Regional Freight System Planning Recommendations

presented to
Chicago Metropolitan Agency for Planning
Freight Committee

presented by
Cambridge Systematics, Inc.

September 2, 2009

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Agenda

- Project Recap

- Status of Progress to Date
  - Stakeholder Outreach (*Task 7*)
  - Regional Freight Framework (*Task 1*)
  - Performance Measures (*Task 4*)
  - Policy Analysis (*Task 5*)

- Next Steps

- Committee Feedback
Project Recap

imagine that…
Project Scope

- Develop detailed recommendations for the freight system
  - Tie to GO TO 2040 Long Range Plan
  - Physical, operational, and institutional categories of recommendations

- Determine benefits and dis-benefits of projects
  - Public- and private-sector, modes, communities, etc.

- Determine economic impact of recommendations
## Project Phases

<table>
<thead>
<tr>
<th>Project Phase</th>
<th>Description</th>
<th>Task</th>
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<tbody>
<tr>
<td>Phase I</td>
<td>Framework (Freight Vision)</td>
<td>Task 1</td>
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<tr>
<td>Phase II</td>
<td>Data &amp; Forecasting</td>
<td>Tasks 2 and 3</td>
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<td>Phase III</td>
<td>Performance, Policy &amp; Investment Analysis</td>
<td>Tasks 4 and 5</td>
</tr>
<tr>
<td>Phase IV</td>
<td>Recommendations</td>
<td>Task 6</td>
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<tr>
<td>Continuous Public Outreach</td>
<td></td>
<td>Task 7</td>
</tr>
<tr>
<td>Project Management &amp; Delivery</td>
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<td>Task 8</td>
</tr>
</tbody>
</table>
Stakeholder Outreach

imagine that...
Stakeholder Interviews

Trucking Interests

Key Problem Areas

- Congestion in urban areas (The Loop)
- Construction and construction zone management
- Local restrictions on delivery times
- Lack of parking

Recommended Solutions

- Better construction management
- Better advanced traveler information
- More parking
- Policies to encourage night deliveries
- Travel Demand Management strategies
Stakeholder Interviews

**Railroad Interests**

- Heavy reliance on Chicago as a place to exchange goods among Eastern-Western RRs
- Still anticipating significant growth in intermodal freight
- CREATE covers many of the major rail bottlenecks
- Seeing innovations among freight exchange coordination/tracking (i.e. rail business exchange)
- Trends of longer trains, more through trains in Chicago, more prioritized loads
- Strong appreciation for CMAP/CATS coordination with RRs to date
Stakeholder Interviews

Business Interests

- Delivery challenges due to local restrictions (time and route)

- Frustration over oversize/overweight permit requirements
  - Local and county permits adding up to approx. $40-50 per container for loads entering Logistics Park Chicago in Elwood

- Roadway condition and congestion levels seen as problematic but not a major cost impact

- Grain supply chain (NE IL to Asian markets) showing growth
Stakeholder Interviews

Remaining Outreach

- Additional interviews with waterborne freight stakeholders
  (IL River Carriers Assoc. meeting 9/8)

- Group interview with aviation stakeholders
  (Tentatively 9/16)

- Council of Mayors Executive Committee
  (meeting 9/15)

- Additional business interviews
Freight Survey

RESPONSES

- Non-Profit
- Public Sector
- Private Sector

Total of 60 responses as of 8/31

DISTRIBUTION

Survey Responses as of 8/26
- 1
- 2
- 3
- 4
- No response
Freight Survey
Preliminary Funding Prioritization

To what extent do you support the following options for funding highway system improvements? (1 is Not Supportive, 10 is Very Supportive)

- Fuel taxes
- Tolls for passenger vehicles
- Tolls - cordon pricing (flat daily rate to enter Chicago Loop)
- Vehicle registration revenue
- Impact fees
- Property taxes
- Tax on vehicle miles traveled (all vehicles)
- Tolls - congestion pricing (higher toll rates during periods of higher...
Framework

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Freight Transportation System Elements

Economy
*Type of Businesses, Number of Households*

Industry Logistics Patterns
*Supply Chains, Distribution Networks*

Freight Infrastructure
*Highways, Rail Lines, Ports, Airports...*

Commodity/Vehicle Traffic Flows
*Trucks, Planes, Rail Cars, Ships...*

Source: Cambridge Systematics
Industry Perspective

Example: Introduction of Containerization

Source: Cambridge Systematics
Draft Framework
Guiding Themes for Recommendations

- August 11th Charrette

- Laid a foundation for a first draft of guiding principles for freight system planning
  - Address each “element” of the freight system
  - Complement Go To 2040 Regional Vision
  - Forward thinking

In 2040 the Chicago region will...
Economy

**Freight Transportation System Element**

- Issues and Opportunities
  - What are the critical sectors for economic growth?
  - How dependent are they – directly or indirectly – on freight transportation?
  - What are the implications of structural changes in the Chicago economy for freight demand and services?
In 2040, the Chicago region’s freight system will contribute to the growth, productivity, and changing needs of business and industry by providing cost-effective and reliable access to resources, markets, and labor.
Industry Logistics Patterns
Freight Transportation System Element

• Issues and Opportunities
  • What are implications of changing logistics strategies for Chicago’s role as …
    - an intermodal hub?
    - a distribution center?
    - a service and manufacturing economy?
  • Will the next generation logistics strategies bypass Chicago?
In 2040, the Chicago region will serve as an International hub for goods movement.
Freight Infrastructure
*Freight Transportation System Element*

**Issues and Opportunities**

- How well does Chicago’s existing freight infrastructure match today’s industry and carrier needs (e.g., fit to function)?
- Where are reinvestment and new investment needed to serve 2040 industry and carrier needs?
  - South Suburban Airport? CREATE for trucks? Truck-only lanes? Intermodal connectors that connect? Lock improvements?
In 2040, the Chicago region’s freight infrastructure will provide seamless, efficient connections to markets beyond the region’s/state’s borders, throughout North America, and to the world.
Commodity/Vehicle Flows
Freight Transportation System Element

**Issues and Opportunities**

- Is the current level of service (e.g., trip travel times, cost, reliability) acceptable and sustainable?
- Where will bottlenecks and chokepoints emerge as population and economic activity increase?
- Would congestion pricing (applied to all vehicles) improve freight service within and through the region?
In 2040, the Chicago region’s freight system will have operational capacity to accommodate highway, rail, water, and air freight commodity and vehicle flows.
Issues and Opportunities

- Is there a “Chicago model” for re-linking transportation planning and investment to economic development and social and environmental goals
- How should the “Chicago model” deal with freight-related land use and development? The balance between moving people and moving goods?
- How should freight infrastructure, operations, and mitigation be financed?
In 2040, the Chicago region’s public and private freight stakeholders will have shared goals and priorities on the process used for identifying the region’s freight system needs, priorities, and making investment decisions.
In 2040, public and private freight stakeholders will contribute positively to the quality of life in metropolitan Chicago.
Performance Measures

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Performance Measures *(Task 4)*

- **Objective:** Establish basic performance measures that will aid in identifying freight needs and deficiencies and guide the development of recommendations.

- **Approach:**
  - Literature review
  - Explore importance of measures to stakeholder groups
  - Develop draft performance measures to complement CMAP Regional Indicators
Goal Areas

- Established to categorize measures – address all areas of importance to all stakeholders
- Tied to AASHTO and FHWA thinking on National Performance Measurement

- System Preservation
- Mobility
- Connectivity / Accessibility
- Safety
- Environment / Community
- Economic Growth
## Draft Freight Planning Performance Measures

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Tied to Goal Area</th>
<th>Tied to Stakeholder Group</th>
<th>Tied to Framework Themes / Policy Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial road network accessible to legal freight vehicles</td>
<td>Accessibility</td>
<td>Government</td>
<td>Economic Development</td>
</tr>
<tr>
<td>Intermodal facilities with NHs roadway, rail access</td>
<td>Accessibility</td>
<td>Others</td>
<td>Other Business</td>
</tr>
<tr>
<td>Major gateways within N miles or minutes of interstates, fiance highway, or intermodal facility</td>
<td>Accessibility</td>
<td>Public</td>
<td>Economic</td>
</tr>
<tr>
<td>Percent of goods moved with option of more than one mode of choice</td>
<td>Accessibility</td>
<td>Public</td>
<td>Economic</td>
</tr>
<tr>
<td>Truck miles with 20mph or less</td>
<td>Accessibility</td>
<td>Public</td>
<td>Economic</td>
</tr>
<tr>
<td>Condition rating for NHs intermodal connections</td>
<td>Accessibility</td>
<td>Public</td>
<td>Economic</td>
</tr>
<tr>
<td>Dollar loses due to frequent delays</td>
<td>Economic Development</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Geographic market share</td>
<td>Economic Development</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>GDP</td>
<td>Economic Development</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Value of goods exported annually versus value of goods imported</td>
<td>Economic Development</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Regional truck VMT as TMT per unit of regional economic activity/output</td>
<td>Economic Development</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Ton-miles per person output</td>
<td>Env/Comm.</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Ton-miles per gallon of fuel</td>
<td>Env/Comm.</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Average number of hours with 20% of VMT congested</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Delay per truck traveled</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Sat. cap. (annual volume)</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Mobility index (ton-miles of travel/vehicle miles of travel times average speed)</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Share (tonnage and value)</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Trucks VMT at TMT at LOS D or above</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Planning Time Index: “travel” time as compared to free-flow travel time</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Travel time of average travel</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Travel time of average travel</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Vehicle classification by time of day, % trucks offrouts</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Vehicle-miles of delay in VMT at grade crossings</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Exposure (truck AADT and daily traffic) factor for road crossing</td>
<td>Mobility</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Average crash cost per trip, VMT, or TMT</td>
<td>Safety</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Facilities or crashes involving large trucks per truck-VMT</td>
<td>Safety</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Grade crossing accidents, product of million trans-miles and million vehicle-miles traveled</td>
<td>Safety</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Number of heavy truck-related fatalities (three-year average)</td>
<td>Safety</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Rail-related fatalities per transmiles</td>
<td>Safety</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
<tr>
<td>Percentage of truck-VMT on roads with pavement worse than X</td>
<td>System Preservation</td>
<td>Org/Pol/Policy</td>
<td>Environmental System Protection</td>
</tr>
</tbody>
</table>

- Little or No Relationship: ( ) Some Relationship: ( ) Moderate Relationship: ( ) Strong Relationship: ( ) Very Strong Relationship
- Measures from CSAP GoTo 2040.
- Organization and Public Policy strategies encompass and promote all other strategies, and therefore have no “explicit” performance measures.
Policy Analysis

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Policy Analysis (Component of Task 5)

Objective: Develop and analyze potential policies that can move forward to recommendations.

Approach:
- Develop “Bundles” of potential policies
- Group into framework “Theme” areas
- Evaluate the feasibility and effectiveness of policies and determine which move into recommendations.
Policy Analysis

Trucking Interests - Nighttime delivery restrictions

Parking: Truck is unable to park near delivery location due to lack of secure, legal locations.

Congestion Zone: Truck operates in and adds to peak-period Interstate congestion.

Tolls: Truck pays premium tolls, adding to operating costs (passed on to shippers and consumers).

Safety Conflict: Truck delivering during peak period, near school.

Delivery Restriction

Local ordinances quickly become regional issues.
Next Steps

imagine that...
Project Schedule

1. Regional Freight Framework
2. Data Synthesis and Analysis
3. Freight Flow Estimation
4. Performance Analysis
5. Policy and Investment Analysis
6. Develop Recommendations
7. Stakeholder Involvement
8. Project Monitoring and Delivery
Next Steps

**On-going:**
- Stakeholder Meetings
- Existing Data Synthesis (Tech Memo Due Sept 15th)
- Performance Measurement
- Policy Analysis

**Starting Up:**
- Economic Analysis
- Transearch Data Analysis
<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Topic of Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 16, 2009</td>
<td>Introduce committee to project with overview of scope, schedule, and outline committee expectations. Present data collection underway.</td>
</tr>
<tr>
<td>September 2, 2009</td>
<td>Present update on stakeholder outreach. Discuss freight planning framework themes from Charrette. Discuss work underway on performance measures and policy analysis.</td>
</tr>
<tr>
<td>October 14, 2009</td>
<td>Update on Transearch data analysis. Present results-to-date of performance and policy analyses. Discuss initial work on economic and benefits assessment.</td>
</tr>
<tr>
<td>December 3, 2009</td>
<td>Provide an overview of the final Freight System Planning Recommendations.</td>
</tr>
</tbody>
</table>
Freight Committee Feedback

- Do you agree with the Framework Themes?
- Do you have comments on the draft Performance Measures?
- Do you have comments on the draft Policy areas?

Please provide all comments by September 25th.
Contacts

- Project Website
- Freight Committee Website
- Contact:
  
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  ewitzke@camsys.com
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Transportation leadership you can trust.
Freight Investments Can Be Used to Shape the Greater Chicago Economy and Drive Development

- Economic Growth
- Competitiveness
- Productivity
- Market Access
- Travel Time
- Cost
- Reliability
- Connectivity
- Energy/GHG

Freight System Investment

Source: Cambridge Systematics
Public Perspective

Example: Economic Deregulation of Freight Industry

Source: Cambridge Systematics
Data Collection

Population and Land Use

Municipalities/Counties

Land Use (2005)

Chicago Industrial Corridors

Freight-Related Businesses

Population Density

Employment Density

LEGEND

- Residential
- Commercial
- Industrial
- Institutional
- Infrastructure
- Open Space
- Farmland
- Chicago Industrial Zones
Data Collection

Freight Infrastructure

Interstate Highways
Secondary Roadways
Structures
Railways
At-Grade Rail Crossings
Intermodal Facilities/Container Yards
Ports
Airports

LEGEND
- Interstates
- Railways
- Intermodal Centers
- Container Yards
- Airports
- Marine Ports