

ONTARIO LINE OSGOODE STATION

Station Headhouse Location Review

6 February 2023

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Introduction

Purpose

This review constitutes a high-level due diligence review of the proposed locations for the headhouse for Ontario Line (OL) Osgoode Station as located at Queen Street West and University Avenue. It was conducted to examine the need to utilize existing Osgoode Hall property for the proposed location of the OL Osgoode Station north headhouse, with further considerations of the keyhole excavation method proposed, the requirements for auxiliary infrastructure of the station such as ventilation shaft locations, and the feasibility of alternative headhouse locations as proposed by the community and others identified through previous analyses.

Overview of Proposed Work

This review will focus on the following items:

- The proposed options for the location of the station headhouse and all auxiliary infrastructure
- Documentation and evaluation of technical and operational considerations and requirements that inform technical decisions made in locating the headhouse
- Reviewing the costs and benefits; together with the constructability of each alternative location option against the current proposed headhouse location as proposed by Metrolinx
- Estimating the magnitude of cost and schedule implications for the alternative location options as compared to those of the current Metrolinx option.

This review has been completed to provide an objective third-party response to the current proposed locations for the OL Osgoode Station headhouse location.

Goals and Objectives

This review has been developed to inform the City of Toronto's view as a key Stakeholder on the Ontario Line (OL) project. The analysis also determines the feasibility of the alternative solutions as proposed.

The stated objectives of the review are designed to:

- Identify critical considerations, including any quantitative parameters, for siting the station
- Development of a 'checklist' for a station located in this vicinity against which all proposed alternative options can be evaluated
- Comparison of the checklist items against the alternative options to identify where key considerations can or cannot be met
- Provide an objective, public-ready summary document and presentation.

Scope of Work

The following tasks were completed prior to the completion of this review; including the preparation of a background summary of the work performed to date and a list of key stakeholder concerns, including.

- Reference Concept Designs (RCD), engineering reports and other design details and analysis for the Osgoode Station location(s) as developed by Metrolinx and their technical advisors to date
- Metrolinx and Provincial project timelines and commercial (contractual) considerations
- Key operational and construction considerations, context, and experience from the Toronto Transit Commission (TTC)
- Applicable background studies and concept designs from the City's Relief Line work, including assumptions and approach
- Work undertaken for the University Avenue Park proposal
- The community's Osgoode Plaza station site proposal

- Design and analysis of the station location undertaken by consultants to the Law Society of Ontario
- Public presentation materials prepared by Metrolinx and their technical advisors
- Community and stakeholder feedback received through correspondence and public engagement
- Considerations and analysis from other impacted City stakeholders including Engineering and Construction Services, Parks, Forestry and Recreation, City Planning and Transportation Services
- Review of the Metrolinx TILOS project schedule for the Queen Street and Adelaide Detour for key considerations, feasibility, and conflicts

The following public information was reviewed online:

- Toronto Preservation Board consideration on February 22, 2022:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2022.PB31.6>
 - City Council's consideration on December 15, 2021:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2022.PB31.6>
- Metrolinx public engagement website related to Ontario Line and the Osgoode Station:
<https://www.metrolinxengage.com/en/content/ontario-line-neighbourhood-updates-downtownosgoode-station>

This review includes a list and diagrams for the ten station configurations as presented to the public by Metrolinx and their technical advisors (including two proposals as provided by the Law Society of Ontario and a local community group); identifying each proposal and reviewing each by means of a full complement of technical criteria and the reasons by which they were subsequently rejected.

Key considerations for each alternative headhouse location option have been documented and fundamental issues of feasibility (showstoppers) are identified as guiding the proposed location of the OL Osgoode Station. These objective challenges and requirements for construction of the station have been documented, and wherever possible, quantified.

Issues under consideration include:

- Transportation planning, ridership, and passenger access
- Constructability including construction methods and laydown requirements
- Built and natural heritage
- Short term operational – traffic and transit impacts (including at-grade transit impacts to stops and impacts to Line 1 Osgoode Station during construction)
- Long term operational – transit integration and passenger flow
- Property (ownership, access)
- Wet and dry utilities design and relocation requirements
- Safety/Accessibility for Ontarians with Disabilities Act (AODA) considerations (including pedestrian capacity and flow)
- Commercial context and challenges, including costs, schedule, and contractual implications
- Urban design and public space
- Environmental Assessment and regulatory requirements (needs/options/timing)

This review includes an analysis of all background information provided or identified as being important to the process, identification and compilation of the various alternative location options and the documentation of the key considerations and fundamental feasibility issues that have guided the proposed location of the headhouse structure at the northeast corner of the intersection of Queen Street West and University Avenue on lands currently controlled by Osgoode Hall.

All options have been assessed and consistently documented for fatal design flaws; together with contextual challenges and opportunities specific to each site; complete with an analysis of their relative merits.

Options for Osgoode Station Headhouse Location



AERIAL VIEW OF THE INTERSECTION OF UNIVERSITY AVENUE AND QUEEN STREET WEST WITH TEN OPTIONS UNDER CONSIDERATION FOR LOCATION OF STATION HEADHOUSE

Location A – Osgoode Hall Site (130 Queen Street West)

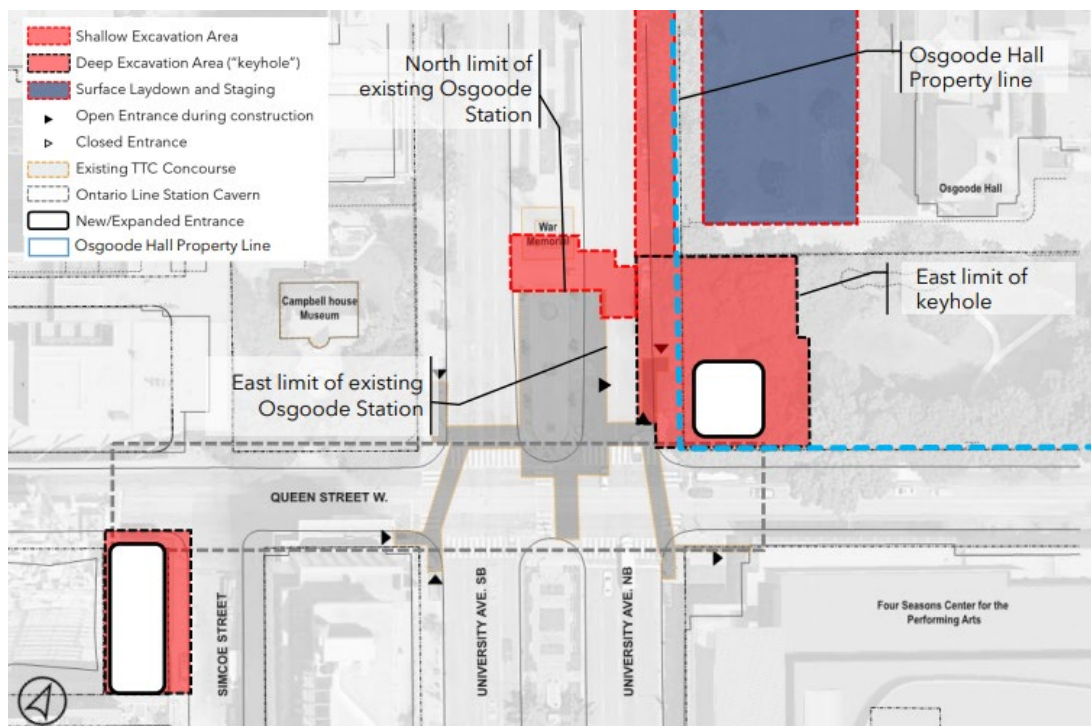


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location A) would utilize property on the southwest corner of the Osgoode Hall site; adjacent to the northeast corner of University Avenue and Queen Street West. The actual headhouse structure itself has now been reduced in size to minimize its footprint, as shown in the alternate design for the structure as provided by Metrolinx and their technical advisors. The site of the keyhole excavation utilizes the full width of the east sidewalk on University Avenue, north of Queen Street West, to minimize its impact on the Osgoode Hall property.

The headhouse structure and the keyhole excavation will require the temporary removal of the heritage fence at both flanks of the University Avenue & Queen Street West intersection at the edge of the property and the removal of several mature trees that make up part of an existing canopy of trees at this corner.

Since the underground structure of the excavation will be located such that only ground cover a metre deep will be provided; no trees will be able to be planted in this area. Typically, ground cover with a vertical dimension of 2-4 metres is required to sustain mature trees.

The area defined as construction laydown space, located on the existing lawn adjacent to the west elevation of Osgoode Hall, can be returned to its original state once construction is complete. Metrolinx anticipates that a total of 7 trees will

be removed to accommodate laydown activities, all of which are in the centre of the west lawn. The row of mature trees located adjacent to the perimeter fence at University Avenue will be protected by hoarding.

Location B – Campbell House Site (160 Queen Street West)

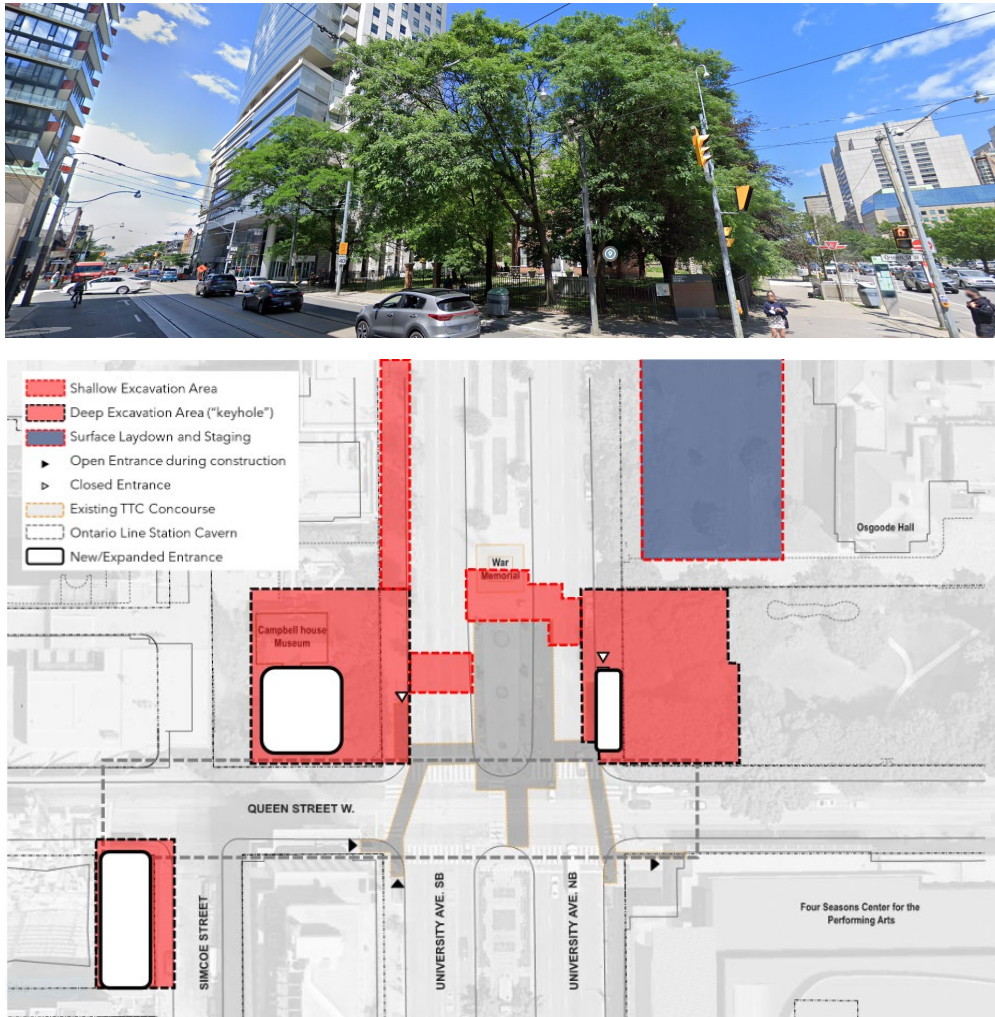


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location B) would utilize the existing Campbell House site for a significant portion of the station construction work and would require the temporary closure and possible temporary relocation of the museum to increase the land available to support construction. New station entrance structures would be created at both the northeast and northwest corners of the intersection, as well as at the Simcoe/Queen secondary entrance site. The design of a new station headhouse located on the Campbell House site as provided by Metrolinx shows a headhouse structure similar in size and shape to the fully-developed headhouse design located in Location A – Osgoode Hall site. This structure appears to sit directly to the south of Campbell House itself atop the second keyhole structure; implying that the heritage building would be substantially altered to accommodate the transit entrance.

It is unclear from the material provided by Metrolinx how the unpaid concourse level would function, and if unpaid access to the four corners of the intersection would be maintained. The more distributed site access would, theoretically, make it easier to maintain the unpaid concourse access, improving the function of the station and permitting a future PATH extension to take advantage of the unpaid concourse to extend the reach of the PATH system beneath University Avenue.

This option would appear to create two significant construction zones on the northeast and northwest corners, as shown on the graphic shown here as supplied by Metrolinx. If the reduced footprint keyhole excavation can be accommodated on the Campbell House site; the proposed new entrance structure located at the northeast corner should be contained on public lands, with minimal or no permanent impact to the Osgoode Hall property.

The Campbell House design option would also require temporary use of the Osgoode Hall lawn to complete the work, should laydown space not be able to be accommodated at the northwest quadrant of the intersection. The use of some of the existing southbound lanes of University Avenue as located north of Queen Street West could also be used as laydown space; assuming fire and emergency routes are maintained in this area.

This option places the bulk of the improved station access facilities on the west side of University Avenue, potentially overloading the existing southeast entrance located within the Four Seasons Centre and the new entrance located on the northeast corner, although no station pedestrian flow analysis has been completed to determine if this is a potential shortcoming of the option.

Location C – University Avenue East Boulevard Site

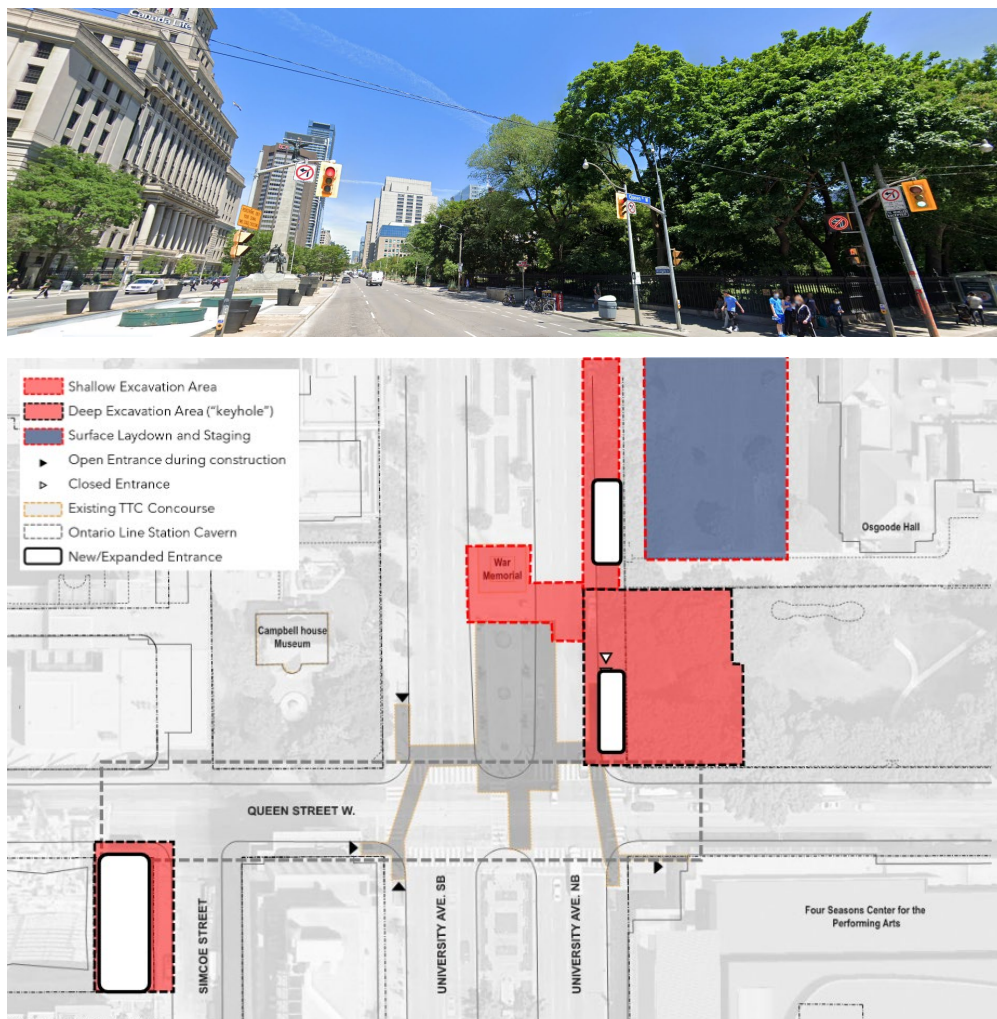


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location C) would limit impacts to the Osgoode Hall lands to the installation of below grade facilities and the use of the west lawn for construction laydown facilities. Temporary removal and restoration of a section of the heritage fence would be required and the trees in the southwest portion of the lawn would need to be removed to accommodate the keyhole excavation as shown. Metrolinx and their technical advisors have not provided information regarding the

vertical dimension from top of structure to finished grade and whether a suitable vertical dimension for landscape ground cover could be made available to sustain mature trees at the excavation site.

While the plans do not provide enough detail to determine if the unpaid connection would remain at the northeast corner, this is a desirable feature for local access and future PATH extension.

This east boulevard option does not appear to provide adequate pedestrian connection to the street, potentially leading to lower than desired service levels at the two entrance facilities in the northeast quadrant. Connection to the westbound streetcar is also less effective as the entrances appear to connect northward, requiring connecting passengers to backtrack down to Queen Street West.

Location D – University Avenue Median Site

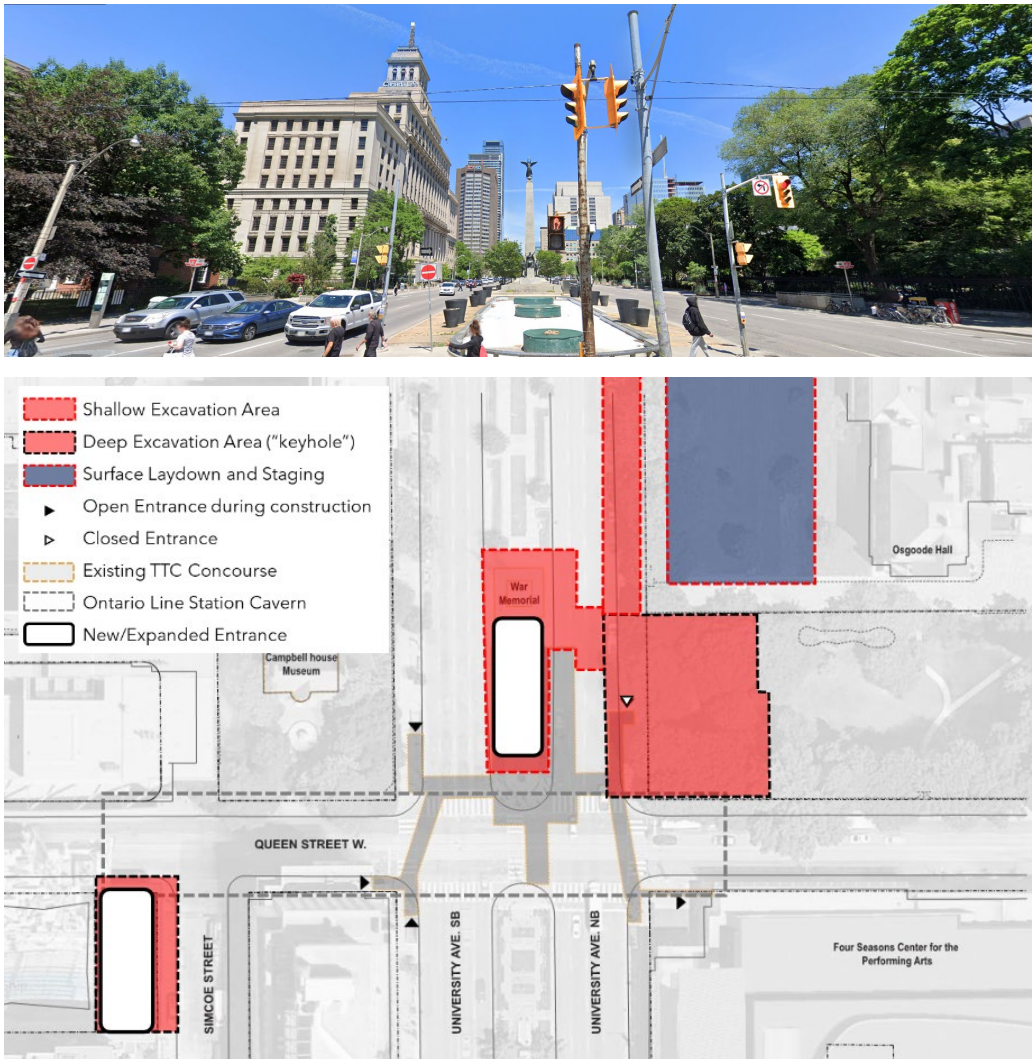


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location D) would temporarily utilize the Osgoode Hall lands to support construction by using the west lawn as a laydown facility but locates the permanent entrance facilities in the southwest entrance located at Simcoe Street and Queen Street West, with a proposed headhouse entrance located on the existing median boulevard on University Avenue, located directly north of Queen Street West.

There would be critical pedestrian flow constraints into and out of a new entrance located on the existing boulevard, as this location limits the surge space available for passenger management at street level and potentially creates issues

with traffic management during major events and/or delay events in the system. This design, which would be located directly above Line 1, would appear to displace some of the functions in the existing concourse and would require a more significant intervention into the existing Line 1 structure to complete the work.

The drawings provided by Metrolinx appear to show a disconnect between the existing northeast corner entrance and the unpaid concourse level circulation, which could make navigation through the station for bypass traffic and unfamiliar users more complicated. The median option also permanently displaces the current South African War Memorial located in the boulevard; and is also incompatible with the long term TO Core University Park concept, as a station entrance located on the existing median space on University Avenue would not be compatible with long term planning related to the possible future realignment of University Avenue. While these items are all major challenges, the management of passenger flows in the median is considered to be a vulnerability in the design that cannot be eliminated.

Location E – Four Seasons Centre Site (145 Queen Street West)

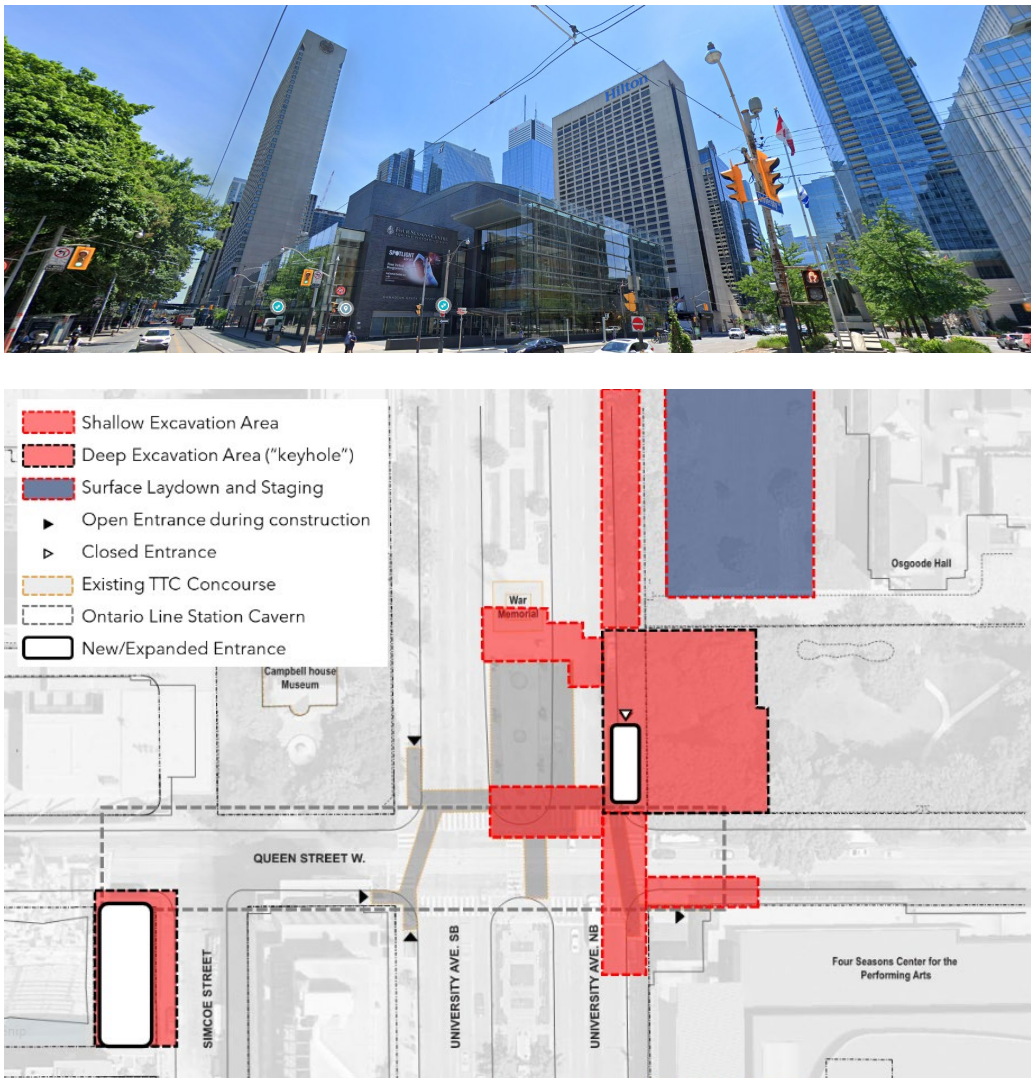


IMAGE FROM METROLINX PRESENTATION – OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location E) involves the development of a new entrance structure to replace the existing northeast stairway entrance to the existing Line 1 station; together with new entrances located on the southeast corner of the intersection. There has been no investigation regarding changes or additions to the existing station entrance located within the Four

Seasons Centre itself. The graphic provided by Metrolinx does not show new entrance structures at the southeast quadrant, nor does it illustrate any changes to the existing station entrance located within the performing arts centre. Further information would be required to analyze whether the proposed design would provide a unified connection.

Location F – Bank of Canada Building Site (250 University Avenue)

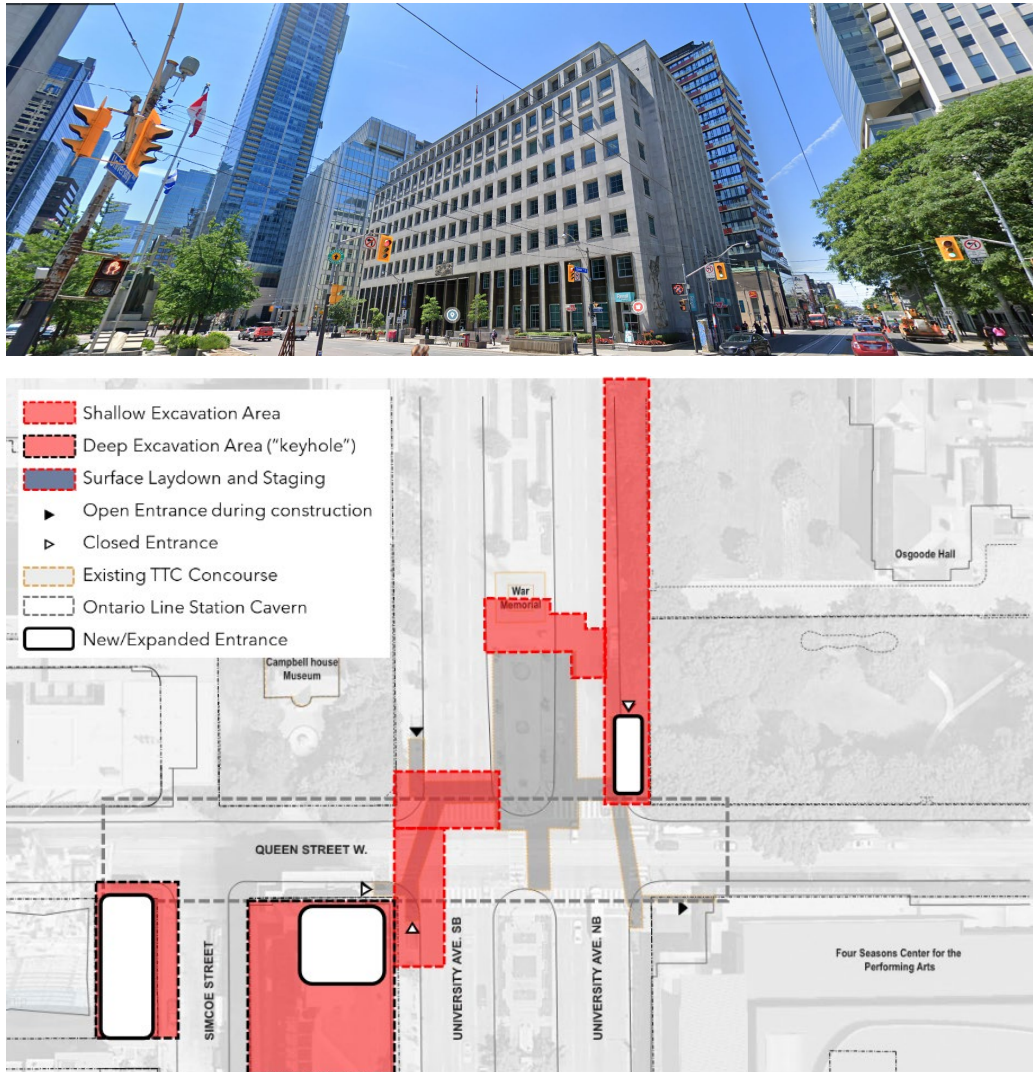


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

This option (Location F) would focus the construction and the future access capacity increases in the southwest quadrant of the intersection, which is an important focus for pedestrian activity, but is not the largest source of increased ridership. The existing northeast entrance stairwell would be replaced by a new entrance structure to improve pedestrian handling capacity and the fan system would remain in its existing location on the east side of University Avenue. This option does not appear to provide for increased PATH connectivity beneath University Avenue, with a clear unpaid connection at concourse level as has been provided at King Street West at St. Andrew Station. It also creates two entrances at the southeast and southwest corners of Simcoe Street and Queen Street West, but does not connect them at the concourse level, potentially creating confusion for passengers and long circuitous routes for passengers selecting the incorrect entrance, who must descend to the Ontario Line concourse level to make this connection.

This option requires the use of the Bank of Canada site for construction, potentially limiting when the proposed redevelopment of this property into a 54-storey mixed-use building could begin, or possibly would require a joint

coordinated design approach between the developer and the Province's Transit-Oriented Communities program. This would be further complicated if the redevelopment plans for this property require partial retention of the existing heritage building façade. The demolition of the existing 8-storey building would allow the temporary use of the south side of the property to be used for construction laydown space; and would not require the use of the Osgoode Hall west lawn for this purpose. If the construction issues and timing of the redevelopment of the site can be managed, this option has some potential but locates the largest station entrance to the southwest of the intersection, which is a less desirable station entrance location than the northeast corner of the intersection for reasons of traffic and pedestrian flow. A concourse level connection between the two entrances at Simcoe and Queen may also be required to address passenger flow issues.

Location G – Simcoe Street Only Site (205 Queen Street West)

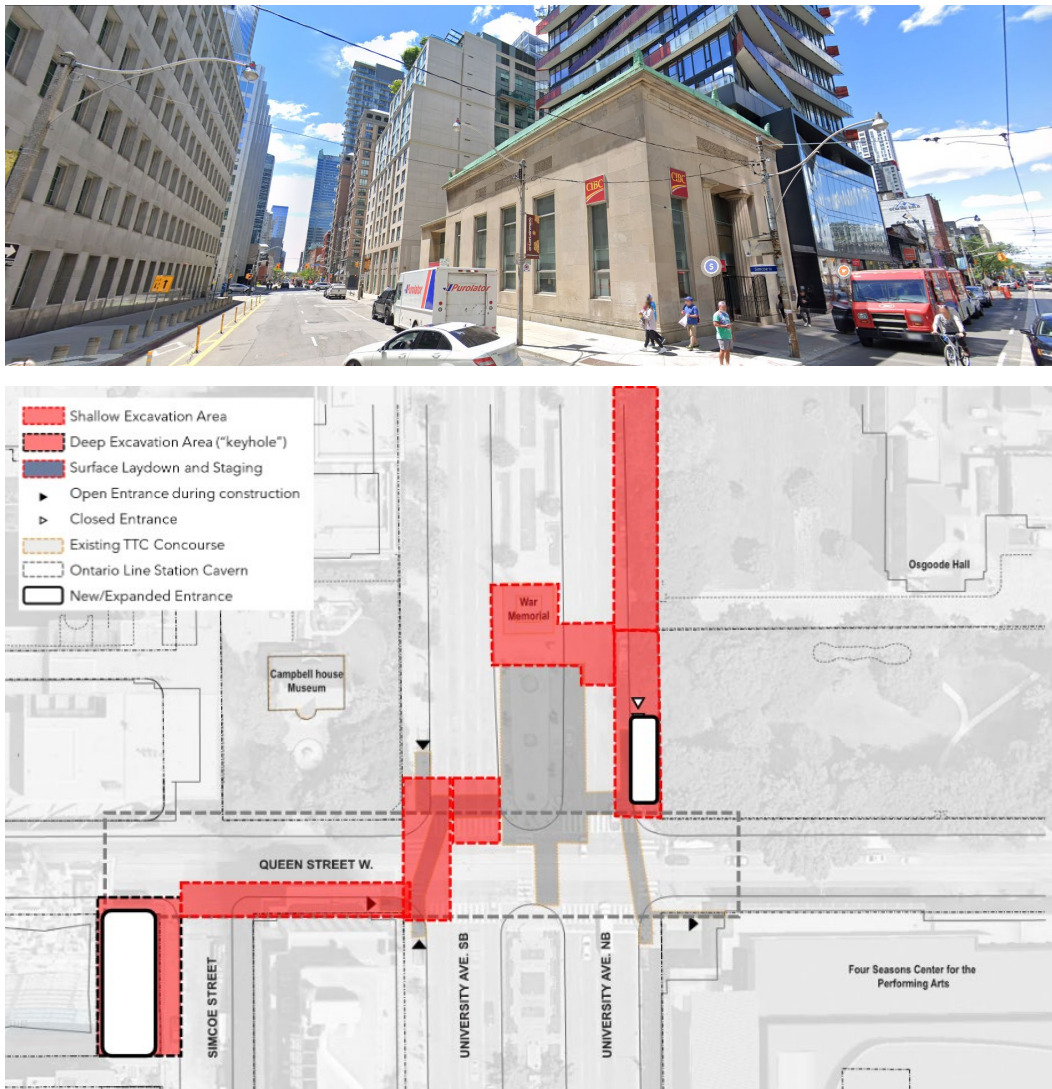


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 - 25 JUNE 2022

This option (Location G) would focus improvements at the new entrance located at Simcoe Street and Queen Street West, and an upgrade to the existing northeast corner entrance. Improvements to passenger access would be limited and are unlikely to be sufficient to support the increased passenger activity at the northeast quadrant of the intersection. This option does not appear to provide adequate space for temporary construction staging as the Simcoe Street and Queen Street West entrance location is too small a site to support all required excavation and construction activity but

does not identify the west lawn of Osgoode Hall as a temporary laydown space as in other design location options. It is assumed that the Osgoode Hall laydown space will need to be utilized, as no alternative laydown spaces have been shown.

This option improves the connectivity from the Simcoe Street & Queen Street West entrance to both the new Ontario Line Station and the concourse level of the existing Line 1 station. It is unclear from the drawings provided by Metrolinx if this improved underground connectivity is an unpaid fare area, which would provide more benefits to the future development of the PATH system beneath University Avenue.

The limited construction area and the limited improvements to the passenger connections to street level make this option impractical. These design vulnerabilities would together warrant dropping this option from further consideration.

Location H – Canada Life Building Site (180 Queen Street West)



This option (Location H) was posited by stakeholders in a community meeting and was simply listed as a suggested site for the headhouse, with no subsequent design investigation by Metrolinx or its technical advisors. The proposed station entrance would be within an existing Starbucks retail space currently located at the east side of the building. This would involve the development of a primary entrance for the station in an existing privately-owned mid-rise office building development. Significant technical issues with the construction of a station in an existing building would need to be addressed; including a possible solution by which the existing building is demolished in its entirety and replaced with a new building.

While a major station entrance in this location would take some of the pressure off the street network and the Osgoode Hall site itself; an Ontario Line station located one block west of the existing Line 1 station located beneath University Avenue would involve inefficient horizontal connections between both station entrances as located at Simcoe Street and the existing Line 1 concourse located beneath University Avenue.

A westbound streetcar stop located on Queen Street West at Simcoe Street would reduce the available roadway space for vehicular traffic and would cause issues with westbound traffic blocking traffic on University Avenue; whereas the current westbound 501 streetcar stop located at the northeast corner of the intersection takes advantage of the long stretch of unbroken sidewalk located in front of Osgoode Hall to maximize both passenger and traffic flow in this area. A level crossing connecting both sides of Queen Street West with both eastbound and west bound stops would further impede traffic in this area.

As in other options that limit new construction works to publicly owned lands, the proposed upgrades to the existing entrance located at the northeast corner of the intersection are unlikely to meet projected passenger flows.

This option would focus construction staging on the pedestrianized segment of Simcoe Street located directly north of Queen Street West and the open area behind the Canada Life, Campbell House and Federal Courthouse buildings. The site is more remote from the works than other sites and could reduce the impacts on the busy Queen and University Avenue corridors but may be challenging to access.

This option relies on the Simcoe Street right-of-way, located north of Queen Street West, which includes such underground services as district heating and cooling infrastructure, which would potentially complicate utility works.

This proposed option for a headhouse located within or adjacent to an existing building creates a series of pedestrian, streetcar, vehicular and passenger flow issues. As before, the proposed changes to the existing entrance located at the northeast corner of the intersection will not address the anticipated ridership in this quadrant. These considerations alone can be considered as fatal flaws, and this option does not merit additional study.

Location I – T.O. Core Site

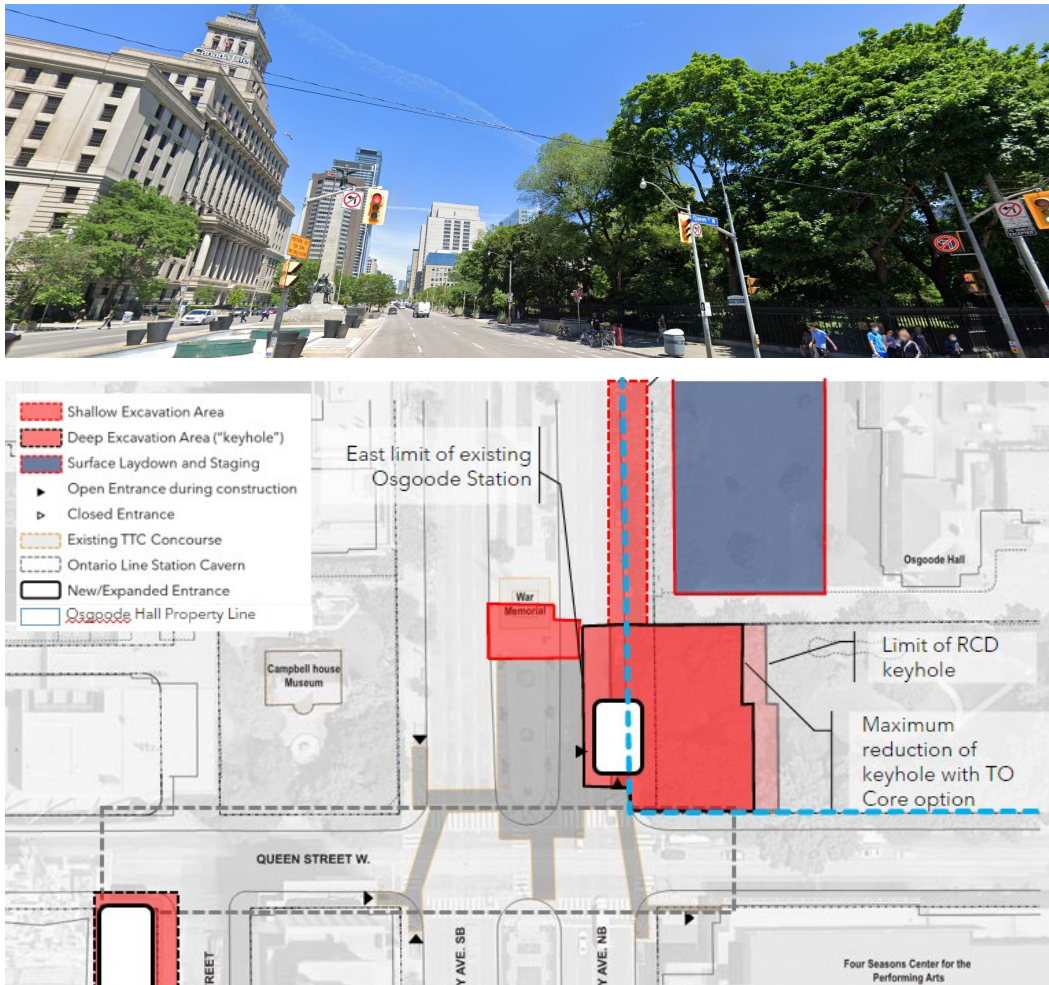


IMAGE FROM METROLINX PRESENTATION - OSGOODE STATION COMMUNITY MEETING #2 – 25 JUNE 2022

The T.O. Core option (Location I) aligns with the future plans for University Avenue. The conversion of the northbound lanes to public open space and the conversion of the southbound lanes to two-way travel would significantly alter the appearance and function of the street, returning significant space to pedestrians and cyclists, and creating a significant opportunity to improve the northeast access to the new station with limited impacts on the Osgoode Hall lands.

The relocation of the station access westward into the existing northbound lanes and boulevard would allow the keyhole site to be shifted west, although temporary impacts affecting the fence and lawn at Osgoode Hall would remain. It also addresses the need for significant improvements to station access in the northeast corner of the intersection; together with improved access to the existing westbound streetcar stop. Additional constructability risks as related to the increased proximity of the keyhole excavation and related headhouse construction to the existing Line 1 structure would likely be an issue with the design as shown.

This option aligns with the city's emerging vision for the future of University Avenue; however, this vision is in the early stages of development and does not have standing as a clear direction from City Council. While it reduces direct impact on the Osgoode Hall lands by relocating the headhouse structure to public lands; it maintains most of the same concerns

about the removal and restoration of the heritage fence, permanent loss of trees and future limitations regarding future landscaping to a slightly smaller area of the lawn as caused by the location of the keyhole excavation on the Osgoode Hall site.

Location J – Osgoode Plaza Proposal



IMAGE FROM AN UNDATED COMMUNITY PROPOSAL

This option (Location J) was presented as part of a community-based proposal for the location of the headhouse that was designed to minimize the impact of the station construction to both the Osgoode Hall and Campbell House properties. Much like Location I, it relies on the development of the University Park scheme that replaces the existing northbound lanes of University Avenue with new park space, creating a two-way road located directly west of the median. This would allow the proposed headhouse to be located on a newly established northeast corner of the intersection, with sufficient space for on-street pedestrian movements and a strong connection to a now-relocated westbound streetcar stop. Construction laydown space could be accommodated directly north of the headhouse site on the east boulevard for the duration of construction.

The keyhole excavation site for this option would be located very close to the existing Line 1 Osgoode Station/tunnel structure, which will introduce substantial construction risk to the project. There would likely be a significant delay to the station schedule, if not that of the entire line; due to the work involved with planning and construction a major piece of civic infrastructure.

Overall Context and Assumptions

The alternate proposed locations for the new station only appear to address a limited number of the items that would typically be considered in developing a unified, cohesive and legible transfer station that is integrated into its setting. A number of the stated constraints appear counter-intuitive to a customer-focused station. For instance, the concepts do not address future PATH connections or the use of the station to avoid street-level congestion during inclement weather or major events such as the Santa Claus Parade when the ability to cross under the intersection through unpaid areas adds a significant community benefit. Similarly, the passenger interface between the two stations is limited to one small and congested area, increasing the distance passengers may have to travel through the station to get to their desired destination. While less than ideal, this increased walking distance for passengers may not be critical to the success of the station design.

Direct connections between the platform levels for Line 1 and the Ontario Line have not been integrated into the design of the station. A direct connection from the passenger level of the new Ontario Line up to the platform level of Line 1 would eliminate the need for passengers to travel up to a shared concourse above the platform levels. Without this connection, passenger flow within the station will lead to backtracking, added congestion at a potentially already-crowded concourse level and will offer less resilience to manage major delay events on one or both lines. A direct platform-to-platform connection between the concourse level of the Ontario Line up to the platform level of Line 1 may be possible if conflicts with the existing Enwave utilities tunnel located beneath the existing subway structure at Queen Street West can be avoided or mitigated.

As a minimum, passenger circulation within the station should:

- Provide unpaid pathways between all entrances
- Allow direct access to both platforms from all entrances without long circuitous routes
- Not require passengers to select different entrances to find a direct route to their desired platform
- Provide direct pathways between the two platform levels to segregate transferring passengers from those entering or exiting the stations
- Look for ways to minimize conflicts between flow routes, potentially by providing one-way flows and directional connections

The area is highly constrained, and the solutions therefore require well-reviewed and considered solutions to make the use of the station an enjoyable experience. A customer-centered focus is suggested whereby the physical solution is based on addressing customer expectations, reducing circulation distances, and creating a legible and easily understood public space.

Constructability Review

Inserting complex transit infrastructure into fully developed downtown areas introduces a wide range of constraints that will need to be addressed. Limited open areas, site access issues and complex underground utilities all compete to create extremely constrained areas for the work to proceed.

Metrolinx has pursued a design for the Ontario Line (OL) that uses a deep tunnel and mined stations which address a number of the concerns seen with other subway construction projects where large open cut areas, primarily under roadways, were used to create the complex station facilities. The sequencing of the work, and the construction of the running tunnels in advance of station works, reduces some of the impacts however access from ground level to the future station cavern, the removal of spoil and the delivery of materials to construct the station still pose logistical challenges.

While there is no discussion to be found in the information provided of the potential to undertake the station cavern construction from tunnel level, extracting the spoils and delivering materials via the tunnels, the assumption is that found conditions at adjacent stations would preclude or severely limit this option. Alternatively, this would require each station be completed sequentially, which could possibly extend the construction duration dramatically. Information provided by Metrolinx and their technical advisors does not include any material related to construction methods, other than the need to utilize the Osgoode Hall lawn the nearest suitable open spaces available at Moss Park, Trinity Bellwoods and to a lesser extent the open area south of Metropolitan United Church. The church site is further restricted by the adjacent hospital, which would limit the potential for long duration construction activity.

The constructability review has looked at:

- Rough assumptions of keyhole and construction laydown areas,
- The use of some roadway boulevards and travel lanes to increase flexibility,
- Similar construction of stations in other large and dense urban areas as comparators, and
- Taken a comparative approach to construction duration, assuming that more restrictive sites would require longer durations due to limitations in material handling and deliver,
- Station cost is a function of construction ease and access as the facilities proposed in each option are similar, and construction duration and complexity has been used as a proxy for cost comparison

Constructability has only been considered as a fatal flaw if there is insufficient space to physically construct the station. In this analysis, the critical limitation of construction is considered to be the sufficiency of space needed to construct the station itself. Of the options presented, all appear to be constructable with the exception of Option F (Simcoe Site Only), which is an extremely limited site and would present very challenging construction conditions. Just in time delivery and a very high degree of coordination for the spoil removal and material delivery would be needed at all times to avoid significant construction delays.

Complexity and duration can be analyzed based on the improved access and laydown areas. The options are listed below in increasing complexity:

- **Tier 1 – Good**
 - Location A – Osgoode Hall Site
 - Location B – Campbell House Site
 - Location C – University Avenue East Boulevard Site
 - Location I – T.O. Core Site
 - Location J – Osgoode Plaza
- **Tier 2 – Reasonable**
 - Location E – Four Seasons Centre Site
 - Location F – Bank of Canada Building Site
- **Tier 3 - Challenging**
 - Location D – University Avenue Median Site
- **Tier 4 – Very Challenging**
 - Location G – Simcoe Street Only Site
 - Location H – Canada Life Building Site

Transit Planning and Constructability Review

From a transit planning perspective, Osgoode Station will be a key station on the Ontario Line, providing for interchange between the existing Line 1, as well as surface (streetcar) transit routes on Queen Street and access to trip origins/destinations in the western part of the Financial District. Station accesses balanced east and west of University Avenue make sense, as does having these accesses staggered across Queen Street, based on the pedestrian travel demand modelling provided.

The proposed location for Osgoode Station presents a significant challenge in designing and constructing an interchange station, based on a number of factors including the required depth of the OL platforms, the existing Line 1 Osgoode

Station and tunnel structure, adjacent development, major utilities, urban environment, etc. While these challenges are not necessarily unique, they tend to present designers with similar choices in terms of making trade-offs. While there are not necessarily 'wrong' answers with respect to design choices, it is clear that different decisions result in different outcomes.

From a strict engineering perspective, the decision to make use of existing available 'open space' in the northeast corner of the University Avenue & Queen Street West intersection makes sense to accomplish station design and construction requirements, making trade-offs between project risk, schedule, cost, transportation disruption and property/heritage impacts. The question of whether the northeast keyhole excavation and station entrance can be reduced in scale is critical and should be addressed by Metrolinx in the near future primarily by means of a thorough constructability review. While the latest proposed design iterations provided appear to suggest the permanent keyhole excavation size can be mitigated somewhat by shifting it closer to the Line 1 station/tunnel box (at the trade-off of increased project risk), the size of the excavation pit is driven by several factors which may not be able to be mitigated, including the need to accommodate life safety issues such as fire exit capacity or Traction Power Substations (TPSS).

Any station design option which stays wholly within the right-of-way of University Avenue & Queen Street west presents different trade-offs; primarily related to transportation impact (due to closure of roadways and sidewalks). This would likely include service impacts to the 501 Queen streetcar service for the duration of construction (estimated to be almost seven years). The feasibility of using the Queen Street West right-of-way for station box construction (similar to that proposed at the adjacent Queen Station at Yonge Street) appears to be non-viable due to the presence of major existing utilities, which is also impacting the ability to construct a more consolidated station entrance/mezzanine level connecting the various existing station entrances.

It appears that while the size of the permanent keyhole excavation could be reduced and shifted closer to the Line 1 tunnel box (per the latest design iteration), it will be difficult to fit within the bounds of the existing University Avenue right-of-way if located on the northeast corner of the Queen West/University intersection and as such, there will be an impact to the Osgoode Hall site, at least temporarily. The issue of whether the permanent station entrance building could be reduced further in size requires additional discussion; but as noted above, may be driven by non-transit planning station requirements such as Accessibility for Ontarians with Disabilities Act (AODA) and operational and facilities requirements subject to negotiation between the TTC and others.

A major issue with alternatives requiring any closure of Queen Street West or the intersection itself will be the ability to maintain streetcar service during construction. A temporary detour planned to avoid closure of Queen Street further east during OL construction uses York and Church Streets to divert the 501 streetcar route along Adelaide Street. Any further closure of Queen Street will result in further disruption to this important surface transit route. Any planned extension of the planned streetcar diversion along Richmond/Adelaide would require new trackage to be constructed east-west and potentially north-south as well (e.g. on John Street) to detour around the station construction zone at both the University and Yonge stations. This may or may not be feasible or cost-effective.

Alternatively, streetcars could divert to King Street between Victoria Street and Spadina Avenue to make use of existing trackage, but this represents a significant diversion over a potential seven-year period during station construction. Such a diversion to King Street West via Victoria/Spadina is not considered feasible by the TTC, due to streetcar intersection capacity constraints. The King corridor does not have the capacity to accommodate both the Queen 501 and King 504 streetcars.

The temporary laydown area proposed for the lawn located west of Osgoode Hall could possibly be relocated to the University Avenue right-of-way, but at a cost of closing the existing northbound lanes between Queen Street West and Armoury Street for the duration of construction.

Pedestrian Flow Review

The existing transit network at Osgoode Station provides passengers with multiple entrances and exits to the TTC Osgoode Station concourse level. The Queen Street streetcar stops at the northeast and southwest corners of the Queen Street West & University Avenue intersection; a large and complex intersection to cross due to the 6 lane plus median

configuration. This creates a scenario in which passengers will select their entrance by route proximity more so than by available capacity. Based on the Downtown Pedestrian Modelling for Queen/Osgoode Station study conducted by OneTeam (Metrolinx's technical advisory team), the major sources of on-street pedestrians are from the northeast along University Avenue and from the southwest along Queen Street West and University Avenue.

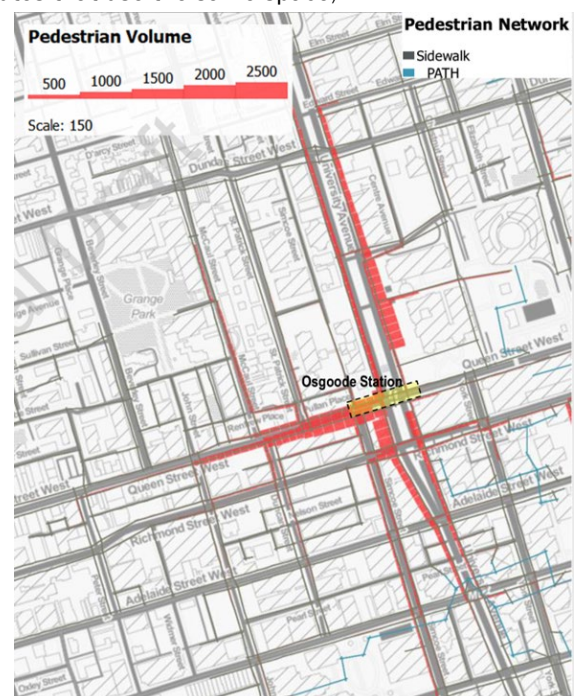
Design considerations for selecting a preferred station location include the following:

- Sufficient vertical circulation capacity at all entrances: Several of the design options feature narrow accesses from the northeast corner of University Ave which likely will not provide sufficient vertical circulation capacity resulting in on street crowding and congestion
- Even distribution of entrance buildings to capture ridership demand effectively. The placement of redundant entrances within the same quadrant will likely result in one entrance being favored over the other due to the quality of the connection available.
- Consideration of AODA principles and an accessible route through the station to all destinations.
- Consideration of pain points, conflict zones, seamless transfer between modes, on street congestion, queue areas and localized density that would conflict with other pedestrian routes that use the same space,
- An unpaid zone connection from the Simcoe Street entrance to the existing TTC Mezzanine. The inclusion of this connection will optimize the effectiveness of this entrance and improve its usage.
- A possibility for connection to the PATH network either east along Queen or South along University.
- On street safety considerations that would place high volumes of passengers in conflict with vehicles such as the Option C where the placement of the main entrance building in the median of a high volume road presents a significant safety risk during the peak hours and in the event of an emergency evacuation and Option G where a reduction of 6 lane boulevard to 4 lane boulevard will create a congestion point for vehicles in combination with an abnormal street alignment. High levels of driver frustration combined with irregular configuration and high volumes of pedestrian flow is not considered desirable and presents a safety concern for passengers and pedestrians.

Design considerations for potential pedestrian flow improvements within the station include the following:

- Providing a direct connection from the existing Line 1 platform to the Ontario Line concourse level, instead of requiring transferring passengers to go up a level to then go down and vice versa
- Reconfiguration of the escalators to reduce flow conflict within the station
- Widening the connection between the Mezzanines to improve flow and reduce conflict
- Consideration of including redundant escalators at the Simcoe entrance. Due to the significant station depth of the station, there is an accessibility concern if the escalators become non-operational, especially as the elevator does not stop at all landings.

In addition, a TTC Performance Level Evaluation Methodology was conducted by Metrolinx's technical advisors to determine the need for an additional emergency egress from the existing TTC mezzanine. The evaluation indicates that an additional emergency egress is required, however the analysis only accounts for opening day ridership (2030) and does not build in any capacity for ridership growth using the design year of 2077 as has been used in other studies. This



**PEDESTRIAN VOLUMES AT OSGOODE STATION - 2077 AM
PEAK HOUR**

*FROM: DOWNTOWN PEDESTRIAN MODELLING FOR QUEEN
OSGOODE STATION_2020-08-27*

additional need for mezzanine to surface capacity does not appear to be addressed in any of the proposed design solutions.

Utilities Review

Existing public and private utilities have been identified based on the existing composite utility plan as prepared by the OLT team. There are numerous utilities located in the proximity of Osgoode Station. These utilities typically traverse the project site along the curb lanes and sidewalks providing services to buildings on both sides of the public right-of-way. A significant number of utilities have been modified previously as part of the original City of Toronto Line 1 Subway project, together with new additional works such as the construction of the recent Enwave tunnels. Therefore, abandoned utilities from previous utility relocation work are not noted in the existing utility inventory.

Existing Utility Inventory

Existing utilities in proximity of the Osgoode station need to be relocated to avoid conflicts with the permanent structure of the underground passageway, entrance buildings and headhouse, including utilities on University Avenue and Queen Street West. Notably, potential utilities on Simcoe Street are also listed to better evaluate and compare utility impacts across various options. The utilities listed for Simcoe Street need to be confirmed in further study for size and materials if optional locations are further developed.

- **Queen Street West**
 - 1350mm combined sanitary sewer running along the north side of Queen Street from the east turning south crossing Queen Street through the east side of the intersection
 - 1350mm combined sanitary sewer running along the west side of University Avenue turning west in the north side of Queen Street around the northwest corner of the University/Queen intersection
 - 200mm gas main running along the north side of Queen Street through the project site
 - 100mm gas main running along the north side of Queen Street through the project site
 - 300mm gas main running along the south side of Queen Street through the project site
 - 300mm watermain running along the north side of Queen Street from east of the project area to 35m east of the intersection
 - 300mm watermain running along the north side of Queen Street from northbound lanes of University Avenue in the intersection to the west of the project area
 - 300mm watermain running along the south side of Queen Street from the east of the project area through the project site to the west of the project area
 - Buried Toronto Hydro distribution line
 - Buried BELL/ROGERS/ZAYO cables
- **University Avenue**
 - 525mm VCP combined sanitary sewer running in the east boulevard of University Avenue from the north of the project area to 60m north of the intersection
 - 450mm VCP combined sanitary sewer running in the west boulevard of University Avenue from the north of the project area connecting to the 1350mm combined sanitary sewer running to the west in Queen Street
 - 300mm gas main running along the east boulevard and northbound curb lane of University Avenue
 - 150mm CI watermain running in the east boulevard of University Avenue from the north of the project area
 - 600mm CI watermain running along the northbound curb lane of University Avenue from the north of the project area turning west crossing University Avenue at the north of the intersection
 - Buried Toronto Hydro distribution line
 - Buried BELL/ROGERS/ZAYO/TELUS cables
- **Simcoe Street (to be confirmed in further study)**
 - 2000mm RCP sanitary sewer running in the west boulevard of the Simcoe Street from the north of the project area to Richmond Street

- 1350mm circular brick combined sanitary sewer running on the west side from the north of the project area to Richmond Street
- 300 mm watermain running on the east side from the north of the project area to Richmond Street (size to be confirmed in further study)
- Potential 400mm ENWAVE steam main running in the east boulevard from the north of the project area to Richmond Street (size to be confirmed in further study)
- Potential 600mm ENWAVE steam main running from the north of the project area to Richmond Street (size to be confirmed in further study)
- Potential 300mm gas main running from the north of the project area to Richmond Street
- Potential 200mm gas main running in the west boulevard from the north of the project area to Richmond Street
- Buried Toronto Hydro conduits
- Buried BELL/ROGERS/ZAYO/TELUS cables

Utility Impact

Based on the preliminary construction footprint, the utility impact is assessed and summarized as below. Options for Osgoode Station headhouse locations with similar utility impacts are grouped together in the impact analysis to reduce redundancy.

LOCATIONS A, C, D, I & J - OSGOODE HALL AND VICINITY

- LOCATION A –OSGOODE HALL (130 QUEEN STREET WEST)
- LOCATION C –UNIVERSITY EAST BOULEVARD SITE
- LOCATION D –UNIVERSITY MEDIAN SITE
- LOCATION I –T.O. CORE SITE
- LOCATION J –OSGOODE PLAZA PROPOSAL

The utility relocation strategy for the northeast entrance at this location involves redirecting the existing combined sanitary sewer in the east boulevard of the University Avenue to the west side and upsizing the existing combined sanitary sewer on the west side to provide sufficient conveyance capacity. The existing gas main and watermain in the east and west boulevards need to be relocated to avoid conflicts with the headhouse structure and accommodate the combined sanitary sewer relocation. Additional relocation of existing buried hydro line and telecommunication cables are also needed.

Utility relocation strategy for the southwest entrance at this location involves relocating the existing Enbridge gas infrastructure along the access road located behind the CIBC building at 205 Queen Street West and Rogers infrastructure located at the southwest corner of Queen Street and Simcoe Street intersection and along Simcoe Street itself.

LOCATION B –CAMPBELL HOUSE SITE (160 QUEEN STREET WEST)

The utility relocation strategy for the northeast entrance at this location involves redirecting the existing combined sanitary sewers on the west side of University Avenue to tie-in to the sewer trunk under Queen Street. As limited by the invert elevation of downstream receiving sewer pipes, the relocated sewer is expected to tie-in at an elevation of around 84.5m at the University Avenue and Queen Street intersection, indicating the relocated sewer would conflict with the concourse level passageway to the existing Line 1 Station. As the concourse level passageway is proposed for the south end of University Avenue on both sides of the intersection, the sewer tie-in at the University Avenue and Queen Street West intersection may not be feasible. Depending on the design of the proposed headhouse structure on the Campbell House site, the combined sanitary sewer under Queen Street West is expected to be modified to accommodate the tie-in, which calls for further evaluation of the utility impact.

In addition to the relocation of combined sanitary sewers, the watermains and gas mains on both sides of University Avenue will need to be relocated. Furthermore, the existing buried hydro line and telecommunication cables need to be relocated to avoid conflict with the proposed underground structure.

Utility relocation strategy for the southwest entrance at this location involves relocating the existing Enbridge gas infrastructure along the access road located behind the CIBC building at 205 Queen Street West and Rogers infrastructure located at the southwest corner of the Queen Street West and Simcoe Street intersection and along Simcoe Street itself.

LOCATION E – FOUR SEASONS CENTRE SITE (145 QUEEN STREET WEST)

Three areas would be impacted to accommodate the design for this location, including the Osgoode Hall site, the University Avenue and Queen Street West intersection and the south side of Queen Street. The utility impact and relocation strategy would need to be further studied should the design be further developed.

Much like the Osgoode Hall site proposal, the utility relocation strategy involves redirecting the existing combined sanitary sewer in the east boulevard of University Avenue to the west side and upsizing the existing combined sanitary sewer on the west side to provide sufficient conveyance capacity. The existing gas main and watermains in the east and west boulevards would need to be relocated to avoid conflicts with the proposed headhouse structure and accommodate the combined sanitary sewer relocation. Additional relocations of existing buried hydro line and telecommunication cables are also needed.

For the University Avenue and Queen Street West intersection, the watermains and gas mains in the intersection along the northbound lanes of University Avenue would need to be relocated. Existing storm sewer catch basin leads may be impacted. Additional relocations also include moving the buried hydro line and telecommunication cables in the intersection.

For the south side of Queen Street West, depending on the design of the proposed expansion of the existing passageway, the combined sanitary sewer crossing the Queen Street may be impacted and a relocation strategy would need to be developed in coordination with the design. The existing watermain and gas main on the south side of Queen Street West need to be relocated to avoid conflicts with the expansion of the existing passageway. Relocation of the buried hydro line and telecommunication cables on the south side of Queen Street are also needed.

The utility relocation strategy for the southwest entrance at this location involves relocating the existing Enbridge gas infrastructure along the access road located behind the CIBC building at 205 Queen Street West and Rogers infrastructure located at the southwest corner of the Queen Street and Simcoe Street intersection and along Simcoe Street itself.

LOCATION F – BANK OF CANADA BUILDING SITE (250 UNIVERSITY AVENUE)

Two areas would be impacted for this location, including the Osgoode Hall site and University Avenue and Queen Street intersection. The utility impact and relocation strategy would require further study should the design be further developed.

Similar to the Osgoode Hall site, the utility relocation strategy involves redirecting the existing combined sanitary sewer in the east boulevard of University Avenue to the west side and upsizing the existing combined sanitary sewer on the west side to provide sufficient conveyance capacity. The existing gas main and watermains in the east and west boulevards need to be relocated to avoid conflicts with the proposed underground structure and accommodate the combined sanitary sewer relocation. Additional relocations of existing buried hydro line and telecommunication cables would also be needed.

The scope of utilities impacts at the University Avenue and Queen Street West intersection would depend on the design of the passageway expansion, where the existing combined sanitary sewer located at the northwest corner of the intersection would be impacted. The relocation strategy would need to be further developed in coordination with any further design development. In addition, the existing storm catch basin leads in the southbound lanes at the intersection

would need to be relocated. Existing watermain and gas mains would also be impacted, as would the existing buried hydro line and telecommunication cables.

Notably, the preliminary construction footprint extends to the limit of the property line of the Bank of Canada Building site, indicating a potential conflict with the Enwave steam main located below the east boulevard of Simcoe Street. Additional utility impact analysis would be needed should there be additional design development of this scheme.

The utility relocation strategy for the southwest station entrance at this location involves relocating the existing Enbridge gas infrastructure located along the access road behind the CIBC building at 205 Queen Street West and Rogers infrastructure located at the southwest corner of Queen Street West and Simcoe Street and along Simcoe Street itself.

LOCATION G – SIMCOE STREET ONLY SITE (205 QUEEN STREET WEST)

Similar to the Osgoode Hall site, the utility relocation strategy for this location involves redirecting the existing combined sanitary sewer in the east boulevard of the University Avenue to the west side and upsizing the existing combined sanitary sewer on the west side to provide sufficient conveyance capacity. The existing gas main and watermain in the east and west boulevards need to be relocated to avoid conflicts with the headhouse structure and accommodate the combined sanitary sewer relocation. Additional relocations of existing buried hydro lines and telecommunication cables are also needed.

Utilities impacts located below Queen Street West would depend on the design of the concourse passageway expansion, where the existing combined sanitary sewer located at the northwest corner of the intersection would be impacted. In addition, the existing storm catch basin leads in the southbound lanes at the intersection would need to be relocated. The existing watermain and gas mains on the south side of Queen Street west would also be impacted, as would existing buried hydro lines and telecommunication cables.

The utility relocation strategy for the southwest entrance at this location involves relocating the existing Enbridge gas infrastructure located along the access road behind the CIBC building at 205 Queen Street West and Rogers infrastructure located at the southwest corner of Queen Street West and Simcoe Street, and along Simcoe Street itself.

LOCATION H – CANADA LIFE BUILDING SITE (180 QUEEN STREET WEST)

Several utilities are located within the public right-of-way surrounding the Canada Life Building site on Simcoe Street and at University Avenue north of Queen Street West, including Enwave steam mains, watermain, combined sanitary sewers, and Telus conduits, which could be potentially impacted. The depths and sizes of utilities located below Simcoe Street would need to be further investigated should this design option undergo further design development.

It is assumed that the construction footprint for this location would be contained within the footprint of the existing building, such that no major construction activity would occur in the public right-of-way. As such, utility impacts are expected to be minimal.

Landscape & Urban Design Review

The landscape architecture associated with many of the options discussed below will ultimately be a product of the final design of the primary project elements. Headhouse location, station access, construction access and yards are just a few of the elements that will ultimately influence the final approach to landscape architecture and urban design. The analysis below, listed by proposed option, highlights the landscape architectural and urban design issues associated with each option that need to be considered if that option moves forward. It also identifies any inherent flaws that might rule out the option.

Location A – Osgoode Hall Site

The proposal for placing the headhouse on Osgoode Hall property would affect a substantial portion of the existing property along University Avenue, including mature trees and a heritage fence. Based on the provided layout, the key considerations/issues to the design are:

- From an urban design standpoint, the sleek modern look of the proposed headhouse, while in keeping with typical Metrolinx station appearances, maintains a different design aesthetic to the heritage context of Osgoode Hall. While a modern aesthetic to the headhouse would not necessarily be conflicting; mimicking the style of the heritage building is not appropriate.
- There are potential Crime Prevention through Environmental Design (CPTED) issues that could be associated with the relationship between the proposed headhouse and the reset fence.
- Placement of site furnishings and other urban design elements, such as trees in grates or planters, could impact the clear area of the sidewalk for pedestrians, given that the sidewalk is not being widened.

The placement of the headhouse on the grounds reduces the area that can be relandscaped, creating a permanent impact to the site and ultimately a different appearance to the heritage site. Potential mitigating measures could include:

- Within the temporary impact areas, replacement of the mature trees removed from the grounds with larger plant material at installation, as the ground cover available at the vertical circulation structure footprint is limited and is insufficient to accommodate the growth of replacement trees.
- Designing the overall grounds, not just the disturbed areas, to allow a uniform approach to the appearance of the grounds that honours the heritage nature while addressing the new building.
- Limiting the areas of disturbance to the greatest extent possible by carefully planning the construction approach, as outlined in other sections of this review.
- Working with heritage elements, such as fencing, finished and other iconic elements currently found within the Osgoode Hall grounds and buildings into the design of the headhouse layout to create a unified approach to the design

Location B – Campbell House Site

Placement of the headhouse on the Campbell House site would impact the Campbell House property but would also still impact the Osgoode property to the same extent as Option A, in that both properties require substantial excavation for vertical circulation. Given that the Campbell House is a smaller property, the overall impact to that site would likely be greater, as a larger percentage of the existing property would be used for the headhouse. Key considerations for this alternative would include:

- Since both the Osgoode Hall and Campbell House properties are to be disturbed under this option, the impact to the existing mature trees at the intersection is magnified. As discussed in the Location A - Osgoode Hall site, an alternative to the replacement of existing trees with larger nursery grown specimens caliper size would be feasible in temporary impact areas.
- The Campbell House property is smaller than the Osgoode Hall property, so the placement of the Headhouse would fill more of the property and leave less area to re-establish the current aesthetic of the landscape.; although there are limited heritage concerns to be satisfied on the Campbell House site.

Location C – University Avenue East Boulevard

This option would place to smaller structure in the University Street sidewalk adjacent to Osgoode Hall. However, portions of the Osgoode Hall property would still be used for construction staging for a laydown yard and excavation of the keyhole. It may be feasible to reduce this footprint for these areas with further design development. However, temporary impacts to the Osgoode Hall site would be the same as previously discussed and require replanting/redesign of the grounds. The permanent impact to the Osgoode Hall property by the placement of the headhouse on the grounds would be avoided reducing the permanent impacts to the grounds. Other key impacts associated with this option are:

- Since the sidewalk is not being widened, the placement of the access within the existing sidewalk could be problematic since a large portion of the sidewalk would be taken up with the infrastructure associated with the entrance, thereby leaving little room for pedestrians not heading to the station to get by comfortably.
- Impacts to the existing urban forest/mature trees at Osgoode Hall would be the same as discussed in the Location A – Osgoode Hall site scenario, as would the cost for replacements.

Location D – University Avenue Median Site

Placement of the station access in the median would set significant constraints to the design and access of the station, given the limited space in the median and the need to wait for crossing times on Queen Street to access the station. With the anticipated high usage of this station, pedestrian movement would be very constrained. From an Urban Design standpoint, the use of the median would not be a preferred option due to the accessibility and pedestrian concerns. In addition, the Osgoode Hall grounds would still be used for construction yards and access, so the temporary impacts are the same as in the Location A - Osgoode Hall site alternative, as would be the replacement and re-establishment of the grounds of the Hall after construction. Also, the existing water feature and war memorial located on the existing median would need to be relocated.

Location E – Four Seasons Centre Site

From a landscape architecture and urban design perspective, Location E - Four Seasons Centre Site would have similar temporary impacts as Location C - University Avenue East Boulevard in that it would place a station entrance structure in the sidewalk adjacent to Osgoode Hall. Temporary construction impacts and repair to Osgoode Hall grounds would be the same as the other alternatives,

Location F – Bank of Canada Building Site

Placement of a new station entrance within the Bank of Canada Building would create a minimal impact to the existing, surrounding landscape improvements at this site. Depending on the proposed pedestrian volume and access points to the building, street tree plantings with associated shrub and ground cover plantings may be added to enhance the aesthetics of the entry points, as located at the Simcoe Street pedestrian corridor. Impacts to the historic landscape along the East frontage of Osgoode Hall and the memorial in the University Avenue median due to the associated work along University Avenue would create similar impacts as described in Options B, C, and D that require special treatments.

Location G: – Simcoe Street Only Site

The removal of the CIBC building and placement with the primary headhouse in its current location would open up the potential for the addition of street plantings and potential pedestrian gathering spaces, once the heritage building has been reinstated in situ. Access to this site from University Avenue along Queen Street is very restricted. Proposed impacts to the historic landscape along the East frontage of Osgoode Hall and the memorial in the University Avenue median due to the associated improvements along University Avenue would create similar impacts as described in Options B, C, D and E that require special treatments.

Location H – Canada Life Building Site (180 Queen Street West)

Landscape and urban design issues related to the Location H – Canada Life Building site would include the careful assignment of street furniture on the north side sidewalk at Queen Street West in this location, so as to minimize conflicts with both passenger and local pedestrian flow. Additional space on the University Avenue and Queen Street West sidewalks would be available once the two existing station entrances currently located on the southwest corner of the intersection are closed in favour of vertical circulation proposed for the headhouse on this site. The existing pedestrian connection at Simcoe Street north of Queen Street West adjacent to this site may allow some additional plantings and suitable street furnishings.

Location I – T.O. Core Site

The T.O. Core option shares many of the same landscape and urban design concerns as the Location A – Osgoode Hall site proposal. Moving the headhouse west, onto the widened sidewalk adjacent to the Osgoode Hall property impacts a smaller footprint of the courthouse property at University Avenue, including the same existing mature trees and their root zones, as well as the heritage fence in that area. Placement of the site furnishings and other urban design elements such as trees in grates, planters, benches and bicycle parking will greatly impact the pedestrian circulation in the area, both associated with access to the head house and passers-by.

The lateral offset of the headhouse as compared to Location A – Osgoode Hall site is not substantial enough to save many of the existing heritage trees that would be impacted for the sake of the construction laydown area.

Location J – Osgoode Plaza Site

Similar to Location I – T.O. Core site, this option again shares many of the same landscape and urban design concerns as the Location A – Osgoode Hall site proposal, as described above. Moving the headhouse west, onto the widened sidewalk adjacent to the Osgoode Hall property again affects a smaller portion of the existing property along University Avenue, including the same existing mature trees and their root zones, as well as the heritage fence in that area. Placement of the site furnishings and other urban design elements such as trees in grates, planters, benches and bicycle parking will also greatly impact the pedestrian circulation in the area, both associated with access to the headhouse and passers-by.

As before, the lateral offset of the headhouse as compared to Location A – Osgoode Hall site is not substantial enough to save many of the existing heritage trees that would be impacted for the sake of the construction laydown area.

Built Heritage Review

The purpose of the heritage review is to discuss the Ontario Line Osgoode station options as they relate to built heritage. Recognizing that the stated proposed location is challenging due to many factors, one of those factors being the concentration of significant heritage properties - Osgoode Hall (OLS-113), Campbell House (OLW-138), Queen St W/University Ave cultural landscape (OLW-136), 205 Queen St W (OLAW-018), 250 University Ave (OLW-134) and the South African War Memorial (OLW-137).

The available heritage documents, Environmental Impact Assessment Report (EIAR)- Cultural Heritage Report (CHR) and Environmental Impact Assessment (EIA) – Heritage Detailed Design Report (HDDR), identify the heritage resources within the Ontario Line footprint (boundaries) and include preliminary discussions about the existing conditions of these resources, types of impacts (categorized as direct adverse impact, indirect adverse impact, and no impact), proposed mitigation measures and methods for monitoring. In addition to the two mentioned reports the OLTA prepared a Station Specific Heritage Memo (SSHM) and draft conservation drawings illustrating the proposed conservation work associated with the heritage properties impacted by the Osgoode station. All the reports and drawings to date are completed in response to option A with the headhouse, laydown area and keyhole located on Osgoode Hall property. The reviewed reports do not appear to provide information about the other location options.

In speaking with the various stakeholders, it appears that there is uncertainty regarding the heritage review process itself and how it is integrated into the final decisions. Within the Osgoode station site, the heritage properties vary in control and ownership making the heritage review process complicated. Without a clear process and understanding moving forward there is risk to the integrity of the heritage resources.

Section 7.0 of the HDDR outlines the requirements for permits and approvals for the heritage properties,

1. Federally - no permits/approvals are required,
2. Provincially - a Minister's Consent has been provided for First Parliament, Osgoode Hall, University Ave Streetscape, and South African War Memorial. Three of these properties are located within the boundaries of the Osgoode station. Therefore, the heritage properties identified in the Minister's Consent are to meet all conditions outlined identified.
3. Municipally – an excerpt from section 7.3 of the HDDR provides direction, *"Where direct impacts are identified for municipally recognized resources..., it is anticipated that the Metrolinx will own or control these resources...Therefore, municipal policies related to the Built Heritage Resources (BHR) and Cultural Heritage Landscape (CHL) are not applicable to the Ontario Line Project."* Metrolinx will consult with the City of Toronto for applicable process and requirements where heritage properties will not be owned or controlled. It is understood that because the area of the Osgoode headhouse is within the control or ownership of Metrolinx the municipal processes and requirements do not apply. Clarification is required as to whether the University Avenue streetscape would remain in the purview and under control of the municipality and the municipal processes and requirements would apply.

The HDDR originally identified five (5) Provincial Heritage Properties of Provincial Significance (PHPPS) impacted by the Ontario Line project in section 4.3 and later identified four (4) properties that are impacted by the Ontario Line, with the University Avenue streetscape and South African War Memorial now being grouped as a single resource. The PHPPS identified are First Parliament (OLS-034), Osgoode Hall (OLS-113), University Avenue Streetscape (OLW-136), South African War Memorial (OLW-137), Ontario Science Centre (OLN-005) and Fort York (OLW-018). Three (3) of these resources are located within the proposed Osgoode Station site.

The SSHM was prepared to inform the heritage discussions with the City of Toronto. It is outdated in its discussions and should be updated to reflect the information contained in the HDDR.

The CHR outlines all mitigation options and measures for each heritage resource based on the Ontario Line route. For each mitigation it identifies the preferred option for each heritage property. These generic identifications need to be developed further to reflect specific conservation approaches for each intervention associated with the project. The HDDR, distills these mitigation options down to one option for the updated footprint, while stating the other options were deemed unviable. The HDDR sets up a good starting point for the SSHM to further the discussion about the rationale for the option selection.

It is important to consider the parameters for assessing the value assigned to each influencing factor for the placement of the station (i.e., not only heritage issues, but constructability, pedestrian flow, utilities, etc.)

Location A is the only location that a heritage discussion was provided. No other “Locations” have been discussed at all in any of the heritage documentation reviewed to date.

The following discusses the different location options proposed for the Osgoode Station.

Location A – Osgoode Hall site

In the heritage reports to date, all state that location A is the “preferred approach in terms of feasibility and constructability” (section 9, Considered Alternatives of the SSHM). The reports do not identify it as the preferred approach for the affected heritage properties. The following is the categorized impacts identified in the HDDR for the affected heritage resources:

- **Direct adverse impact** to 3 heritage properties (OLS-113, OLW-137 and OLW-018) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 2 heritage properties (OLW-138 and OLW-134)

The proposed mitigation measures are:

- Minister’s Consent conditions for the PHPPS
- In-situ retention of brick pier (OLS-113)
- Panelize a portion of the fence and dismantle and store metal supports and stone base for reconfiguring and reinstating (OLS-113)
- Rehabilitate landscape and bring to good state of repair (OLS-113)
- Dismantle and store the memorial (OLW-137) and streetscape elements (OLW-136 and OLW-137) for storing within or proximate to work area, and reinstallation to a state of good repair, where damaged or can’t be reused new materials to match existing
- Partial dismantling, storing, and reinstating the north and east elevations of the heritage building including installation of heritage appropriate windows (205 Queen St W, OLW-018)
- Continued avoidance of heritage property OLW-134, OLW-138 and the Osgoode Hall building (part of OLS-113), including vibration monitoring

The following items should be added to the impact and mitigation measure discussions:

- Description of the specific mitigation measures for obstructing the views to and from Osgoode Hall. The Official Plan, Schedule 4, identifies the southwest corner of University Avenue at Queen Street West (A6. Osgoode Hall [H]) as a

protected view. Another view that requires discussion is looking out of the property towards the southwest corner. Completion of perspective drawings and/or photograph collage would be useful in understanding the impacts.

- A heritage rationale in response to the Official Plan, Section 3.1.5, Growth Plan, Policy 4.2.7 and Provincial Policy 2.6.1 in respect to preserving the built heritage within the City. Including a discussion about the encroachment on heritage resources and mitigation measures to prevent further future encroachments, that further erode the heritage value of the property.
- Heritage rationale for the proposed layout and re-installation of the fence. How will the original boundary delineation be mitigated? How will the new boundary delineation be interpreted?
- Heritage rationale for dismantling and reassembling heritage materials. Including the risks associated with dismantling heritage fabric and potential loss associated with it as it applies to all heritage resources described having this mitigation measure.
- Heritage rationale for the proposed design of the headhouse. How is the proposed design, i.e., footprint, height, materiality, and entrance location, conserving the cultural heritage values, attributes and character of the property while mitigating the visual and physical impact to ensure a sympathetic and compatible architectural design?
- Heritage rationale for the removal of the mature trees onsite, and a clarification to the mitigation measure – rehabilitating the landscaping.
- What is the definition of good repair as identified in the SSHM and HDDR?
- Mitigation measures have been stated as not viable, identification of the mitigation measures reviewed and a rationale for the reasons for not being viable.
- What are the parameters for assessing the value assigned to each influencing factor for the placement of the station (i.e., heritage, constructability, pedestrian flow, utilities, etc.)? Heritage is one factor of many but what determines the value of one factor over another.
- Understanding of when heritage works will take place within the construction activities identified in Table 2.1 in the HDDR.

The results of location A on some of the heritage resources could be deemed irreversible. Views will be irreparably lost, and heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resource.

Location B – Campbell House Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 4 heritage properties (OLAW-018, OLV-137, OLS-113 and OLV-138) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 1 heritage property (OLW-134)

The Campbell House (OLW-138) is designated under the Part IV of the Ontario Heritage Act, the designation applies to the building, and does not include the grounds or fence. The house was moved to this location in 1972. Further to the OHA designation, the site has been identified as having potential for provincial significance and may require a Minister's Consent if this location is pursued to address any impacts. Without a proposed design, it is assumed that the proposal for location B would site the headhouse adjacent to the Campbell House, which would require moving the Campbell House for the construction period. Further review would be required to determine whether the Campbell House would be reinstated or relocated, and the impacts related to maintaining the use, approach, siting, and views. The grounds and fence will be impacted by the required area for the headhouse.

Situating the headhouse in front of the Campbell House would mean views from the intersection would be lost, along with the green space and therefore, impacting the Campbell House and the cultural landscape of University Ave and Queen St W. To determine the full impact and possible mitigation measures a more detailed design would be required. There is precedence for integration of heritage properties into transit stations around the world and in North America.

The impact to the heritage properties OLAW-018, OLV-134, and OLV-137 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location B.

The impact to OLS-113, Osgoode Hall is partially mitigated by the relocation of the headhouse. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The keyhole and laydown area are still located within the Osgoode Hall property, which would have the same impact to the landscape as described in location A. It is assumed that sections of the fence would require removal, salvage, and reinstallation for the work of the keyhole and mature trees would be lost in both the laydown and keyhole locations. However, if the laydown area and keyhole are relocated to properties adjacent to and at Campbell House the impact to Osgoode Hall would be significantly reduced.

In both Location B scenarios, the views to and from Osgoode Hall would be impacted by the northeast access structure. The overall impact may be able to be mitigated through the design of the structure.

Further detail about location B would be required to understand the full extent of the impact to the heritage resources. The results of location B on some of the heritage resources could be deemed irreversible. Views will be irreparably lost, and heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resource.

Location C – University Avenue East Boulevard Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 3 heritage properties (OLAW-018, OLW-137, and OLS-113) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 2 heritage properties (OLW-134 and OLW-138)

Eliminating the headhouse would partially mitigate the impact to Osgoode Hall, OLS-113, and University Ave and Queen St W, OLW-136. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The keyhole and laydown area are located within the Osgoode Hall property, which would have the same impact to the landscape as described in location A. It is assumed that sections of the fence would require removal, salvage, and reinstallation for the work of the keyhole and mature trees would be lost in both the laydown and keyhole locations.

The views to and from Osgoode Hall would be impacted by the two (2) northeast access structures. The overall impact may be able to be mitigated through the design of the structures. The existing TTC access is a low-lying open structure that has minimal impact to Osgoode Hall and University/Queen streetscape.

The impact to the heritage properties OLAW-018, OLW-134, and OLW-137 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location C.

Further detail about Location C would be required to understand the full extent of the impact to the heritage resources. The results of Location C on some of the heritage resources could be deemed irreversible. Heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resource.

Location D - University Avenue - Median Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 3 heritage properties (OLAW-018, OLW-137, and OLS-113) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 2 heritage properties (OLW-134 and OLW-138)

Eliminating the headhouse on the Osgoode Hall site will partially mitigate the impact to Osgoode Hall, OLS-113. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The keyhole and laydown area are located within the Osgoode Hall property, which would have the same impact to the landscape as described in location A. It is assumed that sections of the fence would require removal, salvage, and reinstallation for the work of the keyhole and mature trees would be lost in both the laydown and keyhole locations. The views to and from Osgoode Hall would be retained.

The impact to the heritage resources, OLW-137 and OLW-136, would be loss of sightlines and possible relocation of the memorial. Similarly, to the other options the memorial would be dismantled, salvaged and reinstalled, the same heritage

discussion applies with the added layer of potential relocation. Further detail would be required to fully assess the impact. During previous subway construction works, the memorial was removed, reconstructed and relocated at the central median.

The sightline of the boulevard would be impacted by the headhouse location in the median, while the remaining defining characteristics appear to be maintained.

The impact to the heritage properties OLAW-018, OLW-138 and OLW-134 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the option A discussion would need to be provided for location D.

Further detail about location D would be required to understand the full extent of the impact to the heritage resources. The results of location D on some of the heritage resources could be deemed irreversible. Heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resources.

Location E – Four Seasons Centre Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 3 heritage properties (OLAW-018, OLW-137, and OLS-113) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 2 heritage properties (OLW-134 and OLW-138)

Eliminating the headhouse on the Osgoode Hall site will partially mitigate the impact to Osgoode Hall, OLS-113. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The keyhole and laydown area are located within the Osgoode Hall property, which would have the same impact to the landscape as described in location A. It is assumed that sections of the fence would require removal, salvage, and reinstallation for the work of the keyhole and mature trees would be lost in both the laydown and keyhole locations.

The views to and from Osgoode Hall would be impacted by the northeast access structure. The overall impact may be able to be mitigated through the design of the structure.

The impact to the heritage properties OLAW-018, OLW-134, OLW-138 and OLW-137 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the option A discussion would need to be provided for location B.

Further detail about location E would be required to understand the full extent of the impact to the heritage resources. The results of option E on some of the heritage resources could be deemed irreversible. Heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resource.

Location F – Bank of Canada Building

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 4 heritage properties (OLAW-018 OLW-137, OLW-134 and OLS-113) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 1 heritage properties (OLW-138)

Eliminating the headhouse, keyhole and laydown on the Osgoode Hall site will mitigate the impact to Osgoode Hall, OLS-113, considerably. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The excavation area along the property line is reduced perhaps providing an opportunity to avoid removal of mature trees. This proximity would need to be clarified to understand the full impact to the fence and landscape.

The views to and from Osgoode Hall would be impacted by the northeast access structure. The overall impact may be able to be mitigated through the design of the structure.

The impact to the heritage properties OLAW-018, OLV-138 and OLV-137 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location F.

The Bank of Canada site was approved by Council for development. While the proposal impacts the heritage site the impact is understood to be mitigated by retention of the existing building in-situ during construction. Location F would need to be reviewed in respect to the proposal of retention to determine if that is still feasible with the additional work proposed. Further detail about location F would be required to understand the full extent of the impact to the heritage resources. The impact on the majority of the heritage resources would likely be able to be mitigated, resulting in a lesser overall impact to the collective heritage resources.

Location G – Simcoe Street Only Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 3 heritage properties (OLAW-018, OLV-137 and OLS-113) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 2 heritage properties (OLW-134 and OLV-138)

Eliminating the headhouse, keyhole and laydown on the Osgoode Hall site will mitigate the impact to Osgoode Hall, OLS-113, considerably. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The excavation area along the property line is reduced perhaps providing an opportunity to avoid removal of mature trees. This proximity would need to be clarified to understand the full impact to the fence and landscape.

The views to and from Osgoode Hall would be impacted by the northeast access structure. The overall impact may be able to be mitigated through the design of the structure.

The impact to the heritage properties OLAW-018, OLV-134, OLV-137 and OLV-138 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location G.

Further detail about location G would be required to understand the full extent of the impact to the heritage resources. The results of location G on two of the heritage resources could be deemed irreversible. Heritage materials will be lost. These impacts will lead to diminished integrity of the heritage resource. The impact on the majority of the heritage resources would likely be able to be mitigated, resulting in a lesser overall impact to the collective heritage resources.

Location H – Canada Life Building Site

The following identifies the anticipated impact in the same terms as the HDDR.

- Direct adverse impact to 3 heritage properties (OLAW-018, OLV-137 and OLS-113) and 1 cultural landscape (OLW-136)
- Indirect adverse impact to 2 heritage properties (OLW-134 and OLV-138)

Eliminating the headhouse, keyhole and laydown on the Osgoode Hall site will mitigate the impact to Osgoode Hall, OLS-113, significantly. The cast iron fence, stone base, and boundary delineation are assumed to remain as per the heritage property and no excavation would occur adjacent to the property.

It is assumed with this location option an access on University adjacent to Osgoode Hall would be required. The views to and from Osgoode Hall would be impacted by the northeast access structure. The overall impact may be able to be mitigated through the design of the structure.

The impact to the heritage properties OLAW-018, OLV-134, OLV-137 and OLV-138 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location H.

Further detail about location H would be required to understand the full extent of the impact to the heritage resources. The results of location H on two of the heritage resources could be deemed irreversible. Heritage materials will be lost.

These impacts will lead to diminished integrity of the heritage resource. The impact on most of the heritage resources would likely be able to be mitigated, resulting in a lesser overall impact to the collective heritage resources.

Location I – T.O.Core

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 2 heritage properties (OLAW-018 and OLW-137) and 1 cultural landscape (OLW-136) Note: with the University Park concept implementation, the City would be impacting the cultural heritage landscape of University Avenue on its own initiative.
- **Indirect adverse impact** to 2 heritage properties (OLS-113, OLW-134 and OLW-138)

Eliminating the headhouse, keyhole and laydown on the Osgoode Hall site will mitigate the impact to Osgoode Hall, OLS-113. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The views to and from the Osgoode Hall will be impacted. The placement of the head house plays a large role in the level of impact to the views. In particular, the view from the southwest corner of University and Queen St W. It is noted that the location I diagram suggests the headhouse is further setback from the corner than in location A. The setback placement provides an opportunity to minimize the impact to the southwest view.

The keyhole and laydown area are located within the Osgoode Hall property, which would have the same impact to the landscape as described in location A. It is assumed that sections of the fence would require removal, salvage, and reinstallation for the work of the keyhole and mature trees would be lost in both the laydown and keyhole locations.

The cultural landscape of University Avenue (OLW-136) would be directly impacted by the proposed location; however, the city would be implementing the park concept on their own initiative. As identified earlier in the report the cultural landscape is identified as a PHPP and is included in the Minister's consent.

It is assumed that the southwest entrance would remain. The impact to the heritage properties OLAW-018, OLW-134, OLW-137 and OLW-138 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location I.

Location J - Osgoode Plaza Site

The following identifies the anticipated impact in the same terms as the HDDR.

- **Direct adverse impact** to 2 heritage properties (OLAW-018 and OLW-137) and 1 cultural landscape (OLW-136)
- **Indirect adverse impact** to 3 heritage properties (OLS-113, OLW-134 and OLW-138)

Eliminating the headhouse, keyhole and laydown on the Osgoode Hall site will mitigate the impact to Osgoode Hall, OLS-113, considerably. The cast iron fence, stone base, and boundary delineation appear to remain as per the heritage property. The views to and from the Osgoode Hall will be impacted. The placement of the head house plays a large role in the level of impact to the views. In particular, the view from the southwest corner of University and Queen St W. Location J appears to have opportunity for careful consideration to placement of the headhouse. It appears that there could be an opportunity for setting it back from the corner like location I. Setting back the headhouse would minimize the impact to the southwest view.

The cultural landscape of University Avenue (OLW-136) would be directly impacted by the proposed location. As identified earlier in the report the cultural landscape is identified as a PHPP and is included in the Minister's consent. Therefore, careful considerations of the Location J impact would be required.

It is assumed that the southwest entrance would remain. The impact to the heritage properties OLAW-018, OLW-134, OLW-137 and OLW-138 would be similar to that found in location A. The same heritage discussions apply, and the questions identified in the location A discussion would need to be provided for location J.

Further detail about Location J would be required to understand the full extent of the impact to the heritage resources. The impact on the majority of the heritage resources would likely be able to be mitigated, resulting in a lesser overall

impact to the collective heritage resources, with the potential of enhancing the heritage value of the University Ave and Queen St W cultural landscape.

In Summary

It is evident from the above descriptions that the keyhole and laydown placement have a significant impact on the Osgoode Hall property. Even options that locate the headhouse off the Osgoode Hall property will require the use of keyhole and laydown areas onsite. These options will include a permanent impact on the heritage resource, which will lead to loss of integrity of the heritage site. Locating the headhouse off the Osgoode site would mitigate the change to the views, fence and boundary delineation, provided where smaller structures are proposed, they are designed in a compatible and sympathetic manner that considers mitigation measures for the view impact, such as height. The impact to the South African War Memorial and 205 Queen St W is consistent for all alternate options for the headhouse location.

Findings

This review of the various options available for the location of a headhouse for Osgoode Station that will connect the proposed Ontario Line to the existing Line 1 subway has revealed that the reference material provided by Metrolinx and their technical advisers does not provide sufficient proof of fatal flaws that would preclude further investigation of some of these locations as described above and/or the further development of these designs that would definitively prove their unworthiness.

Conclusion

The proposed site for the headhouse as located at 'Location A – Osgoode Hall Site' would appear to be the best qualified option for the design of the station; as it provides sufficient at-ground pedestrian and traffic flow at the critical westbound streetcar stop as located at University Avenue on Queen Street West, with a workable design for both the keyhole excavation site and the vertical circulation needed to connect the existing Line 1 concourse level with that of the Ontario Line.

While there are temporary operational concerns during construction; together with both built and natural heritage concerns with the use of the Osgoode Hall site for the construction of the proposed headhouse on the northeast corner of the intersection, none of the other location options, as reviewed here, have proven themselves as being suitable for the development of a station design that meets the full set of criteria as analyzed in this review.

Location A causes irreversible damage to the integrity of the heritage resource, Osgoode Hall. These include a permanent loss of the heritage boundary, together with permanent changes to the natural heritage of the site, prominent and protected views of the site from University Avenue, and the heritage fabric itself. These impacts can be mitigated with an interpretation plan, the planting of new trees, the placement and height of the new headhouse and the reinstatement of the fence. However, it should be recognized that there will be a number of losses to this Federally, Provincially and Municipally recognized heritage resource.

The graphic material provided by Metrolinx for 'Location B – Campbell House Site' would suggest this site would benefit by a more fulsome review of the northwest corner site as a reasonable alternate location for the station building for Osgoode Station. The material provided by Metrolinx states categorically that the keyhole excavation cannot fit on the site as shown and shows the keyhole excavation site and the laydown space unmoved from their original location on Osgoode Hall property. It is suggested that Metrolinx provide a design for the Campbell Site location that relies on the same design criteria used by 'Location A – Osgoode Hall Site) that proves its lack of suitability, and thereby continues to rely on the Osgoode Hall site as a site for keyhole excavation and construction laydown activities.

Project Personnel

Abbas Khayyam is a senior technical director with Parsons' Aviation and Rail Transit business line. He is a licensed professional engineer, project management professional, and LEED accredited practitioner with over 30 years of industry

experience Over the past 20 years, he has been a project manager and a design lead and has mainly been involved with multimodal transit stations, maintenance facilities and other capital programs and SOGR programs, where he has led and managed multidisciplinary engineering teams through various phases of a project life cycle.

Peter Lloyd-Jones is Chief Architect at Parsons Corporation Canada. He has been involved in all aspects of the development of architectural projects, ranging from transit and transportation, aviation, hospital, institutional, commercial, and residential projects. He has been a Registered Architect in Ontario since 1988.

David Hopper is a public transport specialist with 34 years of experience with transit infrastructure design. He has participated in projects involving all aspects of rail and bus transit planning, design, and implementation, including network and facility planning, transit priority, service planning, program and project management, and implementation management. David's experience involves a wide range of projects encompassing the complete design and implementation cycle for rapid transit infrastructure, including conceptual design, conceptual and functional planning, environmental assessment, design management, cost estimating, peer review, public consultation, implementation management, and contract administration.

Mia Yu has 11 years of experience as a design engineer responsible for the engineering design of storm ponds, underground and surface drainage infrastructure, and low-impact development features using hydrologic and hydraulic models such as HEC-RAS and Visual OTTHYMO. She has direct experience in applying Transportation Association of Canada standards, Ministry of Transportation of Ontario guidelines, and various low-impact development and stormwater management planning and design guides.

Paul Croft has 25 years of public and private sector experience in the fields of transit, transportation and land use planning. For the last 16 years he has been based in Ottawa, leading and participating in a wide range of projects focused on providing improved access and mobility choices, including functional planning, preliminary engineering and environmental assessments for Ottawa's Light Rail Transit network and other rapid transit and transit priority projects for the City of Ottawa as well as clients across Canada.

Amy Munn is a senior transportation engineer specializing in transit operations and design. She is also a pedestrian flow specialist with more than eight years of specialized experience. Amy had broad expertise in pedestrian capacity analysis, pedestrian congestion issue identification, and pedestrian flow management, having worked on several complicated, high-profile assignments.

Jeff Lormand is Principal Landscape Architect with extensive experience involving transportation landscape architecture, environmental planning, and urban design projects. With over 30 years of experience, he is a licensed Landscape Architect in both Ontario and Alberta provinces as well as 9 States. His experience extends to roadway and streetscape projects, transit projects which include stations and streetscapes, and environmental mitigation and revegetation projects.

Steve Rozendaal is an accomplished Landscape Architect I.T. with Parsons' Mobility Solutions Business Group. He has garnered degrees in Landscape Architecture and Urban Horticulture and has over 33 years professional and field experience. He will bring his comprehensive experience as Lead Designer of successful medium to large scale Landscape Architecture, Urban Design and Irrigation Design projects throughout the United States, Canada and the Middle East.

Robyn Huether (RHA) is a registered Architect with a specialty in heritage conservation. She is a professional member of the Canadian Association of Heritage Professionals (CAHP) with 20+ years of architectural experience, and 15+ years of heritage-related experience. She's had the privilege of working on many significant sites throughout the GTA including numerous public and private heritage buildings.

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Utility Strategy Memorandum, Utility Coordination – Preparatory Activities and Project Co Utility Works in-Market Update (26 July 2022) OneTeam (24 pages)

OLTA Downtown Segment, Subway Environment Simulation Analysis Report (20 October 2020) OneTeam (75 pages)

Design Fire Size Technical Note, Ontario Line TA, FLS: Tunnel Ventilation System Design (10 November 2020) OneTeam (19 pages)

Tunnel Ventilation System Commissioning Flowchart (10 December 2021) OneTeam (8 pages)

OLTA South Civil Contract PSD Pressure Transient Memo (20 September 2021) OneTeam (15 pages)

TVS Integration with CBTC and Traction Power, Reference Concept Design (3 February 2022) OneTeam (9 slides)

Ontario Line Subway, Station Architecture, Downtown, Osgoode (5 December 2020) HDR/OneTeam (2 sheets)

Osgoode Station, Option C, 2 Ent. (13 August 2020) no author cited (2 pages)

Osgoode Station, Study 1, RCD (24 March 2021) no author cited (1 page)

Osgoode Station, Study 2, RCD (24 March 2021) no author cited (1 page)

Osgoode Station, Study 3, RCD (24 March 2021) no author cited (1 page)

Osgoode Station, Study 4, RCD (24 March 2021) no author cited (1 page)

Osgoode Station, Study 5, RCD (24 March 2021) no author cited (1 page)

Osgoode Station, Study 6, RCD (24 March 2021) no author cited (1 page)

Ontario Line, Downtown Segment – Osgoode, Toronto, Ontario (19 March 2021) HDR/OneTeam (14 sheets)

Osgoode Station, Pedestrian Simulation Modelling Findings, Street Level Presentation (23 February)

Metrolinx/Infrastructure Ontario (23 slides)

Osgoode Station, TTC Performance Level Evaluation Methodology Presentation (April 2021) OneTeam (6 slides)

In addition to weekly project meetings held by City of Toronto staff and the Consultant, the following additional meetings took place during the writing of this review document:

Peer Review, Heritage Discussion – 1 November 2022 (City of Toronto)

Metrolinx Workshop #1 – 3 November 2022 (Metrolinx)

Toronto Transit Commission (TTC) and City of Toronto Transportation Services Workshop – 7 November 2022 (Toronto Transit Commission)

Metrolinx Workshop #2 – 17 November 2022 (Metrolinx and OneTeam Consultant Group)

Heritage Discussion – 22 November 2022 (City Planning; City of Toronto)

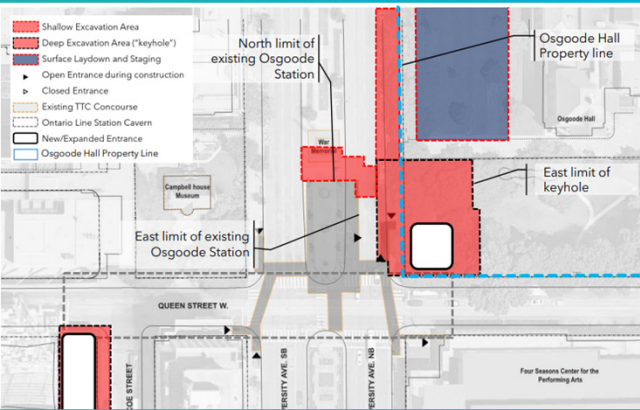
Discussion with Office of the Chief Justice; Court of Appeal for Ontario – 16 December 2022 (Facilities Management)

Discussion with LSO – 24 November 2022 (Law Society of Ontario)

Presentation of Rough Draft Findings – 20 December 2022 (Senior City of Toronto staff; including the Office of the Mayor, Deputy City Manager and the Executive Director of Transit Expansion)

Appendix B – Analysis Matrix

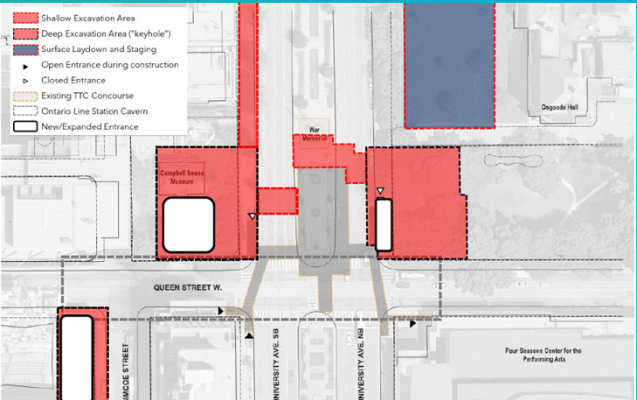
Location A – Osgoode Hall Site



This option shows both the keyhole excavation required for vertical circulation to the Ontario line and the proposed headhouse entrance structure located on the southwest corner of the Osgoode Hall lands; with a temporary construction laydown area located on the west lawn of Osgoode Hall. The existing station entrance stairwell located on the east sidewalk on University Avenue will be replaced by a new entrance structure to the north of the proposed headhouse. The secondary entrance located on Simcoe Street will serve as a vertical circulation connection to the Ontario Line for the southwest corner of the intersection.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	This option reduces disruption to vehicular traffic, pedestrians, cyclists and transit during construction, as it allows streetcar service to remain on Queen Street West. It will require temporary and phased closure of traffic lanes on Queen and University during construction, but roadways can remain open at reduced capacity.	
Ridership	The two entrance structures are aligned with major sources of ridership located in the southwest and northeast quadrants, which will serve the projected ridership in an efficient manner and reduce possible impacts of general pedestrian traffic on the northeast corner of the intersection.	
Passenger access	The limited area available at the Line 1 concourse level is potentially problematic due to anticipated conflicts in passenger flow patterns and will require additional study.	
Constructability/ construction methods & laydown requirements	The keyhole excavation site and the headhouse structure are both completely located on the southwest corner of Osgoode Hall property, and thus minimize possible impacts to pedestrian flow on the public sidewalks adjacent. The proposed temporary laydown area located directly north on the west lawn of Osgoode Hall provides excellent site access and will be used only for the construction of Osgoode Station itself. Seven trees would be removed from locations in the centre of the west lawn to accommodate laydown functions.; whereas the mature trees located adjacent to the perimeter fence would remain in place and be protected by hoarding throughout the construction process.	
Built heritage	Significant impacts to Osgoode Hall where site will not be reinstated to its current configuration. The heritage fence and boundary structure are dismantled and relocated after completion of the headhouse construction. The headhouse location on the Osgoode Hall property will result in a permanent loss of the protected views looking north at the intersection. War memorial and 205 Queen St W are partially or fully dismantled and reinstated.	X
Natural heritage	There will be a direct adverse impact to the existing landscaped area located at the southwest corner of the Osgoode Hall property; together with direct physical impacts to the existing landscape and features of Osgoode Hall property; including the loss of mature trees. The impact of a new headhouse structure once completed on the Osgoode Hall site will reduce the size of the landscaped area and reduce the size of replacement trees where planted within the footprint of the excavation due to limitations on planting depth.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts for duration of construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall due to laydown space and proximity to excavation.	X
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street West during construction but roadways remain open at reduced capacity. No permanent road impact is anticipated, with same configuration and capacity retained upon completion.	
Long term operational/ transit integration & passenger flow	The proposed location of the headhouse on Osgoode Hall property, complete with the relocation of the perimeter heritage fence, will increase the area available for public use on this corner for years to come. The existing open stairwell entrance to the Line 1 concourse can be closed in favour of the headhouse and an additional small entrance structure to be located at the north end of the proposed concourse level pedestrian corridor. The design of the headhouse soffit creates a sheltered space for passengers waiting at the Westbound 501 streetcar stop, which may allow the removal of the existing open transit structure that serves that purpose now; allowing free use of the north sidewalk of Queen street west at this corner.	
Pedestrian flow impacts at grade	Both main station entrance options appear to be sized large enough so as not to negatively impact pedestrian circulation at street level. It may also be possible to utilize the proposed headhouse soffit located on Queen Street West as a passenger shelter at the westbound streetcar stop at University Avenue; thereby allowing demolition of the existing passenger shelter which currently constricts pedestrian traffic on the north sidewalk on Queen Street West. The option that includes an entrance located on the west elevation facing University Avenue would help separate the transfers from the 501 Streetcar transfer activity.	
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	While this option includes substantial impacts to the Osgoode Hall property both during and after construction, which may slow the schedule and increase costs; it generally aligns itself with the principles of good station design, passenger flow dynamics, acceptable levels of construction risk and minimizes the impact to traffic (vehicular, pedestrian, cyclists and transit passengers) both during and after construction.	

Location B - Campbell House Site



This option shows the headhouse located on the northeast corner of the intersection, sitting directly in front of the Campbell House building, which would need to be removed from the site during excavation and construction and reinstated in place. The museum site is shown as being excavated in its entirety to accommodate vertical circulation to connect the Ontario Line station below with grade level. A small entrance structure is located on the northeast corner with the keyhole excavation located beneath the east sidewalk on University Avenue and on Osgoode Hall lands. A temporary laydown space for construction is shown on the west lawn of Osgoode Hall. A secondary entrance to the Ontario Line station is located in an existing bank building located at the southwest corner of Simcoe Street and Queen Street West.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	Reduces/limits disruption to pedestrians, cyclists and transit. Requires closure of traffic lanes on Queen and University during construction but roadways remain open at reduced capacity. Temporary impacts to University Avenue southbound lanes and west sidewalk at University Avenue. Replacement of existing stairwell entrance at northeast corner of intersection with station entrance structure will reduce clear space on the east sidewalk of University Avenue and the north sidewalk at Queen Street West will remain unchanged, with the existing westbound streetcar shelter likely remaining in place. Passenger flow and exiting requirements for the Ontario Line will need to be reviewed should the vertical circulation be located in the northwest quadrant as shown.	
Ridership	Available footprint for northeast entrance structure may not be sufficient to capture anticipated ridership from northeast corner; but widening the existing concourse level connection could allow additional passenger flow at the existing southeast entrance located within the Four Seasons Centre. The northwest corner of the intersection is not projected to be a major source of ridership. The Simcoe Street secondary entrance and the future renovations to the Line 1 entrance located within the Bank of Canada development would capture a major source of ridership from the southwest.	
Passenger access	Passenger access is distributed across all four quadrants of the site. Passenger connections from the westbound Queen streetcar would use the new station entrance located on the northeast corner. Passenger connections from the eastbound Queen streetcar would utilize the Simcoe Street entrance for OL connections and the existing stairwells at the southwest corner of the intersection (and eventually the new station entrance located within the proposed Bank of Canada Development).	
Constructability/ construction methods & laydown requirements	Keyhole excavations would be required at both northwest and northeast corners of intersection. The Campbell House site excavation is required to accommodate projected ridership volumes; while the main keyhole excavation on the Osgoode Hall property would be required to accommodate vertical access to the Ontario Line itself and to proposed temporary laydown space on adjacent Osgoode Hall lands.	X
Built heritage	Significant impacts to Campbell House with a temporary move and reinstatement of the museum building onsite and a station entrance structure located directly south. The heritage fence at Osgoode Hall and its supporting structure can be restored in their original location and the landscaped areas at the keyhole excavation site and the construction laydown area on the west lawn can be returned to their original location; although the mature trees removed at the excavation site will be replaced by ground cover as there is insufficient ground cover available to sustain mature trees. The war memorial and the bank building at 205 Queen St W are to be partially or fully dismantled and reinstated in place.	X
Natural heritage	Adverse impact to existing landscaped area at Campbell House property, which may not be able to be returned to their original condition due to at-grade passenger movements. Neither the fence or the existing gardens are heritage protected, as is the building exterior itself and all of its interior spaces; including the basement-level kitchens.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall, but only if the keyhole excavation and or temporary construction laydown space must remain on the Osgoode Hall site.	
Temporary lane restrictions /Permanent lane closures	Requires lane closures at southbound lanes of University Avenue (both southbound and at Queen Street West (on both sides of intersection) during construction but both roadways remain open in both directions at reduced capacity.	
Long term operational/ transit integration & passenger flow	Passenger and pedestrian flow at the northeast corner of the intersection will likely remain restricted. Accommodation should be made for future PATH connections on the south side of Queen Street West east of University Avenue. If both the keyhole excavation and the temporary construction laydown space can be accommodated on the west side of University Avenue, the excavation required for the relocation of existing underground services located below the east sidewalk of University Avenue would have temporary impacts on various judicial chambers and offices located on the west side of Osgoode Hall.	X
Pedestrian flow impacts at grade	Pedestrians arriving at station from east side of University Avenue will choose closest access and will overload proposed small entrance at northeast corner causing congestion on both sidewalks and roadways.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewers on both sides of University Avenue, which cannot be completed within the public right-of-way. There are a significant number of large Enwave water pipes located below the Simcoe Street pedestrian connection located north of Queen Street West, so its use for either keyhole excavation or a northwest quadrant station entrance may be an issue.	
Costs, schedule, and contractual implications	Substantial temporary impact to operations at Campbell House and/or any future development to be located on the 160 Queen Street West site. No major impacts to Osgoode Hall site if the keyhole excavation can be accommodated on the Campbell House site and temporary construction laydown space can be located adjacent. This option should be the subject of further review to establish whether the keyhole excavation can be accommodated on this site and if temporary construction laydown areas and site access can be made available.	

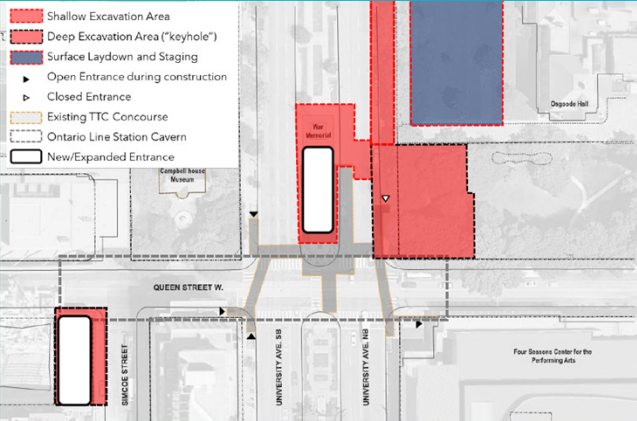
Location C – University Avenue East Boulevard Site



Originally developed as part of the modified Relief Line 15% design, this proposal includes two new accessible entrances located on the east sidewalk of University Avenue directly north of Queen Street West, which could avoid permanent surface land requirements on Osgoode Hall property, although the keyhole excavation remains on Osgoode Hall property. Modification to the existing Line 1 concourse level would be required to expand passenger capacity and allow connections to Ontario Line vertical circulation located below grade on Osgoode Hall property, as would the construction laydown space. The impact of construction would be similar to the option at Location A – Osgoode Hall Site. The heritage fence could be restored to its original location as would the landscaped areas on Osgoode Hall property, albeit with new trees replacing the originals.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	This option may have negative impacts to existing public sidewalks and cycling lanes located at the northeast corner on both University Avenue and Queen Street West, together with road-space available for northbound traffic on University Avenue due to limited space available in the public right-of-way.	
Ridership	Major sources of ridership in the northeast quadrant will overutilize the proposed northern-most entrance and underutilize the southern-most entrance, as located on the northeast side of university. Limitations on the area available for these entrances will limit passenger capacity. The Simcoe Street entrance structure also captures a major source of ridership from the southwest quadrant of the intersection, and on-street congestion is likely to occur.	X
Passenger access	The passenger connection from Westbound 501 streetcars to the two or more proposed station entrances to be located on the public sidewalk on the east side of University Avenue north of Queen Street West may not be accommodated by structures of limited footprint as shown.	
Constructability/ construction methods & laydown requirements	The keyhole excavation site is located, in part, on the southwest corner of Osgoode Hall Property, as is the proposed construction laydown area to the north.	X
Built heritage	Impact to Osgoode Hall is reduced with the fence and boundary line being temporarily dismantled and reinstated in current location. The War Memorial currently located on the centre median of University Avenue and 205 Queen St W are partially or fully dismantled and reinstated.	X
Natural heritage	There will be a direct adverse impact to the existing landscaped area located at the southwest corner of the Osgoode Hall property; together with direct physical impacts to the existing landscape and features of Osgoode Hall property; including the loss of mature trees which cannot be replaced within the footprint of the keyhole excavation site due to the minimal vertical dimension allowed for the planting of replacement trees.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall.	X
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street during construction but roadways remain open at reduced capacity.	
Long term operational/ transit integration & passenger flow	With connections to the existing open stairwells located on the southwest corner of the intersection shown as unchanged, there will be long term impacts to passenger flow in this quadrant of the intersection until such time as they are replaced by an accessible entrance with increased passenger capacity as part of the private development located within the proposed Bank of Canada development.	X
Pedestrian flow impacts at grade	The two proposed narrow entrance structures located on the east sidewalk at University Avenue will likely not provide sufficient vertical circulation capacity to the mezzanine. These narrow entrance structures will also impact the available street circulation space on the east sidewalk of University Avenue, causing pedestrian congestion.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	There would be substantial impacts to the Osgoode Hall property during construction. While no permanent structures would be located above grade on the Osgoode Hall property itself, the heritage fence and the enclosed landscape would be restored, but with the lost of mature trees to be replaced by new trees of limited size. The proposed temporary construction space would also have temporary operational impacts to the judicial chambers and offices located at the west elevation of Osgoode Hall.	X

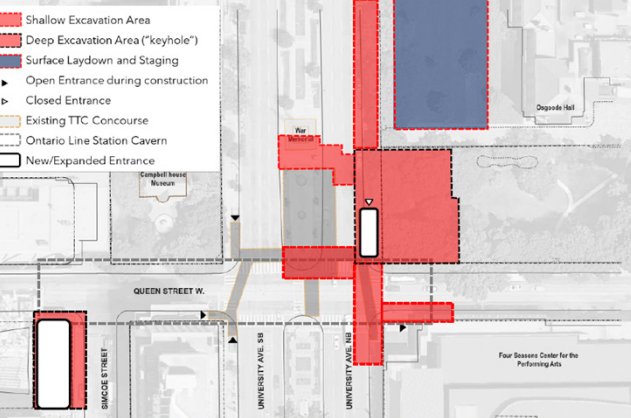
Location D – University Avenue Median Site



This proposal shows the keyhole excavation located at the southwest corner of the Osgoode Hall property; together with construction laydown space located temporarily on the west lawn of Osgoode Hall. The existing stairway entrance located on the east sidewalk of University Avenue north of Queen Street West would be replaced with an accessible entrance structure located to the north. The station headhouse structure would be located on the existing landscaped median strip located in the centre of University Avenue, leading into an expanded Line 1 concourse space and connecting to the vertical circulation connection leading to the Ontario Line concourse as located on restored green space located below Osgoode Hall property. The Simcoe Street entrance would serve as the western entrance to the Ontario Line concourse level.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	This location option is likely to result in significant pedestrian congestion at the University Avenue median, as there will be issues with passenger connections between both eastbound and westbound streetcar stops and both Line 1 and Ontario Line. Any proposed widening of the median to provide additional space for pedestrian refuge/stacking during emergencies or other incidents may impact the number of traffic lanes available on University Avenue.	X
Ridership	Station access located on the University Avenue median does not offer optimal capture of a major source of ridership from the northeast quadrant. The Simcoe Street entrance will capture ridership from the southwest quadrant.	X
Passenger access	Median does not provide sufficient space for anticipated passenger crowding volumes while waiting for crossing signals or a safe path of travel away from the station in an emergency. Passengers must wait for traffic signal and safe crossing for every access or egress from the station, adding substantial time (2-min lights?) to their journey.	X
Constructability/ construction methods & laydown requirements	The keyhole excavation site is located on the southwest corner of Osgoode Hall property, with the temporary construction laydown area located on the west lawn of Osgoode Hall. Major constructability regarding the construction of a new headhouse structure on top of an operating subway line.	X
Built heritage	Significant impact to the war memorial with the dismantle and relocation of the memorial. And the new headhouse blocking the view from the south. Impact to Osgoode Hall is reduced with fence and boundary line being temporarily dismantled and reinstated in current location. 205 Queen St W are partially dismantled and reinstated	X
Natural heritage	There will be a direct adverse impact to the existing landscaped area located at the southwest corner of the Osgoode Hall property; together with direct physical impacts to the existing landscape and features of Osgoode Hall property; including the loss of mature trees, at both the keyhold excavation site and the proposed temporary construction laydown site as shown.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall; which could be mitigated by temporary removal of courthouse functions to another site.	X
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street during construction but roadways remain open at reduced capacity.	
Long term operational/ transit integration & passenger flow	The proposed location of a major station entrance located on the existing median will likely cause ongoing transit connection and safety issues with passenger connections to the westbound streetcar stop. If passengers leaving the Westbound 501 streetcar must cross to a new station entrance located on the centre median on University Avenue directly north of Queen street West, there will be substantial numbers of pedestrians, both transit users and passersby, waiting on the public sidewalks on the intersection. This increase in pedestrian traffic will likely have a knock-on effect with cyclist and vehicular traffic at both University Avenue and Queen Street West.	X
Pedestrian flow impacts at grade	The requirement to cross into the center boulevard of a busy street to enter and exit the main station building will cause severe pedestrian and traffic congestion on both University Avenue and Queen Street West. This would be considered a potential safety issue during peak periods of travel or emergency incidents, with significant platooning and/or crowding likely. There is insufficient on-street capacity to accommodate pedestrians waiting to cross the street; together with safety concerns at street level for passengers trying to access the main station building. Emergency egress onto median area of a major street is considered a significant safety risk.	X
Wet & dry utilities design & relocation requirements	Requires relocation of existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	There would be substantial impacts to the Osgoode Hall property during construction, which may impact project cost and schedule; together with some construction challenges related to building the headhouse on the centre median boulevard itself. There would be operational impacts to Line 1 operations related to construction of the headhouse over the existing structure.	X

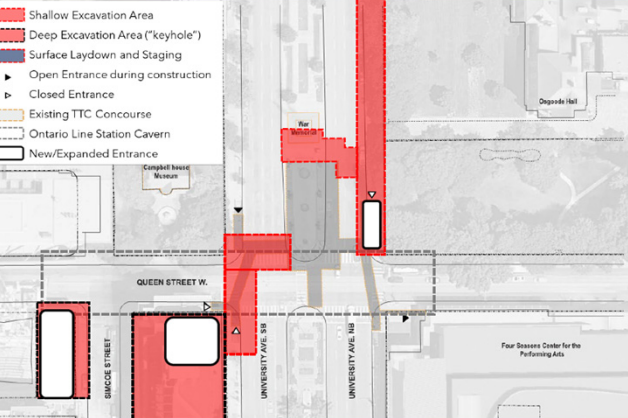
Location E – Four Seasons Centre Site



This option would involve expansion of the existing transit entrance located at the Four Seasons Centre on the southeast corner of the intersection. Modifications to the existing Line 1 subway concourse would be required to expand passenger capacity and connect to the Ontario Line vertical circulation located below grade on Osgoode Hall property. The existing stairwell entrance currently located near northeast corner of the intersection at the east sidewalk of University Avenue would be replaced by new entrance structures to meet increased passenger capacity and accessibility requirements. The Simcoe Street entrance structure would provide a secondary entrance.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	Reduces/limits disruption to pedestrians, cyclists and transit (allows streetcar service to remain). Requires closure of traffic lanes on Queen and University during construction but roadways remain open at reduced capacity. There would be increased impacts to Queen Street during construction, including streetcar service, due to the expansion of the existing north/south pedestrian connection at the east side of the intersection. It should be noted that this relatively shallow concourse-level connection may serve as a means of relieving passenger pressure on the busy northeast corner in any scenario where the station entrances are limited to the use of public space on the east sidewalk of University located north of Queen Street West.	
Ridership	The proposed northeast entrance structure is likely too small to sufficiently capture ridership from northeast. Simcoe St entrance would capture major source of ridership from southwest corner. Southeast quadrant provides the smallest anticipated ridership volume. Access locations do not align with ridership demand.	X
Passenger access	Proposed vertical circulation at the northeast quadrant is likely insufficient to meet projected ridership demands. Passenger congestion on-street and at the concourse level is likely. The addition al capacity of a widened pedestrian concourse located beneath Queen Street West on the east side of its intersection with University Avenue may be found to increase ridership at the existing station entrance located within the Four Seasons Centre. The development of a future pedestrian corridor located beneath the south sidewalk of Queen Street West adjacent to the existing performing arts building could also serve to make a connection to the existing Toronto PATH system, currently located in the Sheraton Centre Hotel as located on the south side of Queen Street West directly east of York Street.	
Constructability/ construction methods & laydown requirements	Keyhole excavation located on southwest corner of Osgoode Hall Property. Laydown area located on Osgoode Hall Property directly north of excavation site.	X
Built heritage	Impact to Osgoode Hall is reduced with fence and boundary line being temporarily dismantled and reinstated in current location. War memorial and 205 Queen St W are partially or fully dismantled and reinstated	X
Natural heritage	There will be a direct adverse impact to the existing landscaped area located at the southwest corner of the Osgoode Hall property; together with direct physical impacts to the existing landscape and features of Osgoode Hall property; including the loss of mature trees.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall; together with operational impacts to some functions of the performing arts centre.	X
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street West during construction but roadways remain open at reduced capacity. New work located beneath Queen Street will negatively impact vehicular and streetcar traffic during construction.	
Long term operational/ transit integration & passenger flow	Limited availability of public space at the sidewalk at the northeast corner will likely cause long term operational issues with this configuration, and others of its ilk. With ridership projected to expand in the coming years on the Westbound 501 streetcar line, there may well be serious issues with the connections for intermodal connections at both grade and concourse levels at this corner.	X
Pedestrian flow impacts at grade	The proposed station access on the east side of University Avenue will likely not have sufficient vertical circulation capacity, causing on-street pedestrian congestion.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	Substantial impacts to Osgoode Hall property during construction. No permanent structures would be located at grade, the heritage fence and the landscape would be restored, but with the lost of mature trees to be replaced by new trees of limited size.	X

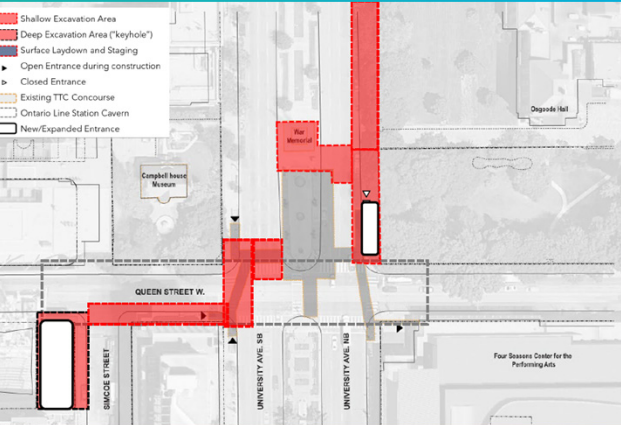
Location F - Bank of Canada Building Site



This option involves the integration of a new headhouse entrance into an existing 8-storey heritage building (Bank of Canada Building) located at the southwest corner of the intersection. The owners of this building have made a development application for the construction of a 54-storey mixed-use building above the existing structure. Once the original building is removed, the keyhole excavation for the Ontario Line station and temporary construction laydown space would be located on this site. Existing Line 1 subway concourse-level passageways would be widened to meet increased passenger flow and exiting requirements; together with an expansion of the Line 1 concourse north to connect to a new northeast entrance structure. The Simcoe Street entrance structure is shown located adjacent to the proposed Ontario Line vertical circulation connection; which are redundant.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	There will be construction-related impacts to traffic on Queen Street West and the southbound lanes on University Avenue, with likely shorter-term duration traffic impacts at the shallow Line 1 concourse-level excavation located within the intersection.	
Ridership	Proposed northeast entrance structures will likely be too small to sufficiently capture anticipated ridership from northeast quadrant. The two entrances located within the southwest quadrant are capturing the same source of ridership.	X
Passenger access	Proposed vertical circulation at the northeast quadrant is likely insufficient to meet projected ridership demands. Passenger congestion on-street and at the concourse level is likely.	X
Constructability/ construction methods & laydown requirements	Demolition of the existing 8-storey heritage building will provide adjacent temporary construction laydown area onsite. Protected heritage facades and possible interior spaces will need to be panelized and removed from the site, before being integrated into the new development on the site.	
Built heritage	Significant impact to the Bank of Canada building, with the requirement to remove and reinstate existing heritage elevations at all four main elevations; together with the removal and subsequent recreation of the original lobby space. Impact to Osgoode Hall is reduced with fence and boundary line being temporarily dismantled and reinstated in current location. War memorial and 205 Queen St W will be partially or fully dismantled and reinstated	X
Natural heritage	No direct impact to Osgoode Hall or Campbell House sites.	
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to the existing bank of Canada building and the proposed mixed-use redevelopment of the site. There will be limited operational impacts to the judicial spaces located on the west elevation of Osgoode Hall, as the shallow excavation and construction required due to the relocation of existing underground services and the northern extension of the existing concourse level pedestrian connection during the period of station construction.	X
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street West during construction but roadways remain open at reduced capacity. New work located beneath Queen Street will negatively impact vehicular and streetcar traffic during construction.	
Long term operational/ transit integration & passenger flow	Limited availability of public space at the sidewalk at the northeast corner will likely cause long term operational issues with this configuration, and others of its ilk. With ridership projected to expand in the coming years on the Westbound 501 streetcar line, there may well be serious issues with the connections for intermodal connections at both grade and concourse levels at this corner.	X
Pedestrian flow impacts at grade	Proposed station entrance structures located on the east side of University Avenue will likely not have sufficient vertical circulation capacity, causing on-street pedestrian congestion. Configuration of two main station buildings within same southwest quadrant is redundant and captures the same group of passengers. The Simcoe Street entrance will be underutilized due to lack of direct access to the Line 1 concourse level.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing watermains and gas main in the east boulevard and northbound curb lane of the University Avenue. Requires relocation of the existing combined sanitary sewers on both sides of the University Avenue. Depending on the size of the concourse-level passageway expansion, relocation of the existing combined sanitary sewers needs to be coordinated to fit in the public ROW.	
Costs, schedule, and contractual implications	Substantial impact to budget and schedule of planned renovation and addition of a 54-storey mixed-use development currently being planned for the existing Bank of Canada building. With a keyhole excavation and subsequent station construction likely to cause havoc with the proposed budget and schedule of the proposed privately-owned mixed-use building, Minimal implications to the Osgoode Hall and Campbell House sites, beyond some temporary operations impacts during construction.	X

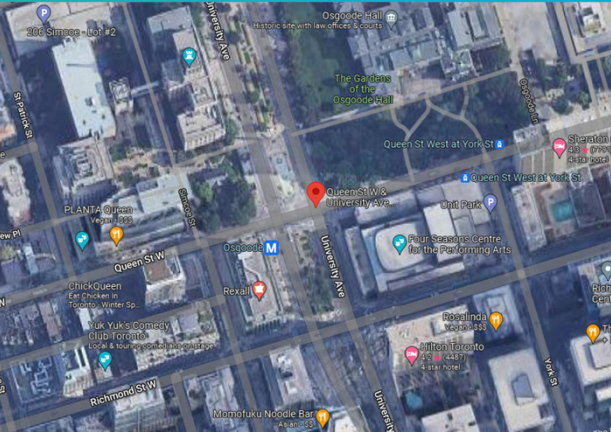
Location G - Simcoe Street Only Site



This option involves a shallow excavation located below the east sidewalk of University Avenue for a new Line 1 concourse level connection to two new entrance structures to be located on the northeast corner of the intersection. Access to Ontario Line would be accommodated via passenger circulation areas connected to the Simcoe Street entrance structure. Additional new or expanded passageways would connect the Simcoe Street entrance to Line 1 subway at concourse level.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	There would be temporary impacts to pedestrian and vehicular traffic on Queen Street West and at the southbound lanes of University Avenue during construction and shorter-term duration impacts for shallow excavations related to the construction of Line 1 concourse level passageways.	
Ridership	The proposed northeast entrance structures are likely too small to sufficiently capture the major source of ridership from the northeast quadrant. The Simcoe Street entrance would capture the major source of ridership from the southwest quadrant.	X
Passenger access	Proposed vertical circulation at the northeast quadrant is likely insufficient to meet projected ridership demands. Passenger congestion on-street and at the concourse level is likely.	X
Constructability/ construction methods & laydown requirements	No temporary construction laydown site is shown in this option. This is likely an error, as the Osgoode Hall site would likely be utilized for this purpose. If a separate laydown space has been proposed for a site elsewhere; it has not been documented by Metrolinx or its consultants.	X
Built heritage	Impact to Osgoode Hall is reduced with fence and boundary line being temporarily dismantled and reinstated in current location. War memorial and 205 Queen St W are partially or fully dismantled and reinstated.	X
Natural heritage	No impacts to Osgoode Hall or Campbell House sites as shown, as neither of these properties appears to be utilized for excavation or construction..	
Operational Impacts to Neighbouring Properties	There will be temporary operational impacts during excavation and construction of the spaces within Osgoode Hall that face the west lawn, as shallow excavations for both the relocation of existing underground services and the northern extension of the concourse level entrances.	
Temporary lane restrictions /Permanent lane closures	Requires lane closures at both University Avenue and Queen Street West during construction but roadways remain open at reduced capacity. New work located beneath Queen Street will negatively impact vehicular and streetcar traffic during construction.	
Long term operational/ transit integration & passenger flow	Limited availability of public space at the sidewalk at the northeast corner will likely cause long term operational issues with this configuration, and others of its ilk. With ridership projected to expand in the coming years on the Westbound 501 streetcar line, there may well be serious issues with the connections for intermodal connections at both grade and concourse levels at this corner.	X
Pedestrian flow impacts at grade	The proposed station entrance structures located on the east side of University Avenue will likely not have sufficient vertical circulation capacity. On street pedestrian congestion is likely to occur on the northeast corner of the intersection, both for transit users and pedestrians waiting to cross either University Avenue or Queen Street West from the northeast corner o the intersection.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing watermain and gas main in the east boulevard and northbound curb lane of the University Avenue. Requires relocation of the existing watermain and gas main along the south side of the Queen Street. Requires relocation of the existing combined sanitary sewers on both sides of the University Avenue. Depending on the size of expanded concourse-level passageway, relocation of the existing combined sanitary sewers needs to be coordinated to fit in the public ROW.	
Costs, schedule, and contractual implications	There would be substantial issues related to the development of the extensions to the existing concourse level as shown here; especially as related to the phased excavation and construction required to maintain the station throughout all stages of construction. There may be further issues related to the future development of the Bank of Canada building and its proximity to the shallow concourse-level excavation for additional pedestrian circulation to connect the new Simcoe Street entrance and the main station concourse space.	X

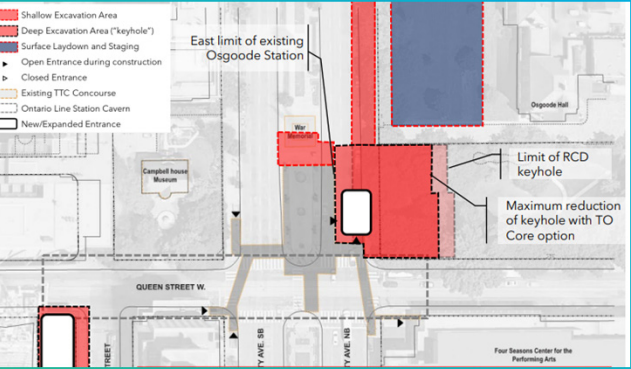
Location H - Canada Life Building Site



This option describes the location of the proposed station headhouse within an existing office building located at 180 Queen Street West, on the site located directly west of the existing Simcoe Street pedestrian walkway; utilizing existing lobby areas at grade and existing parking, storage and service areas located below grade. There are unknown impacts to spatial and structural demands within the existing building. If a keyhole excavation is to be located on this site; it is likely more cost-effective to demolish the existing office building and develop a new mixed-use building that integrates the transit excavation and construction directly. No graphic material for this option has been provided by Metrolinx.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	There would be substantial impacts to Queen Street West vehicular, cyclist and streetcar traffic during construction; together with issues for pedestrians on the north side of the right-of-way. University Avenue itself would not be impacted.	X
Ridership	Both major entrances to the station (the headhouse and the Simcoe Street entrance) would be located west of Simcoe Street and will not capture major station ridership anticipated at the northeast corner. The horizontal distance between Line 1 and Ontario Line concourses and platforms within this intermodal station would be excessive.	X
Passenger access	Northwest passenger access and vertical circulation would likely be insufficient to meet projected ridership demand. Passenger congestion on-street and at the concourse level is likely.	X
Constructability/ construction methods & laydown requirements	There are substantial technical issues with the proposed construction of vertical circulation in an existing occupied privately-owned building. Temporary construction laydown space may be accommodated on either the Campbell House site adjacent or the Osgoode Hall property; but no accommodation for the possible location of laydown space has been provided.	X
Built heritage	No impact to Osgoode Hall, but only if the construction laydown area can be accommodated elsewhere.. The existing war memorial located on the centre median of University Avenue and the bank building located at 205 Queen St W would be partially or fully dismantled and reinstated after the completion of construction.	X
Natural heritage	Other than the possibility of requirements for temporary construction laydown spaces on either the Campbell House or Osgoode Hall sites; neither site would be impacted.	X
Operational Impacts to Neighbouring Properties	Substantial operational impacts during construction to the existing office building, should further study confirm that this property is suitable for construction of a headhouse. Neighbouring properties, such as Campbell House, would also be impacted.	X
Temporary lane restrictions /Permanent lane closures	A westbound streetcar stop on Queen street West connecting to a station entrance in this location would cause a permanent reduction of traffic on Queen Street West itself. The westbound streetcar stop would require a permanent reduction to vehicular and streetcar traffic connecting the two station entrances. A traffic light or level crossing in this area would likely further impede local vehicular traffic.	X
Long term operational/ transit integration & passenger flow	There are operational issues for a westbound streetcar stop located west of Simcoe Street. Increased passenger flow anticipated at the northeast corner may not be accommodated by one or more new or expanded entrances.	X
Pedestrian flow impacts at grade	Mid-block location of westbound streetcar stop will require additional light or level crossing to connect to station entrances at north and south side of Queen Street West.	X
Wet & dry utilities design & relocation requirements	Minimal utility impact is expected, even with a Line 1 concourse level connection connecting both station entrances below Queen Street West.	
Costs, schedule, and contractual implications	Major impacts to an existing privately-owned mid-rise office building would be required, including but not limited to its closure and partial or total demolition, with unknown technical issues as related to the proposed vertical circulation and/or keyhole excavation, etc.	X

Location I - T.O. Core Site



This option utilizes a proposal for the future redevelopment of University Avenue which eliminates the existing median boulevard and relocates the existing northbound lanes in its place; thereby providing space for a broad landscaped area that runs the full length of University Avenue. The current 6-lane configuration of University Avenue would be reduced to 4 lanes of traffic. The proposed headhouse structure would be located onto this wide east sidewalk directly north of Queen Street West. A keyhole excavation needed for vertical circulation to the Ontario Line would be located on the Southwest corner of the Osgoode Hall property; together with a temporary construction area located on the west lawn of Osgoode Hall. The Simcoe Street entrance would serve as a secondary entrance to the Ontario Line.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning; including short term operational – traffic & transit impacts	Substantial temporary and permanent impacts to University Avenue related to a proposed redevelopment of a broad east sidewalk replacing the existing centre median boulevard space. The T.O. Core study was originally completed for the City of Toronto as part of a larger study related to the enhancement of various public realms located in downtown Toronto. This is a City of Toronto-led initiative currently in the conceptual stages of development; where planning and approvals timelines are not currently aligned with the construction schedule of the Ontario Line project. The proposed location of the headhouse within the boulevard may not meet the City’s vision for the T.O. Core project.	X
Ridership	The two proposed major entrances are aligned with the major sources of ridership as located in the southwest and northeast quadrants.	
Passenger access	With a newly-created east boulevard space available for the headhouse structure; together with a possible second entrance located to the north at the northeast corner of the intersection, there should be no issues with passenger at grade level. Spatial issues on the concourse level will likely still be an issue; especially with an intermodal station.	
Constructability/ construction methods & laydown requirements	The proposed keyhole excavation is shown partially located on the southwest corner of the Osgoode Hall Property. A temporary construction laydown area would be located on the west lawn of Osgoode Hall. There are potential structural concerns and risks with the proximity of the proposed vertical circulation excavation and construction located directly adjacent to the existing Line 1 station tunnel.	X
Built heritage	The construction impact to Osgoode Hall property is incrementally reduced with fence and boundary line being temporarily dismantled and reinstated in current location. The existing war memorial located on the centre median and the bank building located at 205 Queen St W are partially or fully dismantled and reinstated.	X
Natural heritage	While the footprint of the keyhole excavation is reduced, there remains a direct adverse impact to the existing landscaped area located at the southwest corner of the Osgoode Hall property; together with direct physical impacts to the existing landscape and features of Osgoode Hall property; including the loss of mature trees located directly above the proposed keyhole excavation site.	X
Operational Impacts to Neighbouring Properties	There would be substantial impacts during construction to courtroom and judicial chambers located along the West Elevation of Osgoode Hall, which will likely impact their operations during the period of construction.	X
Temporary lane restrictions /Permanent lane closures	Substantial lane closures for both northbound and southbound traffic on University Avenue would be required for the removal of the existing median boulevard space; together with changes to the existing ventilation shafts serving Line 1 below.	X
Long term operational/ transit integration & passenger flow	There are no known transit studies related to the development of a new park as described in this proposal. The reduction of an existing 6-lane boulevard on University Avenue to a 4-lane street will likely create a congestion point for vehicles in the future.	X
Pedestrian flow impacts at grade	The proposed reduction of traffic lanes on University Avenue from 6 lanes to a permanent 4-lane configuration will create a congestion point for vehicles in combination with an abnormal street alignment. High levels of driver frustration combined with an irregular configuration and high volumes of pedestrian flow is not considered desirable and presents a safety concern for both passengers and pedestrians.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	There would be substantial budget and schedule issues related to the planning and construction of a new park and the realignment of University Avenue to accommodate the construction of a headhouse in this location. The proposed changes would have a severe impact on current active transit planning activities. Construction risks related to the relocation of the keyhole excavation site directly adjacent to the existing Line 1 tunnel have not yet been established.	X

Location J - Osgoode Plaza Proposal



This option was described in a proposal not provided by Metrolinx, instead it is a community proposal that describes the station headhouse structure located on an expanded boulevard sidewalk located on the east side of University Avenue north of Queen Street West, as part of a larger plan to relocate the existing northbound vehicle lanes and cycle lane located on University Avenue to the area currently occupied by the existing median boulevard located at the centre of University Avenue both north and south of its intersection with Queen Street West. Traffic on University Avenue would be reduced from 6 lanes to 4 lanes to accommodate this proposed change.

CATEGORY	ASSESSMENT	IMPACT
Transportation planning, including short term operational – traffic & transit impacts	Substantial temporary and permanent impacts to University Avenue related to a proposed redevelopment of a broad east sidewalk replacing the existing centre median boulevard space. No studies regarding potential impacts of construction to vehicular, streetcar or pedestrian traffic as related to the proposed reduction of traffic lanes on University Avenue have been completed at this time.	X
Ridership	The two proposed major entrances are aligned with the major sources of ridership as located in the southwest and northeast quadrants. Although not shown, it is assumed that the secondary entrance structure located on Simcoe Street is included in the plan).	
Passenger access	With a newly-created east boulevard space available for the headhouse structure; together with a possible second entrance located to the north at the northeast corner of the intersection, there should be no issues with passenger at grade level. Spatial issues on the concourse level will likely still be an issue; especially with an intermodal station.	
Constructability/ construction methods & laydown requirements	A temporary construction laydown area could be located on the new east boulevard located directly north of the proposed headhouse. There are structural concerns and risks related to the proximity of proposed new excavation and construction located directly adjacent to the existing Line 1 station tunnel. There are no studies related to possible impacts and construction risks related to the existing Line 1 tunnel and the need for the relocation of the ventilation system which is currently located beneath the centre median. Substantial budget and schedule issues are anticipated related to the scope of the work, as it appears to extend for blocks north and south of Queen Street West on University Avenue. It should be noted that the T.O. Core alternative shows a keyhole excavation site partially located on Osgoode Hall property.	X
Built heritage	There would be no physical impact to Osgoode Hall, assuming laydown area and keyhole can be located within the proposed boulevard space itself. There has been no design or subsequent studies to evaluate whether this is possible. The war memorial located on the centre median and the bank building located at 205 Queen St W are partially or fully dismantled and reinstated.	X
Natural heritage	New trees would be planted as part of the new east boulevard on University Avenue, replacing the limited landscape features currently located in the centre median. The Osgoode Hall property; including all landscaped areas, would remain largely untouched.	
Operational Impacts to Neighbouring Properties	There would be limited impacts during construction to courtroom operations and judicial chambers located along the West Elevation of Osgoode Hall, as all construction and excavation activities would be located directly adjacent to the Osgoode Hall property and not on it.	X
Temporary lane restrictions /Permanent lane closures	Substantial lane closures for both northbound and southbound traffic would be required for the removal of the existing median boulevard space; together with changes required to the existing ventilation shafts serving the Line 1 tunnel below grade. There would also be lane restrictions required on Queen Street west; however vehicular, cyclist and streetcar traffic can be maintained throughout construction.	X
Long term operational/ transit integration & passenger flow	There are no known transit studies related to the development of a new park as described in this proposal. No long term operational or transit integration studies have been completed.	X
Pedestrian flow impacts at grade	There is no design showing the proposed headhouse location or size. No pedestrian flow impact studies have been performed to test the proposed location as shown.	X
Wet & dry utilities design & relocation requirements	Requires relocation of the existing combined sanitary sewer, watermains and gas main in the east boulevard and northbound curb lane of the University Avenue.	
Costs, schedule, and contractual implications	There would be substantial budget and schedule issues related to the planning and construction of a new park and the proposed realignment of University Avenue. The proposed changes would have a severe impact on current active transit planning activities. Construction risks related to the relocation of the keyhole excavation site directly adjacent to the existing Line 1 tunnel have not yet been established.	X

Osgoode Station Location Review

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