

Statement of Heritage Significance

The Crooked Bridge Town of Nipawin



**Ross Herrington M.A., M. Sc., P. Eng.
Architectural Historian**

March 1, 2008

Cover Photo: The Crooked Bridge at Nipawin, looking towards the east (R. Herrington; September 18, 2007).

Statement of Heritage Significance

The Crooked Bridge Town of Nipawin

STATEMENT OF SIGNIFICANCE

The Crooked Bridge is located in the Town of Nipawin. Crossing the Saskatchewan River, the former Canadian Pacific Railway (CPR) Bridge is a double-deck plate girder design which incorporates a 16-foot roadway immediately beneath the upper railway deck. The structure, which was completed by January, 1930, is supported on concrete piers and steel towers.

HERITAGE VALUE

The heritage value of the Nipawin's Crooked Bridge lies in its status as a distinctive feature and an important community landmark in northeastern Saskatchewan. This structure was one of the largest steel bridges in Western Canada at the time of its construction in 1930. Its unusual double-deck design incorporates a 16-foot roadway immediately beneath the upper railway deck, which was similar to the original 1903 Fraser River bridge at New Westminster, B.C. The Crooked Bridge has become a symbol of the community and a significant tourist attraction. Several murals in Nipawin depict the Crooked Bridge and the importance of the railway to this part of Saskatchewan. The structure remains largely unchanged since its completion.

The heritage value also is associated with the CPR. The crossing of the Saskatchewan River provided an alternate railway route to Prince Albert and helped to open up the north side of river. The traffic bridge also promoted agricultural settlement of the large area north of this barrier.

CHARACTER-DEFINING ELEMENTS

The heritage value of the Crooked Bridge resides in the following character-defining element:

- those elements which speak to its status as a landmark in the community, such as the steel deck plate girders, steel towers, reinforced concrete piers, and roadway suspended below the upper railway deck, and its location on its original site.

ADDITIONAL INFORMATION

A. Historical Significance

The Saskatchewan River proved a hindrance to agricultural development as well as to getting access to the rich timber and mineral resources of Saskatchewan's north. This impacted the economic development of many communities, including Nipawin.

Like many early prairie communities situated adjacent to a river, local enterprising businessmen were quick to see the opportunity of a ferry service. Nipawin's first scow was built in 1908. A larger ferry was soon needed and one was floated down from Prince Albert in June, 1918 and began operations immediately east of where the Canadian Pacific Railway Bridge would be built a decade or so later. To improve service during the annual freezeup and breakup periods, an interesting cableway system was erected at the ferry site in 1924. A basket was attached to the cable strung across the river and this was pulled back and forth with a Ford Model-T engine. Anyone wishing to cross simply climbed in.¹ No doubt business would have ceased once the CPR bridge was constructed a few years later!

The CPR was granted a charter in 1921 to extend their line to Nipawin. Unfortunately for the original Nipawin settlement, the line terminated about 6km north and this forced residents to move their buildings to the newly-surveyed townsite. Local residents greeted the first train into the new townsite on December 15, 1924² and eagerly anticipated construction of the bridge across the Saskatchewan River.

Although rumours had been circulating for some time about a bridge being constructed by the CPR at Nipawin, it was not until the summer of 1923 that this seemed to become a real possibility. The CPR had sent a letter to the Department of Public Works requesting approval for a right-of-way for a crossing for their proposed Tuffnell-Prince Albert line. It is not clear if the CPR had suggested a combination rail and traffic bridge but J.G. Gardiner, the Minister of Highways at the time, made the government's position clear that "The bridge there should be so constructed as to provide for highway traffic."³

Apparently the CPR was not as eager as either the local residents or the Saskatchewan government to construct this bridge. Throughout 1924, various petitions and resolutions circulated from local Nipawin area Boards of Trade to the government and from the government to the CPR. The response from the CPR was that they would discuss this matter further with the province "when the matter of a possible bridge receives the attention of our officers."⁴

The local significance of a traffic crossing perhaps is best expressed by the Nipawin Board of Trade in May, 1924: "The importance of a traffic bridge across the Saskatchewan river as a promotion of settlement of the large area North of this barrier may be readily understood at a glance." An identical resolution was submitted to the province from the North-Eastern Saskatchewan Boards of Trade (Birch Hills) in September, 1924.

In spite of the ongoing and frequent entreaties, however, the bridge project clearly was not the highest priority for the CPR at the time. More fruitful discussions seemed to have taken place around late 1926 between Saskatchewan Highways and the CPR, with the railway company agreeing in principle to a combination bridge. Various traffic options were proposed including a 15-foot roadway bracketed on each side of the bridge, and one 16-foot roadway.⁵ The province was quick to reply that they preferred the latter option, which was based on the design for the recently-completed CNR crossing on the Dunblane-Mawer line over the South Saskatchewan River.

While these discussions were in progress, Saskatchewan Highways were also considering a separate traffic bridge for Nipawin. This would likely have been six 200-foot steel truss spans with an 18-foot clear floor.⁶ For some reason, the CPR adjusted their proposal to widen the traffic bridge deck by 16 inches, but the province replied that they couldn't justify the extra cost, and that they still preferred the 16-foot option.

Nipawin residents finally had something to celebrate in late 1927 when the CPR put out a tender call for foundation work.⁷ Unfortunately, this tender was for exploratory work only. More encouraging news, however, came in late January, 1928 when E.W. Beatty, the President of the CPR, announced in Winnipeg that the CPR would be extended into "the northland of Saskatchewan" with a branch line running north from Wadena with a connection to be made between Nipawin and Prince Albert.⁸ Beatty stated that this line would help to open up "an exceptionally fine farming country" which was already partly settled. Beatty was non-committal about a line extending eventually to Hudson's Bay for the transportation of prairie grain through this northern route.

After years of discussion and negotiation, on April 30, 1928 the CPR sent a telegram to the Deputy Minister of Saskatchewan Highways requesting approval for a 16-foot roadway suitable for 15-ton vehicles. This was immediately given, although it would appear that by early December, 1928, the province was suggesting that they now required a roadway which was 24 feet wide with a maximum curvature not to exceed 16 percent.⁹ Because of suspending the roadway beneath the rail deck, access of traffic onto and off the bridge requires negotiating a 'Y' approach. The bridge soon became known as Nipawin's "Crooked Bridge".

An Agreement between Saskatchewan and the CPR was negotiated over the next six months. One specific clause in the Agreement stipulated that the province would have to pay for any future moveable span for the purpose of navigation should either the Board of Railway Commissioners or the Department of Public Works for Canada so order.

While the bridge was completed in early 1930, it is not known when it was opened officially. The first train from Prince Albert arrived at Nipawin in 1931¹⁰ but it is likely that the first train to cross this bridge would have arrived from the east. The old CPR railway line between Nipawin and Choiceland is now owned by the Torch River Rail Inc. short-line railway company.¹¹

The traffic attachment to the CPR bridge provided the primary crossing for the Nipawin area. A new traffic bridge was started in 1970 about 2km downstream of the CPR Bridge and completed in the fall of 1974.¹²

Nipawin's Crooked Bridge continues to be used by local traffic but, like the former CPR Bridge over the South Saskatchewan River at Outlook, the bridge has become a symbol of the community and a significant tourist attraction. Several murals¹³ are on display around Nipawin which depict the Crooked Bridge and the importance of the railway to this part of Saskatchewan.

B. Engineering Significance

The Nipawin CPR Bridge was one of the largest steel bridges in Western Canada at the time of its construction.¹⁴ Its unusual double-deck design incorporates a 16-foot roadway immediately beneath the upper railway deck. The roadway is carried along a "part of the approach railway viaduct on brackets cantilevered from one side of the steel bents. The arrangement is essentially a Y, and [is] similar to the one employed for the [1903] railway approach¹⁵ of the Fraser river bridge at New Westminster, B.C."¹⁶

The bridge is 1907 feet long and consists of 15 steel spans. The south approach is composed of two 80-foot and one 45-foot deck plate girders while the north approach has four 75-foot, three 45-foot, and one 80-foot deck plate girders. Each of these is supported on steel towers. The four centre spans consist of deck trusses carried on reinforced concrete piers. Each of these trusses is approximately 280 feet long.¹⁷

Preliminary designs and cost estimates were made for five 225-foot spans, four 280-foot, and three 375-foot spans. Since each span was to be cantilevered out from the rail bed, the engineers determined that constructing the bridge with 335-foot sections would have been more costly than what would be saved by eliminating one pier.¹⁸ Thus, the design incorporated spans of 280 feet.¹⁹ The cantilever approach was necessary to avoid assembling the steel on high false work, which would have significantly increased the cost and risk as well as adding considerably to the erection time. The first 280-foot span was erected on false work and served as the anchor arm for the next truss.

Tenders for the foundation work were called in August, 1928²⁰ and awarded to The Sydney E. Junkins Co. Ltd., of Winnipeg with the contract being signed on September 1, 1928.²¹ Actual construction started in late September, 1928. Tenders for the steel work were called in December, 1928. The contract was awarded to the Dominion Bridge Company of Winnipeg. River excavations were completed by early January, 1929 and the formwork for the piers was started in March. Two of the five large piers were completed by early July²² and sections of the steel superstructure had arrived at the site by mid-July.²³ It was expected that the bridge would be carrying trains and vehicles by November, 1929.

The bridge structure was completed by the end of January, 1930 but additional work was needed on the two traffic approaches once the frost was out of the ground. In spite of

ongoing problems with soil slippage, particularly on the north approach, vehicles were using the bridge by early April, 1930. After many years of anticipation, local residents were so eager to use the bridge that Saskatchewan Highways initially had to post ‘no trespassing’ signs and add the caveat that motorists crossed at their own risk.

¹ Bridging the Years: Nipawin, Saskatchewan, 1988, Nipawin Historical Society, p.18.

² Bridging the Years: Nipawin, Saskatchewan, 1988, Nipawin Historical Society, p.7.

³ Letter from Gardiner to the Deputy Minister dated August 4, 1923, on bridge file 214-51-05, Saskatchewan Highways and Transportation, Bridge Services, Regina.

⁴ See, for example, memo from CPR to DM Highways dated April 28, 1924.

⁵ Letter from the CPR to the Deputy Minister dated January 2, 1927, on bridge file 214-51-05, Saskatchewan Highways and Transportation, Bridge Services, Regina.

⁶ Internal memo dated January 19, 1927, on bridge file 214-51-05, Saskatchewan Highways and Transportation, Bridge Services, Regina.

⁷ See letter dated November 8, 1927 on bridge file 214-51-05, Saskatchewan Highways and Transportation, Bridge Services, Regina.

⁸ *The Leader*, Regina, January 26, 1928.

⁹ See letter dated December 7, 1928 on bridge file 214-51-05, Saskatchewan Highways and Transportation, Bridge Services, Regina.

¹⁰ Bridging the Years: Nipawin, Saskatchewan, 1988, Nipawin Historical Society, p.82.

¹¹ Personal Communication on January 18, 2008 with Sherry Michalyca, Economic Development Officer, Town of Nipawin.

¹² Bridging the Years: Nipawin, Saskatchewan, 1988, Nipawin Historical Society, p.84.

¹³ <http://www.nipawin.com/murals.php?mode=1>

¹⁴ *The Leader*, Regina, January 20, 1930, p.8.

¹⁵ This was a special design by the prominent American engineering firm of Waddell and Harrington, which was particularly well-respected for its movable bridges.

¹⁶ Young, C.R., “Bridge Building”, *Engineering Journal*, Vol. 20, June 1937, p.483. The Fraser River Bridge actually had the roadway above the rail bed.

¹⁷ *The Leader*, Regina, January 14, 1929.

¹⁸ Reducing the number of piers was also a response to foundation uncertainties.

¹⁹ Ketterson, Major A.R., “Nipawin Bridge”, *The Engineering Journal*, June 1933, p.254.

²⁰ *Saskatoon Phoenix*, August 24, 1928, p.3.

²¹ Sydney Junkins was an 1887 engineering graduate of Dartmouth College, New Hampshire. For background information, see for example <http://ead.dartmouth.edu/html/ms845.html>

²² *Nipawin Herald*, July 18, 1929, p.1.

²³ *Nipawin Herald*, August 1, 1929, p.1.