THE CHICAGO-EAST COAST CORRIDOR: CHANGING INTERMODAL PATTERNS

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Introduction

The phrase "Chicago-East Coast Corridor" refers to the network of highways and railroad tracks that connect Chicago with the major seaports in New England and the Mid-Atlantic states – primarily Boston, New York, Philadelphia, Baltimore, and Norfolk. Of the East Coast cities, New York receives and ships the greatest quantity to and from Chicago. The Corridor is heavily travelled in both directions. Ships unload at East Coast ports for delivery to the Midwest or beyond, and Asian cargos are delivered through West Coast ports from where the major interstate highways and Western railroads carry them eastward, funneling them through Chicago to final destination. The Corridor has a tree-like structure (Batelle 2006) in that the rail and truck routes follow a straight line from Chicago to Cleveland, at which point they branch to the individual East Coast cities. Maps of the rail and truck routes appear in Figures 1a and 1b below. In recent years, the Chicago-East Coast Corridor has undergone multiple infrastructure changes. Traffic volumes are shifting not only between routes and modes, but also between East Coast ports as the Midwest has become the "market of choice" for international manufacturers and distributors.

This paper analyzes the competitive forces and the resulting flow shifts through the Chicago-East Coast Corridor. The goal is to define the strengths and weaknesses of the Corridor and to highlight opportunities to further strengthen it. The paper is organized as follows: the first section discusses the Corridor as it existed until recently. The second section addresses the changing business environment which has given rise to infrastructure improvements. The third section describes the resulting flow shifts within the Corridor. The fourth section points out opportunities to strengthen

FIGURE 1a: "OLD" CHICAGO-EAST COAST RAIL ROUTES

US outline map courtesy of mapsof.net

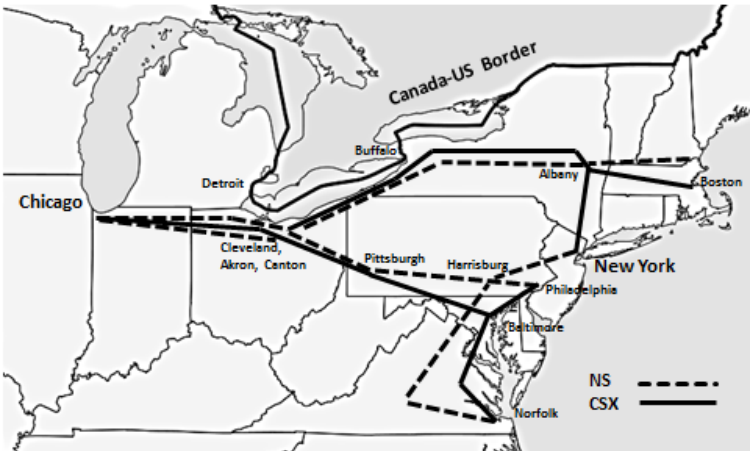
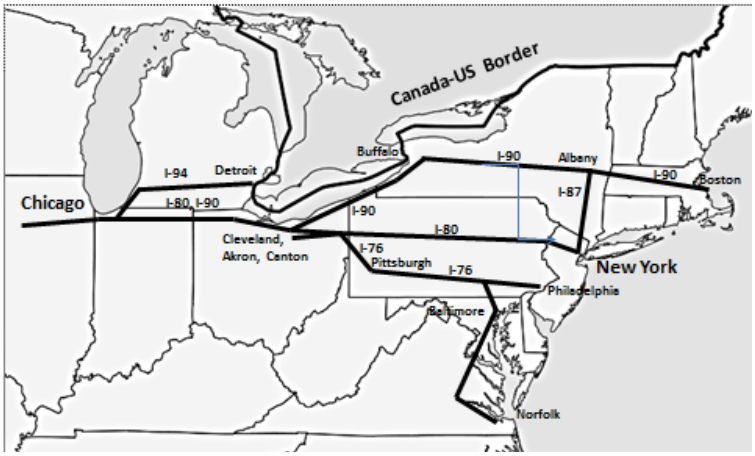


FIGURE 1b: "OLD" CHICAGO-EAST COAST HIGHWAY ROUTES

US outline map courtesy of mapsof.net



the Corridor, particularly for Southeast Michigan and Northeast Ohio, followed by a conclusion.

The "Old" Chicago-East Coast Corridor and Its Competitor

Historically, the major East Coast cities shipped products to and from Chicago along the Corridor. Rail access includes the CSX Railroad (CSX) and the Norfolk Southern Railroad (NS). Both railroads serve Chicago and every major East Coast port. The CSX route to New York is famously known as the "water level" route. Its name derives from the fact that it remains within sight of water between New York and Cleveland (from New York, it follows the Hudson River to Albany, then the Erie Canal to Buffalo and then along Lake Erie to Cleveland and Toledo). This high speed route has no constraining bridges and accommodates double stack trains. The NS route to New York passes through Harrisburg, Pennsylvania, a major rail hub. While NS and CSX connect to East Coast cities via multiple routes, the routes merge in Cleveland and run parallel to Chicago. Highway access includes I-80/90 between Chicago and Cleveland. Between Cleveland and the East Coast, the road access includes I-80 (to New York), I-90 (to Albany and Boston), and I-76 (to Philadelphia and Baltimore). Most of these are toll roads, which increase the cost of shipping and promote the use of the "free" interstates such as I-70 and arterial roads such as US Routes 6, 20, and 30. Tolls also encourage truck transfers to rail.

The "old" Chicago-East Coast Corridor utilized Cleveland as a switching hub – CSX utilized its Collinwood Yard and NS utilized its Rockport and Maple Heights Yards. Similarly, trucking companies such as YRC, FedEx Ground, and UPS Freight have located breakbulk terminals in the Cleveland area because of access to multiple interstate highways.

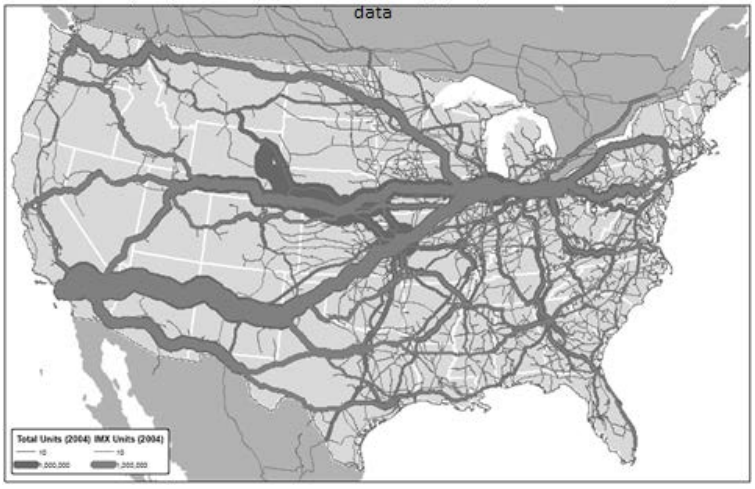
The Corridor utilized Detroit as a spoke from the Chicago hub, since Detroit is located at a truck-effective 250 mile distance. The main interstate highway (I-94) between Chicago and Detroit is heavily travelled and congested (Federal Highway Administration 2008). One third of Detroit's intermodal traffic is trucked to and from other cities

(MDOT 2009) and there is little connectivity among its intermodal terminals.

With the rise of container shipping and growing Asian imports, the direction of flow has been dominantly oriented west-to-east as shown in Figure 2. By the 1990's, 80 percent of the Asian trade flowed through West Coast ports (Mongelluzzo 2010b). From there, cargos are shipped eastward by the two major western rail carriers, Burlington Northern Santa Fe Railroad (BNSF) and the Union Pacific (UP). Virtually all of the flow from West Coast ports to New England and the Mid-Atlantic states funnels through Chicago and the Corridor. In Canada, cargos are shipped eastward through Vancouver and Prince Rupert (Frailey 2011).

FIGURE 2: INTERMODAL RAIL TRAFFIC

Courtesy of Cambridge Systematics, Inc., prepared for the *AASHTO Freight Rail Transportation Bottom Line Report* (draft 2008) based on Global Insight, Inc., 2004 TRANSEARCH freight flow data



The Chicago intermodal terminals handle more containers than Los Angeles/Long Beach or any other port in North America as seen in Table 1 below.

Table 1 TEUs Handled in 2009

Hub	**2009 (TEUs)**
Chicago	13,887,000
Port	**2009 (TEUs)**
LA/LB	11,816,000
NY/NJ	4,561,000
Norfolk area	1,745,000
Montreal	1,247,000
Baltimore	525,000
Halifax	344,000
Prince Rupert	265,000
Philadelphia	222,000

Source: Association of American Port Authorities and Chicago Metropolitan Agency for Planning

As such, congestion is a major issue in Chicago. Being the midway point on the North American Landbridge, and with all six major North American railroads (BNSF, UP, CN, CP, NS, and CSX) terminating in the city, interchanging cars can take one to two days (Mongelluzzo 2010) or more. Interchanges are often "rubber wheeled," meaning that containers are trucked between two railroads. This practice results in 4,000 cross-town trips per day (Rodrigue 2008). Further, if a container requires a rubber instead of a "steel wheeled" interchange, it is likely that the container may be trucked to ultimate destination to avoid an additional handling fee for transferring the container onto another rail car. This congests Chicago area highways and rail yards.

The West Coast/East Coast landbridge route through Chicago competes with the Panama Canal (Salin 2010). The Panama Canal route to the Midwest takes seven to eight days longer than the landbridge route (Rodrigue 2010), but it is less expensive. For many shippers, the cost/time tradeoff makes the Canal attractive. Also, labor strife on the West Coast (Sahling and Nuzum 2010) in 2002

caused many shippers to use the Canal as a risk hedge. This has led to some Asian cargos taking the all-water route to the East Coast ports, and then delivery back toward Chicago (Mongelluzzo 2010b). As a result, West Coast ports now handle only 70 percent of the Asian cargos (down from 80 percent). Container volumes through the Canal have been constantly increasing, having approached Canal capacity in 2008, shortly before the recession (Sahling and Nuzum 2010; Leach 2010). During the recession, volumes through the Canal did not decrease (Mercator 2010), while West Coast deliveries decreased significantly. The consistently high volumes attest to the competitiveness of the Panama Canal.

Changing Business Environment and Impacts on the Chicago-East Coast Corridor

In recent years, a number of emerging trends have impacted the Chicago-East Coast Corridor. The first is increased Asian imports, particularly from China, that primarily flow directly across the Pacific to US West Ports (the minimum mileage route). This trend not only creates significant competition among West Coast ports and among railroads that move these import cargos further inland, but also significant delays in Chicago where rail cars are switched to the East Coast Railroads or to eastbound trucks. East of Chicago, the Corridor has experienced this increase in shipments, and has required upgrading.

In addition, manufacturing centers in Asia have begun to shift from China to India and Southeast Asian countries. Along with China's phenomenal export growth, China's labor costs have increased to the point where they surpass labor costs in Southeast Asia and the Indian subcontinent. In contrast to China-originated exports, exports from these new producing areas travel to the US through the Suez Canal and the Mediterranean, and across the Atlantic to the East Coast. Thus, the manufacturing shift in Asia has created an opportunity for US East Coast ports to expand unloading capabilities and for US East Coast railroads to expand capacity to Chicago.

Just as in Asia, Midwest manufacturing centers in the United States are relocating from the northern part of the Corridor, away from Northern Ohio and Southern Michigan. With the decline in the US steel and automotive industries, several of the main rustbelt cities such as Detroit and Cleveland have seen significant job losses and jobs have moved south toward Columbus and the Southeast United States. This trend has led to the east/west flows in the Corridor shifting southward.

US business models are also changing. Many US firms have reengineered to implement a "customer-focused," just-in-time environment. Such a shift demands that all modes of transportation provide highly reliable, speedy, and low-cost service. Thus, congestion at US seaports, along the highways and rail lines within the Corridor, and in Chicago must be relieved. Stakeholders along the Corridor are working to alleviate such problems. For the trucking industry, this has resulted in the growth of JB Hunt and Schneider for domestic truckload and container load transportation.

Meanwhile, the Panama Canal, the prime competitor of the West Coast/East Coast land bridge (Bird 2010; Mercator 2010; Salin 2010; Rodrigue 2010; Bittner 2011), is undertaking an expansion project. The expansion, planned for 2014, will allow ships of up to approximately 12,000 TEUs (and 50' draft, 1200' length, 180' beam) to pass through the Canal -- significantly larger than the current Seawaymax ships of 4,500 TEUS (and 39.5' draft, 965' length, 110' beam). The new locks are expected to reduce lock delays by one to two days (Gair 2011). Once the new locks are operational, additional Asian cargos may be shipped through US East rather than US West Coast ports. While the extent of such diversions is under debate, many feel that the impact of the expanded Canal has already occurred (Sahling 2010; Leach 2010). Others feel that increasing Panama Canal tolls to pay for the new locks—from $40 to $70 per TEU (Leach 2010) and the rate may increase further—will effectively reduce any cost advantage. Still others feel that recent West Coast/Chicago rail rate increases of 25 percent to 40 percent shifts traffic to the Canal. Overall, the impact of the Panama Canal expansion is unresolved (Rodrigue 2010).

A no less important trend is the higher fuel prices that have impacted all modes of transportation. With rail being more fuel efficient than truck, a major shift from truck to intermodal is already underway (Boyd 2011a; Mongelluzzo 2011a). With water being yet more fuel efficient than rail, routes to the Midwest which involve more water miles and fewer overland miles will be more cost effective (TEMS 2008). These factors favor the rail routes for transportation of imports from East Coast ports to the Midwest (through either the Suez or Panama Canal).

Another notable trend emerging in the trucking industry is significant capacity constraints (Hanson 2010; Cassidy 2011). During the recession, trucking companies reduced capacity and have been slow to replace equipment. With reduced capacity, 18 percent of tractor trailer drivers have left the market. Drivers are underpaid compared with the US mean compensation for all occupations (mean trucker salaries increased by 17percent over the past ten years versus a US mean of 30 percent). As a result, fewer people enter the trucking industry, and truck drivers are becoming older with the largest age group being 45–64 years. Adding to this predicament, the new Compliance, Safety, Accountability Act (CSA) regulations could potentially reduce availability of existing drivers by 10 percent. These factors result in shifts to intermodal rail, increased trucking rates, and trucking companies' preference towards higher margined freight.

Summarizing the impacts of the above trends on the Chicago-East Coast Corridor, two conclusions stand out. First, West Coast ports can only maintain or lose market share to East Coast ports in the face of the Panama Canal expansion and the increased use of the Suez Canal. Second, the shift from truck to rail as fuel prices increase makes the limited capacity of the trucking industry less economical.

Stimulated by the foregoing trends and resulting developments, governments, ports, and carriers have collectively redesigned the infrastructure along the Corridor with the goals of significantly expanding the capacity of the Corridor and increasing the speed and reliability of delivery. Since the US Midwest can import and export

through US and Canadian East and West Coast ports, this area is pivotal as both sets of ports vie for businesses. The major infrastructure redesigns listed below attest the intense competition for Midwest business:

1. A new double stacked rail connection was constructed by NS, expanding the capacity and reducing transit times to Columbus and Chicago, and establishing Columbus as an inland port for Norfolk (see Figure 3). This new NS connection also potentially connects to Savannah, Charleston and Jacksonville through Cincinnati.
2. A second ("mini-Chicago") rail hub has been added near Toledo by CSX, augmenting and declogging the Chicago hub (see Figure 4). This important CSX hub interconnects all points along the CSX rail system, adding capacity and improving service to the Midwest, from both East and West Coast ports.
3. East Coast ports are and have been expanded to accept the new, larger Panama Canal and Suez ships. Norfolk and Baltimore have been dredged to 50 feet, the depth of the new Panama Canal locks, and New York plans to dredge its channel to 50 feet while raising the Bayonne Bridge (Zeitlinger 2010) to allow the larger ships to pass. Double stacked access to Chicago is being expanded by both VCSX and NS.
4. The West Coast railroads, UP and BNSF, are expanding service offerings to and through Chicago by opening intermodal terminals and offering expedited services to bypass the Chicago congestion (Berman 2010; Fraley 2011). The CN Railroad purchased a belt railway around Chicago so that its deliveries from Western Canada can better compete with the US West Coast railroads.
5. The State of Illinois, City of Chicago, and the US Department of Transportation have embarked on their $1.5 billion BREATE project. The project involves construction of 25 highway and six rail overpasses/underpasses, and upgrades of existing track and equipment to facilitate the movement of freight across the city (Goodwill 2010).

FIGURE 3
HEARTLAND CORRIDOR ROUTE NORFOLK/COLUMBUS/CHICAGO
Courtesy of Norfolk Southern Railroad

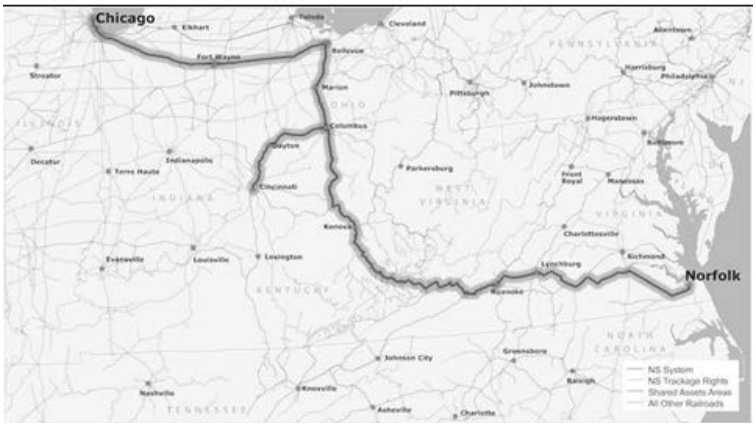
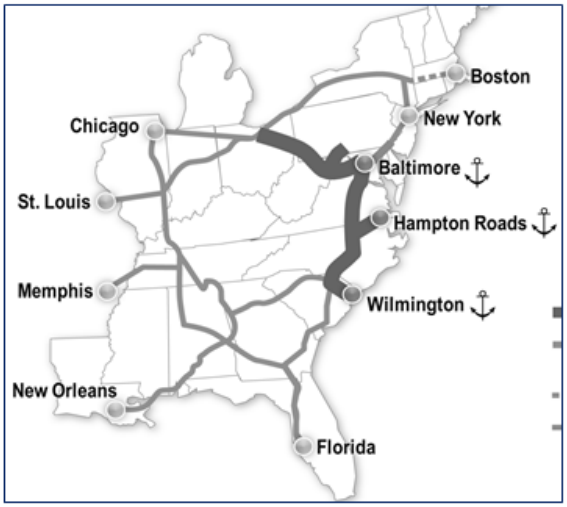


FIGURE 4: CSX NATIONAL GATEWAY ROUTE
Courtesy of CSX Railroad



Changing Flow Patterns along the Corridor

As infrastructure responds to changing external forces, so does the flow of material. Current and potential flow changes can be observed in directional, modal, and structural shifts along the Corridor.

Directional Shifts

Given that approximately 70 percent of freight flows into the Corridor is from West Coast ports, it would be expected that this ratio will decease with more international freight flow through East Coast ports. The reasons are: (1) the new Panama Canal locks are an opportunity for larger, more fuel efficient ships to reach East Coast ports, (2) because of the proximity of the East Coast to the growing manufacturing centers in India and Southeast Asia, and (3) rising fuel costs favor shorter overland routes to the Midwest.

Directional shifts are also occurring in the east/west flows in the Corridor from the northern to the southern part of the Corridor for several reasons. First and foremost, industrial locations are moving away from Northern Ohio and Southern Michigan to Columbus and the Southeast United States. Reinforcing this directional shift is the fact that the east/west interstates in the northern part of the Corridor charge significant tolls, while those in the southern part have no tolls.

Second, the new Panama Canal will advantage customers located near southern ports such as Savannah, Charleston, Wilmington, and the Norfolk-Portsmouth due to their proximity to the Canal. Ships can make quicker turns to the more southern ports, making the southern ports attractive to steamship companies.

Third, infrastructure investments by major railroads have made southeastern ports more attractive. Norfolk, the southernmost port on the Corridor, is successfully competing for East Coast business, drawing cargo further south. Competing with Baltimore, it opened an inland port at Front Royal, near Baltimore/Washington (Starr 1994; Belzer and Howlett 2009; Agarwal and Yochum 2010), served by rail from Norfolk. This water/rail combination saves ocean carriers an eight hour trip up the Chesapeake Bay from Norfolk to Baltimore,

and has significantly reduced container business at Baltimore (Belzer and Howlett 2009; Starr 1994; Agarwal and Yochum 2010).

In opening the Heartland Corridor to Columbus, Norfolk adds another rail served inland port similar to Front Royal, but with a larger market, the Midwest. With two inland ports and an aggressive expansion program to handle ships from Panama and Suez, Norfolk has made significant steps to increase its market share among the East Coast ports, shifting Corridor flows south. The CSX National Gateway also supports flow shifts south, through its double stack expansion activities in Wilmington NC and the Norfolk area while it also improves double stack access to East Coast and Midwestern cities.

Modal Shifts

Aggressive rail expansions, particularly those by CSX, amid high fuel price and driver shortage issues in the trucking industry have led to modal shifts in the Corridor from truck to rail (Solomon 2011). The fact that the CSX National Gateway parallels the heavily travelled and congested truck routes I-70 and I-76 gives CSX the opportunity to take many of these trucks off the road (Sahling 2010; National Gateway 2011). Toll charges on the Interstate Highways between Chicago and the East Coast further accelerate the truck-to-rail modal shift. By contrast, NS Heartland Corridor does not directly convert truck to rail since its rail route is an old coal corridor, distant from Interstates.

Structural Shifts

Historically, the Cleveland, Ohio area has been the primary hub of the Corridor, since the rail and highway connections between Chicago and Cleveland diverge at Cleveland to access the individual East Coast ports. However, with the new NS and CSX Ohio hubs, and significant infrastructure investments made in Chicago, Columbus, Pittsburgh (planned), and North Baltimore (Toledo area); there is no need for a Cleveland hub. Coupled with the lack of new development in Cleveland, Cleveland is transitioning to spoke status. Similarly, despite its large population, Southeast Michigan has received no infrastructure improvements. Thus, it too continues to function

primarily as a spoke to the Chicago hub. This lack of focus on the rustbelt cities of Northeast Ohio and Southeast Michigan opens opportunities for further Corridor shifts, as will be discussed in the next section.

Potential Transportation Project Opportunities in Detroit and Northeast Ohio

Two areas of the Corridor, Detroit and Northeast Ohio, are less well-served as a result of the Corridor changes to date. These underserved, under invested markets of the Corridor offer a number of transportation project opportunities that will allow Detroit to develop as a logistics hub and reduce Chicago/Detroit trucking. Opportunities also exist to improve service to Northeast Ohio, which is now transitioning to become a spoke of North Baltimore and Columbus, with associated truck traffic increases. These opportunities present themselves in two areas. The first area involves projects that increase rail deliveries from the Canadian East Coast ports to Detroit that will help Detroit develop a substantial rail hub, while reducing truck deliveries from Chicago. The second area pertains to utilizing the St. Lawrence Seaway as part of an all-water minimum mileage route between the Midwest and Rotterdam and Antwerp that will significantly reduce rail and truck traffic to Detroit and Northeast Ohio.

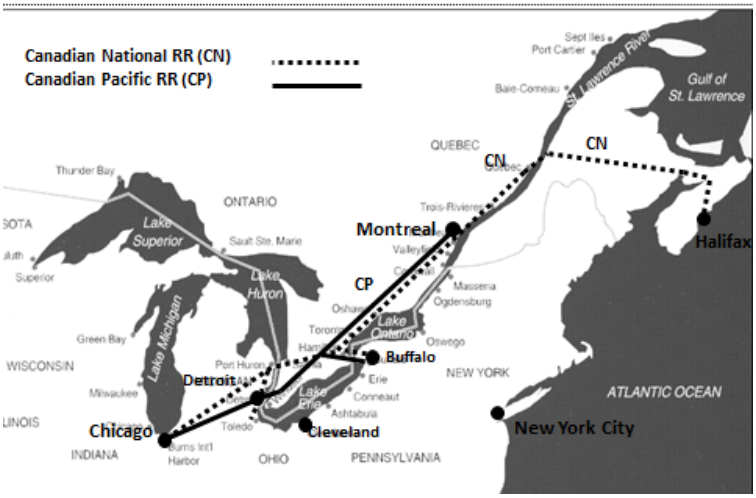
Potential Canadian projects

As shown in Figure 5, the Canadian East Coast ports of Halifax and Montreal receive international containers and ship them through Canada by rail to Detroit, Chicago, and other Corridor cities in competition with the US East Coast Ports (O'Keefe 1998). Please note that the CN Railroad serves Halifax, while the CP Railroad serves Montreal (CN also serves Montreal, but CP dominates container movements). The CN Railroad enters the United States through a proprietary double stack rail tunnel at Port Huron/Sarnia. The CP Railroad enters the United States through the Detroit/Windsor rail tunnel. This tunnel can handle certain double-stacked combinations, but not two double-stacked 9'6" containers. The

growing popularity of 9'6" containers currently limits the tunnel's utility.

FIGURE 5: CANADIAN RAIL ROUTES TO DETROIT/CHICAGO

Great Lakes/Seaway map courtesy of St. Lawrence Seaway Development Corporation



While the CN and CP routes handle a substantial quantity of freight, they are less heavily travelled than the Corridor routes described so far. Three potential Canadian projects briefly described below, if implemented, would enhance Detroit to develop a substantial rail hub and reduce truck deliveries from Chicago along the Corridor.

1. Continental Rail Gateway: The Continental Rail Gateway would construct a new $400 million rail tunnel alongside the existing Detroit/Windsor tunnel that would allow all double-stacked rail cars to transit, including 9'6" containers. The new tunnel would free up tracks in Montreal that are dedicated to ship/rail intermodal transfers, which in turn would expand rail loading capacity at Montreal. The new tunnel would be available to both CP and CN, since it will be funded primarily by the Ontario Municipal Employees Pension System.

2. Nova Scotia to Detroit and Chicago via CN Rail: A joint effort is underway between Nova Scotia and Michigan (Belzer and Howlett

2009) to increase the flow of international containers between Halifax/Montreal and Detroit. Halifax offers Detroit and Chicago unique world access and logistical advantages due to its deep draft infrastructure and geographic location on a Great Circle Route that make it the North American port nearest Europe. In fact, Halifax has the deepest harbor in North America (55 foot draft), allowing it to receive port calls from ships of virtually any size, including the largest container ships in existence today. In contrast, the US East Coast ports have the shallower drafts (of 50 feet or less) and can receive ships of smaller size, or partially-laden large ships. This project would allow international containers from Halifax to be transported via CN rail to Detroit and Chicago. Increased container volumes from Canada would allow Detroit to become a hub of the Canadian rail system. It would result in the expansion of Detroit's intermodal terminals and the development of logistics parks and distribution centers in Southeast Michigan. These developments would create jobs in a depressed area and reduce reliance on Chicago for truck deliveries, taking trucks off I-94.

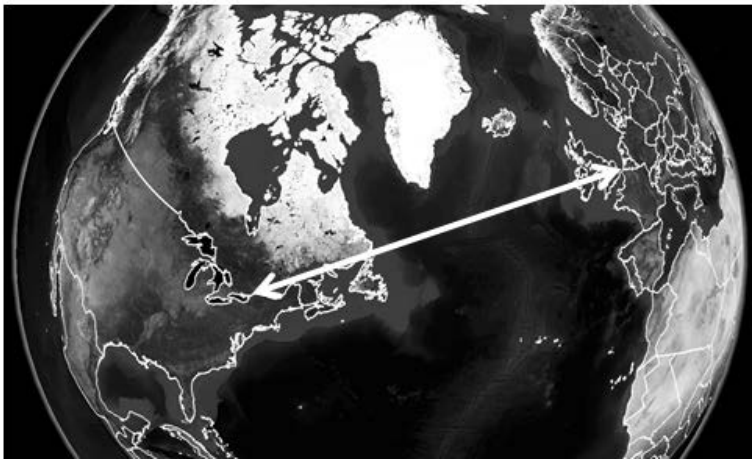
3. Melford International Terminal: The Melford International Terminal is a $300 million project to construct a new-build seaport in Nova Scotia on the Straits of Canso. It would include three state-of-the-art ship docks, CN rail access, and facilities for consolidation and deconsolidation. Containerships from the Suez Canal would be transloaded at Melford to CN rail for delivery to Montreal, Toronto, Detroit, and Chicago. Some containers might also be transloaded to feeder services for deliveries into the Great Lakes. In particular, Melford has a memorandum of understanding for deliveries to Toledo, OH. Melford competes directly with Halifax, which currently operates at below 50 percent of its capacity.

Potential All-Water St. Lawrence Seaway

The St. Lawrence Seaway lies along a Great Circle Route that connects Lake Erie with two of the world's largest ports, Rotterdam and Antwerp (this means that the all-water route is also the minimum mileage route)(see Figure 6).

FIGURE 6: MINIMUM MILEAGE ROUTE BETWEEN GREAT LAKES AND ROTTERDAM/ANTWERP

Satellite map courtesy of NASA World Wind



In addition to the distance advantage of the all-water route, water transportation is the most fuel efficient mode of transportation and has the least carbon footprint. As such, the Seaway is an attractive corridor to deliver international containers to Detroit, Toledo, and Cleveland (and perhaps, Chicago). Cargos could be delivered either directly from Europe or transshipped to feeders at Halifax, Melford, or Montreal. Transshipping would unload containers from larger ships onto smaller feeder ships of 500–800 TEU capacity which would traverse the smaller locks of the St. Lawrence Seaway, much like commerce on the Rhine River today.

Though such service is not currently available, several projects of this kind are currently under review. First, two major steamship companies are considering container service into the Great Lakes. Second, the Port of Toledo has purchased a container crane and signed a memorandum of understanding with Melford International Terminals. Finally, the Erie Inland Port is considering container delivery from Montreal to the Erie/Conneaut area by feeder.

Generally, the Great Lakes cities such as Erie, Conneaut, Ashtabula, Cleveland, Toledo, and Detroit can all unload feeder ships, which would reduce truck miles and emissions.

Despite the fact that the Seaway has significant underutilized capacity (approximately 50 percent utilization) and could easily accept additional ships, it has potential constraints. First, winter ice conditions result in the Seaway being open approximately 9 months per year (it was open for 287 days during the 2011 sailing season) which means that shippers need address wintertime demands through alternate routes or storage. Second, lock maintenance, performed when the Seaway closes for the year, is expensive since the locks are of more than 50 years of age. Finally, ships entering the Seaway have the potential of introducing invasive species. Seaway users need to address and surmount these constraints.

Conclusion

Asian imports, arriving at West Coast ports to be shipped east, are typically moved by rail to Chicago for local consumption and for delivery further east along the Chicago-East Coast Corridor. This Corridor consists of railroad tracks and highways that extend directly between Chicago and Cleveland, from where they branch to the many individual East Coast ports and intermediate destinations. Emerging trends in international trade, business model, manufacturing locations, and infrastructure developments have changed the nature of the Corridor. Total flow increased, Chicago has become extremely congested, and the direction of flow is changing from west/east to east/west.

In response, governments, ports, and carriers have collectively redesigned the infrastructure of the Corridor to expand the capacity of the Corridor and increase the speed and reliability of delivery. While capacity and service to most Corridor cities has improved drastically, two heavily populated, heavy manufacturing areas within the Corridor, namely Detroit/SE Michigan and Cleveland/Akron/Canton/Youngstown, have been ignored. Cleveland is losing its hub status and Detroit remains “off the beaten track.” The

result is high levels of trucking on Indiana, Michigan, and Ohio highways with the prospect of further trucking increases. Meanwhile, a water service alternative on the Seaway has been ignored altogether.

Solutions for these situations have been proposed. First, by increasing international commerce between Detroit and Halifax/Montreal along the CN/CP rail routes, one may generate sufficient density to justify hub status for Detroit with a significant intermodal yard supported by logistics parks to serve Southeast Michigan. The high volume of Chicago/Detroit trucking would decline as Detroit becomes a hub for Canadian cargos rather than a spoke from Chicago (Belzer and Howlett 2009). Second, an all water feeder service could be established between Halifax/Melford/Montreal and ports along the southern shores of Lake Erie – not only Cleveland and Detroit, but other port cities such as Erie, Ashtabula, and Toledo. This would reduce trucks from Chicago, the CSX hub near Toledo, and the NS hub in Columbus. It would also inject a low cost competitive mode into an increasingly rail dependent Corridor, particularly for Midwestern shippers near or along the Great Lakes. Based on its fuel efficiency over rail and truck, water transport is destined to become more important as fuel price increases drive overland cargos to the water.

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