



## BURGOYNE BRIDGE DESIGNED TO RESPECT HISTORY OF SITE AND TO CREATE A NEW LANDMARK

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### Summary

The Region of Niagara is in the process of replacing the nearly 100-year-old Burgoyne Bridge in the City of St. Catharines, Ontario, Canada. Two key factors were the desire to create an iconic or landmark bridge, and the necessity of maintaining traffic throughout construction. The paper discusses technical considerations including corridor selection, alignment, staging, detailed geometry, the integration of bridge construction and bridge demolition, the consideration of adjacent properties and businesses, and connections to local roadways. The development of the new bridge concept and preliminary design are also explored, including reference to inspirational projects elsewhere, and to the history of heritage bridges at the site. Finally the resulting 330m long twin structural steel box girder viaduct bridge, including a single 125m structural steel arch span, is put into context from technical, environmental, and stakeholder perspectives.

**Keywords:** bridge, conceptual, design, heritage, steel, arch, landmark.

### 1. Introduction

For the past nearly 100 years the Burgoyne Bridge in the City of St. Catharines has served as a key link in the transportation system of the City and of the Region of Niagara. The existing bridge is the most recent in a series of bridges constructed at the site since the inception of the City of St. Catharines in the mid-1800s. It forms a major element of the City infrastructure.

The bridge was judged, following detailed inspection, maintenance, analysis, and monitoring over a period of time, to be reaching the end of its useful life and to require replacement by a new crossing.



*Fig. 1: Existing high level steel truss*

### 2. Key Factors

The environmental assessment process involved a range of on-site explorations including a preliminary geotechnical subsurface investigation programme, surveying, definition of property ownership, archaeological investigations, heritage site investigations, and definition of key infrastructure elements found on the site including Highway 406, a pumping station, a forcemain, and many underground services and utilities. A good deal of information as to the existing bridge was available in the form of drawings and previous reports, investigations and analyses. A paper detailing the history of the bridge was noted [1].