

APPENDICES

RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT ASSESSMENT REPORT

APPENDIX A

**DOCUMENTS AND CORRESPONDENCE FOR THE
RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT BY OR FOR THE
PROONENT**

APPENDIX A

DOCUMENTATION AND CORRESPONDENCE FOR THE RICHMOND-AIRPORT-VANCOUVER RAPID TRANSIT PROJECT BY OR FOR THE PROPONENT

1. December 9, 2004. Environmental Assessment Certificate Application: Richmond-Airport-Vancouver Rapid Transit Project: Volume 1 and 2. Prepared by RAV Project Management Ltd. (RAVCo) December 2004.
2. December 17, 2004. Environmental Assessment Certificate Application Supplement: Richmond-Airport-Vancouver Rapid Transit Project. Prepared by RAV Project Management Ltd. (RAVCo) December 2004.
3. January 27, 2005. Email from Scott Hanna, RAVCo to Jan E. Hagen, EAO
Re: Richmond Segment Stations – Alignment Drawings
4. February 9, 2005. Email from Scott Hanna, RAVCo to Jan E. Hagen, EAO
Re: Noise Assessment – 8400 Block Cambie Street.
5. April 5, 2005. Letter from Scott Hanna, RAVCo, to Jan E. Hagen, EAO Re: Richmond-Airport-Vancouver Rapid Transit Project (RAVP) – RAVCo Responses to Environmental Assessment Certificate Application and Application Supplement – Agency Comments (the “Final Compendium”). Prepared by RAV Project Management Ltd. (RAVCo).
6. April 6, 2005. Letter from Scott Hanna, RAVCo, to Jan E. Hagen, EAO confirming and accepting the Table of Owner’s Assurances and Commitments” (the “Final Commitments”) and as reflected in Appendix E of the Assessment Report.

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APPENDIX B

WORKING GROUPS/AGENCY MEMBERSHIP LIST

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WORKING GROUPS/AGENCY MEMBERSHIP LIST¹

Environmental Assessment Office	Canadian Environmental Assessment Agency
Ministry of Community, Aboriginal and Women's Services	Ministry of Small Business and Economic Development
Ministry of Sustainable Resource Management	Ministry of Water, Land and Air Protection
Fisheries and Oceans Canada	Land and Water British Columbia Inc.
Transport Canada	Ministry of Transportation
Health Canada	Environment Canada
North Fraser Port Authority	Infrastructure Canada
Western Economic Diversification Canada	Canadian Transportation Agency
Vancouver Coastal Health Authority	Vancouver International Airport Authority
City of Vancouver	Greater Vancouver Regional District
City of Richmond	Squamish Nation
Tsawwassen First Nation	Katzie First Nation
Tsleil-Waututh Nation	Musqueam Indian Band
Sto:Lo Nation	

¹ Listing of the RAVP EA Review Working Groups membership. Not all members participated in all steps in the Pre-application and formal Application review of RAVP. All members received copies of all the formal EA Application review material and EA documents.

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APPENDIX C

**SUMMARY OF WORKING GROUP/AGENCY COMMENTS DURING REVIEW OF
APPLICATION**

**APPENDIX C: RICHMOND-AIRPORT-VANCOUVER RAPID TRANSIT PROJECT
SUMMARY OF WORKING GROUP/AGENCY COMMENTS
DURING REVIEW OF APPLICATION**

Appendix C contains a summary of issues raised by Technical Working Group members during the EA review of the Application and Application Supplement. RAVCO Responses to Environmental Assessment Certificate Application and Application Supplement – Agency Comments prepared by RAV Project Management 05 April 2005 (the “Agency Compendium”), contains the complete text of Agency comments and RAVCO’s responses.

List of Acronyms used in Appendix C

ARSB	Archaeology and Registry Services Branch of MSRM
CEAA	Canadian Environmental Assessment Agency
CEPA	<i>Canadian Environmental Protection Act</i>
CPTED	Crime Prevention through Environmental Design
COR	City of Richmond
COV	City of Vancouver,
DFO	Fisheries and Ocean Canada
EA	Environmental Assessment
EAO	British Columbia Environmental Assessment Office
EC	Environment Canada
GVRD	Greater Vancouver Regional District
HC	Health Canada
KFN	Katzie First Nation
LWBC	Land and Water British Columbia Inc.
MBCA	<i>Migratory Birds Convention Act</i>
MBR	Migratory Birds Regulation
MOT	Ministry of Transportation
MSRM	Ministry of Sustainable Resource Management
NFPA	North Fraser Port Authority
NWPA	Navigable Waters Protection Act
OAC	Owner’s Commitments and Assurances
OCP	Official Community Plan
SARA	<i>Species at Risk Act.</i>
SN	Squamish Nation
SNC	SNC-Lavalin/Sercos ¹ (the “Concessionaire”)
TFN	Tsawwassen First Nation
TWFN	Tsleil-Waututh Nation
VIAA	Vancouver International Airport Authority
MWLAP	Ministry of Water Land and Air Protection

¹ In Transit BC Limited Partnership, a partnership including SNC Lavalin-SERCO (name of incorporated company)

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#	COMMENTS/ISSUES	PROPONENT RESPONSE	REVIEW STATUS
PROJECT DESCRIPTION			
Project Design			
1	Clarification on the preferred tunnel construction option; stacked or side by side. <i>(KFN)</i>	A combination of stacked and side-by-side cut-and-cover construction will be carried out between 2 nd and 63 rd Avenues, with the majority of this segment being constructed using the stacked cut-and-cover method.	Information item only
Materials Management			
2	With regards to Section 4.4.11.3 (Supplement), it is true that toxicity testing is an option if proposed material does not meet the ICTG; however, it can be cost-prohibitive and taking the material an appropriate upland facility is often more feasible. <i>(EC)</i>	Acknowledged and agreed.	Information item only
Land Use			
3	Process for dealing with land ownership and related property issues. <i>(LWBC)</i>	EAO Note: at 15 February 2005 RAVP Application Review Meeting, RAVCo advised that Lands West is in the process of acquiring all the property needed for the RAVP.	Information item only
PROJECT SETTING			
4	It should be noted that the GVRD includes a total of 21 municipalities and one Electoral Area. The current text in section 3.5 of the Application suggests that there are 23 municipalities. <i>(GVRD)</i>	Acknowledged	Information item only
CONSULTATION			
5	There are no proposed Treaty Settlement Lands for the TFN within the City of Richmond, the City of Surrey, or the City of New Westminster. Also, the Government of Canada is also a signatory to the Agreement-in-Principle. <i>(TFN)</i>	Acknowledged and clarification appreciated.	Information item only
6	DFO needs to be provided with First Nation consultation information and consultation updates, particularly with respect to potential impacts of the water crossings on fisheries. <i>(DFO)</i>	RAVCO will continue to provide DFO with appropriate information and updates regarding First Nations consultations and their applicability to potential impacts of water crossings on fisheries. EAO Note: potential impacts on First Nation fisheries is also addressed through Owner's Commitments and Assurances (OCA) 8-8.5.	Satisfactorily address for the purposes of the EA review
7	Clarification on whether TFN's concern that navigation on the Fraser River not be impeded were related to recreation and/or commercial navigation or if they were related to traditional fishing practices. Provide information on what mitigations, if any were proposed regarding navigation. <i>(TC)</i>	The concern raised was that all vessel traffic (commercial and recreational) should be able to navigate the river unimpeded. During construction, there may be short periods of time (less than 3 hours) when the North Arm channel is closed to permit three to four pre-cast sections to be erected each day over the roughly 4 to 5 week period. SNC-Lavalin/Serco (SNC) will work with the appropriate authorities to identify the optimal windows for installing the pre-cast segments (and temporarily closing the river channel) and will coordinate with the marine community. A communications plan will be	Information item only

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		developed as part of the NWPA application.	
8	According to the Application the Squamish, Musqueam, Tsleil-Waututh, Tsawwassen, and Katzie Bands are anticipated to participate in the EAO's working groups on the EA Application. Clarify if these meetings took place. (SN)	The Squamish Nation has received notification from the EAO and has been invited by the EAO to all working group meetings held to date during the Screening, Pre-Application and Application stages of the RAV project. EAO Note: All First Nations received EA review information distributed to the Working Groups set up by the EAO for the EA review of the RAVP.	Satisfactorily address for the purposes of the EA review
9	Inadequate contact with the Concessionaire. The Concessionaire should have been required to seek Squamish Nation involvement in the design, construction, and operation of the RAV line. Except for a single meeting during the bidding phase of the project, we have had no contact with the successful bidder. We consider the lack of consultation with us to be inappropriate, given the scale of the RAV Project and RAVCO statements regarding the importance of our involvement in the project. (SN)	SNC was identified as the "recommended proponent" in November 2004 based on its Best and Final Offer (BAFO) proposal. SNC was confirmed as the "selected proponent in late January 2005. RAVCO is currently negotiating the Concession Agreement (the contract) with SNC, the signing of which is anticipated to occur on or about 29 March 2005. This date will mark the commencement of the design phase of the Project. Construction is not scheduled to commence until August 2005. Therefore, SNC has not yet been in a position to discuss potential First Nations involvement, including that of the Squamish, in the Project. To date, RAVCO has been responsible for consulting with the FN. It is expected that, from this point forward, SNC will be increasingly involved in discussions with the First Nations. As discussed in our most recent meeting on 08 February 2004, RAVCO will organize a meeting with SNC and the Squamish once the SNC team is ready, to discuss opportunities on the RAV Project.	Satisfactorily address for the purposes of the EA review OAC 5, 5.4
FISHERIES AND AQUATIC HABITAT ASSESSMENT			
Fisheries and Aquatic Habitat Impacts			
10	Potential impacts to First Nations include disturbance of fish / habitat during construction of Fraser River Crossings. Provide clarification on what type of impact and how this is going to be mitigated or avoided by the proponent. (KFN)	Fisheries impacts associated with the proposed Fraser River Middle Arm and North Arm bridge crossings will be addressed through mitigation actions and/or habitat compensation works designed specifically to address these impacts. Through an ongoing series of discussions between RAVCO and DFO, agreement has been reached on the location and conceptual design of proposed fish habitat compensation works. These will be further refined as part of an application for a Section 35(2) <i>Fisheries Act</i> Authorization, which will be submitted once detailed bridge designs have been prepared by SNC.	Satisfactorily address for the purposes of the EA review OAC 6-6.2, 7-7.4
11	Potential for cut and cover tunnel construction to have runoff that will enter the storm water systems which would allow untreated water to reach the Fraser River. Clarification on sediment control measures that will be put in place to ensure there is no negative effect. (KFN)	Any runoff water from the cut and cover tunneling activities will be controlled on-site and/or discharged according to municipal or regional required permits, licenses or approvals, as any other construction environmental management plan agreements with the contractor as well as commitments made by RAVCO for the RAVP. For this reason, it is unlikely that any sediment laden surface water runoff which does not meet acceptable criteria will reach the Fraser River.	Satisfactorily address for the purposes of the EA review OAC 7.2, 7.3
12	No construction during migration of juvenile salmonids within the Fraser River (downstream or upstream) and during potential spawning of the eulachon and sturgeon.	DFO's in-stream construction window openings/closures for the lower Fraser River will be followed for any in-stream work carried out for the RAV bridge crossings.	Satisfactorily address for the purposes

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	<i>(KFN)</i>		of the EA review
13	TFN has a profound interest in the health and integrity of aquatic resources within our Traditional Territory. TFN are concerned particularly with the two crossings over the Fraser River that are envisioned for the project. <i>(TFN)</i>	RAVCO recognizes and appreciates the TFN's interest in protecting the Fraser River. As per discussions during the RAVCO/TFN meeting on 13 January 2005 and the EAO Review Team meetings which the TFN have attended, RAVCO is working closely with DFO to develop acceptable habitat compensation works to offset potential impacts of the two proposed RAV bridges. A <i>Fisheries Act</i> Section 35(2) Authorization will be obtained for the Project. In applying for this authorization, details regarding the bridge designs, habitat compensation works, construction methodologies, mitigation measures associated with bridge construction and operation, and monitoring program will be developed and provided to DFO for review and approval.	Satisfactorily address for the purposes of the EA review OAC 6-6-2, 7-7.4
14	The construction methodology and environmental management plan need to be further described along with the appropriate mitigation measures that will be used to prevent further harmful alteration, disruption or destruction of fish habitat. The final Habitat Mitigation and Compensation Plan to accompany the Authorization must address issues surrounding this work, as well as demonstrate how DFO's Policy of "no net loss" for the Management of Fish Habitat will be achieved. <i>(DFO)</i>	After a series of meetings with DFO, RAVCO and DFO have reached a tentative agreement on habitat replacement requirements, and the location and conceptual design of habitat compensation works. A draft Habitat Mitigation and Compensation Plan is being developed by RAVCO, which addresses the above comments. The Concessionaire will prepare the detailed designs for the RAV bridge crossings, and prepare the application for a Section 35(2) Federal <i>Fisheries Act</i> Authorization for Works or Undertakings Effecting Fish Habitat, based on the draft plan developed by RAVCO and agreed with DFO. Accompanying this application will be a final Habitat Compensation and Mitigation Plan. Any other environmental issues generally applicable to the entire RAV project construction, and not just related to the Section 35(2) Authorization, will be covered in the Concessionaire's Environmental Management Plan and available to the DFO for information purposes. EAO Note: DFO reported out at the March 2, 2005 RAVP Application Review meeting that the conceptual fish habitat compensation plan was acceptable for the EA review.	Satisfactorily address for the purposes of the EA review OAC 6-6.2
15	Clarification on when the assessment of impacts of piers upon the immediate hydraulic environment will be completed and how the results would be made available to stakeholders. <i>(TFN)</i>	In support of RAVCO's application to TC - Coast Guard for approval under the Navigable Waters Protection Act (NWPA), there is the requirement to conduct hydraulic and scour studies approximately 500 meters upstream and 500 meters downstream of both the North Arm and Middle Arm bridge crossings. As part of the NWPA application approval process, the application is advertised in local newspapers so that interested parties have an opportunity to review and provide comments on it. The technical information will also be of benefit to DFO when evaluating the Concessionaire's application for a Section 35(2) <i>Fisheries Act</i> Habitat Compensation Authorization.	Satisfactorily address for the purposes of the EA review
16	Provide examples of the different fish species and life stages that utilize the habitat types that will or may potentially be impacted by the project since compensation habitat will need to be developed based on the functioning of the habitat type that will be impacted. A literature search will likely assist in providing	The management of fish habitat within the Fraser River estuary focuses on the direct management of habitat types. In managing habitat types, resource agencies adopt a multi-species approach, whereby all invertebrate and vertebrate species that utilize a particular habitat type are conserved. The functions that these habitat types provide, such as food, rearing and reproduction, are addressed through the contemporary management of habitat within the Fraser River estuary. A compensation habitat is	Satisfactorily address for the purposes of the EA review

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	information on fish utilization and invertebrate and fish densities for different species in the habitat types found near the North and Middle Arm crossings of the Fraser River estuary. (DFO)	functioning as intended if it reproduces the biophysical features characteristic of the impacted habitat. The habitat compensation program that will be guided by RAVCO will pursue the replacement of impacted habitats on a “like for like” basis. As such, the conservation of both species and habitats will be achieved by the project.	
North Arm Crossing			
17	Clarification on when First Nations (and other fishers) must avoid setting nets in the vicinity of the construction works and how much of their fishing area will be affected by these in-water works. Also, will there be any constraints on traditional fishing practices. (CEAA)	Span arrangements and pier locations for the North Arm crossing determinations were based upon ensuring navigational clearance requirements in Mitchell Island Channel (45 m wide) and Main Channel (60 m wide) and minimizing interference with ship movements, as well as fishing activity in the North Arm. With respect to First Nations, RAVCO will continue to consult with the Musqueam Fisheries Commission regarding fishing activity at the crossing locations. RAVCO also continues in its attempts to engage in discussions with the Musqueam Fisheries Commission relating to concerns regarding the placement of drift and set nets within the vicinity of the Middle Arm bridge. Presently, RAVCO is in the process of attempting to obtain accurate information regarding this issue and has not yet received a response from the Musqueam Fisheries Commission.	Satisfactorily address for the purposes of the EA review 8-8.5
18	Provide the rationale used in making the determination that no significant residual impacts to fish habitat is anticipated for the North Arm Crossing of the Fraser River Airport Segment (Sea Island and Lulu Island) or the southern portion of the Vancouver segment. (KFN)	A series of Environmental Design Criteria were prepared which identified methods that could avoid or minimize impacts to fish and fish habitat during construction at the bridge crossing locations. These included such things as strategically designing river pier placements, reducing the number of footings and limiting access during construction where possible. Any perceived fisheries related impacts during construction will be short-term and will not result in significant residual effects.	Satisfactorily address for the purposes of the EA review
19	The TFN engages in Food, Social and Ceremonial Fisheries in this area, as an exercise of our Aboriginal Rights, and may also conduct Commercial fisheries in the area, in accordance with a license issued by the DFO. (TFN)	RAVCO appreciates the clarification provided by the TFN on this issue. RAVCO has endeavored to learn more about the nature of the aboriginal fisheries conducted in the vicinity of the proposed North Arm and Middle Arm RAV bridges. If the TFN has specific information that it can provide on this subject, RAVCO would appreciate the opportunity to review and discuss this with the TFN. EAO Note: see also RAVCO’s response above on Musqueam fishing activities.	Information item only
20	Clarification on whether or not the TFN will be provided with an opportunity to review and comment on the 'Hazardous Waste Management Plan' and a 'Spill Prevention and Spill Control Plan' that will be developed. (TFN)	These individual construction related plans will be made available to those members of the EAO Technical Working Group from whom sign-off is required, as well as, other members of the EAO Technical Working Group who wish to review and provide comments on these plans will be given the opportunity to do so, if they so request.	OAC 1.4
21	According to the Application (s. 6.3.1.3) special mitigatory measures are not required for the removal of temporary piles supporting timber decks since the marsh and mudflat would readily recover upon decommissioning. Clarification on if there is any	Any impacts to marsh and mudflat areas during pier construction will, wherever possible, be minimized through such measures as contractually required construction environmental inspection and direction to contractors, single point access, regular clean up of laydown, staging and equipment areas – including decking. It is also expected that long term program monitoring in these areas will be a requirement of the Fisheries Act	OAC 6,9.4, 10.5

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	monitoring envisioned to document the recovery (or lack of recovery) of these areas. (TFN)	Section 35(2) Authorization.	
22	Information on how pumped waters, exceeding suspended solid concentrations of 75 PPM above receiving water concentrations, will be handled after settlement of solids achieves suspended solid concentrations less than 75ppm and how accumulated sediments be disposed of. (TFN)	SNC will be contractually required, as part to their Environmental Management Plan, to provide a Surface Water and Sediment Control Plan for construction. It is expected that any sediment laden surface water, or water from excavated areas, will either be treated and released on site, or removed off site for treatment by licensed carriers. Any residual sediments will be removed from site and disposed of in an approved manner.	Satisfactorily address for the purposes of the EA review
23	The Local Flow Velocities discussion in the Application notes the potential for a three-dimensional vortex or roller, and lays out a range over which flows may be disturbed, but does not clarify whether or not this is expected to have a negative impact. (TFN)	The positive or negative results of this will be determined from the hydraulic and scour studies that will be conducted by SNC- in support of the NWPA application(s). EAO Note: see also response to hydraulic and scour studies - #29- below	Satisfactorily address for the purposes of the EA review
Middle Arm Crossing			
24	Describe if there are any other design measures that may be incorporated in the Middle Arm Crossing to mitigate impacts to the First Nations fishing concerns. (DFO)	RAVCO continues to engage in discussions with the Musqueam Band relating to concerns regarding the placement of drift and set nets within the vicinity of the Middle Arm bridge, and whether or not the Musqueam fishery at this location will be impacted as a result of bridge construction. Presently, RAVCO is in the process of attempting to obtain accurate information regarding this issue and has not yet received a response from the Musqueam Fisheries Commission. The bridge opening and height will, in fact, be designed to meet NWPA criteria and ship collision works will be designed and installed at the Middle Arm bridge crossing where they are deemed necessary by the NWPA.	Satisfactorily address for the purposes of the EA review
25	Clarify if the loss of habitat at two piers of the Middle Arm Crossing of the Fraser River is using the NFPA habitat bank and DFO replacement guidelines. (KFN)	Both the NFPA habitat banking criteria and the DFO habitat replacement guidelines will be used to assess the loss of habitat and the eventual installation of habitat compensation works which are acceptable to DFO.	Information item only
26	Wherever practicable, TFN would like to see invasive non-native plant species such as Scotch Broom removed from project areas. (TFN)	To the extent that vegetation must be removed in to prepare a given site for construction, and to the extent that such vegetation is made up of invasive non-native species such as Scotch broom, loosestrife, Japanese knotweed, or other invasive species, this vegetation will be removed and dealt with in such a manner that its further spread is not facilitated.	Satisfactorily address for the purposes of the EA review
27	If trees are to be removed from any of the project areas, TFN would like to have a discussion with the proponent, to find out if it would be possible for TFN members to have access to those trees (particularly Western Red Cedar) for domestic use. (TFN)	Any trees removed to make way for project construction in Vancouver, Richmond or on Sea Island, for which it is economically feasible to transplant them out and then back into the corridor, will be re-used during landscape restoration activities on the RAV Project.	No further detail required for the purpose of the EA review
Operation Impacts			
28	Provide clarification on installation of oil-water separators	The Surface Water Quality and Sediment Control component of the Concessionaire's	Satisfactorily

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	downstream of the guideway, how drainage from the bridges will be discharged (directly to the river or to land on either bank), any potential environmental impacts associated with bridge stormwater runoff, monitoring of the water quality of the guideway drainage, and any commitments to address these concerns. (VIAA)	Environmental Management Plan will include provision for installation of oil/water separators at the park-and-ride and bus exchange locations. The installation of oil/water separators at such facilities has become standard practice and will likely be required to meet wastewater discharge requirements of the GVRD, COV, COR and VIAA. Runoff from the RAV guideway and bridges will not be discharged directly to drainage ditches, watercourses or the Fraser River. In the case of the two Fraser River bridges, stormwater runoff will be collected from the guideway and conveyed to the ends of each structure where it will be piped to ground, likely through a system of deflection pads and gravel baffle boxes. The same situation will apply to the section of the line on Sea Island. It is expected that the final design for the guideway and bridge drainage system and the treatment of guideway and bridge runoff will be developed by the Concessionaire in conformance with municipal and VIAA storm drain requirements.	address for the purposes of the EA review OAC 1.4, 7.2, 7.3, 22
29	Provide information on the timing of the hydrotechnical study, similar to those conducted for the SkyBridge and Airport Connector (Vancouver International Airport Authority 1998) crossings that may be required to quantify changes in hydraulic conditions. (TFN)	The statement in Operational Impacts, under the subheading Hydraulic Conditions on pages 6-24 and 6-25 refers to the requirement to conduct hydraulic and scour studies approximately 500 meters upstream and 500 meters downstream of both the North Arm and Middle Arm bridge crossings in support of RAVCO's application to TC. EAO Note: see also response to hydraulic and scour studies - #23- above.	Satisfactorily address for the purposes of the EA review
30	Clarification on the potential impact to fish habitat from the footing and foundation of Pier MA6 and MA3. (GVRD)	The issue of fisheries related impacts, and the requirement for compensatory habitat compensation works as they may pertain to both piers MA3 and MA6, will be discussed with the DFO during the negotiated process to obtain a Section 35(2) Federal Fisheries Act Authorization for the RAV project.	Satisfactorily address for the purposes of the EA review
TERRESTRIAL BIOPHYSICAL ASSESSMENT			
Vegetation/Wildlife Habitat			
31	Clarification on the presence or absence of the Pacific Water Shrew in the project area. (GVRD)	Seacor, the terrestrial biophysical consultants who conducted the assessment, have determined through recent Pacific Water Shrew capture experience that this particular species does not favour the impacted and fragmented habitats normally associated with the RAV line.	Satisfactorily address for the purposes of the EA review
32	Clarify if RAVCO is recommending that any trees on Sea Island that are impacted by the project be relocated or replaced and, and if so for what purpose. (VIAA)	Any determination regarding the need to remove and/or replace trees along the alignment on Sea Island will be made in close consultation with VIAA.	Satisfactorily address for the purposes of the EA review
33	COR requests that the commitments be made that the RAVP will endeavor to meet the City's ESA's guidelines and strive to achieve no net loss in accordance with the City's Official Community Plan (OCP) and; that a	The Terrestrial Biophysical Assessment carried out by SEACOR Environmental Inc. considered all available information available at the time the environmental assessment studies were carried out in 2003/04. The work involved a detailed, objective assessment of the study sites and the development of independent findings regarding potential	Satisfactorily address for the purposes of the EA

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	mitigation (and compensation if required) plan be provided to the City for review for Sites A, B, C and D. (COR)	project impacts. RAVCO concurs with the findings of SEACOR with respect to all survey sites including Site D. SEACOR defined VECs as narrowly as was feasible for the assessment in order to focus on specific resources of value in the RAV Project area. In Richmond, and elsewhere along the RAV corridor, the ability of an area to support a VEC or VECs is generally indicative of its importance in a broader ecological context. Local values and biodiversity aspects were considered during VEC definition and assessment.	review
34	FREMP has just finished updating its habitat coding for the lower Fraser River (Jan/Feb 2005). RAVCo should confirm that their information accurately reflects these revisions. (COR)	A check of the Habitat Inventory and colour code maps on the FREMP website on 04 March 2005 confirmed that the information presented in the Application regarding area designations in the RAV corridor had not changed since Application submission.	Information item only
35	The design and construction of the RAVP should be done in a manner which avoids any direct impacts upon FREMP red coded areas. (COR)	FREMP Foreshore Habitat Classification/Colour Coding Definitions are presented in Table 3.1 in Section 3.6 of the EAC Application. Habitat compensation requirements associated with bridge construction across the North and Middle arms of the Fraser River, including temporary impacts to red-coded habitat in the North Arm during construction and impacts to red-coded habitat associated with pier placement on either side of the Middle Arm, will be determined by DFO and agreed to by RAVCO and the Concessionaire prior to issuance of the Section 35(2) Authorization under the <i>Fisheries Act</i> .	Satisfactorily address for the purposes of the EA review
36	COR's GIS layer for Environmentally Sensitive Areas was not considered with the same interpretation as intended by the City. Within COR's internal GIS database, habitat information has been compiled at a general level for Sites A, B and D. (COR)	The COR habitat database information for Sites A, B and D, referred to in your comment, was reviewed during preparation of the terrestrial biophysical assessment. The assessment findings were based on field surveys conducted by SEACOR Environmental Inc. during which detailed site-specific information was collected, and reflect the judgment of the registered professional biologists engaged in this work.	Satisfactorily address for the purposes of the EA review
37	Environmental reports prepared for the COR suggests that Site D has high value for wildlife use. (COR)	RAVCO acknowledges that there will be short-term, minimal impacts to the short-grass field in the vicinity of Site D during construction that may result in temporary displacement of certain wildlife species, including great blue heron. Providing the VIAA maintains the field in its present condition, however, the presence of the guideway columns and train movements along the elevated guideway should have no impact on the long-term (i.e., post-construction) use of this area by wildlife.	Satisfactorily address for the purposes of the EA review
38	For VECs, concerned that the predominant focus is on listed species or red coded habitat areas within the VEC criteria. VEC assessment should consider Non-VEC habitats since it may still provide value for wildlife and biodiversity. (COR)	Although the Terrestrial Biophysical Assessment focused on VECs as required by provincial and federal regulatory processes and review agencies, it did not do so to the exclusion of non-VEC habitats or species at the four surveyed sites. Field studies and assessment work considered the local abundance of wildlife species and biodiversity as an element of the VECs. The team is fully aware of regional initiatives towards biodiversity.	Satisfactorily address for the purposes of the EA review
39	DFO has recently taken a much stronger interest in COR's ditch habitats. This aspect may need to be examined more closely if the construction activity is	As described in Section 6.3.3.3 of the Application, impacts to ditches and other components of the stormwater drainage system on Sea Island during RAV line construction are unlikely. The Construction EMP will include measures to prevent the	OAC 7.2

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	anticipated to have impacts along these ditch areas. (COR)	discharge of sediment-laden runoff or other deleterious materials to the stormwater drainage system.	
40	Clarify if the habitat of red- and blue-listed species, as well as, a potential SARA species will likely be impacted by the project. Provide a discussion on Species at Risk and the measures that will be taken to avoid or lessen those effects and how they will be monitored. (DFO)	There are no SARA listed fish species that potentially occur within aquatic and nearshore environments of the Project. Impact mitigation and compensation measures prescribed for inter-tidal habitats adequately offset any losses to the functional attributes of such habitats for fish. Accordingly, a loss of critical inter-tidal habitat for fish considered to be 'species at risk' will not occur.	Satisfactorily address for the purposes of the EA review
Wildlife and Habitat Use			
41	Need details on how impacts to estuarine marshes, would be prevented or mitigated. Need a commitment that "impacts to inter-tidal mudflat, inter-tidal marsh and riparian woodland habitats will be offset through creation of replacement habitats." (EC)	Any minimal impacts to terrestrial wildlife habitat that may occur will be mitigated through replacement habitat in conjunction with any required fisheries habitat compensation works. RAVCO believes that it is normal environmental practice when preparing Section 35(2) Authorization applications to consider the added value design implications for both fisheries and wildlife habitat.	OAC 10.4, 10.5
42	RAVCO/SNC must comply with the MBCA, MBR and SARA for the life-cycle duration of this project. (EC)	RAVCO and SNC acknowledge and accept responsibility for complying with all applicable federal, provincial and municipal legislation throughout the life of the RAV Project.	OAC 9.6
ARBORICULTURAL STUDY			
Richmond – No. 3 Road Medians			
43	The Application does not identify what the likely impacts may be (e.g., extent of tree loss) nor what commitments will be made to protect and/or compensate for existing assets on No. 3 corridor in Richmond. (COR)	As part of the Project scope change approved by the GVTA Board, road restoration work, including landscaping, will be the responsibility of GVTA/COR, under the Major Road Network (MRN) program. Preliminary results of further assessment work undertaken by RAVCO's arboricultural specialist, Mr. Norm Hol, indicates that all of the trees and other landscape assets (e.g., shrubs) located along the guideway construction zone down No. 3 Road will have to be removed. SNC will be responsible for front-end road diversions and relocations and will, therefore, be required to coordinate salvage operations with the COR, so that as much of the landscaped material as possible can be reused on the Project, if Richmond chooses to do so.	OAC 1.4, 10, 10.3
44	To address the No. 3 corridor in Richmond concern above, a commitment to "no net loss in value of City landscape infrastructure and that the detailed tree preservation and protection plan, and landscape plan, as they pertain to Richmond, be reviewed and approved by the City." (COR)	As noted above, GVTA/COR are responsible for delivering the MRN work. Therefore, the GVTA/COR, and not RAVCO or the Concessionaire, will be responsible for implementing any policy of no net loss for landscaped greenspace features along the Richmond segment of the RAV Line. SNC will be responsible for front-end road diversions and relocations, and will be required by RAVCO to coordinate salvage of landscape amenities with the COR.	OAC 10.3
45	The COR Tree Nursery should be given consideration to grow and provide trees for the RAV project. (COR)	Although it is anticipated that most, if not all trees removed from No. 3 Road could be transplanted back into the Project area following construction, it is recognized that replacement of some trees with new stock will be necessary. Since the GVTA/COR will be responsible for road restoration work, including landscaping, under the MRN program, the choice of a source for new tree stock is a decision that will be made by GVTA/COR.	No further detail required for the purpose of the EA review

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46	It is recommended that tree transplants should be completed while the trees are in their dormant phase and where possible moved only once. Costs of relocating trees can be high therefore scheduling these activities ensures best success with transplants and minimizes project costs. (COR)	Since the GVTA/COR will be responsible for landscaping under the MRN program, the timing of tree planting is a decision that will be made by GVTA/COR.	Information item only
47	A survey of the underground utilities should be conducted prior to tree planting or transplanting. For #3 Road there are also other significant landscape features and assets that should be identified and included in the protection zoning during the construction phase of the project or salvaged prior to construction. (COR)	RAVCO and the Concessionaire have the complete set of utility plans, for (public and regulated utilities for the Richmond segment of the RAV Line. The Concessionaire will be required to consult with the COR engineering and public works staff regarding salvage of other significant landscape features and assets that the GVTA/COR wants to preserve for later use when landscaping is restored along No. 3 Road.	OAC 10.3
48	Planning regarding trees should include costing information that reflects the full scope of work (tree costs, delivery charges and installation costs) associated with replacing trees. (COR)	Replacement of trees will be a GVTA/COR responsibility under the MRN program.	No further detail required for the purposes of the EA review
Vancouver – Cambie Heritage Boulevard			
49	Provide a rough estimate, based on the arboricultural study, on the number of trees that might be removed. This information will assist in understanding what the effects of tree removal might be. (TC)	In Richmond of the 229 trees inventoried, between 133-163 will be affected by construction. However these are in good condition and should be should be able to be re-transplanted back into the greenway that will parallel the elevated guideway. On the YVR segment, of the 110 trees identified, three could be re-transplanted into the project area and 17 would be removed and replaced following construction. In Vancouver, along the Cambie Heritage median, with no mitigation measures implemented up to 48 trees could be affected (root and structural trimming) in providing 4 lanes of traffic along the west side of Cambie between 25 th and 64 th . Of the potential 48 trees, roughly 20 to 30 could be trimmed and retained in place. Another 41 trees in the median, and 51 trees in side boulevards could potentially be affected by station construction. Of these, roughly 31 could be temporarily transplanted out from and then back into the median. With the application of appropriate mitigation measures the number of trees affected along the Cambie Heritage median could be reduced well below the numbers estimated.	No further detail required for the purposes of the EA review
SOCIO-ECONOMIC/SOCIO-COMMUNITY ASSESSMENT			
Economic Impacts			
50	Specify intended measures for mitigating and managing impacts to local businesses. (COR)	As part of an ongoing program of community and stakeholder liaison, RAVCO will engage in a dialogue with local business stakeholders along the Richmond segment of the RAV line. Information collected during these sessions will lead to the creation of a detailed and customized business liaison plan aimed at minimizing construction-related disruptions to local businesses. RAVCO will work closely with the COR to obtain its	OAC 11.1

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		input and invites representatives of the City to participate in discussions with business stakeholders.	
51	The Application states that the LRSP seeks to concentrate growth in Surrey/White Rock (amongst other communities). The LRSP Growth Concentration Area targets concentrated growth in North Surrey and North Delta, as opposed to the entire cities. (GVRD)	Surrey, White Rock and “other communities” also includes North Surrey and North Delta which are also part of the City of Surrey and acknowledged LRSP areas of concentrated growth.	Information Item Only
52	Burkeville residential community on Sea Island may be affected in terms of visual impacts as well as by noise, dust and vibration during construction. Maintaining vehicle and pedestrian access to the airport terminal buildings could also be a significant challenge during construction. (VIAA)	RAVCO acknowledges that the Socio-Economic/Socio-Community Assessment does not address in detail the potential visual, noise, dust or vibration impacts to the community of Burkeville during RAV line construction. However it is highly unlikely that RAV line construction will measurably affect the community of Burkeville, beyond the day to day impacts that the Burkeville community already experiences. In any case, as will be described in the EMP, the Concessionaire will implement mitigation measures that effectively limit impacts associated with construction along the length of the RAV alignment. RAVCO agrees that the maintenance of vehicle and pedestrian access to the airport terminal buildings will be a challenge during construction, and will require the Concessionaire address this issue during construction management planning, in close consultation with the VIAA, with the objective of minimizing public inconvenience and interference with normal traffic flow.	Satisfactorily address for the purposes of the EA review OAC 1.4, 5, 15, 16
53	Need to involve those river-based and industrial activities (river users and industrial operations) during the design and construction stages to minimize issues and potential misunderstandings. (COR)	Consultation with river-based industries, tug-and-tow operators, and other stakeholders will be undertaken jointly by RAVCO and SNC over the coming months as a lead up to submitting an application for a Navigable Waters Protection Act approval. The application, once formally submitted, will be advertised and available for public commentary.	OAC 5, 5.1
54	City Centre urban design process needs to be established between the various RAV partners to ensure a success urban design outcome to create a vibrant downtown and people oriented places. (COR)	RAVCO’s technical team meets regularly with COR staff to discuss municipal design integration issues. During the continued evolution of project design, specifically as it may pertain to stations, the Concessionaire will implement a Community Partnership approach that will involve dialogue with municipal representatives and the public to identify and take advantage of site constraints and opportunities. As described in the EAC Application Supplement (Section 4.4.3.1), the physical setting and neighbourhood context of each site will be considered during the design of the RAV line stations and distinct features will be incorporated to promote their integration into the surrounding community.	Satisfactorily address for the purposes of the EA review
55	The Trade Off Analysis and associated Social Impact Index conclusions may be true, but the weighting system is difficult to interpret. (SN)	Although other models may be available, the Trade Off analysis and associated Social Impact Index is the method selected by the RAVCO socio-economic/socio-community consultant to best demonstrate the social economic tradeoffs associated with the Project. Summary matrices are often used to summarize impacts and help demonstrate tradeoffs. However, due to the complexity, many options and number of impact indicators for the 9 line segments on the RAV project, the use of summary matrices was	Satisfactorily address for the purposes of the EA review

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		deemed impractical for this particular assessment.	
Traffic and Safety			
56	The Application indicates that traffic impacts associated with construction will be significant in Richmond and that a traffic management plan is necessary to address impacts. Provide clarification as to why there is no commitment made in Section 21 to preparing a plan. (COR)	In accordance with section 4.5 of the Richmond Access Agreement, a detailed traffic management plan (TMP) will be prepared for approval by the COR's General Manager of Engineering and Public Works, and RAVCO, prior to commencement of construction. A Traffic Management Committee consisting of representatives from TransLink, the COV, the VIAA, the COR, MOT and other agencies, as required, will be established. The TMPs will be consistent with a Category 5 project as set out in the MOT's "Traffic Management Guidelines for Work on Roadways" and will include Traffic Control, Public Information, Incident Management; and Implementation subplans.	OAC 11.3
57	With respect to the elevated alignment in Richmond, special design considerations need to be met to ensure that Richmond downtown and retail areas result in improvements in vehicle and pedestrian mobility. These considerations should not just focus on pedestrian entry/egress to RAV, but also consider how further enhancements can be made to station areas and community links away from the stations. (COR)	Placement of the elevated guideway along the east side of No. 3 Road, rather than along the road centerline as described in the reference alignment, will enhance the pedestrian/user interface, reduce conflicts with vehicle traffic, and reduce construction coordination difficulties. As described in the EAC Application Supplement, Section 4.4.3.3 - Station Architecture and Design, SNC recognizes that the resolution of site-specific station access/egress issues will require extensive dialogue and consultation with the City and TransLink.. The Concessionaire will establish a Station Access Planning Committee that will bring together key decision-makers to facilitate this aspect of the design process. SNC also appreciates that opportunities exist to develop complementary uses, particularly commercial functions that can remain open at night, in close proximity to the RAV stations. The potential for this and other initiatives will be explored during the design development/public consultation phase of the project.	Satisfactorily address for the purposes of the EA review OAC 11.5
Visual, Noise and Vibration Impacts			
58	The Cambie and No. 3 Road area is expected to accommodate a significant amount of high-density residential development in the foreseeable future and there may be potential noise concerns with respect to RAV Operations (elevated alignment sections and stations) and residential developments. (COR)	In contrast to the COR's statement that noise along the elevated alignment sections of the RAV line will be high, the noise assessment presented in the Application (see Section 12.4.1), concludes that the additional contribution to ambient noise levels as a result of RAV line operation will be "minimal". This is particularly true in areas such as Richmond where the line will run along No. 3 Road, a street with a significant amount of existing traffic and high ambient noise levels. Furthermore, since sound tends to be directed upward and the alignment structure provides acoustic shielding to receivers located below the guideway, elevated alignments are generally associated with fewer noise impacts than at grade alignments.	OAC 1, 1.4, 3.1
Population Trends			
59	Regarding Figure 9.8 (Population Density Near SkyTrain Expo Line 1991 to 2001). Provide further clarification on how the population density figures for the Vancouver CMA were calculated. This is a minor matter, and of technical interest only. (GVRD)	Figure 9.8 as it appears in the RAV EAC Application, pp 9-27 is referenced on pp 9-114 as being sourced on June 12, 2003 from the GVRD, 2002-2001 Census Bulletin # 1, Population and Dwelling Counts, Policy and Planning Department.	Satisfactorily address for the purposes of the EA review

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Station Issues			
60	Need to provide clarification on the magnitude of the potential impact on safety and security at the Bridgeport Station. Also, there is minimum discussion on how to improve community safety at this site or throughout the RAV project. (COR)	The design of the RAV stations, including application of CPTED principles in station layout and architecture, is outlined in Sec. 4.4.3 of the Supplement. During project design, the SNC will implement a Community Partnership approach that will involve discussions with municipal government representatives, as well as the public, to seek consensus regarding specific aspects of station design. With respect to the Bridgeport Station, the Socio-Economic/Socio-Community Assessment referred to potential safety and security concerns, based on experience at the Scott Road park-and-ride facility which serves the Expo Line's King George Station such as the introduction of security patrols which has reduced the incidence of vehicle-related thefts. RAVCO anticipates that, in order to maximize the use of the Bridgeport park-and-ride facility and, in doing so, promote RAV line ridership, the SNC will incorporate features into the design of this facility that effectively address public concerns regarding safety and security.	Satisfactorily address for the purposes of the EA review OAC 11.5
61	Need for greater coordination, discussion and effort involving the RCMP/Vancouver Police/Translink Police, the business community and the public to ensure that the stations and vicinity remain relatively safe. To ensure a successful outcome, additional resources for policing, information and education supports should be evaluated in advance of the RAV nearing its operational status. (COR)	See RAVCO's response to comment #60 above. RAVCO anticipates that discussions regarding the community policing, information and educational support, will take place as at that time.	OAC 11.5
62	Given the imposing nature of the elevated structure that the alignment and stations will have on Richmond, it is strongly encouraged that public art, street furniture and landscape treatments be incorporated into the station and precinct designs. These artistic elements should help to focus the stations community identity. (COR)	As described in the EAC Application Supplement, Section 4.4.3.3 - Station Architecture and Design, during detailed design, based on input received from municipal governments, the public and other stakeholders, emphasis will be placed on developing context-sensitive designs for RAV stations. As part of the project's Elements of Continuity and Elements of Distinction program, the Concessionaire will incorporate features into station design that reflect system continuity as well as unique community attributes and requirements.	Satisfactorily address for the purposes of the EA review
Construction Issues and Economic Development – Community, Business and Economic Liaison			
63	Involvement in economic and business opportunities including Excavation & Underground Service Works, Heavy Construction Works, Heavy Construction Works, Soft Civil Works, and other general service opportunities. (TWFN)	RAVCO acknowledges the interest in First Nations to be involved in the RAV Project, and affirms its commitment to work with First Nations and SNC to provide for opportunities on the Project.	OAC 5.4
64	Squamish Nation has been marginalized and prevented from meaningful involvement in the economic development of our territory. Need clear commitments that RAVCO or its Concessionaire will guarantee	EAO Note: See RAVCO's response in #126 below. Also the EA review established that there is a process in place for such participation and defined in the "Owner's Commitments and Assurances" (see Appendix E).	OAC 5.4

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	substantial economic and employment benefits as a result of the RAV project. (SN)		
65	RAVCO has discussed with SN the potential to provide excess rock and other usable fill from project excavations. RAVCo should make a commitment to provide such material to the SN. (SN)	RAVCO representatives were consistent in stating that when the Concessionaire was selected, the SN should meet again with the Concessionaire to identify how the SN could secure employment/contracting opportunities or other benefits such as securing excavated material for use as engineering fill on the Squamish Reserve in North Vancouver.	No further detail required for the purpose of the EA review.
First Nations			
66	The SN impacts identified in the EA are limited to there is archaeological potential throughout the SN territory. It should note that more than 30,000 aboriginal people from across Canada live in Vancouver, many in the Lower East Side and the EA should document ways that their lives will be affected by the RAV project. (SN)	RAVCO acknowledges and appreciates that the Squamish recognize that there may be more than 30,000 aboriginal people living in the Vancouver area from across Canada. Additionally, it is RAVCO's understanding that several organizations representing urban aboriginal populations are networking with FNs and SNC to explore economic and employment opportunities. Therefore, we remain hopeful that the aboriginal peoples living in the Vancouver area may be provided with opportunities to become involved with the Project.	Beyond the Scope of the EA review
CONTAMINATED SITES			
67	Three of the sites identified in Table 10.3 (WLAP Contaminated Sites Registry – Richmond) are located on Sea Island and were not discussed in Section 10.3.9.2. RAVCo should consider any site investigation or remediation information pertaining to these sites and revise their assessment of risk if any changes to their analyses are warranted. (EC)	These three sites were considered during research conducted for the RAV project Screening Level Contaminated Sites Assessment but were not further examined because it is unlikely that these areas will be affected during construction of the RAV line. RAVCO and/or the Concessionaire will consult further with VIAA on this issue to ensure that any site contamination issues applicable to the RAV project on Sea Island are addressed. EAO Note: During the EA review EC acknowledged that the sites in question are not likely to be affected by the project.	Satisfactorily address for the purposes of the EA review
68	The assessments should also identify if the construction of the RAV infrastructure will preclude the future investigation or remediation of any contamination along the proposed alignment. Additional investigation to assess the quality of the sediments that may be disturbed during construction in the Fraser River, including the areas that will be occupied by footings. Also, item 12 in Table 21.1 should be required prior to construction. (EC)	In the event that contaminated soils are encountered during foundation excavations, the Concessionaire will be required to remove and/or remediate these soils to the satisfaction of the applicable regulatory authority, to enable the foundations of the Sea Island segment of the RAV line to be constructed. Future investigation and/or remediation of soils in the vicinity of the Sea Island Segment of the RAV line will only be precluded in those areas on which the guideway foundations have been constructed.	OAC 12.1, 12.2
69	Information contained in Section 10 would be considered a partial Stage 1 Preliminary Site Investigation. (MWLAP)	RAVCO concurs. As RAVCO acquires fee simple properties needed for the proposed project, Stage 2 investigations are being undertaken. If and when necessary, further Stage 1 or Stage 2 investigation work will be conducted by RAVCO and the Concessionaire in accordance with applicable legislation and regulations.	Information Item only
70	Future stations locations should be included in Application figures. (MWLAP)	Future station locations are further identified in the EAC Application Supplement Appendix A, RAV Alignment Drawings (Appendix A-1, A-2: and A-3).	Satisfactorily address for

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			the purposes of the EA review
AIR QUALITY			
Air Quality Issues			
71	Need commitment to the use of BMPs included in Section 11.5. (GVRD)	Adherence to available BMPs, as well as RAVCO's approach to the mitigation of air quality issues, is further discussed in S. 11.1.4, pp 11-3; S. 11.5, pp 11-31; S. 11.5.2, pp 11-32; S. 11.6, pp 11-33; S. 19, pp 19-7; and S. 21, pp 21-2 (Air Quality Plan) and pp 21-8 Item 15, Commitments Applicable to Effects on Air Quality.	OCA 1.3, 15, 15.1, 15.2
72	The GVRD is currently reviewing its Air Quality Management Plan, and new, possibly more stringent, air quality objectives for some listed contaminants may be proposed. (GVRD)	RAVCO and/or the Concessionaire will address any new ambient air quality objectives or changes to the GVRD Air Quality Management Plan when/if they are conformed and if they apply to any RAV air quality permits that may be required from the GVRD by the Concessionaire.	OCA 14, 14.1
73	Possibility of additional equipment from outside of the Lower Mainland may be relocated to assist in the RAVP construction. The Supplement does recognize construction equipment as a source (page 90) but does not make an assessment of the significance of net regional air impacts from construction equipment. (VIAA)	SNC has indicated to RAVCO that it expects to obtain and deploy the equipment required to construct the RAV Project from existing equipment inventories within the Lower Mainland. This is based on the numbers and types of equipment SNC has calculated are required for the RAV Project. The decision regarding whether or not use new or additional equipment on the RAV Project will be determined by the contractor, and will be governed by market forces at the time. Any required permits, licenses or approvals as they pertain to HD vehicles and air quality in the GVRD are the responsibility of the Concessionaire.	OCA 15.2, 24
74	RAVCO has not demonstrated that there will be no net increase in construction activity within the airshed during construction of RAV; therefore, it would be reasonable to assume that construction related activity associated with the RAV project will increase construction-related emissions in the airshed. (EC)	RAVCO believes that there will be an overall net increase in construction activity within the "airshed". It would seem inappropriate to assume otherwise. However, RAVCO does not believe, for reasons stated in previous correspondence, that a quantifiable, useful or valuable association can be drawn between construction activity and vehicle emissions within the Lower Fraser Valley airshed. RAVCO is prepared to accept that this correlation may be a possibility, but remains uncertain of the relevance of this issue.	OCA 15.2, 24
75	For local air quality impacts during construction there needs to be a commitment to an overall objective of no significant or health impacts. Also, the Air Quality and Dust Control Plan be reviewed and approved by the GVRD and Health Canada (COR)	RAVCO does not anticipate that temporary construction-related emissions will result in any adverse health impacts along the RAV corridor. The Concessionaire will include measures to minimize these emissions in its Air Quality and Dust Control Plan which will, if requested, be provided to the GVRD, HC and other interested agencies for their information. There are no applicable regional or federally legislated requirements for construction equipment emissions. However, RAVCO commits to following the recommended air quality best management practices and mitigation measures as set out in the GVRD's letter to RAVCO dated March 22, 2005.	OAC 15.2
76	Clarification on the statements on both ozone and fine particulate levels in the Lower Mainland region often approach or exceed levels at which respiratory and	There is evidence indicating that health impacts from air pollution can occur at levels below ambient air quality objectives and standards such as the BC Lung Association Study (2003). Thus, it is possible that ambient concentrations of ozone and fine	Satisfactorily address for the purposes

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	cardiovascular effects are known to occur, since information on p. 11-16, suggests that both contaminants are very seldom exceeding values of concern. (HC)	<p>particulate matter levels observed in the Lower Mainland can approach or exceed levels at which respiratory and cardiovascular effects are known to occur and yet not exceed ambient air quality standards and objectives.</p> <p>In response to HC comments on Ambient air Quality Criteria and Monitoring Results, it is noted that on page 11-16 the report indicates that in 2001 exceedances of the BC Maximum Desirable Objective for 1-hour for ozone and the GVRD's 24-hour Acceptable Objective for PM10 were infrequent and that no exceedances of the Canada-wide Standards for PM2.5 and ozone were observed. The British Columbia Lung Association report that is referred to on page 11-7 (Bates et al., 2003) summarizes results from recent scientific studies indicating that health impacts from air pollution can occur at levels below ambient air quality objectives and standards. The BCLA project was carried out on behalf of a consortium of funding partners and other interested agencies including: BC MWLAP; HC, Pacific & Yukon Region; EC, Pacific & Yukon Region; GVRD; Fraser Valley Regional District; and BC Ministry of Health.</p>	of the EA review
77	Providing a geographic map showing that the existing sampling station for air quality sampling were deployed in a way to avoid any influence of a specific source of atmospheric pollution would be beneficial. (HC)	A map of the GVRD monitoring network can be downloaded from the GVRD website (http://www.gvrd.bc.ca/publications/file.asp?ID=508).	No longer applicable
78	The proponent could be more explicit about that situation which originates from a reference to the position of a public health organization (e.g. British Columbia Lung Association) compared to an air quality standard that had been defined on a national basis, in a perspective of risk management. (HC)	The fact that health impacts can occur when ambient concentrations of PM and ozone are less than ambient air quality standards is discussed in other documents published by regulatory agencies.	Satisfactorily address for the purposes of the EA review
79	Provide clarification on if there will be any expected increase in vehicle-related pollution originating from traffic slowing during construction project. (HC)	As discussed on page 11-21 of the Application, there is insufficient information available regarding construction activities in the Lower Mainland to be able to quantitatively estimate emissions due to construction. Furthermore, changes to traffic patterns due to construction are as yet unknown and may alter continually during the duration of RAV project construction. Nonetheless, one can anticipate that increased traffic congestion may result in temporary and localized air quality impacts.	Satisfactorily address for the purposes of the EA review
80	Provide a reference for the estimate of 1.5 grams of settled road dust re-suspended per kilometer traveled and include information on other factors that may affect road dust re-suspension such as precipitation and vehicle speed. (EC)	The emission factors for PM10 were derived using the US EPA AP-42 Section 13.2.1.3 Paved Road Dust Emission Methodology, which presents emission factor equations for fugitive dust emissions from paved roads. The PM emission estimates consider re-entrained road dust, vehicle brake wear and vehicle tire wear. Re-suspension can be influenced by numerous factors such as mean speed of vehicles traveling the road, the average daily traffic, the number of lanes, the fraction of heavy vehicles traveling the roadway, rain or snow fall and the presence of curbs, storm sewers and parking lanes.	No further detail required for the purposes of the EA review

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81	Do not agree that the reduction in the quantity of vehicles on a road will proportionally reduce road dust, especially if the reduction in the quantity of vehicles results in an increase in average speed. Alternate methods of controlling street dust such as more frequent street sweeping may negate the emissions offset by the RAV project. (EC)	The US EPA AP-42 Paved Road Dust Emission Methodology is a generally accepted way of estimating road dust emissions. The Concessionaire will be required to conduct sweeping and/ or dust control activities during construction. RAVCO is not aware of a road dust emission estimation methodology that accounts for street sweeping, or is applicable in a local context.	Satisfactorily address for the purposes of the EA review
82	Clarification on the assumption that the RAV Line Emissions will be 0 for street dust and if there been an analysis of re-suspension of settled dust from the existing Skytrain lines. (EC)	To our knowledge there has not been an analysis of re-suspension of settled dust from the existing SkyTrain Expo and Millennium Lines. With respect to the RAV Line when the line is below ground it will not cause re-suspension of street-level dust. RAVCO also believes it is common sense to assume that a light rail electric train located 5m to 6m above ground will not cause sufficient turbulence at ground-level to re-suspend road dust.	Satisfactorily address for the purposes of the EA review
83	Clarify if possible for the RAV project to use more than 50 % emission-free green power. (EC)	The use of 50% emission-free 'green' power and 50% combined-cycle gas turbine-generated power was an assumption made for the study not a commitment made by RAVCO. However, since BC Hydro has committed to a 50% clean energy target for new load growth (BC Hydro, 2004b), it is most likely that much more than 50% of the power used to drive the RAV line will be emission-free.	Information item only
84	The emission reductions are based on several assumptions related to the displacement of vehicles. Some form of uncertainty analysis would be a good idea to assess the sensitivity of the results to the various assumptions. (EC)	The purpose of the emissions calculations in the air quality assessment was to determine whether or not construction of the project would result in a net benefit in terms of air emission reductions. Therefore, the study work was based on numerous assumptions, and the resultant emission estimates are general values, so there is not sufficient information to conduct a detailed, quantitative uncertainty analysis. However, we believe that such an analysis would not alter the main conclusion of our study, which is that construction of the RAV line would result in a net reduction in air emissions.	Satisfactorily address for the purposes of the EA review
85	For Table 11.12 some form of uncertainty analysis would also be appropriate in discussing the estimated avoided annual damage costs. (EC)	The estimated avoided annual damage costs shown in Table 11.12 also depend on the Pollutant Damage Values for the Lower Fraser Valley, provided in Table 11.11. We are not the authors of these values and therefore cannot comment on their associated uncertainty. In addition, emissions from the RAV Line were likely over-estimated.	No further detail required for the purposes of the EA review
86	Provide clarification on if there is any measure on a territory planning level that has been taken to prevent the undesirable densification of the population ripple effect the RAV project could have since such phenomenon is recognised to be associated with higher pollution. (HC)	This issue will be considered further, if necessary, and if it is determined specifically that is can be applied, and is useful, to the RAV project.	Satisfactorily address for the purposes of the EA review
During Construction			
87	During construction, an emergency plan should finally be developed and implemented in order to reduce	The applicability of this suggestion will be discussed with the Concessionaire in the context of their Construction Management Plan and Traffic Management Plan.	Satisfactorily address for

**APPENDIX C: RICHMOND-AIRPORT-VANCOUVER RAPID TRANSIT PROJECT
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#	COMMENTS/ISSUES	PROPONENT RESPONSE	REVIEW STATUS
	environmental impact of possible accidents during project realization. (HC)		the purposes of the EA review
88	For construction emissions, a Code of Practice for reducing PM emissions from construction and demolition projects is being developed by a Construction and Demolition Multi-Stakeholder Working Group as Canada-Wide Standards for Particulate Matter and Ozone. RAVCO is encouraged to include this Code of Practice in its environmental assessment and planning activities. (EC)	Acknowledged. When available, RAVCO will obtain and provide a copy of this document to the Concessionaire and continue to follow best available practices as they may apply directly to the RAV Project.	Information item only
89	Clarify if RAVCO is going to encourage the use of emission reducing measures such as ultra-low sulphur diesel and particulate traps, or require these measures for all vehicles and equipment involved in the project. (EC)	RAVCO will not be directing the Concessionaire to use emission reducing measure such as ultra-low sulphur diesel and particulate traps, unless this becomes a requirement under local regional or municipal bylaws.	OMC 15.2, 24
NOISE IMPACTS			
90	HC requests adequate information on what the expected noise impacts are likely to be to be able to complete its review. (HC)	The Noise Impact Assessment involved the measurement of existing noise conditions at 16 separate sites along the alignment. The RAV project alignment was reviewed with the knowledge of the most likely proposed electric rail transportation technologies and the proposed construction design options. Working within the existing project parameters and assuming the obvious selection of a rail rapid transit electric rail technology, the study concludes that minimal noise impact is expected from the RAV project. The study and follow-up work took into consideration that most of the alignment will either be carried underground or on streets with "significant existing traffic and high existing ambient noise levels, primarily in areas of industrial, commercial or on airport lands. Thus, for most types of electric train technology and for most of the alignment, the additional noise contribution will be minimal including impacts from operational noise.	No further detail required for the purposes of the EA review
91	Need a commitment that the construction phase and the regular operation of the RAV line will meet the City of Richmond's Noise Bylaw (Bylaw 6989). (COR)	The Concessionaire has indicated that it may be necessary to apply for a variance to municipal noise bylaws if it becomes essential to undertake night-time work to meet the Project schedule. If required by the City of Richmond noise bylaws, a noise management protocol will be developed for these situations. RAVCO is confident that an adequate and reasonable approach to noise management for rail-based urban electric transportation projects has been developed in B.C. and can be implemented for the RAV Project. However, as the RAV Project moves forward, RAVCO and the Concessionaire will continue to engage with City officials regarding the issue of operational noise and the applicability of recommended attenuation measures.	OCA 15, 15.3, 15.4, 15.5, 15.6, 16, 16.1
92	Mitigation measures appropriate for the planned elevated	As described in the Supplement, Section 7.2.5.2, no significant noise impacts are	

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	line should be developed. (COR)	anticipated due to RAV line operation. The Concessionaire will prepare a Noise Management Plan as a component of both its Construction and Operation environmental management plans (EMPs) that will describe site-specific measures to be used, if necessary, to address elevated noise levels that cannot be mitigated during project design. EAO Note: refer to # 91 above for more information.	OCA 15.2, 15.3, 15.4, 15.5, 15.6
93	Need predictions of the construction noise environment using the cut and cover techniques. (HC)	EAO Note: Addressed by Richmond Airport Vancouver Cut & Cover Tunnel Construction Noise Assessment prepared by BKL Consultants Ltd, March 29, 2005.	Satisfactorily address for the purposes of the EA review OAC 15.5
94	For durations of more than one year, the noise impact during the construction is not expected to be mitigated by the fact that the construction is not permanent. Also is arguable whether an activity lasting more than 2 months is mitigated by its impermanence. (HC)	With reference to the effects of noise during construction of the RAV line, it is the intention of RAVCO and the Concessionaire to continue to consult with the community on these issues and adhere to the stringent requirements of applicable Municipal noise bylaws. In the event that it becomes necessary to undertake night-time work to meet the project schedule, the Concessionaire will apply for a variance to the municipal noise bylaw(s) and, if required, will develop a noise management and monitoring protocol. Any night-time work along Cambie Street will occur inside the cut-and-cover trench where shielding provided by the trench walls will attenuate noise levels and may prevent the disturbance of nearby residents.	Satisfactorily address for the purposes of the EA review
95	Need to be provided with noise levels estimates, based on previous measurements at similar construction sites and/or predicted from source sound levels. Also, the proponent should describe the methods used to obtain the estimated construction noise level, including an indication of commercial software used; if source sound power levels are used, list their estimated values and give an indication of how they were obtained. (HC)	The RAV project is located in a very busy corridor in an urban environment, with intermittent high ambient noise levels and/or peaks. RAVCO does not support further studies of construction noise impacts in this corridor by researching data based on previous measurements at similar construction sites.	No further detail required for the purpose of the EA review
96	Provide an ISO 1996-1 evaluation (% highly annoyed). (HC)	RAVCO believes that neither the US EPA Levels Document nor the ISO standards referred to in your comments are applicable to the assessment of construction noise associated with the RAV Project. The "percentage highly annoyed" noise assessment approach, and the relevance to public health impacts find no support at the municipal level. Nor is the approach encouraged by the VCHA acting as advisor to the two municipalities for noise by-law compliance.	No further detail required for the purpose of the EA review
97	Need commits for monitoring noise levels during construction including areas where traffic is detoured; in the Noise Management Plan, describe the criteria and standards that will be applied in determining the necessity for, and implementation of noise attenuation	In order to comply with noise level criteria set by COV and COR by-laws, SNC will be required to evaluate noise levels associated with RAV line operation and, in the event that these criteria are exceeded, to take appropriate mitigation measures. The Concessionaire's Noise Management Plan will identify the criteria and standards to be met according to COV and COR noise bylaws and will describe measures to be used to	Satisfactorily address for the purposes of the EA review

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	barriers and other mitigation measures (special mitigation measures as well as community notification will be required regarding noise generated by blasting); and the conditions under which noise exemptions may be sought from the COR and COV noise by-laws and the maximum noise targets during periods of exemptions. (HC)	mitigate elevated noise levels during operation and construction. Examples of noise mitigation measures applicable to Study Site #6, the only residential site that will be exposed to increase noise levels during system operation, were presented in RAVCO's 10 February 2005 amendment to the EAC Application. It is acknowledged that implementation of special mitigation measures as well as community notification will be required prior to blasting in the Little Mountain section of the RAV alignment. RAVCO will contract with the Concessionaire and ensure that they will make every effort to comply with municipal noise bylaws during RAV Project construction. In the event that the Concessionaire must apply for an exemption to a noise bylaw, maximum noise targets during the period to be covered by this exemption will be identified in the request for variance. Without knowing the nature of the construction activity to be carried out during the period of exemption, it is not possible to forecast the maximum noise targets at this time.	OAC 1.4, 15, 16.1
98	Provide clarification on the additional noise impacts of trucking waste material along traffic corridors due to cut-and-cover construction. (CEAA)	As described in the Application Supplement, Section 7.2.5.3, the increase in the amount of cut-and-cover construction associated with the Selected Project will result in additional short-term increases in noise levels as construction progresses along the length of the alignment. The additional truck traffic associated with RAV cut-and-cover construction will also result in an incremental increase in daytime noise levels associated with truck passbys along the Cambie Street corridor. As noted above, the Concessionaire will comply with the City of Vancouver traffic bylaws and will prepare a Traffic Management Plan describing measures to be used to mitigate trucking impacts, and a Construction Management Plan describing methods of excavation and material hauling. The Concession will describe measures to address noise impacts associated with heavy truck traffic in its Noise Management component of the Environmental Management Plan (EMP).	Satisfactorily address for the purposes of the EA review OAC 1.4, 11.3, 15, 16.1
99	Need to further evaluate and address noise impacts on the basis of signal to noise ratio for residential properties along the alignment for this portion of the alignment through South Vancouver and Richmond, up to and including mitigation measures to negate any noise levels exceeding the night-time criteria proposed by the proponent's noise consultant. (VCHA)	SNC will be required to evaluate noise levels associated with RAV line operation and, in the event that these criteria are exceeded, to take appropriate mitigation measures. It is anticipated that the focus of these efforts will be along portions of the alignment that run through residential areas. As described in Supplement (SECTION 4.4.6.1), ambient noise sensing will be used to help control noise levels in open-air, aboveground stations. See also Application 21.1, #6 which describes a series of commitments regarding noise attenuation during RAV line operation which should help to address your concerns.	OAC 15.4
100	Need information on projections on the combined noise impact on the closest residential property of construction related to the cut and cover activities, proposed mitigation measures to reduce these impacts, as well as any projected need for night-time work in the proponents work plan. VCHA does not support the requirement for calculations of % highly annoyed, but would much prefer	The Construction Environmental Management Plan, is expected to include provision for noise monitoring during construction along certain portions of the alignment. Mitigation measures, such as the elimination of back-up beepers and equipment maintenance related to noise control, will be described in the Plan. SNC has indicated that it may be necessary to apply for a variance to municipal noise bylaws if it becomes essential to undertake night-time work to meet the project schedule or to reduce traffic congestion. If required by the relevant authorities, a noise monitoring protocol will be developed for	Satisfactorily address for the purposes of the EA review OAC 15.5

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	energy being put to methods to reduce community impacts such as eliminating back up beepers, early communication of disruptive activities such as blasting or drilling and adherence to the Noise By-law limitations. (VCHA)	these situations and the affected community will be advised. EAO Note: see #93 above.	
101	Clarification on pass-by noise level being moderate and the possible need for additional mitigation. (CEAA)	As indicated in Section 16 of the Application (Table 16-1 and p. 16-31), a 6 dBA increase in maximum vehicle passby noise levels was predicted in the event that the distance between the road edge and structures along a major traffic artery was reduced by half due to the need for road realignment to accommodate the RAV line. As described in Section 3 of the EAC Application Supplement, there will no requirement for road realignment.	Satisfactorily address for the purposes of the EA review
102	Clarification needed on 'rail-grinding' noise levels and when this activity would be undertaken. (CEAA)	Guideways and Trackage, track maintenance (Application, Sec. 17.2.5) will involve rail grinding four to five days a week for one to one and a half hours each day during non-revenue service hours (i.e., 01:00 to 05:00). Since this rail grinding equipment will proceed along the track at approximately 5 km/h, elevated noise levels will be of relatively short duration and will diminish with increasing distance from the track. On this basis, it is predicted that rail grinding will have little or no effect on nighttime ambient noise conditions along the aboveground portions of the RAV line.	Satisfactorily address for the purposes of the EA review
ARCHAEOLOGY			
103	Potential impacts to First Nations include disturbance of archaeological resources not previously identified. Provide clarification on what type of impact and how this is going to be mitigated or avoided by the proponent? (KFN)	Impacts to areas of archaeological potential or impacts to archaeological resources not previously identified will be further investigated under a B.C. Heritage Conservation Act Section (14) Permit. EAO Note: MSRM issued this permit to RAVCO's archaeological consultant on April 6, 2005.	Satisfactorily address for the purposes of the EA review
104	Need to be involved in review of the archaeological monitoring plan prior to construction. (KFN, COR)	Any archaeological plans developed for construction by the contractor will be forwarded to interested parties.	OCA 1.4
105	Need for archaeological assessment of the False Creek segment, the north bank of the North Arm of the Fraser River, and the OMC property. Any Sec. 14 Inspection Permit Application to assess these localities should also include adequate provision for both monitoring and mitigating any unanticipated impacts as part of that permit. (MSRM)	Concur. Also, any archaeological monitors retained for construction purposes will be appropriately qualified as deemed acceptable by the ASRB. EAO Note: see #103 above for information on Sec. 14 Inspection Permit.	Satisfactorily address for the purposes of the EA review OCA 1.4, 17, 17.1
106	The Archaeological Monitoring and Management Plan will include the following specifications: archaeological monitor(s) will have the authority necessary to suspend construction or related development activities where they are found to be in conflict with a previously unidentified	RAVCO and the Concessionaire are committed to providing a Plan to deal with such an eventuality.	Satisfactorily address for the purposes of the EA review

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	archaeological site subject to the provisions of the <i>Heritage Conservation Act</i> ; and that mitigation measures are to be undertaken in accordance with any impact management requirements determined by the Manger, Archaeological Permitting, MSRM in response to the results of the monitoring program. (MSRM)		OCA 1.4, 17.1
ELECTRIC AND MAGNETIC FIELDS			
107	A commitment to carry out EMF measurements before and after installations of the rapid transit system should be considered by RAVCO. (HC)	The combination of an underground system, and elevated alignment along a commercial avenue and over airport lands, means that there are no school premises, hospitals or children's playgrounds, and very few, if any, residences that could be exposed to EMF. Therefore, RAVCO does not intend to conduct any EMF measurements or further EMF studies. In addition, since the technology selected by SNC will be very similar to the technology being employed for the existing electric rapid transit systems in Vancouver, further measurements and monitoring are unnecessary.	Satisfactorily address for the purposes of the EA review
POTENTIAL HEALTH EFFECTS			
Air Quality			
EAO Note: See # 71 through 89 above.			
Noise			
EAO Note: See # 90 through 102 above.			
CUMULATIVE ENVIRONMENTAL EFFECTS			
108	Under the Fisheries & Aquatic Habitat section, an Environmental Component that needs to be considered with the Water Column is impacts to "upstream and downstream fish migration". It is anticipated there will be residual effects from the construction of the water crossings, particularly due to temporary habitat losses. It may be low and short term, but it will only be after the monitoring of the compensation habitat has been completed and the success of the compensation habitat that the residual effects may be "none anticipated". (DFO)	It is anticipated that detailed design work and studies, in support of the NWPA and Section 35(2) approvals/authorizations, will provide this information, as appropriate. The issue of whether or not residual effects from construction of the crossings may result in temporary losses to fish habitat, as well as the issue of long term monitoring of compensation habitats will be further discussed in the Section 35(2) Authorization application and in ongoing meetings held with DFO in advance of the application submission.	Satisfactorily address for the purposes of the EA review
109	The proponent should acknowledge that existing projects have had an impact and confirm whether impacts from existing development, in combination with those expected from the RAV Project, could be considered significant adverse effects. (EC)	The Terms of Reference did not require RAVCO to trace the history of the project area and catalogue and evaluate the obvious adverse consequences of urban development on the natural environment. For the most part, the footprint of the RAV Project will be restricted to existing roadways and lands with a long history of commercial and/or industrial development. It is RAVCO's contention that, as a result of habitat compensation measures to be implemented in the North and Middle arms of the Fraser River as a requirement of the Federal <i>Fisheries Act</i> Section 35(2) Authorization, the RAV	Satisfactorily address for the purposes of the EA review

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		Project will not have a negative effect on current or past environmental conditions in both Vancouver and Richmond.	
110	Need to ensure that activities at the “park and ride” and bus exchange locations do not impact the quality of the surface water or surrounding sediments. Need firm commitment to on-site control measures such as oil/water separators. This needs to be reflected in the appropriate documents. (EC, VIAA)	RAVCO anticipates that the Surface Water Quality and Sediment Control component of the SNC’s Environmental Management Plan will include provision for installation of oil/water separators at the park-and-ride and bus exchange locations. Installation of oil/water separators at such facilities has become standard practice for development in urban areas and will likely be required to meet wastewater discharge requirements of the GVRD, COV and COR.	Satisfactorily address for the purposes of the EA review OCA 1.4, 7.3
111	According to Section 16, p. 25 the mitigation for the use of de-icing chemicals, such as ethylene glycol, will be the development and implement a drainage plan to provide sufficient attenuation/treatment of guideway runoff. Clarification needed on this mitigation measure and any additional commitments. (EC, VIAA)	No guideway de-icing fluid runoff is expected. De-icing fluid is typically applied in a fine mist which quickly evaporates leaving little residue on the mechanical components. As a result, should it even be available for collection, there are no methods currently available to collect this material.	Satisfactorily address for the purposes of the EA review OAC 7.3
112	Clarify if hydrocarbon residue that may be deposited on the guideway during RAV system operation will have an associated low or small spill risk. (VIAA)	RAVCO acknowledges and accepts that there is a possible low risk, rather than no risk, potential of a hydrocarbon spill associated with RAV system operation. Measures to prevent environmental impacts during system operation, including the control of guideway runoff and emergency response procedures to be followed in the event of a spill, will be described in the Concessionaire’s Operational Environmental Management Plan.	Satisfactorily address for the purposes of the EA review OAC 1.4
113	The cumulative effects has not addressed the impact of 150 years of Euro-Canadian development on the Vancouver-Richmond corridor and the near-total inability of First Nations to practice our culture there. (SN)	RAVCO conducted the cumulative effects assessment in accordance with the Approved Terms of Reference.	Beyond the scope of EA review
114	Social or economic effects are excluded from the cumulative effects assessment, with the exception of First Nations traditional use. The EA fails to identify the growth-inducing effects of the RAV project. The SN see further development of our land as negative elements and erosion of the ability to practice our culture (SN)	RAVCO conducted the cumulative effects assessment in accordance with the Approved Terms of Reference.	Beyond the scope of the EA review
115	Clarify if construction needs will result in new equipment coming into use during this timeframe for RAV and will this result in a net overall increase in emissions. (TC)	This is possible, but not likely. SNC has informed RAVCO that they intend to source the equipment necessary for construction of the RAV Project from contractor fleet inventories that are currently available within the Lower Mainland and that the amount and types of equipment necessary are all available locally. EAO Note: see also # 73 and #74 above.	Satisfactorily address for the purposes of the EA review
ACCIDENTS AND MALFUNCTIONS			
116	Provide details on where effluent from the Operations	The methodology and location for containment and discharge at the OMC site is	Satisfactorily

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	and Maintenance Centre will be discharged including information on monitoring of discharge to ensure the effluent meets GVRD water quality criteria. (EC)	unknown at this time, as the detailed design work, including that of containment and treatment works has not yet been advanced. The OMC will be subject to reviews carried out by the COR as part of a Design Advisory Process. Depending on the source and quality of the effluent (i.e., rainwater versus process water from such activities as vehicle washing) produced from the OMC, discharges will be either to the storm or sanitary system, and will have to meet GVRD and other applicable standards.	address for the purposes of the EA review OAC 7.3, 22
117	For Guideways and Trackage, clarify if there will be a loss of shavings or metal into water courses or the terrestrial environment due to rail-grinding and if so the amount of material likely to be released or disposed of. (CEAA)	As described in Section 17.2.5 of the Application, based on experience during maintenance of the SkyTrain track system, grindings will be contained within the guideway where they will typically collect into “chunks”. This material will be periodically cleaned out and disposed of by a licensed contractor. There will be no loss of shavings or metal to the receiving environment due to rail grinding.	No further detail required for the purpose of the EA review
MITIGATION AND COMPENSATION MEASURES FOR RAV PROJECT CONSTRUCTION AND OPERATION			
118	The compensation table in the Application (Table 19.1) contains no reference to providing business or job opportunities for First Nations. The table also focuses on archaeology and heritage with relation to First Nations; there is no contemporary or future forecasting section of the impact summary. (SN)	Providing business and job opportunities for First Nations is not within the scope of the EA Application and, therefore, does not appear in the Table 19 Summary of Compensation Measures. RAVCO is not familiar with “contemporary or future looking section” models in the context of an impact summary.	OAC 5.4
119	Provide details on the proponent’s water quality mitigation measures. (EC)	As described in the EAC Application, Section 20.4.1, the Concessionaire’s EMP will include a Surface Water Quality and Sediment Control Plan that will detail water quality mitigation measures to be implemented during RAV line construction. The Concessionaire’s Operations EMP will address water quality mitigation measures to be applied during RAV system operation.	OAC 1.4, 7.3, 22
RAVP ENVIRONMENTAL MANAGEMENT			
Environmental Management Plan - Construction			
120	Clarify if RAVCO has considered measures to avoid and control the spread of invasive vegetation species, as linear transportation projects and rights-of-way can be of significant concern for the control of invasive species. (GVRD)	If determined applicable to the construction of the RAV project, the issue of invasive species and resultant vegetation management will be discussed with the Concessionaire in the context of their Environmental Management Plan.	OAC 20
121	Provide some detail regarding the predicted environmental effects of project decommissioning or indicate what is expected to be done at the end of the project’s operational life. (CEAA)	SNC will be responsible for operating and maintaining the RAV line under a 35 year Concession agreement. When this agreement expires, either a new Concession agreement will be entered into or responsibility for operation and maintenance will be assumed by the GVTA and the VIAA. The structural components of the RAV Project will have a projected life span of at least 100 years and future modifications are unknown at this time.	No further detail required for the purpose of the EA review
122	Provide clarification on how mud (cut and cover as well as foundation excavations) as well as dust concerns will	The issue of dust will be addressed in the, Air Quality and Dust Control Plan. The issue of sediment, or mud-laden surface water runoff control from cut and cover tunnel and/or	OAC 1.4

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	be addressed. (COV)	foundation excavations is addressed in the Surface Water Quality and Sediment Control Plan and Sediment and Erosion Control, Application p. 20-10.	
RAVP COMMITMENTS, RESPONSIBILITIES AND ASSURANCES			
123	RAVCO should commit to implementing all the mitigation measures proposed in the Application and Supplement. (EC)	Rather than committing to implement all of the recommended mitigation measures presented in the Application, some of which are not applicable to the system as proposed by SNC, RAVCO will review and approve mitigation measures developed specifically for the selected project, as described in the Concessionaire's EMP for construction.	OAC 24
124	EC will need to review several of the environmental management plans. This review responsibility is not clearly identified in Table 21.1. (EC)	EC will be given the opportunity to review the Concessionaire's EMP, if it so requests. However, with the exception of the Disposal at Sea permit and unless requirements change, neither RAVCO nor the Concessionaire are seeking specific permits, licenses or approvals from EC. Therefore, EC will not be asked to approve the Concessionaire's EMP.	OAC 1.4
125	The proponent should make a commitment to "Vegetation clearing will be done outside the general bird breeding season from April 1 to July 31 unless otherwise approved by the CWS and the MWLAP." (EC)	"Vegetation clearing" along the RAV corridor prior to construction will be very limited, localized, and is unlikely to affect nesting birds. This activity will primarily involve the removal and temporary relocation/storage of a small number of trees along the Cambie Heritage Boulevard, No. 3 Road and Grant McConachie Way.	OAC 9.5
126	RAVCO should ensure that specific commitments to involving First Nations in the project including agreements with affected First Nations, hiring First Nations staff or to provide business opportunities. (SN)	In terms of economic and employment benefits, we confirm that the SN has consistently expressed interest in securing economic and employment opportunities. At no time in our discussions over the last two years did RAVCO representatives suggest that First Nations or others would receive guaranteed economic and employment benefits. RAVCO representatives were consistent in stating that when the Concessionaire was selected, the SN should meet again with the Concessionaire to identify how the SN could secure employment/contracting opportunities or other benefits such as securing excavated material for use as engineering fill on the SN Reserve in North Vancouver. SNC is aware of the interests of First Nations and has committed to exploring opportunities with First Nations. RAVCO continues to encourage the SN to enter into dialogue with SNC and believe that these discussions will result in economic and employment opportunities. EAO Note: At the March 31 RAVP Application review meeting, RAVCO advised Melanie Rapada, SN that RAVCO was in the process of contacting the SN to set up a meeting with SN/RAVCO/SNC.	OCA 5.4
Permits/Statutory Authorizations			
127	RAVCO should make application to LWBC for tenure (Right of Way) under the <i>Land Act</i> for Crown land crossed by the alignment (for both Fraser River crossings and the crossing of False Creek). (LWBC)	RAVCO is now in the process of making application to LWBC for tenure Right-of-Way for the bored tunnel beneath False Creek and the two bridge crossings of the Fraser River (North Arm and Middle Arm).	For information only
128	<i>Water Act</i> approval may be required under Section 9 for Works in and about a stream. RAVCO should make	If it is determined that a Section 9 approval is required, then RAVCO will ensure that the Concessionaire will make application for and obtain this approval.	For information

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#	COMMENTS/ISSUES	PROPONENT RESPONSE	REVIEW STATUS
	application to LWBC to confirm if approval is required. (LWBC)		only
129	The Concessionaire will be required to have Disposal at Sea staff on site during sampling of any material proposed for disposal at sea; the Concessionaire will provide the results of chemical analysis to the Program; the Program will then consult with RODAC and if acceptable, the Concessionaire can apply for a Disposal at Sea Permit. (EC)	On 31 January 2005 RAVCO met with representatives of EC, including a representative of the Disposal at Sea Program, to discuss the sampling protocol as it will apply to the RAV Project. RAVCO agreed to develop a briefing document which identifies the proposed Disposal at Sea requirements and identifies the sampling methodology. EAO Note: Briefing document produced and submitted to EC.	OAC 19-19.2
130	Pursuant to subsection 135(1) of the CEPA, the Disposal at Sea Regulations were passed in 2001, replacing the Ocean Dumping Regulations of 1988 which were repealed. "Disposal at sea" should be used in reference to the Program and EC's mandate under Disposal at Sea Regulations (2001). (EC)	Any future correspondence that RAVCO and/ or the Concessionaire generate that is applicable to the EC's Disposal at Sea Program will accurately reference the Disposal at Sea Regulations (2001).	For information only
131	The proponent shall ensure that all work associated with the subject project complies with the requirements of the <i>Fisheries Act</i> , the CEPA, the MBCA, the SARA and all other applicable laws, legislation, and best management practices. The proponent should be aware that Section 36(3) of the federal <i>Fisheries Act</i> , administered by EC, prohibits the discharge of deleterious substances to waters frequented by fish, or to a place where those substances might enter such waters. (EC)	RAVCO remains committed to delivering a project that complies with all applicable legislation and regulations.	OAC 1, 1.4, 7-7.4, 9, 9.1, 9.6, 13, 13.1, 15.1, 15.2, 24

RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT ASSESSMENT REPORT

APPENDIX D

SUMMARY OF PUBLIC COMMENTS DURING REVIEW OF APPLICATION

APPENDIX D - RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT SUMMARY OF PUBLIC COMMENTS DURING REVIEW OF APPLICATION

Appendix D contains a summary of issues raised by Public during the EA review of the Application and Application Supplement. RAVCO Responses to Environmental Assessment Certificate Application and Application Supplement – Agency Comments prepared by RAV Project Management 14 March 2005 (the “Public Comments Compendium”), contains the complete text of Public comments and RAVCO’s responses.

The public notifications that were posted on the EAO electronic Project Information Centre and in regional and local newspaper advertisements outlined the purpose of the public comment period. The public were requested to provide comments upon specific public issues as they relate to the technical review of the EA application and application supplement. The public were also advised that the EAO does not administer polls or referenda on projects under review, so submissions such as form letters, petitions or other submissions that only state a position for or against a given project cannot generally be considered. Even though the public were advised on what information was being requested by the EAO for the purpose of the EA review, some members of the public chose to submit form letters and opposition to the RAVP. These comments are reflected in the summary of public comments, but the names of individuals submitting a form letter are not included. The names of those people submitting form letters comments or representing a coalition are listed below.

Do RAV Right Coalition submission by R. Chatterjee, submission with Gordon Jones, Re-Think RAV Coalition, Maurizio Grande, The Cambie Boulevard Heritage Society, Abby Palmer, Cambie Business Association including Ron Fryer, Susan Heyes, Moha Bateni, Deanne Taylor, Dale Dubberley, and Iris Ivanoff listed.
Gordon Jones, Re-Think RAV Coalition with Do RAV Righ Coalition submission attached.
Maurizio Grande, The Cambie Boulevard Heritage Society with Do RAV Righ Coalition submission attached.
Joseph Lin, represents the Taiwanese Canadian Green Club
Taiwanese Canadian Green Club Form Letter received from Ming-jen Hsu, Alex Wang, Liao Chun-Chun, Tracey Weldon, Jo Jung Du, Te-Tzu Han, and The Yuan Sun

List of Acronyms used in Appendix D

BCEAA	British Columbia <i>Environmental Assessment Act</i>
BMP	Best Management Practise
CEAA	<i>Canadian Environmental Assessment Act</i>
CEPA	<i>Canadian Environmental Protection Act</i>
Concessionaire	SNC Lavalin-Serco ¹
COR	City of Richmond
COV	City of Vancouver
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	British Columbia Environmental Assessment Office
EC	Environment Canada
MOT	Ministry of Transportation
RAVCO	Richmond•Airport•Vancouver Rapid Transit Project Management Ltd.
RAVP	Richmond-Airport-Vancouver Rapid Transit Project
TransLink	Greater Vancouver Transportation Authority
VIAA	Vancouver International Airport Authority
WCB	Workers' Compensation Board

√ - Satisfactorily addressed for the purposes of the EA review

¹ In Transit BC Limited Partnership, a partnership including SNC Lavalin-SERCO (name of incorporated company)

**APPENDIX D - RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT
SUMMARY OF PUBLIC COMMENTS DURING REVIEW OF APPLICATION**

DATE	SUBMITTED BY	PUBLIC COMMENTS	RAVCO (PROPONENT) RESPONSE	REVIEW STATUS
PROJECT DESCRIPTION				
Project Description				
January 31, 2005	Richard Cook	Concerned that the proposal for single track down No. 3 Road is short sighted as the system will need to be rebuilt when traffic needs double.	With the expected ridership levels, the capacity of the system will be sufficient in a single track option to meet the demand for the full period of the 35 years of the Concession Agreement and significantly beyond.	√
January 31, 2005	Richard Cook	Interested in the feasibility of stacking two guideways along No. 3 Road.	Stacking of two guideways along No. 3 Road has not been pursued as it would require greater costs, and impose a greater urban design impact to the streetscape and adjacent developments. The COR has not asked RAVCO to investigate this option.	Information item only
February 22, 2005	Ken Bregman	Requested that the line continue underground past Marine Drive; as well, designate part of the properties along Cambie Street, south of Marine Drive for future wider roadway to match the rest of Cambie in the future.	With the existing grade of Cambie Street, it is desirable to transition from tunnel to elevated guideway at 63rd Avenue with an elevated crossing and station at Marine Drive, ramping to the elevated bridge crossing of the North Arm of the Fraser River. Road widening of Cambie Street south of Marine Drive is not an objective of the City as there is little traffic demand to pursue road widening.	√
February 21, 2005	Marion Smith	Noted significant investment has been made on No. 3 road with an orientation to street level activities and portion of the line should be at surface level not elevated.	The selection of No. 3 Road is consistent with COR policy and follows from the major investment that TransLink has made in developing the dedicated transit R/W that is presently being used by the 98 B-line bus. The rationale for the Concessionaire's proposed guideway is outlined in Application Section 2.3.1.2; Application Supplement Section 4.4.1.3. Locating the alignment on the east at Richmond Centre will significantly improve pedestrian, user and traffic interfaces, and reduce construction coordination and access difficulties. (Application Section 2.3.1.2 and Supplement Section 4.4.1.3).	√
Construction Methods				
January 27, 2005/ February 2, 2005 January 27, 2005 January 31, 2005 February 1, 2005 February 3, 2005 February 10, 2005 February 11, 2005 February 12, 2005 February 14, 2005 February 16, 2005	Rodney Stone Lou Fraser Ethel Karmel Russel Laboda Joseph Lin Carol and Peter Chipkin J. Eccles, E. MacLeod C. Mulholland Ken Gilbert J. Ford, B. Palmquist	RAVCO needs to re-consider using bored tunnel construction in downtown Vancouver and along Cambie Street.	RAVCO has applied for an Environmental Assessment Certificate based on the Selected Project described in the Application Supplement (Section 3). Cut-and-cover tunnel construction provides the best balance of service, schedule and costs: <ul style="list-style-type: none"> • service – provides for a shallow tunnel and therefore better travel times as trains are closer to the surface • schedule – more easily managed construction schedule • risk – maximizes manageability of geotechnical risk by the Concessionaire. <p>EAO Note: the EA Review is not a planning process. The EA process identifies and assesses the potential effects that may result from a</p>	√

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February 17, 2005 February 18, 2005 February 21, 2005 February 22, 2005 February 23, 2005	Lynne Sinclair Sylvia Levington Wiebel Family V. Rodriguez, L. Johnson, F. Old, M. Suchow, S. Hawker, D. Watters, D.R. Casorso Bob Martin		proposed project, and develops measures for managing those effects. The RAVP EA review addresses the Project as proposed in the Application and Application Supplement.	
February 3, 2005	Joseph Lin	Requested that detailed and precise information about the dimensions and depth of both cut-and-cover construction and boring construction, realistic estimates of truck loads per day and their source data be made available to allow for independent assessment.	The Application Supplement (December 2004) contains the general configuration technical drawings: Figs 4.1- 4.5: Elevated Guideways, Trackways, Center Platforms, Stacked Tunnels, Side by Side Tunnel and Bored Tunnel; Figs 4.11- 4.17: Roadway Configurations and Traffic Management; Figs 4.20 and 4.22: Cut and Cover Sequencing, Cambie Street Access; and Appendix A: Alignment Drawings. The estimates provided by the Concessionaire regarding the volume of truck traffic required for spoil disposal (i.e., 100 to 150 truck loads per day) was based on calculations provided by the Concessionaire's professional consulting engineering staff regarding cut-and-cover tunnel dimensions and depth of overburden. RAVCO has not been presented with the opportunity to review any other calculations, but would be pleased to do so if this information was made available to RAVCO for review and comment.	No further detail required for the purpose of the EA review
Responsibility for Permits, Licences and Approvals				
February 17, 2005	Gloria Rhodes	Noted that ocean dumping of excavated materials should not be allowed.	Disposal-at-Sea is a common federally regulated practice for the construction industry on Canada's west coast and has been used for all types of projects within the Lower Mainland. Land-based options for the disposal of excavated tunnel materials will first be explored and if it is determined that ocean disposal is necessary, the Concessionaire will apply to EC's Disposal-at-Sea Program.	Outside scope of EA review
Project Design/Construction Schedule - Sequence				
February 22, 2005	Don Watters	Concerned that the construction in any given work zone will last up to 9 months, as opposed to the 3 month timeframe stated by RAVCO.	Most of the cut-and-cover construction along Cambie Street will involve installation of pre-cast sections of tunnel. The active cut-and-cover construction work area in which the pre-cast tunnel sections will be installed along Cambie Street will typically be advanced in 350 metre segments along the northbound lanes, passing any single point in 3 months. Preparatory work will be carried out in front of the advancing cut-and-cover construction zone, and will include utility relocation. Restoration work will follow behind the cut-and-cover construction zone, and will include road resurfacing and re-landscaping.	√ OAC 5.3

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CONSULTATION AND COMMUNICATION				
Public Consultation and Communication				
January 27, 2005 February 2, 2005 February 3, 2005 February 11, 2005 February 18, 2005 February 21, 2005 February 22, 2005 February 23, 2005	Lou Fraser Rodney Stone Joseph Lin E. MacLeod Sylvia Levington RM Strang Kerry Regier David Hill	Concerned that RAVCO did not provide adequate disclosure of the decision to use the cut-and-cover method for tunnelling. Requested that the EAO insist on more opportunities for public feedback on the decision to use cut-and-cover.	<p>Through information presented in the Application Supplement and the open houses held on January 25, 26 and 27, 2005, the public has been made aware of the Selected Project. All funding agencies were made aware of specific proposal details in confidence due to the competitive nature of the bidding process. Once the funding agencies approved the Project in December 2004, information regarding the Concessionaire's proposal was made available to the public on both the RAVCO and EAO websites.</p> <p>The Application was posted on the EAO's website on December 12, 2004 and the Application Supplement, providing further details on the Selected Project, was posted on the EAO website on December 20, 2004. Copies were also provided to the main branches of the City of Vancouver and City of Richmond public libraries, as well as libraries at Simon Fraser University and the University of B.C. The availability of the Application and the Supplement at these locations was advertised in local print media. EAO Note: the EA review addresses the Project as proposed in the Application and Application Supplement.</p>	<p align="center">√</p> <p align="center">OAC 5-5.3</p>
February 3, 2005 February 23, 2005	Joseph Lin David Hill	Requested that information regarding the project be made easier to access and easier to understand.	<p>Section 4 of the Application outlines the public consultation work conducted to date for the RAV Project, as well as RAVCO's ongoing commitment to public consultation throughout the life of the construction project.</p> <p>In addition to a regularly updated RAV website, project mailouts and correspondence, RAV Project open houses are designed to provide all interested parties with ready access to clear information regarding all facets of the Project, as well as opportunities to raise questions. Open house events in January 2005 were advertised in local print media.</p> <p>At open houses, storyboards, maps, illustrations, alignment drawings, fact sheets, technical documents and specialist technical professionals are made available to the public so that detailed technical information can be provided in an easy to understand format.</p> <p>RAVCO has also provided public materials regarding the project in Chinese and has had individuals at its open house events who could provide Cantonese and Mandarin translation. Fact sheets and other information materials are posted on the RAVCO website in both English and Chinese. EAO Note: Access to information discussed in RAVCO's response above.</p>	<p align="center">√</p> <p align="center">OAC 5-5.3</p>

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February 3, 2005	Joseph Lin	Noted that the general public needs to be made aware of the proposed change (cut-and-cover) and be better informed through more, well publicized open houses and information sessions.	As engineering design work progresses and is refined, additional information and materials will be available from the Concessionaire and displayed to the public in Open Houses to be held at locations along the RAV Project corridor. These information sessions will be announced at a later date.	√ OAC 5-5.3
February 3, 2005 February 23, 2005	Joseph Lin David Hill	Noted that the public should have been presented with a traffic management plan and proposed mitigation measures to accommodate the change in construction method, in sufficient detail and in sufficient time to be able to respond during the public comment stage of the application.	For each stage of construction, the Concessionaire will prepare a detailed Traffic Management Plan which will be issued to a Traffic Management Committee for review and acceptance prior to commencement of each construction stage. The Traffic Management Committee will consist of representatives from TransLink, VIAA, COV, COR, MOT and other agencies, as required. The Concessionaire will be responsible for implementing the Traffic Management Plans, monitoring plan performance and modifying or adapting the plans to improve performance during the construction period, as required. (Application Supplement Section 4.4.10)	√ OAC 11.3
February 3, 2005	Joseph Lin	Need more information on station design including the capacity, area occupied and facilities of each station to allow the public to understand and assess the impacts on the environment.	A description of station design considerations is presented in the Application Supplement (Section 4.4.3). During project design, the Concessionaire will implement a Community Partnership approach that will involve a dialogue with municipalities and the public regarding the opportunities and constraints of design finalization (between June 2005 to mid 2006).	√ OAC 5-5.3, 11.2, 11.5
February 1, 2005 February 11, 2005 February 16, 2005 February 17, 2005 February 21, 2005 February 22, 2005 February 23, 2005	Russel Laboda Elizabeth McLeod Joan Ford Lynne Sinclair Michael Cox V. Rodriguez, T.J. Pitcher, V. Pitcher-Grey B. Cross, S. Lewis	Noted that in previous RAVP meetings, RAVCO assured residents of Cambie Street that the tunnel would be bored.	The Request for Proposal (RFP) indicated that a bored tunnel to 37 th Avenue was "anticipated" but the tunnelling method was to be confirmed during the pre-design process. The RFP was posted on the RAVCO website in early September 2004. Once the funding agencies approved the Project in December 2004, information regarding the Concessionaire proposal was made available to the public on both the RAVCO and EAO websites. Due to the competitive nature of the procurement process, this was the first opportunity to make this material available to the public. The Application (which describes the Cambie Street cut-and-cover tunnel construction methodology in Table 2-2) was posted on the EAO's website on December 12, 2004 and the Application Supplement, providing further details on the Selected Project, was posted on the EAO website on December 20, 2004.	√
February 16, 2005 February 22, 2005	Joseph Lin Prunella Barlow	Concerned that RAVCO changed the original reference project to the present cheaper selected project at the expense of Cambie Street's economic	RAVCO was formed by TransLink to implement the Project. Any cost savings associated with the selection of cut-and-cover tunnelling in place of bored tunnelling are to the benefit of all citizens of the Lower Mainland. The public has been made aware of the Selected Project	√

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		chances, social justice and environmental quality without notifying and consulting the public in the Greater Vancouver in advance.	through information presented in the Application Supplement (December 2004) and the EA review process open houses held on January 25, 26 and 27, 2005.	
February 23, 2005	David Hill	Concerned that notice to the public was too short and the meeting with the Cambie Merchants was not adequately advertised.	The Cambie Street Merchants meeting, held on January 31, 2005, was arranged and advertised by the Cambie Street Merchants Association. RAVCO was asked to attend and provide a presentation to Association members. EAO Note: the public comment period set for RAVP EA review was in accordance with the Section 11 Order issued by EAO on 10 September 2003 for this project and reflects the BCEAA and BC Reg.372/2002;	√ OAC 11.1
February 23, 2005	David Hill	Concerned that the proponent has taken no further steps to meet with residents of the area during the public comment period of the Application.	RAVCO is currently working with residents, merchants and community groups along the route to understand concerns, minimize disruption and maximize predictability as the construction period approaches.	√ OAC 5-5.3, 11.1
February 21, 2005	Marion Smith	Noted that there was no opportunity in survey questions for people to respond that an elevated system on No. 3 Road was not acceptable.	Section 4 of the Application outlines the public consultation work conducted to date for the RAV Project, as well as RAVCO's ongoing commitment to public consultation throughout the construction period. Results from the 2004 public consultation in Richmond show that 53% of those who live and work in Richmond support an elevated system while 39% support an at-grade system. Those who noted preference for an elevated system did so for safety reasons, and in order to reduce further traffic congestion along No. 3 Road.	√
February 23, 2005	R. Chatterjee, G. Jones, M. Grande, B. Martin	Concerned that there has been no consultation with First Nations relating specifically to the project design change to open cut surface trenching.	First Nations were given the opportunity to participate in the Technical Working Groups established by the EAO to provide advice on the Project. First Nations received the Application Supplement, which fully described the Selected Project, in December 2004. Communication regarding the Application and Supplement has occurred with all First Nations in the area. At least one First Nation has confirmed that it supports the cut-and-cover construction method.	√ OAC 5.3
FISHERIES AND AQUATIC HABITAT ASSESSMENT				
Scope of Fisheries and Aquatic Habitat Assessment				
February 23, 2005	R. Chatterjee, G. Jones, M. Grande, B. Martin	Design change to open cut-and-cover construction has significant and unstudied impacts on surface water flows and the ecology of three sub-surface streams, running under and alongside Cambie Street.	The scope of the Fisheries and Aquatic Habitat Assessment included an examination of historical watercourses engaged by the guideway and stations. Three historical watercourses were identified in the South Vancouver portion of the RAV Project area and, with the exception of a relict open channel of Winona Creek within the southern portion of the Langara Golf Course, these are now entirely enclosed within piped sewer systems. Project construction will not significantly impact fish	√ OAC 7.2

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February 22, 2005 February 23, 2005	Don Watters Georgia Strait Alliance	Concerned that any amount of contamination from the RAV excavation could have long-lasting negative impacts on the health of the ocean.	habitat. (Application Section 6.3.5 and Supplement Section 7.2.1.) RAVCO has obtained information on the Concessionaire's proposed excavation and spoils disposal program and has prepared a briefing document ("Information Regarding Potential Disposal at Sea of Excavated Materials from the RAV Project" – February 17, 2005 – available online at www.ravrapidtransit.com) for EC's review, which addresses types of soils that could be disposed. Should any material be proposed for disposal at sea, then it will be sampled in accordance with EC requirements. If it becomes necessary to dispose of surplus excavated materials at sea, a formal application will be made to EC by the Concessionaire.	√ OAC 9-19.2
TERRESTRIAL BIOPHYSICAL ASSESSMENT				
Vegetation/Wildlife Habitat				
January 27, 2005	B. Peritz	Concerned that air disturbance will impact birds.	The Terrestrial Biophysical Assessment examined the impact of wildlife and habitat use, including birds along the proposed RAV corridor. The study determined that some disturbance of local or migrating bird populations may occur at the bridge crossing sites (i.e. foreshore marshes, riparian zone). Any such impacts, however, are expected to be short-term and would affect generally common bird species. As the RAV line will be located over mostly developed land that is already alienated for wildlife use, habitat displacement effects are considered to be negligible. (Application Section 7.4.5.3)	√ 9.4-9.6, 10.4
January 27, 2005	B. Peritz	Concerned that the project will devastate the environment.	The RAVP is subject to a harmonized EA review under the <i>BCEAA</i> and the <i>CEAA</i> . Both Acts outline an environmental assessment process designed to identify and assess potential effects associated with proposed projects, and to ensure that project-specific mitigation measures are developed for managing those effects.	√
ARBORICULTURAL STUDY				
Vancouver – Cambie Heritage Boulevard/ Tree Preservation and Protection Planning				
February 14, 2005 February 17, 2005 February 21, 2005 February 23, 2005	Ken Gilbert Denise Chow Michael Cox The Fralin (Peter, Lorraine, Sara, Jake)	Public concern that cut-and-cover tunnel construction, adding traffic lane on west side, removing trees will result in irreversible damage to green space, trees and neighbourhood aesthetics and characteristics along the Heritage Boulevard on Cambie Street	The proposed alignment will run beneath the northbound lanes of Cambie Street, allowing the Cambie Heritage Boulevard to remain largely intact. The Project will adhere to the COV's policies (no net-loss of green space), and permits. The addition of traffic lanes along the west side of the Cambie Heritage Boulevard to accommodate traffic during construction will require the removal of some trees. A tree replacement strategy will be prepared. Where existing trees are deemed particularly valuable, they may be stored for future use or transplanted elsewhere. Using BMPs, trees will be protected beyond the extent of requirements in this jurisdiction. (Application Section 8.0)	OAC 1.4, 10, 11.1
February 22, 2005	Andre Pekovich	Requested that an arborist assess all	The arboricultural assessment examined all trees in both the Cambie	

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February 21, 2005	Dave Sadler	Cambie businesses should be given ample advance warning so that they can prepare; construction be done in a fast and efficient manner; and property taxes be waved for the time in question.	RAVCO is not responsible for property taxation. EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Community and Business Liaison Program comments above.	√ OAC 5, 5.3, 11.1
Traffic				
January 31, 2005	Ethel Karmel	Concerned that seniors living in the vicinity of Cambie Street will be unable to access Cambie Street by automobile and will become imprisoned in their homes.	During construction along Cambie Street, pedestrian traffic will be maintained while northbound motor vehicle traffic will be rerouted to the existing southbound lanes of Cambie Street. As the construction period approaches, RAVCO will be working closely with residents and merchants to ensure people are aware of construction activity in their areas and to minimize the disruption and maximize the predictability of the work. EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 5.3, 11.3
February 3, 2005 February 10, 2005 February 11, 2003 February 12, 2005 February 17, 2005 February 20, 2005 February 22, 2005 February 23, 2005	Joseph Lin C. and P. Chipkin E. MacLeod C. Mulholland L. Sinclair C. Labrie Taiwanese Canadian Green Club Form Letter F. Old, M. Woods, J. Broda R. Forbes, P. Barlow R. Chatterjee, G. Jones, M. Grande, B. Martin	Concerned that impacts from traffic congestion will extend beyond the location of construction to alternative routes along Granville, Oak and Main Streets, and that bottlenecks will impede traffic's mobility on routes feeding in and out of Cambie Street including mobility impacts on emergency vehicles that have to service the area (increase travel and response time, ability to provide service). Also, no Vehicular Traffic Flow studies relating to the 18-28 month closure of two-thirds of the lanes on a main arterial artery.	Vehicular Traffic Flow studies were not a requirement of the EAO-approved Terms of Reference. EAO Note: see response to Ethel Karmel and Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 11.3, 11.4
February 3, 2005 February 11, 2005 February 12, 2005 February 22, 2005	Joseph Lin Jackie Eccles C. Mulholland Taiwanese Canadian Green Club Form Letter, A. Pekovich, M. Woods, J. Broda	Concerned that detouring vehicles will travel through residential areas and increase the risk of traffic accidents.	The Concessionaire's traffic management strategy is designed to mitigate traffic impacts during construction and will include assessment of potential traffic infiltration on residential streets and identification of traffic calming measures. (Application Supplement Section 4.4.10)	√ OAC 5.3, 11.3
February 3, 2005	Joseph Lin	Concerned that pedestrians, transit	Public safety and mobility is an element of the Plan (maintain current	

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February 21, 2005 February 22, 2005	Wiebel Family Taiwanese Canadian Green Club Form Letter, M. Woods, R. Forbes	commuters, cyclists and the mobility impaired will experience inconvenience and increased risks associated with crossing streets.	transit services levels to extent practical; maintaining bicycle routes, business access and pedestrian access through the work site. (Application Supplement Section 4.4.10) EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 11.3
February 10, 2005 February 22, 2005 February 23, 2005	Lou Fraser V. Rodriguez Andre Pekovich	Concerned about the impacts, including safety, on Cambie Street from the reduction of traffic lanes from four to two during construction.	Vehicle and pedestrian traffic will move along Cambie Street throughout the construction period, which is scheduled to begin in this area in early 2006. Two lanes of traffic flow will continue between 2 nd Avenue and 25 th Avenue while four lanes of traffic are proposed for the area of Cambie Street south of 25 th Avenue. Two lane traffic on Cambie Street will be no less safe than two lane traffic elsewhere in Vancouver. EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 11.3
February 22, 2005 February 23, 2005	Andre Pekovich D. Light, R. Chatterjee, G. Jones, M. Grande, Taiwanese Canadian Green Club Form Letter	Concerned that hundreds of truck loads are proposed to be trucked through Vancouver.	Excavated materials will be transported along designated truck routes, or routes otherwise approved by the applicable municipalities and the Concessionaire and its contractors will comply with all applicable municipal bylaws and provincial and federal regulations. EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 1.4, 11.3, 15, 16.1
February 22, 2005	Andre Pekovich	Request that spoil trucks do not travel at all during rush hour and between 9:00 pm and 7:00 am.	The Concessionaire and its agents will comply with all applicable municipal bylaws and provincial and federal regulations. EAO Note: see Proponent's Traffic Management Plans, Construction Management Plans, and Traffic Management Committee comments above.	√ OAC 11.3
February 23, 2005	S. Lewis, R. Chatterjee, G. Jones, M. Grande, Taiwanese Canadian Green Club Form Letter	Concerned about the disruption of transit during cut-and-cover tunnel construction along Cambie Street. Also raised concern that there are no Public Transportation Ridership studies.	The Concessionaire's traffic management strategy will be designed to mitigate traffic impacts, including access to Cambie Street, during construction and will include consultation with TransLink to develop a plan to maintain current transit service levels to the extent practicable. (Application Supplement Section 4.4.10). Public Transportation Ridership studies were not a requirement of the EAO-approved Terms of Reference. TransLink is presently in the early stages of consultations regarding bus service integration with the RAV line. This consultation will continue through 2007.	√ OAC 11.3
February 21, 2005 February 23, 2005	Michael Cox David Hill	Concerned that there is no traffic plan in place to accommodate the change in tunnel construction method and that Cambie Street – a major transportation and economic artery – will become one	Construction along Cambie Street will be carried out segment by segment, not as one long construction zone. During construction along Cambie Street, pedestrian traffic will be maintained while northbound motor vehicle traffic will be rerouted to the existing southbound lanes of Cambie Street. EAO Note: see Proponent's Traffic Management Plans,	√ OAC 11.3

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		long construction zone for as long as 15 months.	Construction Management Plans, and Traffic Management Committee comments above.	
February 21, 2005	Marion Smith	Concerned that an elevated system will force commuters to transfer from ground level buses to an elevated RAV station, affecting convenience, accessibility and transfer times.	The Socio-economic/Socio-community impact assessment has determined that an at-grade system involves longer travel times overall than a fully separated system due to the requirement for interactions between the rapid transit vehicles and other traffic. Station entrance configurations will be designed to provide a hierarchy of intermodal access that gives priority to bus transfers and pedestrian access. (Application Section 9.6)	√ OAC 11, 11.2, 11.5
Visual Impacts				
January 5, 2005	Bernard W. Papke	Concerned about the visual impact of the guideway's appearance along the No. 3 corridor in Richmond. Suggested that the guideways be designed to complement the various themes and building styles along No. 3 Road.	RAVCO and the Concessionaire recognize that Richmond is a "Garden City," dedicated to the greening of its neighbourhoods and city centre. Landscaping and urban design are key considerations to be used in successfully integrating a transit system into a community. The visual appearance of the guideway is largely dictated by the structural design requirements. Development of station design concepts will be undertaken in the next stage of design starting in June 2005. Close coordination between the COR and the Concessionaire, plus public consultation, will be integral to this process. (Application Supplement sections 4.4.2.2 and 4.4.8.4)	√ OAC 11.2
February 22, 2005	Ken Bregman	Concerned that the tunnel portal and the Marine Drive overpass will be a highly disruptive visual feature on the landscape.	At the tunnel portal, new landscaped areas in the vicinity of the portal structure will be created to replace lost green space. In order to achieve this, the northbound lanes of Cambie Street will be reconfigured to provide a landscaped area on both the east and west sides of the portal. This area will be of sufficient size to facilitate a one-for-one replacement of vegetation. Details and final design of the landscape features for this area, in general, and the portal, in particular, will be part of the public consultation (June 2005 to mid-2006) and community liaison program. (Application Supplement Section 4.4.8.4)	√ OAC 11.2
February 21, 2005	Marion Smith	Concerned that an elevated transit line includes physical and visual barriers that discourage use.	Efficient station access is paramount to the success of the RAV line. Preliminary station design has determined that stations will be "close to the ground," with shallow stations and stations without mezzanines in the elevated segments. Architecture and finishes will be designed to create warm, clean and safe stations. Station entrance configurations will provide a hierarchy of intermodal access that gives priority to bus transfers and pedestrian access. (Application Supplement Sections 4.4.3.1 and 4.4.3.3) Resolution of station access issues will involve consultation with the cities, transit agencies and local stakeholders. Preliminary and detailed	√ OAC 5-5.3, 11.2, 11.5

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			project design will be discussed in upcoming consultation (June 2005 to mid 2006). The Concessionaire will establish a Station Access Planning Committee that will bring together key decision-makers to facilitate this aspect of the design process.	
Safety and Security				
February 17, 2005 February 20, 2005	Denise Chow Chardon Labrie	Concern that the RAV project will result in increased crime (drugs and theft) on Cambie Street and in the neighbourhood.	Safety and security issues will be addressed through the adoption of station designs that follow basic Crime Prevention Through Environmental Design (CPTED) principles. This includes better lighting, wide open spaces, the use of transparent materials, and good sightlines. All stations will be designed to accommodate demarcation between paid and unpaid fare zones, and if required, a fare gate array may be incorporated to the station from general public non-ticketed access. (Application Section 9.6.6.2; Application Supplement Section 4.4.3.1)	√ OAC 11.5
February 17, 2005	Denise Chow	Request that the stations incorporate turn-stiles to prevent loss of revenue and lessen crime.	The decision on whether to install gated access will be made by TransLink rather than RAVCO. (EAC Application Section 9.6.6.2; EAC Application Supplement Section 4.4.3.1). EAO Note: see Proponent's safety and security responses directly above.	√ OAC 11.5
February 22, 2005	Valentina Rodriguez	Concerned that the traffic and pedestrian mobility impacts resulting from surface tunnel construction will reduce safety for children around Douglas Park.	The Concessionaire's traffic management strategy is designed to mitigate traffic impacts and ensure pedestrian access and safety during construction. The Traffic Management Plan will include the identification of requirements for maintaining safe and accessible bicycle routes and pedestrian access through the work site; and, traffic calming measures. The Concessionaire's Construction Management Plan will address public safety in the vicinity of the construction zone. (Application Supplement Section 4.4.10)	√ OAC 5.3, 11.3
Quality of Life				
February 22, 2005 February 22, 2005	Carla Vendrame Scott Hawker	Concerned that lost businesses on Cambie Street will be replaced with condos resulting in more traffic and a change in the character of the neighbourhood.	RAVCO has received no indication, nor reached any conclusions from available external information, that business losses may occur during construction, and what those perceived losses may be. Urban design and landscaping will be used to successfully integrate the RAV line into the community. (Application Section 17.1.1 and Application Supplement Section 4.4.8.4.)	√ OAC 11, 11.1
February 22, 2005	Don Watters	Concerned that residents within a work area will have to travel further in opposite directions to get in and out of their homes.	The Concessionaire's traffic management strategy is designed to mitigate traffic impacts and ensure pedestrian access and safety during construction including maintaining safe and accessible bicycle routes and pedestrian access through the work site, as well as traffic calming measures. (Application Supplement Section 4.4.10)	√ OAC 11.3
February 21, 2005	Katrina Bishop	Concerned that there will be health risks associated with living so close to a cut-and-cover tunnel construction	Prior to commencement of construction, the Concessionaire will submit an Air Quality and Dust Control Plan and a Contaminated Sites Management Plan to RAVCO for review and approval. The	√

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		site.	Concessionaire will be responsible for adhering to the terms and conditions of the Concession Agreement, the Environmental Assessment Certificate, the Environmental Management Plan and all other applicable permits, licences and approvals related to the mitigation of construction-related air quality impacts and the management of contaminated sites that occur along the length of the alignment. Ordinarily, the greatest risk relates to exposure of construction workers, and so specific health and safety measures to address contamination and air quality are added to conventional programs designed to protect workers and are enforced in BC by the WCB. (Application Section 21).	OAC 1.4, 15-15.2, 15.6, 16, 15.1
February 22, 2005	G.A. (Jenna) LaFrance	Concerned that the RAV Project will result in the overall demise of the Cambie Street neighbourhood.	The stacked tunnel proposed for under the northbound travel lanes of Cambie Street will significantly reduce the amount of disruption to trees and vegetation along Cambie Street. Urban design and landscaping will be used to successfully integrate the RAV line into the community. Long-term impacts on communities will be relatively contained around stations and other fixed facilities. (Application Section 17.1.1 and Application Supplement Section 4.4.8.4.)	√ OAC 11.2, 11.5
Station Impacts				
February 17, 2005	Denise Chow	Concerned that commuters will park along residential side streets resulting in a lack of parking for residents.	On-street can be mitigated by instituting a residents-only parking permit system. In some residential areas near Cambie Street, the COV already restricts non-resident on-street parking. The RAV line may have some positive effect on resident parking as more people who work in those areas begin to use transit rather than driving. (Application Section 9.6.6.1)	√ OAC 11.2, 11.5
CONTAMINATED SITES				
February 10, 2005 February 12, 2005 February 21, 2005 February 23, 2005	C. and P. Chipkin C. Mulholland Wiebel Family D. Light, R. Chatterjee, G. Jones, M. Grande, Taiwanese Canadian Green Club Form Letter	Public concerned that cut-and-cover tunnel construction will expose the Cambie neighbourhood to toxic wastes. Also that site investigations have not been conducted to adequately characterize the risks or costs associated with remediation of these contaminants under provincial and federal laws or the cost of the remediation and disposal of the contaminated soils which will be excavated as a result of the design change to cut-and-cover. Public may be left responsible for any	Such materials have been managed, without incident, in large-scale construction projects at numerous Lower Mainland inner urban locations. The entire RAV corridor has undergone a screening level assessment to assess the likelihood of encountering contamination during construction. Since most "at-risk" properties were located adjacent to the RAV corridor, contamination of the RAV corridor has not necessarily occurred. A Contaminated Sites Management Plan will be prepared in advance of construction to ensure contaminants are managed appropriately, provide measures for dealing with contaminated soils identified during construction including need for and undertaking a Detailed Site Investigation. The Concessionaire will be required to test and remove and/or remediate contaminated soils to the satisfaction of the applicable regulatory authorities. Transportation and disposal of contaminated soils are closely controlled and monitored by the MWLAP and require	√ OAC 1.4, 12-12.3

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		contaminated soils that were not identified.	appropriate planning, procedures and documentation under the Contaminated Sites Regulation. (Application Section 10 Screening Level Contaminated Sites Assessment).	
February 23, 2005	Georgia Strait Alliance	Requested that extensive testing be done on all potential contaminated sites before the commencement of any excavation; and, that minimum standards of testing be exceeded on all samples.	EAO Note: See RAVCO's response to toxic waste above	√ OAC 1.4, 12-12.3
February 23, 2005	Georgia Strait Alliance	Requested that minimum standards be exceeded on all chemicals, toxins, and heavy metals on materials disposed of in the ocean.	Prior to loading or disposing of material at sea, the Concessionaire will secure a permit from EC under the CEPA. Since CEPA prohibits the ocean disposal of substances that may be harmful to the marine environment, only materials that have been tested and that meet the Disposal at Sea Regulations and the Disposal at Sea Interim Contaminant Testing Guidelines can be approved for disposal at sea. (Application Section 2.7.5.2)	√ OAC 19-19.2
February 23, 2005	David Light	Interested in how contaminated soils will be safely removed.	EAO Note: See Proponent's response to toxic waste above.	√ OAC 19-19.2
AIR QUALITY				
Effects on Local Air Quality				
January 31, 2005 February 16, 2005	Ethel Karmel Brian Palmquist	Concerned that dust from construction will affect the large population of seniors with heart and respiratory illness, living in the vicinity of the alignment along Cambie Street.	Prior to construction, the Concessionaire is required to submit an Air Quality and Dust Control Plan describing measures to be taken to minimize air quality impacts associated with construction-related activities. The Concessionaire will be required to conduct road and sidewalk cleaning and/or dust control during construction at all Vancouver and Richmond locations. (Application Sections 11.5.2 and 21 and Application Supplement Section 7.2.4.)	√ OAC 1.4, 15-15.2
February 3, 2005 February 14, 2005 February 16, 2005 February 17, 2005 February 18, 2005 February 21, 2005 February 22, 2005	Joseph Lin Ken Gilbert Brian Palmquist L. Sinclair, G. Rhodes S. Levington M. Cox, C. Leduc, K. Bishop J. Broda, V. Rodriguez, L. Johnson, M.	Concerned that air emissions (pollution) and dust impacts due to cut-and-cover construction (e.g. diesel excavators and dump trucks) will negatively impact residents, exceeding regional objectives designed to protect the health of residents of the GVRD.	Prior to construction commencement, the Concessionaire is required to submit an Air Quality and Dust Control Plan describing measures to be taken to minimize air quality impacts associated with construction-related activities. For more information, see Application Sections 11.5.2 and 21 and Application Supplement Section 7.2.4.	√ OAC 1.4, 14, 14.1, 15-15.2

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DATE	SUBMITTED BY	PUBLIC COMMENTS	RAVCO (PROPONENT) RESPONSE	REVIEW STATUS
February 23, 2005	Boyle, D. Watters D. Light, R. Chatterjee, G. Jones, M. Grande, S. Lewis			
February 11, 2005 February 11, 2005	Jackie Eccles E. MacLeod	Concerned that the switch from hydro power to diesel for buses along Cambie Street during cut-and-cover construction will further compromise air quality.	The displacement of trolley buses by diesel buses in the Cambie corridor will be short term and temporary during construction.	√ OAC 1.4, 14, 14.1
Greenhouse Gas Emissions				
February 3, 2005 February 22, 2005	Joseph Lin Mike Boyle	Concerned that traffic congestion resulting from cut-and-cover construction will increase greenhouse gas emissions.	<p>Prior to commencement of construction, the Concessionaire will submit an Air Quality and Dust Control Plan to RAVCO for review and approval. Measures to be addressed in the Air Quality and Dust Control Plan will include, but not be limited to implementation of best management practices to minimize combustion source and fugitive dust emissions and impacts. Although the potential for localized air quality impacts of these activities may be significant, it is important to note that they are temporary and localized.</p> <p>The Concessionaire will also be responsible for adhering to the terms and conditions of the Concession Agreement, the Environmental Assessment Certificate, the Environmental Management Plan and any other applicable permits, licences and approvals related to the mitigation of construction-related air quality impacts.</p> <p>Overall reductions to greenhouse gas emissions as a result of RAV line operation are expected to far outweigh any short-term increase in GHG emissions that will be experienced during the construction phase. (Application Supplement Section 7.2.4.1 and Application Sections 21 and 11.4.2)</p>	√
NOISE IMPACTS				
Construction Noise				
February 23, 2005	R. Chatterjee, G. Jones, M. Grande, B. Martin	Application does not contain a discussion of construction noise levels (pile-driving, the length of the open cut and 467,000 dump truck sorties through downtown and along the Cambie corridor).	The Noise Assessment for the Selected Project identifies and addresses potential construction impacts. (Application Section 9.5.4 and Application Supplement 7.2.5.1) EAO Note: Addressed by Richmond Airport Vancouver Cut & Cover Tunnel Construction Noise Assessment prepared by BKL Consultants Ltd, March 29, 2005.	√ OAC 15.5
February 3, 2005	Joseph Lin L. Sinclair D.	Concerned that noise from cut-and-cover tunnel construction and truck	The Concessionaire will describe measures to address noise impacts in the Noise Management component of the Construction Environmental	

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DATE	SUBMITTED BY	PUBLIC COMMENTS	RAVCO (PROPONENT) RESPONSE	REVIEW STATUS
February 17, 2005 February 20, 2005 February 21, 2005 February 22, 2005 February 23, 2005	Chow C. Labrie C. Leduc, M. Cox L. Johnson, M. Boyle, J. Broda V. Rodriguez, D. Watters, A. Pekovich S. Lewis, R. Chatterjee, G. Jones, M. Grande	traffic will negatively impact Vancouver residents. Also, noise needs be monitored and mitigated.	Management Plan. The Concessionaire and its agents will comply with all applicable municipal bylaws and provincial and federal regulations. (Application Section 20.2.2). In addition, the Concessionaire will develop Traffic Management Plans for both Vancouver and Richmond. The plans must be approved by the two municipalities respectively. Excavated materials will be transported along designated truck routes, or routes otherwise approved by the applicable municipalities and the Concessionaire and its agents will comply with all applicable municipal bylaws and provincial and federal regulations.	√ OAC 1.4, 15, 15.5, 15.6, 16, 16.1
Operation Noise				
February 17, 2005 February 21, 2005	Denise Chow Marion Smith	Concerned that operation of the RAV line will result in noise pollution. Also the proposed methods for noise mitigation (i.e. berms, fences, retaining walls, etc.) are insufficient for reducing noise from an elevated line.	The results of the Noise Impact Assessment have determined that no significant noise impacts are anticipated from RAV Project operations. (Application Section 12.1 and 12.4.1). In general, elevated alignments have less noise impacts than at-grade alignments due to the sound being directed upwards and the acoustic shielding offered by the alignment structure to receivers located below. As well, the Richmond portion of the alignment will occur in areas with significant existing traffic and high existing ambient noise levels. Thus, for most types of electric train technology and for most of the alignment, the additional noise contribution will be minimal. Given the distances between the noise source and adjacent residential areas in Richmond, noise attenuation measures are expected to fully address any potential noise impacts.	√ OAC 1.4, 15, 15.3, 15.4
HISTORICAL AND HERITAGE ASSESSMENT				
Historical/Archaeological				
February 23, 2005	R. Chatterjee, G. Jones, M. Grande	Concerned that open cut surface trenching has a significantly greater potential for the destruction of First Nations heritage artifacts.	The archaeological impact assessment determined that there was low potential for encountering cultural deposits on the Cambie Street portion of the alignment. Furthermore, there are no provincially registered archaeological sites along this portion of the corridor. Prior to construction, the Concessionaire will be required to provide RAVCO with an Archaeological Monitoring Plan that addresses the entire RAV alignment. The plan will ensure that monitoring is conducted by a professional consulting archaeologist accompanied by First Nations representatives. EAO Note: MSRM issued a Section 14 permit to RAVCO's archaeological consultant on April 6, 2005 that addresses any additional archaeological fieldwork, mitigation of unrecorded sites and archaeological monitoring during construction.	√ OAC 1.4, 17, 17.1

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DATE	SUBMITTED BY	PUBLIC COMMENTS	RAVCO (PROPONENT) RESPONSE	REVIEW STATUS
ACCIDENTS AND MALFUNCTIONS ANALYSIS				
Construction Activities				
February 21, 2005 February 21, 2005 February 22, 2005	Michael Cox Wiebel Family Andre Pekovich	Concerned that cut-and-cover construction may result in major interruptions of water, sewer and gas and that this risk has not been assessed.	Construction will be coordinated with utility providers and notification of any service interruption will be provided to the affected residents and businesses.	√
February 21, 2005	Wiebel Family	Concerned that cut-and-cover construction will effect surface water run-off causing unpredictable erosion and compromising the safety of the construction area.	Adherence to the practices and procedures contained in the Concessionaire's Environmental Management Plan, including the control of stormwater quality and sediments, will minimize the potential for accidents and malfunctions during Project construction. (Application section 17.1.2)	√ OAC 1.4, 2-2.3
February 22, 2005	Andre Pekovich	Concerned that there are no plans to address the possibility of a cave-in during cut-and-cover tunnel construction and potential impact to surrounding areas.	The Concessionaire will be employing a proprietary excavation shoring method that has proven effective in preventing the collapse of excavations. Further, adherence to the practices and procedures outlined in the Concessionaire's Environmental Management Plan and Construction Management Plan will minimize the potential for accidents and malfunctions during project construction. A Spill Prevention and Emergency Response Plan will define an emergency classification guide and action plan to be carried out according to the severity and potential impact of the emergency (Application section 17.1.2).	√ OAC 1.4, 2-2.3
EFFECTS OF THE ENVIRONMENT ON THE PROJECT				
Seismic Activity				
January 27, 2005	B. Peritz	Concerned about how the Project will withstand liquefaction in the event of an earthquake.	The risk of ground failure and associated damage to the RAV line due to an earthquake would be greatest in proximity to watercourses (i.e., False Creek, Fraser River) and in Richmond. Since the RAV system will be located in an area that is at moderate to high risk for seismic activity, all project components will be designed to accommodate a 1-in-475 year earthquake. (Application Section 18.2.3)	√
MITIGATION AND COMPENSATION MEASURES FOR RAV PROJECT CONSTRUCTION AND OPERATION				
February 21, 2005	Pam Best	Concerned that the destruction on Cambie from cut-and-cover tunnel construction will be too great to be mitigated.	The individual impact assessment studies identify RAV Project construction impacts that are temporary and manageable. Post-construction activities will include re-paving of roadways disturbed during construction; decommissioning of construction works and storage yards; and, site restoration and landscaping. (Application Section 17.1.1 and Application Supplement Section 4.4.8.4)	√ OAC 1.4, 10, 11, 11.2
February 23, 2005	R. Chatterjee, G. Jones, M. Grande	Concerned that there is no plan for independent environmental monitoring of the project which is necessary to	An Environmental Inspection Program, as part of the Environmental Management Plan, will be undertaken by the Concessionaire and RAVCO and will ensure that the Concessionaire retains and utilizes the	√

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		ensure the project proceeds in a manner that is properly protective of the environment and public health.	services of an experienced Environmental Inspector. Refer to Application Section 21: 3 for more information on the responsibilities of the Environmental Inspector.	OAC 1.4, 2-2.3
DESIGN				
Urban Design				
January 27, 2005	Barry H. Ogilvie	Request for cyclist and pedestrian paths underneath the Airport segment guideway and beside bridge crossings.	TransLink has approved the incorporation of a cycling lane as part of the RAV bridge crossing of the North Arm of the Fraser River. Preliminary and detailed project design will be discussed in upcoming public consultation (June 2005 to mid 2006).	No further detail required for the purpose of the EA review
January 27, 2005	Barry H. Ogilvie	Interest in the number of bikes each transit car can accommodate.	Each train will have dedicated spaces for two bicycles, and bicycle storage at stations, including racks and lockers, will be provided where appropriate, given likely demand and available space. (Application Section 2.3.6.12)	Information item only
Station Design				
February 22, 2005	Patrick O'Leary	Requested: <ul style="list-style-type: none"> • stairways designed for strollers and luggage • stations be built as close to at-grade as possible • turnstiles installed and transit/security people on-site to assist the public • services at stations • washrooms, water fountains, clocks at each station • stations be heated in the winter • blank space be beautified rather than used for advertising • stations/transfer points be efficient and easy to use as well as designed to improve flow of people 	Preliminary and detailed project design will be discussed in upcoming consultation phases (June 2005 to mid 2006). Comments on design will be brought forward for consideration during these phases.	√ OAC 5, 11.5
ENVIRONMENTAL ASSESSMENT PROCESS AND PROCEDURES				
Scope of the Environmental Approval Certificate Application				
February 3, 2005 February 23, 2005	Joseph Lin D. Hill, R. Chatterjee, G.	Request that the proposed changes to employ cut-and-cover construction on the Project undergo a thorough	Potential environmental impacts associated with cut-and-cover construction have been addressed in the Application Supplement (December 2004). EAO Note: EAO and Review Team take public	

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	Jones, M. Grande, B. Martin	environmental impact assessment. Also, to much emphasis on the projected benefits.	comments into consideration during the EA review and in preparing the Assessment Report that is forwarded, in the EAO referral package to the Ministers on RAVP.	√
February 12, 2005	Carrie-lynn Mulholland	Noted that responsible planning includes making environmentally responsible and community sensitive decisions.	As described in Sections 20 and 21 of the Application, RAVCO has made a variety of commitments regarding implementation of required environmental actions, investigations and procedures during project construction and operation. Adherence to these commitments will ensure that project planning, design and construction proceed in keeping with sound environmental practices.	√
February 22, 2005 February 23, 2005	Mike Boyle R. Chatterjee, G. Jones, M. Grande, B. Martin	Requested a three-week extension of the public comment period.	EAO Note: the timeline extension was not granted. This decision was based on: there is no legal requirement, nor a government policy, stipulating that comments by an EAO-organized technical review team should be available before the closure of a public comment period; a project EA review is based on the Application for an environmental assessment certificate (in this case an Application and Application Supplement), as well as other review material posted on EAO's website, and must evaluate the adequacy of the review material within the timeline set by legislation, including the public comment period. The quality of the review material is assessed by all review stakeholders, including the public, and clarification and additional material may be required from the proponent as the EA review proceeds; the 45-day public comment period set for RAVP EA review is in accordance with the Section 11 Order issued by EAO on 10 September 2003 for this project and reflects the BCEAA and BC Reg.372/2002; and the Application (defines Cambie Street cut-and cover tunnelling construction methodology in Table 2-2) was posted on EAO's website on 12 December 2004 and the Application Supplement, providing further details on the Selected Project, was posted on the EAO website on 20 December 2004. The public therefore had at least 3 weeks of additional review time before the formal start of the public comment period on 10 January 2005.	√
February 23, 2005	D. Light, R. Chatterjee, G. Jones, M. Grande, B. Martin	Noted that the selected project differs from all of the three studied reference projects upon which the approved Terms of Reference were based.	Potential impacts associated with cut-and-cover construction are addressed in the Application Supplement (December 2004). The Application also describes the Cambie Street cut-and-cover tunnel construction methodology (Table 2-2).	√
February 23, 2005	David Hill	Noted that the proponent has not met the requirements of the BCEAA and the EAO's procedural order of September 10, 2003 by failing to extensively consult with the public about the construction method to be	Once the funding agencies approved the Project in December 2004, information regarding the Concessionaire's proposal was made available to the public on both the RAVCO and EAO websites. Due to the competitive nature of the procurement process, this was RAVCO's first opportunity to make this material available to the public. The Application (which describes the Cambie Street cut-and-cover tunnel construction	

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		used along Cambie Street between 6th Avenue and 63rd Avenue. Noted that the public believed that construction would be by way of bored tunnel.	methodology in Table 2-2) was posted on the EAO's website on December 12, 2004 and the Application Supplement, providing further details on the Selected Project, was posted on the EAO website on December 20, 2004. Through information presented in the Application Supplement and the open houses held on January 25, 26 and 27, 2005, the public has been made aware of the Selected Project.	√
February 23, 2005	David Hill	Cut-and-cover tunnel construction approach to the Cambie segments of the RAV line was never considered by the Socio-Economic/Community Technical Working Group.	EAO Note: Socio-economic/community concerns were addressed during the formal review of the RAVP Application and Application Supplement. MSBED, local governments and other agencies participated in the formal EA review of the Application and Application Supplement.	√
February 23, 2005	David Hill	Terms of Reference were created on the premise that bored tunnel construction would be employed. The proponent's change in methodology should have been the subject of public comment in the Pre-Application phase and included in the scope section of the Terms of Reference.	EAO Note: During Pre-Application stage, the EA review focused on the assessment of a linear corridor project in an urban environment. Once the "preferred" project was announced, the EAO required that an Application Supplement be prepared on the "preferred" project, including full project description and any changes to the impact assessments contained in the Application.	√
February 22, 2005	Andre Pekovich	Concerned about the credibility of the information presented in the Application.	EAO Note: The RAVP EA review is based on the Application for an environmental assessment certificate (in this case an Application and Application Supplement), as well as other review material and must evaluate the adequacy of the review material within the timeline set by legislation. The quality of the review material is assessed by all review stakeholders, including the public, and clarification and additional material may be required from the proponent as the EA review proceeds. RAVCO provided clarification/responses to Agency/public comments raised during the RAVP EA review.	√
February 23, 2005	R. Chatterjee, G. Jones, M. Grande, B. Martin	Concerned that the impact of the proposed project on ocean waters (dumping of nitrogenous and contaminated surface soils) has not been given any consideration.	If disposal at sea is required, the Concessionaire will secure a permit from EC under the CEPA. Since CEPA prohibits the ocean disposal of substances that may be harmful to the marine environment, only materials that have been tested and that meet the Disposal at Sea Regulations and the Disposal at Sea Interim Contaminant Testing Guidelines can be approved for disposal at sea. (Application Section 2.7.5.2).	√ OAC 19-19.2

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APPENDIX E

**DOCUMENTS AND CORRESPONDENCE FOR THE
RICHMOND•AIRPORT•VANCOUVER RAPID TRANSIT PROJECT**

APPENDIX E

OWNER'S COMMITMENTS AND ASSURANCES¹

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
	Responsible Environmental Management			
1	<i>As an overriding objective of responsible environmental management, the Owner shall ensure that an Environmental Management System (EMS) shall be implemented for the Project. The Owner will ensure that the design, construction and operation, including maintenance, of the Project is carried out in an environmentally responsible manner, and will employ Best Management Practises (BMPs³) and comply with federal, provincial and municipal statutes. The Owner will instruct and advise the selected Concessionaire⁴ to abide by all relevant commitments in this Table and as reflected in the EAC⁵.</i>	Pre-construction, Construction, Operation, Maintenance	RAVCo, Concessionaire, Contractors	COV, COR, DFO, EAO, EC, FN, MWLAP, TC, VIAA NOTE: <i>The agency listing applies to all subsections of a main section, unless otherwise specified.</i>
1.1	The Owner will ensure that required statutory Permits, Approvals and Authorizations are in place before proceeding with construction.			

¹ (1) The "Owner" is understood to mean the applicant for an environmental assessment certificate pursuant to BCEAA (i.e RAV Project Management Ltd. - RAVCo) and to whom the Certificate may be issued. Any transfer of commitments and assurances in this *Appendix E* by the applicant to the selected and contracted Concessionaire, must comply with all conditions of the Certificate. A full transfer of the Certificate and its conditions to the Concessionaire- as the new "Owner" - requires a name change for the holder of the Certificate and necessitates an Amendment to the Certificate. (2) The Owner has also confirmed their *Project Commitments, Responsibilities and Assurances* in Section 21 of the EAC Application, Table 21.1. These commitments become an integral part of EAC commitments and *Appendix E*, but may be further defined in this Table.

² See last page for identification (Footnote #8). Include agencies or authorities with a pertinent, legislated mandate to fulfill with respect to the Project and/or parties that will receive information for review and comments.

³ Those that are technically and economically feasible and as defined specifically in other sections of this Table.

⁴ In Transit BC Limited Partnership, a partnership including SNC Lavalin-SERCO (name of incorporated company)

⁵ EAC = Environmental Assessment Certificate

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
1.2	The Owner will prepare or have prepared a Construction Environmental Management Plan (EMP) ⁶ for the Project prior to the start of construction. The Construction EMP will provide contractors and on-site workers with procedures and requirements for meeting Permits, Approvals and Authorizations and for carrying out on-site activities using accepted BMPs and complying with conditions of the EAC. The individual plans of the EMP are listed in sect. 1.4 below and additional plans are referenced in this Table and in the EAC.			
1.3	The Owner will prepare or have prepared an Operating EMP, dealing with environmental management aspects of the longer-term operations and maintenance of the Project. The Owner will ensure compliance with BMPs, as well as with the EAC and with federal, provincial and municipal requirements of the Project.	Operation	RAVCo, Concessionaire	COR, COV, GVRD
1.4	The Owner will develop or have developed and implement or have implemented detailed environmental management plans, as appropriate, to address identified environmental issues including those that require monitoring. The following environmental management plans are to be provided, as part of the EMP as described in the EAC Application (Section 20 and 21, pg. 21-1, Table 21.1), including other monitoring requirements identified in the EAC and in this Table: <ul style="list-style-type: none"> • A Surface Water Quality and Sediment Control Plan • A Contaminated Sites Management Plan • A Hazardous Waste Management Plan • A Spill Prevention and Emergency Response Plan • A Solid Waste Management Plan • An Air Quality and Dust Control Plan • A Noise Management Plan • A Landscape Design and Restoration Plan • An Archaeological Monitoring Plan • An Environmental Education and Awareness Plan • An Operations Environmental Management Plan 	Pre-construction, Construction	RAVCo, Concessionaire, Contractors	COR, COV, DFO, EAO, EC, FN, GVRD, HC, MSRM, MWLAP, VCHA, VIAA

⁶ As discussed in section 20 of the EA Application.

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
2	<i>The Owner will ensure that environmental monitoring and reporting for the construction phase of the Project will be conducted, with respect to the terms and conditions of the EAC and other regulatory Permits, Approvals and Authorizations as applicable.</i>	Pre-construction, Construction	RAVCo, Concessionaire, Contractors	COR, COV, DFO, EAO, EC, HC, MSRM, MWLAP, VCHA, VIAA
2.1	The Owner will ensure that the monitoring of the Construction EMP, outlined in section 20 of the EAC Application, will incorporate all plans developed for the construction phase of the Project and as detailed in the respective monitoring plans.			
2.2	The Owner will ensure that each of the environmental monitoring plans will outline the rationale for monitoring, the parameters to be monitored, monitoring program details, and follow-up actions to be taken, by the Owner or the Concessionaire, as appropriate.			
2.3	The Owner will engage or have engaged an independent Environmental Monitor, or an environmental monitoring firm, for the construction phase of the Project. The Environmental Monitor will undertake environmental monitoring activities, and will implement each of the environmental monitoring plans developed for the Project and as reflected in the appropriate EMP. The Environmental Monitor will review, evaluate, and report to regulators on the construction activities and the effectiveness of the environmental control strategies and mitigation measures, with respect to the terms and conditions of the EAC and other regulatory Permits, Approvals and Authorizations that may apply.			
3	<i>The Owner will ensure that environmental monitoring and reporting for the operation phase of the Project will be conducted, with respect to the terms and conditions of the EAC and other regulatory Permits, Approvals and Authorizations as applicable.</i>	Operation	RAVCo, Concessionaire,	COR, COV, DFO, EAO, EC, MSRM, MWLAP
3.1	The Owner will ensure that the monitoring of the Operating EMP, outlined in section 20 of the EAC Application, will incorporate all plans developed for the operation phase of the Project and as detailed in the respective monitoring plans.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
4	<i>The Owner, independently or through the Concessionaire, will respond rapidly and effectively to any possible emergency events and/or spill incidents that may occur during all phases of Project construction, operation and maintenance to minimize effects and risks to the general public, on-site workers and the environment.</i>	Pre-construction, Construction, Operation	RAVCo, Concessionaire, Contractors	COR, COV, DFO, EC, GVRD, MWLAP, MSRM, VIAA
4.1	The Owner will ensure that a protocol is developed for immediate reporting of any spills to the appropriate environmental emergency response authorities.			
4.2	The Owner will enforce spill reporting protocols. The EAC Application, Section 20.4.4, p.20-14 outline of a Spill Prevention and Emergency Response Plan will be finalized prior to construction, approved by regulatory agencies and provided to contractors in training sessions.			
Consultation with the Public and First Nations				
5	<i>The Owner will involve the local community, other stakeholders and First Nations within an open and interactive consultation process. Consultation will be carried out according to BC government policies included in EAO's Section 11 Order issued on September 10, 2003.</i>	Pre-construction, Construction	RAVCo	Agency, COR, COV, EAO, FN
5.1	During final design and construction, the Owner will conduct public and First Nations open houses and information sessions at least twice each year, to provide information on the progress of construction, the schedule, and upcoming milestones.			
5.2	The Owner will continue to update and make available media information materials, as part of its public information commitment.			
5.3	The Owner will implement a complaint tracking and response mechanism for the Project, in particular during the cut-and-cover construction phases of the Project. The Owner will encourage the organization of a Community and Business Liaison Committee for addressing public concerns. The Owner will also continue to liaise with First Nations to address relevant concerns over Project impacts.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
5.4	The Owner will continue to consult with interested First Nations identified in the Assessment Report throughout the Post-Review and Construction Phases, including discussions on economic development opportunities, employment and cultural display opportunities generated by the Project.			
5.5	Before start of construction, the Owner shall provide to the EAO a report on the results of discussions reflected in sect. 5.4.			
5.6	The report referred to in 5.5 shall also include a discussion on aboriginal fishery issues defined in sect. 8 of this Table.			
Fisheries and Aquatic Habitat				
6	<i>The Owner will finalize a Habitat Mitigation and Compensation Plan or ensure that such a Plan is finalized, to accompany a sect. 35(2) Fisheries Act Authorization. The overriding objective of this Plan in its final form is to demonstrate that the guiding principle of "no net loss" in DFO's Policy for the Management of Fish Habitat will be achieved.</i>	Pre-construction, Construction	RAVCo, Concessionaire	DFO, EC, NFPA, VIAA
6.1	The Owner must ensure that the final Habitat Mitigation and Compensation Plan to accompany the Authorization address those issues outlined in DFO's email to EAO dated 11 February 2005.			
6.2	The Owner will ensure that the operation activities of the Project complies with DFO sect. 35(2) Fisheries Act Authorization terms and conditions, as well as terms and conditions of other Permits, Approvals and Authorizations. The Owner will also ensure that all BMPs are enforced, as described in the Operating EMP.			
7	<i>The Owner will ensure that the construction works and operations for the Project are conducted in compliance with environmental requirements and BMPs, with particular attention to construction practices that minimize the introduction of deleterious substances, pursuant to sect. 36(3) of the federal Fisheries Act, into fish-bearing waters.</i>	Pre-construction, Construction, Operation	RAVCo, Concessionaire, Contractors	COR, COV, DFO, EC, NFPA, VIAA

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
7.1	The Owner will follow or have followed all the terms and conditions Permits, Approvals and Authorizations, and environmental BMPs.			
7.2	The Owner will ensure that all reasonable measures are taken to prevent substances that may be harmful to fish from entering the aquatic environment at the construction sites at any time during construction of the two Fraser River crossings or at any other construction sites in the proximity to fish and aquatic habitat. Particular attention should focus on discharges of suspended sediments, construction waste, handling of uncured concrete and other deleterious substances.			
7.3	The Owner will ensure that appropriate onsite control or treatment measures will be installed at the Operations and Maintenance Centre, "park and ride" and bus exchange locations.			
7.4	The Owner will meet suspended sediment recommendations of the Canadian Water Quality Guidelines for the Protection of Aquatic Life and the BC Approved Water Quality Guidelines.			
7.5	Conditions pertaining to disposal at sea are included in sect. 19 below.			
8	<i>The Owner will assess and evaluate aboriginal fisheries issues associated with the potential impacts of RAVP bridge crossings of the Fraser River on such fisheries.</i>	Pre-construction, Construction	RAVCo, Concessionaire	DFO, EAO, FN
8.1	The Owner shall seek to obtain all relevant information on the extent of aboriginal fisheries in the vicinity of the North Arm and Middle Arm of Fraser River. If such information is not released by First Nations, the Owner shall make all reasonable efforts in establishing the extent and value of such aboriginal fisheries.			
8.2	Good faith efforts will be made to avoid disruption of aboriginal fisheries at the two bridge crossings during in-river staging and construction of the Project, through effective scheduling of in-river construction activity.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
8.3	The Owner will make good faith efforts to enter into a Project Agreement, including a benefit package, with the MIB having asserted aboriginal fishing rights in the RAVP bridge crossing sections of Fraser River. It is recognized that this Project Agreement is contingent on the proper establishment of the Project's adverse impacts on aboriginal fisheries conducted by the MIB in these sections of Fraser River. Such consultation efforts towards a mutually acceptable Project Agreement will be made on a good faith efforts basis and will be dependent upon the willingness of the MIB to engage in such consultation.			
8.4	It is intended that any agreement described above shall be concluded before the start of bridge construction, unless the Owner and the affected First Nation agree on a later conclusion of such agreement. It is recognized that any agreement is contingent on the willingness of any affected First Nation to engage in such consultation.			
8.5	The Owner shall report to EAO on such actions and agreements as reflected in sect. 5.5 and 8.3 of this Table.			
Terrestrial and Bio-Physical Effects				
9	<i>The Owner will ensure that the land-based construction works for the Project are conducted in compliance with environmental requirements and BMPs, with particular attention to stormwater management on the sites during construction, excavation and disposal of fill and concrete works. Further the Owner must ensure that municipal community planning is reflected in mitigation of terrestrial and bio-physical impacts.</i>	Pre-Construction, Construction, Operation	RAVCo, Concessionaire, Contractors	COR, COV, DFO, EC, MWLAP
9.1	The Owner will comply with all terms and conditions of Permits, Approvals and Authorizations, and environmental BMPs.			
9.2	The Owner will follow or have followed the Construction EMP for stormwater management on the site during construction, in relation to material excavation and disposal of fill, concrete works, and other activities.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
9.3	The Owner will endeavour to meet COR's ESA guidelines and strive to achieve "no-net-loss" in accordance with COR's OCP.			
9.4	The Owner must reach agreement with DFO on the re-vegetation or compensation for any loss of riparian vegetation along the Fraser River.			
9.5	The Owner must ensure that vegetation clearing will be done outside the general bird breeding season from April 1 to July 31 unless otherwise approved by the CWS and MWLAP.	Construction	RAVCo, Concessionaire	EC/CWS
9.6	The Owner will ensure that it is in compliance with the <i>Migratory Birds Convention Act</i> (MBCA), the <i>Species At Risk Act</i> (SARA), and the <i>Migratory Birds Regulations</i> (MBR) for the life-cycle duration of this Project.			
Arboricultural Issues and Vegetation				
10	<i>The Owner must, through their contracts with the Concessionaire, take every reasonable step to ensure that the landscape, vegetation, bushes and trees are protected during construction and operation of the Project.</i>	Construction, Operation	RAVCo, Concessionaire	COR, COV, VIAA
10.1	The Owner will comply with all terms and conditions set out in the Heritage Alteration permit under COV Bylaw #4837			
10.2	The Owner will ensure that full compliance with Item #14 of Table 21.1 in the EAC Application is achieved.			
10.3	The Owner will ensure that there will be no net loss of COR landscape infrastructure and that the detailed tree preservation and protection plan, and landscape plan, as they pertain to Richmond, be reviewed and approved by the City, as applicable.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
10.4	The Owner will minimize impacts to foreshore marshes by adhering to the following mitigation measures: a) Where possible, minimize construction access across foreshore marshes and limit damage to riparian zone habitats. b) Avoid dredging and/or filling in marsh areas. c) All dredging activities are to adhere to "Environmental Dredging Guidelines for the Lower Fraser River" (FREMP 2001). d) Design and locate bridge pilings so as to avoid alteration of downstream hydrology, prevent soil compaction, and minimize direct damage to plants. e) Design bridges to regulations and to ensure a minimum deck height of 9 m over marsh areas and thereby minimize shading impacts.	Construction	RAVCo, Concessionaire	DFO, EC, NFPA, VIAA
10.5	Impacts to inter-tidal mudflats, inter-tidal marsh, and riparian woodland habitats will be offset through the creation of replacement habitats.			
Socio-economic/Socio-community Issues				
11	<i>The Owner will ensure that consideration is given to enhanced socio-economic aspects of the Project. If the Owner transfers the EAC to the Concessionaire, the Owner will ensure the transfer to the Concessionaire of all relevant commitments, including but not limited to those listed below.</i>	Pre-construction, Construction, Operation	RAVCo, Concessionaire	COR, COV, VIAA
11.1	The Owner will provide opportunities for the business community and residents in the immediate Project area to provide meaningful input throughout the final design, construction and implementation the Project. The Owner will develop a business liaison plan to minimize construction-related impacts. The plan will ensure that adequate notification is provided and will be developed with meaningful consultation with the business community, COV and COR.			
11.2	The Owner will ensure that the Concessionaire designs, constructs and operates the Project with care and attention provided to land use, site context, and urban design aspects.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
11.3	The Owner will ensure that the Concessionaire designs, constructs and operates the Project with care and attention provided to transportation and traffic considerations, so as to minimize and mitigate negative impact and effects. The Owner will resolve transportation and traffic issues in consultation with COV, COR, and VIAA, especially during the cut-and-cover tunnelling construction in Vancouver and the construction of the elevated guide-ways in Richmond and on Vancouver International Airport land.			
11.4	The Owner will ensure that the Concessionaire designs, constructs and operates the Project with care and attention provided to emergency services. The Owner will resolve issues (e.g., changes to Emergency Services) in consultation with COV, COR and VIAA as the Project design is finalized.			
11.5	The Owner will ensure that the Concessionaire designs, constructs and operates the Project in accordance with applicable bylaws and codes. Appropriate station design and other measures for protecting community safety and mitigating noise, will be determined through the Design Advisory Process agreed to between RAVCo and the cities of Vancouver and Richmond.			
<i>Contaminated Sites, Soil and Drainage</i>				
12	<i>The Owner must ensure that any contaminated soil, excavated material or contaminated groundwater is assessed and appropriately disposed of.</i>	Pre-construction, Construction	RAVCo, Concessionaire	COR, COV, EC, MWLAP, VIAA
12.1	Based on final design and associated geotechnical investigations, the Owner must ensure that a Contaminated Sites Management Plan is developed for review by approving agencies. The Owner is responsible for enforcing the terms and conditions of the Concession Agreement and the EAC, the EMP and any other applicable permits, licenses and approvals related to management of any contaminated sites that occur along the length of the Project alignment.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
12.2	In the event that contaminated soils are encountered during foundation excavations, the Owner must instruct the Concessionaire to remove and/or remediate these soils (including contaminated groundwater) to the satisfaction of the regulatory agencies.			
12.3	The Owner will ensure that the Concessionaire prepares a Soil Sampling Plan as part of the Construction EMP.			
13	<i>The Owner must ensure that there is no contamination of surface drainages.</i>	Construction, Operation	RAVCo, Concessionaire	COR, COV, EC, MWLAP, VIAA
13.1	The Owner must develop or have developed a Drainage Plan, as part of EMP, to the satisfaction of the approving agencies. The Plan must include treatment where necessary and must reflect on the use of de-icing chemicals, such as ethylene glycol.			
<i>Air Quality, Noise, Dust and Vibration</i>				
14	<i>The EAC Application Section 11 Air Quality Assessment refers to the ambient air quality objectives. The Owner must address new and more stringent GVRD documentation that may apply to the Project.</i>	Construction, Operation	RAVCo, Concessionaire	GVRD
14.1	The Owner and/or the Concessionaire must comply with the GVRD's proposed new ambient air quality objectives as outlined in "Greater Vancouver's Clean Air Strategy" dated February 4, 2005 and any subsequent changes to that document, when/if they are confirmed and if they apply to any RAVP air quality permits that may be required from the GVRD by the Concessionaire.			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
15	<i>The Owner will ensure that instructions are provided to the Concessionaire and its contractors throughout the pre-construction and construction phases to minimize possible effects related to air quality, noise, dust and vibration. (Noise must comply with COR Public Health Protection Bylaw #6989 and COV Noise Control Bylaw #6555)</i>	Pre-construction, Construction, Operation	RAVCo, Concessionaire, Contractors	COR, COV, EC, GVRD, HC, VCHA, VIAA
15.1	The Owner will ensure that the Construction EMPs and BMPs are complied with, as indicated in Section 20 of the EAC Application.			
15.2	The Owner will incorporate BMP and mitigation measures into the contract documentation for construction contractors, through the Concessionaire, including the requesting of low emission equipment. BMP and mitigation measures applicable to this commitment are further defined in GVRD's letter to RAVCo of March 22, 2005 and confirmed by RAVCo in their letter to GVRD dated March 23, 2005.			
15.3	The Owner will ensure that noise concerns related to operations are limited to station-related noise sources (speakers, chimes, diesel buses) which can effectively be dealt with through station design and ventilation shaft noises and tunnel openings.			
15.4	The Owner is required to further evaluate and address noise impacts on the basis of signal to noise ratio for residential properties south of 63rd Avenue, in Richmond and along the Vancouver Airport sections. Mitigation measures to negate any noise levels exceeding the night-time criteria proposed in the EAC Application should apply ⁷ .			
15.5	The Owner must undertake a projection of the combined noise impact of cut-and-cover construction along the closest residential properties/areas of Cambie Street (Broadway to immediately south of Marine Drive). The Owner shall implement technically and economically feasible mitigation			

⁷ One such location is for units 8453 and 8457 Cambie Street and the Owner has proposed some potential mitigation measures at the Marine Drive Station in their submission to EAO of February 9, 2005.

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
15.6	<p>measures to comply with the intentions of COV's and COR's noise Bylaws. Such measures could include noise barriers (as required) and any projected need for night-time work in the Concessionaires work plan.</p> <p>The Owner will ensure that the Concessionaire and contractors participate in special meetings with affected communities/residents to address site-specific noise issues in the event that late-evening or night-time construction works proves necessary in the vicinity of residential areas.</p>			
16	<p><i>In reflection of the relatively long predicted noise environment during construction and as part of the Construction EMP, the Owner must develop a Noise Management Plan in cooperation with the "approving and advisory agencies".</i></p>	Pre-construction, Construction	RAVCo, Concessionaire	COR, COV, HC, VCHA, VIAA
16.1.	<p>The Noise Management Plan (see EAC Application, Table 21.1, item #16) should describe the criteria and standards that will be applied in determining the necessity for, and implementation of, noise attenuation barriers and other mitigation measures. It is noted in Section 4.4.9.2 of the EAC Application Supplement that blasting will be required during excavation of the section around Little Mountain. Special mitigation measures as well as community notification will be required regarding noise generated by blasting.</p>			
Archaeological Impacts				
17	<p><i>With the exception of the False Creek segment, the north bank of the North Arm of the Fraser River, and the OMC property, it appears that the potential for significant impacts to archaeological sites is generally very low. The Owner is responsible for addressing the inadvertent exposure of archaeological remains during Project development.</i></p>	Construction	RAVCo, Concessionaire	FN, MSRM
17.1	<p>The Owner must ensure that the pending Section 14 Inspection Permit application pursuant to the BC <i>Heritage Conservation Act</i> include adequate provision for both monitoring and mitigating any unanticipated</p>			

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
	impacts as part of that permit. Incorporating the monitoring program with the ability for some data recovery into the permit for the life of the Project would streamline the process and avoid construction delays. Further direction is included in MSRM's (Steven Acheson) email to EAO dated December 15, 2004 and February 9, 2005.			
Public Health Issues				
18	<i>The Owner will ensure that the design, construction, operation and maintenance of the Project attempts to minimize any public health concerns associated with the Project. If the Owner transfers the EAC to the Concessionaire, the Owner, will ensure the transfer to the Concessionaire of all relevant commitments listed below and their appropriate attention to public health issues.</i>	Pre-construction, Construction, Operation, Maintenance	RAVCo, Concessionaire	COR, COV, HC, VCHA
18.1	Noise/vibration/dust/emission effects will be monitored by the Concessionaire or their contractors, based on a program developed in cooperation with COV, COR, HC and VCHA and consideration of human health effects will be included; for example, cumulative effects of multiple pieces of equipment operating during construction will be reported on, as part of monitoring activities at the various sites.			
18.2	The Owner will ensure that construction contractors will be properly trained and equipped, regarding the handling and use of any hazardous materials that they may be using during construction (e.g., uncured concrete).			
18.3	Other public health issues must be observed as reflected in other sections of this Table.			
Disposal at Sea				
19	<i>Based on information available in the EAC Application and in the EAC Application Supplement, it is assumed that ocean disposal of excavated material will be required. The Owner will be responsible for all required</i>	Pre-construction, Construction	RAVCo, Concessionaire	EC

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
19.1	<p><i>regulatory approvals pursuant to the Disposal at Sea Regulations (2001) under the Canadian Environmental Protection Act.</i></p> <p>The Owner will seek to expand from the Owner's document <i>Information Regarding Disposal at Sea of Excavated Material from the Richmond-Airport-Vancouver Rapid Transit Project. Technical Briefing Document.</i> (Prepared for EC and dated February 17, 2005) and submit or have submitted all required additional material required for regulatory approval. In particular, any sampling program must be approved by the Disposal at Sea Program.</p>			
19.2	<p>The Owner must ensure that if required by the EC Disposal at Sea Program staff, the Concessionaire has Disposal at Sea Program staff on site during sampling of any material proposed for disposal at sea; the Concessionaire must provide the results of chemical analysis to the Program; the Program will then consult with the Regional Disposal Advisory Committee and if the results are acceptable, the Concessionaire may apply for a Disposal at Sea Permit under the direction of the Owner.</p>			
Miscellaneous Commitments and Assurances				
20	<p>If determined applicable to the construction of the Project, the Owner must discuss and seek agreement on the issue of invasive species and resultant vegetation management with the Concessionaire in the context of their future EMP.</p>	Construction	RAVCo, Concessionaire	MWLAP
21	<p>The Owner must ensure that an application for an approval under the Canadian <i>Navigable Waters Protection Act</i> is submitted to TC based on the submission of site-specific, detailed bridge design and construction plans. The Owner and the Concessionaire must adhere to all terms and conditions set out in the approval.</p>	Pre-construction, Construction	RAVCo, Concessionaire	DFO, TC
22	<p>The Owner must ensure that discharges from the Operations and Maintenance Centre (OMC) meet GVRD water quality criteria. The OMC</p>	Construction, Operation	RAVCo, Concessionaire	COR, GVRD, VIAA

Ref	Objective Commitments and Assurances	Timing	Delivered By	Approving and Advisory Agencies ²
	will be subject to reviews carried out by COR as part of a Design Advisory Process. Depending on the source and quality of the effluent (i.e., rainwater versus process water from such activities as vehicle washing) produced from the OMC, discharges must either be to the storm or sanitary system, and will have to meet GVRD and other applicable standards.			
23	If required, the Owner must seek a section 9 <i>Water Act</i> permit, to be discussed with LWBC	Construction	RAVCo, Concessionaire	LWBC
24	The Owner commits to adhere to, or in the transfer of responsibilities to the Concessionaire, ensure such contractual compliance, with all mitigation proposals, relevant to the Selected Project, that are described in the Application, in the Application Supplement, or reflected in all other Owner generated documents listed in <i>Appendix A</i> to this Assessment Report or otherwise defined in this Table.	Construction, Operation, Maintenance	RAVCo, Concessionaire	All listed

Approving and Advisory Agencies⁸

Agency	Canadian Environmental Assessment Agency	HC	Health Canada
COR	City of Richmond	LWBC	Land Water BC
COV	City of Vancouver	MSRM	Ministry of Sustainable Resource Management
CWS	Canadian Wildlife Service	MWLAP	Ministry of Water, Land and Air Protection
DFO	Fisheries and Oceans Canada	NFPA	North Fraser Port Authority
EAO	BC Environmental Assessment Office	TC	Transport Canada
EC	Environment Canada	VCHA	Vancouver Coastal Health Authority
FN	Those First Nations identified in section 3.3.3 of PART A of this Assessment Report	VIAA	Vancouver International Airport Authority
GVRD	Greater Vancouver Regional District		

⁸ See footnote #2 on page 1 of this Table