

**City of Edmonton  
Valley Line Stage 1 – Light Rail Transit (LRT) Project  
Site Location Study Update**

**Final Report**

*Prepared for:*

**LRT D and C  
Transportation Services  
City of Edmonton  
Edmonton, Alberta**

*Prepared by:*

**Spencer Environmental  
Management Services Ltd.  
Edmonton, Alberta**

*Under Contract to:*

**AECOM  
Connected Transit Partnership  
Edmonton Alberta**

Project Number EP - 576

February 2015



# SPENCER ENVIRONMENTAL

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23 February 2015

Our file: EP-576

Dear Ms. Buffalo,

**Re: City of Edmonton River Valley Light Rail Transit (LRT)**  
**Site Location Study Update - Final Report**  
**Your file: 131150741-011 | GB15-02**

On behalf of LRT D and C and as part of ConnectEd Transit Partnership, enclosed please find nine (9) hard copy and five (5) electronic copies (CDs) of the above-mentioned report for your files. This final report reflects the draft report comments received from all city reviewers.

Please contact the undersigned if you require additional information.

Sincerely,

**Spencer Environmental  
Management Services Ltd.**

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-cc: Waqar Syed, LRT D and C, City of Edmonton  
Mark Perry, AECOM, CTP

## EXECUTIVE SUMMARY

In 2013, pursuant to the City of Edmonton's *North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)*, LRT Design and Construction prepared a Site Location Study (SLS) and Environmental Impact Screening Assessment (EISA) for the portion of the Valley Line Stage 1 that will be situated within the North Saskatchewan River Valley (NSRV). City Council approved both reports in September 2013. Through subsequent project planning, including ongoing community group consultation, refinement of select mitigation measures and preparation of P3 procurement documents, eight changes to NSRV project components have been proposed that require adjustment of the approved Project Area shown in the 2013 EISA or involve previously-unassessed activity. These changes require the approved SLS to be updated.

This SLS update addresses the following proposed project component changes:

- Replace the Cameron Ave access as the primary north valley construction access with a west route through Louise McKinney Riverfront Park (LMRP).
- Modify west Project Area boundaries in Henrietta Muir Edwards Park (HMEP) to facilitate removal of a picnic area, protect abandoned Mill Creek and reduce forest impacts.
- Include a small parcel of land to improve options for providing continuous pedestrian access to north terminus of 98 Ave Pedestrian Bridge in HMEP.
- Examine installation of ground anchors at two retaining wall locations.
- Provide lands for re-grading in support of Edmonton Ski Club infrastructure relocation.
- Remove the one-way Muttart Access Road connector, within the existing approved Project Area.
- Shift the location of the approved Muttart Conservatory replacement storage building to integrate with overall conservatory operations.
- Construct a small, temporary trail connector in LMRP.

Each proposed project component change was examined against the 2013 SLS to determine if the changes would alter previous conclusions and result in non-conformance with any goal, objective or policy of *Bylaw 7188*. As the proposed project components are designed to clarify or elaborate on previously identified mitigation commitments and/or ensure the effective implementation of the project, those conformances documented in the 2013 SLS remain relevant. Each proposed component is essential either to facilitate the successful construction and operation of the Valley Line or to fulfill previous mitigation commitments. Analysis of the social, environmental, financial and institutional constraints influencing the location of each proposed change indicated the site-specific location of each component to be essential, largely owing to social and/or environmental constraints.

## Distribution List

# of Hard Copies	# CDs Required	Association / Company Name
6	2	C of E LRT D and C- Waqar Syed
1	2	C of E Sustainable Development- Glinis Buffalo
2	1	Connected Transit Partnership – Mark Perry

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## **1.0 INTRODUCTION**

### **1.1 Background and Need for Site Location Study**

City of Edmonton (the City), led by Transportation Services LRT Design and Construction (LRT D and C), is expanding Edmonton's Light Rail Transit (LRT) network by constructing the Valley Line Stage 1, connecting Downtown to Mill Woods. The project will be delivered through a Public Private Partnership (P3) and is now in the proponent procurement phase. The procurement schedule includes awarding a contract to the successful bidder, hereafter referred to as Project Co, in January 2016.

In 2013, as part of the preliminary planning exercise and pursuant to the City of Edmonton's *North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)*, LRT D and C prepared an Environmental Impact Screening Assessment (EISA) and Site Location Study (SLS) for the portion of the Valley Line situated within the North Saskatchewan River Valley (NSRV), as described in the Reference Design. The 2013 EISA delineated an absolute boundary for construction-related activities, termed the Project Area. The 2013 EISA also included a commitment to subject any future proposed works that would require modification of lands or facilities situated outside of the approved Project Area and within the *Bylaw 7188* lands, to further *Bylaw 7188* review. City Council approved the 2013 EISA and SLS in September 2013.

Project planning, including ongoing community group consultation, refinement of select mitigation measures and preparation of P3 procurement documents, has progressed since summer of 2013. Through this process, several changes to select NSRV project components have been made that require adjustment of the Project Area shown in the 2013 EISA. Through summer of 2014, consultation with City of Edmonton Sustainable Development and Community Services determined that LRT D and C should prepare an amendment to the 2013 EISA and SLS addressing these known changes and that the amendment should be brought back to Council for approval, in the form of updates to those documents. Accordingly, this update to the 2013 SLS has been prepared as a companion document to the 2013 EISA update, in compliance with *Bylaw 7188* requirements.

### **1.2 Site Location Study Objectives**

The purpose of the 2013 SLS was to detail the social, environmental, financial and institutional constraints that make locating the Valley Line and associated infrastructure within *Bylaw 7188* boundaries essential. Responding to project changes and building on the 2013 SLS, this SLS update addresses specific proposed component changes and associated Project Area adjustments. Following are the primary objectives of this SLS update:

- Fulfill *Bylaw 7188* requirements for the Valley Line previously unassessed project components or project changes affecting lands or facilities outside the 2013 Project Area.

- Ensure that proposed project changes conform to the goals and objectives of *Bylaw 7188*.
- Analyze the social, environmental, financial and institutional constraints for each proposed project change to determine if it is essential that each change occurs in the proposed location.
- Prepare a publicly-available report for consideration by City Council.



## **2.0 PROJECT COMPONENT DESCRIPTIONS**

Figure 2.1 illustrates the location and spatial extent of the eight project component changes analyzed in this SLS update and associated EISA update. Six of these changes will be included in the scope of work to be undertaken by Project Co, and two will be undertaken by the City of Edmonton as preparatory (early) works (see Figure 2.1). Following are descriptions of the key aspects of each proposed change.

### **2.1 North Valley Primary Construction Access**

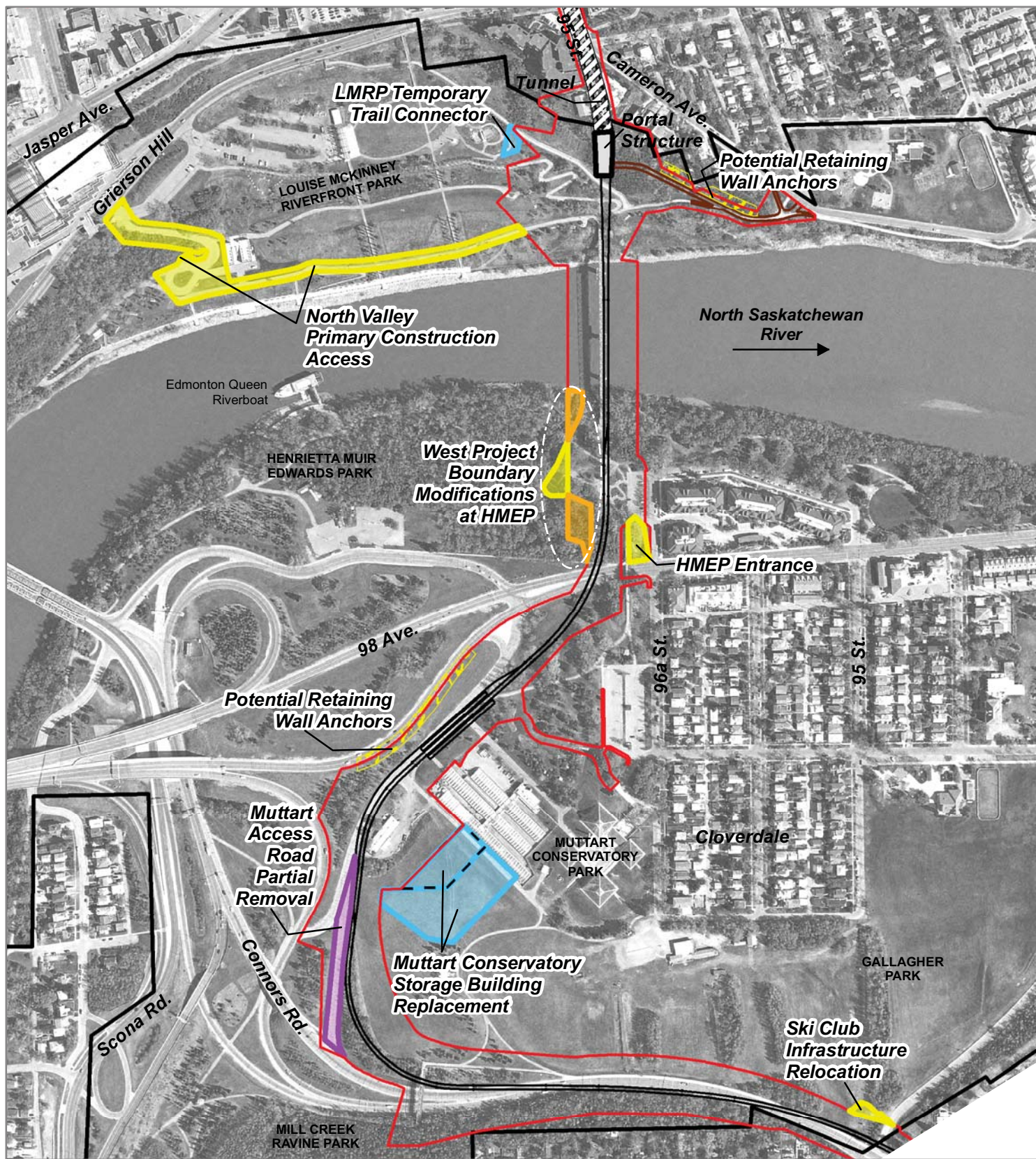
The Valley Line requires a defined construction access route to the north river valley Project Area to enable construction of the LRT tunnel, tunnel portal structure, and Tawatina Bridge, all critical project components. Through recent planning and community group consultation the City has selected a primary construction access route that enters LMRP from Grierson Hill Road, traverses down the slope using an existing, paved maintenance access road, then traverses east across the slope along an existing shared use path (SUP) (Figure 2.1). The original access route identified in the 2013 EISA through the east side of the park, and including use of Cameron Avenue, is now identified as the secondary construction access route, to be used only at select times during construction and on an as-needed basis when the west, primary access route is unavailable to Project Co. The proposed primary construction access route will be temporary in nature but will be in place for the duration of construction in the north valley, estimated at five years. The construction access route must provide effective and safe access, be suitable for high volumes of equipment traffic, including heavy loads, and accommodate two-way construction traffic. For these reasons, Project Co is expected to build up a suitable roadbed within the selected alignment. The access route would not be available for general construction purposes and would be fully restored to pre-existing conditions following construction completion.

#### *Alternatives Considered*

When the City began investigating a primary access route through the west side of LMRP, LRT D and C identified three possible routes, consulted with Community Services and, in November 2013, initiated an alternatives analysis exercise, considering, in brief: constructability, slope issues, existing park conditions and impacts to park facilities and programming. The outcome of the route identification process was adoption of the southernmost option, the one shown on Figure 2.1, as the preferred west park alternative.

### **2.2 West Project Boundary Modifications at HMEP**

The proposed west project boundary modifications at Henrietta Muir Edwards Park (HMEP) are the result of further planning at a finer scale that better reflects the resources present. The changes protect the valued natural features present, better align with natural topography and better accommodate the previously approved removal of aging picnic area infrastructure that has been deemed to be of low value and available for demolition. The modifications involve exclusion of two small parcels that were shown as



## Legend

### Additional Lands

Undertaken by Project Co

### Excluded Lands

Areas Removed from Project Area

### No Lands Change - Undertaken by Project Co

Road Removal/Landscaping

Potential Retaining Wall Anchors (Sub-Surface Work Only)

### Lands Involved in Preparatory (Early) Works

Undertaken by City of Edmonton

Lands Previously Assessed in 2013 EISA

Project Area

Valley Line LRT Alignment (Reference Design)

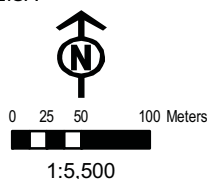
Portal Access Route

Bylaw 7188 Boundary

## Figure 2.1 Project Components Assessed in SLS Update

City of Edmonton LRT Valley Line - Stage 1  
SLS Update

Aerial Photograph Date: May 2012  
Date Map Created: 10 February 2015



within the 2013 EISA Project Area, totaling an area of approximately 1,677 m<sup>2</sup>, reducing the effect of the project on the abandoned Mill Creek reach. The modifications also include the expansion of one area, totaling approximately 800 m<sup>2</sup>, to include the whole of the existing picnic area (including a picnic shelter, associated benches and hard surfaces) that is no longer a desirable park feature. The expanded parcel will be available for general construction activities. Post-construction, the added area will be subject to restoration to a native balsam poplar forest. Overall, the west project boundary modifications at HMEP represent a net reduction, for that locale, in land disturbed by construction activities by approximately 877 m<sup>2</sup>.

### **2.3 HMEP Entrance**

The 2013 EISA Project Area deliberately excluded the small parcel of land situated between the 98 Avenue Pedestrian Bridge and 96A Street (Figure 2.1) as no infrastructure is planned there. Subsequent planning has determined that inclusion of that approximate 763 m<sup>2</sup> area of land would increase Project Co's flexibility to provide the required continuous pedestrian access to the north terminus of the 98 Avenue Pedestrian Bridge in a manner that best suits specific project construction stages. For that reason, that parcel is now proposed to be included in the Project Area.

This small parcel is bordered on three sides by the previously approved Project Area and to the south by 98 Avenue (Figure 2.1) and consists of manicured and un-manicured lawn and plantings. These lands will be available to Project Co for general construction activities.

### **2.4 Retaining Wall Ground Anchors**

Retaining walls are required in the vicinity of the Muttart Stop and along the north valley portal permanent access road in east LMRP. At these two locations, ground anchors are among the options available to Project Co to support retaining walls. The areas where ground anchors may potentially be used are coarsely shown in Figure 2.1. Anchors would be installed by drilling into adjacent undisturbed lands and would extend down and back from the wall at an angle. There would be no surface disturbance on the lands underpinned by the anchors and anchors would not extend beyond lands owned by the City.

### **2.5 Ski Club Infrastructure Relocation**

Subsequent to the 2013 EISA, studies of the effect of the Valley Line on the Edmonton Ski Club have refined the City's understanding of the Valley Line impact and of available and required mitigation means, as requested by Council. The proposed extension of lands is required to mitigate effects on the T-Bar run, specifically re-grading of the T-bar landing area. The proposed work involves removal of existing ski club infrastructure (by the club), re-grading the extended parcel (by Project Co.) and reinstallation of equipment (by the club) on those lands. The parcel in question totals approximately 362 m<sup>2</sup> that support manicured lawn (Figure 2.1). Lands within this parcel will only be used for purposes of mitigating ski club impacts and not for general construction purposes. All re-



grading work will occur outside the ski club operating season and will not impact seasonal operations.

## **2.6 Muttart Access Road Partial Removal**

Realignment of the Muttart Access Road to accommodate the LRT trackway and Muttart Stop was covered in the 2013 EISA; however, the permanent removal of a one-way connector road from Connors Road northbound to the Muttart Access Road, as part of the realignment, was not acknowledged in that document. The road proposed to be removed is approximately 200 m long. This component differs from the others assessed in this addendum in that it requires no changes to the Project Area.

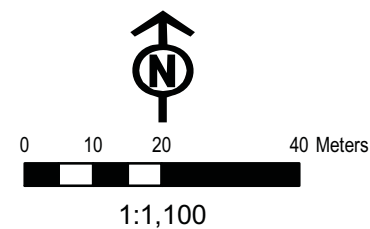
## **2.7 Muttart Storage Building Replacement- Early Work Undertaken by the City**

The approved 2013 SLS concluded that locating the replacement Muttart Storage Building in the vicinity of the existing building and close to the Muttart greenhouses was a and provided a conceptual location for the new building (Figure 2.2). Subsequent planning has since refined that location, considering details such as how best to accommodate a like-for-like storage building, associated parking and delivery truck access requirements in a manner that also responds to the delivery needs of the Muttart greenhouses. The final building location then shifted another 5.8 metres to the southwest so as not to foreclose on the potential for a future park access road and future SUP running between the greenhouses and the storage building (Figure 2.2).

The new building is close to identical in size, shape and function as the building it is to replace. The replacement project includes re-establishment of essential ancillary facilities (a small number of parking stalls and delivery truck turn around). As shown in the figure, much of the disturbance is temporary, required only for regrading to accommodate the new facility. The total project component footprint is 8,795 m<sup>2</sup>, of which approximately 5,966m<sup>2</sup> (68%) will be restored to turf and possibly other landscaping features (i.e. planted beds) (Figure 2.2). Lands to be disturbed consist entirely of manicured lawn and one SUP, situated along the existing west margin of the Muttart working greenhouses. Minor realignment of that SUP will be required. Construction activities associated with this project component will be undertaken by the City in summer and autumn of 2015, prior to commencement of general construction activities associated with the Valley Line.



- 2013 Project Area
- Replacement Muttart Storage Building (as shown in 2013 EISA)
- Valley Line LRT Alignment (Reference Design)



- Project Area
- Construction Footprint
- Existing Contours
- Valley Line LRT Alignment (Reference Design)

\*\*Potential for some additional landscaping features near new building

## Figure 2.2 Muttart Storage Building Replacement Site Plan

City of Edmonton LRT Valley Line - Stage 1  
SLS Update

Aerial Photograph Date: May 2012  
Date Map Created: 10 February 2015

## **2.1 LMRP Temporary Trail Connector – Early Work Undertaken by the City**

To reduce the impact of the construction period on LMRP trails and facility use, the City proposes to construct a short, temporary connector trail just west of the Project Area in the Chinese Gardens (Figure 2.1). The temporary trail will connect the western portion of the primary north-south SUP to an established trail in the Chinese Garden, eliminating trail dead ends and allowing pedestrians and cyclists to circulate through the broader network of park trails situated west of the main LRT project corridor. The connector trail was strategically located to be situated in the vicinity of a main trail closure and to achieve the intended effect using only a short temporary trail. The proposed temporary trail will be only 15 m in length and 1.5 m wide and will have a total disturbance footprint of approximately 45-50 m<sup>2</sup>. The connector trail will not be paved. The trail will be installed prior to commencement of Valley Line construction and removed following SUP reopening. Landscaping will return the area to its pre-disturbance condition. This work will be undertaken directly through Community Services and not by Project Co, in late summer or autumn of 2015.



### **3.0 CONFORMANCE WITH NSRV ARP**

The *North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)* outlines the history and intent of the Plan as well as its goals, objectives and policies. The 2013 SLS examined how the *overall* Valley Line project conformed to those goals, objectives and policies. As part of this SLS update, we examined each proposed project component change against that document to determine if inclusion of the changes would lead to a different conclusion for any goal, objective or policy. Our analysis determined that, as the proposed project components are designed to clarify or elaborate on previously identified mitigation commitments and/or ensure the effective implementation of the project, those conformances documented in the 2013 SLS remain relevant.

That notwithstanding, inclusion of the new access route would have led to consideration of a few minor points of additional information (i.e., noting potential impacts to a portion of Natural Area 056 RV and temporary disturbances to recreational trails as a result of the LMRP primary construction access road); however, consideration of this new information does not alter the project's overall conformance with individual goals, objectives and policies identified in the report.

## **4.0 CONSTRAINTS ANALYSIS**

Following is an analysis of the social, environmental, financial and institutional constraints that influenced project component changes and required that they be located as shown in Figure 2.1.

### **4.1 North Valley Primary Construction Access**

#### **4.1.1 Social Constraints**

The decision to change the primary construction access route from Cameron Avenue and through the east side of LMRP, as identified in the 2013 EISA, to Grierson Hill and the west side of LMRP was largely shaped by social constraints. During late 2013 and 2014 planning the primary construction access route through the east side of LMRP from Cameron Avenue was acknowledged to adversely affect the Riverdale community, with potential to increase neighbourhood noise levels, and adversely affect street parking and local traffic flows. In addition, the steep, narrow character of Cameron Avenue and the sharp turn west into LMRP were noted by project team as challenging for construction use. Moreover, Cameron Avenue safety concerns were raised by members of the public. The City determined that a primary construction access route from the west was preferred because, although not without park impacts, it would significantly reduce concerns about the impacts of construction access on Riverdale neighbourhood.

#### **4.1.2 Environmental Constraints**

The specific alignment for the preferred west access route was largely based on two physical environmental constraints: the presence of the historical landslide and resulting unstable slopes, and the subsequent use of the resulting landslide depressional feature as a municipal landfill. These conditions required careful consideration of any route that crossed the valley wall. For the most part, the selected route traverses the unstable valley wall near the bottom of the slope, presenting less risk, and only partially intersects with the abandoned landfill, rather than crossing further upslope near the middle. Furthermore, the desire to reduce the effort required to build a construction access route led to a decision to follow existing pavement to the extent possible. Finally, the existing grades along each proposed route and along the west edge of the Project Area influenced the selection of routes, favouring the southernmost route that would allow a direct connection to the permanent portal access road alignment and avoid more significant temporary re-grading requirements at the west Project Area boundary.

#### **4.1.3 Financial Constraints**

Financial constraints were not influential in the access route selection. It is understood that costs associated with this road are greater than costs associated with the original primary access route.



#### **4.1.4 Institutional Constraints**

Institutional constraints, namely impact on LMRP, had some influence on this project component. It was understood that any route through the west side of LMRP requires some temporary disturbance to well-used portions of the park. The desire to keep as much of the west park physically undisturbed as possible and minimize disruption to the parking lots, stages and developed gardens further upslope favoured selection of the route closest to the river. In keeping with this, the access route would be used only for that purpose, and not for general construction activities.

### **4.2 West Boundary Modifications at HMEP**

#### **4.2.1 Social Constraints**

Social constraints influencing this project change related to the existing development in this area of the park, in particular the underused, aging, partially concealed nature of the existing picnic area. Community Services desires to remove the aging infrastructure and enhance the area to better integrate with the natural character of that portion of HMEP. Removal of the picnic shelter was approved in the 2013 EISA. The proposed expansion captures all of the aging infrastructure, and was based on natural topography to allow for better erosion and sedimentation control. Thus, the Project Area has been expanded to enable this approved removal to occur followed by restoration efforts.

#### **4.2.2 Environmental Constraints**

Environmental constraints were key to the proposed Project Area changes. Recognizing the adverse impact of the 2013 Project Area on the abandoned Mill Creek channel in HMEP and associated forest, planners undertook a closer examination of the land base required to facilitate construction of the bridge and guideway. This process led to exclusion of these valued natural features and an overall reduction in the Project Area.

#### **4.2.3 Financial Constraints**

Financial constraints did not influence this project component change; although a desire to reduce the costs of removal of native forest did contribute to the decision to exclude the two areas of native forest.

#### **4.2.4 Institutional Constraints**

The decision to exclude the abandoned Mill Creek channel from the Project Area respects Crown ownership of the bed and shore of Mill Creek and the agreement between the Province and the City to consider future opportunities for restoration of Mill Creek ecological values.

### **4.3 HMEP Entrance**

#### **4.3.1 Social Constraints**

The inclusion of this small parcel of land in the Project Area is the result of a City requirement to ensure continuous pedestrian access to the 98 Avenue Pedestrian Bridge,

recognizing the social value placed on that trail connection. The Project Area was expanded here to provide Project Co with flexibility to meet this requirement.

#### **4.3.2 *Environmental Constraints***

There are no environmental constraints requiring inclusion of this parcel.

#### **4.3.3 *Financial Constraints***

There are no financial constraints directly related to this project component.

#### **4.3.4 *Institutional Constraints***

Institutional constraints did not affect this project component.

### **4.4 *Retaining Wall Ground Anchors***

#### **4.4.1 *Social Constraints***

There are no social constraints that require or prohibit use of retaining wall ground anchors in these locations.

#### **4.4.2 *Environmental Constraints***

Existing topography is the driving factor for inclusion of this project component. Existing grades at the two specified locations require retaining walls. Ground anchors are an important support option available to Project Co and their use may increase the quality of the final retaining walls.

#### **4.4.3 *Financial Constraints***

There are no financial constraints requiring that this method be used; however, inclusion of ground anchors as an option available to Project Co provides more flexibility to Project Co and thus may assist in reducing project costs.

#### **4.4.4 *Institutional Constraints***

There are no institutional constraints influencing the use of ground anchors at these locations.

### **4.5 *Ski Club Relocation***

#### **4.5.1 *Social Constraints***

The location of this expansion of the Project Area was dictated by the City's commitment to mitigate project impacts on Edmonton's oldest ski club. The City committed to ensure ongoing access to existing ski runs, to minimize impacts to run lengths, and to re-establish the necessary slope grades and elevations required to ensure skier safety. The T-Bar run was most affected by the widened transportation corridor: the required infrastructure relocation had attendant implications for user safety and the City

determined that some re-grading was needed in the identified parcel to address safety concerns at the T-bar landing.

#### **4.5.2 Environmental Constraints**

Topography dictated the need to regrade a small parcel of land at the new T-bar landing and, thus, the need to expand the Project Area to include this location. The parcel will be used only for that purpose.

#### **4.5.3 Financial Constraints**

Financial constraints did not influence the location of this Project Area change. All mitigation measures associated with ski club impacts will be funded by LRT D and C.

#### **4.5.4 Institutional Constraints**

The City's commitment to ensure ongoing viability of the Edmonton Ski Club, a valued City entity, is driving this project component.

### **4.6 Muttart Access Road Partial Removal**

#### **4.6.1 Social Constraints**

There are no social constraints requiring this road segment be removed.

#### **4.6.2 Environmental Constraints**

Local topography in this segment of the Project Area has influenced the fate of this Muttart Access Road connector. Installation of the LRT trackway in this area will require some re-grading of the alignment, which has an impact on the grades on adjacent lands. There were two options for achieving the required grades: 1) regrade as required for the trackway, leave the road in place and install a retaining wall between the trackway and the access road; or, 2) remove the adjacent road right-of-way and regrade the alignment and adjacent lands to provide a shallower, unretained side slope. Road removal was selected to reduce the number of retaining walls in the river valley.

#### **4.6.3 Financial Constraints**

There are no financial constraints influencing this project component.

#### **4.6.4 Institutional Constraints**

There are no institutional constraints that require the removal of this portion of the road nor are there any institutional constraints that require that it be retained. An alternative access to the Muttart Conservatory is available for staff and commercial deliveries.

## **4.7 Muttart Storage Building Replacement**

### **4.7.1 Social Constraints**

The decision to shift the Muttart Conservatory storage building to the southeast was largely based on the institutional needs of the Conservatory (see below) but was influenced by the desire to respect future societal use of adjacent park land. The final building location shift by 5.8 to the southwest was made to facilitate a potential future park access road and potential future SUP running parallel to the working greenhouses.

### **4.7.2 Environmental Constraints**

No specific environmental constraints influenced the location of the replacement building.

### **4.7.3 Financial Constraints**

There are no financial constraints influencing the location of this project component other than the LRT D and C commitment to limit replacement to a like-for-like building, with respect to size and function, in the vicinity of the existing building.

### **4.7.4 Institutional Constraints**

The decision to shift the Muttart storage building to the southeast was largely based on institutional constraints. Operations of the Muttart Conservatory rely on the nearby existing storage building, as such, siting of the replacement building took this requirement into consideration. Specifically, the new facility location was affected by the need to ensure effective delivery service to both the working greenhouses and the storage building. Placement of the replacement storage building would provide efficient delivery service to both these areas and *between* the storage building and working greenhouses for items such as soil storage. Facility footprint requirements included space for a small number of parking stalls and delivery truck turn around.

## **4.8 LMRP Temporary Connector Trail**

### **4.8.1 Social Constraints**

The LMRP temporary connector trail is required to provide a connection between the primary existing north-south SUP and other established park trails, avoiding trail dead ends and ensuring that the public can continue to circulate through and enjoy the west portion of LMRP. The specific proposed location was a strategic one, dictated in part by a desire to limit the length of a new temporary trail, thus limiting park disturbance.

### **4.8.2 Environmental Constraints**

Existing slopes, the location of existing trails and developed gardens influenced the location of the temporary connector trail.

#### **4.8.3    *Financial Constraints***

Temporary trail costs were limited by choosing a location that allowed for a short trail. There are no other financial constraints directly related to this project component.

#### **4.8.4    *Institutional Constraints***

Maintaining function in LMRP was the primary institutional constraint. This temporary trail is seen as essential to minimizing disruptions to park pedestrians and cyclists during Valley Line construction in LMRP.

## **5.0 CONCLUSIONS**

Based on the information collected and analyzed for this report, we conclude that the proposed project components conform to the goals and applicable objectives and policies of the *North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)*. As documented in this SLS update, the eight proposed project component changes are essential either to facilitate the successful construction and operation of the Valley Line or to fulfill previous mitigation commitments. The location of each proposed project change is dictated by the purpose and nature of the proposed change and for most components, social and/or environmental considerations are the chief constraints influencing the precise location of the proposed change.