



## Design of the Golden Ears Bridge

Don W. BERGMAN, P.Eng.  
Project Principal/Engineer  
Buckland & Taylor Ltd.  
North Vancouver, BC, Canada  
[dbergman@b-t.com](mailto:dbergman@b-t.com)

Don Bergman, born 1951, received an Honors Bachelor of Applied Science Degree from the University of British Columbia in 1980. Don joined Buckland & Taylor Ltd. in 1981 and has since worked on the design and erection engineering for several major cable-stayed bridges.

Dusan RADOJEVIC, PhD.  
Design Manager/Engineer  
Buckland & Taylor Ltd.  
North Vancouver, BC, Canada  
[dradojevic@b-t.com](mailto:dradojevic@b-t.com)

Dusan Radojevic, born 1964, received his structural engineering degree from the University of Belgrade, Yugoslavia. Dusan joined Buckland & Taylor Ltd. in 1999, and specializes in design and erection engineering of cable-stayed bridges.

Hisham IBRAHIM, PhD.  
Design Manager/Engineer  
Buckland & Taylor Ltd.  
North Vancouver, BC, Canada  
[hibrahim@b-t.com](mailto:hibrahim@b-t.com)

Hisham Ibrahim, born 1961, received his B.Sc. from Cairo University and his Ph.D. in structural engineering from the University of Alberta. Hisham joined Buckland & Taylor Ltd. in 1994, and has since worked on the design of many major bridge projects including several cable-stayed bridges.

### Summary

The Golden Ears Bridge, currently under construction, will provide a vital new crossing over the Fraser River, which divides the heavily populated Fraser River Valley near Vancouver, British Columbia, Canada.

The main bridge is a 968 m long multi-span cable-stayed structure supported by four main river piers with heights up to 80 m. The structure is an unusual hybrid cable-stayed structure, which utilizes a composite steel-concrete deck and relatively flat harped cable-stays with low profile. The bridge has a structural behavior, which is between that of a true cable-stayed bridge and an extradosed bridge. The key features of the main bridge design are described herein.

**Keywords:** cable-stayed; extradosed; multiple span; composite construction; seismic; settlements.

### 1. Introduction

The Golden Ears Bridge, shown in Fig. 1, across the Fraser River is a six-lane bridge currently under construction near Vancouver, British Columbia, Canada.

The bridge will link the Greater Vancouver communities of Langley and Surrey on the south bank and Pitt Meadows and Maple Ridge on the north bank of the Fraser River. The bridge will be a vital component in development of the region and will improve the traffic flow across Fraser River.



Fig. 1 *Artistic Rendering of the Golden Ears Bridge*

The Golden Ears Bridge Project is being delivered by means of a public private partnership. The Golden Crossing General Partnership (GCCGP, DBFO Contractor) was selected on December 07, 2005 to design, finance, build, maintain and operate the bridge and associated road network for 32