TABLE OF CONCORDANCE

Application Information Requirements			Application			
AIR Section and Page No.	**AIR Title**	**Application Information Requirements**	**Application Section Title**	**Application Volume, Section, Subsection, Page No.**	**Relevant Appendix**	**VFPA ToC Matrix #**
Page xv	**Table of Concordance**	A Table of Concordance will be included in the Application. The Table of Concordance will demonstrate where the requirements in the Application Information Requirements (AIR) are found in the Application, with volume, section, and page references and following the format of Table 1.	Table of Concordance	Vol. 1		
Page xviii	**Application Summary**	The Application will include a summary, including the following: ▪ A summary of the proposed Project including the project scope, project benefits and applicable permits. If the proponent has already requested or intends to request concurrent permitting, this will also be stated. ▪ A brief overview of the assessment process including proposed Project reviewability, and the pre-application and application review stages of the EA. ▪ A brief overview of consultation approaches with Aboriginal Groups, the public and government agencies to date. ▪ A summary of the key issues raised by Aboriginal Groups, the public and government agencies. ▪ A summary of key adverse effects on Aboriginal Interests and mitigation measures. ▪ A summary of key effects, proposed mitigation measures and residual and cumulative effects on Valued Components. ▪ Proponent's conclusions regarding the potential for significant adverse effects on Valued Components.	Application Summary	Vol. 1, p. i – xvii Vol. 1, Section 1.0, Subsection 1.2, Table 1.2-1, p. 1-36 – 1-39		
Section 1.0 Page 2	**Overview of the Proposed Project Proponent Description**	The Application will: ▪ Describe the Proponent, including history, type of company or organization, affiliations. ▪ Provide contact information for the Proponent; and ▪ Include a list of parties involved in the preparation of the Application, their qualifications, and the section(s) for which they were responsible.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0 Project Proponent, p. 1-1 - 1-2		
Section 1.1 Page 2-6	Description of Proposed Project	The Application will: ▪ Describe the purpose of the proposed Project from the perspective of the Proponent, and identify whether the objectives of the proposed Project relate to any broader private or public sector policies, plans, or programs	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.1, p. 1-3 - 1-5		
		▪ Describe the location of the proposed Project and the latitude and longitude coordinates of the site and include maps showing both regional context (identifying nearby communities and geographic features) and the specific location of the proposed Project	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.2, p. 1-5 – 1-7; Attachment 1-A, Figure 1-A-1		
		▪ Describe the location of the proposed Project relative to Aboriginal Groups' asserted traditional territories, and/or Treaty Nation territories	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.2.3, p. 1-6 - 1-7 Attachment 1-A, Figure 1-A-2		
		▪ Describe all phases of the proposed Project, including their duration and proposed scheduling	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.4, p. 1-9 – 1-20		
		▪ Describe all on-site and off-site components associated with the proposed Project, with figures	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.4.2, p. 1-9 – 1-10	Vol. 4, Appendix 18.17 – Reference Concept	
		▪ Describe the location of the proposed Project and main Project components relative to Vancouver Fraser Port Authority (VFPA) jurisdiction using a functional level site plan, to address VFPA's review requirements. The functional level plan will show the components of the proposed Project in relation to the limits of VFPA jurisdiction and the boundaries of VFPA leases. More specifically, the description of the proposed Project will show: ○ Existing VFPA lease and property boundaries, easements and right-of-ways within VFPA jurisdiction; ○ Location and description of existing and proposed structures located on VFPA lands and waters; ○ Anticipated access points, based on implementation of the Reference Concept; and ○ Anticipated construction and demolition laydown areas.	Overview of Proposed Project Proponent Description	Vol.1, Part A, Section 1.0, Subsection 1.1.2.4, p. 1-7, Subsection 1.1.4.2.2, p. 1-10. Vol. 1, Part B, Section 6.2, Attachment 6.2-A (Figures 6.2-A-1 to Figures 6.2-A-19)	Vol. 4, Appendix 18.17 – Reference Concept, Figure SK-RW-043, SK-RW-044	**2,3,5**

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		▪ Describe the activities associated with the components and phases of the proposed Project, with figures, including the following (based on implementation of the Reference Concept): ○ Description of expected construction and demolition staging activities, key staging requirements and constraints, and the most likely construction access and staging scenario(s), supported by a preliminary construction staging plan and description with key principles, figures, and requirements; and ○ Known access points, including roadways, driveways, parking areas, walkways, berths, gangways and docks.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.4.3, p. 1-11 - 1.20	Vol. 4, Appendix 18.17 – Reference Concept, Figure SK-S-520 to SK-S-528	**6,7,8**
		▪ Provide conceptual drawings of the proposed new bridge and connecting roads (plan, elevations and sections), including the legal high water mark where applicable	Overview of Proposed Project Proponent Description	Attachment 1-A, Figure 1-A-3 and see drawings in adjacent Appendix	Vol. 4, Appendix 18.17 – Reference Concept, Figures SK-S-500 - SK-S-509	**4**
		▪ Provide preliminary construction and demolition methodology, and key sequencing constraints	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.4.3, p. 1-11 - 1.20	Vol. 4, Appendix 18.17 – Reference Concept, Figures SK-S-520 - SK-S-528	**9**
		▪ Provide a preliminary description of lot grading and utilities, including: ○ Utilities that are carried on the existing bridge structure and utilities that will be carried on the new bridge structure; ○ Key utilities that are likely to be crossed and/or require relocation, or could be subject to potential Project-related adverse effects; ○ Overview of baseline drainage conditions, as well as key drainage requirements, for the new infrastructure; ○ Drainage and storm water management principles; ○ Confirmation that drainage structures will not encroach into the vertical air draft clearance; ○ Confirmation that drainage will be designed to minimize dripline encroachment into the two marine navigation channels; ○ Design guidelines and requirements relating to oil/grit/water separators; ○ Existing/proposed emergency vehicle access routes; and ○ Conceptual design information on lighting.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.4.3, p. 1-11 - 1.20; Subsection 6.3.2.3.2, p. 6.3-12	Vol. 4, Appendix 18.17 – Reference Concept, Figures SK-U-150	**10,11,12, 13,14,19**
		▪ Provide conceptual drawings of proposed marine structures, based on the Reference Concept, including: ○ Preliminary site plan specific to proposed marine works, identifying existing marine structures and those intended to be removed or relocated, or otherwise impacted; ○ Drawing(s) that show minimum vertical and horizontal clearances for the proposed new Pattullo Bridge, relating to each of two navigation channels; and ○ Drawing(s) that illustrate structures in and adjacent to the Fraser River, in relation to the tidal Higher High Water and Lower Low Water lines, including water depth.	Overview of Proposed Project Proponent Description		Vol. 4, Appendix 18.17 – Reference Concept, Figure SK-C-509, Figure SK-C-529	**15,16**
		▪ Provide information on the Navigation Envelope Design, for each of the three project phases (i.e., current conditions, with both bridges in place, and after demolition of the existing bridge) including: ○ Restrictions on pier placement; ○ General information on scour protection and scour protection extents; ○ General information on navigation lighting; and ○ Risk assessment information on current design options.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.5, p. 1-20 - 1.22	Vol. 4, Appendix 18.17 – Reference Concept, Figure SK-C-509, Figure SK-C-529	**17**
		▪ Provide information on dredging, including: ○ Discussion on whether project-specific dredging may be required; ○ A preliminary diagram of the anticipated dredge area if dredging may be required (assuming a conservative dredging area, i.e., a dredging area large enough to capture all reasonable variants); ○ Timing of any proposed dredging in relation to fish sensitive periods; and ○ Key requirements and constraints to reduce induced turbidity during any proposed dredging.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.5.2.6, p. 1-22		**18**
		▪ Discuss the relevant history of the proposed Project, including exploratory or investigative history	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.7, p. 1-23 - 1.26		

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		▪ Summarize existing and planned land and marine use that overlaps or may be potentially affected by the proposed Project components and activities, including: ○ Land ownership [e.g. private land, provincial Crown land, federal land (including VFPA lands and waters and Indian Reserves), Aboriginal title]; ○ Local government zoning or plans; ○ Tenures (municipal, provincial, federal), licenses, permits or other authorizations; ○ Non-tenured current land uses; ○ Current and planned marine use plans; ○ Provincial land use plans (e.g. Land and Resource Management Plans) and provincial land use designations (e.g. Agricultural Land Reserve, Old Growth Management Areas, Forests and Range Practices Act designations) and provincial land use management objectives; ○ VFPA Land Use Plan for potentially affected areas lying within VFPA jurisdiction; ○ Any other development or activities, whether or not directly related to the proposed Project; ○ Maps showing location of other uses referenced above in relation to the proposed Project; and ○ References to the Application section that assesses land use and potential overlaps/impacts in more detail.	Overview of Proposed Project Proponent Description	Vol. 1, Part B, Section 6.2 Land Use, Attachment 6.2-A (Figures 6.2-A-5 to Figures 6.2-A-9) Vol. 1, Part B, Section 6.1, Subsection 6.1.2.1, Table 6.1-4, p. 6.1-10		
		▪ Provide information on current and projected traffic, including traffic distribution patterns, volumes, and potential traffic changes anticipated as a result of the proposed Project, including ultimate and construction-related traffic changes affecting VFPA lands as well as the implications and benefits to goods movement. This would include a consideration of traffic distribution throughout the day and impacts to access/egress into and out of of VFPA managed lands, including the Fraser Surrey Port Lands. For this assessment and supporting traffic management plans, relevant portions of VFPA's transportation guidelines will be used:https://www.portvancouver.com/wp-content/uploads/2017/04/VFPA-PER-Transportation-Guidelines-FINAL-2015-12-07.pdf.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.8, p. 1-26 - 1.30	Vol. 3, Appendix 18.1 – Traffic Analysis Report	
		▪ Describe the Project's economic benefits. ○ Capital construction cost estimates, including: - Breakdown of costs (e.g. land, buildings, equipment) associated with the proposed Project; - Estimated operating costs over the life of the proposed Project, including breakdown of costs by category (e.g., labour, supplies and materials, administration); and - Estimated costs for decommissioning/closure/abandonment/reclamation. ○ Employment estimates including: - Direct employment to be created, by job category by project phase, in number of person year (PY) jobs for construction and decommissioning and full-time equivalent (FTE) jobs for operations. Direct employment estimates will be broken down into full-time, part-time and seasonal job categories; - Average wages, by major job category, for the construction and operating periods; - Breakdown of jobs that will be filled from local, provincial, national or international labour markets; - Indirect and induced employment to be generated, by project phase; and - Information about an employment strategy, if any.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.9.2, p. 1-31 - 1.34	Vol. 4, 18.11 - Social and Economic Statistical Data; Section 8.0, Table 8.1 – 8.8	
		▪ Contractor supply services estimates including: ○ List of the major types of businesses/contractors to be used, broken down at the local, provincial, and national level, by proposed Project phase; ○ Value of supply of service contracts expected, by proposed Project phase; and ○ Information about a local purchasing strategy, if any.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.9.2, p. 1-31 - 1.34	Vol. 4, 18.11 - Social and Economic Statistical Data; Section 8.0, Table 8.1 – 8.8	
		▪ Annual government revenues, by type (e.g. income tax, license rent, property tax, mineral tax) and jurisdiction (e.g. local, provincial, federal), for all phases of the proposed Project	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.9.2, p. 1-31 - 1.34	Vol. 4, 18.11 - Social and Economic Statistical Data; Section 8.0, Table 8.8	
		▪ Any benefits the proposed Project may have to the five pillars of assessment (Environmental, Economic, Social, Heritage and Health)	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.1.9.2 – 1.1.9.5, p. 1-31 - 1.34		

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		▪ All Canadian dollar estimates will be provided in real dollars, with an explanation of how they are measured (e.g. discount rates)	Overview of Proposed Project Proponent Description		Vol. 4, 18.11 - Social and Economic Statistical Data; Section 8.0	
		▪ State all assumptions and references for the above information	Overview of Proposed Project Proponent Description		Vol. 4, 18.11 - Social and Economic Statistical Data; Section 8.0	
Section 1.2 Page 6-10	Applicable Authorizations	The Application will: ▪ List in table format all applicable licenses, permits and/or approvals that are already received or expected to be required for the phases of the proposed Project, and the associated responsible regulatory body; and	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.2, p. 1-35 - 1.39		
		▪ State if the Proponent has or intends to request concurrent permitting under the Act pursuant to the Concurrent Approval Regulation (BC Reg. 371/2002)	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.2, p. 1-35		
		Table 2: Authorization Table	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.2, Table 1.2-1, p. 1-36		
Section 1.3 Page 10	Project Design and/or Alternative Means of Carrying out the Proposed Project	The Application will include: ▪ An assessment of the alternative means of carrying out the proposed Project that are technically and economically feasible including, but not limited to, the alternatives identified in the AIR	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.3.2, p. 1-43 - 1.44		**20**
		▪ The rationale and criteria used to select the proposed means of undertaking the proposed project.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.3.2, p. 1-43 - 1.44		**20**
		▪ The methodology and criteria used in the assessment of alternatives.	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.3.1, p. 1-40 - 1.43		**20**
Section 1.4 Page 11	Alternatives to the Proposed Project	The Application will include: ▪ An assessment of the alternatives to the proposed Project that were technically and economically feasible including, but not limited to, the alternatives identified in the AIR. Efforts to identify a solution for the aging Pattullo Bridge have been underway since 2006. Between 2012 and 2014, TransLink, along with its partners, undertook a comprehensive joint technical Strategic Review to develop and evaluate options to rehabilitate or replace the Pattullo Bridge. More than 25 alternatives were explored through technical and financial analysis and extensive public and stakeholder consultation, determining that replacement of the bridge was the most viable solution	Overview of Proposed Project Proponent Description	Vol. 1, Part A, Section 1.0, Subsection 1.3, p. 1-39 - 1.44		
Section 2.0 Page 12	**Environmental Assessment Process**	(Section Title)	Environmental Assessment Process	Vol. 1, Part A, Section 2.0		
Section 2.1 Page 12	Provincial EA Process	The Application will include: ▪ A statement that the proposed Project is subject to review under the Act, identifying the trigger(s) for the review under the Act.	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.1 p. 2-1		
		▪ A statement that the Application has been developed pursuant to the AIR approved by EAO and complies with relevant instructions provided in the section 11 Order and any other direction provided by EAO	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.1.2 p. 2-1		
		▪ A table documenting applicable milestones, including, but not limited to, issuance of section 10 and 11 Orders, working group meetings, any public comment periods or open houses and the issuance of the AIR), including links to documents on EAO's public website	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.1.2 p. 2-1, 2-2		
		▪ A list of the government agencies and Aboriginal Groups that participated in the EA; a summary of their participation; and, a list of the key issues raised by each party and the status of issue resolution (with cross-references, as appropriate, to other sections of the Application that deal further with consultation and issues raised)	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.3, p. 2-4 - 2-8, Subsection 2.5, p. 2-12 - 2-15 Vol. 2, Part C, Section 12.0		

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		▪ A summary of public participation in the EA, a list of the key issues raised, and the status of issue resolution (with cross-references, as appropriate, to other sections of the Application that deal further with consultation and issues raised)	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.4.1, p. 2-9 - 2-11		
Section 2.2 Page 12-13	Federal EA Process	The Application will include: ▪ A statement that the proposed Project is not a CEAA 2012 "designated project" but that an environmental effects determination will be required for those components of the project occurring on federal lands, as per Section 67 of CEAA 2012	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.2.1 p. 2-2		
		▪ An overview of the relevant provisions of CEAA 2012 that apply to the proposed Project	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.2.1, p. 2-2 - 2-3		
		▪ Discussion on the federal and provincial review process for the proposed Project, including a summary of the EAO-VFPA approach to a harmonized environmental review of the Project	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.2.2 p. 2-3		
		▪ A statement that the proposed Project includes physical works and activities on federal lands under VFPA jurisdiction, and requires a Project and Environmental Review Permit from VFPA	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.2.2 p. 2-3 - 2-4		
		▪ A statement that the proposed Project meets the criteria of a Category D project in the PER process, which is carried out to address VFPA's responsibilities under the Canada Marine Act, and to meet applicable requirements of CEAA 2012	Environmental Assessment Process	Vol. 1, Part A, Section 2.0, Subsection 2.2.2 p. 2-3 - 2-4		
Section 3.0 Page 16	**Assessment Methodology**	This section of the Application will describe the methods used to assess the potential adverse effects of the Project. The assessment methodology will be based on the EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects (September 2013), and will follow the methodological steps shown in Figure 1 Summary of Methodological Steps	Assessment Methodology	Vol. 1, Part B, Section 3.0		
Section 3.1 Page 16-17	Issues Scoping and Selection of Valued Components	The following Valued Components (VCs) will be assessed for potential Project-induced adverse effects: Fish and Fish Habitat; Vegetation; Wildlife; Economic Activity; Marine Use; Land Use; Community Cohesion; Visual Quality; Heritage Resources; Physical Determinants of Human Health; and Social Determinants of Human Health	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.1.2.2 p. 3-7 - 3-15		
		The following environmental components that are not the ultimate receptors of proposed Project-related effects but are part of the effects pathways, will be studied as intermediate components (ICs) to support the assessment of the VCs listed above: Fraser River Hydraulics and River Morphology; Soil and Groundwater; Surface Water and Sediment; Noise and Vibration; Air Quality, including greenhouse gases (GHGs); Lighting; and Shading.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.1.2.2 p. 3-7 - 3-15		
		The process used to select and define the VCs, as well as the proposed methodology for assessing existing conditions and potential Project-related effects of each VC and IC is provided in the Valued Component Selection and Rationale Document. The VC Selection and Rationale Document was submitted in draft to the EAO on June 21, 2017 and made available to the Advisory Working Group members and the public for review and comment. Comments received from EAO, Advisory Working Group members, and the public informed the refinement of the above VCs and ICs.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.1.1, 3.1.2, p. 3-2 - 3-10		
		The Application will summarize the process and methodologies used to identify and select the VCs for assessment. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.1.1, 3.1.2, p. 3-2 - 3-15		
Section 3.2 Page 17	Assessment Boundaries	(Section title)	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.2, p. 3-16 - 3-18		
Section 3.2.1 Page 17	Spatial, Temporal, Administrative, and Technical Boundaries	The Application will describe the methods used in identifying spatial, temporal, administrative and technical boundaries. Information on spatial, temporal, administrative and technical boundaries for each VC and IC will be included in the appropriate VC sections of this document and will encompass all relevant project phases, components and activities. The Application will include the rationale for any differences in boundaries from those presented in the final AIR.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.2, p. 3-16 - 3-18		**21**
		The spatial boundary maps for VCs and ICs will clearly identify parts of the project footprint located on lands and waters that lie within VFPA jurisdiction to allow VFPA to identify specific components of the Project that require a VFPA Project Permit and would therefore be subject to a CEAA 2012 section 67 determination.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.2, p. 3-16 - 3-18 Attachment A - Figures of each IC/VC section		**21**

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Section 3.3 Page 17-18	Existing Conditions	For each VC section, (Environmental, Economic, Social, Heritage and Health), the Application will include: A description of the existing (or baseline) conditions within the study area in sufficient detail to enable potential project-VC interactions to be identified, understood, and assessed: ▪ A description of the quality and reliability of the existing (or baseline) data and its applicability for the purpose used, including any gaps, insufficiencies and uncertainties, particularly for the purpose of monitoring activities	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		▪ Reference to natural and/or human-caused trends that may alter the environmental, economic, social, heritage and health setting, irrespective of the changes that may occur as a result of the proposed Project or other project and/or activities in the area	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		▪ An explanation of if and how other past and present projects and activities in the study area have affected or are affecting each VC	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		▪ Documentation of the methods and data sources used to compile information on existing (or baseline) conditions, including any standards or guidelines followed	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		▪ Where additional project and VC-specific field studies are conducted, the scope and methods to be used will follow published documents pertaining to data collection and analysis methods, where these are available. Where methods used for the assessment deviate from applicable published guidance, the rationale for the variance will be provided in the Application	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		▪ Description of Aboriginal Traditional Knowledge (ATK) used in the VC assessment	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
		The Application will contain the existing (or baseline) technical reports in the Appendices and will summarize key findings contained in these technical reports directly in the Application, in a manner that allows the reader to understand each VC's effects assessment.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.3, p. 3-18 - 3-19, also see each IC/VC section		
Section 3.4 Page 18 - 19	Potential Effects	The Application will summarize the overall process and methodologies used to identify and assess the potential effects of the proposed Project on the identified VCs.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		
		For each VC/IC section, the Application will: ▪ Identify the potential interactions of the proposed Project and the considered and selected VCs/ICs. ▪ Identify and describe the potential adverse effects resulting from the proposed Project. ▪ Demonstrate how feedback from Aboriginal Groups, the public, stakeholders and government agencies on VC selection and assessment was incorporated, as appropriate.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		
		The Application will identify any project activity-VC/IC interactions that were excluded from further assessment, including the methods and criteria used to justify the exclusion and input received from EAO, government agencies, Aboriginal Groups and the public regarding the exclusion.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		
		For VCs/ICs along the pathway of effects on other VCs/ICs, all receptor components and effect pathways will be clearly identified	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		
		Consideration of CEAA 2012 Requirements For each applicable VC, the Application will include an assessment of potential Project-related effects as defined in subsection 5(1) or 5(2) of CEAA 2012. For clarity, assessment of potential effects of each VC under the economic, social, heritage and health pillars will include consideration of environmental effects as defined in subsections 5(1)(c)(i), (ii) and (iv), which relate to potential effects of Project-induced changes to the environment on Aboriginal peoples' health and socio-economic conditions, and physical heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. Assessment of potential effects of Project-related changes to the environment on the current use of land and resources for traditional purposes per section 5(1)(c)(iii) of CEAA 2012 will be presented within the Application section that summarizes the results of assessments pertaining to statutory requirements under CEAA 2012	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		

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		The assessment of CEAA 2012 section 5(1) and 5(2) factors will consider Aboriginal perspectives and Aboriginal traditional Knowledge (ATK), where available publicly, or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.1.2.1, p.3-6, Subsection 3.4, p. 3-19 - 3-23, also see each IC/VC section		
Section 3.5 Page 19-20	Mitigation Measures	For each VC/IC section, the Application will: ▪ Describe the approach to identify and analyze mitigation measures, including any management and compensation plans proposed by the Proponent, which will be implemented to address potential effects	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-24 - 3-27, also see each IC/VC section		
		▪ Describe the mitigation measures incorporated into the proposed project, including site and route selection, project scheduling, project design (e.g. equipment selection, placement, emissions abatement measures), and construction and operation procedures and practices	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Describe any standard mitigation assumed or proposed to be implemented, including consideration of best management practices, environmental management plans, environmental protection plans, contingency plans, emergency response plans, and other general practices	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Clearly indicate how the mitigation measures will mitigate the potential adverse effects on the VC/IC	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Provide the rationale for the proposed mitigation measures, including why further avoidance or reduction measures for adverse effects may not be considered feasible, and the need for and scope of any proposed compensation or offset	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Evaluate the anticipated success of each mitigation measure and describe rationale and analysis for these evaluations. If there is little relevant/applicable experience with a proposed mitigation measure and there may be some question as to its effectiveness, describe the potential risks and uncertainties associated with use of the mitigation	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Include the time required for mitigation to become effective, to enable understanding of the duration of residual effects and the temporal characteristics of reversibility	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
		▪ Summarize the mitigation measures for potential Project effects by project phase and identify any mitigation measures that are in management or compensation plans	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.5, p. 3-23 - 3-27, also see each IC/VC section		
Section 3.6 Page 20	Characterization of Residual Effects	The Application will describe, in a table format, the residual effects using the residual effects criteria of context, magnitude, extent, duration, reversibility, and frequency, as defined in EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects. Where feasible, these criteria will be described quantitatively in the Application for each VC Residual effects that cannot be characterized quantitatively will be assessed qualitatively using clearly-defined terms.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.6, p. 3-27 - 3-29, also see each IC/VC section		
		The use of any qualitative terms (e.g. high, moderate, low, etc.) will be accompanied by distinct definitions for each of these rankings. An explanation will be included for the conclusion reached for each criterion used to characterize a residual effect.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.6, p. 3-27 - 3-29, also see each IC/VC section		
		Any residual effects identified on ICs along the pathway of effects on other VCs/ICs will be described in sufficient detail to support the assessment and characterization of potential effects on the receptor VCs/ICs.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.6, p. 3-27 - 3-29, also see each IC/VC section		
Section 3.7 Page 20	Likelihood	The Application will assess the likelihood for all residual adverse effects using appropriate quantitative or qualitative terms and sufficient description to understand how the conclusions were reached. Definitions of any qualitative terms, such as 'low', 'moderate', or 'high' probability will be provided.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.6, p. 3-27 - 3-29, also see each IC/VC section		

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Section 3.8 Page 20-21	Proponent's Determination of Significance	The Application must present the process and methodology used to define and evaluate the significance of residual effects, including how the term “significance” has been used in relation to each VC using quantitative and qualitative thresholds.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.7, p. 3-30 - 3-31, also see each IC/VC section		
		A conclusion of significance of residual adverse effects will be provided for each VC.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.7, p. 3-30 - 3-31, also see each IC/VC section		
		If environmental effects, as defined in subsections 5(1) or 5(2) of CEAA 2012, are identified for a VC, the Application will describe residual adverse effects, if any, in a manner that allows VFPA and other Federal Authorities to draw conclusions on the significance of those effects.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.7, p. 3-30 - 3-31, also see each IC/VC section		
Section 3.9 Page 21	Confidence and Risk	The Application will summarize the process and methodology used to evaluate the levels of confidence associated with residual effects predictions and in particular, how any identified uncertainty may affect either the likelihood or the significance of the predicted residual effect. The Application will also describe any measures to reduce uncertainty through monitoring, adaptive management or other follow-up programs.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.7.3, p. 3-30, also see each IC/VC section		
		The Application will summarize the process and methodology used to determine if additional risk analysis is required. If additional risk analysis is required, the Application will summarize the process and methodology used for this analysis and the conclusions, including the range of likely, plausible and possible outcomes with respect to likelihood and significance.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.7.3, p. 3-30, also see each IC/VC section		
Section 3.10 Page 21-25	Cumulative Effects Assessment	The Application will use the steps outlined in Figure 2: Steps to Determine Residual Project and Cumulative Effects to determine residual Project effects and the subsequent cumulative effects assessment.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8, p. 3-31 - 3-35, also see each IC/VC section		
		The following development categories will be considered in the Application: ▪ Projects or activities that have already been built or conducted for which the environmental effects overlap with those of the proposed Project (i.e., certain). ▪ Projects that are either proposed (public disclosure) or have been approved to be built, but are not yet built, for which the environmental effects overlap the proposed Project (i.e., reasonably foreseeable).	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8, p. 3-31 - 3-35, also see each IC/VC section		
		The Application will include: ▪ A table of all past, present and certain/reasonably foreseeable developments that will be included in the cumulative effects assessment, should one be required for a particular VC or IC. ▪ A general description of the information sources used to identify reasonably foreseeable developments and activities. ▪ A map showing the location of the projects and activities.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8, p. 3-31 - 3-35, also see each IC/VC section. Attachment 3-A, Figure 3-A-5		
		The Application will describe the methodology for identifying potential interactions between residual project effects and the effects of other developments, including a description of the following: ▪ The spatial boundaries for the cumulative effects assessment for each VC/IC, including maps. ▪ The spatial and temporal boundaries of other developments. ▪ The potential for interaction (spatial and temporal) and linkages (overlap) of VCs/ICs with other developments.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8, p. 3-31 - 3-35, also see each IC/VC section and Attachment A, Figures of each section.		
		Table 3: Preliminary list of certain and reasonably foreseeable projects and activities for cumulative effects assessment.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8.2, Table 3.8-1 p. 3-32 - 3-34, also see each IC/VC section		
Section 3.10.2 Page 25	Conducting a Cumulative Effects Assessment	The Application will summarize the process and methodology used to conduct the cumulative effects assessment, including the identification of potential cumulative effects, identification of additional mitigation measures, and evaluation of any (residual) cumulative effects using the same methodology described above in sections 3.6 to 3.9 of this AIR document.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.8, p. 3-31 - 3-35, also see each IC/VC section		

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Section 3.11 Page 25	Follow-up Strategy	Where a residual adverse effect and/or cumulative effect has been identified for a specific VC, the Application will include a description of a follow-up strategy, where appropriate, that: ▪ Identifies the measures to evaluate the accuracy of the original effects prediction.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.9, p. 3-35, also see each IC/VC section		
		▪ Identifies the measures to evaluate the effectiveness of proposed mitigation measures.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.9, p. 3-35, also see each IC/VC section		
		▪ Proposes an appropriate strategy to apply in the event that original predictions of effects and mitigation effectiveness are not as expected. This includes reference to further mitigation, involvement of key stakeholders, Aboriginal Groups, government agencies and any other measures deemed necessary to manage the issue.	Assessment Methodology	Vol. 1, Part B, Section 3.0, Subsection 3.9, p. 3-35, also see each IC/VC section		
Section 4.0 Page 26	Environmental Effects Assessment	The Application will include an assessment of Environmental Effects on VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of the AIR, using the organizational structure demonstrated in this section.	Environmental Effects Assessment	Vol. 1, Part B, Section 4.0		
		The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the AIR.	Environmental Effects Assessment	Vol. 1, Part B, Section 4.0		
		The following VCs have been identified for assessment under the environmental pillar: Fish and Fish Habitat; Vegetation; and Wildlife.	Environmental Effects Assessment	Vol. 1, Part B, Section 4.0		
		The following environmental components that are not the ultimate receptors of Project-related effects but are part of the effects pathways will be studied as ICs to support the assessment of the ultimate receptor VCs listed above: Fraser River Hydraulics and River Morphology; Soil and Groundwater; Surface Water and Sediment Quality; Atmospheric Noise; and Air Quality.	Environmental Effects Assessment	Vol. 1, Part B, Section 4.0		
Section 4.1 Page 26-27	**Fraser River Hydraulics and Morphology**	The proposed Project construction and decommissioning activities have the potential to change flow conditions (including flow velocity) in the Fraser River, and consequently change scour and sediment deposition patterns. These river processes comprise one of the steps along the pathway of effects of the Project, with Fish and Fish Habitat and Marine Use being the ultimate receptors of those effects. Fraser River Hydraulics and Morphology will, therefore, be studied as an IC in the context of effects of the Project on the following VCs: ▪ Fish and Fish Habitat; and ▪ Marine Use.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.1, p. 4.1-1 – 4.1-2		**22**
		The Fraser River Hydraulics and Morphology assessment will also inform the assessment of Project-related effects on the following ICs: Surface Water and Sediment Quality, Archaeological Resources subcomponent of Heritage Resources - specifically, in relation to the potential Project-related effects on archaeological sites along the Fraser River shoreline.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.1, p. 4.1-1		**22**
		Changes in Fraser River Hydraulics and Morphology could also have a measureable effect on the current use of lands and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12), and will inform the assessment of these factors.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.1, p. 4.1-2 Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**22**
		Fraser River Hydraulics and Morphology will be assessed in terms of the following subcomponents: ▪ River hydraulics; and ▪ River morphology.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.1, Table 4.1-1, p. 4.1-1 - 4.1-2		**22**
		The assessment conducted for describing existing baseline conditions and assessing potential Project-related effects will focus on study of the following indicators: ▪ Changes to flow distribution and flow patterns; ▪ Velocity changes; ▪ Changes to river scour; ▪ Changes to sediment deposition patterns; and ▪ Changes to water levels and bathymetry.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.2, p. 4.1-2 - 4.1-3		**22**

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Section 4.1.1 Page 27-28	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable to river hydraulics and morphology, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR document.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.4, p. 4.1-4 - 4.1-6. Attachment 4.1-A, Figure 4.1-A-1.		**22**
		The following assessment boundaries are defined for Fraser River hydraulics and River Morphology: ▪ Spatial boundaries: ○ Local Study Area (LSA): Section of the Fraser River extending from approximately the downstream end of Sapperton Bar to immediately downstream of the existing SkyTrain Bridge. This represents the section of the river where any potential substantial Project-related effects, including changes to flow distribution, scour, velocity flows, and sedimentation, could be expected. The LSA will encompass instream portions of the New Westminster Rail Bridge, existing Pattullo Bridge, existing SkyTrain Bridge, and proposed Pattullo Replacement Bridge, and will extend to the Higher High Water Level (HHWL) – large tide along the shoreline. See Figure A1.4 Fraser River Hydralics and River Morphology Assessment Area in Appendix 18.3 (*of AIR document)* for LSA boundary. ○ Regional Study Area (RSA): The upstream boundary of the RSA is 6 km from the existing Pattullo Bridge. Downstream of the existing bridge, the boundary is located 5.5 km downstream for each of the mainstem Annacis Channel and North Arm of the Fraser River, and 8 km downstream for the South Arm Fraser River. In terms of landmarks, this area extends from downstream of the Port Mann Bridge to downstream of Alex Fraser Bridge in Annieville Channel (mainstem). In Annacis Channel the area extends to upstream of the Annacis Channel Bridge. In the North Arm, it extends to downstream of the Queensborough Bridge. These boundaries have been selected to encompass key areas of interest identified in a meeting with Vancouver Fraser Port Authority (VFPA) in June 2016 such as: - The Sapperton V-Dyke; - The Phase III Trifurcation Training Wall (aka the Timberland Training Wall); - The entrance to Fraser Surrey Docks; - Wallenius Williamsen Logistics (WWL) Auto Terminal, Annacis Island; and - Amix Marine Services. The boundary extends beyond the Higher High Water Level (HHWL) – large tide. Numerical modelling is proceeding based on the RSA boundary defined above. See Figure A1.4 Fraser River Hydraulics and River Morphology Assessment Area in Appendix 18.3 (*of AIR document)* for RSA boundary.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.4, p. 4.1-4 - 4.1-5; Attachment 4.1-A Figures, Figure 4.1-A-1		**22**
		▪ Temporal boundaries: ○ Existing conditions ○ Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge ○ Project operations phase	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.4, p. 4.1-5 - 4.1-6		**22**
		▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this IC were identified; therefore no administrative boundary is defined.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.4, p. 4.1-4		**22**
		▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) that could inhibit assessment of this IC were identified; therefore no technical boundary is defined.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.1.4, p. 4.1-6		**22**
Section 4.1.2 Page 29	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.2, p. 4.1-6 - 4.1-11		**22**
		The Proponent is using the following approach to collect baseline information on river hydraulics and morphology: ▪ Review existing information on Fraser River hydraulics and morphology ▪ Review ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integrate relevant information provided with permission for use in the Application into the assessment of river hydraulics and morphology. ▪ Conduct field investigations to gather additional information on existing conditions (to calibrate and validate the models that will be used to assess potential Project effects) ▪ Use physical modelling to assess “near-field” (local) hydraulics and morphology effects (using a 1:80 scale physical model) ▪ Use numerical (i.e., computer) modelling to assess both “near-field” and “far-field” hydraulics and morphology effects	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.2, p. 4.1-6 – 4.1-11, Subsection 4.1.3, p. 4.1-11 - 4.1-19 Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406	Vol. 3, Appendix 18.2 – Hydraulic Modelling Report	**22**

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		A scale model of the LSA has been constructed to assess the hydraulic and morphological baseline of the river, including around all existing piers. Two numerical models will also be used to: (a) provide preliminary indications of near-field effects on hydraulics; and (b) to assess potential far-field effects on hydraulics and morphology beyond the limits of the physical model. The modeling results will be interpreted in order to assess the proposed Project's potential hydraulic and morphologic effects on fish and fish habitat, marine use, surface water and sediment quality, and archaeological resources.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.3, p. 4.1-11 - 4.1-19	Vol. 3, Appendix 18.2 – Hydraulic Modelling Report	**22**
		The Application will include a summary of the hydraulic assessment and an appendix containing detailed technical information related to river hydraulics and river morphology assessment.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.3, p. 4.1-11 - 4.1-19	Vol. 3, Appendix 18.2 – Hydraulic Modelling Report	**22**
Section 4.1.3 Page 29-30	Potential Effects	The Application will identify potential adverse effects to the IC in a manner consistent with section 3.4 Potential Effects of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.3, p. 4.1-11 - 4.1-19		**22**
		Fraser River Hydraulics and Morphology together comprise one of the 'steps' along the pathway of effects of the Project, with Fish and Fish Habitat, and Marine Use being the ultimate receptors of Project-related effects. The Fraser River Hydraulics and Morphology study will focus on water levels, velocities, and flow patterns (river hydraulics) in the Fraser River and their influence on scour and sediment deposition (morphology).	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.3, p. 4.1-11 - 4.1-19	Vol. 3, Appendix 18.2 – Hydraulic Modelling Report	**22**
		Hydraulic modelling will be used to assess potential adverse hydraulic and morphological effects on navigation, environment, and infrastructure. The modelling will be based on: ▪ A spatial extent that encompasses, at a minimum, the area from the Alex Fraser Bridge in South Arm to the Port Mann Bridge in the Main Arm; downriver in the North Arm to Queensborough Highway Bridge; and downriver in Annacis Channel to Annacis Swing Bridge. ▪ A temporal extent that includes current conditions (for validation purposes), construction period when all piers of the new bridge are present, post construction (i.e. after demolition of the existing bridge). ▪ Predictions of potential changes in river hydraulics and morphology: this includes potential changes to currents and sedimentation at sites identified by VFPA in the document "PBRep – Hydraulic Model – Identification of VFPA Key Nodes – 2016 -10-20". ▪ An assessment of potential effects on flow split between the Fraser River South Arm, Fraser River North Arm, and Annacis Channel as per function of a series of river training structures within the vicinity of the proposed works. The numerical modeling will be based on the Reference Concept.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.3, p. 4.1-12 - 4.1-19	Vol. 3, Appendix 18.2 – Hydraulic Modelling Report	**22**
Section 4.1.4 Page 30	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the IC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.4, p. 4.1-19 - 4.1-22 Vol. 2, Part E, Section 14.0, Subsection 14.10, p. 14-10 – 14-11		**22**
Section 4.1.5 Page 30	Residual Effects	Where an adverse residual effect is identified, the Application will describe the residual effect in terms of the context, magnitude, extent, duration, reversibility, and frequency as outlined in section 3.6 Characterization of Residual Effects of this AIR, and in sufficient detail to support the assessment of relevant receptor VCs.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.5, p. 4.1-23 - 4.1-26		**22**
Section 4.1.6 Page 30-31	Cumulative Effects	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Certain/Reasonably Foreseeable Projects and/or Activities of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.6, p. 4.1-27 - 4.1-29		**22**
		▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.6, p. 4.1-27 - 4.1-29		**22**
		▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.6, p. 4.1-27 - 4.1-29		**22**
		▪ Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.6, p. 4.1-27 - 4.1-29		**22**
Section 4.1.7 Page 31	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Fraser River Hydraulics and Morphology	Vol. 1, Part B, Section 4.1, Subsection 4.1.7, p. 4.1-29		**22**

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Section 4.2 Page 31	**Surface Water and Sediment Quality**	Project design and implementation may affect surface water and sediment quality in the Project area. Instream and near-stream construction/demolition activities have the potential to produce elevated suspended solids in surface water, and increase sediment deposition in sensitive habitats. Surface Water and Sediment Quality comprise 'steps' along the pathway of effects of the Project, with Fish and Fish Habitat, Vegetation, and Wildlife being the ultimate receptors of Project-related effects. The Surface Water and Sediment Quality IC will be assessed in terms of the following subcomponents: ▪ Surface water quality; and ▪ Sediment quality. Potential effects of the proposed Project on these two subcomponents will be assessed for both the construction and operation phases. The results of the effects assessment will be interpreted in a way that supports the assessment of potential Surface Water and Sediment Quality effects on the above ultimate receptor VCs.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1, p. 4.2-1		
		The assessment will focus on the following indicators: ▪ Alteration of drainage patterns; ▪ Changes in surface water quality and sediment quality, focusing on potential contaminants of concern; and ▪ Changes in sediment deposition.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1, p. 4.2-2		
Section 4.2.1 Page 31-33	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1, p. 4.2-1. Attachment 4.2-A, Figure 4.2-A-1.		
		The following assessment boundaries are defined for Surface Water and Sediment Quality: ▪ Spatial boundaries: o Local Study Area (LSA): - In the Fraser River, the Surface Water and Sediment Quality LSA is defined as the section of the Fraser River extending from about 1 km upstream to 1 km downstream of the existing Pattullo Bridge. The upstream boundary corresponds to the downstream end of Sapperton Bar. The downstream boundary corresponds to Tannery Road on the Surrey Side and Fourth Street on the New Westminster side. These boundaries were selected to be consistent with the Fish and Fish Habitat LSA boundaries, and to encompass the River Hydraulics and River Morphology LSA; - On the Fraser River banks, the LSA extends to the Higher High Water Level (HHWL) – large tide along the reach of the Fraser River. This mirrors the river bank LSA definition for River Hydraulics and River Morphology; - The LSA also extends upland to include tributary surface water courses that discharge into the Fraser River and within an approximately 30 m buffer around the proposed Project Boundary on both the Surrey and New Westminster banks. This boundary ensures any Project-related effects on land are encompassed by the LSA, and roughly corresponds to the upland portion of the Fish and Fish Habitat LSA. o Regional Study Area (RSA): The RSA extends from 6 km upstream to 5.5 km downstream of the existing Pattullo Bridge for the mainstem Annacis Channel and North Arm Fraser River, and 8 km downstream for the South Arm Fraser River. The RSA extends to the HHWL along the shoreline, and will cover an area extending from downstream of the Port Mann Bridge to downstream of Alex Fraser Bridge in Annieville Channel (mainstem). In Annacis Channel, the RSA extends to upstream of the Annacis Channel Bridge, and in the North Arm it extends to downstream of the Queensborough Bridge. These boundaries were selected to be consistent with the RSA boundaries for River Hydraulics and River Morphology.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1.4, p. 4.2-4 - 4.2-5; Attachment 4.2-A, Figure 4.2-A-1.		
		▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1.4, p. 4.2-4 - 4.2-5		
		▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this IC were identified; therefore no administrative boundary is defined.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1.4, p. 4.2-4 - 4.2-5		
		▪ Technical boundaries – no issues related to technical constraints (e.g., site access or data) that could inhibit assessment of this IC were identified; therefore no technical boundary is defined.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.1.4, p. 4.2-4 - 4.2-5		

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Section 4.2.2 Page 33	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.2, p. 4.2-5 - 4.2-10	Vol. 3, Appendix 18.3 – Surface Water and Sediment Quality Report	
		The Proponent is using the following general approach to characterize surface water quality and sediment quality in the proposed Project area: ▪ Literature review, including review of background information on temporal trends in surface water quality and sediment quality in the Fraser River, and causal relationships with environmental variables; and ▪ Field assessments of surface water quality and sediment quality in watercourses within the LSA.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.2, p. 4.2-5 - 4.2-10	Vol. 3, Appendix 18.3 – Surface Water and Sediment Quality Report	
		The Application will include technical information related to assessment of surface water and sediment quality.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.2, p. 4.2-5 - 4.2-10	Vol. 3, Appendix 18.3 – Surface Water and Sediment Quality Report	
Section 4.2.3 Page 33	Potential Effects	The Application will identify potential adverse effects to the IC in a manner consistent with section 3.4 Potential Effects of this AIR.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.3, p. 4.2-10 - 4.2-13		
		Construction and demolition activities may cause short-term adverse effects to water quality. For example, construction activities, specifically under inclement weather conditions such as larger than normal storm events, can potentially accelerate erosion in work site areas, produce construction-induced adverse water quality effects on streams and rivers (e.g., by increasing sediment load or contributing deleterious substances), increase suspended sediment concentrations and/or instream sediment deposition, cause changes in river hydraulics, morphology, and produce other potentially adverse effects on surface water quality. The results of the Contamination Risk Assessment undertaken as part of the assessment of the Soil and Groundwater IC will also inform the assessment of Surface Water and Sediment Quality.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.3, p. 4.2-10 - 4.2-13		
Section 4.2.4 Page 33-34	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the IC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.4, p. 4.2-13 - 4.2-17 Vol. 2, Part E, Section 14, Subsection 14.9 – 14.12. p. 14-9 – 14-13		
Section 4.2.5 Page 34	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will describe the residual effect in terms of the context, magnitude, extent, duration, reversibility, and frequency as outlined in section 3.6 Characterization of Residual Effects of this AIR, and in sufficient detail to support the assessment of relevant receptor VCs.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.5, p. 4.2-18		
Section 4.2.6 Page 34	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR.	Surface Water and Sediment Quality	N/A		
		▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR.	Surface Water and Sediment Quality	N/A		
		▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Surface Water and Sediment Quality	N/A		
		Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Surface Water and Sediment Quality	N/A		
Section 4.2.7 Page 34	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Surface Water and Sediment Quality	Vol. 1, Part B, Section 4.2, Subsection 4.2.6, p. 4.2-18		
Section 4.3 Page 34-36	**Fish and Fish Habitat**	The Project has the potential to affect the Fraser River, and some upland tributaries of the Fraser River. Project implementation could have direct adverse effects on individual fish, and may result in permanent or temporary change in fish habitat form and function (e.g., the Project has the potential to cause changes in flow velocity in the Fraser River that could affect fish migration). The Fish and Fish Habitat VC is divided into the following subcomponents: ▪ Key species; ▪ "Forage fish"; and ▪ Fish habitat form and function.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1, p. 4.3-1	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report.	**25**

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		The assessment of fish will focus on the following fish species that are documented to be present or potentially present in the Project area that 1) form part of a commercial, recreational, or Aboriginal fishery (collectively termed "CRA" fisheries as defined in the federal Fisheries Act); 2) are classified as a species at risk (i.e., listed under schedules of the federal Species at Risk Act [SARA]) and/or provincially "red-listed" or "blue-listed"; or 3) have Aboriginal importance. They include:
		▪ Salmonidae:
		  ○ Pacific salmon – chinook, chum, coho, pink, and sockeye;
		  ○ Trout – coastal cutthroat trout and rainbow/steelhead trout; and
		  ○ Char – Dolly Varden and bull trout.
		▪ Sturgeon – white sturgeon, green sturgeon;
		▪ Eulachon; and
		▪ Mountain sucker.
		Green sturgeon and mountain sucker are unlikely to be present in the Project area, but these species are included because they are each listed as a species of special concern under SARA. It is intended that the key species listed above collectively represent fish in general, including those that support a CRA fishery and those protected under Schedule 1 of SARA (where applicable). The assessment will also include consideration of a general category, termed "forage fish" (excluding Eulachon and Mountain Sucker that are already listed as individual species for assessment), which are prey for the key (i.e., CRA) species listed above. Forage fish are considered to include various species of minnows.
			Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.1, p. 4.3-1 – 4.3-2	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report.	**25**

		Fish habitat will be assessed from the perspectives of form and function, in particular relating to habitat use by the above-listed species. Regarding habitat function, initial study indicates that the Fraser River crossing area functions mainly as a migration corridor. Therefore, the assessment of habitat function in the Fraser River will interpret and build on the results of the hydraulic modelling and consider fish life-cycles (including timing of migrations by species).
		The following indicators are proposed for the assessment of the Fish and Fish Habitat VC:
		▪ Potential for physical injury/mortality to fish (in relation to the key species listed above); and
		▪ Changes to fish habitat quantity, quality and function for life cycle components of key species listed above, including:
		  ○ Changes to habitat suitability and availability;
		  ○ Changes to water quality;
		  ○ Changes to Fraser River hydraulics and river morphology.
			Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.2, p. 4.3-3 - 4.3-4		**25**

		Assessment of fish habitat quantity, quality, and function will include a consideration of the following issues identified by the Advisory Working Group during their initial review of the Valued Component Selection and Rationale Document for the Project: ▪ Potential for mobilization of contaminants into the aquatic environment through Project-related activities in areas of pre-existing soil/groundwater contamination, supported by assessment of Soil and Groundwater as outlined in Section 4.5 of this dAIR; and ▪ Project-related activities that limit the shade or cooling spaces for spawning salmon.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.3, p. 4.3-20 - 4.3-35		**25**
		This section of the Application will assess environmental effects defined in subsection 5(1) of CEAA 2012 that are of relevance to fish and fish habitat. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives and ATK, where available publicly, or provided with permission for use in the Application during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.3, p. 4.3-4; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**25**

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Section 4.3.1 Page 36-37	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable to the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.4, p. 4.3-5. Attachment 4.3-A, Figure 4.3-A-2		**25**
		The following assessment boundaries are defined for the Fish and Fish Habitat VC: ▪ Spatial boundaries: o Local Study Area (LSA): Section of the Fraser River extending from 1 km upstream to 1 km downstream of the existing Pattullo Bridge, and 30 metres (m) either side of the Fraser River within the upstream and downstream boundaries plus the following upland areas. The boundaries of the physical hydraulic model for assessing Fraser River Hydraulics and Morphology (as influenced by scour and depositional processes) fall within these boundaries. In Surrey, the area bounded by Tannery Road from the Fraser River to 120 Street, then 120 Street/Scott Road to Old Yale Road, then Old Yale Road to Bridgeview Drive, north along 130 Street to the Fraser River. In New Westminster, the area bounded by Fourth Street from the Fraser River to Third Avenue, Third Avenue to First Street, First Street to Sixth Avenue, and Cumberland Street from Sixth Avenue to the Fraser River o Regional Study Area (RSA): Section of the Fraser River extending from 6 km upstream to 5.5 km downstream of the existing Pattullo Bridge for the Mainstem and North Arm, and 8 km downstream for the South Arm, plus upland areas covered by the LSA and a 100m buffer around it. These boundaries are consistent with the boundaries of the numerical hydraulic model that will be used to assess Fraser River Hydraulics and Morphology.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.4, p. 4.3-5, Attachment 4.3-A, Figure 4.3-A-2		**25**
		▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.4, p. 4.3-5 - 4.3-6		**25**
		▪ Administrative boundaries: o No issues related to political, economic or social constraints that could inhibit assessment of this VC were identified; therefore no administrative boundary is defined. ▪ Technical boundaries: o No issues related to technical constraints (e.g. site access or data) that could inhibit assessment of this VC were identified; therefore no technical boundary is defined.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.4, p. 4.3-6		**25**
Section 4.3.2 Page 37-38	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.2, p. 4.3-6 - 4.3-20	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report	**25**
		The following general approach is being taken to generate information with respect to existing conditions of fish and fish habitat: ▪ A review of literature describing fish species occurrence and distribution, and fish habitat characteristics (i.e., riparian vegetation, streambed type, water quality) in the Fraser River and in potentially affected tributaries to the Fraser River. ▪ Characterization of habitat conditions of the lower Fraser River based on available and usable data from the Fraser River Hydraulic and Morphology models. ▪ Field surveys to characterize fish habitat and confirm the presence and distribution of fish in upland watercourses potentially affected by the proposed Project. Review of available ATK provided by Aboriginal Groups through consultation or Project-specific studies and integration of relevant information into the Fish and Fish Habitat existing conditions. Inclusion of ATK in the Application will be subject to the confidentiality provisions of relevant MOUs between between TransLink and Aboriginal Groups and between MoTI and Aboriginal Groups.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.2, p. 4.3-6 - 4.3-8; Vol. 2, Part C, Section 12.1, Subsection 12.1.3, p. 12-8 – 12-406	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report	**25**
		Regulation and management of fish and fish habitat in B.C. occurs through the following provincial and federal legislation: ▪ B.C. Fish Protection Act; ▪ B.C. Water Sustainability Act, S.B.C. 2014, c.15; ▪ B.C. Wildlife Act, R.S.B.C. 1996, c.488; ▪ Federal Fisheries Act, R.S.C. 1985, C. F-14; and ▪ Federal Species at Risk Act (SARA), S.C. 2002, c.29.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.1.3, p. 4.3-4	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report	**25**

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		The Proponent's proposed approach for assessing this VC includes the following steps: ▪ Review existing data on fish and fish habitat for key species identified for assessment based on literature and field surveys ▪ Review ATK , where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integrate relevant information provided with permission for use in the Application, into assessment of the Fish and Fish Habitat VC. ▪ Undertake acoustic modelling of underwater noise generated during Project-related in-river construction activities, specifically installation of in-river piers. ▪ Review results of assessments of relevant VCs and ICs, including: o Fraser River Hydraulics and River Morphology o Surface Water and Sediment Quality o Soil and Groundwater o Lighting and Shading	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.2, p. 4.3-6 - 4.3-20; Section 4.3, Subsection 4.3.3.1 p. 4.3-23 – 4.3-28	Vol. 3, Appendix 18.4 – Fish and Fish Habitat Report	**25**
Section 4.3.3 Page 38-39	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.3.1, p. 4.3-20 - 4.3-21		**25**
		The proposed Project has the potential to affect fish and fish habitat during construction. Fish may be directly affected by construction-related activities (e.g., through exposure to deleterious substances from accidental spills) or indirectly affected by Project-induced changes in habitat (e.g. increased levels of underwater noise, hydraulic changes). Permanent loss or alteration of fish habitat (aquatic and/or riparian) may result from displacement or alteration of existing habitat by Project infrastructure (e.g. bridge supports in the river).	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.3, p. 4.3-20 - 4.3-35		**25**
		The Proponent will: ▪ Assess Project interactions and related potential adverse effects on fish and fish habitat, with appropriate consideration of fish life cycles and seasonality/timing of fish species. The Assessment will consider potential effects of Project construction-related noise and vibration transmitted through water (i.e. underwater noise) on the underwater acoustic environment, and associated effects on fish. A full-wave numerical sound propagation model will be used to simulate the transmission of sound generated during pile installation (i.e. the Project-related activity that is expected to have the maximum effect on underwater noise conditions) through water-saturated soils into water. Site-specific environmental data that describes the bathymetry, water sound speed, and seabed geoacoustics in the Fraser River will be considered in the modelling. Four sites, one at each anticipated in-river pier location, will be used for modelling the sound field associated with pile installation. In addition, a composite scenario that represents the sound fields generated by pile installation operations occurring at multiple locations at the same time will be included in the modelling. A report on underwater acoustic modelling undertaken for the Project will be included as a technical appendix in the application.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.3, p. 4.3-20 - 4.3-35	Vol. 4, Appendix 18.18 – Underwater Acoustic Modelling Report	**25**
Section 4.3.4 Page 39	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures in this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application will be identified.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.4, p. 4.3-36 - 4.3-43; Vol. 2, Part E, Section 14, Subsection 14.11, p. 14-11 – 14-13		**25**
		The Proponent will: ▪ Identify measures to mitigate potential adverse effects of the Project on fish and fish habitat as appropriate, for example: o Studies in advance of Project construction to identify eulachon presence and spawning activity within the Project Boundary o Identify and monitor select areas within the Project Boundary for white sturgeon presence prior to, and during, in-river construction activities that have the potential to interact with the species ▪ Propose a habitat offsetting strategy if habitat offsetting proves necessary.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.4, p. 4.3-36 - 4.3-43; Vol. 2, Part E, Section 14, Subsection 14.11, p. 14-11 – 14-13		**25**
Section 4.3.5 Page 39	Residual Effects and their Significance	Where an adverse residual effect (post-mitigation) is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.5.1, p. 4.3-44 - 4.3-50		**25**
		Where an adverse residual effect (post-mitigation) is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.5.1, p. 4.3-44 - 4.3-50		**25**

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Section 4.3.6 Page 39-40	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by the EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.6, p. 4.3-51 - 4.3-59		**25**
Section 4.3.7 Page 40	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Fish and Fish Habitat	Vol. 1, Part B, Section 4.3, Subsection 4.3.7, p. 4.3-59 – 4.3-60		**25**
Section 4.4 Page 40	**Vegetation**	The Project area has historically been subject to extensive anthropogenic disturbance, and as a result, existing vegetation cover within the Project Boundary is severely fragmented and dominated by invasive species. However, some consolidated patches of riparian habitat and forest cover exist within the proposed Project Area (on the Surrey side of the Fraser River) that may offer suitable habitat for at-risk plant species or may in part comprise at-risk ecological communities. The assessment of the VC will focus on the following subcomponents: ▪ Rare plants; ▪ At-risk plant communities; and ▪ Wetland ecosystems.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.1, p. 4.4-1 – 4.4-2	Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**
		The following indicators are proposed for describing existing baseline conditions and assessing potential Project-related effects on vegetation: ▪ Presence/absence of federally and provincially listed plants and their locations and areal extent (if present); ▪ Presence/absence of plant communities (general) and their locations and aerial extent (if present); ▪ Presence/absence of federally and provincially listed plant communities and their locations and areal extent (if present); and ▪ Presence/absence of wetlands, and their location and aerial extent (if present).	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.1.1, p. 4.4-2		**25,28**
		The Application will assess environmental effects defined in subsection 5(1) of CEAA 2012 that are of relevance to vegetation. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives and ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.1.2, p. 4.4-3; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**25,28**
Section 4.4.1 Page 41	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.1.3, p. 4.4-5 - 4.4-6. Attachment 4.4-A, Figure 4.4-A-1		**25,28**

		The following assessment boundaries are defined for vegetation:
		▪ Spatial boundaries:
		  ○ Local Study Area (LSA): The terrestrial area directly affected by the proposed Project footprint, plus a 250-m terrestrial area surrounding the proposed Project design footprint within which potential effects from the proposed Project may interact with vegetation.
		  ○ Regional Study Area (RSA): Due to the disturbed nature of the site the proposed Project-related effects on vegetation are expected to be minimal and limited to the LSA. No RSA is defined for vegetation.
		▪ Temporal boundaries:
		  ○ Existing conditions
		  ○ Project construction phase:
		  - Site preparation and pre-construction activities
		  - Construction of the new bridge
		  - Decommissioning and removal of the existing bridge
		  ○ Project operations phase
			Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.1.3, p. 4.4-5 - 4.4-6,
				Attachment 4.4-A, Figure 4.4-A-1
						25,28

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		▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this VC were identified; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g., site access or data) that could inhibit assessment of this VC were identified; therefore no technical boundary is defined.				
Section 4.4.2 Page 41-42	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.2, p. 4.4.6 - 4.4-15	Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**

		The Proponent is studying the type, amount, and distribution of vegetation in the proposed Project area through the following methods:
		▪ Available databases and results of previous studies are being reviewed to develop a list of at-risk plant species and ecological communities that may be present.
		▪ Terrestrial Ecosystem Mapping will be conducted to inform desktop assessment and direct field studies.
		▪ Field surveys are being undertaken to confirm the presence or absence of at-risk species and communities.
		▪ Review results of assessments of other relevant VCs and ICs, including:
		  ○ Surface Water and Sediment Quality;
		  ○ Soil and Groundwater;
		  ○ Lighting;
		  ○ Shading; and
		  ○ Historical Heritage (i.e. landscape elements).
		▪ Review ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integrate relevant information provided with permission for use in the Application into the assessment of the Vegetation VC.
		Regulation and management of vegetation in B.C. occurs through the following legislation:
		▪ Forest and Range Practices Act (FRPA), S.B.C. 2002, c.69 and the Forest and Range Practices Act, Forest Planning and Practices Regulation (BC Reg. 177/2014); and
		▪ Species at Risk Act (SARA), S.C. 2002, c. 29.
		In addition to the above legislation, the following guidelines, standards, management tools also apply:
		▪ BC Conservation Data Centre, Conservation Status Ranks and Red and Blue Lists
		▪ Classification and Management of Rare Ecosystems in British Columbia (McLennan and Ronalds 1999)
		▪ Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MOE 2014b)
		▪ Standard for Terrestrial Ecosystem Mapping in British Columbia (RIC 1998a)
			Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.2, p. 4.4.6 - 4.4-15;
				Vol. 2, Part C, Section 12.1, Subsection 12.1.3, p. 12-8 – 12-406
					Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**

		If appropriate, an appendix containing technical information relating to the vegetation assessment will be included in the Application.	Vegetation		Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**
Section 4.4.3 Page 43	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3, p. 4.4-15 - 4.4-19		**25,28**
		The proposed Project has the potential to affect rare plants and plant communities through the potential elimination of consolidated patches of riparian habitat and forest cover. These areas within the proposed Project area (on the Surrey side of the Fraser River) may be suitable habitat for plants and plant communities that are red- or blue-listed by the Provincial Conservation Data Centre (CDC). The proposed Project construction also has the potential to eliminate or degrade wetland ecosystems during construction.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3, p. 4.4-15 - 4.4-19		**25,28**
		The Application will include an assessment of existing vegetation habitat and potential Project-related effects, and description of measures proposed to mitigate adverse effects. For permanent habitat impacts, a description of offsets and/or replanting plans will be included.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3, p. 4.4-15 - 4.4-19		**25,28**
		The Application will include an assessment of Project-related effects on all federal and provincial listed species-at-risk and a description of proposed mitigation strategies.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3 – 4.4.4, p. 4.4-15 - 4.4-23		**25,28**

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		The Proponent will use the baseline information to assess potential Project effects on vegetation, including habitat suitable for at-risk plants and plant communities (if present). Anticipated VC interactions with proposed Project components or activities include the following: ▪ Clearing activities, as well as construction and decommissioning works affecting vegetation cover; and ▪ The Proponent will use the baseline information to address concerns that construction of the proposed Project could induce or accelerate the spread of invasive species.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3 – 4.4.4 p. 4.4-15 - 4.4-23	Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**
		The Application will include an invasive species assessment that includes information on existing invasive species, a mitigation plan to prevent spread of invasive species during construction and demolition, and an invasive species monitoring and management plan. Invasive species management will also be addressed in a Vegetation Management Plan (see Part E – Vegetation Management Plans and Follow-Up Programs).	Vegetation	Vol. 1, Part B, Section 4.4, Subsections 4.4-2 - 4.4.4. p. 4.4-15 4.4-23; Vol. 2, Part E, Section 14, Subsection 14.21, p. 14-21 – 14-23	Vol. 3, Appendix 18.5 – Vegetation Report	**25,28**
Section 4.4.4 Page 43	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.3. p. 4.4-18 - 4.4-22. Vol. 2, Part E, Section 14.0, Subsection 14.21. p.14-21 – 14-23		**25,28**
Section 4.4.5 Page 43-44	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.5, p. 4.4-23		**25,28**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.5, p. 4.4-23		**25,28**
Section 4.4.6 Page 44	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.6, p. 4.4-23 – 4.4-24		**25,28**
Section 4.4.7 Page 44	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Vegetation	Vol. 1, Part B, Section 4.4, Subsection 4.4.7, p. 4.4-24		**25,28**
Section 4.5 Page 44	**Wildlife**	The fragmented nature of the vegetation limits the quantity and quality of wildlife habitat and this in turn influences the type and abundance of wildlife inhabiting the proposed Project area. Wildlife present in the area is expected to consist primarily of common species of raptor, riverine birds, amphibians and small mammals. The following wildlife subcomponents will be assessed to determine potential for proposed Project-related effects: ▪ Wildlife: ○ Migratory birds; ○ Birds (Herons, Peregrine falcons, ospreys, red-tailed hawks, eagles, common nighthawks, western screech owls, barn swallows, urban birds); ○ Small mammals (Pacific water shrew); and ○ Amphibians (Red-legged frog, Western toad). ▪ Wildlife habitat (focus on key species listed above). The following indicators are proposed for describing existing baseline conditions and assessing potential Project-related effects on wildlife: ▪ Presence/absence of at-risk wildlife; and ▪ Amount, quality and function of habitat suitable for at-risk wildlife species.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.1.1 p. 4.5-1 - 4.5-4		**25,26,27, 28**

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		The Application will assess environmental effects defined in subsection 5(1) of CEAA 2012 that are of relevance to wildlife. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives and ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Wildlife	Vol. 1, Part B, Section 4.5, Subsections 4.5.1, 4.5.2, 4.5.3, 4.5.4, p. 4.5-1 - 4.5-33; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**25,26,27, 28**
Section 4.5.1 Page 45	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Wildlife	Vol. 1, Part B, Section 4.5 Subsection 4.5.1.3, p. 4.5-6 - 4.5-7. Attachment 4.5-A, Figure 4.5-A-1.		**25,26,27, 28**
		The Proponent is using the following assessment boundaries are defined for terrestrial wildlife: ▪ Spatial boundaries: o Local Study Area (LSA): The area directly affected by the proposed Project footprint, plus a 250-m area surrounding the proposed Project design footprint within which potential effects from the proposed Project may interact with wildlife. o Regional Study Area (RSA): The area lying within a 5 km radius from the outer edge of the LSA design footprint. The area includes Burnaby Lake Regional Park, the edge of Green Timbers Park, Invergarry Park, and forest patches near Burn Creek. These parks represent potential species pools for the Project area. ▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.1.3, p. 4.5-6 - 4.5-7, Attachment 4.5-A, Figure 4.5-A-1		**25,26,27, 28**
Section 4.5.2 Page 46-47	Existing Conditions	The Proponent is using the following general approach to collect baseline information on potentially affected wildlife and wildlife habitat, and to assess the presence of at-risk wildlife species: ▪ A review of literature to identify wildlife species with the potential to occur in the proposed Project area. ▪ Field studies to confirm the presence of wildlife and wildlife habitat, including migratory birds and their habitat, within the proposed Project area. ▪ Assessment of the suitability of identified wildlife habitat to accommodate at-risk wildlife species. ▪ Review results of assessments of other relevant VC/ICs, including: o Vegetation; o Surface Water and Sediment Quality; o Soil and Groundwater; o Noise and Vibration; o Lighting; and o Shading. ▪ Review ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integrate relevant information provided with permission for use in the Application into the assessment of the Wildlife VC.	Wildlife	Vol. 1, Part B, Section 4.5 Subsection 4.5.2, p. 4.5-7 - 4.5-20; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406	Vol. 3, Appendix 18.6 Terrestrial Wildlife Report Vol. 3, Appendix 18.7 Species at Risk Habitat Suitability Report	**25,26,27, 28**
		Regulation and management of wildlife in B.C. occurs through the following legislation and guidance: ▪ B.C. Wildlife Act, R.S.B.C. 1996, c.488; ▪ Federal Migratory Birds Convention Act, S.C. 1994, C. 22; and ▪ Federal Species at Risk Act (SARA), S.C. 2002, c.29. ▪ Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MOE 2014b)	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.1.2, p. 4.5-4 - 4.5-6		**25,26,27, 28**

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		▪ Develop with Care: Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (MOE 2013) ▪ Management Plan for the Western Toad (Anaxyrus boreas) in British Columbia. Provincial Western Toad Working Group. Prepared for the BC Ministry of Environment, Victoria, BC. (MOE 2014) ▪ Guidelines for Amphibian and Reptile Conservation During Urban and Rural Land Development in British Columbia (FLNRO 2014) ▪ Management Plan for the Western Toad (Anaxyrus boreas) in Canada [Proposed]. Species at Risk Act Management Plan Series. (Environment and Climate Change Canada 2016) ▪ Best Management Practices for Pacific Water Shrew in Urban and Rural Areas. Prepared for the Pacific water shrew recovery team (Craig and Welstead 2010).				
Section 4.5.3 Page 47	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.3. p. 4.5-21 - 4.5-23		**25,26,27, 28**
		The proposed Project has the potential to affect wildlife through loss of habitat (related to loss of vegetation) or through construction induced disturbance of, or injury or mortality to, wildlife caused by construction activities. The Application will include an assessment of existing wildlife habitat and potential Project-related effects, and a description of measures proposed to mitigate adverse effects. For permanent habitat impacts, a description of offsets and/or replanting plans will be included. The assessment will include impacts and mitigation strategies for nesting birds (for more detail, see Part E – Management Plans and Follow-Up Programs). The Application will include an assessment of potential Project-related effects on federal and provincial listed species-at-risk and a description of proposed mitigation strategies.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.3. p. 4.5-21 - 4.5-28		**25,26,27, 28**
Section 4.5.4 Page 47	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.4, p. 4.5-28 to 4.5-33; Vol. 2, Part E, Section 14.0, Subsection 14.21, 14.22, p. 14-21 – 14-24		**25,26,27, 28**
Section 4.5.5 Page 48	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.5, p. 4.5-34		**25,26,27, 28**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.5, p. 4.5-34		**25,26,27, 28**
Section 4.5.6 Page 48	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.6, p. 4.5-34		**25,26,27, 28**
Section 4.5.7 Page 48	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Wildlife	Vol. 1, Part B, Section 4.5, Subsection 4.5.7, p. 4.5-34		**25,26,27, 28**

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Section 4.6 Page 48-49	**Soil and Groundwater**	The proposed Project area is characterized by historical and ongoing industrial and commercial use and therefore Project construction could potentially encounter pre-existing soil and/or groundwater contamination. Construction and/or demolition activities will entail ground improvement, excavation of soils and local dewatering. These activities may disturb pre-existing contaminated soils and/or groundwater and potentially mobilize contaminants. In addition, groundwater disturbance may affect existing groundwater wells. Soil and Groundwater is a pathway IC that could potentially affect the following ultimate receptor VCs: ▪ Fish and Fish Habitat; ▪ Vegetation; ▪ Wildlife; and ▪ Human Health (local residents). Soil and Groundwater will be assessed in terms of the following subcomponents: ▪ Soil Quality; and ▪ Groundwater Quality. The soil and groundwater assessment will focus on the following indicators: ▪ Presence/absence, character and extent of pre-existing contaminated soil; and ▪ Presence/absence, character and extent of pre-existing contaminated groundwater.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.1, p. 4.6-1 - 4.6-4		
Section 4.6.1 Page 49-50	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable to soil and groundwater, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.1.4, p. 4.6-3 - 4.6-4. Attachment 4.6-A, Figure 4.6-A-1		
		The following assessment boundaries are defined for soil and groundwater quality: ▪ Spatial boundaries: ○ Local Study Area (LSA): 250 m from the extent of the proposed Project design footprint on land. This area is expected to encompass all proposed Project related soil excavation as well as potential Project-induced migration of possible groundwater contaminants. ○ Regional Study Area (RSA): An RSA is not applicable, as any potential impacts to soil and groundwater are anticipated to be highly localized and within the LSA. ▪ Temporal boundaries: ○ Existing conditions ○ Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge ○ Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this IC were identified; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) that could inhibit assessment of this IC were identified; therefore no technical boundary is defined.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.1.4, p. 4.6-3 - 4.6-4. Attachment 4.6-A, Figure 4.6-A-1		
Section 4.6.2 Page 50	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.2, p. 4.6-4 - 4.6-9	Volume 3, Appendix 18.8 - Soil and Groundwater Report; Volume 4, Appendix 18.15 - Contaminated Sites Risk Assessment	

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		The Proponent will undertake a contamination risk assessment of the proposed Project area to better understand the possibility of encountering and disturbing contaminated media during the construction phase. This will include a review of: ▪ existing information on surficial geology and soils; ▪ results of geotechnical assessments; ▪ information on historical and current land use; and, ▪ the provincial contaminated sites registry. The results of the risk assessment will be interpreted in the context of potential Project effects on fish and fish habitat, amphibians (if present), and vegetation. Depending on the findings of the risk assessment, intrusive sampling may be used to further characterize soil and groundwater quality in different areas of the proposed Project.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.2, p. 4.6-4 - 4.6-9	Volume 4, Appendix 18.15 - Contaminated Sites Risk Assessment	
		The Application will provide a summary of the assessment of soils and groundwater and include an appendix containing detailed technical information relating to the soils and groundwater assessment.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.2, p. 4.6-4 - 4.6-9	Volume 3, Appendix 18.8 - Soil and Groundwater Report.	
Section 4.6.3 Page 50	Potential Effects	The Application will identify potential adverse effects to the IC in a manner consistent with section 3.4 Potential Effects of this AIR. Construction, including excavation, may directly disturb soils and groundwater. Given historical land use in the Project area, this may result in disturbance of pre-existing contaminated soils or groundwater. Proposed Project infrastructure may affect soil and groundwater quality in the longer term by altering surface topography, surface water runoff patterns and groundwater flows.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.3, p. 4.6-9 - 4.6-10		
Section 4.6.4 Page 50	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the IC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.4, p. 4.6-11 - 4.6-14; Vol. 2, Part E, Section 14, Subsection 14.4, 14.7, 14.12, p. 14-5 – 14.6, p. 14-8 – 14-9, p. 14-13		
Section 4.6.5 Page 51	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will describe the residual effect in terms of the context, magnitude, extent, duration, reversibility, and frequency as outlined in section 3.6 Characterization of Residual Effects of this AIR, and in sufficient detail to support the assessment of relevant receptor VCs.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.5, p. 4.6-15 - 4.6-16		
Section 4.6.6 Page 51	Cumulative Effects and Their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6.6, p. 4.6-16		
Section 4.6.7 Page 51	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Soil and Groundwater	Vol. 1, Part B, Section 4.6, Subsection 4.6-7, p. 4.6-16		
Section 4.7 Page 51-52	**Noise and Vibration**	The noise environment in the Project area is strongly influenced by traffic on the existing Pattullo Bridge and on the main roads connecting to the bridge. Other noise sources include local traffic, trains, aircraft and marine related activities. Future operation of the new bridge has the potential to change existing noise conditions for noise sensitive receptors such as local residences. Construction also has the potential to temporarily change noise levels experienced by noise sensitive receptors. Atmospheric noise acts as a pathway component (IC) that potentially affects the following ultimate receptor VCs: ▪ Wildlife; ▪ Economic Activity; ▪ Land Use; and ▪ Human Health – Physical Determinants	Noise and Vibration	Vol. 1, Part B, Section 4.7, Subsections 4.6-1, p. 4.7-1 - 4.7-5	Vol. 3, Appendix 18.9 - Noise and Vibration Technical Data Report	**23**

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		Vibration is also a pathway component, or IC, that potentially affects the following ultimate receptor VCs: ▪ Economic Activity; ▪ Land Use; and ▪ Human Health – Physical Determinants. Changes in noise and vibration could also affect the current use of lands and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12). The Noise and Vibration VC will be assessed in terms of the following subcomponents: ▪ Operational noise; ▪ Construction noise and vibration.				
		The assessment will focus on the following indicators: ▪ Incremental change in noise levels as a result of operating the Project, including the new bridge and connecting roads; ▪ Incremental change in noise levels attributable to constructing the new bridge and removing the existing bridge (excluding pile driving); and ▪ Incremental change in noise levels and vibration resulting specifically from pile driving.	Noise and Vibration	Vol. 1, Part B, Section 4.7, Subsection 4.7.1.2. p. 4.7-2 - 4.7-3		**23**
		The assessment approach will generally follow the BC Ministry of Transportation and Infrastructure (MOTI) 2014 Noise Policy. In addition, applicable sections of VFPA's PER guidance for noise assessment will be used to analyze and interpret noise assessment data in relation to noise sensitive receptors located within VFPA jurisdiction. The assessment will identify areas where noise mitigation will be considered.	Noise and Vibration	Vol. 1, Part B, Section 4.7, Subsection 4.7.3. p. 4.7-10 - 4.7-14; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47;		**23**
Section 4.7.1 Page 52-53	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the Noise and Vibration, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Context and Boundaries	Vol. 1, Part B, Section 4.7, Subsection 4.7.1.4. p. 4.7-4 - 4.7-5. Attachment 4.7-A, Figure 4.7-A-1.		**23**

		The following assessment boundaries are defined for atmospheric noise:
		▪ Spatial boundaries:
		  ○ Local Study Area (LSA): The LSA includes a 500 m buffer from the edge of the Reference Concept over land and a 1,500 m buffer over water. These boundaries are consistent with Health Canada (2011), World Health Organization guidelines (1995), the 2014 MOTI noise policy and VFPA's noise assessment guidelines.
		  ○ Regional Study Area (RSA): An RSA is not defined for noise and vibration i.e. it is deemed not applicable. Potential adverse noise and vibration effects are anticipated to be highly localized, as determined through initial review of traffic modeling data which show negligible increase in traffic volume from the LSA to a broader region. On that basis, the LSA has been defined to capture noise-sensitive receptors located within the acoustic zone of influence of the proposed Project.
		▪ Temporal boundaries:
		  ○ Existing conditions
		  ○ Project construction phase:
		  - Site preparation and pre-construction activities
		  - Construction of the new bridge
		  - Decommissioning and removal of the existing bridge
		  ○ Project operations phase
		▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this IC were identified; therefore no administrative boundary is defined.
		▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) that could inhibit assessment of this IC were identified; therefore no technical boundary is defined.
			Context and Boundaries	Vol. 1, Part B, Section 4.7, Subsection 4.7.1.4. p. 4.7-4 - 4.7-5;
				Attachment 4.7-A, Figure 4.7-A-1.
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Section 4.7.2 Page 53	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Existing Conditions	Vol. 1, Part B, Section 4.7, Subsection 4.7.2. p. 4.7-5 - 4.7-10		**23**
		The Proponent is undertaking baseline studies to assess the pre-Project noise environment, focusing on the identified residents' existing exposure to noise. Pre-Project ("baseline") noise monitoring undertaken as part of baseline studies will be used to: ▪ establish existing ambient noise levels in the Project area; ▪ estimate the contribution of existing Pattullo Bridge traffic to present ambient noise levels; ▪ calibrate the numerical model that will be used to estimate future noise effects resulting from Project operation; and ▪ establish a baseline for estimating temporary noise effects arising from construction and demolition Noise monitoring stations will be located so as to represent noise sensitive receptors (both residential and non-residential), including receptors expected to have the highest exposure to Project noise	Existing Conditions	Vol. 1, Part B, Section 4.7, Subsection 4.7.2. p. 4.7-5 - 4.7-10	Vol. 3, Appendix 18.9 - Noise and Vibration Technical Data Report	**23**
Section 4.7.3 Page 54	Potential Effects	The Application will identify potential adverse effects to the IC in a manner consistent with section 3.4 Potential Effects of this AIR.	Potential Effects	Vol. 1, Part B, Section 4.7, Subsection 4.7.3. p. 4.7-10 - 4.7-14		**23**
		Due to the realignment of the bridge, there may be some changes (increases or decreases) in operational noise exposures for some noise-sensitive receptors. Construction activities may be expected to produce some adverse noise effects, particularly if nighttime work proves necessary to avoid traffic conflicts, and during particularly noisy activities such as pile driving. Based in part on the results of traffic modelling, noise modelling will be used to predict the residents' exposure to noise after the new bridge becomes operational. Operational noise will be predicted for the year 2033 (ten years after the new bridge opens). In addition, The Proponent will use a generic model to assess the potential exposure of noise receptors to construction noise, excluding pile driving noise which will be assessed separately along with pile driving vibration. The Application will provide a chapter summarizing the noise and vibration assessment. An appendix will explain the technical details of the assessment.	Potential Effects	Vol. 1, Part B, Section 4.7, Subsection 4.7.3. p. 4.7-10 - 4.7-14	Vol. 3, Appendix 18.9 - Noise and Vibration Technical Data Report	**23**
Section 4.7.4 Page 54	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Mitigation Measures	Vol. 1, Part B, Section 4.7, Subsection 4.7.4. p. 4.7-14 - 4.7-18; Vol. 2, Part E, Section 14, Subsection 14.17, p. 14-17 – 14-18		**23**
Section 4.7.5 Page 54	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will describe the residual effect in terms of the context, magnitude, extent, duration, reversibility, and frequency as outlined in section 3.6 Characterization of Residual Effects of this AIR, and in sufficient detail to support the assessment of relevant receptor VCs.	Residual Effects and their Significance	Vol. 1, Part B, Section 4.7, Subsection 4.7.5, p. 4.7-19 - 4.7-21		**23**
Section 4.7.6 Page 54-55	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Cumulative Effects	Vol. 1, Part B, Section 4.7, Subsection 4.7.6, p. 4.7-22		**23**
		Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Cumulative Effects	Vol. 1, Part B, Section 4.7, Subsection 4.7.6, p. 4.7-22		**23**
Section 4.7.7 Page 55	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Follow-up Strategy	Vol. 1, Part B, Section 4.7, Subsection 4.7.7, p. 4.7-22 – 4.7-23		**23**

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Section 4.8 Page 55-56	**Air Quality**	Project operations may change ambient air quality, both in the immediate Project area and beyond, as a result of Project-induced changes to traffic and corresponding changes to emission levels. Based on experience, concern focuses on sensitive receptors located close to major roads where traffic will increase substantially. Construction of the new bridge and demolition of the existing bridge also have the potential to change ambient air quality in the Project area, thereby temporarily affecting air quality experienced by sensitive receptors. Potential adverse effects relating to both operation and construction are likely to be highly localized.	Air Quality	Vol. 1, Part B, Section 4.8, p. 4.8-1 – 4.8-13	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		Air Quality is an IC that may potentially affect the following ultimate receptor VCs: ▪ Economic Activity; ▪ Land Use; and ▪ Human Health.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1.1, p. 4.8-1 - 4.8-3	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		Changes in air quality could also have a measureable effect on the current use of lands and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12).	Air Quality	Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**24**
		The air quality assessment will assess the following potential adverse air quality effects: ▪ Project-induced changes in air quality during operational phase (estimated for the first year of operation); and ▪ Project-induced changes in air quality during construction/demolition phase (qualitative approach).	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1, p. 4.8-1 – 4.8-5		**24**
		Air quality modelling will be used to assess the long-term air quality effects of operating the proposed Project. Methodology developed by the U.S. Environmental Protection Agency (EPA), which involves computer modelling (Model: MOVES), will be used to predict Project-induced air emission factors. A second model, CAL3QHCR, also developed by the EPA, will be used to simulate dispersion of airborne contaminants to select sensitive receptors (these will be chosen so as to enable a conservative assessment of potential adverse air quality effects).	Air Quality		Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		The air quality assessment will consider potential Project-induced changes to airborne Criteria Air Contaminants (CACs). The following CACs will be modelled: ▪ Nitrogen oxides (NOx) ▪ Particulate matter (PMx) (total PM, PM10 and PM2.5), including PM resulting from road dust and diesel emissions ▪ Carbon monoxide (CO) ▪ Volatile organic compounds (VOCs)	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1.1.1, p. 4.8-1 - 4.8-2	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		The air quality assessment will also consider potential Project-induced changes to Greenhouse Gas levels in the broader Metro Vancouver area and possibly beyond (depending on the geographic extent of effects).	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.3.2.1, p. 4.8-8	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		The assessment will meet applicable air quality assessment guidelines of the VFPA.	Air Quality	Vol. 1, Part B, Section 4.8, Subsections 4.8.1 - 4.8.8, p. 4.8-1 - 4.8-12		**24**
		The air quality assessment will focus on the following indicators: ▪ Project-induced changes to air quality during the operational phase (estimated for the first year of operation) ▪ Project-induced changes in air quality during the construction/demolition phase.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1.1.2, p. 4.8-2 - 4.8-3	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
Section 4.8.1 Page 56-57	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable to air quality, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1.3, p. 4.8-4 - 4.8-5. Attachment 4.8-A, Figure 4.8-A-1.		**24**
		The following assessment boundaries are defined for air quality: ▪ Spatial boundaries: ○ Local Study Area (LSA): Includes a 500 m buffer from the centerline extent of proposed Project design footprint. Air quality impacts are expected to be highly localized. ○ Regional Study Area (RSA): The RSA consists of the area covered by the regional traffic modelling undertaken for the study..	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.1.3, p. 4.8-4 - 4.8-5. Attachment 4.8-A, Figure 4.8-A-1.		**24**

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		Initial modelling of traffic indicated that traffic speeds and volumes on the proposed Project, will be very similar to speeds and volumes that currently exist in the proposed Project design footprint. Potential proposed Project-induced changes to the regional network are expected to be small. Changes in traffic speed and volume beyond the LSA limits e.g., across alternative bridges and on main arteries leading to and from the proposed Project design footprint are also expected to be small. The initial traffic modelling assumed that the new bridge would be tolled. Additional traffic modelling is now being conducted using a "no toll" scenario (no toll on the proposed Pattullo Replacement Bridge and existing tolls lifted from Port Mann Highway and Golden Ears Bridge. This alternative scenario may result in more pronounced changes to traffic that in turn could lead to greater air emissions. ▪ Temporal boundaries – includes the pre-Project baseline conditions, and construction and operations phases. ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.				
Section 4.8.2 Page 57-58	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.2 p. 4.8-5 - 4.8-7	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		Existing air quality conditions will be determined through a combination of historical air quality monitoring data review and computer modelling of roadway emissions in the LSA. This will be done for a selection of sensitive receptor locations (residences, schools, etc.) in proximity to the major roads affected by the Project. In accordance with the Air Quality Dispersion Modelling Guideline (AQDMG) (BC MOE 2015), measured background concentrations will be used to represent the contribution from other natural and anthropogenic sources other than roadways in the area, and incorporated into the computer model. Monitoring data from six ambient air quality monitoring stations operated by Metro Vancouver in Burnaby, Port Moody, North Delta, and Coquitlam were obtained to characterize background air quality in the study area. The modelling work will use US EPA's Motor Vehicle Emission Simulator (MOVES 2014a) software to calculate tailpipe emissions, US EPA emission factors for road dust, and the CAL3QHCR dispersion model for predicting the dispersal of air pollutants as they drift away from the emission sources (US EPA 1995; 2011; 2014). Existing annual GHG emissions will be estimated for the entire road network within the RSA using data from Metro Vancouver's website and Government of Canada's National Inventory Report. Metro Vancouver operates a large network of air quality stations in the Lower Mainland, each of which monitors a specific set of pollutants focused on CACs. The National Air Pollution Surveillance network in turn collects data on non-CACs. The Proponent will analyze data from these sources to characterize existing air quality conditions in the proposed Project area.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.2, p. 4.8-5 - 4.8-7	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		The Application will include any technical information related to assessment of air quality for proposed Project.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.2, p. 4.8-5 - 4.8-7	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
Section 4.8.3 Page 58	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.3, p. 4.8-7 - 4.8-9	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		Although local air quality in the proposed Project alignment is generally good, an increase in traffic congestion around the existing bridge has led to increased idling and slower traffic movements during peak periods. Idling and slower vehicle movements produce greater per-vehicle emissions of air contaminants such as fine particulate matter and nitrogen oxides (NOx) when compared to uncongested conditions.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.3, p. 4.8-7 - 4.8-9	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		The proposed Project is expected to improve local air quality somewhat in some locations, but potentially worsen it in others, due to shifting traffic patterns related to the implementation of user pricing. However, all of these changes will be on a backdrop of steadily declining tailpipe emissions, and corresponding reduction in levels of air pollutants of local concern, due to federal regulations dealing with emissions from on-road vehicles manufactured and sold in Canada.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.3, p. 4.8-7 - 4.8-9	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
		An assessment of the contributions to air quality and climate change associated with the project will be conducted.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.3, p. 4.8-7 - 4.8-9	Vol. 4, Appendix 18.10 - Air Quality Technical Data Report	**24**
Section 4.8.4 Page 58	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.4, p. 4.8-9 - 4.8-11 Vol. 2, Part E, Section 14, Subsection 14.1, p, 14-1		**24**

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AIR Section and Page No.	**AIR Title**	**Application Information Requirements**	**Application Section Title**	**Application Volume, Section, Subsection, Page No.**	**Relevant Appendix**	**VFPA ToC Matrix #**
Section 4.8.5 Page 58	Residual Effects	Where an adverse residual effect is identified, the Application will describe the residual effect in terms of the context, magnitude, extent, duration, reversibility, and frequency as outlined in section 3.6 Characterization of Residual Effects of this AIR, and in sufficient detail to support the assessment of relevant receptor VCs.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.5, p. 4.8-11 - 4.8-12		**24**
Section 4.8.6 Page 58-59	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.6, p. 4.8-12		**24**
		Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.6, p. 4.8-12		**24**
Section 4.8.7 Page 59	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Air Quality	Vol. 1, Part B, Section 4.8, Subsection 4.8.7, p. 4.8-12; Vol. 2, Part E, Section 14, Subsection 14.1, p, 14-1		**24**
Section 5.0 Page 60	Economic Effect Assessment	The Application will include an assessment of economic VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of this AIR and reported using the organizational structure demonstrated in the section 4.0 Environmental Effects Assessment.	Economic Activity	Vol. 1, Part B, Section 5.1	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
		The following Economic Effects VCs have been identified for assessment under the economic pillar: ▪ Economic Activity.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1, p. 5.1-1 - 5.1-3		
Section 5.1 Page 60-61	**Economic Activity**	The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1, p. 5.1-1 - 5-3		
		The proposed Project is located in an urban setting that already experiences a high level of economic activity, as reflected by the presence of a large number of industrial, commercial and retail businesses. The Project has the potential to further increase business opportunity within the study area as well as provide specific economic benefits such as increased employment, employment income, gross domestic product (GPD) and government revenues. The assessment of Economic Activity will confirm these benefits, which will be reported as part of the Project Description. Potential adverse economic effects relate mainly to temporary and/or permanent disruption of business activity and to temporary labour market crowding-out effects.	Economic Activity	Vol. 1, Part B, Section 5.1, p.5.1-2; Vol. 1, Part A, Section 1.0, 1.1.9.2 – 1.1.9.5, p. 1-31 - 1-34	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
		The assessment will focus on potential Project related impacts to the following subcomponents: ▪ Employment; and ▪ Business activity/existing businesses.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1, p. 5.1-2 - 5.1-3		
		The following indicators are proposed for describing existing baseline conditions and assessing potential Project-related effects on Economic Activity: ▪ Employment required for Project construction (direct, indirect and induced); ▪ Total local and regional construction labour force (employed and unemployed, and proportion of the local and regional construction labour force required to construct the Project); ▪ Disruptions to industrial, commercial and retail businesses potentially adversely affected by the Project (e.g. changes in access, visibility of businesses, noise and vibration).	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1.2, p. 5.1-3 - 5.1-4		
		For clarity, this section of the Application will assess environmental effects defined in subsection 5(1) and 5(2) of CEAA 2012 that are of relevance to economic activity, including effects that may be specific to Aboriginal peoples. If it is determined that the Project will not result in environmental effects under subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding economic activity, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1.3, 5.1.2.3.1, 5.1.3.2.1, 5.1.3.2.2, p. 5.1-4 -5.1-5, p. 5-12 - 5-13, p. 5.1-23 – 5-24, p. 5-32; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		

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Section 5.1.1 Page 61-62	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1.4, p. 5.1-5 - 5.1-7. Attachment 5.1-A, Figures 5.1-A-1 – 5.1-A-2.		
		The following assessment boundaries are defined for economic activity: ▪ Spatial boundaries: o Local Study Area (LSA): - Labour Market Sub-component: Metro Vancouver (with a focus on Cities of Surrey and New Westminster) to capture extent of labour market effects from Project construction capital expenditures on local demand for construction labour. - Disruption to Business Activity Sub-component: 500 m spatial buffer from the proposed Project design footprint to capture areas that may experience direct adverse economic effects from the proposed Project. o Regional Study Area (RSA): - Labour Market Sub-component- Province of British Columbia - Disruption to Business Activity Sub-component – Cities of New Westminster and Surrey to capture areas that may experience indirect adverse Project effects on business activity/existing businesses through broader changes in traffic patterns resulting from the Project. ▪ Temporal boundaries – includes the pre-Project baseline conditions, and construction and operations phases. ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.	Economic Activity	Vol. 1, Part B, Section 5.1, Subsection 5.1.1.4, p. 5.1-5 - 5.1-7. Attachment 5.1-A, Figures 5.1-A-1 – 5.1-A-2.		
Section 5.1.2 Page 62	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.2, p. 5.1-7 - 5.1-17		
		The following general approach is being taken to generate information with respect to Economic Activity existing conditions. ▪ A review of Statistics Canada and BC Stats labour force data including from: o 2016 Canada Census and 2011 National Household Survey (NHS) o Labour Market Statistics (BC Stats 2017) ▪ A custom run of the BC Stats Input-Output Model (I-O model) ▪ A review of relevant background information and literature describing business activity/ existing businesses that currently operate in the Project area and in the broader region (as applicable). Key data sources include: o 2012 Port Metro Vancouver Economic Impact Study (interVISTAS Consulting Inc. 2013)	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.2, p. 5.1-7 - 5.1-17	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
		o Major Commercial Transportation System – Rail Capacity & Regional Planning Issues Overview (Greater Vancouver Gateway Council 2003) o City of Surrey publications providing information on business activity near the Project area (City of Surrey 2010 and 2014) ▪ Site visits and reviews of satellite images and streetscape images to help determine existing businesses operating in the vicinity of the Project ▪ Review of ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integration of relevant information provided with permission for use in the Application ▪ Characterization of the economic baseline: o size and employment status of the Metro Vancouver and BC construction labour force; and o location and type of industrial and commercial/retail businesses near the Project area.		Vol. 1, Part B, Section 5.1 Subsection 5.1.2, p. 5.1-7 - 5.1-17; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
		The Application will include any technical information related to assessment of economic activity.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.2, p. 5-7 - 5-17	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	

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Section 5.1.3 Page 63	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.3, p. 5-17 - 5-34	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
		The baseline information will be used to assess the potential economic effects of the proposed Project (positive or negative). The results of that assessment will provide input to the human health assessment which will include consideration of broad determinants of health, including economic conditions and opportunities).	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.3, p. 5-17 - 5-34	Volume 4, Appendix 18.11 - Social and Economic Statistical Data	
Section 5.1.4 Page 63	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.4, p. 5-34 - 5-39 Vol. 2, Part E, Section 14, Subsection 14.20, p. 14-20 – 14-21; Vol 2, Part E, Section 14, Subsection 14.23, p. 14-24		
Section 5.1.5 Page 63	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.5, p. 5.1-40 - 5.1-45		
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.5, p. 5-41 - 5-45		
Section 5.1.6 Page 63	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.6, p. 5.1-46		
Section 5.1.7 Page 64	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Economic Activity	Vol. 1, Part B, Section 5.1 Subsection 5.1.7, p. 5.1-46		
Section 6.0 Page 65	Social Effects Assessment	The Application will include an assessment of social VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of this AIR and reported using the organizational structure demonstrated in the section 4.0 Environmental Effects Assessment.		Vol. 1, Part B, Sections 6.1, 6.2, 6.3, 6.4		
		The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.		Vol. 1, Part B, Sections 6.1, 6.2, 6.3, 6.4		
		The following Social Effects VCs have been identified for assessment under the social pillar: ▪ Marine Use; ▪ Land Use; ▪ Community Cohesion; and ▪ Visual Quality.		Vol. 1, Part B, Sections 6.1, 6.2, 6.3, 6.4		
		The following social components that are not the ultimate receptors of proposed Project-related effects but are part of the effects pathways will be studied as ICs to support the assessment of associated ultimate receptor VCs listed above: ▪ Lighting; and ▪ Shading.		Vol. 1, Part B, Sections 6.5, 6.6		

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		The results of these IC assessments will also support the assessment of the current use of lands and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12).		Vol. 2, Part B, Section 11; Vol. 2, Part C, Section 12		
Section 6.1 Page 65-66	**Marine Use**	The section of the Fraser River located in the Project area is used for navigation, commercial, recreational and Aboriginal fishing as well as other marine uses. In-river piers may be necessary to support the new bridge and the location, number, size and shape of the piers will potentially have long-term implications for navigation and fishing in the Project area, as well as other marine use. The Project involves demolition of the existing bridge and corresponding removal of some or all of the existing bridge piers, so it is expected the Project will result in a net reduction in navigational encumbrance (i.e., the number of in-water piers for the new bridge will likely be fewer than the number of piers removed as a result of demolishing the existing bridge). Marine-based construction and decommissioning activities have the potential to temporarily affect navigation, fishing and other marine uses.	Marine Use	Vol. 1, Part B, Sections 6.1		**31**
		The assessment will focus on the following subcomponents: ▪ Navigation ▪ Commercial and recreational fisheries ▪ Other commercial marine use ▪ Other non-commercial marine use For details on the assessment of potential effects on Aboriginal fisheries and other marine use for traditional purposes, including navigation associated with that use, see current use of lands and resources for traditional purposes and Aboriginal Interests, in Section 11 and Section 12, respectively.	Marine Use	Vol. 1, Part B, Section 6.1.1, Subsection 6.1.1.1, p. 6.1-2 - 6.1-3		**31**
		Indicators for describing existing baseline conditions and assessing potential proposed Project-related effects on Marine Use are as follows: ▪ Navigation: ○ Navigation use ○ Navigability ▪ Commercial and Recreational Fisheries: ○ Commercial and recreational fishery activity ○ Harvest area use and access ○ Harvest levels and revenues (commercial) ○ Fishery resource availability ○ Environmental Setting (recreational fisheries) ▪ Other Commercial and Non-commercial Marine Use: ○ Types of commercial and non-commercial (e.g. recreational) marine use activity ○ Area use and access ○ Birds, wildlife, marine mammals resource availability as relevant (e.g. resources which support marine based tourism and recreation) ○ Environmental setting (e.g. pertaining to marine-based tourism and recreation)	Marine Use	Vol. 1, Part B, Section 6.1.1, Subsection 6.1.1.2, p. 6.1-3 - 6.1-4		**31**
		The assessment will address applicable requirements of VFPA and other federal authorities for assessment of potential effects on Marine Use, including potential marine use effects on Aboriginal peoples, such as access to commercial and recreational activities, pursuant to subsection 5(1)(c)(i) of CEAA 2012, as well as potential effects on all peoples under subsection 5(2) of CEAA 2012 due to any changes linked to federal decisions. If it is determined that the Project will not result in environmental effects under subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding non-traditional marine use.	Marine Use	Vol. 1, Part B, Section 6.1, Subsections 6.1.1 - 6.1.3, p. 6.1-1 - 6.1-48 Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**31**
Section 6.1.1 Page 67	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Marine Use	Vol. 1, Part B, Section 6.1, Subsections 6.1.1.4, p. 6.1-6 - 6.1-10. Attachment 6.1-A, Figure 6.1-A-1.		**31**
		The following assessment boundaries are defined for marine use: ▪ Spatial boundaries:	Marine Use	Vol. 1, Part B, Section 6.1, Subsections 6.1.1.4, p. 6.1-6 - 6.1-10. Attachment 6.1-A, Figure 6.1-A-1.		**31**

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		○ Local Study Area (LSA): Includes the in-water construction and demolition areas of the Project Boundary (including staging areas), and extends 1 km upstream and 1 km downstream from the existing Pattullo Bridge (Fraser River waterway and foreshore area). ○ Regional Study Area (RSA): Includes the waterways and foreshore of the Lower Fraser River and extends 50 km upstream from the Project Boundary to the District of Mission, and downstream to the North Arm and South Arm/Mainstem, 26 km and 27 km, respectively, and provides appropriate regional context for the assessment. ▪ Temporal boundaries: ○ Existing conditions ○ Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge ○ Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.				
Section 6.1.2 Page 67-68	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1, Subsections 6.1.2. p. 6.1-10 - 6.1-36		**31**
		The following general approach is being taken to generate information with respect to existing conditions of Marine Use: ▪ A review of secondary information and literature to inform trends analysis on marine use activity, amenities, locations and use periods; vessel type, number and movements; fishing licenses, harvest levels and revenues; and other characteristics ▪ Engagement with VFPA, Transport Canada, marine users, other stakeholders and Aboriginal Groups to supplement, clarity and validate secondary data on existing and future marine use. ▪ Review of information provided by Aboriginal Groups through consultation or Project-specific studies and integration of relevant information provided with permission for use in the Application and into the assessment of Marine Use VC.	Marine Use	Vol. 1, Part B, Section 6.1, Subsections 6.1.2. p. 6.1-10 - 6.1-36		**31**
		Regulation and management of marine use as it pertains to the Marine Use VC occurs through the following: ▪ Navigation Protection Act (2012) ▪ Canada Marine Act (1998) ▪ Canada Shipping Act (2001) ▪ Marine Liability Act (2001)	Marine Use	Vol. 1, Part B, Section 6.1; Subsection 6.1.1.3, p.6.1-4 - 6.1-6		
		An appendix containing detailed technical information relating to the Marine Use VC will be included in the Application if appropriate.	Marine Use		N/A	**31**
Section 6.1.3 Page 68	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.3, p. 6.1-36 - 6.1-48		**31**
		Baseline information, combined with the Project related navigation assessment, relevant Project design features (e.g., navigational clearances, number and location of piers) and results from the fish and fish habitat, hydraulic modelling, noise and vibration and air quality assessment will be used to assess potential effects of the proposed Project on navigation and marine use.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.3, p. 6.1-36 - 6.1-48		**31**
Section 6.1.4 Page 68	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.4, p. 6.1-48 - 6.1-52; Vol. 2, Part E, Section 14, Subsection 14.16, 14.24, 14.5, 14.6, p. 14-15 -14-17, p. 14-24 – 14-25, p. 14-6 -14-7, p. 14-7 – 14-8		**31**

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Section 6.1.5 Page 68-69	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.5, p. 6.1-53 - 6.1-58		**31**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.5, p. 6.1-53 - 6.1-58		**31**
Section 6.1.6 Page 69	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.6, p. 6.1-59 - 6.1-67		**31**
Section 6.1.7 Page 69	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Marine Use	Vol. 1, Part B, Section 6.1 Subsection 6.1.7, p. 6.1-67		**31**
Section 6.2 Page 69-70	**Land Use**	The Project is a major construction/demolition undertaking in a built-up area that may result in localized adverse effects on land use. Potential pathways for adverse effects include reduced access to local residential areas, community institutions, infrastructure and businesses, as well as other factors reducing the utility or viability of some local land uses. These factors include increased noise, vibration, dust levels and/or diminished visual quality.	Land Use	Vol. 1, Part B, Section 6.2		
		Subcomponents chosen for assessment include the following: ▪ Transportation infrastructure including railways; ▪ Industrial and commercial/retail lands; ▪ Residential lands and dwellings; ▪ VFPA lands and leases; ▪ Community and regional infrastructure and services (e.g., education facilities, parks, health care, emergency and protection services); and ▪ Utilities, pipelines and other rights-of-way.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.1.1, p. 6.2-2 - 6.2-3		**30**
		Indicators for describing existing baseline conditions and assessing potential proposed Project-related effects on Land Use are as follows: ▪ Consistency with land use and transportation plans, including relevant Aboriginal Group land use plans, where available publicly or as provided to the Proponent during consultation with Aboriginal Groups; ▪ Land acquisition and disposal for proposed Project infrastructure and rights-of-way; ▪ Disruptions to existing land uses through changes in: o nuisance effects which may reduce the utility of land and improvements; o traffic patterns including traffic volumes for motorized and non-motorized traffic; o ease of motor vehicle access (including parking availability); and o ease of access for cycling and pedestrian traffic.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.1.2, p. 6.2-3 - 6.2-5		**30**

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		The assessment will address potential land use effects that are specific to Aboriginal peoples, such as access to commercial and recreational activities, pursuant to subsection 5(1)(c)(i) of CEAA 2012, as well as potential effects on all people under subsection 5(2) of CEAA 2012 due to any changes linked to federal decisions. If it is determined that the Project will not result in environmental effects under subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding non-traditional land use, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.1, 6.2.3.1, 6.2.8, p. 6.2-1 – 6.2.-7, p. 6.2-29 – 6.2-31, p. 6.2-73 – 6.2-75; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		
		For an assessment of the current use of lands and resources for traditional purposes and Aboriginal Interests, refer to Section 11 and Section 12, respectively.	Land Use	Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		
Section 6.2.1 Page 70-71	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.1.4, p. 6.2-6 - 6.2-7. Attachment 6.2-A, Figure 6.2-A-1.		
		The following assessment boundaries are defined for land use: ▪ Spatial boundaries: o Local Study Area (LSA): - Includes the proposed Project design footprint and the surrounding neighbourhoods following Census Area boundaries: New Westminster – the eastern portion of Downtown New Westminster (Census Tract #207), part of the Queen's Park neighbourhood and Glenbrooke North neighbourhood (Census Tract #208) and the Glenbrooke South neighbourhood (Census Tract #209). Surrey – the Bridgeview neighbourhood and the South Westminster neighbourhood (Census Tract #192). - LSA boundaries were selected to represent the spatial extent to which the Project is likely to interact with planned and existing land uses through direct effects from the Project (e.g. land acquisition and disposal for Project infrastructure and rights-of-way, changes in noise and other nuisance factors, changes in access for motor vehicles and pedestrian/ cycling traffic, and changes in traffic patterns resulting from individual structural components of the Project). o Regional Study Area (RSA): - The RSA includes the cities of Surrey and New Westminster. - The RSA boundaries are intended to capture areas that may experience indirect adverse Project effects on land uses through broader changes in traffic patterns resulting from the Project. ▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.1.4, p. 6.2-6 - 6.2-7. Attachment 6.2-A, Figure 6.2-A-1.		

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Section 6.2.2 Page 71-72	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.2, p. 6.2-7 - 6.2-28		
		The following general approach is being taken to assemble baseline information for assessing effects on existing land uses and the extent to which the proposed Project is consistent with relevant land use plans: ▪ Review of land use and zoning in the proposed Project area by reviewing publicly available documentation such as the Metro Vancouver Regional Growth Strategy (RGS), Official Community Plans of the two affected cities, other relevant municipal and regional planning documents, and Aboriginal Group land use plans. ▪ The proposed Project will affect lands and waters that lie within VFPA jurisdiction and the assessment will consider VFPA's Land Use Plan, in particular VFPA's sub-plan for Planning Area 5 (Fraser River Central) . Similar to a municipality's official community plan, the VFPA's Land Use Plan guides development of VFPA lands and waters over the next 15 to 20 years. ▪ Site visits and reviews of satellite images and streetscape images to help determine existing land uses in the vicinity of the Project. ▪ Summarize Statistics Canada 2016 Census data on number of dwellings and other demographic data for the LSA. ▪ Collect and review publicly available data on land uses by institutions and other community services.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.2, p. 6.2-7 - 6.2-28	Volume 4, Appendix 18.11 – Social and Economic Statistical Data Volume 4, Appendix 18.17 – Reference Concept	
Section 6.2.3 Page 72	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.3, p. 6.2-29 - 6.2-54		
		The proposed Project has the potential to affect land use activities through changes in access, changes in traffic volumes (motorized and non-motorized), changes in traffic patterns, and changes in noise, air quality and visual landscape. Many of these effects are expected to be beneficial during Project operations, and will be discussed in Part A of the Application. Land uses potentially adversely affected (primarily during Project construction) include: commercial/retail, industrial, residential, community/regional infrastructure and services, road and railway infrastructure and utility rights-of-way.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.3, p. 6.2-29 - 6.2-54		
		Similarities in location and capacity between the existing Pattullo Bridge and the proposed Project suggest little potential for proposed Project induced changes in land uses, population growth or population distribution.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.3, p. 6.2-29 - 6.2-54		
Section 6.2.4 Page 73	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.4, p. 6.2-54 - 6.2-64 Vol. 2, Part E, Section 14, Subsection 14.23, 14.17, p.14-24, p. 14-17 – 14-18		
Section 6.2.5 Page 73	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.5, p. 6.2-65 - 6.2-72		
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.5, p. 6.2-65 - 6.2-72		
Section 6.2.6 Page 73	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Land Use	Vol. 1, Part B, Section 6.2 Subsection 6.2.6 Page 6.2-73		
Section 6.2.7 Page 73	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Land Use	Vol. 1, Part B, Section 6.2, Subsection 6.2.7, p. 6.2-73		

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Section 6.3 Page 73-74	**Community Cohesion**	Community cohesion, including neighbourhood connectivity, is an important contributor to a community's and an individual's wellbeing. The quality and frequency of personal interactions within and between neighbourhoods can contribute to a common vision and an individual's sense of belonging or sense of place within a community. Changes in access and traffic patterns may have highly localized adverse effects on community cohesion. The proposed Project is also expected to provide many benefits to community cohesion which will be described in Part A of the Application.	Community Cohesion	Vol. 1, Part B, Section 6.3		**30**
		The subcomponents identified to assess Project-related effects on community cohesion include the following: ▪ Neighborhood connectivity; and ▪ Social equity.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1, p. 6.3-1 - 6.3-2		**30**
		The Application will provide a description of the following indicators for describing existing baseline conditions and assessing potential Project-related effects.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1, p. 6.3-2 - 6.3-3		**30**
		The Application will provide a description of the following indicators for describing existing baseline conditions and assessing potential Project-related effects. ▪ Physical connectivity within and between neighbourhoods and also between New Westminster and Surrey specifically: ○ Changes in transportation infrastructure; ○ Changes in traffic patterns (including traffic volumes for motorized, transit and non-motorized traffic); ○ Changes in motor vehicle access; ○ Changes in cycling and pedestrian access; and ○ Changes in physical barriers and safety related to transportation infrastructure (motorized and non-motorized). ▪ Social equity: ○ Vulnerable populations likely to incur equity effect.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1, p. 6.3-2 - 6.3-3		**30**
		This section of the Application will assess environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012 that are of relevance to community cohesion or connectivity, including effects that may be specific to Aboriginal peoples. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding community cohesion and connectivity, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1.2, p. 6.3-3; Subsection 6.3.2.3.5, p. 6.3-23 - 6.3-25; Subsection 6.3.2.4.2, p. 6.3-29 - 6.3-30; Subsection 6.3.3, p. 6.3-30 – 6.3-31, Subsection 6.3.3.5.3, p. 6.3-55 -6.3-56; Subsection 6.3.4.2.2, p. 6.3-59 - 6.3-60; Subsection 6.3.8, p. 6.3-62		**30**
		With regard to potential cultural effects on Aboriginal Groups resulting from changes to community cohesion and connectivity, refer to the assessment of current use of lands and resources for traditional purposes and Aboriginal Interests (Section 11 and Section 12, respectively).	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1.2, p. 6.3-4 Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**30**
Section 6.3.1 Page 74-76	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1.3, p. 6.3-3 - 6.3-6. Attachment 6.3-A, Figure 6.3-A-1.		**30**
		The following assessment boundaries are defined for Community Cohesion: ▪ Spatial boundaries: Local Study Area (LSA): ○ Includes the proposed Project design footprint, plus the surrounding neighbourhoods following Census Area boundaries: - New Westminster – the eastern portion of Downtown New Westminster (Census Tract #207), part of the Queen's Park neighbourhood and Glenbrooke North neighbourhood (Census Tract #208) and the Glenbrooke South neighbourhood (Census Tract #209). - Surrey – the Bridgeview neighbourhood and the South Westminster neighbourhood (Census Tract #192). - The LSA boundary was selected to represent the spatial extent to which the Project is likely to interact with community cohesion through direct effects on:	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.1.3, p. 6.3-3 - 6.3-6. Attachment 6.3-A, Figure 6.3-A-1.		**30**

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		○ neighbourhood connectivity infrastructure such as roads, sidewalks, and paths from Project construction disturbance and through bridge access/exit ramps from Project operations affecting traffic patterns near the Project; and ○ social equity through Project effects that may be experienced predominantly or disproportionately in LSA neighbourhoods that are more vulnerable and less resilient to those effects (e.g. construction noise, vibration and access disturbance). Regional Study Area (RSA): ○ The RSA includes the cities of Surrey and New Westminster. The RSA boundary is intended to capture areas that may be subject to indirect adverse Project effects on community cohesion through broader changes in traffic patterns. ▪ Temporal boundaries: ○ Existing conditions ○ Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge ○ Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.				
Section 6.3.2 Page 76-77	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.2, p. 6.3-6 - 6.3-30		**30**
		The following general approach is being taken to assemble information with respect to Community Cohesion existing conditions. ▪ A review of relevant background information and literature; key data sources include: ○ Canada Census and National Household Survey (NHS) (Statistics Canada 2016) including data on Aboriginal and total population, number of dwellings, household income, commuting patterns, and other demographic data ○ The Proponent results of the 2011 Metro Vancouver Regional Screenline Survey and Trip Diary Survey ○ The Proponent, and Metro Vancouver regional transportation and growth plans ○ Transportation plans for New Westminster and Surrey ○ 2013/2014 My Health My Community (Vancouver Coastal Health 2015) ○ Social planning department websites and data for New Westminster and Surrey ▪ Site visits and review of satellite images and streetscape images to review current access and neighbourhood connectivity ▪ Review of ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integration of relevant information provided with permission for use in the Application into the assessment.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.2, p. 6.3-6 - 6.3-30		**30**
		The Application will include technical information related to assessment of proposed Project-related effects on Community Cohesion.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.2, p. 6.3-6 - 6.3-30		**30**
Section 6.3.3 Page 77	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.3, p. 6.3-30 - 6.3-56		**30**
		While the proposed Project is expected to provide many benefits to community cohesion, some specific neighbourhoods or population groups may be adversely affected through changes in access and traffic patterns.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.3, p. 6.3-30 - 6.3-56	Vol. 4, Appendix 18.11 - Social and Economic Statistical Data	**30**
		Social benefits related to Project effects on Community Cohesion and Physical and Social Determinants of Human Health will be discussed in Part A of the Application (e.g., long term motor vehicle connection between New Westminster and Surrey, greater connectivity between neighbourhoods and between Surrey and New Westminster for pedestrian/ bicycle traffic, improvements to parks/ green spaces along waterfront, etc.).	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.3, p. 6.3-30 - 6.3-56 Vol. 1, Part A, Section 1.0, 1.1.9.2 – 1.1.9.5, p. 1-31 - 1-34	Vol. 4, Appendix 18.11 - Social and Economic Statistical Data	**30**

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Section 6.3.4 Page 77	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.4., 6.3-56 - 6.3-61 Vol. 2, Part E, Section 14, Subsection 14.23, 14.20, p.14-24, p. 14-20 – 14-21		**30**
Section 6.3.5 Page 77	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.5, p.6-63		**30**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.5, p.6-62		**30**
Section 6.3.6 Page 77-78	Cumulative Effects and Their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.6, p.6-62		**30**
Section 6.3.7 Page 78	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Community Cohesion	Vol. 1, Part B, Section 6.3, Subsection 6.3.7, p.6-62		**30**
Section 6.4 Page 78-79	**Visual Quality**	The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final AIR.	Visual Quality	Vol. 1, Part B, Section 6.4 Subsection 6.4.1, p. 6.4-1 – 6.4-7		**29**
		Visual quality refers to the visual aesthetic aspects of a landscape which are related to public views and concern about the visual impact of a proposed development. The proposed Project has the potential to adversely affect visual quality related to the construction and operation of the new Pattullo Bridge and road interchanges. A visual effects assessment will be undertaken to characterize the existing level of visual quality and examine the potential for Project induced change to alter the existing level of visual quality. The assessment will focus on the new Pattullo Bridge and road interchanges in New Westminster and Surrey. The assessment approach will adapt technical methods from the U.S. Department of Transportation's Guidelines for the Visual Impact Assessment of Highway Projects.	Visual Quality	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.1, p. 6.4-2 - 6.4-4		**29**
		The study will assess the following VC subcomponents: ▪ Daytime viewing; and ▪ Night-time viewing.	Visual Quality	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.1.1, p. 6.4-1 - 6.4-2		**29**
		Indicators for assessing potential proposed Project-related effects on the visual quality of existing baseline conditions are as follows: ▪ Level of change in visual quality from current daytime viewing conditions ○ Visibility of the Project from key viewpoints to determine the visual prominence of Project features; ○ Level of visual contrast created by the Project from key viewpoints to determine the level of change to visual character during daytime viewing. ▪ Level of change in visual quality from current nighttime viewing conditions ○ Visibility of the Project from key viewpoints to determine the visual prominence of Project lighting; ○ Visual contrast from a change in perceived lighting created by the Project to determine the level of change to visual character during nighttime viewing.	Visual Quality	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.1.2, p. 6.4-3; Subsection 6.4.1.2, p. 6.4-4 to 6.4-6		**29**

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		Regulation of visual impacts related to a portion of the proposed Project site occurs through the Project and Environmental Review (PER) Guidelines process (2015) which is applicable to federal lands and waters partially or wholly within the Vancouver Fraser Port Authority's (VFPA) jurisdiction. The VFPA has established guidelines related to view, shade, and lighting, as part of the PER Guidelines process. These guidelines to assist applicants in addressing potential view, shade and lighting effects where developments are proposed in close proximity to residential or public areas. The assessment will address applicable view, shade and lighting assessment guidelines of the VFPA.				
		The assessment will also assess environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012 that are of relevance to visual quality, including effects that may be specific to Aboriginal peoples. If it is determined that the Project will not result in an environmental effect defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding visual quality, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Visual Quality	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.2, p. 6.4-3 - 6.4-5; Subsection 6.4.2.1.2, p. 6.4-8; Subsection 6.4.3.7, p. 6.4-39; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**29**
		With regard to potential cultural effects on Aboriginal Groups resulting from changes to visual quality, refer to the assessment of current use of lands and resources for traditional purposes and Aboriginal Interests (Section 11 and Section 12, respectively).	Visual Quality	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.1, p. 6.4-1 - 6.4-3 Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**29**
Section 6.4.1 Page 79-80	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Context and Boundaries	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.3, p. 6.4-5 - 6.4-7. Attachment 6.4-A, Figure 6.4-A-1.	Vol. 4, Appendix 18.12 – Visual Quality Technical Report	**29**
		The following assessment boundaries are defined for visual quality: ▪ Spatial boundaries: ○ Local Study Area (LSA): The proposed LSA for the Visual Quality VC encompasses the Project Boundary , plus a 5 km buffer zone. The LSA includes potential viewing locations within New Westminster and Surrey that represent residential, transportation, and recreational land-use settings and locations of interest to Aboriginal Groups. These locations are within viewing distances which generally allow for a discernible level of visual detail to be perceived by viewers. ○ Regional Study Area (LSA): The proposed RSA for the Visual Quality VC encompasses the Project Boundary , plus a 10 km buffer zone. The RSA provides a regional landscape context within Metro Vancouver. The outer extent of the RSA was selected based on the farthest reasonable distance at which some proposed Project features may be visible and represents viewing distances where the perception of visual detail is less discernible by viewers and more frequently affected by atmospheric conditions (e.g., fog, haze). ▪ Temporal boundaries – includes the pre-Project baseline conditions, construction and operations phases. ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – modelling of the Project's visual effects are based on a Reference Concept design which has an inherent level of uncertainty regarding the accurate representation of visual effects.	Context and Boundaries	Vol. 1, Part B, Section 6.4, Subsection 6.4.1.3, p. 6.4-5 - 6.4-7. Attachment 6.4-A, Figure 6.4-A-1.		**29**
Section 6.4.2 Page 80	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Existing Conditions	Vol. 1, Part B, Section 6.4, Subsection 6.4.2.1, p. 6.4-7 - 6.4-19		**29**
		The Proponent will use baseline information related to environmental conditions and land use, photographic inventories, viewshed analysis, and visual analysis to assess the level of existing visual quality for views in the LSA. Results of the Lighting and Shading IC assessments (Section 6.5 and Section 6.6, respectively) will also inform the assessment of existing visual quality. The following general approach is proposed: ▪ Review results of assessments of other relevant VCs/ICs: ○ Lighting IC ○ Shading IC ○ Land Use VC	Existing Conditions	Vol. 1, Part B, Section 6.4, Subsection 6.4.2, Pages 6.4-7 - 6.4-19	Volume 4, Appendix 18.12 - Visual Quality Technical Report	**29**

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		▪ Identify key public viewpoints intended to collectively represent a range of viewer groups and viewing locations (identification will be based on land use information, input from consultation with Aboriginal Groups and stakeholders, and initial visibility analysis) ▪ Conduct photographic field surveys to record panoramic images of the Project area and prominent Project components, as seen from the viewpoints, and use the images to describe the existing viewing conditions and visual character of the Project area.				
Section 6.4.3 Page 81	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR. The Application will also include technical information related to assessment of visual effects.	Potential Effects	Vol. 1, Part B, Section 6.4, Subsection 6.4.3.1, p. 64-19 - 6.4-20		**29**
		The proposed Project is expected to result in changes to views from various locations surrounding the Project. The Proponent will use visual simulations and qualitative visual analysis to assess the potential effects of the proposed Project on existing views in the LSA. Potential effects will be assessed for the level of change in visual quality from current daytime and nighttime viewing conditions based on visibility of the proposed Project from key viewpoints to determine the visual prominence of proposed Project features, and the level of visual contrast created by the proposed Project from key viewpoints to determine the level of change to the existing visual character. Results of the Lighting and Shading IC assessments (Section 6.5 and Section 6.6, respectively) will also inform the visual quality effects assessment.	Potential Effects	Vol. 1, Part B, Section 6.4, Subsection 6.4.3, p.6.4-19 - 6.4-39		**29**
Section 6.4.4 Page 81	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Mitigation Measures	Vol. 1, Part B, Section 6.4.4, p. 6.4-39 - 6.4-45 Vol. 2, Part E, Section 14, Subsection 14.15, p. 14-15		**29**
Section 6.4.5 Page 81	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Residual Effects and their Significance	Vol. 1, Part B, Section 6.4, Subsection 6.4.5, p. 6.4-45 - 6.4-49		**29**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Residual Effects and their Significance	Vol. 1, Part B, Section 6.4, Subsection 6.4.5, p. 6.4-45 - 6.4-49		**29**
Section 6.4.6 Page 81-82	Cumulative Effects and Their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Cumulative Effects and their Significance	Vol. 1, Part B, Section 6.4, Subsection 6.4.6, p. 6.4-50 - 6.4-56		**29**
Section 6.4.7 Page 82	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Follow-up Strategy	Vol. 1, Part B, Section 6.4, Subsection 6.4.6, p. 6.4-56		**29**
Section 6.5 Page 82	**Lighting**	Project lighting is important for the safety and security of drivers, cyclists, pedestrians and for safe navigation. Lighting may also be used for aesthetic purposes. The EA will address lighting design and potential adverse lighting effects (e.g., light trespass) relevant to both construction and operation of the Project (as well as demolition of the existing Pattullo Bridge). For example, the Project may generate changes in light levels as a result of implementing Project requirements for additional street lighting and navigational lighting, and possibly adding aesthetic lighting. To address VFPA requirements, the assessment will also discuss lighting in relation to the Project's energy efficiency.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1.1, p. 6.5-1 - 6.5-2		

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		The following indicator is proposed for the assessment of the Lighting IC: ▪ Change in light levels from current night-time viewing conditions. Lighting acts as a pathway IC that may potentially affect ultimate receptor VCs. Assessment of the Lighting IC will inform the assessment of following ultimate receptor VCs: ▪ Visual Quality; ▪ Fish and Fish Habitat; ▪ Wildlife; ▪ Marine Use; ▪ Land Use; and ▪ Physical Determinants of Human Health.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1.1.1, p.6.5-1 – 6.5-2		
		For clarity, the lighting assessment will also inform assessment of current use of land and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12).	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1, p. 6.5-1 - 6.5-2		
		The Application will provide a description of a proposed exterior lighting design based on the Reference Concept as understood at the time of the Application. The qualitative lighting assessment will consider applicable lighting guidelines and other standards identified by VFPA available at: http://www.portvancouver.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/. The description of a proposed exterior lighting design is not intended as a Lighting Plan, which will be prepared by a qualified lighting professional during detailed design.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1, p. 6.5-2 - 6.5-3		
Section 6.5.1 Page 83	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable to lighting, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1.3, p. 6.5-4 - 6.5-5. Attachment 6.5-A, Figure 6.5-A-1		
		The following assessment boundaries are defined for lighting: ▪ Spatial boundaries: ○ Local Study Area (LSA): The proposed LSA for the Lighting IC encompasses the Project Boundary, plus a 5 km buffer zone. The LSA incudes potential viewing locations within New Westminster and Surrey. These locations are within viewing distances which generally allow for a discernible level of visual detail to be perceived by viewers at night. ○ Regional Study Area (RSA): The RSA is not applicable because of the existing level of lighting within Metro Vancouver; any potential impacts of lighting are expected to be limited to the LSA. ▪ Temporal boundaries – includes the pre-Project baseline conditions, and construction and operations phases. ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this IC; therefore no administrative boundary is defined. ▪ Technical boundaries – a detailed lighting design is not available for the Project at the time of the assessment. A proposed lighting design will be provided based on operational requirements and lighting guidelines to support the assessment. The light assessment is focused on changes to perceived environmental lighting levels and subsequently, the effect of glare from traffic is not included.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.1.3, p. 6.5-4 - 6.5-5. Attachment 6.5-A, Figure 6.5-A-1		
Section 6.5.2 Page 83-84	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.2, p. 6.5-5 - 6.5-10		
		The Proponent will use the baseline information from photographic inventories and qualitative visual analysis to assess the existing lighting conditions for views in the LSA. Spatial data describing the PBRep Project Boundary, physical characteristics of the landscape, and cultural use areas will be used to conduct spatial analysis to determine the location of potential viewpoints. The following key sources of information will be used: ▪ Available mapping data and digital imagery describing transportation networks, parks and protected areas, recreation areas and amenities, community locations and services, cultural heritage sites, and administrative boundaries to determine land use activity patterns and potential night-time viewing opportunities; ▪ Regional and local government land use plans and related regulations and bylaws to determine existing management objectives for exterior lighting; ▪ Aboriginal Traditional Knowledge (ATK) and Traditional Use (TU) information provided during ongoing consultation between The Proponent and Aboriginal Groups to identify Aboriginal perspectives related to effects of exterior lighting; and, ▪ Previous environmental assessments for projects in the same area (i.e., Port Mann/Highway 1 EA Application, South Fraser Perimeter Road Project EA Application	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.2, p. 6.5-5 - 6.5-10		

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Section 6.5.3 Page 84	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Lighting	Vol. 1, Part B, Section 6.5.3, Subsection 6.5.3, p. 6.5-10 - 6.5-14		
		There is potential for an increase in light levels in the vicinity of the proposed Project from navigational, and operational street lighting that may alter existing night-time viewing from nearby areas. The Proponent will use information from visual simulation and qualitative visual analysis to assess the potential effects of the proposed Project on existing light conditions in the LSA. Potential effects will be assessed for the change in perceived lighting levels from current nighttime viewing conditions.	Lighting	Vol. 1, Part B, Section 6.5.3, Subsection 6.5.3, p. 6.5-10 - 6.5-14		
Section 6.5.4 Page 84	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.4, p. 6.5-15 - 6.5-17 Vol. 2, Part E, Section 14, Subsection 14.15, p. 14-15		
Section 6.5.5 Page 84	Residual Effects	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR. If any residual effect is identified, it will be described in sufficient detail to support the assessment of relevant receptor VCs.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.5, p. 6.5-18 - 6.5-19		
Section 6.5.6 Page 85	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.6, p. 6.5-20 - 6.5-24		
		Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative assessment of relevant receptor VCs.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.6, p. 6.5-20 - 6.5-24		
Section 6.5.7 Page 85	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Lighting	Vol. 1, Part B, Section 6.5, Subsection 6.5.7, p. 6.4-24		
Section 6.6 Page 85-86	**Shading**	The new Pattullo Bridge and roadway approaches, combined with removal of the existing Pattullo Bridge, have the potential to change structure-related shade patterns in the Project area. Shading acts as a pathway IC that may potentially affect the following ultimate receptor VCs: ▪ Visual Quality; ▪ Fish and Fish Habitat; ▪ Vegetation; ▪ Wildlife; ▪ Marine Use; and ▪ Land Use. For clarity, the shading assessment will also inform assessment of current use of land and resources for traditional purposes (refer to Section 11) and Aboriginal Interests (refer to Section 12).	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.1, p. 6.6-1 – 6.6.2		**29**
		The assessment will focus on the following indicator of change to shading conditions: ▪ Change in pattern of shadow from current daytime conditions.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.1, p. 6.6-2		**29**
		The shading assessment will meet applicable assessment guidelines provided by VFPA at: http://www.portvancouver.com/development-and-permits/project-and-environmental-reviews/technical-guidelines/.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.1.2, p. 6.6-2		**29**

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Section 6.6.1 Page 86	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the IC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.1.3, p. 6.6-3 - 6.6.4. Attachment 6.6-A, Figure 6.6-A-1		**29**
		The following assessment boundaries are defined for shading: ▪ Spatial boundaries: ○ Local Study Area (LSA): The proposed LSA for the Shading IC encompasses the Project Boundary, plus a 1 km buffer zone. The LSA includes an area adequate to evaluate the length of the shadows during key periods throughout the year with the longest shadow. ○ Regional Study Area (RSA): The RSA is not applicable because any potential impacts to shading beyond the LSA distance is expected to be minimal; shadows are expected to dissipate before reaching residential or public areas beyond the LSA. ▪ Temporal boundaries – includes the pre-Project baseline conditions, construction, and operations phases. ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this IC; therefore no administrative boundary is defined. ▪ Technical boundaries – the modelling of shade patterns of existing and proposed structures will be based on available data detailing the dimensions and characteristics of these structures.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.1.3, p. 6.6-3 - 6.6.4. Attachment 6.6-A, Figure 6.6-A-1		**29**
Section 6.6.2 Page 86-87	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.2, p. 6.6-4 - 6.6-8		**29**
		The Proponent will use the baseline information of existing built structures in combination with 3D modelling results to assess the existing shade patterns in the LSA. Spatial data describing the Project Boundary, the physical characteristics of the terrain and built structures, and the location of public spaces and community institutions such as parks, greenways, community/recreation centres, and schools will be used to produce figures and conduct spatial analysis to determine the extent and potential effect of shadow patterns within the Shade IC LSA. The following key sources of information will be used in this regard: ▪ Available mapping data describing parks and protected areas, recreation areas and amenities, and community locations and services to determine land use activity patterns and areas where activities of the communities where use and enjoyment could be affected by shading ▪ 3D terrain data, 3D building models, and/or 2D two-dimensional building footprints and height information to develop an integrated digital surface model (DSM) to support shadow modelling ▪ Available Aboriginal Traditional Knowledge (ATK) and Traditional Use (TU) information provided during ongoing consultation between The Proponent and Aboriginal Groups to identify areas used by Aboriginal Groups and perspectives related to the effects of shade ▪ Review of relevant environmental assessments and shadow analyses for projects in the Metro Vancouver region	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.2, p. 6.6-4 - 6.6-8		**29**
Section 6.6.3 Page 87	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.3, p. 6.6-8 - 6.6-11		**29**
		There is potential for a change in the pattern of shade related to the new bridge and associated roadway approaches and ramps that may alter existing daytime viewing condition for nearby areas. The Proponent will use the 3D modelling results to assess the potential effects of the Project on existing shade patterns in the LSA.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.3, p. 6.6-8 - 6.6-11		**29**
Section 6.6.4 Page 87	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the IC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.4, p. 6.6-12		**29**
Section 6.6.5 Page 87	Residual Effects	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR. If any residual effect is identified, it will be described in sufficient detail to support the assessment of relevant receptor VCs.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.5, p. 6.6-12 - 6.6-14		**29**

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Section 6.6.6 Page 87--88	Cumulative Effects	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.6, p. 6.6-14 - 6.6-17		**29**
		Where an adverse residual cumulative effect is identified, it will be described in sufficient detail to support the cumulative effects assessment of relevant receptor VCs.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.6, p. 6.6-14 - 6.6-17		**29**
Section 6.6.7 Page 88	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Shading	Vol. 1, Part B, Section 6.6, Subsection 6.6.7, p. 6.6-17		**29**
Section 7.0 Page 89	**Heritage Effects Assessment**	The Application will include an assessment of heritage VCs identified in the AIR. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of this AIR and reported using the organizational structure demonstrated in section 4.0 Environmental Effects Assessment.	Heritage Resources	Vol. 2, Part B, Section 7.1, p. 7.1-1 - 7.1-64		**32**
		The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.1, p. 7.1-2 - 7.1-6		**32**
		The following single VC was identified for the purpose of assessing Heritage Effects of the proposed Project under the heritage pillar: ▪ Heritage Resources.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.1, p. 7.1-2 - 7.1-6		**32**
Section 7.1 Page 89-90	**Heritage Resources**	The Project area though substantially altered by development over many decades has high heritage sensitivity. Heritage Resource VC subcomponents that are known to occur in the Project area and are currently protected under the provincial Heritage Conservation Act include the following: ▪ Archaeological resources, defined for the purpose of assessment as artifacts, features, materials, or other physical evidence of human habitation or use prior to AD 1846 (these resources are automatically protected under the Heritage Conservation Act); and ▪ Historical heritage resources, defined for the purpose of assessment as artifacts, features, materials, or other physical evidence of human habitation or use that originated after AD 1846 and are protected, or in process of being protected, under the Heritage Conservation Act and/or by municipal heritage protection mechanisms.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.1, p. 7.1-2 - 7.1-6		**32**
		The Project is not located in an area of BC that has been identified by Heritage Branch of FLNRO as having known fossil resource site concentrations (i.e. Vancouver Island, Haida Gwaii, the Princeton-Merritt-Kamloops area, southeastern and northeastern British Columbia, and the Central Interior Plateau). As such paleontological resources has not been identified as a subcomponent in the assessment of Heritage Resources. The Proponent will confirm the potential for presence of paleontological resources in the Project area in consultation with FLNRO. If the potential for presence of such resources in the Project area is identified, a chance-find procedure will be developed to address adverse effects.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.1 – 7.1.1.2, p. 7.1-2 – 7.1-10		**32**
		Indicators used to assess the potential Project-related effects on Heritage Resources are based on the provincial guidelines for archaeological overview assessments (AOAs) and archaeological impact assessments (AIAs), and municipal heritage assessment guidelines. The assessment identifies the following indicators for describing existing baseline conditions and assessing potential Project-related effects on Heritage Resources: ▪ Extent of disturbance to known heritage values and related change to heritage value; and ▪ Change in the level of accessibility to known heritage values.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.1.1, p. 7.1-4 – 7.1-6		**32**
		This section of the Application will assess environmental effects defined in subsection 5(1) and 5(2) of CEAA 2012 that are of relevance to heritage resources, including effects to physical heritage or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. If it is determined that the Project will not result in an environmental effect defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding physical heritage, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies. With regard to potential effects on non-physical Aboriginal cultural heritage, refer to the assessment of current use of lands and resources for traditional purposes and Aboriginal Interests (Section 11 and Section 12, respectively).	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.2, p. 7.1-6 – 7.1-10; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		**32**

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Section 7.1.1 Page 90-91	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.3, p. 7.1-10 - 7.1-11. Attachment 7.1-A, Figure 7.1-A-1		**32**
		The following assessment boundaries are defined for archaeological resources: ▪ Spatial boundaries: o HCA Permit Area: The boundaries in which ground disturbing fieldwork may be undertaken under permit 2016-0390. o Local Study Area (LSA): Project Boundary with a 50 m wide buffer. o Regional Study Area (RSA): 1 km wide zone around the outside of the LSA boundary. The RSA is intended to include the larger regional area in which archaeological and historical heritage values are entrenched as part of ancient and modern networks. For the archaeology sub-component, the RSA extends along the banks of the Fraser River from Annacis Island to Port Mann to model potential effects on riverside archaeological resources. ▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase ▪ Administrative boundaries – the administrative boundaries of the assessment are defined by the specific geographic area associated with permits issued by the Archaeology Branch, the Port of Vancouver, and First Nations. ▪ Technical boundaries – technical boundaries to heritage assessments relate to access for in-field assessment.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.1.3, p. 7.1-10 - 7.1-11. Attachment 7.1-A, Figure 7.1-A-1		**32**
Section 7.1.2 Page 91-92	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.2, p. 7.1-12 - 7.1-39		**32**
		The Proponent is undertaking archaeological and historical heritage literature resources studies to confirm and delineate the presence of known and/or listed sites and to identify areas that have potential to contain heritage deposits. Under the B.C. Environmental Assessment Act policy and the B.C. Heritage Conservation Act, heritage resources are defined by the historical, cultural, aesthetic, scientific, or educational worth or usefulness of a site or object. Sites within the proposed Project alignment that are identified as having high heritage potential will be evaluated further through desktop and field investigations. The Application will include the following additional studies: ▪ An AOA that identifies and assesses archaeological resource potential or sensitivity within a proposed Project area, and provides recommendations concerning the appropriate methodology and scope of work for subsequent inventory and/or archaeological impact assessment studies. ▪ An AIA, if recommended based on the results of the AOA, that Identifies archaeological sites, evaluates their significance, assesses potential impacts by the project on archaeological sites, and provides recommendations concerning the appropriate impact management measures that may be required. ▪ A historical heritage assessment will be conducted.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.2, p. 7.1-12 - 7.1-39	Vol. 4, Appendix 18.13 Historical Heritage Study	**32**
		The Application will include supplemental baseline archaeology/historical heritage information provided through consultation with the EAO working group and Aboriginal groups. Refer to Section 12 for information on consultation.	Heritage Resources	Vol. 2, Part B, Section 7.1, Subsection 7.1.2.2, 7.1.2.4, p. 7.1-12 - 7.1-23, p. 7.1-30 - 7.1-39; Vol. 2, Part C, Section 12		**32**
		The Application will include technical information related to the Heritage Resources VC.	Heritage Resources		Vol. 4, Appendix 18.13 Historical Heritage Study	**32**

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Section 7.1.3 Page 92	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.3, p. 7.1-39 - 7.1-48		**32**
		The proposed Project has the potential to affect heritage resources during construction of the new bridge and removal of the existing bridge.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.3, p. 7.1-39 - 7.1-48		**32**
		The results of literature review, field investigations, and consultation with Aboriginal Groups will be used to assess potential Project effects on existing archaeological resources as well as to determine design and construction constraints relating to the protection of such resources.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.3, p. 7.1-39 - 7.1-48		**32**
Section 7.1.4 Page 92	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.4, p. 7.1-48 - 7.1-53 Vol. 2, Part E, Section 14, Subsection 14.2, p. 14-2		**32**
Section 7.1.5 Page 92	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.5, p. 7.1-54 - 7.1-60		**32**
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.5, p. 7.1-54 - 7.1-60		**32**
Section 7.1.6 Page 92-93	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.6, p. 7.1-61 - 7.1-63		**32**
Section 7.1.7 Page 93	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Heritage Resources	Vol. 2, Part B, Section 7.1, Section 7.1.7, p. 7.1-63		**32**
Section 8.0 Page 94	**Health Effects Assessment**	The Application will include an assessment of two health VCs under the health pillar. The assessment will be conducted in accordance with the methodology specified in section 3.0 Assessment Methodology of this AIR and reported using the organizational structure demonstrated in section 4.0 Environmental Effects Assessment.	Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27; Section 8.2, p. 8.2-1 - 8.2-39		
		The Application will identify the VCs selected for assessment according to the methodology specified in section 3.1 Issues Scoping and Selection of Valued Components. The Application will also include the rationale for any differences in the list of VCs presented in the Application from those listed in the final Application.	Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27; Section 8.2, p. 8.2-1 - 8.2-39		
		The dAIR document differs from the Project Description in the following ways: ▪ Human Health VC is now partitioned into two distinct VCs. Human health considerations for the proposed Project are associated primarily with changes in air quality, atmospheric noise and vibration levels (the results of the air quality and noise assessments will be inputs to the human health assessment), and social determinants.	Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27; Section 8.2, p. 8.2-1 - 8.2-39		
		The following Health Effects VCs have been identified for assessment: ▪ Physical Determinants of Human Health (PDHH) VC; and ▪ Social Determinants of Human Health (SDOH) VC.	Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27; Section 8.2, p. 8.2-1 - 8.2-39		

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Section 8.1 Page 94-95	**Physical Determinants of Human Health**	Physical determinants of health comprise environmental conditions that have the potential to affect human health through physical media. As with other road-related projects, the development and operation of the Project has the potential to alter existing (baseline) conditions for several important attributes of the physical environment, including air quality, noise, and vibration. Consultation undertaken on the Project also identified a potential concern expressed in relation to Project-related disturbances to sediment that may result in the biomagnification of contaminants, and resultant human exposure.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27		
		Project-related impacts on are assessed in,. The PDHH VC uses the results of the assessment of air quality, noise and vibration, and sediment quality (Section 4.8, Section 4.7, and Section 4.2, respectively) to estimate how human health may be affected during both the construction period and on-going operations.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, p. 8.1-1 - 8.1-27		
		The following three subcomponents have been identified for the PDHH VC: ▪ Human health effects stemming from changes in air quality ▪ Human health effects stemming from changes in noise and vibration ▪ Human health effects stemming from exposure to aquatic contaminants These potential impacts will be studied through a Human Health Risk Assessment, which is presented as a technical appendix in the Application. HHRA is a standardized modelling approach that estimates how human health may be affected from exposure to physical or chemical hazards. Its use is endorsed by the Province of BC, Health Canada, and others as the most suitable way to quantitatively assess physical health impacts in the context of an environmental assessment	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.1.1, p. 8.1-1 - 8.1-3		
		The following indicators are proposed for the assessment of the PDHH VC sub-components: ▪ Human health effects stemming from changes in air quality ○ Acute health effects following short-term inhalation exposures ○ Chronic health effects following long-term inhalation exposures ▪ Human health effects stemming from noise and vibration ○ Annoyance associated with highway noise ○ Sleep disturbance ○ Speech comprehension ○ Annoyance associated with vibration ▪ Human health effects stemming from exposure to aquatic contaminants ○ Health effects from exposure to contaminants via seafood ○ In addition to the three subcomponents listed above, the potential for human health effects stemming from exposure to night-time light during the operation phase was also be considered. Operation of the Project would introduce new light sources, including navigational lighting of bridge towers and operational street lighting of the bridge deck. Results of the assessment of the Project's contribution to light levels (Section 6.5 Lighting) will be reviewed to determine the need for further assessment of health effects resulting from light exposure. This information, and, if applicable based on results of the Lighting IC assessment, assessment of health effects resulting from Project-related change in light exposure, will be included in the Application.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.1.2, p. 8.1-3		
		This section of the Application will assess any environmental effect defined in subsection 5(1) or 5(2) of CEAA 2012 that is of relevance to human health, including effects under 5(1)(c)(i) that are specific to Aboriginal peoples. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding human health, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.1.3, p. 8.1-4 - 8.1-5; Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47; Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		

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Section 8.1.1 Page 95-96	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.1.4, p. 8.1-5 - 8.1-6. Attachment 8.1-A, Figure 8.1-A-1		
		The following assessment boundaries are defined for physical determinants of human health: ▪ Spatial boundaries: o Local Study Area (LSA): 500 m buffer from the edge of the Reference Concept over land and 1,500 m buffer over water (Corresponds to the larger LSA boundary of the Air Quality and Atmospheric Noise ICs). o Regional Study Area (RSA): No Regional Study Area (RSA) has been defined because potential effects of the Project on PDHH are expected to be highly localized and not to extend beyond the LSA (see Air Quality and Atmospheric Noise spatial boundaries and rationale). ▪ Temporal boundaries: o Existing conditions o Project construction phase: - Site preparation and pre-construction activities - Construction of the new bridge - Decommissioning and removal of the existing bridge o Project operations phase ▪ Administrative boundaries – no issues related to political, economic or social constraints were identified that could inhibit assessment of this VC; therefore no administrative boundary is defined. ▪ Technical boundaries – no issues related to technical constraints (e.g. site access or data) were identified that could inhibit assessment of this VC; therefore no technical boundary is defined.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.1.4, p. 8.1-5 - 8.1-6. Attachment 8.1-A, Figure 8.1-A-1		
Section 8.1.2 Page 96	Existing Conditions	The Proponent is studying ambient air quality and existing noise conditions as they relate to physical determinants of human health conditions in and around the proposed Project area, to understand existing human health conditions in local and regional populations. The Application will summarize existing conditions for air and noise in a manner consistent with section 3.3 Existing Conditions of this AIR. In addition, the Application will include relevant baseline information on rates of human health conditions (such as chronic lower respiratory disease and stress) that have the potential to be affected by the Project.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.2, p. 8.1-6 - 8.1-11	Vol. 4, Appendix 18.16 – Human Health Risk Assessment	
		The Application will include any technical information related to assessment of human health.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.2, p. 8.1-6 - 8.1-11	Vol. 4, Appendix 18.16 - Human Health Risk Assessment	
Section 8.1.3 Page 97	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.3, p. 8.1-11 - 8.1-24	Vol. 4, Appendix 18.16 - Human Health Risk Assessment	
		Where residual adverse effects are identified, potential mitigation measures will be proposed to avoid, eliminate, or limit the extent and impact of potential adverse effects.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.3, p. 8.1-11 - 8.1-24	Vol. 4, Appendix 18.16 - Human Health Risk Assessment	
Section 8.1.4 Page 97	Mitigation Measures	The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.4, p. 8.1-24 - 8.1-26; Vol. 2, Part E, Section 14, Subsection 14.1, 14.17, p. 14-1, p. 14-17- 14-18		
Section 8.1.5 Page 97	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.5, p. 8.1-27		
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.5, p. 8.1-27		

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Section 8.1.6 Page 97	Cumulative Effects and their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.6, p. 8.1-27		
Section 8.1.7 Page 98	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Physical Determinants of Human Health	Vol. 2, Part B, Section 8.1, Subsection 8.1.7, p. 8.1-27		
Section 8.2 Page 98-99	**Social Determinants of Human Health**	The societal conditions in which people are born, live, and work directly affect the quality of their health (Mikkonen and Raphel 2010). The urban environment, including the design of transportation systems and infrastructure, can shape individual and public health by affecting various SDOH components. Walkways, cycling lanes, and roads that are perceived as safe and low risk will encourage use of and ease access to services, employment centres, shops and restaurants, and recreations areas. The use of public spaces (places where people naturally interact such as sidewalks, local parks, plaza, and public transportation) facilitates development of healthy community dynamics and cohesion. The assessment of effects on the SDOH VC will interpret, build upon and otherwise elaborate on the findings of other assessment chapters including economic activity, marine use, land use, community cohesion and visual quality, from a social determinants of health perspective. The assessment of the SDOH VC followed the general methodology that is applied to all VCs described in the BC EAO AIR (2015) Section 3.0. The selection was also informed by Metro Vancouver's Health Impact Assessment (HIA) of Transportation and Land Use Planning Activities Guidebook (EcoPlan, n.d.) and the Public Health Agency of Canada's determinants of health (Public Health Agency of Canada 2015).	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, p. 8.2-2 - 8.2-39		
		The health assessment will address the following subcomponents: ▪ Services; ▪ Social Interactions; ▪ Livelihood factors; and ▪ Active living.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.1.2, p. 8.2-4 - 8.2-5		
		In order to assess potential Project-related effects on SDOH the subcomponents will be assessed by studying the following indicators: ▪ Services ○ Physical connectivity within and between neighbourhoods as well as between Surrey and New Westminster. ○ Perception of safety, risk, and ease of travel within and between neighbourhoods as well as between Surrey and New Westminster ▪ Social Interactions ○ Physical connectivity within and between neighbourhoods as well as between Surrey and New Westminster ○ Perception of safety, risk, and ease of travel within and between neighbourhoods as well as between Surrey and New Westminster	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.1.3, p. 8.2-5 - 8.2-7		

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		▪ Livelihood factors
		  ○ Business activity and income and/or in opportunities for gainful employment
		▪ Active living
		  ○ Physical connectivity within and between neighbourhoods as well as between Surrey and New Westminster
		  ○ Perceptions of safety, risk, and ease of travel within and between neighbourhoods as well as between Surrey and New Westminster
				Vol. 2, Part B, Section 8.2, Subsection 8.2.1.3, p. 8.2-5 - 8.2-7		

		This section of the Application will assess environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012 that are of relevance to social determinants of health, including effects under 5(1)l(i) that are specific to Aboriginal peoples. If it is determined that the Project will not result in environmental effects defined in subsection 5(1) or 5(2) of CEAA 2012, a rationale to substantiate this conclusion will be provided in the Application. The effects assessment will consider Aboriginal perspectives regarding social determinants of health, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.3, p. 8.2-19 -8.2-23; p. 8.2-27; p. 8.2-29		
Section 8.2.1 Page 99-101	Context and Boundaries	The Application will identify the spatial, temporal, administrative and technical study area boundaries, as applicable of the VC, including maps, in a manner consistent with 3.2 Assessment Boundaries of the AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.1.5, p. 8.2-8 - 8.2-11. Attachment 8.2-A, Figure 8.2-A-1		

		The following assessment boundaries are defined for SDOH:
		▪ Spatial boundaries:
		  ○ Local Study Area (LSA): Corresponds to the larger LSA boundary of the Community Cohesion VC encompassing the proposed Project design footprint, plus the surrounding neighbourhoods following Census Area boundaries:
		  - New Westminster – the eastern portion of Downtown New Westminster (Census Tract #207), part of the Queen's Park neighbourhood and Glenbrooke North neighbourhood (Census Tract #208) and the Glenbrooke South neighbourhood (Census Tract #209).
		  - Surrey – the Bridgeview neighbourhood and the South Westminster neighbourhood (Census Tract #192).
		  ○ Regional Study Area (RSA): The proposed RSA includes the cities of Surrey and New Westminster.
		▪ Temporal boundaries:
		  ○ Existing conditions
		  ○ Project construction phase:
		  - Site preparation and pre-construction activities
		  - Construction of the new bridge
		  - Decommissioning and removal of the existing bridge
		  ○ Project operations phase – the assessment will primarily consider the new alignment and its implications from an SDOH perspective on the LSA. That is it will be a static assessment of the new bridge and approaches once completed and will not, indeed cannot, pretend to anticipate how SDOH issues in relation to the new bridge might change over its anticipated lifespan.
		▪ Administrative boundaries – no issues related to political, economic or social constraints that could inhibit assessment of this VC were identified; therefore no administrative boundary is defined.
		▪ Technical boundaries – The proposed LSA is based on census tract boundaries to enable the use of statistical data to appropriately describe existing social conditions over a reasonable and representative area in and around the Project footprint. The assessment of effects will acknowledge that these boundaries are almost certainly porous due to the fluid nature of social phenomena (i.e. people move around). The assessment will consider the possibility that certain interactions involving SDOH and relevant subcomponents will not necessarily be contained exclusively within these boundaries but may carryover to other adjacent areas.
			Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.1.5, p. 8.2-8 - 8.2-11. Attachment 8.2-A, Figure 8.2-A-1		

Section 8.2.2 Page 101-102	Existing Conditions	The Application will summarize existing conditions in a manner consistent with section 3.3 Existing Conditions of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.2 p. 8.2-11 - 8.2-19		
		The Proponent is studying key health indicators, available from existing regional and community health studies, to understand existing human health conditions in local and regional populations. Social and economic studies (see Section 6.0) and a health assessment guided by the principles of Metro Vancouver (2016) will assist The Proponent in considering how broader determinants of human health (e.g., changes in social and economic conditions) would potentially be influenced by the proposed Project.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.2 p. 8.2-11 - 8.2-19		

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		The following general approach is being taken to assemble information with respect to SDOH existing conditions. ▪ A review of relevant background information and literature, including: ○ Canada Census and National Household Survey (NHS) (Statistics Canada 2016), including population, number of dwellings, household income, commuting patterns, and other demographics ○ 2013/2014 My Health My Community (Vancouver Coastal Health 2015), which provides selected health, lifestyle, and socio-economic statistics based on an extensive survey of Metro Vancouver residents; survey results are available for the RSA (i.e., New Westminster and Surrey) and for several neighbourhoods overlapping the LSA, including Downtown New Westminster, Queen's Park, Whalley, and Surrey City Centre ○ Provincial, The Proponent, and regional transportation and regional growth plans, including the The Proponent Regional Transportation Strategy (2013); the 2011 The Proponent cycling strategy (A Regional Cycling Strategy for Everyone); and the Metro Vancouver Regional Growth Strategy, first completed in 2011 and updated in 2014 ○ Transportation plans for New Westminster and Surrey (2014 New Westminster Master Transportation Plan by Urban Systems, and the 2008 Surrey Transportation Strategic Plan) ○ Social Planning for New Westminster and Surrey (both Surrey and New Westminster have Social Planning departments with extensive websites detailing action plans and progress reports directed toward vulnerable populations in their communities) ▪ A review of the results of Project-related effects on the following VCs: ○ Economic Activity (Section 5.1): Analysis of Project effects on business activity relevant to the assessment of Livelihood factors. ○ Marine Use (Section 6.1): Analysis of Project effects on business activity and social interaction relevant to Livelihood factors and Social interaction, in the context of consideration of Aboriginal-specific effects under CEAA 2012 Section 5(1). ○ Land Use (Section 6.2): Analysis of Project effects relevant to the assessment of Active living. ○ Community Cohesion (Section 6.3): Analysis of Project effects relevant to the assessment of the subcomponent of SDOH, Social interaction. ▪ A review of ATK, where available publicly or provided during ongoing consultation between the Proponent and Aboriginal Groups or through Project-specific studies, and integration of relevant information provided with permission for use in the Application into the assessment.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.2 p. 8.2-11 - 8.2-19		
Section 8.2.3 Page 102	Potential Effects	The Application will identify potential adverse effects to the VC in a manner consistent with section 3.4 Potential Effects of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.3 p. 8.2-19 - 8.2-31		
		The proposed Project is anticipated to result in improvements in human health in consideration of broader determinants of human health (e.g., improved access to leisure activity, reduced stress for bridge users, improved public safety, and by fostering opportunities to increase economic activity through improved transportation infrastructure with requisite benefits for employment and economic development.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.3 p. 8.2-19 - 8.2-31		
Section 8.2.4 Page 102	Mitigation Measures	Where residual adverse effects are identified, potential mitigation measures will be proposed to avoid, eliminate, or limit the extent and impact of potential adverse effects.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.4, p. 8.2-31 - 8.2-35		
		The Application will identify measures to avoid, manage or otherwise mitigate potential adverse effects to the VC in a manner consistent with section 3.5 Mitigation Measures of this AIR. Relevant management plans will be referenced. Linkages to other sections in the Application must be identified.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.4, p. 8.2-31 - 8.2-35 Vol. 2, Part E, Section 14, Subsection 14.20, p. 14-20 – 14-21		
Section 8.2.5 Page 102	Residual Effects and their Significance	Where an adverse residual effect is identified, the Application will characterize the residual effect based on the context, magnitude, extent, duration, reversibility, and frequency as described in section 3.6 Characterization of Residual Effects of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.5, p. 8.2-36 - 8.2-37		
		Where an adverse residual effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.5, p. 8.2-36 - 8.2-37		

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Section 8.2.6 Page 103	Cumulative Effects and Their Significance	If a residual effect is identified, unless stated otherwise by EAO, the Application will: ▪ Determine whether any cumulative interactions between residual effects of the proposed Project and the potential residual effects of other developments, based on the preliminary list of past, present and reasonably foreseeable developments provided in the AIR, are likely to occur, consistent with section 3.10.1 Identifying Past, Present or Reasonably Foreseeable Projects and/or Activities of this AIR. ▪ Conduct a cumulative effects assessment consistent with section 3.10.2 Conducting a Cumulative Effects Assessment of this AIR. ▪ Identify any additional mitigation measures, consistent with section 3.5 Mitigation Measures of this AIR. ▪ Where an adverse residual cumulative effect is identified, the Application will also describe the likelihood, Proponent's significance determination and predictive confidence, in accordance with sections 3.7 Likelihood, 3.8 Proponent's Determination of Significance and 3.9 Confidence and Risk of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.6, p. 8.2-37		
Section 8.2.7 Page 103	Follow-up Strategy	Where a residual effect and/or cumulative effect have been identified, the Application will include a description of a follow-up strategy that is consistent with section 3.11 Follow-up Strategy of this AIR.	Social Determinants of Human Health	Vol. 2, Part B, Section 8.2, Subsection 8.2.7, p. 8.2-38		
Section 9.0 Page 104-105	Accidents and Malfunctions	The Application will include the following: ▪ Identification of potential accidents and malfunctions: o Spill incidents related to marine-based and/or land-based construction activity; o Structural failures of water management infrastructure (e.g., existing dykes) during construction; o Damage to municipal utilities during construction; o Impediments to marine navigation or vehicle access caused by construction malfunctions; o Malfunction of final infrastructure components during the operational phase; o Vessel collision with new bridge piers. A Collision Risk and Pier Impact Assessment will be conducted, based on the Reference Concept. The assessment will provide information on: - Design Vessel – Length Overall (LOA), Beam, Draught, Displacement,Speed, Frequency - Distance between Piers - Channel Alignment - Pier Accessibility to Vessels - Proximity to and nature of channel edges - Vessel Traffic Congestion - Risk of Collision (Deep-sea and Domestic) (During Construction and Post Construction) - Pier Protection Options (During Construction and Post Construction) - Superstructure Protection Options (Visual and Electronic). ▪ The overall methodology for assessing the potential risk of an event (likelihood and consequence); ▪ Definitions of each category of likelihood; ▪ Definitions for each category of consequence; ▪ An assessment of the likelihood of the event occurring, based on historical trends and predictive models; ▪ Identification of proposed measures to reduce the likelihood of the event; ▪ Assessment of consequence of the event, in a manner consistent with the direct effects assessment; ▪ Identification of measures to mitigate the consequences to valued components; and ▪ Conclusions on the potential risk (likelihood multiplied by consequence) of the accident or malfunction.	Accidents and Malfunctions	Vol. 2, Part B, Section 9, p. 9-1 - 9-14; Attachment 9-A, p.1 - 11, Subsection 9-A.3; p. 2 - 3, Subsection 9-A.4; p. 7, Subsection 9-A-8, p. 10		**17,33**
Section 10.0 Page 106	Effects of the Environment on the Project	The Application will include: ▪ The environmental factors deemed to have possible consequences on the proposed project, including, but not necessarily limited to, consideration of natural hazards such as: o Potential impacts of climate change (e.g., temperature rise, trend of increasing precipitation, and sea-level rise); o Extreme weather and weather-related events (e.g., heavy precipitation, extreme temperatures, and high wind); o Flood events; o Seismic activities/events; and o Fire. ▪ A description of any changes or effects on the proposed Project that may be caused by the above-mentioned environmental factors; ▪ The likelihood and consequence of the changes or effects to relevant VCs and ICs;	Effects of the Environment on the Project	Vol. 2, Part B, Section 10, p. 10-1 - 10-14		

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		▪ Practical mitigation measures, including design strategies and environmental contingency plans, to avoid or minimize the likelihood and consequence of the effects of the environment on the proposed Project; and ▪ A conclusion about the potential risk of an effect of the environment on the proposed Project and to relevant VCs and ICs				
Section 11.0 Page 107-108	**Summary of Statutory Requirements Under CEAA 2012**	The Application will identify CEAA 2012 subsection 5(1) and 5(2) requirements as they relate to obligations of federal authorities under section 67 of CEAA 2012, and will summarize how these requirements have been met by the assessment of environmental, social, economic, health and heritage VCs presented in preceding sections. The Application will also identify CEAA 2012 provisions that were not considered in the assessment pursuant to section 67.	Summary of Statutory Requirements Under CEAA 2012	Vol. 2, Part B, Section 11, Subsections 11.1, p. 11-1 - 11-2; 11.2, p. 11-3 - 11-8		**1,39**
		The summary in this section will be specific to environmental effects resulting from the physical activities and physical works conducted on federal lands, and will be presented in a table format similar to that shown below. If environmental effects as defined in subsections 5(1) and 5(2) of CEAA 2012 are identified for a VC, the summary of assessment included in the table will describe any such residual adverse effects in a manner that allows federal authorities to draw conclusions on the significance of those effects. A summary of assessment of section 5(1)(c) factors for each Aboriginal Group listed in Schedule B and C of the Section 11 order will be included in the table.	Summary of Statutory Requirements Under CEAA 2012	Vol. 2, Part B, Section 11, Subsection 11.2, p. 11-3 - 11-47		**1,39**
		Table 4: Summary Table of CEAA 2012 5(1) and 5(2) Effects and Applicable Part B Results	Summary of Statutory Requirements Under CEAA 2012	Vol. 2, Part B, Section 11, Subsection 11.2, Table 11.2-1, p. 11-9 - 11-47		**1,39**
		This section of the Application will also include the following additional information with regard to effects on Aboriginal peoples pursuant to 5(1)(c), and in relation to each Aboriginal Group identified in Schedule B and C of the Section 11 Order: ▪ For each subsection 5(1)(c) factor, a summary of linked VC effects, the specific potential effect mechanism on the Aboriginal Group (as informed by the applicable VC assessments), applicable mitigation measures (including any additional measures beyond those identified for the linked VC), and any identified residual effects; ▪ An assessment of Section 5(1)(c) factors that have not been assessed elsewhere in the Application (i.e., the current use of lands and resources for traditional purposes), in a manner consistent with Section 3.0 Assessment Methodology of this dAIR; and ▪ A report on the views of Aboriginal Groups with respect to subsection 5(1)(c) effects as provided to the Proponent during consultation on the Project or through Project-specific studies. For clarity, the information provided in Section 11 will be presented in a manner that facilitates the VFPA's determination on whether any identified residual effects on 5(1)(c) factors are likely to be significant.,	Summary of Statutory Requirements Under CEAA 2012	Vol. 2, Part B, Section 11, Subsection 11.3, p. 11-48 - 11-61		**1,39**
Section 12.0 Page 110	**Aboriginal Consultation**	(Section title only)	Aboriginal Consultation	Vol. 2, Part C, Section 12, p. p. 12-1 - 12-462		
Section 12.1 Page 110-111	Aboriginal Interests	Aboriginal Interests are defined according to the EAO's definition outlined through the B.C. Environmental Assessment Act section 11 Order directly. The Indigenous Groups named in the EAO's Section 11 Order and discussed in this Section will include: ▪ Cowichan Tribes; ▪ Halalt First Nation; ▪ Katzie First Nation; ▪ Kwantlen First Nation; ▪ Kwikwetlem First Nation; ▪ Lake Cowichan First Nation; ▪ Lyackson First Nation; ▪ Musqueam Nation; ▪ Penelakut Tribe; ▪ Semiahmoo First Nation; ▪ Squamish Nation; ▪ Stz'uminus First Nation; ▪ Tsawwassen First Nation; and ▪ Tsleil-Waututh Nation.	Aboriginal Consultation	Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406		

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		For each Indigenous Group, the Application will include: ▪ A summary of past and planned consultation activities. ▪ A summary of proposed changes to the Aboriginal Consultation Plan resulting from the Aboriginal Groups' feedback, or experience from consultation to date, including any such changes which have been implemented. ▪ A summary of the key issues and concerns raised by Indigenous Groups relevant to the environmental assessment, the Proponent's responses to those issues and concerns, and the status of resolution. ▪ A map that identifies Indian Reserves and Aboriginal communities, for the Indigenous Groups and the project location. ▪ Traditional use information and related ATK, as available, with a description of how traditional use information and ATK was gathered and incorporated into the assessment of impacts of the proposed Project on Aboriginal Interests. ▪ A description of the Aboriginal Interests of each group identified through secondary research techniques or provided directly through consultation activities. The description will include background information on ethnography, language, governance, economy and reserves. ▪ A description of potential adverse effects of the proposed Project on Aboriginal Interests. ▪ A description or summary of mitigation measures to avoid or reduce potential adverse effects on Aboriginal Interests consistent with section 3.5 Mitigation Measures of this AIR. ▪ A characterization of the residual adverse effects on Aboriginal Interests after mitigation using the methodology described in sections 3.6 Characterization of Residual Effects, 3.7 Likelihood, and 3. 9 Confidence and Risk of this AIR and incorporation of findings of the VC chapters in the Application that are relevant to Aboriginal interests. ▪ A summary of any outstanding Aboriginal Interests issues identified by Aboriginal groups. ▪ A summary of publicly available arrangements or agreements reached between the proponent and Aboriginal Groups.	Aboriginal Consultation	Vol. 2, Part C, Section 12, Subsection 12.1. p. 12-1 - 12-406 Attachment 6.2-A, Figure 6.2-A-3; Attachment 12.1-A, Figures 12.1-A-1 - 12.1-A.11 Attachment 12.1-B – Aboriginal Consultation Report #2		
Section 12.2 Page 112	Other Maters of Concern to Indigenous Groups	The Application will include: ▪ A list of other matters of concern raised by Aboriginal Groups with respect to potential environmental, economic, social, heritage and health effects of the proposed Project, which have not already been considered in the discussion about Aboriginal Interests (in Section 12.1) or in the statutory requirements under CEAA 2012 (Section 11) where applicable. ▪ A description (or summary if described elsewhere in the Application) of the mitigation measures to address potential effects on other matters of concern to Aboriginal Groups. ▪ A characterization of the residual adverse effects after mitigation, in a manner consistent with assessment methodology in this dAIR. ▪ A description of how these matters of concern have been addressed from the perspective of the Aboriginal Groups and the Proponent.	Aboriginal Consultation	Vol. 2, Part C, Section 12, Subsection 12.2. p. 12-406 - 12-408		
Section 12.3 Page 113	Issue Summary Table	The Application will include: ▪ A Summary Table (see example below) that identifies Aboriginal Interests or other matters of concern to Aboriginal Groups that may be impacted by the proposed Project, and the measures to avoid, mitigate or otherwise manage the effects; and ▪ An Appendix, the Aboriginal Consultation Report, which contains comments received from Aboriginal Groups regarding this section of the Application.	Aboriginal Consultation	Vol. 2, Part C, Section 12, Subsection 12.3. p. 12-411 - 12-462 Attachment 12.1-B		
		Table 5: Summary Table of the Results of Aboriginal Consultation related to Aboriginal Interests/Other Matters of Concern to Aboriginal Groups	Aboriginal Consultation	Vol. 2, Part C, Section 12, Subsection 12.3. p. 12-409 - 12-462		
Section 13.0 Page 115-116	**Public Consultation**	The Application will include a report on the results of implementation of the approved Public Consultation Plan including: ▪ Background information: ○ Identification of local governments, residents, property owners, and other rights holders who are potentially impacted by the proposed Project. ○ Maps of local government boundaries, private land, tenures/authorizations, or residences with respect to the proposed Project. ○ Background information about each potentially affected municipality and/or stakeholder group. ▪ Public Consultation: ○ A summary of the past and planned consultation activities. ○ A summary of any proposed changes to the approved Public Consultation Plan as a result of feedback from local governments, stakeholders or individuals, or experience from consultation to date. ○ A description of the key issues raised by the public that are relevant to the EA, the responses to those issues, and the status of their resolution.		Vol. 2, Part D, Section 13, p. 13-1 – 13-22. Attachment 13-A, Figure 13-A-1; Attachment 6.2-A, Figures 6.2-A-2 – 6.2-A-19		

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		▪ Summary Table: ○ Identification of concerns raised by the public and the measures to avoid, reduce or mitigate those impacts. This information will be provided in the form of a table.				

Section 14.0 Page 118-120	**Management Plans**	The Application will include:
		▪ A list of Management Plans with a summary of the contents for all phases of the proposed Project, including but not limited to:
		  ○ Air Quality Management Plan;
		  ○ Archaeological and Historical Heritage Resources Management Plan;
		  ○ Construction Environmental Management Plan;
		  ○ Contaminated Sites Management Plan;
		  ○ Construction Staging Plan;
		  ○ Demolition Staging Plan;
		  ○ Emergency Response and Spill Prevention Plan;
		  ○ Energy Efficiency Study (Preliminary Lighting Plan and Criteria);
		  ○ Environmental Monitoring Plan;
		  ○ Erosion and Sediment Control Plan;
		  ○ Fish and Fish Habitat Management Plan;
		  ○ Hazardous Materials Management Plan (including Report for Demolitions);
		  ○ Health and Safety Plan;
		  ○ Landscape Plan;
		  ○ Lighting Plan;
		  ○ Marine Communications Plan;
		  ○ Noise Management Plan;
		  ○ Soil and Groundwater Management Plan;
		  ○ Stormwater Management and Pollution Prevention Plan;
		  ○ Traffic Impact Study and Construction Traffic Management Plan;
		  ○ Vegetation Management Plan; and
		  ○ Wildlife Management Plan (Components will include for example, pre-clearing bird nesting activity surveys, pre-construction surveys for species at risk and sensitive habitats, the management of invasive species, and the protection of incidentally observed wildlife e.g. harbour seals).
			Management Plans	Vol. 2, Part E Section 14.0, p. 14-1 - 14-25, p. 14-1 – 14-26		**34,35,36, 37,38**

		▪ A comprehensive description of the contents of each Management Plan, including the identification of any mitigation measures described in previous sections that will be included within the plans.	Management Plans	Vol. 2, Part E, Section 14.0, p. 14-1 - 14-26	-	**34,35,36, 37,38**
Section 15.0 Page 121	**Monitoring & Follow-up Programs**	The Application will include: ▪ A description of the monitoring and follow-up programs the Proponent will implement, including their activities, objectives and reporting. ▪ Reporting structure as identified within the environmental management plans, monitoring plans and EA Certificate Conditions.	Monitoring and Follow-up Plans	Vol. 2, Part E, Section 15.0, p. 15-1 - 15-2	-	**40**
Section 16.0 Page 122-124	**Conclusions**	The Application will: ▪ Provide the Proponent's conclusions regarding the potential for significant adverse effects on VCs from the proposed Project. ▪ Request an EA Certificate for the proposed Project. ▪ Acknowledge the need, if applicable, to successfully complete a federal EA and subsequent permitting/authorization processes prior to proceeding with Project construction, operation and decommissioning.	Conclusions	Vol. 2, Part F, Section 16.0, p. 16-1 - 16-28		**40**
Section 16.1 Page 124	**Summary of Residual Effects**	The Application will summarize all potential residual effects, including cumulative residual effects, in a table format that depicts the potential effect, project phases, project activity or physical work linked to the effect, proposed mitigation and significance of effect on VCs.	Summary of Residual Effects	Vol. 2, Part F, Section 16.0, Table 16.1.1 p. 16-2 - 16-17		**40**

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Section 16.2 Page 124	**Summary of Proposed Mitigation Measures**	The Application will include a table that identifies the proposed measures to mitigate potential impacts to VCs as shown in Table 6. This information provides the foundation for the development of a Table of Conditions for the proposed Project, which would be appended to an EA Certificate, should one be issued.	Summary of Proposed Mitigation Measures	Vol. 2, Part F, Section 16.0, p. 16-18 - 16-28		**40**
		Table 6: Summary of Proposed Mitigation Measures	Summary of Proposed Mitigation Measures	Vol. 2, Part F, Section 16.0, Table 16.2.1 p. 16-19 - 16-28		**40**
Section 17.0 Page 125	**Reference Material**	The Proponent will provide a list of reference material used in developing the Application. Reference material includes the following: ▪ British Columbia. British Columbia Environmental Assessment Office. 2013a. "Guideline for the Selection of Valued Components and Assessment of Potential Effects." Available: http://www.eao.gov.bc.ca/pdf/EAO_Valued_Components_Guideline_2013_09_09.pdf. [Accessed October 20, 2016]. ▪ British Columbia. British Columbia Environmental Assessment Office. 2013b. "Guide to Involving Proponents when Consulting First Nations in the Environmental Assessment Process." Available: http://www.eao.gov.bc.ca/pdf/EAO_Proponent_Guide_Dec2013.pdf. [Accessed November 2, 2016]. ▪ British Columbia, Ministry of Transportation and Infrastructure (MOTI). 2014. "Policy of Assessing and Mitigating Noise Impacts from New and Upgraded Numbered Highways." ▪ Canada. Health Canada (HC). 2011. "Guidance for Evaluating Human Health Impacts in Environmental Assessment." DRAFT. ▪ Metro Vancouver. 2016. "Human Health Impact Assessment of Transportation and Land Use Planning Activities." Accessed November 9, 2016: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HIA-Guidebook.pdf. ▪ Vancouver Fraser Port Authority (VFPA). 2015. Project and Environmental Review Guidelines – Lighting. Available: http://www.portvancouver.com/wp-content/uploads/2015/05/PER-Lighting-Guidelines-Final-2015-07-08.pdf. [November 28, 2016] ▪ Vancouver Fraser Port Authority (VFPA). 2015. Project and Environmental Review Guidelines – View and Shade Impact. Available: http://www.portvancouver.com/wp-content/uploads/2015/05/PER-View-and-Shade-Impact-Guidelines-FINAL-2015-07-13.pdf. [November 28, 2016]. ▪ Vancouver Fraser Port Authority (VFPA). 2015. "Project and Environmental Review Guidelines – Environmental Noise Assessment." Accessed May 18, 2017: http://www.portvancouver.com/wp-content/uploads/2015/05/PER-Noise-Assessment-Guidelines-FINAL-2015-07-09.pdf ▪ World Health Organization (WHO). 1995. "Community Noise". Edited by Birgitta Berglund & Thomas Lindvall Stockholm, Sweden.	Reference Material	Reference Subsection in each individual Section		
Section 18.0 Page 126	**Appendices**	This section will include the appendices referenced in the Application.	Appendices		Volumes 3 and 4	
		Information prepared by professionals and provided under their professional seal will be identified in the Application and the related sealed studies will be included in an Appendix.	Appendices	Vol.1, Section 1.0, Table 1.1-1 and Volumes 3 and 4		
Section 18.1 Page 127	**Appendices**	Proposed Project Location	Appendices	Vol.1, Section 1.0, Subsection 1.1.2, p. 1-5 - 1-6		
Section 18.2 Page 128	**Appendices**	Proposed Project Design Footprint	Appendices		Vol. 4, Appendix 18.17 - Reference Concept	
Section 18.3 Page 129	**Appendices**	VC and IC Spatial Study Area Boundaries	Appendices		Shown as a figure in each individual Section	