



November 10, 2021

Our File: 212326-1

Via Email: [gfurtney@brockton.ca](mailto:gfurtney@brockton.ca)

Municipality of Brockton  
100 Scott Street, Box 68  
Walkerton, ON N0G 2V0

Attention: Mr. Gregory Furtney

Re: Budgetary Cost Estimates  
Riversdale Bridge Replacement  
Greenock Bridge Structure. No. 2  
Municipality of Brockton

Dear Gregory,

As requested, this letter provides the Municipality of Brockton (Municipality) with budgetary cost estimates for a variety of construction methods that can be considered for the Riversdale Bridge Replacement. Based on the results of the Municipal Class Environmental Assessment (MCEA) and the decisions made by the Municipality's Council, the cost estimates detailed below have considered the following design requirements:

- An overall bridge length of 37.0m (single span);
- A roadway width between guide rails of 7.0m on bridge (i.e. two lanes of traffic);
- A concrete deck for girder bridges and wood deck for truss style structures;
- All structures to be design in accordance with the latest version of the Canadian Highway Bridge Design Code;
- All structures to support CL-625-ONT highway truck loading; and
- All structures to have a minimum service-life of 75 years.
- Underside of structure must remain above the water elevation for Regional Storm Event as required by SVCA.

Based on previous project experience and quotations received from suppliers, the following design options and cost estimates have been provided for the Municipality's review:

- **Option #1 – Prefabricated Steel Panel Bridge**
  - Estimate Cost - \$2.15M to \$2.25M.
  - Quotation for bridge superstructure provided by Algonquin Bridge and Iron Bridge Fabrication Inc.
  - Exposed laminated timber deck system.
  - Thrie beam barriers fastened to steel panel trusses.
- **Option #2 – Precast Girder Bridge with CIP Deck Top**
  - Estimated Cost - \$2.45M to \$2.55M.
  - Quotation for precast girders provided by DECAST.
  - Cast-in-place (CIP) concrete deck top with asphalt wearing surface.
  - Prefabricated steel barrier system
  - Requires significant roadway raising to ensure girders stay above Regional Storm elevation.
- **Option #3 – Prefabricated Timber Truss Bridge**
  - Estimated Cost - \$2.7M to \$2.8M.
  - Quotation for bridge superstructure provided by Timber Restoration Services of New Brunswick (TRS).
  - Exposed laminated timber deck system.
  - Thrie beam barriers fastened to timber trusses.

Note that these cost estimates include a 10% contingency allowance, as well as estimated engineering and contract administration fees.

It should be noted that TRS advised that they could design the substructure (abutments and wingwalls) out of timber also. While this may offer construction cost savings, it is our opinion that the long-term durability of the substructure would be reduced, creating overall higher costs over the life span of the bridge. Therefore, we recommend that the abutments be constructed of reinforced concrete which has been considered in our cost estimates.

It should be noted that recent changes in the construction industry have affected some of the pricing noted above. Based on our discussions with DECAST (precast girder supplier for Option #2), changes in 2019 to the Ontario Provincial Specification Standards (OPSS) for precast girder fabrication have forced a large majority of fabricators to stop producing concrete girders in Ontario. It is our understanding that DECAST is currently one of the only fabricators producing precast girders in Ontario which may have caused the pricing of girders to rise in the last year or so. Based on our discussions with TRS (timber superstructure supplier for Option #3), there is currently a shortage of timber which could affect fabrication costs and timing in 2022. TRS noted that although fabrication typically takes 2 to 3 months, it may be possible that fabrication time could be increased to 6 months depending on the time of construction and the materials available at that time. We expect that if a shortage occurs, the price of the timber material may also rise.

Based on the information provided above, it is our recommendation that the Municipality consider implementing Option #1 – Prefabricated Steel Panel Bridge. This option provides the lowest project budget and stays within the \$2.3M cost estimate previously outlined in the MCEA. Find attached photo examples of prefabricated steel panel bridges which have been provided by the suppliers noted above. In addition, the use of a steel superstructure provides a construction method known to most local contractors which will reduce costs in the future when maintenance is required. The steel superstructure will be lighter in weight than the precast girder option which will reduce the loading requirements on the new foundations. In addition, given that the structure uses a steel truss panel system, the depth of the structure below the deck top will be shallow. This will reduce the requirements of raising the existing roadway to ensure that the new structure stays above the water elevation for the Regional Storm Event (design requirement set by the SVCA). It is our understanding that shop drawings for this type of structure can be received within 2 months and fabrication would be an additional 2 months after receiving authorization to proceed.

It should be noted that these cost estimates do not include the additional work required to widen the existing roadway to support a two-lane bridge structure. It is possible that additional structures such as retaining walls may be required to ensure that the grading of the new roadway embankments stays within the roadway allowance and does not affect the existing drainage of the ditches. The design of the approaches is still waiting on the results of the legal survey that has been organized to identify the limits of the roadway allowance and the adjacent private properties. It should be noted that there is a chance the existing structure was built beyond the current roadway allowance, but this will be confirmed when the survey data is received (late November / early December). In this case, more significant roadway realignment may be required if the Municipality is unable to come to an agreement with the affected private property owners.

Should you have any questions regarding the above noted construction options for the new bridge structure, please do not hesitate to contact our office.

Yours truly,  
**GM BLUEPLAN ENGINEERING LIMITED**  
Per:



Jesse Borges, P.Eng.  
JB/kd  
Encl.

cc: Municipality: John Strader - [jstrader@brockton.ca](mailto:jstrader@brockton.ca)  
GMBP: Brent Willis, P.Eng. – [brent.willis@gmblueplan.ca](mailto:brent.willis@gmblueplan.ca)

**EXAMPLE PREFABRICATED STEEL PANEL BRIDGES  
RIVERSDALE BRIDGE REPLACEMENT  
MUNICIPALITY OF BROCKTON**



**Photo P-1** - Bailey Style Steel Panel Bridge (Algonquin Bridge).



**Photo P-2** - Bailey Style Steel Panel Bridge (Algonquin Bridge).

**EXAMPLE PREFABRICATED STEEL PANEL BRIDGES  
RIVERSDALE BRIDGE REPLACEMENT  
MUNICIPALITY OF BROCKTON**



**Photo P-3** - Structural Steel Panel Bridge (Algonquin Bridge).



**Photo P-4** - Structural Steel Panel Bridge (Algonquin Bridge).

# EXAMPLE PREFABRICATED STEEL PANEL BRIDGES RIVERSDALE BRIDGE REPLACEMENT MUNICIPALITY OF BROCKTON



**Photo P-5** - Structural Steel Panel Bridge (Iron Bridge).



**Photo P-6** - Structural Steel Panel Bridge (Iron Bridge).