

GREEN LINE UPDATE

EXECUTIVE SUMMARY

At the 2015 December 14 Regular Meeting of Council, report TT2015-0881, Green Line Funding, Staging, and Delivery recommendations for Green Line, was approved. This report provides the first quarterly update for the Green Line project regarding the status of the funding, staging and delivery. Also included in this report is an update on the functional planning study for the northern leg of Green Line and an update on the land use transit-oriented development (TOD) policy amendments for the southeast leg.

Administration continues to collaborate across all City Departments. The focus is on determining how the Green Line can integrate with land use and development plans while delivering high quality public transit. Recognizing that Green Line is a city-shaping project offers additional opportunities to leverage the Green Line LRT investment to advance corporate wide initiatives. City-shaping and corporate wide initiatives are under review in order to better align with all levels of government; transforming communities and promoting economic development and diversification.

The RouteAhead update report TT2016-0193 is being presented in conjunction with the Green Line update report at the 2016 March 16 meeting of the SPC on Transportation and Transit. Green Line LRT was identified as the highest priority transit project in 2013's RouteAhead.

ADMINISTRATION RECOMMENDATION

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

1. Receive this quarterly report for information; and
2. Report back to Council through SPC on Priorities and Finance Committee for the remaining 2016 quarterly reports beginning in June 2016.

RECOMMENDATION OF THE SPC ON TRANSPORTATION AND TRANSIT, DATED 2016 MARCH 16:

That Council:

1. Receive this quarterly report for information; and
2. **Direct Administration to** report back to Council through the **SPC on Transportation and Transit** for the remaining 2016 quarterly reports beginning in June 2016.

PREVIOUS COUNCIL DIRECTION / POLICY

At the 2015 December 14 Regular Meeting of Council, Report TT2015-0881 (Green Line Funding, Staging, and Delivery) was approved as follows:

"REFER, Moved by Councillor Carra, Seconded by Councillor Pootmans, that Recommendation 11 contained in Report TT2015-0881, as follows, be referred to the 2016 January 18 Strategic Meeting of Council:

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“That Council direct Administration to:

11. Report back to Council through SPC on Transportation and Transit during 2016 on a quarterly basis beginning in March 2016.”

Additional Council direction related to Green Line has been summarized in Attachment 1.

BACKGROUND

Since the announcement on 2015 July 25, whereby the Government of Canada announced that it will award up to \$1.53 billion to the Green Line LRT from its Public Transit Fund, administration has maintained dialogue with staff from Private Public Partnership (PPP) Canada, the Federal agency that will administer the funds. Requests have been made for the terms of the funding and for the formal application process in order to secure this funding. To date the Government of Canada has not released guidelines nor the formal application for the Public Transit Fund.

During the 2015 October Provincial budget announcements, The Province of Alberta declared their interest in supporting public transit, however to date funding commitments have not been made towards Green Line. On 2016 January 18, The Mayor of Calgary formally submitted a letter to the Alberta Minister of Transportation requesting Provincial support to match The City's \$1.56 billion and the funding commitments from The Government of Canada. The Province is expected to table a new budget in 2016 April, however we have no indication that an announcement is forthcoming.

Administration continues to advance the functional and transit-oriented development planning for the northern leg of Green Line and the land use planning policy for the southeast leg. The primary objectives are to establish the 40km alignment, 28 station locations, LRT infrastructure scope and respective cost estimate in order to demonstrate Green Line as a shovel ready and shovel worthy project. Project readiness is assumed to be critical to secure funds and therefore administration continues to target an end of 2016 recommendation.

In addition to the functional planning, administration is moving ahead on identifying opportunities to leverage the infrastructure investment and to define Green Line as a city-shaping initiative. Through collaboration with all city departments a number of corporate-wide initiatives can jointly be delivered and measurable city-shaping benefits are being gathered and will become the supporting information for the business cases being prepared for submission to the Provincial and Federal governments.

Administration has prepared its first report to Council specifically addressing one of the many benefits of Green Line. The Green Line LRT Environmental Benefits report (C2016-0115) received for information by Council 2016 February 22, quantified the efficiencies and reduction on environmental impacts through the delivery and operation of Green Line.

An expedient yet achievable timeline has been developed outlining the critical path work streams, the fixed timelines between key milestones and is based on past projects. Flexible procurement delivery options were also considered including; Design-Bid-Build, Design-Build, Construction Management, and Design-Build-Operate-Maintain. Applying the set timelines to an

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assumed initial milestone (Attachment 2: Stage Gate 1 – Terms of funding agreement (Province and Federal)) identified an early as possible target construction start date of Q3 2018. Critical to achieving the Q3 2018 construction start date is an optimal funding approvals/agreements, however due to the lack of certainty regarding funding the target construction date is likely not to be met.

Attachment 2 provides a summary of the key stage gates requiring decisions and/or direction as they relate to the work streams. All work streams must be completed in order to meet the targeted construction start date of Q3 2018 and have interdependencies. Work streams include funding, functional design for alignment and stations, determination of delivery model, and land acquisition. As the various work streams progress task dependencies will require schedule updates.

Until funding is understood, the design continues to advance as the current market and public state are ideal. Key considerations include:

- Public support
- Political support at all levels of government for public transit
- Opportunity to offer economic stimulus
- Secure low construction pricing

INVESTIGATION: ALTERNATIVES AND ANALYSIS

The following topic sections will be used for quarterly updates to summarize the progress on Green Line, focusing on critical milestones, recommendations, and option development.

Staging

The extents to which the Green Line can be built in the initial phase remain unknown until the funding contribution amounts and financing period are specified. Although Administration continues to focus on Green Line as a single project with a target construction completion within the next 10 years, if there is prolonged uncertainty with regards to funding, a staged approach for planning and funding should be considered. Attachment 2 Green Line Stage Gates identifies October 2016 as this key milestone necessitating funding commitments in order to deliver as a single project.

Functional design, contracting strategies, and identification of enabling works (e.g. utility relocations) continue to be planned assuming a phased approach and therefore allowing for flexibility to match the available funds.

Delivery

On 2016 January 18, a strategic direction of Corporate Governance for The City of Calgary was initiated. Green Line is a high priority project that requires multiple supporting functions and that compliments many of the corporate initiatives and will align with the Corporate Governance. An internal working team will be focused on the project delivery details while the supporting resources will be sourced and prioritized under the Corporate Governance structure.

Upon recommendation of a procurement method planned for end of 2016 and based on the funding guidelines from the Government of Canada and the Province of Alberta, the internal

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working team will require evaluation to confirm alignment of organizational structure with the method of delivery.

The Green Line LRT project will begin to report to SPC on Priorities and Finance Committee on a quarterly basis and when required will report to the Deputy City Manager's Office – Infrastructure Calgary, for Corporate direction and prioritization.

City-Shaping and City-Wide Policies

Work is currently underway to define city-shaping, as it relates to the Green Line project, and to coordinate Green Line policy and plans with ongoing city-wide work.

The three pillars of successful city-shaping are:

1. Comprehensive planning
2. Key community services
3. Great mobility choices

Planning work currently underway includes Municipal Development Plan amendments in the form of an Established Communities Guidebook that will facilitate and guide transit-oriented development; the development of a new land use district for application in Main Streets and Green Line station areas; Main Streets program alignment; economic diversification studies and an approach to collaboration towards development of catalyst sites along Green Line.

Collaboration with Community Services is underway to investigate opportunities to align housing, parks, recreation, emergency and other key services and facilities with Green Line policy and plans.

Identification of improved mobility choices, for all modes of transportation, is underway along the Green Line and for all Green Line station areas. Work has begun to define a framework and criteria for acceptable levels of service. Delivery of the framework is scheduled for December 2016.

Key city-shaping progress includes:

- Assignment of a city shaping/city-wide coordinator to collaborate with internal stakeholders and champions at all three levels of government, to identify common goals and investment opportunities;
- Development of draft performance metrics; and
- Development of a draft city-shaping definition as follows:
 - “Collaborative community, developer and government efforts that bring new public and private investment to transit supported communities, strengthen neighbourhoods, and result in measurable improvements to the way we live, work, play and move.”

Draft city-shaping performance measures categories are based upon the Triple Bottom Line Framework as approved by Council in 2011 and include the following desired outcomes:

- Social equity (people)
- A city of strong neighbourhoods
- An inclusive, safe, cultural and active city

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- Environmental responsibility (planet)
- Protect land, water resources and open space
- Improve air quality
- Reduce energy use and climate change impacts
- Economic development (profit)
- A city that attracts and leverages investment
- A city that attracts people
- A creative city

The city-shaping definition and desired outcomes will be refined based on stakeholder feedback and presented to Council.

North and Centre City

Progress has been made on the analysis of the five Centre City options since last reporting to SPC on Transportation and Transit on 2015 December 11 (TT2015-0905).

Five open houses were held along the northern leg of the alignment with over 700 members of the public in attendance. The objective was to re-introduce residents in adjacent communities, provide an update on the project, highlight upcoming public engagement events, and solicit input on potential transit-oriented development sites and Centre City options.

Generally, the top three perceived benefits of the Green Line were identified as:

- Increased access to communities;
- Improved transit/lower environmental impact; and
- Reduced traffic/improved mobility options.

The top three perceived impacts were identified as:

- Increased traffic congestion;
- Pedestrian connectivity/community access; and
- Pedestrian/traffic safety.

As the design and analysis progresses; complimented by the parallel public engagement process, Administration will be better able to respond to the perceived impacts and concerns.

The five Centre City options are being analyzed, and compared against each other using a Multiple Account Evaluation (MAE), similar to the MAE conducted for the southeast leg. The MAE builds on The City's Triple Bottom Line decision process and includes high level accounts such as technical considerations, stakeholder consultation, and transportation and growth management objectives. Each of the Centre City options are being evaluated based on their performance in each of the individual 27 criteria. Criteria includes such categories as capital cost, public input, station access and impacts to the public realm. The MAE, technical design of the LRT system, and public input from future planned station workshops and charrettes will all inform Administration's recommendation to Council planned for the end of 2016. An update report on the north leg will come to SPC on Transportation and Transit by 2016 July.

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Refinements to the five Centre City options, based on design progress and identified technical issues include:

- The likelihood of elimination, due to technical difficulties, of the at-grade station located on 3 Ave SW in Chinatown in 'Option A'.
- Potential alternate east-west alignment between 2 Street SW and 4 Street SE to include 11 and 12 Avenues S in the Beltline/East Victoria Park, due to challenges identified on 10 Avenue S. Administration is working closely with Calgary Municipal Lands Corporation (CMLC) to coordinate the planning and design of Green Line with CMLC's work in the Rivers District.

Currently land use planning is focused on evaluating the corridor in terms of opportunities for transit-oriented development areas at stations. In addition to analyses by the planning team, public input was solicited at the engagement events, City business units were surveyed and developer input was collected. The objective is to identify areas that warrant further study through a design charrette process, the outcomes of which will guide policy development in the future. Three charrettes are currently anticipated for the months of April, May and June 2016.

The Developer Advisory Group, established through the Green Line southeast work has expanded to include the north leg of Green Line. The objective of this separate engagement is to solicit feedback and knowledge from the development community and to keep the development industry apprised of the Green Line and transit-oriented development opportunities.

Southeast

Land use policy planning has commenced in the three transit-oriented development areas that had been identified on the southeast leg of the Green Line. These three study areas include Inglewood and Ramsay, 26 Avenue SE, Lynnwood/Millican and Ogden, and South Hill. Five Green Line stations will serve these areas.

Initial public engagement events focused on informing stakeholders of the previous phase of planning undertaken in 2015 to establish the transit-oriented development vision for each area and to inform residents of the proposed work plan. Each event was very well attended by the public. Questions that are currently being resolved are which policy measures to employ in each of the areas, e.g. amending or rescinding area redevelopment plans or creating new station area plans. Further engagements will occur to discuss proposed land uses, development rules and policy proposals. The policy plans will be presented for Council approval in December 2016 and will include land use concepts for the areas. Implementation of the concepts through city initiated redesignation will occur in 2017.

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Stakeholder Engagement, Research and Communication

Public engagement has been ongoing since the development of the functional studies for the southeast and as the route study for the north was undertaken. Continued engagement includes three streams of stakeholders: The development market sector, City wide business units, and the public.

The Green Line project campaign starting in 2016 will be focused on bringing awareness of the benefits and alignment with strategic objectives and economic opportunities.

Strategic Alignment

The Green Line is identified as part of the City's RouteAhead 30-year Strategic Plan for Transit in Calgary. 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. 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 are consistent with the Growth Management Framework and the balance of growth between established communities and new green-field communities.

This strategic investment in infrastructure is well aligned with current policy initiatives at other levels of government. In 2015 the Province of Alberta released its Climate Leadership Plan and a new carbon tax scheme, to come into effect in 2017, that would generate revenues potentially used to make investments in energy efficiency including public transit infrastructure.

The Green Line internal working team continues to collaborate with all City departments and business units as One City and has been supported throughout the process. The new Corporate Governance will be well represented on Green Line with explicit ties to Planning and Development, Urban Strategy, Community Services, and Infrastructure Calgary in order to deliver this city-shaping project.

Social, Environmental, Economic (External)

The Green Line will contribute directly to The City's social, environmental, and economic goals. The Green Line is a strategic infrastructure investment that facilitates more compact development patterns identified in the MDP. Improving travel options in established communities makes them more attractive to live in and develop. Transit that spans the City helps transform and create complete communities.

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 initiative, Green Line supports mixed-use and mixed income communities to reach their aspirations for vitality and sustainability. Mixed-use neighbourhoods are the places where people live, work, play, shop and learn. Mixed income communities are financially

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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 plan.

The Green Line will provide a low-cost means of transport to over 290,000 Calgarians (2014 feeder bus catchment area population). Key arts and cultural destinations on the alignment include:

- Rivers district and Stampede Park lands
- Festival sites: Fort Calgary, East Village and Olympic Plaza
- Arts Commons theatres
- Glenbow Museum
- New Central Library
- National Music Centre (Studio Bell)
- Beltline, Downtown, Inglewood/Ramsay, Chinatown, Centre Street, and many other shopping/dining destinations

Environmental

Improved, higher quality transit service and complete communities attract higher levels of ridership, decreasing the environmental impacts associated with urban travel. The Green Line will lead to a significant reduction in greenhouse gases. The City of Calgary uses a wind power contract for the LRT network, enabling zero-emissions door-to-door travel in Calgary for CTrain customers.

The City of Calgary has committed to reducing greenhouse gases (GHGs) from its corporate operations, through energy efficiency and conservation programs and a shift to using lower carbon and renewable energy sources. The City also has a community GHG reduction plan with a broader aim of enabling Calgary citizens and businesses to reduce emissions, primarily from choices they make in transportation and heating homes and buildings city-wide. The City's targets are for 20% reduction in GHG emissions from a 2005 baseline by 2020, and an 80% reduction by 2050.

Key environmental benefits of the Green Line include the following:

- Energy efficiency gains are achieved with only 18 passengers riding an LRT train, which is the "break even" point for LRT to save energy compared with 18 automobiles;
- It presents opportunities to leverage Calgary Transit's past investments and experience gained in energy efficiency, pollution control, and renewable energy;
- The introduction of Green Line would directly reduce greenhouse gas (GHG) emissions by 52,000 tonnes of carbon dioxide equivalent annually;
- Twenty-two million litres of gasoline and diesel fuel consumed annually would be displaced by renewable electricity (or lower carbon energy) used to power Green Line;
- A two per cent reduction of smog-forming tailpipe emissions is projected; and
- Land use densification in transit nodes and corridors will be facilitated by Green Line LRT development resulting in further long-term environmental benefits.

This new line, combined with ongoing transit service enhancements and changes in land use, is projected to result in significantly increased transit ridership on opening day with the benefits

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continuing to grow beyond 2024. The 3-line LRT network, with feeder buses and cross-town BRT routes that better connect all communities and key areas of employment, will offer Calgarians more accessibility to public transit and more convenience of use than ever before; It will offer not just a viable choice but, for more people, a compelling choice over the automobile for meeting daily needs. Green Line may be the critical catalyst for broader adoption of public transit and greater movement toward the modal split targets of Calgary Transportation Plan.

Economic

Construction of the Green Line will create 23,000 direct jobs, based on current Government of Alberta Economic Multipliers. Further sustained employment is created through the on-going operation of public transit infrastructure.

The Green Line corridor is parallel to the Deerfoot Trail/QE2 corridor; building the Green Line will lessen vehicle traffic on the QE2 corridor and will enable more efficient goods movement on the critical North-South Trade Corridor.

A city-shaping investment of this order of magnitude provides the opportunity to attract global corporations in innovative industries to promote a diversified economy in Calgary.

Improving travel options in established communities makes them more attractive to residents, and developers and therefore potentially increases property values. This potentially slows the rate of urban expansion, which reduces the associated loss of natural habitat and agricultural land, instead promoting urban densification. This reduces the fiscal impact of growth and promotes integrated and sustainable development.

The Green Line will further boost the accessibility of Calgary's downtown; currently over half of the weekday trips to the downtown are made on public transit. The Green Line will not only provide a primary transit connection between major employment activity centres along the route (Centre City, Quarry Park, Aurora Business Park, and Seton) but via transfers to the Red Line and Blue Line therefore connecting to other major activity centres (University of Calgary, SAIT, Alberta College of Art and Design, and Stampede). Future connections are also under development to Calgary International Airport.

More population and economic activity generates sustained transit ridership and thereby creates a multiplier effect of the infrastructure investment.

Financial Capacity

Current and Future Operating Budget:

In order to demonstrate readiness to the potential funding partners, the Green Line planning phase must advance. These deliverables can only be met if an investment of operating funds/resources by several City business units is dedicated. The impact has been incorporated into the 2016 work plans of several business units, however resource efforts are a draw on the Green Line capital fund. The Transportation Department continues to take guidance from the newly formed reorganized corporate capital delivery and has strong linkages to Infrastructure Calgary demonstrating value based and efficient delivery in coordination with other departments where possible.

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Impact on the future operating budget is dependent on which option is ultimately constructed. Some options will require more funds to operate and maintain. Operating cost estimates will be refined in subsequent phases of this project.

Current and Future Capital Budget:

A refined project cost estimate for LRT is under development as part of the functional planning and is expected to remain in line with the \$4-\$5 billion presented during the **2015** December 14 Green Line Funding, Staging, and Delivery report. Cost estimate refinements will be primarily related to the center city and northern legs of the line.

The impact of borrowing costs is expected to reduce the available budget for construction by approximately 1/3 of the cost of the project. Staging options with respective cost estimates, in order to stay within the available budgets, will be provided.

The current funding from the GreenTRIP and Green Line funds of \$520 million is being used to continue land acquisition and finalize the reference concept design to be ready for construction using any procurement option. Advancing the functional and reference concept design phase of the Green Line will likely be an ineligible cost for the Federal and Provincial funding contributions. Typically retroactive design costs are only eligible if a signed commitment has been made. Use of The City of Calgary's Green Line funds ahead of a signed commitment of funding from the Federal and Provincial government therefore erodes the matching contribution limit.

Only work that is critical to maintaining flexibility of procurement options and to refine the scope and cost estimates will be advanced. For this reason the 2016 program budget has been separated as follows:

The 2016 program budget includes:

- Functional and reference concept design for LRT infrastructure including:
 - Site preparation and utilities including site investigations, remediation, demolitions, and enabling works
 - LRT systems
 - Stations
 - Park and Rides
 - Required mobility connections for direct access to stations
- Land acquisition
- Transit-oriented development planning policy
- Contracting strategies
- Identification of city-shaping opportunities

Scope not included in current and future program budget:

- TOD enabling infrastructure
- City Shaping Initiatives

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- Affordable housing
- TOD development
- Enhanced environmental sustainability initiatives
- Marketing and Promotion

Risk Assessment

The project has many risks that are being tracked and actioned, however the following risks are the focus of Administration's ongoing risk management:

- Terms of funding
 - Due to the lack of clarity regarding the terms of the funding agreements, funding contribution amounts, and timelines, there will be an impact on the targeted construction start date of Q3 2018. Until funding is secured the scope and extents of Green Line cannot be determined, a procurement recommendation for delivery of LRT cannot be fully evaluated and construction timelines cannot be calculated.
- Timeline
 - If the key milestones are not reached as identified in Attachment 2 the target construction date will not be met and the flexibility to select a preferred procurement method is lost.
 - Market, economic, and public and political opportunities diminish if the project does not advance. Funding is at risk if a shovel ready and shovel worthy project is not presented while other municipalities in Canada are submitting competing transit project bids.
- Land acquisition
 - Land acquisition continues to present one of the highest risks to the project schedule and budget. Total land cost estimates continue to be reviewed and refined as negotiations proceed and the design advances. It's important to note that the land impacts for the Green Line continue to be refined as the project team works through the design process; until detailed design is complete the exact impacts will not be known. The potential exists for additional property requirements to be identified as the design advances. Administration will make every effort to achieve negotiated agreements with impacted property owners; however expropriation may be required in order to ensure that the required land is available to meet the construction schedule.
- Ongoing Development along Green Line Corridor
 - The early state of Green Line planning makes it difficult to provide detailed responses, which properly convey the Green Line's requirements, to applications for development permits or land use changes along the Centre Street corridor. Some applications may be premature and could lead to detrimental situations for Green Line implementation, e.g. future station locations. Planning is implementing a dedicated team to screen new applications to quickly bring files that may have an impact to Administration's attention. Administration will present

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an update for information only on the status of planning and alignment considerations to Calgary Planning Commission, thereby enabling a more informed review of current applications.

REASON FOR RECOMMENDATION:

Provide Council and the public with an update on the status of Green Line activities.

ATTACHMENT(S)

1. Council Direction Summary
2. Green Line LRT Program Stage Gates