



Surrey-Newton-Guildford LRT Business Case Summary

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The Case for LRT



This Business Case Summary for the Surrey-Newton-Guildford Light Rail Transit Project (the Project) summarizes the need to further invest in rapid transit south of the Fraser River, including the results of the Business Case analysis that confirms the benefits of Project implementation.

The Project will support forecast population increases, local and regional economic and employment growth, and community and social development in the South of Fraser Sub-Region. Light Rail Transit (LRT) is the identified solution that will best address environmental challenges; reduce greenhouse gas emissions; support

federal, provincial and regional climate change objectives; and most effectively contribute to local, regional and provincial growth management and development objectives.

The Business Case was developed in accordance with guidelines set out by the British Columbia Ministry of Transportation and Infrastructure to ensure compliance with the Province's Capital Asset Management Framework (CAMF). This Summary also highlights additional benefits that reflect emerging practices in urban rapid transit projects.



Project Need



Metro Vancouver’s South of Fraser Sub-Region is one of Canada’s fastest growing regions. Surrey, the largest municipality south of the Fraser River, is developing as the region’s second “downtown” and will surpass Vancouver as the most populous city in the Province over the next 30 years.

Without an improved rapid transit network to serve increasing numbers of residents and workers, communities south of the Fraser River will experience greater traffic congestion, higher transportation costs, and reduced mobility. The Sub-Region has been identified as a priority area for rapid transit improvements in Metro Vancouver to address current challenges and support planned future growth. Funded by senior levels of government and the region, the Project will improve housing options, proximity to parks and greenspace, opportunities for economic and employment growth, and social connections. More specifically it will:



• Shape population and growth

With population and employment forecast to increase by 70 per cent over the next 30 years, the Project will be a critical investment in the Sub-Region. The City of Surrey plans to redevelop the Guildford, City Centre and Newton areas to support more livable communities with higher density. It requires an effective rapid transit solution to better connect people within these communities and to the rest of the region.

• Provide high-quality transit service

The 96 B-Line currently provides quality service between the Newton and Guildford exchanges. However, key corridors, including 104 Avenue and King George Boulevard, are facing increasing levels of congestion, which will reduce the reliability of the 96 B-Line service. Additionally, passenger demand is expected to exceed the maximum B-Line capacity within the next 10 years.



• Help meet sustainable transportation targets

TransLink’s goal is for 50 per cent of daily trips in the region to be made by sustainable transportation modes by 2041. Meeting this target—along with federal, provincial and regional environmental and climate change targets—requires investment in infrastructure that encourages transit, walking and cycling. The Sub-Region is home to more than 30 per cent of Metro Vancouver’s population, but less than eight per cent of its rapid transit network. Expanding rapid transit to Newton and Guildford town centres will significantly increase the number of people who live or work within walking distance of rapid transit.

• Support regional housing options

People are moving south of the Fraser River to live in areas (previously large-lot suburbs) that are transforming into medium-density neighbourhoods. The Project will support this approach to community development and create new opportunities for communities that are connected to work, school, services and recreational activities. It will also reduce the need for private vehicles, one of the highest living expenses after housing.

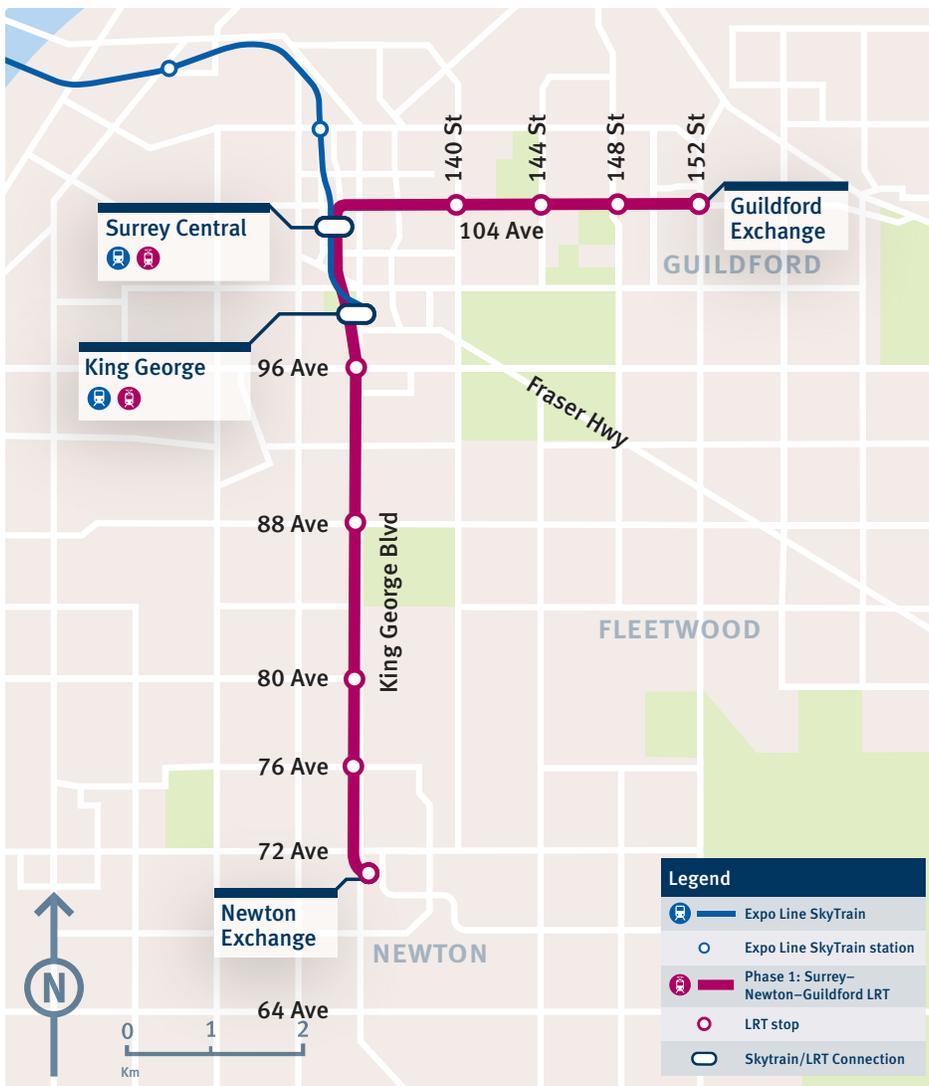
Project Description

The Project will introduce 10.5-kilometres of urban, street-level LRT along King George Boulevard and 104 Avenue, connecting Surrey City Centre, Guildford, and Newton through high-quality, safe rapid transit (see map below). The modern, urban LRT line will be fully accessible and feature convenient, no-step, level boarding. In most locations, it will run along the centre of the roadway, curb-separated from traffic, and designed to offer safe pedestrian access. There will be convenient connections to the existing Expo SkyTrain Line at Surrey Central and King George stations. LRT will also provide connections to the local bus network and cycling facilities.

Once operational, LRT will replace the 96 B-Line to provide fast, frequent and reliable service.

With dedicated lanes, a frequency of every five minutes during peak periods and an end-to-end travel time of 27 minutes or less, LRT will offer competitive travel times compared to driving. LRT capacity is expected to meet ridership demand well into the future.

The Project includes 16 articulated low-floor LRT vehicles; 11 modern LRT stops (see image page 7); two new transit exchanges at Guildford and Newton terminals; improved sidewalks and safe pedestrian crossings; better connections to cycling and pedestrian routes; and new trees, median landscaping and public art. Additional Project components include an operations and maintenance facility in Newton, power control systems and communications systems.



Project Goals

To help meet TransLink’s Regional Transportation Strategy, the Mayors’ Council 10-Year Vision for Metro Vancouver Transit and Transportation and the City of Surrey’s Vision, as well as to help achieve the Regional Growth Strategy objectives and align with federal and provincial government priorities to build strong cities, the following goals were outlined for the Project:



REDUCE CONGESTION

Shift people away from single occupancy vehicle use and reduce the number of cars on the road. LRT will improve transit service and help shift people away from their cars. More people using public transit means fewer vehicles on the road.



INCREASE TRANSIT NETWORK CAPACITY

Invest in transit and meet current and future travel demand. LRT has the flexibility to meet ridership demand to 2045 and beyond.



TRANSFORM COMMUNITIES

Improve livability by increasing transportation options, enabling better connectivity and mobility, helping to address housing affordability, and creating a more vibrant urban environment. LRT will help create integrated, pedestrian-friendly communities in revitalized urban neighbourhoods along two of Surrey’s busiest corridors. It will increase access to housing options through increased development near public transit.



PROTECT THE ENVIRONMENT

Meet climate action goals by reducing greenhouse gas emissions and dependency on fossil fuels. LRT runs on electricity with no operating emissions, reducing greenhouse gas emissions and our dependency on fossil fuels. The project is expected to save 166 million tonnes of GHG emissions over 30 years.



CREATE JOBS AND ATTRACT EMPLOYMENT

Stimulate the economy and improve employment options for the region. LRT will help to diversify Surrey’s economy by attracting highly-skilled jobs in the education, technology and health sectors. Project construction will result in 3,960 direct jobs and 2,350 indirect jobs.

Project Alternatives

After two years of analysis and extensive public and stakeholder engagement on South of Fraser Rapid Transit (2011-2012), TransLink identified a shortlist of 11 options from more than 1,000 rapid transit technology and route combinations. The shortlist focused on 104 Avenue, King George Boulevard and Fraser Highway and included six LRT, two Bus Rapid Transit (BRT) and four SkyTrain alternatives.

Further analysis by TransLink and input from the City of Surrey led to a refined shortlist of four feasible options in 2013:

- BRT on all corridors;
- LRT on Fraser Highway, and BRT on King George Boulevard and 104 Avenue;
- LRT on Fraser Highway, 104 Avenue, and King George Boulevard to Newton, with BRT from Newton to White Rock; and
- SkyTrain on Fraser Highway, and BRT on King George Boulevard and 104 Avenue.

City of Surrey staff subsequently reviewed the planning level assumptions and found that while BRT could serve demand for the short- to medium-term, the high volume of BRT buses required would present operational challenges that could negatively affect community livability. Additionally, a detailed review of BRT projects around the world found that converting BRT to LRT is a costly process, with significant service impacts during transition. This was subsequently confirmed in the Strategic Options Analysis for the Business Case.

In February 2014, the Metro Vancouver Mayors' Council commenced work to confirm its transportation vision for the region. With input from TransLink and the City of Surrey, the Mayors' Council found that LRT would best support Surrey's vision for the future, while aligning with regional environmental, economic and community livability goals.

Based on this information and commitment from the City of Surrey, the Mayors' Council endorsed LRT—starting with 104 Avenue and King George Boulevard (Phase One) to be followed later by Fraser Highway to Langley (Phase Two)—as part of its 10-Year Vision. In November 2016, the Mayors' Council and TransLink Board of Directors approved implementation of the Phase One Investment Plan, which confirmed regional support for the Project and secured funding for continued Project development.

As part of the technical and financial due diligence for the Project Business Case that included a Strategic Options Analysis, updated land use and transportation data were used to review the earlier traffic modelling and develop a more refined estimate of ridership and travel times. This process confirmed LRT to be a cost-effective transit solution that will:

- Meet current and future transit user demand for a minimum of 30 years;
- Deliver fast and reliable travel times for transit customers; and
- Best support local and regional growth and land use plans.

Ridership projections maintain that demand would begin to outstrip BRT capacity by 2023 and thus it is not a sustainable solution to serve forecast population and employment growth over the long-term. The convenience and efficiency of LRT will attract more riders than BRT and result in fewer vehicles on the road.

While SkyTrain can serve more passengers than LRT, forecasts for population, employment and transit ridership growth in Surrey do not warrant this additional capacity or cost. Additionally, SkyTrain is most effective when there are greater distances between stops, and requires stair/escalator access, resulting in lower accessibility and walkability benefits for customers.

Business Case

The estimated capital cost of the Project is \$1.65 billion and has a benefit-cost ratio of 0.70. Previously-reported cost estimates in the Mayors' 10-Year Vision were developed in 2015 dollars and have since been updated to reflect increases due to:

- Rising real estate costs in Metro Vancouver (which have increased the estimated costs of purchasing property for the Project);
- Adjustments to project scope from a more detailed design (including urban integration and Operations and Maintenance Facility);
- Updated utility relocation scoping and design;
- Geotechnical assessments providing new information on ground conditions; and
- Newton Exchange design updates.

Over the next six months, this cost estimate may be refined through additional technical analysis, public input and design modifications, and will be finalized at the end of the procurement process.

BENEFIT-COST RATIO

The benefit-cost analysis compares quantified user, environmental, and wider economic benefits with Project costs over a 30-year period (2024-2053). It uses the province's standard discount rate of six per cent, which is considered conservative.

The Project's benefit-cost ratio of 0.70 is comparable with other LRT projects in Canada, such as Ontario's Eglinton Crosstown LRT (0.77) and the Finch West LRT (0.75), both of which assumed a five per cent discount rate for calculating the net present value.



Future visualization of Newton Exchange



Future visualization of King George Boulevard



Example of LRT in Phoenix, Arizona



Example of LRT in Gold Coast, Australia

ADDITIONAL POTENTIAL BENEFITS

TransLink and the City of Surrey have identified additional potential benefits, which are outside of the current provincial CAMF guidelines and not part of the Business Case, but which reflect emerging best practices in urban transportation evaluations. These additional benefits, which further strengthen the Project rationale, include:

- **Improved Health:**

In support of its Environmental and Socio-economic Review, TransLink conducted a Health Benefits Assessment. The study quantified the benefits to government in the form of cost savings from improved health of individuals due to better air quality and increased use of healthier forms of transportation. The study considered additional non-quantified health benefits of LRT such as increased feelings of safety and community cohesion.

- **Design Refinements:**

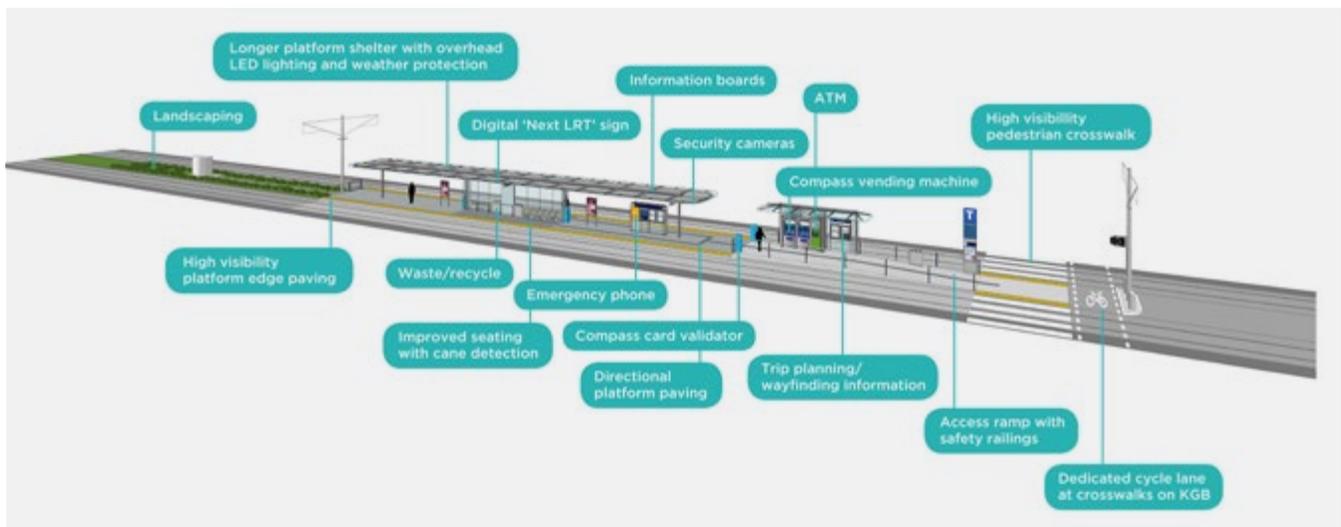
TransLink continues to explore design refinements that would further reduce the end-to-end run time for the LRT service. Analysis indicates that a three-minute travel time savings (24-minute run time instead of 27 minutes), would boost ridership by as much 6,000 boardings per day, increasing the Project's benefit-cost ratio to 0.80.

- **Increased Land Use Intensification:**

The City of Surrey continues to develop land use plans that call for intensified development in communities like Guildford and Newton. While the effects of these plans will happen over time, experience in other jurisdictions has demonstrated that LRT facilitates higher-density developments that help address housing affordability and create more vibrant urban environments, as compared with a business-as-usual approach.

Funding

The Surrey-Newton-Guildford LRT will cost \$1.65 billion, funded and delivered by TransLink, with contributions from the Government of Canada and the City of Surrey. This Project is a key part of the rapid transit program in Metro Vancouver's Mayors' Council 10-Year Vision. That Vision is funded by the governments of British Columbia and Canada, TransLink, and local municipalities.



Timeline



Ongoing First Nations, public and stakeholder engagement commenced in 2016 and will continue through to Project completion.

Consultation and Engagement

The Project has undergone extensive public, stakeholder and First Nation engagement including:

INITIAL PROJECT PLANNING (2011-2012)

Public and stakeholder input assisted in shortlisting a range of possible technologies and routes.

PRE-CONSULTATION ENGAGEMENT (2015)

Surveys with residents of Surrey, Langley and the broader region confirmed high awareness of the proposed Project. Focus groups with transit and non-transit users confirmed strong support for continued Project development.

STAGE 1: RE-ENGAGEMENT (DECEMBER 2016 TO FEBRUARY 2017)

Stakeholders and members of the public learned about scope of the Project and confirmed support for the Project, as proposed. Participants also indicated a high degree of interest in the Project and a desire for additional information.

STAGE 2: DESIGN CONSULTATION (MID-JUNE TO EARLY JULY 2017)

Feedback from First Nations, stakeholders and the public was sought on updated Project design elements, including LRT operations, route alignment and preliminary interests with respect to the Environmental and Socio-economic Review.

STAGE 3: ENVIRONMENTAL AND SOCIO-ECONOMIC REVIEW (OCTOBER 2017 TO PRESENT)

Input from First Nations, stakeholders and the public assisted in refining input to the draft terms of reference for the review. Preliminary assessments of potential effects were then conducted. The full report, including recommended mitigations, enhancements and ongoing requirements, is available on the Project website.

FUTURE ENGAGEMENT

Engagement with First Nations is ongoing and will continue through Project construction. Public and stakeholder engagement will also continue. A community and business liaison process will assist in keeping people informed, minimizing construction impacts and ensuring that vibrant commercial areas and livable communities along the LRT corridors are maintained.



Next Steps

ENVIRONMENTAL AND SOCIO-ECONOMIC REVIEW



Violet Green Swallow

TransLink is committed to delivering the Project in a manner that respects the environment and adjacent communities. The Environmental and Socio-economic Review includes an assessment of socio-economic considerations, archaeological and heritage resources, fisheries and aquatics, vegetation and wildlife resources, noise and vibration, air quality and greenhouse gases, contaminated sites, and electric and magnetic fields.

The Review is informed by relevant environmental policies, best practices from similar transit initiatives, and results of engagement with First Nations, government agencies, stakeholders and the public.

PROCUREMENT

A number of delivery models were assessed to identify the best approach to Project delivery. A Design-Build-Vehicle-Finance-Operate-Maintain-Rehabilitate model was identified as the preferred model to:

- Manage and reduce key Project risks;
- Maximize competition to enhance innovation and efficiencies;
- Maximize cost and schedule certainty; and
- Minimize taxpayer costs by incorporating private financing.

TransLink, as the regional transit agency, will take the lead in Project delivery, in collaboration with the City of Surrey, and Provincial and Federal funding partners. TransLink will adhere to the following steps to select a private sector partner to deliver the Project, including operations and maintenance, over a seven year term:

- **Request for Qualifications**—respondents will demonstrate their experience, qualifications and capacity to deliver the Project;
- **Request for Proposals**—short-listed, qualified respondents will be invited to submit both a technical proposal demonstrating compliance with the contractual requirements, and a financial proposal; and
- **Contract Negotiation**—with a preferred proponent to secure a final agreement.

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Getting in touch

For more information:

Visit the Project website at surreylightrail.ca
Get in touch with us at surreylrt@translink.ca



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