

## **GREEN LINE QUARTERLY UPDATE AND BELTLINE ALIGNMENT**

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### **EXECUTIVE SUMMARY**

This report provides the quarterly update for the Green Line program and presents next steps to conclude the evaluation of the Beltline alignment options. A Beltline alignment recommendation by 2017 March represents the conclusion of the Green Line long term vision phase. The report also includes a summary of the continued efforts to secure funding and considerations for the first stage of project implementation.

### **ADMINISTRATION RECOMMENDATIONS:**

That the SPC on Transportation and Transit recommends that Council:

1. Receive this Quarterly Report for information; and
2. Direct Administration to further refine the two 12 Avenue South alignment options in the Beltline and report back to the 2017 March SPC on Transportation and Transit with a recommended Beltline alignment.

### **RECOMMENDATION OF THE SPC ON TRANSPORTATION AND TRANSIT, DATED 2016 DECEMBER 08:**

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That Council approve the Administration Recommendations contained in Report TT2016-0927.

### **PREVIOUS COUNCIL DIRECTION/POLICY**

At the 2016 October 03 Regular Meeting of Council, Report TT2016-0705 (Green Line Quarterly Update and Centre City Recommendation) was approved as follows:

ADOPT, Moved by Councillor Keating, Seconded by Councillor Farrell, that the SPC on Transportation and Transit Recommendations 1, 3, and 4 contained in Report TT2016-0705 be adopted, as follows:

“That Council:

1. Receive this quarterly report for information;
3. Direct Administration to report back with a Green Line quarterly update at the 2016 December SPC on Transportation and Transit;
4. Direct that Attachment 2 remain confidential pursuant to Section 24(1)(g) and 25 (1)(c)(ii) of the Freedom of Information and Protection of Privacy Act until all Green Line contracts and legal agreements are signed; and

ADOPT, AS AMENDED, Moved by Councillor Keating, Seconded by Councillor Farrell, that the SPC on Transportation and Transit Recommendation 2 contained in Report TT2016-0705 be adopted, as amended, as follows:

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That Council:

2. Approve the recommended underground alignment (Option D) for the Bow River crossing connecting downtown from north of 16 Avenue North to 10 Avenue South (Attachment 1) in principle;

ADOPT, Moved by Councillor Keating, Seconded by Councillor Farrell, that the SPC on Transportation and Transit Recommendation contained in Report TT2016-0705 be adopted, as follows:

That Council:

5. Direct Administration to continue to investigate an underground alignment option for 12 Avenue South, include this option in public engagement conversations, and continue to co-ordinate with area stakeholders to ensure the Green Line is integrated with future developments.”

### **BACKGROUND**

The long term vision for the Green Line LRT is nearing completion and the most significant work to conclude this phase of the program is the alignment and station placement for the Beltline.

It was Administration’s intent to provide an alignment recommendation for the Beltline section to the 2016 December SPC on Transportation and Transit. With multiple ongoing planning initiatives underway in Victoria Park, the Beltline alignment recommendation will be deferred to 2017 March in order to further understand and evaluate the 12 Avenue South alignment options.

Funding commitments and the associated financing terms continue to be unknown from the Government of Canada and the Province of Alberta. In anticipation of the funding being confirmed Administration continues to advance the Green Line long term vision in preparation for a funding application submission in early 2017.

### **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

Administration continues to advance all segments of the Green Line LRT in order to deliver a consistent level of planning, design and cost estimation. Establishing the functional alignment and stations for the Green Line LRT vision from 160 Avenue North to Seton is key for determining a staged implementation, planning future project extensions, and informing funding requests.

Administration evaluated four alignment options for the Beltline section connecting the downtown and southeast alignments. The evaluation of the Beltline options included identifying constraints and opportunities, comprehensive functional level designs, cost estimates, and risk assessments for each of the four options. Preliminary geotechnical investigations were undertaken, and additional geotechnical work will be undertaken to inform the design and associated risks. Environmental site assessments (ESA), biophysical impact assessments (BIA), and heritage resource impact assessments (HRIA) have been conducted for each of the four options. Complementing the technical analysis and informing the evaluation, was input from the public, development industry, and City policies.

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One of the keys to the Beltline alignment recommendation will be further coordination with ongoing Victoria Park planning and development initiatives. Envisioned is an alignment starting at 12 Avenue and 2 Street Southwest connecting to the Council approved southeast alignment via the north side of The City's Victoria Park Transit Facility. Further strategic discussions are required with key stakeholders in the Victoria Park area including Beltline Neighbourhoods Association (BNA), Calgary Municipal Lands Corporation (CMLC), Calgary Sports and Entertainment Corporation (CSEC), Calgary Stampede, Victoria Park Business Improvement Area (BIA) and Remington Development Corporation. Coordination with these stakeholders is essential to understanding the area vision and to ensure the Green Line LRT supports the master plan for the area in the best possible manner.

### **Green Line Centre City: Downtown Section**

This segment is from 24 Avenue North to 10 Avenue South and includes the Bow River crossing.

#### Design

The design for the underground alignment (Option D) is progressing towards preliminary design. As a result of public engagement a revised portal location has been identified north of 16 Avenue North, reducing the length of the tunnel by approximately 400m. The station locations are also currently being reviewed for final placement and connectivity.

#### Cost Estimate

Cost estimates for the downtown section continue to be refined as design progress. The current opinion of probable costs is based on a Class 3 estimate (-30% to +50%).

#### Public Engagement

The Crescent Heights/Tuxedo Park design charrette was held in 2016 September. Through community meetings and online engagement a community vision for this section of the Green Line corridor was developed.

Administration continues to meet with stakeholders along the corridor to discuss opportunities to integrate the Green Line with existing and future developments.

#### Land

Land impacts and costs continue to be assessed.

#### Risks

Technical risks currently being reviewed include geotechnical, hydrotechnical, utility relocations, station access and integration into public realm and private development.

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### Next Steps

Administration will continue to refine design, cost estimates, and proceed with land acquisitions as identified. Stakeholder engagement will also continue including station area workshops and discussions with building owners/managers, and development industry partners to identify opportunities to integrate stations with existing and future developments along 2 Street Southwest in the downtown.

### **Green Line Centre City: Beltline Section**

This segment is from 10 Avenue South to the Inglewood/Ramsay Station.

### Design

Administration evaluated the following four alignment options presented at the SPC on Transportation and Transit committee (TT2016-0705):

- 10 Avenue S surface, connecting to previously approved alignment adjacent to Canadian Pacific Railway (CP)
- 10 Avenue S tunnel+surface, connecting to previously approved alignment adjacent to CP
- 12 Avenue S surface, connecting to previously approved alignment adjacent to CP via the north side of The City's Victoria Park Transit Facility
- 12 Avenue S tunnel+surface, connecting to previously approved alignment adjacent to CP via the north side of The City's Victoria Park Transit Facility

The results of this analysis are available in Attachment 1. The analysis indicates 12 Avenue South as the highest ranked corridor.

Further refinement of the 12 Avenue South alignment options and in order to closely reflect the ongoing plans for redevelopment in Victoria Park, the following guiding principles developed with the Victoria Park stakeholders, will be used:

- ***Establish a common vision and masterplan for the area***
  - The City will work with the community and key stakeholders to develop the best plan for Green Line in the Beltline.
  - Green Line LRT is important to meet the City's rapid transit and transportation needs.
  - Urban realm (creating a street vibe) along the alignment through the Beltline will be addressed in the detailed design, once the alignment has been confirmed.
- ***Support development in the area***
  - LRT alignment (portal and stations) will be integrated with future development planned for the area east of Macleod Trail Southeast. This includes consideration of:
    - Land-use and development in Victoria Park.
    - Future plans for the Stampede grounds and the Saddledome.

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- Future plans for the Calgary Transit bus facility to best integrate with future development and for operational efficiency.
- ***Flexibility***
  - Local access and circulation will continue to be accommodated through traffic analysis and suggestions to optimize traffic movement, with emphasis on the area east of MacLeod Trail Southeast and access/egress to Stampede grounds.
  - Cycling access in the Beltline, currently a pilot project cycle track on 12 Avenue South and 5 Street Southwest, may be reconfigured with construction/implementation of Green Line LRT.

### Cost Estimates

Cost estimates for the Beltline options continue to be refined as design progresses. The current opinion of probable costs is based on a Class 5 estimate (-50% to +100%).

### Public Engagement

Administration is working closely with stakeholders to coordinate the planning and design of the Beltline alignment section. Open houses and online engagement over multiple phases have garnered over 2300 comments and submissions. Meetings and workshops are currently ongoing with directly impacted stakeholders in the area and include regular meetings with the Victoria Park stakeholders to coordinate planning and share information. Working sessions, initiated in 2016 October, will continue through to 2017 to develop a recommended Beltline alignment.

Administration is also working closely with City projects, such as the 9 Avenue Southeast bridge replacement project to ensure a coordinated approach to infrastructure delivery.

### Land

Land impacts and costs continue to be assessed as part of the different alignment options.

### Risks

Different alignment options will have a significant impact on the ability to develop the area. The alignment recommendation will need to consider the ultimate build-out of this area including mobility and accessibility.

### Next Steps

Administration continues to meet with key stakeholders, and refine design and cost estimates. Administration will report back with a recommended alignment for the Beltline in 2017 March, including an evaluation of the risks, and an economic analysis of the options.

### **Green Line North**

This segment is from 24 Avenue North to 160 Avenue North (Keystone).

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### Design

Design is progressing towards preliminary design, based on technical input and the results of public engagement to date.

### Cost Estimates

Cost estimates continue to be refined as design progresses and the current opinion of probable costs are based on a Class 5 estimate (-50% to +100%).

### Public Engagement

The 40 Avenue North Transit Oriented Development (TOD) charrette was held in 2016 October. The sessions were attended by approximately 50 participants for each of the four public sessions as well as 75 online submissions were received. The applicant for the former Highland Park Golf course and members of the Corporate Planning Applications Group (CPAG) reviewing the application attended the charrette.

### Transit Oriented Development and Land Use Policy

The 40 Avenue North and 64 Avenue North station charrette reports are currently being finalized as part of the functional planning. Administration has shared the feedback from the participants of the 40 Avenue North charrette and the resulting Transit Oriented Development concept plan with the CPAG team to inform the ongoing review of the application.

### Land

Land impacts and costs continue to be assessed based on the developing functional design.

### Risks

A quantitative risk workshop is planned for early 2017. This process will allow Administration to further refine cost estimates related to the north segment.

### Next Steps

A report back on the technically preferred north alignment will be presented to the public in 2017 January including station locations, access and circulation, grade separation, and track alignment. The recommended functional alignment and station design will be presented to the SPC on Transportation and Transit no later than Q2 2017.

Engagement on a Green Line Urban Integration (GLUI) document titled "Green Line in my community" is planned for communities in the North in 2017 January. The public will be able to see how their input from the Station Area Workshops and Charrettes have been incorporated into aspects of the Green Line LRT.

### **Green Line Southeast**

This segment is from the Inglewood/Ramsay Station to Seton.

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### **Design**

Design efforts continue to progress towards development of procurement documents. This includes continued refinement of the preliminary design, discussions with developers, adjacent land owners, and further coordination with adjacent City projects.

### **Cost Estimates**

Cost estimates continue to be refined as design progresses and the current opinion of probable costs is based on a Class 3 estimate (-30% to +50%).

### **Public Engagement**

Final public engagement events were held in 2016 November to review the final drafts of the local area plans in the three TOD areas of Inglewood/Ramsay and 26 Avenue SE, Lynnwood/Millican and Ogden, and South Hill.

### **Transit Oriented Development and Land Use Policy**

The draft local area plans are complete for Inglewood/Ramsay, Lynnwood/Millican and Ogden, and South Hill. Finalization of the local area plans is being coordinated with associated planning efforts for the Developed Areas Guidebook and a new mixed-use land use district. A report on the southeast land use policy planning is planned to be presented to Council no later than Q1 2017. Upon Council's approval of the policy plans, implementation of the concepts through City-initiated land use redesignation will begin in 2017.

### **Land**

Administration is actively engaging in negotiations with multiple property owners along the southeast alignment between 4 Street Southeast and Shepard Station, with the goal of reaching a higher percentage of negotiated agreements and limiting the number of expropriations that are ultimately required. To date, Administration has finalized negotiations on 13 property acquisitions including the lands required for the long term maintenance facility at Shepard. Administration will continue to work towards finalizing negotiations on the remaining properties with closings expected throughout 2017 and 2018.

### **Risks**

Negotiations with Canadian National Railway and Canadian Pacific for land required for the Green Line are still ongoing. Administration is working closely with both railways to come to resolution.

### **Construction**

As part of providing short term improvements to transit customers on route 302 BRT, a number of "enabling works" projects have been identified. The first project scheduled to open by end of 2016 December includes intersection improvements at Barlow Trail and 114 Avenue southeast and a temporary transit-only connection from 40 Street southeast to 126 Avenue southeast.

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### Next Steps

Engagement on a Green Line Urban Integration (GLUI) document titled is planned for Southeast communities in 2017 January. The public will be able to see how their input from the station area workshops and charrettes have been incorporated into aspects of the Green Line LRT.

In anticipation of a funding announcement from GreenTRIP and Public Transit Infrastructure Fund (PTIF) Phase 1, design of the enabling works projects will advance. Initial enabling works projects primarily include major utility relocations (southeast and north segment of Green Line), CN and CP rail adjustments, and modifications to Pop Davies Park.

### **Program Schedule**

The Green Line stage gate plan (Attachment 2) is at risk of delays to start construction of the LRT. Administration continues to advance design and public engagement to report back by 2017 June with the full Green Line LRT alignment and station recommendations, transit oriented development (TOD) concept planning, city-shaping framework, and capital cost estimates. Determining the first stage for construction and a contracting strategy is dependent on knowing the scope of work to be delivered based on the long term vision and on the funding and associated financing terms being known. Administration is currently re-evaluating the schedule which will include the potential delays to LRT construction starting and ultimately revenue service.

### **Project Delivery**

Administration is currently evaluating the options for contracting including delivery of detailed design, construction, operations and maintenance. A recommendation may be delayed dependent on the confirmation of available funding and project scope.

### **City-shaping and City-wide policies**

The Green Line provides opportunities to shape communities along the line by planning, designing and building healthy, walkable, integrated, inclusionary, mixed use, and transit supported areas. City Shaping looks to facilitate social and cultural identities, capitalizing on community assets, potential, and quality of life. Administration has undertaken research in areas of importance around social equity, economic diversification and shaping our communities to become more resilient, vibrant and inclusive. The intent is to understand the opportunities around the new line for housing, public health, affordability, education, employment and community services.

### **Stakeholder Engagement, Research and Communication**

Public engagement for the vision phase is nearing completion. Events planned for 2017 include engagement on the functional designs for Centre City and North segments, Green Line Urban Integration (how the Green Line fits into existing communities), and station area workshops for the Downtown and Beltline stations.

### **Strategic Alignment**

The Green Line vision is in accordance with Council's priorities and align with the Government of Alberta's and Government of Canada's strategic objectives.

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### **Social, Environmental, Economic (External)**

The Green Line program will result in city-shaping outcomes which include social, environmental, and economic benefits for generations to come.

#### Social

As a city-shaping initiative, Green Line supports mixed-use and mixed income communities to reach community aspirations for vitality, sustainability and affordability. Mixed-use neighbourhoods are the places where people live, work, play, shop and learn. Mixed income communities are financially accessible to all Calgarians. A major benefit of increasing access to rapid transit is the overall lowering of transportation costs, and the fundamental link between cost and affordability of housing, especially lower income households. Consideration for multi-generational communities and the places where residents can transition through all stages of life ensure a long term, sustainable and resilient plan.

#### Environmental

The City of Calgary has committed to reducing greenhouse gases (GHG) from its corporate operations, through energy efficiency and conservation programs and a shift to using lower carbon and renewable energy sources. Green Line presents opportunities to lead Calgary into the next phase of environmental sustainability and accountability through direct reductions in GHGs through the use of renewable energy, emission gains with fewer internal combustion engines in use, facilitating densification around transit villages and our civic facilities being built to LEED standards.

#### Economic

Investing in Calgary's future results in economic resiliency through job creation, Gross Domestic Product (GDP) growth, with direct benefits resulting from construction, operations, and maintenance, increased property values, increased income tax revenue, savings for households, productivity gains, and contribution to economic diversification. The Green Line LRT will contribute to the economy in Calgary and within Alberta in many ways.

### **Financial Capacity**

#### **Current and Future Operating Budget:**

Impact on the future operating budget is dependent on which staging 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 and presented in 2017 June.

#### **Current and Future Capital Budget:**

The current City of Calgary Green Line LRT funding of \$520 million over 10 years is being used to continue land acquisition and project design in order to be ready for construction using any procurement option. Use of the Green Line LRT funds ahead of a signed commitment of funding from the Federal and Provincial governments could erode the matching contribution limit; however, this erosion of funds could be reduced if the application for funds through GreenTRIP and PTIF Phase 1 are approved.

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### **Risk Assessment**

The Green Line program has many risks that are being tracked and actioned. The following risks are the focus of Administration's ongoing risk management:

#### Funding

- The impact of borrowing costs is very significant and could reduce the available budget for construction by approximately 1/3 of the cost of the project depending on the timeline of grants and borrowing. Staging options that meet the available funding will be provided as additional funding program information becomes available.

#### Timeline

- If key milestones as identified in Attachment 2 are not reached, Administration will be challenged to meet funding application submissions and deliver the necessary work to continue to target a Q3 2019 construction start date.

#### Land Acquisition

- Land acquisition continues to present one of the highest risks to the schedule and cost estimates. Total land cost estimates continue to be reviewed and refined as negotiations proceed and design advances. Administration continues to review each of the proposed design options in order to identify properties that will be required in all scenarios either for construction or strategic acquisition purposes.

### **REASONS FOR RECOMMENDATIONS:**

To provide Council and the public with an update on the status of Green Line activities, including the evaluation of the Beltline alignment options.

### **ATTACHMENTS**

1. Beltline Multiple Account Evaluation Summary Report
2. Green Line LRT Program Milestones