Midwestern Logistics – Recent Changes
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John Carroll University
Cleveland, Ohio
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Midwestern Logistics – Recent Changes

1. Description of Chicago East Coast Corridor
2. Exogenous factors
3. Infrastructure Changes
4. Further opportunities
TRADITIONAL CHICAGO-EAST COAST RAIL ROUTES

- Chicago
- Cleveland
- Detroit
- New York
- Norfolk, Portsmouth
- Baltimore
- Montreal
- Halifax

Routes:
- NS
- CSX
- CN
- CP

Waterlevel Route:
- Chicago to Montreal to Halifax

Direct Routes:
- Chicago to New York
- Chicago to Norfolk, Portsmouth
- Detroit to Cleveland
TRADITIONAL CHICAGO-EAST COAST TRUCK ROUTES
CPCS Transcom Ltd: Multimodal Freight Transportation Within The Great Lakes St Lawrence Basin
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**Exogenous Factors:**

New Panama Canal @ 50’
Global Manufacturing Shift to India/SE Asia – Suez Canal Route @ 66’
US Manufacturing Shift South
Increasing Fuel Cost
High Greenhouse Gas Emissions of Trucks
Reduced Availability of Trucking

**Resulting In:**

Shift to Rail Intermodal from Truck
Norfolk, Baltimore, New York dredged @ 50’:
Rail Capacity Expansions from East Coast/Midwest
Rail debottlenecking from West Coast/Chicago
How Far on $500 Worth of Diesel?

<table>
<thead>
<tr>
<th>Date</th>
<th>$ per Gallon</th>
<th>Gallons</th>
<th>MPG</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-08</td>
<td>$4.059</td>
<td>123.2</td>
<td>8</td>
<td>739</td>
</tr>
<tr>
<td>Mar-07</td>
<td>$2.630</td>
<td>190.1</td>
<td>8</td>
<td>1,141</td>
</tr>
<tr>
<td>Mar-04</td>
<td>$1.630</td>
<td>306.7</td>
<td>6</td>
<td>1,840</td>
</tr>
<tr>
<td>Mar-01</td>
<td>$1.400</td>
<td>357.1</td>
<td>6</td>
<td>2,143</td>
</tr>
<tr>
<td>Mar-99</td>
<td>$0.997</td>
<td>501.5</td>
<td>6</td>
<td>3,009</td>
</tr>
</tbody>
</table>
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Norfolk Southern RR

1 day transit
Norfolk/Columbus

Corridor: $191 million

Corridor, ports, terminals: $300 million
Columbus/Cincinnati Connector: Southern Access

Toledo Airline Yard Expansion: Switching NY for Chic, Detroit, Columbus
CSX RR
National Gateway
$842 million
Terminal allows Chicago run-through service

- Hub strategy will significantly improve routing efficiency
- North Baltimore hub accesses: Chicago, NY, Norfolk, Portsmouth, Detroit, Cleveland, Columbus, Cincinnati, Montreal (new IM terminal)
- New terminal at Pittsburgh when doublestacking is complete.
Network capability will increase

CSX opportunities
Interline flows
CSX Hub Terminal
TOLL ROADS

US DOT CORRIDORS OF THE FUTURE
Turnpike Tolls for a 5-Axle Truck

<table>
<thead>
<tr>
<th>Interstate</th>
<th>Origin/Destination</th>
<th>5-Axle Truck Toll as of September 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-80/90 (Indiana Toll Road)</td>
<td>West Entrance (Chicago area)/East Entrance (Ohio)</td>
<td>$30.90-$30.93</td>
</tr>
<tr>
<td>I-80 (Ohio Turnpike)</td>
<td>West Entrance (Indiana)/East Entrance (Pennsylvania)</td>
<td>$32.00-$40.00</td>
</tr>
<tr>
<td>I-76 (Pennsylvania Turnpike)</td>
<td>Ohio Entrance/Valley Forge (Philadelphia Exit)</td>
<td>$139.24-$148.75</td>
</tr>
<tr>
<td>I-76 (Pennsylvania Turnpike)</td>
<td>Ohio Entrance/Breezewood (Baltimore-Washington Exit)</td>
<td>$74.26-$79.35</td>
</tr>
<tr>
<td>I-90 (NY State Throughway)</td>
<td>Pennsylvania Entrance/Albany Albany/NYC</td>
<td>$64.40-$82.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$41.81-$65.95</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
<th>Infrastructure Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago-Naperville-Michigan City</td>
<td>9,686,021</td>
<td>$1500 million</td>
</tr>
<tr>
<td>Detroit-Warren-Flint</td>
<td>5,218,852</td>
<td>0</td>
</tr>
<tr>
<td>Cleveland-Akron-Elyria</td>
<td>2,881,937</td>
<td>0</td>
</tr>
<tr>
<td>Pittsburgh-New Castle</td>
<td>2,447,393</td>
<td>New CSX terminal</td>
</tr>
<tr>
<td>Columbus-Marion-Chillicothe</td>
<td>2,172,191</td>
<td>~$300 million</td>
</tr>
<tr>
<td>Toledo (Lucas and Wood Ctys)</td>
<td>566,970</td>
<td>~$842 million</td>
</tr>
</tbody>
</table>

Lack of Infrastructure Spending in SE Michigan and NE Ohio
- Cleveland loses rail/truck hub status
- Detroit remains a Chicago spoke
Cleveland, no longer a hub:

• No major RR investments in Cleveland
• Originally was a switching hub for NS, CSX.
• NS Cleveland terminal: an origin/destination for NY and Chicago TEUs, but no switching. Additional trucks to/fr Columbus?
• CSX Cleveland terminal: an origin/destination for CSX North Baltimore hub
• Large population area
**Detroit, a Chicago spoke:**

- 200,000 TEUS by rail Detroit to/fr US ports
- Detroit is 250 miles from Chicago
- Detroit receives many TEUS from Chicago by truck on I-94
- Few direct Canadian rail TEUS: 4000 TEUS Detroit to/fr Halifax, 11000 TEUS Detroit to/fr Montreal. 88% of Canadian rail to Detroit passes through. (TranSystems, Translinked Freight Study)
- Michigan has few DCs and little employment in “General Warehousing and Storage” Location quotients: MI .55, OH 1.56, IN 1.71, ILL 1.50  (Detroit Chamber)
- CN Transit time Halifax/Detroit = 3.6 days versus Halifax/Chicago = 3.1 days
- CP Detroit/Windsor tunnel not fully double stack capable

**Recent Detroit Rail Improvements:**

- NS shorter transit times from Norfolk
- NS improved access to NY through Toledo Airline terminal
- Consistent CSX service through North Baltimore
- No CN or CP service improvements
TranSystems: Translinked Freight Study, prepared for Detroit Regional Chamber
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Canadian Railroads serve Detroit and Chicago

GLITTH: Great Lakes Trading and Transptn Hub
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Q: If you sail from Cleveland through St. Lawrence Seaway and across the Atlantic Ocean in a straight trajectory. Where do you arrive?
A) North Pole
B) Greenland
C) Iceland
D) Scandanavia
E) Rotterdam/Antwerp

**Ans: E**
Great Circle Route

Cleveland/Rotterdam
12 days

12 days
Seaway is closed late December till mid March, but could remain open longer.

The steel industry has used the system for >50 years. Transit N. Europe to Cleveland = 12 days.

Low winter demand for containerized products.
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**DETROIT/HALIFAX – A LARGER MARKET AREA?**
INTERNATIONAL CONNECTIONS

Montreal
Halifax
THE BENEFITS

Miles that 1 gallon will transport 1 ton of cargo

<table>
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<tr>
<th>Mode</th>
<th>Miles</th>
</tr>
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<tbody>
<tr>
<td>Truck</td>
<td>155</td>
</tr>
<tr>
<td>Train</td>
<td>413</td>
</tr>
<tr>
<td>Feeder Container Ship</td>
<td>1,115</td>
</tr>
</tbody>
</table>

Fuel Efficiency:

Protection from Diesel price spikes:

Monthly Los Angeles, CA No 2 Diesel Spot Price FOB

Source: U.S. Energy Information Administration.
Great Lakes St Lawrence Seaway:
2340 miles long, 27’ deep, 600’ rise with 16 locks
At least 50% available capacity!!

Rhine-Main-Danube Canal:
766 miles long, 13’ deep, 1300’ rise with 16 locks
A major European commercial artery