Amtrak Chicago Gateway
Railway Capacity Constraints

An analysis of current National economic effects and consequences of failure to act

September 2015

Findings Presented by:
Frost & Sullivan and MSY Analytics, Inc.
Executive Summary: Findings

- The seven-county Chicago metropolitan area handled nearly 41,000 carload and container movements each day in 2007.
  - This represented total car load value of about $94.5 Billion for dedicated rail shipments, increasing to $187 Billion when rail intermodal shipments are also included.
  - Overall rail tonnage is expected to grow by 62% between 2007 and 2040, demonstrating the continued growth of inbound rail volume to the Chicago region and emphasizing the significant national role the Chicago rail network continues to play in the US economy.

- The Chicago congestion problem creates pronounced, multi-sectorial potential economic vulnerability of $656 to $799 billion every year, impacting six key industries constituting 85% of US GDP.

- The congestion challenge in Chicago poses the largest potential economic vulnerability to the US economy of all the major rail hubs in the United States. Industry observers have referred to Chicago as America’s rail traffic speed bump. As a result, many key players with dependency on this hub are beginning to explore alternative supply chain routings, which could ultimately impact the national competitiveness of the Chicago region as well as US global competitiveness.
Executive Summary: Findings

• Delays and congestion on rail cannot be fully mitigated by traffic shifts to other surface modes, which have similar degrees of congestion.
  o According to the most recent Urban Mobility Report, the Chicago region experienced 271 million hours of highway delay in 2011, translating to $6.2 billion in total congestion cost. This estimate is broadly consistent with other attempts to quantify the costs of highway congestion in Chicago - in 2008, the Metropolitan Planning Council estimated a total congestion cost of $7.3 billion.

• Failure to act on the Chicago problem would increase freight delay from 46 to 143 minutes per 100 freight train-miles in 20 years

• Many companies are experiencing significant delay related costs from the Chicago congestion challenge, possibly placing domestic corporations at a competitive disadvantage to their foreign counterparts in Europe and Asia that may not be experiencing comparable logistical challenges.
National Competitiveness: Implications of Inaction

• Increased operating and capital costs for US industry
  o The Chicago congestion problem has already started increasing operating and inventory costs of many industry players who depend on shipping their parts and finished goods via Chicago. If nothing is done about the problem, some of these players may have to begin passing the costs to consumers or make alternative supply chain arrangements that will possibly favor foreign manufacturing sources.

• Just-in-time delivery business models could be constrained from additional growth
  o Extended time delivery due to Chicago congestion could impact the ability of many companies to maintain just-in-time delivery service due to increased inventory and warehousing costs.

• Potential loss of economics of scale
  o The Chicago congestion problem could potentially shrink the areas that can be served by principal manufacturing centers of key leading domestic companies that represent 80% of US GDP and reduce the ability to gain economies of scale.
“When it comes to rail traffic, Chicago is America’s speed bump. Shippers complain that a load of freight can make its way from Los Angeles to Chicago in 48 hours, then take 30 hours to travel across the city. A recent trainload of sulfur took some 27 hours to pass through Chicago — an average speed of 1.13 miles per hour, or about a quarter the pace of many electric wheelchairs.”

JOHN SCHWARTZ
New York Times

“The Chicago region has become capacity-constrained and this is a choke point for freight.”

JEFF SRIVER
Director, Transportation Planning and Programming
Chicago Department of Transportation
Executive Summary: Findings

Chicago is the most densely-packed rail transfer point in the world, handling 33% of all US rail traffic and 60% of all US intermodal traffic.

6 of the 7 largest rail carriers in North America access the Chicago area rail system.

30 hours on average, a train shipment spends traversing the Chicago region.

$325 M in extra inventory needed to be maintained in-transit by shippers every day to compensate for Chicago congestion.

1-12 average speed in MPH of freight trains in the Chicago area.

### Executive Summary - Potential Impact on US GDP

The congestion in the Chicago hub potentially impacts US economic activity worth $657 to $799 billion annually.

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</thead>
<tbody>
<tr>
<td>Agriculture and Natural Resources</td>
<td>1.3%</td>
<td>230.10</td>
<td>7.73</td>
<td>9.41</td>
</tr>
<tr>
<td>Automotive</td>
<td>8.3%</td>
<td>1,469.10</td>
<td>49.36</td>
<td>60.06</td>
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<tr>
<td>Manufacturing</td>
<td>11.0%</td>
<td>1,947.00</td>
<td>65.42</td>
<td>79.59</td>
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<tr>
<td>Retail</td>
<td>15.0%</td>
<td>2,655.00</td>
<td>151.20</td>
<td>183.96</td>
</tr>
<tr>
<td>Services*</td>
<td>43.5%</td>
<td>7,699.50</td>
<td>258.7</td>
<td>314.76</td>
</tr>
<tr>
<td>Energy</td>
<td>5.9%</td>
<td>1,044.30</td>
<td>35.09</td>
<td>42.69</td>
</tr>
<tr>
<td>Other</td>
<td>15.0%</td>
<td>2,655.00</td>
<td>89.21</td>
<td>108.54</td>
</tr>
<tr>
<td><strong>Total Potential Impact on US GDP</strong></td>
<td></td>
<td><strong>656.71</strong></td>
<td></td>
<td><strong>799.00</strong></td>
</tr>
</tbody>
</table>
Quotes from various sector and industry stakeholders on the impact of Chicago railway congestion on their businesses

“Currently the nation’s railways are the busiest they’ve been in years, causing logjams at spots throughout Chicago – such as 63rd and State, and along 75th Street. The bottlenecks reverberate throughout the economy and across the country.”

Bryce Gray, “Working on the Railroad: Chicago copes with worst rail congestion in years”
Medill School of Journalism, Northwestern University
“While the spike in rail traffic is a national phenomenon, Chicago shoulders a big share of the burden with its prominence as a rail hub where six of the nation’s seven largest railroads converge.”
“Chicago is a network, not a geographic, issue. All Class I railroads, except Kansas City Southern, meet at Chicago and interchange traffic with one another every day.”

“...congestion at Chicago ... reverberates throughout the system causing congestion on each road to the detriment of the entire network, our customers and our shareholders.”

Keith Creel, President and Chief Operating Officer, Canadian Pacific Railway
Dec 2014
"The sheer gravity, magnitude, and scope of rail service disruptions now being experienced are unprecedented, and have rippled through all sectors of grain-based agriculture."

Kevin Thompson - Assistant VP, Cargill Inc. and Chairman, National Grain and Feed Association Rail Shipper Committee
“There are industries that are most affected by rail congestion and these industries are almost always primary and secondary industries. Industries that this nation is built on.”

Engineer, Cargill
“A number of issues have disrupted rail service across our state, and South Dakota’s agricultural producers, many who are limited to a single rail carrier, have been hit particularly hard by rail service backlogs.”

Hon. John Thune, U.S. Senator
“The Chicago bottleneck creates delays where cars are waiting for days … The prices of cars in the secondary market skyrocket. You end up paying double to make your commitments.”

Bruce Lindholm, State of South Dakota, Department of Transportation
“As a result of rail service disruption, auto manufacturers are spending tens of millions of dollars a month to find other means of moving stranded vehicles or to store them until rail service is available.”

Mitch Bainwol – President & CEO, Alliance of Automobile Manufacturers
The reasons to use rail: more economical, safer, perfect for heavy machinery and tools. The reasons not to use rail: Delays and congestion that pretty much erases all the stated benefits.

Manager, Precision Tools
“Some of our products are so big that we have to use rail to transport them and container size is the biggest factor. So there are industries where the efficiency of rail services directly impacts productivity.”

Senior Engineer, Caterpillar
“Chicago is the epicenter of the nation’s rail system…..Crude Oil shipments by rail mushroomed from approximately 30 million barrels in 2010 to nearly 270 million barrels in 2014, adding stress to a system that has been trying to keep pace with years of heightening consumer demands amidst the country’s economic recovery.”

Ed Greenberg, Association of American Railroads
“The 2014 year-to-date round-trip transit times to our markets in the U.S. East Coast have increased from 12 days to as many as 20 days...which have resulted in our plants operating at about 85% of our normal operating levels.”

Kenneth A. Applegate – Senior VP Transportation, Valero Corporation
“The people who suffer are not in Chicago. The people who are shipping are ones who suffer. Such as in New York or Detroit, these are the people who suffer. This impacts the end user and impacts the entire value chain.”

Financial Controller, Schlumberger
"The Chicago congestion problem leads to pain for everyone, trickling down the supply chain and ultimately resulting in highest costs that are passed down to the end customers. For example, during one of the most recent delays, one retail company reported that almost half of its time sensitive valentines products did not make it to the shelf causing huge price mark downs and product write-offs which significantly impacted the economics of the retailer."

Kelly Kolb, Vice President for Government relations of the Retail Industry Leaders Association
“For our bulky lumber items it is more economical to use rail then over-the-road carriers. We have had issues with product coming to the Midwest (Michigan) using Chicago and it has taken 3 days longer to have freight arrive… “

Operations Manager, Lowes
Specialized Retail Sector Supply Chain Impact
Implications of delayed shipping

Nike spends $4 million/week to carry an extra 7 to 14 days of inventory to compensate for shipping delays.

Unreliable and delayed shipping requires businesses to have:

- more operators and equipment
- more inventory in stock
- more distribution centers
UPS loses $100 million annually for every five minutes of daily network freight delays

Already, delays hamper the existing rail freight network. A lone train stopped in Chicago can force other trains to stop or slow as far away as Los Angeles or Baltimore. “It’s a ripple effect - everything in my system backs up.”

Scott Haas, a Vice President for United Parcel Service, which uses 3,000 freight rail cars every day - more than any other U.S. business.
“Other modes of transport can't take up the slack: Trucking faces its own congestion problems, a shortage of drivers and high fuel prices. Ships and barges can't reach large parts of the country. Airplanes couldn't begin to carry the millions of tons of coal, waste, chemicals, grain and cars hauled by trains.”

USA Today
Amtrak Chicago Gateway
Railway Capacity Constraints

CHICAGO AND MIDWEST REGION
SUPPLEMENT
September 2015

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Executive Summary: Chicago Region Findings

- Results from a regional economic analysis show that addressing the problem by bypassing freight around Chicago would, by 2020, reduce GRP for the city by $1 to 3 billion annually while eliminating 5,000 to 15,000 jobs. Further analysis suggests the annual GRP economic impact losses could potentially be as high as $2.5 -$3.5 billion by 2025 and job losses reaching 30,000 if Chicago congestion issues remain unaddressed.

- The link between an efficient freight system and international economic competitiveness is especially pronounced in industries that rely on the frequent shipment of inputs and/or outputs, including manufacturing, construction, and retail trade. Collectively, these three freight-dependent industries represent nearly one-quarter of all jobs in the Chicago region and add over $115 billion per year to the regional economy.
The Chicago Rail Bottleneck Problem

“Chicago’s rail congestion has threatened the city’s once vaunted reputation as the country’s premier rail crossroads”

Washington Times
Amtrak trains serving the Chicago hub are critical to the educational sector in the Midwest US.
Selected Universities Served by Amtrak Chicago Hub Services

Some cities and towns have ridership that exceeds residential population, suggesting disproportionate dependence of students and the local economy on Amtrak Chicago hub services.

Midwest population vs. ridership 2014

Left half-circle: Proportional to US census community population
Right half-circle: Proportional to Amtrak ridership in FY2014

Right half-circle larger than left indicates Amtrak utilization is high (greater than local population); left half-circle larger than right indicates possible market for service expansion.

Star
Appears for stations that serve a 4-year institution with 6,000+ in students/faculty

1. University of Wisconsin – Milwaukee
2. Western Illinois University
3. Illinois State University
4. University of Illinois – Springfield
5. St. Louis University
6. University of Illinois – Urbana-Champaign
7. Southern Illinois University
8. Purdue University
9. Indiana University – Purdue
10. Western Michigan University
11. Grand Valley State University
12. Michigan State University
13. University of Michigan
14. Wayne State University

Source: Amtrak, Frost & Sullivan
### Selected Universities Served by Amtrak Chicago Hub Services

Some cities and towns have ridership that exceeds residential population, suggesting disproportionate dependence of students and the local economy on Amtrak Chicago hub services.

#### Rail Market: Midwest University, local resident populations and Amtrak ridership (2014)

<table>
<thead>
<tr>
<th>State</th>
<th>City</th>
<th>Educational Institution</th>
<th>University Population*</th>
<th>City Population</th>
<th>Amtrak ridership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wisconsin</td>
<td>University of Wisconsin–Milwaukee</td>
<td>34,584</td>
<td>594,833</td>
<td>596,415</td>
</tr>
<tr>
<td>2</td>
<td>Illinois</td>
<td>Western Illinois University</td>
<td>11,458</td>
<td>19,265</td>
<td>72,550</td>
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<tr>
<td>3</td>
<td>Illinois</td>
<td>Illinois State University</td>
<td>24,973</td>
<td>129,107</td>
<td>261,631</td>
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<tr>
<td>4</td>
<td>Illinois</td>
<td>University of Illinois - Springfield</td>
<td>7,268</td>
<td>116,250</td>
<td>194,762</td>
</tr>
<tr>
<td>5</td>
<td>Missouri</td>
<td>St. Louis University</td>
<td>13,505</td>
<td>318,416</td>
<td>350,866</td>
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<tr>
<td>6</td>
<td>Illinois</td>
<td>University of Illinois at Urbana-Champaign</td>
<td>54,869</td>
<td>125,176</td>
<td>178,487</td>
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<tr>
<td>7</td>
<td>Illinois</td>
<td>Southern Illinois University</td>
<td>17,989</td>
<td>26,363</td>
<td>129,446</td>
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<tr>
<td>8</td>
<td>Indiana</td>
<td>Purdue University (main campus)</td>
<td>60,305</td>
<td>30,875</td>
<td>23,609</td>
</tr>
<tr>
<td>9</td>
<td>Indiana</td>
<td>Indiana University – Purdue University Indianapolis</td>
<td>38,251</td>
<td>843,393</td>
<td>33,033</td>
</tr>
<tr>
<td>10</td>
<td>Michigan</td>
<td>Western Michigan University</td>
<td>29,265</td>
<td>74,262</td>
<td>120,920</td>
</tr>
<tr>
<td>11</td>
<td>Michigan</td>
<td>Grand Valley State University</td>
<td>25,094</td>
<td>192,294</td>
<td>47,874</td>
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<tr>
<td>12</td>
<td>Michigan</td>
<td>Michigan State University</td>
<td>57,748</td>
<td>48,544</td>
<td>66,402</td>
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<tr>
<td>13</td>
<td>Michigan</td>
<td>University of Michigan</td>
<td>66,375</td>
<td>117,025</td>
<td>144,120</td>
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<tr>
<td>14</td>
<td>Michigan</td>
<td>Wayne State University</td>
<td>41,565</td>
<td>688,701</td>
<td>62,827</td>
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</tbody>
</table>

* On-line enrolment excluded

Source: Amtrak, Frost & Sullivan
"So many students from the metropolitan area of Chicago rely, absolutely rely on Amtrak to get to and from Western Illinois University. Whether they go home every weekend or every month or every two months or whatever. In many cases, it's their only reliable form of transportation to get to and from home. Not having Amtrak service could make Western Illinois University less appealing when it comes to recruiting students"

Mayor Michael J. Inman, Macomb Illinois
“There is also great potential benefit of reinvented intermodal travel to improve
domestic social and business connectivity. The Midwest, when considered
collectively, is home to substantial industrial clusters of economic activity, such
as pharmaceuticals.

Chicago is well positioned to be the hub of this growth engine. Other social
benefits of intermodal travel, intermodal freight, and freight rail must also be
considered. There is a significant opportunity cost of congestion, including lost
wages, reduction of business profits and unwanted CO₂ emissions from idling
vehicles, both passenger and freight. Improved intermodal connectivity options
and network planning can mitigate growing congestion. Outside the major
cities, another opportunity exists to rethink the travel connections in smaller
urban communities such as Normal and Springfield, Illinois.”

Northwestern University Transport Center
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