Inventory of Metal Truss, Movable, and Steel Arch Bridges

Bridge #: 29 0016F **District** 10

Road: W120-S5 CONNECTOR **Route:** 120 **PM:** 0.11

Feature Intersected: W120-S5 Connector over San Joaquin

City: **County** San Joaquin

Other Location Info: At Mossdale, adjacent Manthey Road

Year Built: 1949 **Moved:** No

2nd Date: _____ Year Altered _____ Year Moved

Owner: State

Builder: Judson Pacific Murphy

Designer: Division of Highways

Contractor: Judson Pacific Murphy

Evaluation Summary (NRHP Eligibility)

Previous: 5 Not eligible

Update: 2 Eligible

Description: Bridge 29 0016F has five steel, rigid-connected truss spans carrying two lanes. Its mainspan is a single leaf Bascule truss 111 feet long. Its secondary spans are Warren pony trusses with vertical supports, each 130 feet long. The bidge's bascule leaf is now locked in place.

Surveyor: CDM / JMC

Survey Date: 4/9/2003

Points	1986		2003	
Date of Construction	-20	Post-1945 period	0	1946-1959 period
Builder/Designer Signific	6	Minor example of signif. builder / designer	6	Minor example of signif. builder / designer
Length:				
Number of Spans	8	5 or more span(s)	8	5 or more span(s)
Length of Spans	8	pony >80; through >150; deck >150	8	pony >80; through >150; deck >150
Surviving # of Type	5	16	7	14
Special Features:				
Pin Connected	0	Is not pin-connected	0	Is not pin-connected
Iron	0	Is not iron	0	Is not iron
Decorative Feature	0	none	0	none
Aesthetics				
Site	4	Good	4	Good
Structural	4	Good	5	Excellent
Integrity:				
Location/Setting	0	Excellent	0	Excellent
Design/Material	0	Excellent	0	Excellent
Feeling/Association	0	Excellent	0	Excellent
Transport. / Hist.Assoc.	3	Local	N/A	
Totals	18		38	

Criterion A Evaluation

See Historic Evaluation.

Notes:

Bascule now locked in place and listed as a through truss and not and not a bascule in Caltrans bridge log.

Surviving number of type score given as bascule. Aesthetics structural score increased for consistency with entire bascule group.

Historic Evaluation

Bridge 29 0016F appears to meet the criteria for listing in the National Register because it is significant under Criterion C and it retains historic integrity. The Division of Highways built this structure in 1949 as a second bridge along US50 at this crossing. It now carries the westbound traffic on State Route 120 connecting to southbound I-5. Although built as a bascule bridge, the structure's leaf is now set in-place, and it is considered a through-truss by Caltrans Structures Maintenance. It is unclear whether the trunnion mechanism is operable.

Bridge 29 0016F does not appear to be significant under Criterion A because it is not important for its association with any significant historic event or trend. The structure is not important for its association with a specific historic property or area, nor does it appear to be significant for aiding in the development of Mossdale or San Joaquin County. The bridge is located at a geographically prominent crossing of the San Joaquin River and is one of many roadway and railroad bridges that has traversed the river at this location. This location is just south the Sacramento River Delta; its natural ford made it an excellent location for ferries, and later for bridges, that connected permanent roads. Bridge crossings here date to at least 1869 when the transcontinental railroad was extended from Sacramento to Oakland. Bridge 29 0016F is at least the third vehicle bridge at this crossing. Bridge 29C0127, built in 1926, is located just north of this structure now serving local traffic on Manthey Road. Bridge 29C0127 was built along Legislative Route 5 which became US50 in 1931 when the federal highway was extended from Sacramento to Oakland. The Division of Highways later added two lanes of traffic from the intersection of State Route 120 just east of the river to a location east of Banta, with Bridge 29 0016F serving as the two easterly lanes crossing the river. Thus, although Bridge 29 0016F is associated with one of California's well-known highways, US50, it does not appear to be important for that association. The bridge is also not significant for its association with the San Joaquin River, which historically served limited commercial traffic. Both bridges have now been superceded for most traffic by I-5, built in 1971 / 1972.

Bridge 29 0016F is significant under Criterion C because it embodies distinctive characteristics of type, period, and method of construction. The Division of Highways Bridge Department designed the bridge and the Judson Pacific Murphy Company built the structure. Although both the division's bridge department and Judson Pacific Murphy are considered master designers and builders of this period, bridge 29 0016F is a minor example of their work (both together and apart). The structure's significance is based on its innovative design and construction method as a bascule bridge as well as aesthetic qualities. The bridge's low profile gives it a graceful appearance that accentuates the horizontality of the highway design and the geographically flat setting. This profile is achieved by the use of an uncommon type of counterweight for the bascule leaf. The concrete counterweight was built with heavy magnetite aggregate that reduced its bulk without reducing its weight. This permitted the counterweight to have a lighter appearance than it might otherwise have had and for it to be successfully integrated into the visual form of the truss bridge. The counterweight is shaped to conform with the curve of the trunnion and it is integrated into the overall sleek form of the Warren trusses. The triangular openings through the counterweight also mimic the triangular forms of the trusses and highlight the lightness of its design. Most bascule bridges with visible counterweights present a heavy bulky awkward appearance, seemingly out of balance with the slender members of the attendant truss.

The bridge's design and execution is significant as an excellent example of the transitional post-World War II period in highway bridge construction in California. During this period, the Division of Highways built highway bridges to carry increasingly greater loads of traffic at greater economy while incorporating some of the design sensibilities of Modernism. The Division of Highways used metal truss and movable bridges with greater infrequency for highway structures following World War II. Their designs also changed. Most metal truss and movable bridges built in the state during this period had utilitarian designs with little attention paid to aesthetics, such as the bascule bridge in Walnut Grove built in 1950, 24C0005. Prior to the war, some metal truss and movable bridge designs had decorative features that exhibited classical architectural qualities, such as the Park Street bridge in Alameda, 33C0027, built 1934. The Division of Highways designed bridge 29 0016F with its utilitarian Warren trusses to economically integrate the demands of both highway and waterway traffic while also incorporating design qualities representative of post-war Modernism. Instead of using classical architectural forms and ornament, the Division of Highways gave the structure an abstract quality that relates to its function and efficiency while harmonizing and balancing with the highway and the setting. Its aesthetic appeal was important for a structure on one of the state's most important highways of the period; its design innovation represented in the triangular voids of the counterweight clearly visible from the road.

In addition to its significance, bridge 29 0016F also retains historic integrity that conveys its engineering significance. The structure is in its original location with it original design, materials, and workmanship intact. One can still ascertain the structure's integrity of feeling and association. The fact that the structure's bascule leaf has been set in place does not detract from its integrity, as the structure can still convey its design as a bascule bridge. The structure's setting has changed with the construction of I-5 to the south and the reconfiguration of the former US50 and SR120. The structure's immediate surroundings, however, still convey its mid-20th century period of construction and relationship to the river and bridge 29C0127 to the north are intact.

References: Road Map of San Joaquin, F.E. Quail, Co. Engineer, San Joaquin Co., CA, 1922; F.W. Panhorst, "Century of Progress" California Highway and Public Works, S/O 1950, 126; USGS, Lathrop Quadrangle, 1915 and 1952; and Motorland, July 1931, 8.

Bridge 29 0016F

Facing west

Facing west

Facing west

Facing northwest

Location Map