

Wildlife Passage at Stream Crossings

Introduction

Traditionally, stream crossings in Alberta have not been specifically designed to accommodate or encourage wildlife passage. Recently, there has been increased attention given to wildlife passage at stream crossings in environmental impact studies and collision reduction program studies. There may be potential benefits at some sites in the form of reduction in vehicle-animal collisions and reduced impact on sensitive wildlife resources. However, the impact on bridge cost and operational safety, due to increased length and height required to provide wildlife passage can be significant. Therefore, if specific measures for wildlife passage are proposed for a site, it is important that the benefits and costs be considered.

Background

Factors that may affect the potential benefit to accommodating wildlife passage at a bridge site include:

- The potential for animal collisions should be a function of the cross product of animals crossing the road and traffic along the road. For bridge replacement at existing routes, collision history should be analysed to verify the magnitude of the problem. For new routes, identification of significant usage based on tracking observations, combined with traffic projections can be used to predict the magnitude of collision potential.
- Providing berms at sites with limited potential for wildlife passage continuity due to the presence of steep, high banks either upstream or downstream would generate little benefit. If necessary, alternative wildlife crossing facilities should be examined.
- In some cases, provision of berms through the bridge opening may be ineffective at attracting wildlife that prefer not to enter the valley. Fencing may be required adjacent to the roadway to reduce the volume of wildlife crossing the approach road. In some cases, a separate crossing for wildlife may be preferable to incorporating measures into the bridge opening.
- Funneling wildlife into a narrow corridor may result in a reduction in safety in areas where the potential for human interaction is significant, such as near urban areas.

Factors that may affect the potential costs to accommodating wildlife passage at a bridge site include:

- At some crossings, such as mobile gravel bed streams, the width of the hydraulic opening may exceed the water width at low flow, providing significant horizontal clearance at normal flows.
- Sites with berms for headslope stability or fill set-backs from top of bank may not need additional facilities for wildlife.

- Longer bridges required due to wildlife passage berms will result in higher initial costs and maintenance requirements and reduced safety due to increased exposure of traffic to bridge rails and preferential icing on the bridge deck.
- Providing vertical clearance for wildlife passage may result in raised gradelines with additional increases in bridge cost and possibly reduced safety due to shorter sight distances.

Recommendation

If specific measures for wildlife passage at a stream crossing are proposed, the costs and benefits associated with these features, as detailed above, should be considered.

Contact

Questions or further information on this guideline may be directed to the Bridge Planning Specialist, Alberta Transportation.

Adopted:

Original Signed by Lloyd Atkin, P. Eng.
Director, Bridge Engineering and Water Management Section

Aug. 30, 2010
Date

Original Signed by Moh Lali, P. Eng.
Executive Director, Technical Standards Branch

Aug. 30, 2010
Date