

GREEN LINE FUNDING, STAGING AND DELIVERY

EXECUTIVE SUMMARY

This report outlines Administration's current analysis on staging, funding and delivery options for the Green Line, Calgary's next light rail transit (LRT) line. The analysis was conducted in response to the Government of Canada's announcement of the Public Transit Fund, and the subsequent announcement of \$1.53 billion in funding for Calgary's Green Line LRT.

ADMINISTRATION RECOMMENDATION

That the SPC on Transportation and Transit recommends that Council direct Administration to:

1. Proceed with the Green Line project based on an initial phase that will include LRT;
2. Based on the current anticipated funding of \$4.59 billion and a long term financing approach, plan on a phased approach which includes:
 - a) Downtown as an initial phase; and
 - b) Incorporation of a light rail vehicle storage and maintenance facility which is located in proximity to Shepard station.
3. Complete the north section functional planning study including the same elements as the Green Line Southeast alignment and stations report, November 2015.
4. Complete the central section (including the Downtown) functional planning study;
5. Prepare the required business case for submission to the Government of Canada Public Transit Fund for the Green Line LRT as per Attachment 1;
6. Prepare a business case for the Government of Alberta on a collaborative and flexible approach to matching funds;
7. Begin work with Calgary Economic Development on global promotion of economic diversification opportunities associated with the Green Line per the scope of work in Attachment 1;
8. Prepare a recommendation for a procurement model;
9. Amalgamate all Green Line project activity within a single team structured in anticipation of funding approval for construction;
10. Prepare a recommendation for a single Standing Policy Committee of Council to hear all Green Line related reports and potentially other major projects; and
11. Report back to Council through SPC on Transportation and Transit during 2016 on a quarterly basis beginning in March 2016.

PREVIOUS COUNCIL DIRECTION/POLICY

On 2013 November 25 Council approved the \$520 million Green Line fund to be used as matching funds for future Provincial and/or Federal transit funding that is specifically dedicated to the Green Line.

At its 2015 May 25 Regular Meeting Council approved the following:
ADOPT, AS AMENDED, Moved by Councillor Keating, Seconded by Councillor Chu, that Councillors Keating, Chu and Stevenson's Motion, NM2015-09 be adopted, as amended and after amendment, as follows:

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NOW THEREFORE BE IT RESOLVED that Administration prepare a report and cost benefit analysis for City Council which outlines a project delivery model that could move straight to LRT on the Green Line;

AND FURTHER BE IT RESOLVED that the report outline a long term repayment framework contingent on contributions that could be jointly funded by The City, the Province and the Federal governments;

AND FURTHER BE IT RESOLVED that the report include a variety of initial phase project scopes, time frames for construction and financing as well as options to fund the line.

AND FURTHER BE IT RESOLVED that Administration bring back an outline of this report to the 2015 June 23rd meeting of the Priorities and Finance Committee and the final Report to the 2015 December SPC on Transportation and Transit Meeting in conjunction with the Green Line Planning Study.

At the 2015 July 20 Combined Meeting, Council approved the following with respect to PFC2015-0537 Green Line Federal Transit Fund Outline:

“ADOPT, Moved by Councillor Keating, Seconded by Councillor Stevenson, that the Administration Recommendations contained in Report PFC2015-0537 be adopted, after amendment, as follows:

That Council

1. Direct Administration to continue working with the Federal and Provincial governments on New Public Transit Fund guidelines and submission dates; and
2. Direct that the In Camera discussions remain confidential pursuant to Section 24(1) (c) of the *Freedom of Information and Protection of Privacy Act*.”

At the 2015 November 09 Combined Meeting, Council approved the following Notice of Motion (Councillor Keating):

“THEREFORE BE IT RESOLVED that Council ask that His Worship Mayor Nenshi write an official letter on behalf of the City of Calgary to Transportation Minister Mason that outlines the City of Calgary's official request for funding the Green Line LRT from the Provincial Government AND FURTHER BE IT RESOLVED that the formal letter to the Government of Alberta could suggest that in place of an immediate funding announcement, the Provincial Government could announce funding in principle when a formal application is received that fits a predetermined set of criteria.”

BACKGROUND

In December 2012, The City invested \$8 million of the Government of Alberta Green Transit Incentives Program (GreenTRIP) towards Green Line. GreenTRIP funding allowed The City to advance pre-design on the southeast leg of the Green Line for Bus Rapid Transit (BRT) that was designed specifically to be convertible to LRT. The project work also included comprehensive transit-oriented development planning. The preliminary design and Transit Oriented Development (TOD) work was approved by Council on November 9, 2015 (PUD2015-0765 and TT2015-0678).

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Upon completion of the RouteAhead strategic plan, in 2013, Council approved the Green Line fund to leverage potential funding from the Provincial and Federal governments and to facilitate preliminary work on this strategic piece of infrastructure. The Green Line project vision is to create a transit service that improves mobility in existing and new communities in north and southeast Calgary, connecting people and places, and enhancing the quality of life in the city.

In 2015 May, the Government of Canada announced the creation of the Public Transit Fund, a permanent, ongoing source of funding for major transit infrastructure projects in Canada's biggest cities. Subsequently, on 2015 May 25, City Council directed Administration to prepare a report to Council outlining a delivery model for LRT on the Green Line. A draft outline of the report was presented to the Priorities and Finance Committee on 2015 June 23, with the final report to be presented to the SPC on Transportation and Transit in 2015 December.

In a historic announcement, on 2015 July 25, the Government of Canada announced that it will award \$1.53 billion to the Green Line LRT project, once a formal application has been made by The City and approved by the Government of Canada. This funding will allow The City to move ahead with the Green Line as an LRT project.

As part of the Green Line Southeast, Administration is also moving ahead with the following, all of which are aligned with the Green Line LRT project:

- Follow-up TOD planning policy and implementation tasks identified in PUD2015-0765 Green Line Southeast Transit Oriented Development Plan, including:
 - continued stakeholder engagement,
 - amendments to existing planning policies,
 - establishing new planning policy,
 - potential amendments to the Municipal Development Plan (MDP),
 - guidance on landfill setback relaxation,
 - alignment with Build Calgary,
 - catalyst collaboration projects and pilot projects, and
 - City-initiated land use redesignations;
- Land acquisition for stations, track, and other associated infrastructure; and
- Progress report to SPC on Transportation and Transit by 2016 April.

The Green Line Southeast pre-design was based on Council's direction for a rail convertible BRT to LRT staged implementation. In order to be prepared for the delivery of LRT as the initial stage the team will revisit the 2012 SETway functional report and update the land requirements. An initial land report from 4 Street SE/10 Avenue S to Douglas Glen will be brought to Land and Asset Strategy Committee (LAS) 2015 December 17 followed by a report with additional land requirements for LRT in Q1 2016.

In March 2015, Council unanimously approved Centre Street North as the alignment for the Green Line North (4 Street SE/10 Avenue S to Keystone). Administration was directed to prepare a report with more information on the connection through the downtown. As a result, to advance the Green Line North, Administration is moving ahead with the following:

- Functional planning for LRT between 10 Avenue S and 160 Avenue N,

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- A transit-oriented development planning study;
- Engineering studies to advance our understanding of geotechnical, hydrotechnical, biophysical and environmental issues along the alignment similar to work done on the Southeast leg; and
- Report to SPC on Transportation and Transit on 2015 December 11 (TT2015-0905) will provide an update on the functional planning study and the metrics that will be used to determine the alignment between 24 Avenue N and 10 Avenue S (through the Bow River and downtown).

By the end of 2016, functional planning for the northern and downtown sections of Green Line will be complete. Following Council approval of the functional plan, preliminary design work can commence. Some construction activities such as utility relocation can begin along the entire Green Line project as soon as 2017. The timeline for detailed design and construction will be influenced by the delivery method chosen for the project.

Attachment 1 is a summary of this work, including conclusions from the staging analysis and options for funding and project delivery.

Attachment 2 is the promotional material distributed to stakeholders and potential funding partners to illustrate the benefits and capital costs associated with the project.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

The following steps have been conducted by Administration since receipt of Council direction in 2015 May 25:

- Delivered a report on the Green Line Federal Transit Fund to Priorities and Finance Committee 2015 June 23;
- Responded to Federal and Provincial inquiries regarding RouteAhead and the Green Line;
- Assessed the staging of LRT and BRT on the Green Line corridor;
- Assessed the benefits and costs of proposed alternatives including a bus based transitway versus LRT;
- Outlined a project delivery model that could move straight to LRT on the Green Line, including initial phase enabling projects, time frames for construction, financing and options to fund the line; and
- Kept stakeholders informed and aligned project teams around evolving objectives of current work.

Green Line – Update on Funding, Staging and Delivery (Attachment 1) summarizes the detailed analysis conducted to date by Administration. The progress thus far on Green Line enables Administration to make a series of recommendations and focus the forthcoming work.

Bus Rapid Transit versus Light Rail Transit

Administration evaluated the benefits of constructing a bus based transitway as an initial stage prior to proceeding to LRT (independent of availability of funds). It was concluded that an

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interim transitway strategy would be unsuccessful in the medium term for the following primary reasons:

- Population and employment growth along the Green Line corridor is such that the ridership needs could only be met along the centre Street North corridor for a limited amount of time;
- The frequency and volume of bus traffic along Centre Street North and in the downtown core would have a significant negative impact to the road network and hamper these areas in achieving the objective as Main Streets as outlined in the Municipal Development Plan (LUP009).
- Future conversions of the urban sections with limited right of way will further disrupt neighbourhoods and business communities within a limited period of time (5 to 15 years) and incur throwaway costs.

Staging

The Green Line LRT project was evaluated against the projected \$4.6B funding to assess the extent to which the ultimate line could be constructed. Assuming that the funding would be provided by all three levels of government over an extended period of time (20 to 30 years) the full line from North Pointe to Seton would not be within the available construction budget. This conclusion is based on the following factors:

- Financing costs over a long repayment period of 20 to 30 years will absorb as much as one third of the available funding.
- Functional planning on the north section may result in unforeseen costs and/or additional scope.
- Functional planning of the central section remains to be determined and will be the most expensive portion of the line regardless of the approach.

Knowing that the probable near term funding approvals (i.e. \$4.6B) will not facilitate the full construction of Green Line from North Pointe to Seton, planning the procurement with a phased approach is logical. The attached report (Attachment 1, Section 8) compares several staging scenarios and quantifies the associated ridership forecast, capital cost, and gross and net operating cost estimates. The following is known in regards to a phased approach:

- The initial phase needs to include the downtown for ridership and a maintenance and storage facility for operations reasons.
- The recommended location for the maintenance and storage facility is near the Shepard station.
- Building a longer portion of the ultimate line has a positive influence on ridership and decreases the operating cost by reducing the extent of the feeder bus network.

Taking into consideration the current status of funding and our options for procurement, the following alternatives for project delivery were considered:

1. *Focus on the Green Line as a single project for construction within the next 10 years.*
Administration would complete functional planning, initiate enabling projects (e.g. utility

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relocation, right of way preparation) and pursue partnership funding from the Federal and Provincial governments. Under this approach The City move toward the larger program utilizing the funding in hand from the Provincial GreenTRIP grants. This is the basis of Administration's recommendation.

2. *Build now with funding immediately available to The City rather than awaiting feedback from the Federal and Provincial governments.* Rather than awaiting funding programs Administration would move ahead with design and construction where we can (i.e. Southeast leg) to address the urgent need to improve the speed, reliability and capacity for public transit service in this area of Calgary. The initial extent of the line would be limited given the available funds. This is not recommended due to the operating cost implications, the risk to leverage funding from the Federal and Provincial governments and the negative impact on P3 style procurement.
3. *Seek commitment to a staged approach.* Recognizing part of the Green Line corridor is shovel-ready while other parts are still at the functional planning stage, The City would seek commitment from the Federal and Provincial governments to fund a staged approach and proceed with work on the southeast section. This approach would be similar to staged construction of the CTrain network between 1981-1987. While not the preferred alternative, this approach has merit as a mitigating strategy should approach #1 run into prolonged indecision with regards to funding by one level of government. A staged approach for planning and funding by two levels of government over protracted timelines carries additional risks.

Administration continues to pursue funding support from the Federal and Provincial governments. The Federal Government has yet to announce the specifics around the Public Transit Fund. However, Administration believes the requirements will be similar to those of the Build Canada Fund intake evaluation process and, therefore, can prepare Calgary's business case submission based on Attachment 1 and previously approved Green Line reports.

With regards to provincial funding support for Green Line, the Government of Alberta announced a budget in October 2015 that included new funding to support public transit. This funding could match interim Green Line municipal funding while we work collaboratively to develop a long term financial strategy to build out Green Line.

Delivery

The Green Line project delivery requires the transition to a substantive dedicated team. It is important to establish one co-located team to coordinate the various facets of planning, design and procurement including the multiple supporting functions such as legal and land. The administrative structure will take into consideration the future adjustments required based on the contracting method selected when the project enters the detailed design and construction phase.

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As the project moves into the procurement phase, Administration recommends that project governance evolve. This would take the form of an internal steering committee function with senior level representation. In addition we recommend the establishment of an external advisory committee comprised of impartial experienced parties who can advise The City with respect to our proposed course of action on Green Line.

Phased approval of the various facets of Green Line are presently evaluated through four separate standing policy committees of Council; Transportation & Transit, Planning and Urban Development, Land and Asset as well as Priorities and Finance Committee. Administration feel there is merit in establishing a single committee that would here all Green Line reports and forward recommendations through to Council. This approach could also be used to further the objectives of the accelerated capital program.

The results and recommendations of Green Line will continue to come to the SPC on Transportation and Transit on a periodic basis. Scheduling quarterly updates for 2016 will allow Council to deal with the overall project in manageable phases and focus the project team on specific reporting dates for the ongoing work as outlined in the timeline in Attachment 1.

Stakeholder Engagement, Research and Communication

The greater Green Line program engagement will be focused on bringing awareness of the benefits and alignment with Calgary's strategic objectives and economic opportunities. Southeast leg engagement is ongoing and north leg engagement is discussed in detail in report TT2015-0905.

Strategic Alignment

While not specifically mentioned, Green Line is aligned with the future vision of our city as articulated in imaginCALGARY The RouteAhead plan is aligned with the policy direction and strategic goals of the Municipal Development Plan (MDP) and Calgary Transportation Plan (CTP), the 2020 Sustainability Direction and Council's Action Plan priorities. The Green Line is identified as part of the City's RouteAhead 30-year Strategic Plan for Transit in Calgary. RouteAhead was developed in coordination with Investing in Mobility to ensure strategic alignment within the Transportation Department capital plans. The identification of priorities in this report is consistent with the Growth Management Framework and the balance of growth between established communities and new green-field communities. Additional details regarding alignment with City strategy is included in Attachment 1.

Social, Environmental, Economic (External)

The Green Line will contribute directly to The City's social, environmental, and economic goals. The project is a strategic infrastructure investment that facilitates more efficient development patterns identified in the MDP. Improving travel options in established communities makes them more attractive to residents, and developers. This potentially slows the rate of urban expansion, which reduces the associated loss of natural habitat and agricultural land, instead promoting urban densification. Access to rapid transit helps create complete communities and connects Calgarians to people and places.

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Social

Great communities are adaptable to the needs of current and future residents. Communities that provide a broad range of housing choices and commercial services, supported by high quality transit and transportation choices, allow people to meet day-to-day needs within their own neighbourhood.

As a city shaping and city building initiative, the Green Line requires the project to plan with the intent of delivering on Transit Oriented Development (TOD) sites that are mixed used, mixed income and provide for all generations, thereby attracting and maintaining a diverse community that ensures economic development and vitality. Mixed-use neighbourhoods are the places where people live, work, play, shop and learn. Mixed income communities are financially accessible to all Calgarians. Consideration for multi-generational communities and the places where residents can transition through all stages of life ensure a long term, sustainable city fabric.

Environmental

Investment in transit provides environmental benefits that extend beyond the reduction of greenhouse gases with every vehicle removed from the road. Improved, higher quality transit service and complete communities attract higher levels of ridership, decreasing the environmental impacts associated with urban travel but also support compact growth which in turn provides health benefits. The Canadian Urban Transit Association (CUTA) has outlined the public health benefits of public transit to include improved urban air quality and increased physical activity, which can lower the risk for many diseases. Reduction in green house gases and social health benefits are therefore realized by maximizing the transit investment. The CTP's 'Appendix B – Principles and design considerations for river crossings', clearly outlines seven principles to be addressed when considering new river crossings that will be followed as part of project planning, design and delivery.

Economic

Leveraging the investment of public funds maximizes the economic return through better land use decisions with the intent of providing new and redevelopment opportunities along the corridor. This reduces the fiscal impact of growth, and promotes integrated and sustainable development. An investment in public transit and corridor renewal of this order of magnitude provides the opportunity to attract global corporations in innovative industries to promote a diversified economy in Calgary. As a result, more population and activity generates sustained ridership and economic growth thereby creating a multiplier effect of the infrastructure investment.

Financial Capacity

Current and Future Operating Budget:

The Green Line will require an investment in operating funding upon commencement of service. The line will nearly double the length of The City's LRT network, and will require additional staff (peace officers, station cleaners, service designers, track maintainers, etc.), and maintenance/storage facilities.

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In order to meet the Green Line deliverables and related development inquiries/files, an investment of operating funds/resources by several City business units will be required. The impact will need to be incorporated into the 2016 work plans of several business units. Several business units have advised that the Green Line program will require additional staff on a limited term basis. The Transportation Department plans to secure these human resources taking guidance from the overall approach being discussed to deliver all types of capital projects by The City.

Current and Future Capital Budget:

Calgary's ability to construct Green Line depends on three major sources of funding; municipal, provincial and federal. The Government of Canada announced a contribution of \$1.53 billion from the Public Transit Fund for the Green Line in 2015 July, contingent on Provincial and municipal matching funds.

A capital contribution by The City is currently limited to \$520 million (the Green Line Fund).

The Government of Canada has yet to release guidelines and application process for the Public Transit Fund. Administration has exchanged information with staff from PPP Canada, the Federal agency that will be administering the funds, and is expecting that more information regarding the application process will be released in early 2016.

The Province of Alberta has announced their interest in supporting public transit. As part of the October 2015 budget for the Province of Alberta, \$330 million of new funding was made available for public transit. This is insufficient to fully fund 1/3 of the Green Line. The funding does support our short term needs and could potentially be the first few years of a longer term funding partnership. The Province will be tabling a new budget in the spring of 2016.

Matching contributions of \$1.53 billion from three levels of government does not necessarily mean a project with a construction cost estimate of \$4 - \$5 billion can be delivered; the financing costs associated with long-term funding streams (e.g. 30 years) can amount to approximately 1/3 of the cost of the project. Administration is addressing this possibility by identifying staging options as outlined in Attachment 1 and by highlighting the impact of borrowing costs to the Federal and Provincial governments.

Several of the staging options require additional municipal contributions and/or debt financing (in addition to contributions sought from the Government of Alberta). Cost estimates included in this report are consistent with Corporate Project Management Framework estimate levels 5 (for Green Line North) and 4 (for Green Line Southeast).

Risk Assessment

The following risks are the focus of Administration's ongoing risk management strategy:

- Scope: the Green Line LRT project cost estimates are subject to change if additional items or extensions are added to the scope of the project as outlined in Section 4 of Attachment 1.
- Timeline: Administration is working to bring the north and southeast legs to the same stage in planning and design. A consistent basis of planning and preliminary design will

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be necessary for procurement. The current timeline allows for the completion of functional planning as outlined in the Green Line North report TT2015-0905. Protracted engagement or delays in approvals will impact the timeline for delivery of the overall Green Line LRT project.

- Bow River crossing/route through downtown: there is uncertainty regarding the route through downtown to connect the north and southeast legs. The alternatives have significant differences in cost and risk profiles. The impacts and benefits to neighbouring communities also need to be studied.
- Environmental constraints: Contaminated sites that require remediation will be addressed according to City policies and Provincial and Federal regulations. Depending on the scope and scale of remediation, this could affect the timeline and cost of the project.
- Land identification: initial studies had identified general land impacts and likely costs. Detailed design and direction to proceed straight to LRT results in additional requirements that will increase initial project costs and require additional stakeholder engagement and impact the timeline for construction.

REASONS FOR RECOMMENDATION:

Administration continues to work on multiple aspects of the Green Line, completing planning studies, improving cost estimates and impacts as information is gathered and analysis is made.

Based on current information and analysis, Administration recommends proceeding directly to LRT for the Green Line, rather than starting with an interim bus transitway. LRT will provide a faster, more reliable trip, provide enough capacity in the medium and long term, unlike BRT which will reach capacity in the medium term. Going straight to LRT avoids operational challenges of BRT (high volume and frequency of buses) conflicting with auto traffic, particularly along Centre Street and in the downtown. Transition costs and construction impacts of BRT to LRT conversion are also avoided. Going directly to LRT capitalizes on the Federal Transit Fund and the early commitment to Calgary of \$ 1.53 B ahead of other national interests.

While funding from the three levels of government is anticipated to be \$4.59 B, it is unlikely this will be sufficient to build the entire line from North Pointe to Seton, and a phased approach to construction will need to be considered reconciling costs, cash flows and financing charges. Regardless of phasing, a maintenance facility will be required in the initial stage to service new low-floor cars. Based on land availability, overall costs and operational considerations, it is best located in the southeast near the Shepard station.

As the project proceeds, governance that allows both transparency and efficient decision making will be required. Administration will investigate a single Standing Policy Committee to provide clear direction.

ATTACHMENTS

1. Green Line: Update on Funding, Staging and Delivery
2. Investing in Calgary's Green Line LRT (Fall 2015)