



City of Richmond

Report to Committee

To: General Purposes Committee

From: John Irving, P.Eng. MPA
Director, Engineering
Victor Wei, P.Eng.
Director, Transportation

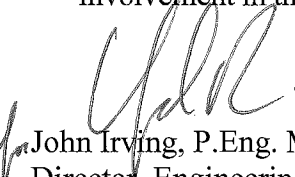
Date: February 21, 2017


File: 10-6350-05-08/2017-
Vol 01

Re: **George Massey Tunnel Replacement Project – Analysis of Approved Environmental Assessment Certificate**

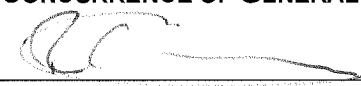

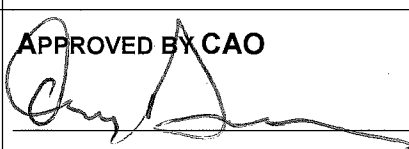
Staff Recommendation

1. That the City continue to reiterate its significant outstanding concerns to the Province regarding the George Massey Tunnel Replacement Project by sending a letter to the Ministry of Transportation and Infrastructure requesting that the Ministry address the concerns that were not resolved through the Environmental Assessment Application process for the Project; and
2. That staff be directed to continue seeking mitigation of any potential negative impacts of the Project on Richmond and the region through participation in Working Groups and input into management plans required by the Environmental Assessment Certificate as well as on-going involvement in the design and construction phases and related permit processes.


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Att. 3

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Parks	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Fire-Rescue	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

On July 27, 2016, the BC Environmental Assessment Office (BCEAO) advised the City that the 180-day Application Review stage for the George Massey Tunnel Replacement Project (the Project) was initiated. During this period, the BCEAO received and reviewed comments from the Working Group (includes City staff), Richmond City Council (via Council resolutions and associated staff reports) and the public. At the same time, the BCEAO compiled the Assessment Report, Certified Project Description and Table of Conditions, which were referred to the Minister of Environment and the Minister of Community, Sport and Cultural Development, along with the recommendation of the BCEAO, for decision on January 19, 2017.

On February 9, 2017, the Ministers issued an Environmental Assessment Certificate (the Certificate) to the Ministry of Transportation and Infrastructure (the Ministry) that includes 33 legally enforceable conditions (the Conditions). This report provides an assessment of the final Assessment Report, Certified Project Description and Table of Conditions and the extent to which they address the numerous concerns with the Project repeatedly identified by the City throughout the environmental assessment (EA) process.

Analysis

City Input during EA Process

During the EA process, Council expressed a preference for a new or improved tunnel (Council Resolution R16/17-6 of October 11, 2016) as opposed to the proposed 10-lane bridge and reiterated its key concerns related to land use and agricultural impacts, the scale of the infrastructure, traffic impacts on local roads and at the Oak Street Bridge, and the decommissioning of the tunnel enabling potential future dredging of the Fraser River. To ensure these concerns were considered during the EA process, the City provided input or commentary on the Project through the following means:

- Working Group: Staff participation in the EA Working Group that included meetings to develop, review and propose conditions for inclusion in the Table of Conditions.
- Letters to Senior Governments: Letters communicating Council resolutions were sent to senior government staff and elected officials.
- Meetings with Project Staff: City staff regularly met every two weeks with Project staff.
- Public Open Houses: Attendance at BCEAO open houses.

Section 3.5 (Local Government Consultation) of the Assessment Report fully itemizes the City's concerns. However, the Report either accepts the analyses and rationale presented by Project staff in the EA Application that the components of the Project would have little to no adverse residual effects or, where Conditions are imposed that are intended to address some of the City's concerns (discussed below), the City's role is typically limited to the provision of input as part of the consultation process with no guarantee that the feedback will be acted upon or result in changes to the Project that will be satisfactory to the City.

Certified Project Description

The Project has been given a Certificate based on the scope described in the EA application:

- Highway 99 Improvements: dedicated transit/HOV lanes, integrated transit stops at Steveston Highway and Highway 17A interchanges, up to four new general purpose lanes and ramp connections, replacement of Highway 99 interchanges at Westminster Highway, Steveston Highway and Highway 17A, and replacement of overpasses/underpasses at Cambie Road, Shell Road, Blundell Road, Ladner Trunk Road, and 112th Street.
- Bridge and Approaches: 10-lane bridge with a clear span over the Fraser River, southbound exit ramp to River Road South in Delta and removal of the Deas Slough Bridge.
- Tunnel Decommissioning: removal and offsite disposal of the four central in-river segments, decommissioning of the two remaining segments on either side of the four central segments, which will be left in place, and decommissioning of the approaches, ventilation shafts, and associated works.
- Temporary Activities: components that may be located anywhere within the Project corridor during construction including access roads, barging facilities, bridges at some or all Highway 99 interchanges and overpasses, laydown activities, and site office(s).

As evidenced by this unchanged Project description, there were no revisions to the Project scope (e.g., crossing scenario changed to a new tunnel, retention of the existing tunnel or a lower bridge with fewer lanes) in response to Council's conveyed concerns.

Table of Conditions

The Certificate has a total of 33 Conditions (the categories are shown in Attachment 1) that primarily ensure implementation of the mitigation measures where required and allow for on-going consultation with stakeholders (including the City) after issuance of the Certificate. Notwithstanding the approved Project scope, some of the City's concerns have been recognized as a result of the City's involvement and contributions and are reflected in selected Conditions. For each of the City concerns, the following sections summarize the Assessment Report's consideration of the concerns and, if a Condition has been identified to address the concern, compare the City's requested changes versus the final wording of the Condition. Attachment 2 provides a full comparison of the City's requested changes versus the final Certified Project Description and Table of Conditions.

Compatibility with Land Use Plans

City Concerns: The Project's expanded vehicle capacity for single occupant vehicles is not consistent with the Mayors' Council Vision, the Regional Growth Strategy or the City's Official Community Plan and may spur unplanned increased development south of the Fraser River and the conversion of farming land to non-agricultural uses.

City Requested Change: Add a new Condition that would require the Ministry to obtain written support from the Metro Vancouver Board that the Project is considered compatible with the Regional Growth Strategy.

Consideration in Assessment Report: The Report states the Ministry response that “*the Project has been designed to support a range of transportation, land use and economic development objectives identified in a number of regional and local land use and transportation plans and is generally consistent with these plans.*” The Project influence on land use is deemed to be moderate due to the lack of available developable land and the presence of restrictive land use controls. Thus, there is no new Condition associated with land use or the City’s concern.

Agricultural Impacts

City Concerns: The City identified the following concerns related to agriculture:

- Net Gain: No guarantee that highway right-of-way identified for return to agricultural use will be farmed to off-set the loss of the actively cultivated parcels required for the Project.
- Topsoil Conservation: Clarify how topsoil conservation will be undertaken.
- Soil Quality: Validate that soil quality of highway right-of-way identified for return to agricultural use will be equal to or better than that of the parcels required for the Project.
- Salt Wedge: Potential movement of the salt wedge as a result of the tunnel decommissioning.

City Requested Changes: That the draft Agricultural Management Plan be revised to include:

- how the Ministry will ensure that there will be new farming activity;
- how the highway right-of-way identified for return to agricultural use will be primed for farming including improvement of its soil capability class;
- how the topsoil reclamation program will be implemented; and
- greater monitoring of the salt wedge and the mitigation measures to be deployed should adverse changes be detected.

Consideration in Assessment Report (Condition 21): The Agricultural Management Plan must be developed in consultation with stakeholders including the City and the Richmond Farmers Institute and the final plan be provided to stakeholders no less than 60 days prior to the planned start date of construction. The implementation period of the Plan has been extended beyond construction only to two years post-construction, which will lengthen the window for the City to provide input. The Plan is to include the following key elements with respect to the City’s concerns (bold text identifies additions to the draft Condition):

- description of how the Ministry will offset the acquisition of parcels of farmland by restoring suitable lands within unused portions of the Highway 99 right-of-way and make these lands available for agricultural use;
- **the means by which topsoil salvage and reclamation will be implemented;** and
- the timing, duration and frequency of in-river salinity monitoring to be undertaken at the 80th Street Pump Station in Delta. Should the monitoring show that Project effects are not mitigated to the extent identified in the Application or are not predicted, then an adaptive management plan to address the effects is required.

However, the exact requirements of the measures are not specified. Thus, for example, there is no guarantee that the Ministry will ensure that that highway right-of-way identified for return to agricultural use will be farmed. The City will be able to provide input into the development of the Plan but the City’s endorsement is not required.

Visual and Noise Impacts

City Concerns: The proposed three-level configuration of the Steveston Highway Interchange and the widened Highway 99 are likely to have noise and visual impacts on adjacent land use, including the Gardens site, the City's Gardens Agricultural Park and the daycare within the site, area residents, and businesses. With respect to BC Hydro's relocation of its transmission line, Council expressed a preference for either an underground crossing or a transmission line attached to the new bridge.

City Requested Changes: Add a new Condition that the Ministry be required to re-examine the rationale for a 10-lane bridge and seek to minimize the extent of Highway 99 widening. Revise the draft Inter-Agency Working Group terms of reference to:

- state that the Ministry should obtain the support of the City on the design of Project infrastructure to be constructed in the city; and
- include BC Hydro as a member with the agency required to revise the scope of its transmission line relocation project to achieve the least visual impacts.

Consideration in Assessment Report (Conditions 12 & 24): The Inter-Agency Working Group (Condition 12) terms of reference must state how the Ministry will seek input from members on the following key elements related to the City's concerns (bold text identifies additions to the draft Condition) prior to the start of construction:

- design of infrastructure for the Project, including drainage, **cycling and pedestrian trails**, landscaping and visual considerations;
- **meeting Project lighting requirements that minimize light spill on adjacent areas;** and
- implementation of noise mitigation.

The Working Group must now remain active during operations as well as construction, which will extend the window for the City to provide input. However, the support of the City on the design of Project infrastructure is not required.

Implementation of the Noise Management Plan (Condition 24) is now extended beyond the construction phase to include the first 12 months following the start of operations. The Plan must include follow-up measures to be implemented if the specified minimum noise level objectives in the Ministry's Noise Policy have not been met during operations. Typically, mitigation measures will be implemented at noise-sensitive locations (e.g., residences, schools, places of worship) as warranted to avoid exceedances of specified noise thresholds in the Ministry's Noise Policy and achieve a minimum target noise reduction of 5 dBA.

With respect to the significantly expanded vehicle capacity of the crossing, the Report accepts the Ministry rationale that "*a 10-lane bridge would still be needed even with a tolled bridge and that, with an 8-lane bridge, there would still be peak hour congestion on opening day.*" The Report considers the cumulative visual effects of the BC Hydro transmission line relocation but concludes that the impact is not significant as the transmission line and towers are aligned with the bridge deck and piers. Accordingly, there are no Conditions related to BC Hydro.

Traffic Impacts

City Concerns: The City identified the following traffic-related concerns:

- Oak Street Bridge: Despite the claim of 40 percent of the traffic through the Tunnel destined to/from Vancouver, no contingency plans are identified to address the potential lengthening queues at the Oak Street Bridge during the peak periods.
- Local Road, Pedestrian and Cycling Networks: Lack of traffic analysis of the Project impacts at all intersections in Richmond adjacent to the Highway 99 corridor and no consideration of the impact of the proposed transit only lanes underneath the Oak Street Bridge that will cut across the Bridgeport Trail and the off-street multi-use pathway on Van Horne Way.

City Requested Changes: Revise the draft terms of reference for the Transportation Working Group for Highway 99 to require the Ministry to commit to monitor traffic operations at Oak Street Bridge and at all local intersections adjacent to the Highway 99 for a minimum of one year, provide a reserve contingency fund that can be used exclusively to address any unforeseen deficiencies caused by the Project and maintain the contingency fund for a minimum of two years after the full opening of the Project. In addition, the period of implementation for the Traffic Access Management Plan should be extended from during construction only to operations as well.

Consideration in Assessment Report (Conditions 12 & 28): The Transportation Working Group for Highway 99 (Condition 28) terms of reference must describe the scope and mandate to be addressed or implemented by the Working Group including the requirement of the Ministry to (bold text identifies additions to the draft Condition):

- present the results of traffic monitoring following the first year of Operations **and the third year of Operations**; and
- moderate a forum for members to identify and discuss the operation of transportation infrastructure in the Project area and the improvement of the operation of Project-related infrastructure and integration with adjacent infrastructure.

However, no contingency fund is required as part of the conditions and the monitoring is within the Highway 99 corridor only. The Transportation Working Group for Highway 99 is intended to be a forum for discussion only with no compulsory consultation. The Report quotes from the EA Application that “*northbound commuters who may change their preferred travel time to take advantage of potential time savings from the new bridge may result in longer queue lengths at Oak Street, if drivers choose to commute during the busiest part of rush-hour.*” The Report also states that the Ministry provided Richmond with analysis during the EA process that predicted that the Project would provide “*relief for a number of local Richmond roads, in particular for adjacent north-south municipal roads.*” This conclusion is questionable given that the Ministry’s shared analysis was limited to a single intersection adjacent to Highway 99 (Steveston Highway and No. 5 Road).

As noted above for Condition 12, the Inter-Agency Working Group, the City’s input is now required on the infrastructure design of cycling and pedestrian trails to address the City’s concern with the impact of the proposed transit only lanes underneath the Oak Street Bridge on the Bridgeport Trail and the off-street multi-use pathway on Van Horne Way. In addition, Condition

29, Traffic and Access Management Plan, must now be implemented during construction and operations, which will extend the window for the City to provide input.

Tunnel Decommissioning, Seismic Risk and Potential Future Dredging of Fraser River

City Concerns: While the Vancouver Fraser Port Authority may not have any current expressed plans for capital dredging, the removal of the tunnel would eliminate a key obstacle to future dredging of the Fraser River in order to enable larger vessels to navigate the river. In addition, the Project will be located in a high risk area for seismic activities.

City Requested Changes: Revise the draft Construction Marine Access Management Plan to require a commitment from the Port Authority that capital dredging of the river will not be undertaken. Require the Ministry to provide further analysis to substantiate that a bridge can be safely built in the proposed location given the soil conditions and identify the potential impacts to the Project infrastructure should a seismic event occur.

Consideration in Assessment Report: The Report accepts the Ministry rationale that the removal of the four in-stream segments of the tunnel is to mitigate potential damage to the bridge if there is a seismic event, to meet best practice regarding management of obsolete infrastructure and to provide opportunities to restore Fraser River habitat. The Report also notes the Port Authority's statement that the agency "*currently has no plans to dredge the Fraser River to create a wider or deeper navigation channel.*" The Certificate does not include a Condition to prohibit the future capital dredging of the Fraser River.

Further, the Report acknowledges that the Project would be situated in a high risk area for seismic activities but concludes that despite the consequence of damage considered to be moderate to high, the occurrence of seismic event causing permanent damage to Project infrastructure is considered remote. There is no requirement for the Ministry to undertake further analysis regarding construction of the bridge in the planned location.

Air Quality Impacts

City Concern: The Application's air quality study only addresses emissions from traffic within the Highway 99 corridor but the Project could cause significant traffic changes away from the study corridor (e.g., at other bridge crossings and gateway intersections in Richmond to avoid the toll and due to induced traffic resulting from land use changes south of the Fraser River).

City Requested Changes: Revise the draft Construction Environmental Management Plan to include the monitoring of local air quality at gateway locations in Richmond and bridge crossings as well as regional air quality for a minimum of five years during the operations phase or until the monitoring results meet the forecast improved local and regional air quality levels stated in the Application (i.e., forecast concentrations of various contaminants such as carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), etc).

Consideration in Assessment Report: The Report accepts the Ministry's rationale that local air quality within Highway 99 corridor would improve primarily due to reductions in congestion-related idling and that "*a reasonable assumption is that reduced local emissions would result in decreased...contaminants on a regional scale.*" The Report concludes that the Project would

result in changes in ambient air quality during construction only; there is no Condition that requires the monitoring of air quality during the operations phase.

Drainage and Stormwater

City Concerns: The Project may impact the City's drainage and irrigation system and should incorporate flood protection measures.

City Requested Changes: Revise the draft Drainage and Stormwater Management Plan to explicitly identify that a performance objective of the Plan be that the Project does not negatively impact the hydraulic grade line in the City's drainage and irrigation system and the Ministry commit to incorporating flood protection and dike improvement measures as part of the Project.

Consideration in Assessment Report (Condition 16): The Drainage and Stormwater Management Plan now explicitly states that roadside ditches must be designed and constructed in a manner that maintains or improves water quality and pre-construction flow regimes. The Plan will now be active during construction and operations and will include measures to rectify any lack of conformance with performance objectives which, however, are not explicitly identified. In addition, as noted above for Condition 12, the Inter-Agency Working Group, the City's input is required on the infrastructure design of drainage.

With respect to mid-island flood protection, the Report states the Ministry's response that "*the Project includes a higher than standard median barrier design, with specifications to be determined during final detailed design.*" The EA Application states that dike reinforcement and bank protection where required will be incorporated into the Project design to maintain the integrity of the dike and to reduce the potential for erosion at the new bridge footings and support components.

Riparian Management Areas and Environmentally Sensitive Areas

City Concerns: The City has repeatedly requested that the Project replace, compensate and establish a net gain of Riparian Management Areas (RMA) and Environmentally Sensitive Areas (ESA) habitat. The City also noted concerns regarding the management of invasive plants (e.g., knotweed).

City Requested Changes: Revise the draft Agricultural Management Plan to explicitly identify that the plan must validate how the Ministry will ensure that there will be net area gain of RMAs and ESAs in Richmond within the Project scope.

Consideration in Assessment Report: The Report states the Ministry's response that the Project would include measures to improve habitat conditions and ecological productivity associated with water courses that exist within the Highway 99 right-of-way "*in a manner that is consistent with the intent of Richmond's RMA and ESA frameworks.*" The improvements would be achieved through the establishment of riparian buffers planted with appropriate vegetation (i.e., native shrubs and trees). The Report also references that the Ministry's permit application to the Ministry of Forests, Lands and Natural Resource Operations under the *Water Sustainability Act* would include an accounting of improvements to habitat values. The permit application has been referred to the City for review and comment and through this process the City is seeking a net gain in habitat.

In addition, the Construction Environmental Management Plan (Condition 13) must now include the additional elements of invasive plant managements, re-vegetation, site restoration, and accidents and malfunctions.

New Conditions Added

The final Certificate contains the following four Conditions that were added by the BCEAO subsequent to the City's review of the draft Conditions:

- Cumulative Effects (Condition 10): During any phase of the Project, the Ministry must participate in initiatives related to the monitoring, assessment, or management of cumulative environmental effects if requested by federal, provincial or regional government agencies.
- Involvement of Aboriginal Groups in Construction Monitoring (Condition 11): The Ministry must offer opportunities for members of Aboriginal Groups to participate in monitoring activities during Construction, including activities that may affect traditional use and related environmental values.
- Site Preparation in Advance of Construction (Condition 14): The Ministry must develop, in consultation with the City, an environmental management plan for addressing environmental effects associated with site preparation (see further discussion below under Next Steps).
- Aboriginal Cultural Awareness and Recognition (Condition 31): A plan must be developed that describes the process and opportunities for Aboriginal cultural awareness and recognition during construction and operations.

Outstanding City Concerns and On-Going Opportunities for Input

Given that the City's outstanding concerns with the Project have not been substantively addressed through the EA process, staff recommend that the City continue to reiterate these concerns to the Province by sending a letter to the Ministry of Transportation and Infrastructure requesting that the Ministry address the concerns separate from the EA process.

Going forward, in addition to membership in the Working Groups and input into the preparation of management plans required by the Certificate, the City will also have opportunities to continue to address some outstanding issues as the project proceeds due to on-going involvement in the design and construction phases and related permit processes, including the continuation of regular meetings held every two weeks with the Project team and, in the future, the Preferred Proponent.

Next Steps for Project

The Project team has advised the City that the start of site preparation in advance of construction works is anticipated within the coming weeks when all required authorizations are in place. Relevant Conditions to be met before this work can proceed include Condition 14 (Site Preparation in Advance of Construction, noted above) and Condition 9, which requires the retention of an Independent Environmental Monitor (IEM). The terms of engagement for the IEM must be developed in consultation with the City and the Ministry must submit the proposed IEM and the terms of reference to the BCEAO for approval at least 30 days prior to the start of site preparation. Separate from the EA process, the Agricultural Land Commission approved the Ministry's application for Transportation, Utility and Recreational Use along the Highway 99 Corridor on February 24, 2017.

Site preparation activities include land clearing, establishment of site access, drainage works, placement of preload material to facilitate ground improvements, and management of soil or other removed material. The work in Richmond will occur from Blundell Road south to the Fraser River.

The Request for Proposals (RFP) was issued to a short-list of three proponents on October 4, 2016. Upcoming RFP milestones are the Technical Submittal (March 15, 2017 deadline), which includes the design and construction strategies and schedules; followed by the Financial Submittal (deadline to be determined) that includes the price proposal and financial model. The Project team anticipates that a Preferred Proponent will be selected by June/July 2017. The Preferred Proponent will enter into a 30-year Concession Agreement for the delivery of the Project.

Financial Impact

None.

Conclusion

Based on the recommendation of the BC Environmental Assessment Office, the Province of BC has issued a conditional Environmental Assessment Certificate that allows the George Massey Tunnel Replacement Project to proceed. While no changes to the Project scope were made to reflect the City's key concerns, some of the 33 conditions of the Certificate have been revised as a result of the City's involvement and contributions such as increased opportunities to provide input on infrastructure design.

Staff recommend that the City continue to reiterate its outstanding concerns with the Project by sending a letter to the Ministry of Transportation and Infrastructure requesting that the Ministry address the concerns that were not resolved through the Environmental Assessment Application process for the Project. In addition, staff's participation in Working Groups and input into management plans required by the Certificate and on-going involvement in the design and construction phases and related permit processes would provide further opportunities to seek to address outstanding issues and mitigate any potential negative impacts of the Project on the community and the region.

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JC:jc

- Att. 1: Categories of BCEAO Table of Conditions
- Att. 2: Comparison of Staff Comments on Draft versus Final Certified Project Description
- Att. 3: Comparison of Staff Comments on Draft versus Final Table of Conditions

Categories of BCEAO Table of Conditions

No.	Condition
1	Document Review and Implementation
2	Plan Development
3	Consultation
4	Compliance Reporting and Verification
5	Project Status Notification
6	Compliance Notification
7	Transfer of Certificate
8	Transfer of Interest in Project
9	Independent Environmental Monitor
10	Cumulative Effects
11	Involvement of Aboriginal Groups in Construction Monitoring
12	Inter-Agency Working Group (IAWG)
13	Construction Environmental Management Plan
14	Site Preparation in Advance of Construction
15	Water Quality
16	Drainage and Stormwater

No.	Condition
17	A) Fish and Fish Habitat B) B) Fish Habitat Offsetting
18	Marine Mammals
19	A) Wildlife – Construction B) B) Wildlife – Operations
20	A) Vegetation – Construction B) Vegetation – Site Habitat Assessment Surveys C) Invasive Plant Species
21	Agricultural Use
22	River Bed and Hydrology
23	Lulu Island-Delta Water Main
24	Noise
25	Marine Users Group
26	Marine Access
27	Fisheries Access
28	Transportation Working Group for Highway 99
29	Traffic and Access
30	Archaeological - Heritage Resources
31	Aboriginal Cultural Awareness and Recognition
32	Aboriginal Engagement Reports
33	Public Communications and Engagement

Comparison of Staff Comments on Draft versus Final Certified Project Description

Section	City Comment on Draft Description	Addressed in Final Description?	Final Wording of Description
1.1 Highway 99 Improvements	<p>Add new additional bullets that the Project includes:</p> <ul style="list-style-type: none"> • multi-use pathways on new overpasses; • to fulfill the Ministry's Cycling Policy, provision of alternative cycling routes on local roads in Richmond and Delta that parallel Highway 99 between Van Horne Way in Richmond and Highway 91 in Delta in lieu of cycling facilities being provided within the Highway 99 right-of-way. 	No	The requested text was not added.
1.2 Bridge and Approaches	<p>Revise the list of items to be included in the Project to include:</p> <ul style="list-style-type: none"> • Connections between the multi-use pathways on the bridge to Steveston Highway, Rice Mill Road, River Road South, and the Millennium Trail. • Southbound Highway 99 ramp exit to Rice Mill Road and northbound Highway 99 ramp access from Rice Mill Road. 	No	The requested text was not added.

Comparison of Staff Comments on Draft versus Final Table of Conditions

Condition	City Comment on Draft Condition	Addressed in Final Condition?	Final Wording of Condition
3 Consultation	Specify minimum of 60 days for parties to provide comments on any plans, programs or document.	No	No minimum time for review is specified.
5 Project Status Notification	Parties to be notified should include local governments.	Yes	The City of Richmond, Corporation of Delta and Metro Vancouver have been added as parties to be notified 30 days prior to the start of site preparation, construction, tunnel decommissioning, and operations.
9 Independent Environmental Monitor	<p>The terms of engagement for IEM should provide authority to issue stop work orders in cases of non-compliance with environmental regulations.</p> <p>IEM reports to the BCEAO should be made available to the public.</p>	Partially	<p>The terms of engagement for the IEM must now also include:</p> <p>f) The situations in which the IEM will have the authority to stop work on part or all of the Project if the IEM determined that:</p> <p>i) The Holder has not, or may have not, complied fully with the requirements of this Certificate; and</p> <p>ii) Stopping work is necessary to prevent or reduce Project-related adverse effects as determined by the IEM or any IEM support;</p> <p>There is no requirement for the IEM report to be made available to the public.</p>
12 Inter-Agency Working Group	<p>Consultation on the draft Terms of Reference should occur prior to their finalization.</p> <p>The Terms of Reference should include:</p> <ul style="list-style-type: none"> That the Ministry obtain the support (rather than only seek input) of the City on the design and visual impacts of Project infrastructure to be constructed in the city and the scope of Project-related plans and programs to be implemented in the city during construction and 	No	<p>There is no requirement for consultation on the Terms of Reference.</p> <p>The final Terms of Reference:</p> <ul style="list-style-type: none"> do not require that the Ministry obtain the support of the City (i.e., unchanged as input only); do not include BC Hydro as a member or require the agency to revise the scope of its transmission line relocation project; specify a minimum of 30 (not 60) calendar days for the provision of comments

Comparison of Staff Comments on Draft versus Final Table of Conditions

Condition	City Comment on Draft Condition	Addressed in Final Condition?	Final Wording of Condition
	<p>operations;</p> <ul style="list-style-type: none"> • BC Hydro be included as a member of the Inter-Agency Working Group and be required to revise the scope of its transmission line relocation project to achieve the least visual impacts; • Minimum of 60 calendar days to provide comments on materials circulated; • Maximum of 30 calendar days within which meeting notes should be distributed after each meeting. 		<p>on materials circulated;</p> <ul style="list-style-type: none"> • do not specify a maximum time within which meeting notes should be distributed. <p>The final Terms of Reference now also include that the Ministry must seek input on:</p> <ul style="list-style-type: none"> • cycling and pedestrian trails; • meeting Project lighting requirements that minimize light spill on adjacent areas; • adaptive management plans. <p>The IAWG must now be implemented during construction as well as operations.</p>
<p>13 Construction Environmental Management Plan</p>	<p>The Plan should include the monitoring of local air quality at gateway locations in Richmond and at bridge crossings as well as regional air quality for a minimum of five years during the operations phase (not just during construction) or until the monitoring results meet the forecast improved local and regional air quality levels stated in the Application, and the identification of measures to mitigate any adverse effects due to the Project.</p> <p>Explicitly identify groundwater management as part of the waste management strategy and the erosion and sediment control strategy.</p> <p>Clarify how the BCEAO would moderate disputes regarding elements of the Plan.</p>	<p>No</p>	<p>The Plan does not include air quality monitoring during the operations phase.</p> <p>Groundwater management is not identified as part of the waste management strategy or the erosion and sediment control strategy.</p> <p>There is no wording regarding how the BCEAO would moderate any disputes regarding elements of the CEMP.</p> <p>Elements of the Plan must now include:</p> <ul style="list-style-type: none"> • human-wildlife contact; • invasive plant management • re-vegetation; • site restoration; • accidents and malfunctions.
<p>15 Water Quality</p>	<p>Management of turbidity levels should be expanded include metals content, pH levels and any other applicable water quality criteria in addition to turbidity levels.</p>	<p>No</p>	<p>There is no change to the wording regarding the management of turbidity levels.</p> <p>The Plan must now include:</p> <ul style="list-style-type: none"> • measures to mitigate soil

Comparison of Staff Comments on Draft versus Final Table of Conditions

Condition	City Comment on Draft Condition	Addressed in Final Condition?	Final Wording of Condition
			<p>erosion and prevent sediment-laden water from affecting water quality;</p> <ul style="list-style-type: none"> • means by which re-suspension of sediments will be minimized during tunnel decommissioning.
<p>16 Drainage and Stormwater Management</p>	<p>The Plan should explicitly identify that:</p> <ul style="list-style-type: none"> • a performance objective be that the Project does not negatively impact the hydraulic grade line in the City's drainage and irrigation system; • the Ministry commit to incorporating flood protection measures along Highway 99 with a City preference for raising the entire highway; • the Ministry commit to incorporating the following foreshore dike improvement measures as part of the Project: <ul style="list-style-type: none"> ○ construction of new Dike to elevation of 5.5 as shown on the Reference Concept Plan; ○ 3:1 slopes constructed down from elevation 5.5 m to tie-in to the existing dike at elevation approximately 3.4 m at the west and east ends; ○ enhanced dike to tie into the new pile caps with location and extent of new pile caps as shown on the concept plan and concept elevation of the top of pile cap at 6 m; ○ dike crest width to be a minimum of 4 m; ○ ground improvements, consisting of stone 	<p>Partially</p>	<p>The final Plan does not:</p> <ul style="list-style-type: none"> • specify the performance objectives to be included; • require the Ministry to commit to incorporate flood protection measures along Highway; • require the Ministry to commit to incorporate the City's desired foreshore dike improvements. <p>The Plan now also requires the Ministry to design and construct roadside ditches in a manner that maintains or improves water quality and pre-construction flow regimes in these watercourses.</p>

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	<p>columns, extending 10 m beyond the main bridge pile caps;</p> <ul style="list-style-type: none"> ○ in the area between the pile caps, ground improvements, consisting of stone columns, extending from the pile caps to the existing ventilation building; ○ dike cross section with water facing and land facing slopes to be 3:1 slopes; ○ dike enhancements to be in accordance with Seismic Design Guidelines for Dikes, 2nd Edition dated June 2014. 		
17 A) Fish and Fish Habitat	The condition does not identify Riparian Management Areas in Richmond.	No	There is no identification of Riparian Management Areas in Richmond.
17 B) Fish Habitat Offsetting	Expand to include reference to upland fish habitat, the City's Riparian Management Areas, and that the Plan should involve the City of Richmond.	No	There is no reference to upland fish habitat or the City's Riparian Management Areas. The City is not identified as a party involved in the development of the Plan.
21 Agricultural Use	<p>Explicitly identify that the Plan must validate:</p> <ul style="list-style-type: none"> • how the Ministry will ensure that there will be new farming activity to off-set the loss of the actively cultivated parcels that are required for the Project; • how the topsoil reclamation program will be implemented; • that the highway right-of-way identified for potential return to agricultural use will be improved to a soil capability class equal to or better than that for the parcels required for the Project to ensure a net gain in soil quality; • greater monitoring of the 	Partially	<p>Elements of the Plan are to include:</p> <ul style="list-style-type: none"> a) The means by which topsoil salvage and reclamation will be implemented; b) Description of post-construction monitoring to be conducted to ensure reconstructed roadside ditches that are used or will be used for agricultural purposes are functioning as intended; c) The timing, duration and frequency of in-river salinity monitoring to be undertaken at the 80th Street Pump Station; d) Methods to identify and inform potentially-affected farm operators of any

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	<p>salt wedge and the mitigation measures to be deployed should adverse changes be detected;</p> <ul style="list-style-type: none"> • a commitment by the Ministry to consult with the City of Richmond and the Richmond Farmers Institute if there are any further impacts to agricultural land beyond those identified in the Application; • how the Ministry will ensure that there will be net area gain of RMAs and ESAs in Richmond within the Project scope. <p>The Condition should identify the Richmond Farmers Institute as one of the parties to receive the plan prior to commencement of construction.</p>		<p>potential disruption to utility services during construction; and</p> <p>e) Description of how the Ministry will offset the acquisition of parcels of farmland by restoring suitable lands within unused portions of the Highway 99 right-of-way and how the Ministry will make these lands available for agricultural use.</p> <p>The elements of the Plan are not explicitly identified nor is the Ministry required to validate the measures.</p> <p>There is no requirement to ensure that there will be a net area gain of RMAs and ESAs in Richmond within the Project scope.</p> <p>The Richmond Farmers Institute is now identified as one of the parties to receive the plan prior to commencement of construction.</p>
24 Noise	<p>As the Ministry's Noise Policy does not address passive parks in a quantitative manner similar to residential uses, the Project should be required to provide mitigation measures to the satisfaction of the City to address adverse noise effects on users of the Gardens Agricultural Park (e.g., noise berms and/or walls).</p>	No	<p>The Condition does not identify mitigation measures to address adverse noise effects on users of the Gardens Agricultural Park.</p> <p>The Plan must now also include:</p> <ul style="list-style-type: none"> • A noise monitoring and follow-up program developed in accordance with MOTI's Noise Policy, which includes where, when, and the road-use conditions under which, noise monitoring will be conducted during construction and the first 12 months of operations; • The means by which the Ministry will mitigate noise if the noise monitoring and follow-up program indicate

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			the minimum objectives specified in MOTI's Noise Policy have not been met.
26 Marine Access	Require a commitment from the Port of Vancouver that capital dredging of the river will not be undertaken.	No	The Condition does not include a requirement that the Port of Vancouver commit to not undertake any capital dredging of the river.
28 Transportation Working Group for Highway 99	<p>The Working Group should include that the Ministry commit to:</p> <ul style="list-style-type: none"> • extend the spatial boundaries and monitoring of traffic operations within the Highway 99 corridor to include all local intersections on either side of Highway 99 in Richmond for a minimum of one year; • provide a pool of funding to address any anticipated and unforeseen adverse traffic-related effects or deficiencies caused by the Project to the local road, pedestrian and cycling networks as well as the northbound Oak Street Bridge approach; • maintain this pool of contingency funding for local road, pedestrian and cycling network improvements for a minimum of two years after the Project becomes fully operational. <p>This contingency funding should total a minimum of \$5 million to ensure sufficient resources to address traffic-related impacts to the local road, pedestrian and cycling networks within Richmond and the northbound Oak Street Bridge approach.</p> <p>The Working Group should be established prior to commencement of construction (not operations), as the</p>	No	<p>The Ministry is not required to:</p> <ul style="list-style-type: none"> • extend the spatial boundaries and monitoring of traffic operations beyond the Highway 99 corridor; • provide or maintain a pool of contingency funding. <p>The Working Group is to be established prior to commencement of operations.</p> <p>The Working Group is not involved in the development of the Traffic Access Management Plan.</p>

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	Construction Traffic and Access Management Plan is to be prepared in consultation with the Working Group.		
29 Traffic and Access	<p>Some components of the Traffic and Access Management Plan refer to both construction and operation and thus require clarification. The condition should explicitly state that the Plan is to be implemented throughout construction <u>and operations</u> to the satisfaction of EAO.</p> <p>The condition states that the plan is to be developed in consultation with the Transportation Working Group for Highway 99 and provided to the TWG a minimum of 60 days prior to planned commencement of construction. However, the draft condition for the TWG states that the terms of reference for the TWG must be developed prior to the commencement of operations. It is not clear that the TWG will be established in order to be consulted on and review the plan.</p>	Partially	<p>The Plan must now be implemented throughout construction and operation.</p> <p>The Plan must now also include:</p> <ul style="list-style-type: none"> • Description of the requirements for consultation with TransLink in regards to potential impacts to transit operations and routing during construction; • The means by which the Ministry will provide opportunities for Aboriginal Groups, that have plant gathering areas identified through Project traditional land use studies, to access these areas in order to harvest, salvage or translocate any traditional use plants that would be cleared, prior to the commencement of clearing.
New Condition: Land Use	<p>Add a new condition to require the Ministry to:</p> <ul style="list-style-type: none"> • obtain written support from the Metro Vancouver Board that the Project is considered compatible with the Regional Growth Strategy; and • re-examine the rationale for a 10-lane bridge and the design for the widening of Highway 99 north of Steveston Highway Interchange with a view to minimizing the extent of widening. 	No	No new Condition was added.