



US Army Corps  
of Engineers®



## New York and Ohio Harbors Superstorm Sandy — Navigation Structure Repair

**Appropriation Category:** Operations and Maintenance (O&M)

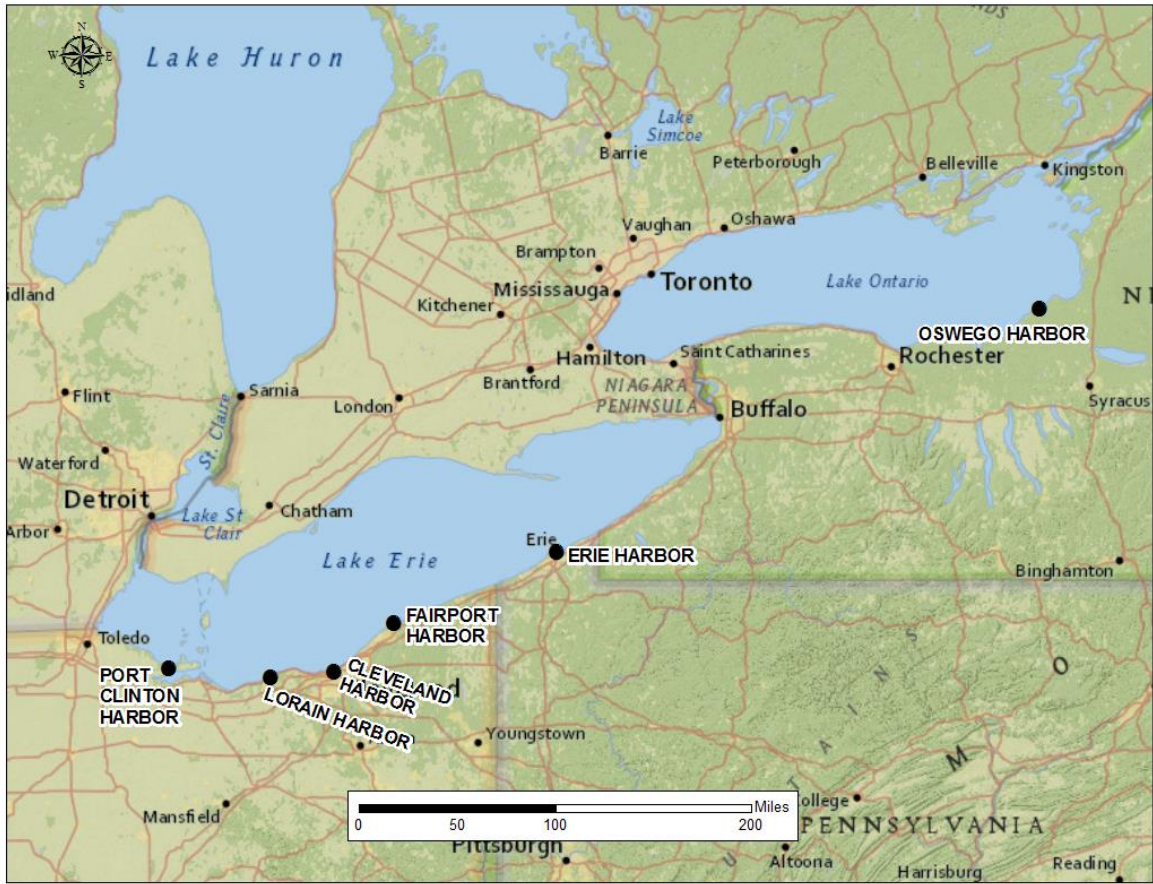
**Current Condition:** Navigation structures at five deep draft commercial harbors and one shallow draft recreational harbor need non-routine maintenance repairs. Superstorm Sandy caused significant damage to several navigation structures: dislodging and fracturing armor stone, exposing interior core stone (leaving the structures vulnerable to accelerated damage in subsequent events), and causing a loss of crest height and width in some locations. Failure to repair the damaged structures will result in further degradation; increased future maintenance costs; and increased wave climate within the impacted harbors which could increase transportation costs for commercial users, create unsafe conditions for recreational users, and increase potential for damage to shoreline structures.

**Background:** On October 30, 2012, Superstorm Sandy passed through Lakes Erie and Ontario with high winds, waves, and rainfall far exceeding typical storm events. Offshore wave heights exceeded the estimated 100-year wave heights in some locations resulting in increased loading and accelerated damage to navigation structures at the five harbors shown on the map. Post-storm project inspections confirmed the presence of additional deterioration and defined the limits of the damaged areas. A list of structures with the estimated lengths of required repairs provided below.

- Cleveland Harbor, OH - East Breakwater – 2,200 linear feet (LF)
- Cleveland Harbor, OH - East Breakwater, East End (Dolosse) – 3,200 LF
- Cleveland Harbor, OH - East Arrowhead – 1,250 LF
- Cleveland Harbor, OH - West Arrowhead – 150 LF
- Lorain Harbor, OH - East Breakwater – 2,000 LF
- Erie Harbor, PA - South Pier – 65 LF
- Fairport Harbor, OH - East Breakwater – 2,300 LF
- Oswego Harbor, NY - Detached Breakwater – 2,400 LF
- Port Clinton Harbor, OH - East Jetty – 100 LF

**Significance:** Deep draft commercial harbors provide significant economic and environmental benefits to the locality, the region, the Great Lakes, and the Nation. Great Lakes ports are part of an overall system competing against other modes of transportation less economically viable and far less environmentally sustainable. When smaller commercial ports and harbors close due to lack of dredging funds, it ultimately affects all harbors in the system. Commodities transported on the Great Lakes navigation system represent 10 percent of all U.S. waterborne domestic traffic. Navigation structures are a critical component of the harbors. The structures safeguard navigation activities in the harbors by providing vessels protection from storm surges, waves, and ice. In addition, all of the harbors serve as designated harbors of refuge, which provide refuge to water crafts during severe lake storms.

September 2018



PROJECT	PROJECT TYPE	Fiscally Closed Out	O&M Obligated	O&M Total Cost
CLEVELAND HARBOR, OH (East & West Arrowhead Breakwaters)	Structure Repair	YES	\$4,748,043	\$4,748,043
CLEVELAND HARBOR, OH (East Breakwater)	Structure Repair	YES	\$6,408,861	\$6,408,861
ERIE HARBOR, PA (South Pier Repair)	Structure Repair	YES	\$1,136,956	\$1,136,956
LORAIN HARBOR, OH (Confined Disposal Facility Maintenance)	Structure Repair	YES	\$211,019	\$211,019
OSWEGO HARBOR, NY (Breakwater Repair)	Structure Repair	YES	\$18,710,360	\$18,710,360
CLEVELAND HARBOR, OH (East Breakwater Repair – Dolosse)	Structure Repair	NO	\$36,532,501	
FAIRPORT HARBOR, OH (Breakwater Repairs)	Structure Repair	YES	\$6,303,330	\$6,303,330
LORAIN HARBOR, OH (West Breakwater Repair)	Structure Repair	NO	\$7,208,239	\$7,208,239
PORT CLINTON, OH (Jetty Repair)	Structure Repair	YES	\$787,675	\$787,675
<b>TOTAL</b>			<b>\$81,977,849</b>	<b>\$45,514,483</b>

## **Congressional Interests:**

### **New York**

- Representative Elise Stefanik R NY-21
- Representative Claudia Tenney R NY-22
- Representative Tom Reed R NY-23
- Representative John Katko R NY-24
- Representative Louise Slaughter D NY-25
- Representative Brian Higgins D NY-26
- Representative Chris Collins R NY-27
- Senator Kirsten Gillibrand D NY
- Senator Charles Schumer D NY

### **Pennsylvania**

- Representative Mike Kelly R PA-3
- Senator Patrick J. Toomey R PA
- Senator Robert P. Casey Jr. D PA

### **Ohio**

- Representative Robert E. Latta R OH-5
- Representative Marcy Kaptur D OH-9
- Representative Marcia Fudge D OH-11
- Representative David Joyce R OH-14
- Senator Rob Portman R OH
- Senator Sherrod Brown D OH