MID-AMERICA FREIGHT COALITION

FREIGHT NOTES

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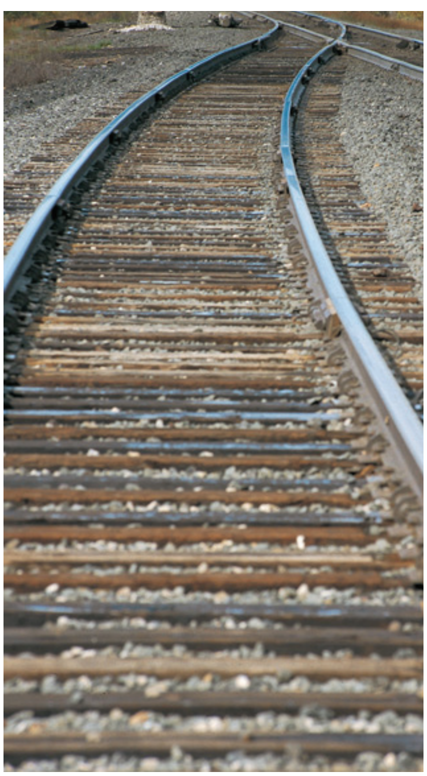
In this issue



The Far Reaching Effects of Canal Expansion

Jason Bittner, National Center for Freight & Infrastructure Research & Education

Since it opened in 1914, the Panama Canal has been a vital part of international trade. However, the growth of worldwide shipping over the course of the last century has increasingly strained the Canal's capacity, causing the Panama Canal Authority (ACP) to estimate in 2006 that the Canal would reach its current operating capacity before 2012. This capacity squeeze resulted in significant waiting times and demand for reserved transit slots, a problem compounded by the canal's size limitations.

At present, the canal can accommodate the operation of vessels of up to 965 feet (294.1m) in length, 106 feet (32.3m) in width (beam), and 39.5 feet (12m) in depth (draft). Accordingly, vessels of this size are called Panamax, reflecting their status as the largest ships able to navigate the series of locks. Panamax vessels generally can carry 4000-4500 Twenty Foot Equivalent Units (TEUs). Ships larger than the Panamax standard now operate along most major trade routes but exceed the limitations of the canal's lock system. In response to rising demand for international shipping and the increasing prominence of these "post-Panamax" vessels, canal authorities proposed a major canal expansion that was overwhelmingly approved by the citizens of Panama in a referendum on October 22, 2006. The $5.25 billion expansion project will add a third set of locks to the canal system, as well as deepening and widening existing channels. New locks will be able to accommodate much larger post-Panamax ships that are expected to dominate the route with dimensions of up to 1200 feet (366m) in length, 160 feet (49m) in beam, and 49 feet (15m) in draft. When completed, the expansion promises to reduce wait times and cut shipping costs through the Panama Canal. A new toll structure, combined with decreased transit times and larger vessels, will affect the shipping dynamics of a wide variety of products.

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No Free Lunches

Ernie Wittwer, MAFC Facilitator

We all learned at a young age that there is no free lunch, but most Americans seem to have forgotten that simple truism when it comes to public spending on transportation infrastructure. A recent Rockefeller Foundation survey, which was republished in the AASHTO Journal, found that two-thirds of respondents felt that a greater investment is needed in transportation infrastructure. Fully 80 percent agreed that spending on highways and bridges would produce jobs and economic growth, but only 27 percent said that federal gas taxes should be raised to support this spending. Instead, most felt that some private investment was more desirable.

What the survey tells me is that we have done a horrible job of helping the public understand transportation needs, transportation funding, and the consequences of failing to invest in transportation infrastructure.

Private investment is great. It is a useful tool that can support our infrastructure needs, but private investors will only invest in projects and corridors where they are likely to find a return on their investment—that is, very high volume routes and bridges. To get that return, private investors will impose tolls. To make a profit and to cover the risk involved in such investments, the tolls will be set at a level to produce significantly more than the cost of the infrastructure. In other words, our economy will allocate more money to a privately financed facility than it would to a publicly financed facility. The method of payment and the amount of payment—as well as perhaps the incidence of payment—would change. A private facility would collect higher tolls from those that use the facility instead of lower taxes from all who use fuel or register their vehicles. In the end, however, those of us who consume and drive will still pay.

The other 99.9 percent of our highways and bridges that do not carry the volumes that allow toll facilities to work will continue to decline. We will all pay for those poor facilities through increased operating costs for our cars and trucks. Rough roads cause an increase in fuel use and more vehicle maintenance. A one percent reduction in fuel economy, a blown tire, or a front-end alignment will easily exceed a dime increase in the fuel tax.

So why do Americans not understand these simple facts? For one thing, politicians from both parties have spent that last 30 years convincing us that we have been abused by taxes and that the private sector can take care of anything. They, and we, have forgotten that governments were created to do things the private sector cannot or will not do. Those of us in the transportation business have made the problem worse by failing to communicate in simple, direct terms. We tend to couch things in fairly impenetrable jargon. We talk about backlogs, cost to maintain, and cost to improve. We usually are not sure of the meaning of such terms. We also talk about innovative financing, leverage, and public-private partnerships as if they were the solutions to problems that have yet to be defined.

—*Ernie*

MARAD Listening Sessions

Ernie Wittwer, MAFC Facilitator

What is the future of freight movements on the Great Lakes? What are some of the challenges facing Great Lakes carriers? These are just two of the questions that representatives of the Federal Maritime Administration (MARAD), including the administrator and deputy administrator, and the consultant working on a review of Great Lakes freight movements asked a full room of people in Cleveland on February 15, 2011. It was one of three such meetings held around the Lakes. Others were in Duluth (February 23) and Chicago (February 25).

Representatives of shipping companies, ports, labor unions, businesses that support the lake maritime industries, and several universities (including me and CFIRE Director Teresa Adams) tried to answer their questions. Some of the major challenges:

- Dredging to depths that allow boats to run fully laden;
- The lack of redundancy in the locks
- Invasive species
- The need to re-power boats to meet clean air standards;
- Skilled workers;
- The state of the shipbuilding industry on the Lakes; and the relative length of the season on the Lakes and the Saint Lawrence Seaway.

Perhaps the most surprising of these challenges, from the perspective of one who is admittedly a bit of a neophyte in maritime transportation, was the discussion of the state of Great Lakes shipbuilders. Many participants expressed concerns that few shipbuilders had either the facilities or the skilled workers needed to build a large boat from the start. If this is correct, it could lead to problems in replacing the already aging fleet of lakers.

The future of shipping on the Lakes will probably look very much like the past. Most participants spoke of bulk commodities—iron ore, limestone, coal, and grain. Some raised the prospect of new ferry or roll-on-roll-off services, but most see significant obstacles to the success of such services. None saw a serious prospect for the emergence of containerized traffic on the Great Lakes.

Overall, the listening session provided good input for MARAD leadership and those who are studying the future of shipping on the Lakes. The work will ultimately be a part of report for NCFRP 35 – *Multimodal Freight Transportation Within the Great Lakes—Saint Lawrence Basin*.

DOC Listening Sessions

Ernie Wittwer, MAFC Facilitator

The US Departments of Commerce (DOC) and Transportation (DOT) have recently broken new ground. They are cooperating on a series of public meetings in which members of the private sector have been asked to come and discuss their concerns and ideas about transportation. This is new ground because the agencies are dealing with a fundamental issue that is all too often lost in discussions of transportation: that it is critical for the economic well-being of the United States.

On February 7-9 in Kansas City, Missouri, the Federal Highway Administration sponsored a regional peer exchange on freight. Most of the meeting was a fairly standard peer exchange, with state, MPO, and federal folks sharing information and ideas. The last half-day of the event was different. Representatives of two railroads, a sporting goods company, an engineering consultant, and an academic formed a panel to share their ideas and concerns about transportation. Some of the ideas offered:

- Encourage public-private partnerships. The rail companies, in particular, saw a need for greater cooperation between the public sector and rail interests. They urged that an effort be made to sort out the benefits that accrue to the private sector and the public and allocate costs of some projects in that manner. They pointed to the Crescent Coalition and the Gateway Corridor, two successful public agency-rail company partnerships, as examples of the benefits that can be found in such arrangements.
- Pass an investment tax credit that would encourage rail companies to invest in system capacity. They pointed to the tax provisions that had been enjoyed by class II and III railroads as an example of how tax policy could be used to promote desired outcomes.
- Come up with the big idea or the vision for transportation. This idea was intended as a way of interesting the public and elected officials in transportation. Unfortunately, the panel was short on specifics as to what that idea might be.
- Reduce the regulatory hurdles for doing construction projects. The rail company and engineering representatives all pointed to stories of how long it took to complete their projects and how long it took for public agencies to do projects and suggested that something had to be done to speed things up. Again, they were a little short on specifics.
- Reduce the regulatory burdens on truckers. Examples were offered of how the industry could significantly improve productivity if they could use vehicles of slightly—or significantly—different configurations.
- Spend more money. All looked at the stagnant revenue streams for transportation and agreed that something had to be done. Again, the specifics were lacking.

In total, the session was informative. It illustrated the frustrations that the private sector has about how government does its job. It also illustrated the lack of understanding in the private sector over the constraints within which public agencies operate. It was a good effort, even though it's currently unclear what the next steps are. The Departments of Commerce and Transportation should be applauded for moving into this new and important area.

Michigan State Rail Plan

Larry Karnes, Michigan DOT

With hundreds of public comments and notes from dozens of stakeholder outreach meetings in hand, the Michigan Rail Plan team is rounding the bend toward completing MDOT's first major rail plan in decades. The lead consultant, HNTB Michigan, Inc. is on-track to deliver the draft document by the end of March, after which a second round of public meetings is being planned.

One of the team's first deliverables was the Technical Memorandum #1 concerning the plan's vision, goals, and objectives. As noted, Michigan's future is envisioned to include "A rail a system that provides enhanced mobility for travelers and the efficient movement of goods while supporting economic development and environmental sustainability." The goals are to:

- Promote the efficient movement of passengers
- Promote the efficient movement of freight
- Encourage intermodal connectivity
- Enhance state and local economic development
- Promote environmental sustainability
- Promote safe and secure railroad operations

More than 200 people attended the initial set of four public meetings in September held in Negaunee, Traverse City, Detroit, and Grand Rapids. As expected there was strong interest in expanding passenger service in Michigan, with more than three-quarters of the comments addressing it. Common themes included the need for greater transportation choices, more energy efficient travel, improved quality life, economic development, and concern over divestiture, loss of right-of-way and funding. Of the comments dealing with

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ACP estimates 7 percent to 17 percent savings for shippers of switching to post-Panamax due to economies of scale.

How does this expansion impact trade and highway operations in the Midwest? The answer is truly a mixed bag. There is intense competition for the market in Midwest for imported goods. The same is true of exports. The intermodal land bridge formed by the rail connections to West Coast ports provides a slightly faster connection from and to Asian markets. This competitive area is shown in figures 1 and 2 (below). A 4000 TEU Panamax ship has a more limited competitive area, while the 8000 TEU ship can serve more markets inland. The percentages indicate the percent of total US population east of the marked line. This is important for many higher value commodities. Railroads have been investing heavily of their own initiative. The response of West Coast ports and railroads will greatly impact whether

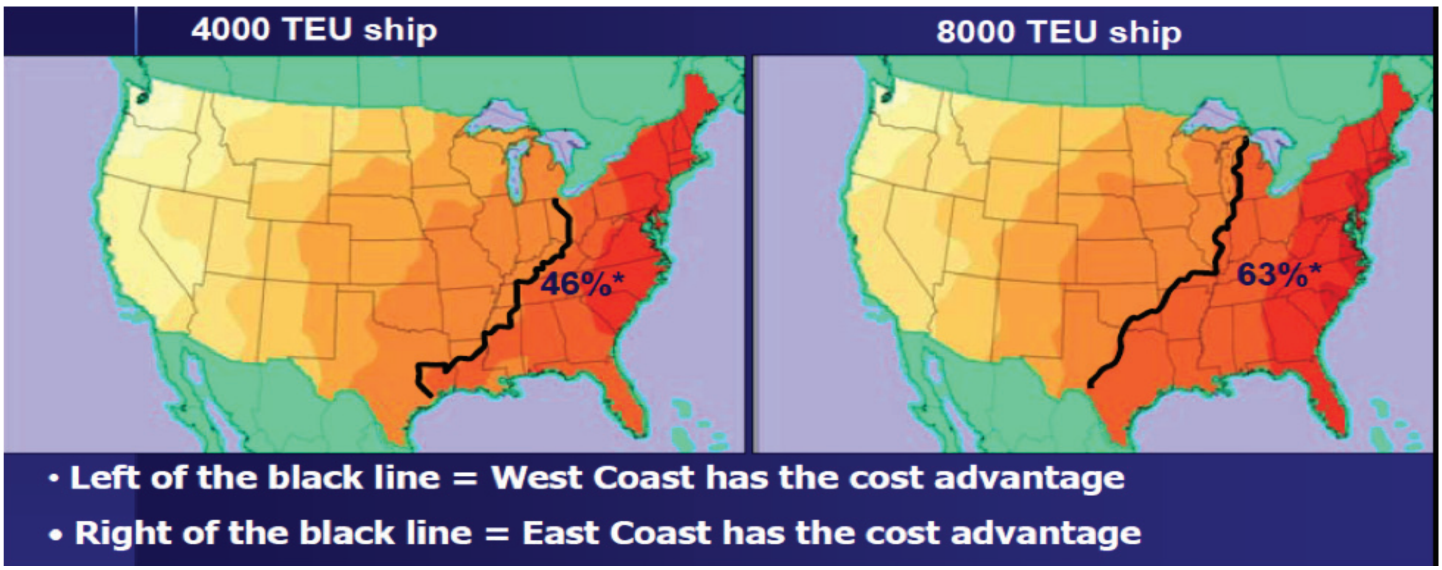

Figure 1: Cost Advantage Comparison (Source: Worley Parsons, Richard West)

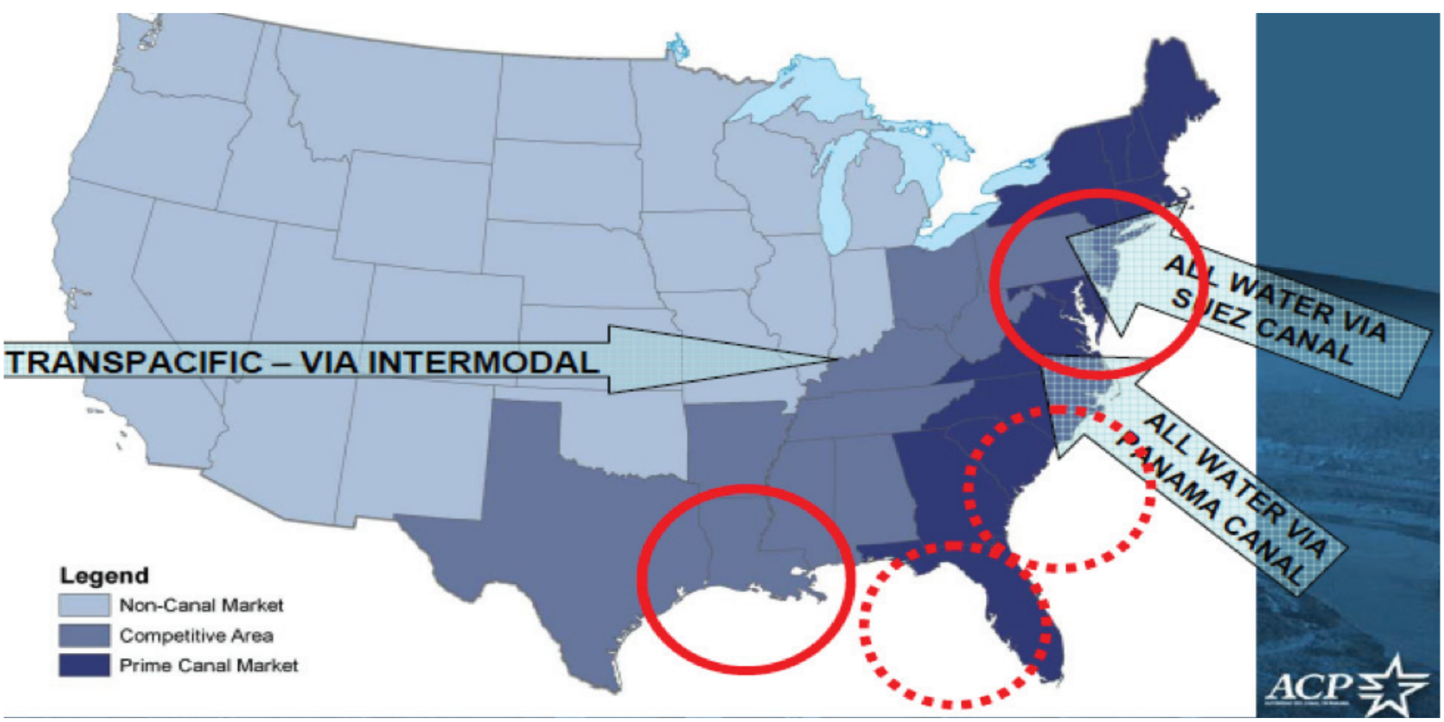

Figure 2: Intermodal versus All-Water Routes (Source: ACP)

cargos take an all-water route to East Coast or Gulf ports or travel by rail from the Pacific Northwest, and the ports of Los Angeles/Long Beach and Oakland. The Panama Canal Authority recognizes this as well (see figure 2).

The expansion of the Canal will have several key effects, all of which need to be considered when making transportation policy in the Midwest.

Commodities

Historically, dry and liquid bulk cargo shipments have generated most of the Canal's revenues. Bulk cargo includes dry goods, such as grains (corn, soy, and wheat, among others), minerals, fertilizers, coal, and liquid goods, such as chemical products, propane gas, crude oil and oil derivatives. In the last decade, containerized cargo has displaced dry bulk cargo as the Canal's main income generator. Vehicle carriers have become the third income generator, replacing liquid bulk cargo. A shipping industry analysis conducted by the ACP and top industry experts indicates that it would be beneficial for both the Canal and its users to expand the Canal because of the demand that will be served by allowing the transit of more tonnage.

Agricultural exports present a striking example that is directly relevant to the economy of the Midwest. The growth of the Chinese market will ensure record agricultural exports in 2011. The forecast for U.S. agricultural exports, which are expected to reach a record $135.5 billion in fiscal year 2011, will move China ahead of Canada as the most important destination for US agricultural products. Department of Agriculture Secretary Tom Vilsack noted "Today's quarterly forecast shows that US agriculture continues to be on track for its best export year ever in fiscal year 2011, eclipsing the previous record set in 2008 by more than $20 billion.

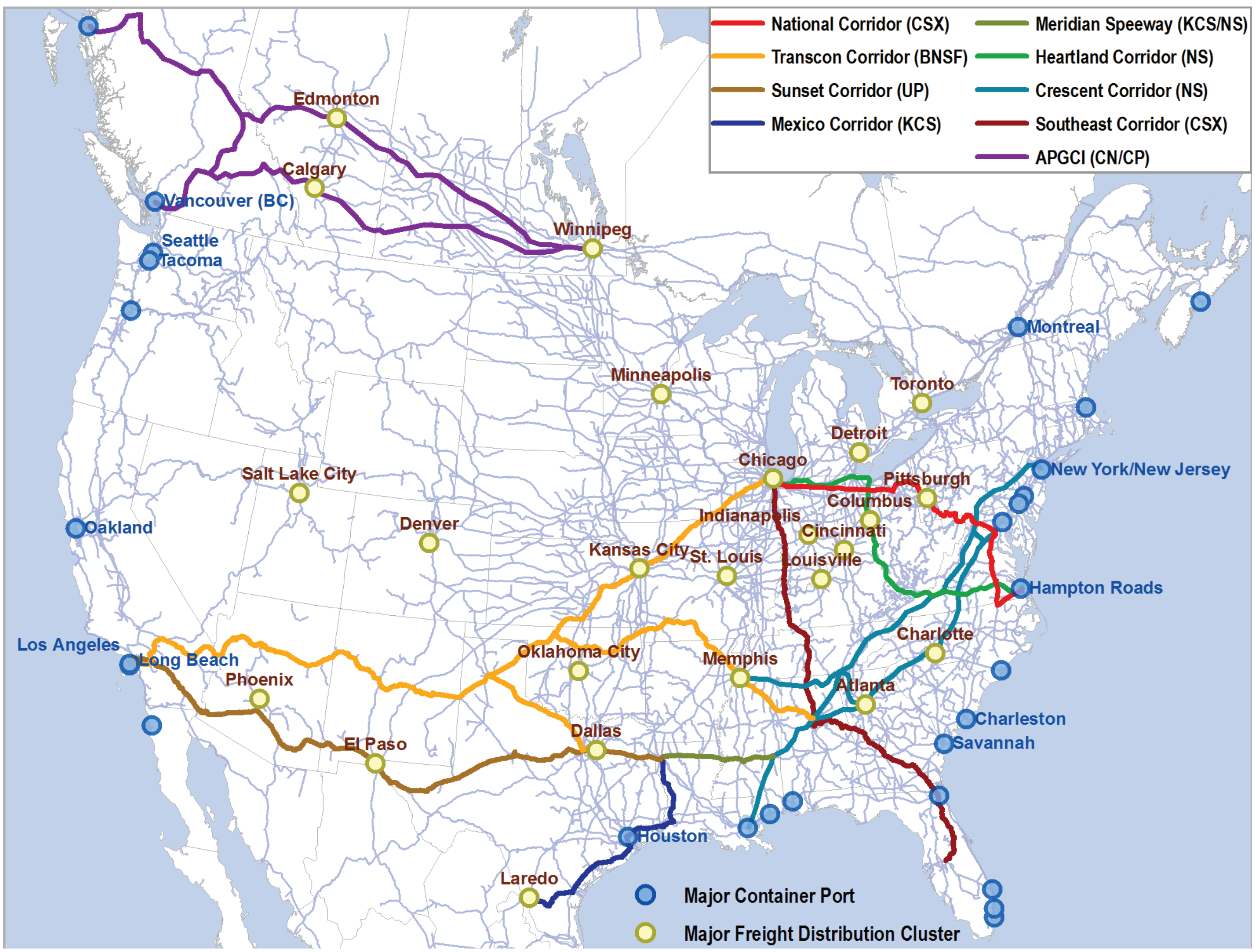

Figure 3: Rail Volume and Corridor Projects (Source: Jean-Paul Rodrigue, Hofstra University)

Compared to fiscal year 2010, export value is expected to grow 25 percent and volume by 10 percent."

Routing decisions following the expansion will ultimately be determined by the demands of the shippers and receivers in the interior of the United States. Shippers control supply-chain decisions that will influence the use of the canal. While the expanded capacity of the canal will make size less of a concern for routing decisions, routing strategies will continue to be assessed based on fuel prices, sourcing decisions, and delivery times. Added value (by expanded capacity) enables the shipper to capture economic opportunities along the supply chain. Off-shoring is a common added value strategy where producers improve their productivity by lowering their input costs (mostly labor) while actors in freight distribution add revenue opportunities through the growth of long(er) distance trade. Off-shoring and its added value opportunities could not have worked effectively without intermodalism, which has permitted supply chains to internalize several added value functions. Despite what governments push for, the supply chain is mostly privately operated and privately owned.

Equipment and Positioning

All-water routings from Asia through the Gulf of Mexico or East Coast ports will certainly change the positioning of equipment and shipping patterns for imported goods. Third-party logistics providers will look at lowest cost options in most cases to move products. The current dominance of West Coast ports for imported consumer items is reliant on containerized movements and an efficient intermodal system. Approximately 40 percent of the goods clearing the Port of Long Beach are destined for interior markets. This Interior Point Intermodal (IPI) traffic is generally distributed on double-stacked container loads into regional distribution facilities. At these facilities, the goods are unpacked and often trucked to final destinations. Under a model that allows all-water routes to East Coast and Gulf ports, some shifts in location of full containers is likely. Eastern railroads have already made significant investments to encourage improved container service from Hampton Roads and the Ports of Virginia. Kansas City Southern has improved rail connections to eastern markets and the Norfolk Southern's Crescent Corridor project will move intermodal loads more efficiently from the Gulf (as shown in figure 3).

Highway Connections

The Panama Canal expansion will likely increase the number of international containers moving into the Midwest. There are several considerations, including permitting and definitions of divisible loads, highway interchange locations and capacity around intermodal yards, and general capacity on critical trade routes. Railroads will likely bring containers and IPI traffic into key points, regardless of whether the port of entry is east or west of Gulf, but the ultimate final delivery will be by truck. Highway planners need to be aware of these intermodal decisions. Savannah provides a case in point. The Port of Savannah has increased its container volumes significantly as major retailers have located facilities there. However, these distribution facilities are on relatively short lease arrangements (10 years). Leasing arrangements may allow these importers to move their operations, leaving significant capital improvements made by the public sector to accommodate such facilities overbuilt for current or future usage. Trade reallocation to the East Coast would also increase truck traffic and overall vehicle congestion on major interstates such as the I-95 Corridor. Many variables, however, cloud the forecast for the impact of the Canal expansion on the Midwest region. First, the primary competing force for the Canal is the land bridge formed by the major railroads operating from West Coast ports. Railroads have been investing annually what the Panama Canal Authority will spend on the construction of the third locks—some analysts have noted that the railroads have spent as much as the ACP will spend on the entire canal expansion effort in capital improvements every year since 2004-2005.

Inland Waterway System and Port Capacity

All-water options inherently have lower costs since they can reduce land bridge requirements and take advantage of the lower operating costs of East Coast ports. The impacts however will likely vary based on commodity, final destination markets, and ultimate timeliness of delivery. This all becomes a moot point however if the infrastructure cannot meet the demands of the markets. "Unless the US does a better job of maintaining its navigation channels, our channel dimensions will not keep pace with larger ships," says Kurt Nagle, chief executive of the American Association of Port Authorities. The problem is intensified up and down the inland waterway system for bulk commodities and agricultural products "Everything is connected – the rivers, the railroads, Panama. We're concerned about the logistics up and down the [Mississippi] river and our ability to feed the canal," says Kendell Keith, president of the National Grain and Feed Association. The impact of the Panama Canal on imports and exports depends on other pieces of our interconnected network. If barges cannot feed into Cape-sized vessels to transit the canal because of the outdated locks on the Mississippi River, it won't matter if the canal is expanded. If channel depths are not properly maintained, larger vessels won't be able to access ports directly.

Transshipment

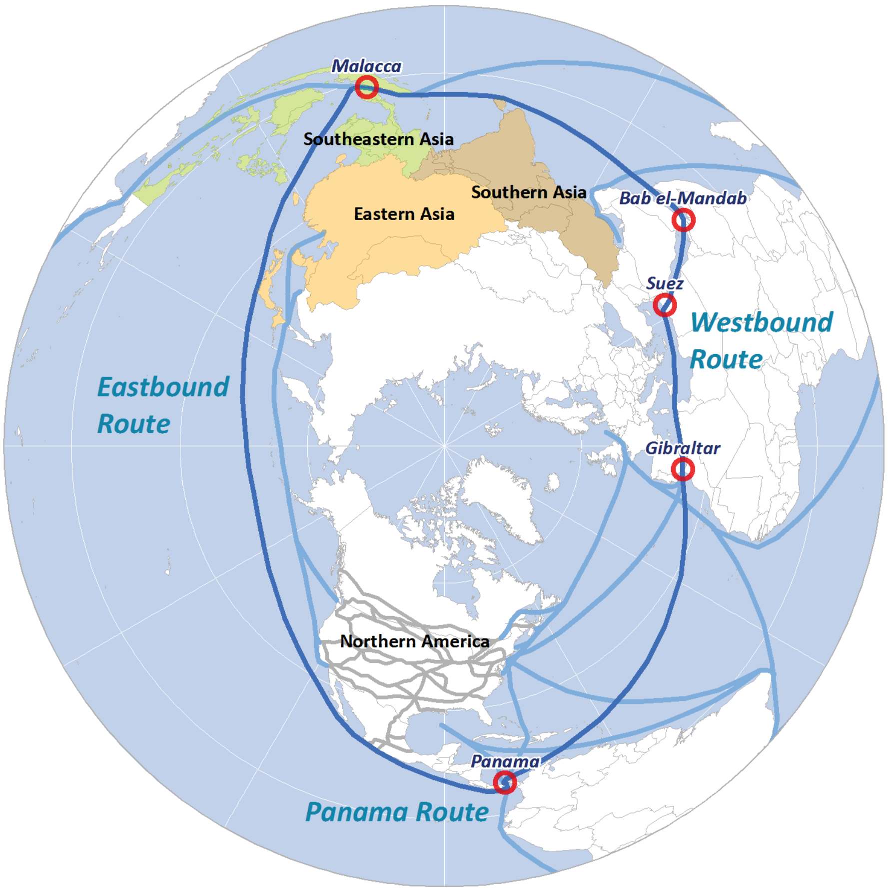

Figure 4: North American Shipping Routes (Source: Jean-Paul Rodrigue, Hofstra University)

One of the more interesting potential impacts of the Canal expansion would be the development of large transshipment and relay services points in the Caribbean area. Planning is in full force throughout the Caribbean for these transshipment locations. Under this model, larger container services would transit the canal and their cargoes would be divided at several ports of call and loaded on smaller feeder vessels. This option would allow for ships of a lower total TEU and draft size into East Coast and Gulf ports. In many ways, this will encourage more optimal use of funding rather than public sector gambles on massive dredging and expansion projects. Ocean carrier strategies including transshipment options and efforts in Panama and throughout the Caribbean should be considered when making investment and policy decisions in the United States.

Slow Steaming

Rising fuel prices are spurring container liners to operate more of their ships at slow speeds – a trend that is expected to continue, according to the February 14 issue of the *Alphaliner Weekly Newsletter*. Approximately 2.3 percent of the world container ship fleet is expected to be extra slow steaming by the end of February 2011, the newsletter said. That is the equivalent of 47 vessels of 3,000 to 13,500 TEU capacity that otherwise would be idle operating at 17 to 19 knots instead of full speed of 23 to 25 knots. Figure 4 shows the relative distances of the all-water routes. Any additional time may impact goods movement due to these longer distances. This practice adds additional time to the all-water routes and could impact decisions that shippers make regardless of the Canal capacity. While we hope that fuel prices won't make slow steaming a new normal, it is a consideration in comparing the land bridge option for imports.

On the Horizon

The ACP continues to be on target for the massive expansion. "The most important detail to note is that we are on schedule and under budget," declared Rodolfo Sabonge, marketing director for the ACP at the Transpacific Maritime Conference in February 2011. The project, set to open on the 100th anniversary of the Canal's opening, will certainly add new alternatives for the global movement of goods. The Panama Canal expansion is a profound undertaking; in many ways, rivaling the initial project itself. Time will tell if the expansion results in new patterns. At a minimum, the expansion ensures that competition for delivering imports and exports will be strong for years to come.

For more information about recent research about the effects of the expansion of the Panama Canal, visit cfire.wistrans.org/research/projects/03-18. Figures 3 (page 5) and 4 (page 7) are reprinted from Factors Impacting North American Freight Distribution in View of the Panama Canal Expansion with the permission of Dr. Jean-Paul Rodrigue, Hofstra University.

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passenger service locations, Traverse City, Detroit, and Grand Rapids were mentioned most frequently.

In addition to 350 comments received at the MDOT meetings and through an on-line comment form at www.michigan.gov/mirailplan, the Michigan By Rail initiative has offered to share input from its 15 public forums held throughout the state last fall. Michigan By Rail is a coalition of passenger rail advocates led by the Michigan Environmental Council and the Michigan Association of Railroad Passengers.

A second Technical Memorandum also is available for download that describes the existing conditions of Michigan's rail system. The report presents the freight rail system profile, freight rail traffic, passenger rail service profile, federal and state funding programs, and a review of existing studies. Canadian National operates the most miles of rail (1,017) in the state while Norfolk Southern and CSX each operate 642 and 569 miles respectively. Nearly 119 million tons of freight rolled on Michigan tracks in 2009. Amtrak ridership has been on the rise in recent years, reaching 500,000 riders in 2010 alone.

The MI Rail Plan will address the serious problems facing Michigan's rail system, including the need to identify funding sources to fill any current and future funding gaps. It will address the key concepts defining Michigan's rail priorities and "business as usual" investment pattern, plus explore strategic concepts/opportunities to improve upon "business as usual" through strategic investment.

The plan will satisfy a federal requirement in the Passenger Rail Investment and Improvement Act of 2008. The law established new federal funding programs for passenger rail services, including high speed rail. MDOT anticipates applying for additional federal funds in mid-year, if available, that would further improve services on the federally-designated high speed rail corridor between Chicago and Detroit/Pontiac. Applying for those funds will require completion of the State Rail Plan.

For more information about the Michigan state rail plan, visit www.michigan.gov/mirailplan.

MAFC and CFIRE Staff

Dr. Teresa Adams
Director
adams@engr.wisc.edu

Jason Bittner
Deputy Director
bittner@engr.wisc.edu

Ernie Wittwer
MAFC Facilitator
wittwer@engr.wisc.edu

Gregory Waidley, Jr.
Research and Education Coordinator
gwaidley@engr.wisc.edu

Bob Gollnik, Jr.
Researcher
gollnik@engr.wisc.edu

Steve Wagner
Communications Coordinator
swagner@engr.wisc.edu

Jessie Hanz
Program Assistant
hanz@engr.wisc.edu

Mid-America Freight Coalition
2205 Engineering Hall
1415 Engineering Drive
Madison, WI 53706
midamericafreight.org

Contributors

Content for this edition of the MAFC *Freight Notes* was contributed by Jason Bittner, Bob Gollnik, Larry Karnes, Steve Wagner, and Ernie Wittwer.

NATIONAL CENTER FOR FREIGHT & INFRASTRUCTURE RESEARCH & EDUCATION

The Mid-America Freight Coalition (MAFC) is a regional organization that cooperates in the planning, operation, preservation, and improvement of transportation infrastructure in the Midwest. The ten states of the AASHTO Mid-America Association of State Transportation Officials (MAASTO) share key interstate corridors, inland waterways, and the Great Lakes. The MAFC is funded by the National Center for Freight & Infrastructure Research & Education and the DOTs of the ten member states.