

APPENDIX A – SUMMARY OF THE MINISTRY’S RESPONSE TO ITR RECOMMENDATIONS

During the concept plan phase and in addition to reviewing key technical aspects of the ITR, the Ministry specifically addressed the ITR recommendations in meetings with the Metro Vancouver Mayors Task Force, including reference to:

- Consideration of alignment, community livability and cost within the principles, goals and objectives for the Project;
- Commitment to a smaller crossing (fewer than the previously proposed 10 lanes);
- Focus on the off-peak direction and transit with respect to capacity increases;
- Coordination with TransLink to develop bus-on-shoulder improvements;
- Reviewing smaller interchange concepts with affected municipalities; and
- Detailed analysis of tunnel alternatives including use of the Existing Tunnel.

A detailed account of each ITR recommendation and analysis undertaken to support the final shortlisting is provided in the table immediately below.

RECOMMENDATION FROM REPORT		TECHNICAL CONSIDERATIONS	CONSULTATION HISTORY
1.0 PROJECT NEEDS, OBJECTIVES AND FUNCTIONAL CRITERIA			
1.1	Undertake formal trade-off studies and present value analyses for each of the major project components to confirm that they result in value for money.	Trade off studies conducted as part of the assessment of options to date have included cost estimates.	Involved Metro Vancouver, TransLink, Delta, Richmond and TFN in developing the evaluation framework (staff and elected officials). Engaged with other participating First Nations to seek feedback on draft framework.
1.2	Re-evaluate appropriateness of the criteria "eliminate queuing at any time to 2045," and its related impacts and costs.	Re-visited traffic forecasts using the updated TransLink RTM model. Illustrated that 8-lane bridge (with or without transit priority) would serve demand in all directions with improved travel time as compared with today until at least 2035. After that, without additional lane dedication peak direction queuing will begin to approach current levels; however, the benefit of additional lanes in non-peak times such as mid-day, evenings and weekends will provide significant benefits, particularly for good movers and tourists.	As part of the engagement process, agreed with Metro Vancouver Mayors Task Force (and staff) that "managing" congestion in the peak direction is sufficient provided that there are additional incentives to use transit, such as transit priority lanes. This is consistent with the province's CleanBC initiative.
1.4	Re-evaluate median transit lanes and stations and the criterion to "provide convenience of transit by improving infrastructure".	Revisited the <i>Provincial Highway 99 King George Highway to Oak St. Bridge Corridor Assessment</i> report (Urban Systems, 2009), which envisioned "bus on shoulder" and incorporated this approach into traffic analysis. Re-designed interchange concepts at Steveston and Highway 17A to accommodate this approach, reducing the size and cost of both interchanges.	Discussed with TransLink staff who agreed with this approach given that TransLink's plan continues to call for all transit vehicles on Highway 99 to exit at Steveston Highway for pick-ups and drop-offs. Shoulder transit lanes were also endorsed by the Metro Vancouver Mayors' Task Force and the Board.
1.5	Re-evaluate criteria to (i) "provide a clear span structure with no piers in the River" and (ii) "construct project within existing corridor and reduce footprint of project infrastructure" to de-risk the construction of the project and reduce the capital cost.	See 4.1 and 4.2 below.	See 4.1 and 4.2 below.

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2.0 EXISTING TUNNEL		
<p>2.1 Complete a comprehensive feasibility study to confirm the scope and cost to upgrade the Existing Tunnel.</p>	<p>The COWI team confirmed the technical feasibility and approximate cost of doing so. The COWI team also investigated possible configurations for active transportation, local traffic, transit and utility corridor.</p>	<p>Results of COWI's analysis were shared with Indigenous groups, the agency staff working group the Metro Vancouver Mayors Task Force and Board, and with participating municipalities and used in shortlisting discussions.</p> <p>TransLink did not support using the Existing Tunnel for transit only because it would add travel time.</p> <p>The BC Trucking Association does not support options that would limit use by over height vehicles.</p>

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3.0 TRAFFIC MODELLING AND FORECASTING		
3.1	<p>Consider changing the original functional criteria of “Eliminate queuing at any time to 2045” to allow a reasonable level of queuing at peak periods.</p>	<p>Additional modelling by McElhanney confirmed the ITR conclusion and was the basis for discussions with the Metro Vancouver Mayors Task Force</p> <p>Additional traffic modelling was conducted by COWI (McElhanney), which includes recent improvements at the Alex Fraser Bridge and the confirmed plan for the Pattullo Bridge Replacement Project. The technical report confirmed that given forecast population and economic growth a minimum of 6-lanes is needed.</p> <p>The Project Team discussed the criterion with Indigenous groups, various levels of government, and key stakeholders, confirming support for managing, rather than trying to eliminate congestion.</p> <ol style="list-style-type: none"> The following agencies specifically expressed support for added capacity that also promotes transit ridership (<i>entries with * denote written confirmation, all others are as documented in meeting notes</i>): <ul style="list-style-type: none"> Musqueam First Nation Tsawwassen First Nation* Kwantlen First Nation Lake Cowichan First Nation Metro Vancouver Board* TransLink staff* City of Delta* City of Richmond* City of Surrey City of Burnaby staff City of Coquitlam staff Langley City Township of Langley staff City of New Westminster staff City of Vancouver staff City of White Rock Gateway Transportation Collaboration Forum Government of Canada* Vancouver Fraser Port Authority Vancouver Airport Authority* Fraser River community Hwy 99 mayors and First Nation chiefs task force* The following agencies expressed a preference for a solution that also offers increased peak direction capacity: <ul style="list-style-type: none"> Delta Chamber of Commerce Richmond Chamber of Commerce* Surrey Board of Trade Greater Vancouver Board of Trade

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4.0 HIGHWAY AND BRIDGE REVIEW			
4.1	Consider allowing some construction in the river with suitable mitigation and compensation measures.	The COWI team's analysis confirmed that as the river piers would need to resist significant ship impact loads (assumed to be from a 60,000 DWT vessel), there would be little, or no cost savings associated with allowing piers in the river and shortening the main span of the bridge.	Technical information was shared with and accepted by participating organizations noted above. No one requested that we consider including piers, and some suggested the new crossing should also avoid piers in Deas Slough. The Project Team reviewed COWI's findings with the Independent Technical Reviewer who confirmed agreement.
4.2	Consider allowing the new crossing to be located off of the existing highway alignment.	COWI's design incorporated this refinement	Cost saving aspects of the proposed bridge alignment were shared with and accepted by participating groups.
4.3	Consider allowing some encroachment on agricultural and park lands with suitable mitigation and compensation measures.	While the project goals and objectives continue to reflect a desire to minimize such impacts, the Ministry did not constrain the COWI team to meet the same net impacts as the previous design. The resulting concepts have differing encroachments on park and agricultural lands, and in some cases more than the previous reference design. Details are documented in the Environmental Input to GMC Multiple Accounts Evaluation (Hemmera, 2019).	Effects were shared with participating groups and the Hemmera report was posted to the project website.
5.0 HOV/TRANSIT			
5.1	Consider eliminating the median HOV/transit provisions in favor of maintaining the existing bus shoulder lanes and off highway transit stops.	All of the options developed for the GMC Project assume bus-on-shoulder in/on the new crossing.	See item 1.4 above
5.2	Consider providing transit infrastructure that is appropriate based on regional transportation planning.	See item 1.4 above	See item 1.4 above

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6.0 BUSINESS CASE			
6.1	Future planning should be completed in accordance with Ministry practice identifying the minimum solution and then assessing incremental improvements separately on a value for money basis.	See item 1.1 above	See item 1.1 above
7.0 NEW TUNNEL OPTION			
7.1	Complete a comprehensive feasibility study to confirm the scope of an ITT Crossing.	The COWI team confirmed feasibility of an ITT crossing.	Engagement identified impacts (positive and negative) of ITT construction. These include but are not limited to: <ul style="list-style-type: none"> • Need for a casting basin location • Impacts to fish and fish habitat (during construction and potentially long term) • Anticipated DFO requirements for offsets • Impacts to vessel navigation and the need for ongoing communication with marine users and First Nations marine users during construction • Potential impacts to Indigenous groups' traditional and cultural use • Potential impacts to Musqueam and Tsawwassen fishing rights in the area
7.2	It is recommended that international experts in ITT design and construction be engaged to participate in the ITT feasibility study.	COWI has international expertise in immersed tube tunnel engineering and long-span bridge engineering. Specifically, the COWI group includes the former Christiani & Nielsen company, which designed the Existing Tunnel, and COWI's ITT lead previously worked directly for Christiani and Nielsen.	N/A
7.3	It is recommended that the ITT feasibility study be completed in conjunction with the feasibility study for the Existing Tunnel retrofit as the design and construction considerations are similar.	The COWI team conducted both and results are documented in COWI's technical report	Results of COWI's analysis were shared with Indigenous groups, the agency staff working group the Metro Vancouver Mayors Task Force and Board, and with participating municipalities and used in shortlisting discussions with them.