

## Trend Analysis: Panama Canal Expansion

### Trend Statement

The Panama Canal connects the Atlantic Ocean to the Pacific Ocean via the Caribbean Sea. As trade demand and ocean shipping vessels continue to grow in size, both ports and canals are adapting in order to accommodate larger volumes and bigger ships. The existing Panama Canal (Canal) is currently undergoing a significant expansion, as competition from a proposed Nicaragua Canal and Costa Rica Canal looms. Economic implications for North American supply chains, including impacts to California ports, are still undetermined. However, the Port of Los Angeles and the Port of Long Beach are anticipated to be impacted by cargo traffic diverting to United States (U.S.) East and Gulf Coast ports.

### Background

Almost 40 percent of U.S. sea vessel imports from Asia call at the ports of Los Angeles and Long Beach (POLA/LB).<sup>1</sup> Most of these goods are transported in twenty-foot equivalent unit (TEU) containers that are unloaded from ships onto trains or trucks to eventually reach their final destinations. Shippers could use Central America's Panama Canal passage to serve Gulf and East Coast markets as an alternative to unloading along the Western Coast (or traveling the extra 8,000 miles around Cape Horn).

Since the Panama Canal first opened in 1914, it has been a significant piece in the global trade network – now serving over 140 maritime trade routes and more than 80 countries. The Canal, which can accommodate vessels with a carrying capacity of about 5,000 TEUs, facilitates trade between the Americas, Asia, Europe, and the Caribbean, handling some of the heaviest cargo flows in the world. Use of the Canal is an economical shipping option between the western coasts of South and Central America and the U.S. East and Gulf coasts, as well as an all-water routing alternative for Asian trade. Almost five percent of global maritime freight passes through the Canal each year.<sup>2</sup>

The idea of expansion resulted from growing global trade concern over the Canal's ability to handle the increasing number of vessels in a reliable, cost effective, and time-efficient manner. Capacity issues became even more apparent as a growing portion of "the global containership fleet reached a size beyond the capacity of the Panama Canal, which came to be known as 'post-panamax' containerships."<sup>3</sup> Estimated to be completed in 2015, the expansion project is

---

<sup>1</sup> "3 Reasons Panama Canal Won't Divert Imports from West to East Ports." *Universal Cargo Management*, March 2013. <http://www.universalcargo.com/blog/bid/95228/3-Reasons-Panama-Canal-Expansion-Won-t-Divert-Imports-from-West-to-East-Coast>

<sup>2</sup> Panama Canal Authority. "2009 Annual Report." <http://www.acp.gob.pa/eng/general/report-e-anual/2009/pdf/InformePDFingles.pdf>

<sup>3</sup> "Panama Canal Expansion Study - Phase I Report: Developments in Trade and National and Global Economies." *U.S. Department of Transportation Maritime Administration*, November 2013. <http://www.trb.org/MarineTransportation1/Blurbs/169976.aspx>

expected to double current capacity. The four-part project includes: building two new lock systems (creating a new lane of traffic for the larger vessels); deepening both canal entrances; deepening the Culebra (Gaillard) cut (allowing ships travelling in opposite directions to cross at the same time); and expanding Gatun Lake (increasing the lock system water supply). These modifications will allow longer, deeper, and wider vessels with a carrying capacity of up to 13,000 TEUs<sup>4</sup> to traverse. The Panama Canal Authority estimates that these projects will allow for approximately 12 to 14 larger ships per day to move through the new locks, in addition to the existing locks.<sup>5</sup> The Authority has also “made a provision for a 4<sup>th</sup> set of locks for even larger ships, should the market mature to that point.”<sup>6</sup>

Certain to compete with the Panama Canal, is the 170 mile inter-oceanic project to construct a Nicaragua Canal. This canal will accommodate larger vessels than the expanded Panama Canal in addition to reducing transit between San Francisco and New York by 500 miles. (*See the Nicaragua Inter-Oceanic Canal trend sheet for more information.*)

### Freight System Implications

Although not all canal impacts are known, there is much speculation about what the canal projects would mean for the global freight network. The ability to accommodate larger ships with more TEUs may lead to reduced shipping costs if it is less expensive to transport TEUs further eastward via ocean, than to transfer them onto rail or trucks from West Coast ports. According to the *Factors Impacting the North American Freight Distribution in View of the Panama Canal Expansion*, “If cost is the dominant factor, it is likely that the all-water route will be preferred for cargo bound to the East Coast. The expansion of the Panama Canal will likely modify this factor by making the routing option cheaper.” If this is true, shippers will shift traffic from the West Coast to the Canal if savings are conclusive – the amount of diversion is the unknown. If a measurable percentage of imports are in fact diverted to the Gulf/East Coast, there would be significant repercussions to the Southern California economy, including but not limited to the ports, trucking industry, rail services, as well as the warehousing industry.

There are several factors why the Canal expansion may prove undisruptive to Southern California ports. Shipping to East or Gulf Coast ports from Asia through the Panama Canal would take longer than shipping through the POLA/LB. U.S. imports from Asia to the West Coast transit about 13 days via water and 6 days via intermodal transit (e.g., rail, truck), a total of 19 days. In comparison, imports from Asia that travel the all-water route through the Panama

---

<sup>4</sup> “Panama Canal Expansion Study - Phase I Report: Developments in Trade and National and Global Economies.” *U.S. Department of Transportation Maritime Administration*, November 2013. <http://www.trb.org/MarineTransportation1/Blurbs/169976.aspx>

<sup>5</sup> *ibid*

<sup>6</sup> Tirschwell, Peter. “Panama Canal Exec Slams Nicaraguan Canal Idea.” *Journal of Commerce*, February 2014. [https://www.joc.com/maritime-news/international-freight-shipping/panama-canal-exec-slams-nicaraguan-canal-idea\\_20140203.html](https://www.joc.com/maritime-news/international-freight-shipping/panama-canal-exec-slams-nicaraguan-canal-idea_20140203.html)

Canal transit takes approximately 22 days.<sup>7</sup> In addition to the shorter transit time, the POLA/LB are further developed than the East Coast and Gulf ports, having deep berths and channels with the capability of handling the larger ships, the infrastructure for handling the volume of imports, and effective pollution reduction measures.<sup>8</sup> The cost of moving a ship through the Panama Canal has tripled over the past five years to around \$450,000 per passage for a vessel carrying 4,500 containers. Many companies are finding that it is cheaper and faster to ship to California then transiting goods overland by train. Finally, there is reliability-associated risk when changing logistics of importing goods from one port to another.

Currently, construction and financial issues continue to be a problem for the Panama Canal expansion, which may delay completion. The Canal is estimated to be completed in 2015.

### Planning Considerations

West Coast ports need to be capable of accommodating increasingly larger vessels and accompanying loads if they that want to remain competitive with Central America canal shipping options. This adaptation includes the need for more skilled labor and truck drivers to handle the increased volume of goods needing transport at peak periods. Productivity also needs to be stepped up. Ports that can accommodate and efficiently handle containers at a low cost will be favored.

California must remain mindful that Gulf and East Coast ports are ardently preparing for the anticipated influx of ocean-going freight with rail, intermodal, and other improvements. In order to maintain a competitive market edge, the Ports of Los Angeles and Long Beach are constantly adapting to changes and can already accommodate the world's largest 18,000 TEU capacity "Triple E" vessels. In addition, both BNSF Railway and Union Pacific Railroad have upgraded their respective transcontinental corridors. With strong, well-connected rail and highway networks, as well as on-dock rail systems and equipment able to handle large ships and loads, California ports are currently in a good position to efficiently move goods off of ships for transport to their destinations. However, the State must continue to keep a watchful eye on the market and upcoming potential threats and competition such as the Nicaragua Canal.

---

<sup>7</sup> Rodrigue, Dr. Jean-Paul. Factors Impacting the North American Freight Distribution in View of the Panama Canal Expansion. *The Van Horne Institute*. 2010. <http://www.vanhorne.info/files/vanhorne/Panama%20Canal%20Expansion%20Study,%20Final%20Report.pdf>

<sup>8</sup> "3 Reasons Panama Canal Won't Divert Imports from West to East Ports." *Universal Cargo Management*, March 2013. <http://www.universalcargo.com/blog/bid/95228/3-Reasons-Panama-Canal-Expansion-Won-t-Divert-Imports-from-West-to-East-Coast>



Source: Google maps, [https://maps.google.com/maps?q=Panama+canal+%2B+5th+set+of+locks&ie=UTF-8&ei=UrULU7CVFlurkQeK54CQCw&ved=0CAoQ\\_AUoBA](https://maps.google.com/maps?q=Panama+canal+%2B+5th+set+of+locks&ie=UTF-8&ei=UrULU7CVFlurkQeK54CQCw&ved=0CAoQ_AUoBA)

## Resources

“3 Reasons Panama Canal Won’t Divert Imports from West to East Ports.” *Universal Cargo Management*, March 2013. <http://www.universalcargo.com/blog/bid/95228/3-Reasons-Panama-Canal-Expansion-Won-t-Divert-Imports-from-West-to-East-Coast>

Panama Canal Authority. “2009 Annual Report.” <http://www.acp.gob.pa/eng/general/reporte-anual/2009/pdf/InformePDFingles.pdf>

“Panama Canal Expansion: Changing the Channel.” *Inbound Logistics*, December 2013. <http://www.inboundlogistics.com/cms/article/panama-canal-expansion-changing-the-channel/>

“Panama Canal Expansion Study - Phase I Report: Developments in Trade and National and Global Economies.” *U.S. Department of Transportation Maritime Administration*, November 2013. <http://www.trb.org/MarineTransportation1/Blurbs/169976.aspx>

Rodrigue, Dr. Jean-Paul. Factors Impacting the North American Freight Distribution in View of the Panama Canal Expansion. *The Van Horne Institute*. 2010. <http://www.vanhorne.info/files/vanhorne/Panama%20Canal%20Expansion%20Study,%20Final%20Report.pdf>

“Smaller, slower more expensive: Panama Canal losing shipping to other routes.” *Longshore and Shipping News*, January 14, 2014. <http://www.longshoreshippingnews.com/2014/01/smaller-slower-more-expensive-panama-canal-losing-shipping-to-other-routes/>

Tirschwell, Peter. “Panama Canal Exec Slams Nicaraguan Canal Idea.” *Journal of Commerce*, February 2014. [https://www.joc.com/maritime-news/international-freight-shipping/panama-canal-exec-slams-nicaraguan-canal-idea\\_20140203.html](https://www.joc.com/maritime-news/international-freight-shipping/panama-canal-exec-slams-nicaraguan-canal-idea_20140203.html)