

May 19, 2020

Harris Road Underpass

Technical fact sheet

Project overview

The Pitt Meadows Road and Rail Improvement Project aims to eliminate the rail crossings at Harris Road and Kennedy Road intersecting with the CP rail corridor in Pitt Meadows, BC. Information contained within this fact sheet is current as of the date noted and the reader should be aware that VFPA's approach to the project or information within the fact sheet may have evolved since this date. Updated technical documents will be issued as part of procurement activities. The project is further described on the project webpage, which contains general project information, current as of May 2019: www.portvancouver.com/pittmeadowsroadandrail

Figure 1 – Project location



Funding and project partners include the Government of Canada, the Vancouver Fraser Port Authority (port authority), Canadian Pacific Railway (CP), and the City of Pitt Meadows. The total project value for the Harris Road underpass is estimated to be approximately \$60–\$80 million.

General arrangement drawings for the Harris Road underpass component of the Pitt Meadows Road and Rail Improvements Project are provided as Attachment 1.

Figure 2 – Project rendering



Procurement strategy and timeline

- The proposed form of contract is anticipated to be Design-Build, with an open Request for Qualifications and a Request for Proposals to three selected proponents. Delivery model selection will not be finalized until the start of procurement.

Milestone	Target Date (subject to change)
RFQ Issuance	Q1 2021
RFQ Close	Q1 2021
RFP Issuance	Q2/Q3 2021
RFP Close	Q3/Q4 2021
Notice of Award / Selection of Preferred Proponent	Q4 2021
Construction Start	Q1 2022
Construction Completion	Q2 2024

Possible advanced works

- Relocation of two heritage buildings, that are currently located on either side of Harris Road, south of the railway, is required prior to starting major construction activities. A separate procurement process is being considered for a Relocation Contractor as advanced works to the Design Build contract.
- Consideration is also being given to completing CP rail track diversion works as an advance package to facilitate construction of the underpass structure. It is anticipated that the need for track diversion works will be influenced by the chosen construction methodology.

Technical challenges and risks

- **Environmental issues and permits** – The Harris Road underpass is located in a heavily urbanized area of Pitt Meadows. DFO and ALC permits are not expected to be required and FLNRO permits may be required for temporary dewatering. A known sensitive archaeological site will likely be impacted by the project. An archaeological investigation is required for the area and an Archaeology Branch Site Alteration Permit may be required.
- **Geotechnical conditions** – The shallow groundwater table may cause difficulties in temporary and/or permanent dewatering of the granular layers. Excavation of the saturated top layers will likely require complete control of seepage forces. Otherwise, the silt to silty sand layers could potentially liquefy due to seepage forces. Uncontrolled material losses and/or excavation instabilities could possibly impact the rail track performance and adjacent buildings/utilities. The saturated silt to silty sand expected in the top 30m may liquefy for the design earthquake levels. The permanent wall of the proposed underpass will likely need to be designed to consider the seismic loading conditions and the potential effects of liquefaction. Ground improvement may be required for construction purposes and seismic stability of the structure. Deep piled foundations may be required if a top-down rail bridge option is chosen. Piles may be founded in the clay/silt layer, which will likely be subject to settlement as a result of any structural loading. The presence of adjacent structures would require development of a tight monitoring scheme and remedial measures plan before construction. Attachment 2 provides details of the extent of the ground investigation that have or will be carried out prior to the project RFP.
- **Canadian Pacific** – The proposed underpass will be located below the CP Rail main line in the Cascade Subdivision, east of the Vancouver Intermodal Facility. Currently there are two tracks, with an estimated 59 freight and 7 West Coast Express commuter train movements per day at the Harris Road crossing in 2020, with 24-hour operations. Very limited track closures will be permitted, however potential track detouring is being discussed with CP and the availability of closures will be agreed with CP and defined within the RFP documents.
- **Archaeological** – There is a need for a Heritage Conservation Act Section 12 alteration permit, and any associated mitigation works, prior to the commencement of ground disturbing activities within or near the recorded boundaries of the archaeological site. Further work is required to determine archeology timelines, and this may have a risk of driving critical path for the Harris Underpass component.
- **Traffic management and community** – The port authority is developing design and construction agreements with project partners and relevant requirements will be included in the design-build RFP documents. These documents are anticipated to include requirements related to traffic management and congestion to minimize the impact on the local community. Three lanes of traffic shall be maintained at the Harris Road crossing during the construction during normal daytime working. The contractor will be expected to minimize the impact on the local road network and congestion, and the impact on local residents and businesses should be kept to an absolute minimum during construction. In particular, the contractor will be expected to minimize the impact on the residential and commercial properties immediately adjacent to the site, including noise and visual impact and impact on property access.
- **Utilities** – The contractor may be responsible for temporarily diverting utilities during construction. There are numerous utilities within the existing Harris Road, which could be diverted or protected by the contractor during construction. We do not anticipate any advance works for the utilities at Harris Road.
- **Design reviews** – The port authority, the City of Pitt Meadows and CP will all have significant roles in reviewing and accepting the contractor's designs. The resulting review process will likely be more complex and longer than for a typical design-build project that may have only one or two parties reviewing submissions. The contractor's schedule will need to allow for additional complexity in the review process and additional time in the schedule for design reviews.