



WATERWAYS
COUNCIL, INC.

Lock and Dam 11



Waterways Council, Inc. is the national public policy organization advocating a modern and well-maintained national system of ports and inland waterways.



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Location

Located at river mile 583.0, north of Dubuque, Iowa.

Existing Structures

Lock and Dam 11 has one 110' x 600' lock chamber with a lift of 11 feet, an auxiliary bay. The lock opened in 1937. Dams 11 and 18 were designed concurrently, and were the first dams in the Rock Island District to employ submersible, elliptical Tainter gates. They were also the first dams in the District to use submersible roller gates. Major commodities transiting the lock include grain, aggregates, petroleum, coal and chemicals.

Annual Tonnage and Projected Traffic Growth

2010 tonnage at Lock and Dam 11 was expected at 20.3 million tons.

Summary of Problems

Major rehabilitation was initiated in 1996, when the total cost of the project at that time was \$85.3 million.

Corps of Engineers Actions

Breakdowns of mechanical and electrical equipment are becoming more frequent with resultant delays and loss of revenue to commercial waterway users. The electrical system presents safety concerns due to its age and insulation deterioration. The 70-year-old miter gates require extensive rehabilitation. If Lock 11 miter gates are damaged, the lock would be closed for an indefinite period until the gates are repaired or replaced. Potential unscheduled closures of 60 days have been estimated if the electrical or mechanical systems fail. Transportation impacts associated with a 60-day closure of Lock 11 would approach \$30.9 million. The improvement work is accomplished in three stages:

Lock and Dam 11

Stage I, Dam Scour Protection -- Involves placing additional scour protection upstream and downstream of the dam. This was completed in 2003.

Stage II, Lock -- Involves the rehabilitation of the navigation lock chamber and associated parts. Major work items include resurfacing the lock chamber, replacing the original lock machinery and electrical systems, bulkhead slots, repairing guidewall concrete, repairing Tainter valves, and bulkhead procurement. A lock closure took place the winter of 2005-2006 and the contractor completed the upper guidewall concrete repairs, installed bulkhead slots, and rehabilitated the filling and emptying system Tainter valves. Work will continue during a lock closure the winter of 2007-2008.

Stage III, Dam -- Involves the rehabilitation of the navigation dam. Major work includes the replacement of the electrical system, replacement of Tainter gate chains, repair of roller gate chains, and removal and replacement of deteriorated concrete on the dam piers. Insufficient funds to commence the Stage III design will likely delay a contract award to FY09, with construction completion in FY10.

Current Maintenance Issues

(Critical Rank Order)

Repair or Replace Emergency Gates

L&D 11 Stage II Lock Rehabilitation - Major Rehabilitation

L&D 11 Stage II Lock Rehabilitation Operations & Maintenance Portion

L&D 11 Stage III Dam Rehabilitation - Major Rehabilitation

Systemic Miter Gate Replacement

Repair Roller End Shields & Seals

Central Control Station Flood Proofing

Systemic Tainter Valve Replacement

Dam Rehabilitation Evaluation Report

Replacing 70-Yr Old Lock Pontoon Barges (Work Flats)

Bridge Crane Repairs to Lattice Boom & Crane Undercarriage

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