



MEMORANDUM

Date: February 17, 2016

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

A handwritten signature in black ink, appearing to read "CHH", is written over the printed name "C.H. Huckelberry".

Re: **Elephant Head Road Bridge Superstructure Reconstruction**

Attached is a memorandum from our Transportation Director highlighting the activities necessary to replace the superstructure of the Elephant Head Bridge. The bridge deck replacement was necessary to eliminate significant weight reductions on the bridge, which would have precluded school buses, fire trucks, and construction vehicles from crossing the bridge.

Funding for the bridge replacement was obtained by the Department of Transportation (DOT) in 2014, and superstructure replacement was initiated in March 2015. The superstructure was replaced in late 2015, and the bridge reopened to all traffic on January 22, 2016. This work occurred with minimal impact to the traveling public and required the cooperation of a number of entities and agencies, including the Regional Transportation Authority and our DOT staff.

This was a very successful and expeditiously completed County transportation infrastructure project.

CHH/lab

Attachment

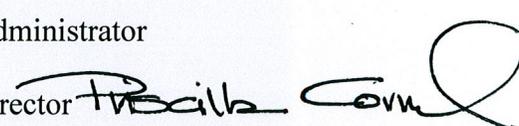
c: John Bernal, Deputy County Administrator for Administration
Nanette Slusser, Assistant County Administrator for Policy, Public Works
Priscilla Cornelio, Director, Transportation Department



MEMORANDUM

DATE: February 11, 2016

TO: C.H. Huckelberry, County Administrator

FROM: Priscilla S. Cornelio, P.E., Director 

SUBJECT: Elephant Head Road Bridge at the Santa Cruz River

The Department of Transportation (DOT) started conducting bridge load ratings on County bridges in 2013 to conform to new FHWA requirements for load capacity ratings of all roadway and highway bridges. Following the completion of all that load rating work, and in the summer of 2015, DOT investigated the possible need to impose a weight limit on this bridge due to the deterioration of the existing bridge girders. This bridge was originally built in 1986 and it was constructed using salvaged concrete girders from the old Swan Road Bridge at the Rillito River. Those girders date to 1962.

DOT's annual bridge inspections documented the degradation of these girders over the years. The load rating analysis completed about two years ago indicated a need to load restrict the bridge from moderate to heavy truck traffic unless reconstruction was completed quickly. Restricting the loads on the bridge would have an adverse impact on the school buses and trucks which would be forced to take a ten mile detour. In late 2014, DOT requested and obtained bridge reconstruction funds from the RTA.

Planning for the full bridge superstructure replacement was initiated in March 2015. In order to avoid extensive substructure changes, it was decided to replace the existing precast concrete girders with similar precast, pre-stressed concrete box beams. Then, a concrete slab would be placed on top of the new girders along with new concrete barriers and handrails. The concrete box beams chosen for use, along with the concrete deck slab, would closely match the existing grades along the bridge and approaches, thus resulting in only minor repaving of the asphalt roadway leading to the new bridge and no changes to the approach guardrails. This proposed work would restore full load capacity to this bridge.

Early planning activities included assessing and relocating the existing bat population under the bridge, identifying and securing Army Corps of Engineer's approval to work in the Santa Cruz River, assessing all utilities, relocating a Century Link phone line off the bridge, and identifying all right-of-way constraints near the bridge. Due to the presence of the historic Canoa Land Grant

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and power lines north of the bridge, all work including the placement of a temporary detour for traffic would have to be done along the south side of the bridge. Other preconstruction activities included removal of buffelgrass from the site and relocation of a fence on the south side of the bridge.

This project also required the relocation/removal of about 5,000 bats of several species and then sealing all spaces and gaps in the bridge where they roost in order to minimize killing any during the reconstruction process. This bat activity was accomplished with the assistance of an environmental specialist and a foam insulation contractor from Phoenix and was completed over two days and four nights.

DOT retained HDR, a local engineering firm, to design the new beams in May 2015. DOT advertised the casting of the box beams in July. TPAC was the low bidder and began casting the new girders in late September. The remainder of the design was completed on August 18, 2015, and advertisement for bids on the remaining bridge work commenced on August 26, only two and a half months since the NTP was issued to HDR.

The girders were bid out separately from installation due to the time needed to fabricate them and have them ready for installation in mid-December, which was selected as the optimal time to close and reconstruct the bridge to take advantage of the time between summer monsoons and winter rains, and coincide with the school's winter break.

Work on the temporary detour began before Thanksgiving and the bridge was closed on December 3, 2015. Demolition of the upper portion of the bridge began that day and lasted six days. The new concrete box beams started being placed on December 18, and all 72 beams were placed in only five days. Work for the new concrete deck began immediately following girder placement, and work continued through the holidays and the contractor and DOT staff worked every weekend from Thanksgiving until the end of January. Concrete was placed into the deck on January 11, 2016; concrete barriers were constructed, and the bridge was subsequently reopened to traffic on Friday, January 22. The bridge was closed and reopened in only seven weeks, which included a one week delay due to rains in the early part of January 2016. Minor flows occurred in the Santa Cruz River and overtopped the detour on two mornings, but only caused a closure of the detour for less than two hours on one of those mornings.

Currently, traffic is operating on the Elephant Head Bridge while the remainder of work under the bridge to repair other elements of the bridge continues. Railings for the bridge will be installed within the next month. The detour will be removed before the end of February and the bottom of the Santa Cruz River in the job site will be re-graded and restored as closely as possible to its preconstruction condition. Final traffic striping and sign reinstatement will be completed by the end of February as well.

The partnering between all DOT staff, other County staff, consultants and contractors lead to an extremely fast pace of planning, design, procurement and construction of this bridge. Photos of

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various stages of work during the entire project are attached. This was a successful project expeditiously completed by the project team.

PSC:DZ:dg

Attachment

c: Ana Olivares, Deputy Director
Rick Ellis, Engineering Manager
Jim Cunningham, Field Engineering Manager
David Cummings, Operations Manager
Dave Zaleski, Bridge Engineer
James DeGrood, RTA Deputy Director

