

Title: Climbing Lanes, North Saskatchewan River Bridge Replacement and Associated Highway Upgrades

Memorandum Date: March 2, 2010
Design Exception Request Date: December 18, 2009
Region: North Central
Approval Status: Not Approved

Project Location					
Highway	Control Section	At km	From km	To km	Existing AADT
22	30		2.900	9.800	

Project Type (Mark all that apply with an X)			
Functional Planning:	New Construction: X	Reconstruction:	Paving/Surfacing:
Bridge:	Operations:	Geotechnical:	Environmental:
Other:			

Summary
Climbing lane warrants were examined in accordance with Alberta Transportation's Highway Geometric Design Guide (HGDC). Climbing lane lengths according to the HGDC conflict with intersection treatments as well as the North Saskatchewan River Bridge crossing (BF 74381). The recommended westbound climbing lane length is 2,975m not including tapers. The proposed design length is 2,373m for a difference of 602m. The recommended eastbound climbing lane length is 1,840m not including tapers. The proposed design length is 1,088m for a difference of 752m.
Rationale for Approval/Rejection
<ul style="list-style-type: none"> At the end of the eastbound climbing lane, truck (180g/w) travelling speed is about <u>64km/h</u>. The speed differential between the trucks (which are merging back to the through lane) and other vehicles (which are travelling at 100km/h on the through lane) is about <u>36km/h</u>; this creates operational safety concerns and lowers the level of service. At the end of the westbound climbing lane, truck (180g/w) travelling speed is about <u>60km/h</u>. The speed differential between the trucks (which are merging back to the through lane) and other vehicles (which are travelling at 100km/h on the through lane) is about <u>40km/h</u>; this creates operational safety concerns and lowers level of service. <p>The truck percentage along this section of Hwy 22 was about 22% - 23% (2008). Given the high truck traffic volumes and the operational safety concerns, the request to terminate both the eastbound and westbound climbing lanes before realizing the full length recommended by the HGDC is rejected.</p>

Additional Mitigation Required
Based on the design exception request rejection, it is recommended that the climbing lanes be extended all the way through intersections to achieve climbing lane length based on the HGDC.

Key Words
Climbing lane, Intersection, Bridge, Merge, Through lane, Truck volumes

PRELIMINARY

