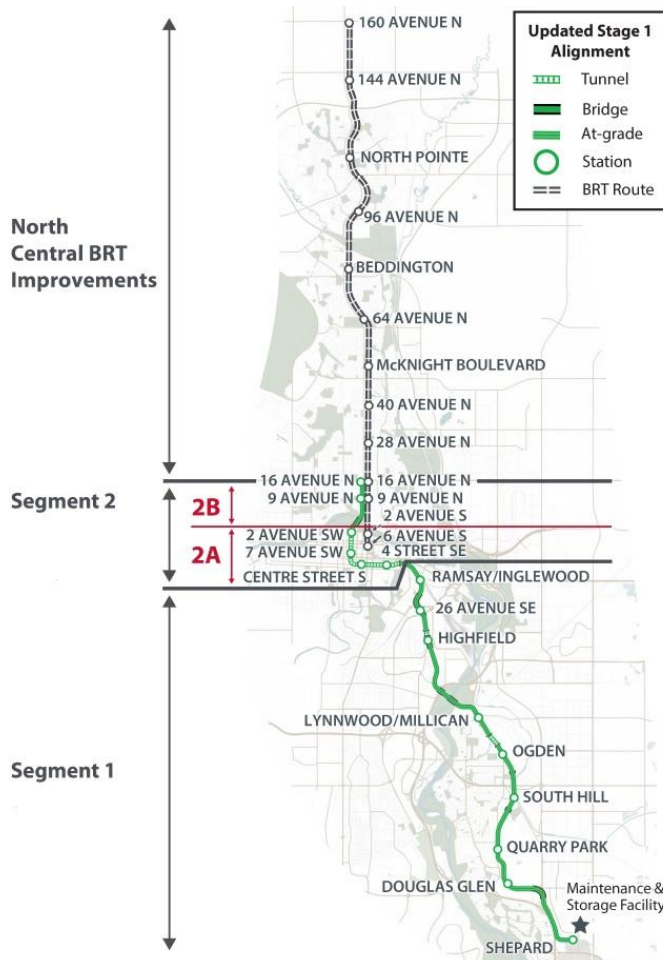


A Business Case for the Green Line?

The Province of Alberta has asked the City of Calgary to provide a business case for the Green Line. Since this project represents the largest single project expenditure in Calgary's history surely a business case should demonstrate how this massive investment will improve transit service in the north and southeast travel corridors.

I am a retired transit planner who spent over 36 years with Calgary Transit. I participated or had a leadership role in the planning, design and implementation of nearly all of Calgary's LRT lines and extensions. I also spent many years planning and evaluating bus routes. In my opinion, this project does not satisfy the very basic goals one would expect for an expenditure of this magnitude. Recently, I have contributed to the input provided by the Ad Hoc Citizens' Committee regarding the engineering and expenditure risks associated with this project.



The Green Line will Fail to Deliver

Calgary has had great success with its LRT lines which have proven to be extremely good investments by Calgarians, the Province of Alberta and the Government of Canada. The value returned for Calgary's investment in LRT – high ridership, operating efficiency, public support, and city building – is clear. Unfortunately, there is strong evidence that the Green Line, as it is currently planned, will fall far short of delivering these benefits.

The Ad Hoc Citizens' Committee has raised concerns with the risks of building a lengthy tunnel under downtown Calgary. I believe that the risk of building an LRT line that fails to achieve the expected ridership and transit service improvements is just as concerning.

Currently, the ridership from the southeast to the downtown is very low and stage 1 of the Green Line will not offer sufficient benefits to achieve the lofty ridership projections used to promote this project. The north segment of the line will not improve or replace the very popular bus services operating on Edmonton Tr, 4 St NW and Centre St. Finally, no evidence has been provided to support connecting north and southeast LRT lines with an expensive and risky tunnel.

The current plan appears to be based on a desire to build LRT for the sake of building LRT. Unfortunately, there are many North American cities that provide evidence that building LRT is not always a good investment. I am confident that a business case cannot be made that justifies spending over \$5 billion. Below, I have outlined both the questions that should be asked and my view on the answers that will be uncovered.

Is There Sufficient Ridership in Southeast Calgary?

The level of ridership between southeast Calgary and the downtown is significantly less than what is needed to justify building an LRT line. Ridership from this area is barely able to support the existing bus routes. Since 2016, and prior to the pandemic, Calgary Transit ridership on many routes has been dropping due to declining employment, most notably in the downtown. The southeast leg of the Green Line is intended to serve downtown oriented trips. But, in 2019, southeast bus routes serving the downtown were among the poorest performing routes in the city carrying just over 12,000 weekday passengers or only 22 passengers per service hour. Among these, BRT Route 302, which provides limited stop service along the future Green Line route and is seen as the precursor to the LRT line, carried only 3,400 weekday passengers. Calgary Transit strives to achieve about 25 passengers per hour on bus routes using large buses. In order to maintain service during all time periods, smaller, more cost effective community shuttle buses are used on Route 302 during off peak times.

The following table shows a comparison of bus ridership in three Calgary travel corridors that are not served by LRT.

2019
Comparison of Bus Ridership to/from Downtown
 (Areas not Served by LRT)

Area Served	Weekday Ridership	Weekly Ridership	Service Hours	Riders Per Hr	Population Served
SE Corridor (14 Routes)	12,180	68,250	3,369	20	138,000
North Corridor (11 Routes)	40,360	216,530	4,881	44	216,500
Southwest Corridor (7 Routes)	12,170	68,630	1,975	42	47,100

Notes:

- The Southeast corridor is east of Deerfoot Tr – area to be served by the Green Line
- The North corridor is between 14 St N & Deerfoot Tr – area to be served by the Green Line
- The Southwest corridor is the area east of Sarcee Tr & west of 4 St SW / Elbow River

Prior to building each of the current LRT lines, buses operating in these major travel corridors were full to capacity, often operating nose to tail. Before building West LRT, this relatively small service area was generating about 33,000 downtown transit trips

each weekday. Clearly, the Southeast does have anything close to this kind of transit use.

Will North Calgary Support LRT?

The North central corridor certainly generates more than sufficient ridership to support LRT. North bus routes operating along Centre St N, Edmonton Tr, and 4 St NW carry over 43,000 weekday passengers (44 per hour) and upwards of 3,000 during a peak hour. Clearly, the majority of the ridership for the full build-out of the Green Line will be from the north.

Will LRT Attract New Riders in the Southeast?

Great hope is being placed on the ability of the Green Line to attract sufficient ridership along the Southeast leg to justify building LRT. Future weekday ridership from the southeast is forecast to be about 60,000. Improved travel time and service reliability are seen as the key benefits of LRT to attract new transit users. However, southeast bus routes serving the downtown already travel at an average speed of 28 km/hr. Assuming the Green Line achieves the same average speed as existing LRT lines (32 km/hr) there will be a 15 percent improvement in speed or about ten minutes less travel time. Certainly, reliability will improve since LRT riders will no longer be subject to traffic delays. But, is a ten minute travel time savings and fewer delays enough to attract another 48,000 daily transit riders? Also, there must be sufficient ridership during all time periods to support LRT operation. Current southeast bus services are mainly serving weekday peak period travel while off peak and weekend travel in this corridor is very low.

Future population growth will contribute additional transit customers. The Southeast service area is forecast to increase by another 100,000 residents. But, nearly half of those new residents will need to travel by LRT every day to achieve the projected number of daily riders.

Are The Lines Too Short to Improve Current Service?

The funds required to build the very expensive and risky downtown tunnel that connects the line to a short stub of the north line at 16 Av N has resulted in the SE line being shortened to go only as far south as 126 Av SE. Most of the residents to be served by the first stage of the southeast line live well south of 126 Av. In Stage 1, southeast bus travelers will need to transfer to LRT about a quarter of the way into their journey. This will add at least 5 minutes to their trip. So, the time to transfer will consume half of the projected travel time savings that LRT will offer. As well, the Southeast hospital (a key destination) is located about 7 kilometres away, or about 25 minutes by bus from the planned interim terminal.

For the north portion, building LRT only to 16 Av N, or about 10 percent of the entire north line, will provide little benefit at great cost. Since it is intended that the current bus routes on Centre St N will continue delivering customers to the downtown this segment will serve just the people living and working near the terminal station. In fact it appears that the Green Line plan includes improvements to the highly successful BRT service on Centre St N to run parallel to this short north LRT line. These buses will continue to provide service along 5 and 6 Avenues in the downtown which is a superior service to

the Green Line which would drop them off at the planned 2 St SW underground stations. The north segment of the Green Line will be a very expensive addition that will serve very few customers and cause considerable disruption on Centre St N.

Will Surface Operation Along Centre St Improve Existing North Bus Services?

The north communities will certainly support LRT but, only if the line is grade separated. Otherwise, LRT operating at-grade along Centre St N, as currently planned, will not improve on the present bus travel speed and reliability. There are too many at-grade crossings for LRT to operate quickly, safely and reliably. Unless the tracks are elevated, there will also be significant disruptions to autos, buses, pedestrians and cross community connections. Without this separation, the north leg of the Green Line will not produce the benefits offered by Calgary's existing LRT lines.

Is There A Reason to Connect the North and Southeast via a Risky Tunnel?

The plan to connect the North and Southeast LRT lines to form the Green Line was proposed by City Council to end a late night debate on the merits of building one line before the other. Analysis has not been presented to support this connection. About one-third of the project's budget will be consumed by this very expensive and risky tunnel to serve a few people travelling between North and Southeast Calgary. The two lines do not need to be connected. Further work is required to design a north LRT line that will deliver the type of service needed in North Calgary.

A Better Solution?

A dedicated busway built in the right of way reserved for LRT would be a low risk answer for improving transit service in Southeast Calgary. It could likely be built for less than \$1 billion, utilize the existing bus fleet, not require an LRT garage or a \$2 billion tunnel in the downtown. Prior to approving the Green Line plan the City of Calgary had developed a design for a BRT option that could be converted to LRT at a later date if required.

For North Calgary, a plan is needed for a grade separated LRT line that will improve on the current, high ridership bus routes.

It is doubtful that this investment will provide the expected transit service improvements. Let's not build the Green Line just for the sake of building another LRT line.

Neil McKendrick
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