

Table of Contents

6.0	Performance Measures.....	6-1
6.1	National Performance Measure Perspective.....	6-1
6.2	Regional Freight Performance Measure Development	6-2
6.3	Selected Freight Performance Measures.....	6-1
7.0	Freight Operations.....	7-1
7.1	Truck.....	7-1
7.2	Rail	7-5
7.3	Water	7-12
7.4	Air	7-16
8.0	Range of Policy Recommendations.....	8-1
8.1	Policy Needs Related to Framework and Research.....	8-1
	Policy Needs: Economy	8-2
	Policy Needs: Industry Logistics Patterns.....	8-2
	Policy Needs: Freight Infrastructure.....	8-3
	Policy Needs: Commodity/Vehicle Traffic Flows.....	8-4
	Policy Needs: Organization & Public Policy.....	8-4
	Policy Needs: Environmental & Community Impacts	8-6
8.2	Methodology for Selection	8-7
8.3	Policy Bundles.....	8-10
	Regional Framework Theme: Economy	8-10
	Regional Framework Theme: Industry Logistics Patterns.....	8-12
	Regional Framework Theme: Freight Infrastructure.....	8-15
	Regional Framework Theme: Commodity /Vehicle Traffic Flows.....	8-18
	Regional Framework Theme: Organization and Public Policy	8-20
	Regional Framework Theme: Environmental and Community Impacts	8-26

List of Tables

Table 6.1	Performance Measures from CMAP Sources	6-5
Table 6.2	Evaluation of Potential Performance Measures	6-6
Table 6.3	Selected Freight Performance Measures - Infrastructure	6-2
Table 6.4	Selected Freight Performance Measures - Policy	6-3
Table 7.1	Top 10 Marine Commodities, 2007 and 2010.....	7-13
Table 7.2	Air Freight Forecast, 2007 and 2040.....	7-17
Table 8.1	Index of Policy Recommendations by Theme	8-8
Table 8.2	Federal Formula Highway Programs.....	8-24
Table 8.3	Special DOT Funding Programs	8-24
Table 8.4	Non-DOT Special Funding Programs	8-25
Table 8.5	Additional Funding Options	8-25
Table 8.6	Special Financing Programs.....	8-25

List of Figures

Figure 6.1 Performance Management Framework.....6-1
Figure 7.1 Factors Influencing Performance of the Chicago Rail Terminal.....7-11

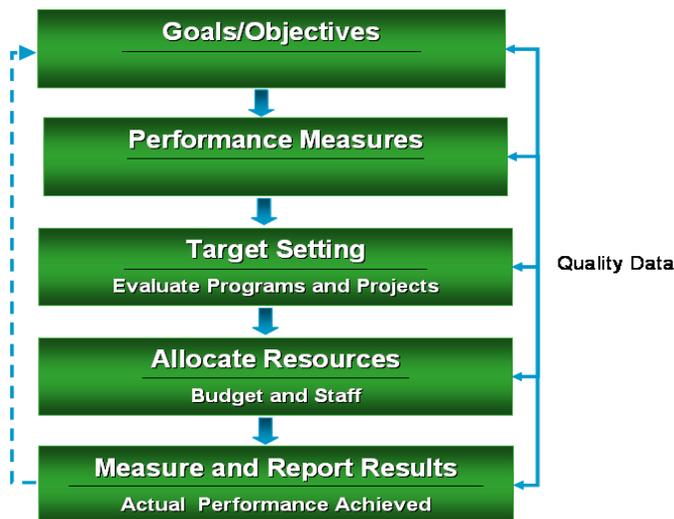
6.0 Performance Measures

Performance measures are being developed for this project to help guide investment strategies and the regions understanding of the tradeoffs associated with different alternatives. These performance measures aid in assessing policies, programs, and projects. Data synthesized in Section 5.0 will be used to conduct high-level analysis (quantitative and qualitative) resulting in an initial list of deficiencies that, individually or collectively, are impacting the performance and efficiency of the Greater Chicago freight system and various system improvements relate to each other and to stakeholder user groups. The relationship among them will allow us to identify system-level needs and deficiencies. Taking a system-level approach is critical when developing solution strategies, as in many cases, alleviating one bottleneck simply pushes the problem “downstream.”

6.1 NATIONAL PERFORMANCE MEASURE PERSPECTIVE

The basic performance management principles that can be integrated into some or all of the critical functions and operations of a transportation agency are illustrated by the “performance management framework” shown in Figure 6.1. Performance-based resource allocation decisions are anchored in a set of policy goals and objectives which identify an organization’s desired direction and reflect the environment within which its business is conducted. This direction is usually best defined by a combination of members within the organization, stakeholders, and the public.

Figure 6.1 Performance Management Framework



Performance measures are a set of metrics used by organizations to monitor progress toward achieving these goals or objectives. The criteria for selecting measures often include:

- Feasibility;
- Policy sensitivity;
- Ease of understanding; and
- Usefulness in actual decision-making.

Over the long term, an organization may set a target for a measure after the system performance for that measure, and the mechanisms for improving performance for that measure, are better understood. Actually using performance to drive resource allocation, such as budgeting or project prioritization, is the lynchpin of actual performance management. Finally, the data for each performance measure should be collected and analyzed to indicate how close the organization is to achieving its targets and identify the actions necessary to improve results (e.g., a change in the types of projects or policies being prioritized).

Goal areas were recently suggested by AASHTO and separately by FHWA to be included as part of a national performance measurement framework, potentially stemming from upcoming Federal reauthorization of transportation legislation.¹

6.2 REGIONAL FREIGHT PERFORMANCE MEASURE DEVELOPMENT

Prior to identifying recommendations and concurrently with stakeholder outreach and data acquisition system performance measures were developed for use in the project. First, a set of “goal areas” were developed as a means of categorizing the measures, ensuring that all areas of importance to all stakeholders are addressed. The following goals are based on the proposed national goals for consistency, adapted slightly for direct application to this study:

- **System Preservation.** Condition of existing infrastructure, e.g., pavement and bridges, relative to a state of good repair.
- **Mobility.** The operating characteristics of the system and existing or potential demand on the system.

¹ For examples of how these are being considered at the national level, see <http://www.transportation.org/sites/aashto/docs/Kane-2010-04-12.pdf>

- **Connectivity/Accessibility.** Population and businesses served by existing or expanded freight system and the impact of investments on the larger multimodal transportation network.
- **Safety.** Ability of freight system investments to enhance safety (reduced crashes, injuries, and fatalities) and security.
- **Environment and Community.** Impact of investments on the natural and built environments, overall quality of life, and consistency with community land use plans.
- **Economic Growth.** Estimated cost, revenue generating potential, and economic benefits resulting from investments in the freight system.

A literature review was conducted to identify freight-specific performance measures that address each of these areas. All of the measures related to freight transportation in CMAP's on-going Regional Indicators Project were included in this study (Table 6.1).

A wide range of additional measures were also investigated based on a scan of domestic and international freight and logistics-related performance measures, actually in use in established performance-based planning systems or applied within specific studies. Previous studies that included an examination of varied freight performance measures from around the country and the world include *NCFRP 3: Performance Measures for Freight Transportation* and *NCHRP Report 606: Methods for Forecasting Statewide Freight Movements and Related Performance Measures*. Through examination of these two documents, as well as other sources, the scan examined relevant measures from numerous agencies, such as:

- USDOT
- FHWA
- Minnesota DOT
- Washington State DOT
- Austroads
- Western Australia Department for Planning and Infrastructure
- Victoria Department of Infrastructure
- Queensland Main Roads
- Queensland Transport
- British Columbia Ministry of Transportation
- Transport Canada
- Japan Ministry of Land, Infrastructure, and Transport
- Tokyo Metropolitan Road Council
- Yamaguchi Prefecture Road Administration Management Council

- UK Department for Transport
- UK Office of Rail Regulation

Table 6.2 presents the “world” of measures ultimately shortlisted for consideration in this study, and a qualitative assessment of the degree to which each measure could address multiple policy concerns and stakeholder perspectives (see Section 6.3).

The types of analyses for which the measures would be used were considered in shortlisting the measures. The evaluation of system performance based on these measures is part of the process used for identifying “hot spots”, or those corridors or areas that fare the worst for the selected measures. The strategy packages that address these hot spots and other identified problem areas will be evaluated using the selected performance measures; the technical evaluation is used to support a relative comparison of the effectiveness of each project.

Table 6.1 Performance Measures from CMAP Sources

Performance Measure	Goal Areas	Source
Gross Regional Product	Economic Growth	CMAP Regional Indicators Project
Value of goods exported annually vs. value of goods imported	Economic Growth	CMAP Regional Indicators Project
Condition rating for National Highway System Intermodal Connectors	System Preservation, Connectivity	CMAP Regional Indicators Project / Congestion Management
Vehicle-miles of delay for at-grade crossings/length of time for traffic to recover	Mobility	CMAP Regional Indicators Project / Congestion Management
Vehicle classification by time of day; percent of trucks off-peak	Mobility	CMAP Regional Indicators Project / Congestion Management
Planning time index (ratio of the total time needed to ensure 95% on-time arrival as compared to free-flow travel time)	Mobility	CMAP Regional Indicators Project / Congestion Management
Congested hours (average number of hours per day during which at least 20% of vehicle miles traveled on the highway network or corridor are operating at less than 50 mph.)	Mobility	CMAP Regional Indicators Project / Congestion Management
Rail system travel time averages and variations across the region for intermodal containers;	Mobility	CMAP Regional Indicators Project / Congestion Management
Peak and off-peak travel times for trucks in freight-significant corridors	Mobility	CMAP Regional Indicators Project / Congestion Management
Travel time index (ratio of the average peak-period travel time to the free-flow travel time for a selected highway or network)	Mobility	CMAP Regional Indicators Project / Congestion Management

Table 6.2 Evaluation of Potential Performance Measures

Performance Measure	Goal Areas	Useful for				Policy Areas					
		Government	Carrier	Other Businesses	Public	Economy	Ind. Log. Patterns	Freight Infra.	Commodity/Veh. Flows	Org./Pub. Policy ^b	Env./Comm.
Arterial road network accessible to legal freight vehicles	Accessibility	●	●	●	●	○	○	●	●		○
Intermodal facilities with NHS roadway, rail access	Accessibility	●	●	●	●	○	○	●	●		○
Major generators within X miles or minutes of interstate, four-lane highway, or intermodal facility	Accessibility	●	●	●	●	○	○	●	●		○
Percent of goods moved with option of more than one modal choice	Accessibility	●	●	●	●	○	○	●	●		○
Track-miles with 286,000-pound railcar capacity rating ^a	Accessibility	●	●	●	●	○	○	●	●		○
Condition rating for NHS intermodal connectors ^a	Accessibility; System Preservation	●	●	●	●	○	○	●	●		○
Dollar losses due to freight delays	Economic Development	●	●	●	●	○	○	●	●		○
Geographic market share	Economic Development	●	●	●	●	○	○	●	●		○
Gross Regional Product (GRP) ^a	Economic Development	●	○	●	●	○	○	○	○		○
Value of goods exported annually versus value of goods imported ^a	Economic Development	●	●	●	●	○	○	○	○		○
Regional truck VMT or TMT per unit of regional economic activity/output	Economic Development; Mobility	●	●	●	●	○	○	●	●		○
Ton-miles per emissions output	Env./Comm.	●	●	●	●	○	○	●	●		○
Ton-miles per gallon of fuel	Env./Comm.	●	●	●	●	○	○	●	●		○
Average number of hours with 20% of VMT congested ^a	Mobility	●	●	●	●	○	○	●	●		○
Delay per ton-mile traveled	Mobility	●	●	●	●	○	○	●	●		○
Lift capacity (annual volume)	Mobility	○	●	●	●	○	○	●	●		○
Mobility index (ton-miles of travel/vehicle miles of travel times average speed)	Mobility	●	●	●	●	○	○	●	●		○
Mode share (tonnage and value)	Mobility	●	●	●	●	○	○	●	●		○
Truck VMT or TMT at LOS D or above	Mobility	●	●	●	●	○	○	●	●		○
Planning Time Index: "worst" time as compared to free-flow travel time ^a	Mobility	●	●	●	●	○	○	●	●		○
Travel time averages and variations ^a	Mobility	●	●	●	●	○	○	●	●		○
Tons of commodity undergoing intermodal transfer	Mobility	●	●	●	●	○	○	●	●		○
Travel time index	Mobility	●	●	●	●	○	○	●	●		○
Vehicle classification by time of day; % trucks offpeak ^a	Mobility	●	●	●	●	○	○	●	●		○
Vehicle-miles of delay for at-grade crossings ^a	Mobility	●	●	●	●	○	○	●	●		○
Exposure (truck AADT and daily trains) factor for rail crossings	Mobility; Safety	●	●	●	●	○	○	●	●		○
Average crash cost per trip, VMT, or TMT	Safety	●	●	●	●	○	○	●	●		○
Fatalities or crashes involving large trucks per truck VMT	Safety	●	●	●	●	○	○	●	●		○
Grade crossing accidents/product of million train-miles and trillion vehicle-miles traveled	Safety	●	●	●	●	○	○	●	●		○
Number of heavy truck-related fatalities (three-year average)	Safety	●	●	●	●	○	○	●	●		○
Rail-related fatalities per train-mile	Safety	●	●	●	●	○	○	●	●		○
Percentage of truck VMT on roads with pavement worse than X	System Preservation	●	●	●	●	○	○	●	●		○

○ Little or No Relationship ● Some Relationship ● Moderate Relationship ● Strong Relationship ● Very Strong Relationship

^a Measures from CMAP GO TO 2040.

^b Organization and Public Policy strategies encompass and promote all other strategies, and therefore have no "explicit" performance measures.

6.3 SELECTED FREIGHT PERFORMANCE MEASURES

Measures were moved forward for consideration for this study for their ability to cover performance “goal areas” not addressed by CMAP measures, to address specific problem areas identified through stakeholder outreach, to be calculated with available data or qualitatively, to both describe the existing freight transportation system and evaluate the relative effectiveness of potential policy and infrastructure strategies, and to address various stakeholder perspectives. Two of these factors were given high consideration in determining which measures moved forward as a tool for infrastructure and policy project ranking.

Data Availability. The intent of this study was not only to develop a set of performance measures for potential *GO TO 2040 Plan* applicability, but also to provide CMAP with a tool to continue to conduct trade-off analyses, project evaluation and prioritization after the study was complete. Therefore measures were selected based on data availability and the ease by which CMAP could recreate or re-evaluate projects over the next several years.

Stakeholder Reach. Each stakeholder in the freight system has different key performance measures. Consideration was given for the measures that would be most appropriate to evaluate the system from a variety of user perspectives. For government measures can vary between system preservation, safety, mobility, and environment/quality of life. For a carrier, the key measures may be driver, vehicle and fuel costs, service frequency, speed and reliability, and market share. For businesses, the measures may be delivery cost and reliability, market access and scale, operating productivity, and profitability/competitiveness. And for the public, the key measures typically are jobs and income, safety/security, environmental quality, and cost of living. For this effort, special focus was placed on public-sector decision-making since freight performance measures are less well developed for public-sector decision-makers than for individual firm and industry-sector decision-makers.

The final set of performance measures selected for infrastructure-related projects is shown in Table 6.3.

Table 6.3 Selected Freight Performance Measures - Infrastructure

Performance Measure	Goal Areas	CMAP Regional Indicator
Intermodal Facilities with National Highway System roadway or rail access	Accessibility	
Major generators near Interstate highways, four-lane highways, or intermodal terminal	Accessibility	
Gross Regional Product	Economic Development	Yes
Value of goods exported annually vs. value of goods imported	Economic Development	Yes
Congested hours (average number of hours per day during which at least 20% of vehicle miles traveled on the highway network or corridor are operating at less than 50 mph.)	Mobility	Yes
Planning Time Index (PTI) (ratio of the total time needed to ensure 95% on-time arrival as compared to free-flow travel time)	Mobility	Yes
Travel time averages and variations	Mobility	Yes
Travel Time Index (TTI) (ratio of the average peak-period travel time to the free-flow travel time for a selected highway or network)	Mobility	
Vehicle classification by time of day; % of trucks off-peak	Mobility	Yes
Vehicle-miles of delay for at-grade crossings	Mobility	Yes
Exposure (heavy-vehicle AADT and the number of daily trains) factor for at-grade rail crossings	Safety	

For infrastructure project evaluation the data are available for measuring geographically, enabling geographically-defined project bundles to be evaluated in their geographic context.

Policy Evaluation

While infrastructure projects could be evaluated in geographically-defined project bundles, this approach will not be possible for evaluating policy proposals. Thus, alternative evaluation measures were defined for policy evaluation within each goal area. These measures were necessarily subjective, but showed the relative types of effects of various policy options. The final set of performance measures selected for policy analysis are shown in Table 6.4.

Table 6.4 Selected Freight Performance Measures - Policy

Performance Measure	Goal Areas	CMAP Regional Indicator
Average length of haul by carrier type	Accessibility	
Modal options for goods movement	Accessibility	
Gross Regional Product	Economic Development	Yes
Environmental and Community Impacts	Economic Development	
Ton-miles per emissions output	Economic Development	
Quality of Life	Economic Development	
Freight Mobility	Mobility	
System Mobility	Mobility	
Reduction of Crash Rates	Safety	

7.0 Freight Operations

Understanding how the goods movement industry operates is essential to applying effective long-range planning principles and strategies. Freight operations are affected by a range of factors, including regulation, security, technology, infrastructure investment, and demand. The expectation of growing freight demand over the coming years means that enhancements to the existing system must steadily be made to maintain and improve upon current efficiency levels. In recent years the share of product costs attributed to transportation and logistics has been rising, which is an indication of strain on the system and reduced efficiency. Given the recent economic conditions, which have placed limitations on the funds available for infrastructure investment, the ability to achieve significant operational improvements in the near term may be limited. However, on the positive side, new technological advances such as those presented through intelligent transportation systems are relatively low in cost and can result in significant operational improvements. Additionally environmental considerations may play a role in mode shifts, which will affect overall system operations. The following section considers those factors that contribute to the current freight operations in the region and those factors that may affect operations for each mode over the next 30 years.

7.1 TRUCK

Trucking is the backbone of the U.S. freight system. While rail, water and air freight modes are used extensively in greater Chicago, it is trucking that provides first mile, last mile and transfer connectivity for all freight modes. Because of the nature of trucking it is the most flexible of freight modes, providing the ability for door-to-door connections and to quickly change operations based on market conditions. Trucking also faces unique challenges, as a portion of the trucking system's operational efficiency relies on public infrastructure and the other demands placed upon it, e.g. trucks and passenger vehicles share many roadways. – whether physical or regulation related. In addition, trucking has perhaps been the freight mode hit hardest by the on-going recession and the drop in demand for goods, if only due to the sheer number of trucking operators, many of which are small businesses. The American Transportation Research Institute (ATRI)², part of the American Trucking Associations Federation, annually conducts a survey of over 4,000 carriers to understand top challenges the trucking industry faces. ATRI's observations and stakeholder input provide the basis for trucking operational considerations. Additional observations come

² <http://www.atri-online.org/>

from recent regional freight studies such as the *South Suburban Freight Study* and studies of neighboring state truck operations such as the *Wisconsin Truck Size and Weight Study*.

Impact of the Economy

Recent economic hardship and the reduced demand for trucking services resulted in 5,500 trucking companies going bankrupt in 2008³. Increasing transportation costs, especially with respect to fluctuating diesel prices, multimodal capacity constraints, international competition, changes in rail services, and a shift to containerized shipments are among the many challenges facing trucking companies. The unprecedented rise in diesel fuel prices in 2008 appears to have leveled off, but prices are expected to rise again as demand for goods increases. While the economy shows signs of improvement, bankruptcies in the U.S. trucking industry are expected to reach 3,000 in 2010⁴, as higher fuel prices and excess capacity continue to squeeze operating margins. At the end of 2009, the U.S.'s largest trucking firm narrowly escaped bankruptcy, indicating that challenges are faced by large and small, owner operator firms alike.

In these times of uncertainty, a true challenge facing trucking firms on the brink of bankruptcy is to strike a balance between holding steady and reinvesting. While most firms have trimmed their excess workload and equipment to weather the current storm, even with small indications of improvement freight activity it is difficult for trucking firms to make investments without the certainty of recovery and sustained operations – that is if firms are even in a position to receive credit for expansion. While many firms have held off bankruptcy by using their un-utilized fleets as collateral, the used truck market is weak due to low freight volumes. Should banks decide to force bankruptcy on a company, its assets would show a reduced return as competitors are not adding to their fleets.

Emerging Technologies

Heavy truck equipment and technology trends such as safety enhancing technologies; infrastructure protection devices for pavement, bridges and roadway design; and enforcement and compliance systems are areas that have improved safety and mobility for commercial vehicles and will continue to drive efficiency in freight operations.

Although new technologies and equipment are being introduced in the industry every year there are some limitations. Typically market penetration is a slow process, since small regional carriers are less likely to invest in and deploy innovative technologies. Benefits to pavement and bridge condition, safety, and

³ Trucking failures to accelerate this year, Reuters, February 18, 2010.

⁴ Trucking failures to accelerate this year, Reuters, February 18, 2010.

compliance will not occur quickly for most technologies unless improvements to vehicles are mandated. Absent a regulation requiring adoption of these technologies, the applications that hold greatest promise for rapid deployment are relatively inexpensive technologies, such as self-steering axles, that immediately begin to show a return on investment in the form of ability to carry greater payload.. The primary focus of equipment manufacturers is currently on fuel efficiency and fuel economy systems.

Additionally, advanced traveler information for commercial (and non-commercial) drivers is becoming far more prevalent. It is much easier for drivers to learn about congestion or construction within their route through in-vehicle technologies such as GPS units and make real-time routing decisions. Commercial vehicles will operate more efficiently with these technologies. For public sector planners, the increase in available data via infrastructure and probe sensors (such as GPS units) will make it easier to identify roadway bottlenecks and address recurring congestion issues.

Public Infrastructure Challenges

Trucking faces unique challenges, as a large part of trucking company operational efficiency relies on the public infrastructure and the other non-freight demands placed upon it. Congestion continues to be a major challenge for the trucking mode. Although freight volumes are currently down, trucks in the Chicago region still face significant delays as they share limited infrastructure capacity with high volumes of passenger vehicles.

As trucks provide first and last mile connectivity, they interface with local delivery ordinances, truck parking restrictions, and roadway geometric design that are not always truck-friendly, particularly in urban areas. Additionally, often roadways are not designed with truck traffic in mind, and roadway condition suffers due to high volumes of unplanned for truck traffic, not only making travel difficult for trucks but also damaging to vehicles.

For long-distance trucking, another set of operational issues exist. Long-distance trucks, typically traveling over 500 miles for delivery, often cross one or more state lines and negotiate multiple state and local standards regarding truck size, weight, and permitting. The trucking industry notes that a lack of uniform vehicle size and weight mandates creates confusion and makes compliance difficult and costly, and that uniform regulations should be put in place for states and local governments. However, what the standard should be is up for debate between the trucking industry and the public; the trucking industry generally favors uniform increases to size and weight provisions as an important strategy to mitigate congestion, thereby reducing the number of trucks needed to haul freight. The use of higher-productivity vehicles, which either increase gross vehicle weight or the maximum length of combination vehicles, could also provide a means of reducing fuel consumption and truck emissions.

Truck size and weight increases are a topic under much current debate. Starting January 1, 2010, Illinois applied a uniform 80,000 pound weight limit on state highways, removing the previous 73,280 pound limit on non-truck routes. Several states have advocated for greater allowance of higher-productivity vehicles on the Interstate highway system. The long-range trend appears to be towards highly regulated higher-productivity vehicles with additional safety equipment and standards, escort requirements, and driver training.

Part of increasing truck size and weight relates to the routes on which trucks are allowed to travel, as all trucks will not be allowed to travel on all routes in the future. Truck routing is a challenge for the industry as state and local routes differ and information is often not easy for the trucking industry to locate and use.. This is particularly true in smaller communities where trucks are often required to make first- and last-mile deliveries.

A truck routing concept that is currently undergoing extensive research for multi-state corridors is truck-only lanes (TOLs). A recent example of a TOL study is that of I-70 through Ohio, Indiana, Illinois and Missouri. This concept of providing exclusive travel lanes and interchanges for trucks is being investigated as a means to both increase truck productivity and enhance overall safety for passengers and trucks alike. The trucking industry is supportive of the TOL concept and the research being conducted, but has noted it is not supportive of mandated or fee-based use. However it remains to be seen if travel time and reliability were significantly improved on TOLs if trucking companies would find the benefit to exceed the costs.

While the trucking industry stance is firm on no-fee for use of TOLs, or new tolling on existing infrastructure, the user fee debate has just begun. As the Highway Trust Fund is bankrupt and each state in the Union is facing its own fiscal challenges, each has begun anew to review potential funding sources and strategies to recoup additional cost from both freight and passenger users. Options for capturing revenue directly from users include a vehicle-miles-traveled (VMT) based cost recovery tax, congestion pricing, and increased permits and tolls for trucks. At the other end of the spectrum, budget shortfalls may result in privatization or leasing of infrastructure, as in the case of the Chicago Skyway Bridge, which could result in additional uncertainty for the trucking industry (and all users) as the user fees collected may not necessarily be re-invested in the roadway to improve operations.

Regulation

Regulating safety is the primary function of the Federal Motor Carrier Safety Administration (FMCSA), and since its inception FMCSA has implemented changes impacting how hazardous materials are transported and international cargo is secured, and have instituted measures that provide benefits to users that share the road with truckers, such as established methods to assist trucking companies to pre-screen their employees and most recently, banning texting. Possibly the subject of the most debate recently in the industry relates to truck

hours of service (HOS), which place limits on when and how long commercial motor vehicle drivers may drive. Currently a property-carrying driver may drive a maximum of 11 hours after 10 consecutive hours off duty⁵. While the HOS requirements are currently undergoing review by FMCSA, and the trucking industry has noted an interest in creased flexibility in the rules, since the regulations have been in place truck crashes have decreased.

In addition to safety regulations, increasingly environmental regulations like anti-idling and other emission reduction initiatives are being required by state and local governments. While these regulations improve community quality of life, and in the long run may reduce oil dependence, they are costly unfunded mandates to trucking that likely will continue to increase in the future. Examples of this type of regulation are EPA's engine emission standards and equipment aerodynamic standards mandated by the State of California.

Workforce

While the economic downturn saw trucking companies trimming their workforces, driver shortages have only temporarily been put on the back burner due to the recession. Shortages that were prevalent before the economic downturn are beginning to occur again, and credentialing of new drivers may become more stringent in the future. This is in part due to CSA 2010, FMCSA's new Comprehensive Safety Analysis program, and also due to the limited pool of available applicants. Baby Boomer drivers will be retiring in the coming five years and trucking is not attracting sufficient new labor to the workforce to meet future predicted demands. Trucking companies will also face challenges in training the sheer number of drivers that will be required to transport the expected volumes of good in the future. In addition to driver training and education, compensation, working conditions and other issues create new difficulties in attracting new driver entrants and reducing driver turnover.

7.2 RAIL

Rail operations have evolved significantly over recent decades. Many operations and technology considerations could affect rail infrastructure needs and operations in and around Chicago over the next 30 years. Rail infrastructure investments and operations reflect numerous factors. A variety of considerations will impact future performance of the system and the improvements needed to handle demand. These considerations include:

- The structure, condition, and capacity of the existing rail system in the region;

⁵ Other restrictions apply - <http://www.fmcsa.dot.gov/rules-regulations/topics/hos/>

- Expected growth in traffic, by type of traffic, based upon trends in the global economy as well as the relative competitiveness of rail and other modes;
- Advances in railroad technology, including car design (i.e., gross vehicle weight and length of freight cars), terminal design, communications & control, durability of track components, and capabilities for track inspection and maintenance;
- Trends in key operating parameters, including limits on train length and train tonnage, load/empty ratios, and blocking policy; and
- Interactions among freight, commuter, and intercity passenger operations.

Trends in Railroad Operations and Technology, 1980-2010

Many changes may occur in the rail industry by 2040, as is evidenced by the changes that occurred over the past 30 years. From 1980 to 2010, the North American rail system experienced continued rationalization. Dozens of railroads were consolidated (in 1980 there were 40 Class I railroads; today there are only seven). Short line and regional railroads have expanded significantly. In 1980, short and regional railroads accounted for six percent of mileage and eight percent of employees, while today they account for more than 30 percent of the mileage and 10 percent of the employees. Light density lines were eliminated, resulting in a 40 percent reduction in total rail mileage in the U.S. since 1980.

Technological advances in track technology have enabled heavy haul railroading. Axle load limits increased from 33 to 36 tons, allowing the widespread introduction of cars with gross vehicle weight of 286,000 pounds. Much heavier trains are now in operation using higher-horsepower locomotives and, more recently, distributed power (locomotive units that are placed in the middle of the train that can be controlled from the lead unit). Track maintenance expense per net ton-mile has decreased by approximately 50 percent.

Technological advances in equipment technology have allowed much higher loading density (net tons per unit of train length). Steel/aluminum cars with 286,000-pound load limits can carry 120 tons of coal, an increase of 20 percent over what could be carried in a 100-ton car in 1980. Double-stack container trains carry approximately double the number of containers with very little increase in total cost, thereby halving the cost per container handled by double-stack trains. Similar changes have occurred for other types of trains that allowed higher loading density.

Dramatic changes in rail traffic volume and mix have occurred over the past thirty years. Volumes have increased substantially, with tonnage originated increasing by more than 30 percent, carloads increasing by more than 40 percent, and ton-miles nearly doubling. Intermodal container volumes have risen sharply, from less than 2 million intermodal containers and trailers in 1980 to

more than 12 million annually. National concerns about air quality led to sharp increases in the transport of low-sulfur coal from the Powder River Basin in Wyoming to power plants throughout the middle of the country. General freight traffic, which is other than unit train or intermodal, declined, which reduced the demand for classification yard capacity and allowed many yards to be closed or converted to intermodal operations. There has been strong growth in commuter rail services and increased interest in intercity passenger services sharing freight track.

Factors outside the control of railroads have had a significant impact on the competitiveness of the industry over the past 30 years. Deregulation of rail and trucking put extreme downward pressure on rail prices, which fell almost every year from 1982 until 2005. The railroads were forced to focus nearly all of their efforts on down-sizing and improving productivity. Deregulation also boosted the growth of truckload carriers that could compete directly with rail for general freight, while declining fuel prices favored trucks over rail until very recently. Other factors led to sharp increases in rail traffic, notably the demand for low-sulfur coal and the burgeoning flow of exports to the U.S. from countries along the Pacific Rim. These macro-economic factors, coupled with the introduction of the double-stack train and the critical advances in heavy haul technology, allowed railroads to build upon their dominance in coal transport and establish new markets for intermodal.

In the last ten years, concerns about global warming, the use of imported oil, increasing energy costs, and highway congestion have all helped to enhance public interest in and financial support for rail service. Various Federal studies have recommended greater public investment in rail freight and high speed rail passenger service. Potential exists for significant changes in rail traffic, rail technology, and rail operations over the next 30 years.

Trends in Rail Operations and Technology for the Next 30 Years

The outlook for the rail industry is much different today than it was 30 years ago. With regard to rail network structure, the focus will be on expanding capacity, whereas in 1980 the focus was on rationalizing the network and consolidating the Class I railroads. In 1980, the railroads were emerging from a decade of generally dismal financial performance, and they had to cut cost. Today, the railroads are emerging from a period of solid financial performance, and they have been able to make substantial investments in capacity.

Intermodal is now firmly established as a key, profitable commodity. The industry will undoubtedly seek ways to become more efficient, such as by making better use of the space within trains, operating longer trains, and perhaps by introducing wider containers.

The industry will continue to introduce new technologies that reduce the costs and increase the capabilities of heavy haul operations. Distributed power and electronically-controlled pneumatic brakes (ECP brakes) will improve the ability

to handle longer, heavier trains. New equipment designs will increase the loading density of trains, either by allowing heavier axle loads or by introducing shorter cars with the existing 286,000-pound GVW.

Over the last three decades, a great deal of investment in signals allowed railroads to consolidate much more traffic on single track lines. Over the next 30 years, some form of positive train control (PTC) is likely to become widespread. PTC will reduce risks by preventing crashes related to signal overruns and excessive train speed. PTC may also provide modest benefits for line capacity, but these benefits will be most apparent on main lines and least likely within congested terminals.

A revival of shipping general freight by rail could occur if fuel prices, congestion, and labor shortages continue to cause higher costs for trucking. In 1980, the question was how to downsize and how to deal with a general purpose fleet of cars that was far too large for the business. In the future, the question could be how to provide the capacity for significant growth in this type of traffic. In the last 30 years, the performance of rail terminals generally declined, as railroads reduced train and block frequency; in the future, there could be renewed interest in operating more frequency trains and blocks so as to reduce terminal dwell times and to improve service reliability for this freight.

The pressure for the country to provide much more and much better intercity rail service is likely to grow. This could result in European-style high-speed rail on separate rights-of-way or higher-speed passenger services operating on routes shared with freight trains. With increased passenger service over shared tracks, infrastructure upgrades will be needed and could improve performance of freight and passenger service, but increased frequency of both types of trains could also result in the potential for increased passenger/freight conflict.

Implications for Railroad Investment in Chicago Terminal

Investments within any large terminal area such as Chicago could address a number of elements. Improvements could be designed to:

- Enhance the capacity of main lines into the region;
- Eliminate bottlenecks within the terminal, such as single-track bridges, short sections of single-track that connect multi-track main lines, or low-capacity interlocking;
- Provide additional buffers (sidings or small yards) between main lines and terminals;
- Increase capacity of yards (intermodal yards, classification yards, block swap facilities, interchanges, and locations for crew changes);
- Rationalize the terminal structure to allow more efficient interchange among carriers, better service to local customers, and less interference in moving trains in and out of yards;

- Increase routes where it is possible to use heavier cars, larger cars or longer trains (i.e., improve clearances, lengthen sidings, lengthen yard receiving and departure tracks, or upgrade the track structure);
- Eliminate rail/rail and rail/highway grade crossings; and
- Provide additional capacity to allow better passenger services with less interference among freight trains and passenger trains.

Whether or not any these investments will be needed will depend upon the ability of the existing Chicago terminal including main lines, yards, and other lines, to handle the projected traffic mix and volume. Some of the trends in operations outlined previously will help to defer the need for capacity investment. The key aspects of operating performance are those that determine the number and type of trains that move through the terminal, namely train length and net tons per train. Within each class of train service --, bulk, intermodal, and general freight-- the trend for many years has been toward heavier cars that move in longer trains. These trends are very likely to continue, as any increase in net tons per train will increase the capacity of rail lines even if the number of trains per day remains unchanged. These changes can even provide an increment of capacity while reducing rail costs, as has been the case with the introduction of the 286,000-pound car.

Issues Specifically Related to Chicago

As the largest rail hub in North America, the Chicago terminal faces the greatest challenges with respect to ensuring capacity will be sufficient for future operations. With the six largest railroads all serving Chicago, the complexity of interchanges, yard facilities and through routes is greater than that in any other terminal area. With so much of the region's economy dependent upon having good access to excellent rail and intermodal services, the future capability of the region's rail infrastructure is very directly tied to the ability of the region to grow. Because the rail system is already so heavily utilized, little slack is available to absorb anticipated growth. Indeed the rail improvements planned in the CREATE Program discussed in earlier sections were designed to address the most pressing operational issues for rail in the present timeframe with current demand, and were not planned to address future demand, although they will be helpful in accommodating future growth.

A number of specific concerns with the rail system in and around Chicago have been identified in discussions with rail officials. The main line routes into the region are generally high-capacity, high-speed routes, but movement of trains through the region is increasingly difficult as volumes of freight and passenger railcars increases. While it may be possible to develop new routes that bypass Chicago (or that skirt the edges of the region), the railroads prefer to maintain and expand the existing infrastructure simply because all of the major railroads already have invested so much in facilities that are conveniently located at the center of the region.

Intermodal traffic is expected to grow sharply over the next 30 years, and therefore the capacity of the region's intermodal infrastructure will need to be expanded. Public support of intermodal transportation is based upon the ability of that service to move trucks off the highways. For this reason, it is important to have intermodal terminals located conveniently for customers. While railroads have in some instances located intermodal terminals 50 or more miles away, such as Union Pacific's facility in Rochelle, IL, those terminals poorly serve customers located in the center of the region, and the drayage to and from such terminals remains on the highways. To better serve customer demand, Union Pacific has invested in an intermodal facility in Joliet, Illinois scheduled to open in the summer of 2010, not far from the BSNF Logistics Park Chicago facility in Elwood, Illinois.

To the extent feasible, railroads will attempt to have more steel-wheel interchange for through intermodal traffic, so as to avoid delays and drayage on city streets. However, with so many carriers interchanging traffic in Chicago, rubber tire interchange will continue to be the quickest and cheapest way to transfer containers and trailers among carriers. Therefore, it is desirable to consider ways to increase the efficiency of rubber tire interchanges, perhaps by using existing rail rights-of-way as drayage routes or by developing dedicated truck-only routes. Additionally, Chicago has an opportunity to be the site of significant railroad investment in freight tracking and data-sharing technologies, given the many Class I railroads exchanging goods via common infrastructure, both steel wheel and rubber tire.

Ports achieve much higher utilization of terminal space by using larger cranes and more stacked storage than is commonly used in rail intermodal terminals. Greater throughput can therefore be achieved within existing terminals by operating those terminals more intensively, perhaps by using more or larger lift equipment, operating more hours per week, or by using more stacked storage.

Grade crossing delays are a major concern for residents of the region, so completion of CREATE's 25 grade crossing separations and consideration of other grade separation projects will be an important concern for residents and local governments.

The region's yards are not well-structured for handling long trains, nor do they have sufficient receiving and departure tracks to provide adequate capacity for handling surges in traffic without disrupting main line operations. If there is substantial growth in general freight, then additional classification yard capacity may be needed within the region. However, if train and block frequencies are increased, existing terminals will be able to handle more freight. Also, since general freight is typically classified at three or more intermediate points, classification would not necessarily have to occur in Chicago.

CN's acquisition of the EJ&E route will result in upgrading what could become an important bypass route that would enable diversion of through trains from the congested center of the region. This route will also allow CN to move more

traffic without the need for interchanges, which could have an impact on rail/truck competition.

Train operations along some important routes are limited by slow orders on aging, single-track bridges. Replacing these bridges would eliminate bottlenecks, but would be a major expense.

Chicago is a major passenger hub, not only a freight hub. The rail infrastructure handles a great deal of commuter rail traffic, and Chicago it is the logical center for high speed rail passenger services in the Midwest. Since passenger demand is likely to grow, there will be increasing interference among freight and passenger services – and increasing opportunities for public/private projects that go beyond CREATE to improve the performance for both freight and passenger.

In summary, if Chicago is to retain its position as the pre-eminent rail hub in North America, it will be necessary to upgrade the rail infrastructure within the region. Industry trends toward longer, heavier trains are very likely to continue, thereby providing substantial boosts to rail capacity, but the region’s yards and lines may need to be upgraded in order to be able to handle the types of trains that the railroads will be operating. Increasing volumes of both passenger and freight trains will require cooperative efforts to enhance capacity and coordinate operations.

Figure 7.1 Factors Influencing Performance of the Chicago Rail Terminal

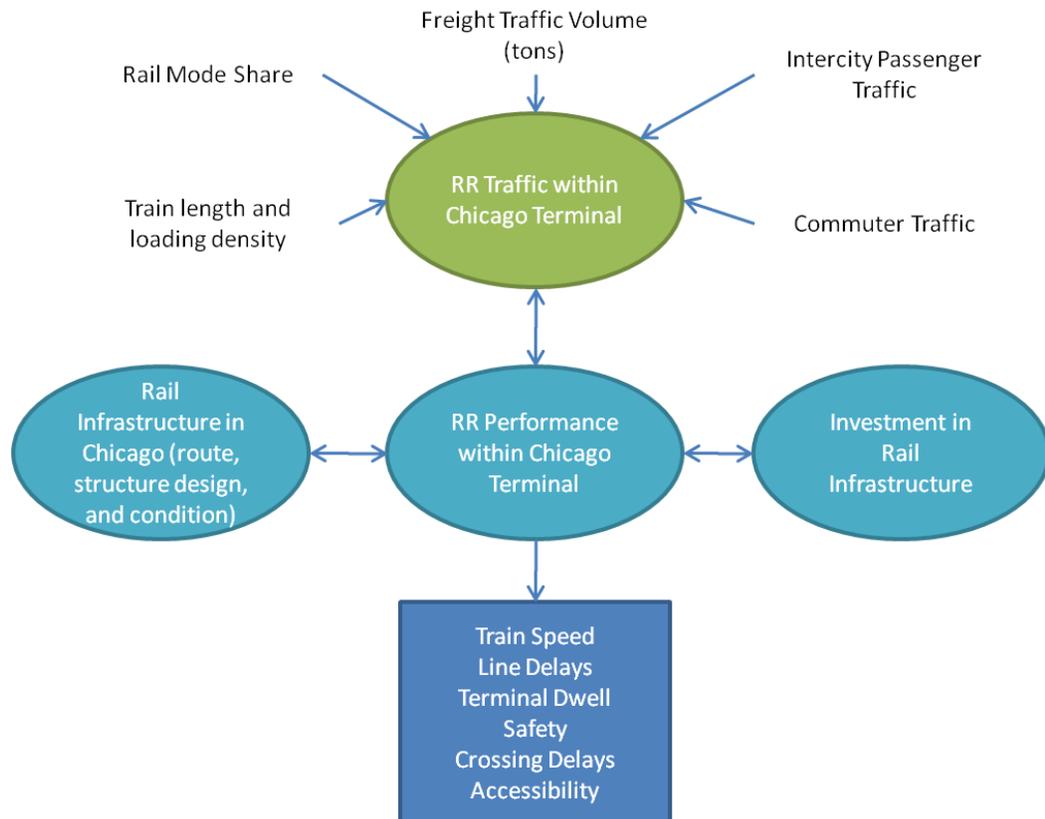


Figure 7.1 illustrates some of the major factors that influence the performance of the Chicago Terminal and therefore the need for investment in terminal capacity. Macroeconomic factors will determine the types of freight that are moving to, from, and through the region, and competitive comparisons will determine how much of that freight moves by rail or intermodal. Railroad operating and technological capabilities and decisions will determine average train length and loading density, which are the key parameters linking rail tonnage to trains per day. Regional economic conditions, regional transportation policy, fuel costs, and other factors will determine passenger demand for commuter and intercity services. Traffic flows will also be limited by the performance of the system, as capacity limits or sufficient deterioration in service could cause railroads to divert trains around the region or shippers to reduce their use of rail. Investment in the rail system, whether by the railroads or by public agencies, will depend upon the expected demand for the system and the need to enhance capacity or improve service.

7.3 WATER

Chicago is the only location where the Mississippi River System (MRS) connects to the Great Lakes and Saint Lawrence Seaway system. Although the two systems were not connected as a navigable system until 1848 when the Illinois and Canal was completed, the proximity of the Illinois River and Lake Michigan drove the early settlement of the region and established its importance as a crossroads even prior to the arrival of the railroads. While the subsequent development of the region into the transportation hub of the Midwest was driven by the construction of the rail network, there has been a significant commercial maritime presence in the region, largely through the confluence of the Great Lakes and the MRS. The region's access to the Mississippi River is provided through the Illinois Waterway, which flows for a distance of 327 miles from the O'Brien Lock in Chicago to the Mississippi River at Grafton, Illinois.⁶

In order to consider the operational issues facing waterborne trade in the CMAP region, a brief examination of recent and projected traffic trends from IHS-Global Insight TRANSEARCH is beneficial. The top ten commodities moving via water are summarized in Table 7.1. Traffic has been divided into three categories, based on whether it is moving on the MRS, the Great Lakes, or within the region. For intra-region freight, the TRANSEARCH data does not permit classification by MRS or Great Lakes, or a combination of the two, although a significant portion of this volume does indeed travel on both systems.

⁶ Although the Illinois River makes up the largest section of the Illinois Waterway, it also includes segments of the Des Plaines River, Chicago Sanitary and Ship Canal, Cal-Sag Channel, Little Calumet River and Calumet River.

Table 7.1 Top 10 Marine Commodities, 2007 and 2010

STCC	Description	Great Lakes		Intra-Region		MRS		% of Total Tons	
		2007	2040	2007	2040	2007	2040	2007	2040
11	Coal	1.37	1.44	5.89	7.68	15.61	10.92	31%	26%
10	Metallic Ores	15.02	6.80	0.11	0.03	0.71	0.30	22%	9%
14	Non-Metal Minerals	5.12	4.04	1.88	2.82	5.45	8.93	17%	20%
1	Farm Products	0.01	0.02	0.01	0.01	5.56	9.57	8%	12%
29	Petro/Coal Products	0.29	0.34	0.95	0.39	3.34	3.96	6%	6%
40	Waste/Scrap	1.62	2.55	0.06	0.21	2.37	6.65	6%	12%
28	Chemicals	0.13	0.14	0.06	0.02	2.20	2.34	3%	3%
20	Food/Kindred					1.49	2.73	2%	4%
33	Primary Metals	0.23	0.39			1.03	2.20	2%	3%
32	Concrete/Glass etc	0.68	0.75	0.01	0.01	0.45	0.13	2%	1%
	<i>All Other Commodities</i>	0.02	0.03	0.13	0.07	1.16	1.95	2%	3%
	Total Tons (millions)	24.48	16.50	9.10	11.25	39.38	49.68	100%	100%

Source: TRANSEARCH

The vast majority of Great Lakes volume has been driven by metallic and non-metallic minerals, while a broader mix of commodities has been present on the MRS. Although coal dominates, with 40 percent of MRS traffic in 2007, the remaining volume is distributed over a broad range of products, which signifies the value of barge shipping to a range of high-volume bulk freight shippers in the CMAP region. Commodity diversity is anticipated to increase through 2040, with the top two commodities, coal and metallic ores declining from more than 50 percent to 35 percent of all marine traffic. The largest categories of tonnage growth are expected to be waste/scrap and farm products, with the former increasing by 181 percent, the fastest rate of growth for any major commodity. Other commodities with substantial prospects for growth are farm products, food products, and primary metals.

Overall marine volumes are expected to increase modestly, from 73 to 77 million tons through 2040. While MRS traffic is expected to gain over 25 percent, Great Lakes shipping will drop by 33 percent. This is a continuation of a long-standing trend, which has been primarily caused by the decline of domestic heavy industry (particularly steel), seasonal closures, and size limitations to ocean going vessels in the St. Lawrence Seaway. It is unlikely that much, if any, of the traditional traffic will come back, but there may be potential opportunities for new uses, which are not indicated in the TRANSEARCH data. However, realizing

them would necessitate some fundamental changes in longstanding laws and regulations.

Fundamental trends in the industrial economy establish the underlying demand for marine shipping in the CMAP region. However, use of this mode will be substantially influenced by conditions of the infrastructure and service availability, all of which add up to fundamental economic considerations. Through the stakeholder interviews and other data collection, a number of key issues were identified as being particularly influential on the future viability of waterborne trade in the Chicago region.

Condition of the Waterway Infrastructure

Several of the facilities managed by the Army Corps of Engineers along the Illinois Waterway are in poor physical condition, and will eventually require substantial rehabilitation and/or replacement. The Army Corps' 2004 plan for navigation improvements along the Upper Mississippi River System called for replacement of the LaGrange and Peoria Lock and Dam with modern 1,200 foot facilities. Construction of these new locks will help to ensure continued viability of the Illinois Waterway, by reducing maintenance-related delays and the most severe capacity bottlenecks along this route.⁷ Although the needs elsewhere are not as pressing, navigation facilities farther upstream in the CMAP region also require continued maintenance to ensure their efficient use.

Controlling the Invasion of Non-Native Asian Carp

As a result of global trade, a variety of non-native flora and fauna have appeared in the MRS and the Great Lakes. In some cases these have wholly displaced native species, and effected substantial changes in the ecosystem. The Great Lakes, which collectively form the largest body of fresh water in the world, are highly susceptible to environmental damage from non-native species. Most notably, the opening of the St. Lawrence Seaway brought zebra mussels into the Great Lakes, which substantially altered water conditions, displaced native species, and clogged facilities that rely on lake water for various purposes. More recently, the arrival of Asian carp in the MRS has raised grave concerns about their potential threat to the Great Lakes' ecosystem and the economies that are sustained by it, including a \$7 billion fishing industry. Asian carp now comprise as much as nine out of every ten pounds of living material found in infested sections of the Illinois River, with devastating effects on the native ecosystem.

Given the likelihood of similarly severe effects from an Asian carp infestation on the ecosystem of the Great Lakes, strenuous efforts have been underway for

⁷ U.S. Army Corps of Engineers, **UMR-IWW System Navigation Feasibility Study, Integrated Feasibility Report and PEIS**, 2004. Available at <http://www2.mvr.usace.army.mil/UMRS/NESP/Documents/>.

some time to prevent their migration from the Illinois Waterway into Lake Michigan. A key element of this initiative has been the construction of a \$9 million electric fish barrier in Romeoville (along the Chicago Sanitary and Ship Canal) that was completed in April 2009, following a multi-year test of a smaller facility. If effective, this barrier would allow continued commercial and recreational use of the river and the connection between the MRS and the Great Lakes, albeit with some restrictions. Operations require an advance “bow boat” to ensure safe transit through the barrier. Although the USACE budget has covered the approximate \$700 cost per tow of this service during the initial phases of operation, waterway users had to pick up the cost when the USACE budget ceased to cover this expense, a significant cost to industry..

Whether the fish barrier is actually a viable solution to preventing Asian carp from entering Lake Michigan has increasingly come into question. The reliability of the barrier has not been assured, and regular maintenance requires a complete shutdown. In December 2009, a fish kill conducted in conjunction with a maintenance shutdown revealed the presence of Asian carp beyond the barrier, and within only six miles of Lake Michigan.⁸ If the electric barrier proves to be ineffective, other alternatives will require stronger action, up to and including restoration of the natural separation between Lake Michigan and the MRS. Not only would such an action greatly impact the marine trade and its users in the region, it would also have substantial effects on Chicago’s waste and fresh water systems. Nevertheless, political and legal pressure from the Great Lakes states and provinces will require at least serious consideration of this alternative. In February 2010, the Federal government issued a control strategy for preventing entrance of Asian carp into the Great Lakes water system.

Support the Operational and Service Needs of Marine System Users

Fleeting (storage of barges) and other operational and service needs (such as cleaning, tug and barge repair) have to be satisfactorily accommodated in the region. Although some might consider these activities eyesores, they are a necessary part of marine operations. Operators have identified fleeting as a need in the region. Without the available space and permission for conducting these functions, the viability of marine services, particularly along the MRS will be diminished.

Loss of Waterside Real Estate to Non-Commercial Uses

The conversion of waterside real estate to uses that are not compatible with freight shipping affects the vitality of the sector, and may result in industries moving away from using the river for transport, and perhaps relocating within or even beyond the region. This is particularly the case with dockage that can

⁸ <http://www.jsonline.com/news/wisconsin/78425727.html>

accommodate deep draft ocean going vessels, which require far greater drafts than they typical nine foot channel depth available along the Illinois Waterway.

Minimize Operational Interference

Although less critical than other issues cited previously, operational interferences, such as lift bridge conditions, and their timely operation in accordance with Coast Guard regulations are an increasing irritant, as they increase travel times and reduce service reliability.

Maintain Intermodal Connectivity

The critical importance of intermodal connectivity to rail and truck goes without saying. Chicago has had great connectivity, particularly around the Calumet area, but it is slowly disappearing in other locations. This connectivity must be preserved.

7.4 AIR

Chicago is the premier gateway for freight in the Midwest. All modes converge to have access to major industry, manufacturing and agriculture. Although rail, water, and trucking are much more cost effective than air for moving freight, high value and time sensitive goods are moved via air through Chicago. The concentrated population in Chicago along with access to all the other modes of transportation continues to make Chicago the optimum location for a Midwest air hub.

The major driver for shipping freight via air is just-in-time inventory. Companies want to warehouse inventory for as little time as possible, especially when high-value products are concerned. The growth of the Internet has also created the demand for a supply chain that can get high-priced items delivered in 24 hours by using air and trucking. Many air shippers converge at O'Hare daily to provide just-in-time inventory to the companies in the Chicago area, including UPS, a shipping company with an airline; FedEx, an airline with a trucking company; and a range of freight and combination (freight and passenger) carriers.

Air freight is forecasted to grow 130 percent by weight between 2007 and 2040, according to TRANSEARCH data. The value of goods is anticipated to increase significantly over the next three decades as shown in Table 7.2 by the value per ton increasing by 229 percent and the total value of products shipped increasing more than sevenfold.

Table 7.2 Air Freight Forecast, 2007 and 2040

	2007	2040	Percent Increase
Weight – millions of tons	1.0	2.3	130
Value – billions of dollars	8.6	66.4	672
Value per ton – dollars per ton	8,869	29,142	229

Source: TRANSEARCH.

Security Procedures

Air freight operations will face major obstacles in the future largely related to new Transportation Security Administration (TSA) security procedures. The requirements for passenger airline cargo screening are set to increase dramatically, with 100 percent screening of cargo required by August 2010. Since February 2009, 50 percent cargo screening for passenger flights has been required.

The Coalition on Air Cargo Screening met in April 2009 to discuss issues faced in the industry. The Coalition's major findings and recommendations were that three areas require immediate action to achieve the air cargo screening mandate:

1. Rapidly enlarge the number Certified Cargo Screening Facilities at large shippers, manufacturers, freight forwarders and other TSA-certified Indirect Air Carriers;
2. Provide for additional Federal funding or incentives (e.g., tax relief for privately purchased screening equipment) for all TSA-certified shippers, indirect air carriers and other qualified CCSP participants. This will enable small and medium-size companies to participate in the CCSP, and enable large companies to continue to invest in screening equipment and chain-of-custody protective measures; and
3. Swiftly expand the use of TSA-certified explosive-detection canines to screen large air cargo consolidations transported on passenger aircraft, and direct additional funding to the TSA proprietary canine cargo-screening program.

While meeting the passenger carrier air freight cargo deadline of August 2010 is the current focus, security for all air cargo will also be an issue for TSA moving forward.

Fuel Prices and Operational Costs

Another issue for air freight is fuel prices and operational costs. Major air carriers – passenger and cargo – use aircraft that are efficient in terms of the number of crew required and fuel consumption. However, many of the smaller carriers convert less efficient passenger aircraft to cargo aircraft. These older

aircraft burn more fuel and often need more crew members (three pilots vs. two pilots) than the more efficient aircraft. The volatility of fuel prices is a significant issue for air carriers. With oil prices exceeding \$80 per barrel and showing no signs of decreasing, increasingly only high-value or perishable goods will be cost effective for shipment via air.

New South Suburban Airport at Peotone

One of the major constraints on air freight in the region is the lack of room for expansion at O'Hare. Peotone is not considered a prime location for passenger carriers to operate as they would not want to split their operations into two locations. However, movement of air cargo to a potential new location in Peotone could be an opportunity worth consideration for the region. Land is readily available for creating a state-of-the-art air cargo facility in the vicinity of the proposed Peotone Airport. Development of a new facility would provide the opportunity to incorporate elements to address security considerations as well as for processing and holding freight.

Noise abatement is always a key issue for air freight operations since flights usually depart late in the evening and arrive well before dawn. With so much land available and the ability to have a lower impact on residential areas than at O'Hare, location of a new air freight hub in Peotone could be beneficial for the region. Peotone also is a good location based on the existing and proposed intermodal yards in the Joliet area and the discussion of potential dedicated truck routes in the I-80 corridor or on a new Illiana corridor. Air traffic control issues also affect growth of air freight. Freight forwarders might embrace the new option due to the potential for more efficient operations away from O'Hare congestion. For example, UPS is operating a mini-hub out of Rockford, Illinois very successfully.

Given current economic conditions, air will not be the mode experiencing highest growth in the near term. However, given the number of freight forwarders in the region who depend on Chicago airports for high-value and time-sensitive products, air will continue to be an important option for goods movement.

8.0 Range of Policy Recommendations

8.1 POLICY NEEDS RELATED TO FRAMEWORK AND RESEARCH

A major component of the Regional Freight System Planning Recommendations Study has been the development of policy-level improvements that would work hand-in-hand with the operational and infrastructure improvements in addressing the freight system needs of the Chicago region. The policy-level recommendations, which are listed in Table 8.1, were developed to address the system needs and deficiencies that have been identified through the stakeholder outreach (Section 4.0) and data analysis (Section 5.0) components of the project. In addition, in some instances, implementation of the policy recommendations will facilitate operational and infrastructure improvements. Many of these recommendations are based on best practices that have been implemented to address similar freight system needs.

The proposed policies are targeted at addressing the vision of the region's freight stakeholders in terms of planning for freight mobility. While the cost of implementing the policy recommendations may be considerably lower in comparison to their complementary operational and infrastructure improvement counterparts, the impacts are likely to be much broader. Timeframes for accomplishing the policy changes will vary significantly.

Pending reauthorization of a new transportation bill will likely have an impact on policies at the Federal level that regulate freight mobility. The new bill's impacts could affect funding programs, as well as the planning and programming processes, which guide transportation investments across the nation. This reauthorization should be viewed as an opportunity to address national freight policy issues of particular interest to the Chicago region, and which the Chicago-area congressional delegation can support.

The follow sections summarize policy related needs that were identified through the stakeholder outreach and data analysis components of the project. These needs are grouped within the Regional Freight Framework Themes that are discussed in Section 3.0, including Economy, Industry Logistics Patterns, Freight Infrastructure, Commodity/Vehicle Traffic Flows, Organization and Public Policy. While overlapping with the Organization and Public Policy Theme, a sixth category, Environmental and Community Impacts, was added to highlight its importance.

Policy Needs: Economy

The Chicago metropolitan area has established itself as a national freight hub. The hub features six of the nation's Class I railroads converging in the region, an extensive network of interstate highways supported by a complementary grid of arterial roadways, two major international airports, and water access to the Great Lakes and the Mississippi River system. While the Chicago region is taking advantage of its freight hub status to attract and retain business and industry, the region's freight system must respond to the changing needs of these sectors as well as to the region's changing demographics. Currently a significant portion of the cargo movements within the region simply pass through, without having an origin or destination in the Chicago metropolitan area. The region could more readily take advantage of its freight hub status by identifying and promoting value-added industries that would enable additional cargo movements to more clearly benefit the region's economy.

Also of key importance to the region's freight-related economic vitality is the availability of a logistics-skilled workforce. In order for the freight industry to prosper in the region, the labor force with interest in and the appropriate skills for logistics-related careers must be readily accessible. A major concern expressed by stakeholders was the lack of a trained workforce with these skills. This issue is common across several of the modes, including truck driver shortages (which occur more frequently during better economic times), as well as technically trained railroad employees. For the air cargo mode, which experienced a high turnover rate in recent years, the issue has recently been addressed through a training program for the air cargo workforce now offered by Chicago's City Colleges.

Policy Needs: Industry Logistics Patterns

While the Chicago region already serves as a national hub for goods movement, it is likely that this trend will continue and intensify in the future. It is important that the region is able to adapt to this expanded role. With the growing volume of cargo movements within the region, it is essential that logistics patterns are conducive to providing better freight services that are responsive to the needs of both the industry sectors and the communities which they serve.

In recent years, there has been widespread development of ancillary warehouse and distribution facilities in the Chicago region, likely due to growing containerized imports and the region's favorable linkages via rail and highway to the nation's seaports. This concept was discussed in an article in the *Journal of Real Estate Portfolio Management*⁹. A major concern expressed by stakeholders is that much of this development is currently being pursued by individual

⁹ *Impact of Shifting Container Cargo Flows on Regional Demand for U.S. Warehouse Space, Journal of Real Estate Portfolio Management, May-August 2005.*

municipalities in a somewhat ad hoc manner, with a lack of regional coordination. Opportunities exist for more focused planning at the regional level, which could help minimize the cumulative impacts of these types of developments, resulting in benefits to shippers, haulers and an enhanced quality of life in the adjacent neighborhoods.

The Chicago region has also experienced significant growth in intermodal activities in recent years with the development of a number of intermodal facilities located primarily in the south and southwest suburbs. Most of these have been developed outside of the urban center on the fringes of the metropolitan area. While these fringe locations have allowed for expansion and the accompanying warehouse and distribution center development, they have resulted in increased drayage distances, a concern expressed by some stakeholders who favored revitalization of the Cook County rail yards as opposed to developments at the urban fringe.

Policy Needs: Freight Infrastructure

As the region's freight hub status continues to grow, it will be essential for its freight-supporting infrastructure to keep pace. While the region is well served by a comprehensive highway network that includes nine Interstate highways, most of these highways are operating under congested conditions during peak periods of the day, and most are carrying very high truck volumes. The resulting delay therefore not only affects passenger vehicles, but also causes increased costs for doing business in Chicago, affecting the region's economic competitiveness.

On the rail side, while the region is traversed by six of the nation's seven Class I Railroads, the region's rail network is plagued with numerous chokepoints resulting in significant delays to both passenger and freight rail movements. While the region's CREATE program, when fully funded and implemented, will alleviate many of these chokepoints, additional improvements will still be necessary in order to ensure that the rail system can efficiently handle future projected rail volumes.

In regard to marine freight movements, while the Chicago region has marine access to both the Great Lakes and Mississippi River system, growth in the water freight industry is hindered by a number of infrastructure issues in the region. The most significant of these water freight infrastructure issues is related to maintenance of the region's locks. The poor condition of these locks often results in significant delays in the movement of marine cargo through the region.

In addition to the infrastructure investments that are needed to maintain and increase capacity for the individual modes discussed above, investments are also needed to enhance the linkages between modes. In the Chicago region, these linkages are critical to the efficient movement of freight not only at the local level, but due to its hub status, at the national level, as well. In particular, stakeholders have identified the poor level of connectivity between rail lines and

marine ports as a deterrent to intermodal shipments between these two modes. In addition, stakeholders also expressed concern about the lack of connectivity between air and highway modes at O'Hare International Airport. Cargo facilities are concentrated on the west side of the airport, while major highway access is on the east side.

Policy Needs: Commodity/Vehicle Traffic Flows

Congestion is currently a significant cause of delay for both passenger and freight movements through the region. As population and goods movements are expected to increase, alleviating this congestion constitutes a great challenge for the region. On the highways, congestion may be of a recurring nature (resulting from traffic volumes exceeding capacity) or of a non-recurring nature (resulting from incidents, construction or other isolated events). On the rail lines, delays frequently result from conflicts between passenger and freight trains or grade crossing conflicts (at both rail-to-rail and highway-to-rail grade crossings). In particular, stakeholders expressed concern regarding rail delays entering intermodal facilities and yards, which frequently cascade into highway delays when grade crossings are blocked by trains waiting to enter these facilities.

From a motorist perspective, delays result in increased travel time, lost productivity, and general frustration. From a freight mobility perspective, in addition to the impacts faced by motorists, delays are also a significant hindrance to on-time deliveries. With increasing emphasis on just-in-time deliveries, it is difficult for haulers to predict delivery times when traveling on the area's congested roadways.

Stakeholders recommended a variety of strategies that would help alleviate the impacts of the region's congested roadways for both motorists and freight movements. In particular, an expanded advanced traveler information system, reporting area delays would enable routing decisions to be modified well in advance of reaching a potential bottleneck. Stakeholders also suggested the implementation of both congestion management strategies and travel demand management strategies as a means of reducing congestion and improving freight operations.

Policy Needs: Organization & Public Policy

Encompassing an area of 4,071 square miles, the seven-county Chicago region is diverse in nature, with the City of Chicago as its urban core. While this area is large and diverse, it is necessary for the region's freight stakeholders to speak with a unified voice and plan for the good of the region. The Chicago Metropolitan Agency for Planning (CMAP) has an established Freight Committee, an important facilitator for addressing freight-related issues. This committee brings together the region's freight stakeholders from the public and private sectors to discuss issues related to freight movement by all modes within the region and to make recommendations to CMAP's Policy Committee. In taking the regional planning and coordination responsibility a step further,

stakeholders have suggested the possible establishment of regional Freight Authority within an established agency to coordinate freight-related investments and community impacts, in conjunction with supporting the regional freight policy. Among the charges of such an Authority would be addressing potential funding sources for freight-related improvements, such as fuel taxes, tolling or public-private partnerships. In addition, stakeholders expressed a desire for a better method of measuring performance of proposed freight projects in order to have more consideration of freight factors in the planning process.

During the stakeholder interview process, a number of cross-jurisdictional issues surfaced. One of those issues discussed in the past involves municipal delivery time restrictions which limit the time of day when truck deliveries are allowed in certain areas, prohibiting deliveries during the nighttime and early morning hours. This restriction forces deliveries to a number of locations (particularly grocery stores and other retail establishments) to the morning rush hour, in order to restock their shelves before the peak shopping hours begin. Due to a lack of truck parking close to these delivery locations, truck drivers are required to be on the highway during peak commuting periods, contributing to and being impacted by congestion, and in some cases (on the Tollway) paying higher tolls. There are also safety implications when truck deliveries are being made during the time period when school children are walking to school.

An issue related to the delivery time restriction issue mentioned above is the region's truck parking deficit. Parking around delivery locations is often limited, leading to the congestion and safety issues mentioned above. With the new regulations that limit hours of service that commercial drivers are allowed to operate their vehicles, drivers are often forced to park in unsafe locations, such as along highway shoulders and ramps, in order to avoid driving while fatigued. Areas in particular need of truck parking are located around intermodal facilities, where truckers need a place to do paperwork, or layover prior to entering the facility. There is also a need for amenities at the truck parking areas, such as electrical hookups to avoid idling engines and their environmental impacts.

Trucking industry stakeholders also mentioned their concerns for truck lane restrictions on many of the region's highways, specifically the express lanes on the Dan Ryan Expressway, as well as differential speed limits for trucks on many roadways. In addition, they requested construction zone management technique to reduce freight delay. And, finally, the inconsistencies in weight restrictions and permitting policies among states and in some cases among adjoining communities result in circuitous routing and inefficiencies for truck drivers.

On the rail side, stakeholders see a strong need for regional support of the CREATE program since this addresses many of the major rail bottlenecks and capacity constraints in the region.

Policy Needs: Environmental & Community Impacts

While the freight industry continues to grow in the Chicago region, it is becoming more and more important to plan proactively to minimize potential conflicts between freight-oriented development and the quality of life within the communities. By addressing potential issues through proactive and comprehensive planning at the regional level, such community concerns as conflicting land uses and environmental impacts can be minimized. Public and private stakeholders should be a part of the region's freight-planning process in order to ensure that all voices are heard.

As the region's intermodal facilities continue to develop and expand, stakeholders have identified a need for more coordinated planning efforts to address potential impacts not only within the communities where these facilities are located, but more importantly to the surrounding communities, as well. Concerns were raised regarding increased wear and tear on the roadways serving the intermodal facilities, due to the increased heavy truck traffic, as well as congestion issues from the increased volumes of traffic. In addition, trains awaiting entrance into these facilities often block at-grade crossings, tying up traffic and hindering access by emergency response vehicles.

With the heavy volumes of train traffic in the region, communities have expressed concern regarding noise, the dangers of hazardous materials being transported through their neighborhoods, and grade-crossing safety, as well as conflicts with commuter trains. A particular concern has been raised due to the increased train volumes on the CN following acquisition of the EJ&E. While the noise issue can be addressed through the implementation of "quiet zones", the required safety mitigation to compensate for the absence of train whistles is often an expense that is difficult for the municipalities to bear.

The noise concern expressed by stakeholders was not limited to train noise. The communities surrounding O'Hare International Airport also expressed noise concerns related to air cargo flights, since most of these flights occur during the nighttime hours.

Addressing truck noise is an important component of any strategy to increase night-time truck operations. Communities must be assured that truck noise can and will be controlled before allowing trucks to operate overnight in areas near residential areas.

Another important issue that needs to be addressed is the air pollution from freight vehicles. Many freight vehicles are diesel-powered, and result in a high level of particulate pollution. While new engines are required to emit lower levels of particulates, many older, dirtier engines will remain in service for decades and may need to be addressed.

8.2 METHODOLOGY FOR SELECTION

The list of policy options that have been developed for this study are grouped within the study's six "Regional Freight Framework Themes": Economy; Industry and Logistics Patterns; Freight Infrastructure; Commodity and Vehicle Traffic Flows; Organization and Public Policy; and Environmental and Community Impacts, based on the needs which each would address. While many of the policy options could easily fit into more than one of these themes, to avoid redundancy, only the one with the apparent strongest match was identified.

The policy options shown in Table 8.1 were evaluated in accordance with a set of performance measures which included the following: Accessibility, Economic Development, Mobility, Safety, and Environment/Community. Each recommended policy was evaluated on its ability to address each of these measures. The results of this exercise were then presented to the Freight Committee. In an exercise at the Freight Committee meeting on 11/16/09, members and other stakeholders in attendance were asked to prioritize the policy recommendations on a scale of low, medium, or high priority. During the same exercise, participants were asked to phase the recommendations (short-, mid-, and long-term), based on the most optimistic timeframe in which it could be implemented. Finally, the participants were charged with identifying a recommended lead agency who would serve as the "champion" in overseeing its implementation. However, most of the policy options will require the collaborative work of numerous agencies and stakeholders seeing them through to fruition. The results of this exercise are shown in Section 8.3 which discusses each of the individual policy recommendations.

Table 8.1 Index of Policy Recommendations by Theme

Ref	Policy Recommendation	Pg. No.
Policy Theme Bundle: Economy		8-10
1	Through partner agencies, implement projects and operations strategies that address the freight infrastructure and operations needs and deficiencies for growing and strong industries in metropolitan Chicago to facilitate industrial retention and expansion	8-10
2	Identify and publish information about the region's freight transportation system that would attract manufacturers, distributors, service providers, and freight handlers who might be interested in locating in the Chicago region.	8-10
3	Identify and enhance existing logistics-related training & education opportunities and encourage additional programs, as appropriate for developing and sustaining logistics related workforce	8-11
Policy Theme Bundle: Industry Logistics Patterns		8-12
4	Identify, assess and implement freight corridors & facilities of regional significance, including clustering of warehousing, distribution and other freight-related centers, based on freight O-D patterns	8-12
5	Identify, assess and implement opportunities for corridor preservation	8-13
6	Identify and promote good practices to facilitate freight movements and mitigate impacts in a variety of land use and development environments	8-13
Policy Theme Bundle: Freight Infrastructure		8-15
7	Identify opportunities for dedicated freight corridor systems (truckways, truck-only lanes, dedicated NHS connectors, Illiana Expressway, rail linkages)	8-15
8	Identify investment options in alternative modes and intermodal facilities to encourage diversion from congested highway freight corridors	8-16
9	As CREATE Program implementation moves toward completion, work toward a CREATE II program based on the vision of continuing to enhance the main-line rail system so that it has the capacity to efficiently handle potential future traffic loads and meshes with an efficient system for local pick-up and delivery	8-17
Policy Theme Bundle: Commodity / Vehicle Traffic Flows		8-18
10	Reduce empty container moves	8-18
11	Manage the travel demand of passenger vehicles to facilitate freight movements, as well as incorporating designs that are conducive to more efficient freight and passenger movements (traffic management)	8-18
12	Identify opportunities for reducing tractor (bobtail) and chassis vehicle miles traveled per container move	8-19

Table 8.1 Policy Recommendations by Theme (continued)

Ref	Policy Recommendation	Pg. No.
Policy Theme Bundle: Organization and Public Policy		8-20
13	Establish CREATE counterpart for trucking industry which could include policy options to enhance the movement of cargo by truck	8-20
14	Establish a governance structure, such as a Freight Authority, to identify issues, guide investments and advocate on behalf of the region through public outreach and education, promoting the Chicago economy and protecting the public interest	8-21
15	Promote the Chicago region as a development center for freight tracking and freight data-sharing technologies, encourage private sector innovation	8-22
16	Include freight-related performance measures in project evaluation process to ensure the consideration of freight enhancing projects in the programming process	8-23
17	Adopt innovative strategies to better match new and available funds with freight system needs	8-24
18	Implement the CREATE Program	8-25
Policy Theme Bundle: Environmental and Community Impacts		8-26
19	Promote lower-emission freight modes and technologies (e.g. GenSet locomotives)	8-26
20	Identify and implement design features to control freight-related noise	8-27
21	Develop a process for identifying development opportunities, brownfield re-use	8-28
22	Support City of Chicago industrial corridor designations of Planned Manufacturing Districts	8-29
23	Promote safety programs such as "Operation Lifesaver" and "No Zone"	8-29
24	Address the higher wear and tear on freight-impacted road surfaces with increased maintenance efforts	8-30
25	Improve both rail and truck access into intermodal facilities to reduce community impacts	8-31
26	Accommodate freight in ways conducive to intermodal passenger transportation, such as pedestrian, bicycle, passenger vehicle, commuter rail, and inter-city passenger rail, including crossings and shared-use corridors	8-32

8.3 POLICY BUNDLES

Regional Framework Theme: Economy

Policy Recommendation #1

Through partner agencies, implement projects and operations strategies that address the freight infrastructure and operations needs and deficiencies for growing and strong industries in metropolitan Chicago to facilitate industrial retention and expansion.

The goal of this recommendation is to foster economic growth in the metropolitan area through the retention and expansion of existing freight-dependent industries by addressing their transportation, logistics and distribution needs. This will be done by taking advantage of the region's existing transportation systems and expanding and/or enhancing them to address the needs of these industries.

- Priority: High
- Timeframe: Short-term
- Implementing Agency: CMAP (Facilitator for all partner agencies)
- Action Items:
 - Work with EDCs and CMAP Freight Committee to identify and monitor on an ongoing basis specific infrastructure and operational needs of the region's freight dependent industries.
 - Incorporate the freight-related needs of existing industries into the project identification and selection process.

Policy Recommendation #2

Identify and publish information about the region's freight transportation system that would attract manufacturers, distributors, service providers, and freight handlers who might be interested in locating in the Chicago region.

The Chicago region has a rich transportation system with global access across multiple transportation modes. This system is attractive to many companies in need of such access. The region can benefit from identifying and publishing summary information about the transportation system that might convince many companies to locate here. This recommendation leverages our transportation system strengths into increased economic development and prosperity.

- Priority: High
- Timeframe: Short-term
- Implementing Agency: CMAP, EDCs

- Action Items:
 - CMAP should work with EDCs to identify transportation system data and information important to various industries.
 - CMAP should gather and publish such data, including within the Regional Freight Snapshot project, and make it available to EDCs.
 - Information about the strengths of our freight system should be distributed in brochure format and on the Web for use on demand by EDCs and economic development prospects.

Policy Recommendation #3

Identify and enhance existing logistics-related training & education opportunities and encourage additional programs, as appropriate for developing and sustaining logistics related workforce.

In order to sustain the freight-related businesses and industries that currently exist in the region, while encouraging new ones to locate within the region, it is essential that employers have access to a large pool of potential employees who have an interest in these types of careers. At the same time it is important for these employees to be appropriately trained in the skills required for freight-industry jobs. For example, the shortage of truck drivers has been consistently ranked by the American Transportation Research Institute as one of the top ten issues for that industry. In addition, stakeholders have expressed a concern regarding the shortage of technically trained railroad employees. With the anticipated growth in both of the modes, the need for skilled employees can be expected to increase in the near future.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: State, University/IDOT link, CMAP, tradeshow, Federal Transportation Bill
- Action Items:
 - Colleges and Universities should work together with freight-related industries (railroads, trucking, air cargo, and marine freight industries) to match training needs to existing educational programs, identifying gaps that exist, and develop training programs to fill these gaps.
 - Freight industries should market freight-related careers by sponsoring activities at high school and college career fairs and other recruiting events. Establish a Speakers' Bureau to provide presentations at these activities.
 - Take advantage of existing freight-related training programs offered by Federal Highway Administration, National Highway Institute, National

Cooperative Highway Research Program, National Cooperative Freight Research Program and Transportation Research Board.

- Owing to its relationships across many disciplines and industries, CMAP should assure that various stakeholders convene, and should adopt a role facilitating this process.

Regional Framework Theme: Industry Logistics Patterns

Policy Recommendation #4

Identify, assess and implement freight corridors & facilities of regional significance, including clustering of warehousing, distribution and other freight-related centers, based on freight O-D patterns.

There are numerous advantages of clustering freight corridors and facilities, to both the public and private sectors, including shippers, haulers, freight-dependent industries, and communities. The Center for Neighborhood Technology (CNT) has done significant research on this concept, known as cargo-oriented development. From an industry perspective, there are benefits of scale and proximity, such as the advantages of having similar freight-dependent businesses close by, having access to multiple freight modes, and having access to a large labor pool.¹⁰ On the public sector side, the CNT has identified such benefits as maximizing freight movements by train (less polluting and more energy-efficient), reducing the length of intraregional truck movements, reducing congestion and air pollution, and helping target investment and job growth to those communities with an available skilled labor force.¹¹ Toward this goal of clustering freight-related developments, the South Suburban Mayors & Managers Association (SSMMA) and the Chicago Southland Economic Development Corporation (CSEDC) have identified and are currently promoting the I-80 East Logistics Corridor which traverses southern Cook and northern Will Counties between I-55 and the Illinois/Indiana State Line.

- Priority: High
- Timeframe: Short, Mid and Long-term
- Implementing Agencies: Freight Authority, Local EDCs, MMAs
- Action Items:

¹⁰ Center for Neighborhood Technology. *Cargo-Oriented Development: A Tool for Freight Planning in the Chicago Metro Area*. 2005.

¹¹ Center for Neighborhood Technology.

- Continue to promote the I-80 East Logistics Corridor as a key regional logistics corridor.
- Expand and implement the CNT cargo-oriented development tool to identify and promote other potential logistics corridors for development in the Chicago region.

Policy Recommendation #5

Identify, assess and implement opportunities for corridor preservation.

The State of Illinois currently has in place a Corridor Protection Statute which may be utilized as a means of preventing the further development of parcels within an identified right-of-way for a transportation improvement. The statute requires property owners to notify the DOT of any improvements to land or structures and give the DOT an opportunity to purchase or acquire the land. The Corridor Protection Statute is a powerful tool for preserving threatened right-of-way for a project until a point in time when construction is ready to commence and project funding has been secured.

- Priority: High
- Timeframe: Short to Mid-term
- Implementing Agencies: CMAP, IDOT
- Action Items:
 - Take advantage of the State of Illinois' Corridor Protection Statute to preserve rights-of-way for projects that are identified to have significant future freight-related benefits and for which the project's development has progressed to a point where the right-of-way needs have been identified. For example, begin to identify and preserve right-of-way to provide a by-pass route south of the City of Chicago that could be used for traffic moving through the region.

Policy Recommendation #6

Identify and promote good practices to facilitate freight movements and mitigate impacts in a variety of land use and development environments.

As freight-related industries continue to develop in various portions of the region, it is essential that potential land use conflicts be minimized. The development of commercial and industrial land uses (which are generally freight dependent) is usually accompanied by a need for related industries such as terminals, repair facilities and warehousing /storage locations. But as these types of land uses continue to grow in a particular area, there is often a conflict with existing residential communities, particularly related to noise, truck traffic, safety, aesthetics, and other quality of life issues. In order to minimize and

mitigate these potential impacts, it is important to plan proactively at the local and regional levels through cross-jurisdictional land-use planning and coordination, as well as developing partnerships between the public and private sectors. An example of existing efforts toward this goal in the region is the *Will County Model Ordinance Regulating the Location and Use of Cargo Container Facilities for Governmental Units within Will County*. This model ordinance was prepared as a best practices guideline for jurisdictions within Will County for ensuring compatibility between cargo container facilities, related developments and other land uses within the county to minimize potential negative impacts.

CMAP currently has in place a process for identifying and reviewing Developments of Regional Importance (DRI) which was enabled by the Illinois General Assembly, Public Act 095-0677. The process is in place for a two year trial period when ends on July 31, 2011. The purpose of the DRI initiative is to foster regional coordination in planning for and implementing large-scale developments with the potential to create both benefits and impacts at the regional level. The review process is focused on ensuring that these developments occur in a manner that is consistent with regional goals.

- Priority: High
- Timeframe: Short to Mid-term
- Implementing Agencies: CMAP, IDOT, Municipalities
- Action Items:
 - Encourage involvement and support by local jurisdictions of the CMAP process for identifying and reviewing freight-related Developments of Regional Importance (DRI). The DRI review process establishes a framework for reviewing proposed large-scale developments from a regional perspective, providing an opportunity for coordination among jurisdictions to assess the impacts on regional goals.
 - Using the Will County Model Ordinance as an example, work through Mayors & Managers Associations and Councils of Government to develop similar ordinances to encourage the incorporation of freight-related impact mitigation measures into land use plans.
 - Encourage multi-jurisdictional coordination and review process for development and expansion of proposed intermodal facilities, to ensure that benefits and impacts are addressed from a regional perspective.

Regional Framework Theme: Freight Infrastructure

Policy Recommendation #7

Identify opportunities for dedicated freight corridor systems (truckways, truck-only lanes, dedicated NHS connectors, Illiana Expressway, rail linkages).

This policy recommendation focuses on providing freight-dedicated facilities in the region, resulting in the separation of freight and passenger movements. A number of potential dedicated facilities have been studied in the past, including the Mid-City Freightway and dedicated truck-only lanes on the proposed Illiana Expressway. Advantages of these separated facilities would include safety enhancements through separating large trucks and passenger vehicles, efficiency in moving cargo by avoiding certain corridors that are congested due to peak hour passenger vehicle congestion, and maintenance considerations which would allow the specific infrastructure enhancements (such as pavement design, geometrics, sight distance and land widths) that are required for large trucks to be focused on these dedicated facilities. In addressing the dedicated freight facilities, it will be important to garner support from local agencies in localities where arterials join one of the designated facilities in order to address potential impacts to both local infrastructure and quality of life.

A specific area for potential dedicated freight corridors would be the linkages between the region's intermodal facilities. Stakeholders have indicated that steel-wheel transfers are often not feasible for cross-town moves. Truck route connections on rail or public property between these facilities would facilitate drayage movements while limiting increased truck traffic on local streets.

In addition to the dedicated truck facilities that have been mentioned, the region could also benefit from direct rail linkages between railroad lines to facilitate connections between eastern, western, Canadian and short-line carriers within the Chicago region, thus alleviating the need for rubber-tire transfers of cargo between rail lines.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: CMAP, Freight Authority, CDOT, IDOT, FHWA, ISTHA with involvement from railroads/FRA, counties, and local supporting agencies, especially where local arterials meet the facility
- Action Items:
 - Identify opportunities to incorporate dedicated freight components into ongoing corridor studies, such as the Illiana Expressway, I-55, Mid-City Freightway and other future studies.
 - Promote better coordination among rail carriers by creating truck routes on rail or public property that would be used for drayage between

neighboring intermodal terminals so as to limit such movements on local streets.

- Begin a dialogue between railroads, local and regional agencies and private entities to identify potential opportunities for rail linkages between carriers.

Policy Recommendation #8

Identify investment options in alternative modes and intermodal facilities to encourage diversion from congested highway freight corridors.

As the volume of cargo increases both at the national and regional level, an increased burden will be placed on freight-carrying infrastructure across all modes. In fact, freight tonnages are expected to nearly double in the United States between 2004 and 2035, which will certainly be felt in the Chicago region due to its hub location. A recent study for the Association of American Railroads has indicated that in order for the nation's Class I Railroads to maintain their market share while operating at current service levels over the next 30 years, an investment of over \$148 billion in existing infrastructure will be required. Any growth that cannot be handled by the railroads or other non-highway modes will fall upon the roadways, where trucks are already competing with passenger vehicles for limited capacity. This policy recommendation is targeted at diverting freight movements from the congested roadways through investments in alternative modes and intermodal facilities.

- Priority: Medium
- Timeframe: Long-term
- Implementing Agencies: Port Authority, or City/ State/ Maritime/ AAR/ Airport Authority
- Action Items:
 - Identify potential opportunities for diversion of truck cargo to rail, water and air modes.
 - In conjunction with opportunities for diversion to non-highway modes, identify required infrastructure investments for increasing capacity on these modes and potential funding sources.

Policy Recommendation #9

As CREATE Program implementation moves toward completion, work toward a CREATE II program based on the vision of continuing to enhance the main-line rail system so that it has the capacity to efficiently handle potential future traffic loads and meshes with an efficient system for local pick-up and delivery.

The Chicago Region Environmental and Transportation Efficiency Program (CREATE), when completed, will make significant progress toward increasing the efficiency of the freight rail system in the Chicago region, relieving numerous conflicts between freight and commuter rail (resulting in significant time savings for the region's commuters), and improving the quality of life for those who live and work in the metropolitan area. CREATE II would take advantage of the existing framework that has been established for CREATE in continuing to identify and implement rail system improvements to ensure that the efficiency of the rail system continues to improve while carrying the increased cargo tonnages that are projected for the future.

- Priority: Medium
- Timeframe: Mid to Long-term
- Implementing Agencies: CMAP, CDOT, IDOT, Railroads
- Action Items:
 - Bring all major mainline routes traversing the Chicago region up to higher operating standards in order to improve operating speeds, including: multi-tracking lines, eliminating clearance or axle load restrictions (on the lines or the bridges); limiting grade-crossings; enhancing easy, unrestricted access to the region's major terminals; and ensuring sufficient siding tracks and buffer storage facilities to allow trains to move off the mainline with minimal disruption to highway traffic or to other rail traffic in the event of rail congestion, accidents, severe weather, or other conditions that prevent trains from entering terminals.
 - Increase terminal capacity: maintain sufficient terminal capacity to handle potential increases in traffic volume, including sufficient facilities for traffic originating or terminating in the region as well as sufficient facilities for traffic that must be classified or interchanged as it moves through the region.
 - Expand use of information technology to better coordinate movements through the region.
 - Reduce road user delay at highway-rail grade crossings, through separations (in addition to CREATE projects), if necessary.

Regional Framework Theme: Commodity/Vehicle Traffic Flows

Policy Recommendation #10

Reduce empty container moves.

Historically, managing containers has been a major challenge for the railroad industry. Some of this problem has been alleviated for containers suitable for food shipments, the extent of the problem remaining is unclear. This policy recommendation focuses on identifying ways to balance inbound and outbound container movements within the Chicago region, which in turn will have an impact at the national level.

- Priority: Low
- Timeframe: Long-term
- Implementing Agencies: CMAP, Federal Transportation Bill, private railroads, EDCs
- Action Items:
 - Improve regional data collection and modeling of the freight system to better understand this issue.
 - Identify locations in the region where inbound or outbound empty container moves are occurring.
 - Facilitate collaboration between shippers and logistics providers to minimize empty container moves by coordinating needs and better utilizing empty container capacity.
 - Establish regional database for tracking empty container locations and availability.

Policy Recommendation #11

Manage the travel demand of passenger vehicles to facilitate freight movements, as well as incorporating designs that are conducive to more efficient freight and passenger movements (traffic management).

With the volumes of both passenger vehicles and freight carriers on the region's highways projected to grow significantly in the future, there will be increased competition between trucks and cars for limited capacity on the region's highways. And if any of the other modes are unable to maintain their market share, the excess burden will likely fall onto the highway mode, increasing the number of freight-hauling trucks even more. The focus of this policy recommendation is to begin identifying options for managing the demand of passenger vehicles, in addition to identifying a more efficient means of managing the shared use of the roadways by trucks and autos.

- Priority: High

- Timeframe: Mid to Long-term
- Implementing Agencies: CMAP, IDOT
- Action Items:
 - Reduce passenger vehicle demand by promoting the use of transit and carpooling throughout the region.
 - Identify potential roadways in the Chicago region where truck-only lanes could be considered, both as an enhancement to existing roadways and for new roadways, such as the Illiana Expressway. Explore the feasibility of implementing this option.
 - Explore the feasibility of implementing congestion pricing strategies to reduce the peak hour demand by passenger vehicles. (Because many delivery vehicles are on the roadways during peak hours, they often compete with peak hour commuting traffic for capacity on the roadways.)
 - Promote ITS strategies to provide real-time traveler information as a means of encouraging and facilitating diversion to alternate routes during congested periods, or during non-recurring incidents.

Policy Recommendation #12

Identify opportunities for reducing tractor (bobtail) and chassis vehicle miles traveled per container move.

In addition to being inefficient, the movement of single tractors (bobtails) and chassis without having loaded trailers attached is also more difficult from a commercial driver's perspective. Bobtail movements result when a trailer is delivered (or is transferred to another mode) and another one is not available for pick-up from the same location. This policy recommendation is focused on identifying a means of balancing trailer deliveries with pick-ups in order to avoid having a tractor or chassis dead-head without a trailer to another facility.

- Priority: Low
- Timeframe: Long-term
- Implementing Agencies: CMAP, Federal Transportation Bill, EDCs
- Action Items:
 - Improve regional data collection and modeling of the freight system to better understand this issue.
 - Facilitate collaboration between shippers and trucking companies to minimize bobtail movements by coordinating trailer pick-ups and deliveries in order to more efficiently utilize tractor and chassis capacity.
 - Establish regional database for matching container pick-ups and deliveries.

Regional Framework Theme: Organization and Public Policy

Policy Recommendation #13

Establish CREATE counterpart for trucking industry which could include policy options to enhance the movement of cargo by truck.

The Chicago Region Environmental and Transportation Efficiency Program (CREATE) is a public-private partnership between the railroads and numerous public agencies, established with the goal of increasing the efficiency of the region's freight and commuter railroads, reducing conflicts between them, while at the same time improving the quality of life within the Chicago region. The goal of this policy recommendation is to create a similar program for the trucking industry. This new entity would use the example of the existing CREATE program, bringing together public and private sector stakeholders to identify operational and capacity improvements that would benefit the trucking industry and reduce conflicts between passenger and cargo vehicles. Like its rail counterpart, this program would benefit not only local commerce, but would also have a positive impact on commerce at the national level by helping to alleviate bottlenecks on the region's highway network. In addition, community benefits would include reduced congestion on the area's roadways, safety benefits, emissions reductions, and more efficient deliveries to local suppliers. Also following the model of its rail counterpart, this program could benefit through public-private funding partnerships and the establishment of a Freight Authority.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: CMAP, Freight Authority, with PPPs among city, state, trucking association, etc.
- Action Items:
 - Establish regional transportation operations coalition with freight system participation.
 - Identify potential locations and funding sources for expanded truck parking/rest areas with appropriate amenities to enable compatibility with surrounding land uses. An initial task for this action item might include a study to determine where current truck parking deficiencies exist in the region.
 - Manage truck delivery times for regional efficiency.
 - Establish centralized CBD freight distribution nodes to limit the number and size of delivery trucks within the CBD.
 - Explore changes to TS&W limits, allowing higher productivity vehicles on Illinois highways, weighing economics & safety.

- Expand and enhance the truck route system in the metro area, integrating other aspects of the regional truck system planning program to optimize the system.
- Develop a broadly available freight planning geodatabase for use by public and private stakeholders to identify regional freight system needs and to coordinate action through information sharing and mutual cooperation. The planning geodatabase would include such items as local and state truck routes, clearance issues, weight restrictions, traffic generators, congestion, parking, and rest areas.
- Develop and apply Intelligent Transportation Systems infrastructure on freight system facilities to improve system performance and improve freight handling efficiency.
- Review the necessity and utility of truck lane restrictions; implement modifications, as appropriate.

Policy Recommendation #14

Establish governance structure, such as a Freight Authority, to identify issues, guide investments and advocate on behalf of the region through public outreach and education, promoting the Chicago economy and protecting the public interest. The Freight Authority would be housed within an existing agency.

The governance structure proposed in this policy recommendation would serve as an oversight agency for coordinating freight issues and investments in the Chicago region, bringing together the public and private sectors, working together toward accomplishing goals of mutual interest and benefit to the region. In its oversight capacity, the proposed body would have the authority to collect revenue (such as user fees or tolls) and issue bonds. The agency's oversight responsibilities would include all freight modes, as well as freight-related economic development opportunities within the region.

- Priority: High
- Timeframe: Short to Mid-term
- Implementing Agencies: CMAP (facilitator for all partner agencies)
- Action Items:
 - Explore legislative requirements for creating a regional freight governance structure, such as a Freight Authority for the Chicago region.
 - Define responsibilities and governance.
 - Form a committee to work with legislators to garner support for creating the regional Freight Authority, providing assistance with drafting proposed legislation.

Policy Recommendation #15

Promote the Chicago region as a development center for freight tracking and freight data-sharing technologies, encourage private sector innovation.

The Chicago region's national freight hub status brings with it opportunities for collecting and sharing freight-related data, which can then be used to market the region to industry, developers and freight providers. A number of activities have already been initiated toward accomplishing this recommendation, including the Center for Neighborhood Technology's Cargo-Oriented Development Tool¹² (see Policy Recommendation #4) which is currently under development to facilitate the clustering of freight-dependent industries within easy access to a variety of freight transportation options and within close proximity to related businesses and an available workforce. In addition, CMAP's Full Circle Mapping Program promotes data collection, technology and mapping by the region's planning partners so that this information can be shared and exchanged throughout the region.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: CMAP, IDOT, CDOT, Trucking Industry, Port Authority
- Action Items:
 - Promote CMAP's Full Circle Program to additional regional planning partners, to be used for compiling freight-related data that can be used to market the region's freight assets.
 - Support the use and expansion of the Center for Neighborhood Technology's Cargo-Oriented Development Tool for identifying potential industrial sites within the region.
 - Develop a broadly available freight planning geodatabase for use by public and private stakeholders to identify regional freight system needs and to coordinate action through information sharing and mutual cooperation. The planning geodatabase would include such items as local and state truck routes, clearance issues, weight restrictions, traffic generators, congestion, parking, and rest areas. (See Policy Recommendation #13)

¹² Center for Neighborhood Technology.

Policy Recommendation #16

Include freight-related performance measures in project evaluation process to ensure the consideration of freight enhancing projects in the programming process.

Most transportation agencies have more transportation needs than funding, so agencies must make tough decisions regarding which projects to fund. While CMAP is currently in the process of enhancing their prioritization methodology for evaluating projects to be included in their updated long-range plan, this policy recommendation suggests the inclusion of measures that take into account freight-related benefits to identify freight needs and deficiencies. This performance-based approach is consistent with a national trend among transportation agencies working to implement a more transparent and quantitative means of project evaluation, and instill more accountability into the project selection process. It combines benefit/cost analysis with an assessment of how well each potential project supports stated policy goals and objectives. The intent of this approach is NOT to create a purely mechanical system, devoid of public input and policy decisions. Rather it is intended to support planning and project decisions with freight data integration.

The methodology for performance-based planning is organized around four building blocks of project prioritization:

1. Evaluation criteria - Develop a series of criteria that will be used to evaluate projects.
 2. Weights - Assign weights to the criteria.
 3. Benefit/cost - Consider benefit/cost ratio (B/C) as a stand-alone metric, separate from the criteria described above.
 4. Results - Develop an approach for combining the criteria, weights, and b/c analysis described above and communicating the results in a manner that enables decision makers to incorporate them into their decision-making process.
- Priority: High
 - Timeframe: Short-term
 - Implementing Agencies: CMAP, IDOT/ISTHA
 - Action Items:
 - Identify performance measures that relate to existing freight-related regional goals and objectives.
 - Use performance measures to identify freight needs and deficiencies.
 - Incorporate freight-related performance measures into project evaluation process for short- and long-range plan development.

Policy Recommendation #17

Adopt innovative strategies to better match new and available funds with freight system needs.

Essential to the planning and implementation of the freight-related projects and strategies identified herein is the identification of applicable funding and financing sources for the improvements. The funding and financing programs identified on the following pages are categorized into six areas including: 1) Federal Formula Highway Programs; 2) Special US DOT Funding Programs; 3) Special Non-DOT Funding Programs; 4) Other Funding Options; and 5) Special Financing Programs. Within each of these categories a number of funding and/or financing options are listed, along with a brief description of each. Earmark programs have not been included in this list, since commitments beyond 2009 are not known at this time.

- Priority: High
- Timeframe: Short-term
- Implementing Agency: CMAP
- Action Items:
 - On a case-by-case basis, match freight project needs with above funding options and others that may become available through upcoming new Federal Transportation Bill.

Table 8.2 Federal Formula Highway Programs

Federal Formula Highway Programs
Interstate Maintenance (IM)
National Highway System (NHS)
Surface Transportation Program (STP)

Table 8.3 Special DOT Funding Programs

Special DOT Funding Programs
Congestion Mitigation and Air Quality (CMAQ)
Highway Bridge Program
Railroad Grade Crossing Program
Truck Parking Facilities
FTA Fixed Guideway Modernization Program
Rail Line Relocation Program
FAA Airport Improvement Program
American Recovery & Reinvestment Act (ARRA)

Table 8.4 Non-DOT Special Funding Programs

Non-DOT Special Funding Programs
USACE Harbor Maintenance Trust Fund
U.S. Department of Commerce - Economic Development Administration Funds
Environmental Protection Agency – Brownfield Revitalization Program

Table 8.5 Additional Funding Options

Additional Funding Options
Tolls
Congestion Pricing
Container / Lift Fees
Public-Private Partnerships (PPPs)
Special Taxing

Table 8.6 Special Financing Programs

Special Financing Programs
Transportation Infrastructure Finance and Innovation Act (TIFIA)
Rail Rehabilitation and Improvement Financing (RRIF)
State Infrastructure Banks (SIB)
Private Activity Bonds (PAB)
Grant Anticipation Revenue Vehicle (GARVEE) Bonds

Policy Recommendation #18***Implement the CREATE Program.***

The Chicago Region Environmental and Transportation Efficiency Program (CREATE) is a public-private partnership between the US DOT, the State of Illinois, the City of Chicago, Amtrak, Metra, and the nation's freight railroads, charged with identifying and implementing infrastructure improvements that will enhance the efficiency of the rail network in the Chicago region, while at the same time improving the quality-of-life for the area's residents. The CREATE Program includes 71 projects on five rail corridors, including roadway grade separations; railroad grade separations; viaduct improvements; safety enhancements at grade crossings; and track, switching and signal system upgrades. While a portion of the required funding has been allocated for the 71 CREATE projects, approximately \$2 billion in additional funding still needs to be secured.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: CREATE partners
- Action Items:
 - Identify funding sources for continuing implementation of the CREATE Program infrastructure improvements.

Regional Framework Theme: Environmental and Community Impacts

Policy Recommendation #19

Promote lower-emission freight modes and technologies (e.g. GenSet locomotives).

In consideration of the region's overall goal of enhancing the environment and improving the quality of life, this policy recommendation focuses on reducing freight-related emissions, thus resulting in improvements to air quality, and increased sustainability, through greater fuel efficiency. This could be accomplished by promoting the most energy efficient and lowest-emission freight modes, as well as encouraging technologies that help achieve these goals. A recent technology that has been developed to provide greater fuel efficiency and lower emissions for the railroad mode is the GenSet locomotive. This new technology is based on the use of two or three smaller engines per locomotive, instead of the traditional single-engine locomotives. According to the National Railway Equipment Company, GenSet locomotives are more efficient than the single-engine locomotives, while reducing noise by more than 85%, reducing NOx and PM emissions by 85%-90% and resulting in fuel savings of 35%-70%.¹³

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: USEPA, US Ports and Maritime Administration, Metra, private railroads
- Action Items:
 - Encourage the use of more energy-efficient and lower-emission locomotives by railroads.

¹³ <http://www.nationalrailway.com/nviro.asp>

- Where practical and economically viable, provide incentives to encourage diversion to lower-emission non-highway freight modes.
- Reduce truck-related vehicle emissions.

Policy Recommendation #20

Identify and implement design features to control freight-related noise.

A major community impact associated with existing and potential increases in freight movements within the Chicago region is the increase in freight-related noise. For the rail mode, in addition to the actual noise and vibration that results from the actual movement of the train down the tracks, there is also a significant amount of noise associated with the sounding of the train horn as a warning measure as the train is approaching an at-grade crossing. Recent Federal guidelines have enabled the establishment of Railroad Quiet Zones where train horns are allowed to be silenced in exchange for implementing Supplemental Safety Measures at the crossings to compensate for not sounding the horn, without decreasing overall safety.

Truck related noise has also been identified as a concern by some communities, including the potential noise associated with nighttime deliveries (which are banned in many communities due to the noise issue), as well as the noise generated by heavy volumes of trucks on many of the region's Interstate Highways and major arterials. Potential noise mitigation measures for these types of noise would include the construction of noise walls or in some instances berms to serve as buffers between the highways (or other freight-related facilities) and the residential communities through which they pass.

In addition to the freight-related noise associated with truck and rail modes, there is also an impact on communities surrounding the region's airports (particularly O'Hare). Over and above the daytime noise which results primarily from passenger flights, since most air cargo flights occur during the nighttime hours, there is an additional impact to surrounding communities during these hours.

- Priority: High
- Timeframe: Mid to Long-term
- Implementing Agencies: CMAP, Individual communities, IDOT, PPPs
- Action Items:
 - Work with developers in identifying potential noise mitigation measures surrounding freight facilities and associated funding sources for implementing these measures.
 - Assist communities by developing a model noise mitigation ordinance for freight-related developments.

- Promote use of quieter technology locomotives by Metra and private railroads (see Policy Recommendation #19).
- Assist communities in performing railroad quiet zone studies, and in identifying funding sources for implementing Supplemental Safety Measures at grade crossings to enable the establishment of quiet zones.
- Identify funding sources and Federal programs for airport noise mitigation (such as noise insulation of public buildings, for which \$5M was approved in Chicago through ARRA funding.)

Policy Recommendation #21

Develop process for identifying development opportunities, brownfield re-use.

In order to market the region's freight assets, a database should be developed to identify potentially developable sites, in particular the re-use of brownfield redevelopment locations. This recommendation is consistent with an integrated approach to the development of freight-related activities and land use planning. In addition, the redevelopment of brownfield sites with industrial uses will encourage freight-dependent developments in areas that are able to support them from an infrastructure perspective. At the same time, many of the potential brownfield redevelopment sites are located within the region's urban center, which would likely result in reduced drayage costs, addressing a concern raised by stakeholders who favored development within the urban core, as opposed to fringe developments for freight-dependent industries.

- Priority: Medium
- Timeframe: Short-term
- Implementing Agencies: CMAP, IDOT, IEPA, DCEO, local governments
- Action Items:
 - Develop database and GIS mapping of brownfield redevelopment sites, highlighting transportation assets and proximity to related industrial developments. Use this database to market potential developers of industrial properties who are interested in locating within the Chicago region.
 - Promote infrastructure improvements to brownfield sites to enhance their desirability.
 - Encourage tax increment financing for brownfield site redevelopment.

Policy Recommendation #22

Support City of Chicago industrial corridor designations of Planned Manufacturing Districts.

The City of Chicago currently has a total of 15 Planned Manufacturing Districts within its 24 designated industrial corridors. The purpose of these Planned Manufacturing Districts is to preserve land for industrial development and related land uses within the City through special zoning designations, to promote industrial development and prevent the designated areas from being used for other purposes. These areas then become marketable to potential manufacturing companies looking to locate within the area.

- Priority: Medium
- Timeframe: Short-term
- Implementing Agencies: CMAP, local governments
- Action Items:
 - Assist in marketing the City of Chicago's Planned Manufacturing Districts in order to attract and retain manufacturing industries within the City.
 - Identify potential areas outside the City of Chicago for establishing similar Planned Manufacturing Districts.

Policy Recommendation #23

Promote safety programs such as "Operation Lifesaver" and "No Zone".

"Operation Lifesaver" is an international program focused on increasing awareness of the potential dangers associated with highway-railroad grade crossings as well as other safety issues within railroad right-of-way. The non-profit organization, Operation Lifesaver, Inc. (OLI), oversees the program, with the cooperation of numerous public and private sector stakeholders, including the railroads, highway safety organizations, and government agencies at the Federal, state and local levels. Each of the 50 states and the District of Columbia has a statewide program, including a state coordinator to oversee and promote the state's training and other outreach activities.

"No-Zone" is a highway focused safety program, established in 1994 by the Federal Motor Carrier Safety Administration (FMCSA), to educate motorists on how to safely share the road with trucks and buses (commercial motor vehicles, or CMVs). The term "no-zone" actually refers to the blind spots around trucks and buses, or areas around the vehicles in which the commercial vehicle driver loses sight of passing or approaching vehicles. The "No-Zone" program promotes educational activities to create driver awareness of the dangers of driving in a commercial vehicle's "No-Zone", in an effort to reduce the number of crashes that occur in this area. The activities associated with the "No-Zone"

program have been sponsored by the combined efforts of public and private stakeholders, similar to Operation Lifesaver.

- Priority: Medium
- Timeframe: Short-term
- Implementing Agencies: Metra, private railroads, trucking industry, general public, CMAP
- Action Items:
 - Take advantage of the educational resource materials that are provided by “Operation Lifesaver” and “No-Zone” programs, in developing enhanced regional outreach programs. This could be done through working with the Illinois Statewide Coordinator for Operation Lifesaver and the FMCSA.
 - Develop a Speakers’ Bureau, providing pre-prepared age appropriate presentation materials for volunteer trainers to provide training programs at schools, driver education programs, etc.
 - Take advantage of appropriate local fairs, and other venues to sponsor “safety booths” for distributing promotional materials.

Policy Recommendation #24

Address the higher wear and tear on freight-impacted road surfaces with increased maintenance efforts.

With the clustering of freight-dependent industries in certain subareas of the Chicago region, the roadways which provide access to these areas carry significant volumes of heavy trucks resulting in substantial wear and tear on these roadways. Stakeholders have identified this as a concern which crosses municipal boundaries, as the roadways that are experiencing the most significant impacts often pass through multiple jurisdictions. The focus of this policy recommendation is to foster multi-jurisdictional and private sector cooperation in identifying the freight-impacted roadways and developing a process for addressing the required increased maintenance. An example of such a process is one which is currently being used by the Delaware Valley Regional Planning Commission (DVRPC), known as the Freight Forward Improvement Program.¹⁴ Through this program, the region’s freight stakeholders are able to identify and submit for consideration small-scale “quick fix” types of projects that facilitate freight movements. Because this program involves both public and private sector stakeholders, it fosters cooperation and trust between these two sectors.

¹⁴ <http://www.dvrpc.org/Freight/FreightForward.htm>

- Priority: Medium
- Timeframe: Mid-term
- Implementing Agencies: IDOT, counties, local governments, townships
- Action Items:
 - Develop a process for identifying needed freight-related improvement projects, similar to the DVRPC Freight Forward Improvement Program.
 - Identify candidate freight-impacted roadways for special consideration of enhanced design standards for heavy truck volumes. Include evaluation criteria that will enable these types of improvements to receive “points” based on the freight-related benefits that will result from their implementation.
 - Identify non-traditional funding sources, such as public-private partnerships for funding the increased maintenance needs on freight-impacted roadways.

Policy Recommendation #25

Improve both rail and truck access into intermodal facilities to reduce community impacts.

As brought out during the stakeholder interviews, the development of intermodal facilities has impacts that reach beyond the borders of the actual facility and even the municipalities in which they are located. Of particular concern to the surrounding municipalities is the impact on roadways which provide access to the facility. In some cases, these impacts are a result of the wear and tear on the roadways due to heavy truck traffic, or delays to passenger vehicles due to the high percentage of trucks. In other instances, the impacts result from blocked highway-rail at-grade crossings which may be blocked when trains are awaiting clearance into the facility. In addition to causing delay to passenger vehicles at these blocked crossings, this can also become a safety concern when emergency vehicles are delayed at the crossing. The focus of this policy recommendation is to encourage coordinated planning in the development and expansion of intermodal facilities in the Chicago region in order to minimize these types of community impacts.

- Priority: High
- Timeframe: Short-term
- Implementing Agencies: CMAP, IDOT, counties, local governments, townships
- Action Items:

- Restructure existing yards and/or intermodal facilities to allow easier movement of trains onto and off of the mainline by lengthening receiving and departure tracks or increasing the number of such tracks.
- Promote multi-jurisdictional coordination and cooperation in the planning process for intermodal facility development, including not only the facility design itself, but also the impacts on surrounding communities that may result from the freight hauling vehicles that are accessing the facility.
- Identify opportunities for non-traditional funding (such as public-private partnerships) for improvements to roadways providing access to intermodal facilities.

Policy Recommendation #26

Accommodate freight in ways conducive to intermodal passenger transportation, such as pedestrian, bicycle, passenger vehicle, commuter rail, and inter-city passenger rail, including crossings and shared-use corridors.

As the demand for capacity continues to increase for all modes of passenger travel and goods movement, it will become increasingly important to ensure compatibility between freight and passenger modes, as well as ensuring linkages between the modes. From a freight mobility perspective, this means continuing to support efficient intermodal operations. On the rail side, this includes the most efficient shared use of rail corridors by commuter trains, intercity passenger trains, and freight trains, in addition to ensuring that at-grade crossings are functioning safely and efficiently for the movement of trains, cars, pedestrians and bicyclists. From a land use perspective, it translates into coordinating land use and transportation plans, including the movement of both people and goods by all modes through multi-jurisdictional planning efforts.

- Priority: High
- Timeframe: Short to Mid-term
- Implementing Agencies: CMAP, IDOT, Metra, Amtrak, local governments
- Action Items:
 - Support the City of Chicago's Complete Streets Program and encourage similar programs in other parts of the region.
 - Support the CREATE Program (see Policy Recommendation #18) which promotes cooperation between freight and passenger railroads in shared-use corridors.
 - Identify opportunities for shared-use in corridors being considered for infrastructure capacity expansion projects.