

Green Line Q2 2021 Segment 2 Functional LRT Plan

RECOMMENDATION:

The Green Line Committee receive this report and attachments for the corporate record.

HIGHLIGHTS

- The purpose of this report is to provide Green Line Committee with the results of the segment 2 functional plan as well as the Mobility Studies Plan, Access Management Plan, Streetscape Plan and Bow River Bridge Plan.
- **What does this mean to Calgarians?** Completing the segment 2 functional plan and associated studies confirms and refines the alignment and station locations. Work will continue with developers and landowners towards integrating entrances to underground stations into adjacent developments, both existing and future. The What We Heard report allows Calgarians to see how their input has been in the preparation of the functional plan.
- **Why does it matter?** It is important to Calgarians to continue to be informed on the progress of segment 2 of the Green Line LRT project, including the alignment, the Bow River bridge, the design concept for Centre Street N., the stakeholder engagement process and what the next steps will be.
- **Beltline alignment:** The alignment in the Beltline will remain on 11 Avenue S. in accordance with the approved June 15, 2020 alignment.
- **Segment 2 functional plan:** The functional plan and associated studies and reports for segment 2 refined the alignment and station locations.
- **Bow River Bridge:** Two bridge-forms, a tied arch (arch structure above the bridge deck) and a true arch (arch structure below the bridge deck) will be carried into the next phase of planning and design.
- **Future of Centre St N:** The Green Line will work with the community to explore solutions for business access, parking and impacts relating to alignment through this corridor.
- **Strategic Alignment to Council's Citizen Priorities:** A well-run city
- **Background and Previous Council Direction** is included as Attachment 1.

DISCUSSION

The purpose of the segment 2 functional plan was to refine the alignment of the tracks, establish the station location and confirm the bridge crossings to set the stage to advance detailed design.

The alignment of segment 2 has remained on 11 Avenue through the Beltline in accordance with the approved June 15, 2020 alignment. Station locations and alignment has been refined through functional planning. The location of the Centre Street S. station has shifted west to straddle Centre Street S. The curve from 11 Avenue S.W. to 2 Street S.W., has also been optimized. Within the previously identified window of Olympic Way S.E. to 6 Street S.E., the functional plan locates 4 Street station between 5 Street S.E. and 6 Street S.E.

Planning and design for the relocation of utilities to support segment 2 is underway. A construction management firm has been selected through The City's procurement process and third-party utility companies have started design work. Utility relocation work is scheduled to begin this year.

The Future of Centre Street N Report (Attachment 3). addresses mobility, access management and streetscape along Centre Street N. in the Crescent Heights community. Input was received through public engagement, community meetings and stakeholder workshops. The plan

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addresses prioritizing space for pedestrians around high-volume areas including 16 Avenue and 9 Avenue stations, designing the roadway to accommodate and support movement of local and BRT bus operations, connecting regional pathways and bike routes, accommodating goods movements and local vehicle access.

The Streetscape Master Plan for Centre Street North, also in Attachment 3, is a conceptual design that responds to the current functional engineering design of the LRT corridor and roadway. The space needed for the layout of the LRT and roadway determines the placement of future curb lines, which in turn defines the space available for the streetscape and public realm based on location of existing buildings and property lines along the corridor. Preliminary land acquisitions required for public realm improvements are identified, taking into consideration real estate costs, impacts to existing businesses and uses, and impacts to future development potential. It is anticipated that much of the existing 3.81m bylaw setback for road widening and urban realm improvements will be required along the length of the corridor to accommodate the conceptual streetscape design.

The Bow River bridge plan (Attachment 4) outlines the alignment for the bridge as well as the preferred architectural form, including the main span over the Bow River and the layout of the bridge's multi-use pathway for pedestrians and cyclists.

Next steps:

- Prepare procurement documents for segment 2, including a reference concept design and technical performance requirements.
- Continue progress on utility relocation design and planning and commence utility relocation work.
- Continue property acquisition .
- Advance discussions with landowners to integrate station entrances into existing and future developments.

STAKEHOLDER ENGAGEMENT AND COMMUNICATION (EXTERNAL)

- Public Engagement was undertaken
- Public Communication or Engagement was not required
- Public/Stakeholders were informed
- Stakeholder or customer dialogue/relations were undertaken

Engagement and communications took place between October 2020 and April 2021. A variety of engagement and communications tactics were utilized, including a stakeholder working group, online surveys, virtual workshops, meetings and presentations, digital web-based open houses, in-community sounding boards, postcards, signage, social media and email newsletters.

The first phase of engagement included listening to Calgarians and exploring their perspectives on opportunities and challenges related to the various project areas. The feedback from the first phase was used to inform initial concepts and ideas, which were presented back to the community for evaluation in the second phase of engagement. The final phase included information sharing, reporting back on how community input has informed the final recommendations and sharing the final project recommendations with the public before Green Line Committee.

Throughout the entire project, Green Line held over 46 public sessions and stakeholder meetings and conducted 13 online surveys. In total, over 60,000 people were made aware of

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the project through our communications campaigns, we connected with more than 18,000 participants through our engagement opportunities (online portal and sessions) and received over 1,600 ideas and contributions across all phases.

At a high-level, some of the themes heard through engagement included a desire for an enhanced Bus Rapid Transit (BRT) service, concerns about the mobility network in the future, strong desire for a vibrant and walkable Centre Street North and concerns about impacts within Crescent Heights. The team also received a mix of visions for the Bow River LRT bridge, that incorporate convenient access and viewpoints, while being designed in an environmentally sensitive way.

IMPLICATIONS

Social

The Green Line will extend Calgary's public transit network, providing increased access for all Calgarians. The Green Line will help connect Calgarians from across the city to employment hubs and destinations such as the River's District entertainment area.

The Green Line will deliver long-term outcomes for Calgarians by improving mobility with fast, frequent and reliable transit service; reducing congestion and travel times; enhancing connectivity between people and places; creating a safe, accessible, comfortable and convenient transportation experience; contributing positively to the urban realm, community development and revitalization; contributing to the vitality of businesses in the community; and protecting the environment.

Environmental

The Green Line is expected to save 30,000 tonnes of greenhouse gas (GHG) emissions, equivalent to 6,100 vehicles.

Climate resilience will be taken into consideration throughout the planning and design of the Green Line LRT project. For instance, stations and tunnels will be designed to meet flood mitigation requirements of a one in 200-year flood event and the Bow and Elbow LRT bridges will be designed to flood mitigation requirements of a one in 100-year flood event. Bridge spans will also be designed without pier placement in the Elbow or Bow Rivers.

Additionally, the portion of the Green Line LRT alignment through the Beltline and downtown will be located underground, increasing the efficiency of land use in these areas. The curve of the alignment from downtown to Centre Street N. has been located to avoid the environmentally sensitive McHugh Bluffs area. The Green Line is vital to keeping Calgarians on the move in the future and has added benefits that contribute to Calgary's economic recovery and resiliency. Green Line is planned for long-term city building opportunities and spurring redevelopment and investment opportunities in Calgary businesses and communities.

Economic

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In consideration of this vision, strategic recommendations included as part of this report were created by integrating both transit and planning considerations. Leveraging transit investments maximizes economic return through providing opportunities for investment and transit oriented development (TOD) along the LRT alignment.

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Service and Financial Implications

The Green Line Program is a \$5.5 billion total program for Stage 1. No new funds are required as part of this report.

RISK

Based upon the work completed to date, the Green Line risk assessment results indicate that the Green Line Program risk exposure remains at the high end of the typical range of other major LRT projects at this stage. The program holds risk in all the common risk categories of an LRT mega-project, but higher risk than is typical has been identified in the following risk areas for segment 2:

- Scope changes and uncertainty with funding
- Procurement and market conditions
- Construction and logistics risk for deep excavation and tunneling
- Public and stakeholder support during construction

ATTACHMENT(S)

1. Attachment 1 – Previous Council Direction
2. Attachment 2 – Segment 2 Functional Plan
3. Attachment 3 – Future of Centre Street N
4. Attachment 4 – Bow River Bridge Plan
5. Attachment 5 – Final Engagement Summary
6. Attachment 6 - Public Submissions

Department Circulation

General Manager	Department	Approve/Consult/Inform
Michael Thompson	General Manager – Green Line	Approve