

REVIEW AND UPDATE OF THE 2012 AIRPORT TRAIL FUNCTIONAL PLANNING STUDY

EXECUTIVE SUMMARY

This report provides an update of the 2012 Airport Trail Functional Planning Study (2012 Study) from 19 Street NE to Barlow Trail NE. The 2012 Study (TT2012-0658), as approved by City Council, recommended a half interchange at 19 Street NE and a full interchange at Barlow Trail NE in Stage 2 (approximately in the year of 2029). These two interchanges were to be reconfigured and reconstructed in Stage 3 to support the future Airport growth. The 2012 Study also conceptually considered a LRT connection between Airport Trail and the airport terminal; however, no investigation of a potential station location at the airport terminal nor a connection alignment was included at that time.

This 2017 update Study revised the two interchange configurations to extend the service life of Stage 2 interchanges and minimized the investment required for Stage 3. The main change to Stage 2 from the 2012 plan is the option of Airport Trail widening to accommodate the LRT connection to airport terminal. The LRT connection was investigated at the conceptual level with the consideration of the alignment and potential station location. The 2017 Stage 2 construction cost is estimated at \$87 million (including \$14 million to widen Airport Trail to accommodate the future LRT). The incremental cost of the 2017 Stage 3 is estimated at \$28 million (note this does not include the property acquisition cost or the future LRT infrastructure costs). The total cost estimate for the ultimate updated plan is estimated at \$115 million, compared to \$240 million in the 2012 Study.

ADMINISTRATION RECOMMENDATION (S)

That the SPC on Transportation and Transit recommends that Council:

1. Approve the Review and Update of the 2012 Airport Trail Functional Planning Study, including the cost estimates and recommendations as summarized in Attachment 1;
2. Direct Administration to acquire, on an opportunity base, the required right of way as shown on page 13 in Attachment 1; and
3. Direct Administration to continue to evaluate the Stage 2 Airport Trail interchanges at 19 Street NE and Barlow Trail NE as candidate projects within Investing in Mobility.

RECOMMENDATION OF THE SPC ON TRANSPORTATION AND TRANSIT, DATED 2017 MARCH 15:

That the Administration Recommendations contained in Report TT2017-0168 be approved.

PREVIOUS COUNCIL DIRECTION / POLICY

At the December 3, 2012 combined meeting of Council, Council approved the following recommendations with report TT2012-0658, Airport Trail Functional Planning Study:

1. Receive this report for information;
2. Approve the Executive Summaries for Airport Trail Functional Planning Studies (east and west segment), including the cost estimates and recommendations summarized on pages 10 and 11 of Attachment 1 and pages 15 and 16 of Attachment 2;

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3. Direct Administration to consider interim transportation upgrades identified in the Airport Trail Functional Planning Study for inclusion within the Investing In Mobility plan, planned for presentation to Council in December 2012;
4. Direct Administration to report back on the potential of amending the Interim Functional Planning Study Plans to include LRT access, so as to protect timing options for introducing LRT into the airport, independent of road construction.

BACKGROUND

Airport Trail is an important road in The City's transportation network and serves as the primary route to the Calgary International Airport (YYC). Airport Trail is currently a six-lane roadway between Deerfoot Trail and Barlow Trail NE. The Calgary Transportation Plan (CTP) currently classifies Airport Trail between Deerfoot Trail and 36 Street NE a skeletal road.

The City and YYC jointly conducted an initial functional planning study for the Airport Trail segment between Deerfoot Trail and 36 Street NE, to determine the interim and ultimate transportation upgrades to provide free-flow operations on Airport Trail. The Study (TT2012-0658) was approved by City Council. In the 2012 Study, it was recommended that a half interchange be built at 19 Street NE and a parclo interchange be built at Barlow Trail NE as Stage 2 (approximately in the year of 2029); and these two interchanges would be reconfigured and reconstructed in Stage 3 as several additional directional ramps from Airport Trail to the airport terminals are required to support the future Airport growth in the long term. Also in the 2012 Study, a Light Rail Transit (LRT) line was conceptually considered between Airport Trail and the airport terminal; however, no further investigation of a potential station location at the airport terminal nor a connection alignment were included.

After the completion of the 2012 study, The City completed the widening of Airport Trail from 4 lanes to 6 lanes between Deerfoot Trail and Barlow Trail NE in 2013; and completed and opened the Airport Trail tunnel to 36 Street NE in 2014. Since the opening of the airport tunnel, Park&Jet moved its operation from land on the north side of Airport Trail to the south side. In addition, YYC revised its master plan with a vision to reserve more lands for future development within the airport campus. YYC and The City discussed these land use changes in several strategic planning meetings and both parties had shown a strong desire to extend the service life for Stage 2 interchanges and minimize the land impacts of the Stage 3 design.

In Spring 2016, YYC and The City jointly developed this update project work scope and YYC took the lead in managing this project. The main goals of this update were to:

1. Revisit and update the future traffic demand;
2. Investigate modified interchange configurations at both 19 Street NE and Barlow Trail NE that would accommodate the land use and traffic growth changes, and;
3. Better define the connectivity of the future LRT system with a potential station at the airport terminal.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

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Interchange Planning:

To set the framework for the 2017 update, new traffic forecasts prepared for analysis on the Green Line LRT project were used. Each stage saw a decrease in overall traffic, compared to the 2012 forecasted values. This was largely due to the assumed introduction of LRT service to the airport. Additionally, increased efforts were made to minimize third party land acquisition for upgrades.

A number of initial concepts were reviewed in terms of basic functionality. From that initial work, two specific concepts emerged: a “directional” concept which bore resemblance to the 2012 Stage 3 plan; and, a “trumpet” concept that fit a third independent interchange between 19 Street NE and Barlow Trail NE dedicated to serving YYC traffic. Following a comparative assessment, YYC and The City agreed that the directional concept should be carried forward for refinement.

The updated Stage 3 interchanges are illustrated in Figure ES-3 on page 9 in Attachment 1. This plan provides for free-flow traffic between the terminal and Airport Trail eastbound and westbound. In the long term, the traffic flow in and out the YYC in this area will maintain good operations. When developing the updated Stage 2 plan, the concept was developed so that YYC could maintain existing circulation system, using Barlow Trail NE as the primary access point, for as long as possible. Therefore, the updated Stage 2 plan was developed and assessed after reviewing several options that could be developed with minimal impact to YYC operations. The updated Stage 2 plan is illustrated in Figure ES-4 on page 10 in Attachment 1. The overall airport access and internal circulation systems remain the same as they exist today. The Airport Trail widening provides the option to accommodate the LRT connection as early as in Stage 2.

Based on the analysis, the proposed updated Stage 2 interchange plan would provide sufficient capacity through at least the late 2030s, and possibly even into the early 2040s. The upgrade to the updated Stage 3 plan would be based on actual traffic growth and observed operating conditions in the field.

The updated land required for the revised design is shown in Figure ES-6 on page 13 in Attachment 1.

Light Rail Transit (LRT)

The 2012 Study showed a dotted single line representation of a possible future LRT connection, running north-south and “stubbed” into the passenger terminal building; however, no further investigation of a potential station location at the airport terminal nor a connection alignment was included.

The proposed updated LRT connection is shown in Figure ES-7 on page 16 in Attachment 1. The LRT would be generally running at-grade in the median of Airport Trail in the study area, with grade separation developed for both eastbound and westbound trains, passing over the lanes of eastbound Airport Trail then connecting to the airport terminal. A terminal station was conceptually designed and located in the gap between Parkade P2 and the Delta Hotel. The elevated LRT platform was set at about the level of the fourth floor of Parkade P2 and its

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existing pedestrian bridge linkage to the passenger terminal building. Please note that the LRT connection can be built in either the updated Stage 2 or the updated Stage 3, depending on the available funding.

This study established a feasible LRT alignment and footprint for the station area. Additional planning work is needed in future stages of planning regarding station design, including pedestrian linkages, and the structural details relative to supporting the elevated station in particular given the existing development and major utility tunnel in the area.

Stakeholder Engagement, Research and Communication

As the major stakeholder and City Partner, this study was led by the Calgary Airport Authority. Several meetings were held with the representatives of the key land owner (Park&Jet/Budget) to discuss their plans and how to minimize the impact on their land to keep the current Budget car rental company operating at its current location.

Based on these meetings, the updated plans appeared to be well received as the 2017 updated designs significantly reduced the amount of private land required from Park&Jet/Budget when compared to the 2012 plans.

Strategic Alignment

The study objectives were in alignment with Calgary Transportation Plan (CTP) and the 2020 Sustainability Direction including:

1. Transportation Goal #1 by providing better connectivity for the Calgary Airport to the surrounding road net;
2. Transportation Goals #2, #3 and #4 by providing the Calgary Public Transit connectivity to the Airport;
3. Transportation Goal #5 to promote economic development by providing smooth and efficient movement of people and goods;
4. CTP Objective 3.3 through the Light Rail Transit service;
5. CTP Objective 3.6 by improving quality of service by reducing travel times; and
6. 'Improving Goods Movement' 2020 objective by providing free-flow operations on Airport Trail.

Social, Environmental, Economic (External)

The recommendations will improve auto and goods movement, improve the connectivity and accessibility for all transportation modes including pedestrians, cyclists and public transit, and remove the bottleneck locations in the vicinity areas around the Calgary Airport. The anticipated benefits include travel time reduction, congestion reduction, safety improvements and reduced vehicle emissions.

Financial Capacity

Current and Future Operating Budget:

There are no current or future operating budget impacts associated with this report. However, future operating budgets would require incremental increases as a result of the additional infrastructure investments that were studied in this report should future capital be allocated to

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these projects. The additional operating costs of the proposed upgrades have not been quantified.

Current and Future Capital Budget:

The table below provides the information that was agreed between The City and YYC in 2012.

2012 Airport Trail Functional Planning Study Cost Estimates

| | Stage 2, \$ Million | Stage 3, \$ Million | Total, \$ Million |
|----------------|---------------------|---------------------|-------------------|
| Cost Estimates | 71.5 | 154.9* | 226.4 |

* Additional \$154.9 million is required to upgrade in Stage 3.

The total project was estimated to cost \$226.4 million in 2012 dollars. The City's costs are included in the current Investing in Mobility (IIM) plan as an unfunded project and as such is outside the current Action Plan and Capital Budget timeframe.

This 2017 study provides an update of magnitude estimates for the new Stage 2 and the Stage 3 designs, shown as follows:

2017 Updated Airport Trail Functional Planning Study Cost Estimates

| | Updated Stage 2, \$ Million | Updated Stage 3, \$ Million | Total, \$ Million |
|----------------|-----------------------------|-----------------------------|-------------------|
| Cost Estimates | 87* | 28** | 115 |

* It includes the cost estimate of \$14 million for the Airport Trail widening to accommodate the LRT connection to airport terminal;

** If Stage 2 is constructed first (as opposed to going directly from the existing condition to Stage 3); then the incremental cost would be \$28 million at Stage 3. If Stage 3 plan (long term plan) is constructed at first, then the total cost will be \$115 million.

The total construction cost of the updated design was estimated to cost \$115 million in 2016 dollars. For comparison purpose, the total cost estimate of the 2012 Study would be \$240 million in 2016 dollars when applying an average construction inflation rate of 1.49 percent per year. Please note the cost estimate does not include the property acquisition cost or the future LRT infrastructure costs. The capital budget for the land acquisition cost can be potentially funded using the Transportation Infrastructure future land account (Program 221), or similar appropriate funding sources.

There are no current or future capital budget impacts associated with this report. However, Administration is recommending that the two interchanges and the associated road works continue to remain as a candidate project within the next update of Investing in Mobility.

Risk Assessment

Estimates for the proposed updates are based on the prevailing construction costs. The estimates for ultimate horizon should be reviewed if the construction funding will only be available in the future. Additional discussions need to be held with both YYC and the private land owners regarding the timing of land acquisition.

REASON(S) FOR RECOMMENDATION(S):

The recommended plans are consistent with the previous work done for Airport Trail. Frequent meetings and consultations were held with Calgary Airport Authority and the key stakeholder before finalizing the details. The proposed updated interchanges for Stage 2 and Stage 3 meet the transportation demands forecasted for this corridor and provide a more cost effective

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| approach to reconstructing this corridor, reduce land requirements and facilitate the future LRT connection. |
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ATTACHMENT(S)

Review and Update of the 2012 Airport Trail Functional Planning Study, Executive Summary