COUNTY

Bridges at the Foot of the Lake

by Paul M. Sponholz, Fond du Lac County

This 65-ft-long span, precast, prestressed concrete girder bridge carries Fond du Lac County Highway C over the West Branch of the Fond du Lac River in Eldorado, Wis.

A Fond du Lac County highway crew is shown installing a 20-ft span, three-sided precast concrete structure to carry County Highway B over Parsons Creek.

At 377 ft long with four spans, Fond du Lac County's longest bridge carries County Highway RP over the Canadian National Railway.

Built in 1921, this concrete slab span bridge carries County Highway Q over the South Branch of the Manitowoc River. It was widened in 1976 and its deck was resurfaced in 2004. Concrete slab span bridges make up many of the county's bridges.

After removing delaminated concrete, sandblasting exposed corroded reinforcement, and painting the reinforcement with an epoxy coating, a Fond du Lac County highway crew applies shotcrete to repair concrete under the deck.

Fond du Lac County lies at the southern tip of Lake Winnebago, the largest lake in Wisconsin. The county's name is a French phrase meaning "foot of the lake." The county's population is about 101,000 with over 43,000 living in the city of Fond du Lac, the county's largest city. The county is at a crossroads of important highways connecting major Wisconsin cities and is a significant dairy and agricultural region of the state. The county owns and maintains 382 miles of highways, the majority of which are rural collectors, along with 61 county bridges with spans longer than 20 ft.

The county has long chosen concrete bridges because of the minimal maintenance needed. Of the 61 structures, 48 are concrete. Two concrete spans have been widened with steel girders. Three bridges are steel, one which was widened with concrete girders. Two bridges are timber. The other eight structures with spans long enough to be included on the national bridge inventory are steel culverts.

The average bridge length is 54 ft, with the longest being 377 ft. The widest and newest bridge, West Pioneer Road Bridge over the Fond du Lac River, is 88 ft wide and featured in this issue on page 42. All bridges cross water except for two that span railroads.

The average bridge age is 37 years. Two are tied for being the oldest at 90 years. A concrete slab span bridge on Highway Q in Johnsburg was built in 1921 and then widened in 1976. In 2006, county crews completed minor repairs and milled and resurfaced its concrete deck. It is expected to continue service for many years to come. The other 90-year-old bridge is scheduled to be replaced in 2013.

County engineering staff inspects all 61 bridges every 2 years at a minimum and make maintenance recommendations as needed. The county has an aggressive maintenance program to get the most life out of its bridges using its own crews to do the work such as sealing deck cracks, patching decks, and making concrete repairs using formwork or shotcrete. Crews mill and resurface one or two decks a year with concrete.

The county replaces about one bridge a year through the federal bridge program. On occasion, county crews construct smaller bridges that are not federally funded with cast-in-place concrete or precast components.

Besides the bridges longer than 20 ft, there are numerous smaller span bridges. Many of these small bridges were constructed in concrete in the 1930s then later widened with steel girders. The concrete in many cases is still in good condition, but the steel often is in poor shape. While not part of the federal inspection requirements, the county is working to formally inspect and document the condition of these bridges regularly, recognizing safety concerns and the significant costs to replace them with local funding only.

Assisting local governments, the county serves as the bridge Program Manager working with the Wisconsin Department of Transportation to manage 107 municipal and township bridges in the county. County staff also inspect most of these bridges.

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