

Columbia River Skywalk – Turning a Need into a Landmark

Julie Gubbins, P. Eng., Roman Cap, P.Eng., Nedim Alca, P. Eng., P.E.

COWI North America Ltd., North Vancouver, BC, Canada

Contact: jugn@cowi.com

Abstract

The Columbia River Skywalk, designed by COWI North America Ltd., is a new pedestrian / pipeline suspension bridge located in the City of Trail, BC, Canada. The bridge carries pedestrians in addition to two utility pipelines. The bridge spans the Columbia River with a total length of 280 m (main span of 225 m). Aesthetics and cost were key objectives and were achieved through early communication with contractors, use of different construction materials, close work with the pipe designers, and attention to detail. This paper describes the design details developed to increase constructability and to address aesthetics in addition to discussion of the alternate materials, pipe design approach, and features included to address wind and pedestrian loading. In addition, the paper describes how the project evolved from a basic utilitarian pipe crossing to one that provides significant social value to the City of Trail, and COWI's role in it.

Keywords: pedestrian bridge; suspension bridge; cables; HDPE pipe; FRP deck panels; aesthetics; constructability; flexibility; wind; vibration.

1 Introduction

The City of Trail is a town with a population of around 8000 people located in the Kootenay region of British Columbia (South Eastern BC). The Columbia River, one of the largest rivers in North America, flows through the centre of the town.

The Columbia River Skywalk is a newly constructed pedestrian suspension bridge (carrying two utilities) across the Columbia River, located in downtown Trail. COWI North America, Ltd. (COWI) started preliminary design in the fall of 2013 and the bridge opened to the public in December 2016.

One of the longest pedestrian suspension bridges in North America, the Columbia River Skywalk now forms part of the Trans Canada Trail.

2 Project Background

2.1 Project Need

The Columbia River Skywalk project was born out of the need to provide a new river crossing for an aging sewage forcemain located on a condemned bridge.

The existing forcemain (which services about half of Trail and is owned by the Regional District Kootenay Boundary, RDKB) was located on the Old Trail Bridge, built in year 1911, in downtown Trail. COWI had been providing maintenance, inspection, and rehabilitation services for the Old Trail Bridge since the year 2000.

In 2010, the dilapidated Old Trail Bridge was condemned and closed. The aging forcemain remained on the structure, and the City assumed a high risk - not only in an event of structural failure, but also risk of pipe failure given its' age and condition.

In 2010, the City, with RDKB's support, initiated the project to re-locate the forcemain off the condemned structure to a new aerial crossing. COWI was retained by the City to provide conceptual and detailed design for the new crossing of the Columbia River.

2.2 Project Opportunities

The width of the Columbia River through the City of Trail is over 200 m. At this span, the new crossing would be significant both in terms of length, and, due to its location, visibility.