



Ottawa Light Rail Transit – Stage 2 Trillium Line Extension

Infrastructure Investment, Funding &
Regulatory Hurdles

November 15, 2018

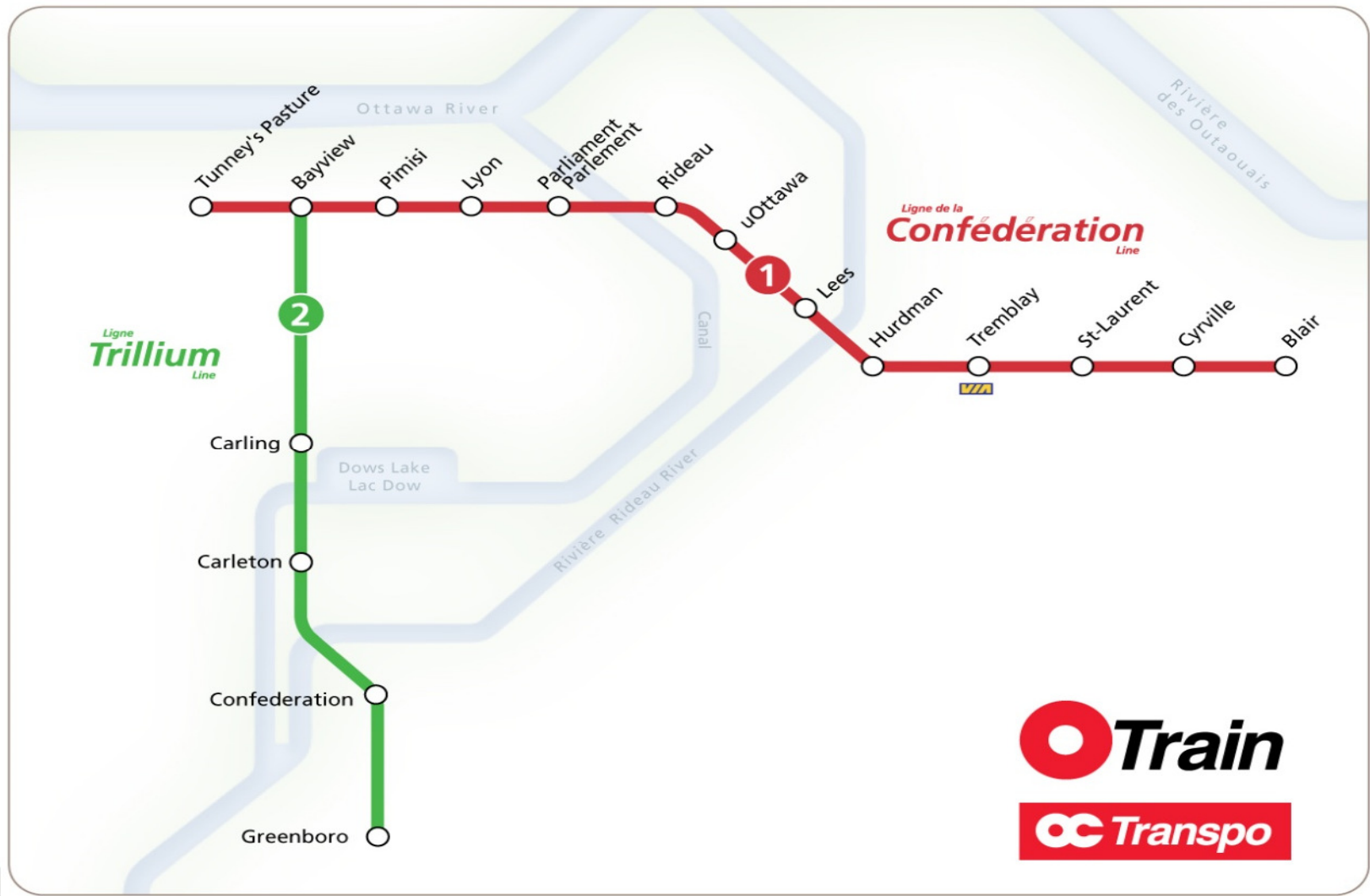
Chartered Institute of Logistics and Transport North America (CILTNA)



Ottawa's Transit Challenge



O-Train Network (2019)



← STAGE
ETAPE 2 →

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Train



Stage 2 Light Rail Transit (LRT)

44 km

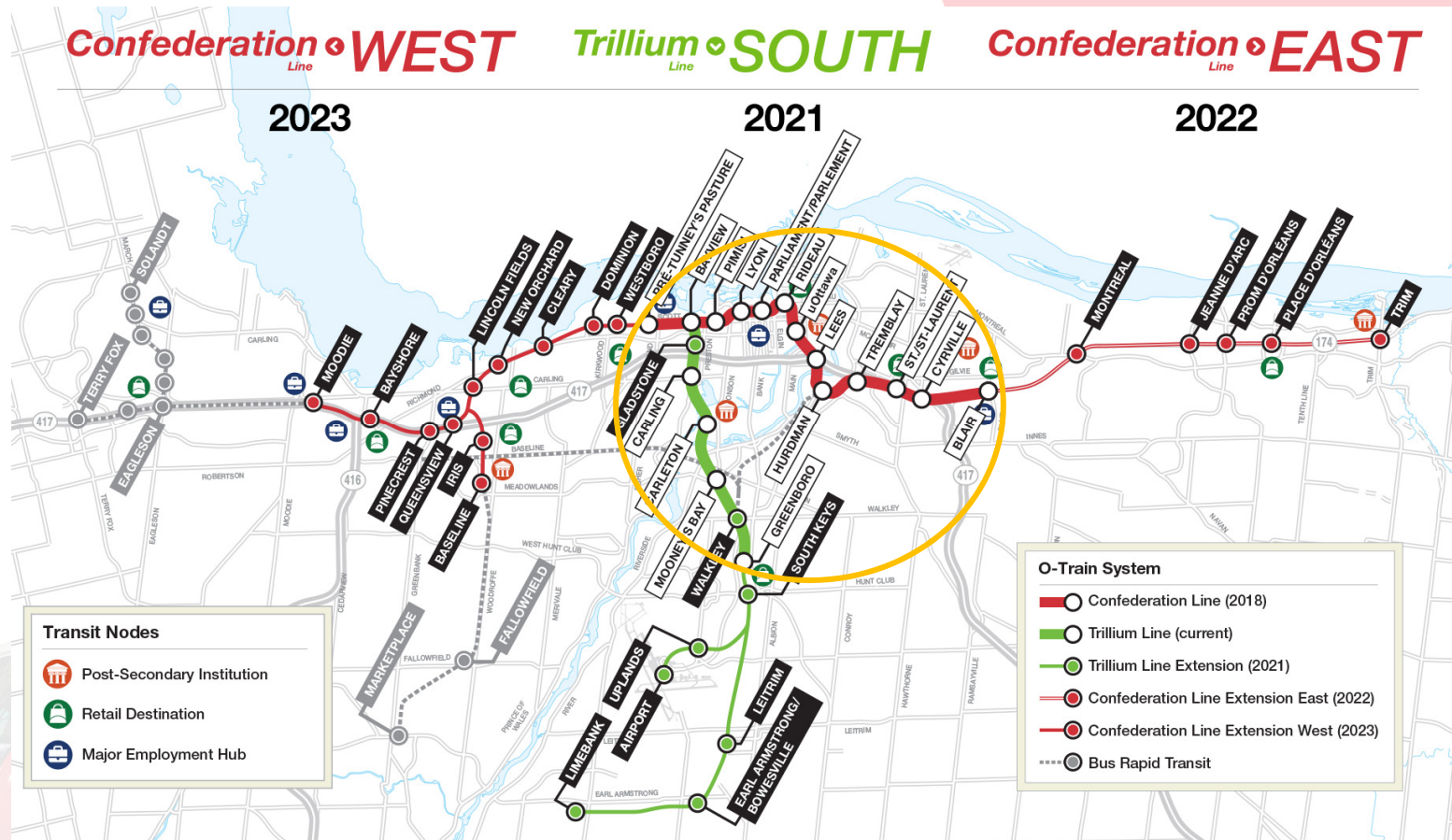
KM of new rail



New Stations

70%

Ottawa residents
within 5km of
new rail



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O-Train

2017-081_04



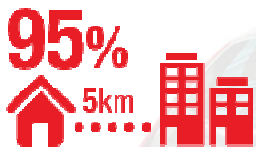
Confederation Line East



New LRT stations



KM of new rail



Of area residents
within 5 km of rail



Confederation Line EAST





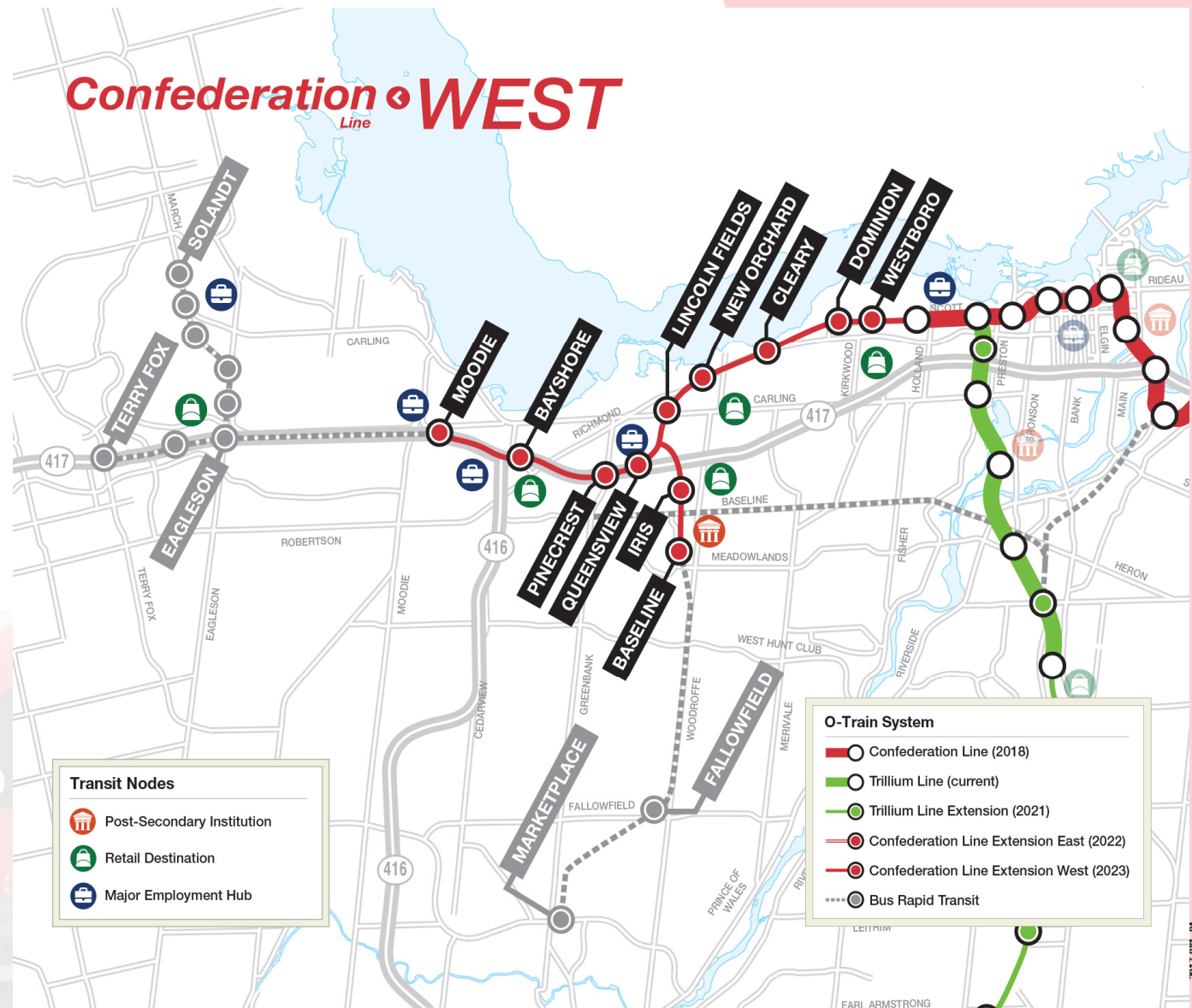
Confederation Line West



New LRT stations



KM of new rail



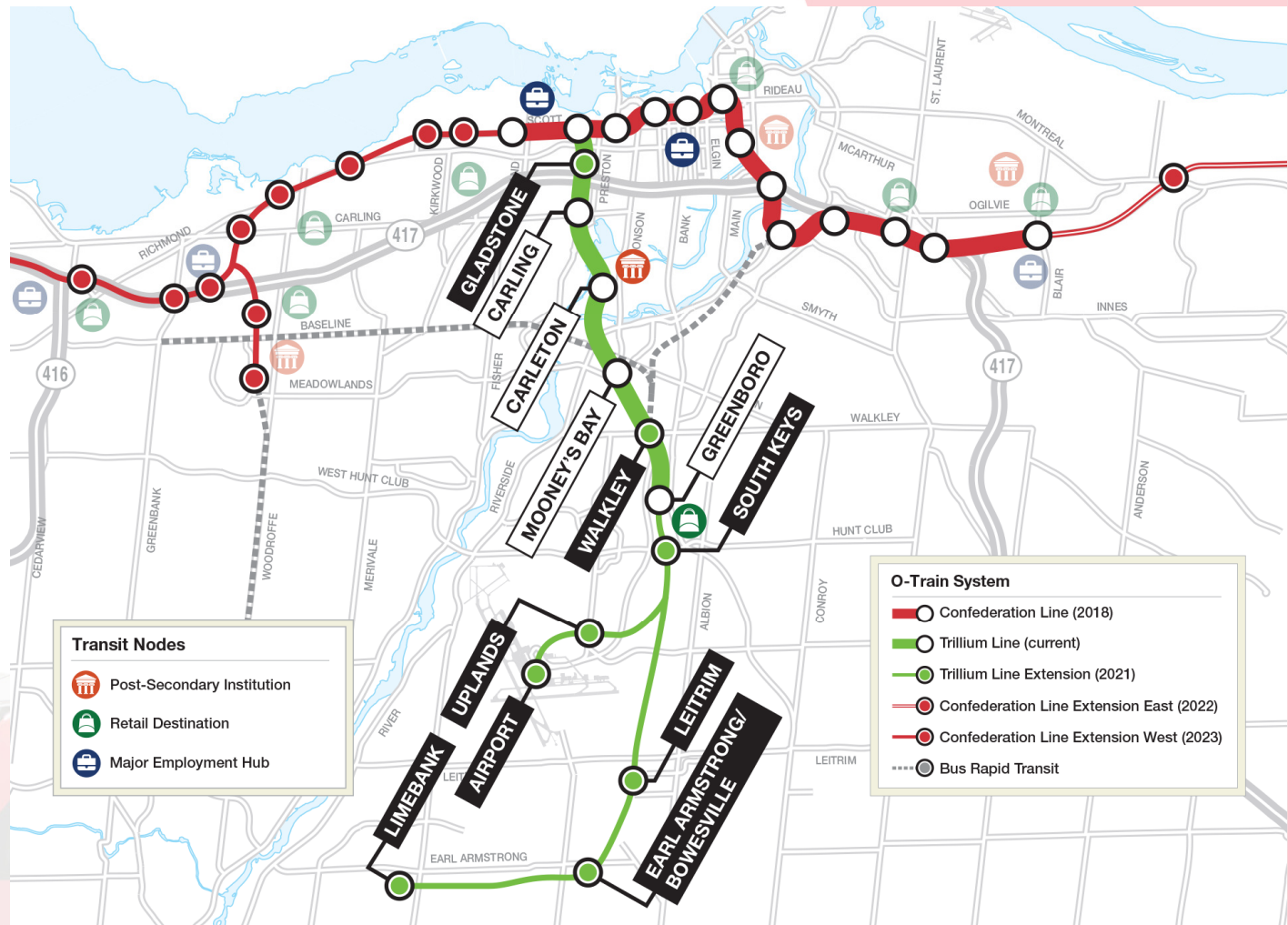
Trillium Line South Extension



New LRT stations



KM of new rail



- Extension of an existing operating diesel system.



Ottawa Key Challenges

- Affordability.
- Ensure procurement for Confederation Line expansion drove strong competition and was supported by federal and provincial funding partners.
- Ensure procurement to expand Trillium Line would function and integrate seamlessly between existing and expanded line and the overall O-Train system.
- Ensuring risk and financial profiles balance desired City outcomes.
- Getting community buy-in.
- Future-proofing the system.



Guiding Principles

- Meet the City's affordability criteria for capital, maintenance and operations of the Stage 2 project;
- Ensure Stage 2 can be competitively tendered and will attract private sector interest
- Maximize system ridership;
- Optimize risk transfer between City and Stage 2 Project Co;
- Minimize mobility, environmental and quality of life impacts of Stage 2 construction & operation;



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Guiding Principles (cont'd)

- Ensure customer familiarity throughout the entire O-Train system;
- Ensure station investment returns maximum benefit to riders and adjacent community;
- Maximize alternative revenue streams to the City;
- Maximize local economic benefit of Stage 2 construction; and
- Maximize resiliency and environmental sustainability.



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Procurement Challenges and Objectives

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.

Challenges

Incumbent Advantage

Mobilized, familiarity with systems, Maintenance and Storage Facility (MSF)

System Integration

Ensuring integration of systems and control centre

Value for Money

Achieving value for money and competitive pricing in a \$6B concession (~\$3B Capital, ~\$3B Maintenance Period)

Risk Transfer

Maintaining the value of original Stage 1's DBFM risk transfer and quality regime

Objectives

Optimal Service

Maximize systems function and operability

Accountability

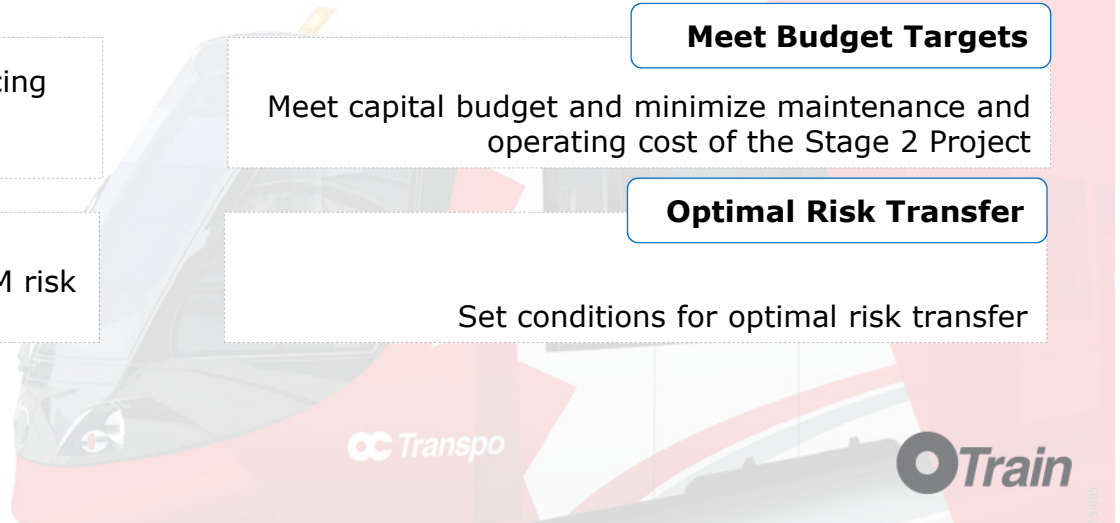
Single point of accountability for service availability

Meet Budget Targets

Meet capital budget and minimize maintenance and operating cost of the Stage 2 Project

Optimal Risk Transfer

Set conditions for optimal risk transfer



Stage 2 Procurement Approach

- Two separate projects (with two separate bids), including an MOU with Rideau Transit Group (RTG) to maintain an expanded Confederation Line:

MOU with RTG

- Limited extension to Confederation Line Scope (in areas contemplated by existing contract)

Confederation Line East and West Extensions

- Design Build Short-term Finance (DBF) competitive tender;
- RTG, via MOU, to provide maintenance services; and
- RTG *will not* compete

Trillium Line Extension

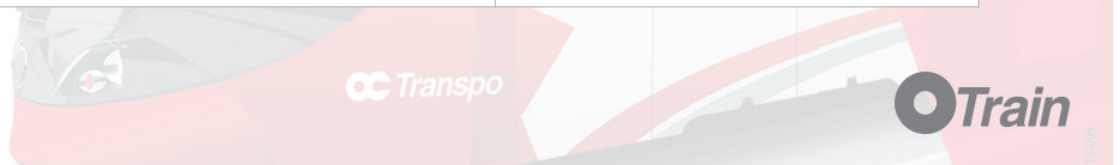
- Design Build Finance Maintain (DBFM) competitive tender; and
- RTG is *permitted* to compete.



Procurement Key Elements

The table below summarizes the key elements negotiated with RTG through MOU process:

RTG MOU Scope	Negotiated Cost
38 Stage 2 LRT Vehicles	Approx. \$500M
Belfast Yard MSF Expansion	
Communications Equipment	
Construction Oversight	
Procurement Support Services	
Maintenance, mobilization and latent defect risk	
Remaining Works	
Confederation Line East and West Extensions (including Trim, Moodie MSF and Hwy Widening)	Approx. \$2,500M
Trillium Line Extension	Approx. \$600M





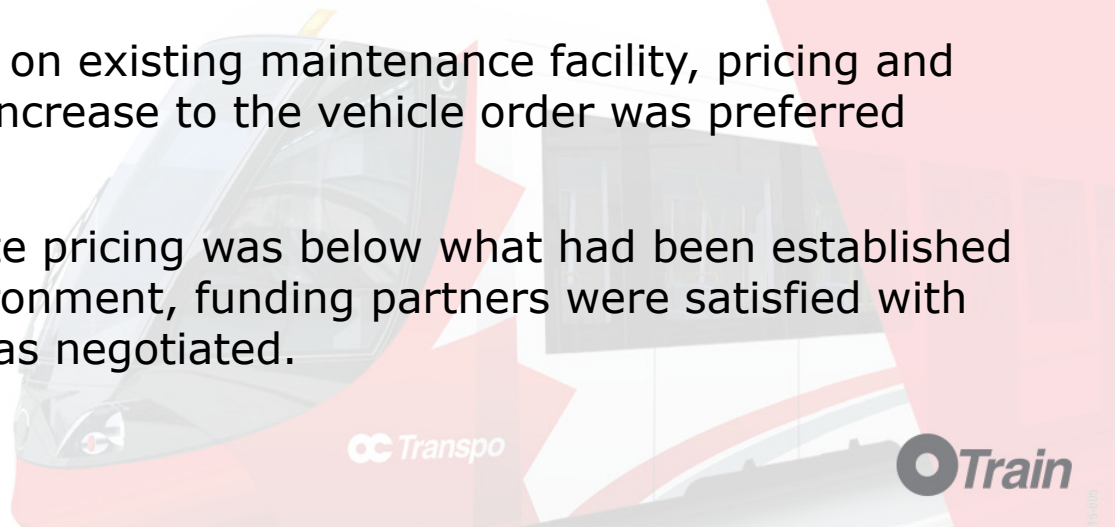
Procurement Solution

The solution, which focused on extracting efficiencies from RTG, achieved real savings for the City:

RTG MOU Scope	Savings from the Bid Price to the final Negotiated Price
Per Vehicle	\$1M reduction
Per km Vehicle Maintenance	7% reduction
Per km Infrastructure Maintenance	27% reduction

Vehicles:

- The City purchased 32 Alstom Citadis vehicles through the Stage 1/ Confederation Line project. Was necessary to purchase an additional 38 vehicles for Stage 2.
- To extract maximum efficiency on existing maintenance facility, pricing and infrastructure, negotiating an increase to the vehicle order was preferred approach.
- Because City could demonstrate pricing was below what had been established in a previous competitive environment, funding partners were satisfied with direct procurement approach, as negotiated.



Trillium Line Extension Procurement Approach

Trillium Line Extensions Design-Build-Finance-Maintain (DBFM)

Trillium Line Extension Scope

- Existing 8 km and 5 station upgrades
- Construction of additional 16 km track and 8 new stations
- City bundled projects
- City led procurement of additional diesel vehicles
- Contingency, property, cost of short-term financing and equity placement

Approx. \$600M Capital

Unique Procurement Solutions: Brownfield Assets Maintenance

Challenge:

- Maintain the same P3 risk transfer as on the Confederation Line, and procure the extension as a DBFM

Solution:

- Transfer the maintenance responsibilities for existing assets to the private sector for 27 years
 - This resulted in an outsized maintenance payment *vis a vis* the capital build that the City dealt with by implementing a “wide equity” solution – requiring no long term lender and any associated lenders agreement.
- Proponents were provided with the following to price the risk of maintaining this system:
 - Exhaustive knowledge transfer of brownfield assets
 - Repeated site visits



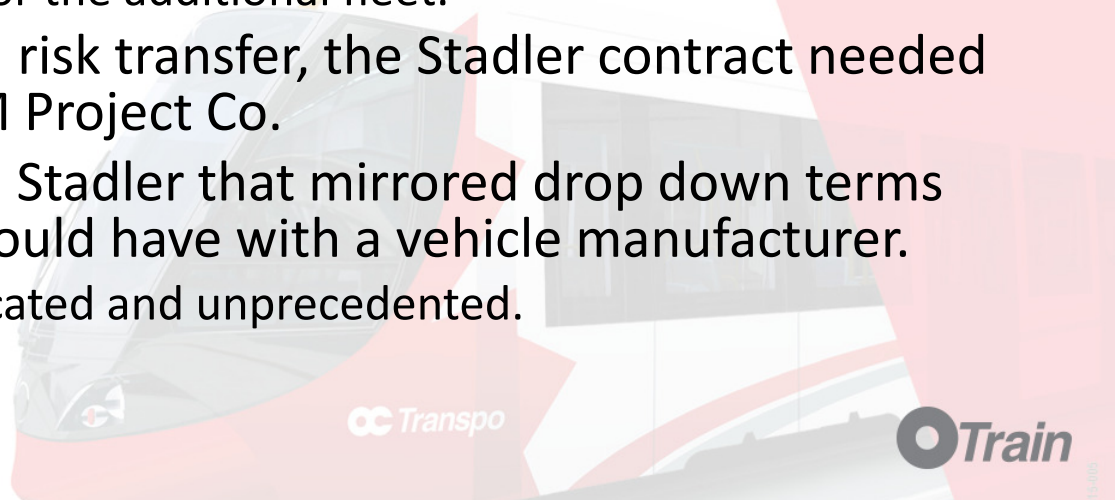
Unique Procurement Solutions: Vehicle Fleet

Challenge:

- Assign responsibility of existing Alstom LINT fleet to Project Co and expand the fleet to accommodate the expanded service.

Solution:

- City released an expression of interest procurement to determine sufficient market capacity and interest to include the acquisition of the additional fleet into the DBFM procurement:
 - City undertook a separate procurement based on expressed interest from two vehicle manufactures;
 - Stadler won the contract for the additional fleet.
- To maintain the City's total risk transfer, the Stadler contract needed to be married to the DBFM Project Co.
- City negotiated terms with Stadler that mirrored drop down terms that a typical Project Co would have with a vehicle manufacturer.
 - This approach was complicated and unprecedented.





Trillium Line Regulatory Framework

- The Trillium Line, operated by Capital Railway on behalf of the City of Ottawa, falls within the regulatory framework of Transport Canada and the Canadian Transportation Authority (CTA).
- The City acquired the corridor from CP in 2005, subject to certain licenses, agreements and other encumbrances benefitting third parties
 - Such as Board Orders and agreements with utility and telecommunications providers.



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- Transport Canada requires verifiable documentation that all equipment meets all applicable legislation, regulation, rules and standards under the Railway Safety Act, including the following submittals:
 - Notice of Railway Works
 - DMU Inspection Rules
 - Safety Management System (update)
 - Security Management System (update)
 - Notice of Change in Operations
 - Capital Railway Operating Rules and Timetable
 - Railway Operating Certificate



Canadian Transportation Agency (CTA)

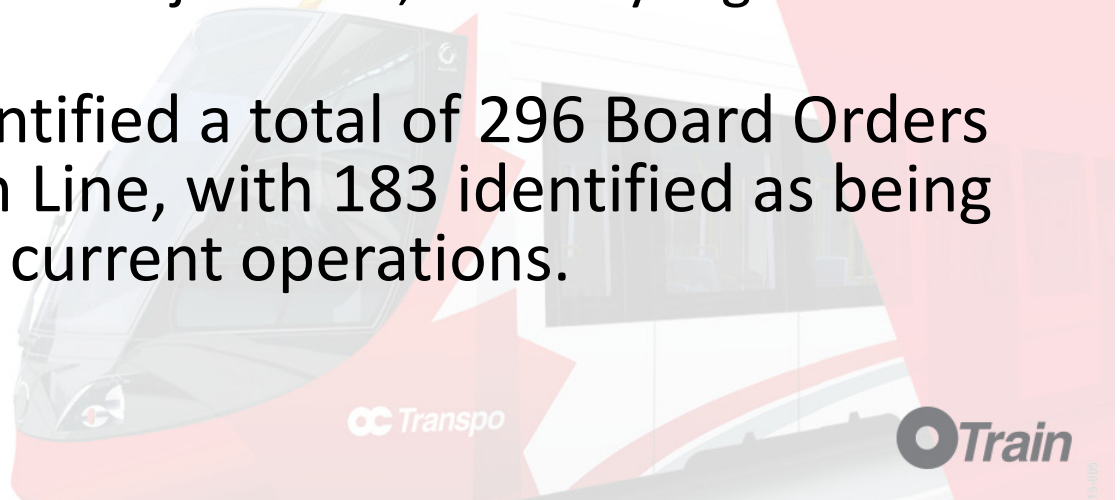
- The CTA provides regulatory approval, determinations and issues authorities, licenses and permits to transportation carriers under federal jurisdiction.
- The City is required to provide the following submittals to the CTA:
 - Application for Approval to Construct a Railway Line
 - Updated Certificate of Fitness





Canadian Transportation Agency (CTA)

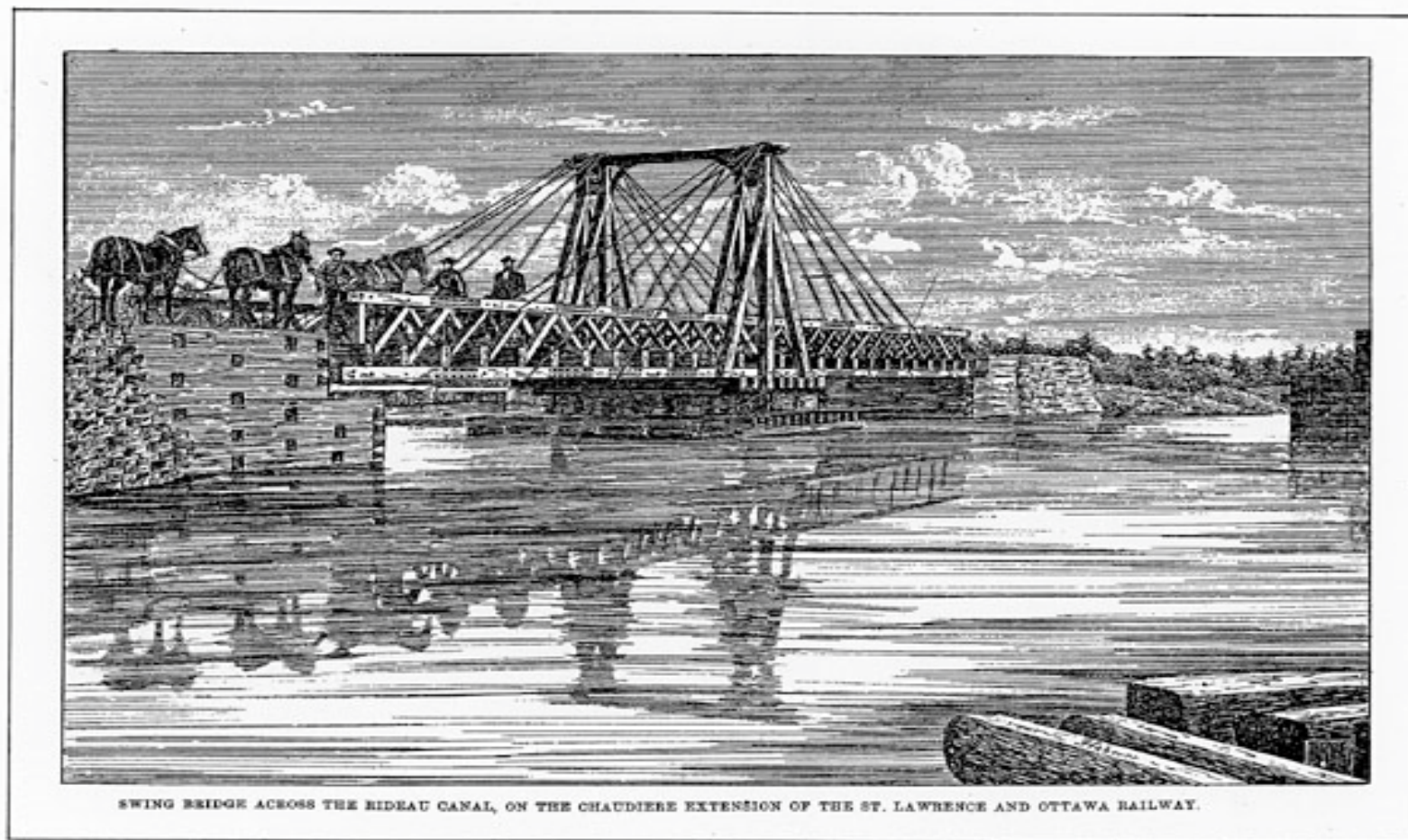
- Board Orders act to establish rights and responsibilities as they relate to the operation and maintenance of a federally regulated railway.
- The CTA approves Board Orders for all items under federal jurisdiction as they relate to:
 - The operation of federally regulated railways
 - The construction of new or the rehabilitation of structure to support the federally regulated railway line and in the vicinity, or directly on or adjacent to, federally regulated railway lines.
- The Project Team identified a total of 296 Board Orders related to the Trillium Line, with 183 identified as being no longer relevant to current operations.



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Rideau Canal swing bridge (1871).



SWING BRIDGE ACROSS THE RIDEAU CANAL, ON THE CHAUDIERE EXTENSION OF THE ST. LAWRENCE AND OTTAWA RAILWAY.

From Canadian Illustrated News, December 9 and 16, 1871, engraved by E. Haberer.
Gravure d'E. Haberer. Tirée des Canadian Illustrated News des 9 et 16 décembre 1871.

Regulatory Challenges

Challenges:

- Legacy information from the 2005 Purchase and Sale Agreement, Board Orders and Retained agreements were:
 - Often incomplete
 - Difficult to find in government archives
 - Difficult to translate into encumbrances and/or contractual requirements.

Solution:

- City has maintained the risk on regulatory obligations and was only able to pass obligations onto Trillium Line proponents that were explicitly outlined in the Output Specifications.
- City provided as much of the regulatory background information as possible during procurement to ensure bidders were aware of the regulatory environment within which they would be operating.



Budget, Funding and Next Steps

- Projected cost of Stage 2 project is approximately \$3.6 B (including bundled projects) with each level of government contributing to the total funding package.

Upcoming Milestones	Target
Contract Award	Jan/Feb 2019
Financial Close	March 2019
Construction	2019



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Ottawa Questions?

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