



CORPS FACTS

Harbor Dredging

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG.

Disaster Response

Sedimentation in the channel is caused by the normal cycle of silt movement, erosion from high water or heavy rains and changes in river currents. The U.S. Army Corps of Engineers is authorized by various pieces of legislation to dredge a number of small harbors within its boundaries. Funding is occasionally provided to the Corps' Civil Works Operations and Management Appropriation to do this.

IOWA

Lansing Small Boat Harbor

The Lansing Small Boat Harbor is located just upstream of the city of Lansing, Iowa. It is located at Upper Mississippi River mile 663.5 on the right descending bank. The city of Lansing is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material.



The small boat harbor was completed at a cost of \$42,100. The length of the harbor is 520 feet, and its width is 170 feet. The Corps of Engineers is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 620.0 feet mean sea level. Since construction, the Lansing Small Boat Harbor has not been dredged by the Corps.

MINNESOTA

Baudette Harbor

The Baudette Harbor is located in the city of Baudette, Minnesota, at the mouth of the Baudette River, a tributary of the Rainy River. The harbor provides for an irregular turning basin approximately 400 feet long and a maximum width of 230 feet, as well as an entrance channel extending from the mouth of the Baudette River upstream about 2,000 feet.

The Harbor was authorized by the River and Harbor Act of March 2, 1919, and completed in 1950 at a cost of \$36,415. The harbor is maintained to a depth of six feet. The Corps dredges the harbor to a depth of 6 feet, and it was last dredged in 1961. The project depth referred to the low water datum at Baudette, which is taken as 1,056 feet above mean tide level at New York. The ordinary seasonal variation of water level is about 2 feet.

Crow Creek, Angle Inlet

Crow Creek, Angle Inlet is located at the northern extremity of Lake of the Woods in the Northwest Angle, about 45 miles northeast of Warroad, Minnesota.

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U.S. ARMY CORPS OF ENGINEERS – ST. PAUL DISTRICT

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The Crow Creek, Angle Inlet project provides for a channel 50 feet wide and 6 feet deep extending from the Northwest Angle Inlet of Lake of the Woods for about 2,425 feet into Crow Creek to local docks. Project depth is referenced to low-water datum for Lake of the Woods, which is 1,056 feet above mean tide at New York. Ordinary seasonal variation of water level is about 3 feet. The project was authorized by Section 107, 1960 River and Harbor Act, and completed in 1963 for a total dredging cost of \$13,615. The site was last dredged in 1983.

Hastings Small Boat Harbor

The Hastings Small Boat Harbor is downstream of Lock and Dam 2 and in the city of Hastings, Minnesota. It is located at Upper Mississippi River mile 813.2 on the right descending bank. The city of Hastings is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material.

The harbor was completed in June 1957 at a cost of \$74,342. The length of the harbor is 500 feet. The width varies from 200 to 300 feet. The Corps is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 675.0 feet mean sea level. Since 1990, the Hastings Small Boat Harbor was dredged once. There was 4,375 cubic yards of material dredged from the harbor in 1997.

Lake City Harbor

The Lake City Harbor is located in the city of Lake City, Minnesota, on Upper Mississippi River mile 772.5 on the right descending bank. The city of Lake City is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material.

The harbor was completed Nov. 1, 1963, at a cost of \$56,241. The length of the harbor is 730 feet. The width is 225 feet. The Corps of Engineers is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 feet mean sea level. The small boat harbor was completed in November 1948 at a cost of \$93,530. This cost included the construction of an adjacent commercial harbor that is no longer in use. The length of the small boat harbor is 550 feet and it is 425 feet wide. The Corps is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 feet mean sea level.

Pine Creek, Angle Inlet

Pine Creek, Angle Inlet is located at the northern extremity of Lake of the Woods in the Northwest Angle, about 45 miles northeast of Warroad, Minnesota. Angle Inlet is a small community located two-thirds of a mile above the mouth of Pine Creek. The community is the only settlement of any significance in the remote Northwest Angle.

The Pine Creek, Angle Inlet project provides for a channel 50 feet wide and 6 feet deep extending from the Northwest Angle Inlet of Lake of the Woods for about 3,000 feet into Pine Creek to local docks. A 150 by 300 feet maneuvering area is included at the inner end, also with a 6-foot depth. It further provides for use of excavated material to create a point of land westward of the navigation channel to provide protection from waves and reduction of silt deposition. Project depth is referenced to low-water datum for Lake of the Woods, which is 1,056 feet above mean tide at New York. Ordinary seasonal variation of water level is about 3 feet. The project was authorized by Section 107, 1960 River and Harbor Act, and completed in 1963 at a cost of \$38,700. The site was last dredged in 1983.

Red Wing Small Boat and Commercial Harbor

The Red Wing Small Boat and Commercial Harbors are located in the city of Red Wing, Minnesota. They are located at Upper Mississippi River mile 791.0 and 791.5 with the small boat harbor being downstream. The city of Red Wing is the non-federal sponsor for the project and has provided a suitable placement site for any dredged material.

The small boat harbor was completed in October 1947 at a cost of \$8,702. The length of the small boat harbor is 700 feet, and its width is 430 feet. The commercial harbor was completed in September 1962 at a cost of \$155,255. The shape is similar to a triangle with a width of 1,700 feet by 900 feet. The Corps of Engineers is authorized to maintain the small boat harbor to a depth of 5 feet below the low control pool, and the commercial harbor to a depth of 9 feet below the low control pool elevation of 667 feet mean sea level. Since 1990, the Red Wing Harbors have been dredged once each. It occurred in 1997 and was completed with private funding.



South St. Paul Small Boat Harbor

The St. Paul Small Boat Harbor is on the downstream end of Harriet Island in St. Paul, Minnesota, at Upper Mississippi River mile 839.7 on the right descending bank. The city of St. Paul is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material. The city delegated its responsibility for most of the docks and similar facilities to the St. Paul Yacht Club.

The Harbor was completed Dec. 5, 1949, at a cost of \$271,392. The length of the harbor is 2,375 feet. The width varies from 200 to 400 feet. The U.S. Army Corps of Engineers is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 687.2 feet mean sea level. The Corps of Engineers dredges to the harbor to a depth of 6 feet to prolong the need for future dredging and to help provide enough clearance for dredging operations. Since 1990, the harbor has been dredged at least 14 times. On average, 8,800 cubic yards have been dredged per event. While some dredging occurred in 2011, the last major dredging event occurred in 2008. In 2006, the city of St. Paul contracted dredging work at its own expense because Corps' funding was not available.

Wabasha Harbour

The Wabasha Harbor is located in the city of Wabasha, Minnesota, and located at Upper Mississippi River mile 759.5 on the right descending bank. The city of Wabasha is the non-federal sponsor for the project and is required to furnish a suitable placement site for any dredged material.

The small boat harbor was completed in June 1949 at a cost of \$41,650. The length of the small boat harbor is 740 feet, and its widest part is approximately 600 feet. The Corps of Engineers is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 mean sea level. Since construction, the Wabasha Harbor has not been dredged by the Corps.

Warroad Harbor

Warroad Harbor is located in Warroad, Minnesota, at the southwestern extremity of Lake of the Woods, a 317,000-acre international boundary lake between northern Minnesota and Canada. The harbor consists of a dredged channel and turning basin with a rubble mound jetty that extends parallel to the channel 457 feet lakeward from the shore. The project was authorized for maintenance of an access channel and harbor to a depth of 8 feet below low water datum of 1,056 mean sea level elevation, approximately 9,200 feet long and varying in width from 100 to 300 feet. The Warroad River is navigable for a distance of about one-mile upriver from the highway bridge.

Construction of Warroad Harbor began in 1904 and was completed in 1915. The jetty was converted to the present composition of rubble in 1929. The portion of the dredging of the entrance channel and turning basin to complete the project width and depth was considered unnecessary to meet present navigation requirement and was deauthorized on Aug. 5, 1977 under Section 12 of Public Law 93-251. Maintenance dredging has been curtailed to a depth of 7 feet and a width of 100 feet. The Corps last dredged this harbor through the ice in 2007.

Winona Small Boat Harbor and Crooked Slough

The Winona Small Boat Harbor and Crooked Slough (Commercial) Harbor are located in the city of Winona, Minnesota. They are located at Upper Mississippi River mile 726.1 and 726.3 with the small boat harbor being downstream. The commercial harbor is on the right descending bank, while the small boat harbor is on left. The city of Winona is the non-federal sponsor for the project and has provided a suitable placement site for any dredged material.

The small boat harbor was completed in May of 1958 at a cost of \$89,771. The length of the small boat harbor is 1,100 feet. The width of the harbor is 200 feet. The commercial harbor was completed in October 1956 at a cost of \$86,714. The shape is a wave that is 6,000 feet long and 200 feet wide. The U.S. Army Corps of Engineers is authorized to maintain the small boat harbor to a depth of 5 feet below the low control pool, and the commercial harbor to a depth of 9 feet below the low control pool elevation of 645.5 feet mean sea level. Since 1990, the Winona Small Boat Harbor has been dredged 14 times. The Corps of Engineers dredges to 6 feet to prolong the need for future dredging and to help provide enough clearance for dredging.

Zippel Bay Harbor

Zippel Bay Harbor is a natural harbor located on the south shore of Lake of the Woods in Zippel Bay State Park, about 26 miles (by water) east of Warroad, Minnesota, and 17 miles northwest of Baudette, Minnesota. It provides for a small-boat navigation access channel between Zippel Bay and Lake of the Woods.

The construction of Zippel Bay Harbor was initiated in 1914. The current project at Zippel Bay was authorized under the provisions of Section 107 of the River and Harbor Act of 1960, as amended. The plan of improvement provided a small-boat navigation channel through this bar between Zippel Bay and Lake of the Woods. Beginning within the bay, the channel extends in an easterly direction for about 980 feet, where it bends left to a more northeasterly direction, crosses the bar, and extends into the lake approximately 1,000 feet. The channel was designed to accommodate a 30-foot craft. The channel has a bottom width of 50 feet for the majority of its length, increased to 70 feet through the curve to ensure easier navigation. The navigation channel is flanked by jetties on the lake side of the bay mouth bar. The jetties were constructed to minimize the amount of future maintenance dredging by decreasing the amount of littoral drift that accumulates in the

channel area; and to provide protection from wave action in the navigation channel. Local interests provided all lands, easements and rights-of-way necessary for construction and subsequent maintenance of the harbor. Zippel Bay Harbor was completed in 1986 and last dredged in 1995.

WISCONSIN

Alma Small Boat Harbor

The Alma Small Boat Harbor is upstream of Lock and Dam 4 and the city of Alma, Wisconsin. It is located at Upper Mississippi River mile 839.7 on the left descending bank. The city of Alma is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material. The city has delegated its responsibility for the marina to the Alma Marina.

The harbor was completed Nov. 1, 1963, at a cost of \$56,241. The length of the harbor is 730 feet, and it is 225 feet wide. The Corps is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 feet mean sea level. Since 1990, the Alma Small Boat Harbor has not been dredged by the Corps. The Corps currently does not have any funding to dredge the harbor. Hydrographic surveys were done in 2008 to identify the water depth near the entrance to the harbor.

Bay City Harbor

The Bay City Harbor is downstream of Lock and Dam 3 in the city of Bay City, Wisconsin. It is located at Upper Mississippi River mile 786.5 on the left descending side. The city of Bay City is the non-federal sponsor for the project and is required to furnish a suitable placement site for the dredged material.

The harbor was completed Sept. 8, 1965, at a cost of \$48,886. The length of the harbor and approach channel is 5,900 feet long. The width varies from 50 to 100 feet. The Corps is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 feet mean sea level. The Corps investigated the benefit to cost ratio and found that it was not prudent to maintain the 5,900 foot long channel to its authorized depth. It has not been dredged with Corps funds since construction.

Pepin Harbor

The Pepin Harbor is located in the city of Pepin, Wisconsin, on Upper Mississippi River mile 767.0 on the left descending bank. The city of Pepin is the non-federal sponsor for the project and is required to furnish a suitable placement site for any dredged material.

The small boat harbor was completed in September 1965 at a cost of \$138,406. The length of the small boat harbor is 600 feet, and the width of the maneuvering channel is 50 feet. Construction included a breakwater to protect the harbor and in August 1972, another breakwater was added. The Corps is authorized to maintain the harbor to a depth of 5 feet below the low control pool elevation of 667.0 mean sea level. Since construction, the Pepin Harbor has been dredged twice by the Corps of Engineers with the last event occurring in 1980. The Corps currently does not have any funding to dredge at Pepin Boat Harbor.

Prairie du Chien Small Boat and Commercial Harbors

The Prairie du Chien Small Boat and Commercial Harbors are located in the city of Prairie du Chien, Wisconsin. They are located at Upper Mississippi River miles 635.2 and 636.0 with the small boat harbor being up stream. The city of Prairie du Chien is the non-federal sponsor for the project and has provided a suitable placement site for any dredged material.

The small boat harbor was completed in July 1960 at a cost of \$85,513. The length of the small boat harbor is 800 feet, and the width of the harbor is 388 feet. An 8,000-foot access channel was constructed with local maintenance required. The commercial harbor was completed in October 1958 at a cost of \$93,006. The shape is similar to a triangle with a height of 1,300 feet by 340 feet. The Corps is authorized to maintain the small boat harbor to a depth of 5 feet below the low control pool, and the commercial harbor to a depth of 9 feet below the low control pool elevation of 611 feet mean sea level. Since construction, the Prairie du Chien harbors have not been dredged by the Corps of Engineers.

For more information about any of the harbors, please contact the Corp's channel and harbors section at (651) 290-5155 or visit www.mvp.usace.army.mil.