

W. A. G. C.

AGENDA COVER MEMO

DATE: May 5, 2005

To: Lane County Board of Commissioners

DEPT.: Public Works

PRESENTED BY: Frank Simas, Right of Way Manager

AGENDA ITEM TITLE: In the Matter of Removing the Load Posting for Fir Butte Road Bridge at MP 0.667.

I. MOTION

THAT THE ORDER BE APPROVED AUTHORIZING REMOVAL OF THE LOAD POSTING FOR FIR BUTTE ROAD BRIDGE AT MP 0.667.

II. ISSUE OR PROBLEM

Removal of the load posting for Fir Butte Road Bridge at MP 0.667 following the implementation of Repair Option 4 as shown in the Critical Bridge Repair Consultation Technical Memorandum prepared by OTAK, Inc., dated July 23, 2003. A copy of an excerpt from the report, which summarizes the conclusions with regard to this bridge, is attached.

III. DISCUSSION

A. Background

Under ORS 810.030, a road authority may impose restrictions on its highways to protect the highway or a section of highway from being unduly damaged and to protect the interest and safety of the general public.

Per Order 02-11-26-10, the Board imposed a load posting for this bridge of 22 tons, 35 tons, and 39 tons, based upon the recommendation of the County's bridge consultant, OTAK, Inc. OTAK's recommendation was based upon observed deterioration of the steel pilings caused by rust.

The OTAK memorandum pointed out that although the original construction of this bridge used more piles or larger piles than may have been required to support legal truck loads, if the

deterioration were allowed to continue, it would result in a substantial reduction in load capacity below legal limits. OTAK analyzed several options for preserving the load capacity of the bridge and determined that the addition of a mastic coating to the steel piles and the installation of cathodic protection (Option 4 in their report) would halt further deterioration of the bridge pilings. They further recommended that the load posting be lifted once this system had been installed.

B. Analysis

The report from OTAK, Inc., recommended removal of the load posting following installation of Options 1, 2, or 4 as detailed in the Memorandum. Option 4, which consisted of coating the pilings with mastic and the installation of cathodic protection to eliminate further deterioration of the steel pilings, has now been completed, and the reduced posting may therefore be removed in accordance with OTAK's recommendation.

Fir Butte Road may be one of the major routes to be utilized during construction of emergency repairs to Fern Ridge Dam to be undertaken by the U.S. Army Corps of Engineers beginning in May, 2005, and maintaining the load posting for this bridge at the reduced level of 22 tons, 35 tons and 39 tons could have a negative impact on both the cost and the duration of the project. Removing the posting will allow construction trucks to haul legal loads as permitted on most other roads and bridges.

C. Alternatives/Options

1. Adopt the Order recommending removal of load postings.
2. Direct staff otherwise.

D. Recommendations

Option 1

IV. IMPLEMENTATION/FOLLOW-UP

Upon approval of the Order, staff will remove the load posting for the Fir Butte Road Bridge at MP 0.667.

V. ATTACHMENTS

Excerpt from OTAK report

IN THE BOARD OF COUNTY COMMISSIONERS OF LANE COUNTY
STATE OF OREGON

ORDER NO.

(IN THE MATTER OF REMOVING
(THE LOAD POSTING FOR FIR
(BUTTE ROAD BRIDGE AT MP 0.667.

WHEREAS, pursuant to ORS 810.030, the County may impose limits on any weight or dimensions of any vehicle or combination of vehicles to protect any highway or section of highway from being unduly damaged; AND

WHEREAS, as a result of a bridge assessment, a load posting was installed on the order of the Director of Public Works at the Fir Butte Road Bridge on November 15, 2002, and pursuant to L.C. 15.215, said posting was confirmed by the Board by Order No. 2-11-26-10, on November 26, 2002; AND

WHEREAS, a report from OTAK, Inc., recommended removal of this load posting following implementation of Option 4, as described in the Critical Bridge Repair Consultation Technical Memorandum dated July 23, 2003, which consisted of coating the steel pilings with mastic and the installation of cathodic protection to eliminate further deterioration of the steel pilings; AND

WHEREAS, the installation of mastic coating and cathodic protection has now been completed as recommended by OTAK , and the load posting may now be removed; NOW, THEREFORE,

IT IS ORDERED that the load posting be removed for Fir Butte Road Bridge at MP 0.667.

DATED this _____ day of _____, 2005 .

Anna Morrison, Chair
Lane County Board of Commissioners

APPROVED AS TO FORM

Date 5-17-05 lane county


OFFICE OF LEGAL COUNSEL

Technical Memorandum

Continued

The first option uses steel channels bolted to the deteriorated steel piling, which would replace the lost pile section and work concurrently with the remaining portion of the deteriorated pile to return the bridge to its original capacity. Reference Figure 1 in Appendix E for a sketch of this repair. This option relies upon the continued participation of the remaining deteriorated pile section. Therefore, painting of the pilings from below the mud line to above the upper limit of the existing deterioration would be required to insure the remaining pile section does not continue to deteriorate. Using this methodology, the conceptual cost to repair the Fir Butte and Crossroads Bridges would be \$35,000 and \$85,000 respectively.

The second option uses a cast-in-place concrete column to span the deteriorated section. Reference Figure 2 in Appendix E for a sketch of this repair. This new concrete section would replace the steel pile along its length. The conceptual cost to complete this repair is similar to the costs for Option 1 mentioned above and would be for the Fir Butte and Crossroads Bridges \$35,000 and \$85,000 respectively. A negative aspect of this repair is that the encased piling would be impossible to inspect within the concrete. In addition, further deterioration of the piling would deteriorate the surrounding concrete section.

A third option would be to remove the bridge decks and drive new steel pilings. Otak's preliminary estimate indicated the cost to be approximately \$60,000 to \$80,000 per bridge. However, Lane County has indicated past experience with a similar project, where the cost was over \$120,000 for one bridge.

A fourth option considered is the installation of cathodic protection to eliminate further deterioration. A study of this option is presented in Appendix F. The conceptual cost to implement the recommendations of this study by itself for the Fir Butte and Crossroads Bridges is \$16,000 and \$38,400 respectively. The addition of cathodic protection to Options 1 and 2 would increase the cost of those options by approximately \$5,000 and \$10,000 respectively for the Fir Butte and Crossroads Bridges. One advantage of cathodic protection over painting is that there is a method of physically verifying that the system has stopped corrosion in the steel pilings. In addition, the service life of the anodes has been designed to be 25 years and they are relatively easy to replace, if necessary.

Phase I Seismic Retrofit Options

A Phase I Seismic Retrofit for these two bridges was studied. Construction of this retrofit would coincide with other repair work resulting cost savings. The intent of