

## APPENDIX B

### Procurement Options Summary and Pros/Cons Analysis

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Procurement Model Description	Summary of Key Features and Pros/Cons
<p><b>1. Design-Bid-Build (DBB) (multiple tenders)</b></p> <p>This model entails the City contracting for the development of detailed design drawings and specifications from the “owner’s engineer”. Then, a small number of separate construction tender packages would be issued and awarded on low-bid basis.</p>	<p>Pros</p> <ul style="list-style-type: none"> <li>▪ City input into design.</li> <li>▪ Competition on construction price.</li> <li>▪ Potential to avoid some cost escalation exposure.</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>▪ The traditional approach, modified by issuance of several staged tenders rather than a single tender presents risks of multiple change orders that impact cost and timelines.</li> <li>▪ No cost certainty.</li> <li>▪ High demands on City during design and construction – City fulfils role of Project Manager.</li> <li>▪ City operates the WWTP and takes on the risk associated with that.</li> <li>▪ Interface risk during construction.</li> <li>▪ No PPP Canada funding.</li> </ul>
<p><b>2. Construction Manager at Risk (CMAR)</b></p> <p>This model would involve the City appointing a construction manager that would work with the owner’s engineer and the City in design advancement and at some point in the process would bid either a guaranteed maximum price or target cost.</p>	<p>Pros</p> <ul style="list-style-type: none"> <li>▪ Allows for some degree of construction cost certainty and the benefit of constructor input into the design.</li> <li>▪ City input into design.</li> <li>▪ Potential to avoid some cost escalation exposure but perhaps less than Model 1 since Construction Manager (CM) will want to delay fixing price.</li> <li>▪ Some cost certainty.</li> <li>▪ Competition on some of the construction price.</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>▪ No design competition.</li> <li>▪ High demands on City during design, construction, but lower than Model 1 as some authority during construction delegated to CM.</li> <li>▪ City operates the WWTP and takes on the risk associated with that.</li> <li>▪ Interface risk during construction.</li> <li>▪ No PPP Canada funding.</li> </ul>
<p><b>5. Design-Build (DB)</b></p> <p>This model involves selecting a design-builder based on a date and cost certain price for construction of the Project. The competition would be based on a performance specification developed by the City and the owner’s engineer.</p> <p><i>Determined to be suitable for greenfield portion of Project only. May be used in conjunction with Models 1 or 2.</i></p>	<p>Pros</p> <ul style="list-style-type: none"> <li>▪ Benefit of constructor input to design.</li> <li>▪ Low demands on City until construction complete.</li> <li>▪ Construction cost certainty achieved early, when bids received.</li> <li>▪ Competition on construction price.</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>▪ No City input into design.</li> <li>▪ High demands on City for short period to develop performance specification.</li> <li>▪ No long term cost certainty.</li> <li>▪ Design competition.</li> <li>▪ City operates the WWTP and takes on the risk associated with that.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Highest risk of all Models that ease and economy of O&amp;M is not adequately addressed in the design.</li> <li>▪ Interface risk during construction.</li> <li>▪ No PPP Canada funding.</li> </ul>
<p><b>6. Design-Build-Operate-Maintain (DBOM)</b></p> <p>Under this model a contractor with bundled responsibility to design, build and then operate and maintain the Project for a period of up to 30 years would be selected based primarily on the net present value of the total capital and O&amp;M cost that is bid.</p>	<p>Pros</p> <ul style="list-style-type: none"> <li>▪ Benefit of constructor and operator input into design.</li> <li>▪ Low demands on City after procurement phase, including into the operation period.</li> <li>▪ Construction cost certainty achieved early but later than Model 5.</li> <li>▪ Competition on construction price.</li> <li>▪ Competition on O&amp;M price.</li> <li>▪ Partial long term O&amp;M cost certainty.</li> <li>▪ Contractor operates and maintains WWTP.</li> <li>▪ No interface risk during construction.</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>▪ No City input into design.</li> <li>▪ High demands on City for moderate period to develop performance specification and procurement documents.</li> <li>▪ Potential negative public scrutiny</li> <li>▪ No PPP Canada funding.</li> <li>▪ Long term contract requirement</li> </ul>
<p><b>7. Design-Build-Finance-Operate-Maintain (DBFOM)</b></p> <p>Under this model a contractor with bundled responsibility to design, build, partially finance and then operate and maintain the Project for a period of up to 30 years would be selected based primarily on the net present value of the total capital and O&amp;M cost that is bid.</p>	<p>Pros</p> <ul style="list-style-type: none"> <li>▪ Benefit of constructor and operator input into design.</li> <li>▪ Low demands on City after procurement, including into the operation period.</li> <li>▪ Construction cost certainty achieved early but later than Model 5.</li> <li>▪ Competition on construction price.</li> <li>▪ Competition on O&amp;M price.</li> <li>▪ Full long term O&amp;M cost certainty.</li> <li>▪ Contractor operates and maintains WWTP.</li> <li>▪ No interface risk during construction.</li> <li>▪ High probability of PPP Canada funding.</li> </ul> <p>Cons</p> <ul style="list-style-type: none"> <li>▪ No City input into design.</li> <li>▪ High demands on City for moderate period to develop performance specification and procurement documents.</li> <li>▪ Potential negative public scrutiny</li> <li>▪ Long-term contract requirement</li> </ul>