Light Rail Transit in Ottawa: Innovation through Procurement

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• Background
• Stage 1 Procurement & Lessons Learned
• Stage 2 Procurement
Ottawa’s Transit Challenge
Confederation Line
Stage 1
Stage 1 Confederation Line

- Conversion of the existing bus “Transitway” to a 12.5km dedicated light rail transit line running;
- 2.5km tunnel through the downtown core;
- 13 stations including 3 downtown underground stations;
- A new Maintenance and Storage Facility where the light rail vehicles will be assembled, maintained and stored; and,
- 30 year maintenance concession period.
Procurement Approach

Project Solutions

- Affordability Cap
  - Defined Service Proven Vehicle and System
- RFP Innovations
  - Geotechnical risk ladder
    - Operations Matters
    - Energy Matters
    - Mobility Matters
- Bundled Hwy 417 Expansion Project
  - Flexibility in construction & tunnel excavation methodology
- Provided station “innovation zones”
  - Bundled cash allowance projects
Rideau Transit Group (RTG)

- Design Build Finance Maintain
- Owned and operated by the City of Ottawa
- $2.1B project including $300M in private financing
- 30-year maintenance term with performance incentives
- Rideau Transit Group (RTG):

[Logos of ACS, EllisDon, and SNC-Lavalin]
Stage 1 Lessons Learned

Extensive analysis of the execution of Stage 1 and a comprehensive “lesson learned” report was prepared in advance of Stage 2 procurement.

Major takeaways from Stage 1 that were applied to Stage 2 include:

1. Focused preliminary engineering to create reference concept from the outset
2. Early operator involvement
3. Notification penalties/missed project completion notifications will result in penalties
4. Earned value payment mechanism instead of milestone payments
5. Bundled Projects incorporated City projects to benefit from full risk transfer, cost and schedule certainty of the P3 contract
6. Expanded Mobility Matters requirements to include pedestrians and cyclists
Stage 2 Project
Procurement
O-Train Network
Stage 2 Project Overview

Confederation Line East and West Extensions

- Confederation Line East Extension (5 stations + 12 km track)
- Confederation Line West Extension (11 stations + 15 km track)
- Expanded maintenance facilities to support a larger fleet
- Additional vehicles to support expanded service
- Additional maintenance scope

Trillium Line Project

- Trillium Line Extension, including Airport Link (8 new stations + 16 km track)
- Takeover of brownfield assets including existing six (6) Alstom LINT vehicles
- Procurement of additional vehicles to expand system capacity
- Maintenance for the existing and expanded Trillium Line
The project’s procurement faced unique challenges in order to maximize value to the City and limit the City’s risk exposure. Addressing these challenges help shape the procurement objectives.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Objectives</th>
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<tbody>
<tr>
<td>Incumbent Advantage</td>
<td>Optimal Service</td>
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<tr>
<td>System Integration Issues</td>
<td>Single Point of Accountability</td>
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<tr>
<td>Value for Money</td>
<td>Meet Budget Targets</td>
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<td>Risk Transfer</td>
<td>Optimal Risk Transfer</td>
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<td>Technology Differences</td>
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<td>Brownfield versus Greenfield</td>
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The following procurement solutions for the various elements of Stage 2 were implemented after having weighed the various options and objectives:

<table>
<thead>
<tr>
<th>Memorandum of Understanding with RTG</th>
<th>Confederation Line East and West Extensions</th>
<th>Trillium Line Extension</th>
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<tbody>
<tr>
<td>• Limited extension to Confederation Line Scope (in areas contemplated by existing contract);</td>
<td>• Design Build Short-term Finance (DBF) competitive tender;</td>
<td>• Design Build Finance Maintain (DBFM) competitive tender; and</td>
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<tr>
<td>• Additional vehicles; and</td>
<td>• RTG, via MOU, to provide maintenance services; and</td>
<td>• RTG is <em>permitted</em> to compete.</td>
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<tr>
<td>• MSF Expansion</td>
<td>• RTG <em>will not</em> compete</td>
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The specific challenge of retaining a single maintainer for the extended Confederation Line required a number of solutions in order to protect the pricing and to ensure matching of Stage 1 and Stage 2 quality.

### Challenges

- Handover of new assets to RTG
- Retain risk profile for maintenance
- Protect costing assumptions

### Solutions

- RTG procurement oversight
- RTG design & construction oversight
- Warranty / Interface Agreement
- Dispute resolution mechanism
Challenge: Signals Integration

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<table>
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<tr>
<th>Challenges</th>
<th>Solutions</th>
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</thead>
<tbody>
<tr>
<td>Extension of existing signal system</td>
<td>Extension of signals stays with DB Co</td>
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<td></td>
<td>Flow through of costs (not a bid item)</td>
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<td></td>
<td>Tripartite negotiations with bidders</td>
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<td></td>
<td>Gain share incentive post-award</td>
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**Challenges**
- Limited vehicle supply options
- Vehicle supply risk transfer
- Vehicle supply dominates the outcome

**Solutions**
- City “Standing Offer” for vehicles
- Flow through of Costs (not a bid item)
- Tripartite Negotiations with bidders
- Risk sharing on supplier events
Stage 2 Confederation
Line Fleet Expansion
Belfast Yard Expansion

New Shed

New MSF
Fleet Expansion to 72 Vehicles
Stage 2 Confederation Line East and West Extensions
East West Connectors
Stage 2 Trillium Line South Extension
Gladstone Station
Airport Station
Thank you