13. Preferred TMP Solution

This section provides a summary of the key road network improvements and future traffic operations associated with the Preferred TMP Solution including active transportation and transit improvements.

13.1 Summary of the Preferred Plan

The Final Preferred TMP Network, shown below in **Exhibit 13-1**, is generally consistent with the Preliminary Preferred Alternative Solution that was identified prior to the Public Information Event in July/August 2021. The Final Preferred Network has been informed by stakeholder and public input and feedback received from local residents and businesses. The Final Preferred TMP Network is as follows:

- Provides a connected, multi-modal transportation network for all transportation users in the study area;
- Responds to concerns about area street network connectivity by ultimately providing three new street connections (Legion Road Extension, Street A, and New North-South Street) that improve travel connectivity, circulation, and help overcome the Gardiner Expressway/rail corridor physical barriers;
- Provides excellent walking and cycling connectivity with improved safety for people walking and cycling;
- Supports the long-term build-out of the Christie's site;
- Improves community access to higher-order transit and improves streetcar priority; and
- Helps reduce neighbourhood traffic impacts of the Gardiner Expressway.

Exhibit 13-1: TMP Preferred Network

The Final Preferred TMP Network assumes the proposed new Park Lawn GO Station, as well as the dedicated streetcar connection and local streets within the Christie's development site. The GO Station and streetcar connection are advancing through their own separate parallel review and approval processes via the Transit Project Assessment Process and development review process, with involvement from the City.

Additional design work and traffic modelling analysis has been undertaken that shows that Street A may be able to be reduced from four traffic lanes to two traffic lanes. This potential refinement to Street A would be further studied and confirmed in Phases 3 and 4 of the planned future Schedule C EA to be undertaken for Street A.

This potential refinement to Street A, and other key transportation infrastructure improvements recommended in the Final Preferred TMP Network, are described in more detail in the following sections of this report.

13.2 Future Traffic Operations for the Preferred Network

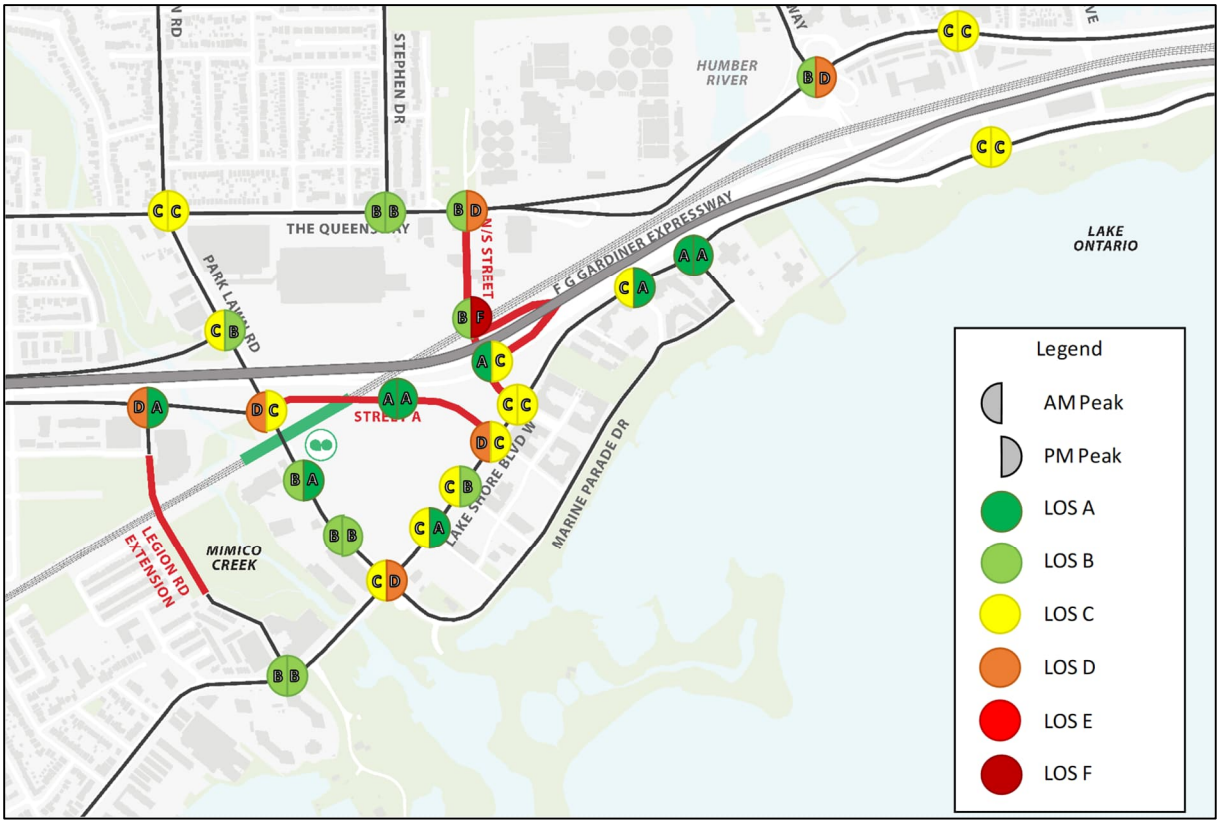
Traffic operations for the Preferred Network Solution (i.e., Alternative 4B) were extracted from the Vissim model for the 2041 AM and PM peak hours. **Exhibit 13-2** illustrates the detailed operational results for each movement. The overall intersection Levels of Service are summarized in **Exhibit 13-3**.

Exhibit 13-2: Preferred Network Evaluation Summary AM and PM Peak Hours

Scenario	Vehicles Arrived during Simulation	Latent Demand	% of Demand Arrived	Average Delay Per Vehicle(s)	Critical Movements	Critical Intersections
Alt. 4B AM Peak Hour	80,386	3,521	90%	209.69	25	0
Alt. 4B PM Peak Hour	84,586	249	95%	89.50	25	2

Source: PL-LS TMP Development & Evaluation of Future Conditions (2041) Models Technical Memo, App A Tables 9 &10, AECOM, Nov. 8, 2021

Exhibit 13-3: Preferred Network Intersection LOS – 2041 AM and PM Peak Hours



Source: PL-L TMP Development & Evaluation of Future Conditions (2041) Models Tech Memo, AECOM, Nov. 8, 2021

Levels of Service (LOS) A through D typically reflect adequate operations, while LOS E reflects increasing congestion and at capacity operations. LOS F reflects long delays and, in some cases, severe traffic congestion. In traffic operations, a movement or intersection is defined as “critical” when operating at LOS E or worse.

To view the traffic assessment in its entirety refer to the *PL-LS TMP Development & Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021)* included in **Appendix G**.

The following summarizes the forecast traffic operations associated with the Preferred Network Solution as taken from the *PL-LS TMP Development & Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021):*

- During the AM peak hour, traffic operations are generally acceptable throughout the network with 25 critical movements and no critical intersections.
- During the PM peak hour, traffic operations are also generally acceptable, with a total of 25 critical movements and two critical intersections.
- During the PM peak hour, vehicles using the reconfigured Gardiner Expressway Westbound Off-Ramp to the new North-South Street experience excessive delay. Vehicles using the ramp see up to 510 seconds (8.5 minutes) of delay on the ramp due to the limited capacity on the new North-South Street, generating a queue of approximately 500 metres. The Gardiner westbound off-ramp terminal to the new North-South Street during the PM peak hour is one of the two critical intersections.
- During the PM peak hour, vehicles traveling westbound on The Queensway towards the new North-South Street will experience congestion due to delay at the intersection of The Queensway & North-South Street, particularly for the westbound left-turn. The queue at the westbound approach to the intersection of The Queensway and the new North-South Street reaches approximately 430 metres in length.
- No Gardiner Expressway bypass activity was observed in Alternative 4B in either direction during the AM or PM peak hours.
- Legion Road sees moderate usage, with 137 bidirectional vehicles during the AM peak hour and 187 bidirectional vehicles during the PM peak hour. Legion Road was mainly used by vehicles to avoid congestion on Park Lawn Road south of the Gardiner Expressway, particularly useful for those originating from or destined to Lake Shore Boulevard West to the west of the study area.

Legion Road helps to facilitate access to the new right-in/right-out driveway along Park Lawn Road (Parking Lot E for the First Capital development, located on the east side of Park Lawn Road and north of Lake Shore Boulevard West) by providing a route for vehicles to enter / exit from the Park Lawn Road northbound lanes.

While there are some critical movements and operations associated with the Preferred Network Solution, mitigative measures can be explored to potentially improve the identified operational issues.

13.3 Key Road Network Improvements

Additional details pertaining to the key road network improvements associated with the Preferred TMP network solution are detailed in the following sub-sections.

13.3.1 Park Lawn Road

Park Lawn Road currently provides four lanes plus turning lanes, on-street sharrows for cycling, and sidewalks on both sides.

The improvements proposed for Park Lawn Road include a reduction from the current four traffic lanes to two traffic lanes and removal of dual left turn lanes. This will allow the street to have an enhanced multi-modal service plus a neighbourhood main street character with uni-directional cycle tracks between Lake Shore Boulevard West and The Queensway, opportunities for dedicated curbside space (such as TTC bus laybys, parking, or loading zones), wider sidewalks and more public realm space. South of the rail corridor, Park Lawn Road will be designed to accommodate dedicated curbside lay-by spaces for TTC bus stops near the proposed GO Station and other locations for potential dedicated short-term curbside activity.

A new signal is proposed at the access to 86 Park Lawn Road. In addition to providing vehicular access to the adjacent developments, the new traffic signal will provide a safer pedestrian crossing connection across Park Lawn Road.

Proposed typical concept cross-sections for Park Lawn Road are illustrated in **Exhibit 13-4** to **Exhibit 13-8**. The corridor right-of-way will range from 27.0 metres to 36.0 metres wide (consistent with the Official Plan designation).

Exhibit 13-4: Park Lawn Road Improvements, South of The Queensway – Typical Concept Cross-section

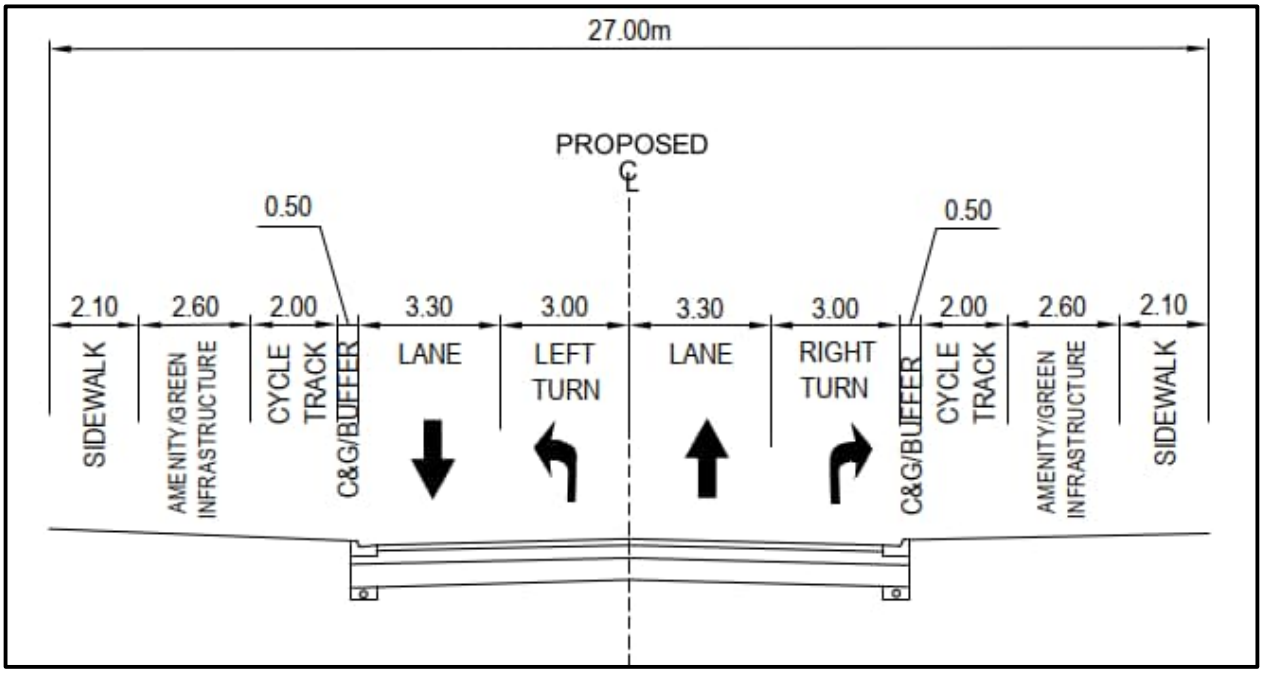


Exhibit 13-5: Park Lawn Road Improvements, North of Gardiner Expressway to On-Ramp – Typical Concept Cross-section

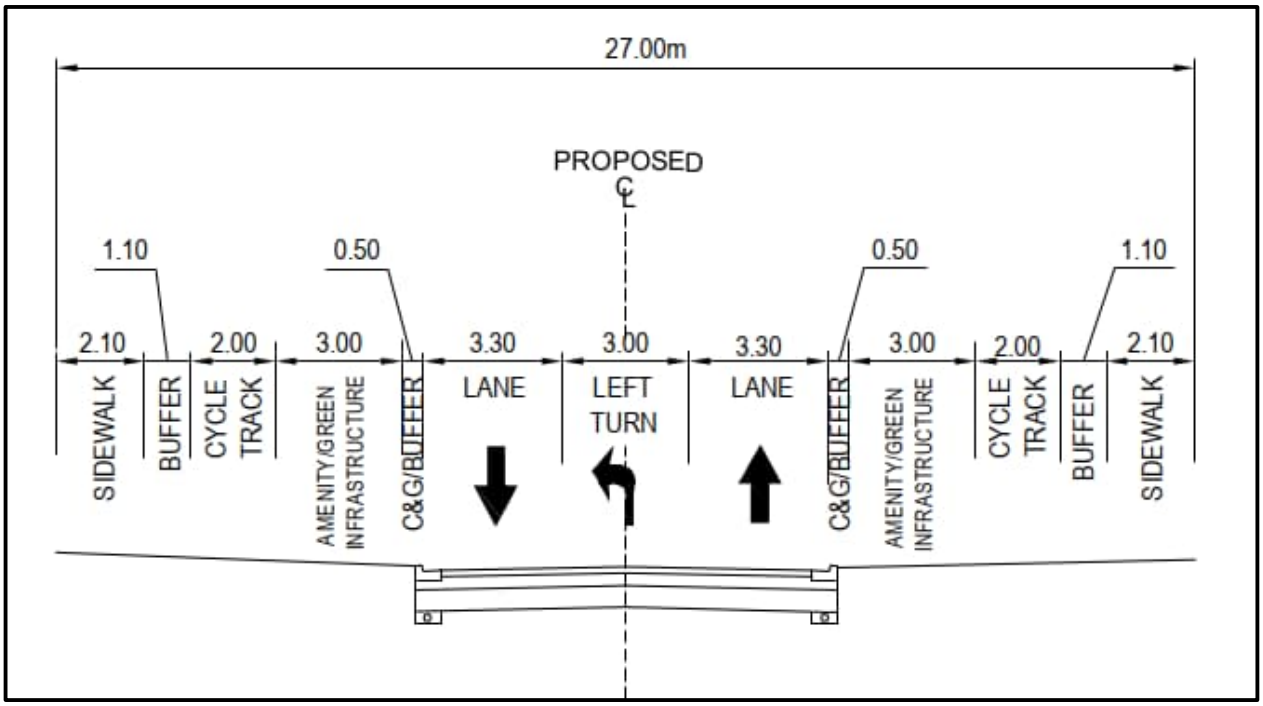


Exhibit 13-6: Park Lawn Road Improvements at Gardiner Expressway Bridge – Typical Concept Cross-section

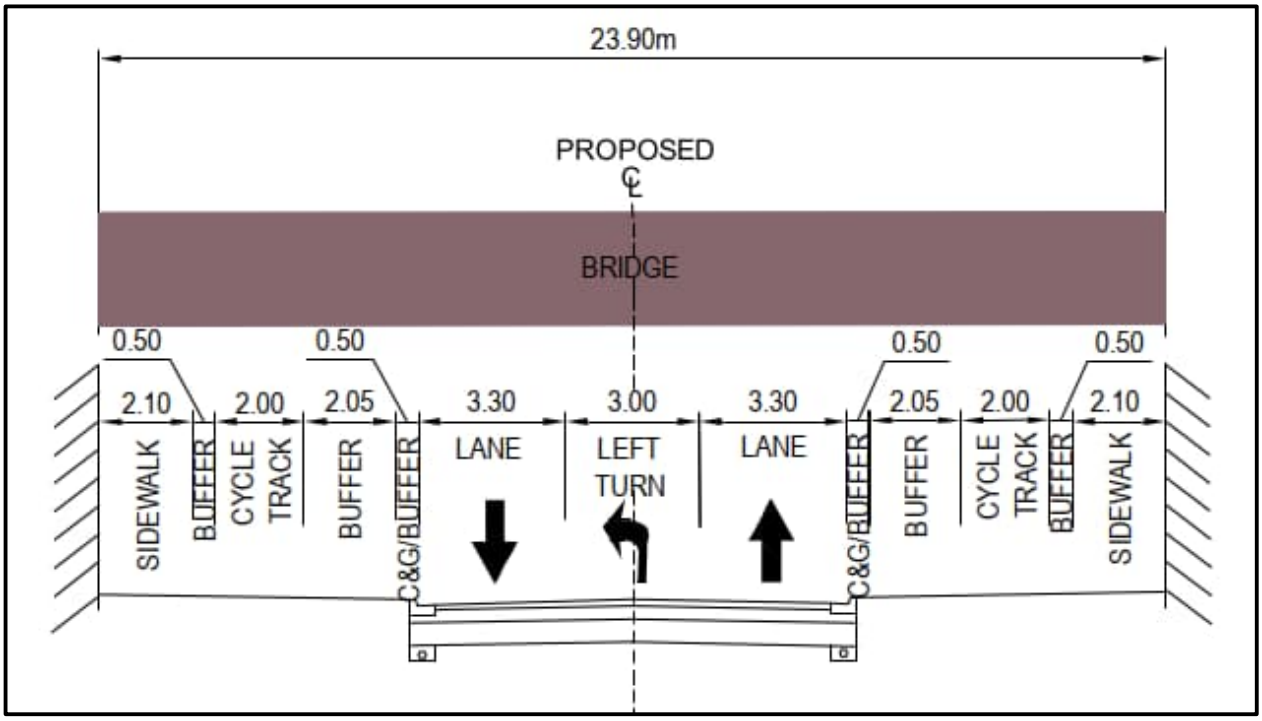


Exhibit 13-7: Park Lawn Road Improvements at Rail Bridge – Typical Concept Cross-section

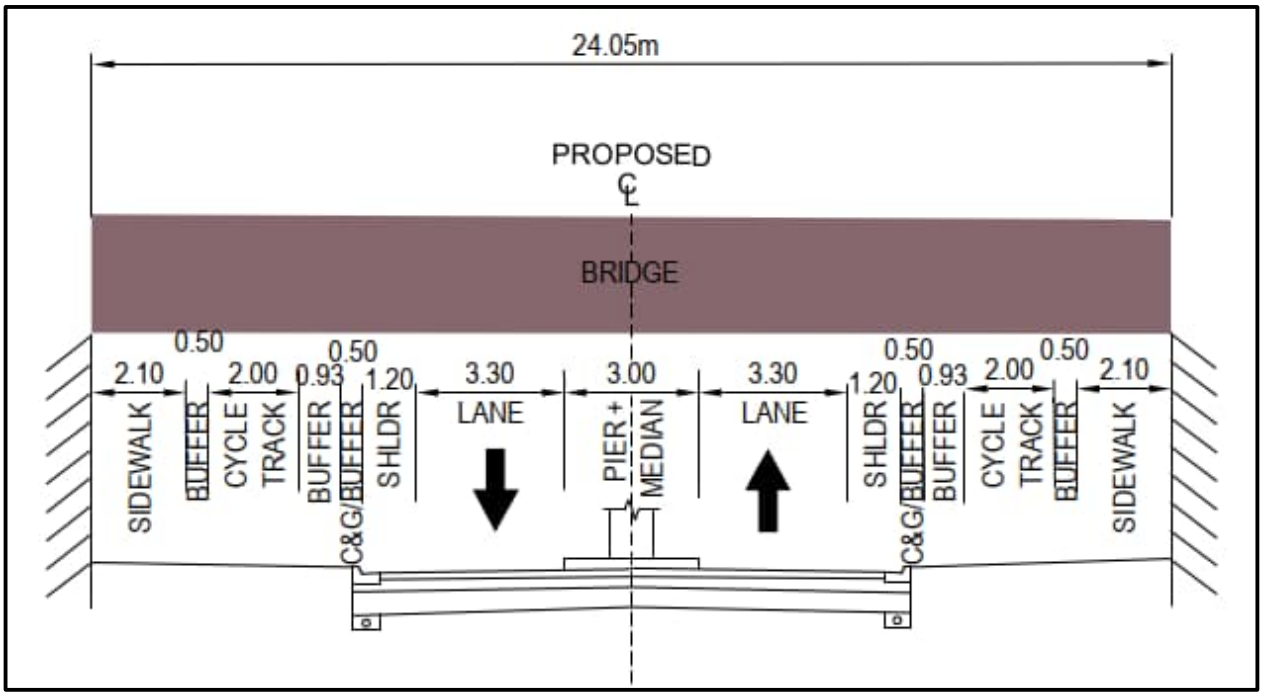
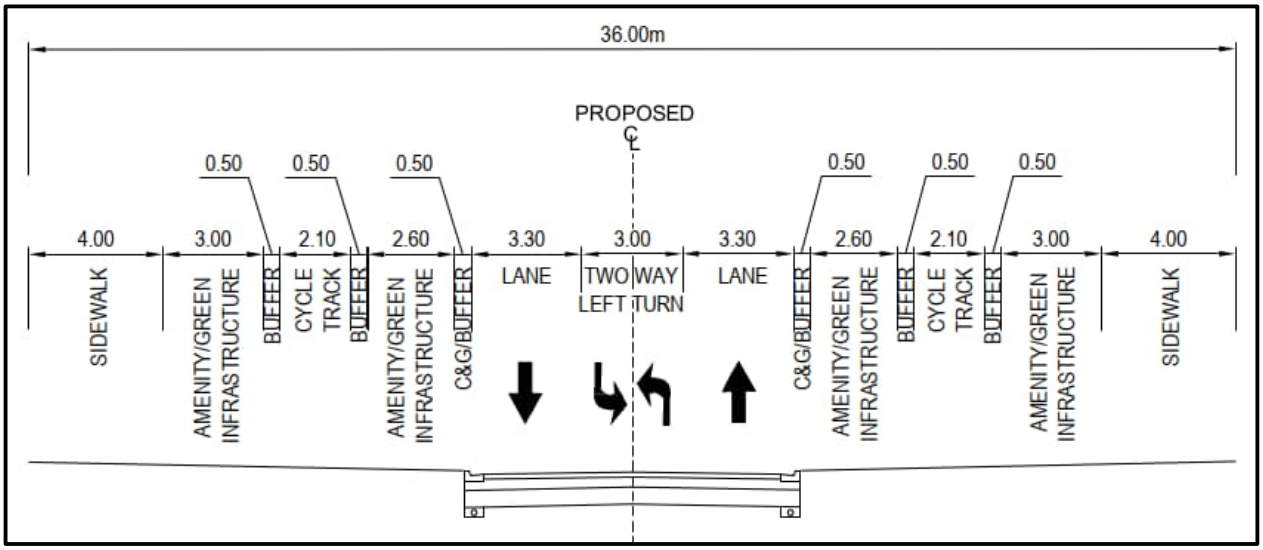


Exhibit 13-8: Park Lawn Road Improvements, North of Lake Shore Boulevard West – Typical Concept Cross-Section



13.3.2 Lake Shore Boulevard West

Existing Lake Shore Boulevard West generally provides four lanes (two lanes in each direction plus turning lanes), and two lanes (one per direction) east of Brookers Lane. The posted speed limit is 50 km/h. A streetcar is provided in mixed traffic along with a mix of multi-use trail, bike lanes and sidewalks.

The improvements proposed will transform Lake Shore Boulevard West into a more neighbourhood main street, with a new dedicated TTC streetcar right-of-way in the centre of the street, four vehicle traffic lanes (west of Brookers Lane), upgraded uni-directional cycle tracks, wider sidewalks, and other public realm improvements.

Although the Official Plan identifies a 36 metre right-of-way for Lake Shore Boulevard West, a 40 metre right-of-way is proposed for the segment between Brookers Lane / New North-South Street and Park Lawn Road to accommodate a four-lane cross-section and additional street amenity space. Additional right-of-way width may be required at certain intersections to accommodate protected intersections, turn lanes, TTC platforms, and / or other additional road geometry needs. Through future study and design, and also in collaboration with the development proponents for the Christie's lands, the City will consider the wider right-of-way along this segment in order to provide for an even greater amount or pedestrian enhancements, such as wider sidewalks and / or additional streetscaping. Select utility pole and tree locations will be considered to penetrate the widened pedestrian or amenity zone, where appropriate and required.

To the west of Park Lawn Road, for a short segment only within the study limits, two eastbound lanes and one westbound lane are provided on Lake Shore Boulevard West.

There will also be several new traffic signals along Lake Shore Boulevard West between Park Lawn Road and Brookers Lane/New North-South Street that will provide streetcar access into the Christie's development, and also help provide safer pedestrian and cycling crossing connections to and from the waterfront. On Lake Shore Boulevard West, new signals are proposed at the new internal street to the Christie's site and streetcar loop (referred to as Street B in the First Capital development plans) and Street A.

The proposed typical concept cross-sections for Lake Shore Boulevard West are illustrated in **Exhibit 13-9** to **Exhibit 13-13**.

Exhibit 13-9: Lake Shore Boulevard West Improvements, East Intersection Leg at Legion Road – Typical Concept Cross-section

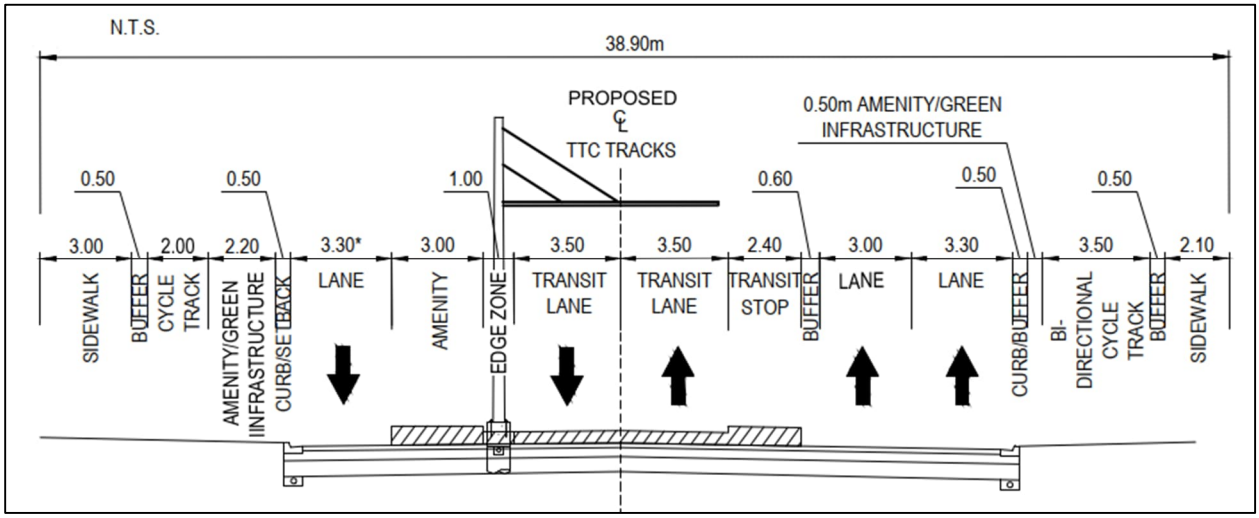


Exhibit 13-10: Lake Shore Boulevard West Improvements at Mimico Creek Bridge – Typical Concept Cross-section

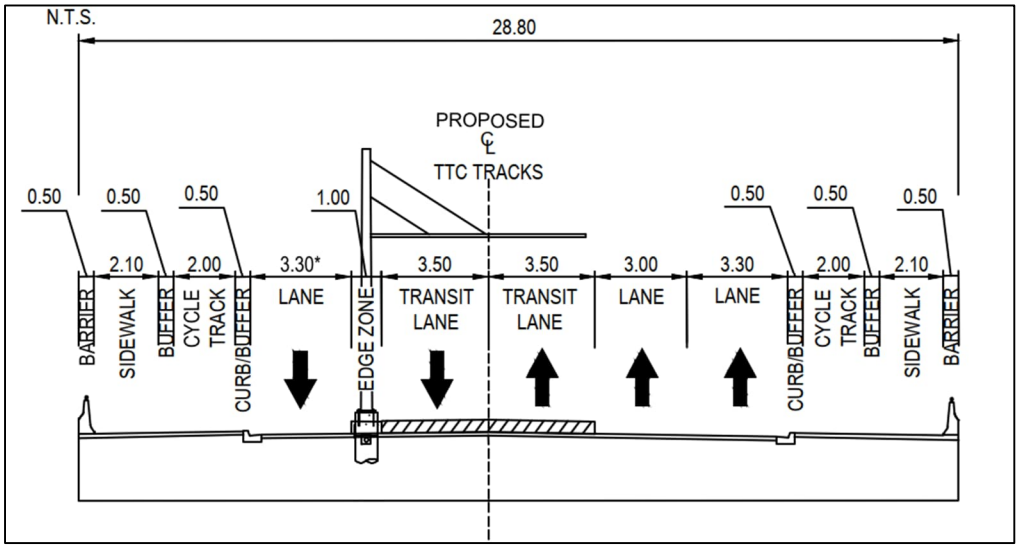


Exhibit 13-11: Lake Shore Boulevard West Improvements, West Leg at Shore Breeze Drive – Typical Concept Cross-section

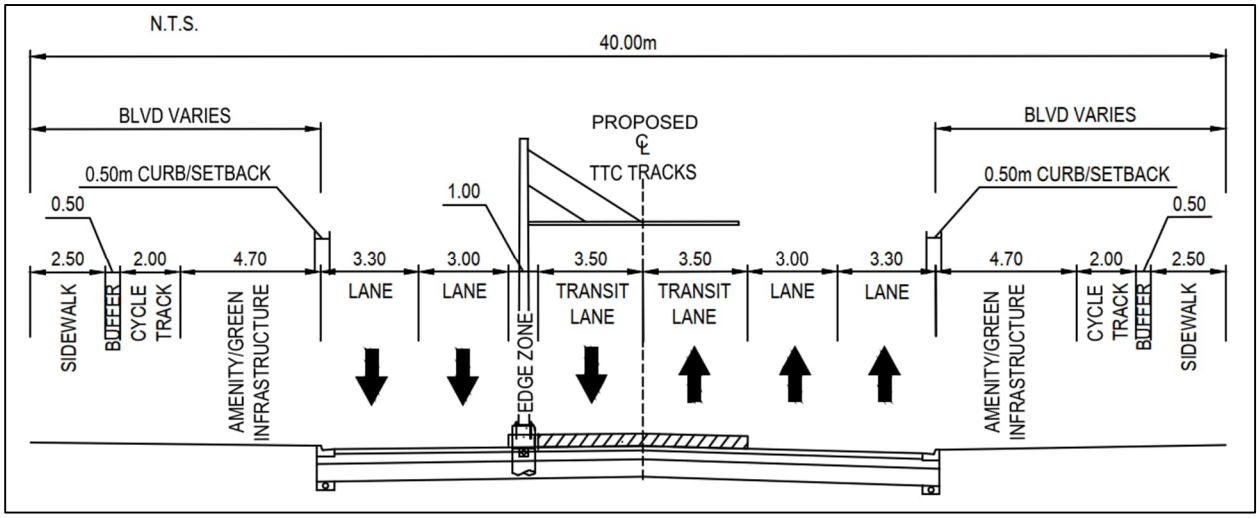


Exhibit 13-12: Lake Shore Boulevard West Improvements, West Leg at Silver Moon Drive – Typical Concept Cross-section

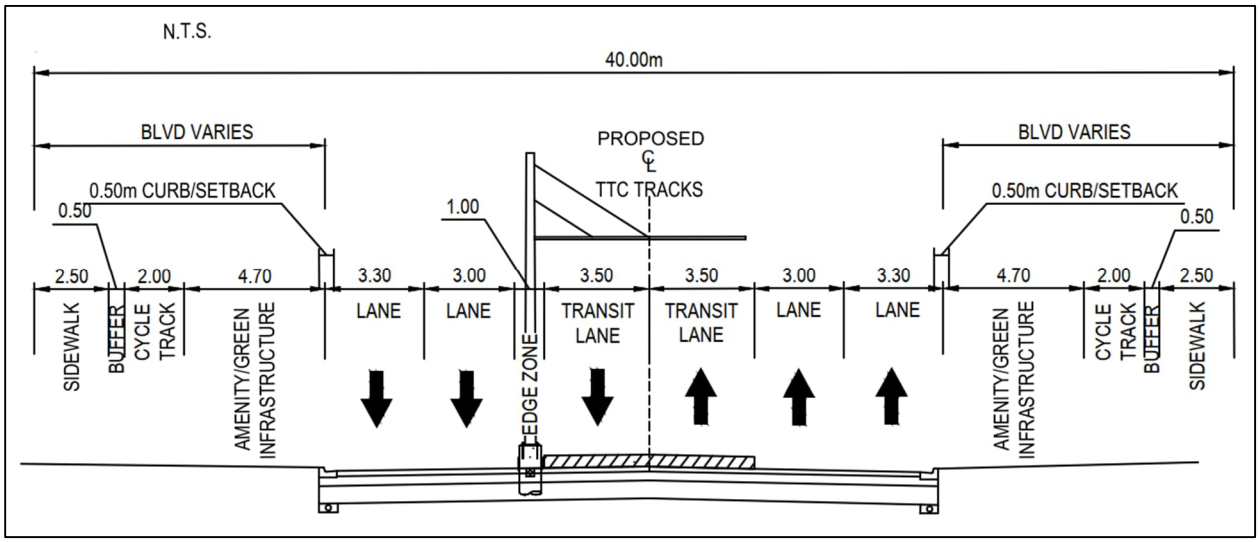


Exhibit 13-13: Lake Shore Boulevard West Improvements, East of New North-South Street – Typical Concept Cross-section

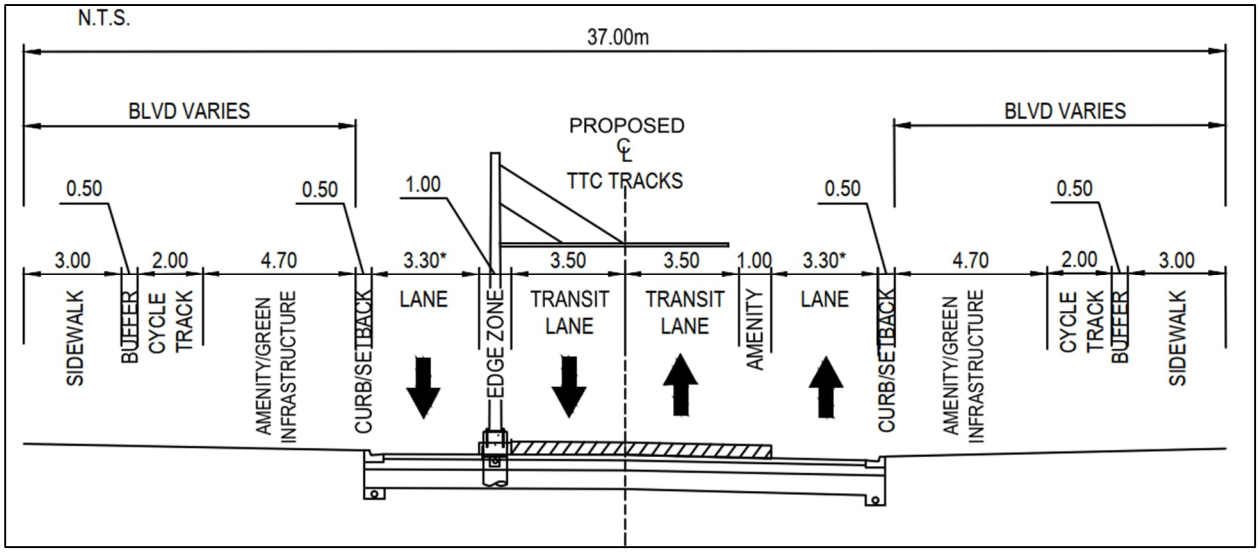
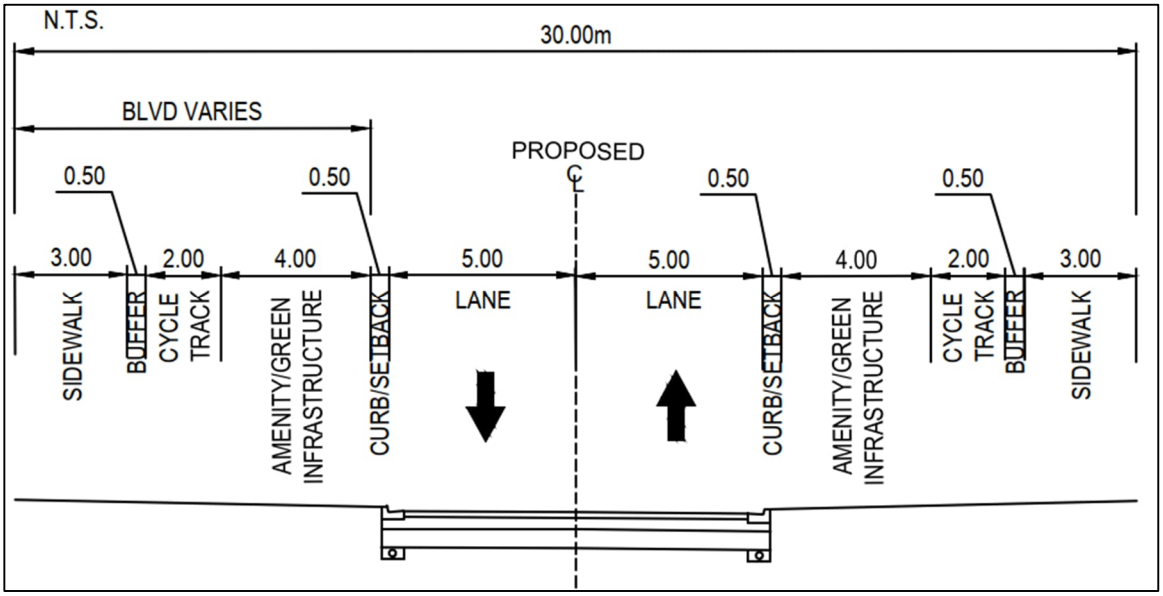


Exhibit 13-14: Lake Shore Boulevard West Improvements, East of Humber Loop – Typical Concept Cross-section



13.3.3 The Queensway

The Queensway currently provides four lanes (two lanes in each direction) for traffic plus turning lanes with a speed limit of 50 km/h. A dedicated guideway is provided for the streetcar east of the Humber Loop. Bike lanes exist from east of Ellis Avenue to approximately 200 m east of High Street. Sidewalks are currently provided on one or both sides of the street.

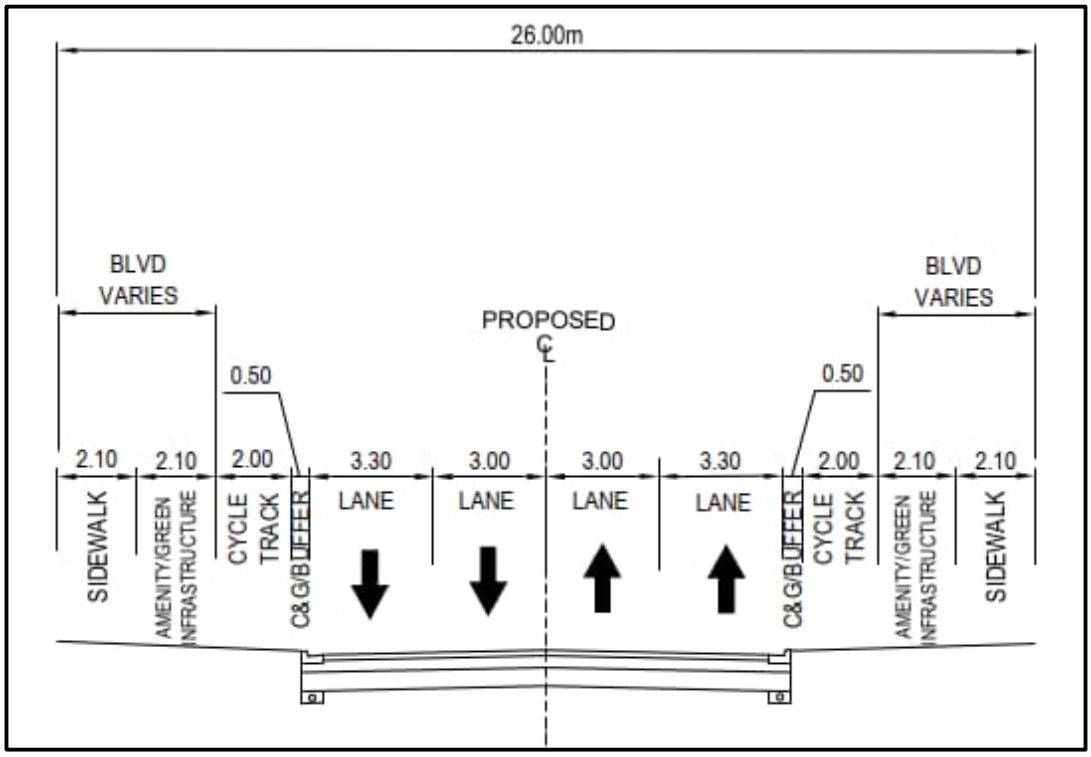
The Queensway will continue to provide four traffic lanes, but uni-directional cycle tracks and other public realm improvements are proposed. The Queensway is currently programmed for road reconstruction, watermain work, cycling infrastructure and other safety enhancements beginning in 2023. Following public engagement held in December 2021, the proposed improvements were approved by Council in April 2022.

13.3.4 New Street A (Proposed East-West Corridor)

Street A is a proposed new east-west corridor connecting Park Lawn Road and Lake Shore Boulevard West (with an associated rail underpass), passing through the Christies' site that unlocks the Christie's site development potential.

Street A will provide a right-of-way up to 28.5 m in width. It will accommodate up to four traffic lanes, uni-directional bikeways, and sidewalks on both sides of the street. The proposed basic typical concept cross-section for Street A is illustrated in **Exhibit 13-15**. It is noted this is the base cross-section, and other elements such as turn lanes, active curbside space (for parking, drop-offs, or loading, etc.), bikeways, structural elements for the rail underpass (bridge pier and abutments, retaining walls, embankments), or other streetscaping space will require modifications to suit the specific locations along the Street A corridor.

Exhibit 13-15: Proposed Street A - Typical Concept Cross-section



Street A will help improve the area street network connectivity and circulation for all modes, notably because it includes a crossing of the rail corridor, which is a physical barrier to movements in the study area. Street A will also provide a passenger entrance to the future Park Lawn GO Station and may accommodate some curbside passenger pick-up and drop-off activity.

However, further design work and traffic modelling has been undertaken that has identified the potential to reduce Street A from four traffic lanes to two traffic lanes. This potential change could result in:

- Reduced neighbourhood traffic infiltration from the drivers attempting to by-pass the Gardiner Expressway using Street A;
- A narrower street right-of-way width and rail underpass structure, resulting in reduced costs;
- Less impact on the adjacent Gardiner Expressway corridor;
- Improved safety and more space for pedestrians, cyclists, vehicle lay-bys, and public realm improvements, and
- Limited impacts on overall traffic network performance.

Additional design options and further analysis of impacts of a two-lane versus a four-lane Street A would be developed and assessed during Phases 3 and 4 of the EA process for the future Schedule C EA required to be undertaken for Street A. The Schedule C EA for Street A would include additional stakeholder and public engagement.

13.3.5 Legion Road Extension

A separate Municipal Class Environmental Assessment (MCEA) was undertaken by the City to provide an extension of Legion Road linking the two existing segments via a new connection under the rail corridor. It was included as part of the *Bonar Creek Stormwater Management Facility and Legion Road Extension EA* that was initiated in 2005 and completed in 2010. Given the lapse of time since the completion of the prior EA, this connection was reassessed as part of the TMP in recognition of the MCEAs requirements to review the planning and design process to ensure that the connection is meeting project objectives in the current and future conditions. This reassessment is now complete and the Legion Road Extension was confirmed as being an important street connection in the area's overall street network. It is included as part of the TMP Preferred Network Solution.

An extension of Legion Road will be provided via a grade separation under the rail corridor providing one lane of traffic in each direction, as well as pedestrian and cycling connections between Lake Shore Boulevard West and Manitoba Street. The Legion Road extension is being co-ordinated with Metrolinx to confirm design parameters and potential construction methods for the underpass.

Since the completion of the prior EA, both Toronto Transportation Services and Toronto Water have been advancing detailed design for the Legion Road extension and Bonar Creek stormwater facility. The estimated costs for the extension have fluctuated considerably as detailed design activities have advanced. At the time Transportation Services completed the initial design of the extension and grade separation in 2010, the cost of the extension was estimated at only $8 million. Subsequently, in 2018 and 2019, pre-design work completed for the Legion Road extension and the Bonar Creek stormwater facility as part of a joint project identified significantly higher cost estimates for the project than were previously estimated. At that time, the proposed construction method identified for the grade separation - Sequential Excavation Method (SEM) tunnelling technique – resulted in a cost estimate of $60 million to $75 million. That construction method and approach proposed was identified in part to address Metrolinx and 2010 EA requirements. However, the City held further discussions with Metrolinx to determine if the design approach could be altered and whether a more conventional construction method could be used to deliver the project at a lower cost. Discussions with Metrolinx occurred in 2020 resulting in grade separation design alternatives that are more favourable to the City that reduce cost estimates, and Metrolinx has indicated they are supportive of advancing the design of the new grade separation alternatives for further review and agreement discussions. The Legion Road extension and grade separation are now estimated to cost about $35 million.

The prior *Bonar Creek Stormwater Management Facility and Legion Road Extension EA* also contemplated a stormwater pond and sewer connection to improve stormwater quality entering Mimico Creek. Toronto Water is currently completing additional due diligence on the Bonar Creek stormwater management pond and sewer connection, and exploring additional stormwater management alternatives to improve stormwater quality entering Mimico Creek.

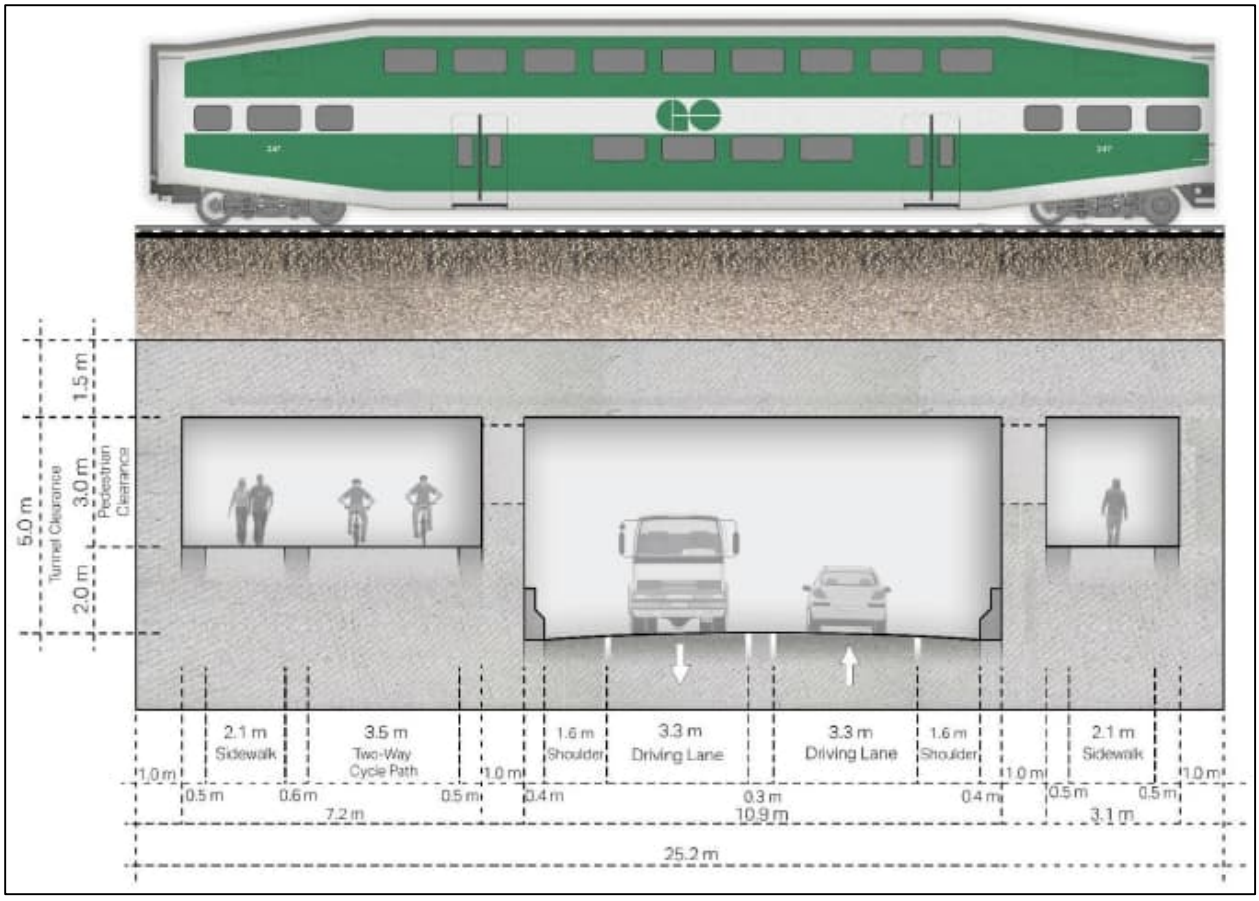
Due to the uncertainty of the stormwater facility, design work for the Legion Road extension is continuing, however the design exercise will now include scenarios with and without the Bonar Creek stormwater facility and associated trunk sewer. This will enable the design of the Legion Road extension to proceed while Toronto Water completes due diligence on the stormwater management approach. The additional design work will assess possible minor modifications to the road alignment, bikeway

type, and underpass design, in the scenario where alternatives to the Bonar Creek stormwater facility is not pursued.

Exhibit 13-16 illustrates the Legion Road cross-section based on the 2019 contemplated Sequential Excavation Method (SEM) tunnelling technique, which was envisioned to provide for two 3.30 m wide vehicle lanes, a 4.0 m wide elevated multi-use trail on the west side, and a 2.10 m elevated sidewalk on the east side.

However, based on recent design decisions by the City, it is now envisioned the Legion Road underpass will comprise of two 3.30 m wide vehicle lanes, plus 2.10 m elevated sidewalks and 2.0 m elevated uni-directional cycle tracks on both sides. This design will be updated and refined as necessary through the City's ongoing preliminary and detailed design process.

Exhibit 13-16: Preliminary Legion Road Extension Rail Underpass



13.3.6 New North-South Street

The Preferred Network includes a new North-South Street connection between Lake Shore Boulevard West and The Queensway with a grade separation under the rail and Gardiner Expressway corridors, as well as modified Brookers Lane/Gardiner Expressway ramps that connect with the new street. The new North-South street is proposed in the longer-term.

This new street will provide another much-needed connection under the Gardiner Expressway and rail corridor for all users and would provide an alternative north-south travel route to complement the only other north-south route in the immediate area, namely Park Lawn Road.

As illustrated in **Exhibit 13-17** and **Exhibit 13-18** this new street will provide for two traffic lanes 3.3 metres in width and a 3.0-metre wide left turn lane, as well as uni-directional cycle tracks 2.0 metres in width and 2.1 metres wide sidewalks on both sides of the corridor. A new signalized intersection with the modified Gardiner Expressway off-ramp is also included.

Exhibit 13-17: Proposed North-South Street – Typical Concept Cross-Section

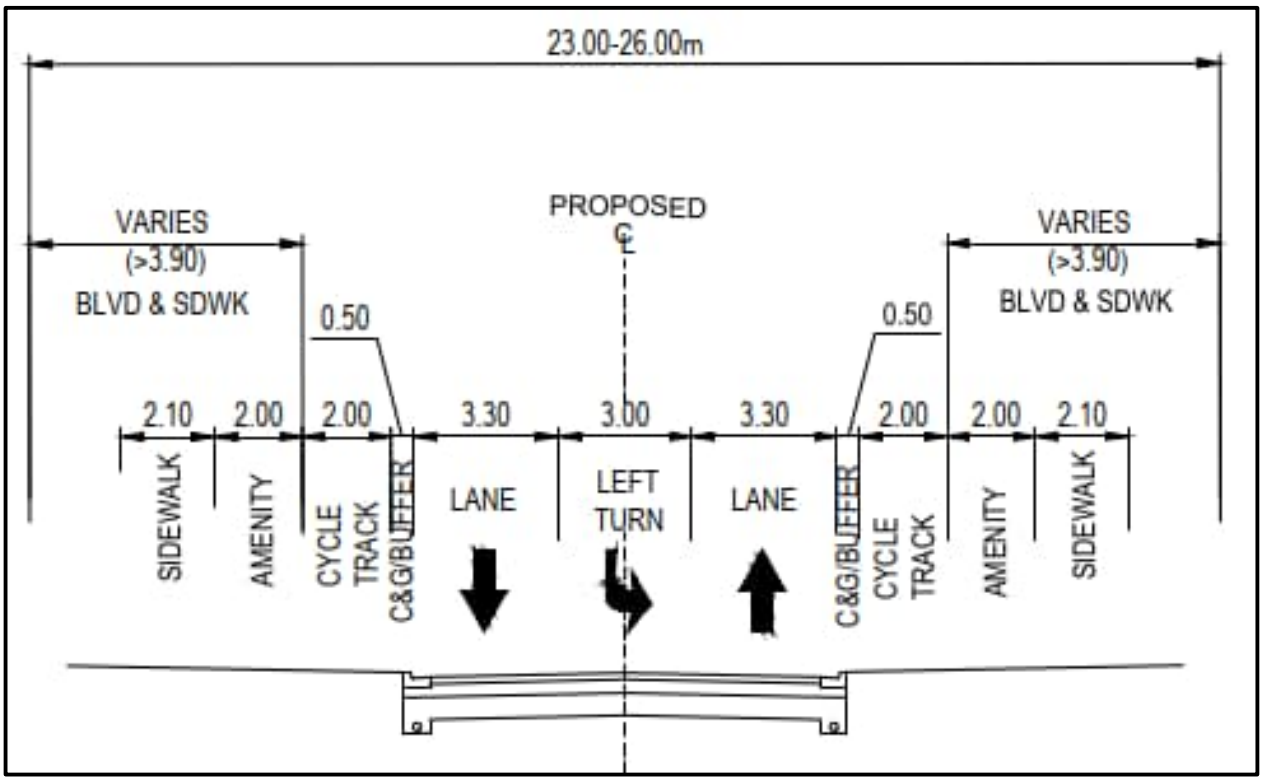
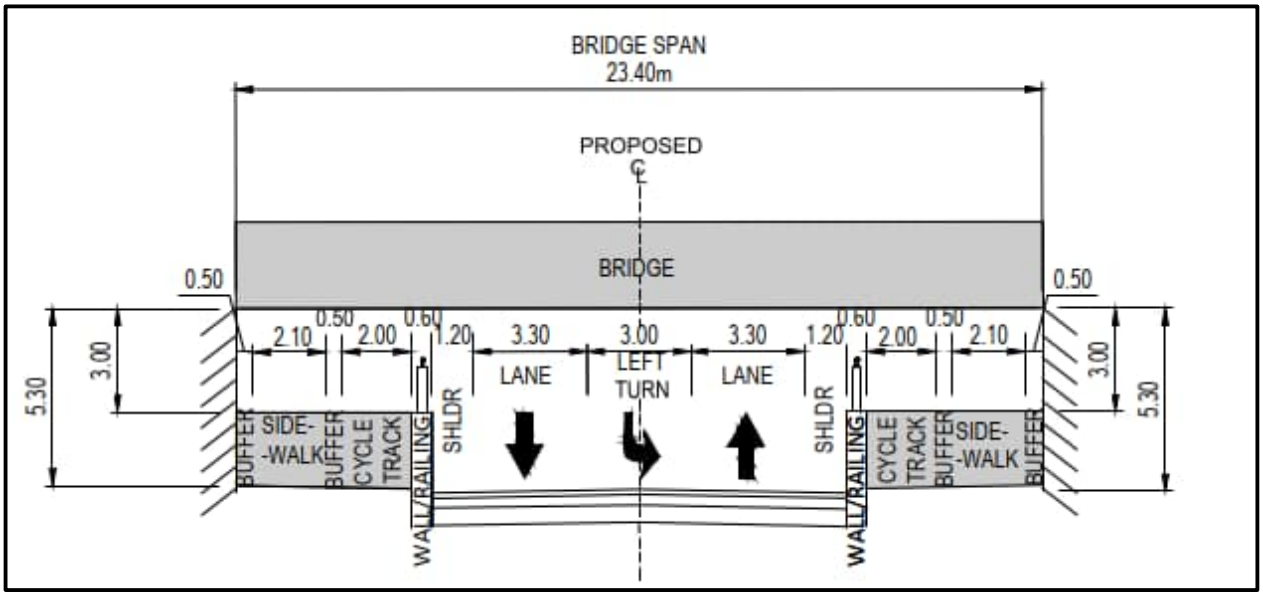


Exhibit 13-18: Proposed North-South Street at Gardiner Expressway Bridge – Typical Concept Cross-section



To minimize potential impacts to area properties and utilities, consultation will continue with affected property owners including the Fiera Properties (125 The Queensway) lands, Ontario Food Terminal, and impacted utilities such as Hydro One. This consultation will consider potential impacts, identified concerns and comments, and potential mitigative strategies. Some of the Ontario Food Terminal considerations pertain to truck access and circulation, gate house access, sufficient space for truck turning paths, trailer storage, and potential expansion of operations within the vacant lands in the adjacent Hydro One corridor. Hydro One considerations include limiting or avoiding impacts to Hydro One towers and tower foundations, and maintaining access to the Hydro One corridor (currently provided via the Ontario Food Terminal). Opportunities for this street connection are also being considered with Fiera Properties in concert with their recent employment conversion request submitted to the City for the lands north of the Gardiner Expressway and east of the Ontario Food Terminal (that is, at 125 The Queensway).

Given the technical complexity of the North-South Street and rail/expressway underpass grade separation, several high-level concept alignments were developed and assessed to better understand potential impacts to the Ontario Food Terminal and Hydro One corridor. This process explored horizontal and vertical alignment options and underpass tunnel lengths. These concepts are discussed in Section 14 – Implementation Plan of this TMP.

Slightly refined plans for the three viable concepts were also developed to depict the potential road alignment and profile, tunnel and retaining walls, access modifications (for OFT, CN and Hydro One), truck circulation, and trailer storage modifications. These concepts are also discussed in Section 14 – Implementation Plan of this TMP.

These potentially viable alternatives would impact a portion of the Ontario Food Terminal's parking area in its southeast corner and may require reconfiguration of an existing driveway and internal truck circulation route and parking area. The potentially viable alternatives would also require relocating two hydro transmission towers in the Hydro One corridor.

Significant technical feasibility and due diligence work would need to be undertaken for these potentially viable alignment and tunnel options as part of a future Schedule C EA for the North-South Street, due to complexity of the road alignment and underpass required under the rail corridor and Gardiner Expressway. The Schedule C EA for the new North-South Street would also include additional stakeholder and public engagement.

13.4 Active Transportation Network

This TMP recognizes that there is a significant opportunity to improve the pedestrian and cycling network in the study area. Currently, there is a network of disconnected or less preferred (sharrows in mixed traffic) on-street or off-street bikeways, and there is significant opportunity to improve both the cycling and pedestrian network in the area.

This TMP recommends a well-integrated network of pedestrian and cycling infrastructure within the study area that will be safer, convenient, and attractive to use. A number of improvements are proposed for the Active Transportation Network as part of the Preferred Solution as illustrated in **Exhibit 13-19**.

Exhibit 13-19: Proposed Active Transportation Network

The active transportation network has been planned around the following principles that will promote walking, cycling and transit use within the study area:

- **Reducing Barriers:** new signalized intersections provide enhanced connectivity across major roads.
- **Well-Connected and Complete Sidewalks:** Existing gaps in the sidewalk network have been filled and sidewalks have been proposed on both sides of all streets. Sidewalks will be widened to 2.1 metres, and in in some case as much as 3.0 metres.
- **Neighbourhood / Off-street Connections:** Off-street connections will maintain and enhance connectivity through and within the area. These connections are not located within the road right-of-way and include connections through parks or walking paths through future development areas. It is recommended that additional walkways are provided on private development sites to facilitate pedestrian travel.
- **High Quality Pedestrian Realm:** As previously highlighted in the roadway cross-sections, this TMP is emphasizing a high-quality public realm that includes enhanced streetscaping, widened sidewalks, and landscape

elements. These improvements will transform the study area into a walkable, attractive, and pedestrian friendly destination.

Lake Shore Boulevard West will be transformed into a more neighbourhood main street, with upgraded uni-directional cycle tracks and wider sidewalks and other public realm improvements. Several new traffic signals along Lake Shore Boulevard West between Park Lawn Road and Brookers Lane/New North-South Street are proposed. These new signals are proposed on Lake Shore Boulevard West at the new internal street to the Christie's site, and at new Street A. This will provide direct streetcar access into the Christie's development, and also help provide safer pedestrian and cycling crossing connections to and from the waterfront.

Park Lawn Road is also proposed to become more of a neighbourhood main street with uni-directional cycle tracks extending from Lake Shore Boulevard West to The Queensway including more space for wider sidewalks, and other public realm improvements. The reduction in the number of vehicle lanes on Park Lawn Road from four to two will give the street a neighbourhood main street character with wider sidewalks. Uni-directional cycle tracks will also be provided between Lake Shore Boulevard West and The Queensway creating improved and safer cycling connectivity.

The Queensway will also provide uni-directional cycle tracks and other public realm improvements. The Queensway is currently programmed for road reconstruction, watermain work, cycling infrastructure and other safety enhancements beginning in 2023. Following public engagement held in December 2021, the proposed improvements were approved by Council in April 2022.

The proposed Street A includes uni-directional cycle tracks and sidewalks on both sides of the street. Street A will assist in improving the active transportation network by providing a crossing of the rail corridor physical barrier. Street A will also provide one of the passenger entrances to the future Park Lawn GO Station and may accommodate some curbside passenger pick-up and drop-off activity.

The new North-South Street connection will provide uni-directional cycle tracks and sidewalks, as well as a new signalized intersection for the off-ramp due to the reconfiguration of the Gardiner Expressway on and off ramps. This new street will also provide another much-needed connection under the Gardiner Expressway and the railway corridor for all users including pedestrians and cyclists.

The Legion Road extension will provide a new street connection with a bi-directional bikeway resulting in improved connectivity and assist in overcoming the physical barrier of the rail corridor in the area west of Park Lawn Road.

13.5 Transit Network

The Preferred Network Alternative includes the Park Lawn Go Station, identified in a separate Transit Project Assessment Process (TPAP), located on Park Lawn Road at the rail corridor, and a dedicated streetcar connection through the Christie's development site. The new GO Station and streetcar loop connection will provide increased access to transit, especially to and from the downtown, for people living and working in the immediate area, and within the larger community.

The proposed dedicated TTC streetcar right-of-way on Lake Shore Boulevard West will also assist in improving the area's transit network.

13.6 Travel Demand Management

Travel Demand Management (TDM) is a suite of measures or strategies (i.e., policies, programs, services, and etc.) that encourage people to change their travel habits as opposed to single vehicle use, resulting in a more efficient use of the transportation network. At a high level, these techniques can reduce the overall number of trips, reduce auto demands by converting to other travel modes, and spread the demands beyond the peak periods. As noted in the City's Official Plan TDM measures can include ride sharing, bike sharing, High Occupancy Vehicle (HOV) lanes, bicycle and pedestrian programs, parking supply and management, etc.).

The improvements associated with the Preferred Network Solution provide for a multi-modal approach that will encourage the use of Transportation Demand Management measures and ultimately assist in decreasing vehicular use in the Park Lawn – Lake Shore area, minimizing congestion and providing for a more environmentally sustainable network.

13.7 Other Operational Concerns Requiring Further Study

In response to feedback heard from the surrounding community during the study public engagement, the TMP includes recommendations to complete additional neighbourhood transportation studies (that do not require Environmental Assessment approvals) to explore potential traffic calming, safety, and other operational improvements in the following areas:

- Mimico neighbourhood, between Royal York Road and Lake Shore Boulevard West (study currently underway);

- Humber Bay Shores neighbourhood (once area streets have been assumed by the City), between Lake Shore Boulevard West and Marine Parade Drive. This could include exploring the potential for alternating one-way north-south local streets, as well as potential traffic calming measures along Marine Parade Drive to improve safety and discourage by-pass traffic infiltration, among other measures; and
- Sunnylea neighbourhood, north of The Queensway, along Park Lawn Road/Berry Road/Prince Edward Drive to Bloor Street West.

14. Implementation Plan

14.1 Functional Design of Key Elements of the Preferred Solution

14.1.1 Design Principles

Future studies, planning and designs will be completed for the road elements identified in this Transportation Master Plan.

A variety of design principles to be employed in the forthcoming planning design work have been considered. However, it is noted that the list is not exhaustive, and standards and guidelines may change over the coming years for individual projects. As such, the design principles will need to be reviewed and refined as the planning and design for each of the noted road projects proceeds in the future. Considerations are itemized below.

Roads and Intersections:

- Consistent with City design guidelines;
- Design speed equal to posted speed, or as low as 30 km/h or 40 km/h in select cases;
- Lighting should be placed to illuminate both the roadway and the sidewalk / bikeway;
- TTC guideway along Lake Shore Boulevard West will have mountable curbs for fire / emergency service vehicles;
- At locations where road space between curbs is a single lane, minimum road space should be at least 4.5 to 5.0 metres. Designs are to consider alternate means to provide emergency passing opportunities, such as mountable curbs or a 1.2 to 1.5 metres urban shoulder;
- Maintain large vehicle access along routes oriented to and from the Ontario Food Terminal; and
- Apply Vision Zero safety and AODA accessibility principles.

Transit and TTC:

- Ample coverage with frequent stops;
- Lake Shore Boulevard West will be a dedicated streetcar right-of-way (ROW), from west of Park Lawn Road to the Humber Loop, with exclusive left turn lanes and fully protected left turns across the ROW;

- Streetcar platforms along Lake Shore Boulevard West 2.4 metres wide and a minimum of 30 metres in length;
- Bus platforms along Park Lawn Boulevard minimum of 28 metres in length and 2.4 metres in width to accommodate two standard buses; and
- Bus laybys minimum of 3 metres wide with 25-metre entry and exit tapers.

Walking:

- Excellent pedestrian space, wide generous sidewalks, with adjacent amenities;
- Visually contrasting and cane detectable unit pavers should be used to separate the pedestrian clearway from an adjacent sidewalk level cycle track;
- Wider sidewalk clearway of 3.0 to 3.5 m, where appropriate;
- Enhanced protection for pedestrians and cyclists in the vicinity of the Gardiner Expressway; and
- Explore realigning the Martin Goodman Trail connection to Lake Shore Boulevard West near Marine Parade Drive such that it is connecting directly at the intersection corner.

Cycling:

- Protected bikeways, set within the boulevard and also protection at intersections;
- Buffers from pedestrians, traffic and parked vehicles;
- Cycle cross-rides at intersections and major entrances;
- Cycling preferred behind the TTC stops to reduce passenger boarding/ alighting conflicts; and
- Consistent, intuitive design treatment for cyclist behaviour.

Streetscaping, Trees, Aesthetics:

- Park-like street connection along Park Lawn Boulevard extending to Lake Shore Boulevard West;
- Double-row of trees and green infrastructure;
- If a double row of trees is not achievable, provide a primary continuous row of tree plantings within the sidewalk area on both sides plus bonus tree plantings, where possible;
- Tree plantings should be in open planters, perhaps with soil cells, and with a meaningful number of plantings (for example, 8 metres between trees); and

- Manage stormwater in both the bonus zone and sidewalk zone with open tree plantings, permeable paving, perhaps soil cells. Consider Low Impacts Design (LID) for stormwater management.

Other:

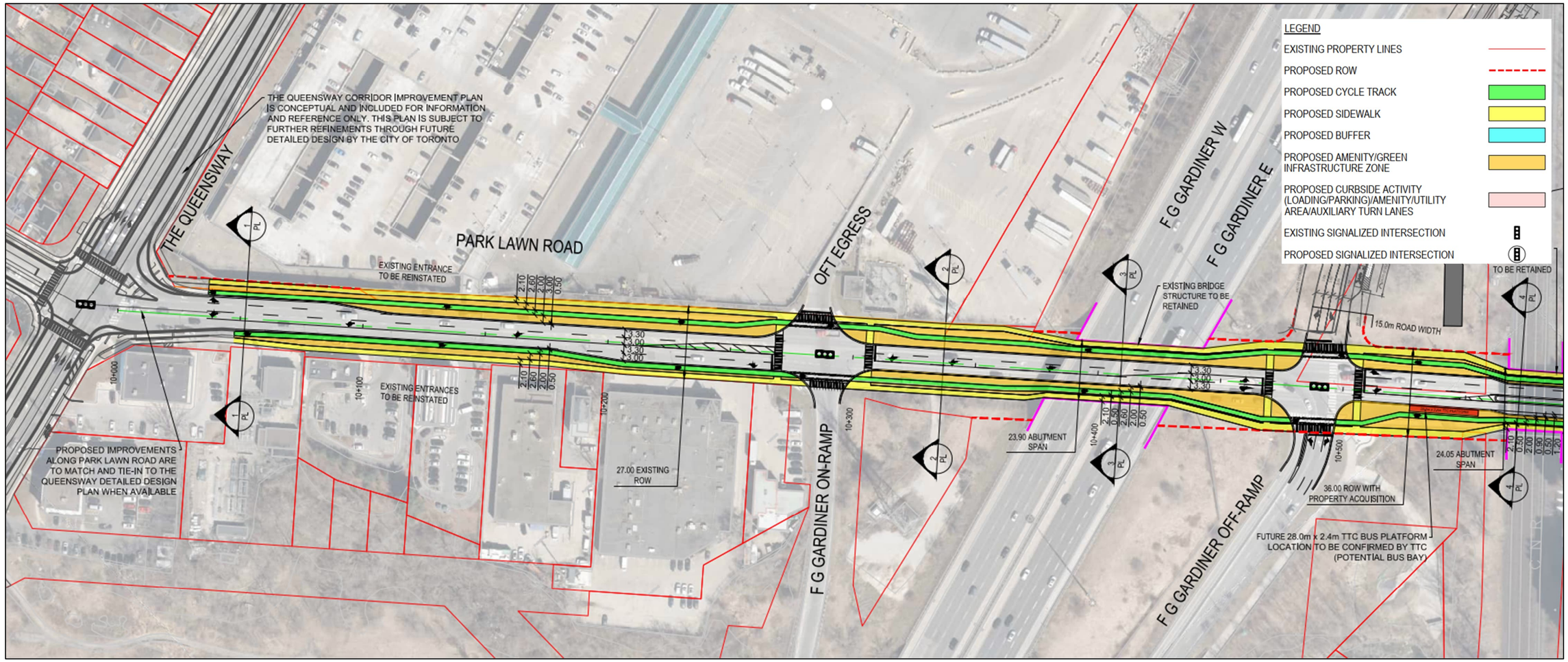
- Hydro One access to the hydro corridor is to be maintained if impacted (current access is via the Ontario Food Terminal). Access is to be maintained with any proposed area changes, and also to retain internal linear access, and around towers; and
- Rail corridor access is to be maintained for service vehicles.

14.1.2 Functional Designs – Park Lawn Road, Lake Shore Boulevard West, and Street A

The functional design plans for the key arterial road elements of the Preferred Solution, Park Lawn Road and Lake Shore Boulevard West, are presented on the following pages. In addition, the consultant team for the proponent of the re-development of the Christie's lands has developed a similar concept plan for Street A; this is also included. These have been advanced to the 10% design stage and illustrate the transportation infrastructure improvements as discussed in the previous section. It is noted that these are proof-of-concept drawings, and more refined preliminary and detailed design drawings will be prepared in future study.

Larger scale versions of these concept plans are included in **Appendix J**. The established design criteria developed in consultation with the City and utilized in the preparation of the functional design plans is also included in the above noted appendix.

Exhibit 14-1: Functional Design Plan – Park Lawn Road



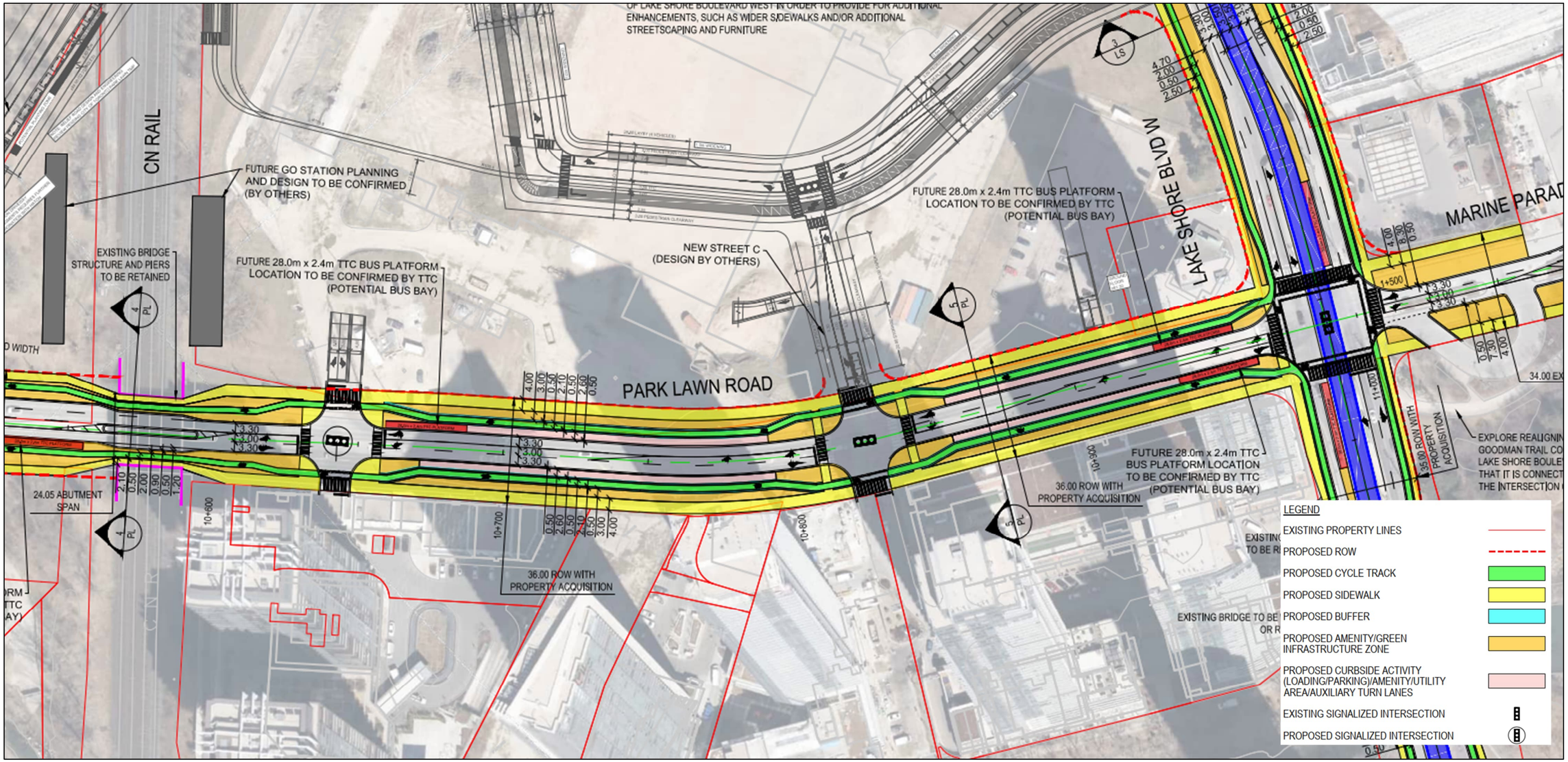
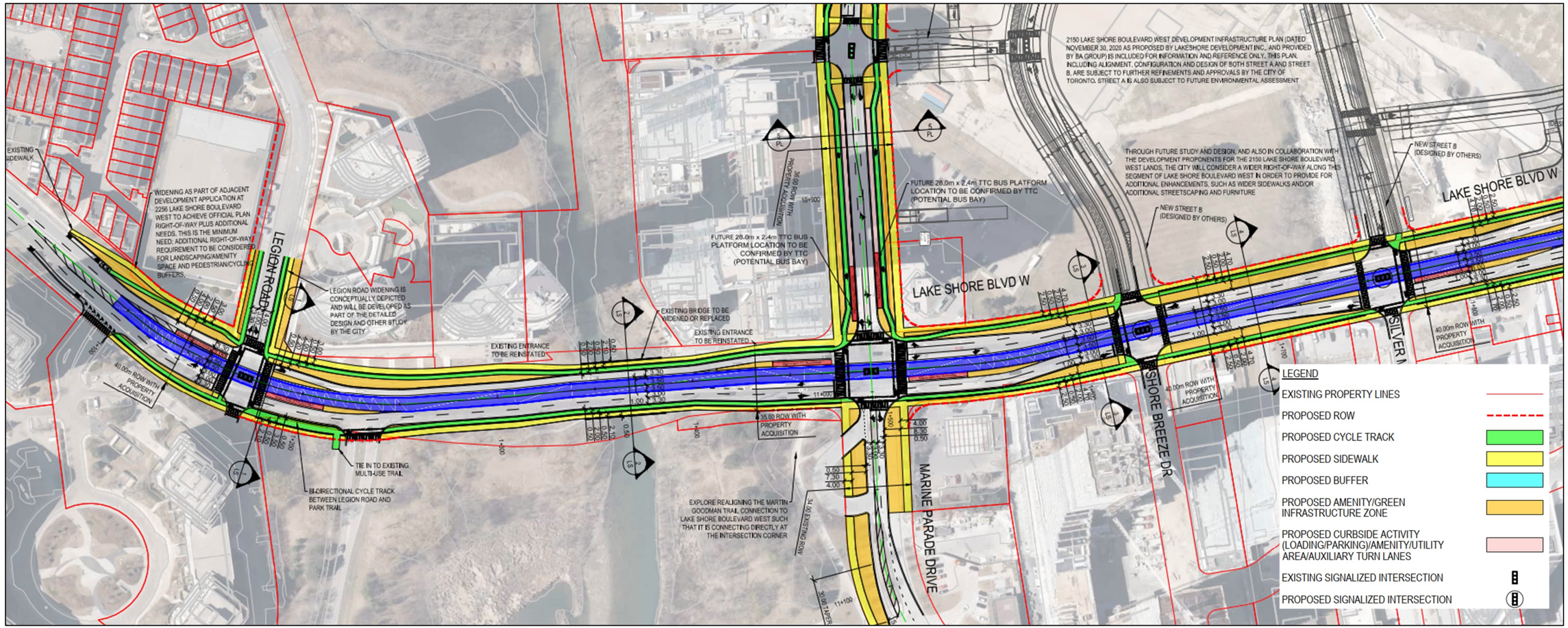

OF LAKE SHORE BOULEVARD WEST IN ORDER TO PROVIDE FOR ADDITIONAL ENHANCEMENTS, SUCH AS WIDER SIDEWALKS AND/OR ADDITIONAL STREETSCAPING AND FURNITURE
CN RAIL
FUTURE GO STATION PLANNING AND DESIGN TO BE CONFIRMED (BY OTHERS)
EXISTING BRIDGE STRUCTURE AND PIERS TO BE RETAINED
FUTURE 28.0m x 2.4m TTC BUS PLATFORM LOCATION TO BE CONFIRMED BY TTC (POTENTIAL BUS BAY)
NEW STREET C (DESIGN BY OTHERS)
FUTURE 28.0m x 2.4m TTC BUS PLATFORM LOCATION TO BE CONFIRMED BY TTC (POTENTIAL BUS BAY)
LAKE SHORE BLVD W
MARINE PARAD
PARK LAWN ROAD
24.05 ABUTMENT SPAN
36.00 ROW WITH PROPERTY ACQUISITION
FUTURE 28.0m x 2.4m TTC BUS PLATFORM LOCATION TO BE CONFIRMED BY TTC (POTENTIAL BUS BAY)
36.00 ROW WITH PROPERTY ACQUISITION
EXISTING BRIDGE TO BE
LEGEND
EXISTING PROPERTY LINES
PROPOSED ROW
PROPOSED CYCLE TRACK
PROPOSED SIDEWALK
PROPOSED BUFFER
PROPOSED AMENITY/GREEN INFRASTRUCTURE ZONE
PROPOSED CURBSIDE ACTIVITY (LOADING/PARKING)/AMENITY/UTILITY AREA/AUXILIARY TURN LANES
EXISTING SIGNALIZED INTERSECTION
PROPOSED SIGNALIZED INTERSECTION

Exhibit 14-2: Functional Design Plan – Lake Shore Boulevard West



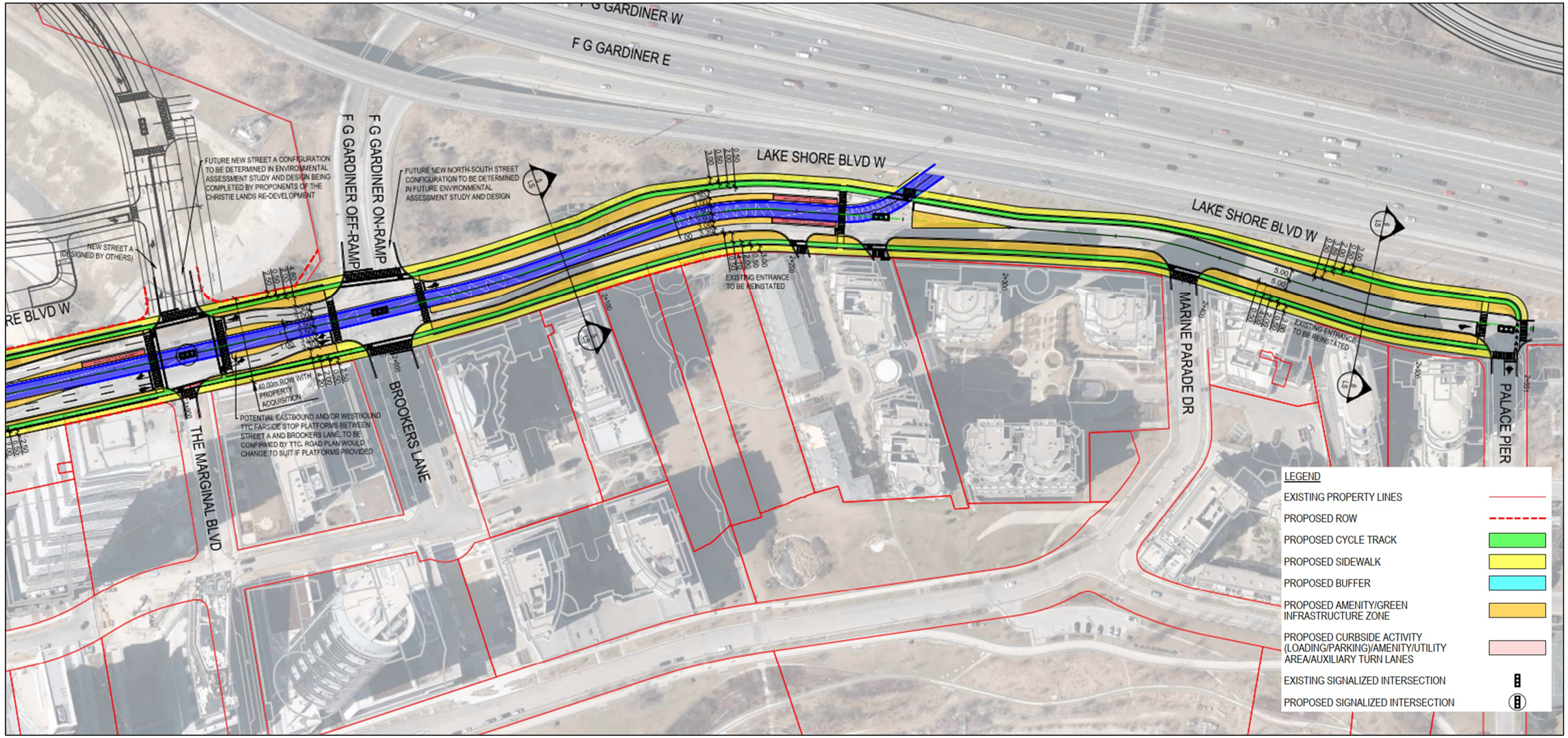
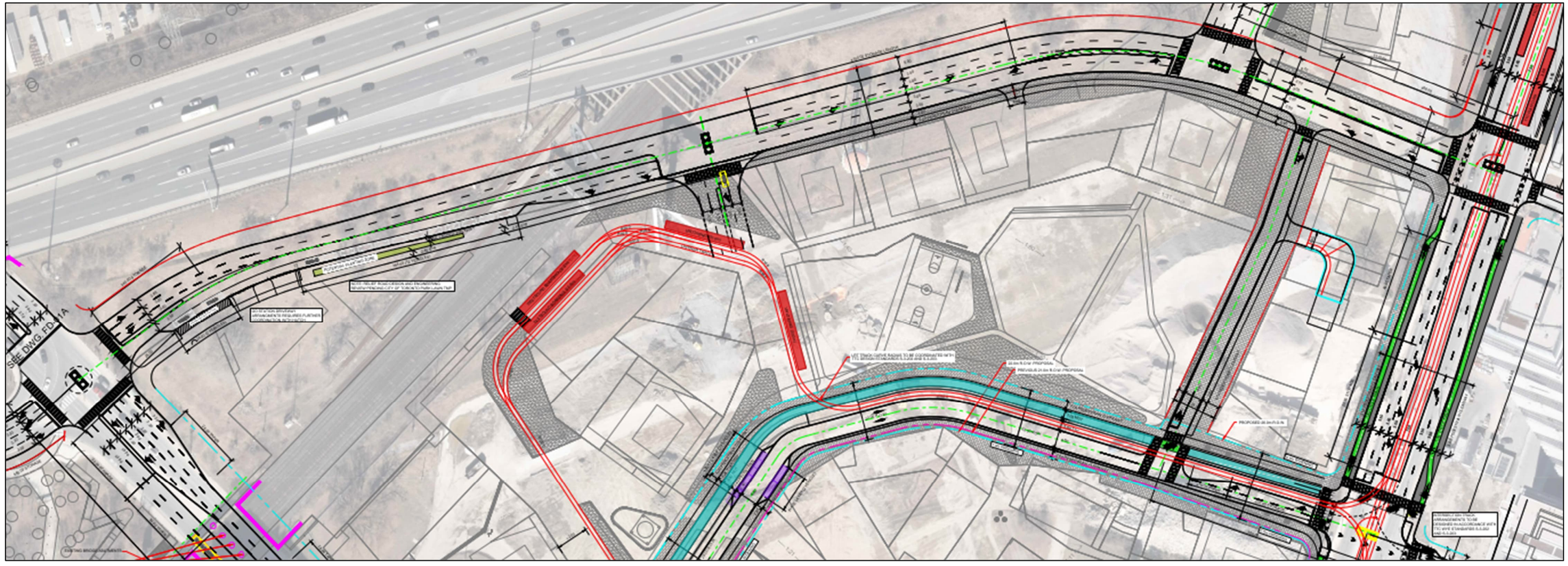

F G GARDINER W
F G GARDINER E
LAKE SHORE BLVD W
LAKE SHORE BLVD W
F G GARDINER OFF-RAMP
F G GARDINER ON-RAMP
FUTURE NEW STREET A CONFIGURATION TO BE DETERMINED IN ENVIRONMENTAL ASSESSMENT STUDY AND DESIGN BEING COMPLETED BY PROPONENTS OF THE CHRISTIE LANDS RE-DEVELOPMENT
FUTURE NEW NORTH-SOUTH STREET CONFIGURATION TO BE DETERMINED IN FUTURE ENVIRONMENTAL ASSESSMENT STUDY AND DESIGN
NEW STREET A (DESIGNED BY OTHERS)
EXISTING ENTRANCE TO BE REINSTATED
EXISTING ENTRANCE TO BE REINSTATED
40.00m ROW WITH PROPERTY ACQUISITION
POTENTIAL EASTBOUND AND/OR WESTBOUND TTC FARSIDE STOP PLATFORMS BETWEEN STREET A AND BROOKERS LANE, TO BE CONFIRMED BY TTC. ROAD PLAN WOULD CHANGE TO SUIT IF PLATFORMS PROVIDED
THE MARGINAL BLVD
BROOKERS LANE
MARINE PARADE DR
PALACE PIER
LEGEND
EXISTING PROPERTY LINES
PROPOSED ROW
PROPOSED CYCLE TRACK
PROPOSED SIDEWALK
PROPOSED BUFFER
PROPOSED AMENITY/GREEN INFRASTRUCTURE ZONE
PROPOSED CURBSIDE ACTIVITY (LOADING/PARKING)/AMENITY/UTILITY AREA/AUXILIARY TURN LANES
EXISTING SIGNALIZED INTERSECTION
PROPOSED SIGNALIZED INTERSECTION

Exhibit 14-3: Functional Design Plan – New Street A



14.1.3 North-South Street

14.1.3.1 Alignment Concepts

Alternative high-level concept alignments have been developed for the new North-South Street connections between Lake Shore Boulevard West and The Queensway with a grade separation under the rail and Gardiner Expressway corridors, as well as modified Gardiner Expressway on and off ramps that connect with the new street.

This new street will provide another much-needed connection under the Gardiner Expressway and rail corridors for all users and would provide an alternative north-south travel route in lieu of Park Lawn Road.

To address potential impacts to area properties and utilities, consultation is ongoing with affected property owners including the Ontario Food Terminal and Hydro One. Opportunities for this street connection are also being considered in concert with a recent employment conversion request submitted to the City for the lands north of the Gardiner Expressway and east of the Ontario Food Terminal.

The North-South Street key constraints are summarized below:

- **Ontario Food Terminal:**
  - Truck access circulation and sufficient space for truck turning into the Ontario Food Terminal gate house
  - Trailer storage
  - Potential expansion of operations within the vacant lands in the adjacent Hydro One corridor
- **Hydro One:**
  - Limit impacts to Hydro One towers and tower foundations (a 15-metre minimum clearance from the towers at the ground surface and a 10-metre minimum clearance from tower foundations is required)
  - Maintaining access to Hydro One corridor (currently provided via the Ontario Food Terminal)
- **Rail:**
  - Minimize impacts to the rail corridor and operations
  - Maintain access for service vehicles

- **Gardiner:**
  - Reconstructing the Gardiner Expressway westbound off-ramp and eastbound on-ramp, and not exceeding maximum allowable grades
  - Avoid lowering the profile of the Gardiner Expressway ramps where it would result in impacting the Humber Loop tunnel
  - Maintaining or avoid existing freeway bridge abutments and structures
- **Roads:**
  - Connecting to the existing grades of The Queensway and Lake Shore Boulevard West

A variety of alignment concepts were developed, each of which initiated from the existing Lake Shore Boulevard West / Brookers Lane signalized intersection, proceeded under the eastbound Gardiner off-ramp sub-collector, and then tunneled under both the Gardiner and rail corridors. These concepts are illustrated in **Appendix K**. Basic descriptions of the differences of each concept are summarized below:

1. Straight alignment through the Ontario Food Terminal and Fiera Properties (125 The Queensway) lands, terminating at the existing signals along The Queensway that provide access to the subject commercial lands. The tunnel extends under the Gardiner and the rail corridor.
2. Similar to Concept 1, but the tunnel extends under the Gardiner, the rail corridor, and also the Ontario Food Terminal.
3. Similar to Concept 1, but the alignment of the new North-South Street is curvilinear such that impacts to the circulation on the Ontario Food Terminal lands is reduced. The tunnel extents are also similar to Concept 1 in that it extends under the Gardiner and the rail corridor only.
4. Similar to Concept 4, but the curvilinear alignment of the new North-South Street is oriented easterly to avoid all impacts Ontario Food Terminal lands. The tunnel extents are also similar to Concepts 1 and 3 in that it extends under the Gardiner and the rail corridor only.
5. Similar to Concept 4, but the curvilinear alignment of the new North-South Street is oriented further east to avoid all impacts Ontario Food Terminal lands and also reduce impacts to the Hydro One towers. The tunnel extends under the Gardiner and the rail corridor only, however is longer due to the lengthy circuitous routing around the Ontario Food Terminal lands and Hydro One towers.

6. Similar to Concept 5, but the route alignment extends to a new signalized intersection along The Queensway after meandering around the Ontario Food Terminal lands and Hydro One towers. Similar to Concept 5, the tunnel extends under the Gardiner and the rail corridor only, however is longer due to the lengthy circuitous routing around the Ontario Food Terminal lands and Hydro One towers.

The alternative concepts and impacts are summarized in **Exhibit 14-4** on the basis of a variety of factors relating to area impacts and tunnel length. It should be noted that these concepts have not been costed, however construction of the tunnel is the most complex and costly element of each alignment concept (that is, tunnel costs are an order-of-magnitude greater than actual road construction) and thus *tunnel length* is a proxy for construction cost.

Based on a review of the above parameters, despite impacts to the Ontario Food Terminal lands, Concept 1 is the most desirable since it provides for the most preferred road geometry and tunnel alignment, is the most attractive for user safety and security, has the opportunity to provide a new entrance for the Ontario Food Terminal, and has the shortest tunnel length (and thus lowest construction cost).

However, Concepts 2 and 3 are also viable alternatives in that they balance Ontario Food Terminal impacts against overall construction costs.

Appendix K also includes slightly refined high-level concept plans for the three viable concepts (Concepts 1, 2, and 3) to depict the potential road alignment and profile, tunnel and retaining walls, access modifications (for OFT, CN and Hydro One), truck circulation, and trailer storage modifications. **Exhibit 14-6 to Exhibit 14-7** below illustrate partial captures of these plans, and show the impacts to the Ontario Food Terminal lands, the tunnels extents, the Hydro One tower impacts, and potential new entrances for both the Ontario Food Terminal and the Hydro One corridor.

Exhibit 14-4: Proposed North-South Connection Concepts

Constraint	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5	Concept 6
Road Tunnel Configuration	Most preferred geometric tunnel alignment	Most preferred geometric tunnel alignment	Somewhat similar tunnel alignment to 1 and 2, but curvilinear road	Circuitous and undesirable tunnel alignment	Circuitous and undesirable tunnel alignment	Circuitous and undesirable tunneled alignment
Road Tunnel Character	Most attractive for user safety and security	Most attractive for user safety and security	Somewhat similar to 1 and 2, but curvilinear road	Lowest user safety and security	Lowest user safety and security	Lowest user safety and security
OFT Property Impacts	Yes (circulation, gatehouse, and trailer storage)	No	Yes (trailer storage)	No	No	No
OFT Entrance	Potential New Access	No Change	No Change	No Change	No Change	No Change
Hydro Towers	Relocate one to two Hydro One towers	Relocate one to two Hydro One towers (footings may be in conflict or insufficient clearance)	Relocate two Hydro One towers	Relocate one Hydro One tower (one footing may also have insufficient clearance)	Minor Impacts (one footing may have insufficient clearance)	Minor Impacts (one footing may have insufficient clearance)
Hydro One Access	New Access Required	No Change	New Access Required	New Access Required	New Access Required	New Access Required
Approximate Length of Tunnel	≈ 100 metres	≈ 200 metres	≈ 100 metres	≈ 150 metres	≈ 150 metres	≈ 150 metres
Rail Corridor	No At-grade Surface Changes	No At-grade Surface Changes	No At-grade Surface Changes	No At-grade Surface Changes	No At-grade Surface Changes	No At-grade Surface Changes

Exhibit 14-5: Potential North-South Street Concept – Option 1

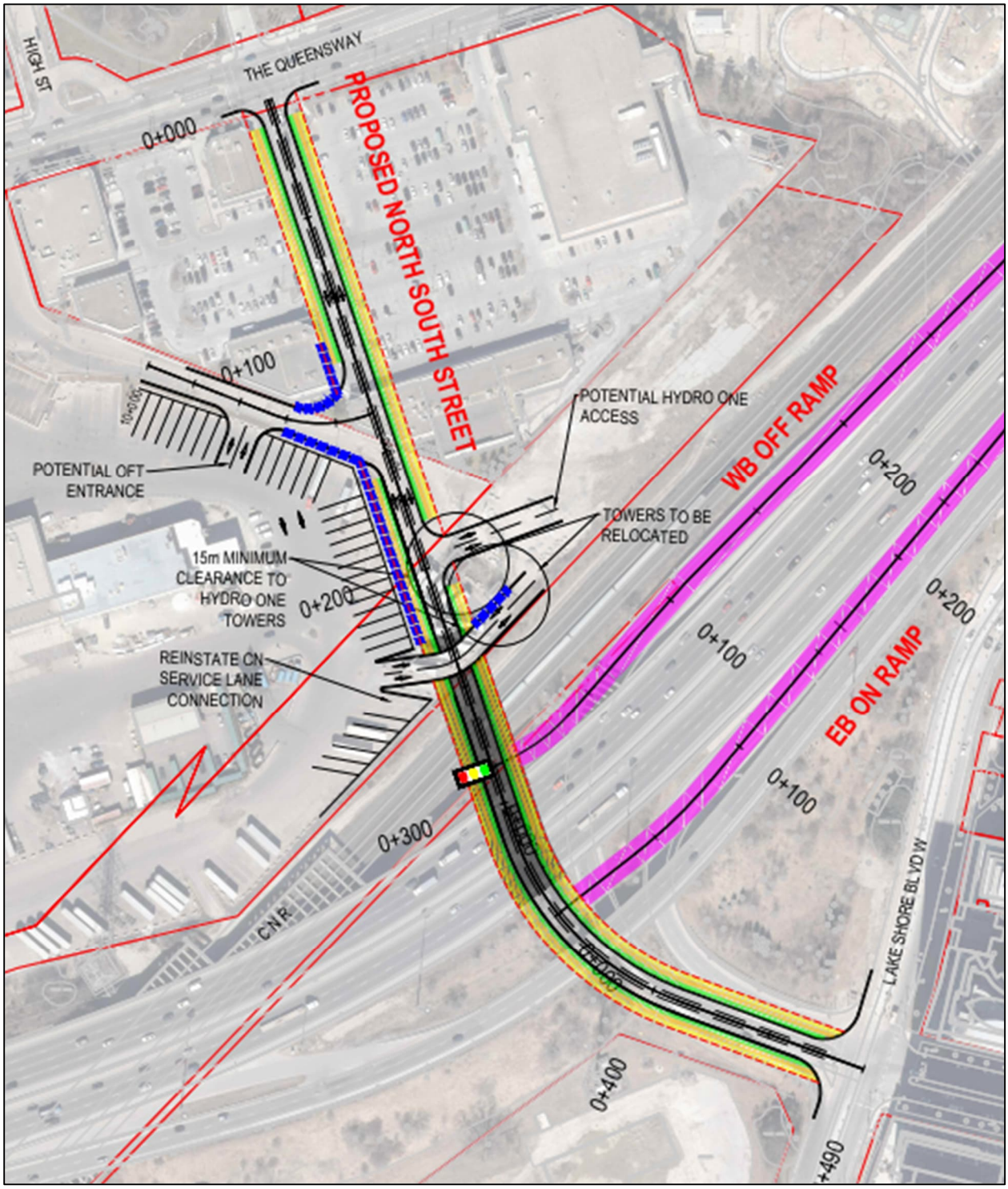


Exhibit 14-6: Potential North-South Street Concept – Option 2

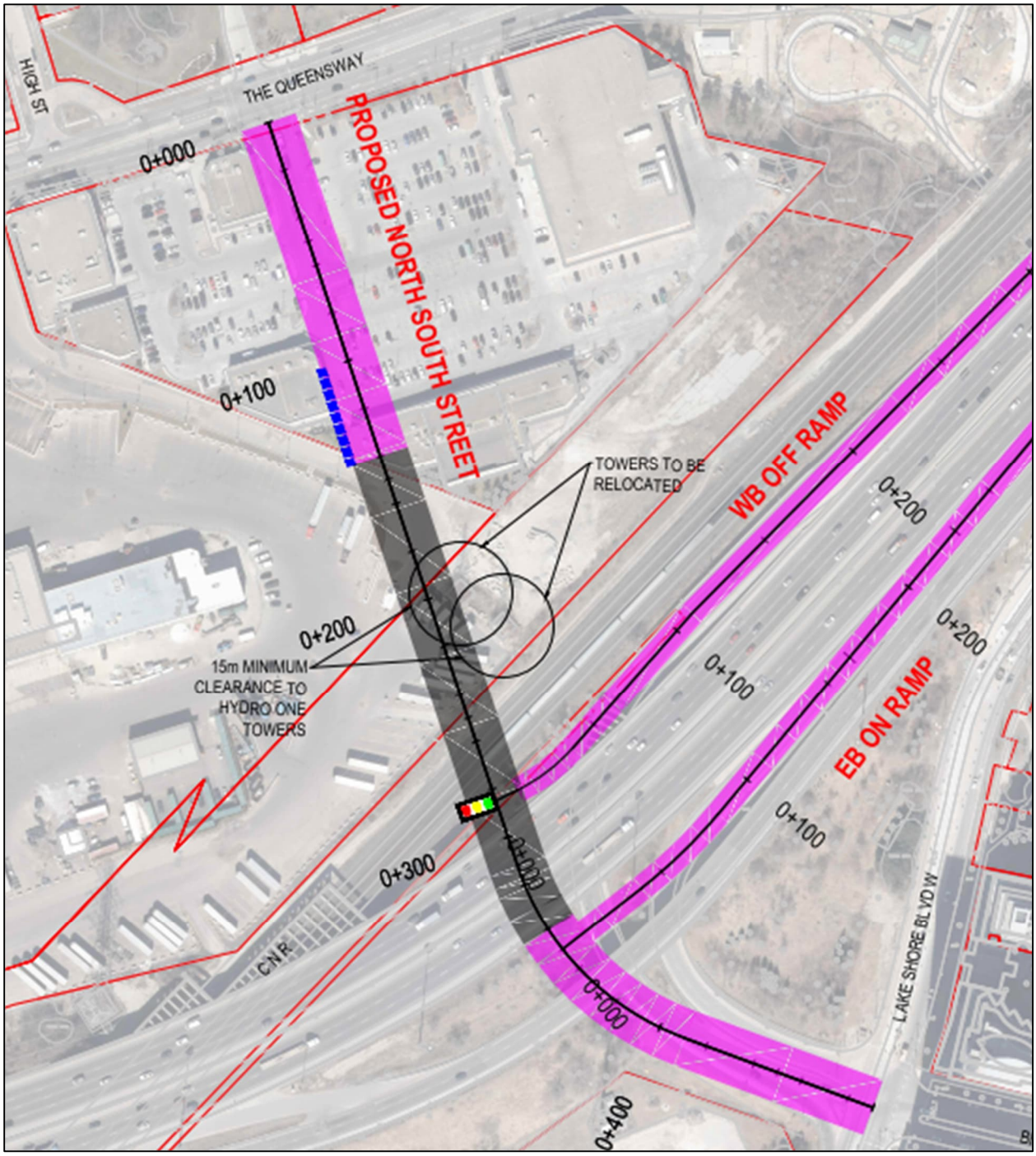
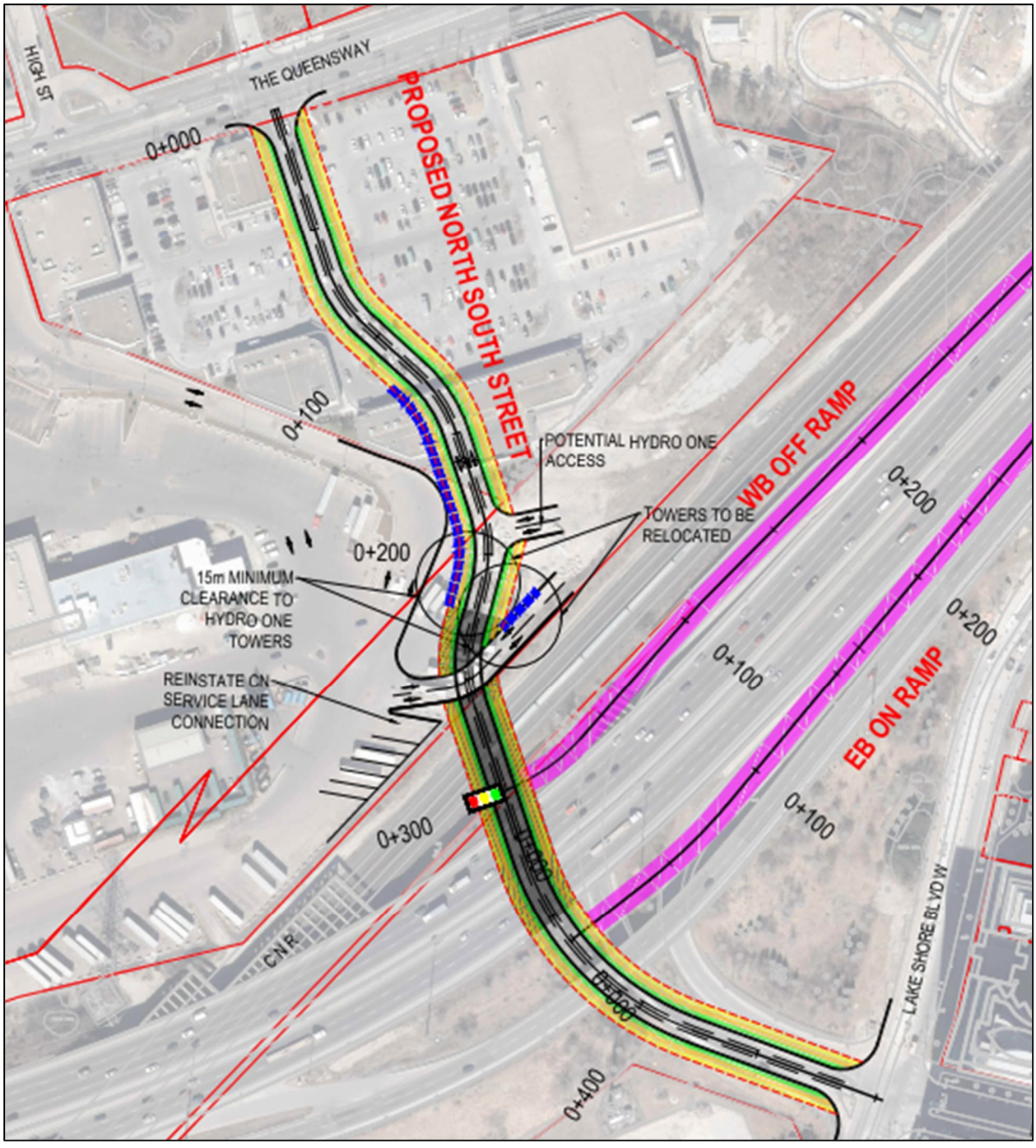


Exhibit 14-7: Potential North-South Street Concept – Option 3



As noted, a grade separation under the rail and Gardiner Expressway corridors will be required to accommodate this new connection. **Exhibit 14-8** to **Exhibit 14-10** illustrates the proposed North-South Street profile passing under both the railway and the Gardiner Expressway prior to connecting at grade further north for Options 1 to 3.

Exhibit 14-8: Potential North-South Street Concept – Option 1 Profile

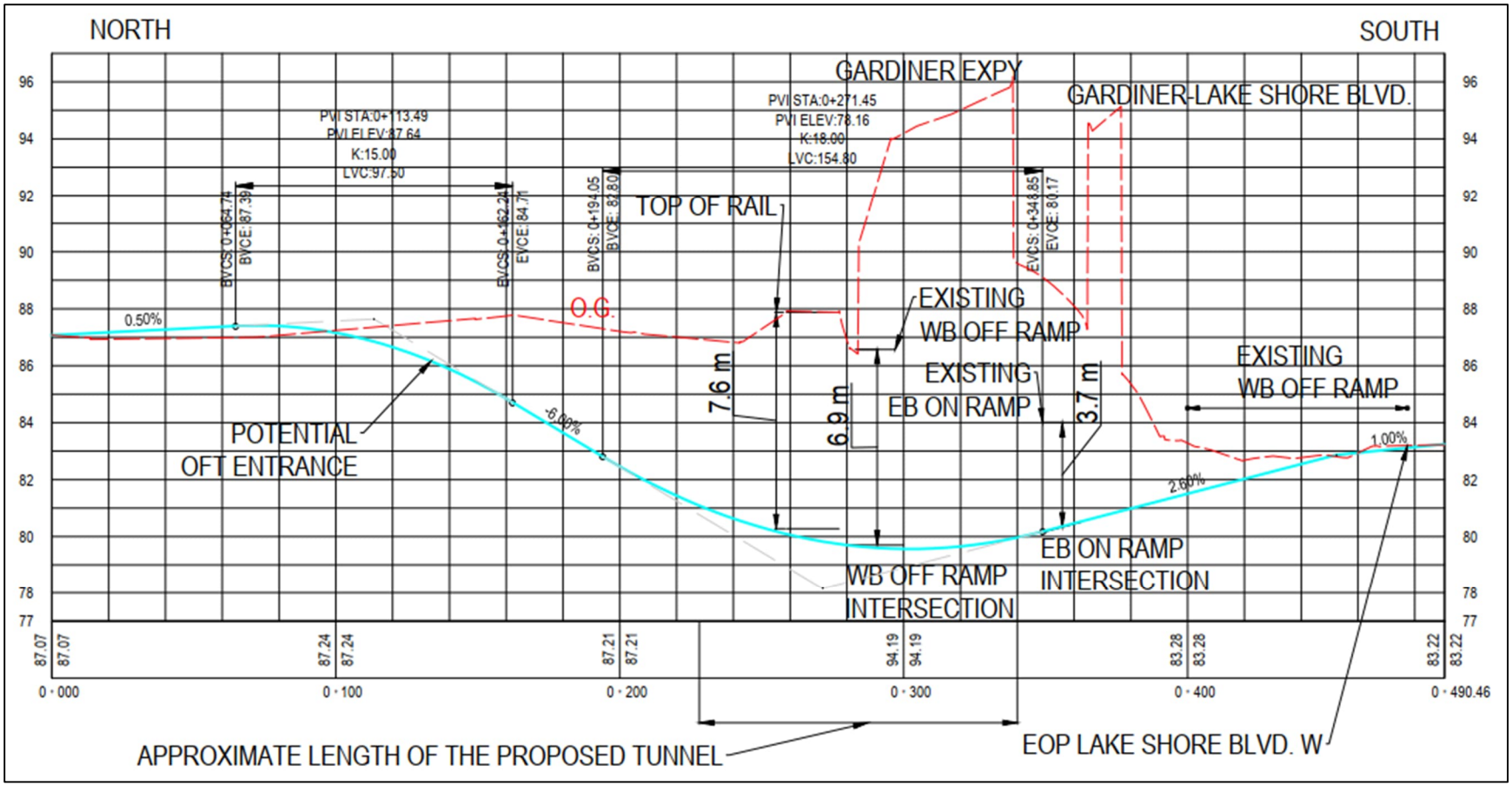


Exhibit 14-9: Potential North-South Street Concept – Option 2 Profile

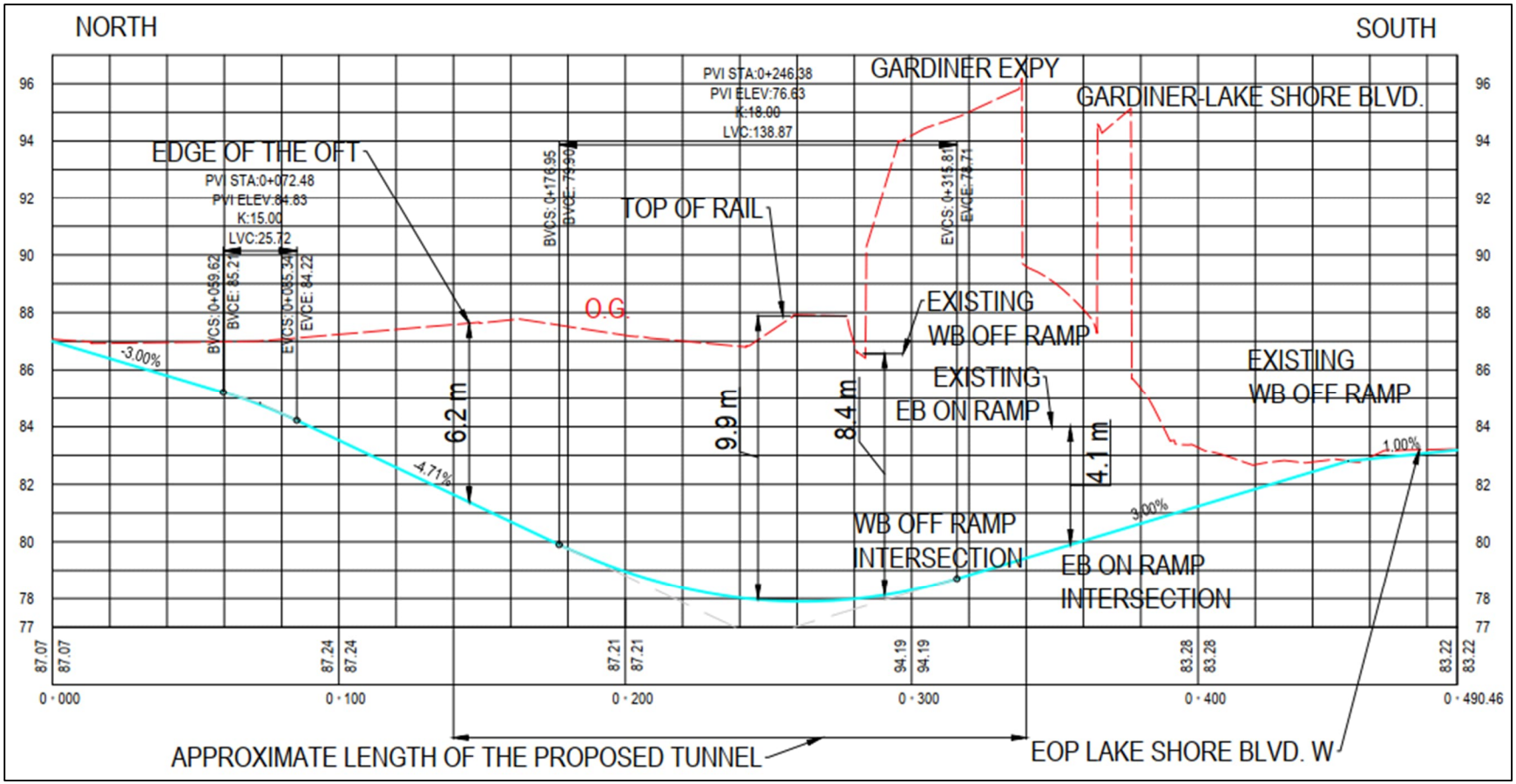
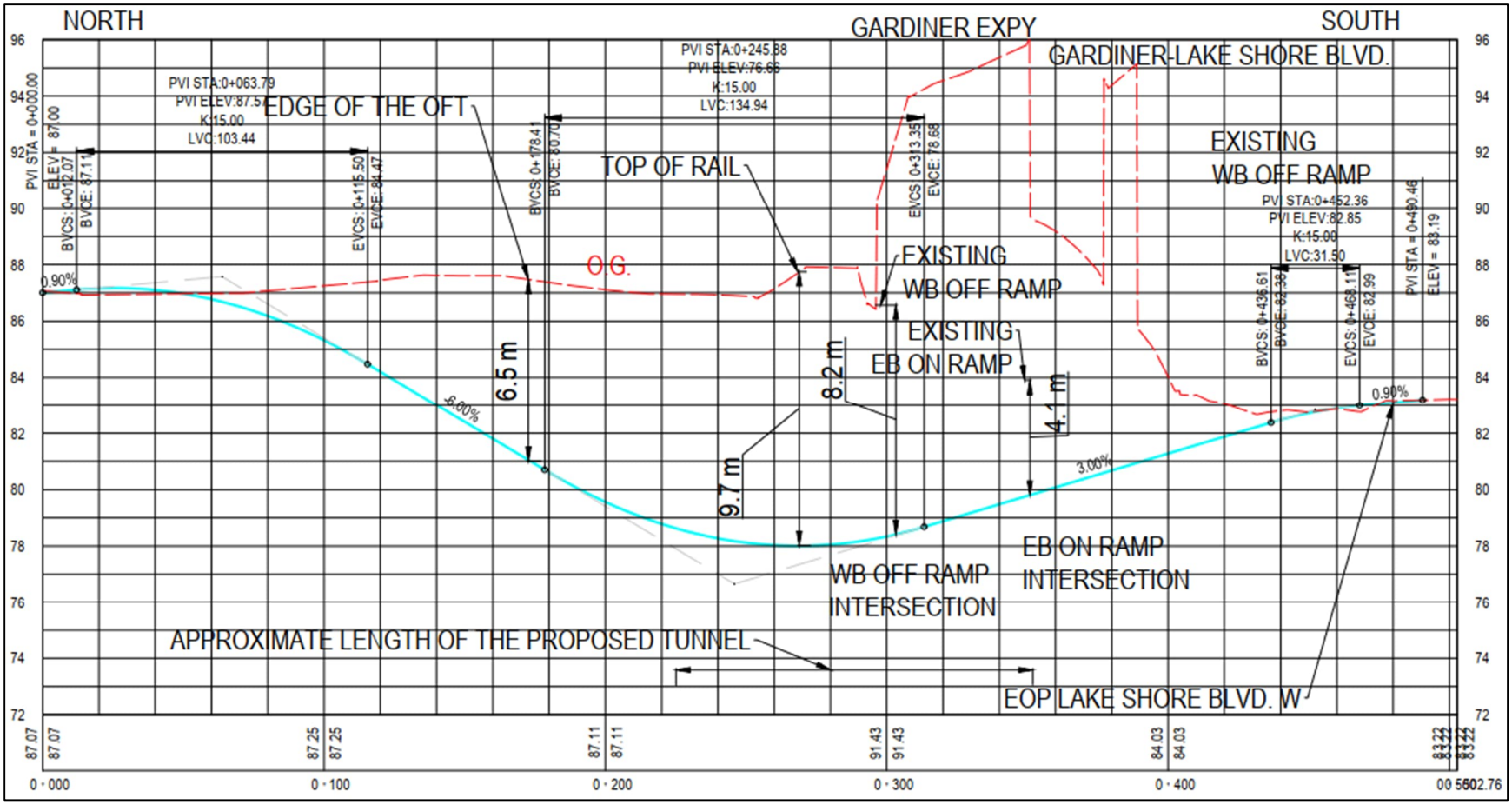


Exhibit 14-10: Potential North-South Street Concept – Option 3 Profile



14.1.3.2 North-South Street Construction

The implementation of the proposed new North-South Street will require extensive planning study and design. This will need to consider impacts to the Gardiner Expressway, the rail corridor, and the hydro corridor, among other things.

A key element of this would be the construction approach used for spanning these areas. A traditional “cut and cover” or bridge construction approach would impart significant impacts to travel and movement along both the Gardiner Expressway and the rail corridor. As such, a tunneling approach should also be considered. A number of technical considerations are summarized below:

Construction methods for the proposed tunnel:

- Canopy Tunnelling under pipe-roof with sequential excavation method (SEM) possibly partializing the face to reduce induced settlement and ground-stress relaxation.
- Tunnelling by Box Jacking with the advantage of a quality-controlled pre-cast element assembled outside the embankment and then pushed in with minimal disruption to the Gardiner Expressway or rail tracks.
- Cut and Cover Tunnel methods (C&C) are frequently used for the construction of shallow depth tunnels and are typically less costly. C&C methods would require temporary rail and highway closures and diversion of the rail line and highway traffic.

Geotechnical and Site Investigations:

- Geotechnical challenges for the project include the environmental sensitivities, surrounding residences and commercial operations, embankment cut and fills, and tunneling under the rail and Gardiner Expressway. Boreholes (possible inclined) will be required on the embankment for both the Gardiner Expressway and the railway corridor, and access for some locations may be challenging.
- Detailed topographic survey will be required but new technologies such as interferometric synthetic aperture radar (InSAR) can be integrated to reduce impacts to area travellers and enhance safety for the survey team.

Possible needs and issues within the tunnel crossing to be investigated and mitigated include:

- Vent, fire, and life-safety requirements.
- Maintaining sufficient cover to elements above the tunnel (such as utilities, foundations, and railway ballast).

- Potential induced settlements.
- Instability of the existing adjacent Gardiner Expressway ramp tunnels.
- Management of excavated soils (contaminations?).
- Groundwater control within fill (for example, high or perched water).
- Reinforcement of foundations and existing structures for the existing structures supporting the rail, Gardiner Expressway and Hydro One towers.
- Ramp pre-stabilization may be required during tunneling to minimize structural interface with retaining walls.

A potential construction approach is summarized below and in the subsequent exhibit.

- 1-Stabilization of the face with earth/face wedge
- 2-Shotcrete lining (with or without lattice girders)
- 3a-Spiling with rebars or grouted pipe spiling
- 3b-Barrel vault method (BVM) / roof pipe installation
- 3c-Horizontal jet grouting method
- 4-Increasing width of shotcrete foundation
- 5 and 6-Improving bearing capacity at springline with grouting or grouted pipe spiling
- 7-Utilization of a temporary shotcrete invert
- 8-Face bolt
- 9-Stabilization of the face with 2” flashcrete

Exhibit 14-11 to **Exhibit 14-13** illustrate this potential construction technique as well as a local example constructed under Highway 401 in the City of Toronto.

Exhibit 14-11: Construction Approach Sample 1

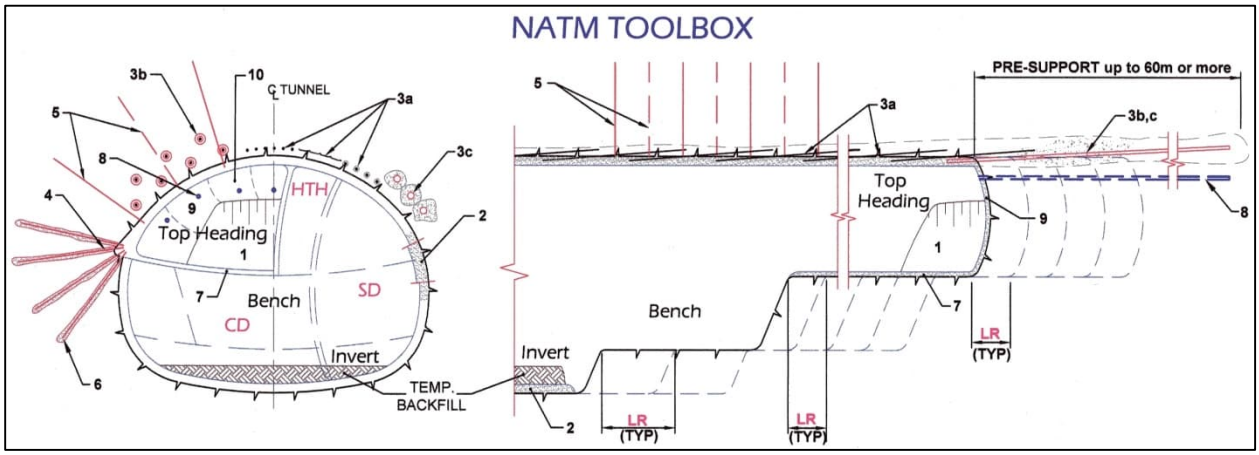


Exhibit 14-12: Construction Approach Sample 2

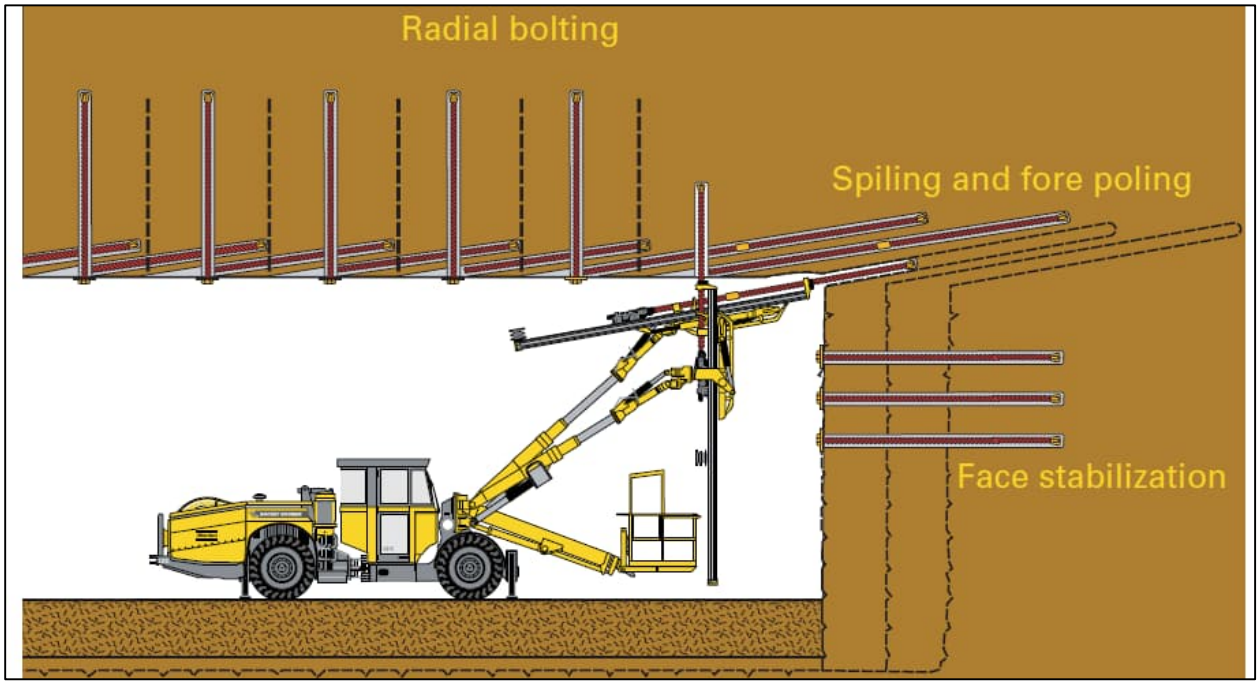


Exhibit 14-13: Construction Approach Sample 3

14.1.4 Legion Road Extension

As noted prior, a Schedule 'C' Municipal Class Environmental Assessment Study was completed in 2010 to evaluate options for the extension of Legion Road North, southerly from its southern limit at Manitoba Street to the portion of Legion Road south of the CN rail corridor (Metrolinx Lakeshore West Line) just north of Lake Shore Boulevard West. The purpose of connecting the links was to address transportation needs of the area, improve traffic safety, and improve the efficiency of the road network throughout the area.

The 2010 EA considered two alternative design concepts to extend Legion Road via an underpass across the CN rail corridor. A brief description of these alternative design concepts and results of their evaluation are provided below.

- Design Concept 1 – Single Portal: A single portal/opening for sidewalks, bikeways and vehicular traffic lanes.
- Design Concept 2 – Multiple Portals: Separate portals/openings for vehicles, pedestrians, and/or cyclists.

Based on a review of the advantages and disadvantages of the two design concepts it was determined that the preferred design solution for the extension of Legion Road was the provision of a single portal. This concept was selected because pedestrians will be more visible and can be easily accessed in the event of an emergency, and it results in lower costs due to fewer openings and less construction staging. The recommended design in the 2010 EA for the extension of Legion Road included the following elements:

- One northbound and one southbound vehicle travel lane;
- Bicycle lanes on both sides of the road;
- Sidewalks on both sides of the road;
- A single portal/tunnel to accommodate pedestrians/cyclists and vehicles under the CN rail corridor; and
- Provision of trees within the boulevards.

At the time, Transportation Services completed the initial design of the extension and grade separation in 2010, the cost of the extension was estimated at only $8 million.

Since the completion of the 2010 EA, the City has been advancing the preliminary and detailed design for the Legion Road extension. However, the estimated costs for the extension have fluctuated considerably as preliminary design activities have advanced.

In 2018 and 2019, pre-design work completed for the Legion Road extension identified significantly higher cost estimates for the project than were previously estimated. At that time, the proposed construction method identified for the grade separation - Sequential Excavation Method (SEM) tunnelling technique – resulted in a cost estimate of $60 million to $75 million. That construction method and approach proposed was identified in part to address Metrolinx and 2010 EA requirements since Metrolinx was not supportive of a construction approach that would require construction workers in and around live rail traffic.

Subsequently, the City held further discussions with Metrolinx to determine if the design approach could be altered and whether they would be supportive of a more conventional construction method at a lower cost. This considered alternative construction methods for the proposed underpass:

- Box Jacking with Open Cut (Cut and Cover):
  - Utilizes industry-proven and common construction methods.
  - Cast-in-place concrete box structure is constructed on the south side of the rail corridor, jacked and slid into place during Major Work Block.
  - Requires a Contractor with good earth moving capacity and equipment, which is readily available in the GTA.
  - Requires a Long Weekend Major Work Block (≈82-hour) closure of tracks for mass excavation, and the jack and slide operation.
  - Requires Minor Work Blocks for installation of temporary railway shoring.
  - Requires the shortest period of time to construct.
  - Lower cost construction approach, but with greater impacts on train operations (that is, the Long Weekend Major Work Block).
- Box Jacking with Temporary Track Support Structure:
  - Infrequently utilized construction method.
  - Cast-in-place concrete box structure is constructed on the south side of the rail corridor, and jacked and slid into place.
  - Temporary track support structure (trestle span) is installed to permit train service during the box structure jack and slide operation.
  - Night/Day Minor Work Blocks required for installation of temporary railway shoring and track support structure.
  - Major Weekend Work Block (≈52-hour) closure of tracks for removal of temporary track support structure.

- Allows for 1-2 tracks to remain in service during installation of temporary track support structure.
- Extensive settlement monitoring required during jack and slide operation.
- Requires additional time for the installation of the temporary track support structure.

Through discussions in 2020, Metrolinx indicated they are supportive of the box structure jack and slide methodology utilizing an open cut during a Major Work Block (for example, a long weekend ≈82-hour closure), based on operational safety and ease of construction. The Legion Road extension and grade separation is now advancing and the updated cost is about $35 million. The 2020 preliminary design provided for two 3.30 m wide vehicle lanes, a 4.0 m wide elevated multi-use trail on the west side, and a 2.10 m elevated sidewalk on the east side.

Based on recent design decisions by the City, it is now envisioned the Legion Road underpass will comprise of two 3.30 m wide vehicle lanes, plus 2.10 m elevated sidewalks and 2.0 m elevated uni-directional cycle tracks on both sides. This design will be updated and refined as necessary through the City's ongoing preliminary and detailed design.

14.2 Infrastructure Cost Estimates

As part of this TMP, preliminary cost estimates were prepared for the projects making up the Preferred TMP Solution. **Exhibit 14-14** provides a summary of the cost estimates for the various projects that form part of the City's Preferred TMP Network. Additional details are contained in **Appendix L – Preliminary Construction Cost Estimates**.

Exhibit 14-14: Preliminary Cost Estimates

Project	Preliminary Cost Estimate (2022)
Park Lawn Road	$10,500,000
Lake Shore Boulevard West	$41,800,000
New North-South Street	$121,400,000
New Street A*	$182,000,000 to $197,000,000
Legion Road	$35,000,000

Note: * Cost estimate prepared by BA Consulting to support the development of the Christies lands

The preliminary cost estimates presented are based on the functional design plans of the Recommended Network Solution and unit cost estimates that reflect the basic cost

per linear metre of roadway for various design configurations. For significant cost items not reflected in the typical unit cost figure (for example, tunneling), these items have been estimated using cost estimates derived from typical cost experiences in other areas. The cost estimates for road improvements reflect the basic costs associated with the work required to build the roadways and exclude the costs associated with property acquisition and general servicing (i.e., water, sewer, storm sewer) of the lands within the study area.

More preliminary and detailed design work will be completed during subsequent work activities that are beyond the scope of this TMP. Through the future design, the preliminary cost estimates presented in this report will be developed and refined to reflect the final alignment and configuration of the individual roads, a more complete assessment of soil and groundwater conditions on the site, specific design treatments implemented to mitigate identified or potential environmental impacts, integration with plans for adjacent land uses, the addition of design features and supporting infrastructure that may be constructed in conjunction with the individual projects, and various construction staging and approaches. Therefore, the estimates presented in this report are considered as “Planning Level Cost Estimates” and reflect the level of detail in the Functional Design Plan.

14.3 MCEA Project Classification

The infrastructure improvements associated with the Preferred Solution can be implemented individually or advanced together as a group. Prior to implementation some projects will be required to complete further MCEA process. As indicated earlier, since initiating this Master Plan a number of updates to the MCEA process were completed that included changes to project classification and Project Schedules. The four types of Project Schedules (i.e., A, A+, B, or C) as follows (reflecting MCEA 2015):

- **Schedule A and A+:** These projects are exempt from the EA Act.
- **Schedule B:** Includes improvements and minor expansions to existing facilities. These projects require the completion of Phases 1 and 2 of the MCEA process prior to moving forward to implementation in Phase 5.
- **Schedule C:** Includes construction of new facilities and major expansions to existing facilities. These projects have an increased potential for environmental impact and require the completion of the full Class EA process including Phases 1 to 4 and the preparation of a formal EA document, and posting of that document for public review.

The applicable schedule determines the level of MCEA planning required and will establish whether a project can proceed to implementation or whether additional MCEA study will be required following completion of this Transportation Master Plan. **Exhibit 14-15** identifies the estimated project costs, applicable MCEA Project Schedule and anticipated timing for implementation of each of the improvements that make up the Preferred TMP Solution. It is noted that the Total Cost Estimate in the table is the total estimated construction cost and does not reflect cost sharing or delivery of required infrastructure through the development approval process.

The MCEA project classifications for the infrastructure projects as identified in Exhibit 14-15 are based on the 2015 MCEA process that was applicable at the time of writing this document. When implementing the subject infrastructure projects at a future date; the applicable MCEA project classification and process will need to be reviewed in the context of the MCEA process current at that time.

As shown in **Exhibit 14-15**, the only Schedule A+ project that can proceed without further MCEA process is the proposed bikeway improvements planned for The Queensway. The remaining projects that make up the Preferred Network Solution including the new Street A, the Legion Road extension, the new North-South Street and improvements to both Park Lawn Road and Lake Shore Boulevard West all constitute MCEA Schedule C projects.

Schedule C projects normally require completion of the full MCEA process, Phases 1 to 4 with implementation in Phase 5. However, given that this Master Plan process followed Approach #2 with the intent of fulfilling MCEA requirements for Phases 1 and 2, the Schedule C projects will only need to complete Phases 3 and 4 of the process and file an Environmental Study Report (ESR) prior to implementation.

A separate MCEA that completed Phases 3 and 4 of the MCEA process was previously undertaken by the City for the Legion Road extension. The time period from completion of the Class EA to construction exceeded the 10-year time period, necessitating the completion of an Addendum that reviewed the planning and design process, and confirmed the project and mitigation measures are still valid. This TMP confirmed the necessity of the street connection and the level of analysis confirmed the project and mitigation are still valid. As such, the TMP also serves as the required Addendum to document the review. The Class EA requirements associated with the Legion Road extension are considered addressed and it can therefore proceed to detailed design and construction.

Exhibit 14-15: Preliminary Preferred TMP Solution Implementation and Phasing

Project	Work Proposed	Total Cost Estimate ($Millions)	MCEA Project Schedule	Near Term (1-10 years)	Medium Term (11-20	Long Term (20+ years)
The Queensway	■ Continuous bikeways	TBD	Schedule A+	●	-	-
Street A	■ 2-4 traffic lanes with wider sidewalks and uni-directional cycle tracks ■ New grade separation underpass under rail line	$182-197M	Schedule C	●	-	-
Legion Road Extension	■ 2 traffic lanes, bi-directional cycle tracks, sidewalks, tree plantings ■ New grade separation underpass under rail line	$35M	Schedule C	●	-	-
Park Lawn Road	■ 2 traffic lanes with wider sidewalks, uni-directional cycle tracks, curbside space (lay-bay, parking/loading), and tree plantings ■ Modifications to Gardiner ramp intersections.	$11M	Schedule C	-	● South of Street A	● North of Street A
Lake Shore Boulevard West	■ Dedicated transit right-of-way (Humber Loop to Legion Road) ■ 3 to 4 traffic lanes, uni-directional cycle tracks, wider sidewalks, trees plantings ■ Potential Mimico Creek bridge structure widening	$42M	Schedule C	-	●	-
New North-South Street	■ 2 traffic lanes, uni-directional cycle tracks, sidewalks, tree plantings ■ New grade separation under rail line and Gardiner Expressway corridor ■ Modifications to Gardiner ramps.	$121M	Schedule C	-	-	●

Street A is proposed to be designed and constructed by the Owner of the Christie's site, partially funded by the City. Further work is required to co-ordinate provision of streetcar infrastructure within the Christie's site with streetcar infrastructure proposed along Lake Shore Boulevard West, as part of review of the broader City-wide transit network prioritization of the Waterfront LRT initiative. Other infrastructure improvements may be incrementally achieved through the development approval process.

14.4 Phasing

The projects that constitute the Preferred Network Solution have also been classified based on planned implementation as follows:

- Near-Term – implementation within 1-10 years
- Mid-Term – implementation within 11-20 years
- Long-Term – implementation within 20+ years

As illustrated in the preceding exhibit**,** near term projects (1-10 years) consist of cycling improvements to The Queensway, the new east-west connection Street A; and the Legion Road extension. Medium-term projects to be constructed in 11-20 years include the planned Park Lawn Road improvements south of the Gardiner eastbound off ramp and the Lake Shore Boulevard West improvements. Long-term projects (20+ years) include the proposed Park Lawn Road improvements north of the Gardiner EB off-ramp and the new North-South Street including the new grade separation under the railway and Gardiner Expressway corridors, and modifications to the Gardiner ramps.

The following is a summary of some key elements associated with the timing of the road projects noted:

- The Queensway: Timing for the continuous bikeways is anticipated as part of a planned street reconstruction project. Road reconstruction and watermain improvements are proposed for The Queensway in 2023 and the City is considering the inclusion of safety improvements such as intersection enhancements and cycle tracks as part of this work.
- Street A: Assumed to be delivered as early-works through Metrolinx and construction of the Christie's lands.
- Legion Road Extension: Currently in 30% design, with further design development expected in the next year.
- Park Lawn Road: Although the implementation of the Park Load Road improvements would likely be staged over two planning horizons, it would be

prudent and fulsome to complete a consolidated Schedule C Environmental Assessment for the full extents of Park Lawn Road between The Queensway and Lake Shore Boulevard West. Considerations for timing of the delivery of the two segments are:

  - South of Gardiner off-ramp/Street A: Implemented in co-ordination with Street A and Legion Road Extension, which both help provide improved street network connectivity.
  - North of Gardiner off-ramp/Street A: Implemented in co-ordination with the new North-South Street and its improved street network connectivity.

- Lake Shore Boulevard West: The timing for the transit right-of-way project is to be confirmed in collaboration with TTC and Waterfront Toronto as part of the broader waterfront transit improvements initiatives. It is assumed to be no earlier than medium-term since waterfront transit improvements are currently focussed downtown. Since planning, design and funding commitments need to be initiated, the timing assumed is mid-term.
- New North-South Street: This project will require significant planning, design, negotiations, and discussions regarding funding commitments. It is assumed to be long-term. The Reconfigured Brookers Gardiner on/off ramps to new North-South Street project would proceed as part of the new North-South Street.

14.5 Monitoring

It is recommended that the Master Plan be reviewed periodically to determine the need for a detailed formal review and / or updating. This will assist in ensuring that it is current and aligned with the City's Official Plan and other guiding policy (i.e., Municipal Comprehensive Review and Growth Plan conformity exercise) and that it reflects growth and development in the Park Lawn / Lake Shore area.

Additionally, given that some of the projects will be implemented over the long term it is recommended that the following be reviewed and monitored to ensure that the TMP continues to be valid:

- **Land Use and Policy Changes:** Monitor any land use and policy changes that may impact the proposed transportation network improvements as recommended in the TMP.

- **Growth:** Review data (i.e., annual population, employment and dwelling unit data) to obtain an understanding of growth and to determine if the study area is growing at the rate as anticipated.
- **Traffic:** Schedule regular traffic counts in the area at key locations using mid-block ATRs (automatic traffic recorders) and at key intersections using Intersection turning movement counts to identify and confirm issues. Monitor the travel characteristics of employees, residents and visitors including modal split, vehicular occupancy, trip distribution, and peak hours of travel.
- **Transit Network:** Monitor the need for potential changes to the transit system by considering route performance and customer satisfaction. Potential changes to the TTC route network should be considered on the basis of future development patterns and the timing of the road network changes that are implemented.
- **Active Transportation Network:** Monitor the status of improvements to the pedestrian and cycling networks. It is anticipated that some streetscape improvements will be implemented through the development application and approval process, which may result in a patchwork of improvements in the near to medium-term. Once there is a critical mass of development, there may be an opportunity for the City to “finish” the limited gaps that may remain between developed lands.

15. Environmental Impacts, Mitigation and Future Commitments

This section summarizes the potential for environmental impacts associated with the projects that form the Preferred Network Solution and identifies the mitigation strategies recommended to minimize impacts including additional studies, agency approvals and future commitments to be considered during future phases (i.e., additional MCEA process, detailed design, etc.) and prior to implementation.

15.1 Natural Environment

The study area overall is urbanized and developed, and the majority of the terrestrial habitat sensitivity is considered to be low, with the exception of the natural areas associated with Bonar Creek, Mimico Creek and the Humber River Valley. These natural areas provide habitat for various species including potential Species at Risk (i.e., Barn Swallow, Chimney Swift, Bat species, Butternut Tree etc.), migratory birds, turtle overwintering and nesting areas, amphibian woodland / wetland breeding habitats and wildlife movement corridors. Bonar Creek, Mimico Creek, and the Humber River also provide for fish/fish habitat and will be subject to an in-water work timing restriction. While no aquatic Species at Risk (SAR) concerns were identified for Bonar Creek or Mimico Creek, several potential SAR were identified for the Humber River including the Silver Lamprey, American Eel, Pugnose minnow, Bridle shiner and Redside Dace.

In addition, the Lower Humber River Wetland Complex Provincially Significant Wetland (PSW) is located outside the study area at the east end along the west side of the Humber River and north of the Queensway. There are also four (4) Environmentally Sensitive Areas (ESA) present within 120 m of the study limits that include the High Park and Rennie Park ESAs near Ellis Avenue north of the railway and the Humber Valley and Sassafras ESAs located near the Humber River north of the railway.

The key potential for impact relates to work taking place in proximity to the aforementioned environmentally sensitive features. Improvements associated with the Legion Road extension will have an increased potential for impact given its location in proximity to Bonar Creek and the Mimico Creek ravine area. Likewise, the proposed widening of the Lake Shore Boulevard West bridge over Mimico Creek will require work in proximity to a watercourse with the potential to impact fish/fish habitat as well as the potential to impact terrestrial species and vegetation within the associated ravine area. The new North-South Street corridor and Street A will have a reduced potential to

impact natural heritage features given that both locations are within developed areas with limited existing vegetation and wildlife habitat.

Any vegetation removals will need to consider the potential to impact breeding birds under the Migratory Birds Convention Act (MBCA) and SAR under the Endangered Species Act (ESA). Vegetation removal may need to be restricted between April 1 and August 30 to minimize potential impacts. Targeted SAR surveys and consultation with the MECP may be required during the detailed design phase once the potential for impact has been confirmed to address potential impacts to SAR and SAR habitat in specific areas. During detailed design any work proposed within Mimico Creek or in proximity may require additional study to confirm the potential to impact fish and fish habitat and to develop appropriate mitigation. Depending upon the works proposed construction may be subject to an in-water work timing restriction and / or an approval from the DFO for work in and around water.

The Mimico Creek/Bonar Creek area west of Park Lawn Road and lands adjacent Humber River are within a TRCA regulated area as well as the City's Ravine and Natural Features Protection (RNFP) policy area. Once confirmed during the detailed design phase, any work taking place in these areas will require consultation with both agencies. A permit under O. Reg. 166/06 may be required from the TRCA and a separate permit may also be required from the City's RNFP division. Vegetation removals will also need to adhere to the City's tree removal policy.

In addition, any work taking place within 120 m of the Lower Humber River Wetland Complex Provincially Significant Wetland, the Provincially Significant High Park Oak Woodlands Life Science ANSI, the Regionally Candidate Life Science ANSI Humber River Coastal Marsh, and / or the four (4) identified Environmentally Sensitive Areas (i.e., High Park, Humber Valley, Rennie Park and Sassafras ESA) may require further consultation with the City of Toronto and TRCA to determine required studies and / or mitigation measures.

15.2 Archaeological Resources

Given the urbanized nature of the study area, the Stage 1 Archaeological Assessments (AA) completed for this undertaking concluded that the majority of the lands have been previously disturbed by development and infrastructure construction with minimal potential for archaeological resources remaining. However, there are still some localized areas scattered throughout the study area where there is the potential for the recovery of archaeological resources.

For the lands to be impacted by the Legion Road extension the majority have been cleared of archaeological concern except for a small section abutting the north side of the rail corridor. A Stage 2 AA will be required for this location prior to construction.

The improvements associated with Lake Shore Boulevard West will be completed within the existing ROW with minimal potential to impact archaeological resources. While Lake Shore Boulevard West has been cleared of archaeological concerns any intrusion into adjacent properties may require additional study prior to construction. The Queensway has also been cleared of archaeological concerns, but some adjacent properties, if impacted, should be subject to further study during the detailed design phase.

The lands affected by the new North-South Street connection for the most part have also been cleared of archaeological concerns. This includes the Gardiner Expressway, the rail corridor, and the commercial lands to the north. However, at the south connection, if properties adjacent to Brookers Lane are to be impacted further study will be required in advance of construction.

The majority of the Christie's site has been cleared of archeological concerns except for some localized areas adjacent to the Gardiner Expressway and adjacent to Lake Shore Boulevard West. Any intrusion into these areas will require further study prior to construction.

15.3 Built Heritage and Cultural Heritage Landscapes

Within the TMP study area, the City of Toronto currently has four listed properties (i.e., 176, 194, and 195 Park Lawn Road and 28 High Street) and two Designated Heritage Properties (i.e., 1978 Lake Shore Boulevard West and 4 South Kingsway Fort Toronto) under the Ontario Heritage Act, Part IV. In addition, the heritage review undertaken as part of the current TMP study identified an additional 23 potential built heritage resources that include 17 bridges, four structures (i.e., Christies Site, Ontario Food Terminal, Church at 11 Aldgate Avenue, & Humber Loop TTC building), one expressway (Gardiner), one monument (QEW Monument), and two cultural heritage landscapes (i.e., Mimico Creek & Humber River) as detailed in earlier sections of this TMP.

Of the above, the key cultural heritage resources with the potential to be impacted by the improvements associated with the Preferred Network Solution (Alt. 4B) include the former Christie's Bakery Site (CHSA 2017, BHR20), the Ontario Food Terminal (CHSA 2017, BHR10), the Gardiner Expressway (CHSA 2017, BHR19), the Mimico Creek Cultural Heritage Landscape (CHSA 2021, CHL1), and one city listed/designated

property at 176 Park Lawn Road (i.e., CHSA 2017, BHR.) located in the northeast quadrant of The Queensway/Park Lawn Road intersection. Several potential heritage bridges may also be impacted by the works proposed. These include the Park Lawn Rail bridge (BHR6), the Gardiner Bridge over Park Lawn Road (BHR7), the Gardiner Expressway Bridge (BHR9), the Expressway ramp over Gardiner / Lake Shore Boulevard West Ramp (BHR 5) and the Lake Shore Boulevard West bridge over Mimico Creek (2021 Heritage Report, BHR2).

Any potential to impact the identified bridge structures will require further evaluation of the bridge in advance of construction using the *Ontario Heritage Bridge Guidelines (OHBG)* criteria as well as the *Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance (O. Reg. 10/06).* Likewise, should it be determined during detailed design that works proposed will impact the cultural heritage value or interest of the four structures, the Gardiner expressway, the monument and /or the cultural heritage landscape then further assessment in the form of a Cultural Heritage Evaluation Report (CHER) will be required with the resources further evaluated using the *Criteria for Determining Cultural Heritage Value or Interest (O. Reg. 9/06)* and the *Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance (O. Reg. 10/06)* to confirm the heritage value of the subject feature(s). Any potential to impact the identified City designated/listed properties may require the completion of a Heritage Impact Assessment in accordance with S. 3.1.5 of the City's Official Plan (Dec. 2010).

15.4 Contamination

The Limited Phase One ESA Reports (AECOM, 2017 and 2021) completed during the Master Plan process identified a number of properties of potential contamination concern given current and historic use of the subject sites. These include active /or former automotive sales and/or service facilities, gasoline service stations, historical landfill sites, infilling and an on-site dry-cleaning operation. In addition, given the historic heavy industrial and soil and waste management activities in the area, the potential for subsurface soil and groundwater impacts within area roadways and associated interchanges, as well as the lands to the south of Lake Shore Boulevard West is present.

During the detailed design phase, should it be determined that roadway modifications expand beyond the ROW and encroach onto properties or areas identified in the Limited Phase One ESA Reports (i.e., AECOM, 2017 and 2021) as being a potential area of contamination concern, then a Phase One and/or Two Environmental Site Assessment is recommended prior to construction activities to confirm the presence or absence of on-site soil and/or groundwater contamination.

15.5 Air Quality

The planned improvements associated with Preferred Network Solution provide for a multi-modal scenario that will reduce vehicle congestion and ultimately assist in reducing impacts to air quality. Standard mitigation measures to address dust and fumes generated during the construction period should be developed during detailed design and implemented during construction to minimize adverse effects to air quality.

15.6 Noise

Noise impacts associated with the Legion Road extension would be addressed as part of the separate MCEA and detailed design process completed for that project. Likewise, noise considerations for Street A will be addressed through the Christie's site re-development land use process. The remaining improvements associated with the Preferred Solution propose upgrades to existing corridors and infrastructure and are therefore unlikely to result in significant increases in noise. The key potential for impact will be during construction; however, impacts will be temporary and limited to the period of construction. Standard mitigation to address noise concerns will be developed during the detailed design phase for implementation during construction.

15.7 Surface Water

The proposed improvements have the potential to impact surface water and area drainage. Additional review will be completed during the detailed design phase to address stormwater management for the proposed improvements. The potential need for surface water diversions or extractions may be subject to an approval by the MECP. The application of standard mitigation during construction to address erosion and sediment control will assist in minimizing impacts to surface water and drainage.

15.8 Groundwater

The City of Toronto is located within the Toronto and Region Source Protection Area and therefore part of the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Region. It is therefore subject to the CTC Source Protection Plan.

Groundwater taking necessary for construction will need to be reviewed further during the future detailed design phase to confirm water taking requirements and the need for an MECP approval in the form of an EASR registration or a Permit To Take Water (PTTW). More detailed study may be needed to support water taking approvals.

15.9 Property

The majority of property impacts are associated with the proposed North-South Street corridor as it will impact the Ontario Food Terminal and the Fiera Properties lands at 125 The Queensway (an existing commercial plaza anchored by Sobeys). The eastern edge of the Ontario Food Terminal site will be affected by the proposed corridor with the potential to impact storage and property access to the adjacent Hydro One and railway corridors. Both corridors are accessed via the Ontario Food Terminal and access will need to be maintained.

More significant impacts are anticipated to the Fiera Properties lands (Sobeys commercial plaza at 125 The Queensway) adjacent the Ontario Food Terminal given that there will be direct impacts site grading and to existing structures. However, the owner of the commercial plaza has submitted an application to the City for a change in use at the site which may minimize the potential for impact.

While the proposed Street A (East-West connection) will traverse the former Christie's site, the subject property is being redeveloped and the proposed alignment will be incorporated into the design of the redevelopment through the land use planning process.

The remainder of the improvements associated with the Preferred Network Solution (Alt. 4B) will be generally confined to within existing corridors; however, property acquisition may be required in localized areas to accommodate construction. This will be confirmed during the future detailed design stage.

15.10 Utilities

The most significant utility impact associated with the Preferred Network Solution relates to the proposed North-South Street connection which will cross an existing Hydro One corridor potentially impacting two existing hydro towers. To accommodate the new connection the two existing towers may need to be relocated. Hydro One also confirmed that access to the Hydro One corridor is through the Ontario Food Terminal and that access will need to be maintained.

Consultation was completed with Hydro One during the TMP process to determine the best approach so as to minimize impacts to existing Hydro One facilities, maintenance and access. Copies of the discussions with Hydro One are included in the consultation record for this project. Ongoing consultation with Hydro One during the detailed design phase and continued co-ordination will assist in minimizing impacts to this utility.

Corridor improvements in general have the potential to impact existing utility infrastructure and the extent of impact will need to be confirmed during detailed design. Utility investigations and exploration will be required to determine horizontal and vertical locations in order to confirm locations, conflicts, and relocation strategies.

15.11 Traffic

Traffic by-passing the eastbound Gardiner during peak periods and travelling along the area arterial road network (that is, Park Lawn Road and Lake Shore Boulevard West) has been a concern for the community. Although the proposed construction of the new Street A connection will potentially migrate some traffic away from both Park Lawn Road and Lake Shore Boulevard West links, and removal of the double left turn lanes at both the Park Lawn Road / Eastbound Gardiner Off-ramp and Park Lawn Road / Lake Shore Boulevard West intersections will also discourage some of this community infiltration, the traffic movements and traffic infiltration should continue to be monitored in the future. This would consist of undertaking a traffic monitoring program of traffic counts and vehicle trace surveys to quantify the extent of traffic infiltration in the area. Traffic management initiatives will be identified and determined depending on the outcome of the traffic monitoring program. Potential mechanisms that could be considered include changes to the eastbound Gardiner off-ramp such as a reduced ramp length (thus providing less opportunity for free-flow ramp travel versus congested mainline Gardiner travel), static and dynamic signs, and changes to the Legion Road intersection/signals configuration.

In response to feedback heard from the surrounding community during the study public engagement, the TMP includes recommendations to complete additional neighbourhood transportation studies (that do not require Environmental Assessment approvals) to explore potential traffic calming, safety, and other operational improvements in the following areas:

- Mimico neighbourhood, between Royal York Road and Lake Shore Boulevard West (study currently underway);
- Humber Bay Shores neighbourhood (once area streets have been assumed by the City), between Lake Shore Boulevard West and Marine Parade Drive. This could include exploring the potential for alternating one-way north-south local streets, as well as potential traffic calming measures along Marine Parade Drive to improve safety and discourage by-pass traffic infiltration, among other measures; and

- Sunnylea neighbourhood, north of The Queensway, along Park Lawn Road/Berry Road/Prince Edward Drive to Bloor Street West.

15.12 Climate Change

As part of this Master Plan process consideration was given to the project's potential impact on climate change and the potential for climate change to impact the project in accordance with the MECP's Guide *Considering Climate Change in the EA Process.* Climate Change was included as a criterion in the evaluation of the alternatives and thought was given to providing a minimal carbon footprint (CO2 & Green House Gas emissions) as well as the ability to adapt or be resilient to future weather conditions and events.

During the future detail design phase to follow for the various projects the aspect of climate change should be explored further, and measures included to mitigate climate change. This could include minimizing the removal of vegetation, replanting where possible, and the inclusion of Low Impact Development drainage measures and other design options to minimize impacts to climate change and to make infrastructure more resilient to extreme weather events.