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### The Panama Canal Expansion and Its Impacts on US Ports & Inland Waterways

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#### EXTENDED ABSTRACT

The opening of the expanded Panama Canal in June 2016 has been a game-changer for the global logistics industry, with far-reaching impacts on inland and maritime navigation facilities worldwide. The \$5 billion expansion doubled the Canal's capacity from 300 million tons to over 600 million tons annually. As a result, the investment has leveraged a "multiplier effect" of increased investment in the maritime sector globally, designed to take advantage of the expanded Canal.



Source: Panama Canal Authority

As one of the Canal's primary users, the impacts of the expansion in the US are already evident with significant investment in maritime port upgrades designed to take advantage of the larger vessels (from 4,400 TEU Panamax to 14,000 TEU Neo-Panamax) transiting the Canal. At the same time, inland waterways and intermodal rail and road connections are being upgraded to extend the benefits of the expansion further into the supply chain, serving both import and export markets.

In 2012, the US Army Corps of Engineers' Institute for Water Resources conducted a study to predict the potential impacts of the Panama Canal expansion on US ports and inland waterways. Major impacts expected at that time included the following:

- World and US trade will continue to grow, with Neo-Panamax vessels expected to call at US ports in increasing numbers;
- Major "top-tier" ports will expand to be "Neo-Panamax Ready," while other "next-tier" ports will not;

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- These next-tier ports will still see an impact from the expansion due to the cascade effect;
- The potential for reduced cost of the water route through the Canal may cause freight traffic to shift from West Coast to East Coast ports;
- To take full advantage of the very largest vessels that will be able to fit through the expanded Canal but may be too large to call at most US ports, a transshipment service in the Caribbean or a large U.S. port may develop;
- Potential cost savings associated with using Neo-Panamax vessels to export agricultural products to Asia may lead to increased grain traffic on the Mississippi River for export at Gulf ports;
- Current Mississippi River capacity is adequate, with no need for lock capacity expansion, so long as locks and waterways are maintained;
- Securing funding sources to take advantage of the expansion opportunities, within the historically constrained funding environment, is the most critical issue facing the US maritime industry;
- Environmental mitigation costs associated with port expansion will play an important role in investment decisions; and
- The current process used to deliver navigation improvements in the US is unable to ensure adequate and timely funding to take advantage of potential opportunities.

Currently, most of these outcomes are being realized. Miami, Savannah, Charleston, and New York / New Jersey are making investments to expand their capacity to handle Neo-Panamax vessels. But other US logistics system impacts are also in evidence, owing perhaps to other factors:

- Cargo movements at US West Coast ports are increasing, not decreasing;
- The oil fracking boom in the US continues unabated, with the US expected to be the world's largest exporter of oil in the coming year;
- While the design vessel for the Canal expansion was a 14,000 TEU container vessel, the expanded locks are proving to be ideal for LNG tankers, which are using the Canal in record numbers;
- Ports at the mouth of the Mississippi and Gulf Coast (e.g., New Orleans, Plaquemines, Lake Charles, Houston, Corpus Christi) are investing in waterside and landside facilities to create an efficient nexus for agricultural and petroleum exports; and
- Political forces are aligning to promote trade re-balancing and deregulation (fiscal and environmental) that will facilitate investment in maritime and intermodal infrastructure.

However, although the US stands to benefit greatly from the Canal expansion, achieving these benefits is still impeded by the Gordian knot of the Federal process for funding necessary maintenance and enhancements to the system.

The American Society of Civil Engineers' 2017 infrastructure report card continues to rate the US' current port and inland waterways as deficient – with grades of C+ and D, respectively. The lack of a national, comprehensive freight strategy leaves investment and optimization of the ports and waterways to the marketplace, with suboptimal results. For example, Savannah and Charleston are in close proximity, yet each are

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investing heavily in upgrades designed to capture market share from the other. Compare that to the European model, where the Netherlands and Belgium have clearly made the ports of Rotterdam and Antwerp the alpha dogs in the pack.

The US railroad industry, largely privately held and funded, competes directly with the largely publicly held and funded waterways industry. The current model of under-investment and “fix-as-fail” will not allow the US to maximize the benefits of the Canal expansion to maintain its competitive position globally. Federal funding in support of the inland and maritime navigation systems - \$3 billion in O&M funding annually to serve a \$268 billion asset – is the equivalent of budgeting \$350 per year to operate, maintain or replace a \$30,000 automobile.

Meanwhile, other countries are making significant investments of their own to capture the benefits of the Canal expansion. The Suez Canal has completed an \$8 billion upgrade to improve its capacity, safety, and efficiency. Ports in Latin America, Europe, Africa, and the Middle East are expanding apace. China’s \$1.5 trillion Belt and Road Initiative is designed to create its own dedicated logistics pathway to Europe and North America. In most cases, countries outside the US are dedicating a greater percentage of their GDP (18 to 22%) to such investments than the US (13%).

The Waterways Committee of ASCE’s Coasts, Oceans, Ports and Rivers Institute (COPRI), in cooperation with the USACE, fostered an investigation into opportunities for alternative project finance and delivery – such as public-private partnerships, or P3s – that could represent a major re-think of how US inland and maritime navigation infrastructure assets are created and managed. In its March 2017 report, COPRI reported on its efforts to delve into the opportunities and challenges of the current Federal funding system, and made recommendations for changes that could move the needle toward alternative delivery and financing strategies.

The current US administration has proposed an ambitious Infrastructure Initiative - a \$200 billion Federal commitment to stimulate at least \$1.5 trillion in new infrastructure investment. In addition to a series of proposed legislative measures, the administration is also addressing infrastructure delivery through a range of policy and regulatory changes. Such innovative approaches and changes are recognized as necessary to yield improvements in the delivery of the US infrastructure needs. The Infrastructure Initiative is an opportunity for USACE to apply new financing approaches and streamline business processes that will enable needed change to meet current and future needs of the Nation.

In summary, to paraphrase Albert Einstein, we will not solve the problem of US waterborne transport infrastructure with the same thinking that created the problem in the first place. With the natural geographic and socio-economic advantages that the US has – the long coastlines fronting large oceans and the confluence of navigable waterways with agricultural regions – the ability of the US to maintain its global economic leadership is assured. But a dramatic shift in the way projects are viewed, measured, and deployed is necessary. The opportunities and challenges presented by the Canal expansion are unique, and must be matched by the imagination and courage of both public- and private-sector leaders to realize the benefits.