



Lower St. Anthony Falls

(Minneapolis, Minnesota)
Mississippi River

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Construction: 1950-1956

Congressional District: MN-5

Description

Lower St. Anthony Falls (LSAF) Lock and Dam is located at Mississippi River Mile 853.3, in Minneapolis, Minnesota.

LSAF Lock is located along the right descending bank and consists of a single lock chamber 56 feet wide by 400 feet long with an upper pool elevation of 750.1 feet, a tailwater elevation of 725.1 feet, and a vertical lift of 25 feet. The lock uses miter gates on the downstream side and a lock Tainter gate on the upstream side for the purpose of passing flow through the lock chamber during high water. There is a partial auxiliary lock consisting of an upstream Tainter gate and short concrete riverwall section.



The movable dam has three Tainter gates (24 feet high by 56 feet long) and an auxiliary lock submersible Tainter gate (24 feet high by 56 feet long). Completing the dam system is a concrete non-overflow wall owned by the Corps and a short, earth embankment owned by Xcel Energy, both on the left descending bank.

History/Significance

The Lock was put into operation in September 1956. In 2007, the I-35 bridge tragedy occurred at the Lower St. Anthony Falls location.

In 1937, Congress authorized a 4.6 mile extension of the 9-foot channel at its upstream end and two additional complexes were built in Minneapolis: the Lower St. Anthony Falls Lock and Dam, and the Upper St. Anthony Falls Lock and Dam. The construction of these complexes, also known as the Upper Minneapolis Harbor Development, extended the 9-foot channel over the St. Anthony Falls. Below the St. Anthony Falls, the narrow gorge of the Upper Mississippi River only allowed for a relatively small river terminal. By extending the 9-foot channel, the Upper Mississippi Harbor Development project permitted the construction of larger and more suitable river terminal sites above the falls.

St. Anthony Falls has a fall of 74 feet, and had historically been used to furnish waterpower for sawmills and flour mills in the area. To ascend the falls the Corps needed a 25-foot lift at the lower lock, and a 49.1-foot lift at the upper lock. The Lower St. Anthony Falls Lock and Dam project also replaced the original Northern States Power Company Dam, which had been built in 1897.

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180 5TH STREET EAST, SUITE 700, ST. PAUL, MN 55101-1678
Public Affairs Office, (651) 290-5200, www.mvp.usace.army.mil

Annual Tonnage (20-Year Historical)

| <u>Year</u> | <u>Tons</u> | <u>Year</u> | <u>Tons</u> | <u>Year</u> | <u>Tons</u> | <u>Year</u> | <u>Tons</u> |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1992 | 1,380,100 | 1997 | 1,903,460 | 2002 | 2,041,840 | 2007 | 993,963 |
| 1993 | 1,393,150 | 1998 | 1,999,400 | 2003 | 1,930,812 | 2008 | 929,600 |
| 1994 | 1,669,950 | 1999 | 2,067,100 | 2004 | 1,483,317 | 2009 | 696,470 |
| 1995 | 1,754,188 | 2000 | 2,237,267 | 2005 | 1,158,096 | 2010 | 664,410 |
| 1996 | 1,771,412 | 2001 | 1,814,488 | 2006 | 1,316,764 | 2011 | 766,553 |

Commodity Tonnage & Lockages (2011)

| | | | | |
|------------------------|---------|-------------------|-------------------|--------|
| Coal | 89,600 | <u>Subtotals:</u> | Grain | 0 |
| Petroleum | 9 | | Steel | 22,500 |
| Chemicals | 55,300 | <u>Lockages:</u> | Commercial Boats: | 837 |
| Crude Materials | 590,900 | | Recreation Boats: | 1,650 |
| Manufactured Goods | 24,000 | | Light Boats: | 45 |
| Farm Products | 0 | | Other Boats: | 50 |
| Manufactured Machinery | 6,744 | | Total Boats: | 2,582 |
| Waste Material | 0 | | Total Cuts: | 1,768 |
| Unknown | 0 | | | |

The 9-Foot Channel Project

Lower St. Anthony Falls is one of 29 locks and dams on the Upper Mississippi River that provide a water stairway of travel for commercial and recreational traffic from Minneapolis to the Gulf of Mexico.

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 which adversely affects reliability of the system. Long-established programs for preventive 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 malfunction, extended repairs can have major consequences for shippers, manufacturers, consumers, and commodities investors.

Additionally, 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.

There are more than 580 manufacturing facilities, terminals, grain elevators, and docks that 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.

UPDATE: October 2012

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