

Integrated Infrastructure Services
LRT Delivery

Yellowhead and Calder Bus Bridge

Express Bus Precursor to Metro Line
Feasibility Study

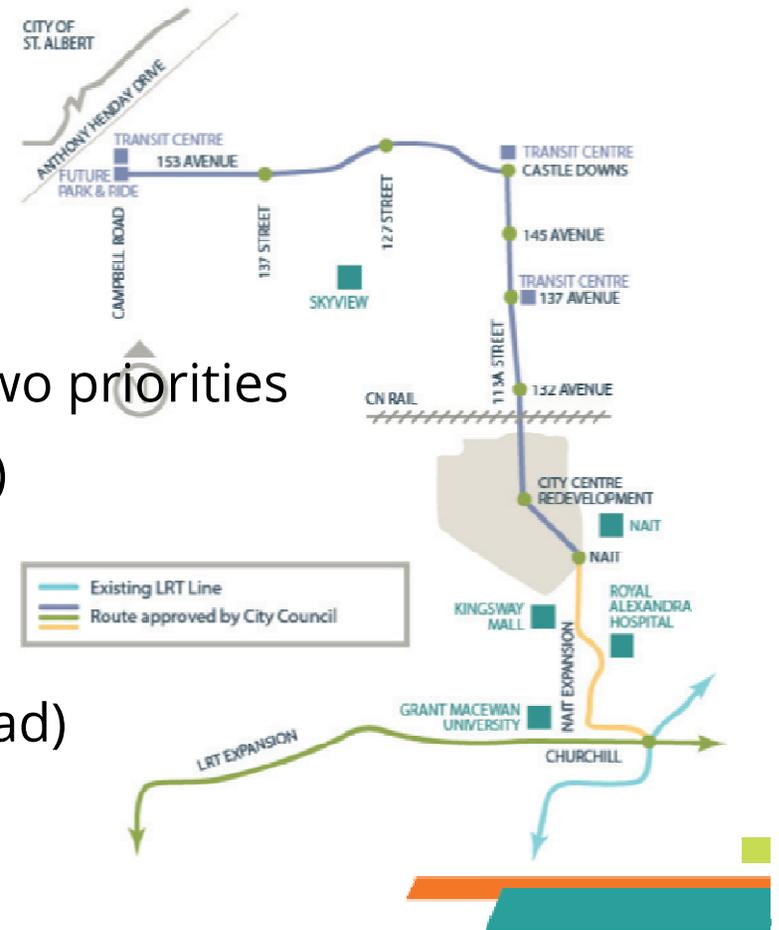
Urban Planning Committee
April 3, 2018

Integrated Infrastructure Services | CR_5002

Edmonton

Metro Line Northwest

- NAIT to Blatchford (1.5 km)
 - 2 stations, one of Council's top two priorities
- Blatchford to Campbell Road (10 km)
 - 7 stations, 2 transit centres
- 110,000 long-term ridership
(Health Sciences to Campbell Road)
- Future extension through St. Albert



Bridge Details

- Structure spans Yellowhead Trail & CN Walker Yard
- Key future link - LRT & active modes
- 2047 projections: 5,500 (PM peak) to 7,450 (AM peak) passengers/hour
- Estimate structural cost: \$150M - \$200M



Express Bus Service

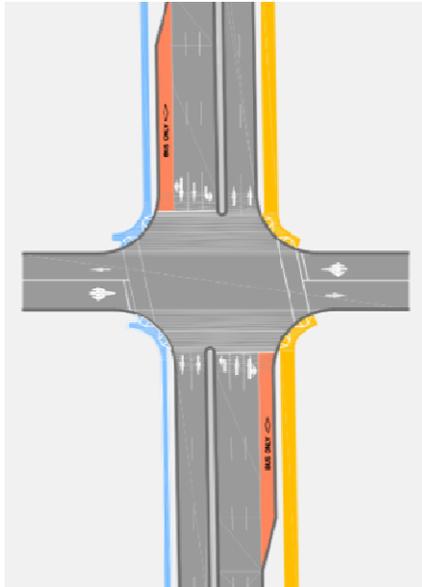
What is an Express Bus Service?

- An enhanced service with higher capacity, faster travel times and higher frequency
- Use of exclusive or semi exclusive rights-of-way
- Is accessible by various transportation modes
- Can be a range of service level possibilities

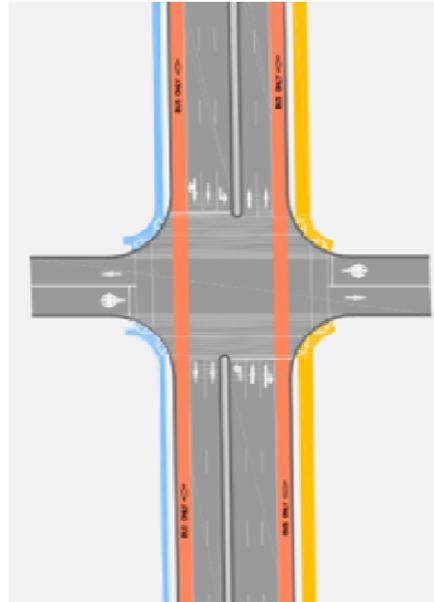


Types of Express Bus Service

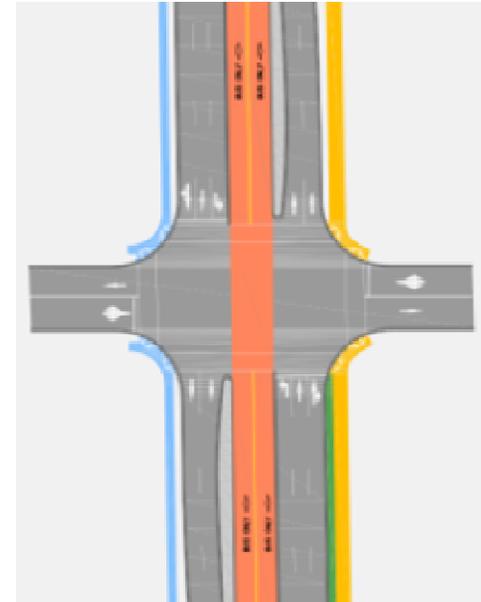
Regular Service Level
Express bus with queue jumps



Enhanced Service Level
Blend of express bus scenarios



Premium Service Level
Express bus with dedicated lanes



Capital Cost Comparison

	Regular Service	Enhanced Service	Premium Service
Capital Cost (% of LRT Cost)	20-40	30-70	50-80
Required Items	<ul style="list-style-type: none"> ● Bridge ● Bus Maintenance Facility ● Intersection upgrades ● Stations ● Partial land acquisition ● Blatchford bus exchange ● Dedicated bus fleet 	<ul style="list-style-type: none"> ● Bridge ● Bus Maintenance Facility ● Partial right of way ● Stations ● Partial land acquisition ● Blatchford bus exchange ● Dedicated bus fleet 	<ul style="list-style-type: none"> ● Bridge ● Bus Maintenance Facility ● Right of way ● Signaling ● Stations ● Full land acquisition ● Blatchford bus exchange ● Dedicated bus fleet
Future proofing opportunities	<ul style="list-style-type: none"> ● Full land acquisition 	<ul style="list-style-type: none"> ● Full land acquisition ● Utility relocates 	<ul style="list-style-type: none"> ● Grade separations ● Utility relocates ● Landscaping
Throwaway costs	<ul style="list-style-type: none"> ● Bridge running surface ● Stations ● Blatchford bus exchange 	<ul style="list-style-type: none"> ● Bridge running surface ● Stations ● Some right of way surface ● Blatchford bus exchange 	<ul style="list-style-type: none"> ● Bridge running surface ● Stations ● Right of way surface ● Blatchford bus exchange

Capacity



- 5-car train carries 700-800 passengers
- 18 metre articulated bus carries 75 passengers
- One train = 10 buses



Total Costs

Express Bus has lower capital cost, but higher operating costs:

- 20%-80% of LRT capital cost (depends on service option, extent of future proofing, etc.)
- Requires more staff to operate and maintain than LRT
- Buses have about 1/3 the life expectancy of trains
- High throwaway costs during future conversion to LRT (all stations would be replaced)



Conversion Challenges (Express Bus as a Precursor to LRT)

Operational challenges are part of the Express Bus to LRT conversion process:

- Express Bus service may need to be shut down, compromised, or shifted to new alignment during future conversion to LRT
- May negatively impact ridership levels during conversion



Transit Oriented Development and Mode Shift

Rapid transit stations are key to generating redevelopment:

- Permanence of LRT generates more dense development
- LRT is an effective catalyst for achieving the City's objective of compact urban form
- Passenger interface is critical to the success of the service



Public Engagement

Public input was provided at engagement sessions:

- Two thirds of survey respondents would ride BRT before LRT service is available
- Survey results for BRT options was close (ranged from 16% support for regular service to 33% for premium service)
- Respondents did not want BRT instead of LRT in the long-term

Summary

- Bus express service precursor to LRT is feasible, however has challenges and cost implications
- Public support for improved transit service, with preference for LRT
- Transit network redesign (underway)
 - City wide review including bus express service options
- Transportation Master Plan Update (starting in 2018)
 - Reviews of rapid mass transit & emerging technologies

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Thank you.

Questions?

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