

<p>STRATEGIC ASSESSMENT PHASE</p> <p>Summer 2016 →</p>	<p>VALUE FOR MONEY PHASE</p> <p>Summer 2017 →</p>	<p>RECOMMENDED DELIVERY MODEL</p> <p>Winter 2018 → Present</p>																											
<p>Brings together detailed case study investigations, a market assessment, qualitative risk assessment and delivery options analysis through qualitative assessment.</p> <p>STATISTICS</p> <ul style="list-style-type: none"> 24 firms 13 projects Market Sounding Case Study Review 	<p>The four models advanced from the Strategic Assessment Phase were evaluated qualitatively and quantitatively through the Value for Money (VFM) Phase.</p> <p>STATISTICS</p> <ul style="list-style-type: none"> 2 days 8 workshops/ 40+ attendees Eglington Crosstown lessons learned Commercial Strategy & Risks 	<p>Final Recommendation made through strategic, quantitative and qualitative analysis.</p> <p>STATISTICS</p> <ul style="list-style-type: none"> 4 meetings March 6 ESC Sponsored Recommendation Priorities & Finance Committee 																											
<p>The Delivery Model evaluation began with ten options...</p> <p>A</p> <table border="0"> <tr> <td>DBB Design-Bid-Build</td> <td>DBF Design-Build-Finance</td> <td>DBFVM Design-Build-Finance-Vehicle Supply-Maintain</td> </tr> <tr> <td>DB Design-Build</td> <td>CM Construction Management</td> <td>DBFOM Design-Build-Finance-Operate-Maintain</td> </tr> <tr> <td>IPD Integrated Project Delivery</td> <td>CM@Risk Construction Management (at-risk)</td> <td>DBFVOM Design-Build-Finance-Vehicle Supply-Operate-Maintain</td> </tr> </table> <p>Key assessment criteria</p> <p><i>Each model was assessed by weighted qualitative criteria:</i></p> <ul style="list-style-type: none"> Total project cost certainty and efficiency Lifecycle approach System-wide operational integration User perspective Operational flexibility System expansions On-time delivery Design and construction risk allocation Design flexibility (pre-construction) Capacity and oversight for administering contract Operational risk allocation 	DBB Design-Bid-Build	DBF Design-Build-Finance	DBFVM Design-Build-Finance-Vehicle Supply-Maintain	DB Design-Build	CM Construction Management	DBFOM Design-Build-Finance-Operate-Maintain	IPD Integrated Project Delivery	CM@Risk Construction Management (at-risk)	DBFVOM Design-Build-Finance-Vehicle Supply-Operate-Maintain	<p>VFM Models</p> <p>A VFM Model is the comparison of total (construction, maintenance, and operating) risk adjusted project costs between a traditional (referred to as the Public Sector Comparator or PSC) and P3 project delivery models.</p> <p>VFM assessments utilize macro-economic assumptions, costing analysis, probabilistic risk assessment, financial modelling, and sensitivity analysis to perform the comparison. Risks for each delivery model are assessed and determined to whom the risk would best be managed (i.e. City or Project Co.)</p> <p>B</p> <table border="0"> <tr> <td>DB (PSC)</td> <td>DBF (P3)</td> <td>DBFVOM (P3)</td> <td>DBFVM (P3)</td> <td>DB</td> <td>DBF</td> </tr> </table> <p>Key risk criteria differentiating models</p> <ul style="list-style-type: none"> Expansion Integration Interface Scope change Operational flexibility Disputes Long-term maintenance Construction quality <p>Key factors summary</p> <p>(see reverse for more detail)</p>	DB (PSC)	DBF (P3)	DBFVOM (P3)	DBFVM (P3)	DB	DBF	<p>After detailed evaluation, the recommendation for the Delivery Model, Design-Build-Finance (DBF), was reached.</p> <p>C</p> <table border="0"> <tr> <td>DB</td> <td>DBF</td> <td>DBF</td> <td>DBF</td> <td>DBF</td> <td>DBF</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Design-Build-Finance</td> <td></td> </tr> </table> <p>Decision drivers for determining the final recommendation</p> <p><i>The DB and DBF are very similar models that were the highest scored models at the conclusion of the VFM Phase. Both models take advantage of:</i></p> <ul style="list-style-type: none"> Cost savings for integrating design and construction Enhanced constructability of design plans Accelerated delivery schedule Optimized design and construction risk transfer Easier to implement expansion beyond Stage 1 relative to long-term models Greater flexibility for LRT operations relative to long-term models <p><i>The DBF model has the additional benefits of:</i></p> <ul style="list-style-type: none"> Lender oversight on design and construction provides greater: <ul style="list-style-type: none"> - Performance assurances - Leverage on non-performance Less exposure to credit risk of contractors Short-term financing is relatively inexpensive 	DB	DBF	DBF	DBF	DBF	DBF					Design-Build-Finance	
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EVALUATION RESULTS

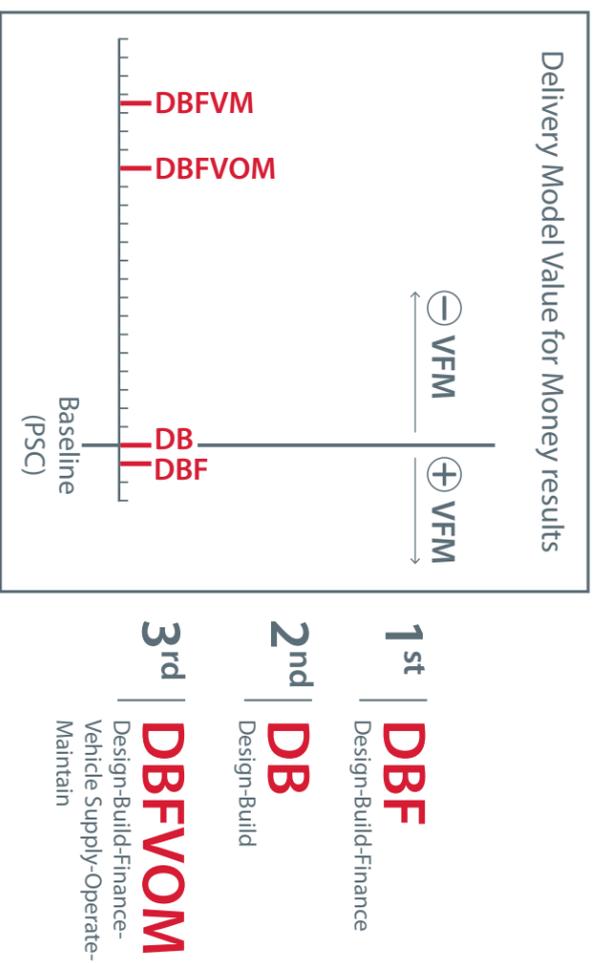
WHY IS DBF THE BEST DELIVERY MODEL FOR GREEN LINE STAGE 1?

NEXT STEPS

DBF

Design-Build-Finance

A DBF is similar to a DB, in that the design and construction are combined under a single contract, but also includes a portion of private sector financing and associated financing risks. Periodic payments would be made to the DBF contractor based on the value of work completed, but payment of the privately-financed portion would remain at risk until the contract is completed.



What are the factors used as part of the Value for Money assessment?

Over 20 different factors were used to evaluate each of the delivery models at the Value For Money (VFM) stage. The most significant risk factors that provided clear differentiation among the models were:

- Flexibility to expand beyond Stage 1
- Operational flexibility and integration with current system
- Risk of scope change (whether initiated by City or by Project Co.)

• Greater flexibility for operations and future expansions

- Greater operational flexibility is available in the DBF model. Changes to Calgary Transit's service plan in response to customer needs or ridership can be made without the presence of a private operator.
- As future stages of the Green Line are being planned, a delivery model that includes operations and maintenance would result in increased costs for The City to have Project Co. accommodate for future stages outside of Stage 1.

• Better cost and schedule certainty

- Project Co. only receives partial payment for reaching a construction milestone. The remainder of the payment is only given when construction is complete.
- The risk for delays and cost overrun is lower when compared to other delivery models. Penalties or additional interest charges for delays motivates Project Co. to adhere to the schedule and ensure that work meets technical requirements and standards.

• Lender oversight on the design & construction risk transfer

- Due to the size and complexity of Green Line Stage 1, the project has significant design and construction risks that will be transferred to Project Co. The finance component of the delivery model anchors Project Co to their obligations in taking on the risks transfer, and the lender provides additional oversight on Project Co's management of those risks.

• Less exposure to credit risk of contractors/subcontractors

- Project Co.'s lenders would provide an additional layer of comprehensive credit checks
- Contractors and subcontractors have the financial stability to be involved with construction of the Green Line.

• Short-term financing is relatively inexpensive

- When compared to long-term P3 delivery models where Operations and Maintenance are included, the short-term nature of DBF reduces the financial burden on The City associated with long-term financing

The Design-Build-Finance (DBF) model has been used successfully in several cities, in several project sectors, including transit infrastructure. For example:

- Evergreen Line, BC, an 11 km long extension to the existing SkyTrain system in Metro Vancouver. A budget of \$1.43B was approved in 2008. Service commenced in December 2016. The project was delivered on time and approximately \$70M - \$85M under the budget set in 2008.
- Confederation line east, phase 2, ON, a 30 km long extension to the existing LRT system in Ottawa, note the first phase was built as a Design-Build-Finance-Operate-Maintain. The project is currently in RFP stage. Contract award is scheduled for Q2 2018 and construction commencement by Q2 2019. The project is expected to cost \$3.6B.

Councillor Information Session #1:
Background and Delivery Model Options
January 22, 2018

Councillor Information Session #2:
Delivery Model Evaluation and Results
January 29, 2018

Councillor Information Session #3:
Delivery Model Q&A and Contracting Strategies
February 12, 2018

One-on-one meetings with Councillors:
Address questions or concerns related to the delivery model recommendation
February 5, 2018 to March 2, 2018

Priorities and Finance Committee:
Green Line Stage 1 - Delivery Model Recommendation
March 6, 2018

Regular Meeting of Council:
Green Line Stage 1 - Delivery Model Recommendation
March 19, 2018