



January 4th, 2016

Andre R. Filippetti, C.E.T.
 Manager, Right-of-Way Management
 Toronto and East York District
 Metro Hall, 55 John Street, 17th Floor
 M5V 3C6

Re: Toronto Eaton Centre Pedestrian Bridge Replacement R2

Cadillac Fairview has retained Wilkinson Eyre Architects, Zeidler Partnership Architects and RJC Consulting Engineers as the design team for the replacement of the existing Toronto Eaton Centre Pedestrian Bridge across Queen Street.

The proposed bridge between Hudson's Bay Company and the Toronto Eaton Centre is intended to be a new high quality piece of contemporary bridge architecture. The dynamic sculptural form will create a new civic landmark for the City of Toronto, designed to enhance the experience of the urban realm for both passers-by and for the bridge users within.

The existing bridge, dating back to the early 1970s, whilst providing for the practical constraints of roadway clearances and connectivity between the two significant buildings above Queen Street, has unfortunately reached the end of its useful life in terms of failing and sub-standard performance. In addition, the bridge falls short of today's expectations for the positive contribution that a structure of this kind should make towards the wider public realm and in respect of providing a sensitive interface with the heritage façade of the Hudson Bay building.

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The new design takes elegant resolution of the existing building interfaces as one of its key concepts. The twisting geometry expresses and emphasises the transformation from the historical arch form to the modern rectangular curtain walling and from stone and terracotta to glass and metal. Spanning support structure remains visible but is wrapped within a sculptural cladding envelope, where the focus of the new design is on dynamic expression of movement and the experience of transition across the length of the bridge.

The transformational geometry of the bridge form between the two buildings is further emphasised by the transition of solid terracotta panels which extend out, wave like, from the Hudson Bay, gradually fading away as they near the Eaton Centre and all glass panels which sweep away from the Eaton Centre mixing with the terracotta panels as they transition towards the Hudson Bay. This meeting, and blending, of the two building's dominant materials' forms becomes a metaphorical 'handshake' between the two buildings as they extend across Queen Street.

Viewed from street level the bridge will act as a sculptural object and increase awareness of the architecture from different periods on opposite sides of Queen Street. Glazing panels wrap round below the walkway level making people using the bridge more visible and increasing awareness of the connection. The internal experience will be of walking within a sculptural artwork, viewed down its internal long axis the geometry creates a spiralling vortex. Full height glazed panels allow a more direct view and feeling of engagement with the street below.

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TEC PEDESTRIAN BRIDGE

2. The effect the bridge has on Queen Street from a traffic / pedestrian standpoint.

We trust that this information is suitable for your needs at this time; however, if we can be of any further assistance, please do not hesitate to contact us.

Yours Truly,

Wilkinson Eyre Architects / Zeidler Partnership Architects.

David Collins

Project Architect, ZPA.

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Appendix A – Structural

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Read Jones Christoffersen
Consulting Engineers

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Canada

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July 16, 2105

Zeidler Partnership Architects
315 Queen St. W.
Toronto, Ontario
M5V 2X2

Attention: David Collins
Associate

Dear David:

RE: Toronto Eaton Centre Bridge
Building Permit # TBD

RJC No.: TOR.111610.0001

The Toronto Eaton Centre Bridge is a simply supported steel structure spanning from the 2nd floor of the existing Hudson Bay Company to the second floor of the Eaton Centre. The bridge spans across Queen Street at a slight skew from perpendicular.

The floor framing of the bridge is a built-up box section that spans from one end of the structure to the other. This built-up box section has a 4200mm wide top flange, a 3000mm bottom flange and varies its depth from 800mm at the ends to the 600mm in the centre portion of the bridge. The box section carries the vertical and horizontal loading on the bridge and also resolves the torsional load created from the eccentricity to loading on the enclosure of the bridge walkway.

The bridge enclosure is created with 22 portal frames that are roughly spaced at 1500mm o.c. running perpendicular to the span of the bridge. The portal frames are rectangular at the Eaton Centre side transitioning to a decagonal shape at the Hudson Bay end. These enclosure shapes also flare out in width as you approach the Hudson Bay end. The constant rectangular portion of these enclosures is comprised of HSS 203x152 sections. As the enclosure shape widens and changes to a 10 sided shape it will be composed of two 152 deep HSS members with a continuous steel plate connecting the HSS shapes on the outer and inner face.

Along the joints of the portal frames running parallel to the bridge span will be a steel bar approximately 50mmx150mm in profile. This element will be slotted axially to ensure it does not provide any truss action and will be moment connected about the weak axis to provide out of plane stability to the portal frames.

The bridge will be connected to new steel provided at the Eaton Centre end and to the existing steel beam supporting the current bridge at the Hudson Bay end. The connection at the Hudson Bay end will remain slotted along the length of the bridge to allow for movement between the 2 buildings.

The system is clad with curved laminated glass and curved terracotta panels that will be fastened to steel enclosure framing.

The bridge is designed in accordance with the National Building Code of Canada, the Ontario Building Code and the appropriate clauses of the Canadian Highway Bridge Design Code.

We trust that this information is suitable for your needs at this time; however, if we can be of any further assistance, please do not hesitate to contact us.

Yours truly,

Read Jones Christoffersen Ltd.

A handwritten signature in black ink, appearing to read "A. Crosby". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Andrew Crosby
Project Engineer

Appendix B – Traffic

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July 16, 2015

Rory MacLeod
The Cadillac Fairview Corporation Limited
20 Queen Street West, 5th Floor
Toronto, ON M5H 3R4
E-Mail: Rory.MacLeod@cadillacfairview.com

RE: New Toronto Eaton Centre Pedestrian Bridge

Dear Rory MacLeod:

At your request, we have reviewed the urban transportation elements of the proposed new Toronto Eaton Centre pedestrian bridge across Queen Street West.

The existing pedestrian bridge connects the second floor of the Toronto Eaton Centre over Queen Street West to the second floor of Hudson's Bay department store. It is being replaced by a new pedestrian bridge that will provide similar height clearance to Queen Street West and maintain connections to the Toronto Eaton Centre and Hudson's Bay.

BA Group has reviewed the new Toronto Eaton Centre pedestrian bridge design from a pedestrian standpoint and assessed its impact on the existing midblock pedestrian traffic signal on Queen Street West. A brief summary of our comments is set out below.

Toronto Eaton Centre Pedestrian Bridge Design

The existing pedestrian bridge links the second floor of the Toronto Eaton Centre to the second floor of the Hudson's Bay department store over Queen Street West, which it crosses at a slight diagonal with a clearance of approximately 5.4 metres. TTC catenary wires serving the Queen Streetcar run beneath the pedestrian bridge.

The proposed new bridge design by Wilkinson Eyre Architects incorporates a glass enclosed walkway that widens and changes shape, from rectilinear to decagonal, as it crosses Queen Street West between the second floors of the Eaton Centre to the Hudson's Bay department store. A pattern of alternating windows and vertical panels give the impression of forward movement. We understand that the base of the structure will function the same as it does today in terms of accommodation of TTC catenary wires, and provide a clearance of approximately 5.1 metres to Queen Street West.

The proposed height clearance meets the Ontario Bridge Code's minimum requirement for an overhead structure designed for roadway traffic, but is slightly less than the minimum requirement for structures designed for pedestrians or bicycles (5.3 m). We understand that Cadillac Fairview plans to request a jurisdictional dispensation for relief from the height clearance requirement.

Pedestrian Volumes

Pedestrians enter the Toronto Eaton Centre from Queen Street West from the above grade pedestrian bridge, a below grade PATH connection at Queen Subway Station, and by a midblock pedestrian crosswalk on Queen Street West between Bay Street and Yonge Street. Combined, these three (3) connections have an average weekday volume of approximately 25,187 pedestrians, which is comparable to the 10th busiest pedestrian intersection in the city.^{1 2}

Table 1 provides a summary of pedestrian volumes recorded at the pedestrian bridge between the Toronto Eaton Centre and Hudson's Bay, at the Queen Subway Station PATH entrance to Eaton Centre, and crossing Queen Street West at the midblock crosswalk.

TABLE 1 DAILY AVERAGE PEDESTRIAN VOLUME

Eaton Centre Operating Hours	Day	Average Daily Pedestrian Volumes		
		Queen St. Subway Station PATH Connection at Eaton Centre Entrance ¹	Queen Street West Midblock Crosswalk ²	Pedestrian Bridge at Eaton Centre Entrance ¹
10:00 am – 9:30 pm	Monday	14,700	5,027	6,000
	Tuesday	11,000		6,600
	Wednesday	14,000		6,800
	Thursday	13,500		6,000
	Friday	15,000		7,200
9:30 am – 9:30 pm	Saturday	7,500		6,200
10:00 am – 7:00 pm	Sunday	5,000		4,400
	Weekday Average	13,640	5,027	6,520

Notes:

1. Source: Cadillac Fairview. (2015). Pedestrian Counts.

2. Source: City of Toronto – Traffic Safety Unit. (16 June, 2011). Signalized Traffic Volumes. 8-hour pedestrian count undertaken from 7:30 a.m. to 6:30 p.m., with breaks.

Carrying over 2.3 million pedestrians annually³, the Toronto Eaton Centre pedestrian bridge plays a vital role in the pedestrian circulation in and around the Toronto Eaton Centre, Hudson's Bay, and surrounding area. These volumes are such, that if the bridge were to be removed and all pedestrians formerly using it were to cross at grade, the average volumes of pedestrians crossing at the midblock crosswalk on a weekday would total 11,547, which exceeds the highest 8-hour volumes recorded at any one crosswalk at even the city's busiest intersections. This substantial increase in pedestrian volumes at the midblock crosswalk would require a reassessment of and potentially an increase in the crosswalk width, crossing time, as well as pedestrian queuing space, especially on the sidewalk on the south side of the street, which is already constrained, and due to the heritage protection of the Hudson's Bay department store building, has no opportunity for widening.

¹ Reid, D. (2011, June 9). Top 25 Walking Intersections in Toronto. *Spacing Toronto*.

² City of Toronto Open Data. (2011, 2012, 2013). Signalized Intersection Traffic and Pedestrian Volumes. 8 hour sum.

³ Cadillac Fairview. (2015). Pedestrian Counts.



Overview of PATH Master Plan

In 2012 the *PATH Pedestrian Network Master Plan* was completed by Urban Strategies in collaboration with City staff, residents, community groups, public agencies, businesses and property owners, with the intent to improve the operation of the existing PATH network and guide future development of it.

Both the existing pedestrian bridge between the Toronto Eaton Centre and Hudson's Bay and the below grade connection from Queen Station are reviewed in the *PATH Master Plan* and considered to be integral parts of the PATH network, but only the below grade connection from Queen Subway Station is explicitly shown on the City's map of the PATH network.

Two of the stated objectives of the *PATH Master Plan* are to "preserve view corridors" and "support active street life," as outlined below:

- ***Preserve View Corridors:*** *New above-grade PATH connections are only anticipated south of Front Street. Above-grade bridges over public rights-of-way should not obstruct views, and, where possible, should be located adjacent to existing overhead structures, such as the rail corridor and Gardiner Expressway. Above-grade PATH connections will be animated with retail and public art and should provide physical and visual connections to the at-grade environment within buildings and above rights-of-way. Above-grade PATH connections will continue to be assessed against relevant Official Plan policies when considering potential public benefit.*
- ***Support Active Street-life:*** *Extension of the PATH network into established neighbourhoods and districts with active street-life, successful at-grade retail and high quality pedestrian environments will be limited. PATH entrances and portals are encouraged at the periphery of these neighbourhood areas to create a gateway between the PATH network and the connecting streetscape.*

The following reviews the existing and proposed pedestrian bridge in context of these objectives.

View Corridors

Since the Toronto Eaton Centre pedestrian bridge has existed for many years, the view corridor along Queen Street will remain unchanged. Furthermore, the pedestrian bridge is an iconic part of the view corridor, marking the location of the Toronto Eaton Centre and Hudson's Bay store from a distance, and will only be improved by the unique and kinetic proposed new bridge design.

Active Street-life

Queen Street is already a vibrant pedestrian corridor, featuring the longest uninterrupted shopping stretch in Toronto. The pedestrian bridge complements the already well-used midblock crosswalk on Queen Street West and enhances pedestrian circulation in and around the Toronto Eaton Centre and Hudson's Bay area.

Impact on Midblock Pedestrian Signals

The location and visibility of the existing midblock pedestrian crossing traffic signals in context of the existing and proposed pedestrian bridge designs are discussed below.

As illustrated in attached Figure 1, the midblock pedestrian signal on Queen Street West is located approximately 60 metres west of Yonge Street as measured from the centreline of Yonge Street to midpoint of the crosswalk, and approximately 151 metres east of Bay Street as measured from the centreline of Bay Street to the midpoint of the crosswalk. This provides approximately 33.0 metres of queuing space for vehicles approaching the signal from the east and approximately 108.5 metres of queuing space for vehicles approaching it from the west.

The midblock signal heads are mounted on two signal poles – one located immediately to the west of the crosswalk on the north side of Queen Street West, and the other located immediately to the east of the crosswalk on the south side of the street. The signal heads are fully visible beneath the existing pedestrian bridge and will remain visible with the new pedestrian bridge design. It should be noted that the traffic signal poles are taller than the height of the signal heads and extend beyond the base of the pedestrian bridge.

At their closest point, the pedestrian bridge and the midblock crosswalk are approximately 3 metres apart laterally. The proposed new pedestrian bridge will pass over a portion of the crosswalk on the north side of Queen Street West. This requires the relocation of the pedestrian signal pole on the north side of the street, due to its height.

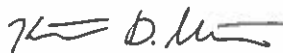
Attached Figure 2 illustrates the proposed relocation of the signal pole that is impacted by the new pedestrian bridge. Shifting the north signal pole east by approximately 5.5 metres (to align with the signal pole on the south side of the street), moves the signal pole out of the path of the new Toronto Eaton Centre bridge design, keeps the pedestrian call button in a clear and logical location, and maintains the Ontario Traffic Manual required minimum separation of 12 metres between the signal indicator and the vehicle stop bar. No further changes would be necessary to the pavement markings, or otherwise. Accordingly, there are no impacts on traffic operations related to the proposed relocation of the pedestrian signal pole—the existing vehicle queuing space and operation would remain the same.

* * * * *

We trust the foregoing is in order and provides an appropriate review of the pedestrian and vehicular concerns related to the new Toronto Eaton Centre pedestrian bridge over Queen Street West.

Sincerely,

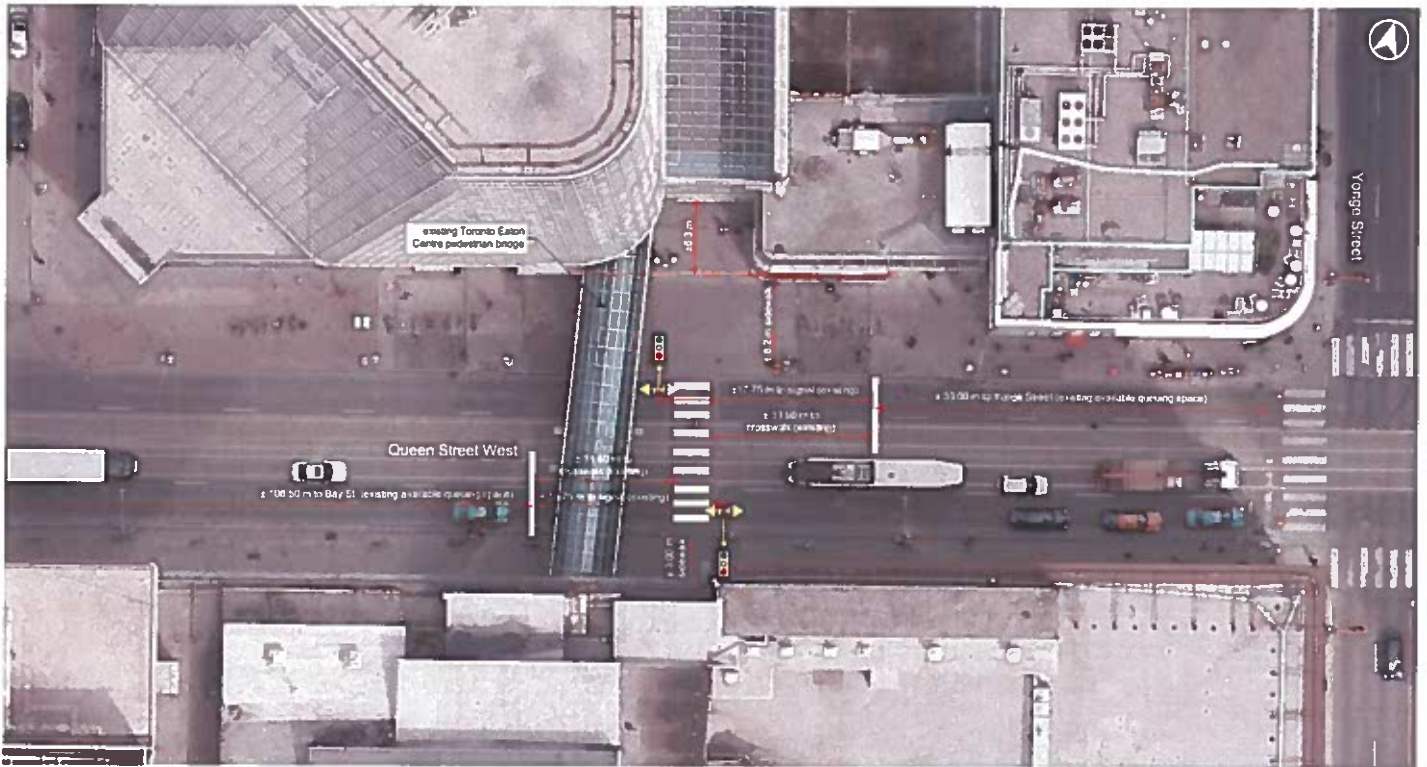
BA Consulting Group Ltd.



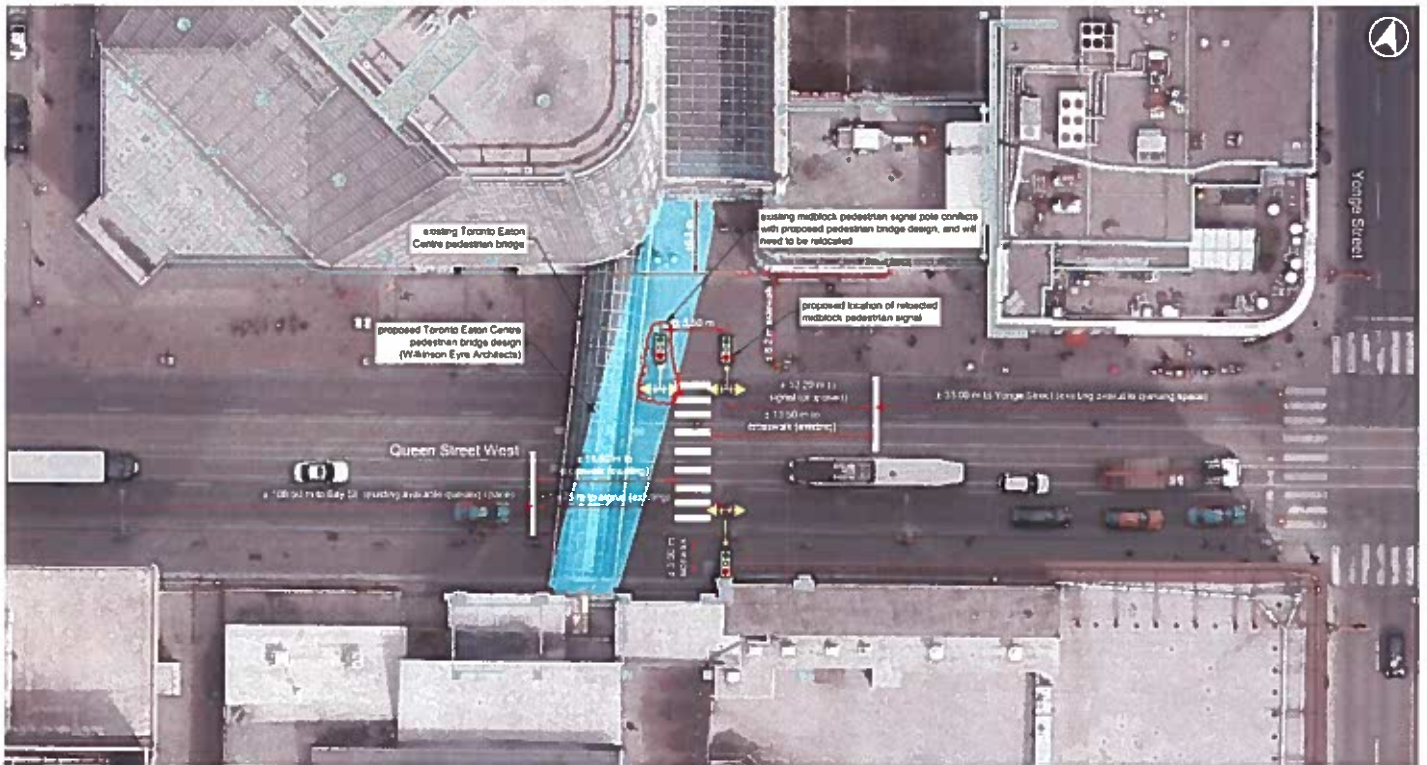
Kristen D. Morith, AICP
Transportation Planner / Designer

Cc: Tony Yates

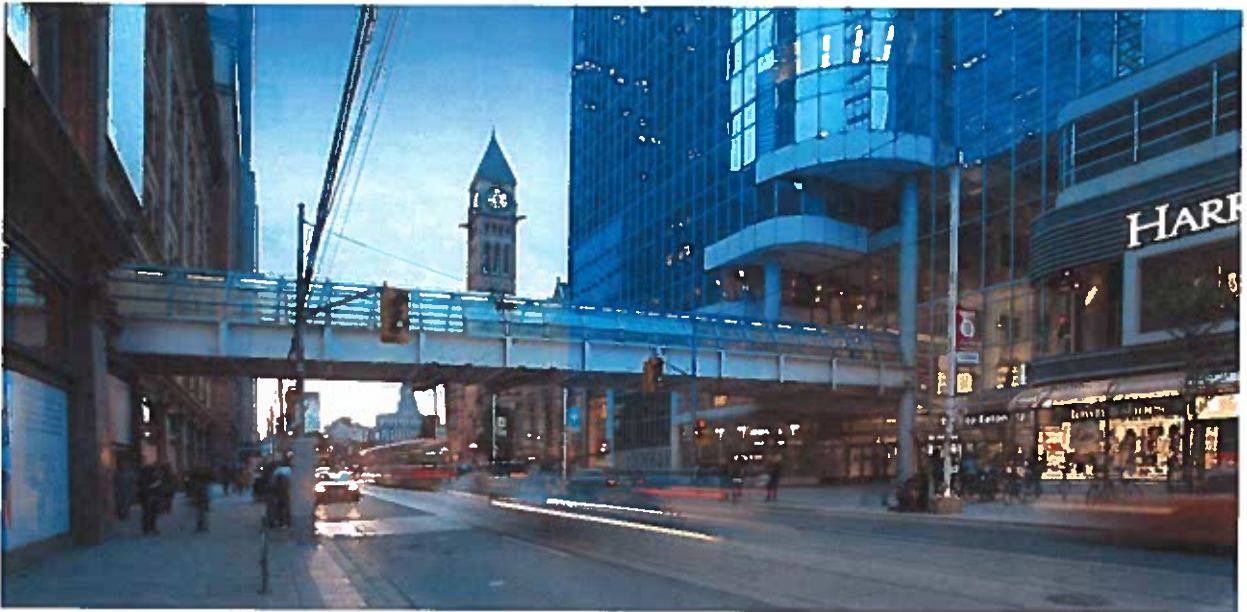




Existing Toronto Eaton Centre Bridge Location
and Midblock Pedestrian Signal Configuration



Proposed Toronto Eaton Centre Bridge Location
and Proposed Modifications to Midblock Pedestrian Signal Configuration



Photographs of existing Toronto Eaton's Centre Bridge