



Harbor Deepening: Federal Studies and Construction Projects

Deep-draft coastal harbors handle a large volume of U.S. imports and exports. The U.S. Army Corps of Engineers (Corps) is responsible for improving and maintaining federal navigation channels. An issue for Congress is that demand for the Corps to deepen harbors outpaces what the agency delivers at recent funding levels.

Demand for Deeper Harbors

The potential for more goods to be transported by larger vessels has led many ports and communities on the East Coast and the Gulf of Mexico to pursue Corps harbor-deepening projects. Several ports on the U.S. West Coast already have depths of more than 50 feet (ft). Some West Coast harbors are naturally deep; they typically require less effort to create and maintain their channels than other harbors. Following the opening of the expanded Panama Canal in 2016, larger vessels with deeper drafts (i.e., up to 50 ft) are able to transit the canal under normal operating conditions. The expanded canal provides a route for deeper-draft vessels to move between Asia and U.S. harbors on the East Coast and Gulf of Mexico. Questions remain regarding how U.S. trade responds to larger vessels, the Panama Canal expansion, congestion at West Coast harbors, and the dynamics of markets for shipped goods. Changes in shipping patterns and volumes remain difficult to predict. For example, some ports handle specific types of commercial traffic (e.g., petroleum tankers). Also, shipping patterns are shaped by the competitiveness of alternative transportation means, such as transport by transcontinental railroad. These and other factors make it difficult to anticipate where and when the nation would most benefit from deepening specific harbors.

Authorized Projects and Studies

The Corps maintains multiple harbors with depths greater than 50 ft in some commercial channels: Seattle, Oakland, Los Angeles, and Long Beach on the West Coast, and some channels of the New York and New Jersey Harbor, Baltimore, Norfolk, and Miami on the East Coast. Other harbors are being studied for deepening (Table 1) or have been authorized for deepening (Table 2). Federal funding is being used in early FY2017 for the deepening of the Delaware River Main Channel to 45 ft and of Savannah Harbor to 47 ft. Congress authorized eight other projects for depths of 45 ft or more in 2014 and in late 2016. Table 2 shows that the majority of these projects have yet to receive federal construction funds.

Table 1. Studies for Deepening to 45 Feet or More

Authorized Studies	Studied Change in Depth (feet)
Houston-Galveston System, TX	40 to 45
Manatee Harbor, FL	40 to 45
Mobile Harbor, AL	45 to 55
Port of Beaumont, TX	40 to 48
Mississippi R. Ship Channel, LA	45 to 50
Norfolk Harbor, VA	50 to 55
San Juan Harbor, PR	35 to 50
Seattle Harbor, WA	51 to 55

Source: CRS using Corps project data. Portions of the Houston-Galveston System are already at 45 feet.

Table 2. Authorized Corps Construction Projects for Harbor Deepening to 45 Feet or More

Project Name & Location	FY2016 Work Plan (millions)	FY2017 Request (millions)	Existing to Improved Depth (feet)	Year of Authorization	Construction Cost (millions)	Benefit-Cost Ratio
Delaware River Main Channel, NJ, PA, and DE	\$22	\$3	40 to 45	2000	\$389	1.3
Savannah Harbor, GA	\$45	\$42	42 to 47	2014	\$703	5.5
Freeport Harbor, TX	—	—	46 to 56	2014	\$239	1.9
Corpus Christi Ship Channel, TX	—	—	45 to 54	2014	\$353	2.6
Boston Harbor, MA	—	—	40 to 51	2014	\$311	7.2
Sabine Neches Waterway, TX	—	—	40 to 48	2014	\$1,114	1.3
Jacksonville Harbor, FL	—	—	40 to 47	2014	\$601	2.7
Brazos Island Harbor, TX	—	—	44 to 52	2016	\$210	1.5
Charleston Harbor	—	—	45 to 52	2016	\$503	3.9
Port Everglades	—	—	42 to 48	2016	\$337	2.9

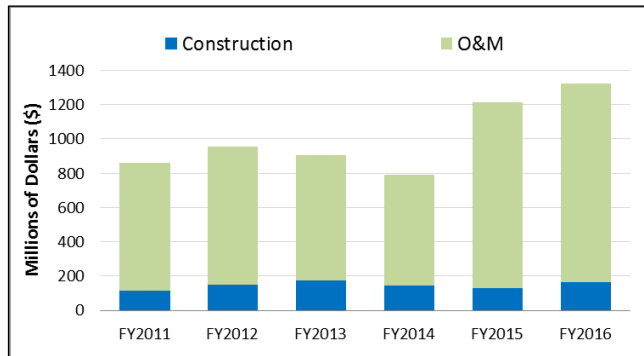
Sources: CRS using P.L. 114-322, P.L. 113-121, Corps FY2016 Work Plan, Corps FY2017 Budget Request, and Corps project documents.

Notes: Benefit-cost ratio (BCR) shown was the ratio used for purposes of congressional construction authorization. For more on use of BCRs in Corps planning and budgeting, see CRS Report R44594, *Discount Rates in the Economic Evaluation of U.S. Army Corps of Engineers Projects*.

Federal Funding

From FY2011 to FY2016, federal spending on all coastal navigation construction (including deepening) annually averaged \$146 million. In FY2015 and FY2016, federal funding for operation and maintenance (O&M) increased relative to earlier fiscal years (Figure 1). Recently, both federal harbor construction and O&M funding have followed a trend of being more concentrated on a few activities, rather than smaller amounts distributed broadly.

Figure 1. Appropriations for Corps Coastal Navigation Construction and Operations & Maintenance (O&M)



Source: CRS using data provided from Corps.

Construction costs for harbor projects are split between the federal government and nonfederal project sponsors. The split depends on the depth of the harbor improvement recommended by the Corps (Table 3). Federal funds for construction come from the General Fund of the U.S. Treasury, whereas O&M is wholly or partially funded from the Harbor Maintenance Trust Fund (HMTF; Table 3). The HMTF is funded from tax revenues from waterborne cargo imports and cruise ship passengers at federally maintained ports. Congress appropriates the funds for both construction and O&M, typically as discretionary spending through annual Energy and Water Development appropriations acts.

Table 3. Construction and O&M Cost Shares for Coastal Navigation Improvements

	Improvement Depth (in feet)	Max. Federal Cost Share (source of funds)
Const.	20-50	65% (GF)
Const.	Deeper than 50	40% (GF)
O&M	Less than 50	100% (HMTF)
O&M	Deeper than 50	50% (HMTF)

Source: CRS using 33 U.S.C. §2211 and P.L. 114-322.

Notes: P.L. 114-322 increased the federal construction costs between 45 ft and 50 ft from 40% to 65% inclusive of contracts awarded after June 10, 2014. GF = General Fund of the U.S. Treasury; HMTF = Harbor Maintenance Trust Fund.

In 2014, Congress in the Water Resources Reform and Development Act (WRRDA 2014, P.L. 113-121) expanded opportunities for nonfederal construction and financing of navigation improvements. If the cost of the nonfederal work or the nonfederal funding exceeds the required nonfederal cost share, the Corps is authorized to credit the excess or to reimburse the nonfederal sponsor subject to the availability of appropriations. WRRDA 2014 did not change the federal financial commitment to construct; instead, it altered how that commitment may be met. Some nonfederal sponsors of deepening projects have used these authorities to expedite work on their projects. No publicly available documents track nonfederal spending on navigation projects eligible for federal reimbursement.

Congressional Considerations

Policymakers are faced with a fiscal context that makes for an uncertain path forward for a number of deepening projects. Categories of policy options include the following:

- **Status Quo.** Maintain the status quo on authorizing studies, construction, cost shares, reimbursements, and federal appropriations.
- **Federal Funding Plan.** Develop a federal spending framework for the suite of deepening projects. The framework may reduce uncertainty over how federal construction appropriations are likely to be used.
- **Increase Project Delivery.** Options include increasing the federal funding available, decreasing the federal cost share, and increasing the level of private investment through public-private partnerships and alternative financing.

Projects deepening beyond 45 ft involve many of the nation’s largest ports. In contrast, ongoing discussions about the future of the HMTF are not only about larger ports but also about maintenance of smaller, shallower, and more remote harbors, which often are used for fishing and other local industry, commuting or other access, and recreation. Another issue that may influence the level of support or opposition for specific harbor-deepening projects is their impact on sensitive coastal ecosystems and the challenges of mitigating those impacts.

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