

Title: New Log Haul Intersection Treatment

Memorandum Date: April 13, 2011

Design Exception Request Date: March 7, 2011

Region: Peace

Approval Status: Approved

Project Location					
Highway	Control Section	At km	From km	To km	Existing AADT
2	60	30.137			4070

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

Summary
<p>The existing Highway 2/Highway 688 intersection (Km 31.1) is located at an undesirable location at the end of a SB climbing lane. Loaded log haul truck movements at the intersection are in the WB to SB and NB to EB directions. Log haul trucks are not permitted through the Peace River truss bridge and must use Highway 688 to bypass the Town of Peace River. The existing intersection will be closed when the new intersection is constructed.</p> <p>The design exception request is for a proposed new at grade intersection for Highway 2 and Highway 688 (Km 29.9) located approximately 8 km south of the Town of Peace River. The proposed new intersection treatment would be a departure from the department's typical log haul intersection treatments.</p>

Rationale for Approval/Rejection
<ul style="list-style-type: none"> • The proposed intersection treatment provides for a protected left turn movement (WB to SB). The inside (left to right) merge provides a 460m parallel lane and a 222m taper at 60:1. Based on the mass/power performance curve of a 180g/W heavy vehicle in the department's Geometric Design Guidelines, the merge speed would be approximately 60 km/h. The speed differential would be about +/-40 km/h. • A very conservative growth rate of +5% for 20 year design volumes was used in the analysis. The 8 year growth rate from 2003 to 2010 at the existing intersection is about +2.6%. The historical growth rate since 1965 on Hwy 2:60 is about +1.6%. • Based on a growth rate of +5%, the 15 min. peak am: SB through = 308 pcu/h and WB-SB = 60 pcu/h. The density in the ramp (merge) influence area is anticipated to be 3.6 pcu/km/lane LOS = A. Note this analysis is based on Density (HCM 2000, Exhibit 25-4, LOS Criteria for Merge and Diverge Area). • Based on the NESS data using a growth rate of +1.6%, the estimated current LOS=A, and at 20 year is estimated to be LOS=B for Hwy 2:60. Note that this analysis is based on Percent Time Spent Following (HCM 2000, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1). • The southbound movement conflict of merging vehicles and through vehicles is acceptable considering the low traffic volume turning left.

- The protected turn treatment should reduce the potential confusion of which lane to be in when making left turns from the minor road and the potential operational/safety issue of left turning vehicles operating at low speeds and/or waiting on the shoulder for available gaps.
- Intersection sight distances are adequate for all design vehicles using the intersection. Highway 2 in the vicinity of the proposed intersection is relatively flat (0.2% to 0.9%).
- The intersection will be illuminated in accordance with department guidelines.

Additional Mitigation Required

No mitigation is required.

Key Words

Log haul truck, At-grade intersection, Merge
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Photograph/Diagram (If Available)

