

R E P O R T

# TRANSLINK



The New **Fraser River** Crossing

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Greater Vancouver Transportation Authority

## Project Options Definition

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## **1 INTRODUCTION**

The New Fraser River Crossing project (FRC), broadly defined, includes new roads, structures and facilities, and road or highway improvements and modifications that would be undertaken to provide:

- A crossing of the Fraser River between Pitt Meadows/Maple Ridge and Surrey/Langley, and
- Connections, access and acceptable levels of service for traffic using or significantly affected by the new crossing.

This project may be incorporated into a broader Fraser Gateway initiative, including a number of projects designed to greatly improve access along and across the Fraser River. At a minimum, the FRC is intended to be incorporated into an integrated improvement plan that includes the South Fraser Perimeter Road (SFPR) and expansion of crossing capacity over the Pitt River.

The FRC consists of three main components, based on implementation and ownership responsibility.

### **1.1 CONCESSION/AUTHORITY ASSETS**

These assets include new roads, structures and facilities (e.g. tolling infrastructure) that will be constructed, operated and maintained by the concession or authority.

### **1.2 CONCESSION/AUTHORITY RESPONSIBILITIES**

These components include the realignments and modifications of existing roads, highways, structures, utilities, and facilities that the concessionaire or authority will be responsible to construct to specified standards and within specified time frames, but whose on-going operation and maintenance and asset ownership will remain with the current owner.

### **1.3 MUNICIPAL ARTERIAL AND PROVINCIAL HIGHWAY IMPROVEMENTS**

These components on the provincial and municipal network include the upgrades and modifications necessary to provide and maintain efficient connections, access and acceptable levels of service. The responsibility to implement will rest with the province or municipality; however, further discussion and agreements with

GVTA are necessary to finalize funding based on availability of capital, cost sharing arrangements, etc.

The following sections define the Project's configuration options by component categorized by implementation and ownership responsibility.

## **2 OPTION 1 – 200<sup>TH</sup> STREET BRIDGE**

### **2.1 GENERAL**

The 200<sup>th</sup> Street Bridge Option consists of three distinct sections as follows and as illustrated on Figure 1:

- Section 1 starts west of Highway 15 in the City of Surrey, and ends just west of 192<sup>nd</sup> Street.
- Section 2 starts just west of 192<sup>nd</sup> Street, parallels the CN Rail to 199A Street in the Township of Langley, crosses the CN Rail and the Fraser River, and ends approximately 0.7 km south of 113B Avenue in Pitt Meadows.
- Section 3 starts approximately 0.7 km south of 113B Avenue and ends with connections to the Lougheed Highway in Pitt Meadows and to Maple Meadows Way in Maple Ridge.

### **2.2 CONCESSION/AUTHORITY ASSETS**

#### **2.2.1 Option 1 Section 1**

##### *Mainline*

- Four-lane divided expressway with 80 km/hr design speed with a right-in/right-out on the north side at 179<sup>th</sup> Street.

##### *Signalized Four-Legged Intersection with Highway 15*

- Channelization.
- Left-Turn Lanes(s) for each leg.
- Right-Turn Lane for each leg.

[NEED TO REVIEW PERFORMANCE/POSSIBLE NEED OR PROTECTION FOR INTERCHANGE.]

***Grade Separation at Highway 1***

- Grade Separation structure(s) to accommodate the existing and future through lanes of the Trans Canada Highway and FRC mainline lanes.

***Signalized Four-Legged Intersection with 96<sup>th</sup> Avenue/SFPR***

- Channelization.
- Left-Turn Lanes for each leg.
- Single Right-Turn Lane into SFPR from FRC Mainline leg.
- Right-Turn Tapers for remaining legs.

**2.2.2 Option 1 Section 2**

***Mainline***

- Four-lane divided expressway with 80 km/hr design speed.

***Signalized Four-Legged Intersection with 192<sup>nd</sup> Street***

- Channelization.
- Left-Turn Lane(s) into 192<sup>nd</sup> Street and 98A Avenue for both FRC Mainline legs.
- Left-Turn Lanes into FRC Mainline for 192<sup>nd</sup> Street legs.
- Right-Turn Tapers for each leg.
- Deceleration and Acceleration Merge lanes on FRC Mainline eastbound.

[EAST LEG OF THE INTERSECTION MUST ACCOMMODATE THE PROPERTY AGREEMENT WITH THE GVRD FOR THE TRANSFER STATION.]

[PROVISION FOR CLOSURE OF THE NORTH LEG OF THE INTERSECTION OR MODIFICATION OF THE 98A AVENUE INTERSECTION ARE UNDER REVIEW.]

### ***Viaduct***

- Four-Lane Overpass Structure over the Canadian National Rail track.
- Six-Lane Viaduct over 201<sup>st</sup> Street to the Fraser River Crossing structure.
- Single-Lane Exit Ramp over the Canadian National Rail track to 199A Street southbound.
- Two-Lane Entrance Ramp from 201<sup>st</sup> Street northbound over the Canadian National Rail track merging to one lane after tying into the four-lane overpass structure.

### ***Fraser River Bridge***

- Six-Lane Bridge, with Cyclist/Pedestrian footpath lane on the east side.

## **2.2.3 Option 1 Section 3**

### ***Mainline***

- Four-lane divided expressway with 80 km/hr design speed.
- Grade separation with the CP Rail.

### ***Interchange at 113B Avenue***

- Connects FRC Mainline with 113B Avenue.
- Three-Lane Overpass Structure on 113B Avenue.
- Provides the following movements:
  - Westbound 113B Avenue to north- and southbound FRC
  - Eastbound 113B Avenue to north- and southbound FRC
  - Northbound FRC to west- and eastbound 113B Avenue
  - Southbound FRC to west- and eastbound 113B Avenue
- Connect 113B Avenue to the Airport Connector.

[NEED AGREEMENT WITH PITT MEADOWS AND MAPLE RIDGE ON ALIGNMENT AND OTHER DETAILS OF CONNECTION TO 113B AVENUE.]

***Maple Meadows Way Exit Ramp***

- Single-Lane Exit Ramp widening to two lanes prior to connecting with Maple Meadows Way at West Street.

***Interchange at Lougheed Highway***

- Connects FRC Mainline with Lougheed Highway and the Abernethy Connector.
- Overpass Structure.
- Provides the following movements:
  - Westbound Lougheed Highway to southbound FRC
  - Eastbound Lougheed Highway to north- and southbound FRC
  - Northbound FRC to westbound Lougheed Highway
  - Northbound FRC direct to northbound Abernethy Connector
  - Southbound Abernethy Connector direct to southbound FRC
  - Southbound Abernethy Connector to westbound Lougheed Highway.

[TYPE OF FACILITY TO PROVIDE NORTHBOUND TO WESTBOUND MOVEMENT (EITHER FREE FLOW OR THROUGH A SIGNAL) IS UNDER REVIEW.]

***Signalized Four-Legged Intersection with Lougheed Highway/Maple Meadows Way/Dewdney Trunk Road***

- Present configuration retained with the northwest quadrant modified as required to provide operational efficiency and safety for movements westbound from the Lougheed Highway and Dewdney Trunk Road to the new interchange, and to the Lougheed Highway for destination west of the interchange.

[PERFORMANCE IN THE A.M. OF THE APPROACH TO THE LOUGHEED INTERCHANGE FROM THE MAPLE MEADOWS WAY/DEWDNEY TRUNK ROAD INTERSECTION AND OF THE INTERSECTION ITSELF UNDER REVIEW.]

## **2.3 CONCESSION/AUTHORITY RESPONSIBILITIES**

### **2.3.1 Option 1 Section 1**

#### ***Highway 15 Upgrade***

- Upgrade Highway 15 south of 96<sup>th</sup> Avenue to accommodate the requirements for the signalized intersection at 96<sup>th</sup> Avenue.

#### ***Frontage Road***

- Reconstruction of 96<sup>th</sup> Avenue, between Highway 15 and 180<sup>th</sup> Street, into a two-lane urban frontage road with 50 km/hr design speed. Include a right-in/right-out near frontage road cul-de-sac.

#### ***Grade Separation at Barnston Drive East***

- Grade Separation structure to accommodate the existing lanes of Barnston Drive East.

[MAY BECOME A CONCESSION/AUTHORITY ASSET IF FRC OVERPASSES BARNSTON DRIVE EAST.]

#### ***96<sup>th</sup> Avenue Realignment***

- Realignment of 96<sup>th</sup> Avenue, between 184<sup>th</sup> Street and 186<sup>th</sup> Street, into a four-lane urban arterial road with 60 km/hr design speed. Realignment to tie-in with FRC Mainline/ SFPR signalized intersection.
- Realignment also includes a two-lane urban connector, with a 60 km/hr design, to re-connect 96<sup>th</sup> Avenue with Barnston Drive East.



### ***98<sup>th</sup> Avenue Connector Roads***

- Extend 98<sup>th</sup> Avenue from 181<sup>st</sup> Street to connect to 182<sup>nd</sup> Street.
- Reconstruct 98<sup>th</sup> Avenue, between 189<sup>th</sup> Street and 190<sup>th</sup> Street, into a two-lane urban collector road standard with 50 km/hr design speed.

### ***Cul-De-Sacs***

For the closure of the following roads:

- Frontage Road near Highway 15.
- Barnston Drive East.
- 182A Street.
- 186<sup>th</sup> Street.
- 188<sup>th</sup> Street.
- Service Road west from north end of 190<sup>th</sup> Street.

### **2.3.2 Option 1 Section 2**

#### ***192nd Street Upgrade***

- Upgrade 192<sup>nd</sup> Street from the FRC to south of the 94<sup>th</sup> Avenue intersection to a four-lane urban arterial road with 60 km/hr design speed.
- Realign the T-Intersection of 98A Avenue and 192<sup>nd</sup> Street.

[PROVISION FOR CLOSURE OF THE NORTH LEG OF THE INTERSECTION OR MODIFICATION OF THE 98A AVENUE INTERSECTION ARE UNDER REVIEW.]

#### ***Telegraph Trail***

- Cul-de-sac.

***199A Street Upgrade***

- Upgrade of 199A Street, from FRC Exit Ramp to 96<sup>th</sup> Avenue, into a three-lane one-way southbound urban arterial road standard with 60 km/hr design speed.

[SPECIFIC LANE WIDTH REQUIREMENTS AND POSSIBLE DRIVEWAY WIDTH STANDARDS TO ACCOMMODATE TRUCK ACCESS/EGRESS TO PRIVATE PROPERTIES TO BE CONFIRMED.]

***Signalized Four-Legged Intersection with 199A Street/  
96<sup>th</sup> Avenue/200th Street***

- Single Left-Turn Lane into 96<sup>th</sup> Ave for the one-way southbound 199A Street leg.
- Single Left-Turn Lane into the one-way southbound 200<sup>th</sup> Street for the westbound 96<sup>th</sup> Avenue leg.
- Single Right-Turn Taper into the one-way southbound 200<sup>th</sup> Street for the eastbound 96<sup>th</sup> Avenue leg.
- Single Right-Turn Lane into 96<sup>th</sup> Avenue for the one-way southbound 199A Street leg.

***200<sup>th</sup> Street Realignment***

- Realignment of 200<sup>th</sup> Street, between 96<sup>th</sup> Avenue and 201<sup>st</sup> Street, into one-way southbound two-lane urban arterial road with 60 km/hr design speed.

[LANING TO BE REVIEWED RELATIVE TO THE IMPACT OF PRIVATE PROPERTY ACCESS ON ROADWAY CAPACITY.]

***201<sup>st</sup> Street Upgrade***

- Upgrade of 201<sup>st</sup> Street beneath the FRC Bridge South Approach structure into a two-lane urban local road standard with 50 km/hr design speed.

[DETAILS TO BE FINALIZED.]

- Upgrade of 201<sup>st</sup> Street, between FRC Mainline Entrance Ramp and 96<sup>th</sup> Avenue, into a one-way northbound three-lane urban arterial road standard with 60 km/hr design speed.

[SPECIFIC LANE WIDTH REQUIREMENTS AND POSSIBLE DRIVEWAY WIDTH STANDARDS TO ACCOMMODATE TRUCK ACCESS/EGRESS TO PRIVATE PROPERTIES TO BE CONFIRMED.]

- Modify 201<sup>st</sup> Street from 96<sup>th</sup> Avenue south to 200<sup>th</sup> Street to a one-way northbound two-lane urban arterial road with a 60 km/h design speed.

[DETAILS TO BE FINALIZED. LANING TO BE REVIEWED RELATIVE TO THE IMPACT OF PRIVATE PROPERTY ACCESS ON ROADWAY CAPACITY.]

***Signalized Four-Legged Intersection with 96<sup>th</sup> Avenue/201<sup>st</sup> Street***

- Single Left-Turn Lane into one-way northbound 201<sup>st</sup> Street from eastbound 96<sup>th</sup> Avenue.
- Right-Turn Tapers for westbound 96<sup>th</sup> Avenue and northbound 201<sup>st</sup> Street.
- Left-Turn Taper into westbound 96th Ave from northbound 201<sup>st</sup> Street.

***199A Street – 201<sup>st</sup> Street Connector***

- Construct a one-way roadway connecting 201<sup>st</sup> Street to 199A Street.

[DETAILS TO BE REVIEWED WITH LANGLEY.]

### 2.3.3 Option 1 Section 3

#### *Maple Meadows Way Upgrade*

- Closure of Maple Meadows Way after Stewart Crescent with Cul-De-Sac.
- Convert Maple Meadows Way to one-way southbound between West Street and Dunn Avenue.
- Realign the east end of Dunn Avenue to connect directly with West Avenue north of Dunn Avenue.
- Connect the south leg of West Street at a “T” intersection to the Dunn/West realignment.

#### *Lougheed Highway Upgrade*

- Right-Turn Lane from Maple Meadows Way into a parallel auxiliary lane with an appropriate merge length to tie to eastbound Lougheed Highway.

[NEED TO REVIEW/ADDRESS ACCESS ISSUES EAST OF MAPLE MEADOWS WAY, ADJACENT TO AUXILIARY LANE.]

#### *Abernethy Connector*

- Construction of the Abernethy Connector from the Lougheed Highway to connect to 128<sup>th</sup> Street at 210<sup>th</sup> Avenue.

## 2.4 MUNICIPAL ARTERIAL AND PROVINCIAL HIGHWAY IMPROVEMENTS

### 2.4.1 Option 1 Section 1

#### *Ministry of Transportation*

- Additional lanes on Highway 15 south of 96<sup>th</sup> Avenue.
- Improvements to the 176<sup>th</sup> Street Interchange at Highway 1 and 176<sup>th</sup> Street from the interchange to 96<sup>th</sup> Avenue (in conjunction with the

South Fraser Perimeter Road Project), including a right-in/right-out on the east side to 97<sup>th</sup> Avenue.

- Replace the existing northbound to eastbound entrance ramp at the 176<sup>th</sup> Street Interchange with a new eastbound ramp from the FRC to the TCH at the FRC grade separation with the TCH, to mitigate weaving problems on 176<sup>th</sup> Street.
- Additional lanes on Highway 1 from the Port Mann Bridge to east of the 200<sup>th</sup> Street Interchange.

### ***Highway 1 Upgrade with 192<sup>nd</sup> Street***

- Upgrade of the Trans Canada Highway at 192<sup>nd</sup> Street with the provision of Exit and Entrance Ramps:
  - Single-Lane Entrance Ramp to Highway 1 westbound, from 192<sup>nd</sup> Street southbound.
  - Single-Lane Exit Ramp to 192<sup>nd</sup> Street northbound, from Highway 1 eastbound.

## **2.4.2 Option 1 Section 2**

### ***Township of Langley***

- Additional lanes on 96<sup>th</sup> Avenue east of 200<sup>th</sup> Street as required to maintain an adequate level of service on 200<sup>th</sup> Street.
- Upgrading of 200<sup>th</sup> Street from 91A Street to 86<sup>th</sup> Avenue to six lanes, excluding the section under MoT jurisdiction.
- Upgrading of 208<sup>th</sup> Street and 216<sup>th</sup> Street as required to maintain an adequate level of service on 200<sup>th</sup> Street.

### ***Ministry of Transportation***

- Completion of the 200<sup>th</sup> Street Interchange with a six-lane cross section on the section of 200<sup>th</sup> Street within MoT jurisdiction.
- Construction of the 216<sup>th</sup> Street Interchange at Highway 1 as required to maintain an adequate level of service on 200<sup>th</sup> Street.

### 2.4.3 Option 1 Section 3

#### *District of Pitt Meadows*

- Construction of an airport connector road from Harris Road to connect to 113B Avenue.

#### *District of Maple Ridge*

- Upgrading of Abernethy Way from 210<sup>th</sup> Avenue to 232<sup>nd</sup> Street.

#### *District of Pitt Meadows and District of Maple Ridge*

[MAPLE RIDGE AND PITT MEADOWS MAY REALIGN HAMMOND ROAD TO DUNN AVENUE WITH NEW INTERSECTIONS TO CONNECT TO MAPLE MEADOWS WAY SOUTH AND NORTH OF THE RAILWAY.]

#### *Ministry of Transportation*

- Improvements to the Lougheed Highway to provide six through lanes with auxiliary lanes from the Pitt River Bridge to 222<sup>nd</sup> Street.
- Improvements at the Pitt River Bridge Crossing to provide additional capacity.

## 3 OPTION 2 – BARNSTON TUNNEL

### 3.1 GENERAL

The Barnston Tunnel Option consists of three distinct sections as follows and as illustrated on Figure 1:

- Section 1 starts west of Highway 15 in the City of Surrey, and ends just west of 192<sup>nd</sup> Street in the City of Surrey.
- Section 2 starts just west of 192<sup>nd</sup> Street, parallels the CN Rail to Telegraph Trail where it splits with a north leg that crosses over the CN Rail and Parsons Channel of the Fraser River to Barnston Island, beneath

the main arm of the Fraser River, and ends approximately 0.7 km south of 113B Avenue in Pitt Meadows, and an east leg that continues parallel to the CN Rail to 199A Street in the Township of Langley.

- Section 3 starts approximately 0.7 km south of 113B Avenue and ends with a tie-in to the Lougheed Highway in Pitt Meadows and a tie-in to Maple Meadows Way in Maple Ridge.

### **3.2 CONCESSION/AUTHORITY ASSETS**

#### **3.2.1 Option 2 Section 1**

- Same as Option 1 Section 1.

#### **3.2.2 Option 2 Section 2**

##### ***Mainline***

- Four-lane divided expressway with 80 km/hr design speed.

##### ***Signalized Four-Legged Intersection with 192nd Street***

- Same as Option 1 Section 2.

##### ***Interchange at Telegraph Trail***

- Two-Lane Flyover Structures over the CN Rail tracks providing graded separated movements for the eastbound to northbound, southbound to westbound, westbound to northbound, and southbound to eastbound movements.
- Single-lane west- and eastbound ramps adjacent to the flyover structures providing continuity for westbound and eastbound through movements along the FRC mainline.

##### ***Connection to 199A and 201st Streets***

- Two-Lane Exit Ramp to 199A Street southbound.
- Two-Lane Entrance Ramp from 201st Street northbound.

***Barnston Bridge over Parsons Channel***

- Six-Lane Bridge, with Cyclist/Pedestrian footpath lane on the east side.

***Barnston Island Ramps***

- Single-Lane Exit Ramp from southbound FRC Mainline.
- Single-Lane Exit Ramp from northbound FRC Mainline.
- Single-Lane Entrance Ramp onto southbound FRC Mainline.
- Single-Lane Entrance Ramp onto northbound FRC Mainline.

***Barnston Tunnel***

- Six-lane tunnel.

**3.2.3 Option 2 Section 3**

- Same as Option 1 Section 3.

**3.3 CONCESSION/AUTHORITY RESPONSIBILITIES****3.3.1 Option 2 Section 1**

- Same as Option 1 Section 1.

**3.3.2 Option 2 Section 2*****192<sup>nd</sup> Street Upgrade***

- Same as Option 1 Section 2.

***Telegraph Trail***

- Same as Option 1 Section 2.



***199A Street Upgrade***

- Same as Option 1 Section 2.

***Signalized Four-Legged Intersection with 199A Street/ 96th Avenue/200th Street***

- Same as Option 1 Section 2.

***200th Street Realignment***

- Same as Option 1 Section 2.

***201st Street Upgrade***

- Upgrade of 201st Street, between FRC Mainline Entrance Ramp and 96th Avenue, into a one-way northbound three-lane urban arterial road standard with 60 km/hr design speed.

[SPECIFIC LANE WIDTH REQUIREMENTS AND POSSIBLE DRIVEWAY WIDTH STANDARDS TO ACCOMMODATE TRUCK ACCESS/EGRESS TO PRIVATE PROPERTIES TO BE CONFIRMED.]

- Modify 201st Street from 96th Avenue south to 200th Street to a one-way northbound two-lane urban arterial road with a 60 km/h design speed.

[LANING TO BE REVIEWED RELATIVE TO THE IMPACT OF PRIVATE PROPERTY ACCESS ON ROADWAY CAPACITY.]

***Signalized Four-Legged Intersection with 96th Avenue/201st Street***

- Same as Option 1 Section 2.

***199A Street – 201st Street Connector***

- Realign the remaining section of two-way 201st Street from the CN Rail at-grade crossing to tie to the new northbound 201st Street.
- Construct a one-way roadway connecting the realigned 201st Street to 199A Street.

**3.3.3 Option 2 Section 3**

- Same as Option 1 Section 3.

**3.4 MUNICIPAL ARTERIAL AND PROVINCIAL HIGHWAY IMPROVEMENTS****3.4.1 Option 2 Section 1**

- Same as Option 1 Section 1.

**3.4.2 Option 2 Section 2*****Township of Langley***

- Same as Option 1 Section 2.

***Ministry of Transportation***

- Same as Option 1 Section 2.

**3.4.3 Option 2 Section 3**

- Same as Option 1 Section 3.

**4 OTHER REQUIREMENTS FOR OPTIONS 1 AND 2**

[CYCLING AND PEDESTRIAN REQUIREMENTS FOR CONCESSION/AUTHORITY ASSETS AND FOR CONNECTION TO MUNICIPAL NETWORKS ARE BEING DEVELOPED.]

[SPECIAL REQUIREMENTS FOR TRANSIT ARE BEING REVIEWED.]



