

Merit Award: Medium Span

Trunk Highway 61 over Gooseberry River

Lake County, Minnesota



Trunk Highway 61 (TH 61) runs along the scenic north shore of Lake Superior in Minnesota. The highway crosses the Gooseberry River within Gooseberry Falls State Park, which attracts 580,000 visitors annually. Built in 1922, the old bridge over the river consisted of a 150' arch shaped deck truss with 60' beam spans at both ends. A third arch was added, in 1937, to accommodate a 30' roadway with 5' sidewalks on both sides, which act as viewing platforms for waterfalls located west and east of the bridge. A visitor center is located near the north end of the bridge and there is also an additional roadside parking at the south end, both of which make the area around the bridge heavily congested with pedestrian traffic and cause safety concerns.

By 1990, the bridge was badly deteriorating. An arch type bridge was chosen for replacement in order to maintain the look of the old bridge from both the upper and lower falls, where it frames the river gorge scenery. The new bridge would be built in conjunction with a new visitor center located away from the road.

The new bridge consists of a 154' main steel arch span supporting a 14" deck slab with three concrete slab spans on both ends varying in length from 16 to 24'. The cross-section for the main span consists of 2 box shaped fixed arches 42.5" deep by 29.5" wide. In order to maintain bridge access for pedestrian viewing of the waterfalls, and at the same time reduce pedestrian traffic on the highway, an 8' walkway was provided at deck level on one side of the bridge with another 8' walkway suspended below the bridge on the other side. These walkways connect with trails that run throughout the park. Tubular steel sections were used for the pier columns, spandrel columns, the struts that brace the arches and the tension members which suspend the walkway underneath. A slab span system which runs between the pier and spandrel cap beams was chosen to reduce superstructure depth and to be more aes-

thetically pleasing. The new pedestrian railing was designed to look similar to the old rail for historic reasons. During the Great Depression, rock walls located at the south abutment of the old bridge had been built by the Civilian Conservation Corps. These walls were saved and the new abutment, directly adjacent to the old, was constructed with a rock facing to match the old wall.

TH 61 is the only road along the north shore to Canada and no practical detours are available. This coupled with a tightly confined area made stage construction a requirement. Due to the steep slopes and an environmentally sensitive area the contractor was constantly challenged during construction.

Project Team

Owner

Minnesota Department of
Transportation

Designer

Minnesota Department of
Transportation

Steel Fabricator

The D.S. Brown Company-
Lewis Engineering Division

Steel Detailers

The D.S. Brown Company-
Lewis Engineering Division
and Tensor Engineering Co.

Steel Erector

M.A. Mortenson Company

General Contractors

M.A. Mortenson Company

