td>
<td>1,227</td>
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<tr>
<td>Holyoke</td>
<td>65</td>
<td>260</td>
<td>131</td>
<td>522</td>
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<tr>
<td>Springfield</td>
<td>189</td>
<td>754</td>
<td>250</td>
<td>998</td>
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<tr>
<td>Rest of Franklin County</td>
<td>38</td>
<td>153</td>
<td>187</td>
<td>746</td>
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<tr>
<td>Rest of Hampshire County</td>
<td>88</td>
<td>352</td>
<td>452</td>
<td>1,806</td>
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<tr>
<td>Rest of Hampden County</td>
<td>87</td>
<td>349</td>
<td>416</td>
<td>1,662</td>
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<tr>
<td>TOTAL</td>
<td>676</td>
<td>2,703</td>
<td>1,804</td>
<td>7,204</td>
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## Employment and Population Attributable to Enhanced Service: 2030 Risk Analysis

<table>
<thead>
<tr>
<th>Location</th>
<th>Employment</th>
<th></th>
<th></th>
<th>Population</th>
<th></th>
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<tr>
<td></td>
<td>10%</td>
<td>50%</td>
<td>90%</td>
<td>10%</td>
<td>50%</td>
<td>90%</td>
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<tr>
<td>Greenfield</td>
<td>55</td>
<td>128</td>
<td>219</td>
<td>90</td>
<td>243</td>
<td>451</td>
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<tr>
<td>Northampton</td>
<td>365</td>
<td>707</td>
<td>1,224</td>
<td>558</td>
<td>1,227</td>
<td>2,210</td>
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<tr>
<td>Holyoke</td>
<td>114</td>
<td>260</td>
<td>486</td>
<td>221</td>
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<td>915</td>
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<tr>
<td>Springfield</td>
<td>409</td>
<td>754</td>
<td>1,242</td>
<td>472</td>
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<td>1,807</td>
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<tr>
<td>Rest of Franklin County</td>
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<td>153</td>
<td>274</td>
<td>337</td>
<td>746</td>
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<td>Rest of Hampshire County</td>
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<td>3,356</td>
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<td>Rest of Hampden County</td>
<td>210</td>
<td>349</td>
<td>523</td>
<td>709</td>
<td>1,662</td>
<td>2,487</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,517</strong></td>
<td><strong>2,703</strong></td>
<td><strong>4,998</strong></td>
<td><strong>3,057</strong></td>
<td><strong>7,204</strong></td>
<td><strong>12,579</strong></td>
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### Knowledge Corridor Passenger Rail Feasibility Study

Benefits and Costs of Rail Scenarios (millions of 2009 dollars)

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Realignment</th>
<th>Enhanced</th>
<th>Commuter</th>
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</thead>
<tbody>
<tr>
<td>Travel Time Savings - Existing Riders</td>
<td>$32.7</td>
<td>$32.7</td>
<td>$32.7</td>
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<tr>
<td>User Benefits - Induced Riders</td>
<td>$16.7</td>
<td>$236.0</td>
<td>$289.1</td>
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<tr>
<td>Reduced Emissions</td>
<td>$5.9</td>
<td>$21.9</td>
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<td>Reduced Highway Maintenance</td>
<td>$32.6</td>
<td>$33.8</td>
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<tr>
<td>Congestion Relief Benefits</td>
<td>$152.7</td>
<td>$608.5</td>
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<tr>
<td>Freight Shipping Cost Savings</td>
<td>$69.2</td>
<td>$69.2</td>
<td>$69.2</td>
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<td><strong>TOTAL BENEFITS</strong></td>
<td>$309.8</td>
<td>$1,002.2</td>
<td>$1,477.8</td>
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<td><strong>PV of Total Benefits</strong></td>
<td>$121.2</td>
<td>$362.1</td>
<td>$534.1</td>
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</table>

<table>
<thead>
<tr>
<th>Costs</th>
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<tbody>
<tr>
<td>Capital Costs</td>
<td>$72.9</td>
<td>$102.4</td>
<td>$312.5</td>
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<tr>
<td>O &amp; M Costs</td>
<td>$0.0</td>
<td>$123.4</td>
<td>$549.2</td>
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<td><strong>TOTAL COSTS</strong></td>
<td>$72.9</td>
<td>$225.8</td>
<td>$463.5</td>
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<tr>
<td><strong>PV of Costs</strong></td>
<td>$68.1</td>
<td>$139.1</td>
<td>$375.0</td>
</tr>
</tbody>
</table>

| Net Present Value (NPV)                      | $53.1       | $222.9   | $70.6     |
| Benefit-Cost Ratio (BCR)                     | 1.8         | 2.6      | 1.2       |

NHHS Rail – Economic Benefits of Rail Investment
Union Station Redevelopment - Springfield

- Create a 21st Century transit facility
- Improve access and connectivity to public transportation
- Adaptively reuse and preserve an important landmark
- Ensure that capital improvements are feasible and annual operations sustainable
- Spur local area economic development

Rail Investment
Employment Shares by Industry (2009)

Source: US Census Bureau American Community Survey 2009

NHHS Rail – Economic Benefits of Rail Investment
Targeting Land Use in the Holyoke Innovation District
Innovation-Based Economic Development Strategy for Holyoke and Pioneer Valley

- **Four Innovation Eco-System Strategies**
  - Talent/Workforce Delivery and Development
  - Entrepreneurial Support and Innovation
  - Site Ready/Policy Ready
  - Economic Development Delivery System

- **Four Industry Cluster Strategies**
  - Digital technology/IT
  - Advanced/Precision Manufacturing
  - Clean Energy Innovation and Development
  - Urban Agriculture

www.innovateholyoke.com
Implications for CT NHHS Rail Project

- **Challenges**
  - Unconventional system – mixed rail service, not hub and spoke – less evidence of inter-city economic impacts
  - Modest population growth trends
  - Elements of infrastructure and operations still TBD

- **Opportunities**
  - Significant levels of service, train frequency
  - Access to many regional cities, NYC, Boston
  - Access to job centers, colleges/universities, connecting multi-modal transportation (including Bradley Airport)
  - Many traditional downtowns with infrastructure “bones” consistent with TOD
  - Significant proactive planning – avoiding a “build it and they will come” trap
    - CRCOG HUD grant, $5 million CT TOD projects
Elements of Success

• Regional Growth
• Regional Vision
• Regional/Local Plans and Codes
• Strong Corridors and Activity Centers

• Transit System Design
• Station Types and Locations
• Mobility and Connectivity
• Community Support
• Long-term Focus
Thank you

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