

**City of Edmonton**  
**Valley Line Stage 1 – Light Rail Transit (LRT) Project**  
**Environmental Impact Screening Assessment 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 M A N A G E M E N T S E R V I C E S L T D .

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23 February 2015  
Our file: EP-576

Dear Ms. Buffalo,

**Re: City of Edmonton River Valley Light Rail Transit (LRT)  
Environmental Impact Screening Assessment 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.

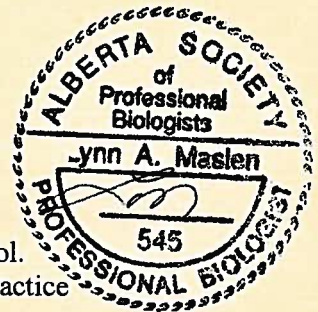
Please contact the undersigned if you require additional information.

Sincerely,

**Spencer Environmental  
Management Services Ltd.**

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Project Biologist

Lynn Maslen, M.Sc., P.Biol.  
Vice President, Science Practice



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

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## 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 an 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 that report in September 2013. Subsequent project planning, including ongoing community group consultation, has identified eight proposed changes to Valley Line, NSRV project components. Most of these changes are minor in nature and scale; one is more substantial. Assessment of these proposed changes is required because the changes involve previously unassessed activities or require adjustments to the approved 2013 Project Area. Consequently, LRT D and C has prepared this EISA Update to assess of the following eight proposed changes:

- Development of a temporary, primary construction access route through the west side of Louise McKinney Riverfront Park (LMRP). This access route will replace the use of Cameron Avenue and the future permanent portal maintenance access route (in the east side of LMRP), which will now be utilized only as a secondary construction access route.
- Modifications to the west boundary of the Project Area, within Henrietta Muir Edwards Park (HMEP). This will include the exclusion of two small parcels of land to reduce impacts on the abandoned Mill Creek channel, and the addition of one small parcel to include all lands occupied by an existing picnic shelter that, through consultation with Community Services, was identified in the 2013 EISA as available for demolition.
- Inclusion of a small parcel of land at the entrance to HMEP to allow for more flexibility in providing required temporary pedestrian access to the 98 Avenue Pedestrian Bridge during LRT construction.
- Explicit recognition of potential for installation of ground anchors as a means of supporting retaining walls at two locations, and, potential for those ground anchors to extend underground beyond the previously defined project boundaries but within City-owned lands.
- A minor extension of the Project Area to allow for local slope re-grading and relocation of ski hill infrastructure as mitigation for project impacts on one Edmonton Ski Club run.
- Closure/demolition of a 200 m long, one-way road connecting northbound Connors Road to the Muttart Access Road.
- Locating the replacement Muttart Conservatory storage building and associated yard slightly southeast of the previously-approved location. This new location will overlap with the 2013 Project Area boundary. This component is no longer part of the P3 project and will be undertaken by the City as early work.
- Construction of a temporary, short connecting trail in LMRP, outside the Project Area, to provide for improved internal pedestrian circulation during the LRT construction period. As mitigation, the trail will be constructed by the City, prior to Valley Line construction.

The EISA Update describes the above-noted changes and assesses their potential to affect river valley resources. This EISA Update identifies some new, component-specific impacts and sets out specific mitigation commitments that will also be City or Project Co requirements and will be incorporated into the Project Agreement. Important among these is the need for the City and Project Co to do some additional geotechnical investigations and to follow all resulting recommendations. Most new mitigation measures are directed at reducing impacts associated with the temporary, primary construction access route through the west side of LMRP. For that project component, despite application of mitigation measures, the presence of an active construction access route will temporarily and adversely affect park user experience, park visual resources, park vegetation and, to a lesser extent, wildlife habitat movement through the west park. With mitigation, these effects were rated as minor. All of these impacts are temporary, and most of them will be eliminated in short order upon completion of construction. The residual impact of clearing of woody vegetation in the park will be longer-lasting as mitigation will be a longer-term native forest restoration effort.

Finally, the EISA update also describes four other minor adjustments to the Project Area that are required to implement previously-approved activities and mitigation measures. These components are described for documentation purposes but not assessed.

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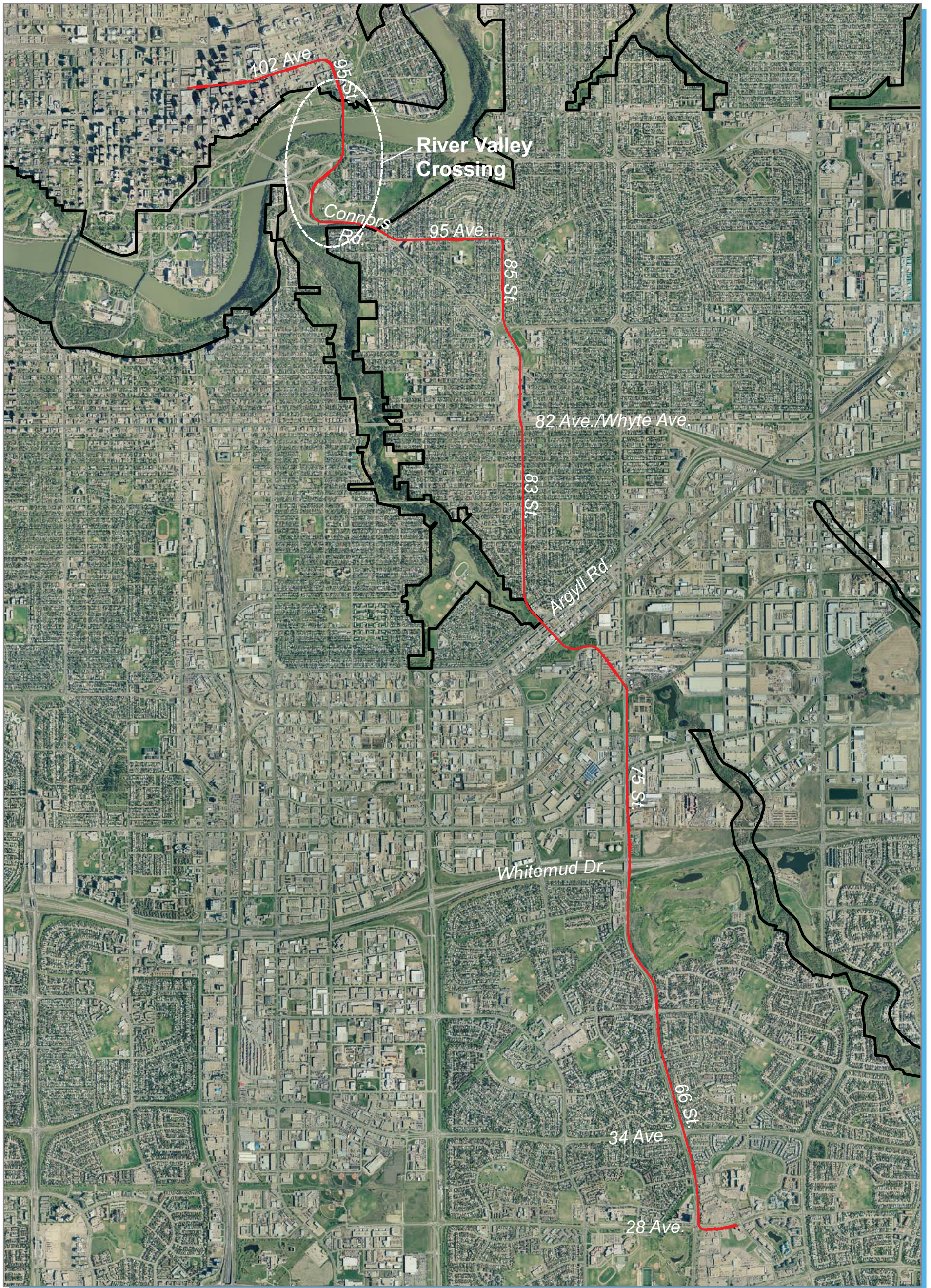
## 1.0 INTRODUCTION

### 1.1 *Background and Need for an EISA Update*

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 (Figure 1.1). This new line necessarily involves a crossing of the North Saskatchewan River Valley (NSRV) (Figure 1-1). Planning for the project began in 2008 and preliminary design was completed in 2013, culminating in a Reference Design for a new, urban-style, low-floor system. 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, referred to as Project Co, in January 2016.

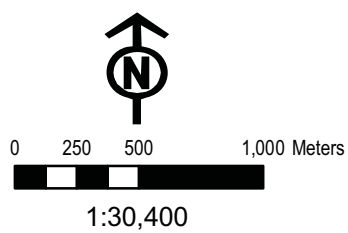
In 2012/2013, as part of the preliminary planning exercise and pursuant to the City of Edmonton's *North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188)*, LRT D and C prepared an Environmental Impact Screening Assessment (EISA) for the portion of the project situated within the NSRV. The report, City of Edmonton Valley Line-Stage 1 Light Rail Transit (LRT), Project Environmental Screening Impact Assessment (Spencer Environmental 2013), hereafter referred to as the 2013 EISA, addressed all identified Valley Line project components situated in the river valley, as described in the Reference Design. The 2013 EISA report acknowledged that the selected P3 delivery model influenced the level of design detail available for assessment and also the potential for some additional change to occur during the design and construction phase by Project Co. It was clear that the environmental review process must acknowledge some tolerance for minor, future design variance. To facilitate impact assessment and ensure that all unexplored potential project impacts were assessed moving forward, the 2013 EISA delineated an absolute boundary for construction-related activities, the "Project Area", and assessed the impact associated with disturbance of all of the Project Area. Included in the 2013 EISA was a commitment to subject any future proposed works that would require modification of the Project Area or facilities situated outside of the approved Project Area and within the Bylaw 7188 lands, to further Bylaw 7188 review. City Council approved the EISA in September 2013, but instructed LRT D and C to continue to work with select community groups into the next project phases to mitigate select impacts, particularly as they affect community groups.

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 planning, several changes to select river valley project components have been made that require adjustment of the Project Area shown in the 2013 EISA. Most changes are considered to be minor, both in terms of the nature of the change and the area affected; one is considered more substantial. 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 addressing these known changes and that the amendment should be brought back to Council for approval.



**Legend**

- Valley Line LRT Alignment (Reference Design)
- Bylaw 7188 Boundary



**Figure 1.1 Valley Line Stage 1 Location**

*City of Edmonton LRT Valley Line - Stage 1  
EISA Update*

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



The proposed changes were grouped into two categories: 1) *Changed Project Components* – changes having potential to result in previously-unassessed impacts, in most cases by expanding an activity into newly added lands; and 2) *Spatial Clarification* – minor adjustments of work limits required either as a result of a closer examination of the components; or design refinement of previously-described and assessed activities; or advancement of mitigation measures. In essence, this is a clarification of previously described required lands. It was agreed that while changes of this nature should be included in the update exercise, treatment would be limited to documentation of changes in the update report, rather than assessment of impacts.

## **1.2 Changed Project Components**

As of October 2014, LRT D and C have identified the following eight discrete project component changes that require adjustment of the previously-approved Project Area boundaries and have *potential* to result in previously-unassessed impacts

- 1) Designation of Cameron Avenue and the Shared Use Path (SUP) in east end of Louise McKinney Riverfront Park (LMRP) as the secondary rather than primary, north valley construction access route and identification of a temporary, primary construction access route through the west side of LMRP.
- 2) Modifications to the west boundary of the Project Area, within Henrietta Muir Edwards Park (HMEP). This will include the exclusion of two small parcels of land to reduce impacts on the abandoned Mill Creek channel, and the addition of one small parcel to include all lands occupied by an existing picnic area that, after consultation with Community Services, was identified in the 2013 EISA as available for demolition.
- 3) A minor expansion of the Project Area in HMEP to allow for more flexibility toward provision of temporary pedestrian access to the 98 Avenue Pedestrian Bridge during LRT construction.
- 4) Explicit recognition of potential for installation of ground anchors as a means of support for the previously identified retaining walls at two locations and potential for ground anchors to extend, below ground, beyond the previously-defined project boundaries but remaining within City-owned lands.
- 5) A minor expansion of lands at the top of Connors Hill to allow for slope re-grading for relocation of ski hill infrastructure as mitigation for project impacts on an existing Edmonton Ski Club run.
- 6) Removal of a one-way connector road between north Connors Road to the Muttart Access Road. (Note: This does not require a boundary adjustment but removal was not previously assessed).
- 7) Shifting the replacement Muttart Conservatory storage building to the southeast of the previously identified location and slightly beyond the 2013 Project Area boundary, and, having the City undertake construction prior to commencement of P3 work.
- 8) Construction of a temporary, connecting trail in the Chinese Gardens, in advance of the project, to provide for improved internal pedestrian circulation through LMRP during the Valley Line construction period.

Items seven and eight, construction of a new Muttart Conservatory storage building and a temporary connector pedestrian trail, are required to mitigate Valley Line project impacts and will be undertaken by City of Edmonton, Community Services prior to commencement of Valley Line construction to reduce the impact of LRT construction on park facilities and operation. This distinction is relevant to construction timing and development of mitigation measures since these components will not be governed by mitigation clauses included in the final Valley Line Project Agreement.

### **1.3 Spatial Clarifications**

Adjustments to individual recreational trails and their reconnections to the larger network were one of the ‘major facilities’ approved by Council in 2013. The 2013 EISA identified the need to: restore disrupted trails within the Project Area; reconfigure some trails to accommodate new infrastructure and re-landscaping; and seamlessly tie realigned and restored trails into the existing, undisturbed trails at the project boundaries. All of these activities were discussed in the 2013 EISA in the context of mitigation of project impacts. Since then, as committed to, several specific mitigation measures have been refined or further developed, some to a relatively advanced state. Importantly, through consultation with Community Services, LRT D and C have developed 70% landscape drawings (known as River Valley Landscape Drawings) to ensure full mitigation of project impacts to park resources in a manner consistent with existing and future plans for these important public spaces. These drawings are intended to provide the City with more control and certainty over the post-construction landscaping of the Project Area in LMRP, HMEP and at Muttart Conservatory grounds by providing Project Co with detailed guidance. These landscaping plans represent a refinement of several mitigation measures that were previously only generally described in the 2013 EISA. Importantly, the plans explicitly acknowledge how Project Co is to tie the re-landscaped Project Area into surrounding, unaffected, existing park landscaping and how much land will be required to achieve a seamless tie-in at critical locations. For Project Co to implement those newly-developed plans, the 2013 Project Area must be adjusted in a minor way at three manicured park locations. Work in these specific areas will be restricted to that required to realize the landscaping plans. General construction use will not be allowed. The following are the three components:

- Tie-in of remnant World Walk and Rose Garden in LMRP to gardens and the SUPs that were re-landscaped by Project Co within the Project Area.
- Installing a new HMEP trail connecting to the SUP at 98A Avenue and HMEP parking lot.
- Reconfiguration of a trail connecting Muttart Gardens to 98 Avenue and Cloverdale Neighbourhood.

Since these trail activities are mitigation measures and were previously committed to in the 2013 EISA, further *assessment* of these activities is not warranted, but documentation is desirable.

In addition, planning during the last year identified a required modification of the Project Area in the vicinity of the HMEP parking lot at 96A Street. The 2013 EISA text identified that parking lot as included in the Project Area and available for use as a general construction area. The parking lot is critical to Project Co achieving feasible access from 98 Avenue to the south river bank work area. However, in 2013 the Project Area boundary drawn did not quite capture the entire parking lot as was intended. Accordingly, this boundary has now been adjusted slightly to follow the parking lot west boundary and include the whole of the parking lot. This adjustment is the fourth spatial clarification element.

Because undertaking the four above-noted components in this category requires an adjustment of the Project Area delineated in the 2013 EISA there is a need to document and explain these project aspects for record keeping purposes. To that end, each of these Spatial Clarification components is described in detail in Chapter 2 along with the rationale for the change and placement in the category of Spatial Clarification, but these components are not then further assessed.

#### **1.4 EISA Amendment Objectives**

Considering the above, following are the primary objectives of this EISA Update:

- Meet the commitment to ensure Bylaw 7188 review of Valley Line project changes affecting lands or facilities outside the Project Area.
- Document minor Project Area adjustments required to accommodate the refinement of previously-approved activities or mitigation measures.
- Prepare a publicly-available report for consideration by City Council.

#### **1.5 Report Organization**

This EISA Update consists of 13 chapters. Chapter 1 provides context and background on the need for the EISA Update and describes the focus of this report. Chapter 2 describes each project component addressed in this document, the motivation and rationale for the change, and the resulting changes to the previously-approved boundary. Chapter 2 also describes, in more detail, the spatial clarification components and the lands involved. Chapter 3 outlines the impact assessment methods specific to this EISA Update. Chapters 4 through 11 assess each of the described project components, describing specific methods used, existing conditions, impacts and mitigation, and includes a summary assessment for that component. Chapter 12 summarizes results from the public engagement process and major conclusions and commitments for all component changes. Chapter 13 provides all references and personal communications cited in the report.

This report includes the following appendices:

- Appendix A: Alternatives Analysis for North Valley Construction Access Route
- Appendix B: Temporary Construction Access Road – Geotechnical and Slope Stability Assessment (Thurber Engineering 2014)

- Appendix C: LMRP Vegetation Data
- Appendix D: Wildlife Species Potentially Found in the LMRP Study Area
- Appendix E: Special Status Wildlife Species Potentially Found in the LMRP Study Area
- Appendix F: LMRP Subsurface Utilities (T2 Utility Engineers 2013)