

Rosedale Overhead: Functional Upgrades, Structural Rehabilitation and Seismic Retrofit

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Abstract

The Rosedale Overhead is a 77m long two-lane crossing of BC's Highway 9 over a busy railway track. Built in 1956, the current improvements include widening, new barriers, seismic retrofit and structural rehabilitation, including full concrete deck replacement. The initial design considered retaining and over-coating the existing girders. However, the final design was the outright replacement of the existing girders, with the new girders configured as continuous spans. This concept was preferred because of the lower costs, a savings partly attributed to the reduced number of girder lines from eight to five and bearings by more than half. A reliable seismic load path was established by infilling the bents either side of the rail tracks and locking the bridge ends with new semi-integral abutments. All other bents were left un-retrofitted with low-friction PTFE bearings to reduce lateral bent demands and avoid foundation upgrades.

Keywords: railway overhead, structural rehabilitation, functional widening, safety upgrade, seismic retrofit

1 Introduction

The Rosedale Overhead No. 01414 is an aging two-lane seven-span railway overhead structure (Figure 1). The bridge is located within the Cheam First Nation, 20 km east of Chilliwack, BC and is part of the Highway 9 connection between the Trans-Canada and Lougheed Highways (#1 and #7, respectively). The bridge is owned by the British Columbia (BC) Ministry of Transportation and Infrastructure (MoTI) and is due for an upgrade with respect to structural rehabilitation, seismic retrofit and functional improvements. The paper provides a summary of the structural evaluation,

design upgrades and notable findings of the project. Design is complete; construction is expected to start in spring 2017.



Figure 1. Rosedale Overhead, Looking East