KING-LIBERTY PEDESTRIAN/CYCLIST LINK

CLASS ENVIRONMENTAL ASSESSMENT STUDY
ENVIRONMENTAL STUDY REPORT

NOVEMBER 2011

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1. Background and Introduction

1.1 Background to the Study

In 2006, the City of Toronto undertook a strategic network review of the Toronto West-Central Area (bounded by High Park, the Waterfront, Bloor Street and Bathurst Street). A report entitled, *Toronto West-Central Area Strategic Transportation Network Review*, prepared by Architects Alliance and LEA Consulting (November 2006) identified discontinuities and connectivity barriers that exist in this area due to physical constraints of two major rail corridors running in an east-west and southeast-northwest orientation. One of the issues identified was the need to better integrate the communities north and south of the rail corridor (the Georgetown South Rail Corridor serving the GO Georgetown and Milton lines) between Atlantic Avenue and Strachan Avenue.

One of the identified potential immediate improvements is "The establishment of pedestrian / cycling links across the rail corridor between Liberty Village and Niagara neighbourhood / Fort York". City Council committed to address this issue by initiating the current study.

1.2 The Study Area

The study area is the immediate area bounded by Queen Street West to the north, the rail corridor (Lake Shore West Rail Corridor) to the south, Strachan Avenue to the east, and Atlantic Avenue to the west. **Exhibit 1-1** illustrates the study area.

1.3 Study Objectives

The objective of this Study was to determine the location for a pedestrian / cyclist link across the Georgetown / Milton Line Rail Corridor in the area between Atlantic Avenue and Strachan Avenue. The provision of a new pedestrian / cyclist link in the study area would result in an enhanced pedestrian and cyclist environment, allowing for improved access between the communities north and south of the Georgetown / Milton Line Rail Corridor.

The purpose of this Class Environmental Assessment (EA) Study is to complete a Schedule "C" Municipal Class EA to facilitate the implementation of the aforementioned pedestrian / cyclist network improvements.

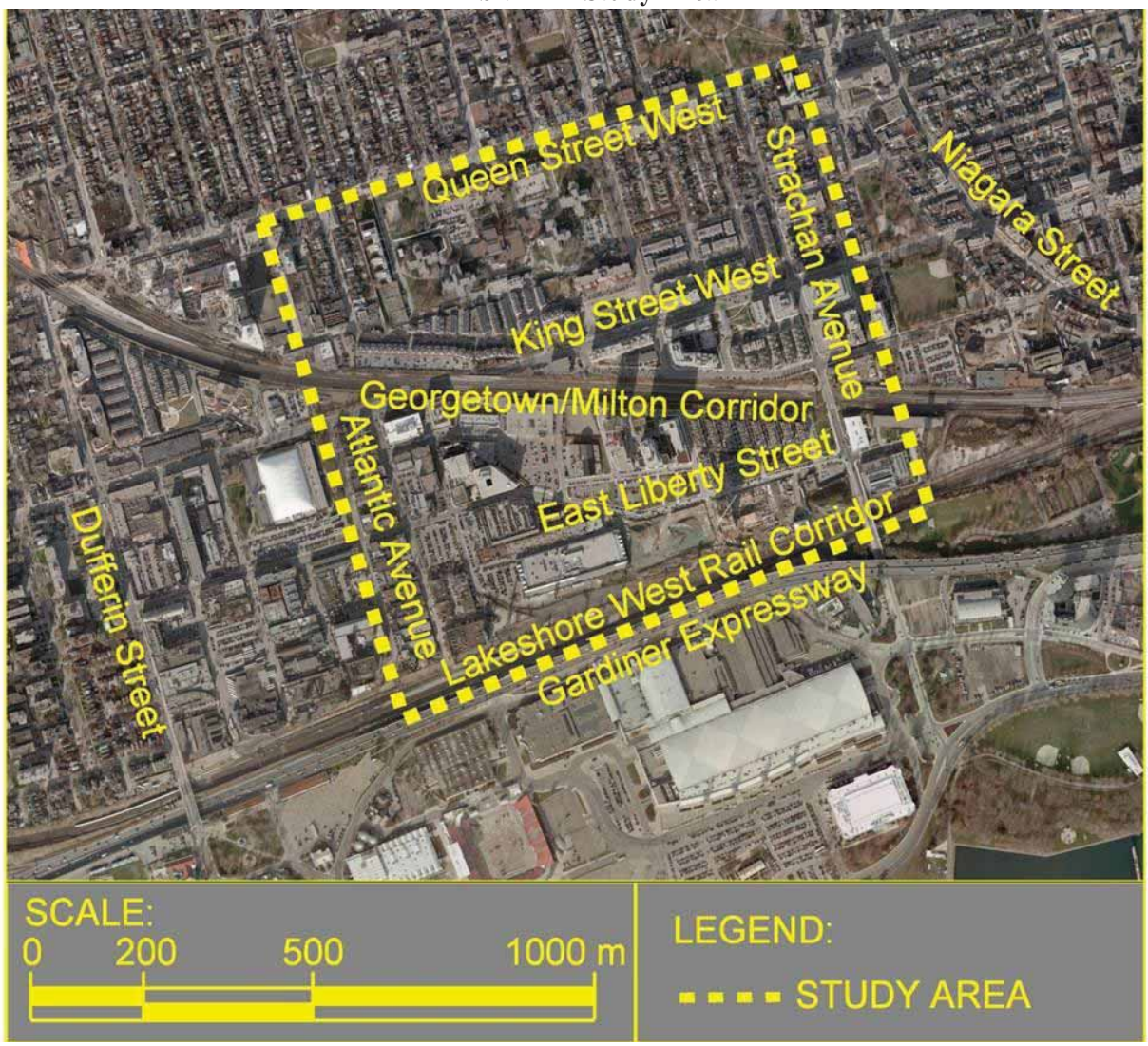
1.4 Related Studies

A number of relevant studies have been conducted in recent years which relate to the need for a pedestrian / cyclist link across the Georgetown / Milton Line Rail Corridor within the Study Area. A summary of these studies include:

- *Toronto West-Central Area Strategic Transportation Network Review*;
- *King Liberty Urban Design Guidelines*; and
- *Garrison Common North Secondary Plan*.

More details regarding these studies are discussed in *Section 3.3 Social Economic Environment*.

Exhibit 1-1 – Study Area



2. Study Approach and Consultation

2.1 The Environmental Assessment Act of Ontario

The Environment Assessment Act of Ontario (EAA) provides for the protection, conservation, and wise management in Ontario of the environment. The EAA applies to municipalities and to activities including municipal road and transportation infrastructure projects. Activities with common characteristics and common potential effects may be assessed as part of a "class", and are therefore approved subject to compliance with the approved Class EA process.

2.2 Municipal Class Environmental Assessment Process

The Municipal Class Environmental Assessment (Class EA) Planning and Design process is an approved five-phase planning procedure, under the Ontario Environmental Assessment Act, that applies to municipal infrastructure projects. The Class EA provides municipalities with a procedure approved under the Environmental Assessment Act to plan and undertake municipal road projects that recur frequently and have relatively minor and predictable environmental effects. Projects covered by the Class EA may be implemented without having to seek further approvals under the Environmental Assessment Act, provided that the Class EA is followed.

Projects undertaken through this planning process are "classified" by municipalities into one of three "Schedule" types ranging from Schedule 'A' to Schedule 'C', in accordance with their degree of anticipated environmental impact. Projects are categorized as either Schedule "A", "A+", "B", or "C" according to the following general definitions:

Schedule "A": projects generally include normal or emergency operational or maintenance activities and are pre-approved;

Schedule "A+": projects are similar to Schedule 'A' but involve public notification;

Schedule "B": projects generally include improvements or minor expansions to existing facilities, and require the proponent consult with those who may be affected;

Schedule "C": projects generally include the construction of new facilities and major expansions to existing facilities, and are subject to the environmental assessment planning process outlined in the Class EA, Phases 1 to 4. Schedule 'C' projects have the highest potential for environmental impacts and must proceed under the full planning and documentation procedures specified under the Municipal Class Environmental Assessment Guidelines.

The King Liberty Pedestrian / Cyclist Link Study involves new infrastructure with a cost greater than the threshold amount for Schedule "C" projects and is therefore undertaken following the Schedule "C" process.

An excerpt from Municipal Class EA document illustrating the EA planning process is provided in **Exhibit 2-1 – Municipal Class EA Planning and Design Process.** A simplified version of the flow chart is illustrated in **Exhibit 2-2 - Class Environmental Assessment Process (Simplified).** The flow charts provided illustrate the major steps in completing the EA process, which include the following five phases:

Phase 1: Identify the transportation problem (deficiency) or opportunity (documented in chapter 3 of this Environmental Study Report).

Phase 2: Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment (chapter 4), and establish the preferred solution taking into account public and review agency input (chapter 5).

Phase 3: Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects (documented in chapter 6 of this Environmental Study Report).

Phase 4: Document in an Environmental Study Report (ESR) a summary of the rationale, and the planning, design and consultation process of the project as established through the above Phases, and make such documentation available for review by agencies and the public.

Phase 5: Complete contract drawings and documents, and proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facilities (conditional on the approval of this document).

The Class EA for the King Liberty pedestrian/cyclist link project has been undertaken in accordance with the guidelines set out in the Municipal Engineers Association Class Environmental Assessment document (Amended 2007), as a Schedule "C" project. This report includes Phases 1 to 4. Phase 5 will follow acceptance and approval of the ESR.

Exhibit 2-1 – Class Environmental Assessment Process

NOTE: *This flow chart is to be read in conjunction with Part A of the Municipal Class EA*

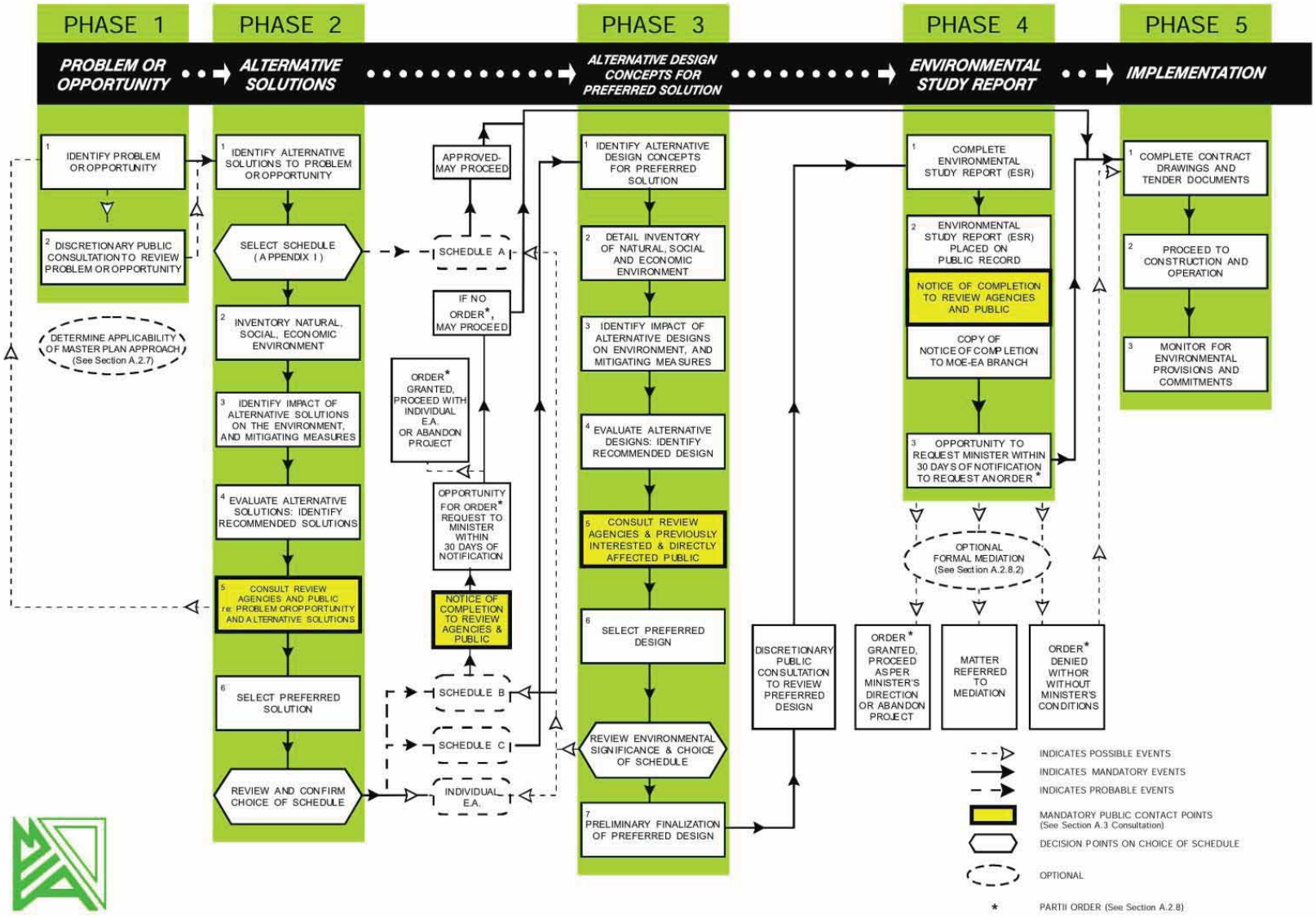
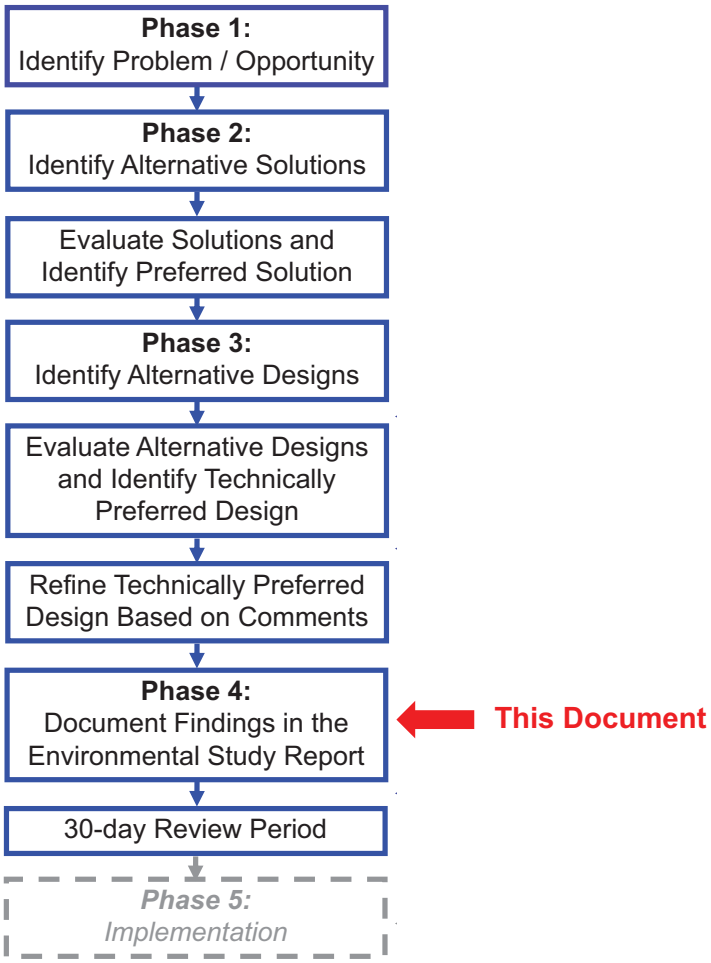


Exhibit 2-2 – Class Environmental Assessment Process



2.3 The Environmental Study Report

Municipal Class EA, Schedule 'C' projects require the preparation of an Environmental Study Report (ESR). The ESR is prepared for the public record and provides an opportunity for the public to review the planning and decision-making process used to select a preferred alternative, details the impacts associated with the preferred alternative, outlines proposed measures to mitigate impacts on the natural social and economic environments, and identifies commitments to future work.

2.4 Part II Orders

At the end of the planning and decision-making process, the ESR is placed on the public record with the Ministry of the Environment for a 30-day review period. If there are any outstanding concerns that are not resolved during project planning, the person or party with the concern may make a written request to the Minister of the Environment for a "Part II Order" within this 30-day review period. The "Part II Order" asks that the project be subject to formal governmental review and approval under the Environmental Assessment Act. Requests must be forwarded to the Minister of the Environment, as well as to the City of Toronto at the following addresses:

The Honourable Jim Bradley
Minister of the Environment
77 Wellesley Street West
11th Floor, Ferguson Block
Toronto ON
M7A 2T5

City of Toronto
Attn. Stephen Schijns, P.Eng.
Infrastructure Planning
Transportation Services Division
22nd Floor, East Tower, City Hall
100 Queen Street West
Toronto, Ontario
M5H 2N2

Provided that no Part II Orders are granted, the City of Toronto may proceed to Phase 5 of the Class EA process for design and construction.

2.5 Study Design and Schedule

A Study Design report (dated December 14, 2009) was prepared at the beginning of the study to document the work plan, as well as approach in addressing the specific requirements of the project. A copy of the Study Design is included in ***Appendix A – Study Design***.

2.6 Project Team Organization

2.6.1 *The Project Team*

The project team comprised representatives from the City of Toronto and URS Canada Inc.. In addition to the day-to-day project management and study co-ordination, the Project Team ensured that matters related to the EA Act were addressed. The Project Team met regularly throughout the duration of the study. Correspondence and minutes from the project team meetings are provided in ***Appendix B – Project Team / TAC Meeting Minutes***.

The project team representation included:

- City of Toronto:
  - Infrastructure Planning;
  - Public Consultation;
  - Urban Design;
  - Transportation Planning;
  - Community Planning;
  - Structures and Expressways;
  - Pedestrian and Cycling Infrastructure;
  - Traffic Operations;
  - Traffic Planning;

- Water Infrastructure Management;

- Consultant Team:
  - URS Canada
    - Project Management;
    - Environmental assessment and planning;
    - Transportation engineering;
    - Traffic engineering;
    - Structural engineering;
    - Railway planning;
    - Cultural resources;
  - Planning Partnership
    - Urban planning/design; and
    - Landscape architecture.

Overall responsibility for management of the study was with the Infrastructure Planning Unit of the Transportation Services Division, City of Toronto.

2.6.2 The Technical Advisory Committee

For the Technical Advisory Committee (TAC), representatives from the City of Toronto, URS Canada Inc., GO Transit/Metrolinx, and Toronto Emergency Medical Services were invited to the Project Team meetings as the study progressed. Correspondence and Minutes from the TAC meetings have been provided in ***Appendix C – Public Consultation Report***.

The TAC team representation included:

- City of Toronto, comprising all groups as noted above for the Project Team;
- GO Transit/Metrolinx;
- City of Toronto – Emergency Medical Services
- Consultant Team
  - URS Canada, comprising all groups as noted above for the Project Team; and
  - Planning Partnership, comprising all groups as noted above for the Project Team.

2.7 Public Consultation

In addition to the input received from the Project Team and the Technical Advisory Committee, external agencies, stakeholders, utility companies and members of the public were consulted through newspaper advertisements, letters, e-mail and Public Open Houses.

The agencies, public and property owners were able to choose their level of involvement from one or more of the following options:

- Public Open House consultation events;
- A project website; and/or

- Contacting the team directly through a phone line, fax line, TTY line, or email.

The Municipal Class EA has defined mandatory points of contact during Phase 2, 3 and 4 of the Municipal Class EA process as outlined in **Exhibit 2-1 – Municipal Class EA Planning and Design Process**. A summary of those key points of contact are outlined in subsequent sections.

2.7.1 *Notice of Study Commencement*

The Notice of Study Commencement signals the start of the study and invites agencies and the community to submit any initial questions or comments regarding the study, or requests to be added to the study mailing list.

The Notice of Study Commencement was published in the Parkdale-Liberty Villager on January 8 and 15, 2010 as well as in the Liberty Gleaner on February 1, 2010, on the City's website (http://www.toronto.ca/involved/projects/king_liberty/index.htm); and was mailed to agencies, stakeholders and property owners within the study area.

A copy of the notice and the correspondence and responses with the public regarding the Notice of Study Commencement are included in ***Appendix C – Public Consultation Report***.

2.7.2 *Public Open House Meetings*

A key component of the study was consultation with interested stakeholders (public and regulatory agencies) at two Public Open Houses (POHs).

These involved an Open House event that was designed to reach and accommodate:

- Members of the public, particularly those living, working or with business interests in the Study Area;
- Transit users;
- Agencies; and
- Persons who had signed up for the project mailing list.

The POHs provided the public, agencies and stakeholders with an opportunity to meet with the Project Team, review the study progress and discuss issues related to the project including technical considerations, evaluation criteria, alternative solutions and alternative designs.

2.7.2.1 *Public Open House #1*

Notices for Public Open House #1 were published in the Parkdale-Liberty Villager on February 25 and March 4, 2010 as well as in the Liberty Gleaner on March 3, 2010. In addition, approximately 8,500 flyers / notices were distributed by Canada Post within the study area during the week of February 19, 2010.

Public Open House #1 was held on Tuesday, March 9, 2010 at 171 East Liberty Street (Liberty Market Building) from 7:00 to 9:00 p.m..

A total of 44 people, took the opportunity to attend and sign the attendee registry, view the information, fill in a comment form and/or sign up to be on the project mailing list, and talk with the members of the project team.

At this open house event, project team members including representatives from the City of Toronto and URS Canada were available to discuss the project with the public.

The following information was presented to the public in Public Open House #1:

- The study area;
- The study purpose and background;
- The environmental assessment and class EA process;
- The existing background and supporting planning policies;
- The existing conditions in the study area;
- The identified transportation problem and opportunities;
- The assessment and the recommended alternative solutions;
- The short-listed alternative designs; and
- The next steps and activities of the study.

During the Public Open House, four key questions were presented to attendees on feedback forms. A total of 27 submissions were received, including 19 comment sheets and 8 e-mails. The questions and comments are summarized below:

1) Please provide any comments regarding the evaluation of the recommended alternative solution (Alternative C – Build New Pedestrian / Cyclist Link). Do you agree with this alternative solution? Please indicate why or why not;
2) The benefits and / or impacts associated with the construction of either a tunnel or a bridge solution were considered. It was determined that a bridge solution is preferred. Please refer to the 'Pedestrian Cyclist Survey Results' and to the 'Should the New Link be a Bridge or Tunnel' display panels. Do you agree with this? Please indicate why or why not;
3) Five proposed alternative designs for a pedestrian / cyclist link have been developed. Please refer to the attached aerial photo or to the 'Alternative Design Solutions' display panel(s). Do you have any comments regarding the proposed alternative designs? Please comment or explain;
4) Do you have any other comments on this study?

A copy of the POH notice advertisement, the display boards and presentation slides, as well as a detailed summary of the public consultation program, and comments received from POH #1 is provided in ***Appendix C – Public Consultation Report.***

2.7.2.2 *Public Open House #2*

Notices for Public Open House #2 (which included three local studies in a single event) were published in the Parkdale-Liberty Villager and Liberty Gleaner on February 10 and 24, 2011. In addition, approximately 13,529 flyers / notices were distributed by Canada Post within the study area during the week of February 17, 2011.

Public Open House #2 was held on Tuesday, March 1, 2011 at 171 East Liberty Street (Liberty Noodle) from 4:30 to 8:00 p.m. This Public Open House venue was shared with two other ongoing City EA studies pertaining to the 1) Dufferin Street Bridges and 2) Liberty Village New Street.

Over 170 people attended (165 participants signed-in) Public Open House #2. At this open house event, project team members including representatives from the City of Toronto and URS Canada were available to discuss the project with the public.

The following information was presented to the public in Public Open House #2:

- The study area;
- The transportation problem and opportunity;
- The study progress to date;
- The evaluation of alternative link locations;
- The design elements;
- The alternative designs and evaluation;
- The technically preferred design;
- The addressing of public concerns with a tunnel;
- The examples of other pedestrian / cyclist tunnels in the GTA; and
- The next steps and activities of the study.

During the Public Open House, four key questions were presented to attendees on feedback forms. A total of 48 submissions were received, including 31 comment sheets and 17 e-mails. The questions and comments are summarized below:

1) What are your thoughts and / or questions on the City's conclusions about:
   a. The need for a pedestrian / cyclist crossing in this area?
   b. The location of such crossing between 1071 King Street West (at Sudbury Street) to Metro plaza?
   c. The design of the crossing as a tunnel connected to a commercial building?
2) What are your thoughts on the alternative locations and bridge designs that were not selected?
3) Do you have preference for an elevator or an inclined ramp for barrier-free access, cyclists and people with strollers or trailers?
4) Do you have any other advice for the City and the study team?

A copy of the POH notice advertisement, the display boards and presentation slides, as well as a detailed summary of the public consultation program, and comments received from POH #2 is provided in ***Appendix C – Public Consultation Report.***

2.7.3 Correspondence and Liaison

2.7.3.1 *Agency and Aboriginal Consultation*

The Notice of Study Commencement was distributed on January 8, 2010 to all relevant review agencies to inform them of the nature and scope of the project.

In addition, letters were issued to the following aboriginal contacts to notify them of the project:

- Indian and North Affairs Canada (INAC);
- Ontario Ministry of Aboriginal Affairs; and
- Mississaugas of the New Credit First Nation.

Letters sent to agencies and aboriginal groups are included in ***Appendix C – Public Consultation Report***.

2.7.3.2 *Property Owners*

As an integral component of the study, the property owners who would potentially be affected by this project were directly contacted to promote involvement during the EA process.

Members of the King Liberty EA study team met in person with representatives of the following property owners or business operators, all of whom had potential property impacts associated with one or more of the alternatives considered:

Owner/Representative	Property Location	Meeting Date(s)
First Capital Asset Management	1071 King Street West And Metro Plaza (100 Lynn Williams Street)	December 22, 2010 January 12, 2011 January 27, 2011 March 11, 2011 May 16, 2011
Plaza Corp.	125 Western Battery Road	January 27, 2011 May 16, 2011
863880 Ontario Limited / IBI Group	The sliver land between the Metro building and 125 Western Battery Road	December 17, 2010 January 27, 2011

In addition, written correspondence occurred with the above during the study.

2.7.4 Notice of Study Completion

A Notice of Study Completion advising of the start of the public review period and the location(s) where the ESR can be reviewed is to be mailed to all agencies, stakeholders and property owners on the project mailing list; published in the local paper(s); and published on the City's website (http://www.toronto.ca/involved/projects/king_liberty/index.htm).

3. Study Area Conditions, Problems, and Opportunities

3.1 Natural Environment

The study area is located in a highly urbanized and disturbed area. Most of the area is developed, undergoing redevelopment or has been redeveloped, with limited vegetation along the roadside boulevards and both sides of the Georgetown / Milton Line Rail Corridor. That is, vegetation is generally in the form of recent streetscaping (Douro Street, Western Battery Road) or plantings on recently-developed private property.

All vegetation in the rail corridor will be removed in the process of constructing the Strachan Avenue grade-separation.

Within the study area, there are generally no water features or surface water drainage features. Stormwater in the area is collected by the curb / gutter and catchbasins along municipal roads, as well as the underground sewage system.

3.2 Cultural Environment

A Stage 1 Archaeological Assessment Study and Report was completed by URS and is attached as ***Appendix D***. The Stage 1 Archaeological Assessment was carried out in accordance with the Ontario's Ministry of Tourism and Culture's *Standards and Guidelines for Consultation Archaeologists* (2011). A Stage 1 Archaeological Assessment involves research to describe the known and potential archaeological resources in and adjacent to the study corridor. The assessment incorporates a review of previous archaeological research, physiographic characteristics and land use history for the properties within the study area. The background research was conducted to identify any archaeology sites within the study area and to assess its archaeology potential.

The Stage 1 Archaeological Assessment entailed a review of the development history of properties in the study area, the 19th and 20th century land-uses, and assessed the potential to encounter deeply buried pre-contact Aboriginal and Euro-Canadian deposits. Results of the research suggest that while development has taken place in the study area throughout the 19th, 20th, and 21st centuries, this development does not eliminate the possibility that archaeological resources may remain, and thus the study area is considered to have the possibility of retaining archaeological potential. As such, URS Canada Inc. has the following recommendations:

1. Archaeological monitoring is recommended at the sites of both the northern (off Douro St) and southern (off Western Battery Road) footings. Monitoring would be carried out according to the standards outlined in the Standards and Guidelines for Consultant Archaeologists (2011).
2. No assessment is recommended under the proposed elevated pedestrian/cyclist bridge component of the link, based on the assumption that its construction will not cause ground disturbance. If ground disturbance is required, than monitoring under the bridge component is also recommended.

In addition, based on a review of the Toronto's Heritage Properties List (February 2, 2006), there are two buildings of heritage interest in the study area, both commercial/industrial.

- 80 Lynn Williams Street, at the time of this investigation the Liberty Towers Presentation Centre, is listed on the City of Toronto's Heritage Properties List (February 2, 2006). The company name of A.R. William Machinery Company is still visible on the south façade. This firm was founded in 1895, and in 1945 expanded into the western provinces where it is still active. This building was built before 1920, and it is a good example of early 20th century industrial design.

- 1071 King Street West which at the time of this investigation was occupied by the Toronto Business Development Centre. However, subsequent to this investigation, the building has been demolished. It appears in the same 1920 aerial photograph as 80 Lynn Williams (City of Toronto Archives, Fonds 1244, Item 2420). It is a good example of early 19th century business / commercial design, and features some nice detail.

Existing buildings should be considered Built Heritage Resources for the purposes of this EA.

3.3 Social Economic Environment

3.3.1 Existing Land Use

Land uses in the study area are regulated through several City of Toronto planning policies including:

- City of Toronto, *Official Plan* (2007);
- *King Liberty Urban Design Guidelines*;
- *Garrison Common North Secondary Plan* (2006); and
- *City of Toronto (former) Zoning By-law 438-86* (as amended).

Existing land uses within the study area include commercial, business, retail and office uses, as well as high and medium density residential uses.

3.3.2 Official Plan and Zoning

The study area is located within the Garrison Common North Secondary Plan area, of which a part of the study area is designated as an *Employment District* in the urban structure map of the *Official Plan;* and a small section along King Street is designated *Avenues*. The *Employment District* forms part of the urban structure of the City. Some of the policies in the *Official Plan* that are relevant to the King Liberty Pedestrian / Cyclist Link EA Study include:

- 2.2 Policy 2 9(d) – Promote mixed use development to increase opportunities for living close to work and to encourage walking and cycling for local trips. Growth will be directed to *Employment Districts* in order to promote mixed use development to increase opportunities for living close to work and to encourage walking and cycling for local trips;
- 2.2.4 Policy 1 (f) – *Employment Districts* will be protected and promoted exclusively for economic activity in order to provide a range of employment opportunities for Toronto residents that can be reached by means other than the private automobile;
- 2.2.4 Policy 5 – Walking and cycling will be encouraged by creating safer and more attractive conditions in *Employment Districts*;
- 2.4 Policy 7 – Policies, programs and infrastructure will be introduced to create a safe, comfortable and bicycle friendly environment that encourages people of all ages to cycle for everyday transportation and enjoyment including:
    a. An expanded bikeway network;
    b. Provision of bicycle parking facilities in new developments;
    c. Provision of adequate and secure bicycle parking at rapid transit stations; and
    d. Measures to improve the safety of cyclists through the design and operation of streets, and education and promotion programs.

- 2.4 Policy 8 – An urban environment and infrastructure will be created that encourages and supports walking throughout the City through policies and practices that ensure safe, direct, comfortable, attractive and convenient pedestrian conditions, including safe walking routes to schools, recreation areas and transit; and
- 3.1.1 Policy 7 – Toronto's concession road grid is a major organizing element to be maintained, improved and recognized in public design initiatives. To promote mobility and recreational opportunities where these streets are interrupted by topographical features or utility corridors, pedestrian and bicycle routes should be established across these features.

In addition, the *Toronto Pedestrian Charter* was adopted by Council in May 2002. It reflects the principle that a city's walkability is a key measure of the quality of its public realm, and of its health and viability. It outlines:

- The urban design principles that ensure walking is safe, comfortable, convenient and direct for people of all ages and abilities;
- Actions that the City can take to create an urban environment in all parts of the City that encourages and supports walking as a form of travel, exercise and recreation; and
- The social, environmental and economic benefits of creating a pedestrian-friendly urban environment.

The objectives of the *Toronto Pedestrian Charter* are consistent with the goals of the *Official Plan* to create a more vibrant, beautiful, prosperous and livable City.

3.3.3 King Liberty Urban Design Guidelines

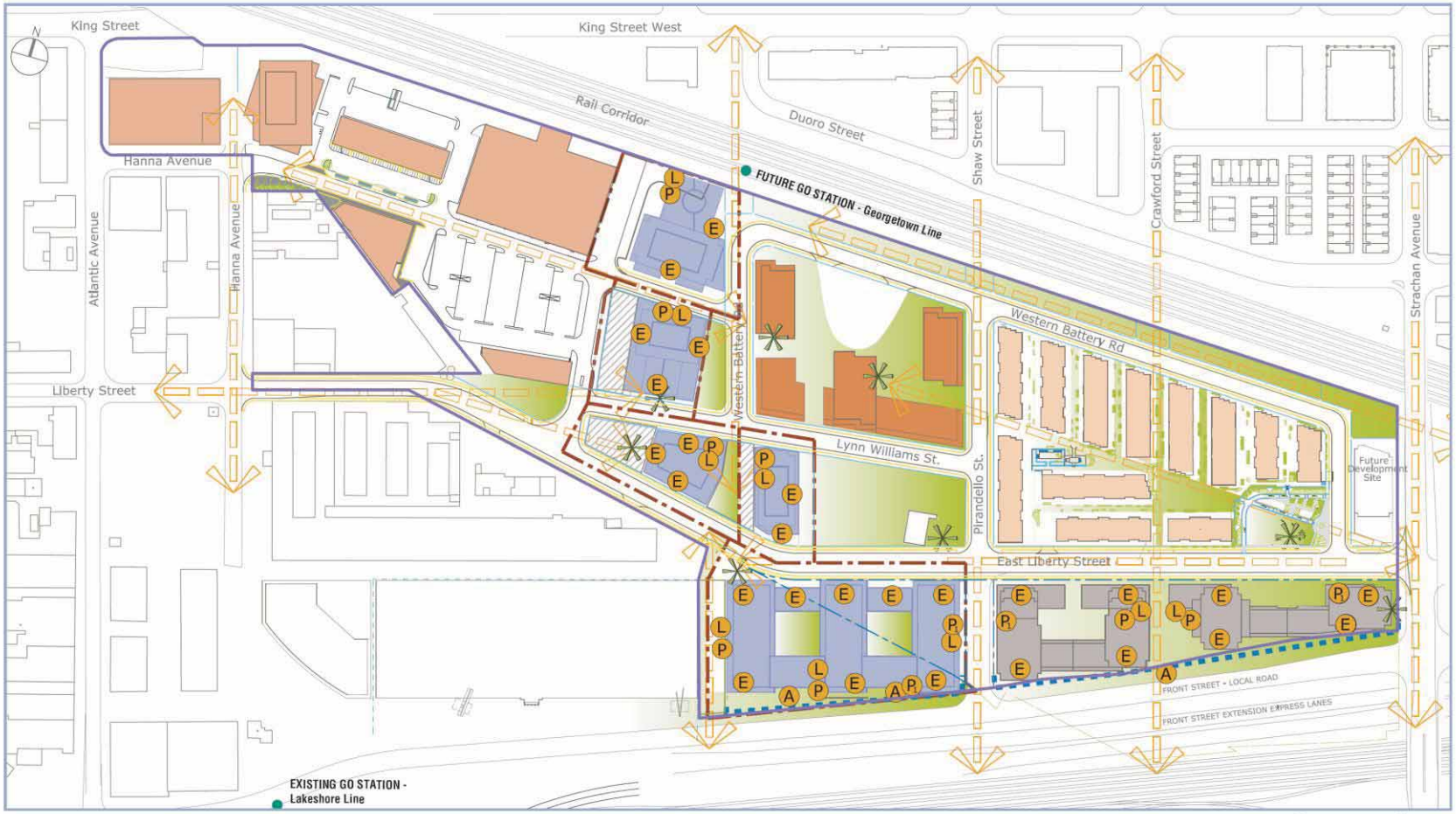
The *King Liberty Urban Design Guidelines* (prepared by IBI Group) were endorsed by City Council in June 2005, and provide the principles and overall vision for the emerging King Liberty neighbourhood. The guidelines were built on the approved policies of the *Official Plan* and the zoning by-laws that describe the locations of public spaces, the density, height and form of buildings, and define the character of the community, requiring that it be sensitive to the heritage of the area. The goal of the guidelines is to build the King Liberty Village as a community that is an interesting place to walk, discover and experience.

The following is a summary of the key features of the Urban Design Guidelines which are relevant to the subject EA study:

- Public access for pedestrians will be encouraged throughout the site, consistent with the access approach to site design already approve and implemented. The Structure Plan in the guidelines identified the following north-south connections across the railway:
  - Between the King Street West / Douro Street intersection and Western Battery Road (westerly north-south leg);
  - Between Shaw Street and Pirandello Street;
  - Between Crawford Street and Western Battery Road (around mid-block between Pirandello Street and easterly north-south leg of Western Battery Road); and
  - Strachan Avenue.
- North/south pedestrian access routes which form a continuation of the north/south street grid of the City, have been extended through the King Liberty Village lands to provide continuous views, and pedestrian access through the site;

- Pedestrian routes, as well as open spaces will be designed to clearly communicate that they are publicly accessible through the use of elements, plantings, paving, lighting and street furniture consistent with that of the public street and parks;
- A new north/south pedestrian connection will be provided; and
- The Structure Plan (see **Exhibit 3-1**) in the guidelines identified potential north-south connections across the Georgetown / Milton Line Rail Corridor.

Exhibit 3-1 – Structure Plan (from the *King Liberty Village Urban Design Guidelines*)



Structure Plan

LEGEND

- FSE LANDSCAPED EDGE
- URBAN EDGE
- SIGNIFICANT CORNER
- CONNECTIONS
- PUBLICLY ACCESSIBLE OPEN SPACE
- PUBLICLY ACCESSIBLE OPEN SPACE (HARD SURFACE)
- EXISTING BUILDING EDGE
- PROPOSED BUILDING
- RETAIL - COMPLETE
- MONARCH DEVELOPMENT
- TOWNHOUSES - UNDER CONSTRUCTION / OCCUPIED
- BOUNDARY OF KING LIBERTY VILLAGE LANDS
- (L) LOADING ACCESS
- (P) PARKING ACCESS
- (P) POTENTIAL PARKING ACCESS
- (A) OPTIONAL ACCESS
- (E) POSSIBLE LOCATIONS FOR MAIN ENTRANCE FOR TOWERS

3.3.4 Secondary Plan Policies

The *Garrison Common North Secondary Plan* is part of the *Official Plan* that provides more detailed direction to the area's development. Relevant to the King Liberty Pedestrian / Cyclist Link EA Study, the Plan sets out the following recommendations:

- 3.2 – To improve pedestrian circulation through Garrison Common North and to Fort York and the waterfront, pedestrian links over the rail corridors will be considered through public and private initiatives;
- 7.1 – Community services and facilities will be provided in Garrison Common North, to meet the needs of present and future residents and workers on a local basis;
- 7.2 – A Community Improvement Plan will be adopted to assist in identifying improvements to public spaces and facilities;
- 5.1 – Local retail and service facilities will be provided to serve the needs of residents and workers in Garrison Common North. The improvement of commercial areas along Dufferin Street, King Street West, Queen Street West and Bathurst Street will be encouraged along with new street related retail and service uses on East Liberty Street; and
- 9.6 – Increases in the level of transit service along King Street West are necessary to meet the increasing demands of the growing neighbourhood. Any physical or operational plans to improve transit service will be balanced against the needs of merchants as well as residents.

In summary, the Secondary Plan proposes an enhanced public open space system with improved visual and physical connections in the area, which includes the consideration of providing pedestrian links over the rail corridors to improve pedestrian circulation through Garrison Common North, and to Fort York and the waterfront.

It also identifies that there is a need to increase the level of transit service along King Street West in order to accommodate the growing neighbourhood including new street related retail and service uses on East Liberty Street.

3.4 Engineering

Within the immediate area of the Georgetown / Milton Line Rail Corridor in the study area, underground utilities are located along Western Battery Road, Douro Street, Shaw Street and Crawford Road.

Due to the utility displacement associated with the Strachan Avenue grade-separation (more information about this project is included in *Section 3.5.2.1 – Future Network Improvements*), Toronto Hydro has proposed a new location for a hydro crossing under the Georgetown / Milton Line Rail Corridor in the vicinity of the westerly north-south legs of Douro Street and Western Battery Road.

Existing utility locations, as well as the engineering plan and profile of the hydro tunnel are included in ***Appendix E – Reference Drawings / Plans / Profiles***.

3.5 Transportation Environment

3.5.1 Existing Conditions

3.5.1.1 *Existing Road Network*

Within the study area, the King Liberty and King West areas are mainly served by an arterial network that consists of King Street West (major arterial), Strachan Avenue (minor arterial (south of Douro Street) / collector (north of Douro Street)) and Dufferin Street (minor arterial). East Liberty Street (collector road) is a key east-west connection in the King Liberty Village, providing connections to a number of the internal roadways. In addition, Douro Street, Shaw Street, Atlantic Avenue and Sudbury Street are also collector roads as per the City's Road Classification System.

3.5.1.2 *Existing Traffic Volumes*

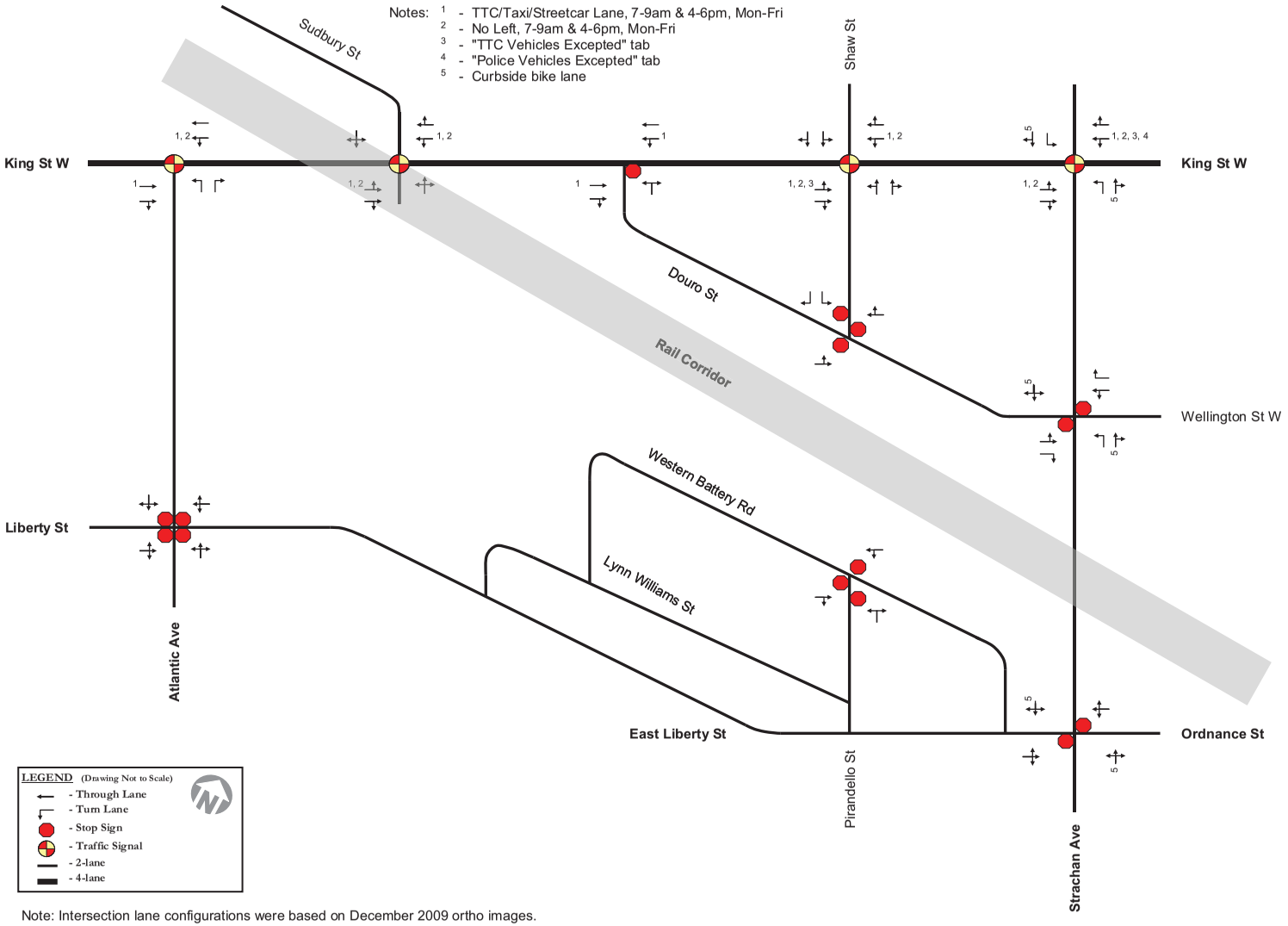
Exhibit 3-2 illustrates the existing lane configurations. **Exhibit 3-3** and **3-4** illustrate the existing traffic volumes for the a.m. and p.m. peak hours, respectively. All the traffic data that was collected between 2006 and 2008 has been adjusted to have a same base year (2009); a conservative growth rate of 2% per year was assumed for the purpose of this study.

3.5.1.3 *Existing Link Analysis*

The purpose of the link analysis was to compare the existing traffic demand along Strachan Avenue and King Street West to the available capacity. The traffic volume divided by the available capacity is the volume-to-capacity ratio (V/C). A volume-to-capacity ratio greater than 1.00 indicates above capacity operations. A capacity of 800 vehicles per lane per hour (vplph) was assumed for both Strachan Avenue and King Street West for the purpose of this study.

The results of the link analysis are illustrated in **Exhibit 3-5**.

Exhibit 3-2 – Existing Lane Configurations



Note: Intersection lane configurations were based on December 2009 ortho images.

Exhibit 3-3 – Existing Traffic Volumes (A.M. Peak Hour)

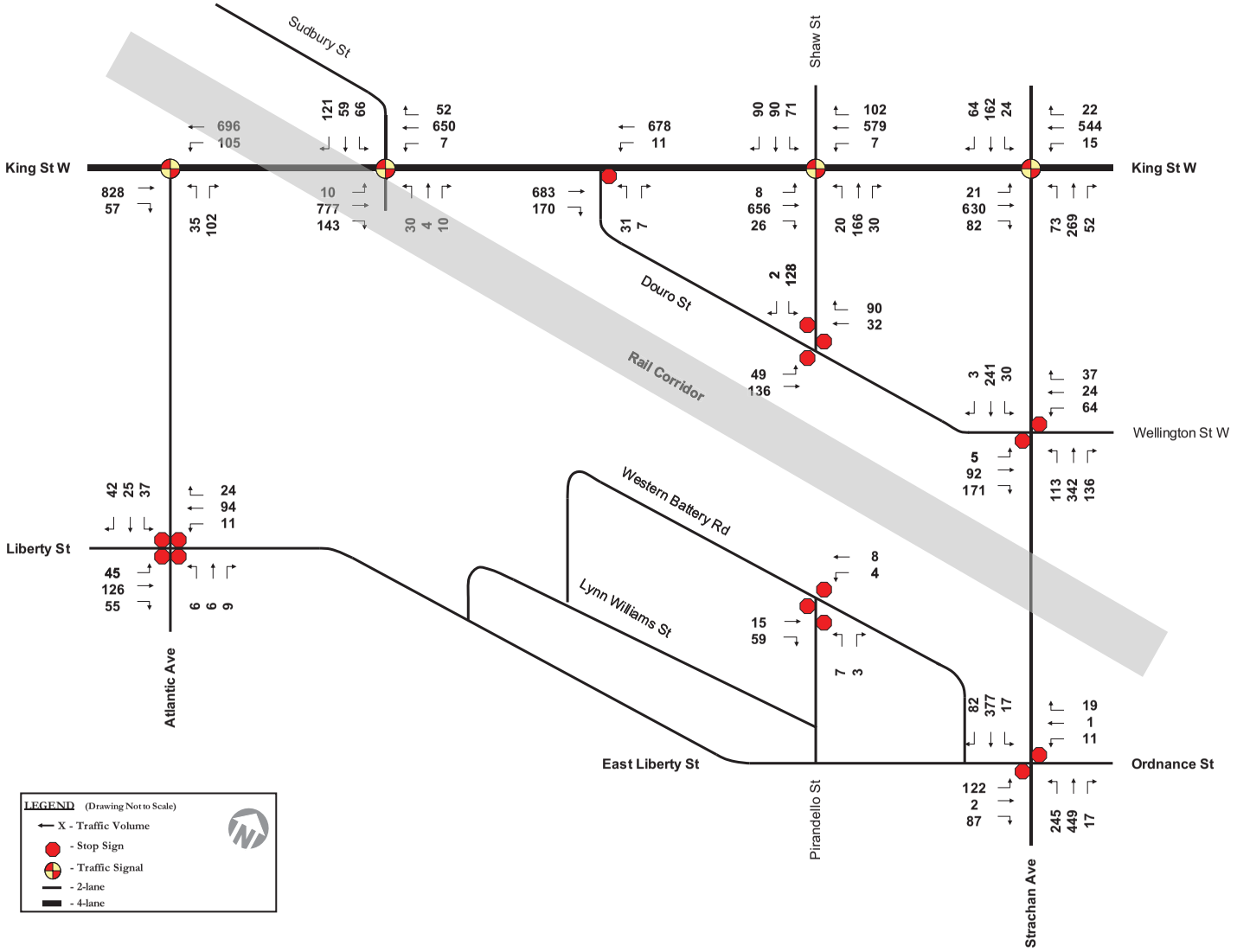


Exhibit 3-4 – Existing Traffic Volumes (P.M. Peak Hour)

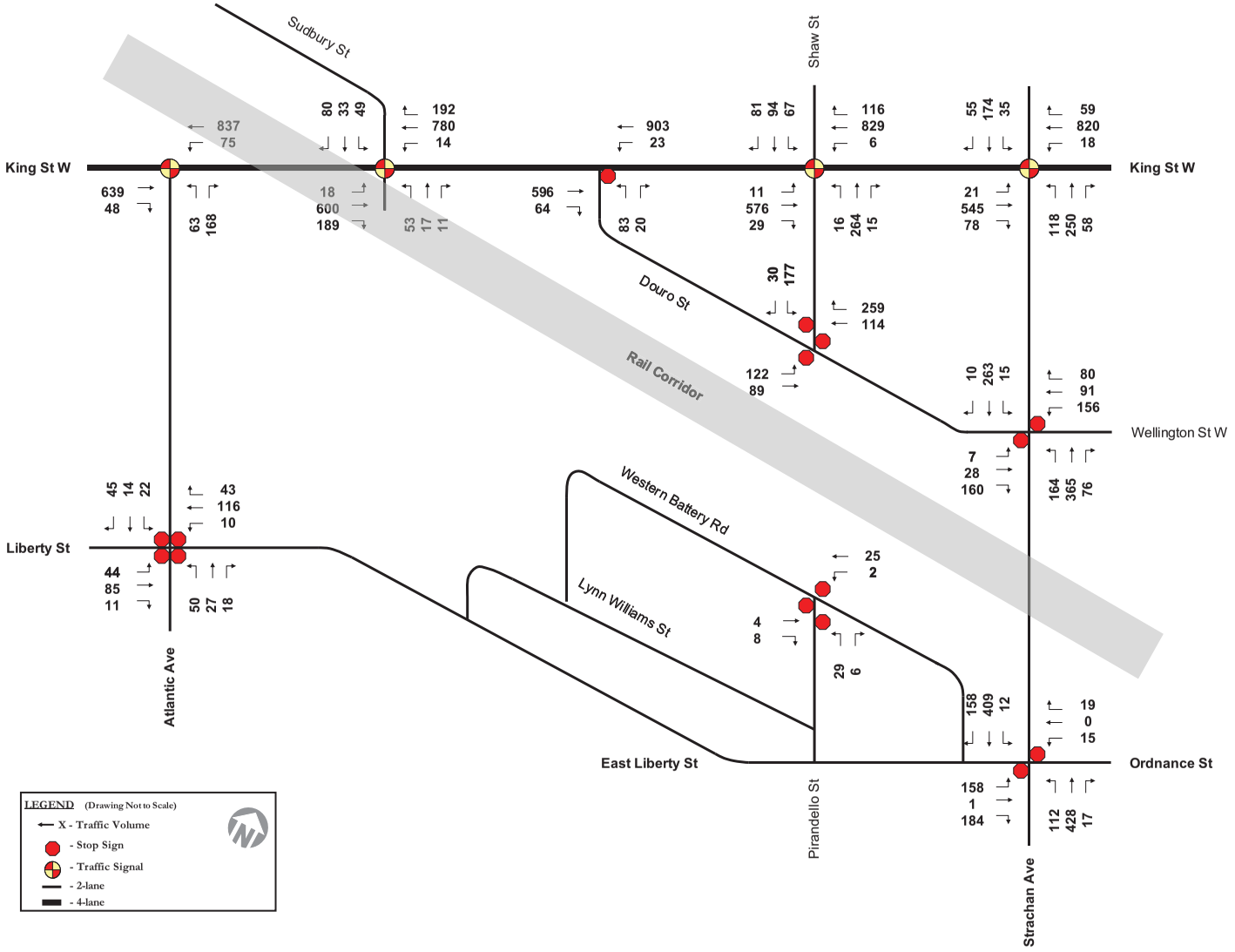
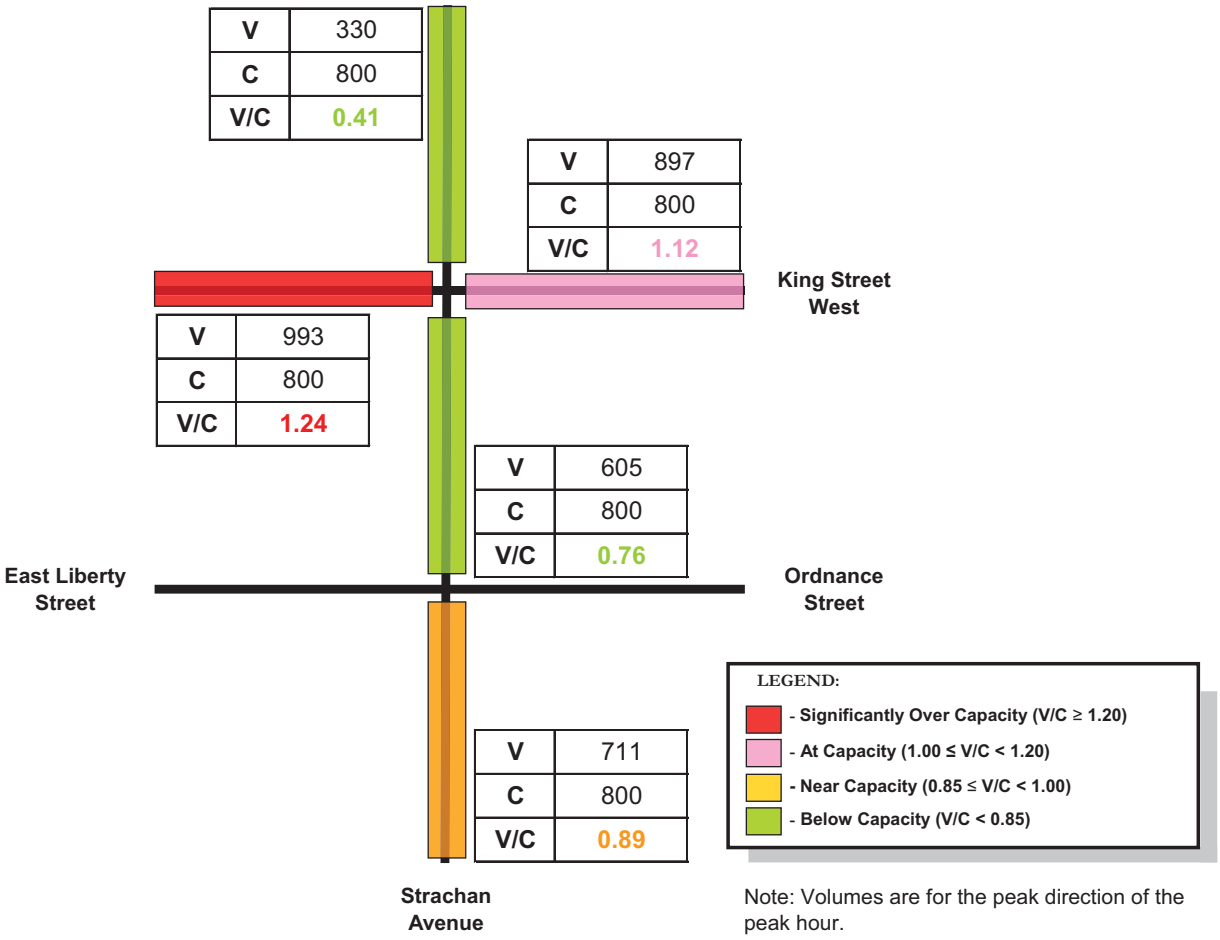


Exhibit 3-5 – Existing Link Analysis



The existing link analysis revealed over capacity link volumes on King Street West, and near capacity volumes on Strachan Avenue for the section south of East Liberty Street-Ordnance Street.

The peak period traffic operations on King Street West are also influenced by streetcar stops, and on Strachan Avenue by the gate-controlled level crossing at the Georgetown / Milton Line Rail Corridor.

The critical volume-to-capacity ratio on King Street West is 1.24 which indicates above capacity operations and a need for additional capacity and/or enhanced Travel Demand Management measures.

3.5.1.4 *Collision Analysis*

Historical collision data within the study area was obtained from the City of Toronto for a recent three-year period (2006 to 2008).

Table 3-1 summarizes the collision rates for the intersections within the study area per million entering vehicles (MEV). **Table 3-2** summarizes the collision initial impact types at the study intersections.

Table 3-1 – Summary of Intersection Collision Rates

Intersection	No. Collisions (3 Years)				AADT E/W Street	AADT N/S Street	Collision Rate (MEV)
	Property Damage Only	Injured	Fatal	Total			
Atlantic & Liberty	4	1	0	**5**	3,321	1,507	0.95
Douro & Shaw	0	1	0	**1**	4,452	1,685	0.15
King & Atlantic	9	6	0	**15**	16,825	1,841	0.73
King & Shaw	17	4	0	**21**	9,517	5,024	1.32
King & Sudbury	7	5	0	**12**	13,930	2,665	0.66
Strachan & Douro	25	13	0	**38**	5,160	9,370	2.39
Strachan & King	31	8	0	**39**	14,470	5,955	1.74
Strachan & Ordnance	4	1	0	**5**	716	14,861	0.29

Table 3-2 – Summary of Collision Types

Intersection	Initial Impact Type																						TOTAL
	Rear End		Angle		Turning Movement		SMV Unattended		Sideswipe		SMV Other		Pedestrian Collision		Cyclist Collision		Approaching		Uncoded		Other		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Atlantic & Liberty	0	0%	1	20%	0	0%	2	40%	1	20%	0	0%	1	20%	0	0%	0	0%	0	0%	0	0%	5
Douro & Shaw	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	1
King & Atlantic	6	40%	2	13%	2	13%	1	7%	2	13%	0	0%	0	0%	2	13%	0	0%	0	0%	0	0%	15
King & Shaw	6	29%	6	29%	4	19%	1	5%	1	5%	0	0%	1	5%	0	0%	2	10%	0	0%	0	0%	21
King & Sudbury	2	17%	0	0%	1	8%	0	0%	5	42%	0	0%	1	8%	3	25%	0	0%	0	0%	0	0%	12
Strachan & Douro	3	8%	22	58%	2	5%	3	8%	0	0%	2	5%	2	5%	3	8%	1	3%	0	0%	0	0%	38
Strachan & King	11	28%	10	26%	4	10%	4	10%	3	8%	2	5%	2	5%	2	5%	1	3%	0	0%	0	0%	39
Strachan & Ordnance	0	0%	2	40%	0	0%	0	0%	1	20%	1	20%	0	0%	1	20%	0	0%	0	0%	0	0%	5
TOTAL:	28	21%	43	32%	13	10%	11	8%	13	10%	5	4%	8	6%	11	8%	4	3%	0	0%	0	0%	136

According to the data received from the City of Toronto, there were a total of 136 collisions in the study area during the three-year analysis period. There is no fatality recorded over the three-year period, and approximately 29% of the collisions involve personal injury and approximately 71% are property damages only. Also, there are a total of 8 pedestrian collisions and 11 cyclist collisions at the study intersections (~6% and 8% of the total number of collisions, respectively) over the three-year period.

The summary in Table indicates that the collision rates at four out of eight study intersections are relatively high at over 0.85 MEV. Most of these intersections are external gateways to the King West and Liberty Village communities, which include:

- Atlantic Avenue / Liberty Street;
- King Street West / Shaw Street;
- Strachan Avenue / Douro Street; and
- Strachan Avenue / King Street West.

The following are some of the potential collision-conducive factors based on our preliminary review:

- Congested conditions on Strachan Avenue and King Street West during peak periods, which may increase motorist and pedestrian's potential exposure to collisions;
- Increasing pedestrian activities in the area may impose higher vehicular delays for turning vehicles at intersections which could result in higher level of frustration for motorists; and
- The Strachan Avenue / Douro Street intersection has the highest collision rate of 2.39. A review of the collision data revealed that 58% of the 38 collisions were angle collisions. Also, a total of

17 charges were issued to the drivers, with nine of the charges being "fail to stop" or "fail to yield". As such, the high collision rate could be a result of the high turning volumes at the intersection. A report (dated January 18, 2005) prepared by City staff indicated that signalized traffic control is warranted at this intersection.

Collisions/Incidents at the Strachan Avenue Rail Crossing

Additional incident and collision data was also received from GO Transit/Metrolinx. Based on the received incident reports, there was only one (property damage only) collision recorded within the study area over a three-year period between 2007 and 2009.

The collision occurred on November 27, 2009, at around 6:30 a.m., where a vehicle proceeded past the warning signals and stopped midway through the railway crossing. The driver attempted to reverse but was blocked by the lowered gate arm. The front of the vehicle was damaged but no injuries were reported.

Some other recorded pedestrian / cyclist incidents in the vicinity of the railway tracks at Strachan Avenue include:

- A fatal accident occurred west of Atlantic Avenue (outside of the study area) at about 4:38 p.m. on October 14, 2009 where a GO Milton train struck a trespasser; and
- Trespasser was observed on one of the signal masts, to the west of Strachan Avenue crossing on April 15, 2009.

3.5.1.5 *Existing Pedestrian and Cyclist Demand*

Based on the *Transportation Tomorrow Survey* (2006), the study area is located within Ward 19 of the City of Toronto; it has a modal split of 33% by local transit and 23% by walking / cycling during the a.m. peak period, and a split of 30% by local transit and 21% by walking / cycling during a 24-hour period. When compared to the average modal split for the entire City (27% by local transit and 11% by walking / cycling during a.m. peak period; 23% by local transit and 8% by walking / cycling during a 24-hour period), Ward 19 has a slightly higher split for transit trips, but a significantly higher split for walking / cycling trips. This data indicates that approximately half of the trips made by the residents of Ward 19 are non-auto trips, and there is a much higher pedestrian and cyclist demand in this area compared to other parts of the City.

Currently, there is a significant amount of redevelopment occurring on both sides of the railway corridor between Strachan Avenue and Dufferin Street. As such, there are attractions for pedestrians on both sides of the corridor, including retail, restaurant, office, residential and transit uses. The Georgetown / Milton Line Rail Corridor is also a barrier between the King Street streetcar that operates north of the rail corridor and the increased employment uses south of the rail corridor.

GO Transit and adjacent property owners report frequent breaches of the chain-link fence along the Georgetown / Milton Line Rail Corridor right-of-way between King Street and Strachan Avenue, indicating trespass pedestrian crossings of the active rail lines.

3.5.1.6 *Pedestrian Accessibility and Safety*

The railway corridor is a key physical barrier between the King Liberty and King West areas. The existing opportunities to safely cross the railway corridor in the King Liberty and King West areas are at Strachan Avenue (at-grade rail crossing) in the east and King Street West (tunnel crossing) via Atlantic Avenue or the staired path (not barrier free) at the north limit of Hanna Avenue in the west. The

separation is approximately 775 metres between the Atlantic Avenue and Strachan Avenue crossings, which is inconvenient for residents and employees in the area.

There are fences and a retaining wall along the Georgetown / Milton Line Rail Corridor between the King Street West underpass and Strachan Avenue, which forms a physical barrier to prohibit pedestrians / cyclists from trespass crossings at locations between the two crossings. However, the observed fence cuts along Douro Street are an indication that there exists trespass crossings of the corridor.

Under the existing conditions, Strachan Avenue crosses the Georgetown / Milton Line Rail Corridor at-grade, which makes the route unfriendly and poorly accommodating for pedestrians and cyclists. The at-grade crossing also presents an entry opportunity for illegal trespass into the rail corridor. However, it is noted that GO Transit/Metrolinx is proposing an expansion of the Georgetown / Milton Line Rail Corridor in which the Strachan Avenue crossing will be replaced by a grade-separated crossing (with the rail corridor being lowered to accommodate an overpass at Strachan Avenue). A multi-use trail is also being proposed within the corridor adjacent to the rail tracks.

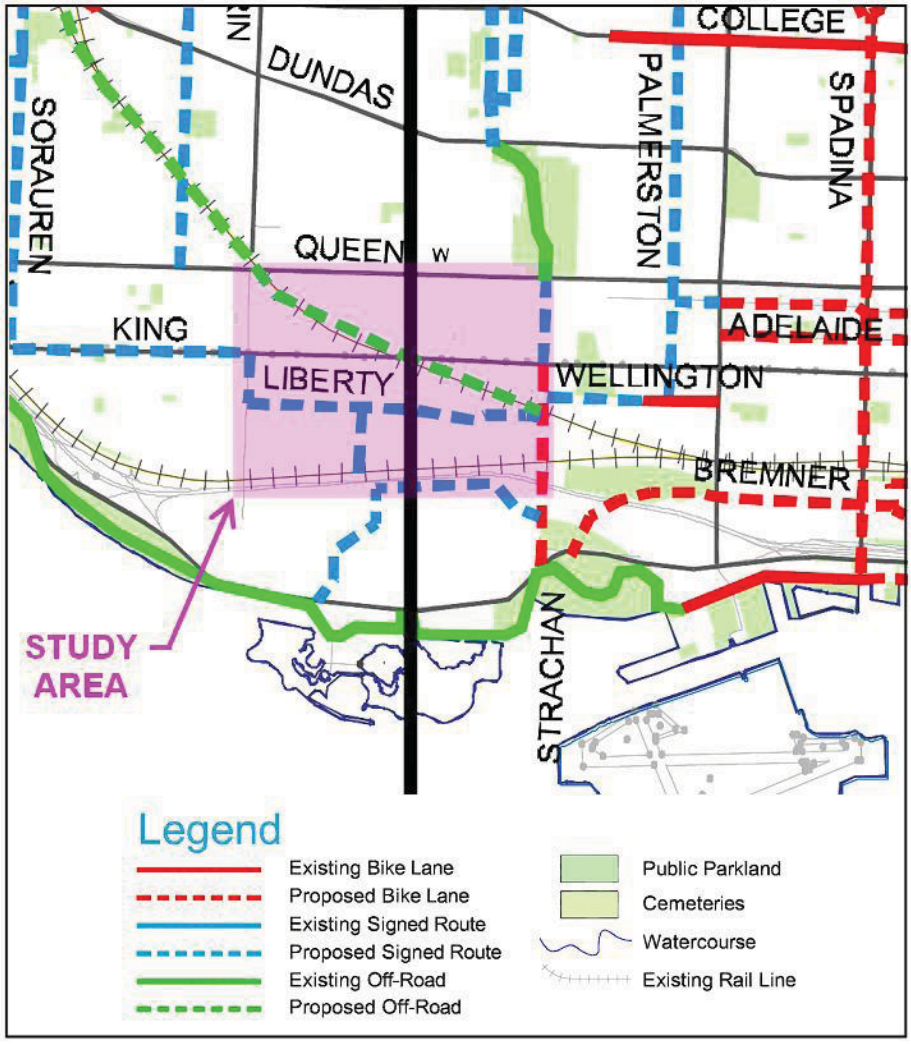
3.5.1.7 *Cyclist Accessibility and Safety*

We have reviewed the existing cyclist accessibility within the study area, and noted that there are on-street bicycle lanes along both sides of Strachan Avenue (south of King Street West) within the study area.

Based on the City's *Bike Plan*, planned bike improvements within the study area include a multi-use path along the Georgetown / Milton Line Rail Corridor, and signed bike routes along East Liberty Street (west of Strachan Avenue) and Atlantic Avenue (south of East Liberty Street). **Exhibit 3-6** illustrates the proposed bikeway network within and around the study area.

City staff also noted that the City is considering a potential future pedestrian / bike path extending from the Douro Street / King Street West intersection northerly to Queen Street; as well as a potential bike route on Shaw Street (potentially a contra-flow lane along the one-way section) south of Bloor Street to Dundas Street West, and the route will continue to King Street West as a shared roadway facility (i.e. a signed route).

Exhibit 3-6 – Toronto Bike Plan – Proposed Bikeway Network



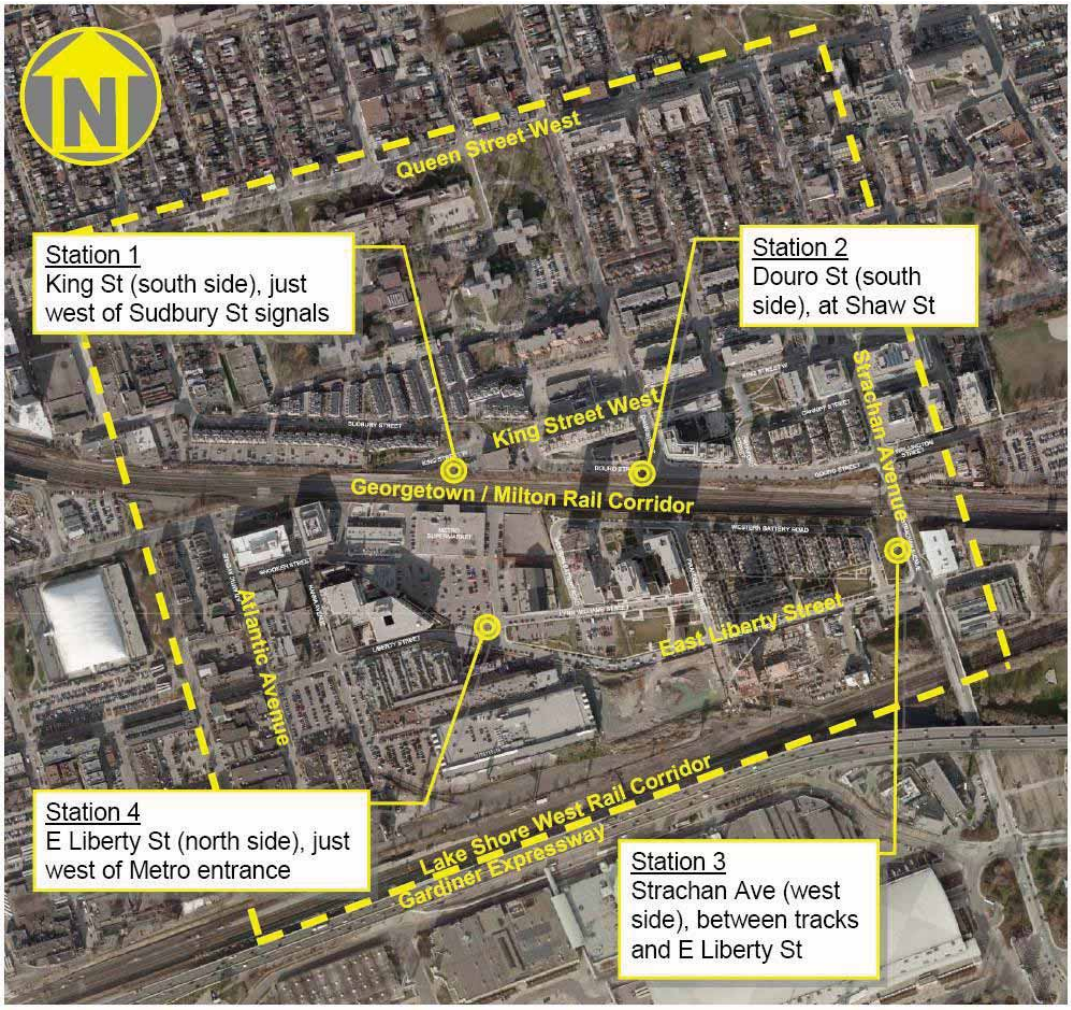
3.5.1.8 *Existing Pedestrian/Cyclist Surveys*

City of Toronto and URS staff conducted pedestrian / cyclist surveys on Thursday, October 15, 2009 (4:00 p.m. - 6:00 p.m.) and Saturday, October 17, 2009 (11:00 a.m. - 2:00 p.m.). Survey stations were strategically located on the north and south sides of the railway corridor including:

- King Street West (south side), just west of Sudbury Street;
- Douro Street (south side), at Shaw Street;
- Strachan Avenue (west side), between rail tracks and East Liberty Street; and
- East Liberty Street (north side), just west of Metro supermarket entrance.

Exhibit 3-7 illustrates the survey locations.

Exhibit 3-7 – Survey Station Locations



Survey Format / Questions

The survey questions were as follows:

1. Where do you currently cross the railway corridor in the King Liberty and King West area?
   - 1a: King Street West (west of Sudbury Street)
   - 1b: Strachan Avenue
   - 1c: Other
2. Desired pedestrian / cyclist link location?
   - 2a: King Street West (west of Sudbury Street)
   - 2b: Sudbury Street extension to Metro
   - 2c: Douro Street to Western Battery Road (at the westerly N-S leg)
   - 2d: Shaw Street to Pirandello Street
   - 2e: Crawford Street to Western Battery Road

2f: Strachan Avenue

2g: Other

3. Would you prefer the link to be above ground or underground? Why?

3a: Above ground

3b: Below ground

Survey Findings

A total of 232 pedestrians and 17 cyclists were interviewed on Thursday, October 15, 2009; and a total of 274 pedestrians and 27 cyclists were interviewed on Saturday, October 17, 2009. **Table 3-3** summarizes the survey data:

Table 3-3 – Summary of Pedestrian / Cyclist Survey Data

Pedestrian/Cyclist Survey	Thursday, October 15, 2009					Saturday, October 17, 2009					2-Day TOTAL					
	Station					Station					Station					
	1	2	3	4	TOTAL	1	2	3	4	TOTAL	1	2	3	4	TOTAL	%
Pedestrian	63	36	91	42	232	51	42	137	44	274	114	78	228	86	506	92%
Cyclist	5	3	4	5	17	2	2	17	6	27	7	5	21	11	44	8%
Total Number of Responses	68	39	95	47	249	53	44	154	50	301	121	83	249	97	550	100%
Q1. Current Crossing Location:																
a. King Street (west of Sudbury Street)	37	10	13	19	79	33	23	16	16	88	70	33	29	35	167	28%
b. Strachan Avenue	26	26	90	22	164	13	28	148	30	219	39	54	238	52	383	65%
c. Other	9	3	2	8	22	8	2	7	2	19	17	5	9	10	41	7%
Q2. Desired Link Location:																
a. King Street (west of Sudbury Street)	2	3	1	1	7	0	0	1	0	1	2	3	2	1	8	1%
b. Sudbury Street extension to Metro	37	6	11	20	74	25	18	36	25	104	62	24	47	45	178	31%
c. Douro Street to Western Battery Road	8	10	9	6	33	7	18	24	9	58	15	28	33	15	91	16%
d. Shaw Street to Pirandello Street	17	18	27	16	78	15	15	61	16	107	32	33	88	32	185	32%
e. Crawford Street to Western Battery Road	1	2	8	2	13	2	2	7	2	13	3	4	15	4	26	4%
f. Strachan Avenue	3	2	36	0	41	2	1	41	0	44	5	3	77	0	85	15%
g. Other	2	2	1	2	7	0	0	2	0	2	2	2	3	2	9	2%
Q3. Above or Underground Link?																
a. Above Ground	48	28	61	27	164	36	36	103	31	206	84	64	164	58	370	78%
b. Below Ground	10	6	23	8	47	8	8	30	11	57	18	14	53	19	104	22%

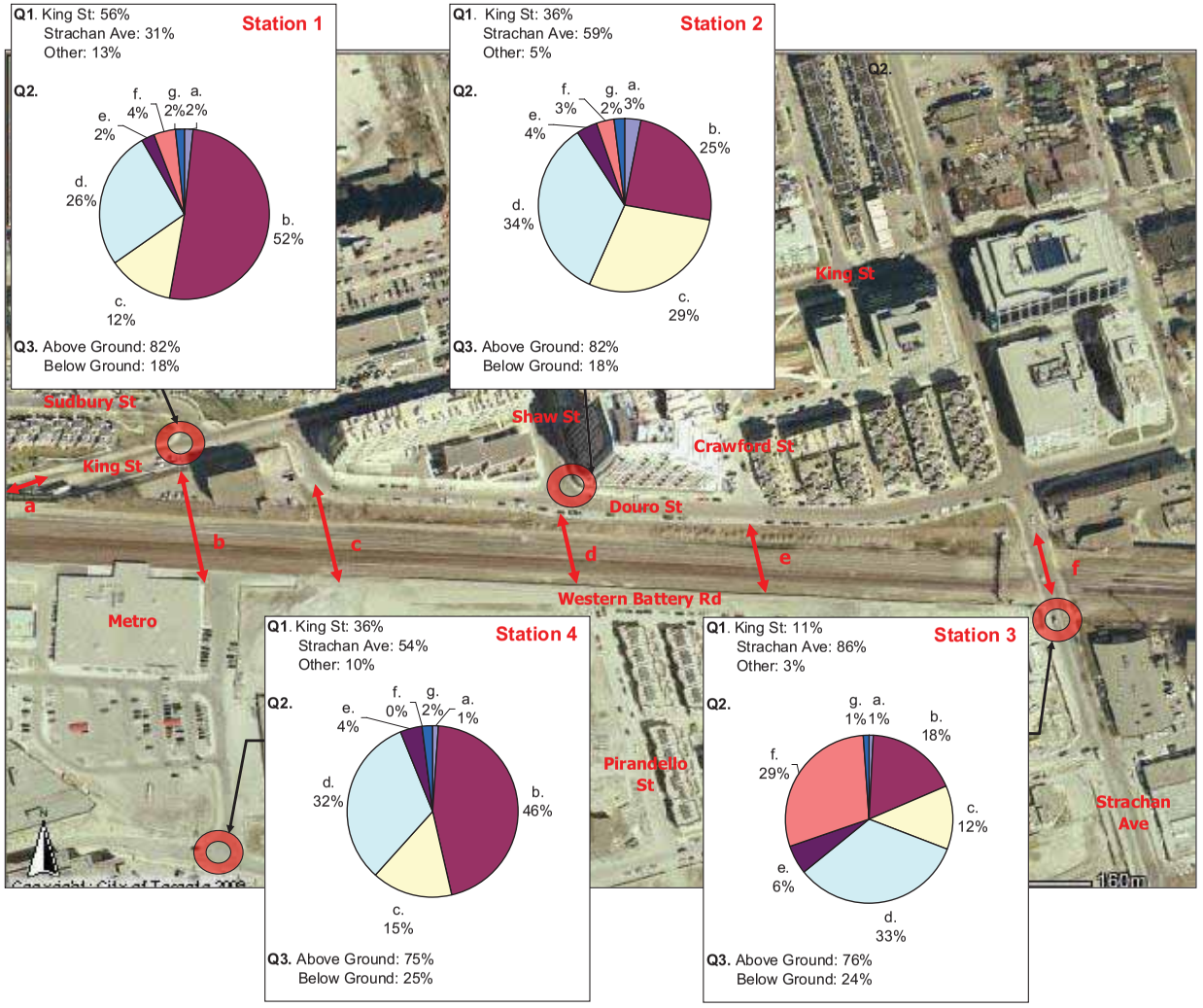
Exhibit 3-8 illustrates the survey results based on the locations of the survey stations and the following is a summary of the findings based on a review of the survey data:

- Most of the surveys (45%) were collected at Station 3 (Strachan Avenue (west side), between rail tracks and East Liberty Street);
- More than half of the pedestrians and cyclists (65%) that were interviewed currently use the Strachan Avenue crossing;
- Respondents are very supportive of a new pedestrian / cyclist link, with 83% preferring to cross at a new location instead of their existing crossing location;
- Data that was collected at the westerly Stations 1 and 4 revealed a distinct preference (Station 1 - 52%, and Station 4 - 46%) of having a new pedestrian / cyclist link at 2b (Sudbury Extension to Metro). The respondents at these stations also identified 2d (between Shaw Street and Pirandello Street) as another desired location;

- Data that was collected at Station 2 revealed a preference (34%) of having a new pedestrian / cyclist link at 2d (between Shaw Street and Pirandello Street). Other desired new link locations include 2c (Douro Street to Western Battery Road at the westerly N-S leg) and 2b (Sudbury Extension to Metro), which constitute 29% and 25% of the survey responses, respectively;
- Data that was collected at Station 3 revealed a preference (33%) of having a new pedestrian / cyclist link at 2d (between Shaw Street and Pirandello Street). Another desired new link location includes the existing crossing at 2f (Strachan Avenue);
- Overall, the most preferred new link locations are 2b – 31% (Sudbury Extension to Metro) and 2d - 32% (between Shaw Street and Pirandello Street) according to the results of the pedestrian / cyclist survey. It is noted that the existing residential population is mostly concentrated on the east side of Pirandello Street, however, the ultimate residential population will be focused on the west side of Pirandello Street when the community is fully developed, and there could be a higher demand for a link towards the west side;
- Majority of the respondents prefer an above ground link (~78%); and
- The key concerns associated with above or below ground links include:
  - Above ground: environment, weather, visual appeal, bicycle access, etc.
  - Below ground: safety / security, construction cost, lighting, etc.

In addition, a further review was undertaken cross-referencing the survey data and the turning movement count data (including pedestrian and cyclist counts collected at the key intersections) provided by the City. On the basis of the proportions of interview responses (collected during a weekday p.m. peak period) that indicated a preference to cross at a new location, and a review of the existing pedestrian / cyclist volumes at the Strachan Avenue and King Street West crossings during the two-hour p.m. peak period, there is an indication that up to approximately 200 pedestrians / cyclists that are currently crossing at Strachan Avenue or King Street West could be using the new crossing during the weekday two-hour p.m. peak period.

Exhibit 3-8 – Pedestrian / Cyclist Survey Results (By Survey Stations)



Survey Questions:

Q1. Where do you currently cross the railway corridor in the King Liberty and King West area?

Q2. Desired pedestrian/cyclist link location?

Q3. Would you prefer the link to be above ground or underground?

LEGEND:

- a. King-Sudbury
- b. Sudbury-Metro
- c. Douro-Western Battery
- d. Shaw-Pirandello
- e. Crawford-Western Battery
- f. Strachan
- g. Other

3.5.2 Future Conditions

3.5.2.1 Future Network Improvements

Georgetown South Service Expansion / Strachan Avenue Grade-Separation

GO Transit / Metrolinx has undertaken an Environmental Assessment study for the "Georgetown South Service Expansion and Union-Pearson Rail Link". Due to the potential increased passenger rail service, the City recommended that the at-grade rail crossing at Strachan Avenue be eliminated to improve safety conditions for all users of the street. The City undertook a study to determine the preferred grade-separation option for Strachan Avenue and the Georgetown / Milton Line Rail Corridor and enable City Council to inform GO Transit / Metrolinx on the recommended option. City Council, at its meeting held on December 1, 2 and 3, 2008 adopted a motion to support the recommended option to lower the Georgetown / Milton Line Rail Corridor, allowing Strachan Avenue to pass over the rail lines. City Council also adopted a motion to request GO Transit / Metrolinx to include the recommended grade-separation option to be included as part of the Individual Environmental Assessment study.

The Georgetown South Project will provide infrastructure improvements to meet existing GO Transit ridership demand and future growth. It will also accommodate existing and future VIA Rail and CN freight train service as well as the new Air Rail Link between Union Station and Pearson International Airport.

The project extends from Bathurst Street in the City of Toronto to Highway 427 in the Region of Peel. Within the study area, the existing road / rail level crossing at Strachan Avenue will be replaced by a road bridge 7.4 metres (from bottom of bridge to top of rail) over a lowered rail corridor (Strachan Avenue will be raised by approximately 2.2 metres, and the rail corridor will be lowered by approximately 5.2 metres) . The ultimate rail corridor configuration will be 40 metres wide with an eight track cross section. The grade-separation project will extend between King Street West in the west and Bathurst Street in the east. Enabling Works and Major Works commenced in mid 2011 for an anticipated project completion by November 2014 (the north half from 2011 to 2013, and the south half from 2012 to 2014).

Although the Structure Plan (Exhibit 3-1) in the *King Liberty Village Urban Design Guidelines* indicated a conceptual Liberty Village GO station within the study area, input provided by GO Transit / Metrolinx indicated that there are several factors precluding such a station in the vicinity of the proposed crossings, including the close proximity to Union Station (GO's primary market is the long distance commuter), the spatially constrained corridor width (with up to eight tracks in the ultimate configuration) and the infrastructure (retaining walls, track grades) that will be incorporated as part of the Strachan grade-separation project. Furthermore, the Union 2031 study, currently underway, is examining options to offload passenger demand from Union Station, and the preliminary results identify a range of opportunities beyond providing a station in the Lower Galt corridor at Liberty Village. Furthermore, it was noted the rail corridor crossing options currently in development could proceed assuming that there will not be a GO station in the immediate vicinity of Strachan Avenue.

The engineering plan and profile of the Georgetown South Expansion / Strachan Avenue grade-separation within the study area is included in ***Appendix E – Reference Drawings / Plans / Profiles***.

Other Improvements

Other approved / planned network improvements in the area include:

- Bicycle improvements within the study area include the "West Toronto Railpath extension" along the Georgetown / Milton Line Rail Corridor, as well as signed bike routes along East Liberty Street and Atlantic Avenue (south of East Liberty Street);

- Intersection improvements at the Strachan Avenue / East Liberty Street intersection (signalization and provision of exclusive southbound right-turn lane) following completion of the Strachan Avenue grade-separation project in 2014; and
- The City of Toronto is undertaking an EA study to assess the possibility of constructing a new east-west street along the south end of the Liberty Village between Dufferin Street and Strachan Avenue. The new street would provide the opportunity to improve circulation for all modes of travel and support community development.

3.5.2.2 *Future Traffic Conditions*

Future traffic is expected to generally be the same as existing given the following:

- The area is well-served by transit, which is considered a key amenity to living in the area;
- The King Liberty Village is designed to support and encourage the use of alternative transportation modes; and
- The City encourages the implementation of Travel Demand Management measures throughout the City to reduce vehicular trips.

3.5.2.3 *Future Pedestrian / Cyclist Demand*

The King Liberty neighbourhood is designed to be a mixed-use community with live/work buildings, offices, residential and retail uses that will be contained in a mix of building types including townhouses, towers and mid-rise buildings.

Given that the development of the King Liberty Village is on-going and there is no formal statistical data on the occupancy of the residential units or adequate existing pedestrian / cyclist crossing data, it is difficult to quantify the future pedestrian / cyclist demand. However, from a qualitative perspective, the pedestrian and cyclist demand is expected to increase as the development of the King Liberty Village continues since the design of the community encourages walking / cycling within the community. Based on the existing pedestrian and cyclist volumes crossing the Georgetown / Milton Line Rail Corridor between Strachan Avenue and Atlantic Avenue as illustrated in Section 3.5.1.8, a new crossing between the two could be expected to attract existing users as well as a significant proportion of future growth which could potentially be as high as 300 pedestrians / cyclists during the weekday two-hour p.m. peak period for the five-year horizon (2014) based on a review of the historical pedestrian / cyclist volumes in the area.

3.6 Summary of Issues / Opportunities / Constraints

The following is a summary of the main aspects of the assessment and concerns:

- The Georgetown / Milton railway corridor is a key physical barrier between the King Liberty and King West areas;
- The existing opportunities to cross the Georgetown / Milton railway corridor in the King Liberty and King West areas are at Strachan Avenue (at-grade rail crossing) in the east and King Street West (tunnel crossing) via Atlantic Avenue or the staired path (not barrier free) at the north limit of Hanna Avenue in the west. The separation is approximately 775 metres between the Atlantic Avenue and Strachan Avenue crossings, which is inconvenient for residents and workers;
- Given the spacing (approximately 775 metres) between the existing Atlantic Avenue and Strachan Avenue crossings, provision of a new pedestrian / cyclist crossing would be appropriate.

- Existing bicycle facilities within the study area include on-street bicycle lanes along both sides of Strachan Avenue (south of King Street West);
- Planned bike improvements within the study area include a multi-use path along the Georgetown / Milton Line Rail Corridor, signed bike routes along East Liberty Street (west of Strachan Avenue) and Atlantic Avenue (south of East Liberty Street). City staff also noted that the City is considering a potential future pedestrian / bike path extending from the Douro Street / King Street West intersection northerly to Queen Street; as well as a potential bike route on Shaw Street (potentially a contra-flow lane along the one-way section) south of Bloor Street to Dundas Street West, and the route will continue to King Street West as a shared roadway facility (i.e. a signed route);
- City of Toronto and URS staff conducted pedestrian / cyclist surveys on Thursday, October 15, 2009 (4:00 p.m. - 6:00 p.m.) and Saturday, October 17, 2009 (11:00 a.m. - 2:00 p.m.). The survey results revealed positive responses, wherein the majority of respondents are very supportive of a new pedestrian / cyclist link across the Georgetown / Milton Line Rail Corridor between Strachan Avenue and Atlantic Avenue;
- According to the results of the pedestrian / cyclist survey, the most preferred new link locations are 2b (Sudbury extension to adjacent to the Metro supermarket) and 2d (between Shaw Street and Pirandello Street); and the majority prefers an above ground link (~78%);
- The policies contained in the City's *Official Plan* support pedestrian and cycling activity, reducing automobile dependence and improving neighbourhood connectivity;
- The *King Liberty Urban Design Guidelines* identifies that public access for pedestrian will be encouraged throughout the site. The Structure Plan in the guidelines identified a few north-south connections across the Georgetown / Milton Line Rail Corridor between Strachan Avenue and Atlantic Avenue which are consistent with the objective of the subject EA study;
- City's policies and study findings support the provision of a new pedestrian / cyclist link between the King Liberty and King West area, but there was no consideration for a new vehicular link;
- Given the expansion of the Georgetown / Milton Line Rail Corridor (to accommodate future growth in transit ridership, freight train services, as well as the new Air Rail Link between Union Station and Pearson International Airport), any new at-grade crossing would not be approved by Metrolinx for safety and operational reasons; and
- Most of the study area is developed, undergoing redevelopment or has been redeveloped, as such, one of the key study principles is to minimize property impacts.

3.7 Problem / Opportunity Statement

Within the King Liberty area, there are a number of opportunities and problems. Those relevant factors addressed by this study are as follows:

- Currently, the only opportunities to appropriately cross the Georgetown / Milton Line Rail Corridor in the King Liberty and King West area are at Strachan Avenue in the east and King Street West in the west. The separation of approximately 775 metres between the two crossings, is inconvenient for residents and workers, and results in some unsafe and illegal crossings between these two locations;
- A direct and exclusive pedestrian / cyclist link across the rail corridor between Strachan Avenue and Atlantic Avenue would provide a safer pedestrian and cyclist environment that is physically separated from auto and rail traffic, and is convenient to the King West and King Liberty communities to the north and south of the rail corridor;

- Provision of a new pedestrian / cyclist link in the study area would better integrate the communities on the north and south sides of the rail corridor which would support economic activities in the area, provide increased business opportunities, and make the area more attractive to tourists; and
- Various planning policies promote the re-development of lands in the area in an urban form which would include the provision of safe, direct, comfortable, attractive and convenient pedestrian conditions (safe walking routes to schools, recreational areas, and transit that encourages and supports walking). City's initiatives also support cycling in the area.

4. Alternative Planning Solutions

4.1 Alternative Planning Solutions

In accordance with the Class EA, the project team identified and evaluated a range of Alternative Solutions to the Undertaking. Alternative solutions identify ways of solving the problem identified in the Problem and Opportunity statement. All of the Alternative Solutions include the planned grade-separation at the Strachan Avenue and Georgetown / Milton Line Rail Corridor intersection.

For the purposes of this study, the alternative solutions to the undertaking include:

A. **"Do Nothing":** The Do Nothing alternative assumes no improvements made beyond those already planned and approved (for comparison purposes only);

B. **Improve the links to the existing pedestrian / cyclist connections:** This alternative assumes the provision of improved link connections to the existing pedestrian and cyclist network (sidewalks, open spaces, bicycle lanes, etc.); and

C. **Build a new pedestrian / cyclist link connecting the northerly (King West) and southerly (King Liberty Village) communities:** This alternative assumes the construction of a new link connecting the northerly (King West/Queen West) and southerly (King Liberty Village) communities.

The Alternative Solutions were evaluated at a broad level based on the criteria as documented in the Study Design prepared for the subject EA Study (dated December 14, 2009) which included: Transportation, Socio-Economic Environment, City Building, Natural Environment, Cultural Environment, and Engineering and Cost.

Other alternative solutions were considered (such as Transit Improvements and Land Use Controls), but were screened out in advance of the detailed evaluation given that they do not address the identified transportation problem and opportunity.

4.2 Evaluation Criteria

A key element of the alternatives evaluation (for planning solutions and to a greater extent for the evaluation of the design solutions, as documented in subsequent sections of the report) was the identification and attention to criteria that are envisioned to yield discernible measurable differences. In that regard, it was not completely necessary to rigorously evaluate for a criterion that may not yield different results for any of the alternatives. The criteria identified in the Study Design were applied as follows:

- **Transportation** criteria will be subject to qualitative and quantitative assessment for existing and future conditions. Impacts could be considered in terms of physical impacts, as well as qualitative potential for increased pedestrians / cyclists. Qualitative measures addressing overall safety and service, and transit impacts will also be considered, as well as the compliance with pedestrian / cycling design principles;
- **Socio-Economic Environment** criteria will be evaluated in terms of quantitative and qualitative metrics. For example, access changes, impacted businesses, property needs, and streetscaping/urban design environment can be addressed;
- **City Building:** Urban design and form can be measured against the degree of compliance with policy;

- **Natural Environment** criteria related to wildlife and habitat are generally not discernible as a metric for comparison of the alternatives since the lands are predominantly built-out;
- **Cultural Environment:** Heritage resources, cultural landscape and archaeological impacts will be considered; and
- **Engineering and Costs** will be quantified in terms of number of utility relocates and construction costs. Constructability and staging will be considered. Property cost is not a factor, as all alternatives assume use of public rights-of-way.

4.3 Evaluation of Alternative Planning Solutions and Selection of Preferred Planning Solution

An assessment was completed to create an overall summary of the positive and negative features of each Alternative Planning Solution against the selected evaluation criteria. The full evaluation and summary comparison of the Alternative Planning Solutions are summarized in **Tables 4-1 and 4-2**, respectively.

Based on the evaluation of the Alternative Solutions, "Alternative C – Build a new pedestrian / cyclist link" is the preferred Alternative Solution since it:

- Addresses the identified existing issues (a lack of a direct connection between the King West and King Liberty Village communities, poor pedestrian/cyclist route connectivity, and safety);
- Provides an opportunity to enhance pedestrian/cyclist connections, better integrate the communities on the north and south sides of the Georgetown / Milton Line Rail Corridor which would facilitate economic activities in the area, provide increased business opportunities, and enhance the attractiveness of the area as a tourist venue; and
- Although there are costs associated with constructing a new pedestrian / cyclist link, the overall public realm, connectivity of the pedestrian / cyclist network and accessibility of the King Liberty Village and King West areas would be improved, with minimal impact to cultural and natural environment given that the Study Area is considered to be highly disturbed lands.

Table 4-1 –Evaluation of the Alternative Solutions

EVALUATION FACTOR	A. Do Nothing	B. Improve Links to Existing Pedestrian / Cyclist Connections	C. Build A New Pedestrian / Cyclist Link
TRANSPORTATION OPERATIONS AND SAFETY	▪ ☒ Does not address the existing issue (a lack of direct and safe crossing between the King West and King Liberty Village communities, pedestrian / cyclist route connectivity, safety).	▪ ☒ Does not directly address the existing issue (a lack of direct and safe crossing between the King West and King Liberty Village communities, pedestrian / cyclist route connectivity, safety).	▪ ☑ Addresses existing issues, enhance safety, accessibility, route connectivity and crossing opportunities over the Georgetown / Milton Rail Corridor (between King Street West and Strachan Avenue). ▪ ☑ It would also enhance the pedestrian / cyclist network within the Study Area to facilitate non-auto movements, which is consistent with the City's vision of the King Liberty Village, as well as the initiatives in the City's Official Plan.
SOCIO-ECONOMIC ENVIRONMENT IMPACTS	▪ ☒ Does not support the growth of the communities, nor improve the existing crossing opportunities and conditions at the Georgetown / Milton Rail Corridor.	▪ ☒ Does not directly support the growth of the communities, nor improve the existing crossing opportunities and conditions at the Georgetown / Milton Rail Corridor.	▪ ☑ Improves user safety, route connectivity and crossing opportunities between King Street West and Strachan Avenue. ▪ ☑ Provides an opportunity to improve the physical and operational characteristic of the King Liberty Village, as well as to enhance the economic vitality of the district.
CITY BUILDING / URBAN DESIGN	▪ ☒ Inconsistent with the City's visions and initiatives as stated in the Official Plan, as well as the Urban Design Guidelines.	▪ ☑ Improves the existing conditions in terms of better urban design, however, it is not able to address the key issue (i.e. connectivity between the King West and King Liberty Village communities).	▪ ☑ Enhances public realm, provides better connections between the King West and King Liberty Village communities, and encourages walking/cycling as an alternative transportation mode. ▪ ☑ Consistent with the City's visions and initiatives as stated in the Official Plan, as well as the Urban Design Guidelines.
NATURAL ENVIRONMENT IMPACTS	▪ ☑ No Impact.	▪ ☒ Minimal Impact. The Study Area is located in a highly urbanized area. Most of the Study Area is undergoing redevelopment or has been redeveloped, with limited vegetation along the roadside boulevards and both sides of the Georgetown / Milton Rail Corridor.	▪ ☒ Minimal Impact. The Study Area is located in a highly urbanized area. Most of the Study Area is undergoing redevelopment or has been redeveloped, with limited vegetation along the roadside boulevards and both sides of the Georgetown / Milton Rail Corridor.
CULTURAL ENVIRONMENT FACTORS	▪ ☑ No Impact.	▪ ☑ No Impact. Most of the Study Area is already highly disturbed by rail and street construction, with low archaeological or historic potential.	▪ ☒ Alternative C could potentially impact two historical buildings located within the Study Area.
ENGINEERING AND COST IMPACTS	▪ ☑ No Cost.	▪ ☒ Low Cost. Alternative B would result in moderate costs over "Do Nothing" (Alternative A).	▪ ☒ Medium to High Cost. The cost for Alternative C would be subject to the type of infrastructure that is required.
SUMMARY	▪ Does not address the existing issue. ▪ Does not support the growth of the communities, nor improve the existing crossing opportunities. ▪ Inconsistent with the policies in the City's Official Plan and the Urban Design Guidelines. ✓ **Carry Forward (For Comparison Only)**	▪ Does not directly address the existing issue. ▪ Does not directly support the growth of the communities, nor improve the existing crossing opportunities. ✗ **Do Not Carry Forward**	▪ Although there are costs associated with constructing a new pedestrian / cyclist link, the overall public realm and accessibility of the King West and King Liberty Village communities would be improved, with no adverse impact to the natural environment given that the Study Area is considered to be highly disturbed lands. Urban design is also enhanced. ✓ **Carry Forward**

Table 4-2 – King Liberty EA – Evaluation of the Alternative Solutions

EVALUATION FACTOR	A. Do Nothing	B. Improve Links to Existing Pedestrian / Cyclist Connections	C. Build A New Pedestrian / Cyclist Link
SUMMARY OF CATEGORIES			
TRANSPORTATION OPERATIONS AND SAFETY	◔	◕	●
SOCIO-ECONOMIC ENVIRONMENT IMPACTS	◔	◕	●
CITY BUILDING / URBAN DESIGN	◔	◕	●
NATURAL ENVIRONMENT IMPACTS	●	◕	◕
CULTURAL ENVIRONMENT FACTORS	●	●	◕
ENGINEERING AND COST IMPACTS	●	◕	◑
SUMMARY	◔	◕	●
Summary: ▪ **Alternative C (Build a New Pedestrian / Cyclist Link Across Rail Corridor) is recommended to be carried forward.**			

Least Recommended *Most Recommended*

◔ ◑ ◕ ●

5. Alternative Link Design Solutions

Alternative design solutions for the new link-based solutions were developed based on the following key objectives:

1. To connect and facilitate the pedestrian / cyclist movements between the communities on the north and south sides of the Georgetown / Milton Line Rail Corridor;
2. To integrate with the character of the King Liberty Village and King West communities; and
3. To potentially become a signature element of the King Liberty Village and King West communities.

5.1 Alternative Crossing Locations

The following six alternative design solutions were developed as deemed appropriate after the development of the problem statement:

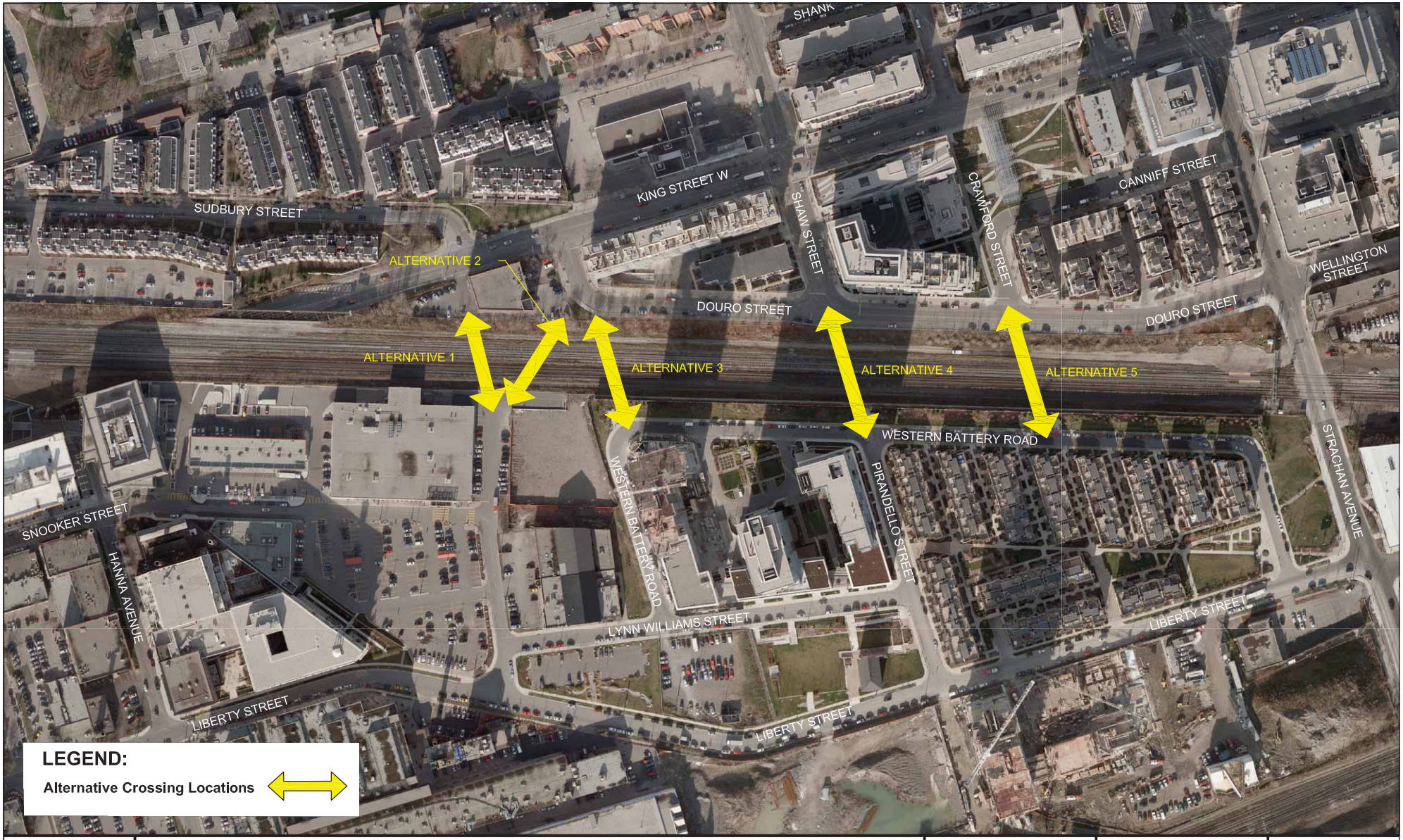
- "Do Nothing" alternative (for comparison purposes);
- Construct a bridge or a tunnel, including the following:
  - Alternative 1 - Sudbury Street extension to the Metro plaza;
  - Alternative 2 - Douro Street (at the westerly north-south leg) to the Metro plaza;
  - Alternative 3 - Douro Street (at the westerly north-south leg) to Western Battery Road (at the westerly north-south leg);
  - Alternative 4 - Shaw Street to Pirandello Street; and
  - Alternative 5 - Crawford Street to Western Battery Road (mid-block between Pirandello Street and easterly north-south leg of Western Battery Road).

Exhibit 5-1 illustrates the locations of the alternative design solutions and their associated key features.

5.2 Alternative Crossing Methods (Bridge vs. Tunnel)

The benefits and impacts associated with either tunnel or bridge solutions were considered. The evaluation is summarized in **Table 5-1 and Table 5-2**. In summary, it was determined that a tunnel is a viable solution for Alternative 1, but a bridge is a more desirable solution for Alternatives 2, 3, 4 and 5 given the topographic conditions in the study area, as well as the geometric constraints resulting from the lowered elevation of the rail tracks along the Georgetown / Milton Line Rail Corridor (to accommodate the easterly grade-separation at Strachan Avenue).

Based on the results of the pedestrian / cyclist survey conducted in October 2009, most of the respondent indicated preference of an above-grade crossing (~78%) due to the safety / security, construction cost and lighting concerns associated with a below-ground crossing.



TORONTO

KING LIBERTY PEDESTRIAN CYCLIST LINK EA

(City of Toronto Job#: 9117-09-7075; URS Job#: 33016166)

EXHIBIT 5-1 - ALTERNATIVE DESIGN SOLUTIONS

SCALE: 1:2000	DRAWN BY: S.C.
DATE: FEB 4, 2010	CHECKED BY: K.P.

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Table 5-1 – King Liberty EA – Evaluation of the Above-ground Link and Below-ground Link

EVALUATION FACTOR	I. Above-ground Link (Bridge)	II. Below-ground Link (Tunnel)
TRANSPORTATION OPERATIONS AND SAFETY	▪ ☑ Addresses existing issues, enhances safety, accessibility, route connectivity and crossing opportunities over the Georgetown / Milton Rail Corridor (between King Street West and Strachan Avenue). ▪ ☑ Enhances the pedestrian / cyclist network within the Study Area to facilitate non-auto movements, which is consistent with the City's vision of the King Liberty Village, as well as the initiatives in the City's Official Plan. ▪ ☑ An above-ground link would be safer and more secure than a below-ground link.	▪ ☑ Addresses existing issues, enhances accessibility, route connectivity and crossing opportunities over the Georgetown / Milton Rail Corridor (between King Street West and Strachan Avenue). ▪ ☑ Enhances the pedestrian / cyclist network within the Study Area to facilitate non-auto movements, which is consistent with the City's vision of the King Liberty Village, as well as the initiatives in the City's Official Plan. ▪ ☒ A below-ground link would be less safe and secure than an above-ground link.
SOCIO-ECONOMIC ENVIRONMENT IMPACTS	▪ ☑ Improves user safety, route connectivity and crossing opportunities between the King West and King Liberty Village communities.	▪ ☑ Improves route connectivity and crossing opportunities between the King West and King Liberty Village communities.
CITY BUILDING / URBAN DESIGN	▪ ☑ Better opportunity to enhance public realm, and provides better connections between the King West and King Liberty Village communities. ▪ ☑ Consistent with the local resident's preference of having an above-ground link. ▪ ☑ It would encourage walking/cycling as an alternative transportation mode.	▪ ☑ Improves the connectivity between the King West and King Liberty Village communities). ▪ ☒ It is not consistent with local resident's preference of having an above-ground link. Resident's key concerns with respect to a below-ground link are safety/security, construction cost and lighting.
NATURAL ENVIRONMENT IMPACTS	▪ ☒ Minimal impact. The Study Area is located in a highly urbanized area. Most of the Study Area is undergoing redevelopment or has been redeveloped, with limited vegetation along the roadside boulevards and both sides of the Georgetown / Milton Rail Corridor.	▪ ☒ Minimal impact. The Study Area is located in a highly urbanized area. Most of the Study Area is undergoing redevelopment or has been redeveloped, with limited vegetation along the roadside boulevards and both sides of the Georgetown / Milton Rail Corridor.
CULTURAL ENVIRONMENT FACTORS	▪ ☒ Although most of the Study Area is already highly disturbed by rail and street construction, with low archaeological or historic potential, this alternative could potentially impact two historical buildings located within the Study Area.	▪ ☒ Although most of the Study Area is already highly disturbed by rail and street construction, with low archaeological or historic potential, this alternative could potentially impact two historical buildings located within the Study Area.
ENGINEERING AND COST IMPACTS	▪ ☒ Typically, construction of a standard bridge (above-ground link) is less costly than a tunnel (below-ground link). However, an architectural 'signature' bridge could be as / more costly than a tunnel. ▪ ☑ Above-ground link is typically appropriate if the elevation of the rail tracks is lower than the elevation of the adjacent lands. This is the case throughout the study area since the future elevation of the regraded rail corridor is lower than the adjacent lands. ▪ ☑ Given the required vertical constraints (7.4 m clearance between rail and bridge, or 5.0 m from rail to bottom of a tunnel) long access ramps would be required. Since the rail corridor elevation is lower in the future, in all cases the ramps would be shorter with a bridge alternative. ▪ ☒ A bridge could potentially obstruct or interfere with the visibility to future rail signals along the rail corridor. ▪ ☑ This alternative meets the City's desired design practice to construct above-ground crossings rather than below-ground crossings.	▪ ☒ Typically, construction of a tunnel (below-ground link) is more costly than a standard bridge (above-ground link). However, an architectural 'signature' bridge could be as / more costly than a tunnel. ▪ ☒ Potential geometric constraints resulting from the lowered elevation of the rail tracks to accommodate the Strachan Avenue and Georgetown/Milton rail corridor grade-separation. ▪ ☒ Below-ground link is typically appropriate if the elevation of the rail tracks is higher than the elevation of the adjacent lands. However, this is not the case throughout the study area since the future elevation of the regraded rail corridor is lower than the adjacent lands. ▪ ☒ In all cases, ramps would be longer with a tunnel alternative. This would present a significant impact to the usability of the tunnel since users may be adverse to travelling in a long tunnel structure. ▪ ☑ A tunnel would not obstruct or interfere with the visibility to future rail signals along the rail corridor. ▪ ☒ This alternative does not meet the City's desired design practice to construct above-ground crossings rather than below-ground crossings.

Table 5-2 – King Liberty EA – Above-ground Link vs. Below-ground Link

EVALUATION FACTOR	I. Above-ground Link (Bridge)	II. Below-ground Link (Tunnel)
TRANSPORTATION OPERATIONS AND SAFETY	●	◕
SOCIO-ECONOMIC ENVIRONMENT IMPACTS	●	●
CITY BUILDING / URBAN DESIGN	●	◕
NATURAL ENVIRONMENT IMPACTS	●	●
CULTURAL ENVIRONMENT FACTORS	●	●
ENGINEERING AND COST IMPACTS	●	◕

Least Recommended ◕ *Most Recommended* ●

5.3 Screening of Alternative Design Solutions

5.3.1 Evaluation Criteria

Each evaluation criteria is an independent variable that can contribute a positive or negative influence on the overall suitability of an alternative design solution.

The alternative design solutions were evaluated at a high-level on the basis of Transportation, Socio-Economic Environment, City Building, Natural Environment, Cultural Environment, as well as Engineering and Costs, as per the considerations noted in *Section 4.2 – Evaluation Criteria*.

5.3.2 Screening of Alternative Link Design Solutions – Round 1

The preliminary review of the above noted alternative design solutions are summarized in **Table 5-3**, and the following is a summary of the evaluation findings:

- Alternative 1 was not carried forward given that it is similar to Alternative 2, however, it would result in additional property impacts to 1071 King Street West. Also, it is not desirable to provide a pedestrian / cyclist connection that is located in the vicinity of a truck loading area (at the Metro plaza);
- Alternative 2 was not carried forward given that it would result in property impacts to the Metro plaza as well as the proposed residential development at 125 Western Battery Road. Also, it is not desirable to provide a pedestrian / cyclist connection that is located in the vicinity of a truck loading area (at the Metro plaza);
- Alternative 3 was carried forward given that it is within public right-of-way, and it is located mid-block between the existing Strachan Avenue and King Street West crossings;
- Alternative 4 was carried forward given that it is within public right-of-way. Also, it is the most preferred new link location based on the pedestrian / cyclist survey conducted in October 2009 and it is located mid-block between the existing Strachan Avenue and King Street West crossings; and
- Alternative 5 was not carried forward given that it is located in close proximity to the existing Strachan Avenue crossing and this alignment is farthest from the population and geographic centre of the King Liberty Village.

In summary, Alternatives 3 and 4 were selected to be carried forward for further evaluation.

The above review and findings were presented at the first Public Open House (POH) held on March 9, 2010. Based on the POH comments, it was confirmed that the Preferred Solution is to build a new pedestrian / cyclist link across the Georgetown / Milton Line Rail Corridor, and that Alternatives 3 and 4 should be carried forward for further evaluation. Alternatives 1 and 2 were set aside due to their impact on private property, while Alternative 5 was seen as less effective than Alternative 4.

Table 5-3 – Preliminary Review of the Alternative Design Solutions (Crossing Locations)

ALTERNATIVE DESIGN SOLUTIONS	DESCRIPTION	PRELIMINARY EVALUATION	CONCLUSION
"Do Nothing"	Status Quo.	▪ Does not address existing issues (a lack of direct and safe crossing between the King West and King Liberty Village communities, pedestrian / cyclist route connectivity, safety, etc.). ▪ Does not support the City and the local resident's desire to have a new link across the Georgetown / Milton Line Rail Corridor between the existing Strachan Avenue and King Street West crossings. ▪ This option is not consistent with the City's vision of the King Liberty Village.	✓ **Carry Forward (For comparison purposes only)**
Alternative 1	Provision of a bridge between Sudbury Street and the Metro plaza.	▪ Located in proximity to the existing King Street West crossing limiting its desirability as an alternative crossing. ▪ Provides a protected crossing environment for pedestrians / cyclists that is located away from congested streets (i.e. King Street West or Strachan Avenue). ▪ Provides a direct connection to the retail uses (such as Metro and retail plaza) in the King Liberty Village. ▪ This option would result in property impacts at 1071 King Street West. ▪ Comparatively, Alternative 1 is similar to Alternative 2 but also impacts a historical building and may have less utilization. ▪ It is not desirable to provide a pedestrian / cyclist connection that is located in the vicinity of a truck loading area (on the south side of the Georgetown / Milton Line Rail Corridor). ▪ Impacts the proposed residential development at 125 Western Battery Road.	✗ **Do Not Carry Forward**
Alternative 2	Provision of a bridge between Douro Street (at the westerly N-S leg) and the Metro plaza.	▪ Located in mid-block between existing Strachan Avenue and King Street West crossings. ▪ Provides a protected crossing environment for pedestrians / cyclists that is located away from congested streets (i.e. King Street West or Strachan Avenue). ▪ Provides a direct connection to the retail uses (such as Metro and retail plaza) in the King Liberty Village. ▪ It is not desirable to provide a pedestrian / cyclist connection that is located in the vicinity of a truck loading area (on the south side of the Georgetown / Milton Line Rail Corridor). ▪ Impacts the proposed residential development at 125 Western Battery Road.	✗ **Do Not Carry Forward**
Alternative 3	Provision of a bridge between Douro Street (at the westerly N-S leg) and Western Battery Road (at the westerly N-S leg).	▪ Located in mid-block between existing Strachan Avenue and King Street West crossings. ▪ Provides a protected crossing environment for pedestrians / cyclists that is located away from congested streets (i.e. King Street West or Strachan Avenue).	✓ **Carry Forward**
Alternative 4	Provision of a bridge between Shaw Street and Pirandello Street.	▪ Located in mid-block between existing Strachan Avenue and King Street West crossings. ▪ Provides a protected crossing environment for pedestrians / cyclists that is located away from congested streets (i.e. King Street West or Strachan Avenue). ▪ Does not provide a direct connection to the retail uses (such as Metro and retail plaza) in the King Liberty Village. ▪ Most preferred new link location based on pedestrian / cyclist survey conducted in October 2009.	✓ **Carry Forward**
Alternative 5	Provision of a bridge between Crawford Street and Western Battery Road (mid-block between Pirandello Street and easterly N-S leg of Western Battery Road).	▪ Located in close proximity to the existing Strachan Avenue crossing limiting its desirability as an alternative crossing. ▪ Provides a protected crossing environment for pedestrians / cyclists that is located away from congested streets (i.e. King Street West or Strachan Avenue). ▪ Does not provide a direct connection to the retail uses (such as Metro and retail plaza) in the King Liberty Village. ▪ This alignment is farthest from the population and geographic centre of the King Liberty Village.	✗ **Do Not Carry Forward**

5.3.3 Screening of Alternative Link Design Solutions – Round 2

In late 2010, the City reviewed the design plans with First Capital Asset Management, the land owners of both 1071 King Street West and the Metro plaza (100 Lynn Williams Street). It was noted that First Capital is redeveloping the 1071 King Street West site, creating an opportunity to integrate a pedestrian / cyclist tunnel with the future building. In light of the First Capital's conceptual development plans, Alternative 1 was re-introduced to the evaluation.

Based on a review of the grades of the future lowered Georgetown / Milton Line Rail Corridor and the adjacent lands on the north and south sides, it was noted that the crossing at Alternative 1 is most feasible as a tunnel. Meanwhile, bridge concepts were developed for the Alternatives 3 and 4.

The following table summarizes the evaluation of the selected Alternative Crossing Locations.

Table 5-4 – Review of Alternative Crossing Locations

ALTERNATIVE BRIDGE / TUNNEL LINK LOCATIONS	EVALUATION	CONCLUSION
Alternative 1 - Tunnel Provision of a tunnel between 1071 King Street West and Metro plaza. 	☑ Provides the most direct connection to King Street. ☑ Provides the shortest travel distance between the Sudbury Street / Queen West / King West areas and the commercial / retail uses (such as Metro and retail plaza) on the south side of the rail corridor. ☒ A below-grade tunnel does not have negative visual impact, however, it is not able to create a view corridor or become a visible landmark feature in the area. ☑ This alignment is directly connected to the commercial / retail uses of the King Liberty Village. **Summary:** **Alternative 1 is a desirable alignment as it provides the most direct connection and shortest travel distance between the Sudbury Street / Queen West / King West areas and the commercial / retail uses in the King Liberty Village (which is one of the key trip generators in the area), however, a below-grade tunnel is not able to create a view corridor or become a visible landmark feature, and it is located mostly on private property.**	 Carry Forward
Alternative 3 - Bridge Provision of a bridge between Douro Street (at the westerly N-S leg) and Western Battery Road (at the westerly N-S leg). 	☑ Provides a direct connection to King Street via the north-south leg of Douro Street. ☒ Results in out-of-way travel for the Sudbury Street / Queen West / King West area residents that are destined to the commercial / retail uses (such as Metro and retail plaza) on the south side of the rail corridor. ☑ The bridge span is to be aligned with west leg of Douro Street - Western Battery Road, which will provide direct visual connection to King Street. The bridge will also be visible from west leg of Western Battery Road. The bridge alignment creates a view corridor along Douro Street and Western Battery Road. ☑ This alignment is close to the commercial / retail uses of the King Liberty Village. **Summary:** **Alternative 3 is also a desirable alignment as it provides a good connection between the Sudbury Street / Queen West / King West areas and the commercial / retail uses in the King Liberty Village (which is one of the key trip generators in the area) and it provides a view corridor opportunity along Douro Street and Western Battery Road. Alternative 3 is located entirely on public property.**	 Carry Forward
Alternative 4 – Bridge Provision of a bridge between Shaw Street and Pirandello Street. 	☑ Provides direct connection to King Street via Shaw Street. ☒ Results in the longest out-of-way travel for the Sudbury Street / Queen West / King West area residents that are destined to the commercial / retail uses (such as Metro and retail plaza) on the south side of the rail corridor. ☑ Bridge is visible from King Street W (via Shaw Street), Shaw Street and Pirandello Street. Bridge alignment creates prominent view corridor along Shaw Street and Pirandello Street. ☒ This alignment is closest to the high density residential uses of the King West and King Liberty Village areas, however, it is also in close proximity to the future Strachan Avenue bridge at the rail corridor. **Summary:** **While Alternative 4 does provide a prominent view corridor along Shaw Street and Pirandello Street, Alternative 4 is less desirable than Alternative 3 as it results in out-of-way travel between the Sudbury Street / Queen West / King West areas and the commercial / retail uses in the King Liberty Village (which is one of the key trip generators in the area). Alternative 4 is located entirely on public property.**	 Do Not Carry Forward

In summary, Alternative 1 (provision of a pedestrian / cyclist tunnel between 1071 King Street West and Metro plaza) and Alternative 3 (provision of a pedestrian / cyclist bridge between the westerly north-south legs of Douro Street and Western Battery Road) were carried forward for further evaluation.

5.4 Alternative Link Designs

The alternative link designs were developed based on design constraints identified during the study process. In addition, relevant design provisions were incorporated into each alternative to address the problems and opportunities identified in the study area.

5.4.1 Design Constraints

The following design constraints for each of the design concepts were identified. The impacts from each were considered in order to have minimal impact associated with the alternatives:

- Vertical clearance over or under (with grade-separation) the Georgetown / Milton Line Rail Corridor;
- Vertical grades and length of ramp structure; and
- Narrow boulevard width on Douro Street (south side).

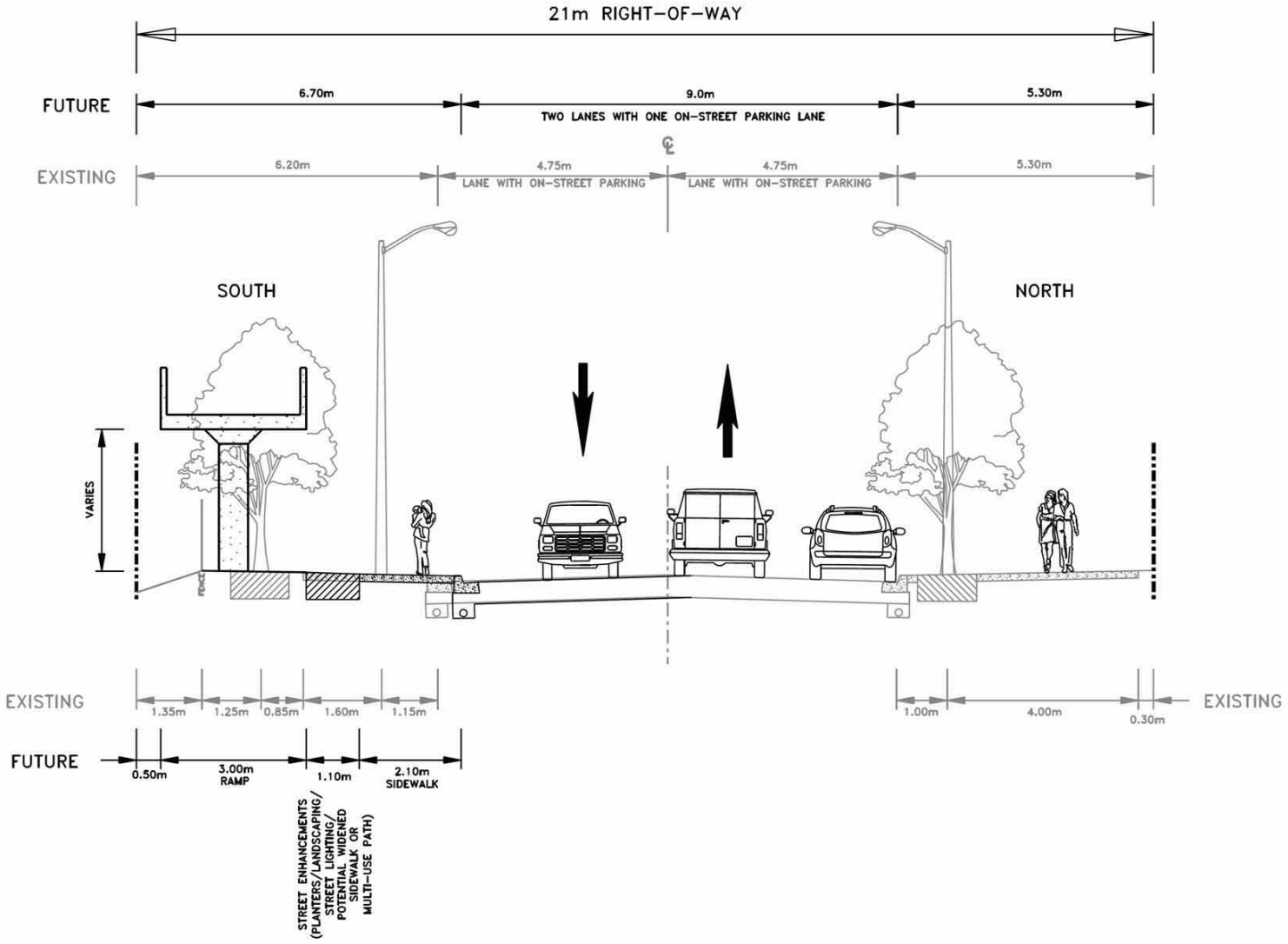
5.4.2 Design Provisions

Each of the alternatives contains some common elements. These design features were incorporated into each alternative to address the problems and opportunities identified in the study area. The design provisions are as follows:

- Lowering of the Georgetown / Milton Line Rail Corridor as part of Metrolinx's planned grade-separation under Strachan Avenue (by 2014);
- Bridge with a 5-metre deck width; or a 6-metre wide tunnel with a 3-metre internal vertical clearance;
- Stairs (with bicycle channels) plus barrier-free access (via ramp or elevator) provided on both sides of the link;
- All stairs to be at least 2.2 metres wide and all ramps to be 3 metres wide;
- Barrier-free access ramps designed to have a gradient of 1:20 (5% slope), except at critical locations where a steeper gradient of 1:12 (8.33% slope, plus intermediate level landings) has been used to minimize property impacts;
- Minimum road pavement width of 9.0 metres as well as a sidewalk width of 2.1 metres to be provided;
- Protect for potential future multi-use path along Douro Street; and
- Minimize impact on private properties.

Based on the above noted design provisions, a typical cross-section of Douro Street was developed for Alternatives 3A and 3B (as described in following sections). **Exhibit 5-2** illustrates the proposed typical cross-section of Douro Street (west of Shaw Street).

Exhibit 5-2 – Proposed Douro Street Typical Cross-section (West of Shaw Street)



5.5 Description of Alternative Link Designs

Given the above noted design constraints / provisions and typical cross-section, the following five design alternatives were developed for an in-depth evaluation:

- Alternative 1 (**Exhibit 5-3**):
  - Provision of the below-grade link between the future development at 1071 King Street West and the Metro plaza;
  - Barrier-free ramp on the south side. The tunnel is extended beyond the rail corridor right-of-way to maintain access to the condominium development at 125 Western Battery Road, as well as Metro loading area;
  - Barrier-free access to King Street West is to be integrated with future development at 1071 King Street West;

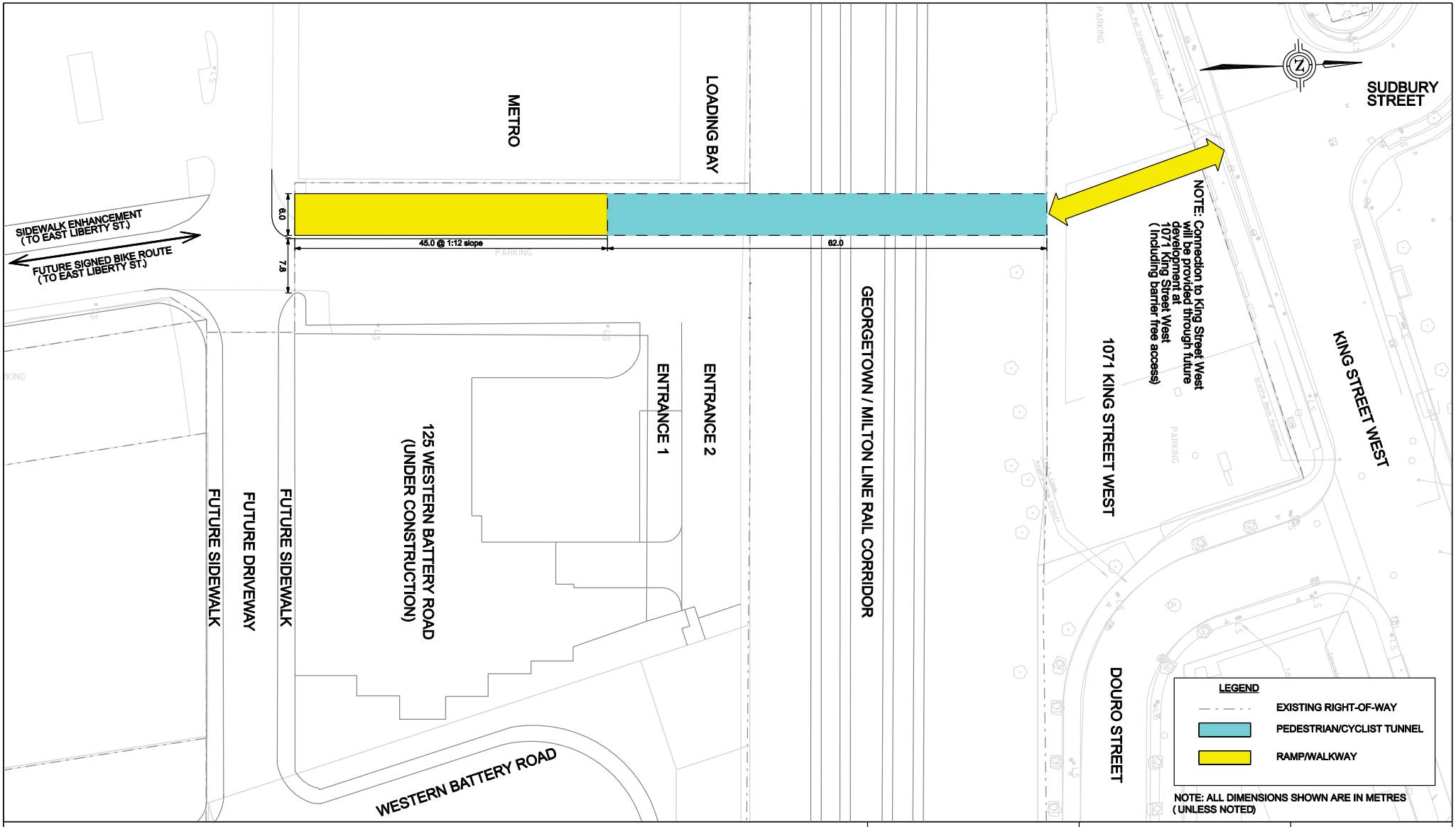
- Removal of 18 existing parking spaces located along the east side of the Metro building to accommodate a ramp connection;
- Enhanced sidewalk between the tunnel and East Liberty Street; and
- Provision of a signed bike route between the tunnel and East Liberty Street.

- Alternatives 3A (**Exhibit 5-4**):
  - Provision of an above-grade link between the westerly north-south legs of Douro Street and Western Battery Road;
  - Barrier-free ramps (straight ramp on the north side and switchback ramp on the south side), plus stairs (with bicycle channels) on both sides of the bridge;
  - Reduced pavement width along Douro Street (south side) from King Street West to Shaw Street;
  - A reduction of 29 on-street parking spaces;
  - Removal / replacement of vegetation along Douro Street (south side) and Western Battery Road (north side boulevard);
  - Relocation of illumination and catchbasins along Douro Street (south side); and
  - Relocation of illumination along Western Battery Road (north side boulevard).
- Alternatives 3B (**Exhibit 5-5)**:
  - Provision of an above-grade link between the westerly north-south legs of Douro Street and Western Battery Road;
  - Barrier-free (switchback) ramps, plus stairs (with bicycle channels) on both sides of the bridge;
  - Reduced pavement width along Douro Street (south side) from King Street West to Shaw Street;
  - A reduction of 8 on-street parking spaces;
  - Removal / replacement of vegetation along Douro Street (south side) and Western Battery Road (north side boulevard);
  - Relocation of illumination and catchbasins along Douro Street (south side); and
  - Relocation of illumination along Western Battery Road (north side boulevard).
- Alternatives 3C (**Exhibit 5-6**):
  - Provision of an above-grade link between the westerly north-south legs of Douro Street and Western Battery Road;
  - Barrier-free access via elevator on the north side and switchback ramp on the south side, plus stairs (with bicycle channels) on both sides;
  - Minor removal / replacement of vegetation along Douro Street (south side boulevard) and Western Battery Road (north side boulevard); and
  - Relocation of illumination along the north side boulevard of Western Battery Road.

- Alternatives 3D (**Exhibit 5-7**):
  - Provision of an above-grade link between the westerly north-south legs of Douro Street and Western Battery Road;
  - Barrier-free access via elevators, plus stairs (with bicycle channels) on both sides; and
  - Minor removal / replacement of vegetation along Douro Street (south side boulevard) and Western Battery Road (north side boulevard).

Reference profiles (east-west cross-sections) of Douro Street, the future Georgetown / Milton Line Rail Corridor and Western Battery Road are included in ***Appendix E – Reference Drawings / Plans / Profiles***.

Exhibit 5-3 - Alternative 1



TORONTO

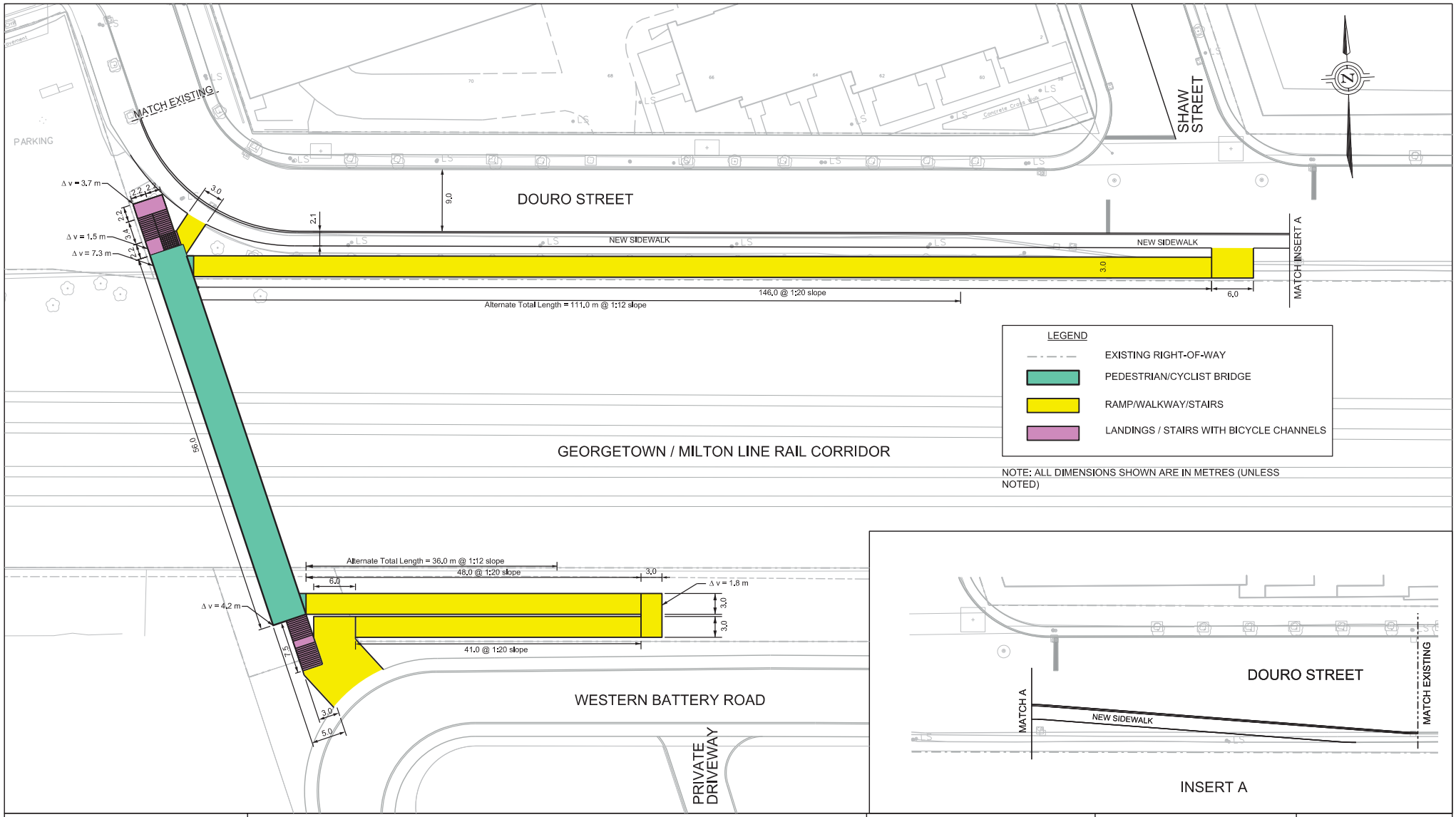
KING LIBERTY PEDESTRIAN CYCLIST LINK EA
ALTERNATIVE 1 UNDERGROUND TUNNEL

(City of Toronto #: 9117-09-7075: URS #: 33016166)

SCALE: 1:500	DRAWN BY: E.C.
DATE: FEB. 2011	CHECKED BY: D.H. /K.P.

URS

Exhibit 5-4 - Alternative 3A



TORONTO

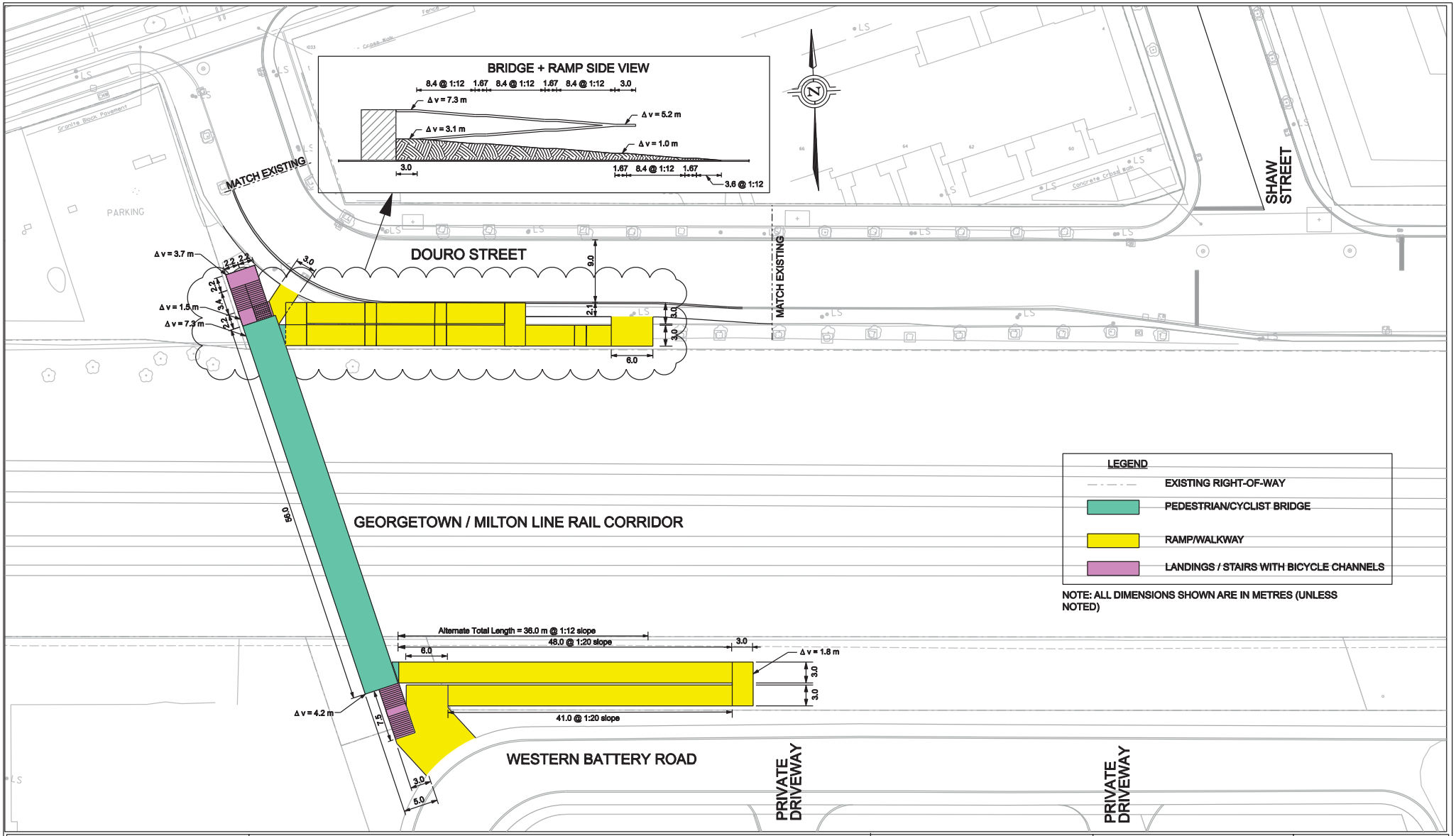
KING LIBERTY PEDESTRIAN CYCLIST LINK EA
ALTERNATIVE 3A

(City of Toronto #: 9117-09-7075: URS #: 33016166)

SCALE: 1:500	DRAWN BY: R.K.
DATE: OCT 2011	CHECKED BY: D.H. /K.P.

URS

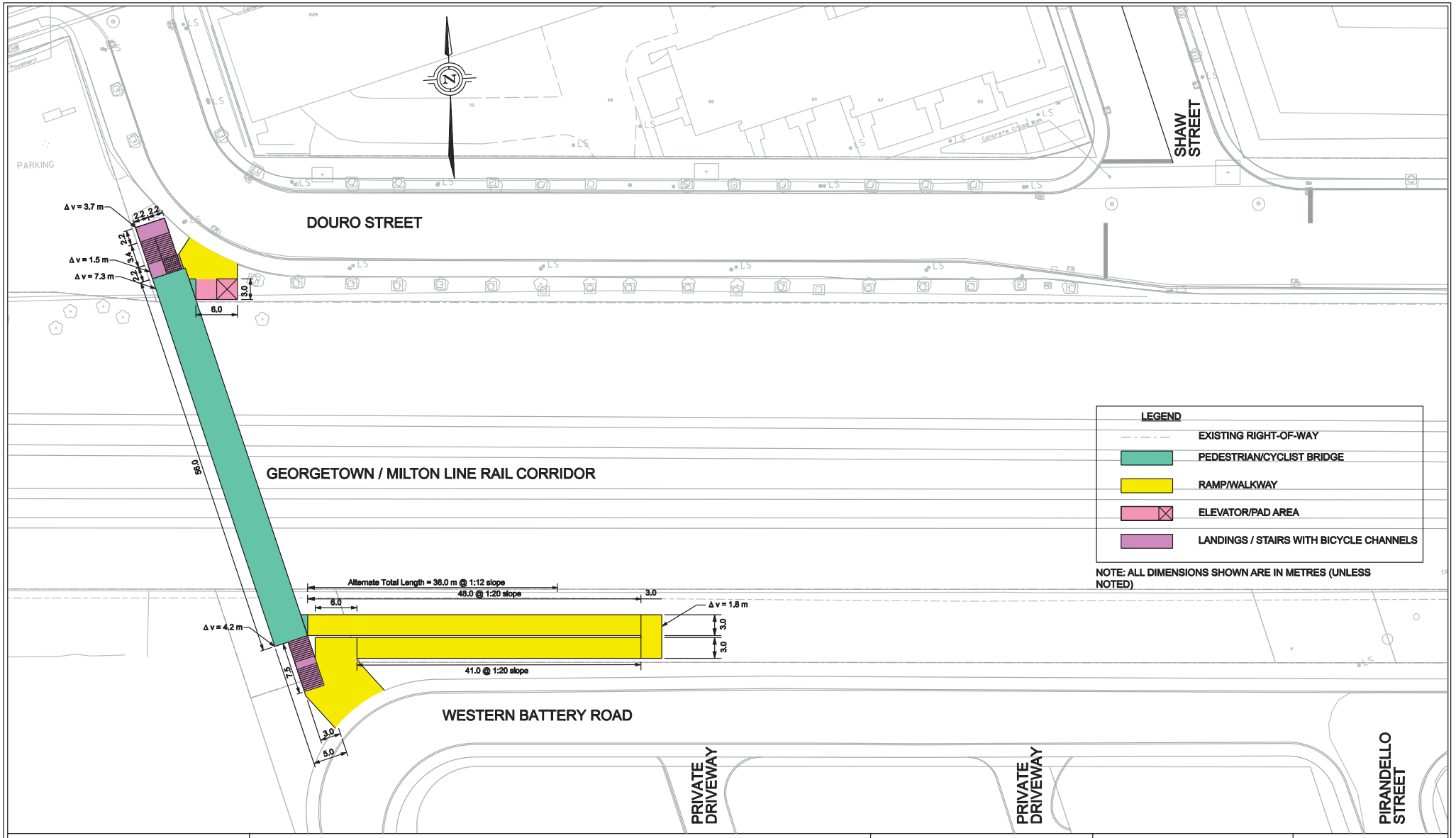
Exhibit 5-5 - Alternative 3B



TORONTO	KING LIBERTY PEDESTRIAN CYCLIST LINK EA ALTERNATIVE 3B (City of Toronto #: 9117-09-7075: URS #: 33016166)	SCALE: 1:500	DRAWN BY: R.K.	URS
		DATE: FEB. 2011	CHECKED BY: D.H. /K.P.	

Bridge-alternative 3B.dgn 2/25/2011 2:16:41 PM

Exhibit 5-6 - Alternative 3C



TORONTO

KING LIBERTY PEDESTRIAN CYCLIST LINK EA
ALTERNATIVE 3C

(City of Toronto #: 9117-09-7075: URS #: 33016166)

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DATE: FEB. 2011	CHECKED BY: D.H. /K.P.

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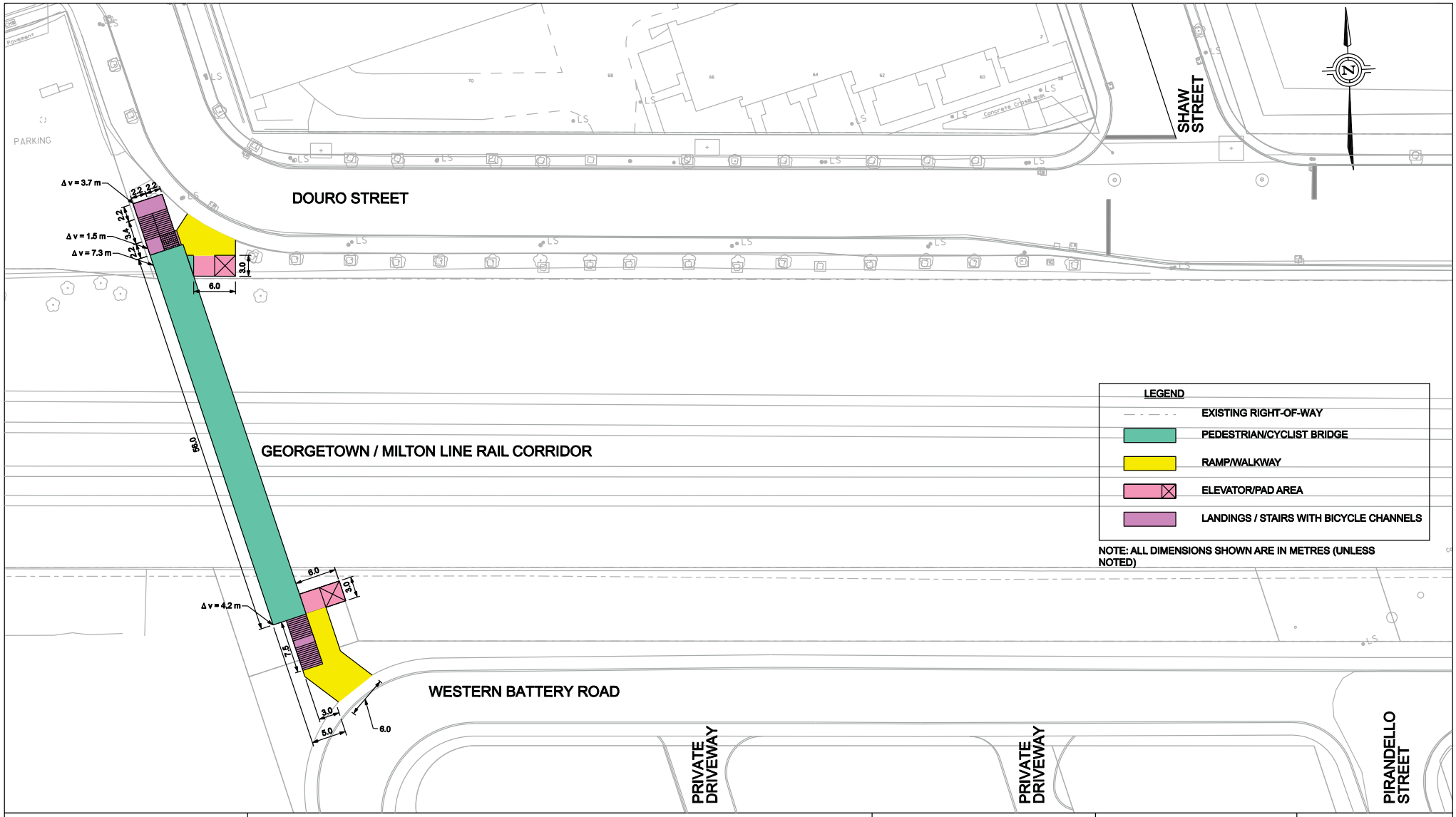
Exhibit 5-7 - Alternative 3D



TORONTO

KING LIBERTY PEDESTRIAN CYCLIST LINK EA
ALTERNATIVE 3D

(City of Toronto #: 9117-09-7075: URS #: 33016166)

SCALE: 1:500	DRAWN BY: R.K.
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5.6 Evaluation of Alternative Link Designs

The Alternative Designs were evaluated based on broad categories of: *Transportation Operations and Safety*, *Socio-Economic Environment*, *City Building*, *Natural Environment*, *Cultural Environment* and *Engineering and Cost*. Each of these categories was broken down into many smaller subcategories, allowing for a thorough evaluation (both qualitative and quantitative) based on the unique criteria as summarized in the following table.

Table 5-5 – Alternative Designs Evaluation Criteria

Criteria	Measure	How
Transportation Decision Relevant Factors		
Traffic Impacts	○ On-street parking along Douro Street	○ Number of parking spaces impacted
Cyclist impacts	○ Route flexibility / connectivity	○ Qualitative
	○ The potential to accommodate a future multi-use path along the south side of Douro Street	○ Qualitative
	○ Accessibility of barrier-free ramps	○ Qualitative
	○ Accessibility of stairs (with bicycle channels)	○ Qualitative
Pedestrian impacts	○ Route desirelines / directness	○ Qualitative
	○ Walking distance (shortest route) / barrier-free travel distance	○ Metres
Rail impacts	○ Operations and clearances	○ Qualitative
Transit	○ Access to transit stops (such as streetcar along King Street)	○ Qualitative
Overall Safety and Services	○ Safety and security of non-auto road users (pedestrians / cyclists)	○ Qualitative
Socio-Economic Environment Decision Relevant Factors		
Residential Impacts	○ Property impacts	○ Number of properties impacted
Commercial Impacts	○ Property impacts	○ Number of properties impacted
Accessibility	○ Residents, business	○ Qualitative
	○ Impacts to emergency services	○ Qualitative, ramp length (m)
Noise Impacts	○ Potential for increased levels at residential space	○ Changes in sound level, dBa
Property	○ Land impacts	○ Area, ha
City Building Decision Relevant Factors		
City of Toronto *Official Plan*	○ Compliance with *Official Plan* policy	○ Qualitative
Urban Design / Aesthetics	○ Compliance with *King Liberty Urban Design Guidelines*	○ Qualitative
	○ Enhanced public realm	○ Qualitative, ramp length (m), # of stairs
	○ Landmark feature / visibility of bridge / creation of view corridor	○ Qualitative

Natural Environment Decision Relevant Factors		
Vegetation	o Impact to trees	o Number of trees removed
	o Impact to vegetation	o Qualitative
Wildlife	o Impact to habitat / wildlife	o Qualitative
Stormwater	o Change in paved area	o Qualitative
Air Quality	o Impact to air quality	o Qualitative
Cultural Decision Relevant Factors		
Archaeological resources	o Impact to archaeological sites	o Area (ha)
Heritage Objectives	o As per District Plan's Heritage Conservation District document	o Qualitative
Built Heritage Features	o Impacts to built heritage form	o Qualitative
Engineering and Cost Decision Relevant Factors		
Engineering	o Construction feasibility and staging	o Qualitative
	o Repair and Maintenance Cost	o Qualitative
	o Utility impacts	o Qualitative
Cost	o Preliminary construction cost estimate	o Based on quantities developed, and unit costs for bridge / tunnel, ramps, roads, landscaping, engineering and contingencies
	o Property costs	o Order of magnitude costs

A detailed evaluation of the above noted Alternative Designs is displayed in **Table 5-6**. A summary of the evaluation is shown in **Table 5-7**.

Table 5-6 – Evaluations of Alternative Designs

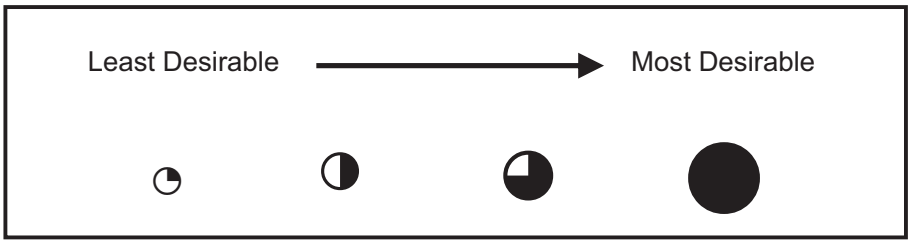
Evaluation Factors and Metrics				Alternative 1 – Tunnel 1071 King Street West-Metro Plaza (Ramp + stairs on north side, short straight ramp on south side)	Alternative 3 - Bridge Westerly Douro-Western Battery Connection			
					Alternative 3A (Straight ramp + stairs on north side, switchback ramp + stairs on south side)	Alternative 3B (Switchback ramps + stairs on both sides)	Alternative 3C (Elevator + stairs on north side, switchback ramp + stairs on south side)	Alternative 3D (Elevators + stairs on both sides)
Category	Measurement	Criteria	Units					
Transportation Decision Relevant Factors								
Traffic Impacts	On-street parking along Douro Street	Reduction in number of on-street parking spaces	parking spaces	18 existing parking spaces removed at Metro Supermarket (along east side of building)	29 on-street parking spaces removed, plus potential loss in revenue for Toronto Parking Authority	8 on-street parking spaces removed, plus potential loss in revenue for Toronto Parking Authority	No impact	No impact
Cyclist Impacts	Route flexibility / connectivity	Degree of flexibility	qualitative	Enhanced flexibility / connectivity with the potential Shaw Street and Sudbury Street bikeways. The location of the tunnel provides a more direct connection to King Street West, as well as to retail uses in the King Liberty Village	Enhanced flexibility / connectivity with potential Shaw Street and Sudbury Street bikeways			
		The potential to accommodate a future multi-use path along the south side of Douro Street	qualitative	The proposed location of the tunnel connections within the 1071 King Street West lands does not impact the future multi-use path along the south side of Douro Street	The width of the future multi-use path could be constrained by the proposed long straight ramp along the south side boulevard of Douro Street	The width of the future multi-use path could be constrained by the proposed switchback ramp and stairs along the south side boulevard of Douro Street	This alternative has minimal impact to the future multi-use path as it has a small footprint along the south side of Douro Street	This alternative has minimal impact to the future multi-use path as it has a small footprint along the south side of Douro Street
		Accessibility of barrier-free ramps	qualitative	Minimal out-of-way travel is required. Barrier-free connections (via short ramp) on the north side of the rail corridor to be integrated with future development at 1071 King Street West. A straight barrier-free ramp on the south side of the rail corridor provides direct connection to retail uses in the King Liberty Village	The long ramps result in out-of-way travel. The switchback ramp on south side is less desirable for cyclists	The long ramps result in out-of-way travel. The switchback ramps on both sides are less desirable for cyclists	The elevator on north side eliminates the need for out-of-way travel and it is accessible for cyclists at all levels. The switchback ramp on south side is less desirable for cyclists	Elevator eliminates the need for out-of-way travel and it is accessible for cyclists at all levels
		Accessibility of stairs (with bicycle channels)	qualitative	Design of stairs on the north side is to be determined (to be integrated with development plan of 1071 King Street West). No stairs are proposed on the south side	Switchback stairs on the north side is less desirable, but the straight stairs on the south side is desirable			
Pedestrian Impacts	Route desirelines / directness	Degree of directness	qualitative	The proposed tunnel location provides the most direct connection to King Street	Enhanced route directness			
	Walking distance (shortest route) / barrier free travel distance	King West area (≈King Street W/Shaw Street intersection) to/from Metro Plaza	metres / metres	≈350 m / ≈400 m	≈500 m / ≈600 m	≈500 m / ≈700 m	≈500 m / ≈600 m	≈500 m / ≈500 m
		Sudbury Street area (≈King Street W/Sudbury Street intersection) to/from Metro Plaza	metres / metres	≈150 m / ≈200 m	≈400 m / ≈900 m	≈400 m / ≈600 m	≈400 m / ≈500 m	≈400 m / ≈400 m
		Liberty Village area (≈E Liberty Street / Pirandello Street intersection) to/from nearest TTC stop on King Street W	metres / metres	≈500 m / ≈550 m (to King Street W/Sudbury Street)	≈400 m (to King Street W/Sudbury Street) / ≈600 m (To King Street / Shaw Street)	≈400 m / ≈500 m (to King Street W/Sudbury Street)	≈400 m / ≈500 m (to King Street W/Sudbury Street)	≈400 m / ≈400 m (to King Street W/Sudbury Street)
Rail Impacts	Operations and clearances	Degree of impacts	qualitative	No impact to rail operations				
Transit	Access to transit stops (such as streetcar along King Street)	Degree of directness	qualitative	Shorter, direct and flexible route				
Overall Safety and Services	Safety and security of non-auto road users (pedestrians/cyclists)	Visibility of access points, safety and security of pedestrians and cyclists	qualitative	Provides a new separate crossing environment for pedestrians and cyclists. Tunnel access points are directly connected to/from high visibility areas (i.e. King Street, Metro Plaza). The tunnel will be well lit and decorated to minimize safety and security concerns	Provides a new separate crossing environment for pedestrians and cyclists. However, the bridge access points are not directly connected to/from high visibility areas (i.e. King Street)			
Socio-Economic Environment Decision Relevant Factors								
Residential Impacts	Property impacts	Number of properties impacted	#	No residential property impacts				
Commercial Impacts	Property impacts	Number of properties impacted	#	There are property impacts to the 1071 King Street West and Metro Plaza lands	No commercial property impacts			
Accessibility	Residents, business	Degree of directness	qualitative	Enhanced route directness and it provides the most direct connection to the businesses in the King Liberty Village. It also provides the most desired connection	Enhanced route directness			
	Impacts to emergency services	Route flexibility and accessibility for emergency services when transporting equipment/patients	qualitative, ramp length (m)	Enhanced route flexibility and accessibility. Barrier-free access is provided on the south side via a straight ramp. On the north side, barrier-free access is to be integrated with future development at 1071 King Street West (there is a potential for an elevator connection)	Enhanced route flexibility and accessibility. Longest ramp (233m total) is least preferred	Enhanced route flexibility and accessibility. Long ramp (205m total) is not preferred	Enhanced route flexibility and accessibility. An elevator (north side) and a switchback ramp (south side) provide barrier-free accesses on both sides. However, if the elevator is out of service, alternative barrier free access is not available on the north side	Enhanced route flexibility and accessibility. Elevators are provided on both sides to provide barrier free access. However, if the elevators are out of service, alternative barrier free access is not available on both sides
Noise Impacts	Potential for increased levels at residential space	Changes in sound level	dBa	No change in noise levels				
Property	Land impacts	Amount of lands impacted	area, ha	0.05 ha	0 ha			
City Building Decision Relevant Factors								
Official Plan	Compliance with policy	Degree of compliance	qualitative	Consistent with policies in the *Official Plan*				
Urban Design / Aesthetics	Compliance with *King Liberty Urban Design Guidelines*	Degree of compliance	qualitative	Complies with *King Liberty Urban Design Guidelines*				
	Enhanced public realm	Enhanced public realm	qualitative, ramp length (m), # of stairs	Has a short straight ramp on the south side. Access on the north side is to be integrated with the development at 1071 King Street West and there is a potential for an elevator connection. In addition, a below-grade tunnel has no negative visual impact. Also, the interior of the tunnel could be treated and decorated to provide for enhanced public realm	Has a long straight ramp on the north side and most number of steps. Also, the switchback ramp on the south side limits opportunity for enhanced public realm. The bridge provides direct connection to amenities with the ramp located as a terminus for Douro Street. However, there is significant negative visual impact associated with the long ramps.	Has the longest switch-back ramps and most number of steps. Also, the switchback ramps on both sides limit opportunity for enhanced public realm. The bridge ramp on the north side infringes on Douro Street public realm which is not desirable. In addition, there is negative visual impact associated with the long switchback ramps.	Elevator is provided on the north side to replace the need for a long ramp, therefore, this alternative has the second smallest footprint. However, the switchback ramp on the south side limits opportunity for enhanced public realm and results in negative visual impact	Elevators are provided on both sides to replace the need for long ramps which has no negative visual impact. This alternative also has the smallest footprint (i.e. more opportunities for enhanced public realm)
		Landmark feature / visibility of bridge / creation of view corridor	qualitative	A below-grade tunnel is not able to create a view corridor or become a visible landmark feature in the Study Area	The bridge can be a landmark feature in the Study Area. The bridge span is aligned with west leg of Douro Street - Western Battery Road, and provides direct visual connection to King Street. The bridge is also visible from west leg of Western Battery Road			
Natural Environment Decision Relevant Factors								
Vegetation	Impact to trees	Number of trees to be removed	trees	≈10 – 20 trees removed	≈40 - 50 trees removed	≈30 - 40 trees removed	≈20 – 30 trees removed	≈10 – 20 trees removed
	Impact to vegetation	Degree of impact	qualitative	Low impact since generally built-up developed area				
Wildlife	Impact to habitat/wildlife	Degree of impact	qualitative	No impact since generally built-up developed area				
Stormwater	Change in paved area	Significant paved area changed	qualitative	Minor increase in hard-surfaced area				
Air Quality	Impact to air quality	Based on number of vehicles	qualitative	No impact				

Table 5-6 – Evaluations of Alternative Designs (Continued)

Evaluation Factors and Metrics				Alternative 1 – Tunnel 1071 King Street West-Metro Plaza (Ramp + stairs on north side, short straight ramp on south side)	Alternative 3 - Bridge Westerly Douro-Western Battery Connection			
Category	Measurement	Criteria	Units		Alternative 3A (Straight ramp + stairs on north side, switchback ramp + stairs on south side)	Alternative 3B (Switchback ramps + stairs on both sides)	Alternative 3C (Elevator + stairs on north side, switchback ramp + stairs on south side)	Alternative 3D (Elevators + stairs on both sides)
Cultural Decision Relevant Factors								
Archaeological Resources	Impact to archaeological sites	Area of archeology lands impacted	hectares, ha	No impact				
Heritage Objectives	As per District Plan's Heritage Conservation District document	Degree of compliance	qualitative	No impact				
Built Heritage Features	Impact to built heritage form	Likelihood of built heritage impacted	qualitative	No impact				
Engineering and Cost Decision Relevant Factors								
Engineering	Utility impacts	Impacts to utilities	qualitative	Utility information for 1071 King Street West and the Metro Plaza is not available	Impact to Rogers Cable conduit and Toronto Hydro cable along south side of Douro Street (Utility information along north side of Western Battery Road is not available)			
	Construction feasibility and staging	Qualitative	qualitative	Works adjacent to retaining walls will require special considerations. Works under rail corridor will require special provisions.	Straight forward construction, but works adjacent to retaining walls will require special considerations, and works over rail corridor will require special provisions			
	Repair and Maintenance Cost	Qualitative	qualitative	Conventional repair and maintenance cost for ramps, tunnel structure and other ancillary facilities (such as drainage, ventilation, etc.). However, there is a potential for additional maintenance and repair cost for the elevator facility at 1071 King Street West	Conventional repair and maintenance cost for ramps and bridge structure	Conventional repair and maintenance cost for ramps and bridge structure.	Conventional repair and maintenance cost for ramps and bridge structure, plus additional maintenance and repair cost for the elevator facilities	Conventional repair and maintenance cost for ramps and bridge structure, plus additional maintenance and repair cost for the elevator facilities
Cost	Preliminary construction cost estimate	Based on quantities and unit costs for bridge, ramps, roads, landscaping, engineering and contingencies	$ (million)	$5.8 M	$5.3 M	$5.2 M	$5.8 M	$6.6 M
	Property costs	Order-of-magnitude costs	$ (million)	Negotiations for property easements or acquisitions required	$0	$0	$0	$0

Table 5-7 – Evaluation Summary of the Alternative Designs

EVALUATION FACTOR	Alternative 1 - Tunnel 1071 King Street West- Metro Plaza (Ramp + stairs on north side, short straight ramp on south side)	Alternative 3 - Bridge Westerly Douro-Western Battery Connection				COMMENTS
		Alternative 3A (Straight ramp + stairs on north side, switchback ramp + stairs on south side)	Alternative 3B (Switchback ramps + stairs on both sides)	Alternative 3C (Elevator + stairs on north side, switchback ramp + stairs on south side)	Alternative 3D (Elevators + stairs on both sides)	
TRANSPORTATION OPERATIONS AND SAFETY						Alternative 1 has the shortest walking distance and barrier free travel distance between the King West / Queen West / Sudbury Street Areas and the commercial / retail uses (such as the Metro Plaza) on the south side of the rail corridor. Alternative 1 also has the least potential impact to the future multi-use path on the south side of Douro Street.
SOCIO-ECONOMIC ENVIRONMENT IMPACTS						Alternatives 3A and 3B are less desirable given the relatively longer ramps for barrier free access. Alternatives 3D is the most desirable since it has no property impacts and it provides barrier free access with the least out-of-way travel.
CITY BUILDING						Both Alternatives 1 and 3D do not have the negative visual impacts that are associated with long ramp structure. However, Alternative 1 (a tunnel) is not able to become a visible landmark feature.
NATURAL ENVIRONMENT IMPACTS						All the alternatives would result in a minor increase in hard-surfaced area, and removal of some trees. Alternatives 1 and 3D would require the removal of the least number of trees and Alternative 3A would require the removal of the most number of trees.
CULTURAL ENVIRONMENT FACTORS						The area of tunnel/bridge construction is highly disturbed by rail and street construction, with low archaeological or historic potential.
ENGINEERING AND COST IMPACTS						Alternative 3B would cost the least and Alternative 3D would cost the most.
SUMMARY						Alternative 1 is the technically preferred alternative. It improves the accessibility of the north and south communities, minimizes the out-of-way travel, and it has the least impacts to the adjacent road network. The underpass tunnel also avoids the negative visual impacts resulting from long ramp structures. The interior of the tunnel will be well-lit and decorated to provide for enhanced public realm. NOTE: Alternative 1, however, depends on a successful partnership with the property owner. If that is not achievable, Alternative 3D remains a viable alternative using public property.



5.7 Technically Preferred Alternative

Based on the information presented in Tables 6-1 and 6-2, the results indicated that Alternative Design 1 (provision of a pedestrian / cyclist tunnel between 1071 King Street West and the Metro Plaza) is the technically preferred Alternative Design. It performs equal to or above all other options in the categories of:

- *Transportation Operations and Safety*, where it has the shortest walking distance and barrier-free travel distance between the King Street West / Queen Street West / Sudbury Street Areas and the commercial / retail uses (such as the Metro Plaza) south of the rail corridor. In addition, it has the least potential impacts to the future multi-use path along the south side of Douro Street; and
- *Natural Environment Impacts*, where it requires the removal of the least number of trees.

Alternative Design 1 also performs equal to or above all the other Alternative Designs (albeit not Alternative 3D) in the categories of:

- *Socio-Economic Environment Impacts*, where it enhances the route directness and provides the most direct and desired connection with minor property impacts. It enhances route flexibility and accessibility with barrier-free access on the south side via a straight ramp and barrier-free access on the north side to be integrated with the future development at 1071 King Street West;
- *City Building*, where the interior of the tunnel provides the opportunity to enhance public realm. Although a below-grade tunnel is not able to create a view corridor, it avoids negative visual impacts resulting from long ramp structures; and
- *Cultural Environment Factors*, where there is no difference between Alternatives 1 and 3 in terms of potential impacts to archaeological resources or built heritage features within the study area.

With respect to the category of *Engineering and Cost Impacts*, Alternative Design 1 is equally or more desirable than all the other alternatives except Alternative 3B.

In summary, Alternative Design 1 (Tunnel) is the preferred alternative based on the following:

- Provides the most direct and desired route;
- Has the least impacts to the adjacent road network;
- The underpass tunnel also avoids the negative visual impacts resulting from long ramp structures required by bridges;
- The tunnel would be developed in partnership with the private land owner, with opportunities for enhanced maintenance, design, lighting, and security compared to the bridge alternative;
- The tunnel is the most cycling-friendly of the alternatives; and
- The tunnel will avoid the cost and security concerns associated with bridge elevators.

In addition, based on comments with respect to a pedestrian / cyclist tunnel received during Public Open House #1 about safety / security, construction cost and lighting (although specific tunnel options were not presented at that time), the following mitigative measures are contemplated for the Technically Preferred Alternative design to address the public concerns:

- The underpass tunnel section will have vertical and horizontal interior clearances that are higher than typical standards (i.e. provision of increased space inside the tunnel);
- The tunnel, as well as the ramp and stairs connections, will be well-lit with sufficient lighting;
- Connection to King Street West on the north side of the Georgetown / Milton Line Rail Corridor will be integrated with the future development at 1071 King Street West;
- The interior of the tunnel will be decorated to enhance public realm;
- Closed-circuit television (security cameras) will be provided inside the tunnel; and
- The tunnel will be properly ventilated and drained.

It is noted that fruition of Alternative Design 1 is contingent on successful partnership with the adjacent private landowners. In light of this condition and if this is not achievable, Alternative Design 3D is a viable alternative (the next most preferred alternative depicted in Table 6-3) using public lands in order to address the problem and opportunity needs for the study. Alternative Design 3D is more desirable than the remaining other three alternatives (Alternatives 3A, 3B, and 3C) given that it has the smallest footprint and the least impacts to the adjacent road network and properties. Although it would cost more, the use of elevators on both approaches to the bridge would avoid the negative visual impact resulting from long ramp structures, greatly improve the accessibility of the north and south communities and minimize the out-of-way travel.

5.8 Public Open House No. 2 and Refinements to the Alternative

The Technically Preferred Alternative (Alternative Design 1- provision of a pedestrian / cyclist tunnel that connects the Metro plaza and 1071 King Street West) was presented at Public Open House #2 (POH #2) held on Tuesday, March 1, 2011, from 4:30 p.m. to 8:00 p.m. at 171 East Liberty Street. The purpose of the POH was to provide an opportunity for the public to get involved and provide their thoughts and comments with respect to the evaluation and selection of the Technically Preferred Alternative.

Subsequent to the POH #2, the Technical Advisory Committee (TAC) reviewed the received comments, liaised with impacted business operators, and met with impacted property owners and Councillor Layton. The following is a summary of the key issues associated with the Technically Preferred Alternative that were identified at and following the POH:

- The tunnel option has compatibility issues with future below-grade parking at 1071 King Street. However, an above-grade parking structure is not acceptable to City Planning;
- Metro does not support the technically preferred tunnel alternative and does not accept the loss of 18 parking spaces; and
- Public's continued concerns with respect to the safety and security issues associated with a tunnel.

In order to address the identified concerns, URS and the TAC team considered other alternative design refinements and options (such as revisions to the tunnel interface on the impacted private lands, as well as consideration of an above-grade connection between the Metro plaza and 1071 King Street West with extended ramp connections to Western Battery Road, among others). These refinements and modifications were discussed in a meeting / design workshop attended by Councillor Layton, the TAC, URS and the adjacent landowner representatives on May 16, 2011. However, the associated constraints and impacts for these revisions were identified to be generally the same as the below-grade option (i.e. Technically Preferred Alternative), and therefore a refined viable solution was not identified. In

summary, there is generally no physical solution to provide a pedestrian / cyclist link between the two subject properties that addresses or satisfactorily mitigates the identified impacts and concerns.

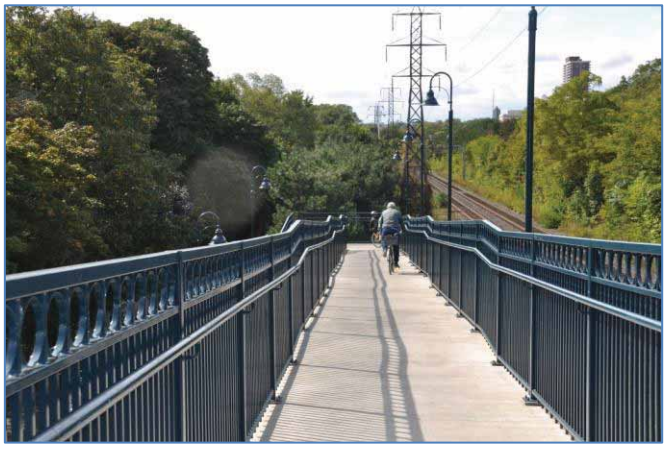
As noted above and in Table 6-3, the fruition of Alternative Design 1 is contingent on successful partnership with the adjacent private landowners. Given the design constraints and the associated impacts as well as the inability to identify a design configuration that satisfactorily addresses the issues, Alternative Design 1 is considered not achievable, and therefore, Alternative Design 3D (the next most preferred alternative depicted in Table 6-3) is the Preferred Alternative for the subject undertaking. Similar to Alternative Design 1, Alternative Design 3D also addresses the problem and opportunity needs of the study, however, there is no associated property / business impacts as all the link access points were designed to be located within public right-of-way. In addition, an above-grade link would also be more visible than a below-grade link (which could potentially attract more users), as well as to provide a more desirable crossing environment (open vs. confined spaces). Furthermore, Alternative Design 3D addresses comments raised at POH #2 regarding public safety and security in a tunnel environment.

As mentioned earlier (and illustrated in Table 6-3), Alternative Design 3D is more desirable than the other three bridge alternatives (Alternatives 3A, 3B, and 3C) given that it has the smallest footprint and the least impacts to the adjacent road network and properties. Although it would cost more, the use of elevators on both approaches to the bridge would avoid the negative visual impact, greatly improve the accessibility of the north and south communities and minimize the out-of-way travel and property impacts resulting from the long ramp structures. **Exhibit 5-8** illustrates some examples of other ramps, stair (with bicycle channels) and elevators in the Greater Toronto Area (GTA).

The design of the elevators will be reviewed during detailed design, and it is intended that the elevator enclosures be kept appropriately in scale and as visible as possible to optimize visibility and security/safety. Other detailed elements pertaining to the elevators, such as lighting requirements, internal clearance and security cameras will be further reviewed during detailed design.

Moreover, there is still an opportunity to have the Preferred Alternative – Alternative Design 3D being integrated with the on-going redevelopment at 1071 King Street West to realize greater integration, aesthetic, urban design features, as well as enhanced streetscaping for the north side bridge connection in the vicinity of the southwest quadrant of the Douro Street / King Street intersection. These concepts could be further investigated during the detail design.

Exhibit 5-8a – Examples of Other Ramps, Stair and Elevators in the GTA



MacLennan Avenue (East of Mount Pleasant Road in Rosedale)

GO Langstaff Station – YRT Richmond Hill Centre

QEW at Ogden Avenue, Mississauga

Innes Avenue, Toronto

Exhibit 5-8b – Examples of Other Ramps, Stair and Elevators in the GTA

GO Exhibition Station

Queen Street East at the Lower Don Recreation Trail

6. Recommended Plan

6.1 Description of the Recommended Plan

The Recommended Preferred Design is Alternative 3D, which includes the provision of an above-grade pedestrian / cyclist link between Douro Street (at the westerly north-south leg) and Western Battery Road (at the westerly north-south leg) with a combination of elevators and stairs on both sides of the bridge. The implementation of the Recommended Preferred Design would require minor removal / replacement of vegetation along Douro Street (south side boulevard) and Western Battery Road (north side boulevard), however, there will be no impacts to the driving lanes on both Douro Street and Western Battery Road.

The design provisions are as follows:

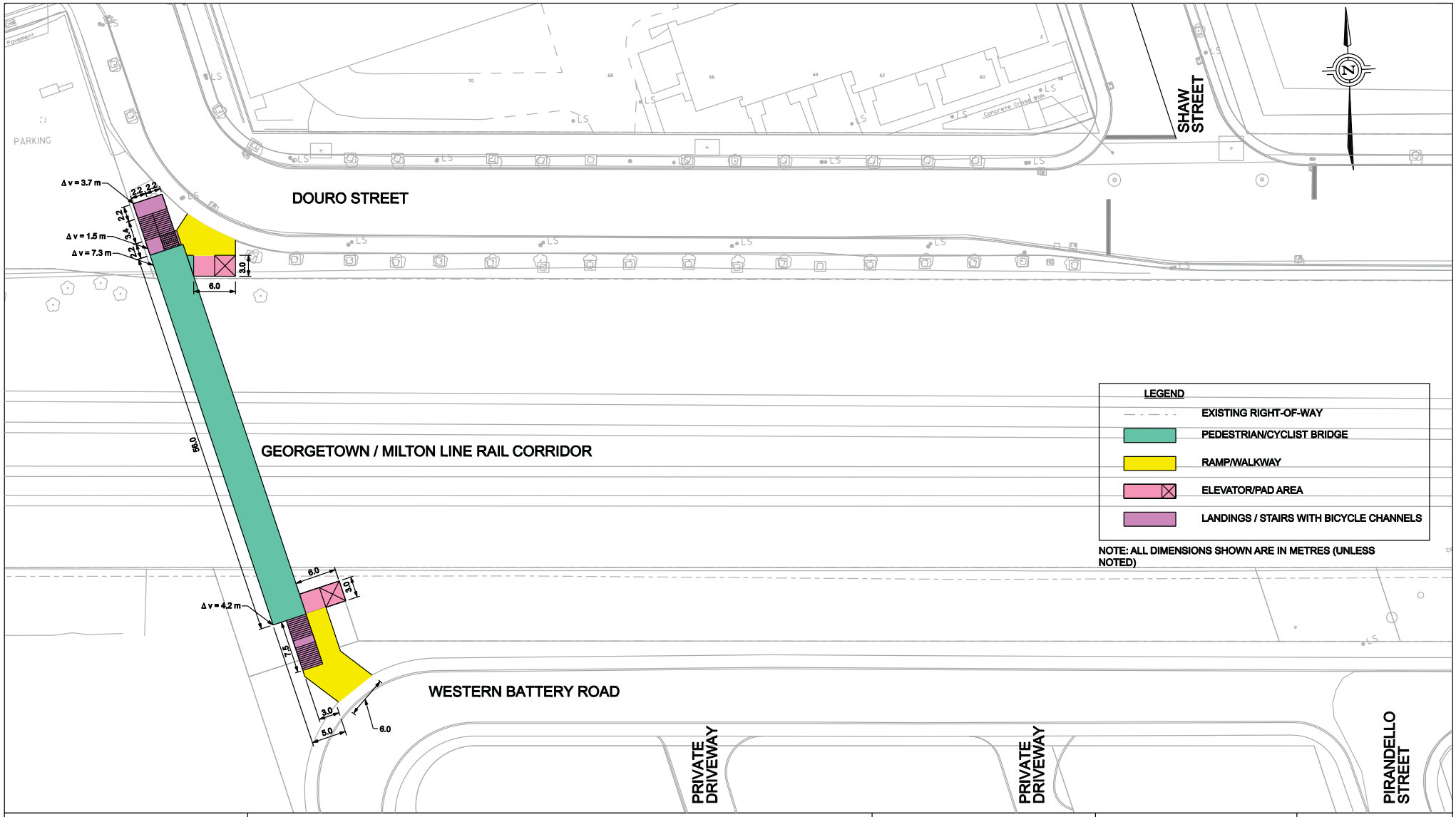
- Bridge with a 5-metre wide deck;
- Bridge span with a vertical clearance of 7.4 metres above the top of the future lowered Georgetown / Milton Line Rail Corridor (part of Metrolinx's planned grade-separation under Strachan Avenue by 2014);
- Stairs (with bicycle channels) plus barrier-free access (via elevator) will be provided on both sides of the bridge;
- Elevators will be designed to accommodate bicycles;
- Design of the elevators will be reviewed during detail design, and it is intended that the elevator enclosures be kept appropriately in scale and as visible as possible;
- All stairs to be at least 2.2 metres wide and all ramps to be 3 metres wide;
- All bridge piers/abutments to be located outside the rail right-of-way;
- Protect for potential future multi-use path along Douro Street;
- Bridge deck and the connections will be illuminated with sufficient lighting;
- Bridge deck will be enclosed per GO Transit/Metrolinx's requirements;
- Requirements for security measures (such as closed-circuit television (security cameras)) will be reviewed during detail design; and
- Provision of way-finding signage at key gateways (i.e. on King Street at Douro Street, and at East Liberty Street / Western Battery Road) to the bridge.

The proposed bridge will meet the project goals of improving pedestrian / cyclist access in the area. By linking the King Liberty Village and the King West areas, it will provide an important new connection in the area pedestrian / cyclist network, promote the use of alternative modes, and minimize the out-of-the-way travel for local residents / employees / customers.

All new infrastructure is to be designed in accordance with City design standards, the *Ontario Building Code*, the *Accessibility for Ontarians with Disabilities Act,* and the *Public Transportation and Highway Improvement Act*. The architectural treatment will be developed at the detail design stage. It is recommended that the community be involved in the design stage.

The Recommended Plan is illustrated in **Exhibit 6-1**.

Exhibit 6-1 - Recommended Plan



TORONTO

KING LIBERTY PEDESTRIAN CYCLIST LINK EA
ALTERNATIVE 3D

(City of Toronto #: 9117-09-7075: URS #: 33016166)

SCALE: 1:500	DRAWN BY: R.K.
DATE: FEB. 2011	CHECKED BY: D.H. /K.P.

URS

6.2 Preliminary Cost Estimate

As presented at POH #2 and summarized in Table 6-2 of this report, the total construction cost of Alternative 3D was originally estimated at $6.6 million based on the unit cost that was used in the *Fort York Pedestrian and Cycle Bridge Environmental Assessment Study* pertaining to the construction of a signature tied-arch bridge.

For the subject EA study, the cost estimate was then updated for the Recommended Plan to reflect a reasonable range for the construction cost of the proposed pedestrian / cyclist bridge (i.e. a signature tied-arch bridge assumed to be the high-end option, and a galvanized steel bridge assumed to be the low-end option). A high-end signature option could be conceived as a dramatic architectural showpiece and destination attractor for the community. However, it is recognized that this has a notable capital budget premium for the project. As such, the introduction of lower-cost design has been identified to address potential budget allocation issues; however, whilst still providing a project that meets the project goals of providing for community connectivity and with reasonable contribution to the community urban form.

The updated total construction cost of the Recommended Plan is estimated to range from $4.2M to $6.1M. The following table summarizes the breakdown of the construction cost estimate for the Recommended Plan:

Table 6-1 – Preliminary Cost Estimate

	Recommended Plan - Alternative 3D (Elevators + stairs on both sides)			
PART 1 - BRIDGE STRUCTURE	**Option 1 - Signature Tied-Arch Bridge***		**Option 2 - Galvanized Steel Bridge**	
Length (m):		56		56
Deck Width (m):		5		5
Deck Area (m^2):		280		280
Total Ramp Length (m)		0		0
Bridge Structure	$ 10,170.00 per m^2	$ 2,847,600.00	$ 5,400.00 per m^2	$ 1,512,000.00
Premium for Ramp / Stairs Construction, Landscaping, etc.:	15%	$ 427,140.00	15%	$ 226,800.00
Elevator Facilities	$ 750,000.00 each	$ 1,500,000.00	$ 750,000.00 each	$ 1,500,000.00
SUB-TOTAL:		$ 4,774,740.00		$ 3,238,800.00
Engineering, Architectural and Contingency (25%)	25%	$ 1,193,685.00	25%	$ 809,700.00
TOTAL ESTIMATED COST:		$ 5,968,425.00		$ 4,048,500.00

PART 2 - ROAD CONSTRUCTION	**Option 1 - Signature Tied-Arch Bridge***		**Option 2 - Galvanized Steel Bridge***	
Road Construction		$ 55,050.00		$ 55,050.00
Geotech Survey and Design		$ 30,000.00		$ 30,000.00
Legal Survey		$ 10,000.00		$ 10,000.00
SUB-TOTAL:		$ 95,050.00		$ 95,050.00
Contingency (25%)	25%	$ 23,762.50	25%	$ 23,762.50
TOTAL ESTIMATED COST:		$ 118,812.50		$ 118,812.50

TOTAL ESTIMATED COST (Bridge and Road):	$ 6,100,000.00	$ 4,200,000.00

* Note: Cost estimate for the bridge structure was based on signature bridge cost. The benchmark and premium values were obtained from the *Fort York Pedestrian and Cycle Bridge Class Environmental Assessment Environmental Study Report*

The architectural design of the crossing will be determined at the detail design stage, to reflect community aspirations and funding availability. It is not within the scope of this EA study to recommend the level of expenditure on enhanced design features, given that that will depend of the availability of funds and on

trade-offs to be made against other capital investment priorities across the City. The construction cost estimate will be refined through the preliminary design, detailed design, and tendering processes.

6.3 Revisions and Addenda to Environmental Study Report

6.3.1 Change in Project or Environment

There may be a need to amend the EA due to unforeseen circumstances that arise during the detailed design stage, such as changes in the environmental conditions, development of new design standards or technologies or mitigation measures or the identification of previously unknown concerns.

Subsequent to the filing of the ESR, any modification to the project or change in the environmental setting for the project shall be reviewed by the proponent. Should the change be considered significant, it should be documented as an addendum to the ESR detailing the circumstances necessitating the change, the environmental implications of the change, and the mitigating measures. Minor change to the EA undertaking could proceed without an addendum.

The addendum shall be filed with the ESR and the Notice of Filing of Addendum shall be given immediately to all potentially affected members of the public and review agencies as well as those who were notified in the preparation of the original ESR. The ESR addendum will be placed on the public record with the City of Toronto for a 30-day review period. A person or party with concern regarding the addendum may make a written request to the Minister of the Environment for a "Part II Order" within this 30-day review period. The "Part II Order" is a request that the project be subject to formal governmental review and approval under the Environmental Assessment Act.

Provided that no Part II Orders are received, the City of Toronto may proceed to Phase 5 of the Class EA process, design and construction.

6.3.2 Lapse of Time

According to the *Municipal Class EA*, "If the period of time from the filing of the Notice of Completion of ESR in the public record or the MOE's denial of a Part II Order request(s), to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process and the current environmental setting to ensure that the project and the mitigation measures are still valid given the current planning context. The review shall be recorded in an addendum to the ESR which shall be placed on the public record."

Notice of Filing of Addendum shall be placed on the public record with the ESR, and shall be given to the public and review agencies, for a 30-day public review period. The notice shall include the public's right to request a Part II Order during the 30-day addendum review period. If no Part II Order request is received, the proponent is free to proceed with implementation and construction.

7. Summary of Identified Concerns and Mitigating Measures

Table 7-1 – Summary of Identified Issues/Concerns and Mitigation Measures

FACTOR AFFECTED	ENVIRONMENTAL IMPACT	MITIGATION MEASURES
Transportation Operations and Safety		
Operations and Safety	• Debris being dropped on rail corridor; and • Facility maintenance (snow/litter removal, etc.)	• The bridge span is to be fully enclosed per Metrolinx/GO Transit's standard / requirements. The type of enclosure will be determined during detailed design.
Transportation	Pedestrian / Cyclist Network: • Personal security; • Link Accessibility; and • Elevator reliability.	• Illumination requirements and security measures will be determined during detailed design; • Review connections to the potential future multi-use path along Douro Street during detailed design; • Provide bicycle channels adjacent to stairs to allow cyclists to roll bicycle while using the stairs; • Consider bicycle racks or post-rings at ground level of each end of the bridge; and • Provide sufficient elevator space to accommodate bicycles.
Socio-Economic Environment		
Business Impact	1071 King Street West	• Potential opportunities to integrate the bridge's north side connection with the future development at 1071 King Street West are to be considered.
City Building		
Urban Design / Aesthetics	Landmark Feature	• During detail design, opportunities for creating a signature bridge and improving public realm are to be considered.
Urban Design and Pedestrian Realm Provisions	Design	• During detail design, the following is to be considered: o Design detailing such as railing, lighting and bridge structure wall façade treatment needs to create a safe and comfortable overpass; and o Elevated sections of stairs and ramps near the landings (2.5 metres or less above ground) should be enclosed to prevent undesirable use of the sheltered areas or collection of debris.

FACTOR AFFECTED	ENVIRONMENTAL IMPACT	MITIGATION MEASURES
Natural Environment		
Vegetation	Impact to Trees	• During detail design, opportunities for landscaping and relocation / replacement of impacted trees are to be considered.
Engineering and Cost		
Engineering	Engineering / Cost	• In preparation of the detail design, updated geotechnical and legal/land surveys are required for the study area. • Updated base plan information is required to review conflicts with sewers, watermains, utilities, and connections etc.
Engineering	Rail	• Construction of the pedestrian/cyclist bridge cannot be prior to the railbed being lowered by Metrolinx/GO Transit. • Investigate opportunities for coordinated construction associated with the on-going works in the rail corridor. • Coordinate with Metrolinx/GO Transit to ensure the rail corridor's vertical cantilevered wall or permanent strutted wall is not impacted.
Engineering	Hydro Crossing	• The location of the proposed hydro crossing (which would be necessary due to the utility displacement associated with the Strachan grade-separation project by Metrolinx) has been refined to avoid the potential conflict with the location of the proposed King Liberty pedestrian / cyclist bridge. This is to be reviewed and confirmed during detailed design

Table 7-2 – Potential Short-term Construction Related Environmental Impacts and Proposed Mitigation Measures

FACTOR AFFECTED	ENVIRONMENTAL IMPACT	MITIGATION MEASURES
Cultural Environment		
Cultural Environment	Archaeological Resources	• Archaeological monitoring is recommended at the sites of both the northern (off Douro Street) and southern (off Western Battery Road) footings. Monitoring would be carried out according to the standards outlined in the Standards and Guidelines for Consultant Archaeologists (2011). • If ground disturbance is required, then monitoring under the bridge component is also recommended.
Natural Environment		
Erosion and Sedimentation	Slope erosion and stability	• Treat all exposed slopes with topsoil and seed, mulching or sodding. • Install rock check dams as necessary in drainage ditches and remove any siltation material on a regular basis throughout the construction and maintenance period. • Incorporate all erosion and sedimentation control measures in accordance with the City's and Ministry of Natural Resources current guidelines
Erosion and Sedimentation	Sediment transport in stormwater runoff	• Minimize extent and period of surface exposure, particularly for ditches and slopes
Air Quality	Reduced air quality due to dust	• Apply water and calcium during construction as required. Open burning will not be permitted.
Vegetation	Damage to vegetation in close proximity to work area	• Relocate trees and shrubs, if appropriate, in advance of contract
Socio-Economic Environment		
Maintenance of Traffic	Delays to local and commuter traffic during construction	• Maintain general traffic movements to residential area. Stage construction to minimize traffic delays. Maintain access to all properties during all stages of construction. Implement communications strategy.
Traffic Safety	Roadway safety affected by construction activities	• Standard construction safety practices to be undertaken on site. Require contractor to prepare traffic management plan

FACTOR AFFECTED	ENVIRONMENTAL IMPACT	MITIGATION MEASURES
Noise	Increased noise levels	• Adhere to municipal by-law hours of construction operation. Ensure proper maintenance and type of construction equipment