Presentation to:
Toledo Port Authority
and TMACOG

The Challenge of the Future:
Building A Transportation System to Meet the Needs of Ohio’s New Economy

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February 28, 2007
This study provided a comprehensive database of the Ohio economy and its importance to both the U.S. and world economies.
GLSLS Relationship to Rest of World
U.S. Exports and Imports (1950-2000)

Exports (includes re-exports)
Imports
Exports & Imports

Billions of 2000$
U.S. Exports & Imports by International Region (1950-2000)
U.S. Imports by International Region (1950-2000)

- Canada
- Latin America
- Europe
- Asia
- Africa
- Other

February 28, 2007
U.S. Exports by International Region (1950-2000)

**Imports**
- Asia: 38%
- Latin America: 17%
- Europe: 21%
- Canada: 19%
- Other: 3%
- Africa: 2%

**Imports by Region**
- Canada: 22%
- Latin America: 32%
- Other: 5%
- Africa: 6%
- Europe: 16%
- Asia: 19%
U.S. Exports Structure by Region (1950-2000)
International Trade Structure (1950-1955)

- **Imports** 46%
- **Exports** 54%


- **Imports** 62%
- **Exports** 38%
New Economy Businesses

1. Computer Industry
2. Biotech Industry
3. Telecommunications Industry
4. Medical/Pharmaceutical Industry
5. Electronics/Robotic Industry
6. Chemical/Oil related products-plastics
7. Metallurgical Products
8. Industrial/Business Processes

Common Characteristics

- High Value Added
- Just-In Time
Future Infrastructure Needs

- **AIR**: The Midwest and Northeast U.S. needs to develop and maintain extensive express air services.

- **TRUCK**: With respect to the trucking industry, road improvements are needed to improve truckload movement times due to the rapid growth of auto traffic and highway congestion.

- **RAIL**: For rail, significant investments to improve infrastructure for intermodal growth has been critical to improve the flow of traffic in the Midwest.

- **WATER**: This is one of the few transport modes in the Midwest that currently has capacity to spare; both the Mississippi/Ohio River and the Great Lakes and St. Lawrence Seaway systems. Infrastructure is needed for this mode to develop an intermodal capability.
Major Highway Congestion Areas by 2020

- National Highway System Estimated Peak Period Congestion (2020)
- NHS Highways:
  - Below Capacity
  - Approaching Capacity
  - Exceeding Capacity

[Map showing major highway congestion areas by 2020, with regions circled in red indicating areas of concern.]

U.S. Department of Transportation
Federal Highway Administration
Office of Freight Management and Operations
Freight Analysis Framework
North American Rail Network – Bottlenecks and Congestion Areas
The Evolution of the Container Ship

First Generation
1970 - Present
1,000 Containers
25' - 30' Draft

Second Generation
1975 - Present
2,000 Containers
30' - 35' Draft

Third Generation
1985 - Present
3,500 - 4,400 Containers
38' - 44' Draft

Fourth Generation
1988 - Present
4,400 - 5,500 Containers
41' - 45' Draft

Fifth Generation
1996 - Present
>6,000 Containers
42' - 47' Draft

Sixth Generation
2000 - Present
>9000 Containers
45' - 50' Draft
Modal Shares by Distance for Four Major Commodity Groups
# Port to City Distance Matrix (US Ports)

<table>
<thead>
<tr>
<th></th>
<th>Seattle</th>
<th>Oakland</th>
<th>Los Angeles</th>
<th>New York</th>
<th>Baltimore</th>
<th>Miami</th>
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<td><strong>Salt Lake City</strong></td>
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<td><strong>Twin Cities</strong></td>
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<td>2041</td>
<td>1930</td>
<td>1203</td>
<td>1115</td>
<td>1796</td>
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<td>1621</td>
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<td><strong>Dallas-Ft. Worth</strong></td>
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<td>1580</td>
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<td><strong>Chicago</strong></td>
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<td>2019</td>
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<td>704</td>
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<td>2582</td>
<td>2443</td>
<td>370</td>
<td>247</td>
<td>1182</td>
</tr>
</tbody>
</table>

**Western Railroads find Mississippi Yards very profitable**

**Western Railroads would find Eastern markets very profitable**

**Eastern Railroads need Western railroad connections for hauls to these cities**

**Eastern Railroads maximum rail hauls are only just competitive**

**Intermediate markets are too short to be competitive for Eastern Railroads**
Port to City Distance Matrix (Canadian Ports)

<table>
<thead>
<tr>
<th></th>
<th>West Coast Ports</th>
<th></th>
<th>East Coast Ports</th>
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<tbody>
<tr>
<td></td>
<td>Vancouver</td>
<td>Prince Rupert</td>
<td>Halifax</td>
<td>Montreal</td>
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<tr>
<td>Twin Cities</td>
<td>1809</td>
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<tr>
<td>Chicago</td>
<td>2209</td>
<td>2592</td>
<td>1455</td>
<td>846</td>
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<tr>
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<tr>
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<td>1084</td>
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<tr>
<td>Toledo</td>
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<td>2846</td>
<td>1222</td>
<td>617</td>
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<tr>
<td>Buffalo</td>
<td>2758</td>
<td>3141</td>
<td>923</td>
<td>397</td>
</tr>
</tbody>
</table>
Midwestern Service Area
Gross Domestic Product Forecasts for Midwest-Northeast U.S. and Central and Eastern Canada
Total Growth in Container Traffic (FEU) for the Eastern Midwest Market and Central Canada
Eastern Midwest Freight Traffic by Type (2005)
Water Projections
GLSLS Max-Vessel
Water Alternatives - I-H₂O West
Water Alternatives - I-H₂O East
CN Rail Operations
Intermodal Rail: “Four Corners”
New Ohio Gateway Strategy
Intermodal Rail: Eastern Midwest Market High Speed Intermodal System
Intermodal Rail: Eastern Midwest
Freight Rail Intermodal Growth
Strategy System

February 28, 2007
The System Will Provide

Three new access routes to West Coast Ports -
• H2O West to link the ports of Toledo and Cleveland to Pacific North West and Canadian Pacific ports via Duluth and Thunder Bay.
• A Chicago connector from Rochelle and Joliet to Columbus using the EJE along with the proposed Columbus-Chicago intercity high speed passenger rail line from Valparaiso into Columbus.
• A San Pedro (Los Angeles and Long Beach) Port reliever route to Butler County using rail connectors via Kansas City, St. Louis or Memphis.

Four new access routes to East Coast Ports -
• H2O East from the ports of Toledo and Cleveland to Montreal and Halifax.
• Heartland Corridor from Norfolk to Columbus.
• Panhandle Route to Columbus via Pittsburgh and Allentown which would connect Ohio to rail on-dock loading facilities in New York, Philadelphia and Baltimore.
• A Cleveland to Buffalo link that would connect with New York, Boston, and Toronto.

An internal express intermodal distribution system, linking the four corners ramps with each other and with Detroit, Pittsburgh and Buffalo using the Ohio high speed intermodal network, and which may also provide a collection/distribution system connecting to smaller satellite ramps such as Canton’s Neomodal terminal.
Conclusions

The development of the proposed Ohio Intermodal Rail Freight Growth Strategy will help to ensure mobility and industrial competitiveness over the next fifty years. The system will –

• Increase the industrial competitiveness of Ohio’s “New Economy” firms. This will increase the attractiveness of Ohio as a location for New Economy firms.

• Help Ohio to expand and develop its “New Economy” industrial base. This will create jobs, income and economic prosperity.

• Reduce Ohio’s dependence on trucking increasing the freight rail market share of the rapidly growing “Just in Time” markets. This will help reduce the volume of trucks on Ohio’s interstate system.

• Reduce Ohio’s vulnerability to transportation bottlenecks occurring in other states and regions outside of Ohio’s jurisdiction, in particular, in Chicago and New York.

• Reduce the environmental pressures on highway development by making effective use of existing but underused rail and water modes. This will cut emissions and reduce highway capacity needs.

• Increase the “quality of life” of “New Economy” business employees by allowing firms to locate anywhere in Ohio and be effectively served by competitive intermodal rail service.
Recommendations

• Begin the process of identifying, locating and planning the Intermodal Rail Freight Growth System.
• Develop the “Four Corners” gateway intermodal yard facilities and connecting links.
• Work with the ports of Toledo and Cleveland to initiate H₂O West and H₂O East.
• Work with freight railroads to develop inland port e.g., Rickenbacker connections to east and west coast ports.
• Estimate the intermodal freight potential of the Ohio Hub Intercity passenger rail system.
• Develop an overall detailed strategic and business plan identifying financial, institutional, and implementation needs of the Ohio Intermodal Rail Freight Growth Strategy.
Thank You.