Santiam River Bridge (Jacob Conser Bridge)
Spanning Santiam River on Oregon Route 164
Jefferson
Marion County
Oregon

HAER OR-42



PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
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HISTORIC AMERICAN ENGINEERING RECORD

SANTIAM RIVER BRIDGE
(JACOB CONSER BRIDGE)
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| Location: | Spanning Santiam River on the Jefferson Highway, Oregon Route 164, Jefferson, Marion County, Oregon<br>UTM: Albany, Oregon Quad. 10/499000/4951150 |
| Date of Construction: | 1932-33 |
| Structural Type: | Reinforced concrete arch |
| Engineer: | Conde B. McCullough, Oregon State Highway Department |
| Builder: | Clackamas Construction Company, Clackamas, Oregon |
| Owner: | Oregon Department of Transportation |
| Use: | Vehicular and pedestrian bridge |
| Significance: | The Santiam River Bridge is a prime example of C.B. McCullough's application of the Art Deco style that he preferred to use in embellishing reinforced-concrete arch bridges in the 1930s. |
| Project Information: | Documentation of the Santiam River Bridge is part of the Oregon Historic Bridge Recording Project, conducted during the summer of 1990 under the co-sponsorship of HABS/HAER and the Oregon Department of Transportation. Researched and written by Robert W. Hadlow, HAER Historian, 1990. Edited and transmitted by Lola Bennett, HAER Historian, 1992. |
| Related Documentation: | For more information on Conde B. McCullough, see HAER OR-54. |

## HISTORY

The Santiam River Bridge is the third structure to span the stream in the vicinity of Jefferson. In August 1933, the present bridge was dedicated to an early-day pioneer of the area, Jacob Conser. He traveled to the region in 1847 and soon after platted the townsite of Jefferson and played a prominent role in its development. In 1852 Conser established ferry service across the Santiam River, slightly down stream from the site of the present bridge span. At the same time he petitioned the Linn County Court for a road from his ferry to intersect with the Syracuse to Brownsville road. Conser's route later became part of the Pacific Highway. His ferry served as the Jefferson area's only river crossing until 1890, when a timber span was erected near the present Santiam River bridge. This was replaced by a three-span steel through-truss bridge in 1910. By the late 1920s, the Pacific Highway became increasingly popular for the traveling public. It was a time when State Highway Department officials saw that the steel bridge was in a severely deteriorated condition.[1]

In 1931, State Bridge Engineer Conde B. McCullough reported that the wooden deck of the steel through truss bridge at Jefferson was "pretty badly decayed." While the department had budgeted $4,000 for repairing the span, McCullough believed that it seemed "rather uneconomical" to go to this expense. A redecked bridge could have probably continued to serve the public's demand in the early 1930s, yet McCullough and others in the Highway Department saw it as grossly inadequate to handle an increasing number and tonnage of vehicles. With a roadway 16' wide, curb to curb, the bridge's narrow width was its most dangerous aspect. McCullough speculated that the best solution to problems with the steel truss bridge would be to replace it.[2]

By May 1932, state bridge engineers had designed a reinforced-concrete through-arch span to replace the steel through-truss bridge at Jefferson. The Clackamas Construction Company of Oregon City was the successful bidder for the contract, and a second firm, Liesch & Tofte, appears to be a primary subcontractor. Construction began in June 1932 and was completed one year later. Costs totaled over $100,000.[3]

## DESIGN AND DESCRIPTION

The Santiam River Bridge is a classic example of the reinforced-concrete arched bridges that long-time State Bridge Engineer Conde B. McCullough designed. McCullough had perfected the use of concrete, reinforced with steel bars, in Oregon bridge construction from 1919 to the mid-1930s. The bridge at Jefferson consists of three through-arches with approach spans and ornate railings, brackets, and entrance pylons.

Reading from north to south the Santiam River Bridge consists of one 30-foot deck girder approach, three 200-foot through arches, and three 50-foot deck girder approaches, all constructed from reinforced concrete. The pairs of arches are attached to concrete pedestal piers anchored on bedrock. The distance from the top of the center arch to the springline is 60'. The deck is 42' above the main river channel.[4]

The roadway of the bridge at Jefferson measures 24' curb-to-curb. Walkways on the deck-girder spans each measure 4' feet. Those on the main spans are 8' wide, but the through arches and suspenders encroach on them. Total width, out-to-out on deck-girder sections is 32', for the through-arch spans, 40'. Minimum vehicular clearance is 20'-6".[5]

The main rib-arches are segmented and elliptical in shape. They are connected with cross braces and semi-elliptical, segmented portal braces. The suspenders, eight pairs per arched span, are narrow and slender, with decorative fluting or scoring.[6]

Medium-sized twin pylons with obelisk towers guard the entrances to the end deck-girder

spans. They measure 16'-6" from sidewalk level to their points. Plans suggest that they originally projected rods at their apices. Modillions appear on all four sides of the pylons, 8'-6" above the walkways and are surrounded by decorative cornice moldings. Sidewalks are supported by curved "beam" brackets. Railings consist of small, pre-cast, arched balusters, with radii of 6". They are capped with beveled, 1-foot wide banisters or railings.[7]

## REPAIR AND MAINTENANCE

The Santiam River Bridge has required little maintenance since its construction in the early 1930s. It has suffered little chloride ion induced corrosion to which coastal reinforced-concrete bridges are continuously exposed. Shortly after the bridge opened, cracks appeared near a few expansion joints, due to settling. All that it required for its first thirty-five years was periodic maintenance of these joints, along with cleaning the structure of grime, moss and occasional displays of graffiti.[8]

In the late 1960s, bridge inspectors noticed that deck joints had deteriorated and that the deck surface had worn through to its top mat of reinforcing bar. Engineers in the late 1970s suggested as a remedy a complete deck surface restoration using structural concrete overlay. It appears, though, that the problem still exists. Otherwise, ODOT repaired spalling concrete at the ends of the arches in the spring of 1977.[9]

## ENDNOTES

1. "The Jacob Conser Bridge," Portland Oregonian, 5 August 1933, p.10; "Modern Span Over Santiam River Dedicated to Memory of Pioneer," Portland Oregonian, 4 August 1933, pp.1 and 14; "Linn County Inventory of Historic Resources," Jacob Conser Bridge, Inventory No. 243.

2. C.B. McCullough to Roy A. Klein, State Highway Engineer, 16 March 1931; See also C.B. McCullough to R.A. Klein, 23 August 1926, Oregon State Archives Record Group H4, 76A-90/2, 1926, Folder 112-10. McCullough worried about the condition of the steel-span bridge at Jefferson in 1926 but thought it was not yet dangerous from a structural standpoint. As a result of two traffic accidents, the end posts of the south steel span had received serious damage. This weakened the structure and was blamed on the narrow roadway.

3. ODOT, Highway Division, Bridge Section Maintenance Files, Santiam River Bridge (No. 1582), "Bridge Inspection Report, April 1933."

4. ODOT, Highway Division, Bridge Section, "Bridge Log," Jefferson Highway No. 164, Mile Post 5.24; ODOT, Highway Division, Bridge Section, Maintenance Files, Santiam River Bridge at Jefferson (No. 1582), "Bridge Inspection and Maintenance Report for January 1939"; The City of Jefferson constructed a pump house with in the webbing of pier number 4. Its use is unknown. See drawings and photographs in ODOT, "Inspection Report for April 1933."

5. ODOT, Highway Division, Bridge Section, "Bridge Plans," Santiam River Bridge at Jefferson (No. 1582), Drawings No. 4285-4296; ODOT, Highway Division, Environmental Section, "Engineering Antiquities Inventory for the Santiam River Bridge at Jefferson," TMs, 1982.

6. Ibid.

7. Ibid.

8. ODOT, Highway Division, Bridge Section, Maintenance Files, Santiam River Bridge at Jefferson (No. 1582), "Bridge Inspection and Maintenance Report for 7 March 1938"; G.S. Paxson, State Bridge Engineer, to J.N. Bishop, 3 June 1936, Santiam River Bridge at Jefferson (No. 1582), Maintenance Files, Bridge Section, Highway Division, ODOT.

9. ODOT, Highway Division, Bridge Section, Maintenance Files, Santiam River Bridge at Jefferson (No. 1582), "Bridge Inspection and Maintenance Report for 1970"; J.E. Backstrand, Supervising Structural Design Engineer to D.O. Christiansen, Final Design Engineer of ODOT, 3 July 1979, Santiam River Bridge at Jefferson (No. 1582), Maintenance Files, Bridge Section, Highway Division, ODOT. See also J.M. Martin, "Local Narrative of Talbot Road--Santiam River Bridge at Jefferson Section, Jefferson Highway," 8 May 1979, where the author wrote observations about the condition of the bridge; See Drawing B748, 23 March 1977, and attached note about repairs to arches, in Santiam River Bridge at Jefferson (No. 1582), Maintenance Files, Bridge Section, Highway Division, ODOT.