Making the Chicago Region More Competitive in the Global Supply Chain

November 21, 2006

The Competitive Edge: Chicagoland’s Global Supply Chain

Elizabeth Morse Genius Charitable Trust

World Business Chicago

Chicago Metropolis 2020

One Region. One Future.

UIC Urban Transportation Center

UIC Center for Supply Chain Management and Logistics

CHICAGOLAND CHAMBER OF COMMERCE
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   b. Technology: How is it changing the supply chain and how can it be used to make our region’s freight system more efficient?
   c. Transportation Costs: What changes might affect Chicago’s competitive position and how can we prepare for them?
   d. Freight Development: What are the implications for regional growth pattern?
   e. Global Supply Chain Forum – Supply Chain Bottlenecks Session
On November 21, 2006, a coalition of private, public, academic and non-profit organizations co-hosted a one-day forum focused on enhancing Chicagoland’s and the entire Midwest’s competitive advantage by maximizing the region’s supply chain and logistical assets. The forum was held on the campus of the University of Illinois Chicago. The forum attracted 240 participants representing a wide array of interested stakeholders and decision-makers.

The goal of this conference was to develop public-private partnership proposals and strategic plans of action to ensure that the Chicago region anticipates and responds intelligently to dynamic global trade forces. Our hope is to make this an annual meeting and provide organizations represented by the undersigned with specific actionable tasks to implement that will ensure our region continues to prosper as a major center for freight transportation and the global supply chain.

Special thanks is extended to the faculty and students associated with the Center for Supply Chain Management and Logistics at UIC. Each and every one of these individuals made this Global Supply Chain Forum summary possible by recording breakout session presentations which were compiled to assemble this summary.

Anthony M. Pagano, Ph.D.
Director
Center for Supply Chain Management & Logistics,
University of Illinois at Chicago
Making the Chicago Region More Competitive

In the Global Supply Chain:

A Forum for the Region’s Business, Government & Freight Industry Leaders

November 21, 2006
8:30 a.m. - 5:30 p.m.

University of Illinois at Chicago, 750 South Halsted Street,
Illinois Room

The Chicago area freight system, the region’s historic economic force, is in a state of peril and threatens the efficiency of the global supply chain. At this conference the region’s freight and logistics leaders will develop ideas and plans for action that anticipate and respond to forces of change and ensure that our region prospers as a global freight transportation center.

8:30 - 9:00 AM  Continental Breakfast & Registration

9:00 - 9:15  Welcome & Opening Remarks
Sylvia Manning, Chancellor, University of Illinois at Chicago
Gerald Roper, President and CEO, Chicago land Chamber of Commerce
Jack Lavin, Director, Illinois Department of Commerce & Economic Opportunity

9:15 - 9:55  Keynote Session: How Can the Chicago Region Continue to Prosper as a Major Freight Transportation Center?
George A. Ranney, Jr., President and CEO, Frank Beal, Executive Director, and Jim LaBelle, Deputy Director, Chicago Metropolis 2020
9:55-10:30  **Confronting the Region’s Freight Challenges**
John McCarron, Urban Affairs Columnist and Analyst
Anthony M. Pagano, Director, Center for Supply Chain Management & Logistics, UIC

10:45 - 12:00  **Breakout Sessions**

**Changing Global and National Trade Patterns: Are there opportunities for Chicago?**
Leader: Paul O’Connor, Executive Director, World Business Chicago
Panelists:
Aaron Gellman, Professor of Management & Strategy, Northwestern University
Bob Gemon, Vice President, Logistics, Pacer Global Logistics
Jerry Knapper, Director, Strategic Planning and Analysis, Ingram Barge Company
Gene Pentimonti, Senior Vice President, Maersk, Inc.

**Technology: How is it changing the supply chain and how can it be used to make our region’s freight system more efficient?**
Leader: Houshang Darabi, Associate Director, Center for Supply Chain Management & Logistics, University of Illinois at Chicago
Panelists:
Thomas Babin, Director, Motorola Labs
Chris Bausher, Transportation Systems Business Manager, PBS&J
Marc Mar-Yohana, Managing Consultant, The Revere Group
Rowland Whitsell, Director, Global Supply Chain, Walmart

**Transportation Costs: What changes might affect Chicago’s competitive position, and how can we prepare for them?**
Leader: Joseph DiJohn, Director, Metropolitan Transportation Initiative, UIC
Panelists:
Randy Mutschler, Director of Worldwide Logistics, John Deere & Co.
Lisa Petraglia, Director of Economic Research, EDR Group
Jack Wells, Chief Economist, U.S. Department of Transportation

12:00 – 1:45 PM  Luncheon Session
Welcome – Tim Martin, Secretary, Illinois Department of Transportation
Keynote Speakers:
Mark Hinsdale, AVP, Integrated Planning, CSX Corp.
Bob Stoffel, Sr. Vice President, UPS Supply Chain Group

1:45 – 3:00  Breakout Sessions
Supply Chain Bottlenecks: Where are they and how can they be eliminated?
Leader: Larry Wilson, Section Chief, Rail Planning, Illinois Department of Transportation
Panelists:
Chuck Allen, Superintendent, CTCO, Norfolk Southern Corporation
Marcia Jimenez, CREATE Project Director, City of Chicago
Don Schaefer, Executive Director, Mid-West Truckers Association
Jim Szczesniak, Deputy Commissioner, Chicago Department of Aviation

Freight Development: What are the implications for regional growth patterns?
Leader: Kazuya Kawamura, Associate Director, Center for Supply Chain Management and Logistics, University of Illinois at Chicago
Panelists:
Randy Blankenhorn, Executive Director, Chicago Metropolitan Agency for Planning
Jim Ford, Vice President - Rail (Intermodal), CenterPoint Properties
Donald E. Peloquin, Mayor, City of Blue Island
3:15 - 4:30  Paying for and Pricing the Supply Chain System in the Chicago Region

Leader: Richard Peck, Associate Professor of Economics, UIC
Panelists:
Bruce Kennedy, Vice President-Pricing, YRC Regional Transportation
Paul Nowicki, Asst. Vice President, Government and Public Policy, BNSF Railway
Jack Wells, Chief Economist, U.S. Department of Transportation

4:30 - 5:30  Summing It Up: What actions must be taken to maximize opportunities & overcome obstacles in this dynamic market?

Discussion Leaders: John McCarron & Anthony Pagano
Reports and recommendations from each panel
Breakout Session Recommendations

Technology

There are several technologies that could be used to enhance the supply chain system. These include:

- **RFID**
  1. These can be used to keep track of inventories, saves loading time through advanced scheduling, keeps semis in warehouse less and on the road more
  2. Chicago area carriers should move toward RFID tracking of all freight in and out of Chicago. UPS and FedEx are examples of companies already using this technology.
  3. RFID data could also be used for monitoring and improving transportation flow through the Chicago area.
- **Integrated GPS** - This technology can be used for:
  1. Inter vehicle communication
  2. Vehicle to roadway communication
  3. Lateral collision avoidance
- **Managed lanes, public transit, get people out of cars and using other sources of transportation**
- **Incorporate differential lanes** - truck only lane experiments in GA, building facilities in Savannah. Goldman and private investors are buying toll roads as an opportunity to make profit.
- **Establish Chicago as a smart transportation center**
- **Encourage suppliers to use EPC, Certified EPC Lab for suppliers to test, public warehouses and 3 PL's RFID Enabled.**
- Encourage and support technology and supply chain secondary education. Drive innovation and technology in the future; Exploit educational/advisory services

Transportation Costs

- The region should establish performance measures for the freight system.
- The region should investigate and consider implementing congestion pricing.
- Revenues resulting from congestion pricing should be reinvested to ease the problems resulting from congestion.
- Investigate under-utilized port system
Changing Trade Patterns

- Chicago’s underutilized port should be investigated. Indiana ports are growing but Chicago ports are not.
- Barges:
  1. Inland waterways can relieve congestion on rail and road. (Delays on rail and road are measured in hours not days but delivery takes much longer on barges, 2-3 weeks.) Flows have developed between the Central Gulf and Memphis, Chicago, and Pittsburgh. We need to consider using alternate technologies in water transportation, which could increase speeds.
  2. Aging locks and dams are capable of accommodating growth; investments have grown in recent years but the waterway trust fund is almost depleted. We need to think about ways of increasing investments in this area.
- Shipping – As ports of entry shift away from the West Coast to the Gulf and East Coast, Chicago would be a destination rather than a point for trans-shipment. We need to understand the implications of this shift.

Development Patterns

- Freight terminals need to be increased to accommodate the increase in global trade/freight. We must consider how to mitigate the negatives associated with these terminals. The implications of new intermodal terminals on antiquated terminals and Brownfield sites closer to the urban core should be investigated.
- Keep the Intermodal Advisory Task Force alive. Should this group have a broader scope?
- Long term planning is relevant for freight development – formalize coordination between state and MPOs regarding freight issues.
- Conduct workshops on “freight as a good neighbor” for developers and the public.
- Implement strategies to make the policy makers understand that freight flow through Chicago affects the entire nation – e.g. Branding of “Chicago the Freight Hub” – e.g. a sticker that says “brought to you via Chicago the Freight Hub.” Hire a P.R. firm?
- Educational programs to develop transportation professionals need to be expanded.
Paying for/Pricing the System

1. Illinois at a disadvantage compared to other states vis a vis truck routes
   - Need to increase truck weight limits/pay for damage to the roads.
   - Need to change Circuitous nature of truck routes.
   - Encourage state legislature to reform the truck route system and local access rules.
2. Establish Public/Private Partnership to facilitate truck traffic and implement specific trucking related highway improvements.

Bottlenecks

- Rail –
  1. CREATE needs to be reformed
  2. Construct new or improved connections between rail lines
  3. Freight and passenger rail separation needs to be implemented especially in downstate Illinois
  4. Public/private partnerships needed to secure more funding and support
  5. It is important to have constant communication among all the parties involved
  6. Need national freight rail policy

- Aviation
  1. Need to improve infrastructure in and around O’Hare
Breakout Session Summary

10:45 – 12:00 Changing Global and National Trade Patterns: Are There Opportunities for Chicago?

Moderator: Paul O’Connor, Executive Director, World Business Chicago

Panelists:

Professor Gellman, Northwestern University
Jerry Knapper, Director, Ingram Barge Co.
Eugene Pentimonti, Senior Vice President, Maersk, Inc.

Areas of Opportunity

Summary of overall discussion:

Brief reminders:

• The Intermodal container is just 50 years old this year.
• Since its introduction, in real dollars, intermodal freight moves for less than 20% of the cost compared to break-bulk movements 50 years ago.
• In the U.S., port, rail and highway infrastructures were built long before the advent of the container. As a consequence, they are not configured to maximize efficiency and productivity in the handling of this freight.
• As of 2006, the trade imbalance in U.S. for 24 million containers is 2 to 1.
• Segments of federally funded highways and existing rail network capacity are currently straining under peak capacity.

Chicago’s Current Role:

Chicago is presently North America’s Distribution Hub. It is the only interconnection for all six Class 1 railroads, has 200+ hundred truck terminals as well as the only dual hub airport, O’Hare.

Freight & Distribution Center

* Interchange of all six Class-One North American railroads and six U.S Interstates
* 50% of U.S. rail freight passes through Chicago’s rail yards
* 37,000 rail carloads and 417,000 truckloads of freight leave Chicago each day
* Consistent construction activity over the past ten years has grown the warehouse/distribution inventory to 506.6 million sq. ft.
* 17.5 million sq. ft. currently under construction

Asia-Europe Container Hub

* World’s #5 intermodal container handler (after Hong Kong, Singapore, Shanghai and Shenzhen)
* #1 in Western Hemisphere
* Chicago handles 13.98 million twenty-foot equivalent units (TEUs) of intermodal freight in 2005
* 3 times as much as NY/NJ
* America’s only 50%/50% Asia/Europe transit point

Intermodal Capital of North America
Chicago is also the main distribution point for the Mid-American Economy:

**Mid-American Economy**

- **$2.7 trillion GSP** (21% US/Canada)
- **33.4 million Employment** (23% US/Canada)

**Demographics**
- **67.1 million People** (21% US/Canada)
- **25.3 million Households** (21% US/Canada)

**Economy Rivaling Nations**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country or Metro Area</th>
<th>Gross Product (2005 $ billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States</td>
<td>12,063</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>4,762</td>
</tr>
<tr>
<td>3</td>
<td>Mid-America</td>
<td>2,838</td>
</tr>
<tr>
<td>4</td>
<td>Germany</td>
<td>2,823</td>
</tr>
<tr>
<td>5</td>
<td>China</td>
<td>2,240</td>
</tr>
<tr>
<td>6</td>
<td>United Kingdom</td>
<td>2,188</td>
</tr>
<tr>
<td>7</td>
<td>France</td>
<td>2,118</td>
</tr>
<tr>
<td>8</td>
<td>Italy</td>
<td>1,727</td>
</tr>
<tr>
<td>9</td>
<td>Spain</td>
<td>1,277</td>
</tr>
<tr>
<td>10</td>
<td>Canada</td>
<td>1,037</td>
</tr>
<tr>
<td>11</td>
<td>South Korea</td>
<td>711</td>
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<tr>
<td>12</td>
<td>Mexico</td>
<td>687</td>
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<tr>
<td>13</td>
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<tr>
<td>14</td>
<td>Brazil</td>
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<td>15</td>
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<td>16</td>
<td>Netherlands</td>
<td>595</td>
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<tr>
<td>17</td>
<td>Switzerland</td>
<td>369</td>
</tr>
</tbody>
</table>

**Global Trends:**

Global Container Trade Growth is expected to average 8.7% over the next 13 years. (10.4% in 2006, and 9.3% in 2007)
What this means for the U.S. over the next 20 years:

Long Beach/Los Angeles alone will experience a 454% increase by 2020!

Where does this freight originate?

Why will this growth occur?
The growth in container shipping has led to the drive for greater improvements in economies of scale. As a consequence, new container ships are increasing in size and draught. These mega-ships will ensure that the potential for cost savings on the actual trade route will continue to drive down rates.

And the Ships get bigger and bigger…….

### Channel Depth at Selected North American Ports, 2003 (in feet)

<table>
<thead>
<tr>
<th>Port</th>
<th>Depth</th>
<th>TEU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacksonville</td>
<td>76 ft</td>
<td></td>
</tr>
<tr>
<td>Charleston</td>
<td>60 ft</td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>50 ft</td>
<td>50</td>
</tr>
<tr>
<td>Savannah</td>
<td>50 ft</td>
<td>50</td>
</tr>
<tr>
<td>Oakland</td>
<td>46 ft</td>
<td>11,000</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>46 ft</td>
<td>11,000</td>
</tr>
<tr>
<td>Baltimore</td>
<td>42 ft</td>
<td>0</td>
</tr>
<tr>
<td>Hampton Roads</td>
<td>42 ft</td>
<td>0</td>
</tr>
<tr>
<td>Halifax</td>
<td>38 ft</td>
<td>0</td>
</tr>
<tr>
<td>Long Beach</td>
<td>42 ft</td>
<td>0</td>
</tr>
<tr>
<td>Seattle</td>
<td>20 ft</td>
<td>0</td>
</tr>
</tbody>
</table>

(A 14000 TEU ship would require 17.5 x 200 car, double stacked trains or 7000 trucks. If loaded on one train it would stretch more than 30 miles! Needless to say these ships will not be arriving one at a time).

The downside is that such rapid growths in length and depth have expensive consequences for ports and traditional trade routes. Many U.S. ports will reach capacity limits between 2007-2010. Port capacity and navigable channel drafts are going to be critical. The vast majority of U.S. East Coast ports are river estuary ports – dredging is critical but expensive and will be reflected in higher port fees than those with naturally deep navigation channels. Deeper ports, especially Halifax and Norfolk, will have a major competitive advantage, i.e. their costs are lower - shippers are likely to vector the bigger ships to them - with all the consequences for onward land transport – many natural deep water ports (except Long Beach) have limited landward infrastructure (rail & interstate) to efficiently process any significant growth.

The advent of the mega container ships is starting to change traditional trade routes. Pacific Rim trade has traditionally used two routes to serve the North American market, either by direct sailings to West Coast ports or via the Panama Canal to Gulf, Caribbean, Latin American or East Coast ports.

The Panama Canal, at present, cannot handle ships greater than 6000 TEUs and will be unable to handle any growth in trade, in its present configuration, beyond 2008/9. Its
recent announcement that it will spend $5 billion to expand its infrastructure to handle ships up to 8000 TEUs by 2014 reflects these limitations. Even so, once the expansion project is completed, the Canal will still not be able to handle the larger container ships, several of which (Maersk Line) are already on the high seas. These ships must therefore use the Suez Canal which, in turn, means that traffic patterns to East Coast ports will change dramatically. Maersk is now constructing a new deep water container port/terminal near Norfolk, Va., to handle this growing trade.

The Panama Canal’s immediate capacity issues, as well as the time it will take to implement its expansion plans, present an opportunity for U.S. railroads serving the West coast to capture an even greater percentage of the trans-continental transshipment business, if they get their act together. They should expand capacity, improve productivity (e.g. start running scheduled train service, complete their double/triple track plans earlier than projected etc). They could offer a viable alternative to the Suez route for the smaller container ships and, if effective, continue to provide a competitive alternative even after the Canal’s expansion is completed in 2014/15.

Elsewhere, other new developments indicate additional traffic heading for the Canadian/East Coast ports. China is pressing ahead with a planned rail land bridge to Europe. Some 500 miles of new/upgraded track has already been completed in Western China and additional rail track is in the process of being converted/upgraded in several of the route’s transit countries (paid for by the Chinese). Test runs last year moved 100 containers to Frankfurt in an average of 10-12 days, saving 21 days on the normal sea route transit time between China and Europe. Plans exist to link this route with fast shipping links to North America. This corridor could save up to 20-25 days on the journey between China and the United States.

**The Northern East-West Freight Corridor**
The plans by the Nicaraguan Government to construct an alternative to the Panama Canal were dismissed as a pipe dream.

Plans to significantly expand port capacity at Prince Rupert, British Columbia and Cardenas, Mexico are to be welcomed as relief valves but they will take many years to build as well as install adequate hinterland facilities and rail/road connections for them to have any significant effect on route patterns.

**How will these developments affect demand on US domestic infrastructure?**

More trade means more domestic freight movements

**U.S. domestic freight tonnage growth forecast, 2000-2020**

Between 2000-2020 domestic freight movements will almost double.

Clearly highway congestion, capacity issues with ports and railways are going to change the freight movement picture considerably in the near term. If needed infrastructure is not quickly added there will be considerable disruption in the free movement of freight. It will impact significantly our competitiveness and the price U.S. consumers pay for goods

With 70% of the US population living east of the Mississippi, shippers will be forced to concentrate their efforts closer than ever to major population centers. In addition to the larger ship issue and new Trans Europe/Asia routes driving traffic to the East coast, quick access to consumers will also drive shipping to the region.
If this assumption is correct, Chicago’s role as the nexus of our freight transportation network would change. Chicago would become more of a destination center and east/west transshipment volumes flatten out.

Such a shift in Asian traffic will cause immense difficulties for the East Coast. Most ports are of insufficient depth; they are landlocked and surrounded by built up urban communities. Interstate infrastructure is severely congested now (I95 is the largest truck park in the US!). Land availability for expansion is limited and construction costs greatly higher than the Midwest or West Coast. Rail infrastructure is equally limited in its ability to handle greater traffic – many routes cannot handle double-stacked trains because of low bridges and tunnels etc.

**How do we adapt to this rapidly changing sector?**

As Miguel D’Escoto, Chicago’s former Commissioner of the Department of Transportation stated in 2003:

“We are trying to run a 21st Century logistics system on 19th Century infrastructure.”

Our basic infrastructure was not built to handle containers, so we must adapt that system as best we can to cope with this rapid growth as much as possible.

Improving our use of the existing modes by extracting greater productivity and efficiencies from them is paramount. One area that holds significant potential to relieve some of the pressure is to maximize a resource that elsewhere in the world already plays a major part in the movement of containers, inland and coastal waterways.

About 600 million tons of cargo move each year on the U.S. inland waterways, most of it as bulk cargo. The Lower Mississippi is an open river with no lock structures, allowing larger tows moving more than 80,000 tons. Smaller tows of up to 23,000 tons operate on all other rivers, due to the size of locking structures.

Locally, during 2004, about 36 million tons of cargo moved on the Illinois River
- More than 60% of those tons involved dry cargo shipments
- About 80% of that total moved outbound
  - The same barges moving dry bulk can also move containers
- Each barge could move 72 TEU’s
- Recent traffic imbalances indicate that 10,000 barges move into the Illinois River empty.

The inland waterways can support larger traffic growth for containers and other cargoes, helping relieve congestion on other surface modes with fewer emissions.
A new port facility (Sea Point) near Venice, LA would increase container on barge capacity in the Central Gulf. Located about 80 miles south of New Orleans, construction will start in 2007 with completion in March 2009.

Key issues for moving more containers by barge include:

- Port and ocean shipping constraints
- Barge velocity (from load release to load arrival):
  - New Orleans to Chicago 22 days
  - Chicago to Memphis 14 days
  - Chicago to Pittsburgh 20 days

Nevertheless, with adequate planning, these journey times could provide a cost-effective and reliable alternative to existing modes. Improvements to the aging lock infrastructure on these rivers could enhance both the volume carried per barge trip and the speed of delivery.

More work needs to be done to convert certain cargos from bulk shipment to shipment by container, allowing faster shipment as well as cost savings as container shipping rates from U.S. to Asian ports are low - one in every two containers en route to Asia is empty.

Many issues covered in greater detail in other sessions arose. In brief, they are rehearsed here.

Infrastructure improvements are needed in:

**Ports**
- Productivity increases - Major U.S. ports are among the least productive/efficient in the world.
- Intermodal Rail Links to hinterland greatly expanded.
- On-dock Rail must be part of any port refurbishment.
- Near-dock facilities
- Dedicated freight rail corridors in urban hinterlands of cities, especially port and interchange centers

**Rail Network Capacity**
- Insufficient investment by railroads to meet demand.
- Lack of political support for Federal Assistance

**Roads**
- Resistance to dedicated freight movement networks
- Expand capacity with freight traffic as priority

**Funding issues**
Highway Bill at $287 billion is insufficiently focused on freight
Declining Federal funds
Tight State/Municipality Budgets
Railroad resistance to change in funding mechanisms

Potential solutions
- Trade Corridor Coalitions.
- Public/Private Partnerships.
- Terminal Development/Intermodal Hubs.
- Infrastructure Bonds backed by user fees.
- Pay-for-use.
- Private investment to own & operate Toll roads & bridges, tunnels etc.
- Specific User Fees, uniformly assessed, uniquely identified and limited term.
- Rapid adoption of technology, technology, technology.
- Improve write-off tax rules on capital investments

Overall Conclusions
Overall, the public is completely unaware of the current state of our infrastructure problems. The future volume of shipments detailed in this session is known to very few. This must change. Greater effort is needed to publicize the impending problems to the general public at large.

There is no political leadership. They must be engaged with the socio-economic consequences of inaction. They are not convinced, but need to be, that this sector is a highly competitive factor in the well being of this country. It is one of the truly “collective assets of the nation”.

The transportation fraternity and those that benefit from its efficient operation must, put aside their petty bickering and narrow focus, and come together to be far more effective in advertising the looming capacity issues. We must avoid a litany of complaints without concrete proposals on how to remedy them and consensus is required on how to pay for it all. All will have to recognize that costs will go up.

Future for Chicago
We are the Nation’s distribution hub. This sector has grown steadily and provides hundreds of thousands of jobs and a significant contribution to the region’s GDP. If we do not modernize and expand our infrastructure capacity we will no longer command the number 1 spot. The containers will come whether we adapt or not. But if we do not improve our abilities to process this growing traffic efficiently, millions of investment dollars and thousands of well-paying jobs will go elsewhere.

Action items:
1. CREATE - this program has got off to a slow start. Pace needs to pick up - at the rate we are moving this will end up being a 20 year project and we do not have that time.

2. CREATE - is not an end in itself. Even if completed quickly, it does not address all our rail freight issues in this region and does little in regard to truck traffic growth.

3. We need to start planning for CREATE 2 for rail.

4. We need to develop a CREATE program for trucks.

5. We must find a solution to fund this work. Private funding is available. We need to recognize that the old model is no longer adequate. We should be a model for the rest of the country in finding a funding formula, a mix of public/private funds and local political leadership that grasps the potential for this region and solves its capacity problems with imagination and speed.

10:45-12:00 Technology: How is it changing the supply chain and how can it be used to make our region’s freight system more efficient?

Leader: Houshang Darabi, Associate Director, Center for Supply Chain Management & Logistics, University of Illinois at Chicago

Panelists:

Thomas Babin, Director, Motorola Labs

Chris Bausher, Transportation Systems Business Manager, PBS&J

Marc Mar-Yohana, Managing Consultant, The Revere Group

Rowland Whitsell, Director, Global Supply Chain, Walmart

Thomas Babin: Director Motorola Labs

Technologies that Motorola develops that could be brought to bear on issues discussed here. 3 lines of business:

1. Connected home solutions
2. Mobile devices
3. Networks and enterprise (infrastructure for wireless, base stations, equipment for UMTS, acquisition of Symbol technologies for RFID, etc.)

One integrated supply chain organization. No more competition among units, more cooperation. All under the same organization following 4 functions

- Procurement
- Sourcing
- Manufacturing
• Distribution

Moved to 15th ranking in AMR Research ranking after reorganization 18 months ago.

Goal: Try to be 1st ranked

Execution excellence, digital 6 Sigma, deep supplier partnerships, manufacturing and service optimizations, etc.

Symbol technologies provided for RFID, fixed readers, mobile readers, antenna, reader portal systems, tags and inlays. Keep track of inventories, seamless mobility for the enterprise.

**Advantage:** Increased efficiency and visibility, reduced shrinkage, IT integrations, counterfeit protections, lower operating costs, etc.

**Chris Bauscher:** Transportation Systems Business Manager, PBS&J

Don’t wait to get things done, move goods in Chicago area and implement performance measures for moving goods. Managed lanes, transit, get people out of cars.

Inter vehicle communication, also vehicle to roadway communication, integrated GPS information, and lateral collision avoidance.

Rerouting around railroads

VII technologies

![Vision of VII Communications](image)

Telematics, giving drivers more information

Ability to test these applications in a real-world environment

SAFE freight shuttle: Texas A&M. Move freight intermodally, low environmental impact
Fixed guide way Low Speeds?

Managed lanes, differential lanes – Truck only lane experiments in GA, building some of the facilities in Savannah. Goldman and others buying toll roads - an opportunity to make money. Lots of savings in Atlanta at 8:30 pm. Chicago should try some of this.

RFID tracking for all freight in and out of Chicago; UPS and FedEx already does that.

Establish Chicago as a smart transportation center.

Better decision making information.

Need to have private sector involved with Federal Government.

Marc Mar-Yohana: Managing Consultant, The Revere Group

- RFID
- GPS Navigation
- Integrated solutions
- On Demand Services
- Supply chain = value chain

Specific focus on middleware, a key communication component for gathering information from tags

Object-name services: How a product identifies itself

Physical markup language: How to describe characteristics in more detail
GPS applied in many different systems, mobile phones, rerouting, Cheetah delivery; big savings for transportation firms.

Integrated solutions: Integrate GPS technologies with other computer systems (maybe located on trucks) feedback, on-demand services for smaller firms that cannot go with SAP. Only $300/month to have world-class warehouse management. Salesforce.com lean logistics on-demand TM – instantaneously gauge where trucks are around the country and predict when they will be available.

SC=Value chain
Technology is an enabler. Technology should not cost too much
Sourcing (ERP EDI VMS)
Receiving (ERP, RFID, Bar codes)
Manufacturing and processing (ERP MES RFID bar code ems quality systems hr systems)
Inventory (ERP, RFID bar a WMS)
Sales
Distribution and Logistics

Rowland Whitsells: Director, Global Supply Chain, Walmart
Wal-Mart’s mission, RFID, Electronic product codes, moving forward

Quote from Sam Walton:
Get products on the shelf when customers need them. Right product, right place, right quantity, right time
7.9 OOS (Out of Stock) = 14 million customers not finding what they came looking for
Out of Stock Averages and the consequences

Replenished items 3 times faster 10% reduction in manual orders
Reduced out of stock (OOS) by 30%. Big reduction on items sold more per day.
Looking at mobile device, still a long way to go.

Supply chain visibility, from source to store shelf. Root cause analysis of inadequacies, near RT visibility, enables exception management

Other benefits: Security (check traffic in and out of ports), pedigree (e.g., for drugs), smart recall (e.g., the spinach incident).
Prevent shrinkage; make payments more efficient (without counting items)
Encourage suppliers to use EPC, Certified EPC Lab for suppliers to test, public warehouses and 3PL's RFID Enabled
Encourage and support technology and supply chain secondary education. Drive innovation and technology in the future.

Question session:
Allow RFID data to be used for improving transportation?
10:45 – 12:00 **Transportation Costs: What changes might affect Chicago’s competitive position and how can we prepare for them?**

Leader: **Joseph DiJohn**, Director, Metropolitan Transportation Initiative, UIC

Panelists:
- **Randy Mutschler**, Director of Worldwide Logistics, John Deere & Co.
- **Lisa Petraglia**, Director of Economic Research, EDR Group
- **Jack Wells**, Chief Economist, U.S. Department of Transportation

Chicago enjoys a transportation competitive cost advantage due to its location as the transportation and distribution hub of the nation. Chicago has always been influenced by transportation. First, Chicago was located here because of its access to waterway transportation. Later it became the railroad center, which it still enjoys and is also the highway crossroads of the nation and the air passenger and freight hub. Chicago is accessible to consumers, labor markets and raw materials. An extensive transportation infrastructure is in place. The challenge to the region is to maintain and enhance the region’s competitive edge in the global marketplace. The purpose of this session is to analyze the threats and opportunities facing the region and organize and develop actions to accomplish this goal.

Randy Mutschler described Deere’s worldwide operations and its manufacturing facilities in Illinois and Iowa. Almost half of their surface freight moves through Chicago and 70% of air freight shipments move through Chicago. Deere has developed a market strategy to sell to world markets, including China, Russia and India but the transportation cost and travel time increases their costs and reduces profits. It can take over 30 days for a shipment to get from their plant in Illinois to the market in Russia. Congestion in Chicago is a major concern because it increases the length of travel...
time leaving Deere with assets providing no return on investment. The company is continually looking for alternatives and for ways of reducing transportation costs and travel times and will implement changes in a rapid fashion.

In conclusion, the private sector incurs significant losses of productivity and investment due to congestion and delay. Business is looking for ways to be more productive. This could have serious impact on Chicago’s standing as a transportation and distribution hub.

Lisa Petraglia focused on the economic impacts on transportation capacity and congestion issues. Congestion on one mode can cause spillover to other modes. The impacts vary by mode, industry and region. Congestion mitigation in industrial corridors will produce more of an economic benefit than in corridors that are predominantly service sector oriented. Direct costs of transportation and the indirect costs of congestion combine to add to the competitive price of a finished good. The reliability factor is also an important consideration beyond just cost and influences the demand for the mode and the product. Chicago faces additional costs of congestion and delay when compared to other regions.

The bottom line for Chicago is that unresolved congestion restricts access-facilitated market growth, stalls productivity gains due to scale effects and strategic sourcing and likely perpetuates inefficient mode splits elsewhere in the region’s transportation network. The challenge is to maintain Chicago’s position as the crossroads of America’s global trade by offering the most competitive and cost-effective transportation center in the United States.

Jack Wells presented the estimates of the economic impact of congestion to Chicago to be approximately $11.0 billion. Congestion causes time delays and excess fuel costs to be an estimated $4.3 billion for Chicago. Productivity losses are an estimated $2.1 billion reducing the geographic scope of business, the size of the labor pool and agglomeration economies. Environmental, safety and cargo delay losses add another $1.1 billion. Another major cost is the loss resulting from unreliability at $2.1 billion. Finally, congestion costs railroads and airlines an estimated $1.4 billion. Congestion affects all cities but has a disproportional greater impact on Chicago due to its leadership position as the nation’s transportation hub. If Chicago fails to act to reduce congestion, the region will fall behind competitively to other regions.
The panel and the session attendees participated in a discussion of the issues of transportation costs, congestion, the impact on the Chicago region and what actions might be considered to maintain and enhance the region’s position in the global supply chain.

The following are the conclusions and recommendations resulting from the discussion:
- Congestion costs the Chicago region $11.0 billion per year.
- Dealing with congestion is imperative from both the regional and national perspective.
- Efforts should be made to reduce commuter congestion and commute times.
- The region should establish performance measures for the freight system.
- The under-utilized port system should be investigated.
- The region should investigate and consider implementing congestion pricing.
- Revenues resulting from congestion pricing should be reinvested to ease the problems resulting from congestion.

1:45-3:00 **Freight Development: What are the implications for regional growth pattern?**

**Panelists:**
- **Randy Blankenhorn**, Executive Director, Chicago Metropolitan Agency for Planning
- **Jim Ford**, Vice President - Rail (Intermodal), CenterPoint Properties
- **Donald E. Peloquin**, Mayor, City of Blue Island

**Moderator:** **Kazuya Kawamura**

**Note takers:** **Jane Lin, Sheng Cheng**

**Theme:**
This session will focus on the positive/negative impacts of the development of freight or related facilities at both regional and sub-regional scales. The impacts on land use and economy will be the main issue.
Randy Blankenhorn

**CMAP:** CATS and NIPC, unique for Chicago, change the way of planning for the future, collaborative approach to planning.

**Main focuses of CMAP are:** 1. research and analysis for communities, local agencies, and business; 2. planning for transportation, housing, land use, economic development, and community services. It should be pointed out that CMAP does not have the authority or capacity for zoning.

There are several reasons why freight is important to our region:
- The Chicago land jobs that the freight industry supports and generates.
- Transportation; the fact that Chicago is the hub of the nation/world gives us a competitive advantage.
- The impact of truck traffic on congestion and on air quality is significant.

**Issues to be considered:**
- How can we deal with the truck traffic? CREATE is a good thing and well underway. But, how do we look at so-called CREATE for trucks?
- Traffic congestion is an issue – how to get enough capacity for rail, how to deal with moving people versus freight.
- Land use opportunities - open space, changing the landscape, interacting with neighbors, how to mitigate the negatives? Where do the intermodal facilities fit in the area (site selection)?

**Actions:**
- Research and analysis – understanding the railway, quality of life; calls for significant plans
- Need to start communicating and searching for intermodal participants
- Innovative ideas - new facilities for trucks, moving freight better
- Supporting CREATE project – needs funding, investment
- Building enough capacities for moving goods and people, bring more people to the table

James C. Ford

Presenting the views from the private sector who are the users and demand generators for the infrastructure.

**Positive of the Chicago area:**
- A lot of planning activities/developments happening
- Jobs are created (3,000 jobs from Logistics Park Chicago)
- Openness to business opportunities

**Negatives of the Chicago area:**
• Too much truck traffic
• Environmental concerns (noise, lighting)
• Development location constraints – where to put the rail tracks, lack of basic facilities, TIF money (or lack thereof?)

**Concerns/Conditions to positives:**
• Advanced planning (getting everyone involved from the beginning including the trucking industry)
• Solid partnerships
• Address concerns up front
• Communications with the government
• Information needs/input from different players from the region

**Key messages:**

Transportation is the driving force behind the real estate development (59% of Supply Chain costs are transportation.)

Rail for long haul movement and trucking for short haul will be the most efficient.

**Mayor Donald Peloquin**

Title: Freight Development implications for Blue Island
“Presenting a view from a local entity”

Blue Island may lack land but there are a lot of jobs opportunities.
60% of jobs are associated with railroads. 150 freight trains pass thru daily as well as 80 commuter trains.

**Freight development needs:**
• Centers (industry activities tend to cluster thus there is a need for centers)
• Easy access to arterial highways
• Labor force
• New intermodal facilities need large amount of land (up to 600 acres, not necessary contiguous.)

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<tr>
<th>CREATE Program</th>
<th>Local and Regional Benefits</th>
<th>Regional Economic Benefits (in millions)</th>
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<tr>
<td>• Builds 25 road/rail grade separations</td>
<td>• Rail Passenger Commute time saved $190</td>
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<tr>
<td>• Builds 6 passenger/freight rail grade separations</td>
<td>• New Highway Construction reduced $77</td>
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<td>• Viaduct improvement program</td>
<td>• Reduced Motorists delays at crossings $969</td>
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<td>• Grade crossing safety enhancements</td>
<td>• Highway accidents reduced $94</td>
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<td>• 47 railroad projects to improve rail infrastructure and upgrade technologies</td>
<td>• Grade crossing accidents reduced $33</td>
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<td>• Less Congestion, fewer delays $2,194</td>
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<td>• Increased safety</td>
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<td>• Improved passenger rail service</td>
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<td></td>
<td>• Cleaner air and reduced noise</td>
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Create Program Characteristics
Challenges:
- Part of the CREATE, volume of freight in collision with congestion
- Balance between freight development and dispersed land development pattern
- Demographic issues - ethnics; 10% pop growth between 1990 and 2000
- Brownfield conditions; tax rates are higher in Cook; labor costs are up; new zoning scheme (code does not provide for buffering of industrial from residential land uses);
- Public-private investment; redevelopment must compete against Greenfields

Opportunities:
- Location – 240 industrial businesses within the 3-mile radius of the city
- Job opportunities
- Brownfield (115 acres of vacant industrial land); three industry zone areas with access to freight facilities

Benefits:
- Jobs, property tax revenues; sales tax revenues
- Reduction of freight congestion

Q&As:
Growth of distribution industry is absolutely critical to the Chicago land and the US.
Q: What is the future of smaller terminals in Chicago?

JF: Smaller facilities around the city will be closed in the next 5-10 years.
RB: To address freight development, we need to work across political boundaries.

Q: As the freight volume increases, to what degree the conflict between freight and commuter traffic can be mitigated?
A: CREATE to address the conflict – right of way; share of lines; TOD/density around the railroad

Comment from the audience:
- CREATE has impact beyond Chicago. Having "Chicago Region" in the name is not beneficial for obtaining broader political support.
- Public, private, and local town needs to work together
- Qualified human resources/work force is critical (globalization may outsource manufacturing jobs, but transportation jobs will make up for the loss. We need to send the message out to young people about the opportunities in transportation sector.)

Q: What is the future of the Intermodal Advisory Task Force?
**Possible actions:**

1. Keep IATF alive - or this group will be the new IATF (with broader scope)? - need to coordinate with Randy @CMAP
2. Long-term planning is relevant for freight development - Formalize coordination between state and MPOs regarding freight issues (also relevant for Point 1)
3. Conduct workshop on "freight as a good neighbor" for developers and the public
4. Implement strategies to make the policy makers understand that freight flow through Chicago affects the entire nation - e.g. Branding of "Chicago the Freight Hub" - e.g. a sticker that says "brought to you via Chicago the Freight Hub". Hire a PR firm?
5. Educational programs to develop transportation professionals

1:45 – 3:00 **Global Supply Chain Forum – Supply Chain Bottlenecks**

**Session**

**A synthesis of the presentations by Paul Metaxatos**

Supply Chain Bottlenecks: Where are they and how can they be eliminated?

Larry Wilson, session leader from IDOT-DPIT welcomed the opportunity to lead an exchange of ideas between public and private sector experts in finding ways to alleviate supply chain bottlenecks in the Chicago area. He then introduced the four panelists:

Charles H. Allen, Superintendent, CTCO, Norfolk Southern Corporation
Marcia Jimenez, CREATE Project Director, City of Chicago
Don Schaefer, Executive Director, Mid-West Truckers Association
Jim Szczesniak, Deputy Commissioner, Chicago Department of Aviation

The theme of Charles Allen’s presentation was about improving the Chicago Rail Gateway. Indeed the Chicago area remains the nation’s hub for east-west and north-south rail flows. Seven Class I rail companies operate multiple-track rail lines through Chicago. To accommodate such high rail freight volumes the Chicago area has built an expansive rail infrastructure. Over the next 20 years, freight rail volume in Chicago is projected to increase by roughly 80% If rail capacity is not addressed, Chicago would lose $2 billion in production over the same period. To meet this challenge, major commercial railroads along with Metra have founded the Chicago Transportation
Coordination Office (CTCO). To date CTCO has undertaken activities in communication efforts, maintenance of way weekly plan, the Chicago terminal alert plan, task improvements, integrated train lineup system, measurement and control indicators and modeling of the Chicago rail network.

Mr. Allen also discussed how the development of the CREATE program would improve rail flow through Chicago. The focus of the plan is four key freight corridors and one passenger corridor, building 25 highway / rail grade crossing separations and six rail / rail “flyovers”, extensive track and switch replacement, and improvement of train control systems. IDOT and CDOT have agreed with the railroads on Phase I projects and contribution amounts with environmental reviews and property acquisition underway.

In summary, Mr. Allen emphasized the need for new or improved connections between rail lines, the need for improved network utilization, the need for public/private partnerships, the need to secure more funding and support, and the need for constant communication among all the parties.

Marcia Jimenez discussed how the CREATE plan would address supply chain bottlenecks in Chicago. Indeed transportation costs are higher than administration and inventory costs combined. Nationwide freight tonnage, especially by truck, is expected to double by 2035 and Chicago, already the nation’s transportation hub, will continue to be in the middle of it. The CREATE plan is a joint effort between major railroads, IDOT, CDOT, Metra and Amtrak. The plan anticipates that the Chicago area will realize billions of dollars in economic, quality of life, and job-related benefits.

Ms. Jimenez concluded that public agencies must embrace private sector mentality to engage in rail infrastructure problems. Such an objective would be facilitated with the
help of an enhanced partnership between the railroads and the city of Chicago, long-
term funding sources and a national freight rail Policy.

Don Schaefer provided the trucking industry’s viewpoint on supply chain bottlenecks in
Chicago. 356,000 trucks are registered in Illinois and more truck miles are traveled in Illinois than any other state. Truck routing along (often disconnected) designated and non-designated public roads is regulated based on each truck’s operational characteristics. To avoid congestion effects trucks need to attempt (often illegal) shortcuts through local routes to access the dispersed spatial pattern of rail yards and distribution centers in the Chicago area.

Given that separate classes of roads in Illinois make life more difficult for truckers and that there is only a limited number of routes in Chicago that are truck friendly, Mr. Schaefer encouraged the state legislature to reform the truck route system and local access rules so that the industry remains competitive and positively impact the regional economy.

Illinois Designated Truck Routes

Class I – Interstate Highways allowing 80,000 lb. trucks

Class II – 80,000 lb trucks

Class III – Up to 80,000 lb., but limited to 96" width, 65' length

Non-Designated State Roads Local Roads & Streets

Trucks limited to 96" width
65' overall length
55' inner bridge (front to rear axle)
73,280 lbs. maximum weight

96" wide
55' in overall length
73,280 lbs maximum weight

Illinois Freight Transportation Regulations

Jim Szczesniak discussed the needs of the airport infrastructure in Chicago to accommodate an increasing volume of time-sensitive goods. Existing crossing runway configuration at O’Hare is very inefficient for air cargo. Despite this, the airport has created 450,000 jobs, and contributed $38 billion per year in economic activities. Several infrastructure improvements are needed if O’Hare were to fulfill its role as an economic engine in the future:

• Widening I-190 into O-Hare
- Grade separation at York & Irving and building a western O’Hare bypass connecting I-90 and I-294
- Manheim intersection improvements

I-80/I-94 corridor is very important for future accessibility to and from O’Hare. Mr. Szczesniak concluded that O’Hare does not want to have the accessibility problems of JFK and that rail/air connections are very important for future of air cargo.