

CARL HALL ROAD RAIL CROSSING REVIEW OF ALTERNATIVES

City of Toronto



Prepared For: Canada Lands Company (CLC)

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

Carl Hall Road is an existing east-west street in the Downsview Secondary Plan Area that is privately owned, operated and maintained by Parc Downsview Park Inc. (PDP) and Canada Lands Corporation (CLC).

Carl Hall Road extends from John Drury Drive in the west, around the northern edge of the former Bombardier Runway, to Sheppard Avenue West opposite Chesswood Drive in the east. It provides multi-modal access to lands owned by PDP and CLC including Parc Downsview Park, Downsview West District, the Park Commons, and Centennial College's Downsview Campus. It also provides multi-modal access (via an easement agreement) to Downsview Park GO / TTC Station.

Carl Hall Road currently crosses the Metrolinx Newmarket Subdivision rail line at-grade. The Newmarket Subdivision serves the GO Barrie Rail Line commuter service. The crossing includes both a vehicular and an active crossing, and is equipped with railway crossing signs, flashing lights, bells, and gates.

City Council approved the Update Downsview Secondary Plan in 2024 ("**Secondary Plan**"). That plan is designed to accommodate the addition of 167,000 people and jobs to the Downsview Secondary Plan Area over the next 30+ years. It contains a new multi-modal mobility network including new major streets and new active-only crossings of the GO Barrie Rail Line. Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service on an interim basis for adjacent land uses until the major Downsview Secondary Plan Area street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada's Grade Separation Assessment Guidelines.

Separately from the Secondary Plan, Metrolinx has plans to implement the Regional Express Rail (RER) program, which will expand services across its network including on the GO Barrie Rail Line. First detailed in the 2017 GO Expansion Business Case, the program will add a second track in the vicinity of the Carl Hall Road crossing, electrify trains, and provide two-way all-day service between Union Station and Allandale Waterfront Station in Barrie. Following the implementation of the program, service will increase from approximately 20 trains to approximately 180 trains per day.

Considering the local importance of Carl Hall Road to Downsview Park and Metrolinx's objective to reduce risks along the GO Barrie Rail Line, the 2024 Downsview Master Environmental Servicing Plan ("**MESP**") recommended that further study of Carl Hall Road be undertaken as part of the Downsview West District Planning process. That study (the focus of this report) would provide a more detailed review of alternatives for the Carl Hall Road rail crossing as and when Metrolinx increases service along the GO Barrie Rail Line over time.

1.2 This Study

This study fulfils the recommendation of the MESP to provide a more detailed review of alternatives for the Carl Hall Road rail crossing.

This study evaluates a range of rail crossing options for both vehicular and active transportation modes to identify feasible, appropriate solutions that will support adjacent land uses over the long term.



1.3 Carl Hall Road Today

Carl Hall Road currently provides multi-modal access and street frontage for existing facilities within the Downsview Secondary Plan area. A number of these existing buildings are listed on the City of Toronto's Heritage Register. At the four quadrants of the rail crossing, existing facilities include:

- Northwest quadrant – The Supply Depot (heritage)
- Southwest quadrant – 35 Carl Hall Road (heritage)
- Northeast quadrant – 60 Carl Hall Road including the Moth Hangar (heritage)
- Southeast quadrant – Centennial College and Park Commons (heritage)

In addition, Carl Hall Road and the rail crossing also provide three important local functions:

- An active (pedestrian and cycling) connection between Downsview Park, Downsview West District and the Park Commons;
- A park service vehicle (maintenance, deliveries, security, etc.) connection between Downsview Park, Downsview West District and the Park Commons; and
- A local vehicular connection between Downsview Park, Downsview West District and the Park Commons.

1.4 MESP and Secondary Plan Considerations

The alignment of Carl Hall Road was considered in the MESP evaluation of alternatives for new major streets. It was screened out as a major street because the potential right-of-way is constrained by existing buildings, most notably the Centennial College building. The east end of Carl Hall Road is also constrained by the Department of Defence Lands, while its west end is constrained by grading challenges that would require a reconfiguration of Sheppard Avenue.

Further, the MESP noted that:

“Vehicular traffic may increase over time but will remain relatively low, e.g. consistent with a local collector street serving internal Downsview destinations.

Traffic increases on Carl Hall Road will be mitigated by the introduction of five (5) new rail grade-separated major street connections north and south of Carl Hall Road.

For this reason, the most significant change at the Carl Hall Road / Barrie GO Rail Line crossing will be in rail traffic.”

“...Carl Hall Road is not required as a major multi-modal street in support of the Secondary Plan.

*However, because of its utility as an existing and future active (pedestrian and cycling) connection across the rail corridor and the importance of Carl Hall Road to Downsview Park, **the local functions that Carl Hall Road currently performs should be maintained over time, to the extent practical.***

*“... it is recommended **that further study of Carl Hall Road** be undertaken as part of the Downsview West District Planning process...”*



That work would include a more detailed review of the alternatives for the Carl Hall Road rail crossing as and when Metrolinx increases service along the Barrie GO Rail Line over time.”

Consequently, the MESP and Secondary Plan identified Carl Hall Road as a potential conceptual minor street through the Downsview Secondary Plan Area.

Note that in the near term, it is assumed that Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service for adjacent land uses until the major Downsview Secondary Plan Area street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada’s Grade Separation Assessment Guidelines.

1.5 Identification of Alternatives

The MESP identified four Carl Hall Road rail crossing alternatives for further evaluation:

- **Alternative A – Do Nothing**
- **Alternative B – Full Grade Separation**
- **Alternative C – Grade Separate Active Crossing, Maintain At-Grade Vehicular Crossing**
- **Alternative D – Grade Separate Active Crossing Only; Terminate Vehicular Crossing**

Note that Alternative A (Do Nothing) is not relevant for this evaluation, as this evaluation is intended to identify feasible, appropriate Carl Hall Road rail crossing alternatives if a change is determined to be required.

Thus, based on the remaining three alternatives (B, C and D), six options have been developed, including an overpass and underpass option for each alternative:

Full Grade Separation

1. Complete street underpass
2. Complete street overpass

Grade Separated Active Crossing, Maintain At-Grade Vehicular Crossing

3. Active underpass, vehicle connection at-grade
4. Active overpass, vehicle connection at-grade

Grade Separate Active Crossing Only; Terminate Vehicular Crossing

5. Active underpass, vehicle connection closed
6. Active overpass, vehicle connection closed

A 3-D functional design of each option has been developed illustrating its potential alignment, grading, right-of-way and land use impacts. The designs are high level and conceptual at this stage and are intended to demonstrate the feasibility of each option. The potential alignments were developed in consultation with the City and CLC and are based on existing servicing needs, land use constraints, topography and engineering design principles.



1.6 Evaluation Criteria

Evaluation criteria for this study were developed in consultation with City staff based on a review of MESP evaluation criteria, the Phase 3/4 EA study evaluation criteria, and consideration of context-specific issues for the Carl Hall Road rail crossing.

Two levels of evaluation criteria were developed:

1. **High Level Screening Criteria** – a high-level evaluation to screen out alternatives that do not enable continued access and street frontage for the existing heritage buildings on Carl Hall Road.
2. **Detailed Evaluation Criteria** – a more detailed evaluation and comparison of the alternatives that pass the initial screening.

1.7 High Level Screening

The high level screening criteria was applied to all 6 options to screen out options that do not enable continued access and street frontage for existing heritage buildings.

Based on this screening, Option 2 (Complete Street Overpass) was screened out because it eliminates access and street frontage for existing heritage buildings including Centennial College, 35 Carl Hall Road, the relocated Moth Hangar and the Depot Building. Option 4 (Active Overpass, Vehicle Connection At-Grade) and Option 6 (Active Overpass, Vehicle Connection Closed) were also screened out because they interfere with the future location of Moth Hangar.

The three remaining underpass options were carried forward to detailed evaluation.

1.8 Detailed Evaluation

The detailed evaluation criteria were applied to the three options that were carried forward from high level screening.

Based on this evaluation, in addition to the 'do nothing' alternative, all three options are feasible candidates for more detailed assessment by Metrolinx in coordination with CLC.

The complete street underpass option is the most preferred because it maintains both vehicular and active connectivity.

Although the vehicle connection is not relied upon to support the operation of the broader network, maintaining the local land use access, connectivity and porosity are important.

Metrolinx will ultimately determine the timing and nature of the Carl Hall Road rail crossing.

All three options should be protected for in the planning of the Downsview Districts.



2.0 INTRODUCTION

Carl Hall Road is an existing east-west street in the Downsview Secondary Plan Area that is privately owned, operated and maintained by Parc Downsview Park Inc. (PDP) and Canada Lands Corporation (CLC).

Carl Hall Road extends from John Drury Drive in the west, around the northern edge of the former Bombardier Runway, to Sheppard Avenue West opposite Chesswood Drive in the east. It provides multi-modal access to lands owned by PDP and CLC including Parc Downsview Park, Downsview West District, the Park Commons, and Centennial College's Downsview Campus. It also provides multi-modal access (via an easement agreement) to Downsview Park GO / TTC Station.

Carl Hall Road currently crosses the Metrolinx Newmarket Subdivision rail line at-grade. The Newmarket Subdivision serves the GO Barrie Rail Line commuter service. The crossing includes both a vehicular and an active crossing, and is equipped with railway crossing signs, flashing lights, bells, and gates. Crossing gates were first installed in August 2012.



Existing Carl Hall Road at-grade rail crossing, looking east.

City Council approved the Update Downsview Secondary Plan in 2024 (“**Secondary Plan**”). That plan is designed to accommodate the addition of 167,000 people and jobs to the Downsview Secondary Plan Area over the next 30+ years. It contains a new multi-modal mobility network including new major streets and new active-only crossings of the GO Barrie Rail Line. Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service on an interim basis for adjacent land uses until the major Downsview Secondary Plan Area street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada’s Grade Separation Assessment Guidelines.

Separately from the Secondary Plan, Metrolinx has plans to implement the Regional Express Rail (RER) program, which will expand services across its network including on the GO Barrie Rail Line. First detailed in the 2017 GO Expansion Business Case, the program will add a second track in the vicinity of the Carl Hall Road crossing, electrify trains, and provide two-way all-day service between Union Station and Allandale Waterfront Station in Barrie. Following the implementation of the program, service will increase from approximately 20 trains to approximately 180 trains per day.

Considering the local importance of Carl Hall Road to Downsview Park and Metrolinx’s objective to reduce risks along the GO Barrie Rail Line, the 2024 Master Environmental Servicing Plan (“**MESP**”) that accompanied the Secondary Plan recommended that further study of Carl Hall Road be undertaken as part of the Downsview West District Planning process. That study (the focus of this report) would provide a more detailed review of alternatives for the Carl Hall Road rail crossing as and when Metrolinx increases service along the GO Barrie Rail Line over time.



2.1 This Study

This study fulfils the recommendation of the MESP to provide a more detailed review of alternatives for the Carl Hall Road rail crossing.

This study evaluates a range of rail crossing options for both vehicular and active transportation modes to identify feasible, appropriate solutions that will support adjacent land uses over the long term.

A Project Charter for this study was developed in consultation with the City and CLC and is attached in **Appendix A**.

2.1.1 Study Purpose

The purpose of this study is to:

- Recognize and maintain Carl Hall Road's role in serving existing and planned communities and facilities.
- Review four Carl Hall Road rail crossing options shown conceptually on **Figure 1** to identify feasible, appropriate solutions to support the service improvements on the GO Barrie Rail Line while supporting adjacent land uses over the long term.
- Ensure that future district development will not preclude feasible crossing options.
- Ensure all feasible options do not adversely impact the broader street network.
- Support TTC transit service on Carl Hall Road prior to the buildout of the future Northern Street (the northerly of the two east-west major streets identified in the MESP).
- Ensure that the feasible Carl Hall Road rail crossing alternatives can accommodate required servicing infrastructure without adverse impacts on the overall servicing network.

2.1.2 Study Objectives

The objectives of this study are to:

- Identify feasible, appropriate Carl Hall Road rail crossing solutions that support adjacent land uses over the long term.
- Deliver a safe and connected multi-modal transportation network.
- Engage with subject matter experts, external partners, and relevant knowledge-holders.
- Coordinate with the Downsview West District Planning process and the Downsview Major Streets Phase 3 and 4 Environmental Assessment ("**Phase 3 /4 EA**") process.





Option A – Do Nothing (Maintain Existing At-Grade Crossing)



Option B – Full Grade Separation



Option C – Grade Separate Active Crossing, Maintain At-Grade Vehicular Crossing



Option D – Grade Separate Active Crossing Only, Terminate Vehicular Crossing

Figure 5.7.11 Carl Hall Road crossing – potential alternatives

Figure 1 Carl Hall Road Rail Crossing Alternatives from the 2024 MESP

Illustrates Figure 5.7.11 of the MESP, which shows four potential alternatives for the Carl Hall Road rail crossing.



3.0 BACKGROUND

Carl Hall Road is an existing privately owned two-lane street with a posted speed of 30 km/hr. It extends from John Drury Drive in the west, around the northern edge of the former Bombardier Runway, to Sheppard Avenue West opposite Chesswood Drive in the east.

Carl Hall Road currently crosses the Metrolinx Newmarket Subdivision rail line at-grade. The Newmarket Subdivision serves the GO Barrie Rail Line commuter service. The crossing includes both a vehicular and an active crossing, and is equipped with railway crossing signs, flashing lights, bells, and gates. Crossing gates were first installed in August 2012

Carl Hall Road currently provides multi-modal access and street frontage for existing facilities within the Downsview Secondary Plan area. A number of these existing buildings are listed on the City of Toronto's Heritage Register. At the four quadrants of the rail crossing, existing facilities include:

- Northwest quadrant – The Supply Depot (listed heritage building)
- Southwest quadrant – 35 Carl Hall Road (listed heritage building)
- Northeast quadrant – 60 Carl Hall Road including the Moth Hangar (listed heritage building)
- Southeast quadrant – Centennial College (listed heritage building) and Park Commons

In addition, Carl Hall Road and the rail crossing also provide three important local functions:

- An active (pedestrian and cycling) connection between Downsview Park, Downsview West District and the Park Commons;
- A park service vehicle (maintenance, deliveries, security, etc.) connection between Downsview Park, Downsview West District and the Park Commons; and
- A local vehicular connection between Downsview Park, Downsview West District and the Park Commons.

The Carl Hall Road area context is illustrated on **Figure 2**. The existing rail crossing is illustrated on **Figure 3**.





Figure 2 Existing Carl Hall Road Area Context

An aerial map illustrating the existing alignment of Carl Hall Road and the existing land uses around the at-grade rail crossing.





Figure 3 Existing Carl Hall Road Rail Crossing

A zoomed-in aerial map illustrating the existing at-grade rail crossing on Carl Hall Road.

3.1 MESP and Secondary Plan Considerations

The alignment of Carl Hall Road was considered in the MESP evaluation of alternatives for new major streets. It was screened out as a major street because the potential right-of-way is constrained by existing buildings, most notably the Centennial College building. The east end of Carl Hall Road is also constrained by the Department of Defence Lands, while its west end is constrained by grading challenges that would require a reconfiguration of Sheppard Avenue.

Further, the MESP noted that:

“Vehicular traffic may increase over time but will remain relatively low, e.g. consistent with a local collector street serving internal Downsview destinations.

Traffic increases on Carl Hall Road will be mitigated by the introduction of five (5) new rail grade-separated major street connections north and south of Carl Hall Road.

For this reason, the most significant change at the Carl Hall Road / Barrie GO Rail Line crossing will be in rail traffic.”

“...Carl Hall Road is not required as a major multi-modal street in support of the Secondary Plan.

*However, because of its utility as an existing and future active (pedestrian and cycling) connection across the rail corridor and the importance of Carl Hall Road to Downsview Park, **the local functions that Carl Hall Road currently performs should be maintained over time, to the extent practical.**”*



“... it is recommended **that further study of Carl Hall Road** be undertaken as part of the Downsview West District Planning process...

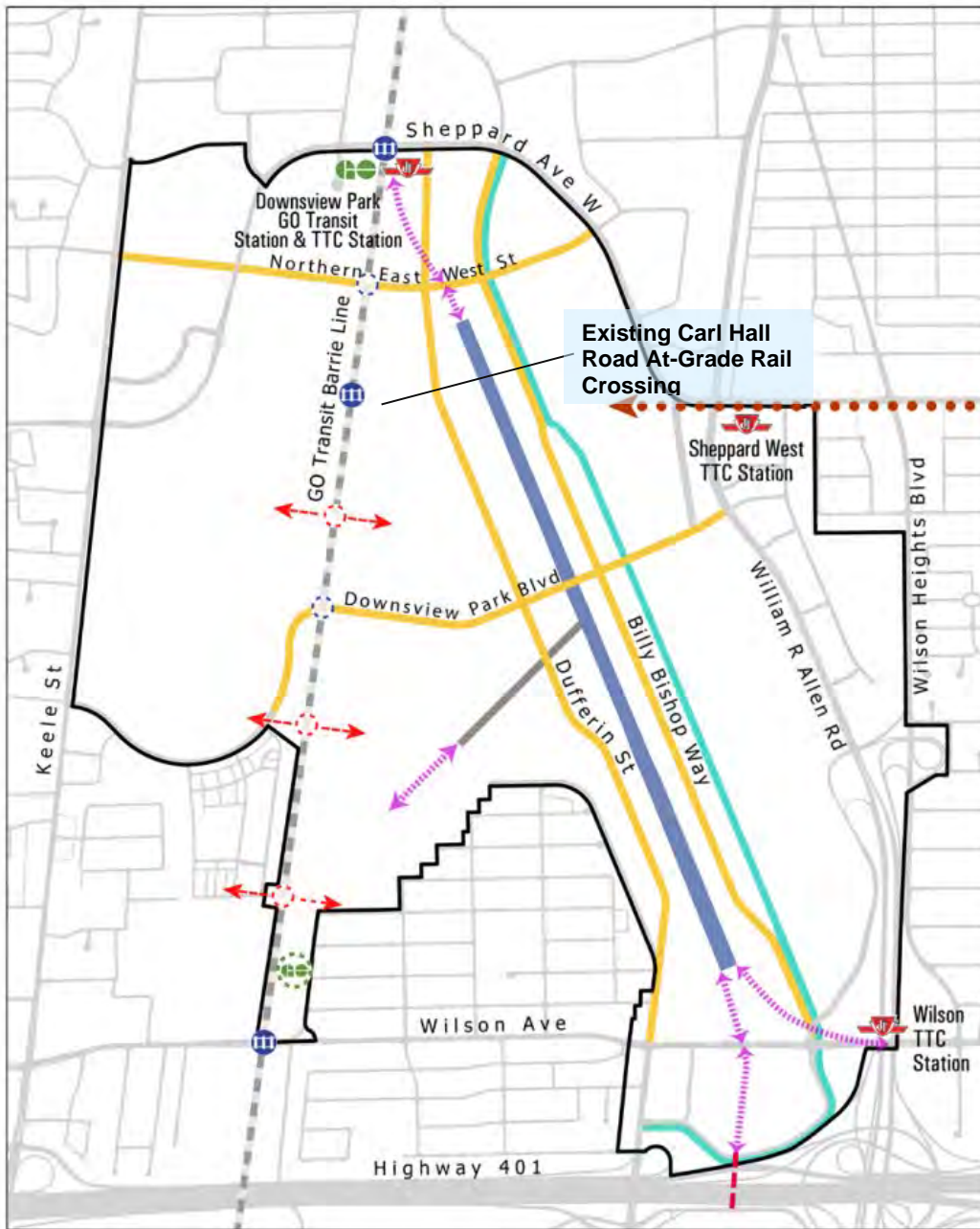
That work would include a more detailed review of the alternatives for the Carl Hall Road rail crossing as and when Metrolinx increases service along the Barrie GO Rail Line over time.”

Consequently, the MESP and Secondary Plan identified Carl Hall Road as a potential conceptual minor street through the Downsview Secondary Plan Area.

The Secondary Plan major mobility network (Map 7-4: Mobility Network) is illustrated on **Figure 4**. The MESP potential conceptual minor street network is illustrated on **Figure 5**.

Note that in the near term, it is assumed that Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service for adjacent land uses until the major Downsview Secondary Plan Area street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada’s Grade Separation Assessment Guidelines.





Downsview Secondary Plan

Map 7-4 Mobility Network



Figure 4 Update Downsview Secondary Plan Map 7-4 – Mobility Network

Illustrates Map 7-4 of the Update Downsview Secondary Plan, which shows the mobility network.



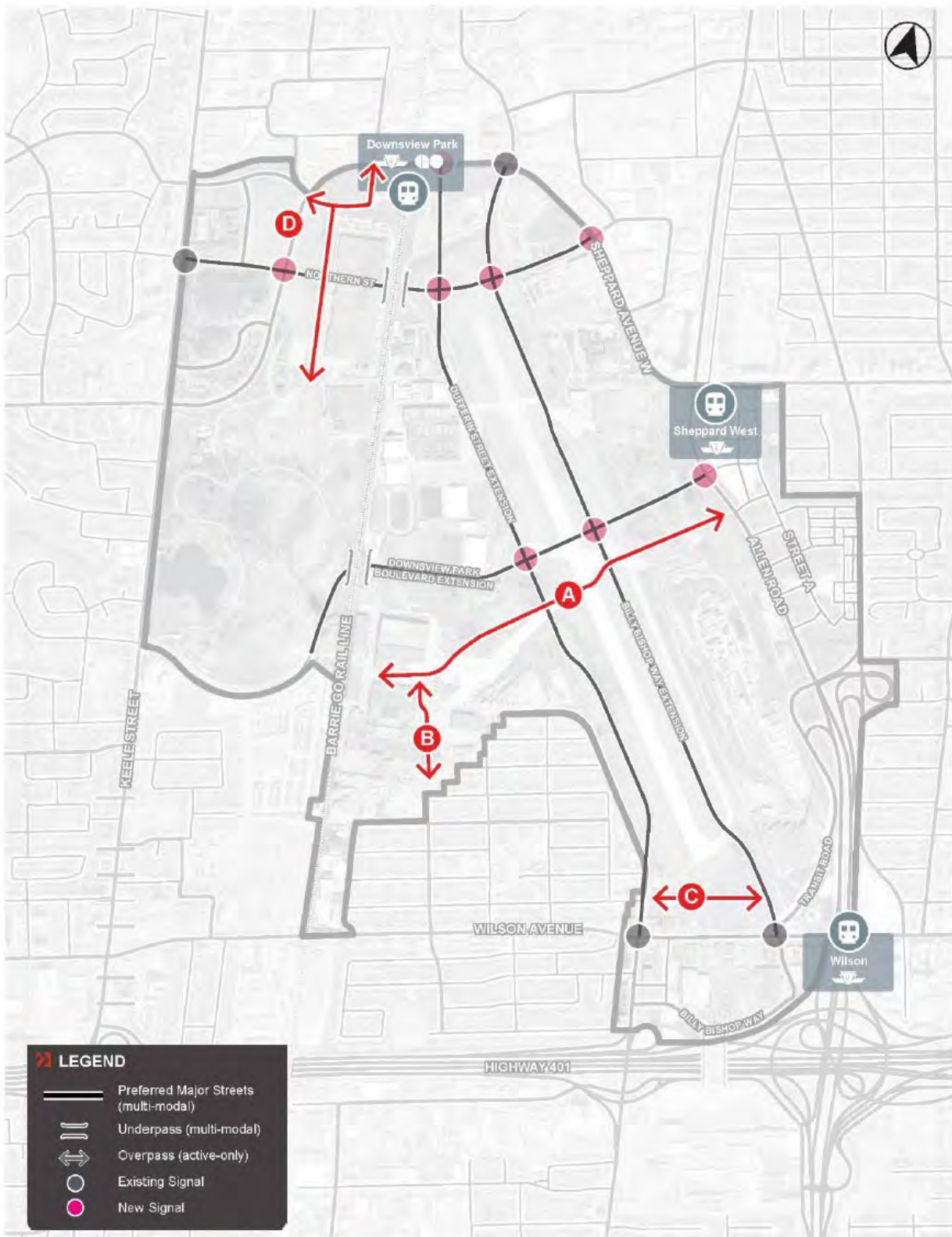


Figure 5.7.3 Potential conceptual minor streets

Figure 5 MESP Potential Conceptual Minor Street Network

Illustrates Figure 5.7.3 of the MESP, which shows the potential conceptual minor street network including Carl Hall Road.



3.2 Downsview West District Plan

The westerly portion of Carl Hall Road, west of the rail crossing, extends across the south end of the Downsview West District. As part of the Downsview West District Plan, Carl Hall Road west of the rail crossing is planned to be upgraded and will provide a 'complete street' cross-section to better accommodate multi-modal travel. It is envisioned to be a basic two (2) lane street with landscaping, sidewalks and a bi-directional cycle track on the north side of the street, connecting to the existing multi-use path (MUP) on the north side of Carl Hall Road at the rail crossing. The Downsview West District Plan also proposes to convey a portion of Carl Hall Road west of the rail crossing to the City as a public street.

The easterly portion of Carl Hall Road, east of the rail crossing, between the rail crossing and the future Dufferin Street Extension, extends through the Park Commons District and will remain privately owned for the foreseeable future. The alignment of the Dufferin Street Extension and its connection to Carl Hall Road will be determined through the ongoing Phase 3 / 4 EA study.

The Downsview West District development plan and street network have been designed to be compatible all four Carl Hall Road rail crossing alternatives being considered in this study. Thus, the buildout of the Downsview West District is not dependent on the future outcome of the Carl Hall Road rail crossing. However it is assumed that Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service on an interim basis for adjacent land uses until the major Downsview Secondary Plan Area street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada's Grade Separation Assessment Guidelines.

The Downsview West District street network functional plan is attached in **Appendix B**.

3.3 Metrolinx GO Barrie Rail Line Expansion

The existing Carl Hall Road grade crossing (Transport Canada grade crossing ID# 47328) is located at Mile Post 1 10.5 on the Metrolinx Newmarket Subdivision which serves the GO Barrie Rail Line. The two-lane Carl Hall Road (oriented east-west) crosses the one-track Newmarket Subdivision (generally oriented north-south). The crossing includes both vehicle and an active crossing and is equipped with railway crossing signs, flashing lights, bells, and gates.

As part of its Regional Express Rail (RER) program, Metrolinx is planning for and incrementally constructing the GO Barrie Rail Line expansion. First detailed in the 2017 GO Expansion Business Case, planned improvements to the GO Barrie Rail Line will ultimately deliver frequent, all-day, two-way GO train service (up to every 15 minutes, 7 days a week) from Union Station to the Bradford GO Station, with additional all-day, two-way service (up to every 30 minutes) between Bradford GO to the Allandale Waterfront GO Station in Barrie.

To enable the service upgrades, Metrolinx is planning to construct a second track within the vicinity of the Carl Hall Road crossing to enable an expansion of GO Barrie Rail Line service. The exact timing of the GO Barrie Rail Line double track project is uncertain.

As part of their On-Corridor project work, Metrolinx will perform an initial business case study of the GO Barrie Rail Line to evaluate existing conditions and future needs for the expected electrification of this rail corridor. This work normally includes recommendations on existing and proposed crossings along the GO Barrie Rail Line. It will also consider the Update Downsview Secondary Plan including the supporting planning and engineering study findings.



3.4 Rail Crossing Safety Considerations

Train travel will increase as two-way all-day service is implemented along the GO Barrie Rail Line from about 20+/- trains today to about 180+/- trains in the future.

In 2020, Canada Lands commissioned Arup to undertake a Carl Hall Road *Grade Crossing Detailed Safety Assessment Study* (the “*Grade Crossing Study*”) to ensure that the Carl Hall Road grade level rail crossing meets Transport Canada guidelines and good practice safety measures.

The Grade Crossing Study, dated September 4, 2020, recommends that the following short-term improvements to be implemented in advance of the GO Barrie Rail Line double track project:

- Add south sidewalk.
- Add permanent barriers to guide pedestrians toward proper crossing locations.
- Add tactile warning surface indicators to sidewalk approaches.
- Add pedestrian signage.
- Relocate road signage to meet applicable standards.
- Add additional road signage.

These improvements have been made and are in conformance with Transport Canada guidelines.

The Grade Crossing Study recommends additional improvements in the mid-term to be implemented as part of or following the GO Barrie Rail Line double track project:

- Add pedestrian exit swing gates.
- Add pedestrian gates to northwest and southeast quadrants.
- If property access points east of the grade crossing are reconfigured as formal site roads to create an intersection, add additional light units aimed at traffic turning from north toward the grade crossing.
- As the number of motorist crossing violations warrants, add medians or four-quadrant gates.

As noted in the MESP (and discussed in Section 2.2), increases in multi-modal activity along Carl Hall Road will be mitigated by the availability of five new rail crossings planned as part of the Update Downsview Secondary Plan. The frequency of train activity will also reduce the attractiveness of Carl Hall Road because motorists will experience increased delay when compared with other routing alternatives.

For this reason, the most significant change at the Carl Hall Road / GO Barrie Rail Line crossing will be in rail traffic.

As part of a previous Environmental Assessment of the GO Barrie Rail Line Corridor, Metrolinx commissioned Hatch to prepare a study titled “*Metrolinx – Barrie Rail Corridor Expansion Project Traffic Impact Analysis*” dated August 2017 that considered the Carl Hall Road rail crossing. That study applied the version of the Transport Canada railway grade separation assessment guidelines that were in force at the time. The analysis indicated that warrants were met or substantially met based upon the planned increase in train traffic of up to 180 trains per day. On this basis, the Transport Canada guidelines indicated that a site-specific study and feasibility analysis could



be undertaken to establish whether a grade separation is appropriate, practical, and achievable. Metrolinx subsequently did not recommend grade separating the crossing.

After the study by Hatch was completed, Transport Canada released updated grade separation assessment guidelines. **Appendix C** sets out the current Transport Canada guidelines (dated February 2020).

Any updated grade separation assessment would consider the new Secondary Plan context and, if required, when the need for a grade separated crossing of Carl Hall Road and the GO Barrie Rail Line may arise.

3.5 Existing Heritage Designations

Four existing buildings in the vicinity of the rail crossing are listed on the City of Toronto Heritage Register:

- Northwest quadrant – The Supply Depot
- Southwest quadrant – 35 Carl Hall Road
- Northeast quadrant – The Moth Hangar
- Southeast quadrant – Centennial College

Listed heritage buildings are those that have been identified as having cultural or historical value. While “listed” heritage buildings do not have the same legally binding protections as “designated” heritage buildings under the Ontario Heritage Act, maintaining the cultural and historical heritage of Downsview remains a priority in the redevelopment of the Downsview area.

3.6 Future Travel Demand

3.6.1 Vehicle Traffic (2024 MESP)

Traffic forecasts for Carl Hall Road and the broader Downsview Secondary Plan Area were developed using mesoscopic modelling methods in the 2024 MESP. The results of the modelling and analysis are summarized in this section.

With the buildout of the Downsview Secondary Plan Area, traffic activity on Carl Hall Road may increase slightly over time but traffic will remain primarily local in nature (i.e. with local destinations on Carl Hall Road, not through traffic). Overall traffic volumes will remain within the same order of magnitude as existing conditions. Traffic increases will be mitigated by the introduction of the recommended mobility network supporting the Secondary Plan. The utility of Carl Hall Road as a vehicular connection will also be reduced by the introduction two-way, all-day train service on the GO Barrie Rail Line, which will result in a significantly higher number of road closures at the crossing.

As shown in Map 7-4 of the Downsview Secondary Plan: Mobility Network and illustrated on **Figure 4**, two new rail grade separated major street connections north and south of Carl Hall Road are planned. The new street connections offer better routes to, from and within Downsview and will accommodate most of the east-west vehicular travel over time.

Carl Hall Road will remain a useful local vehicular connection between Downsview Park, Downsview West District and the Park Commons.



3.6.1.1 2024 MESP Forecasts

Two scenarios for the Carl Hall Road vehicular rail crossing were modelled in the MESP:

- Base Case (Do Nothing) – Existing at-grade vehicular and active crossing is maintained.
- No Vehicular Crossing – The vehicular crossing is closed; the active crossing is maintained.

For the purpose of mesoscopic vehicular modelling, the adopted street network characteristics for the two options (including street alignments, number of vehicular travel lanes and hourly vehicle carrying capacity) are illustrated on **Figure 6**.

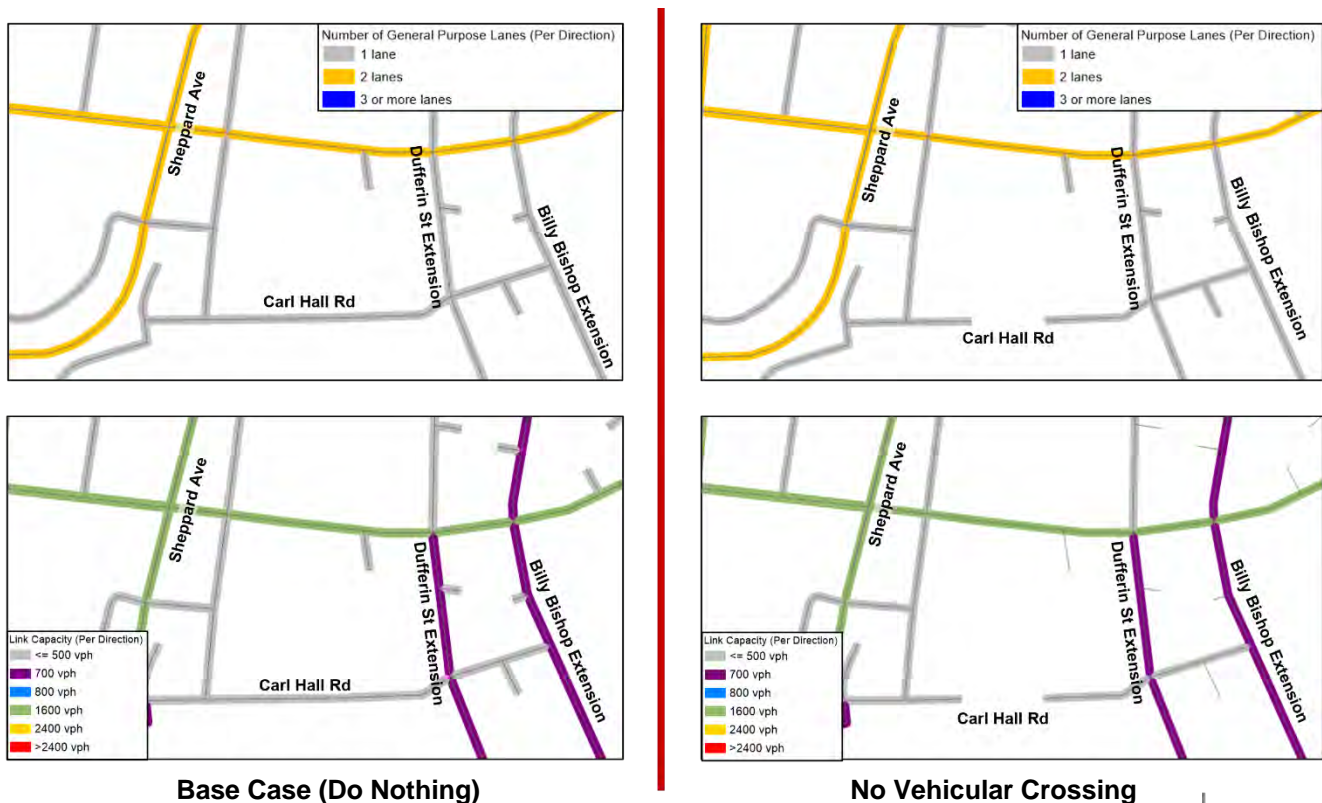


Figure 6 MESP Mesoscopic Model Network Assumptions for the Two Carl Hall Road Rail Crossing Scenarios

Illustrates the MESP mesoscopic model network assumptions for the two Carl Hall Road rail crossing scenarios. Images on the left illustrate the Base Case (Do Nothing) scenario, while images on the right illustrate the No Vehicular Crossing scenario.

Note that for the purpose of modelling, the following assumptions have been made for the operation of the at-grade rail crossing in Option A: The gate is assumed to be lowered and the crossing impassable for two minutes each time a train passes through. Based on the future GO RER service plans, it is assumed that a train will pass Carl Hall Road approximately every 7.5 minutes during the peak hours, or 8 times per hour.



In the order of 200-300 vehicles in each direction are forecast to use the crossing in the PM peak hour. In the order of 150-200 cycling trips per hour are forecast to use the crossing.

Forecast corridor weekday afternoon peak hour traffic volumes and corridor volume-to-capacity (v/c) ratios for the No Vehicular Crossing option are illustrated on **Figure 7**.



Figure 8 Carl Hall Road No Vehicular Crossing Option – 2051 forecast corridor traffic volumes (left) and corridor V/C ratios (right) – PM peak hour

Illustrates the MESP mesoscopic model outputs for the Carl Hall Road No Vehicular Crossing scenario.



With the closure of the Carl Hall Road rail crossing, there is a modest increase in vehicular traffic on the adjacent east-west street network. In particular, there is an increase of in the order of 50-100 vehicles per direction on the northerly east-west street and on Sheppard Avenue West. As well, there is an increase of in the order of 50-100 vehicles per direction on the Dufferin Street Extension and the Billy Bishop Way Extension in the vicinity of the crossings. However all corridors remain operating within their theoretical capacity (i.e. corridor v/c ratios remain under 1.0).

This indicates that although there is a diversion of vehicular traffic to adjacent corridors, particularly the northerly east-west street, the overall volume of diverted traffic is modest, and can be accommodated on the street network. Notably, the nearest alternative rail crossing (i.e. the northerly east-west street) is less than 350 metres to the north.

Based on the foregoing, the study area street network will operate under busy, but acceptable conditions for an urban context, and can appropriately accommodate forecast traffic volumes

3.6.2 Pedestrian and Cycling Traffic

With the buildout of the Downsview Secondary Plan Area, local pedestrian and cycling activity may also increase modestly but will also remain primarily local in nature. Volume increases will be mitigated by the introduction of the recommended mobility network supporting the Update Downsview Secondary Plan.

As shown in Map 7-4 of the Downsview Secondary Plan: Mobility Network and illustrated on **Figure 4**, three new active-only crossings of the rail corridor are planned in addition to the two new rail grade separated multi-modal major street connections north and south of Carl Hall Road. The new street and active-only connections offer alternative routes to, from and within Downsview.

Collectively, the existing and new active rail crossings are located 500 metres or less apart and will provide excellent coverage and multiple opportunities for east-west travel across the rail corridor.

Carl Hall Road will remain an important active (pedestrian and cycling) connection between Downsview Park, Downsview West District and the Park Commons.

3.6.3 Park Service and Security Traffic

Service vehicles used by PDP / CLC for the operation and maintenance of Parc Downsview Park, Downsview West District, the Park Commons, and Centennial College's Downsview Campus currently use Carl Hall Road, including at the rail crossing.

In the future, if the vehicular portion of the rail crossing is closed, the design of the active rail crossing should consider accommodating occasional service vehicle activity for smaller off-road maintenance vehicles.



3.6.4 Transit Connections

TTC bus route 101 (Downsview Park) currently provides direct access to the Downsview area and is routed along Carl Hall Road.

In the future, with the buildout of the major street network including two new multi-modal crossings of the GO Barrie Rail Line, the TTC has indicated that buses would be re-routed to use those new major streets instead of Carl Hall Road.

However, the TTC has also indicated that if Carl Hall Road were to remain available after the buildout of the new east-west major streets, it may continue to use it as a bus route, but that it would not be dependent on it as a routing option.



4.0 EVALUATION CRITERIA

Evaluation criteria for this study were developed in consultation with City staff based on a review of MESP evaluation criteria, the Phase 3/4 EA study evaluation criteria, and consideration of context-specific issues for the Carl Hall Road rail crossing.

Two levels of evaluation criteria were developed:

3. **High Level Screening Criteria** – a high-level evaluation to screen out alternatives that do not enable continued access and street frontage for the existing heritage buildings on Carl Hall Road.
4. **Detailed Evaluation Criteria** – a more detailed evaluation and comparison of the alternatives that pass the initial screening.

4.1 High-Level Screening

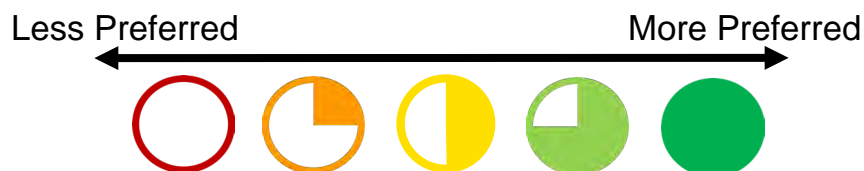
A high-level screening criterium was developed to screen out any options that do not provide the existing core functionality of Carl Hall Road, which is to provide access and street frontage for existing heritage buildings fronting onto Carl Hall Road:

YES / NO: Enables continued access and street frontage for existing heritage buildings.

If any alternative scores 'No' on the high-level screening criterium, it was screened out from further evaluation.

4.2 Detailed Evaluation Criteria

Detailed evaluation criteria were developed to evaluate those alternatives that pass the initial high-level screening criterium. The detailed evaluation criteria are grouped into 5 categories. For each alternative, a relative rating was assigned for each category, from less preferred to more preferred, as follows:



Detailed evaluation categories and criteria are summarized below:

- **CATEGORY 1: TRANSPORTATION CONNECTIVITY AND TECHNICAL VIABILITY**
 1. Supports local vehicular access to buildings on Carl Hall Road
 2. Impact on broader vehicular network operations
 3. Supports active connectivity
 4. Supports transit connectivity
 5. Supports maintenance and service vehicle connectivity for CLC lands
- **CATEGORY 2: LAND USE PLANNING:**
 1. Supports future development in Downsview West District and Park Commons
 2. Opportunity to integrate with adjacent development
 3. Minimize impacts on built heritage resources
- **CATEGORY 3: MUNICIPAL SERVICING, UTILITIES AND STORMWATER**
 1. Impact on municipal servicing and utilities
 2. Stormwater can be appropriately managed
- **CATEGORY 4: POTENTIAL HAZARDS AND SAFETY CONSIDERATIONS**
 1. Safety – potential areas for entrapment, concealment or enclosure
 2. Visibility – blind corners, sight lines from the street, sufficient lighting
 3. Maintenance – potential for refuse buildup, potential for garbage to be thrown off overpass, graffiti/vandalism
- **CATEGORY 5: COST**
 1. Capital cost
 2. Maintenance and operational cost
 3. Property impact



5.0 IDENTIFICATION OF ALTERNATIVES

The MESP identified four Carl Hall Road rail crossing alternatives for further evaluation as illustrated on **Figure 1** and summarized below:

- **Alternative A – Do Nothing**
- **Alternative B – Full Grade Separation**
- **Alternative C – Grade Separate Active Crossing, Maintain At-Grade Vehicular Crossing**
- **Alternative D – Grade Separate Active Crossing Only; Terminate Vehicular Crossing**

Note that Alternative A (Do Nothing) is not relevant for this evaluation, as this evaluation is intended to identify feasible, appropriate Carl Hall Road rail crossing alternatives if a change is determined to be required.

Thus, based on the remaining three alternatives (B, C and D), six options have been developed, including an overpass and underpass option for each alternative:

Full Grade Separation

1. Complete street underpass
2. Complete street overpass

Grade Separated Active Crossing, Maintain At-Grade Vehicular Crossing

3. Active underpass, vehicle connection at-grade
4. Active overpass, vehicle connection at-grade

Grade Separate Active Crossing Only; Terminate Vehicular Crossing

5. Active underpass, vehicle connection closed
6. Active overpass, vehicle connection closed

A 3-D functional design of each option has been developed illustrating its potential alignment, grading, right-of-way and land use impacts. The designs are high level and conceptual at this stage and are intended to demonstrate the feasibility of each option. The potential alignments were developed in consultation with the City and CLC and are based on existing servicing needs, land use constraints, topography and engineering design principles.



5.1 Technical Considerations

The following technical considerations informed the design of the options.

5.1.1 Underpass vs. Overpass

Key differences between the underpass vs. overpass options include:

- Underpass
 - Requires approximately **5.3 metre** clearance above the road surface for vehicles, and **3 metre** clearance above the road surface for active (pedestrian and cyclist) modes.
 - Sidewalks and cycle tracks can be located higher than the vehicular travel lanes due to their lower overhead clearance requirements, so gentler slopes can be provided for active modes while steeper slopes can be provided for vehicular lanes.
 - As a result, this option results in shorter grade transitions (i.e. ramps) on both ends.
- Overpass
 - Requires approximately **7.6 metre** clearance above the rail corridor.
 - The slope of the overpass is limited by the maximum slope that is comfortable for active (i.e. pedestrian and cyclist) modes, City of Toronto design standards and accessibility regulations, among others.
 - As a result, this option results in a longer grade transition (i.e. ramps) on both ends.

Figure 9 illustrates the profile of an overpass vs. underpass structure.



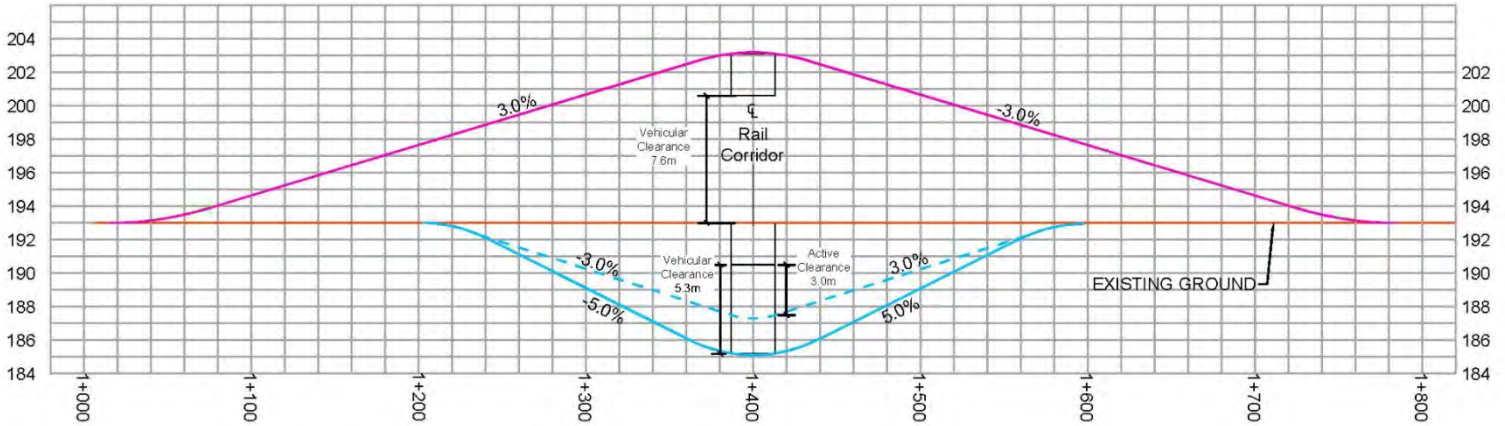
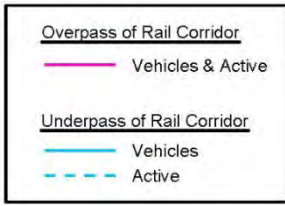


Figure 9 Profile Illustrating Overpass Vs. Underpass Structure

Illustrates a vertical profile of an overpass versus an underpass structure.

5.1.2 Grading

On the north side of Carl Hall Road, west of the rail corridor, the elevation of the land is currently significantly lower. This condition is beneficial if the active crossing goes under the corridor.

5.1.3 Municipal Services and Utilities

There are currently no municipal services under the existing at-grade rail crossing. The 2024 MESP does not rely on a future public street in this location for municipal servicing infrastructure. The MESP contemplates a future watermain across the rail corridor at this general location. However, the watermain does not rely on the presence of a public street and can be delivered under all four of the options being evaluated in this study.



5.2 Alternative B – Full Grade Separation

This alternative entails constructing a full grade separated street crossing – either as an underpass or as an overpass.

Based upon a preliminary investigation, a full grade separated street is best located just north of the current alignment of Carl Hall Road at the rail crossing. This location takes better advantage of available unencumbered land and mitigates impact on existing buildings on the south side of Carl Hall Road.

The underpass and overpass options developed for this alternative locate the rail crossing just north of its current alignment and transitions Carl Hall Road back to its current alignment east and west of the rail corridor.

5.2.1 Option 1 Complete Street Underpass

Key design assumptions for Option 1 include:

- 22m right of way, including multi-use path on north side and sidewalk on south side
- Maximum grade: 5% for vehicle lanes, 3% for active facilities
- Railway: 2m bridge deck
- Vertical clearance from underside of bridge: 5.3m for vehicle lanes, 3m for active facilities
- In this design, Carl Hall Road has been shifted north at Centennial College to provide separation between the building entrance and the underpass structure (minimum 15m setback)

Conceptual 3-D illustrations of Option 1 are shown on **Figure 11**, **Figure 11** and **Figure 12**.

In this option, significant changes are required to the existing driveways serving all 4 quadrants due to Carl Hall Road being an underpass – including to grading, driveway location and internal driveway alignment.

The street frontage condition for existing heritage buildings along Carl Hall Road are impacted due to the underpass – including for Centennial College, 35 Carl Hall Road and the relocated Moth Hangar.





Figure 10 Option 1 Complete Street Underpass (Plan View)

A 3D illustration of Option 1 – Complete Street Underpass (plan view).





Figure 11 Option 1 Complete Street Underpass (Looking Southeast)

A 3D illustration of Option 1 – Complete Street Underpass (looking southeast).





Figure 12 Option 1 Complete Street Underpass (Looking Northwest)

A 3D illustration of Option 1 – Complete Street Underpass (looking northwest).



5.2.2 Option 2 Complete Street Overpass

Key design assumptions for Option 2 include:

- 22m right of way, including multi-use path on north side and sidewalk on south side
- Maximum grade: 6% for both vehicle lanes and active facilities
- Railway: 2m bridge deck
- Vertical clearance from top of rail to underside of bridge: 7.6m
- In this design, Carl Hall Road has been shifted north at Centennial College to provide separation between the building entrance and the underpass structure (minimum 15m setback)

Conceptual 3-D illustrations of Option 2 are shown on **Figure 13**, **Figure 14** and **Figure 15**.

This option eliminates access and street frontage for existing heritage buildings including Centennial College, 35 Carl Hall Road, the relocated Moth Hangar and the Depot Building.

This option also eliminates access for the rest of the Park Commons on both sides of Carl Hall Road.

The impact of this option is greater than the underpass option because of the longer structure required to pass over the rail corridor.





Figure 13 Option 2 Complete Street Overpass (Plan View)

A 3D illustration of Option 2 – Complete Street Overpass (plan view).





Figure 14 Option 2 Complete Street Overpass (Looking Southeast)

A 3D illustration of Option 2 – Complete Street Overpass (looking southeast).





Figure 15 Option 2 Complete Street Overpass (Looking Northwest)

A 3D illustration of Option 2 – Complete Street Overpass (looking northwest).



5.3 Alternative C – Grade Separated Active Crossing, Maintain At-Grade Vehicular Crossing

This alternative entails constructing a new active (pedestrian and cycling) grade separated crossing – either as an underpass or as an overpass. The at-grade vehicular crossing would be maintained.

5.3.1 Option 3 Active Underpass, Vehicle Connection At-Grade

Key design assumptions for Option 3 include:

- 6m wide grade-separated active-only multi-use path
- Maximum grade: 5% for active-only multi-use path
- Railway: 2m bridge deck
- Vertical clearance from underside of bridge: 3m for active-only facilities

Based upon a preliminary investigation, the active underpass crossing is best located on the north side of Carl Hall Road as a bi-directional facility. This location offers:

- Less potential impact on the existing heritage buildings south of Carl Hall Road.
- A lower elevation on the west side of the rail corridor which would better enable an underpass should that option be pursued.
- More land unencumbered by buildings on the north side Carl Hall Road both east and west of the rail corridor.
- Ability to connect to the existing multi-use path on the north side of Carl Hall Road.

Conceptual 3-D illustrations of Option 3 are shown on **Figure 16**, **Figure 17** and **Figure 18**.

The multi-use path (MUP) needs to develop sufficient horizontal length to pass under the rail corridor while still connecting at-grade on either side. This requires a ‘switchback’, as shown in the conceptual illustrations.

The MUP alignment can be configured to connect at-grade at logical locations on both sides of rail corridor. The location shown in this study is one such potential location.

In this option, street frontage for existing buildings on both sides of rail corridor can be maintained.

There may be opportunity to integrate the active underpass with future development on both sides of rail corridor. However that this would be logistically challenging. It would also be more challenging to accommodate cyclists within buildings.





Figure 16 Option 3 Active Underpass, Vehicle Connection At-Grade (Plan View)

A 3D illustration of Option 4 – Active Underpass, Vehicle At-Grade (plan view).





Figure 17 Option 3 Active Underpass, Vehicle Connection At-Grade (Looking Southeast)

A 3D illustration of Option 3 – Active Underpass, Vehicle At-Grade (looking southeast).



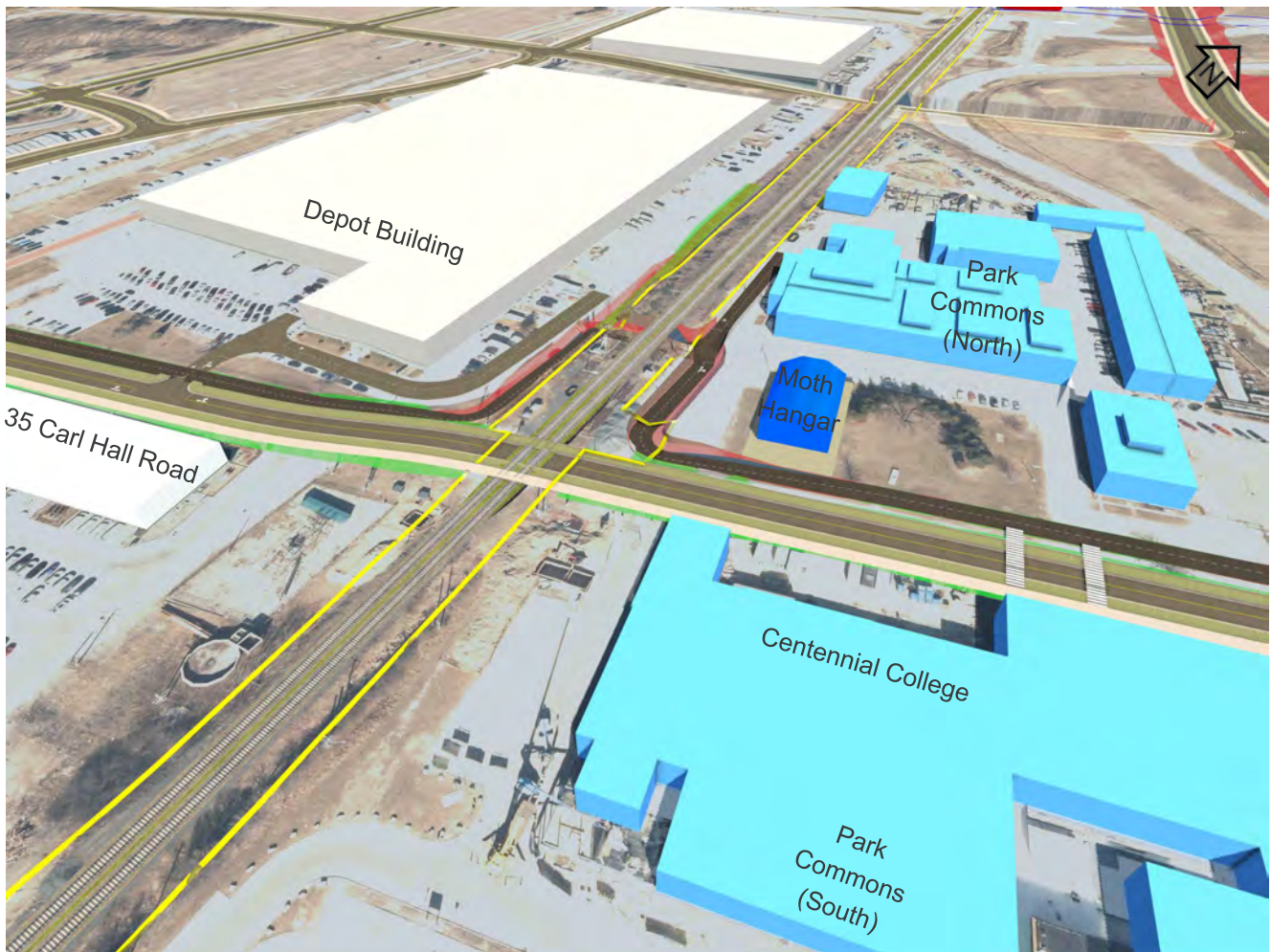


Figure 18 Option 3 Active Underpass, Vehicle Connection At-Grade (Looking Northwest)

A 3D illustration of Option 3 – Active Underpass, Vehicle At-Grade (looking northwest).



5.3.2 Option 4 Active Overpass, Vehicle Connection At-Grade

Key design assumptions for Option 4 include:

- 6m wide grade-separated active-only multi-use path
- Maximum grade: 5% for active-only multi-use path
- Railway: 2m bridge deck
- Vertical clearance from top of rail to underside of bridge: 7.6m

Conceptual 3-D illustrations of Option 4 are shown on **Figure 19**, **Figure 20** and **Figure 21**.

The existing MUP on Carl Hall Road is on the north side of the street. However the grading on the north side of Carl Hall Road is not favourable for an active overpass, as the northwest quadrant of the Carl Hall Road at the rail corridor is lower than the surrounding land. Therefore, in this conceptual design, the overpass connects to the south side of Carl Hall Road on the west side of the rail corridor.

The MUP needs to develop significant horizontal length to pass over the rail while still connecting at-grade, requiring multiple 'loops' or 'switchbacks'. The conceptual design shown in this study contains multiple stacked loops, though other configurations are possible.

This option results in a longer travel distance for pedestrians and cyclists – approximately 500 metres to use the structure compared to approximately 100 metres for the existing at-grade crossing.

This option has extensive property impact, even with a 'stacked loop' configuration.

In particular, this option interferes with the planned location of the Moth Hangar. The historic Moth Hangar, where Tiger Moth aircraft were built by De Havilland Aircraft of Canada in the lead-up to and following WW2, was previously located in the northeast quadrant of Carl Hall Road at the rail corridor. It has been deconstructed and is planned to be rebuilt in a nearby location in the same quadrant, incorporating the original wood bowstring trusses. The relocation is part of a conservation strategy initiated by CLC as a result of the deterioration of the building, largely due to the connection between its roofline and an adjacent structure at 60 Carl Hall Road. The relocated and reconstructed building will accommodate an aerospace training facility, which will honour its historical use. The east side of the overpass would interfere with the design on which project funding has been based.





Figure 19 Option 4 Active Overpass, Vehicle Connection At-Grade (Plan View)

A 3D illustration of Option 4 – Active Overpass, Vehicle At-Grade (plan view).





Figure 20 Option 4 Active Overpass, Vehicle Connection At-Grade (Looking Southeast)

A 3D illustration of Option 4 – Active Overpass, Vehicle At-Grade (looking southeast).





Figure 21 Option 4 Active Overpass, Vehicle Connection At-Grade (Looking Northwest)

A 3D illustration of Option 4 – Active Overpass, Vehicle At-Grade (looking northwest).



5.4 Alternative D – Grade Separate Active Crossing Only; Terminate Vehicular Crossing

This alternative provides a grade-separated active-only crossing of the GO Barrie Rail Line Corridor only and terminate Carl Hall Road for vehicular traffic on both sides of the tracks.

The closure of Carl Hall Road to general traffic will result in a redistribution of general vehicular traffic to other streets and rail crossings at Downsview. It is possible to accommodate this traffic redistribution on the planned Downsview transportation network from a capacity standpoint over the long term.

However, in the short-term Carl Hall Road will continue to provide an important role in the serving Downsview Park and early phases of development at Downsview for vehicular travel until other reasonable options are available. For this reason, Carl Hall Road should remain open to vehicular traffic as least until the planned east-west major street north of Carl Hall Road is constructed.

The design of the active underpass and overpass in Option 5 (active underpass) and Option 6 (active overpass) are the same as those in Option 3 (active underpass) and Option 6 (active overpass). The difference is that in this alternative, the vehicle connection is closed.

5.4.1 Option 5 Active Underpass, Vehicle Connection Closed

The design of the active underpass in Option 5 (active underpass) is the same as that in Option 3 (active underpass). However, in Option 5 the vehicle connection is closed whereas in Option 3 it remains open.

Conceptual 3-D illustrations of Option 5 are shown on **Figure 22**, **Figure 23** and **Figure 24**.





Figure 22 Option 5 Active Underpass, Vehicle Connection Closed (Plan View)

A 3D illustration of Option 5 – Active Underpass, Vehicle Connection Closed (plan view).





Figure 23 Option 5 Active Underpass, Vehicle Connection Closed (Looking Southeast)

A 3D illustration of Option 5 – Active Underpass, Vehicle Connection Closed (looking southeast).





Figure 24 Option 5 Active Underpass, Vehicle Connection Closed (Looking Northwest)

A 3D illustration of Option 5 – Active Underpass, Vehicle Connection Closed (looking northwest).





Figure 26 Option 6 Active Overpass, Vehicle Connection Closed (Looking Southeast)

A 3D illustration of Option 6 – Active Overpass, Vehicle Connection Closed (looking southeast).



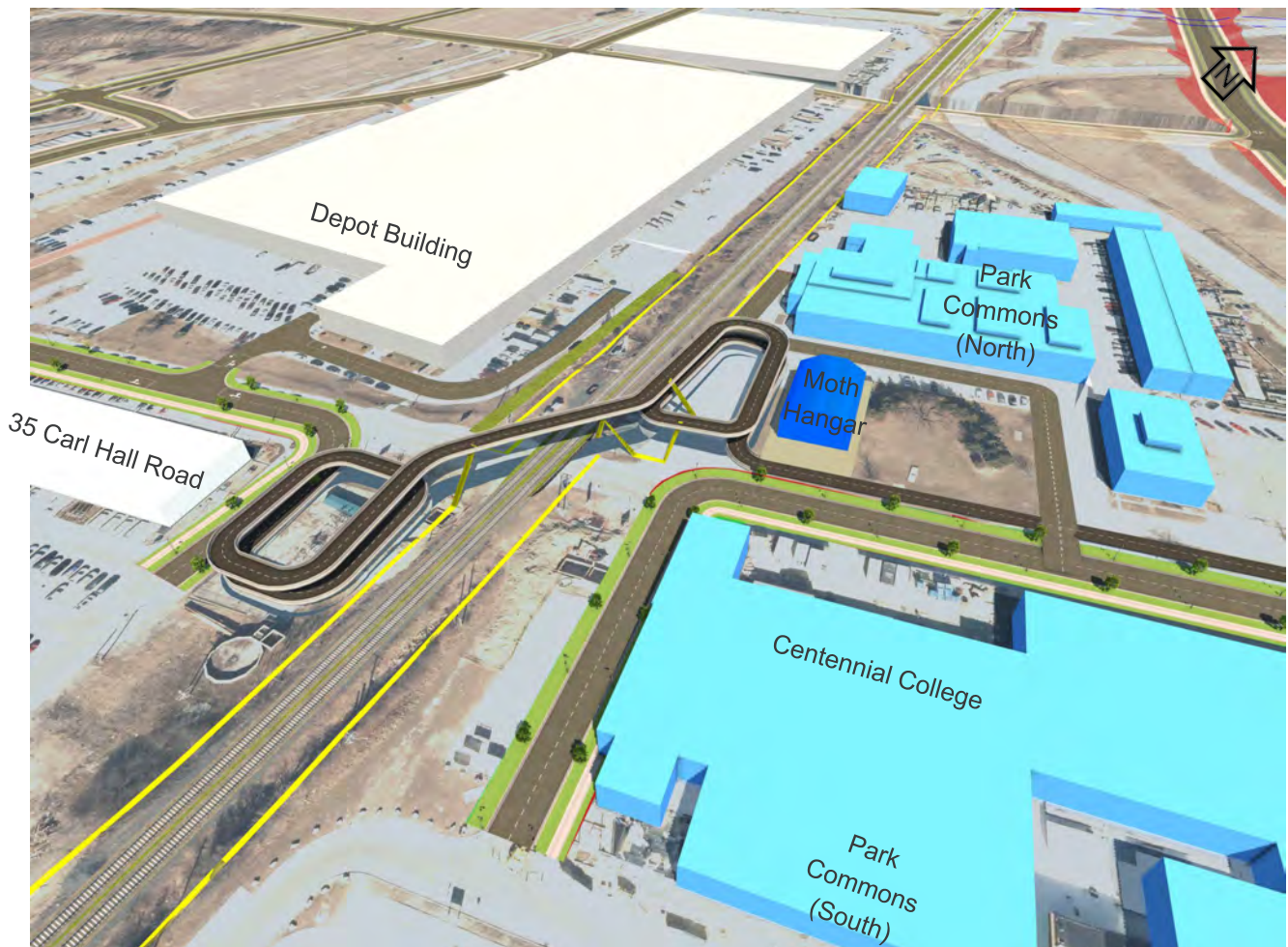


Figure 27 Option 6 Active Overpass, Vehicle Connection Closed (Looking Northwest)

A 3D illustration of Option 6 – Active Overpass, Vehicle Connection Closed (looking northwest).



6.0 EVALUATION OF ALTERNATIVES

6.1 High Level Screening

The high level screening criteria was applied to all 6 options to screen out options that do not enable continued access and street frontage for existing heritage buildings.

Based on this screening, Option 2 (Complete Street Overpass) was screened out because it eliminates access and street frontage for existing heritage buildings including Centennial College, 35 Carl Hall Road, the relocated Moth Hangar and the Depot Building.

Option 4 (Active Overpass, Vehicle Connection At-Grade) and Option 6 (Active Overpass, Vehicle Connection Closed) were also screened out because they interfere with the future location of Moth Hangar.

The three remaining underpass options were carried forward to detailed evaluation.



Figure 28 Summary of High Level Screening

An illustration of all 6 options being evaluated using the high level screening criteria. Shows Option 2 (Complete street overpass), Option 4 (Active overpass, vehicle connection at-grade) and Option 6 (Active overpass, vehicle connection closed) as being screened out, while the remaining options are carried forward for detailed evaluation.



6.2 Detailed Evaluation

The detailed evaluation criteria were applied to the 3 options that were carried forward from high level screening.

The results of the detailed evaluation are summarized in the following tables. Detailed evaluation results are attached in **Appendix D**.

Table 1 Detailed Evaluation Summary – Category 1: Transportation Connectivity and Technical Viability
















Criteria	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
1. Supports local vehicular access to buildings on Carl Hall Road			
2. Impact on broader vehicular network operations			
3. Supports active connectivity			
4. Supports transit connectivity			
5. Supports maintenance and service vehicle connectivity for CLC lands			



Table 2 Detailed Evaluation Summary – Category 2: Land Use Planning










Criteria	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
1. Supports future development in Downsview West District and Park Commons			
2. Opportunity to integrate with adjacent development			
3. Minimize impacts on built heritage resources			

Table 3 Detailed Evaluation Summary – Category 3: Municipal Servicing, Utilities and Stormwater







Criteria	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
1. Impact on municipal servicing and utilities			
2. Stormwater can be appropriately managed			



Table 4 Detailed Evaluation Summary – Category 4: Potential Hazards and Safety Considerations










Criteria	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
1. Safety – Potential areas for entrapment, concealment or enclosure			
2. Visibility – blind corners, sight lines from the street, sufficient lighting			
3. Maintenance – potential for refuse buildup, potential for garbage to be thrown off overpass, graffiti/vandalism			

Table 5 Detailed Evaluation Summary – Category 5: Cost













Criteria	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
1. Capital Cost			
2. Maintenance and Operational Cost			
3. Property Impact			



Table 6 Detailed Evaluation – Summary of Feasible Options

Summary	Option 1. Complete street underpass	Option 3. Active underpass, vehicle connection at-grade	Option 5. Active underpass, vehicle connection closed
Numerical Score	4	3.6	3.4
Relative Ranking			
Summary	Most preferred (#1)	Less preferred (#2)	Least preferred (#3)

6.2.1 Summary of Evaluation

Based on this evaluation, in addition to the ‘do nothing’ alternative, the three underpass options are feasible candidates for more detailed assessment by Metrolinx in coordination with CLC.

The complete street underpass option is the most preferred because it maintains both vehicular and active connectivity.

Although the vehicle connection is not relied upon to support the operation of the broader network, maintaining the local land use access, connectivity and porosity are important.

Metrolinx will ultimately determine the timing and nature of the Carl Hall Road rail crossing.

All three options should be protected for in the planning of the Downsview Districts.



Appendix A: Carl Hall Road Study – Project Charter



Project/Study Name	IBMS File #
Carl Hall Road Rail Study Project Charter	N/A
Ward	Version Date (dd/mm/yyyy)
Ward 6	14/05/2025
Project Lead	Telephone
Frank Difei He	416-392-6415

STUDY DESCRIPTION

The Carl Hall Road Rail Crossing Study will evaluate a range of rail crossing options for both vehicular and active transportation modes and identify feasible, appropriate solutions that will support adjacent land uses over the long term.

STUDY BACKGROUND

Carl Hall Road is a privately owned street with an existing at-grade crossing of the GO Barrie Rail Line. The 2024 Master Environmental Servicing Plan (MESP) identified three alternative locations for an east-west major street through the Downsview Secondary Plan Area, including an alternative that introduced a grade-separated crossing at existing Carl Hall Road. This alternative was screened out due to critical constraints including impacts to existing heritage structures near the Carl Hall Road rail crossing. However, the MESP recommended further study of the Carl Hall Road rail crossing as part of the minor street network.

Carl Hall Road serves existing facilities within the Downsview Secondary Plan area. A number of these existing buildings have heritage status. As per the MESP, Carl Hall Road and the rail crossing also provide three important local functions for Downsview Park:

- An active (pedestrian and cycling) connection between Downsview Park and the Park Commons;
- A park service vehicle (maintenance, deliveries, security, etc.) connection between Downsview Park and Park Commons; and
- A local vehicular connection between Downsview Park and the Park Commons.

Metrolinx is currently in the process of implementing the Regional Express Rail (RER) program, which will expand services across its network including on the Barrie GO Rail Line. The program will add a second track in the vicinity of the Carl Hall Road crossing, electrify trains, provide two-way all-day service between Allandale Station and Union Station, and two-way all-day 15-minute service or better between Aurora Station and Union Station. Following the implementation of the program, service will increase to approximately 180 trains per day.

Considering the local importance of Carl Hall Road to Downsview Park and Metrolinx’s objective to reduce risks along the Barrie GO Rail Line, the MESP recommended that further study of Carl Hall Road be undertaken as part of the Downsview West District Planning process. The study would provide a more detailed review of alternatives for the Carl Hall Road rail crossing as and when Metrolinx increases service along the Barrie GO Rail Line over time.

The MESP identified four potential alternatives for the Carl Hall Road rail crossing, illustrated on Figure 1. This study will review all four options to identify feasible, appropriate solutions that can support both adjacent development growth and the service improvements on the Barrie GO Rail Line. The Council-adopted 2024 Downsview Secondary Plan estimates that about 167,000 new residents and employees will be accommodated in the Downsview Secondary Plan Area over the next 30 years. Carl Hall Road will continue to provide service street functions, including active transportation, vehicular access, and public transit service on an interim basis for adjacent land uses until the major street network is built out or a future warrant for a grade separation assessment is triggered in accordance with Transport Canada’s Grade Separation Assessment Guidelines.



Figure 5.7.11 Carl Hall Road crossing – potential alternatives

Illustrates four potential alternatives for the Carl Hall Road rail crossing.

Figure 1: Carl Hall Road Rail Crossing Alternatives From The MESP

The emerging Downsview West District Plan has proposed to convey a portion of Carl Hall Road west of the rail crossing to the City as a public street. The portion of Carl Hall Road east of the rail crossing, between the rail crossing and the future Dufferin Street Extension, will remain privately owned for the foreseeable future. The alignment of the Dufferin Street Extension and its connection to Carl Hall Road will be determined through the ongoing Phase 3 / 4 EA study.

A new Community Recreation Centre is planned by the City in the southeast corner of Keele Street and Sheppard Avenue West, west of the current terminus of Carl Hall Road. In order to provide multi-modal access and public street frontage for the new community centre, there may be a need to extend Carl Hall Road west to Keele Street south of Sheppard Avenue West. The westerly extension would also be conveyed as a public street. The extension to the western limit of Carl Hall Road will be studied through a separate process and is outside the scope of study.

PROJECT SCOPE

Purpose

The Carl Hall Road Rail study will:

- Recognize and maintain Carl Hall Road's role in serving existing and planned communities and facilities.
- Review four Carl Hall Road rail crossing options shown conceptually on Figure 1 to identify feasible, appropriate solutions to support the service improvements on the Barrie GO Rail Line while supporting adjacent land uses over the long term.
- Ensure that future district development will not preclude feasible crossing options.
- Ensure all feasible options do not adversely impact the broader street network.
- Support TTC transit service on Carl Hall Road prior to the buildout of the future Northern Street.
- Ensure that the feasible Carl Hall Road rail crossing alternatives can accommodate required servicing infrastructure without adverse impacts on the overall servicing network.

Objectives

The study will:

- Identify feasible, appropriate Carl Hall Road rail crossing solutions that support adjacent land uses over the long term.
- Deliver a safe and connected multi-modal transportation network.
- Engage with subject matter experts, external partners, and relevant knowledge-holders.
- Coordinate with the Downsview West District Planning process and the Downsview Major Streets Phase 3 and 4 Environmental Assessment process.

Deliverables and Performance Measures

The study will result in the following deliverables:

- Technical report detailing the inventory of existing conditions, traffic analysis, feasibility review and key study findings.
- Description and feasibility review of the four potential road/rail crossing alternatives identified in the MESP.
- Review of the mesoscopic multi-modal traffic demand forecasts and analyses from the MESP with respect to the traffic impact of all four options on the broader street network.
- Review the compatibility of each option with existing or planned District servicing infrastructure on both sides of the rail corridor.

- Consideration of physical constraints related to adjacent developments, including the Centennial College Aerospace Campus and other heritage buildings.
- Input into the Downsview West District Plan.
- Support the Downsview West District Plan and other related public engagement activities.
- Assessment of traffic impacts on larger street network of closing Carl Hall Road at the railway crossing.
- Circulation of the study to Metrolinx and other City departments.
- Final technical report to be ready in Q1 2026.

Study Area and Area of Influence

The Study Area includes the existing Carl Hall Road within the Downsview West District Plan boundary, as well as potential impact areas east of the GO Barrie Line. The Area of Influence is bounded by Sheppard Avenue West to the north, Canuck Avenue/Carl Hall Road to the south, Keele Street to the west, and Chesswood Drive to the east.



Figure 2: Study Area and Area of Influence

PROJECT COMPONENTS (WORK BREAKDOWN STRUCTURE)

Tasks	Key Performance Measures
<p>1. Background</p> <ul style="list-style-type: none"> 1.1 Policies and guiding principles 1.2 Technical assessment considerations 	<p>Secondary Plan Objectives 2.1.2</p> <ul style="list-style-type: none"> g) Achieve an extensive, safe, accessible, and integrated transit and active mobility network. h) Support a significant shift to transit and active mobility. <p>Grade Separation Assessment Guidelines Evaluate the appropriateness for grade separation based on future conditions.</p> <p>Land-Use Appropriate access off of existing Carl Hall Road and future developments.</p> <p>GO Barrie Line Improvements Metrolinx is transforming GO Transit to bring more frequent two-way, all-day service to the Barrie Line.</p> <p>The On Corridor Project also includes the electrification of Metrolinx's rail network to enable the 2-way, all day, up to 15min service. Electrification infrastructure may include underground works within MX ROW and overhead infrastructure.</p> <p>Local Bus Routes Existing Route 101 and future transit routes.</p> <p>Servicing Compatibility</p>
<p>2. Review of Rail Crossing Alternatives</p>	<p>Feasibility Review</p>

- 2.1 Technical feasibility and compatibility review
- 2.2 Traffic simulation and traffic impacts
- 2.3 10% Functional Design of all feasible options

All options will be reviewed for their technical feasibility and ability to support adjacent land uses over the long term.

High Level Cost Estimates

High level cost estimates of feasible options will be prepared, for information only.

Traffic Simulation

Mesoscopic modelling results from the MESP will provide a high-level assessment of the traffic impacts on the larger street network of closing Carl Hall Road at the railway crossing.

Review of Servicing Compatibility

Review the compatibility of each option with existing or planned District servicing infrastructure on both sides of the rail corridor.

3. Engagement

- 3.1 Support district plan process

4. Final Report and Next Steps

Prepare technical report outlining the findings of the study.

Map out potential triggers for future studies or projects.

[Below is a graphical representation of the proposed schedule. Of note, tasks are proposed to be conducted concurrently (i.e. Tasks may need to be conducted more than once as new data or priorities come up or as tasks are interrelated to each other, they can be conducted concurrently for expediency).]

Table 1: Proposed Schedule

TASKS	2025 Q2	2025 Q3	2025 Q4	2026 Q1
Background Information Review, Completion of Work Plan				
Technical Assessment Considerations				
MESP mesoscopic traffic simulation modelling review				
Project Working Group Meeting #1				
Final Feasible Options				
Project Working Group Meeting #2				
Final Report and Staff Report (To be incorporated as part of the Downsview West District Plan)				

Project Risks

Issues	Likelihood	Impact	Risk Response
Coordination with Downsview West District Plan	3	5	<ul style="list-style-type: none"> Core Project Team meetings and early communication of issues Effective management and communication to senior management team Support Public Engagement sessions Draft report to be ready in Q1 2026
Coordination with Phase 3 and 4 EA	3	3	<ul style="list-style-type: none"> Clear and ongoing communication with key stakeholders Commitment to pooling of staff/resources on subject matters if necessary

Related Works/Initiatives

Related Projects	How is the project related?
------------------	-----------------------------

Downsview Municipal Class Environmental Assessment Phase 3&4	<ul style="list-style-type: none"> • Support Phase 3 and 4 EA process and ensure the City can make reasonable assumptions on local street intersection locations •
Downsview West District Plan	<ul style="list-style-type: none"> • Provide necessary support on relevant public engagement activities •
Metrolinx: For a Greater Region – Barrie GO Expansion	<ul style="list-style-type: none"> • Mobility and Safety
Sports Complex Development Application	<ul style="list-style-type: none"> • Land-Use
Community Recreational Centre	<ul style="list-style-type: none"> • Land-Use • Parks
Complete Streets Guidelines Cycling Network Plan	

PROJECT TEAM

Name	Division	Project Component(s)
Andrew Au	Transportation Planning	All components
Frank Difei He		
Sarah Phipps	SIPA	All components
PC Wasserman		
Perry Korouyenis	Community Planning	All components
Sophie Knowles		
Shelly Cham		
Dawn Hamilton	Urban Design	All components
TBD	Heritage Planning	Urban Design
Natasha Petzold	Parks and Recreation	Parks and Open Space
Steven Pang	Urban Forestry	Parks and Open Space
Adam Mahoney	Development Engineering	Municipal Servicing
Reza Fani		
Geoffrey Lau	Transportation Review	Mobility
Luigi Nicolucci		
Niki Siabanis	Major Projects, Transportation Services	Mobility
Kirk Brewer		
Caitlin Lee		
TBD	Asset Management, Transportation Services	Mobility
Amy Z. Jiang	BA	All components
Martin Ennis	CLC	All components
Jacob Larson		
TBD	Metrolinx	All components
TBD	TTC	All components

Appendices

Downsview West District Plan

On November 12, 2024, the City of Toronto received the Downsview West District Plan, Rezoning, and Draft Plan of Subdivision applications. These applications were deemed complete on January 30, 2025. The applications propose to introduce 17,000 residents and 3,300 jobs into the district. The rapid growth of this area creates new challenges and opportunities to rethink how Carl Hall Road will function in the future context.



Figure 3: Proposed Downsview West District Plan

Existing Transportation and Transit Context

The existing distance between rail crossings is approximately 800 metres from Sheppard Avenue West to Carl Hall Road and just over 2.0 kilometres from Carl Hall Road to Wilson Avenue. Carl Hall Road serves existing facilities within the Secondary Plan Area, such as the Depot Building, 35-40 Carl Hall Road, and the emerging Downsview Aerospace Innovation & Research (DAIR) Campus which includes the existing Centennial College Downsview Campus (65 Carl Hall Road). A number of existing buildings along Carl Hall Road also have heritage status.

Currently, TTC route 101 operates on Carl Hall Road and will continue to serve the new Downsview West District development in the near future. Future transit routes will be determined in consultation with TTC through the Downsview West District Plan process.

As part of the Downsview West District Plan application, Carl Hall Road is proposed as a 25-metre right-of-way public street within district plan boundaries with bi-directional cycle track on the north side.

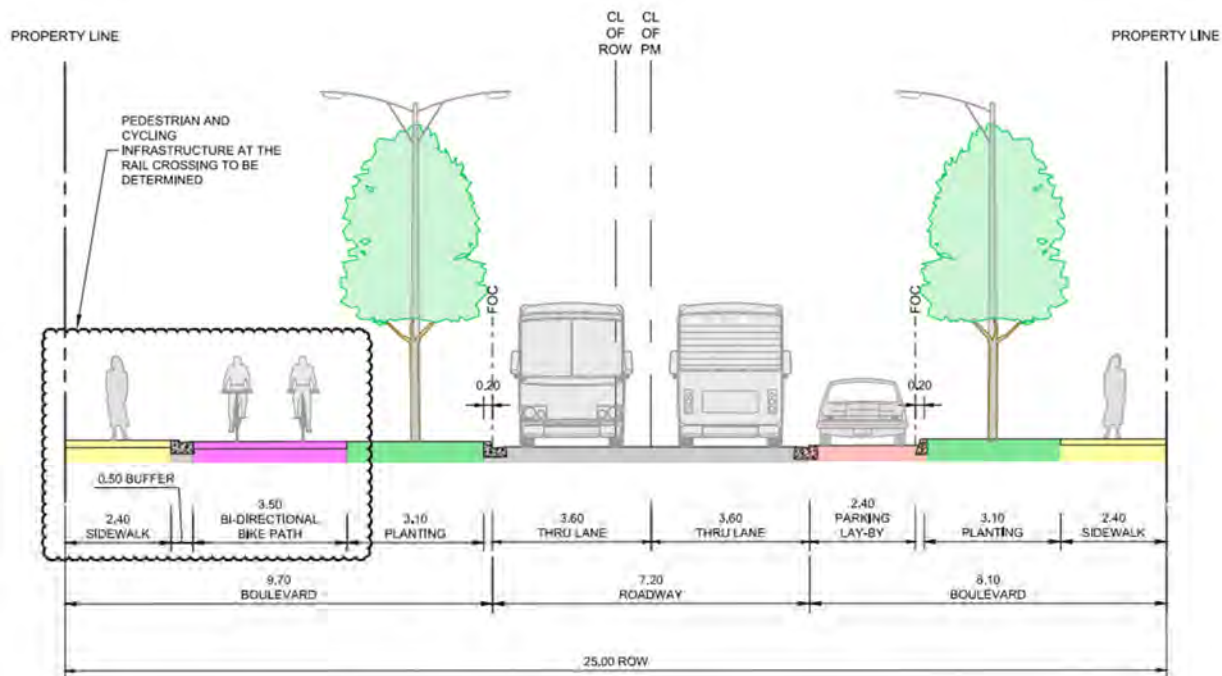
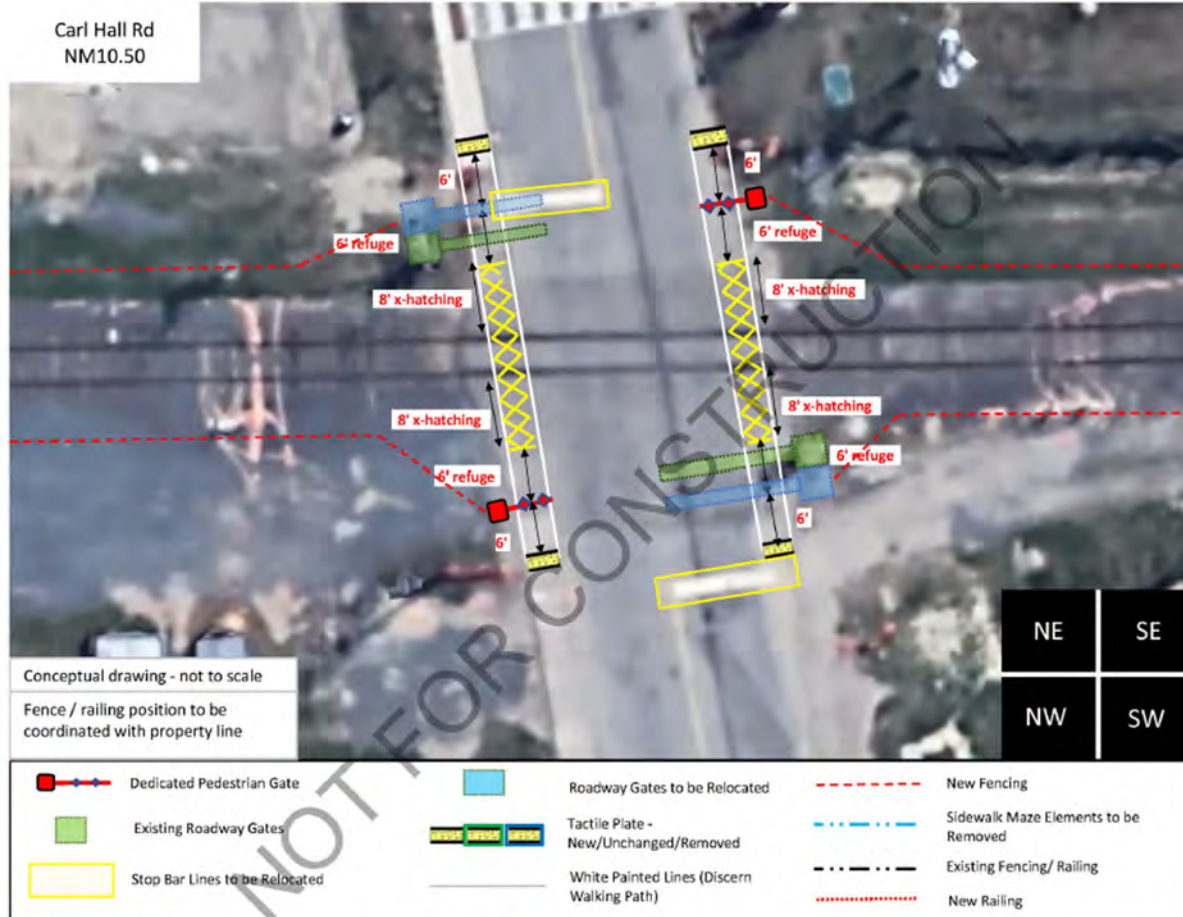


Figure 4: Proposed Carl Hall Road Cross-Section in Downsview West District Plan

Near Term At-Grade Safety Improvements

Metrolinx is currently in the process of implementing the GO Expansion program, which will expand services across its network including on the Barrie GO Rail Line. Metrolinx also recently performed a safety assessment based on the current at-grade crossing location as part of a corporate objective system wide to reduce risks by 2026.

Metrolinx is responsible for determining when and how the Carl Hall Road Rail Crossing will be regulated over time as rail traffic increases. On this basis, Metrolinx is considering implementing pedestrian enhancements using the recently released GO Transit Grade Crossing Design Standard.



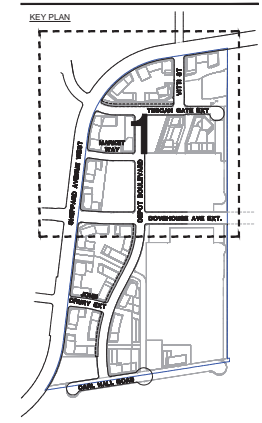
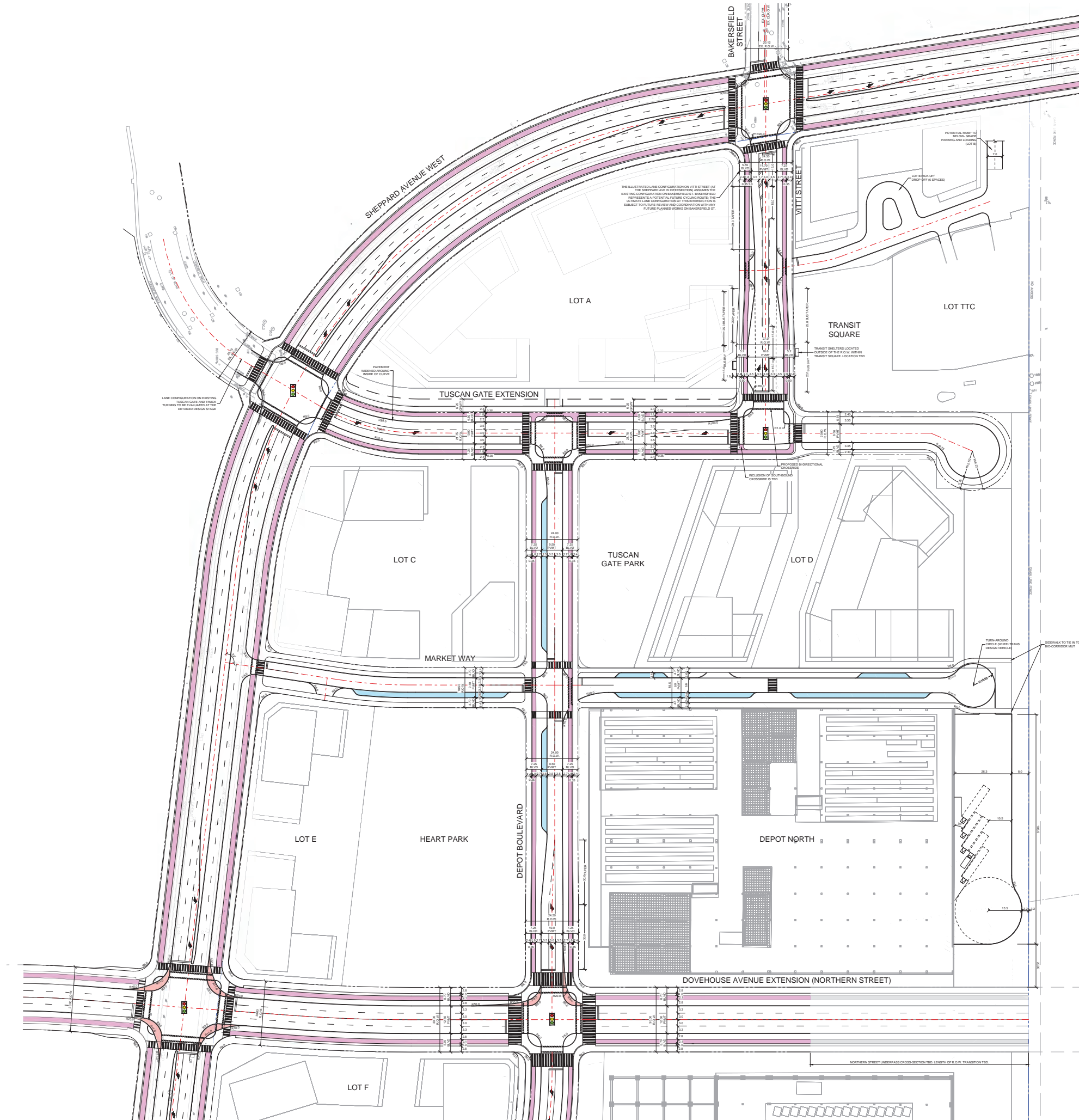
Note: This is a reference concept design, not to be relied upon for construction.

[Google Maps Link](#)

Figure 5: Proposed at-grade safety improvements.

Appendix B: Downsview West District Street Network Functional Plan





**PRELIMINARY
DRAFT**
FOR DISCUSSION
PURPOSES ONLY

NOTE: RESIDENTIAL PUDD, LOADING AND PARKING ACCESS (TBD), DETAILED CYCLE TRACK/ BIKE PATH PAVEMENT MARKINGS (TBD)

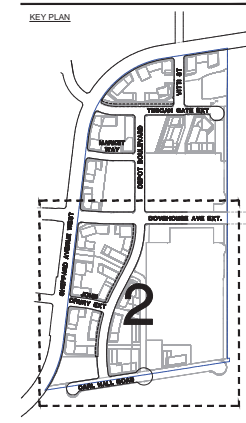
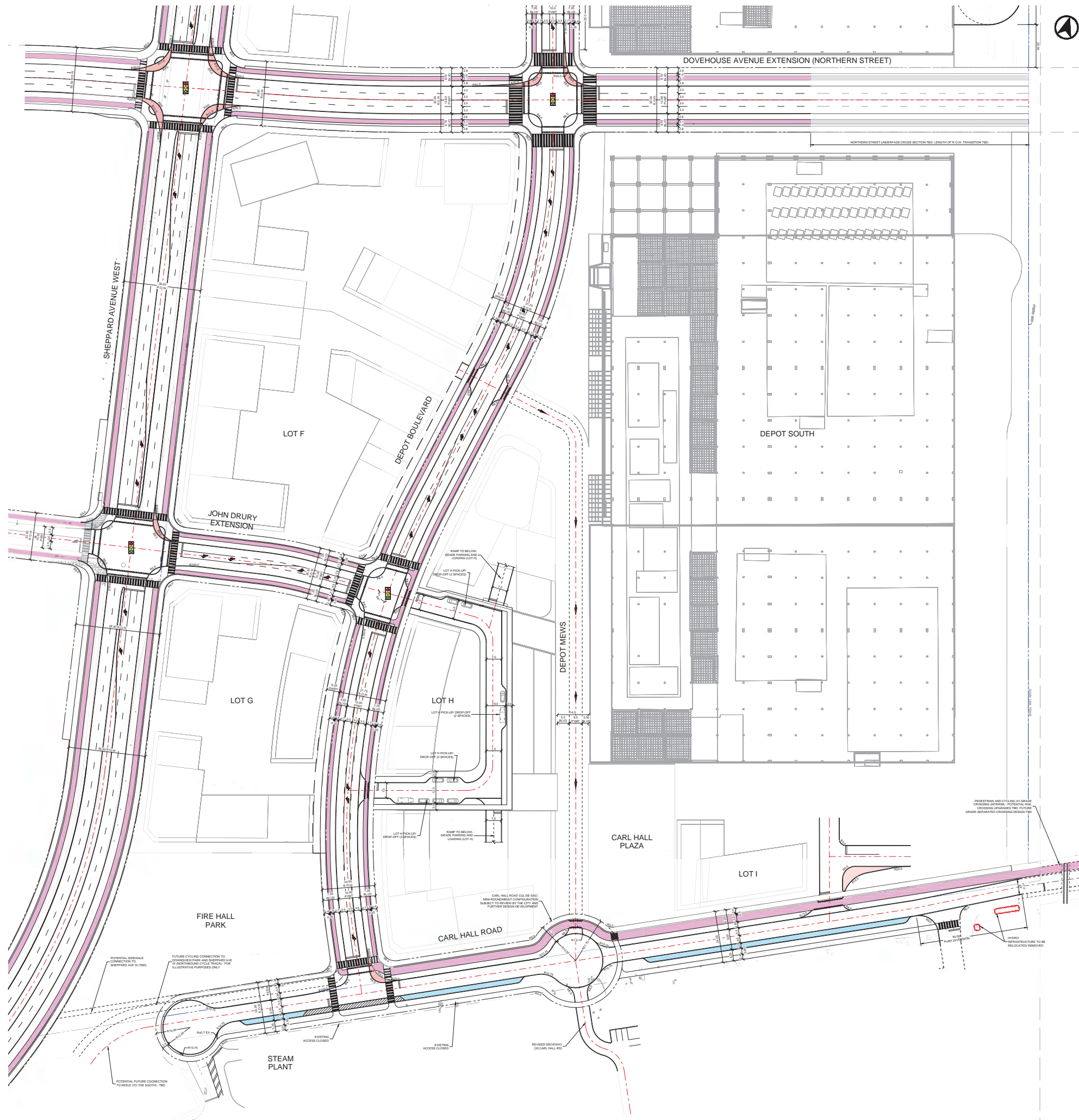
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- 02 08-03-24 AMB ISSUED FOR SUBMISSION
- 03 08-03-24 AMB ISSUED FOR SUBMISSION
- 04 08-03-24 AMB ISSUED FOR SUBMISSION
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FUNCTIONAL ROAD DESIGN
 SHEET 1 OF 2

Date: August 6, 2024
 Project No: 6758-14
 Scale: 1:500

FD-1



**PRELIMINARY
DRAFT**
FOR DISCUSSION
PURPOSES ONLY

NOTE: RESIDENTIAL PUDO, LOADING AND
PARKING ACCESS (TBD), DETAILED CYCLE
TRACK/BIKE PATH PAVEMENT MARKINGS (TBD)

- 01 10-10-25 AMB ISSUED FOR COORDINATION
- 02 08-01-24 AMB ISSUED FOR SUBMISSION
- 03 08-05-24 AMB REVISION NOTE



DOWNVIEW WEST DISTRICT

FUNCTIONAL ROAD DESIGN
SHEET 2 OF 2

Date: August 6, 2024
Project No: 6758-14
Scale: 1:500

FD-2

**Appendix C:
Transport Canada Rail Crossing Assessment Guidelines (Dated
February 2020)**





GRADE SEPARATION ASSESSMENT GUIDELINES

These guidelines help railway companies and road authorities assess when to consider grade crossings for grade separation, or otherwise eliminate them, thereby removing a road/rail conflict zone.

About these guidelines

These guidelines respond to the 2015 Transportation Safety Board (TSB) [Recommendation R15-04](#), made after the fatal collision between an OC Transpo bus and a VIA Rail passenger train at an at-grade railway crossing in Ottawa, Ontario, on September 18, 2013. This recommendation specifies that “The Department of Transport provide specific guidance as to when grade separation should be considered.”

In February 2018, Transport Canada funded a literature review on grade separation approaches, done at the University of Manitoba. To obtain a copy of the final report of this study, "Review of Research and Practice on the Implementation of Grade Separation," please contact the Rail Safety Directorate at railsafety@tc.gc.ca

What to consider in assessing grade crossings for grade separation

Where possible, you should not assess a crossing in isolation. Rather, consider it in the context of the rail corridor in which it and adjacent crossings are located.

As well, these guidelines do not preclude further evaluation of a location. A site-specific study and feasibility analysis are essential to establish whether or not a grade separation is possible.

The table below lists:

- criteria with thresholds
- additional criteria with no established thresholds, which you may consider as part of a more detailed analysis
 - These criteria do not have thresholds because the range, or manner in which they are treated or quantified, may vary significantly from one location to another

Table 1.0: Criteria to consider in assessing grade crossings for grade separation

<i>Criteria</i>		<i>Value or threshold for grade separation candidates</i>
Criteria (with threshold)	<i>Traffic and Safety-related criteria</i>	
	Traffic volume	AADT* exceeds 100,000
	Train volume	Average of 150 or more trains per day*

	Vehicle speed	Posted/Unposted highway speed equals or exceeds 90 km/h.
	Cross product	Cross product exceeds 1 million*
	Queuing	Existing crossings where there are known queuing issues and an entranceway or intersection is within 30m of the nearest rail of the crossing. Note: New grade crossings are not permitted where the train speed is more than 25km/h, and there is an entranceway or intersection within 30m of the nearest rail of the proposed crossing.
	Maximum train speed	Train speed exceeds 177 km/h (110 mph).
	Vehicle delay	Exceeds 40 vehicle hours per day.
	Level of service	If the highway/roadway facility is performing at a level of service below its intended minimum design level 10 percent or more of the time.
<i>Other criteria for consideration in identifying locations for further assessment</i>		
Criteria (without threshold)	<ul style="list-style-type: none"> • Collision history or predicted collisions • Blocked crossing issues • Number of highway/roadway lanes • Number of railway tracks • Type of railway traffic (i.e. passenger, dangerous goods) • Highway functional classification • Road surface type • Environmental impacts • Air quality / emissions • Noise disruptions in community 	<ul style="list-style-type: none"> • Type of roadway traffic (pedestrians and cyclists, vulnerable road users, emergency services, school buses, dangerous goods) • Various adaptations of 'cross product' (i.e. consideration of the number of occupants such as passenger rail, bus or transit) • Development, community and social impacts (quality of life, community cohesion, aesthetics, business disruption) • Feasibility and constructability • Other (secondary) network impacts • General physical conditions • Land use

**For further information on measuring these values, please consult the Institute of Transportation Engineers (ITE), Transportation Association of Canada (TAC) and other relevant manuals or guidance material relevant within your jurisdiction.*

Note: It may be appropriate to consider a combination of criteria when assessing a crossing for grade separation.

Terms to know

Annual average daily traffic (AADT): The average daily vehicular traffic volume for a given year at a site.

Cross product: A product of the average number of trains per day multiplied by the AADT at a grade crossing.

Highway functional classification: The category of highway that defines the role it plays in serving traffic flow through a road network.

Level of service (LOS): A qualitative measure used to relate the quality of vehicular traffic service. Used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measures like vehicle speed, density and congestion. Defined in terms of volume-capacity (V/C) to quantify the average operational condition of the grade crossing during the peak hour.

Queuing: The study of traffic behavior in a segment of a roadway, where demand exceeds available capacity. In the context of grade crossings, where nearby entrances or intersections are close to the crossing, vehicular traffic on the road approach may extend across a railway crossing or into the track area.

Vehicle delay: The time lost by a vehicle due to traffic-related causes beyond the control of the driver.

Vulnerable road users: According to the *Ontario Highway Traffic Act*, vulnerable road users include:

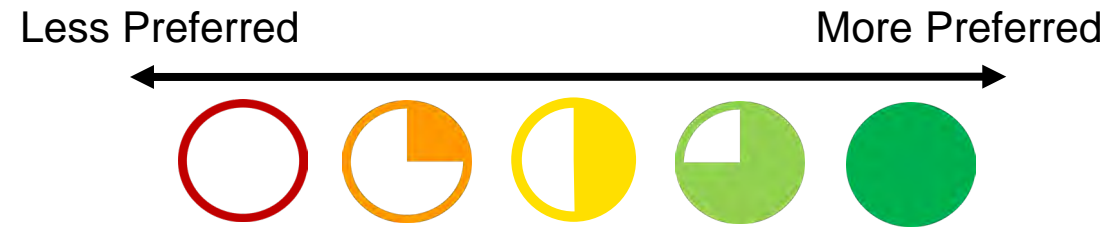
- pedestrians
- people on a bicycle or a motor-assisted bicycle
- people in a wheelchair or other mobility device
- roadway workers
- emergency responders outside their motor vehicle

They are vulnerable due to lack of protection they have from traffic.

Appendix D: Detailed Evaluation of Options



Detailed Evaluation



1. Transportation Connectivity and Technical Viability



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
1. Supports local vehicular access to buildings on Carl Hall Road			
2. Impact on broader vehicular network operations			
3. Supports active connectivity			
4. Supports transit connectivity			
5. Supports maintenance and service vehicle connectivity for CLC lands			




1. Transportation Connectivity and Technical Viability, cont'd



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
Comments	<ul style="list-style-type: none"> Provides vehicle access to buildings fronting onto Carl Hall Road. Extensive driveway regrading required. Provides broader network vehicular connection, though this connection is not relied upon to support the network Can provide transit connectivity Supports active connectivity Supports maintenance and service vehicle connectivity for CLC lands 	<ul style="list-style-type: none"> Provides vehicle access to buildings fronting onto Carl Hall Road. Existing driveways maintained. Provides broader network connection for a limited number of vehicles but this connection is not relied upon to support the network Can provide transit connectivity but an at-grade crossing with frequent train traffic would create delay Supports active connectivity MUP needs to develop less horizontal length to pass under the rail compared to overpass May encourage more active users to use the vehicle crossing instead due to length and grade change of crossing and higher resulting travel time (see Brimley / 401) Supports maintenance and service vehicle connectivity for CLC lands 	<ul style="list-style-type: none"> Provides vehicle access to buildings fronting onto Carl Hall Road. Existing driveways maintained. Does not provide local connections across the rail Does not provide broader network connection but this connection is not relied upon to support the network Does not provide transit connectivity but this is not relied upon for the long-term transit network Supports active connectivity MUP needs to develop less horizontal length to pass under the rail compared to overpass Supports smaller maintenance and service vehicle connectivity for CLC lands via the MUP; larger vehicles would need to use new east-west streets




2. Land Use Planning



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
1. Supports future development in Downsview West District and Park Commons			
	<ul style="list-style-type: none"> Maintains driveway access for local developments on Carl Hall Road Maintains broader network connectivity on Carl Hall Road across the rail corridor 	<ul style="list-style-type: none"> Maintains driveway access for local developments on Carl Hall Road Maintains broader network connectivity on Carl Hall Road across the rail corridor Maintains an active connection across the rail corridor, but the crossing distance and grade changes are greater. 	<ul style="list-style-type: none"> Maintains driveway access for local developments on Carl Hall Road Does not maintain broader network connectivity on Carl Hall Road across the rail corridor




2. Land Use Planning



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
2. Opportunity to integrate with adjacent development			
Comments	<ul style="list-style-type: none"> • Opportunity to integrate with adjacent development below or above grade • However making below or above grade connections to adjacent development is complex 		







2. Land Use Planning



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
3. Minimize impacts on built heritage resources			
Comments	<ul style="list-style-type: none"> Underpass structure will impact street frontage and driveway access for some existing buildings on both sides of rail corridor 	<ul style="list-style-type: none"> Underpass structure will impact street frontage for some existing buildings on both sides of rail corridor, but the alignment can be configured to minimize impact 	<ul style="list-style-type: none"> Underpass structure will impact street frontage for some existing buildings on both sides of rail corridor, but the alignment can be configured to minimize impact

3. Municipal Servicing, Utilities and Stormwater



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
1. Impact on municipal servicing and utilities			
2. Stormwater can be appropriately managed			
Comments	<ul style="list-style-type: none"> • Same across options • Currently no servicing under the existing at-grade crossing • The MESP does not require this location for servicing • The MESP contemplated a water main at this location, which can still cross under the rail in all options • No stormwater drainage impacts as rail crossing is at a crest 		

4. Potential Hazards and Safety Considerations



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
1. Safety – Potential areas for entrapment, concealment or enclosure			
2. Visibility – blind corners, sight lines from the street, sufficient lighting			
3. Maintenance – potential for refuse buildup, potential for garbage to be thrown off overpass, graffiti/vandalism			

4. Potential Hazards and Safety Considerations, cont'd



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
Comments	<ul style="list-style-type: none"> • Straight alignment – no blind corners • Wider ROW – greater visibility • Vehicles, pedestrians and cyclists share the ROW, resulting in more ‘eyes on the street’ 	<ul style="list-style-type: none"> • Perception of enclosed space in underpass • Switchback may be required which creates some potential corners. This can be designed to maximize visibility – e.g. chamfers, wider paths, lighting • Most of underpass is visible from above • This option needs to be considered in greater detail using the City’s underpass sight line requirements 	<ul style="list-style-type: none"> • Perception of enclosed space in underpass • Switchback may be required which creates some potential corners. This can be designed to maximize visibility – e.g. chamfers, wider paths, lighting • Most of underpass is visible from above • This option needs to be considered in greater detail using the City’s underpass sight line requirements

5. Cost



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
1. Capital Cost			
2. Maintenance and Operational Cost			
3. Property Impact			

5. Cost, cont'd



Criteria	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
Comments	<ul style="list-style-type: none"> Capital cost: \$\$\$ Maintenance cost: \$ Property impact: Higher than active-only grade separation options 	<ul style="list-style-type: none"> Capital cost: \$\$ Maintenance cost: \$ Property impact: Moderate Less capital cost for underpass structure compared to overpass Less capital cost required to acquire property for underpass Shorter structure to maintain (lower maintenance) Sump pump required (higher operational) 	<ul style="list-style-type: none"> Capital cost: \$\$ Maintenance cost: \$ Property impact: Moderate Cost impact of road closure – less maintenance and operational cost due to removal of signal equipment, upkeep of crossing, etc. Impact may be low compared to options that keep vehicle connection.

Summary of Feasible Options



	1. Complete street underpass	3. Active underpass, vehicle connection at-grade	5. Active underpass, vehicle connection closed
Summary – Numerical Score	4	3.6	3.4
Summary – Relative Ranking			
	Most preferred (#1)	Less preferred (#2)	Least preferred (#3)

- All three underpass options are feasible. Option 1 (Complete street underpass) is the most preferred.
- The vehicle connection is not relied upon to support the operation of the broader network. However maintaining local land use access, connectivity and porosity are very important.
- The vehicle connection is not relied upon for the future transit network. However the TTC has indicated that if the vehicle connection continues to be available after the Downsview major streets network is completed, it may continue to use it.
- Changes to the nature of the crossing will be determined by Metrolinx.