

1.0 INTRODUCTION & BACKGROUND

1.1 GENERAL

The Consulting Team was retained by the City of Edmonton in 2010 to complete a Concept Planning Study for the replacement of the Walterdale Bridge and the approach roads, as required, to facilitate a new bridge. The Study was to expand on the work completed in the Strategic Planning Study, and to further develop and evaluate bridge options that would be considered functional but signature structures.

An Interim Report for the project was prepared and presented to the Transportation and Public Works committee of the City Council in January, 2011. The committee directed the Team to focus on the bridge replacement and immediate approach roads, and limit further study of the south bank to protecting for the future.

1.2 BACKGROUND INFORMATION

Walterdale Bridge, crossing the North Saskatchewan River near Edmonton's downtown, is approaching 100 years of age and the end of its useful life. The bridge is an important link in the City transportation system, carrying two traffic lanes northbound into downtown from Gateway Boulevard and 109 Street via Queen Elizabeth Park Road (two (2) lanes), and Walterdale Hill Road (two (2) lanes and one (1) bus lane). The bridge operates at capacity during peak hours, which results in significant congestion on the south approaches, particularly during the AM Peak.

BPTEC-DNW and AI-Terra Engineering Ltd. were retained in 2008 by the City to complete a Strategic Planning Study for replacement of the Walterdale Bridge, including upgrading of the approach roads. A number of road and bridge options were developed and evaluated, and three were recommended for further consideration and study. It was concluded that vertical (existing +9% grades) and horizontal improvements for Queen Elizabeth Park Road, and additional capacity (three (3) lanes northbound on new bridge) would be highly desirable, but traffic analysis suggested that improved capacity on the south approach roads and bridge may simply relocate congestion north of the river unless roadway improvements north of the river are also completed. Avoiding the north side burial grounds, without first removing the existing bridge, was considered a major challenge for implementation.

The North Bank projects, which included redevelopment of the West Rosedale Urban Area, the Legislative Centre Redevelopment, and Repurposing the Rosedale Generating Station, are complimentary projects at various stages of planning, which require consideration for planning of a replacement bridge and approach roads.

1.3 STUDY PURPOSE AND OBJECTIVES

The Walterdale Bridge and Approach Roads Concept Planning Study was initiated by an April 7, 2009 Council motion, which directed administration to proceed with Option 1

of the Strategic Planning Study. The option required replacement of the existing bridge with a signature structure and demolition of the existing bridge.

The purpose of the Planning Study is to develop concept plans that define the location and alignment of a new Walterdale Bridge, including approach roads north and south of the bridge, and provide the information necessary to commence preliminary design. The Study will follow up on work completed for the Walterdale Bridge Crossing Strategic Planning Concept (BPTEC-DNW/Al-Terra Engineering Ltd., 2008).

Key objectives identified for the Study:

- Review and further evaluate recommended options from the BPTEC-DNW/Al-Terra Engineering Ltd., 2008 report. Develop and evaluate other options.
- Review and evaluate other alternatives, including:
 - Improvements to the adjacent approaches and exits to the bridge structure (Queen Elizabeth Park Road, Walterdale Hill Road, 105 Street, and River Valley Road);
 - Consideration of Saskatchewan Drive intersection/crossing alternatives;
 - Incorporation of an at-grade crossing at Saskatchewan Drive; and
 - Access improvements for affected stakeholders and accommodation of safe pedestrian movements.
- Identify and recommend a bridge replacement option and other associated improvements, with due consideration of functional signature bridge options.
- Develop concept plans and cost estimates for the recommended replacement option; including life cycle cost analysis.
- Complete Study in consideration of development plans currently underway for the West Rosedale Urban Design Plan and other designs for this area.
- Complete the Concept Planning Study and present to City Council for approval by the spring of 2011.

1.4 Project Deliverables

The completion of this project will result in the following items being delivered to the City of Edmonton:

For December 2010:

- This report will document background technical issues and data, geographic, topographic as well as environmental and historical resource constraints. In addition, this report will identify other influences found during the initial stages of the Study. The report will identify the public involvement framework as well as highlight key stakeholder concerns and considerations relevant to the project. The report will also include draft concept plans illustrating potential bridge and roadway alignments, together with a summary of design parameters for the project.
- Five (5) sets of draft concept plans for circulation and review including an electronic copy in a CADD format (dgn).

For April 2011: Final Report and Concept Plan:

- Final Technical Report (5 copies; 4 bound, 1 unbound).
- Colored renderings of a new signature Walterdale Bridge from viewpoints towards West Rossdale, downtown and Saskatchewan Drive, one evening light perspective. A 3D animated video could be prepared as an additional value-added service, should it be requested by the City.
- Final Concept Plans at 1:1000 scale for approval signatures.
- Electronic files of all drawings (MicroStation), reports, traffic analysis, drainage analysis and any other relevant files.

1.5 Key Issues, Constraints and Opportunities

At the outset of the project, a number of key issues and constraints were identified for further consideration during the Study. It will be necessary to address these issues and constraints to ensure that a concept for a replacement bridge and approach roads is developed that meets the long term needs of the area. A Key Issues Map depicting key features, constraints and relevant issues is provided as **Exhibit 1.1** while **Exhibit 1.2** depicts the Urban Design Overlay which illustrates the urban design context within the Study Area.

1.5.1 Resolution of Competing Interests

The Walterdale Bridge Replacement project must meet numerous objectives, adapt to many constraints and attempt to satisfy some potentially competing interests. While the bridge's basic role of conveying multi-modal traffic across the river must be met, it is not clear what level of traffic service should be achieved in the future. In particular, the competing interests of vehicular mobility on an important route into downtown will need to be weighed against interests that are diagrammatically opposed to the facilitation of good traffic flow (heavy traffic through a West Rossdale Redevelopment as a proposed walkable sustainable community). Resolution of this issue by the Consulting Team and City Staff will be critical to strike an appropriate balance between the numerous objectives and establish an appropriate degree of flexibility.

1.5.2 Historical Resources Challenges

Rossdale Flats generally and the proposed development area specifically have been established as a location of unprecedented cultural resource concern for Aboriginal, Métis, and non-native members of the Edmonton community. In particular, the cultural resource site FjPi-63, which includes a historic period cemetery, presently referred to as the Fort Edmonton Cemetery and Traditional Aboriginal Burial Ground. Compounded by a history of periodic disturbance as a result of utility and road construction, community concerns regarding this cemetery came to a head in the late 1990's in association with a planned expansion of the EPCOR Rossdale Power Plant. Issues related to the ongoing management of this resource will continue to play a prominent role in the planning stages of the proposed bridge replacement.

1.5.3 Bridge Replacement Opportunities

Edmonton currently does not have a signature roadway bridge to carry vehicular and pedestrian traffic across the North Saskatchewan River. Most major cities in the world have made major investments in infrastructure projects, and are widely recognized for signature bridge projects. With the redevelopment of the West Rosssdale area, the City of Edmonton has the opportunity to construct a functional signature bridge which will be a source of pride for years to come. If the design is done well, the bridge will serve as a gateway to welcome people to downtown Edmonton for many years to come.

1.5.4 Steep Grades on South Approaches

Improved vertical geometry on Queen Elizabeth Park Road would be desirable and could be achieved (6%) based on Gateway Boulevard grade separation under Saskatchewan Drive (options in Strategic Planning Study). A depressed Gateway Boulevard was, however, not well received by some of the public.

1.5.5 Hairpin Curve at Saskatchewan Drive/Queen Elizabeth Park Road

Existing geometry of the intersection at Queen Elizabeth Park Road and Saskatchewan Drive creates a hairpin type curve, which would be considered unconventional and undesirable from a vehicle operations perspective. As all northbound traffic on Gateway Boulevard destined to Queen Elizabeth Park Road is required to navigate this sharp curve, improvements would be desirable; however, proposed improvements suggested during the Strategic Planning Study were not well received by some of the public.

1.5.6 Environmental Issues

The Strategic Planning Concept Study for the Walterdale Bridge Crossing identified several options for the river crossing that warrant further consideration. The Study also identified the need to examine the existing and future roles of Walterdale Hill Road and Queen Elizabeth Park Road, so the resulting Study Area on the south side of the river is quite large. Importantly, the Study identified the need for approval of the project pursuant to City of Edmonton Bylaw 7188 and also the need to secure approvals pursuant to the federal *Fisheries Act* and *Navigable Waters Protection Act*. These approvals represent some of the environmental permits that will be required for implementation.

1.5.7 Utilities

The existing Walterdale Bridge carries a number of utility pipes and other facilities across the river. These include water and gas pipelines, electrical, telecommunication and cable services, and Edmonton Transit trolley and power lines.

These utilities comprise about 21% of the total dead load of the bridge. The trolley lines are expected to be phased out prior to the bridge replacement. Accommodation of all the existing utilities below the deck of the new bridge is expected to be technically feasible. City policy regarding the attachment of gas lines to bridges must be considered

to determine whether the existing gas line can be located on the new bridge. The method and sequencing of the construction of the new bridge will be crucial to the cost and methods chosen to relocate the utility lines. If the existing bridge can be kept in service while the new bridge is being built, the utilities could be transferred in an orderly manner before the old bridge is removed from service.

If the existing bridge must be taken out of service before the new bridge can be completed (e.g. in order to stay clear of the burial ground) alternative temporary or permanent locations for the utilities will have to be found. Previous conceptual level cost estimates indicate a premium of \$3.0 Million for utility relocation if the existing bridge is taken out of service before the new bridge is completed. Numerous abandoned and active utilities are also located within the Study Area, and will impact ultimate design of approach roads. Utility research completed during the Strategic Planning Study was based on the City GBIS, and this work must be expanded to include preparation of a complete contact list as well as initial discussions.

1.5.8 Construction Staging and Related Traffic Accommodation

The Walterdale Bridge acts as a significant central area river crossing. Site constraints may dictate a location for the new bridge that is coincident with the existing structure and thereby force a complete closure of Walterdale Hill Road and Queen Elizabeth Road as access routes. A thorough investigation of construction staging options will be necessary along with related traffic accommodation schemes to minimize impacts of a potential closure of the crossing during construction of the new bridge. Micro-simulation and other traffic analysis will be needed to assess options and define an optimal staging and accommodation plan.

1.6 Other Project Influences

1.6.1 Transportation Master Plan, “The Way We Move,” Bylaw 15101

The City has recently approved a new Transportation Master Plan, “the Way We Move” which outlines the City’s broad policies and approaches to addressing Edmonton’s future transportation needs. The Plan marks a significant shift in Edmonton’s transportation policy direction by designating public transit and active transportation modes as the preferred modes of travel. Improvements to the City’s roadway network are focused primarily on facilitating goods movement and therefore typically located on major highway connector routes outside the “Inner Ring Loop”. This policy direction has implications for the nature and extent of roadway improvements related to the new bridge.

1.6.2 Capital City Downtown Plan

The City of Edmonton is in the final stages of completing a new Downtown Plan. Some of the key policy directions of this plan that are particularly relevant to the Walterdale Bridge replacement include:

- Focus on reducing reliance on auto access to downtown in favor of other modes;
- Focus on improved pedestrian connections to the River Valley; and
- Focus on urban design excellence and historic preservation.

1.6.3 Walterdale Bridge Crossing Strategic Planning Concept Study, 2008

This Study examined a number of options for replacement of Walterdale Bridge along with related roadway network improvements. The Study recommended three options for consideration ranging in cost from \$61 Million to \$185 Million, with the highest cost options involving a grade separation between Gateway Boulevard and Saskatchewan Drive. Public input received during the Study reflected a high degree of concern over the depression of Gateway Boulevard through Old Strathcona and concern that it would divide the community and that such a scheme was inconsistent with the pedestrian oriented environment as well as the nature and character of the area.

1.6.4 West Rossdale Urban Design Plan

The West Rossdale Urban Design Plan sets the direction for neighborhood development and its relation to its immediate surroundings. A key focus of the Plan is the creation of a pedestrian friendly sustainable community and the potential for a gateway to downtown through the development of a new bridge and associated public realm improvements.

In addition to development of the West Rossdale area, the Plan proposes to change traffic circulation in the area by converting Rossdale Road into a two-way artery and eliminating 104 Street as a through artery from 97 Avenue to Rossdale Road. This change, together with a possible new southbound access to the Kinsmen Sports Centre, will introduce traffic challenges that will need to be considered.

1.6.5 EPCOR Power Plant Repurposing

The area south of Rossdale Road is proposed to have cultural emphasis, utilizing the Low Pressure Power Plant, which is provincially designated. The High Pressure Plant is to be removed through decommissioning. The former power plant site has potential for both cultural installations and shows.

Limited on-site parking is expected to be provided for the proposed Repurposed EPCOR Power Site, and current temporary parking for Telus Field in the West Rossdale area will be lost through redevelopment of these lands. Alternate parking at the Kinsman Recreational Facility would create a high pedestrian demand between the south and north sides of the river in this area, which may need to be accommodated on the bridge.

1.6.6 Grade Separated Pedestrian Accommodation

A desire to provide pedestrian facilities such as a promenade “to touch the water” along each side of the North Saskatchewan River has been expressed, although no specific

study is underway. Accommodation will be considered in the bridge replacement planning to provide opportunity to provide for these facilities in the future.

1.6.7 Alberta Legislature Centre Redevelopment Master Plan

This plan identifies the opportunity for the Legislature Grounds to focus on and front the River Valley, their potential integration with the river and the West Rosedale neighborhood. Vehicular access is contemplated off 96 Avenue and directly off River Valley Road, just west of 105 Street. The position of the new Walterdale Bridge and adjustments to the north side roadway network could affect this access.

1.6.8 Bicycle Transportation Plan (BTP) and Cycling

In 2008 the City of Edmonton developed a new Bicycle Transportation Plan to replace the previous document completed in 1992. The new BTP established a network of bicycle routes throughout the City aimed at providing cyclists with a viable network of routes and to improve the potential for cycling to carry a larger percentage of travelers. The BTP does not identify either Walterdale Hill Road or Queen Elizabeth Park Road as bicycle routes, although there are numerous multi-use trails in and around the Walterdale Bridge.

1.6.9 Alberta's Capital City Integrated Planning and Design Initiative

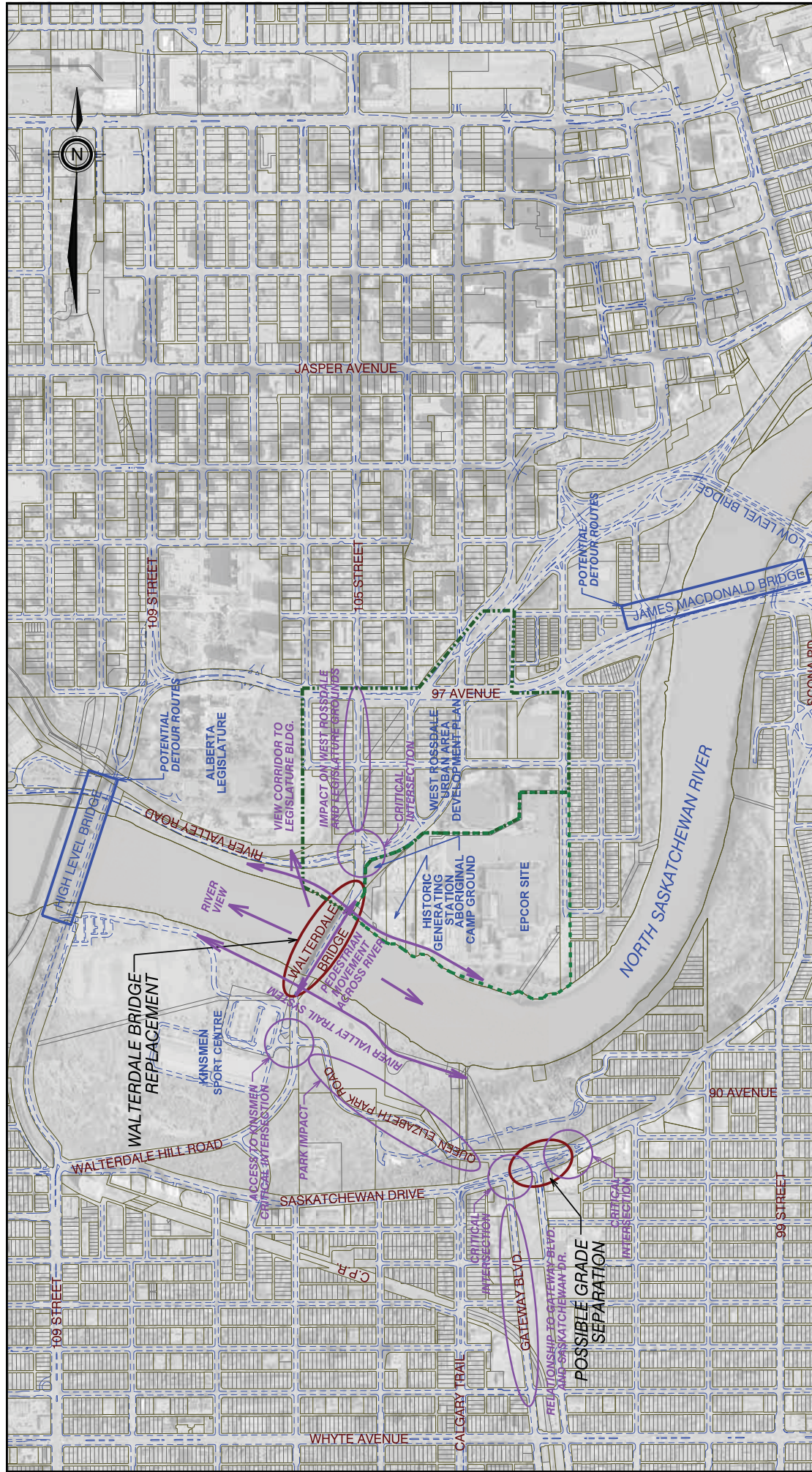
This is an agreement between the City of Edmonton and the Province of Alberta dated 16 April 2009. It establishes a framework of goals, objectives and protocols for a series of interrelated initiatives.

1.6.10 South Bank

A Kinsmen Sports Centre Master Plan is being initiated by Community Services. A new outdoor Queen Elizabeth Pool is under construction. On the Kinsmen site, it is understood the existing outdoor pool building is to be demolished and the area vegetated.

1.6.11 River

Other overall plans are identified by River Valley Alliance and Alberta's Capital City Integrated Planning Approach and Design Initiative.



KEY ISSUES

WALTERDALE BRIDGE REPLACEMENT
CONCEPT PLANNING STUDY

NTS. DECEMBER, 2010 EXHIBIT 1.1

LEGEND:

IMPACTS

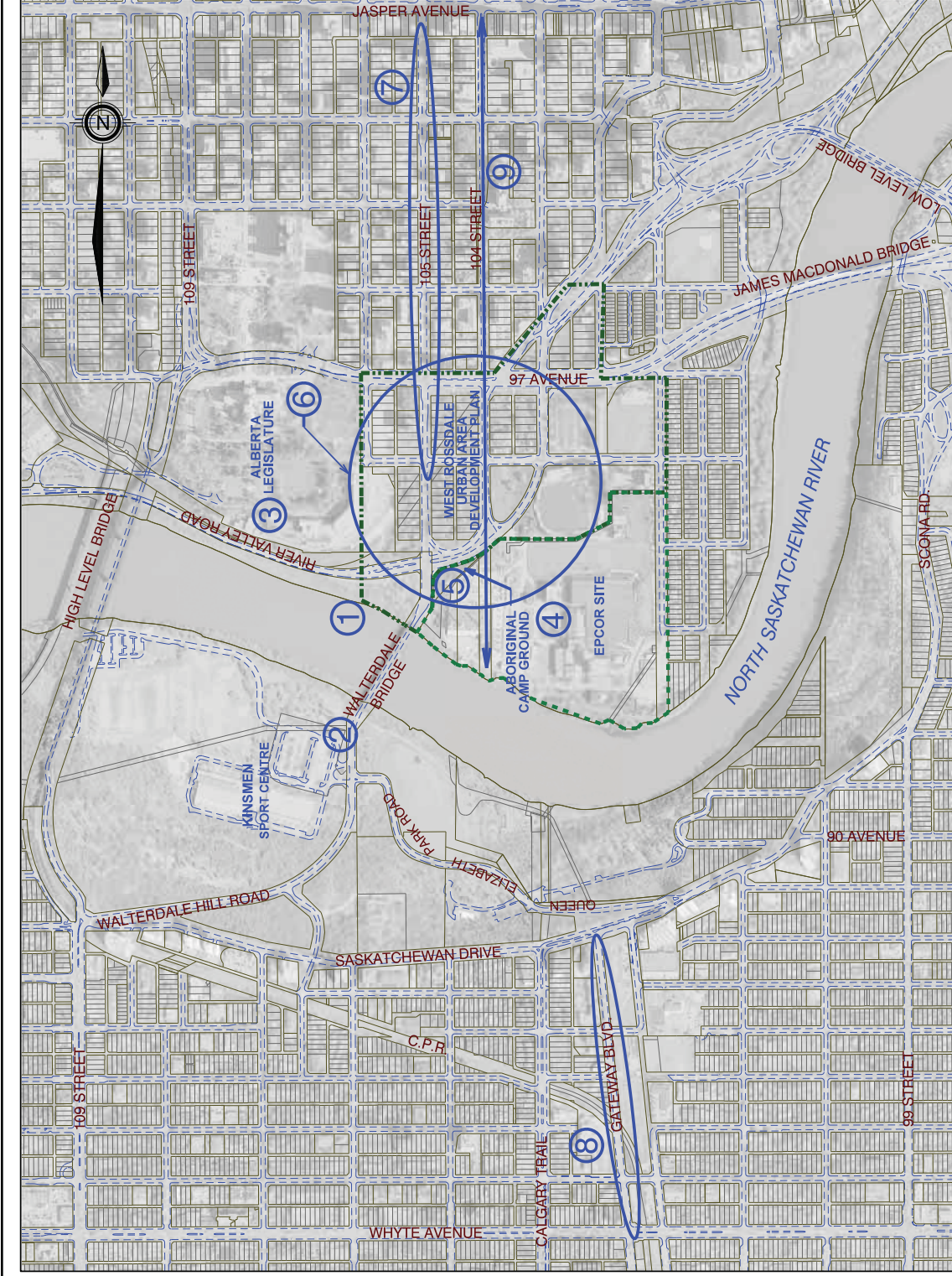
POTENTIAL DETOUR ROUTES

BUCKLAND & TAYLOR
Bridge Engineering

DIALOG

AL-TERRA
ENGINEERING

ISL
Engineering and Land Services
Exceptional people. Shared success.



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1. INTEGRATION WITH PROPOSED RIVER PROMENADE AND DOCKS
2. SUSTAINED VIEWS TO LEGISLATURE
3. COORDINATE WITH LEGISLATURE CENTRE REDEVELOPMENT MASTER PLAN, INCORPORATE POTENTIAL CULTURAL FACILITIES
4. SITE DEVELOPMENT OF GROUNDS AROUND ROSSDALE GENERATING STATION FOR PUBLIC USE
5. RESPECT EXISTING FORT EDMONTON CEMETERY AND TRADITIONAL BURIAL GROUNDS COMMEMORATION SITE INVESTIGATE PEHONAN ASSOCIATED RESEARCH FINDINGS
6. WEST ROSSDALE URBAN DESIGN PLAN INCLUDING ROADWAY NETWORK MODIFICATIONS
7. 105 STREET AS ENTRANCE TO DOWNTOWN
8. POTENTIAL ENHANCEMENT OF LINEAR PARK WITH FRAMED VIEWS TO DOWNTOWN
9. 104 STREET PROMENADE CONNECTION FROM RIVERBANK + ROSSDALE GENERATING STATION TO TOP OF VALLEY DOWNTOWN

LAND USE INTEGRATION

WALTERDALE BRIDGE REPLACEMENT

CONCEPT PLANNING STUDY

NTS. DECEMBER, 2010 EXHIBIT 1.2

