



**US Army Corps
of Engineers**[®]
Rock Island District

LOCK & DAM 12 (BELLEVUE, IOWA) MISSISSIPPI RIVER

General Contractors:

Lock: James Stewart Corporation, Chicago Illinois
Dam: Warner Construction Company, Chicago Illinois

Construction: 1934-1938

Congressional Districts: IA-1; IL-16

DESCRIPTION

Lock and Dam 12 is 556.7 miles above the confluence of the Mississippi and Ohio rivers. The complex stretches across the river at a point where the bluffs on the Iowa side are very close to the river; a complex of islands and sloughs extends nearly three-quarters of the way across the river from the Illinois side. Bellevue State Park occupies the high ground on the Iowa side, while the urbanized area of Bellevue extends to the government-owned property on the flat land below the bluff. The Lost Mound Unit of Upper Mississippi River National Wildlife and Fish Refuge occupies the islands, slough, and small flat bottom areas on the Illinois side.

The movable dam consists of seven submersible Tainter gates (20-feet high and 64-feet long) and three submersible roller gates (20-feet high and 100-feet long). The dam system also includes two, non-overflow, earth and sand-filled dikes; two transitional dikes; and a concrete-covered, ogee spillway, submersible earth and sand-filled dike. The foundation is set in sand, gravel, and silt.

The lock dimensions are 110-feet wide by 600-feet long with additional provisions for an auxiliary lock. The normal upper pool elevation is 592 feet, approximately 15 feet above the tail waters below the dam at low water. The maximum lift is 9 feet with an average lift of 6 feet. It takes approximately 10 minutes to fill or empty the lock chamber. It takes 8 hours for water to travel from Lock and Dam 11, in Dubuque, Iowa, to Lock and Dam 12.

HISTORY/SIGNIFICANCE

The lock opened in 1938. During the peak of construction, a maximum of 1,217 men were employed at one time. The lock and dam elements of the complex were completed at a cost of \$5,581,000.

ANNUAL TONNAGE (10-YEAR HISTORICAL)

<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>
1998	21,596,296	2003	19,622,041
1999	24,426,919	2004	17,350,487
2000	22,280,448	2005	17,672,950
2001	19,098,873	2006	18,655,930
2002	23,031,159	2007	17,681,771

(MORE INFORMATION ON THE REVERSE SIDE)

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COMMODITY TONNAGE & LOCKAGES (2007)

Coal	3,996,770	<u>Subtotals:</u>	
Petroleum	401,956		
Chemicals	2,089,998	Grain	7,863,070
Crude Materials	1,980,406	Steel	176,400
Manufactured Goods	650,106		
Farm Products	8,531,987	<u>Lockages:</u>	
Manufactured Machinery	24,354		
Containers & Pallets	1,624	Boats:	4,679
Unknown	4,570	Cuts:	4,088

CURRENT MAINTENANCE ISSUES – LOCK & DAM 12

Item (Critical Rank Order)

Repair or Replace Emergency Gates
Systemic Bulkhead Slots
Systemic Miter Gate Replacement
Repair Spillway
Major Rehabilitation Stage III Dam Repairs
Repair Roller End Shields & Seals - Dam
Central Control Station Flood Proofing
Systemic - Crane Rail Adjustments - Dam
Systemic Tainter Valve Replacement
Dam Rehabilitation Evaluation Report
Replacing 70-year Old Lock Pontoon Barge (Work Flats)
Bridge Crane Repairs to Lattice Boom & Crane Undercarriage

TOTAL ESTIMATED COST: \$27,000,000

The existing 9-foot Channel Navigation Project was largely constructed in the 1930's 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 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. In 2005, the system moved more than 160 million tons of commercial cargo worth roughly \$28.5 billion. 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 870 large semi-trucks (22,500 cargo tons, 787,500 bushels, or 6,804,000 gallons). Annually, the project generates an estimated \$1 billion of transportation cost savings compared with the operation and maintenance costs of approximately \$115 million.

In constant dollar terms, operations and maintenance funding for the system has been largely flat or declining for decades, while maintenance needs of the aging infrastructure increase. 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.

POINT OF CONTACT

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