



# City of Richmond

## Report to Committee

**To:** General Purposes Committee  
**From:** Lloyd Bie, P.Eng.  
Director, Transportation  
**Re:** Highway 99 Tunnel Program - Update

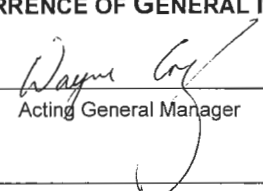
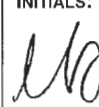
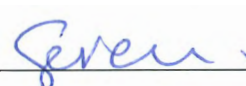
**Date:** June 21, 2022  
**File:** 10-6350-06-03/2022-  
Vol 01

### Staff Recommendation

That the report titled "Highway 99 Tunnel Program - Update" dated June 21, 2022, from the Director, Transportation be received for information.

Lloyd Bie, P.Eng.  
Director, Transportation  
(604-276-4131)

Att. 3

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Parks Services	<input checked="" type="checkbox"/>	 Acting General Manager
Engineering	<input checked="" type="checkbox"/>	
Sustainability & District Energy	<input checked="" type="checkbox"/>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

This report provides an update on the provincial Highway 99 Tunnel Program including staff's comments on the Initial Project Description of the Fraser River Tunnel Project for the Early Engagement phase of the Environmental Assessment process.

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

*Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*

*5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.*

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

*Leadership in effective and sustainable growth that supports Richmond's physical and social needs.*

*6.3 Build on transportation and active mobility networks.*

### Analysis

Recent activities for the five projects comprising the provincial Highway 99 Tunnel Program are summarized below.

#### Fraser River Tunnel Project

The George Massey Tunnel will be replaced with a new eight-lane immersed tube tunnel (ITT) that includes two dedicated transit lanes and a separate multi-use path (Figure 1).



Figure 1: Rendering of Fraser River Tunnel Project

The project scope includes the removal of the existing tunnel, replacement of the road and rail overpasses on Rice Mill Road, and replacement of the Deas Slough Bridge (Attachment 1). The project is planned to be operational in 2030 (Figure 2).

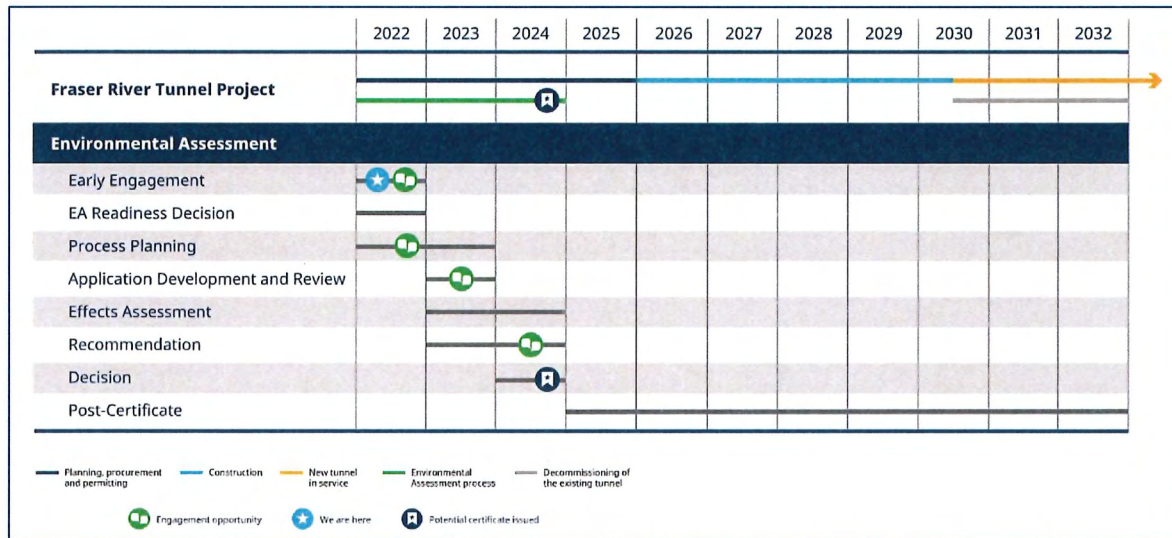


Figure 2: Planning and Delivery Timeline for Fraser River Tunnel Project

In February 2022, nine contracts were awarded for technical and engineering expertise to support the Province's delivery of the project. On May 13, 2022, the Province submitted an application to the federal Minister of Transport pursuant to the federal Canadian Navigable Waters Act for approval of investigatory geotechnical testing and dredging works related to the project (Attachment 2). Geotechnical investigations including subsequent monitoring are proposed to occur across the full width of the Fraser River at the proposed new alignment. Pending approval, activities are expected to start in August 2022 and be complete in February 2023.

Staff meet regularly with the Project Team and will continue to review and provide comments as the development of the design progresses.

#### Environmental Assessment Process for Fraser River Tunnel Project

As construction of the new ITT and removal of the existing tunnel is expected to cause direct physical disturbance of more than two hectares of foreshore and/or submerged land below the natural boundary of the Fraser River, the project triggers an environmental review under the BC Environmental Assessment Act as a shoreline modification project.

There are eight phases in the revitalized Environmental Assessment (EA) process, which was updated in 2018 (Figure 3). Under the new process, the BC Environmental Assessment Office (BCEAO) will hold two additional public engagement periods during an EA for a total of four, including a new Early Engagement phase that provides an opportunity for all EA participants to better understand the project and establish a foundation for the rest of the EA.



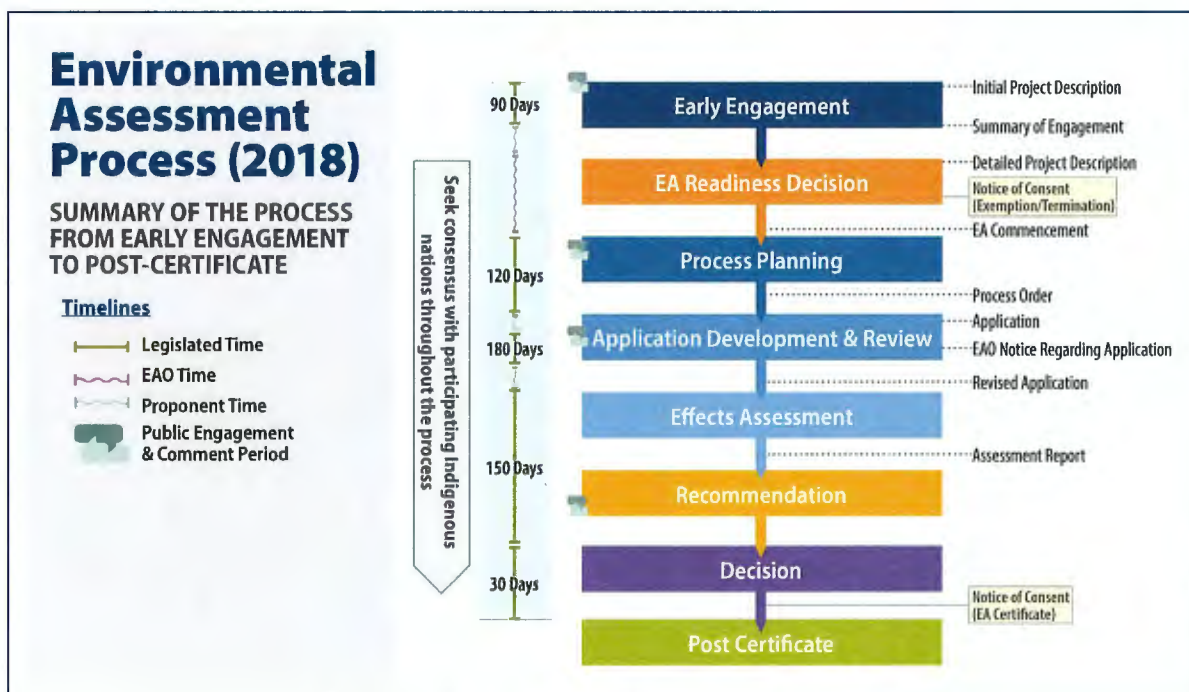


Figure 3: Environmental Assessment Process

### Early Engagement Phase

In April 2022, the BC Environmental Assessment Office (BCEAO) approved an Initial Project Description (IPD) and Engagement Plan for the Fraser River Tunnel Project as proposed by the Ministry of Transportation and Infrastructure. At the request of the TI Corp Project Team, staff provided input into the development of both documents. The IPD is a high level description of the major components of the project, where they will be located and the anticipated interactions with the surrounding environment and existing human activities.

The acceptance of these documents starts the legislated 90 day Early Engagement phase prior to a potential EA process. Early Engagement is a preparatory phase where Indigenous nations, stakeholders and the public identify engagement approaches, potential interests, issues, and concerns about the project early in the EA process. The input will inform the development of the Detailed Project Description, which will be considered in the next phase of the EA process, the EA Readiness Decision phase. A Technical Advisory Committee (TAC) is also formed at the Early Engagement phase; staff are representing the City's interests and providing technical expertise at this forum.

Early Engagement includes the first public engagement and comment period, held April 25 to June 9, 2022, to obtain input on the IPD. Two in-person open houses were held: one in Delta (May 10th) and one in Richmond (May 11th) with the latter attended by staff. Staff also attended both virtual information sessions (May 17th and 19th). Overall, a variety of questions were asked regarding design features (e.g., height and depth of new tunnel) and potential construction impacts (e.g., noise related to the location of the temporary casting basin for the tunnel elements on Deas Island). An engagement summary including all comments received and TI Corp's responses will be posted on the BCEAO website following the end of the Early Engagement phase on July 11, 2022.

*City Comments on Initial Project Description*

The BCEAO requested that TAC members review the IPD and provide comments by June 3, 2022 on the following broad categories:

- Key issues and values to be considered in the environmental assessment
- Suggested design changes
- Missing project interactions
- Additional information required in the Detailed Project Description to inform the Readiness Decision

Staff prepared comments (Attachment 3) and submitted them to the BCEAO by the deadline. Key items identified include:

- The design of the new tunnel should not preclude the inclusion of BC Hydro infrastructure, as the City's strong preference is for the relocated infrastructure to be underground rather than overhead.
- Robust monitoring of the existing dikes should be conducted before, during and after all construction activities, particularly during ground improvement works.
- Decommissioning of the existing tunnel should include construction of a new dike at that location.
- Liquefaction and geotechnical analysis on the project impacts to the City's dike under current, seismic and future conditions should be conducted.

*Next Steps*

Should the EA Readiness Decision phase determine that the project will proceed to an EA process, there will be a further three engagement periods with opportunities to comment prior to a decision by the BCEAO regarding issuance of an EA Certificate. More detailed project information will be available during these phases, which in turn will allow for more informed comments by the City.

Steveston Interchange Project

The project scope involves replacement of the Steveston Interchange with a five-lane structure comprising two eastbound lanes and three westbound lanes, including a left-turn lane onto Highway 99, and sidewalks and separated bike lanes on both sides of the overpass. A contract was awarded in March 2022 with construction expected to begin in mid-2022 and scheduled completion in 2025. Staff continue to have regular meetings with the Ministry Project Team to coordinate construction activities that may impact City lands or infrastructure. Geotechnical review of the site is anticipated to occur over the next month.

Bridgeport Road Bus Connection

The project will redirect southbound bus services from Sea Island Way to Bridgeport Road with a new transit-only connection southbound to the on-ramp to Highway 99 and includes improved cycling and pedestrian connections. Construction commenced in February 2022 with project completion scheduled for fall 2022 (Figure 4). Placement of the sub base gravel is complete. All work is within the provincial lands.



Figure 4: Construction Activities for Bridgeport Road Bus Connection Project

While this work requires temporary removal of access to the northbound cycling and pedestrian sidewalk along Oak Street Bridge for the duration of the project, staff have not received any complaints from the public and signage has been posted to advise the public of the alternative route available via the Canada Line Bridge.

#### Transit Lanes on Highway 99

The project extends the bus-on-shoulder facilities between Highway 17A and Ladner Trunk Road in both the northbound and southbound directions. Project completion is scheduled for summer 2023.

#### Highway 99-Highway 17A Interchange

The project extends and widens the northbound Highway 99 off-ramp approach to the Highway 17A intersection, upgrades the existing bike shuttle stop and improves cycling facilities in and around the interchange. Construction started in March 2022 with project completion scheduled for fall 2022.

#### **Financial Impact**

None.

#### **Conclusion**


Design and construction work continues to progress on the components of the provincial Highway 99 Tunnel Program. The Fraser River Tunnel Project to replace the existing George Massey Tunnel has entered the preparatory Early Engagement Phase of the Environmental Assessment process with the issuance of the Initial Project Description for stakeholder and public comment. Staff provided comments on the high level document to the BC Environmental Assessment Office by the requested deadline of June 3, 2022. There will be further opportunities to provide comments should the project proceed to an Environmental Assessment process. Staff will continue to provide updates to Council at key milestones of the Highway 99 Tunnel Program.

June 21, 2022

- 7 -



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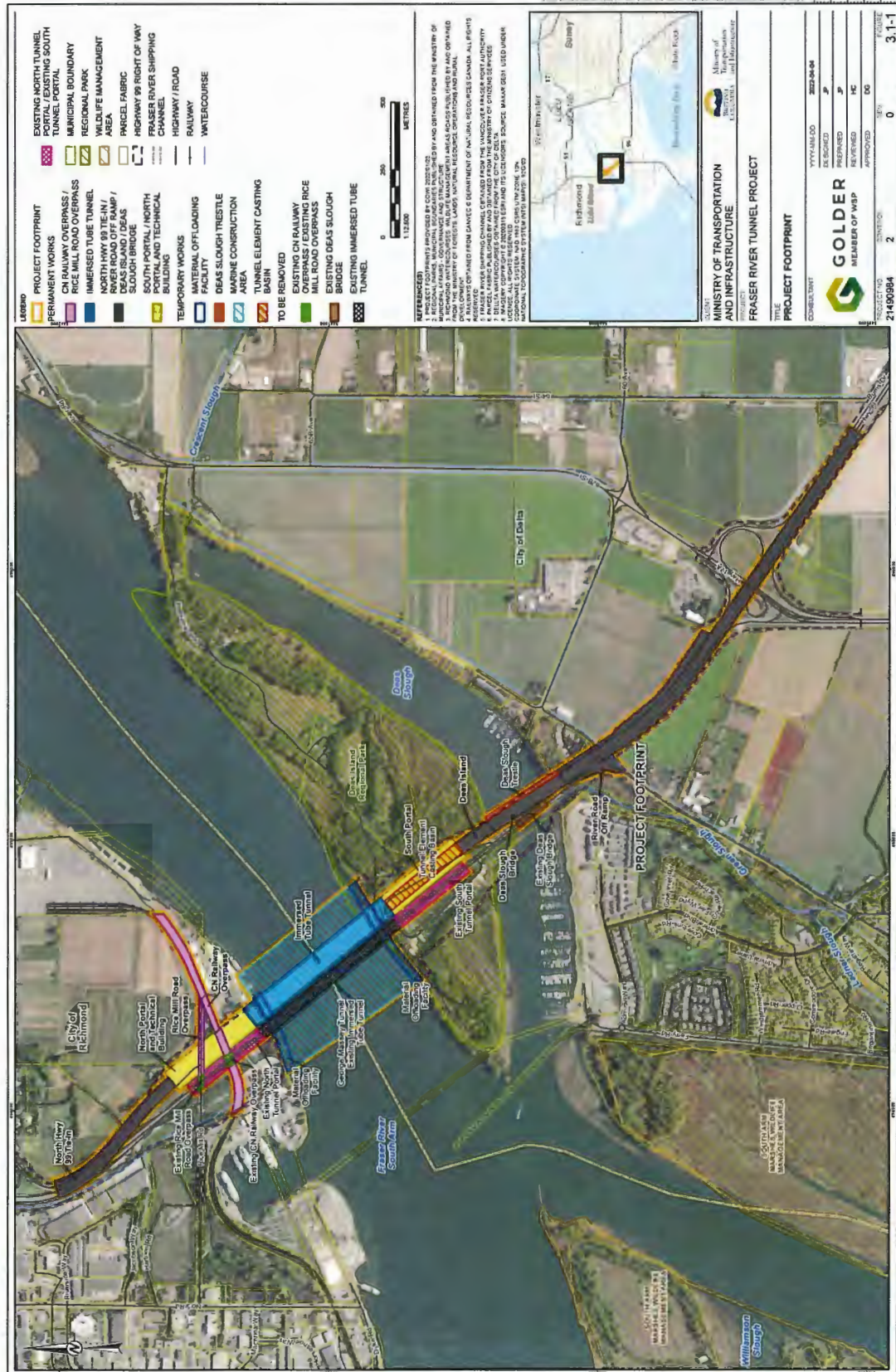
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Transportation Planner  
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JC:jc

- Att. 1: Fraser River Tunnel Project Footprint  
2: Location of Geotechnical and Dredging Investigations for Fraser River Tunnel Project  
3: City Comments on Initial Project Description

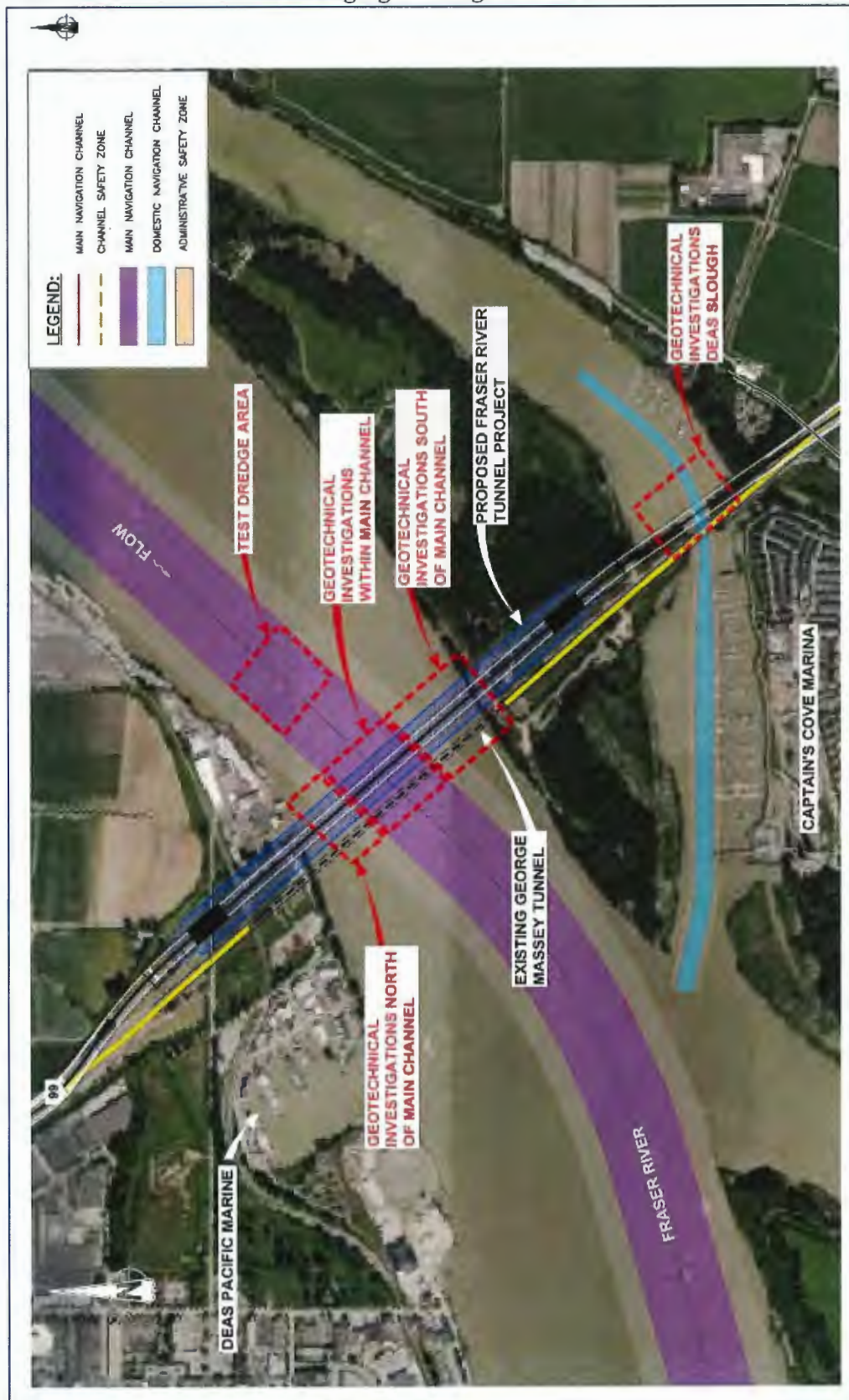


## Fraser River Tunnel Project Footprint





## Location of Geotechnical and Dredging Investigations for Fraser River Tunnel Project



### City Comments on Initial Project Description

Category	Comments/questions
<b>Key Issues and Values to be Considered in EA</b>	<ul style="list-style-type: none"> <li>EA process should include BC Hydro infrastructure relocation required to accommodate the project works.</li> <li>Regarding relocation of the BC Hydro infrastructure, Richmond's strong preference is for this to be underground rather than overhead. Minister Rob Fleming indicated that this is also MoTI's preference at the UBCM meeting in September 2021. In a December 17, 2021 letter to Mayor Brodie, Minister Rob Fleming and Minister Bowinn Ma indicated that the ministry is working with BC Hydro on a design to incorporate the existing hydro lines into the new tunnel.</li> </ul>
<b>Suggested Design Changes</b>	<ul style="list-style-type: none"> <li>Section 3.6.2, Crossing Configuration: Confirm that 2 of the 8 lanes will be dedicated as transit lanes rather than all 8 lanes for GP traffic</li> <li>Stormwater runoff needs to be mitigated/managed through the construction phase and should not enter any of local watercourses. Need further details on how construction will be managed.</li> <li>Flood protection considerations should include robust monitoring of the existing dikes before, during and after all construction activities, in particular during ground improvement works, and including all third party activities such as BC Hydro works.</li> <li>Liquefaction and geotechnical analysis on project impacts to the City's dike under current, seismic and future conditions should be conducted prior to commencing any works.</li> <li>More details required on the temporary flood protection measures and how these will work while they are in place. How long will they be in place for? What level of protection will they provide?</li> <li>Dike Maintenance Act will also need to be addressed for the decommissioning of the existing tunnel.</li> <li>The revised IPD does not consider lighting implications for the new tunnel or the tunnel approaches. Include a section that speaks to potential lighting impacts both on the surrounding environment as well as the potential lighting impacts on motorists, active transport users and pedestrians using the tunnel infrastructure.</li> </ul>
<b>Missing Project Interactions</b>	<ul style="list-style-type: none"> <li>When noting key benefits of Project with respect to traffic congestion relief, reference associated traffic congestion on the adjacent municipal road network and the impacts (e.g., idling, GHG emissions). Further details are required on the impacts of the decommissioning on flood protection. Richmond would like to see a new dike built after the decommissioning of the existing tunnel.</li> <li>The revised IPD should make reference to both the further study and creation of a Contaminated Soils Management Plan, as well as an assessment of emerging contaminants of concern.</li> <li>In addition to wildlife, fish, and vegetation impacts, the IPD should also consider impacts to invertebrates (specifically insects and aquatic invertebrates) and microbes.</li> <li>Related to the assessment of wildlife, there is the potential for dike riprap to provide habitat for marmots. An assessment for marmots and marmot habitat should also be a consideration of the IPD.</li> <li>The IPDs vegetation assessments should also include provisions for the</li> </ul>



## City Comments on Initial Project Description

Category	Comments/questions
	<p>surveying, studying and management of invasive species communities within the project area.</p> <ul style="list-style-type: none"> <li>The revised IPD should include some detail of anticipated habitat offsetting work and when those anticipated works are proposed to be delivered (i.e., in the construction phase of the project). It is understood that more complete details of habitat offsetting will be finalized through the EA and associated senior government permitting processes; but should be a consideration during early project planning phases.</li> </ul>
<b>Additional Information required in the Detailed Project Description to inform the Readiness Decisions</b>	<ul style="list-style-type: none"> <li>Agricultural land is identified for construction site facilities. If used, agricultural land should be restored to current (minimum) or improved (preferred) condition.</li> <li>Need more information on location and size of temporary laydown areas, crew parking, etc. to assess any impacts to City.</li> <li>Need more information on location and design of MUP and how CPTED and security issues for users will be addressed.</li> <li>All land associated with flood protection infrastructure should include SRW in favour of the City for future flood protection operation and maintenance.</li> <li>Detailed assessments and studies should be conducted to assess potential impacts that the project will have on fuel consumption and emissions from daily commuter use.</li> <li>Potable water is proposed to be used for the batch concrete plant. Additional detail should be provided for exploring alternatives to using potable water for this purpose, as the region is expected to experience continued pressure on potable water sources due to climate change. Has the use of river water been considered for the batch concrete plant?</li> <li>Section 6.6 of the IPD should be updated to include reference to any anticipated Municipal Agreements that will result from the tunnel works, if applicable.</li> </ul>
<b>Other Comments/ Questions</b>	<ul style="list-style-type: none"> <li>Section 5.2, bottom of Page 31: Sentence should read as "Land adjacent to and east of the north tunnel approach roads and portal is designated as agricultural, while land adjacent to and west of the north tunnel approach is designated as mixed employment (which is inclusive of industrial, commercial and other employment-related uses) and industrial."</li> <li>Given that the City and MoTI drainage systems are interconnected, additional work must be done by MoTI to plan and construct new drainage infrastructure that can accommodate large rainfall events and to proactively maintain existing drainage infrastructure. The City expects that MoTI will improve drainage along the Highway 99 corridor from the north to south end of Lulu Island by increasing the overall drainage system capacity.</li> <li>Consider depositing the dredged material on Sturgeon Bank.</li> <li>Table 5.5-1 should be updated to include reference to the City's Industrial Lands Intensification Initiative, as the project is located in an area identified for industrial uses by the City: (<a href="https://www.richmond.ca/shared/assets/ILII_GP_01052157450.pdf">https://www.richmond.ca/shared/assets/ILII_GP_01052157450.pdf</a>)</li> </ul>