

## 6.10 Routine Types of Structure Maintenance Works: Bridges & Stream Culverts

### 6.10.1 Bridge Maintenance

Bridge maintenance involves two main categories of works: structural maintenance and surface maintenance. These two categories are reasonably consistent with the maintenance items contained in the Coast and Interior Appraisal Manuals under Detailed Engineering Cost Estimate and Road Management respectively.

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#### **Structural maintenance of bridges**

Structural maintenance involves repairing or replacing structural members of a bridge, based on the results of inspections made by a qualified Inspector. In some critical circumstances where the intended work may need to be adjusted due to unpredictable site conditions, carry out the maintenance works under the supervision of a professional engineer. In any event, carry out a follow-up inspection of structural repairs to confirm that the work has been done in conformance with the proposed repairs in the inspection report.

Examples of structural maintenance are:

- tightening the bolts connecting timber members;
- installing shims to ensure adequate load transfer where there is loss of contact between piles, pile caps, stringers, crib timbers, needle beams, or other structural elements;
- replacing stringers or girders;
- repairing or replacing damaged bridge structural members (e.g., abutments, piers, ties, stringers, needle beams, structural curb beams);
- repairing stream channel and scour protection;
- replacing dilapidated bridges and major culverts that are unable to carry the service loads; and
- repairing major culvert headwalls and spillways.

## **Surface maintenance of bridges**

Surface maintenance involves repairing or protecting parts of the bridges and approaches that do not directly affect structural integrity.

Examples of surface maintenance:

- repairing and replacing bridge signage including delineators;
- keeping the waterway opening free of logs and debris;
- keeping the girder flanges and bearing surfaces, including plates, anchor bolts, and neoprene pads, free of gravel and dirt;
- keeping wood stringers free of dirt accumulations;
- resetting nails protruding from running planks;
- replacing missing or damaged running planks;
- eliminating pot holes on bridge approaches;
- repairing or replacing damaged guardrails or curbs; and
- removing gravel build-up on concrete or timber decks.

Do not allow gravel and debris to accumulate on the deck. Remove build-up of soil material on the bridge decking in a manner that prevents it from entering the waterway below.

In accordance with any deficiencies noted in the inspections, repair or replace all deteriorated running planks, riser blocks, or guardrails, and check and retighten all fasteners and replaced any that are missing or damaged.

Note that other engineered structures may be sufficiently diverse that maintenance works will need to be determined for each specific structure.

## **6.10.2 Stream Culvert Maintenance**

In addition to the guidelines for maintenance related to fish habitat set out in the [Fish-stream Crossing Guidebook \(PDF, 4.3MB\)](#), carry out stream culvert maintenance to ensure that a structure maintains its capability to pass fish and convey stream flow.

Examples of stream culvert maintenance:

- repairing damaged inlets and outlets;
- repairing armouring around inlets and outlets to reduce sediment transfer, particularly near licensed waterworks;
- removing debris blocking or obstructing culvert inlets;
- replacing culverts where the bottoms are rusted out and where damage has occurred

from water seepage; and

- repairing major culvert headwalls and spillways when necessary, to protect the structures and the streams.

**Note:** Before beaver dams are removed, contact the Ministry of Environment for appropriate procedures. Consider installing beaver protection devices.

For additional information in replacing culverts at stream crossings, refer to the [Fish-stream Crossing Guidebook \(PDF, 4.3MB\)](#).

### 6.10.3 Bridge & Major Culvert Replacement

Where maintenance responsibility has not been delegated to a permittee, bridge replacements can generally only be accomplished by Timber Operations and Pricing Division/BCTS. The current funding policy for road and structure maintenance, road deactivation and closure, which can be found on the [BA Service Plan web page](#), will identify the requirements for bridge replacements by Timber Operations and Pricing Division.

For requirements and guidance on bridge or major culvert replacements carried out by Timber Operations and Pricing Division/BCTS, for requirements and guidance please refer to [Chapter 4: Design & Construction of Bridges & Major Culverts](#).