

Bridge Assessments

Introduction

Assessments are completed on existing bridge structures to determine the optimum long-term solution for maintenance, rehabilitation or replacement to maximize the service life of the structure at a minimum life cycle cost. The assessment is intended to develop a strategy that answers “what, when and how much.”

The Department identifies bridge structures that may require maintenance, rehabilitation or replacement in a short-term programming period. Structures may be identified for an assessment based on condition deficiencies, functional deficiencies or proposed highway improvements. There are three types of assessments, Bridge Assessments, Rehabilitation Assessments and Complex Assessments, which are defined in more detail below.

To determine the need for an assessment, an internal review applying appropriate screening criteria should be completed. If the appropriate course of action is readily identified at the screening phase, an assessment will not be required. This best practice guideline has been adopted to provide guidance on when a particular type of assessment should be completed and to define what each type involves.

Bridge Assessment

A Bridge Assessment may be initiated due to the existing condition of the structure or proposed highway improvements. For the Bridge Assessment, the Department’s internal review of the existing structure will indicate that replacement may be economically feasible or that functional improvements should be considered.

The assessment should include the following areas:

- summary of bridge condition
- proposed highway improvements (if applicable)
- functional deficiencies (width, strength, vertical clearance)
- environmental (identification of issues and likely impacts)
 - navigability
 - fisheries
- hydrotechnical
 - adequacy of existing structure (risk of flooding or failure)
 - replacement structure sizing
- alternatives
 - actions, timing and cost estimates
 - life cycle cost analysis
- recommendation

Bridge Rehabilitation Assessment

The Department identifies bridge structures that may require rehabilitation or maintenance in the next three to five year period. These structures are generally identified because of condition deficiencies as a result of field testing and inspection results. If the Department's internal review of the existing structure indicates that replacement is likely not economically feasible and the appropriate course of action is not clear, a Bridge Rehabilitation Assessment should be undertaken.

The assessment should include the following areas:

- summary of bridge condition
- bridge rail analysis
- environmental (identification of issues and likely impacts)
 - navigability
 - fisheries (if in-stream work included)
- alternatives
 - actions, timing and cost estimates
 - life cycle cost analysis
- recommendation

Complex Bridge Assessment

A Complex Bridge Assessment or related engineering study may be required for situations where a long-term strategy for the structure cannot be determined from the Bridge Assessment or the Bridge Rehabilitation Assessment. This may be the result of a need for a more detailed and comprehensive analysis of a particular aspect of the bridge site. Examples of complex assessments include the need for river protection works, detailed structural analysis, possible crossing relocation and geotechnical instability.

The Complex Bridge Assessment or related engineering study will be initiated by the Department with detailed site-specific requirements.

Contact

Questions or further information on this guideline may be directed to the Bridge Preservation Specialist in the Bridge Engineering and Water Management Section of the Technical Standards Branch, Alberta Transportation.

Adopted:

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Date