Bridging the Gap

Between Disasters and Freedom

It was the disaster that wasn't.

In June 2000, heavy rains in eastern North Dakota swelled small streams and rivers well beyond their banks. That pushed the Red River of the North beyond flood stage—again.

But this time, those who live and work in Traill County, North Dakota, and Norman County, Minnesota—accustomed to warily watching the river's ups and downs—felt a new sense of freedom.

Large, open support piers provide plenty of room for the Red River to spread out onto lowlands, reducing the threat to nearby public roads.

For the first time in decades, river flooding didn't bring life as they knew it to a grinding halt. Gone were the days of isolation wrought by the Red River when it spilled out of its banks and over access roads to the only bridge for 75 miles that provided a direct link to Interstate 29.

That's because a new, higher and longer bridge, completed just 10 months earlier, worked the way it was supposed to. It remained dry and open.

New bridge now provides a safe crossing over the Red River. Photo courtesy of Randy Aarestad, Halstad, Minnesota.

"I feel pretty good when I see how well the new bridge did during the June flooding," said Kevin Gorder, an engineer with the North Dakota Department of Transportation (NDDOT) who managed the bridge project. "Before this, it was like an island. People on both sides couldn't go anywhere. This year, they weren't disconnected from the world again."

The $6.3 million bridge, which links the two states via ND Highway 200, replaces a lower, smaller bridge built in 1933 that was prone to flooding when the river got too high. More often, it was the access roads to that bridge—lower on the Minnesota side—that would be submerged.

And that created a big problem for residents and farmers from both states who depend heavily on the bridge for access to their homes, jobs, schools and businesses. Even though there are small county roads that also link the states, Highway 200 is the main crossing within the 75-mile stretch between Fargo and Grand Forks along North Dakota's eastern border.

According to Glen Brookshire, mayor of nearby Halstad, Minnesota, population 625, the access roads would become impassable "any time there was a heavy rain" because the river often overflowed

its banks during those events. And at least four times—in 1966, 1975, 1989 and 1997—river levels got so high that the driving surface of the bridge itself was under anywhere from 2 to 8 feet of water.

Ironically, recurrent flooding wasn't the biggest problem with the old bridge, a steel-truss version. It was safety.

For years, farmers hauling beets to a sugar processing plant in nearby Hillsboro, N.D., and other motorists took their chances that they wouldn't meet head-on while crossing the old bridge. Approaching sight distances reportedly were not adequate and the bridge was so narrow that a modern-day tractor had only 3 feet to spare when crossing—leaving no room for another vehicle to be there at the same time. Miraculously, there were no serious accidents—just four moderate property-damage incidents from 1995–1999, according to North Dakota state transportation records.

So Halstad residents formed a committee, gathered petition signatures and lobbied anybody and everybody for help. It was a lengthy process. In the meantime, the bridge's sufficiency rating, determined by the North Dakota DOT during biennial inspections, was dropping to the point that it would soon require replacement—mainly because of the safety issue. The bridge no longer met current standards.

New bridge (top) is 11 feet higher and three times longer than the old bridge (bottom), which has since been demolished. (Right side of photo is North Dakota.) Photo courtesy of Randy Aarestad, Halstad, Minnesota.

So it was decided. There would be a new bridge. Federal Highway Administration funds were made available to pay 80 percent of the project. The two state departments of transportation shared the remaining 20 percent of the cost.

Because the new bridge would cross a river, federal requirements mandated that flooding issues be considered in the new design. Those who used the bridge on a daily basis wanted the flooding problems solved too.

As a result, Gorder said, the new bridge is 11 feet higher than its predecessor. The span now is 1,500 feet—more than three times longer than the old bridge—to allow more room below for the river to spread out onto undeveloped land. The bridge approach roads on each side are elevated. Now, both the approach roads and the bridge are above the 100-year-flood level, Gorder said.

The safety problem was addressed as well. The new bridge is 40 feet wide, compared with the 22-foot width of the old bridge, and has low, concrete sides so that farm machinery can hang out over the edge if needed.

Although the old bridge, demolished in the fall of 1999, wasn't around for comparison during the June 2000 flooding, Gorder estimated the water in that event was high enough to have run over the top of the old approach road on the Minnesota side.

With the new bridge, however, Gorder said that the longer span, with three main columns and 12 support piers, provided plenty of room for the water to spread out and to minimize logjams—a common problem with the old bridge that forced the river level to rise. The result? No water came close to the roads or the driving surface of the bridge. Brookshire agreed.

"If the old bridge had still been around when we got this water in June," said Brookshire, "we would have had logjams going on. That's been a problem for us in the past. With the old bridge it would jam up real good and raise the water levels.

"This year, I went down there quite a bit just to see how the new bridge would react," he added. "My main concern was how much water flow was held back and I was real surprised that I didn't see any. I was really impressed."

Brookshire thinks it will take a much bigger flood to provide the ultimate test for the new bridge. But considering the evidence he's seen so far, he believes the new bridge will likely pass that test.

"I know for a fact that in the 1997 flood (the area's highest modern-day flood on record), if the new bridge had been in place, the water would have only come to the bottom of the bridge," Brookshire said. "It would not have gone over the bridge or the roads."

In the meantime, the new bridge will help to keep Halstad economically viable, Brookshire added, because traffic through town—and business in town—now won't be interrupted.

"On the whole, that bridge has been just a fantastic thing," he added. "I'm very pleased."