

Rapid Transit to Cambridge

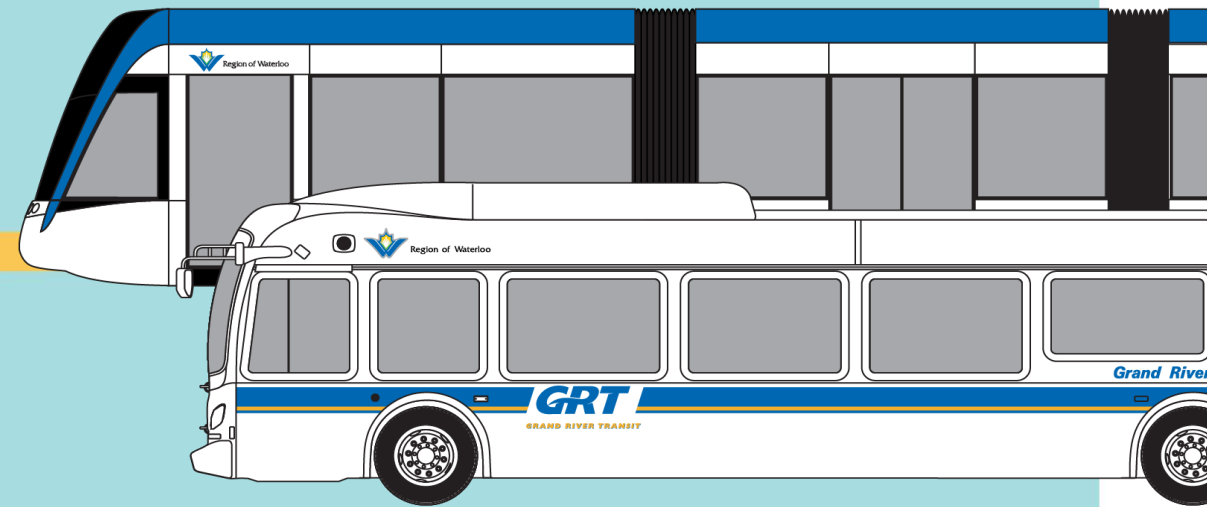
Initial Business Case results



Region of Waterloo

GRT

GRAND RIVER TRANSIT



Overview

- This presentation presents the results of the Initial Business Case, comparing the benefits and costs of different options for rapid transit:
 - Ridership forecasts
 - Capital cost estimates
 - Operating and maintenance cost estimates
 - Economic benefits and benefit-cost ratios
 - Strategic benefits



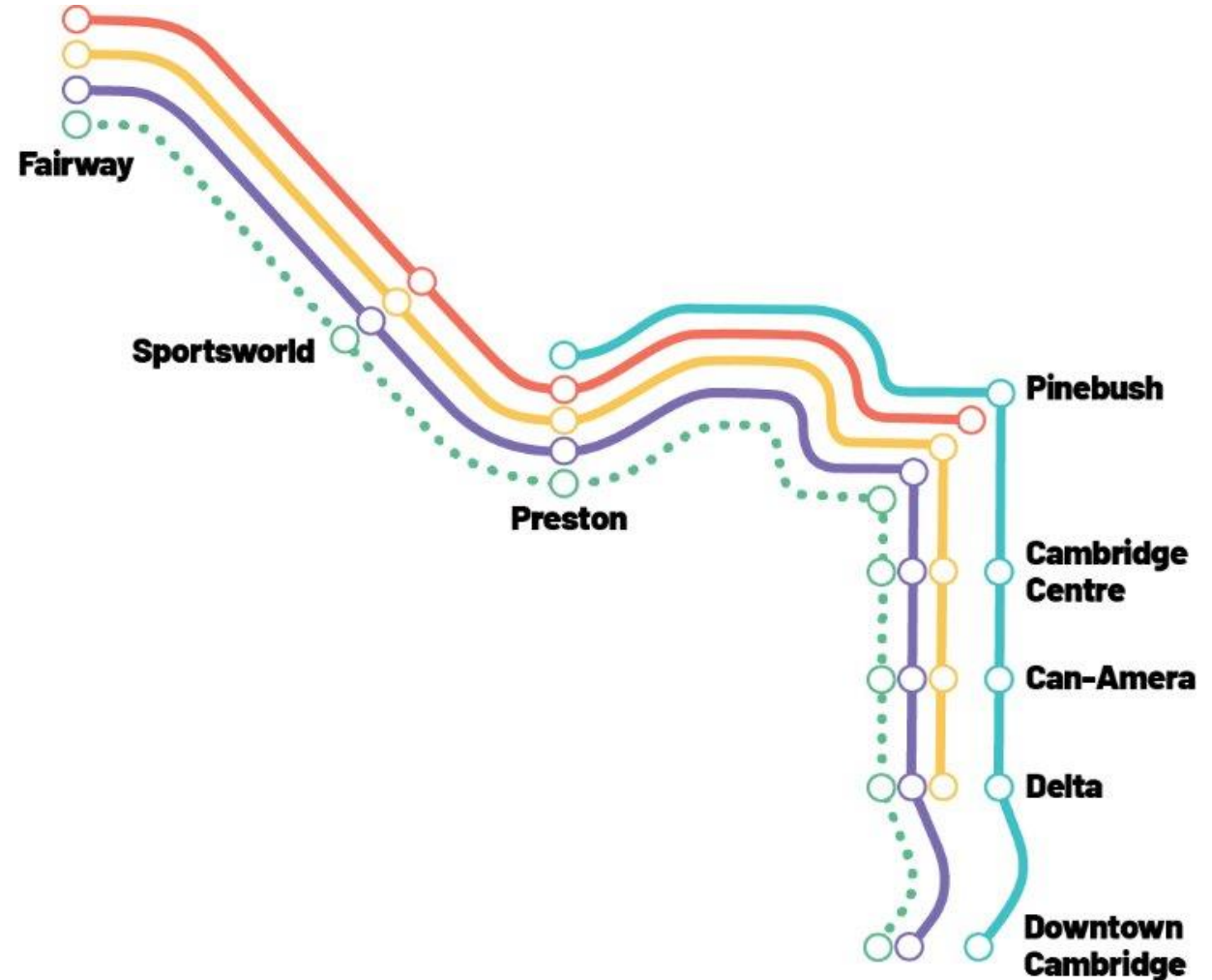
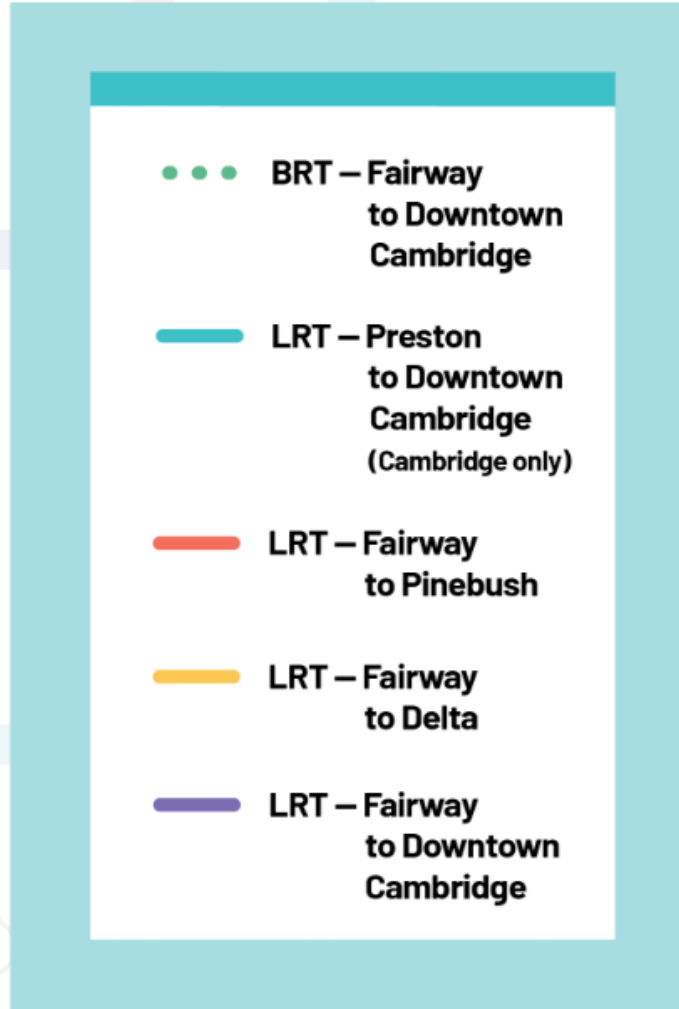
Why rapid transit?

- The Region of Waterloo is preparing to grow to one million residents.
- The existing Route 302 ION Bus will not be able to meet the needs of our community; some form of rapid transit will be needed.
- Dating back to 1976, the vision for rapid transit was a continuous connection from Waterloo to Kitchener to Cambridge.
- Extending rapid transit to Cambridge builds on the success of Stage 1 ION, which led to more than \$5 billion in investment along the Central Transit Corridor.
- Rapid transit shapes growth, connects communities and moves people.

Options for Rapid Transit to Cambridge

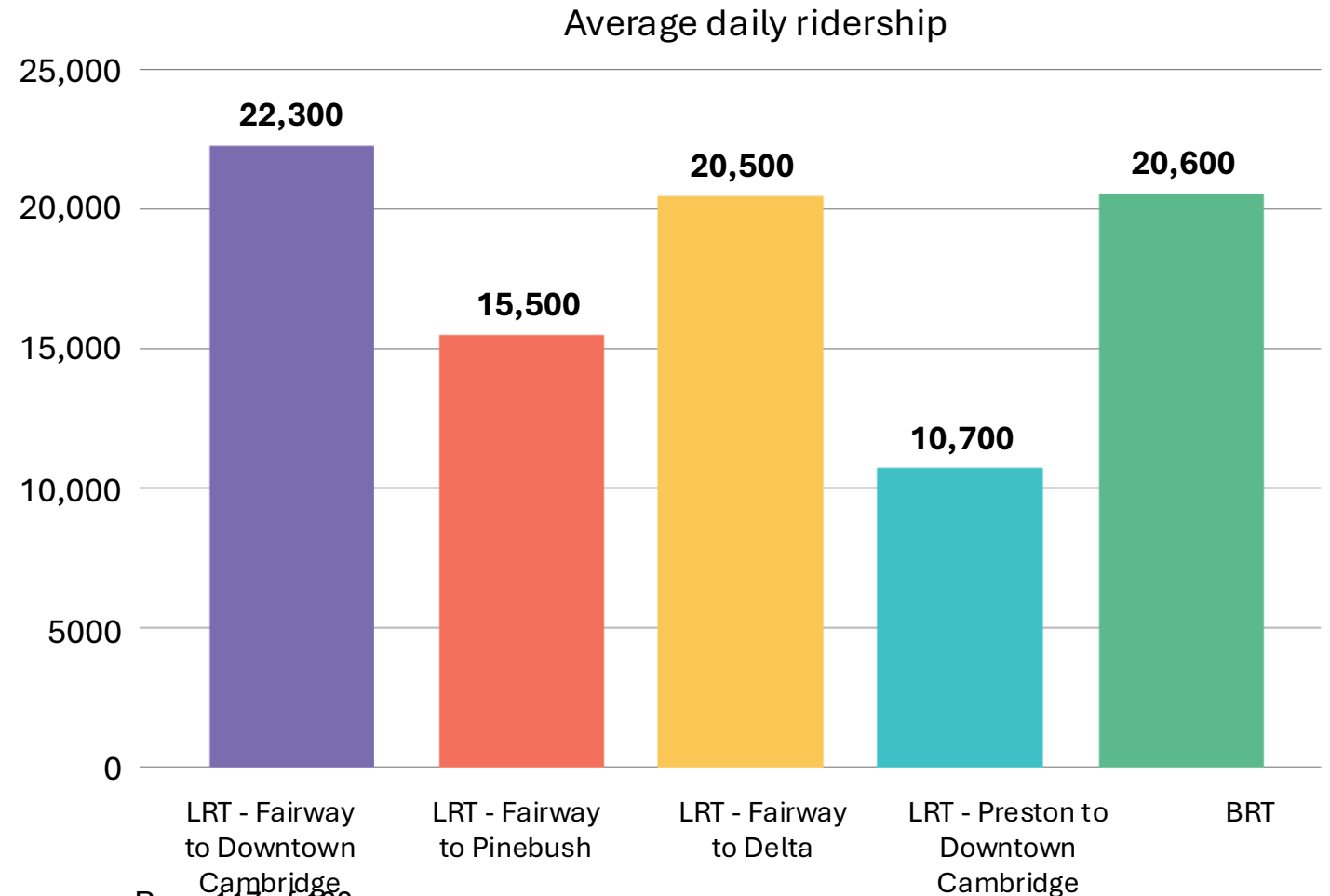
- The Initial Business Case considers five options:
 - **Full LRT service:** LRT extended from Fairway Station to downtown Cambridge, creating one continuous LRT route
 - **Partial LRT service:** Shortened LRT routes that would connect to the remaining stations by express bus
 - Fairway Station to Pinebush Station
 - Fairway Station to Delta Station
 - Preston to Downtown Cambridge
 - **BRT service:** Dedicated and separated lanes for high-frequency buses from Fairway Station to Downtown Cambridge
 - Customers would need to transfer at Fairway Station between bus and train

Options for Rapid Transit to Cambridge



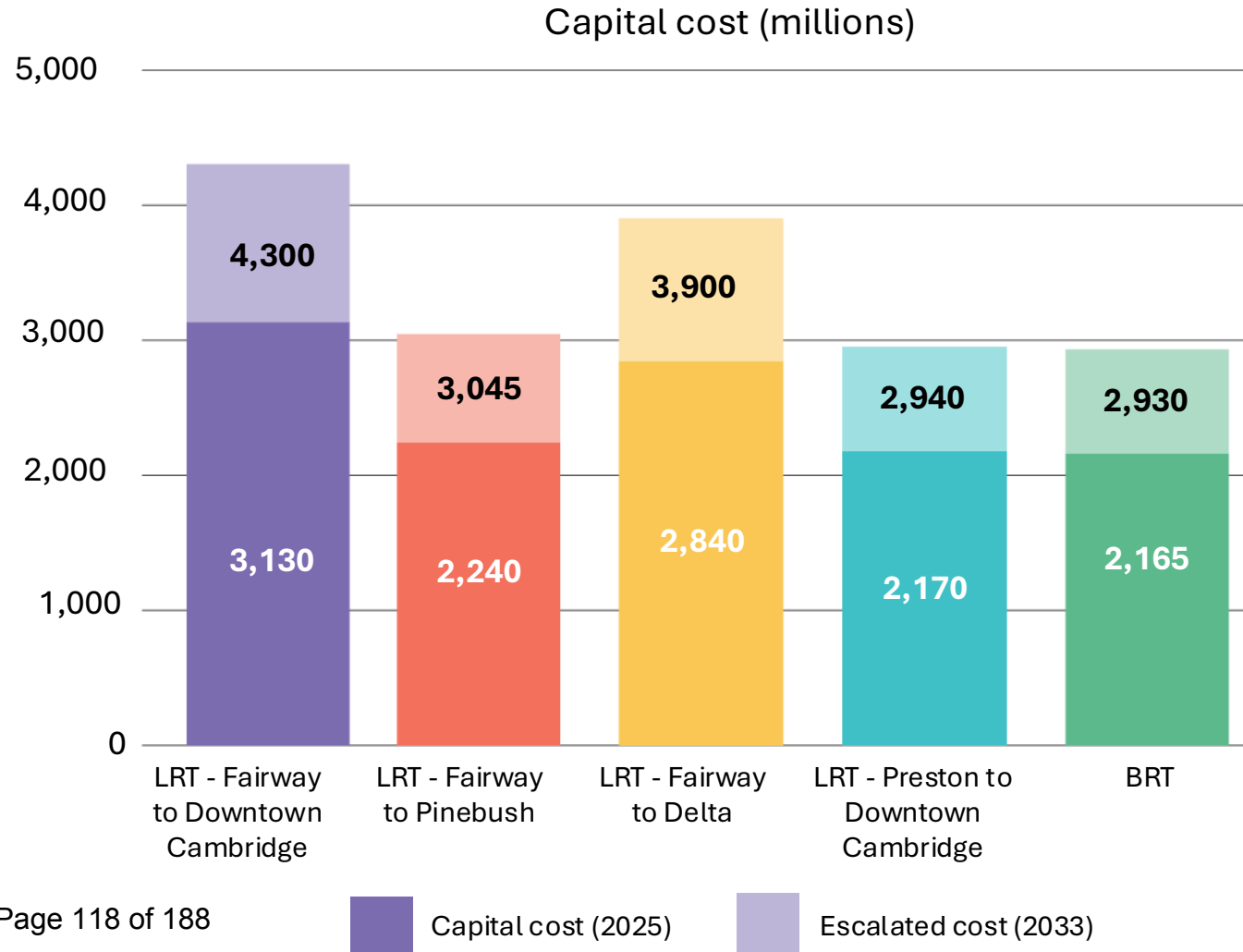
2051 ridership forecast

- Full LRT and BRT have the highest average daily ridership.
- Full LRT from Fairway to downtown Cambridge has slightly higher ridership than full BRT.
- The transfer between bus and train at Fairway Station explains the ridership difference between LRT and BRT.



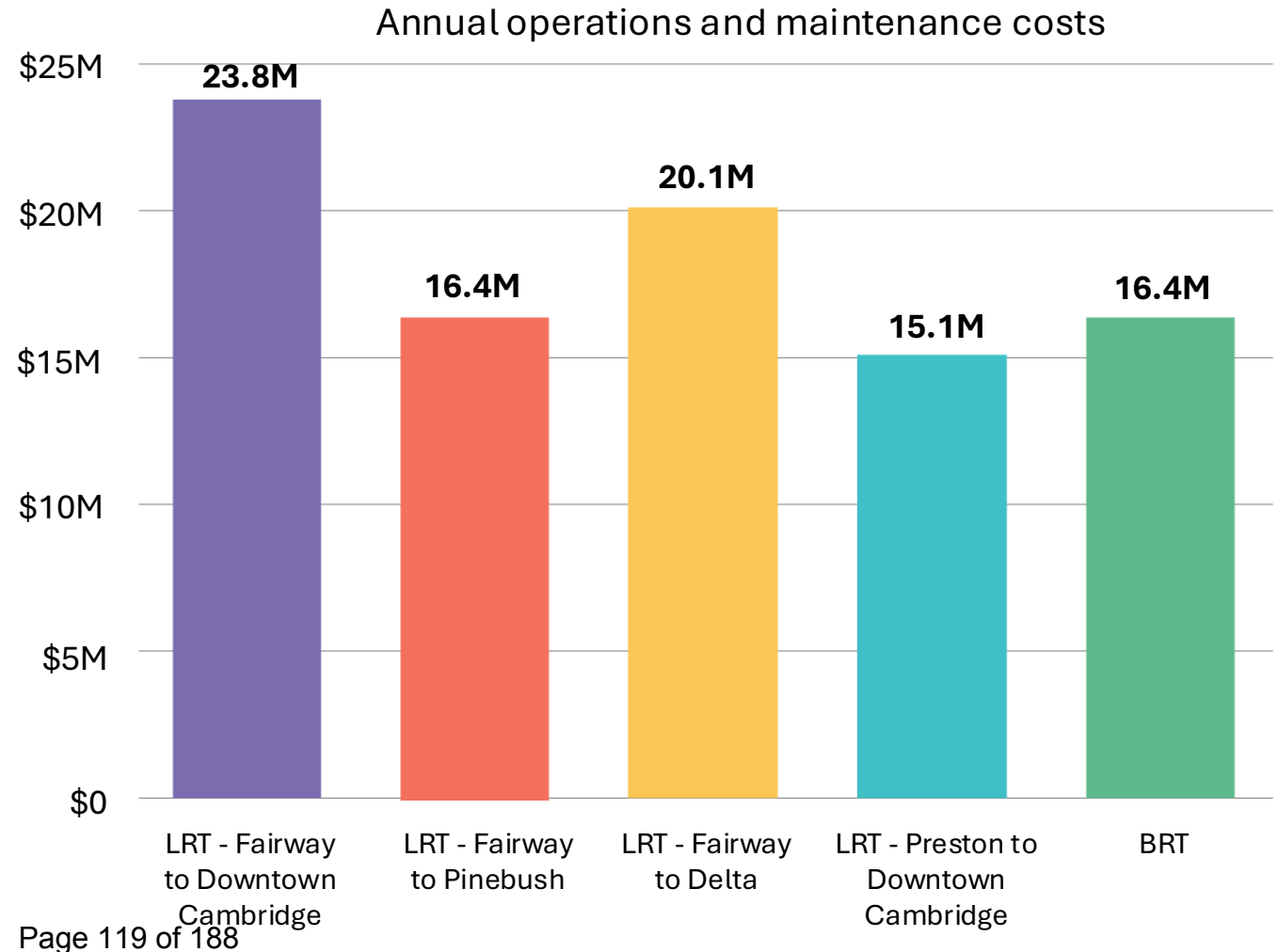
Preliminary capital cost estimates

- Capital cost includes construction, vehicles, property, design, project management, testing and commissioning.
- The graph shows the capital cost of the different options in today's dollars, as well as the escalated cost in 2033 dollars.
 - Escalation refers to the higher cost of building in the future vs today due to price increases and inflation.
- Full LRT and BRT would both require construction of six new major bridges, grade separations and/or elevated sections.
- LRT cost is higher than BRT due to construction of the overhead wires, substations, tracks and vehicles.



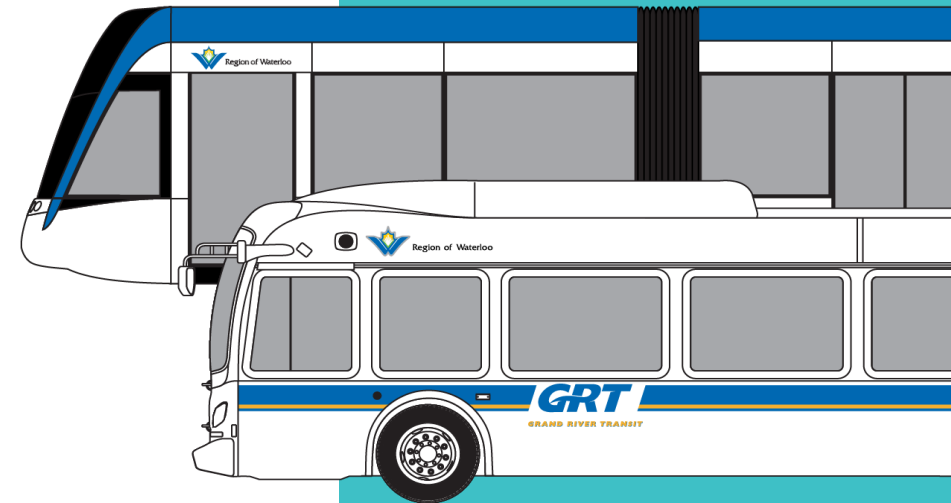
Operating and maintenance costs

- Operations and maintenance costs include vehicle and system operations, vehicle maintenance, civil and track maintenance, administration and management.
- Shorter alternatives have lower annual costs.
- Full BRT costs less than full LRT.



Benefits of rapid transit

- The Initial Business Case focuses on the benefits of rapid transit in two primary areas:
 - **Economic benefits**
 - The overall benefits to Waterloo Region of the different options
 - These benefits are monetized and expressed in dollar values
 - **Strategic benefits**
 - How the investment will achieve Regional goals and shape a positive future
 - These benefits are not discussed in monetary terms

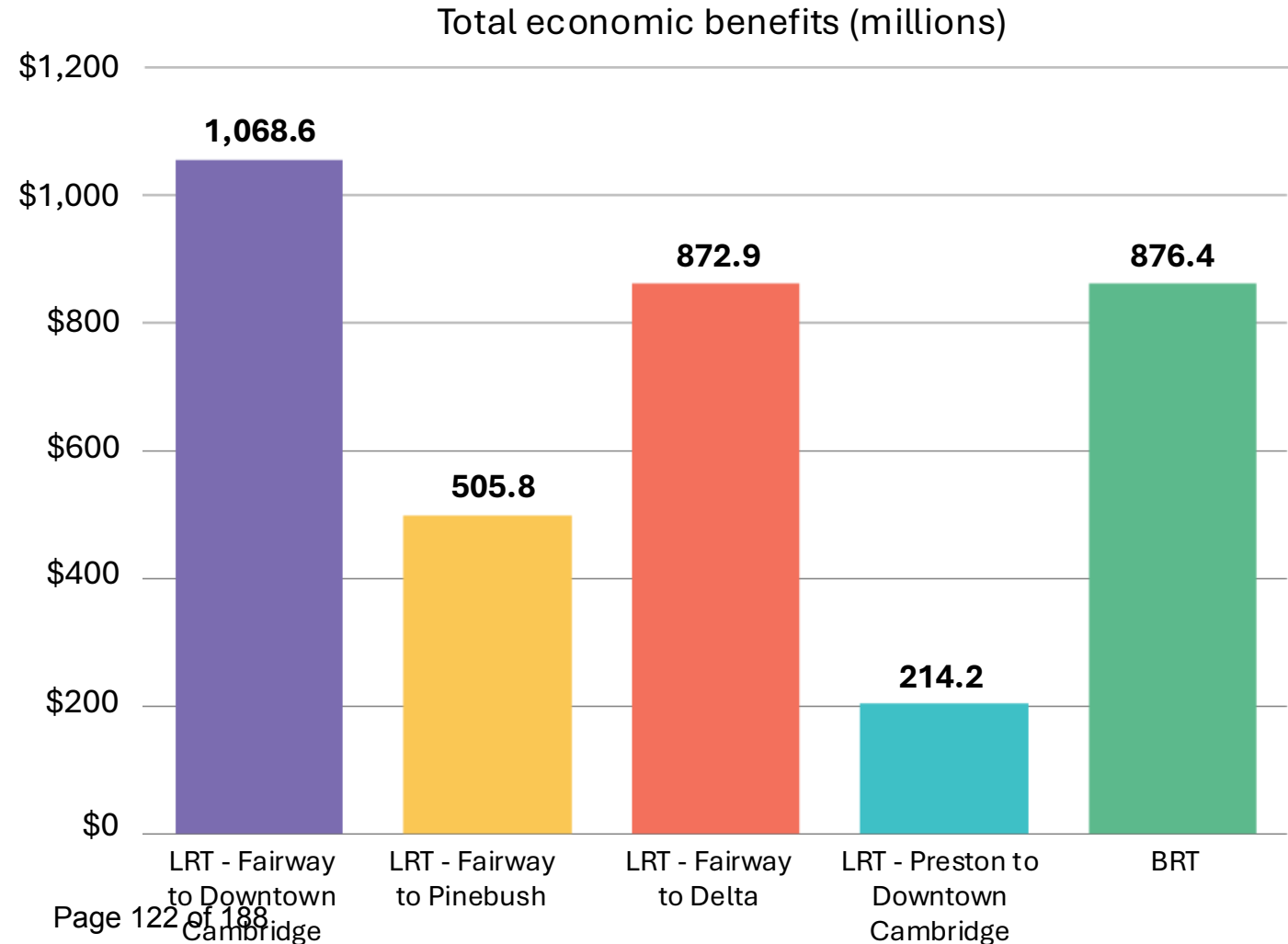


Economic benefits

- The economic benefits evaluated for the five different options include:
 - Growth in transit ridership and transit mode share
 - Travel time savings for new and existing transit riders
 - Improvements to transit reliability
 - Reduction in kilometers travelled by personal vehicles and reduction in greenhouse gas emissions
 - Reduction in traffic congestion
 - General health benefits

Economic benefits

- Full LRT has the highest economic benefit:
 - Greatest travel time savings
 - Highest emissions and air quality savings
 - Greatest reduction to congestion
- Partial LRT from Fairway to Pinebush, and from Preston to Downtown Cambridge have the lowest economic benefits.



Benefit-cost ratios

- Economic benefits are compared to capital and operating and maintenance costs through a benefit-cost ratio (BCR).
 - A BCR reduces the economic benefits and costs down to a single value to help compare different options.
- The BCR only considers economic benefits expressed in monetary terms; it does not consider all project benefits or the strategic goals for rapid transit.
- Full LRT has the highest economic benefits.
- Full BRT has the highest BCR, due to lower capital costs compared to full LRT.
- Partial LRT routes don't have strong BCRs.

Strategic goals

- Shape growth
 - Build sustainable and healthy communities
 - Increase opportunities for transit-oriented development
 - Concentrate growth along the Central Transit Corridor
- Connect communities
 - Realize the original vision for rapid transit and create a continuous connection from Waterloo to Kitchener to Cambridge
 - Strengthen connections between Cambridge and the rest of Waterloo Region
 - Increase access to housing and employment opportunities
- Move people
 - Increase access to rapid transit for more people
 - Support the goals of the GRT Business Plan and improve travel time, reliability and ease of use for transit users

Strategic benefits

Shaping growth

- Both LRT and BRT can encourage development and influence land use around stations, generating further economic benefits which in turn generates more transit ridership.
 - The extent of development attracted by LRT and BRT depends on various factors, including local context and developer perception.
- Shortened LRT options that end at Pinebush and Delta miss out on opportunities to attract development to Downtown Cambridge.
- Delta Station has limited potential for new development.

Strategic benefits

Connecting communities

- Partial LRT routes do not achieve the strategic goal of connecting Waterloo to Kitchener to Cambridge.
- Partial LRT routes that end at Pinebush and Delta don't connect to high employment and housing areas in Downtown Cambridge.
- Cambridge residents would miss out on important housing and employment opportunities.





















Strategic benefits

Moving people

- Partial LRT routes miss out on important potential for existing and future transit ridership.
- Partial LRT from Preston to Downtown Cambridge would require multiple transfers for riders travelling to Kitchener, increasing travel time and reducing ease of use.
- Only full LRT achieves the original vision of a seamless connection from Waterloo to Kitchener to Cambridge; BRT would require a transfer at Fairway Station.

Strategic benefits

Example customer journey from Southeast Cambridge to Waterloo and the transfers required

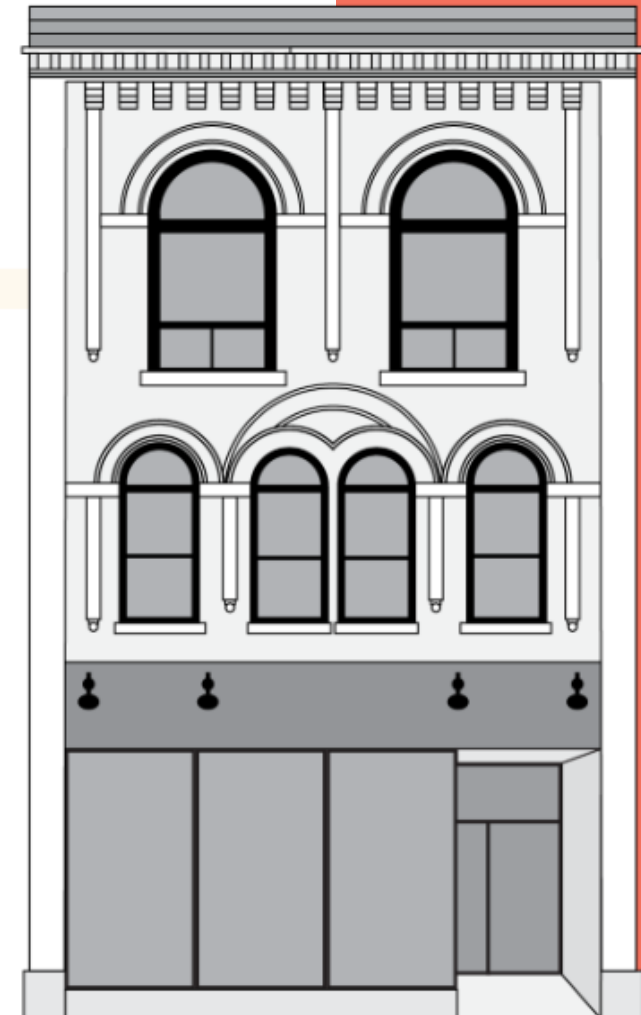
	Southeast Cambridge	Downtown Cambridge	Delta	Pinebush	Preston	Fairway	Waterloo	Transfers		
LRT - Fairway to Downtown Cambridge									1	
LRT - Fairway to Pinebush									2	
LRT - Fairway to Delta									2	
LRT - Preston to Downtown Cambridge									3	
BRT										2

What does this mean?

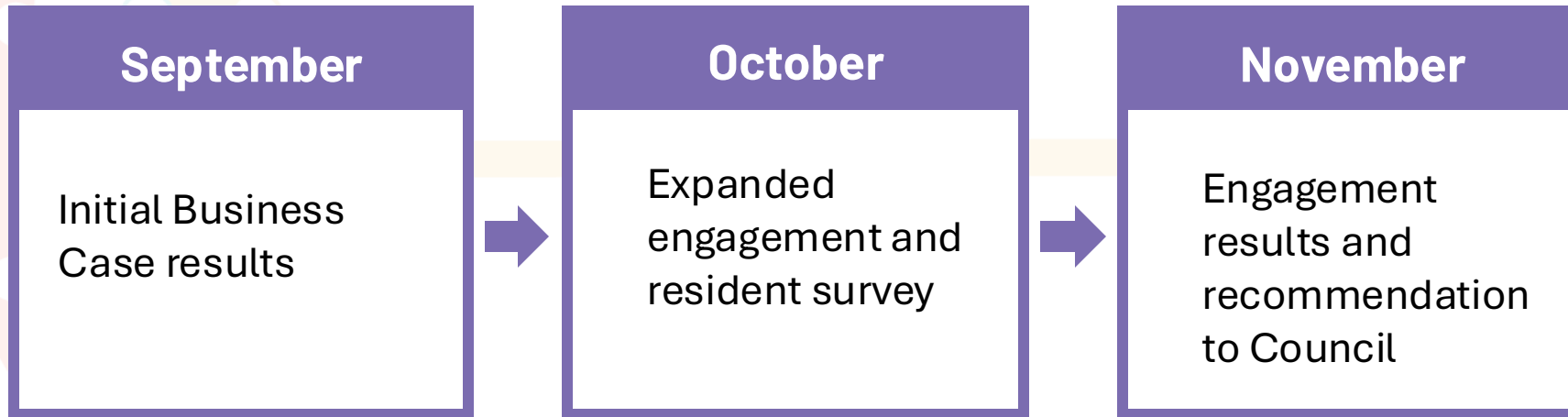
- LRT has a higher cost to build and operate, but delivers the greatest economic benefits to Waterloo Region and achieves the strategic goals of rapid transit.
- BRT has lower costs than LRT but delivers less economic benefit and achieves many, but not all the project's strategic goals.
- The partial LRT options fall short of the economic benefits and fail to achieve the project's strategic goals, unlike the full-length options.
 - Missing potential to shape development and missing important connections to employment and housing areas
 - No continuous connection from Waterloo to Kitchener to Cambridge
 - Leaving residents near Downtown Cambridge without direct access to rapid transit, or requiring multiple transfers

Public engagement

- Public engagement so far:
 - Virtual kick-off session on Aug. 19
 - 11 in-person sessions
 - More than 900 survey responses on Engage Waterloo Region
- Visit Engage Waterloo Region to see the schedule of upcoming sessions or to share your thoughts
- An Ipsos survey will be conducted in the coming weeks



What comes next?



Questions?

Let's connect
Cambridge.

