

## Overview

Old Spences Bridge is at the end of its service life and needs to be closed to ensure public safety. The Province has reviewed the options and determined that it is not economically viable to continue investing in this bridge. The bridge will be closed on December 31, 2013. While the Province recognizes there will be local impacts within the community, there is an alternate safe and dependable crossing nearby.

The Province would like input from the community to identify ways to lessen the local impacts of using the Spences Bridge crossing on Highway 1.

## Background – Old Spences Bridge



*Old Spences Bridge*

Built in 1931, the single-lane Old Spences Bridge crosses the Thompson River and the CN railway, between Highway 8 and the community of Spences Bridge. Residents of the town and members of the Cooks Ferry Band are the primary users of the bridge. Traffic counts show around 200 vehicles and 12 pedestrians cross each day.

In 2009, Old Spences Bridge was closed because of concerns over the structural integrity of the bridge. After a detailed inspection and engineering review by Buckland & Taylor Bridge Ltd., engineers determined the bridge could be reopened at a much reduced load limit. While it was understood the bridge was nearing the end of its service life, it was reopened on a short-term basis in June 2010 for use of light vehicle traffic, weighing less than five tonnes. The Ministry of Transportation and Infrastructure told the community Old Spences Bridge would stay open provided ongoing detailed inspections by Buckland & Taylor showed it was safe.

## Options Studied

The Ministry of Transportation and Infrastructure looked at several options, including replacing or rehabilitating Old Spences Bridge. Replacement or rehabilitation of the Old Spences Bridge is very expensive and would still require a long-term closure for construction, up to three years. The following table shows each of the options investigated, as well as an estimated cost and project timeline:

OPTION	COST	TIMELINE
Decommission the Old Bridge and make local improvements in the community	\$3.5 million	1 year
Upgrade the Old Spences Bridge to a maximum ten year lifespan with a five tonne capacity, conduct annual detailed inspections.	\$10 million	2 years
Replace the Old Spences Bridge with a new single-lane structure with a 75 year lifespan	\$15 million	3 years
Replace the Old Spences bridge with a new pedestrian-only bridge with a 75 year lifespan	\$11 million	3 years

The Spences Bridge on Highway 1 retains the connection between Highway 8 and the community of Spences Bridge. The additional travel distance by highway to the community using the new bridge is about 2.9 km which adds roughly four minutes to travel time by vehicle.

## Options Analysis

Several factors were considered in assessing the options for Old Spences Bridge.

- Upgrading or replacing Old Spences Bridge will require a long term closure, up to 3 years.
- If the repair option was chosen, due to the age and condition of Old Spences Bridge, there is a high probability additional problems will be discovered during the repair, which may escalate costs significantly. Buckland & Taylor have indicated the upgrade option does not guarantee a further 10 years of service, due to working with components engineered 80 years ago. This option would also require costly annual detailed inspections.
- Two replacement structure options were developed: a single lane bridge with current standard loading and a pedestrian-only crossing. The costs of these options is significant; \$15M and \$11M respectively.
- The cost-to-benefit ratio would be very low for upgrading or replacing the bridge due to the high costs, very low usage and the presence of an alternate crossing close-by.
- In 2005, the Ministry invested in a major upgrade of the Spences Bridge on Highway 1 to ensure it provides a safe crossing for Highway and local users, as well as pedestrians.
- The Ministry has over 2,800 structures in its inventory, many of which were constructed in the 1950s and 1960s and are also coming to the end of their service life.

## Safety Concerns Require Closure of Old Spences Bridge

The most recent detailed review is now complete. In their professional assessment, Buckland & Taylor has determined the condition of the Old Spences Bridge has deteriorated to a state where it is not dependable for continued operation. At 82 years old, the bridge is well past its design life; it was built to last 50 years. Inspections show the bridge has continued to deteriorate and is in poor condition, with some of the key structural components in very poor condition. This affects the bridge's capacity to not only carry vehicles and pedestrians, but to continue to support its own weight with expected snow and wind loading. For this reason, Old Spences Bridge will be closed at the end of December 2013.

Due to financial constraints, and because the community is served by another crossing, the provincial government will not replace Old Spences Bridge. However, the Ministry of Transportation and Infrastructure is seeking community input to identify measures to support local residents after the bridge is closed.



*Corrosion Section Loss at Top Flange at Bearing Beam*



*Corrosion Section Loss (approx. 500mmx20mm) in Web at Floorbeam*

## Mitigation Measures

After consultation with Spences Bridge residents in 2009, the Ministry of Transportation and Infrastructure made immediate signing and speed limit changes to Highway 8 and Highway 1, in response to concerns about access to the community of Spences Bridge after the closure of the old bridge.

### Improvements included:

- ✓ Extending the 70 km/h reduced speed zone along Highway 1
- ✓ Placing tractor warning signs on Highway 1
- ✓ Installing a guidance sign and painting positive guidance lines at the junction of Highway 8 and Highway 1
- ✓ Installing a service and attraction directional sign on Highway 8
- ✓ Installing larger 50 km/h speed signs on Highway 8
- ✓ Extending the 70 km/h zone on Highway 8 East of Curnow Bridge

**Ministry of Transportation and Infrastructure would like your feedback on additional mitigation measures which could help improve the connection to the Spences Bridge on Highway 1. Options being considered include:**

- Improving highway shoulders for pedestrian and cyclist use
- Constructing a pedestrian path from Highway 1 into the community
- Improving lighting along Highway 8 and Highway 1
- Improving signage to highlight community services and attractions

If you have other suggestions for the Ministry of Transportation and Infrastructure, please include them in the comments section of the attached feedback form.



