

# Ports and Navigable Waterways

Section 10

**M**arine infrastructure consists of port facilities and a network of navigable waterways that connects oceans to rivers, lakes, and canals. U.S. ports are responsible for moving 99 percent of the nation’s international cargo. Inland waterways carry about one-sixth of the nation’s intercity freight, at a cost per ton-mile that is about half that of rail and one-tenth that of trucks. These waterways also provide flood control; hydropower; municipal water supplies; and a venue for boating, fishing, and cruise lines.

A disproportionate share of the demands placed on maritime infrastructure stems from immigration. This assertion merely recognizes a demographic reality—namely, that immigration accounts for the lion’s share of U.S. population growth. More than 80 percent of the population increase between now and mid-century will consist of new immigrants and their children. Even if immigrants consumed half the imports that natives do per capita, they would account for a disproportionate share of future import demand due to their overwhelming numbers.

Concerns have been raised about the adequacy

of both port and waterway infrastructure.

Because ports do not have naturally deep harbors, they must be regularly dredged to allow ships to pass more safely through navigation channels. Each year several hundred million cubic yards of sand, gravel, and silt must be removed just to maintain navigability. This is enough for a four-lane highway four feet deep stretching between New York and Los Angeles.

Inadequate channel depths hamper about 30 percent of the 95,550 vessel calls at U.S. ports, according to a recent U.S. Army Corps of Engineers study.<sup>1</sup>

Unloading cargo from ships to surface transport requires connectivity among port, highway, and rail infrastructure. Seemingly minor problems like traffic signals for trucks leaving

marine terminals or at-grade rail crossings on local streets can cause escalating delays. But for the last several decades, federal and state investments in transportation infrastructure have taken a back seat to passenger transit.

Neglect is also evident on our navigable waterways. Lock chambers have a design life of about 50 years. The average age for all the Corps’ locks was 55 years in FY 2005. The oldest lock chamber

**Ports and Waterways by the Numbers**

- \$125 billion cost of replacing the present system of locks**
- 58 number of semi-trucks replaced by one cargo-carrying barge**
- 3.5 miles length of the 870 trucks required to carry cargo in 15 barges**
- 71,000 average number of 20-foot containers handled in U.S. ports daily (2005)**
- 1 in 9 fraction of containers carrying world trade coming to or leaving the U.S.**
- 2nd U.S. ranking in world container traffic, behind China**
- 2003 the year China passed Japan as the largest exporter to the U.S.**
- 55 percent of U.S. container traffic coming through West Coast ports (2005)**

**Navigable Waterway Infrastructure Spending (a)**  
 2005 estimated: \$5.7 billion (\$19.28 per capita)

**2050 Spending Projections (b):**  
 \$8.4 billion: at current population trends  
 \$7.3 billion: at 50-percent reduction in immigration  
 \$5.7 billion: at zero population growth

**Notes:**  
 a. Capital, operation, and maintenance spending by all levels of government.  
 b. Assumes per-capita spending remains at 2005 levels.

**Sources:**  
 American Society for Civil Engineers, Bureau of Transportation Statistics, Congressional Budget Office, Pew Research.

in use dates from 1839; 29 others date from the 19<sup>th</sup> century.<sup>2</sup>

In March 2006, the Inland Waterways Users Board—a federal advisory committee—expressed “grave concern that inland waterways are one of our most underappreciated national assets....” Un-scheduled lock outage hours—for the most part a result of insufficient maintenance—had increased 110 percent over the past 10 years, and the maintenance backlog for navigation facilities had grown to more than \$600 million, the board noted.<sup>3</sup>

In its 2007 annual report, the board lamented the “[c]hronic underfunding of projects” and the fact that authorized projects that once were completed in 6 to 10 years were now taking as much as 20 years to complete, sometimes doubling a project’s cost.

## All About Money

Funding for the Corps of Engineer’s marine infrastructure projects has decreased by 50 percent in the last 50 years, with many dredging projects falling victim to the cuts. New port and waterway construction is rare, in part because Congress failed to pass water bills in two of the past three years, thereby freezing spending at FY 2006 levels.

While federal spending on highways and airports goes up every year, maritime infrastructure is starved for funds. Why?

Here is why: The vast majority (about 90 percent) of federal funding for highway and airport infrastructure comes from user fees that are deposited in trust fund accounts. The money is earmarked for projects used by the people and companies that pay the fees. By contrast, maritime infrastructure is funded primarily (80 percent) by general fund rev-

enues. They must be approved by Congress every year, making them a much less secure and reliable source of funding.

The revenue crunch has stimulated creative financing arrangements. Maersk, a large private shipping company, constructed its own marine terminal in Portsmouth, Virginia, the first such terminal to be independently constructed and privately financed in the U.S. The Port of New Orleans is considering selling bonds covered by its own user fees.

A relatively new—and controversial—trend is the sale of port infrastructure to private investors.

Recent examples include the purchase of long-term leases to the Port of Newark by the AIG Global Investment group and the acquisition of a company that runs the Port of Elizabeth in New Jersey by Deutsch Bank.<sup>4</sup>

The proposed sale of six U.S. ports to a corporation headed by the United Arab Emirates was famously

scuttled in 2006. Other global investors will undoubtedly think twice in light of the political furor aroused by that deal. In the long run, however, a cheap dollar plus the growing scarcity of U.S. port capacity portend continued foreign investment in U.S. maritime infrastructure.

## The Alternative Scenario: Excess Port Capacity

“By 2020 North American ports and their associated intermodal systems will be severely congested, with demand exceeding capacity by as much as 200 percent, assuming current growth in international trade continues.”<sup>5</sup>

That is the conventional wisdom. Could it be wrong?



Among various types of craft the U.S. Coast Guard uses to perform its Port Security—Law Enforcement duties is the 65-foot harbor tug shown here inspecting the piers at the Port of Philadelphia.

Long-term trends in fuel costs, environmental concerns, and the perception that globalization poses a threat to U.S. workers have led many observers to question the inevitability of increased foreign trade flows.

“If we think about the Walmart model, it is incredibly fuel-intensive at every stage, and at every one of those stages we are now seeing an inflation of the costs for boats, trucks, cars.”<sup>6</sup>

Walmart is the largest importer of foreign goods in the U.S. The retailer demands that suppliers match the “China price”—which for most of them is doable only by moving production there. But now some are moving production back to the U.S. to save on transportation costs.

Another potential fly in the maritime infrastructure story is the coming online of new port capacity in both Mexico and Canada. Motivated by a desire to avoid U.S. labor costs—and the longshoreman’s union—an increasing share of the China trade now disembarks at Lazaro Cardenas in Mexico instead of Long Beach and the Port of Los Angeles. Significant infrastructure expansion at Prince Rupert on Canada’s west coast is expected to have a similar impact on the port of Seattle.

U.S. environmentalists and anti-globalizers see this as a welcome pause, perhaps even a reversal, of a destructive trend. Economists are not so sure. Shipping costs are one of many factors determining international trade flows. When companies decide where to build a new factory, they also consider exchange rates, relative wages, government regulations, tax rates, and the availability of skilled managers.

Heavy goods with low value relative to weight—raw materials and furniture, for example—are the most likely to relocate in response to high fuel costs. For electronic manufacturers, by contrast, the benefits of offshore location trump higher transportation costs.

Globalization may slow, but it will not recede. The demand for additional port capacity will continue for the foreseeable future.

### How Secure Are U.S. Ports?

The containership revolution started in the

U.S. 50 years ago, when it was demonstrated that standard metal containers could be moved seamlessly from ships to rail and truck lines. Today, this sea-land intermodalism is pervasive. About half of incoming U.S. trade (by value) arrives in containers aboard ships. More than 11 million cargo containers arrive on ships and are offloaded at U.S. seaports each year.

The standard 40-foot container holds 2,720 cubic feet of space. By comparison, a typical cardboard box used by movers in the U.S. holds 1.67 cubic feet. Thus a standard cargo container is equivalent to 1,629 packing boxes, enough to store the possessions of many households.

A containership can hold 3,000 such containers; ships with 10,000 container capacity are in the works.



The sheer number of containers, their size, and importance to the U.S. economy make them a juicy target for terrorists. In fact, the vulnerability of container transport has become arguably the greatest economic threat to come out of 9/11. An attack at the ports of Los Angeles and Long Beach—the two largest container entry points in the U.S.—would cost the nation’s economy \$150 million a day, according to a Congressional Budget Office Report.

In 2002, a program to prescreen U.S. bound cargo was initiated by the U.S. Bureau of Customs and Border Protection. The Container Security Initiative (CSI) was designed to “extend [the] zone of security outward so that American borders are the last line of defense, not the first.”<sup>7</sup>

Easier said than done. Although most foreign ports have signed on to the plan, CSI inspects less than 1 percent of incoming containers. Of cargo

containers flagged as “high-risk,” which are supposed to be inspected before leaving a port, 17.5 percent are checked. And there are no minimum standards for such inspections.<sup>8</sup>

In identifying “risky” cargo, the program relies on information provided by the shipper without independently verifying it. We should not be surprised to learn, therefore, that only one of several containers used to smuggle Chinese immigrants into the country last year through the ports of Los Angeles and Long Beach was identified as high-risk.

Inspections take time. Time is a scarce commodity in a world of just-in-time supply chains. Many companies do an end run around CSI inspections by shipping goods bound for the U.S. to ports in Canada and Mexico. One wag has called CSI the “Port of Montreal Development Act,” as cargo from Europe heads to Montreal to be hauled in the U.S. by rail or truck rather than by ship. ■

### Endnotes

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