Brandon Road Lock & Dam

(Joliet, Illinois)
Des Plaines River

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Construction: 1927-1933

Congressional District: IL-11

Description

Brandon Road Lock and Dam is 286 miles above the confluence of the Illinois River with the Mississippi river at Grafton, Illinois. The complex is located 27 miles southwest of Chicago; 2 miles southwest of Joliet, Illinois, near Rockdale.

The lock is 600 feet long, 110 feet wide. Nominal lift is 34 feet with an average 19-minute fill time, 15-minute emptying time. The dam is 2,391 feet long (exclusive of fixed embankment and river wall). It contains 21 operational Tainter gates (50 feet wide x 2 feet, 3-1/2 inches high), six sluice gates (7 feet, 9 inches wide x 8 feet, five inches high, bulkheaded closed), and 16 pairs of 16-feet high x 15-feet wide headgates (eight operational, eight bulkheaded closed).

From the upper limits of the city of Joliet to Brandon Road Lock and Dam, the Illinois Waterway is contained between concrete gravity walls which are from 15 to 40-feet high. The walls extend approximately three miles upstream from the lock and dam. Failure of these walls could result in flooding Joliet. Repair of the deteriorated walls and manholes was completed from 1985-1988. In 2007, the Corps began a multi-million dollar, multi-year program to repair and reinforce the walls to ensure their continued integrity.

History/Significance

The lock opened in 1933. Brandon Road Lock and Dam was one of five designed and partially constructed by the state of Illinois over a period from 1927 to 1930. The complex was about 70 percent complete when construction was turned over to the federal government due to state financial difficulties.

The government, by the authority of the Rivers and Harbors Act of 1930, completed construction of the lock in 1933. The lock and dam elements of the complex were completed at a total cost of $4,500,000, of which $2,031,683 were state funds and $2,434,748 were federal funds.

Annual Tonnage (20-Year Historical)

Year	Tons	Year	Tons	Year	Tons	Year	Tons
1992	16,750,453	1997	15,542,395	2002	17,177,894	2007	13,862,037
1993	17,094,868	1998	17,260,536	2003	15,784,153	2008	12,665,246
1994	20,042,969	1999	16,073,774	2004	17,656,488	2009	10,465,777
1995	15,105,886	2000	16,939,884	2005	17,341,109	2010	10,010,190
1996	15,062,517	2001	16,418,031	2006	17,811,849	2011	10,760,631

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Commodity Tonnage & Lockages (2011)

Coal	1,622,706
Petroleum	1,553,955
Chemicals	1,554,847
Crude Materials	3,703,640
Manufactured Goods	1,932,124
Farm Products	219,272
Manufactured Machinery	147,470
Waste Material	17,400
Containers & Pallets	1,600
Unknown	7,617

Subtotals:	Grain	100,200
	Steel	1,005,629
Lockages:	Commercial Boats:	2,548
	Recreation Boats:	628
	Light Boats:	415
	Other Boats:	16
	Total Boats:	3,607
	Total Cuts:	3,460

Current Maintenance Issues

Item (Critical Rank Order)

- Rehabilitation Evaluation Report
- Tainter Gate Concrete Repairs
- Systemic Miter Gate Replacement
- Systemic Control Stand Replacement
- Paint/Repair Service Bridge, Tainter Gate Section
- Systemic Dam Machinery Replacement
- Systemic Filling Valve Replacement
- Concrete Repairs Downstream I-Wall and Land Wall
- Install Traveling Kevel and Remove Pier
- New Maintenance Building
- Repair Joliet Channel Wall

TOTAL ESTIMATED COST: $48,500,000

The existing 9-foot Channel Navigation Project was largely constructed in the 1930s and extends down the Upper Mississippi River from Minneapolis-St. Paul to its confluence with the Ohio River and up the Illinois Waterway to the Thomas J. O'Brien Lock in Chicago. It includes 37 Locks and approximately 1,200 miles of navigable waterway in Illinois, Iowa, Minnesota, Missouri and Wisconsin.

The maintenance needs of the aging infrastructure are increasing at a rate much greater than the operations and maintenance funding provided for the system. This is adversely affecting reliability of the system. Long-established programs for preventative maintenance of major lock components have essentially given way to a fix-as-fail strategy, with repairs sometimes requiring weeks or months to complete. Depending on the nature of a lock malfunction, extended repairs can have major consequences for shippers, manufacturers, consumers, and commodities investors.

The system's 600-foot locks do not accommodate today's modern tows without splitting and passing through the lock in two operations. This procedure requires uncoupling barges at midpoint which triples lockage times and exposes deckhands to increased accident rates.

More than 580 manufacturing facilities, terminals, and docks ship and receive tonnage in the Upper Mississippi River basin. Grains (corn and soybeans) dominate traffic on the system. Other commodities, mainly cement and concrete products, comprise the second largest group. A modern 15-barge tow transports the equivalent of 1,050 large semi-trucks (26,250 cargo tons, 875,000 bushels, or 17,325,000 gallons). Annually, the 9-foot project generates an estimated $1 billion of transportation cost savings compared with the operation and maintenance costs of approximately $115 million.

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