



## **GREEN LINE LRT**

### **TECHNICAL MEMORANDUM**

#### **BRT COST ESTIMATE – BEDDINGTON TRAIL TO 160 AVENUE N.**

We have completed an estimate for the cost of designing and constructing BRT from Beddington Trail to 160 Ave N. The estimate was prepared by our colleagues in Transportation Infrastructure based on their expertise recently delivering the 17 Avenue SE, Crosstown BRT and Southwest BRT projects, and includes the following assumptions:

- median running BRT
- new bridge across West Nose Creek (will be replaced when LRT proceeds)
- underpass at 144 Ave N. and bridge at Stoney Trail (designed to accommodate LRT)
- underpass/tunnel at Country Hills Blvd. (designed to accommodate LRT). A portion of the south tunnel portal will be replaced when LRT proceeds. A second option for no underpass was also prepared.
- stations with similar design to MAX purple at: 96 Ave., North Pointe, 144 Ave. N, 160 Ave. N.
- revised intersections and signals
- excludes costs for: vehicles and land
- based on information included in the Green Line LRT Technical Report - Functional Design Report for Green Line Centre City and Green Line North - Rev A dated 2017 June 23

A Class 5 Estimate, or Order of Magnitude Estimate was prepared that has a range of accuracy of -50% to +100% (see attached definition). The Class 5 estimate for the two options is:

- BRT without underpass/tunnel at Country Hills Blvd. = \$130M
- BRT with underpass/tunnel at Country Hills Blvd. = \$195M



## Corporate Project Management Framework

### Estimation, Contingency and Schedule Standard

## Standard

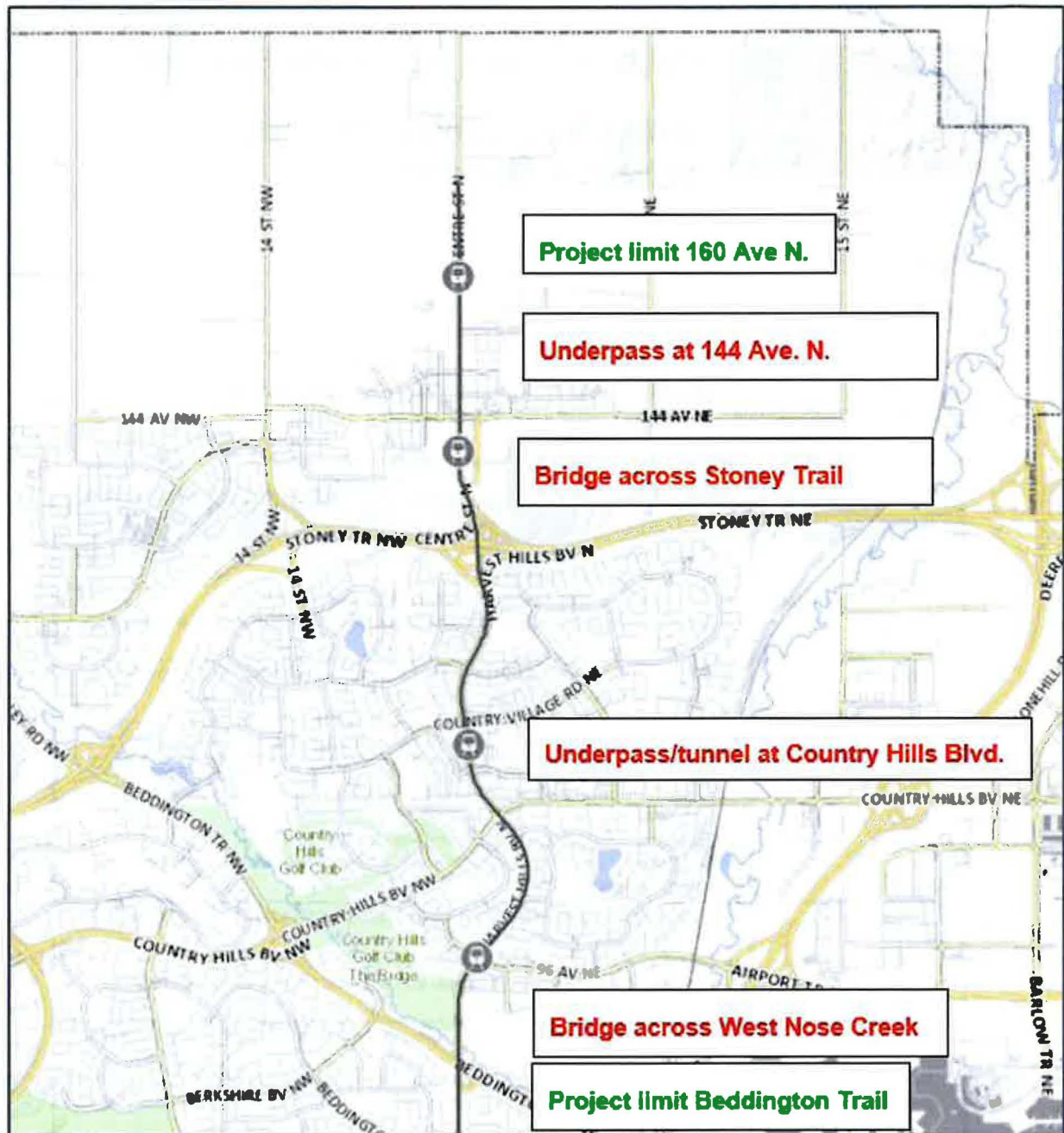
### Estimation

In conjunction with the Government of Alberta, The City of Calgary has aligned with a modified form of the *ASTM* Cost Estimate Classification System (E2516-11).

- Cost estimates shall be developed for capital projects using the five-class standard:

Class	Description
<b>Class 5 –</b> Order of Magnitude	<ul style="list-style-type: none"> <li>• Generally prepared based on very limited information and often based on judgment and/or experience</li> <li>• Expected Accuracy Range (variance) is -50% to +100%</li> <li>• Developed to understand the magnitude of the costs involved in achieving the project</li> </ul>
<b>Class 4 –</b> Conceptual Design	<ul style="list-style-type: none"> <li>• Generally prepared based on conceptual or feasibility studies, considering project options and known constraints</li> <li>• Expected Accuracy Range (variance) is -30% to +50%</li> <li>• Developed to aid in defining the detailed project scope</li> </ul>
<b>Class 3 –</b> Preliminary Design	<ul style="list-style-type: none"> <li>• Generally prepared based on preliminary design information. At this stage project assumptions and constraints have been defined and detailed design is underway</li> <li>• Expected Accuracy Range (variance) is -20% to +30%</li> <li>• Developed to verify project scope and establish the basis for project cost/schedule control</li> </ul>
<b>Class 2 –</b> Detailed Design	<ul style="list-style-type: none"> <li>• Generally prepared based on detailed design information. At this stage detailed design has advanced</li> <li>• Expected Accuracy Range (variance) is -15% to +20%</li> <li>• Developed to verify project scope and establish the basis for detailed project cost/schedule control</li> </ul>
<b>Class 1 –</b> Final Design / Pre- Tender	<ul style="list-style-type: none"> <li>• Generally prepared based on final design information. At this stage detailed design is complete</li> <li>• Expected Accuracy Range (variance) is -10% to +10%</li> <li>• Developed based on finalized project scope, to confirm the sufficiency of funding for the project prior to tender and/or project execution</li> <li>• Provides the basis/background necessary for detailed negotiation and cost reconciliation with any bidder and/or contractor</li> </ul>

- A Class 1 estimate shall be prepared prior to tender issuance.



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