



MEMORANDUM

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November 17, 2020

The City of Brampton

1975 Williams Pkwy,
Brampton, ON L6S 6E5,

Attn: **Borendra Sanyal, P.Eng.**
Senior Project Engineer-Bridge

Via Email: Borendra.Sanyal@brampton.ca

Re: **Scott Street Bridge (Site No. G3RBNTE075)**
Bridge Functional Repurposing

Dear Borendra,

Per request made by the City of Brampton ("*the City*"), TSI Inc. undertook a detailed review of the bridge evaluation report previously prepared for Scott Street Bridge (Site No. G3RBNTE075) and provides the following memorandum to address the City's request to further investigate the potential functional repurposing of the bridge into a pedestrian crossing:

BACKGROUND:

Scott Street Bridge, crossing Etobicoke Creek Diversion Channel, is located at Scott Street, approximately 0.16km East of Church St. and 0.2km north of the Queen St. East. The structure is a single-span (23.1m), cast-in-place (CIP), "ribbed" concrete rigid arch frame bridge with an asphalt-wearing surface carrying two lanes of traffic in the north-south direction. The roadway width over the structure is 7.3m.

TSI Inc. was retained by the City of Brampton (C/O Planmac Engineering Inc.), under Assignment 2019-001, to complete a detailed bridge evaluation for Scott Street Bridge in accordance with the requirements of Section 14 of the latest version of Canadian Highway Bridge Design Code (CHBDC; CSA S6-14). Based on the bridge evaluation results and their subsequent discussion summarized in Sections 6.3 & 6.4 of the report, and in accordance with the recommendations provided in CHBDC, a **bridge closure** was highly recommended for the structure until further decision was made regarding the bridge replacement or rehabilitation. The bridge was subsequently closed to the vehicular traffic as directed by the City.

TSI Inc. has recently been approached by the City to further investigate;

- Whether repurposing of the bridge into a pedestrian crossing, under its current condition, would be feasible; and
- The approximate timeline how long the bridge can stay like this if used for active transportation purposes only.



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SUMMARY OF THE FINDINGS:

To address the City's request, a detailed review of the findings of the most recent detailed deck condition survey and the bridge evaluation reports was undertaken by TSI Inc.. A site visit was further arranged, attended by the officials from the City of Brampton and Planmac Engineering, to review and outline the main concerns noted for the bridge.

The finding of our review remains in general conformance with that of the 2020 Bridge Evaluation Report; i.e. bridge closure based on the below-noted uncertainties:

- The unknowns associated with the bridge resistance capacity against positive moment loading effects.
- The uncertainties associated with the extent and nature of the noted transverse cracks which could be a potential "through section" shear crack with significant, unpredictable consequences.
- The nature of the shear failure is very unpredictable, uncertain and often occurs very suddenly without giving any advance warning.

It is noteworthy that the noted transverse crack is assumed to be a shear crack. Although Scott Street Bridge is currently closed to the vehicular traffic, the bridge was noted to be vastly used by the public (both pedestrians and cyclists). It is worthwhile to remember that many bridges failed under its dead load. The consequence of the bridge failure could be fatal and the corresponding debris may also result in blockage of the Etobicoke Creek Diversion Channel which could consequently result in flooding upstream of the structure.

Based on the above notes, TSI cannot comment with certainty on the approximate timeline the bridge can stay like this if used for active transportation purposes only. It is highly recommended that **the deck of the bridge be removed if the City requires longer time to finalize the decision about the ultimate bridge replacement.**

Yours very truly,

TSI Inc.

A handwritten signature in black ink, appearing to read 'Ramin'.

Ramin Rameshni, PhD, P. Eng.
CEO

Cc Mike Neumann, P.Eng. Project Manager, President – Planmac Engineering Inc.