Memorandum Date: April 21, 2010
Meeting Date: May 5, 2010

TO: Board of County Commissioners

DEPARTMENT: Public Works

PRESENTED BY: Bill Morgan, County Engineer

AGENDA ITEM TITLE: REPORT BACK – GOODPASTURE COVERED BRIDGE (BRIDGE 39C119) – REDUCED LOAD POSTING.

I. MOTION

None, discussion only.

II. AGENDA ITEM SUMMARY

Public Works staff appeared before the Board on January 6, 2010, to obtain Board confirmation of the Public Works Director's posting of the Goodpasture Covered Bridge for a 15-Ton weight limit based on a recent inspection of the bridge performed by OBEC Consulting Engineers for the Oregon Department of Transportation. The Board confirmed the Director's action in posting the bridge and gave staff additional direction to investigate the repair or replacement of the bridge and to report back as to the scope of the work, the estimated cost, potential funding and probable timelines.

Much of this information has now been collected and staff wishes to report the findings thus far and seek further direction.

III. BACKGROUND/IMPLICATIONS OF ACTION

A. Board Action and Other History

Under a contract with Oregon Department of Transportation (ODOT), OBEC Consulting Engineers completed an inspection of the Goodpasture Covered Bridge on December 8, 2009, and based on the results of the inspection, recommended a revised load limit of 15 tons for a Type 3 truck. A follow-up inspection in January, 2010, using Resistograph® non-destructive testing technology, confirmed the earlier findings and did not modify the earlier recommendation for a 15 ton weight limit. OBEC concluded that occasional loads by fire and life safety vehicles and other vehicles up to 20 tons may be permitted through the issuance of a Special Transportation Permit, provided that the loadings are in the center portion of the deck surface and that speeds are restricted to 5 mph.

Subsequent to the initial Board action confirming the reduced posting, the following is a summary of steps taken consistent with the Board direction:

- A community meeting was held at the Vida-McKenzie Communty Center on January 30, 2010 and was hosted by Commissioners Stewart and Handy. Approximately 125 people attended the meeting.

- Emergency service providers serving the area have been contacted and have responded either that their equipment will fall under the 15-ton load limit, that they will utilize an alternate route to cross the river, or that they have been issued an Annual

Special Transportation Permit to allow emergency loads up to 20 tons in connection with an emergency response.

- Necessary service providers have been contacted, including the school district, heating oil vendors, utility providers and refuse collection services. All have indicated that they are able to operate within the limitations of the 15-ton maximum weight limit.

- A link to information about the bridge and the current load limit has been established at http:/www.keepusmoving/info to advise interested parties of the status of the bridge and to inform them of any changes.

- Possible detour routes have been investigated as to their feasibilty and cost.

- OBEC Engineers has been hired under the County's existing On-Call Bridge and Civil Engineering Services Agreeement to evaluate the alternatives for the repair or replacement of the bridge and to produce a technical memorandum reporting the results of their investigations and analyses.

- Public Works staff has reviewed materials from the period 1977-1993 in Public Works files regarding the Bridge and the previous process leading up to the proposal for a new bridge at Bear Creek (MP 31.5), rejection of submitted bids for the proposed new bridge in 1983, and the eventual previous rehabilitation of the bridge in 1987.

OBEC has now submitted a Technical Memorandum, which has been reviewed by staff in connnection with the preparation of this report back to the Board. A copy of the Technical Memorandum is included and marked as Attachment 1.

B. Policy Issues

Goodpasture Covered Bridge is a historic structure that is also an attraction that contributes to tourism and travel in Lane County. The Board has, in the past, been supportive of efforts to preserve and protect historic covered bridges in the County.

C. Board Goals

Repair or replacement of this bridge is consistent with the County Goals of contributing "to appropriate community development in the area of transportation and telecommunications infra-structure, housing, growth management and land development", and protection of the "public's assets by maintaining, replacing or upgrading the County's investments in systems and capital infrastructure". Also in the *Lane County Strategic Plan* under Section B-3(d)(6), it is stated that "Operation, maintenance, and preservation (OM&P) of the existing County road system will receive the highest priority."

D. Financial and/or Resource Considerations

The County has received approval of a Grant under the National Historic Covered Bridge Preservation (NHCBP) in the maximum amount of $182,000 for a project to remove the existing roof and replace it with a lighter weight and more durable roof cover. Any work in excess of the current grant would need to come from the Road Fund unless other state and/or federal funding can be obtained. This project is currently on "hold" until it can be determined whether the

proposed lightweight corrugated metal roof would be acceptable thereby restoring some of the bridge's load capacity. If it is considered a temporary repair, then the current grant funding could not be used and the cost of this work would need to come from the Road Fund. If the replacement of the roofing is considered to be a permanent repair, then the NHCBP funding could be used; but the increase in the load capacity to be gained could cause the bridge to score lower in the Technical Ranking System (TRS) of the bridge undertaken for the 2014-2015 Highway Bridge Program (HBP) and therefore decrease the likelihood of the County receiving a grant under the program to perform further structural repairs as further outlined in this memo.

Application would need to be made to the Oregon State Historic Preservation Office (SHPO) for a determination as to whether the replacement with a corrugated metal roof would be acceptable for either a temporary or a permanent replacement for this historic bridge.

E. Analysis

The OBEC Technical Memorandum, a copy of which is attached and labeled as "Attachment 1", analyzed the costs and benefits of five major alternatives. In summary, they are as follows:

1. Remove the current Cemwood® roof cover and replace with a light weight metal roofing cover. This alternate would restore the bridge to 25 tons load capacity by reducing the dead load. OBEC estimates that this work would have a service life of approximately 5 years and perhaps as long as 10 years, but has strongly recommended that annual inspections be carried out to monitor any increase in sag of the main span. The OBEC memo also recommended that a 10 mile-per-hour speed limit be imposed on the bridge as soon as possible, continuing until a full rehabilitation is completed.

2. A full rehabilitation of the existing bridge. Because of the physical limitations of the site which would make a work bridge or a full closure of the bridge for more than a few hours impractical, this alternative would utilize prefabricated steel trusses inside the "house" on the inside of both the upstream and downstream side timber trusses to reinforce the structure under traffic such that it will carry legal loads. The steel trusses would reduce the roadway width inside the bridge to 16 feet from the current 17'- 10". Once the bridge has been raised to the proper elevation to reduce the negative camber (sag) through the use of the steel trusses, post-tensioning would be installed and the trusses could be removed if it was desired to restore the full 18-foot roadway width inside the bridge.

If removed, the steel trusses could be stored by the Public Works Department for future use or sold as surplus. If they were left in place, they would provide additional long-term capacity for the bridge, and it is estimated that the useful life of the bridge could be extended by 50 years, compared to an estimated 20 years if the trusses were removed. Restriction to one lane traffic would likely require some form of signing or a signal on Highway 126 because there is no room for a westbound turn lane or an eastbound queuing lane for the right turn onto the bridge. There is currently a stop sign at the southerly approach to the bridge and northbound vehicles can see through the bridge to see if another vehicle is about to enter the bridge or is actually on the bridge, but the view along Highway 126 in both directions is somewhat limited. The bridge effectively operates as a one-lane bridge now, but any changes affecting Highway 126 traffic would require coordination with and/or permitting from ODOT.

This alternative would include replacement of the bridge decking, exterior stringers and bridge rail under traffic, but short-term closures would be required at times, along with continuous flagging.

The existing floor beams and lower truss chords would remain in place. The estimated cost for this alternative is $1,619,700, and this includes a new roof and exterior painting.

3. Construction of a new adjacent pre-stressed concrete girder bridge immediately upstream from the existing bridge. The bridge would have a main center span of 140 feet and 90-foot approach spans from each bank of the river. The existing bridge could remain in place for use by pedestrians and bicyclists, and motor vehicle traffic would be diverted to the new bridge. This action may likely restrict any use of the Road Fund to provide ongoing maintenance or repair. A new roof for the existing bridge would be needed but long term strengthening would not be needed.

A temporary work bridge would likely be needed for in-water foundation work and it also might be necessary to temporarily reinforce the existing bridge in order to transport heavy construction equipment to the south side of the river. The new adjacent bridge would have an estimated service life of 75 years and the estimated cost for this alternative is $3,774,500, not including right of way acquisition.

4. Complete replacement of the existing bridge at its present location with a new structure that resembles the existing bridge. This alternative would require a detour bridge located upstream from the existing bridge wide enough to serve as a work bridge. The most likely design for the new bridge would be a steel through-truss housed with wood siding and a shingled roof to resemble the existing historic bridge. Such a bridge would be designed to carry legal loads for at least 75 years, and the estimated cost for this option is $5,374,000, not including temporary construction easements.

5. Construction of a new bridge at the Bear Creek site at approximate MP 31.5 on McKenzie Highway. This alternative bridge would connect with the Local Access Road portion of Goodpasture Road that would need to be brought into the County Maintained system and improved. Once this bridge was completed, this alternate would allow the posted weight limit on the existing bridge to be lowered to prohibit use of heavy vehicles; but it could remain in the County system to allow maintenance using Road Funds. This alternative has an estimated cost of $4,581,500, not including costs to upgrade the improvements on the Local Access portion or to acquire necessary right of way.

SUMMARY OF ALTERNATIVES FOR GOODPASTURE COVERED BRIDGE

No.:	PROPOSAL:	COST:	PROs:	CONs:
1	Remove and Replace Roof	$151,800	5-10- year Service Life, Lowest Cost, Retains Historic Look and Structure; can be done under traffic	Relatively Short Service Life; 25-ton load capacity rather than 40-ton legal loading
2	Full Rehabilitation with trusses Removed Full Rehabilitation with trusses left in	$1,377,300 $1,619,700	20-year Service Life; Retains Historic Look and Structure can be done under traffic 50-year Service Life	Short-term intermittent closures Steel trusses reduce width to one traffic lane
3	New Adjacent Steel Beam Bridge	$3,774, 500	Est. 75-year Service Life, Lower Maintenance Cost than Timber Bridge	Change to Historic Look of Site; Existing Bridge May Need to be Strengthened to allow use during construction; ongoing maintenance costs of exsting bridge as well as new bridge; Will Require Permanent Right of Way
4	New Housed Bridge on existing alignment	$5,374,000	75-year Service Life	New bridge would not be as historic, work/detour bridge would be required
5	Construct Bridge at Bear Creek	$4,581,500	75-year Service Life, Lower Maintenance Costs; No Temp. Bridge of Detour Required	Ongoing costs of Maintenance on Existing Bridge, Land Use and Environmental Permitting, Stakeholder Acceptance

F. Possible Detour Routes

In order to anyalyze the possibilty of a detour route to serve in the interim for loads heavier than the current 15-ton posted limit, several potential detour routes were investigated. All three potential detours would route traffic to the easterly end of Leaburg Dam Road in order to cross the McKenzie River via the Eugene Water and Electric Board's (EWEB) Leaburg Dam Bridge. This bridge is a one-lane bridge over Leaburg Dam that is currently posted for a 30-ton weight limit.

All detour routes investigated would require the acquisition of temporary rights of way over private land and would require substantial improvements to make them suitable for use by the general public. They had steep grades, watercourses and/or possible wetland permitting issues and could require the Board to authorize a Resolution of Necessity and the exercise of the power of Eminent Domain if property owners were unwilling to voluntarily grant the needed temporary rights.

Even with the substantial improvements and the related costs, these routes do not seem to be feasible for the approximate Average Daily Traffic (ADT) of 550 (per 2007 counts), assuming most vehicles will be sedans and driven by average-skilled drivers. In addition, most large trucks, other than logging trucks and possibly fire and utility vehicles, would not be able to negotiate the steep grades and sharp curves. There is an extensive network of US Bureau of Land Management (BLM) and private roads in the area immediately south of the bridge that are available by mutual agreement for timber hauling if desired, and which can be used until the bridge is restored to legal load capacity.

For the above reasons, the availability of detours to bypass the Goodpasture Covered Bridge will not be given further consideration unless so directed by the Board.

G. Potential Funding

As previously noted, Lane County has received a grant in the amount of $182,000 (subject to change) under the National Historic Covered Bridge Preservation (NHCBP) Program for the funding of a project to remove and replace the roofing on the Goodpasture Bridge. This project has been shown in the 2010-2014 Capital Improvement Program for construction during the 2009-10 fiscal year. Because the Intergovernmental Agreement with ODOT runs for 10 years from the Execution Date of May 14, 2009, this work can be delayed until it is known which alternate is to be chosen by the Board.

If the Board directs, staff could inquire to ODOT about letting the reroofing bid in the current construction season, in order to increase the load capacity to 25 tons to provide better service to residents as soon as possible. The current project also includes re-painting of the bridge using Road fund dollars, but it makes no sense to re-paint if repair or replacement options are being pursued. Public Works staff, with OBEC's assistance, could also follow up with SHPO to determine whether the metal roofing installation would be considered a temporary or an acceptable permanent repair given the bridge's historic status.

Scoping of either a major repair or replacement project is currently underway by ODOT's engineering consultant as part of the overall ranking of the applications submitted for the available grant funding under the HBP. Because the HBP focuses primarily on repair or replacement of existing bridges, Alternatives 3, 4, and 5 may not qualify for funding under this program.

At the present time, it is unknown as to where the Goodpasture Covered Bridge will rank for the

available HPB funding in relation to other applications submitted. The amount requested was $628,110, based on information available at the time, which would require a Lane County match in the amount of $71,890 (10.27%), and which was based on a preliminary cost estimate to post-tension the bottom chord of the main span of the bridge and to replace the floor beams and any other decayed primary structural members. It is likely that ODOT would strongly consider the new information, especially Alternative 2 when further evaluating our application.

In Summary, if the Goodpasture Covered Bridge does not rank high enough to receive funding under the 2014-2015 Highway Bridge Program, then the roof replacement under the grant already approved would allow the load posting to be increased to 25 tons for as long as 10 years after completion. This would provide additional time for staff to make additional applications for subsequent year's allocations under the HBP as well as for other grants, which might become available in connection with freight routes serving farms or resource lands.

Based on OBEC's recommendation, removal of the roofing would not need to be part of the larger rehabilitation project, so that if the roofing was done in advance of the larger project the expense would not be wasted by having to redo the work. Unless approval of funding of the complete rehabilitation appears imminent, or unless directed otherwise by the Board, staff will proceed with the letting of a contract for reroofing of the bridge as planned, without painting, and hope that SHPO approves the concept of the new metal roof.

IV. TIMING/IMPLEMENTATION

Staff will continue work with assistance from a consultant if needed, in order to investigate possible funding sources, and will report to the Board as to any new developments.

V. RECOMMENDATION

As discussed in this Memo.

VI. FOLLOW-UP

If directed, staff will return to the Board as soon as possible.

VII. ATTACHMENTS

Attachment 1 – OBEC Technical Memorandum