



THE CORPORATION OF THE CITY OF COURTENAY

BRIEFING NOTE TO COUNCIL

To: Council
From: Chief Administrative Officer
Subject: 5th Street Bridge Rehabilitation Project

File No.: 5335-20; 5400-02
Date: May 21, 2019

PURPOSE:

The purpose of this briefing note is to provide background information regarding the 5th Street Bridge rehabilitation scope, budget, and cost.

INTRODUCTION:

Built in 1960, the 5th Street Bridge acts as a gateway to downtown Courtenay and requires rehabilitation to maintain the existing level of service for multiple modes of transportation. Over the years, multiple engineering assessments of the bridge have identified the need for structural repairs and re-coating to prevent continued deterioration. This rehabilitation is important to extend the functional service life.

In 2016, the City of Courtenay engaged consultants Hatch Mott Macdonald (HMM) and Urban Systems to complete a scoping study to determine the upgrades required to maintain the 5th Street Bridge for another 20+ years. HMM contracted WSP to conduct a field investigation and prepare an evaluation report for the City. This report was submitted in June 2016 and recommended that the City repair structural deficiencies, refurbish the bridge decking and recoat the bridge steel within the next 5 to 7 years.

In addition to the need to address the structural deficiencies of the 5th Street Bridge, the working draft of the Transportation Master Plan (TMP) identifies a need for additional west-to-east connections across the Courtenay River and identifies the bridge as lacking connectivity capacity. The current bridge has narrow sidewalks on either side and does not provide a safe connection for cyclists, as they are expected to ride in vehicle lanes to cross the bridge. The TMP discusses both the cantilever additions to the 5th Street Bridge and the previously proposed 6th Street Pedestrian Bridge.

FUNDING & COST:

On March 24, 2017, the City agreed to funding terms under the New Building Canada Fund – Small Communities, which contributes \$1.96 million to rehabilitate the bridge in order to mitigate natural corrosion processes and to extend the useful life of the 5th Street Bridge. The original deadline to complete the project has been extended from March 2020 to March 2022.

Based on the terms of the successful grant funding application, the physical works to be completed are

- Removal and replacement of the lead-based bridge coating;
- Steel repairs to the end of the deck beams underneath the bridge (20 each);
- Recoating of all the steel (4,200 m²);
- Removal of the hand rails and hot dip galvanizing the railings and rub rails;
- Removal of existing overlay;
- Deck concrete removal to a partial depth;
- Placement of a new concrete overlay, and;
- Line painting.

Updated design investigation was undertaken by a consultant team in 2018, which confirmed the above scope of work is still valid and the required improvements have not significantly changed. Additional components to the core project scope include cathodic protection and cantilevered pathways. The cathodic protection was selected over a full deck replacement as it provides additional protection to the deck from future corrosion for the life of the bridge and a shorter construction schedule at a reasonable cost difference. The cantilevers are a potential option identified in the TMP to enhance connectivity.

The cantilevers were not included in the original grant application, nor the core budget. These could be added to the bridge in the future, however including them as part of the current project would leverage efficiencies and save approximately \$300k (2019 dollars).

Current construction cost estimates for the proposed works are significantly higher than the project costs requested in the grant funding that has been secured for the project. The new cost estimates are based on discussions with the City's design team and industry contractors who track recently completed projects in Western Canada to inform their estimates. These estimates also compare bridge work undertaken in Campbell River and Duncan in 2018. The original cost estimate was \$2.9M with a cost-sharing of \$1.96M (Province/Federal) and \$0.98M (Courtenay). The new estimate of \$6.3M was received in November 2018 and reconfirmed in March 2019.

COST ESCALATION HISTORY:

Despite numerous cost estimates prepared over the past 20 years which informed the grant application, the cost escalations over the last four years have been significant. Only two detailed estimates have been completed: one in 2018, another in 2008. There was also a conceptual estimate from 1999 with few details. From 2008 to 2015, when the grant was submitted, the anticipated projected costs for the coating replacement and deck repair were not increased. During this time period, cost increases include inflation and additions to the project scope. The largest cost escalations occurred between 2014 and 2018, which have been record years for construction cost escalation on Vancouver Island.

COMPARABLE PROJECTS IN OTHER MUNICIPALITIES:

There were two somewhat comparable projects undertaken on Vancouver Island in 2018 - Campbell River and Duncan.

The Campbell River Bridge project was a seismic retrofit completed by MoTI with a budget of \$2.9M. The project included a seismic retrofit (i.e. replacing deck joints and bearings). The project included fully covering the bridge to complete partial recoating, however only re-coated to 3 metres above the sidewalks in the splash zone. The recoating work did not involve the main structure of the bridge.

In comparison, the 5th Street Bridge Rehabilitation Project will fully remove the current coating and reapply a new protective coating of the entire structure. Courtenay will not be undertaking a seismic retrofit as this was completed in 2012. Both the Campbell River and Courtenay bridge projects will involve structural repairs to the floor beams, with both bridges being completely covered to comply with safe work requirements, and extensive traffic management.

The Cowichan River (Silver) Bridge Coating Project in Duncan has more similarities to the proposed Courtenay 5th Street Bridge project as it involved removing deteriorated coating and corrosion of the entire bridge and applying a new protective coating. Sidewalks were closed, and the bridge was required to be covered. The estimate for coating and repairs was budgeted at \$3.2 million. The Cowichan River Bridge Coating Project cost was \$4.5 million. For comparison, the removal and replacement of the 5th Street Bridge's coating is estimated at \$4.1 million. The total cost for the 5th St Bridge project is projected to be \$6.3M, including the additional structural and decking work.

CURRENT COST ESTIMATE:

Project costs are often compared to project tender costs in other communities, these amounts can vary by up to a third. Total project costs are different from project tender costs as the latter excludes items such as engineering, communications, inspections, contract administration, and contingency. The following table shows a brief summary of the estimated bridge costs in 2019 dollars. Details of the required path and trail connectivity associated with the cantilevered lanes and the 6th St Pedestrian Bridge have not been evaluated in detail, further analysis of these options would be required for more detailed estimates.

Core Components		
1.	Removal and Replacement of Protective Coating	\$4,100,000
2.	Cathodic Protection System	\$1,050,000
3.	Structural Improvements	\$800,000
4.	Traffic Management	\$350,000
		\$6,300,000
Additional Components		
5.	Cantilevers and paths	\$2,000,000
6.	6 th St Bridge and paths	\$4,000,000

Next Steps:

Based on the information provided in this briefing note, and the accompanying Presentation to Council, staff will provide a staff report at the June 10th Council meeting seeking direction on how to proceed. The June 10th Staff Report will provide additional details regarding options available and corresponding costs.

Prepared by:



Ryan O'Grady, P.Ag., P.Eng.
Director of Engineering Services

