



transportation  
investment  
corporation

Project Report:  
**Pattullo Bridge  
Replacement Project**

July 2020

## Purpose of this Report

The purpose of this report is to provide key information to the public about the Pattullo Bridge Replacement Project (the Project). This report describes the need for the Project and how it will be delivered. The report also explains how different procurement delivery methods were analyzed, and how project benefits and innovations are expected to be achieved. A summary of the key aspects of the project agreement (the Project Agreement) is also provided.

The Province of B.C. is committed to a high standard of disclosure as part of its accountability for the delivery of public projects. Ministries, Crown Corporations and other government agencies are publicly accountable for projects through regular budgeting, auditing and reporting processes.

The Ministry of Transportation and Infrastructure, Transportation Investment Corporation (TI Corp), and Partnerships BC are accountable for the contents of this report.

## Abbreviations

Capitalized terms are defined in the glossary at the end of this report.

Abbreviations are defined in the table below:

BCIB	British Columbia Infrastructure Benefits
BCTFA	B.C. Transportation Finance Authority
CBA	Community Benefits Agreement
DB	Design Build
DBF	Design Build Finance
DBFM	Design Build Finance Maintain
RFP	Request for Proposals
RFQ	Request for Qualifications
TI Corp	Transportation Investment Corporation

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# 1. Executive Summary

The Pattullo Bridge is a key connection between the communities of Surrey and New Westminster.

The new toll-free four-lane bridge will provide important improvements for everyone using the bridge, including people who are driving, cycling or walking, as well as communities on either side of the bridge. The new bridge will provide:

- A safer crossing for all bridge users with modern, wider lanes, separated by a centre median barrier;
- Dedicated walking and cycling lanes, separated from traffic by a barrier on both sides of the bridge; and
- Better connections to, from and near the bridge.

The new bridge is scheduled to open in fall 2023. The existing bridge will remain in use until the new bridge is open to traffic. Once the new bridge is open, the existing bridge will be removed.

The new bridge will be built to allow for potential future expansion to six lanes. Expansion to six lanes would be put into place only after consultation among the Province, Indigenous groups, the cities of New Westminster and Surrey and the Mayors' Council.

The Pattullo Bridge Replacement Project (the Project) budget is \$1.377 billion, and it will be funded and owned by the Province of B.C. (the Province). Transportation Investment Corporation (TI Corp) is responsible for managing the delivery of the Project. The Ministry of Transportation and Infrastructure will be responsible for and maintain the new bridge once the Project is complete.

TI Corp is a provincial Crown Corporation with a mandate to provide procurement, delivery and commercial oversight of major capital transportation projects. Major projects currently assigned to TI Corp are the Pattullo Bridge Replacement Project, the Broadway Subway Project and the Kicking Horse Canyon Project – Phase 4.

The Project will be delivered under the Community Benefits Agreement (CBA) in conjunction with British Columbia Infrastructure Benefits (BCIB). BCIB is a provincial Crown Corporation that provides a qualified workforce for the construction of public infrastructure projects operating under the CBA.

The CBA prioritizes hiring of local workers, including Indigenous Peoples, women, people with disabilities and other under-represented groups who are qualified to do the work, in a safe, welcoming work environment. The Project will help diversify and grow B.C.'s skilled workforce by providing opportunities for Red Seal apprentices to work on site and gain the experience they need to launch good careers in the trades.

The decision to procure the Project using a Design Build Finance (DBF) partnership delivery model was based on a thorough analysis of procurement options, including Design Build and Design Build Finance and Maintain (DBFM) models. A DBF model was chosen as it best met the procurement objectives, provided cost-effective risk transfer related to scope and schedule, as well as opportunities for innovation, particularly through construction methodology.

In February 2020, the Province entered into a performance-based, fixed-price contract (the Project Agreement), with the successful proponent, Fraser Crossing Partners. Fraser Crossing Partners formed the legal entity Fraser Crossing Project Corporation (FCPC) to enter into the Project Agreement to design, build and partially finance the Project. The term of the contract is approximately 5.75 years, with a fixed-price of \$967.5 million.

The contract price represents savings of approximately \$62.5 million from the affordability requirement of \$1.030 billion set out in the Project's Request for Proposals. The affordability requirement reflected the maximum budget available for proponents to deliver the scope of the contract. The savings will be kept in the Project budget during implementation to help manage any Province-held risks that may materialize. The competitive selection process resulted in a fixed-price, fixed-schedule commitment from FCPC to deliver the contract scope within the approved Project budget.

FCPC was responsible for arranging \$300.6 million in private financing for the Project. During construction, the Province will pay FCPC 10% of the progress payments, with FCPC contributing the balance from the private financing until it has been fully drawn. The Province will then pay the full amount of progress payments. The Province will repay the private financing amounts to FCPC in three separate payments when each of three substantial completion events outlined in the Project Agreement are achieved. These events are:

- Completion of the new bridge (the New Fraser River Crossing) and connections in Surrey and New Westminster, with the exception of certain ramps and multi-use paths in conflict with the existing Pattullo Bridge;
- Completion of the remaining ramps and multi-use paths; and
- Removal of the existing Pattullo Bridge.

The Project Agreement includes a range of performance measures and incentives, which target delivering the Project on budget and on schedule as well as other objectives, including performance measures related to traffic management and environmental protection.

## 2. Project Background, Goals, Objectives and Scope

The existing Pattullo Bridge opened more than 80 years ago in 1937, and does not meet modern design standards. It is located between the Port Mann and Alex Fraser/Queensborough bridges, directly adjacent to a railway bridge and upstream of the TransLink light rail bridge. The bridge provides a four-lane direct connection between New Westminster and Surrey and is an important element of the transportation network in Metro Vancouver.

FIGURE 1 – EXISTING PATTULLO BRIDGE CORRIDOR



Replacing the existing bridge is essential for maintaining a critical transportation link for local and regional transportation. It is an important component of the Asia-Pacific Gateway goods movement network, serving local, regional and national needs. A regular maintenance program has extended its lifespan, but escalating efforts to prolong its use are no longer cost effective. An assessment of maintenance needs has shown that upgrading the existing bridge to meet modern safety standards would be extremely challenging, both technically and financially.

Efforts to identify a solution for the aging Pattullo Bridge have been underway since 2006. Between 2012 and 2014, a strategic review was led by TransLink to develop and evaluate options to rehabilitate or replace the bridge. In June 2014, the Mayors' Council on Regional Transportation (Mayors' Council) confirmed the region's preferred solution to replace the existing structure in its *Vision for Regional Transportation for Metro Vancouver*. The Mayors' Council determined that the replacement bridge should be a new, four-lane bridge, designed in a manner to not preclude potential future expansion to six lanes.

Project goals and objectives, which were established to guide the review, are set out in Table 1 and Table 2.

**TABLE 1: PATTULLO BRIDGE REPLACEMENT PROJECT GOALS**

**GOALS**

- Provide a structurally sound bridge crossing to maintain a critical local and regional connection.
- Improve safety for all users with modern lane widths, road curvature, centre median and separated pedestrian and cycling lanes.
- Improve connectivity, reliability and modal choice while supporting environmental objectives.

**TABLE 2: PATTULLO BRIDGE REPLACEMENT PROJECT OBJECTIVES**

**OBJECTIVES**

- Provide a river crossing for all modes that is structurally sound, and meets current standards for withstanding seismic and ship impacts.
- Support local and regional land use plans and economic development.
- Provide reliable access and predictable travel times for all modes.
- Minimize single-occupancy vehicle use and vehicle kilometers travelled.
- Move toward the regional goal that, by 2040, half of all trips will be by walking, cycling or transit.
- Minimize emissions of greenhouse gases and pollutants.
- Minimize impacts to the natural environment.
- Support neighbourhood livability by minimizing and mitigating impacts, including during construction.

Section 4.3 of the Project's Business Case<sup>1</sup> involved an in-depth analysis of connection options which could best meet the Project objectives. The qualitative and quantitative analysis included a relative evaluation of customer service, benefit-cost analysis, environmental, social and community factors. The approved option at the Business Case ranked highest in quantified user benefits and benefit-cost ratio among all of the options evaluated, encompassing network enhancement on both sides of the crossing.

The approved option replaces the existing Pattullo Bridge with a new bridge that continues to link the communities of New Westminster and Surrey, tying into the existing networks on both sides of the bridge and adding new direct connections to Highway 17 in Surrey and East Columbia Street in New Westminster. The existing Pattullo Bridge will be removed once the new bridge opens.

<sup>1</sup> Available online at <https://engage.gov.bc.ca/app/uploads/sites/331/2018/05/Business-Case.pdf>

FIGURE 2: ARTIST'S RENDERING OF THE NEW FRASER RIVER CROSSING



The scope of the Project includes:

- A four-lane bridge over the Fraser River, with a multi-use path for cyclists and pedestrians on each side that connects to existing bike, pedestrian, or multi-use pathways in Surrey and New Westminster;
- An entrance ramp to the New Fraser River Crossing from East Columbia Street in New Westminster;
- Exit ramps from the New Fraser River Crossing to East Columbia Street in New Westminster and Highway 17 in Surrey;
- Reconfiguration and modification of existing roads and intersections, including:
  - McBride Boulevard, Royal Avenue, East Columbia Street and Columbia Street in New Westminster;
  - King George Boulevard, at approximately 112th/111 A Avenue and Bridge Road in Surrey;
  - Intersection of Bridgeview Drive and King George Boulevard in Surrey;
  - Grade separation of Highway 17 and Old Yale Road in Surrey;
- Connections between the multi-use pathways on the New Fraser River Crossing and multi-use path systems in Surrey and New Westminster;
- A safety and security fence on all exterior sides of the New Fraser River Crossing; and
- The multi-use pathways for cyclists and pedestrians on the New Fraser River Crossing will be separated from motorized traffic by a fixed barrier.

The Project is expected to achieve all of the Project goals established during the planning and public consultation processes.

TABLE 3: ACHIEVEMENT OF PROJECT GOALS

PROJECT GOALS	ACHIEVEMENT OF GOALS
1. Provide a structurally sound bridge crossing to maintain a critical local and regional connection.	<ul style="list-style-type: none"> <li>✓ Modern structural design which considers seismic, wind loading, and ship impact requirements.</li> <li>✓ Located in existing transportation corridor.</li> </ul>
2. Improve safety for all users with modern lane widths, road curvature, centre median and separated pedestrian/cyclist facilities.	<ul style="list-style-type: none"> <li>✓ Modern lane widths.</li> <li>✓ Improved road geometry on the bridge, ramps and connecting roads.</li> <li>✓ Centre median to separate traffic traveling in opposite directions.</li> <li>✓ Separated pedestrian and cyclist facilities on either side of the bridge.</li> </ul>
3. Improve connectivity, reliability and modal choice while supporting environmental objectives.	<ul style="list-style-type: none"> <li>✓ New and improved road connections and multi-modal paths.</li> <li>✓ Improved pedestrian and cyclist facilities on and off the bridge.</li> <li>✓ Design and construction approach that reduces environmental impacts and addresses issues and concerns identified through the environmental assessment process.</li> <li>✓ Environmental management plans and strategies that ensure compliance with the Environmental Assessment Certificate and Vancouver Fraser Port Authority (VFPA) Project and Environmental Review permit issued for the Project.</li> <li>✓ Consultation/collaboration with Indigenous Groups, regulators and stakeholders on environmental monitoring and mitigation during construction.</li> </ul>

## 3. Project Benefits and Key Features

### 3.1 Safety and Reliability for All Users

The New Fraser River Crossing will be constructed to modern structural design standards that consider seismic, wind loading, and ship impact requirements.

The new bridge will provide a safe and reliable crossing for vehicles, pedestrian and cyclists, including modern lane widths, improved road geometry on the bridge, ramps and connecting roads, and a centre median to separate traffic traveling in opposite directions.

Separated pedestrian and cycling facilities will be constructed on either side of bridge traffic. Safe, dedicated ramps on either side of the bridge will improve connection of these multi-use paths to the BC Parkway, a 26-km multi-use path that roughly parallels the Expo SkyTrain Line, connecting Surrey City Centre, New Westminster, South Burnaby and Vancouver. The pathway links pedestrians and cyclists between the communities north and south of the Fraser River.

**FIGURE 3: ARTIST'S RENDERING OF THE NEW FRASER RIVER CROSSING**



### 3.2 Minimizing Environmental Impacts

The Project will be constructed in accordance with the Environmental Assessment Certificate (EAC) issued by the BC Environmental Assessment Office (EAO), and the Port Permit Environmental Review (PER) permit issued by the VFPA, both obtained by the Province in 2019, as well as the Transport Canada and Fisheries and Oceans Canada permits to be obtained in 2020 with the advancement of the Project design.

### 3.3 Economic Activity

Through the purchase of goods and services during all Project phases, particularly during construction, the Project is expected to create economic activity, benefitting existing businesses throughout the local area, Metro Vancouver, and elsewhere in B.C. During operations, the Project will support economic activity by supplying a safer and more reliable river crossing that will enhance transportation access throughout the region.

### 3.4 Employment and Training

The Project is being delivered under the Province's Community Benefits Agreement, which prioritizes hiring local workers, including Indigenous Peoples, women, people with disabilities and other under-represented groups who are qualified to do the work, in a safe, welcoming work environment. The Project will help diversify and grow B.C.'s skilled workforce by providing opportunities for Red Seal apprentices to work on site and gain the experience they need to launch good careers in the trades. For each year of construction, the average number of workers on site to construct the new bridge and demolish the existing bridge is estimated to be between 250-350 workers. The overall Red Seal apprentice ratio is set at a range of 9 – 15% for all apprentice Red Seal trades working on the Project.

During construction, the Project is anticipated to create more than 7,000 direct and indirect jobs (person years of employment) in B.C. (as calculated by the Construction Employment Estimates calculator provided by BC Stats). Direct jobs are directly related to the Project such as engineering, welding, underwater drilling, and project management. Indirect jobs represent those who benefit from the Project, within the supply chain. For example, local coffee shop workers, hotel employees, restaurant workers, container truck drivers, and construction clothing stores.

## 4. Project Delivery Procurement Options

The procurement approach for the Project was determined following an extensive procurement options analysis, undertaken by the Province and Partnerships BC. Partnerships BC supports the public sector by working with owners to deliver complex public infrastructure. Procurement options are evaluated to identify a method of delivery that will result in the lowest overall cost and risk to taxpayers, while ensuring Project objectives are met. Project characteristics such as size, complexity, opportunity for innovation and the nature of project risks influence the selection of a preferred procurement model. Refer to the 'Procurement Options Report' for a detailed explanation of the procurement options analysis.<sup>2</sup>

### 4.1 Procurement Options Analyzed

#### 4.1.1 Preliminary Procurement Options Assessment

Prior to completing a procurement options analysis, the Project team considered a number of options to determine which delivery models would form the basis for more extensive quantitative and qualitative analysis.

A preliminary assessment of partnership options concluded that the use of a long-term DBFM model was not appropriate for the Project. The reasons included the limited anticipated maintenance and rehabilitation scope given the Project's small geographic footprint and limited roadway scope. In addition, analysis of the cost of life cycle renewal of the major project assets (approach spans, ramps and roadworks) indicated that the long-term nature of the assets (useful life of greater than 50 years) meant relatively minor rehabilitation requirements over a long-term (for example, 25-years) concession period.

The preliminary assessment did, however, indicate that a partnership model involving some amount of private finance offered benefits relating to scope and schedule risk transfer. The Project team therefore determined that a DBF model should be advanced as the preferred partnership model for further study.

The Project team undertook a similar preliminary assessment to determine the preferred traditional model to be used as a comparator to the partnership model. The Project team identified three possible Design Build (DB) options, each involving either one, two or three separate DB contracts. Internal analysis and outreach with the market indicated that project risk could be better managed under a single DB contract. In a DB, a single contractor would have the required flexibility to manage key construction interfaces, including with municipalities, utility providers, and the Highway 17 concessionaire<sup>3</sup>. The contractor would be required to assume the full risk for managing those interfaces, which would be expected to provide the Province with greater cost and schedule certainty than under a multiple contract scenario.

Following this preliminary assessment, the DB and DBF models were taken forward for more detailed analysis.

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<sup>2</sup> Available online at <https://engage.gov.bc.ca/app/uploads/sites/331/2018/02/Procurement-Options-Report.pdf>.

<sup>3</sup> The Highway 17 concessionaire is the private partner responsible for delivering and maintaining the South Fraser Perimeter Road (Highway 17) project.

### 4.1.2 Detailed Analysis

The detailed procurement analysis compared the following models:

1. **Design Build (DB):** The Province engages designers and engineers to develop a concept design for the project. The Province then conducts a competition to select a DB team to undertake the detailed design and construction of the Project, based primarily upon the performance specifications prepared by the Province's technical team. The successful proponent enters into a fixed price contract with payments made by the Province to the contractor at specific progress milestones.

In this model, design and construction risk, including cost and schedule, is transferred to the design builder, while the Province retains life cycle and maintenance risks. The benefits of a DB procurement model include enhanced risk transfer and innovation that comes from integrating design and construction.

2. **Design Build Finance (DBF):** A DBF model is similar to the DB option, with the addition of private financing for a portion of the capital requirements during construction. The private finance is typically repaid to the contractor at substantial completion, with the potential for partial hold-backs during a performance demonstration period post-substantial completion.

The DBF option includes enhanced security for achieving the intended risk transfer related to cost and schedule. Performance incentive payments owed to the Province as a result of non-conforming performance by the contractor can be set off against progress payments if the issues are not rectified. Consequently, lenders and their advisors maintain a keen interest in the contractor's performance throughout the project. Additional benefits include lender due diligence, enhanced enforceability of the contract terms and a lower likelihood of owner scope changes.

Both the DB and the DBF delivery models are undertaken as two-stage procurements, involving a Request for Qualifications (RFQ) where respondent teams submit qualifications for evaluation.

Shortlisted teams are then invited to participate in a Request for Proposals (RFP). In both models, the preferred proponent is eligible to enter into a contract with the Province to design, build and partially finance (in the case of the DBF) the Project.

## 4.2 Results of the Procurement Options Analysis

Based on the analysis carried out, the DBF was determined to be the preferred procurement option and is expected to best meet the Province's procurement objectives and overall Project objectives. The inclusion of private finance provides the Province with enhanced performance security to manage the Project's unique risks, size and complexity. While private finance is typically more costly than public financing, the extra financing costs are expected to be more than offset by the value of the enhanced risk transfer.

## 5. Competitive Selection Process

A two-stage competitive selection process was undertaken for the Project.<sup>4</sup> During the RFQ stage, respondents were asked to present their qualifications for the Project. Five teams responded to the RFQ. Respondents were evaluated for their strength and demonstrated experience and capability in managing, design and constructing similar large, complex Design Build Finance projects. Respondents were required to demonstrate their experience and capability, on past projects, working with Indigenous groups to provide both contracting and employment opportunities.

A shortlist of three teams was selected and invited to participate in the RFP stage. The proponent teams are described below.

**TABLE 4: PROPONENT TEAMS**

PROPONENT	TEAM MEMBERS
<b>Flatiron / Dragados / Carlson Pattullo JV</b>	<ul style="list-style-type: none"> <li>• ACS Infrastructure Canada Inc.</li> <li>• Hochtief PPP Solutions North America, LLC *</li> <li>• Flatiron Constructors Canada Limited*</li> <li>• Dragados Canada Inc.</li> <li>• Carlson Construction Group, Inc.</li> <li>• COWI North America, Ltd.</li> </ul>
<b>Fraser Community Connectors</b>	<ul style="list-style-type: none"> <li>• Kiewit Canada Development Corp.</li> <li>• Kiewit Infrastructure BC ULC</li> <li>• T.Y. Lin International</li> <li>• International Bridge Technologies, Inc.</li> </ul>
<b>Fraser Crossing Partners</b>	<ul style="list-style-type: none"> <li>• Acciona Infrastructure Canada Inc.</li> <li>• Aecon Group Inc.**</li> <li>• Aecon Constructors**</li> <li>• SNC-Lavalin Inc.*</li> <li>• Leonhardt, Andrä und Partner Beratende Ingenieure VBI AG,</li> <li>• Hatch Corporation</li> <li>• EXP Services Inc.</li> </ul>

The RFP has a mechanism to allow for proponent team member changes, subject to the Province's review.

\* withdrew from the proponent team during the RFP process

\*\* added to the proponent team during the RFP process

<sup>4</sup> The RFQ and RFP procurement documents are publicly available at <http://www.partnershipsbcc.ca/projects/projects-under-construction/pattullo-bridge-replacement-project/>

During the RFP stage, workshops and topic meetings were conducted providing each proponent team an opportunity to discuss issues or concerns related to commercial, legal, design, and construction matters. Additionally, a series of workshops with BCIB were included to discuss the BCIB-Contractor Agreement and the Project workforce provisions. The Project is the largest major project to implement the BCIB contractor and subcontractor agreements to date. These workshops provided an opportunity to discuss the risk allocation and identify opportunities to improve the agreement for the benefit of all parties.

The RFP also encouraged proponents to explore contracting and employment opportunities with Identified Indigenous Groups. The Province hosted a business-to-business networking event in March 2019 for Identified Indigenous Groups, to facilitate introduction of the proponents and the Indigenous Groups. The Project Agreement includes an Indigenous Requirements schedule, which is discussed in Section 6.2.

The timeline of the competitive selection process is outlined in the table below.

PROCUREMENT STAGE	TIMING	OUTCOME
Request for Qualifications	July 2018	The Project was marketed locally, provincially, nationally, and internationally. Submissions from five respondents were evaluated and a shortlist of three teams was announced on February 14, 2019.
Request for Proposals	February 2019 to October 2019	Two of the shortlisted teams submitted proposals.
Selection of Preferred Proponent	December 2019	After evaluation of the proposals, Fraser Crossing Partners was selected as the Preferred Proponent.
Project Agreement Finalization	February 2020	The Project Agreement was signed by the Province, BCTFA and FCPC (established by Acciona Infrastructure Canada Inc. and Aecon Group to deliver the Project).

## 5.1 Evaluation of Proposals

The overall objective of the RFP evaluation was to select the highest ranked proposal that:

- Met the technical evaluation criteria;
- Included a contract price proposal at, or below, the affordability requirement (\$1.030 billion) set out in the RFP; and
- Delivered a plan to achieve substantial completion of the main components of the New Fraser River Crossing by, or before, October 2023.

If all of the above criteria were met by all proponents, the highest ranked proposal would be the one offering the lowest contract price proposal.

In order for a proposal to be ranked, a proponent must have met the following technical evaluation criteria in its technical submittal:

- Substantially satisfied the requirements of the RFP and the definitive Project Agreement;
- Demonstrated to the satisfaction of the Province that the proponent would be capable of performing the obligations and responsibilities of the contractor and deliver the Project in accordance with the Project Agreement; and
- Demonstrated a good understanding of the Project and the work.

Once these criteria were deemed to be satisfied, financial submittals were evaluated and proposals were ranked. In the ranking process, as long as a price proposal was below the affordability requirement, the ability of a proponent to meet the schedule requirement was considered before comparing prices. If more than one proposal met the schedule requirement, the lowest price proposal was ranked the highest. Proponents were therefore incentivized to maximize schedule efficiency within the affordability requirement.

The Province appointed an evaluation committee to evaluate the proposals based on the criteria and the ranking process set out in the RFP, and to recommend a preferred proponent. The evaluation committee made its recommendation to the TI Corp board (the governing body that provides guidance and oversight for the implementation of the project) in accordance with both its mandate and the provisions of the RFP. Based on that recommendation, Fraser Crossing Partners was identified as the Preferred Proponent for the Project.

Fraser Crossing Partners' contract price proposal was lower than the affordability requirement and the first substantial completion milestone was proposed to occur before October 31, 2023. At Financial Close, the signed contract value was \$967.5 million. The difference between the affordability requirement and the final contract price will be retained in the Project budget as Province-held risk contingency if needed during implementation.

Ultimately, the competitive selection process was successful by committing FCPC (the corporation created by Fraser Crossing Partners to deliver the Project) to a fixed-price, fixed-schedule delivery of the contractual scope within the approved Project budget and within the Province's schedule requirements.

## 5.2 Fairness Advisor

Jane Shackell, Q.C. of Miller Thomson LLP, was engaged as the Fairness Advisor throughout the competitive selection process. The Fairness Advisor's responsibility was to assess whether or not the selection process was carried out fairly and in accordance with the RFQ and RFP. The Fairness Advisor was provided access to all documents, meetings and information related to the evaluation processes throughout both the RFQ and RFP stages. The Fairness Advisor issued reports for both the RFQ and the RFP stages of the competitive selection process.<sup>5</sup>

In her report on the RFP stage, the Fairness Advisor stated: *"...I am satisfied that the procurement process as described in the RFP was fair and reasonable, and that the project team fairly and reasonably implemented and complied with that process."*

## 5.3 Competitive Selection Costs

The total competitive selection cost for the Project from approval of the Business Case to Financial Close is \$7.2 million (including \$3 million for stipends paid to unsuccessful proponents that met the eligibility criteria). The decision to offer a stipend is made on a case-by-case basis and can be used to:

- Encourage competition;
- Ensure the quality of proposals submitted;
- Secure access to intellectual property; and
- Mitigate costs incurred by proponents in developing their proposals.

In the case of the Project's competitive selection process, the conditions to be eligible for a stipend were set out in the Proponent Agreement, released publicly with the RFQ.

<sup>5</sup> The Fairness Advisor's reports are publicly available at <http://www.partnershipsbc.ca/projects/projects-under-construction/pattullo-bridge-replacement-project/>

## 6. The Final Project Agreement

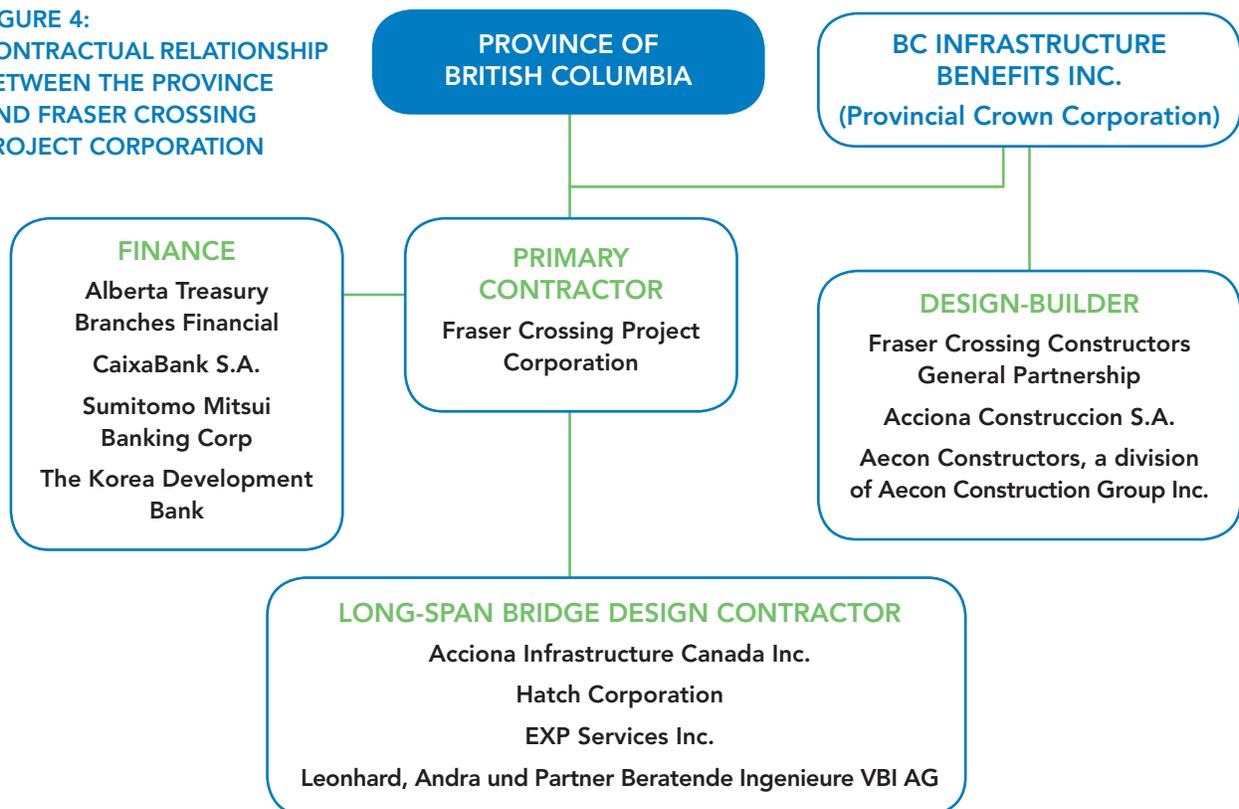
QUICK FACTS	
Private Partner	Fraser Crossing Project Corporation
Public partner	Province of British Columbia and the BC Transportation Financing Authority (BCTFA)
	Delivered by Transportation Investment Corporation (TI Corp)
Facility owner	Province of British Columbia and BCTFA
Project Agreement Execution Date	February 7, 2020
Construction of the New Fraser River Crossing complete (main components and open to traffic)	2023
Removal of the existing Pattullo Bridge complete	2025
Total Completion	2025

### 6.1 Profile of the Private Sector Partner

The Private Partner for the Project is FCPC, a joint 50/50 venture between Acciona Infrastructure Canada Inc. (Acciona) and Aecon Group Inc. (Aecon).

FCPC will deliver the Project through a series of subcontracts, with key aspects of the Project being either delivered by specialist providers or self-performed by Acciona and Aecon. The contractual structure is illustrated in Figure 4 below.

**FIGURE 4:**  
CONTRACTUAL RELATIONSHIP  
BETWEEN THE PROVINCE  
AND FRASER CROSSING  
PROJECT CORPORATION



## 6.2 Key Terms of the Project Agreement

Under the terms of the Project Agreement, FCPC has an obligation to design and construct the New Fraser River Crossing and all associated Project scope, remove the existing Pattullo Bridge and partially finance the Project while it is being undertaken, in accordance with the requirements set out in the agreement. Key features of the Project Agreement include:

- The design and construction of the contract scope will be completed for a fixed price of \$967.5 million, excluding GST and any potential costs associated with risks retained by the Province;
- \$300.6 million in private financing will be arranged by FCPC;
- The Province will pay FCPC 10% of the monthly progress amounts with FCPC contributing the balance from private finance until the full \$300.6 million private financing has been advanced. Thereafter, the Province will pay full progress amounts; and
- The Province will repay the private financing through three milestone payments corresponding to three substantial completion dates to ensure Project Co meets the Project requirements.

The following table presents the payments made to the contractor, including the lump sum payments to repay the private finance amount upon the achievement of three separate substantial completion events.

**TABLE 4: PAYMENTS TO FCPC**

		PAYMENTS TO FCPC
Total Monthly Progress Payments		\$666.9 million
MILESTONE	TARGET DATE*	
<b>SC1 Substantial Completion:</b> Opening of the New Fraser River Crossing	By October 31, 2023	\$220.6 million
<b>SC2 Substantial Completion:</b> Completion of certain ramps and multi-use paths	By January 31, 2024	\$30 million
<b>SC3 Substantial Completion:</b> Removal of existing Pattullo Bridge	By April 30, 2025	\$50 million (less holdbacks specified for warranties and completion of outstanding deficiencies)

\* In the absence of permitted delays, FCPC must achieve the substantial completion dates or be subject to a financial penalty for each day of delay.

- There will be a \$0.5 million fish habitat off-setting warranty holdback as well as an additional holdback of approximately \$10 million to secure the two year warranty period;
  - The payment mechanism includes financial penalties to FCPC if it fails to meet performance requirements in the Project Agreement, such as requirements to effectively manage traffic during construction or meet environmental requirements; and
  - Requirements for FCPC include providing meaningful employment and contracting opportunities for Identified Indigenous Groups and report progress on a monthly basis to the Province.
- Once the Project is complete, the Province will be responsible for maintaining the New Fraser River Crossing as part of the broader Provincial road and highway network.

### 6.3 Key Features of the BCIB Contractor Agreements

BCIB, under an agreement with the Ministry of Transportation and Infrastructure and the BCTFA, will provide the workforce for the Project as it pertains to skilled trades in accordance with the CBA, to FCPC and all subcontractors who will perform work or provide services in respect of the Project.

FCPC, and each subcontractor engaged on the Project, is required to enter into an agreement directly with BCIB for the provision of the labour force. BCIB employees will be dispatched to the project based on the needs and requests from FCPC and its subcontractors, in accordance with the hiring process and priority hiring regimes set out in the CBA.

### 6.4 Key Features of Fraser Crossing Partners' Proposal

Fraser Crossing Partners submitted a strong technical submittal that met the requirements of the Request for Proposals, including the requirements set out in the Project Agreement. The proposal demonstrated the consortium has the expertise and capacity to perform the obligations and responsibilities of the Project Agreement, and has a good understanding of the Project.

The New Fraser River Crossing is proposed as a single tower, cable-stayed bridge with a 332-metre long main span. The new bridge design includes two in-river piers (one being the tower), reduced from the six in-river piers of the existing Pattullo Bridge.

**FIGURE 5: LOCATION MAP OF THE PATTULLO BRIDGE REPLACEMENT**



## 6.5 Risk Allocation Summary

The Project Agreement includes detailed risk allocation provisions. The approach transfers key risks to the contractor—such as construction, cost and schedule—and adds value through design and construction integration and private sector innovation.

The Project presented a number of challenges given its close proximity to, and the economic importance of, the CN Rail bridge, the environmental and cultural sensitivity of in-river and adjacent fish and other habitat, the archaeological significance of the area, and the complex hydraulics of this narrow section of the Fraser River, with proximal downstream structures. The proposed design and construction approach, where risks were substantially transferred to the contractor, included innovations in bridge and roadway design and construction methods that were responsive to these challenges. Examples of these innovations include:

- A single tower cable-stay bridge with only two in-river piers. The RFP allowed for up to four in-river piers, which means the proposed design will have a lower impact with reduced construction activities in the river, easier navigation of the river due to less infrastructure in the water, and reduced in-river footprint with fewer direct impacts on aquatic habitat; and
- More efficient ramp connections in New Westminster than originally contemplated.

Key project risks and their allocation in the Project Agreement are summarized below.

**FIGURE 6: RISK ALLOCATION BETWEEN THE PROVINCE AND FCPC**

RISK	TRANSFERRED TO FCPC	RETAINED BY THE PROVINCE
Design	✓	
Construction	✓	
Availability and performance of labour	✓	✓
Ground conditions	✓	
Traffic management	✓	
Archaeology	✓	✓
Contamination	✓	✓
Operations and maintenance associated with the Project site during construction	✓	
Operations and maintenance once the Project is complete		✓
Private financing	✓	
Property acquisition		✓
Province scope changes		✓
Compensation Events		✓
Force Majeure/Relief Events	✓	✓
Schedule	✓	

The risk allocation is supported by the following provisions in the Project Agreement:

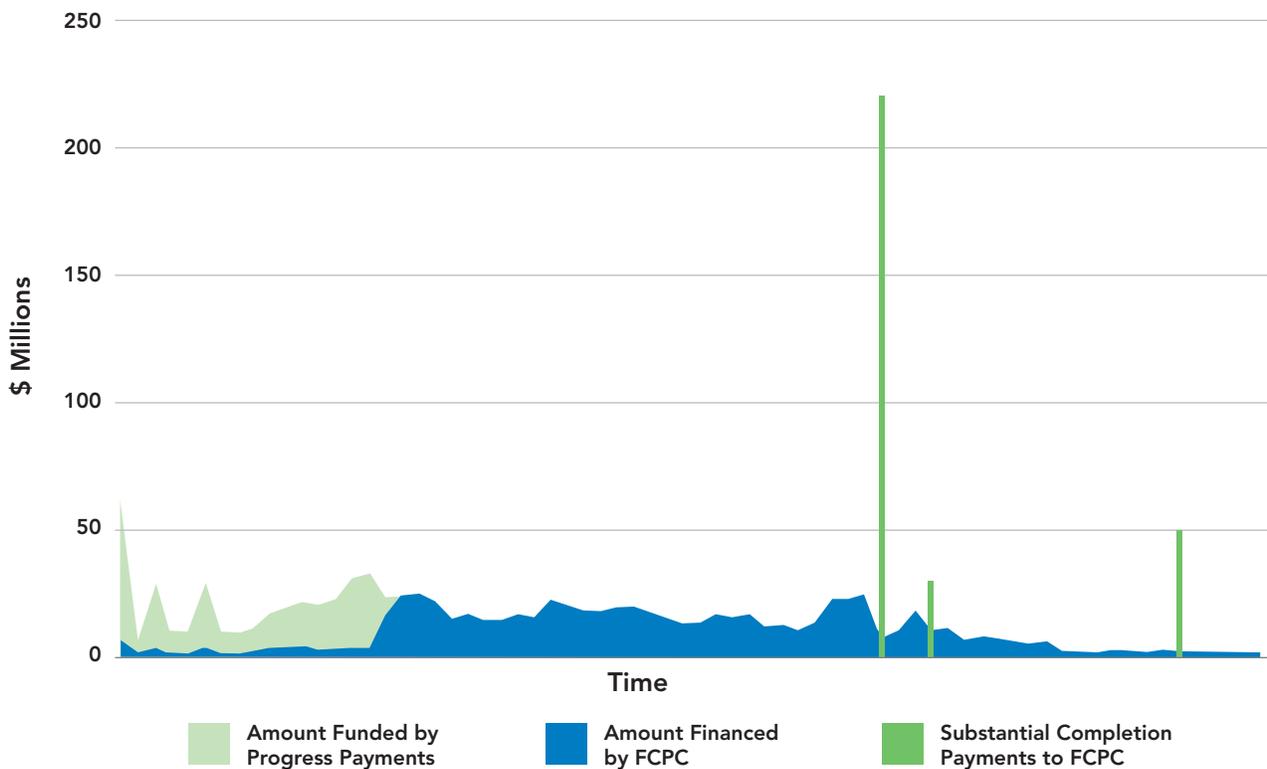
- Substantial completion payments will be made only once specified completion criteria have been satisfied. The Project Agreement and the lending agreements entered into by FCPC include liquidated damages for delayed completion, providing a strong incentive to complete the Project on time; and
- Provisions are in place for a reduction in payments if the Project does not meet the performance standards in the Project Agreement.

### 6.6 Financial Summary

The Project Agreement between the Province, BCTFA and FCPC includes a fixed price of \$967.5 million.

The graph below illustrates the cash flow of the payments that are expected to be made to FCPC under the Project Agreement. The graph is expressed in nominal dollars, and includes an inflation adjustment. Payment projections assume no penalties or deductions.

**FIGURE 7: PROJECT CASH FLOWS**



### 6.7 Accounting Treatment

B.C.’s Office of the Comptroller General, responsible for the overall quality and integrity of the government’s financial management and control systems, has established accounting guidelines for partnership projects. Based on accounting guidelines, the capital cost, for accounting purposes, for the construction of the Pattullo Bridge Replacement Project is expected to be \$1,377 million.

**TABLE 5: TOTAL PROJECT BUDGET (\$ MILLIONS)**

Province’s Costs (including Contingencies and Risk)	\$ 373
Contract with FCPC	\$ 968
Interest During Construction on Provincial Funding	\$ 36
<b>Total Project Budget</b>	<b>\$1,377</b>

## 7 Agreement and Performance Monitoring

The Project Agreement with FCPC includes specific provisions to ensure project delivery, performance and quality standards are met. Monitoring spans every phase of the Project, from Financial Close through design and construction to Total Completion.

### 7.1 Design and Construction Phase

The Project Agreement stipulates that both the Province and FCPC must appoint design and construction representatives. The Province has also appointed an Independent Engineer to review and confirm construction activities, and certify payments in accordance with the Project Agreement. In addition, both the Province and FCPC will jointly appoint an Independent Certifier who will provide certification that the conditions for the three separate Substantial Completion events have been achieved.

In addition to monitoring under the Project Agreement, the Project team will use the performance measurement framework to assess how well Project objectives are being met. The Project has developed a framework for evaluation that includes specific performance measures for each Project goal and objective as shown in the table below. Project team activities will include baseline data collection for operations phase performance measures, as well as collecting data and reporting on construction phase performance measures. Reporting will consist of a Performance Measurement Report following final completion of the Project. Baselines and performance measures are fundamental to the monitoring and accountability of the Project when assessing whether goals and objectives are being achieved. Following issuance of the Performance Measurement Report, the Ministry of Transportation and Infrastructure will continue to collect data on operations phase performance measures.

**TABLE 6: PERFORMANCE MEASUREMENTS**

GOALS	PROJECT OBJECTIVES	TARGETS	PERFORMANCE MEASURE
Provide a structurally sound bridge crossing to maintain a critical local and regional connection.	Provide a river crossing for all modes that is structurally sound and meets current standards for withstanding seismic and ship impacts.	Infrastructure built to current standards, including seismic and ship impact standards.	Design criteria.
	Support local and regional land use plans and economic development.	Provide new regional road connections and improve existing regional connections.	Design criteria.
		Increase efficiency of goods movement.	Travel time studies.
Improve safety for all users with modern lane widths, road curvature, centre median and separated pedestrian and cyclist facilities.	Provide reliable access and predictable travel times for all modes.	Reduce traffic incidents from current levels at the bridge.	Analysis of ICBC incident records.
		Achieve reduced travel times compared with today.	Travel time studies.
	Minimize single-occupancy vehicle use and vehicle kilometers travelled.	Improve cyclist and pedestrian facilities on the bridge.	Design criteria.
Improve connectivity, reliability and modal choice while supporting environmental objectives.	Move toward the regional goal that by 2040, half of all trips will be by walking, cycling or transit.	Increase cyclist and pedestrian traffic on the bridge.	Traffic counts.
	Minimize emissions of greenhouse gases and pollutants.	Meet commitments and obligations in the environmental assessment approvals.	Inspection and reporting during construction.
	Minimize impacts to the natural environment.		Post-construction review and verification.
	Support neighbourhood livability by minimizing and mitigating impacts, including during construction.	Provide direct connections between the bridge and major routes on both sides of the bridge.	Design criteria.

## 7.2 Quality Management

The Project Agreement is designed to incentivize FCPC to ensure delivery, performance and high standards of quality. FCPC is required to implement a quality management system that complies with the requirements and principles of ISO 9001:2015 Standard, as well as other specified standards. Contractual performance measures require the achievement of a range of quality related requirements. The Project team will conduct quality audits as construction progresses to provide assurance to the Province that quality requirements are being met.

## 7.3 Project Governance

The Province has assembled, through TI Corp, an integrated project management team that will be responsible for implementing the Project through design and construction. The Project team reports through the executive project director to the TI Corp Board.

## 8. Glossary of Terms

**Business Case:** Document prepared in British Columbia by a project owner demonstrating the need and cost/benefit of a project, in addition to supporting a procurement method and providing an overview of the accounting impacts that a project may have.

**Financial Close:** The point in the procurement process where negotiations with a preferred proponent are finalized and a Project Agreement is executed, allowing construction to begin.

**Independent Certifier:** Independent, third-party certifier engaged jointly by the owner and the Private Partner to verify and certify whether substantial completion has been met.

**Independent Engineer:** Independent, third-party certifier engaged by the owner to verify and certify whether various conditions of the Project Agreement have been satisfied to allow progress payments to be made.

**Preferred Proponent:** A proponent selected from a shortlist of bidders to enter into negotiations with a project owner to reach financial close and deliver a project.

**Private Partner:** The private sector proponent selected to deliver a project.

**Project Agreement:** Sets out the requirements for the delivery of an asset under a partnership delivery model in terms of cost, schedule and performance that typically governs the performance-based payment to a private partner.

**Province:** The Province means the Province of British Columbia.

**Request for Proposals (RFP):** Document issued by an owner for qualified proponents to submit formal proposals to deliver a project.

**Request for Qualifications (RFQ):** Document issued by an owner inviting parties interested in participating in an RFP, to submit their qualifications for delivering a project.



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