US Army Corps of Engineers

HARBOR INFRASTRUCTURE INVENTORIES
Cleveland Harbor, OH

Harbor Location: Cleveland Harbor is located at the mouth of the Cuyahoga River on the southern shore of Lake Erie in the city of Cleveland, OH.

Authority: River & Harbor Acts of 1875, 1886, 1888, 1896, 1899, 1902, 1907, 1910, 1916, 1917, 1935, 1937, 1945, 1946, 1958, 1960, 1962, Water Resources Development Acts of 1976 and 1986, Supplemental Appropriations Act of 1987 and the Energy & Water Appropriations Act of 1988.

Project Description: Originally authorized by the River and Harbor Act of 1875, Cleveland Harbor is a deep draft commercial harbor. Protective structures consist of east and west breakwaters, east and west arrowhead breakwaters, east and west piers, and a spur breakwater totaling over 6.2 miles in length.

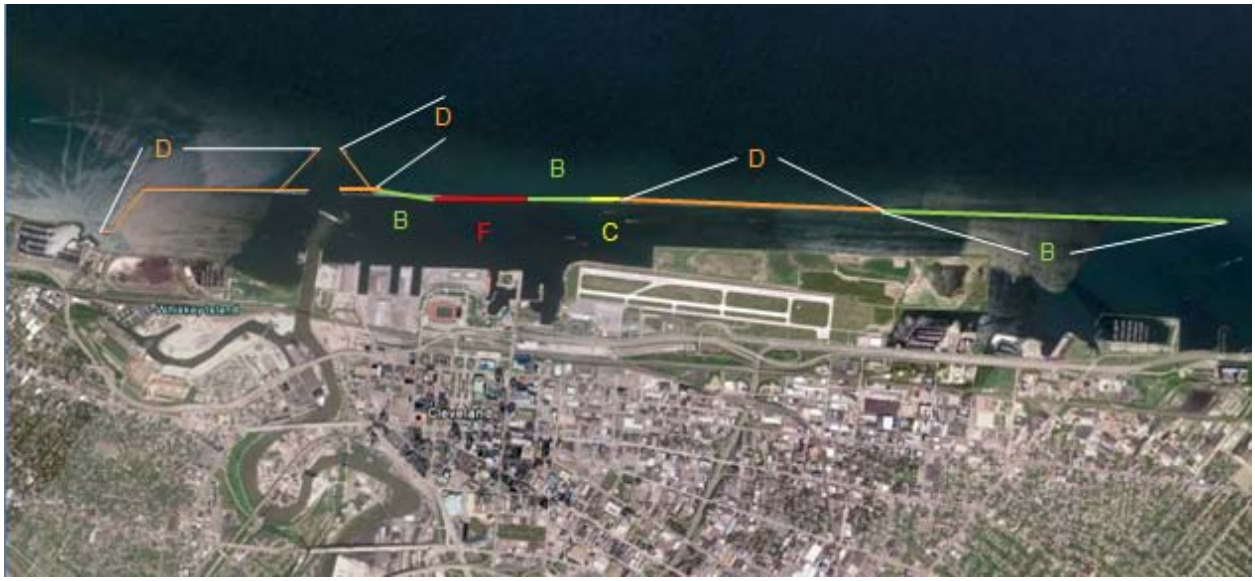
Traffic: 11,666,716 tons (5-Year average, 2005-2009).

Transportation Importance: Major regional receiving port on the Great Lakes for commodities including iron ore, limestone, sand and gravel, salt, cement and concrete, general cargo and liquid bulk.

Congressional Interest:

- Representative Dennis J. Kucinich D-OH-10
- Representative Marcia Fudge D-OH-11
- Senator Rob Portman R-OH
- Senator Sherrod Brown D-OH

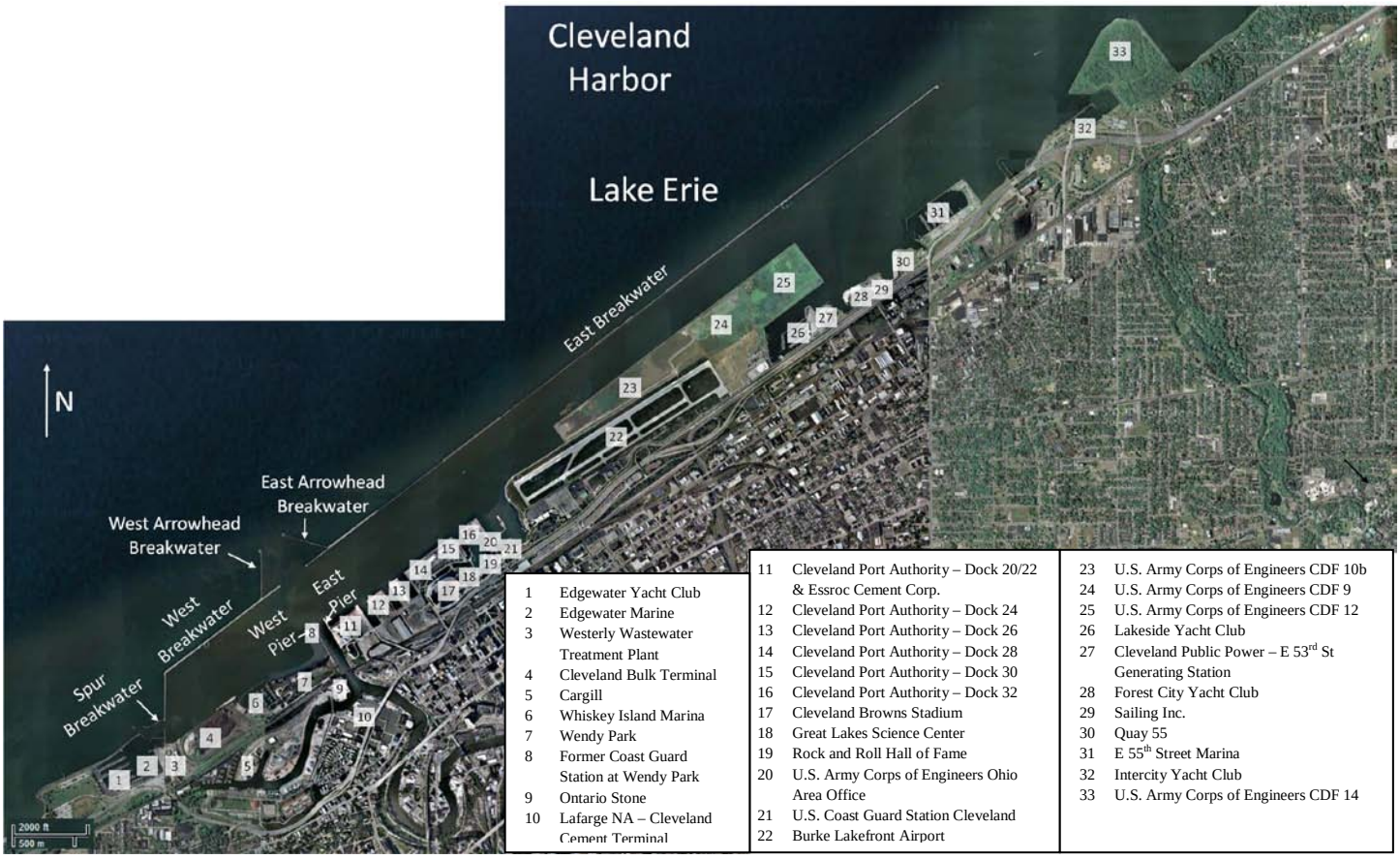
Current Condition Assessment: D



Date of Site Visit: 16 June 2010

Summary of Impact: Prevailing waves come from the southwest to northeast direction. Breakwater failure would be immediately detrimental to operations of all facilities located along the lakeshore. Flooding and damage to structures and vessels would be extensive and harbor operations would be restricted. All those interviewed stated that breakwater failure would result in negative impacts immediately. Additionally, increased sedimentation of the harbor basin and river entrance would limit operations and cause light loading for industries dependent on the harbor and river for lake access.

Examples of Protected Infrastructure:



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9 Ontario Stone
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1. Edgewater Yacht Club, Inc.: Privately run marina on land leased from the State of Ohio with 378 fixed steel and wood slips able to accommodate vessels up to 55'. The seasonal rate is $23/dock-foot. Electric and water is available at all slips. Other amenities include pumpout, fuel (gas and diesel), showers, restrooms, restaurant and a 15 ton travel lift. Structures include a 4,200' square foot main building and a 75' x 30' maintenance building, . Breakwater failure would cause increased wave action in harbor, causing damage to structures and vessels. Marina is dependent on breakwaters for business. Additionally, the marina has been placing armor stone along the inner side of state breakwater to attenuate wave action that gets around the Federal spur breakwater. The spur breakwater and West Breakwater serve to protect harbor from wave action under most conditions.

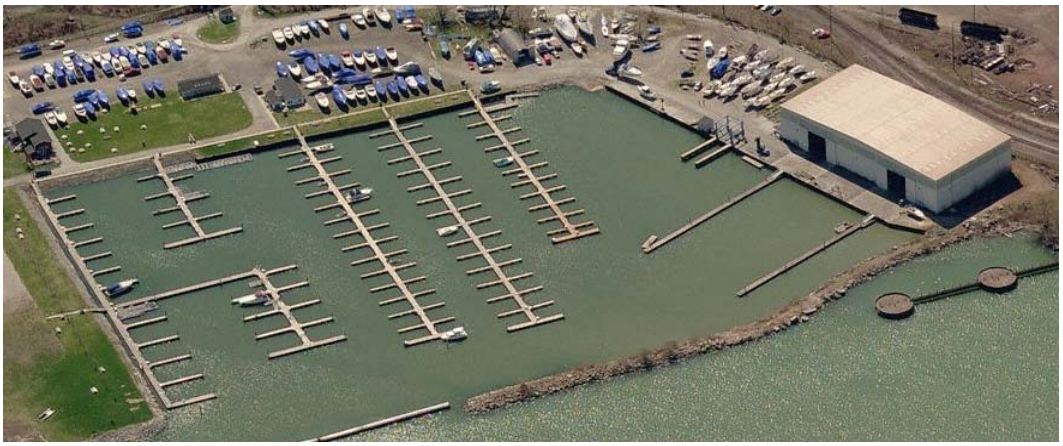
2. Edgewater Marine: Privately run marina on land leased from the State of Ohio with 275 fixed and floating steel and wood slips able to accommodate vessels up to 40'. Seasonal rates range from $1,055 to $1,560. Electric and water available at all slips. Other amenities include pumpout, fuel (gas and diesel), showers, restrooms, convenience store, snack shop and a 75 ton travel lift. Breakwater failure would cause increased wave action in harbor, causing damage to structures and vessels. Marina is dependent on breakwaters for business. The spur breakwater and West Breakwater serve to protect harbor from wave action under most conditions. A northerly wind can cause a surge and increased roughness in the harbor.

3. Westerly Wastewater Treatment Plant: 26 million gallon per day 14 acre wastewater treatment facility. Facility has a combined sewer overflow facility providing storage for 6 million gallons and preliminary treatment and settling for up to 300 million gallons per day during wet weather flows. Serves the west side of Cleveland, OH, a population of about 103,000 people. Breakwater failure would have a detrimental impact on operations, as plant is situated directly behind the breakwaters.

4. Cleveland Bulk Terminal: Port Authority owned and operated ore transfer facility with 46 acres of storage and a 1,850' Berth. Primary users of the facility are Cleveland Cliffs, Mittal Steel and Oglebay Norton Co. The primary material handled is iron ore pellets. Onsite CBT iron ore loader system has a transfer rate of 5,200 tons per hour.

5. Cargill: Privately owned industry involved with salt mining and shipping, employing 180. Two main mine shafts approaching 2,000' deep mining salt from a 9,000 acre reserve below Lake Erie. Around 3 million tons of salt mined annually, shipped via lake ship, rail and truck. Lake shipping accounts for about 1 million tons per year, destined for other Great Lakes ports in the U.S. and Canada. Onsite ship loading capacity is about 2,000 tons per hour. Breakwater failure would result in shoaling of the channel and would limit shipping operations.

6. Whiskey Island Marina: Privately run marina on land leased from Cuyahoga County with 225 floating steel and wood slips able to accommodate vessels up to 32' with rack storage for an additional 250 vessels. Seasonal rates range from $1,200 to $5,000. Electric and water available at all slips. Other amenities include pumpout, showers, restrooms, restaurant, service desk, mechanic and a 50 ton travel lift. Breakwater failure would cause increased wave action in harbor, causing damage to structures and vessels. Marina is dependent on breakwaters for business.



7. Wendy Park: 22 acre park that runs along both the Cuyahoga River and Lake Erie.

8. Former Coast Guard Station at Wendy Park: Former Coast Guard Facility presently undergoing rehabilitation. Future plans call for the opening of a coast guard/maritime museum at the site. Station is directly protected from wave action by the surrounding breakwaters and located on the West Pier. Breakwater failure would be detrimental to structural stability.

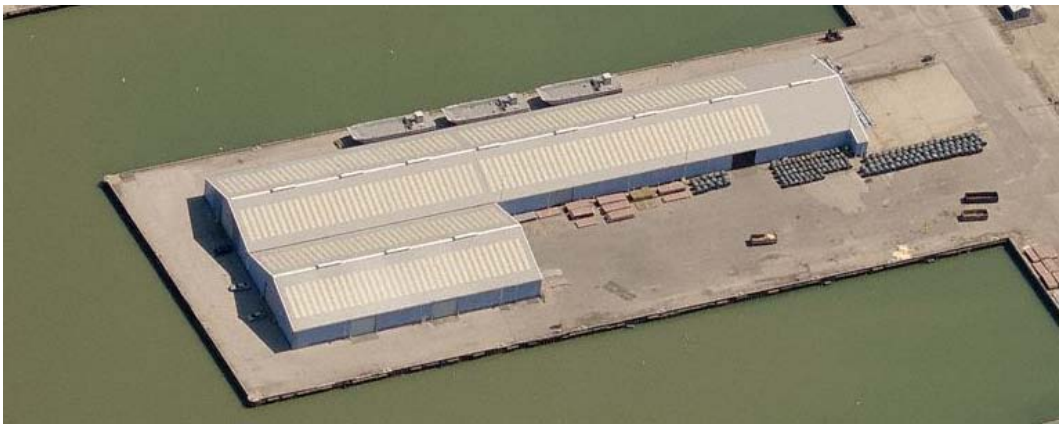
9. Ontario Stone: Privately owned industry involved with stone shipping, employing 10. Stone is shipped in via lake ship from Ohio and Michigan. Facility handles around 1 million tons of stone per year, all of it shipped out via truck for the local market. Onsite storage capacity is 400,000 tons. Breakwater failure would result in shoaling of the channel and would limit shipping operations.

10. Lafarge North America – Cleveland Cement Terminal: Privately owned industry involved with cement distribution, employing 7. Cement is shipped in via lake ship from Alpena, Michigan. Facility handles around 250,000 tons of per year, all of it shipped out via truck for the local market. Cement unloaded via suction system into 17 storage silos. Breakwater failure would result in shoaling of the channel and would limit shipping operations.

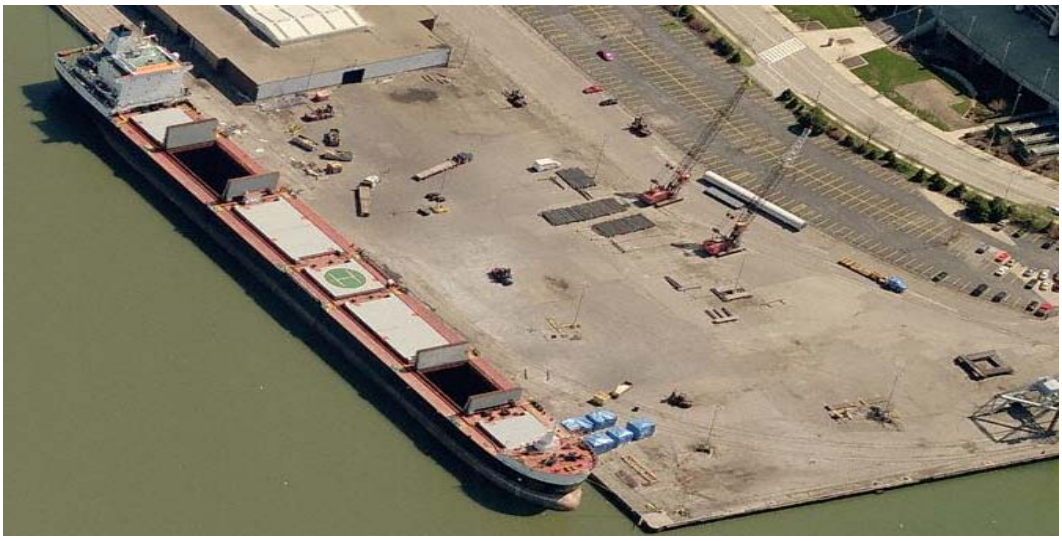
11. Cleveland Port Authority – Docks 20/22 and Essroc Cement Corporation: Port Authoriry owned facility used by Essroc (Italcementi Group) and Kenmore Construction. 1,200' berth. Cement facility is a privately owned industry involved with cement shipping, employing 2. Cement shipped in via lake ship from Picton, Ontario Canada. Onsite storage capacity is 12,492 metric tons in 2 silos. Breakwater failure would severely curtail operations as breakwaters provide for a calm harbor for vessels. Presently a vessel arrives about every 10 days and generally can do so in most weather conditions. Increased wave action would limit a vessel's ability to approach the slip.

12. Cleveland Port Authority – Dock 24: Tenant: Federal Marine Terminals, Inc. Facilities include a 1,900' Berth, 2 warehouses and a 30-ton overhead cranes.

13. Cleveland Port Authority – Dock 26: Tenant: Federal Marine Terminals, Inc. Facilities include a 1,677' berth and a warehouse.

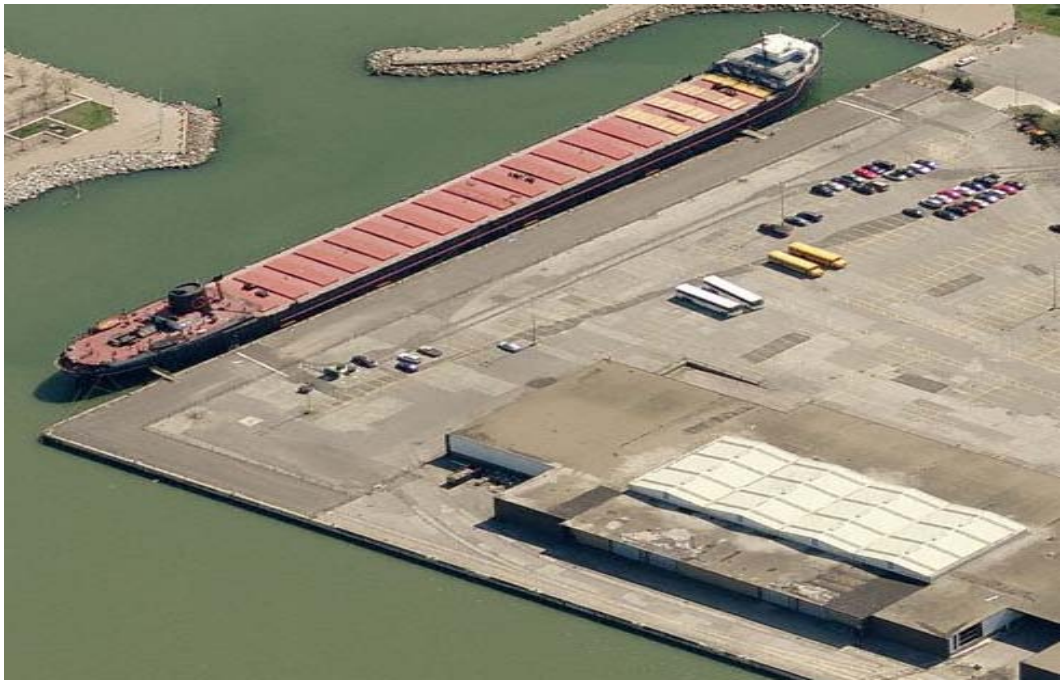


14. Cleveland Port Authority – Dock 28: Tenant: Federal Marine Terminals, Inc. Facilities include a 1,243' berth and 150-ton capacity lift crane.



15. Cleveland Port Authority – Dock 30: Tenant: Federal Marine Terminals, Inc. Facilities include a 500' berth and warehouse.

16. Cleveland Port Authority – Dock 32: For use by the City of Cleveland for non-maritime development.



***Federal Marine Terminals:** Private company occupying Docks 22-30 with 10 berths, 350,000 square feet of total warehouse space, 25 acres of open storage, 27' draft, a 30 ton overhead crane, indoor rail loading/unloading, an on-site customs office and forklifts with capacities up to 72,000 pounds. Major commodities handled include: steel, forest products, project cargo and containers. Facility is reliant upon breakwater performance for business. Breakwater failure would curtail shipping activities.

17. North Coast Harbor/Pier 34/Voinovich Bicentennial Park: Public waterfront park and inner harbor constructed by the Corps of Engineers and ODNR. The project was completed in 1993 at a total cost of approximately $6.6M. The local sponsor, the State of Ohio, is responsible for operation and maintenance of the project. The project consists of a 6.4-acre inner harbor, a 386-foot breakwater with a 20-foot top width and shore arm connection to Pier 32, 195 foot breakwater along the west face of Pier 34, a 310-foot long stone revetment along the east face of Pier 34, 2,274 feet of associated bulkheading and 1.8 acres of fill between Pier 34 and Pier 36. The project also includes a walkway, steel pipe railing along the breakwaters, and precast bollards with anchor chain along anchorage area and the north and east faces of Pier 34.

18. Cleveland Browns Stadium: Public NFL stadium seating over 73,200, opened in 1999 at a cost of greater than $290 million.

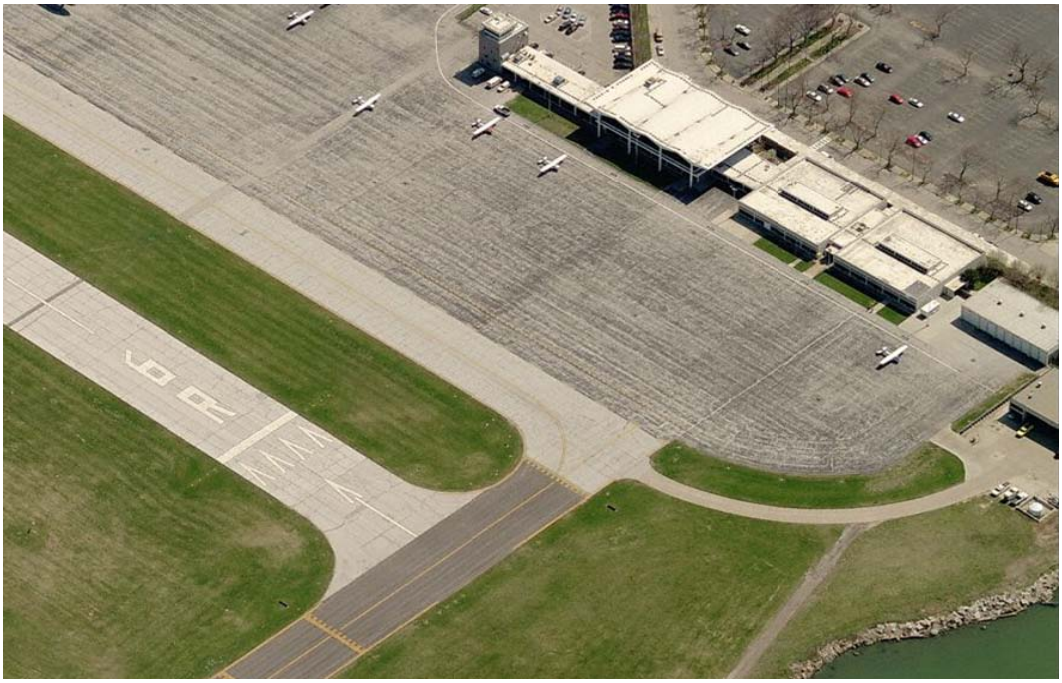
19. Great Lakes Science Center: Large interactive science museum including an IMAX theater, and a Steamship docked in the harbor.

20. Rock and Roll Hall of Fame: Opened in 1995, collects, preserves, exhibits and interprets rock and roll through its library and archives as well as educational programs. Has drawn 7.5 million visitors and driven more than $1.5 billion dollars in economic activity to the regional economy.

21. U.S. Army Corps of Engineers - Buffalo District Ohio Area Office: 2 story government facility with 20 employees. Tug, Derrickboat, 4 barges and 3 smaller vessels based at station. Facility is dependent on breakwaters for protection from storm surges, waves and ice. Breakwaters are vital for protection of facilities and vessels. Loss of structures would increase facility maintenance costs, and put at risk those who depend on them for save navigation.

22. U.S. Coast Guard Station Cleveland Harbor: Coast Guard Station with area of responsibility extending from Vermilion, OH to the OH/PA border. Breakwater failure would be immediately detrimental to the mission of the station.

23. Burke Lakefront Airport: 450 acre municipally owned airport. Two runways - 6,200' and 5,200' long. 56,000 square foot terminal, 2 hangers - 8.2 acres and 5.4 acres, fire facility, maintenance facility, vehicle storage facility and aviation high school. Breakwater failure and inundation would have a great effect on operations as it would likely lead to runway and terminal flooding in high wind events. Facility is presently well protected by breakwaters in their current configuration.



24. U.S. Army Corps of Engineers Buffalo District CDF10B – Constructed by the USACE in 1998. The design capacity of the CDF was 2,900,000 CY. The facility reached capacity in 2007. The USACE has been implementing fill management projects to increase capacity and extend the life of the CDF.

25. U.S. Army Corps of Engineers Buffalo District CDF9 – Constructed by the USACE in 1969. The design capacity of the CDF was 2,000,000 CY. The USACE has been implementing fill management projects to increase capacity and extend the life of the CDF.

26. U.S. Army Corps of Engineers Buffalo District CDF12 – Constructed by the USACE in 1974. The design capacity of the CDF was 2,760,000 CY. The USACE has been implementing fill management projects to increase capacity and extend the life of the CDF.

27. Lakeside Yacht Club: Privately owned marina with 212 floating concrete, steel and aluminum slips able to accommodate vessels up to 200'. The seasonal rate is $34 per foot. Electric, water and wi-fi available at all slips. Other amenities include pumpout, fuel (gas and diesel), showers, restrooms, a restaurant, bar, picnic areas and a 25 ton travel lift. Structures include a 5,400 square foot clubhouse, a 120 square foot gas house and a 1,800 square foot barn. Marina is dependent on breakwaters to maintain a calm harbor for operations.

28. Cleveland Public Power – Former E 53rd Street Generating Station: Former power generation station now used as a transmission station.

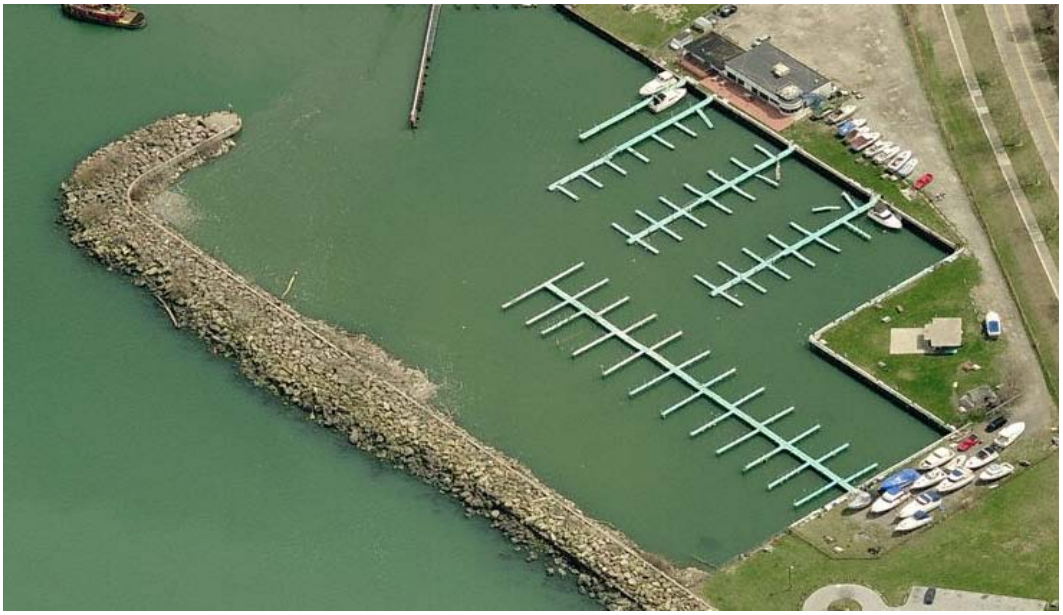
29. Forest City Yacht Club: Privately owned marina with 130 fixed steel and wood slips able to accommodate vessels up to 40'. The annual rate is $2,000. Electric and water available at all slips. Other amenities include pumpout, fuel (gas only), showers, restrooms, a clubhouse, bar, and a 20 ton travel lift. Marina is dependent on breakwaters to maintain a calm harbor for operations. Presently, there is little to no wave action in the basin, breakwater failure would lead to significant wave action.

30. Sailing Inc.: Privately owned repair facility and sales office. 20 ton travel lift, 100,000 square foot office/sales/repair building. Facility and grounds protected by breakwaters, breakwater failure would result in damage to facilities and limits to business.

31. Quay 55: Former Nicholson Cleveland Terminal building built in 1929 converted into an upscale apartment and mixed-use facility. 220,000 square foot building with apartments, fitness center, conference room, swimming pool, and private gated grounds. Building is protected by breakwaters. A breakwater failure could cause flooding of ground floor facilities in a high wind event.

31. E 55th Street Marina: State owned marina with 355 seasonal and 22 transient floating wood slips able to accommodate vessels up to 40'. Electric and water available at all slips. Other amenities include pumpout, fuel (gas and diesel), showers, restrooms, a restaurant and a bar. Marina is dependent on breakwaters to maintain a calm harbor for operations. Presently, there is little to no wave action in the basin, breakwater failure would lead to significant wave action.

32. Intercity Yacht Club: Privately run marina on land leased from the State of Ohio with 100 fixed and floating steel and aluminum slips able to accommodate vessels up to 50'. The seasonal rate is $25 per foot. Electric and water available at all slips. Other amenities include pumpout, showers, restrooms, a kitchen and a clubhouse. Breakwater failure would cause increased wave action in harbor, causing damage to structures and vessels under a west-northwest wind. The USACE CDF 14 well shields the harbor from waves resulting from winds from the east-northeast.



33. U.S. Army Corps of Engineers Buffalo District CDF14 – Constructed by the USACE completed in 1979 at a total cost of $29,390,226. From 1980 to 1999, the CDF was filled to capacity with approximately 6,970,000 CY of dredged material. The CDF was turned over to the Local Sponsor, the Cleveland-Cuyahoga County Port Authority in February 2000.

Potential Impact Area: The following graphic displays property parcels that could be impacted within various zones defined by different setbacks from the shoreline behind existing Federal coastal structures. Values are based on real property tax assessments from these parcels, and don't reflect any detailed coastal zone damage assessments. Figures simply reflect property values at various setbacks.