Valley Line West LRT

Crossing Assessments and Concept Plan Amendments

Recommendation:

That amendments to the West LRT Concept Plan: Lewis Estates to Downtown, as outlined in Attachment 7 of the March 21, 2018, Integrated Infrastructure Services report CR_5165, be approved.

Previous Council/Committee Action

At the January 23, 2018, City Council meeting, the following motions were passed:

- That a non-statutory public hearing on the Valley Line West LRT and Metro Line LRT (NAIT to Blatchford) proposed Concept Plans be held at the March 21, 2018, Non-Regular City Council meeting at 9:30 a.m.
- That Administration, as part of the March LRT grade separation report, provide an analysis of transitioning Stony Plain Road west of 149 Street into a one-way road westbound (as suggested by the Stony Plain Road Business Improvement Area), and preliminary, high level, network analysis of other couplet options, if possible.

At the April 13, 2016, Transportation Committee meeting, the following motion was passed:

 That Administration engage with impacted stakeholders, including developers and landowners, to provide them with opportunities for input during grade separation assessments for intersections at 149 Street and Stony Plain Road, 178 Street and 87 Avenue, and 137 Avenue and 113A Street during the next level of design.

Executive Summary

In September 2016, the City of Edmonton received funding through the Government of Canada's Public Transit Infrastructure Fund to update the Valley Line West preliminary design and to prepare the project for construction procurement in 2018. Preliminary design for the 14-kilometre west segment of the Valley Line was completed in 2013, involving a five-stage public engagement process. The preliminary design update in 2017 provided the opportunity to assess and incorporate new information such as design requirements, plans and policies, land use and development potential, and further public engagement.

In June 2017, City Council approved Integrated Infrastructure Services report CR_4512 (*LRT Crossing Assessment Framework*), which established the weighted criteria and process to guide objective decision making on grade separations of current and future LRT projects. Five intersections along the Valley Line West LRT corridor were identified for review and assessment. Grade separated LRT crossings at 178 Street and 149 Street are recommended.

In addition, in response to a motion made at the January 23, 2018, City Council meeting, Administration developed two possible options for Stony Plain Road one-way westbound operation, between 149 Street and 156 Street. These options are provided for information but are not recommended for further review.

Based on the preliminary design update and the LRT crossing assessments, updates to the 2013 Valley Line West preliminary design are required. Of the identified changes, seven areas along the LRT corridor deviate from the previous 2011 Council approved West LRT Concept Plan. An amendment to the 2011 Concept Plan is required in order to incorporate these changes in future Valley Line West LRT design and procurement.

Report

Project Overview

The Valley Line is a 27-kilometre urban-style, low-floor LRT line that will operate between Mill Woods in southeast Edmonton and Lewis Farms in west Edmonton. The urban LRT vision is based on integrating LRT sustainably within and between accessible and walkable communities while shaping future development. The Valley Line is designed to be principally a barrier-free system that operates in the context of its surroundings in terms of speed of the roadways and fit within the communities that it serves.

The Concept Plans for the southeast and west portions of the Valley Line were approved by City Council on January 19, 2011, followed by the approval of the downtown portion on February 15, 2012. Preliminary design for the entire line was completed in 2013, which included an extensive five-stage public engagement process.

The Valley Line was separated into two stages for project delivery: Valley Line Southeast (between 102 Street downtown and Mill Woods Town Centre) and Valley Line West (between 102 Street downtown and Lewis Farms Transit Centre).

Valley Line Southeast is currently under construction. City Council designated Valley Line West as one of the top two priorities for LRT expansion, with Metro Line (NAIT to

Blatchford) being the other, based on the information provided in the Integrated Infrastructure Services report CR_3314 (Long Term Funding Plan for the LRT - Strategic Options, Extension Planning and Proposed Stages of Construction) on May 3, 2016.

In September 2016, the City of Edmonton received funding through the Government of Canada's Public Transit Infrastructure Fund to update the Valley Line West preliminary design, determine the most appropriate project delivery method, develop a business case for construction funding, and ultimately ensure that the project is ready for construction procurement in 2018. Currently, \$28.6 million is allocated to the Valley Line West project to complete this scope of work with an additional \$150.6 million allocated for land acquisition.

Preliminary Design Update

The Valley Line was developed based on an urban style low-floor design that promotes improved integration between transportation access and land use, and provides greater accessibility to public transit while minimizing barriers and infrastructure footprint. This design approach is reflected in the Transportation Master Plan, Municipal Development Plan and the LRT corridor evaluation criteria approved by City Council in December 2008.

The Valley Line West preliminary design update involved scanning the 14-kilometre LRT corridor to identify areas of change since 2013; assessing new information such as design requirements, plans and policies; and reconnecting with the public and stakeholders to gather feedback. The preliminary design review identified proposed areas of major and minor change.

Valley Line West LRT Crossing Assessment

In June 2017, Council approved Integrated Infrastructure Services report CR_4512 *(LRT Crossing Assessment Framework)*, which established the weighted criteria and process that would guide decision making on grade separations of current and future LRT projects. Five intersections along the Valley Line West LRT corridor were identified for review and assessment. Intersection assessments were conducted in conjunction with preliminary design review.

<u>Attachment 1</u> provides a summary of the LRT Crossing Assessment Framework initial screening graph along with weighted criteria to support evaluation of crossing options.

Applying the crossing assessment framework on the approved Valley Line West concept design, five intersections were identified for review and assessment:

• 87 Avenue and 178 Street,

- Stony Plain Road and 149 Street,
- Stony Plain Road and 142 Street,
- 104 Avenue and 109 Street, and
- 104 Avenue and 107 Street

An LRT crossing assessment has been conducted for each of the above intersections. Comparative analysis was carried out for design options at each location and the top performing options are presented in <u>Attachments 2</u>, <u>3</u>, <u>4</u> and <u>5</u>. The recommendation for each location is presented below. Recommendations for 87 Avenue and 178 Street and Stony Plain Road and 149 Street intersections deviate from the current Council-approved West LRT Concept Plan.

Location	Recommendation	Concept Plan Amendment
87 Avenue/178 Street	Elevated LRT guideway, south alignment	Yes
Stony Plain Road/149 Street	149 Street Underpass, LRT at-grade centre alignment	Yes
Stony Plain Road/142 Street	At-grade LRT, north alignment	No
104 Avenue/109 Street	At-grade LRT, centre alignment	No
104 Avenue/107 Street	At-grade LRT, west side of 107 Street to centre of 104 Avenue	No

Stony Plain Road One-Way Operation Options Review

In response to a motion made at the January 23, 2018, City Council meeting, Administration reviewed options for Stony Plain Road one-way westbound operation west of 149 Street. Revising Stony Plain Road to a one-way westbound operation between 149 Street and 156 street could create a roadway couplet between 100 Avenue (eastbound) and Stony Plain Road (westbound).

Two one-way options were considered:

- 1. One 5-metre westbound lane and wider sidewalks with LRT trackway along the south side of Stony Plain Road, and
- 2. One 3.55-metre westbound lane and a 2.50-metre on-street parking lane with LRT trackway along the south side of Stony Plain Road.

Based on a review of the one-way westbound operation, the LRT trackway is best located along the south side of Stony Plain Road in order to minimize the number of track crossings of the westbound lane. With this design, the sidewalk along the south

Valley Line West LRT Crossing Assessments

side of Stony Plain Road would be widened to provide a buffer to improve pedestrians' experience. The option to provide two westbound lanes is not considered as it would require approximately a 1-metre to 1.5-metre strip of additional property along the north side of Stony Plain Road.

The advantages and disadvantages of each option are summarized in <u>Attachment 6</u> of this report.

Concept Plan Amendment Recommendations

Based on the preliminary design review and the LRT crossing assessments for Valley Line West, updates to the 2013 Valley Line West preliminary design are required. Of the identified changes, seven locations deviate from the previous 2011 Council approved West LRT Concept Plan. An amendment to the 2011 Concept Plan is required in order to incorporate these changes in future Valley Line West LRT design and procurement.

A summary for each of the seven areas, and the recommended change is outlined below. Additional details are available in <u>Attachment 7</u> of this report.

Location	2018 Concept Plan Amendment Recommendation	Approved 2011 Concept Plan	
Lewis Farms LRT terminus site, 87 Avenue/West of Anthony Henday Drive	Adjust location of LRT Stop and LRV storage facility, increase size of Park and Ride facility to approximately 900 stalls	LRV storage facility located adjacent to LRT Stop, Park and Ride facility with approximately 275 stalls	
87 Avenue/178 Street	Grade separation, elevated LRT guideway over 178 Street along the south side of 87 Avenue	At-grade LRT crossing 178 Street along the south side of 87 Avenue	
Jasper Place Transit Centre	Maintain existing transit centre location west of 156 Street	Relocate Jasper Place Transit Centre to the southeast corner of Stony Plain Road/156 Street	
Stony Plain Road, 155 Street to 156 Street; 156 Street, Stony Plain Road to 99 Avenue; and 156 LRT Stop	At-grade track alignment with a 90-degree turn from the centre of Stony Plain Road to the west side of 156 Street, transitioning back to the centre of 156 Street at 99 Avenue.	At-grade track alignment from the centre of Stony Plain Road, diagonal connection between 155 Street and 100a Avenue, to centre alignment on 156 Street.	
	Relocate 156 Street LRT Stop to the west side of 156 Street, south of 100a Avenue	156 Street LRT Stop located in southeast corner of Stony Plain Road/156 Street, adjacent to relocated Jasper Place Transit Centre.	

Stony Plain Road/149 Street	Grade separated, urban interchange separating vehicle traffic from centre-running at-grade LRT on Stony Plain Road from 149 Street north-south traffic	At-grade LRT crossing 149 Street along the centre of Stony Plain Road	
124 Street LRT Stop	Relocate 124 Street LRT Stop one block east, centred on 123 Street	124 Street LRT Stop on Stony Plain Road, centred on 124 Street	
104 Avenue LRT sidetrack, 109 Street to 111 Street	Relocate sidetrack to the median of 104 Avenue, between 109 and 111 Street		

Budget/Financial

The recommended Concept Plan amendments, as summarized in this report, would have an impact to the overall Valley Line West project budget. The Valley Line West capital construction cost is currently estimated at \$2.24 billion. This project cost estimate includes the seven design recommendations noted above and factors in inflation assuming a construction start in 2019. An updated project cost estimate will be available upon finalization of procurement approach, risk assessment and finance model.

Public Engagement

Public engagement has shaped the development of the Valley Line, with thousands of participants in dozens of public engagement events in the corridor selection and concept planning phases. These public engagement activities from 2009 to 2013 drew attention to a number of key concerns to be considered in the design, including:

- LRT should be located conveniently but minimize impacts to neighbourhoods.
- The needs of the LRT, pedestrians and cyclists should be addressed in a way that keeps traffic impacts to a minimum.
- Property impacts and acquisitions should be kept to a minimum.
- As much as possible, accesses should be maintained for pedestrians, cyclists and vehicles.
- Snow removal must be maintained.
- Trees and landscaping are important.

Additional public engagement was undertaken in June and November 2017 and in January 2018 to obtain citizen input for consideration in the Valley Line West preliminary engineering update and intersection crossing assessments. Public engagement results informed the LRT Crossing Assessment Framework recommendations and helped Administration identify and understand local context.

With the widespread implications of changes to the Concept Plan, a total of five broad-based public information and engagement sessions were held in three parts, supported by online engagement through the City's website, direct outreach to key stakeholders, and meetings with five Valley Line West Citizen Working Groups established in 2017.

Part 1

Two sessions were held in June 2017 to identify issues, opportunities and considerations in the assessment of LRT crossings at Stony Plain Road/149 Street and 87 Avenue / 178 Street. With 223 attendees and 146 feedback submissions in two sessions, the following key themes and concerns stood out:

Session 1 (Focus on Stony Plain Road/149 Street crossing)

- Road congestion (particularly the loss of two vehicle lanes on Stony Plain Road)
- Impacts on local residential neighbourhoods, including access, non-resident parking and short-cutting; also visual impacts in the local context
- Business impacts, including access and parking
- Significant preference for a grade separation at this location

Session 2 (Focus on 87 Avenue/178 Street crossing)

- Considerable existing congestion on both roads and in the intersection itself, along with a high collision history
- Residential neighbourhood impacts, including access, non-resident parking and short-cutting
- Adjacent property impacts, including noise
- Overwhelming preference for an elevated LRT crossing

Part 2

Two sessions were held in November 2017 to provide a status update on various refinements being developed for the LRT preliminary design, report on the crossing assessments (including what was heard in the previous engagement, recommendations, and additional options), and obtain further input to help inform City Council. With 282 attendees and 106 feedback submissions in two sessions, the following themes dominated:

Session 1 (held in Belmead)

- A tendency to support grade separations in general
- High approval for the new recommendation to grade separate the LRT crossing at 87 Avenue / 178 Street
- Approximately 60% of respondents stated they intend to use the LRT when it is built

Session 2 (held in Grovenor)

- General support for grade separations at major intersections
- Many remain critical of past corridor selection decisions and want to see this "done right"
- Those intending to use LRT when it is completed outnumbered those who stated they would not

Part 3

One session was held in January 2018 to provide a further status update on refinements to the LRT preliminary design, including crossing assessments (together with what was heard in previous engagements), and to function as a "last call" for input to inform City Council in its consideration of options and recommendations. With 255 attendees and 69 feedback submissions, the major themes were:

- In general, the majority of respondents were supportive or indifferent to all of the recommendations presented. Among those expressing a clear viewpoint:
 - The recommendation to grade separate the LRT crossing at 87 Avenue and 178 Street received the highest approval-to-disapproval ratio.
 - A significant margin of support was received by the recommendations for:
 - Stony Plain Road / 156 Street intersection
 - 149 Street underpass at Stony Plain Road
 - 124 Street stop relocation
 - 104 Avenue sidetrack relocation
 - Viewpoints on maintaining an at-grade crossing at Stony Plain Road / 142 Street were almost evenly divided, leaning slightly toward support.
 - Opinions on the recommendation to maintain an at-grade crossing at 104 Avenue / 109 Street were also almost evenly divided, leaning slightly toward opposition.
- Concerns about traffic congestion remain high, and were often accompanied with a desire for more grade separations than already recommended.
- There are significant ongoing concerns over changes to neighbourhood and business accesses, and their anticipated associated impacts.
- More than 10 percent remain opposed to the City's vision for urban LRT and/or the selected corridor.
- More than half of those respondents who currently use their cars for 90% or more of their current transportation needs intend to use the Valley Line West LRT when it is built.

A more detailed public engagement summary is provided in <u>Attachment 8</u>.

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmontonians use public transit and active modes of transportation						
Outcome(s)	Target(s)					
Edmontonians use public transit and active modes of transportation	Transit ridership	96.9 rides/capita (2016)	105 rides/capita (2018)			
	Journey to work mode	24.7% (2016)	25.9% (2018)			

Corporate Outcome(s): Edmonton is attractive and compact

Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmonton is attractive and compact	Edmontonians' assessment: Well-designed, attractive city	53% (2016)	55% (2018) positive survey responses

Corporate Outcome(s): The City of Edmonton has sustainable and accessible infrastructure

Outcome(s)	Measure(s)	Result(s)	Target(s)
The City of Edmonton has sustainable and accessible infrastructure	Edmontonians' assessment: Access to amenities and services that improve quality of life	67% (2016)	70% (2018) positive survey responses

Risk Assessment

Risk Element	Risk Description	Likelih ood	Impact	Risk Score (with current mitigatio ns)	Current Mitigations	Potential Future Mitigations
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Valley Line West LRT Crossing Assessments

Public Perception	Recommended grade separations and design changes would result in LRT concept plan amendments. West LRT concept plan was approved in Jan 2011. Downtown LRT concept plan was approved in Feb 2012. Subsequent decisions and actions, such as land acquisitions and stakeholder engagement, were made based on approved concept plans.	5 - Almost Certain	2 - Moderate	10 - Medium	Consider public engagement results as part of LRT crossing assessment evaluation process. Present recommendation s to City Council and communicate recommendation to the public.	Communicate results of LRT crossing assessment to the public. Develop and execute engagement plan for newly impacted stakeholders.
Project Management	Recommended grade separation and design changes would result in LRT concept plan amendments. West LRT concept plan was approved in Jan 2011. Downtown LRT concept plan was approved in Feb 2012. Subsequent project decisions and actions, such as preliminary design and cost estimates, were made based on approved concept plans. Concept plan amendment would result in higher project cost and schedule delay.	5 - Almost Certain	2 - Moderate	10 - Medium	Adopt risk-based approach in preliminary design efforts, focusing design effort in areas with less uncertainties first. Continuous monitoring of project scope, cost and schedule.	Assess impact of LRT crossing assessment results and quantify changes in project scope, cost and schedule. Communicate changes with impacted stakeholders and seek additional approvals where necessary.
Project Management	If LRT crossing assessment and concept plan recommendations are not approved or decisions are delayed, this would have a direct impact on project schedule with cost and procurement implications.	2 - Unlikely	4 - Severe	8 - Medium	Carry out assessment following the LRT crossing assessment framework approved by City Council in June 2017.	Assess impact and quantify changes in project scope, cost and schedule. Communicate impacts with impacted stakeholders and seek additional approvals where necessary.

Attachments

- 1. Valley Line West LRT Crossing Assessment Background
- 2. Valley Line West LRT Crossing Assessment Summary of Results -87 Avenue/178 Street
- 3. Valley Line West LRT Crossing Assessment Summary of Results -Stony Plain Road/149 Street

- 4. Valley Line West LRT Crossing Assessment Summary of Results -Stony Plain Road/142 Street
- 5. Valley Line West LRT Crossing Assessment Summary of Results 104 Avenue, 107 and 109 Street
- 6. Stony Plain Road One-Way Operation Options Review
- 7. Valley Line West LRT Concept Plan Recommended Amendments
- 8. Public Engagement Report

Others Reviewing this Report

- T. Burge, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Campbell, Deputy City Manager, Communications and Engagement
- D. Jones, Deputy City Manager, City Operations
- L. McCarthy, Deputy City Manager, Urban Form and Corporate Strategic Development