

10. Final Transportation Network Alternatives and Evaluation

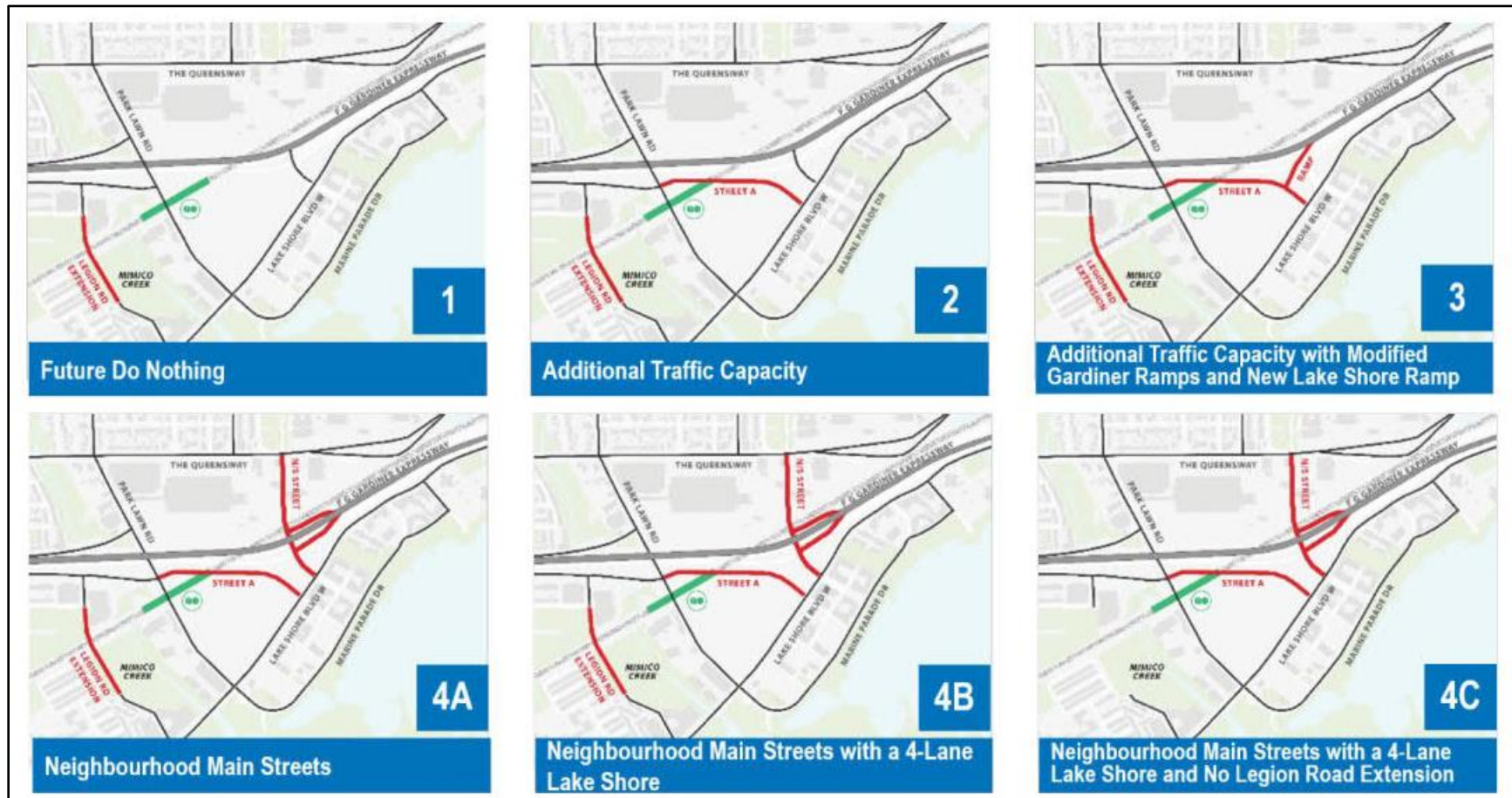
Following the June 2020 Public Information Update online consultation, the City revisited and refined the 2020 Short List of Alternative Solutions and the associated evaluation criteria based on updates that included an approved Christie Site Re-development Plan and a further consideration of the Legion Road extension. The latter was part of the Bonar Creek/Legion Road (BCLR) project and it was determined that it needed to be further assessed as part of the Short-Listed Alternative Solutions *“given the amount of time that had lapsed since completion of the 2010 EA as well as the changing context and opportunities afforded with the redevelopment of the Christie’s site providing opportunities for new street connections that were not possible during the 2010 EA.”* (Park Lawn Lake Shore TMP and Legion Road Staff Report, June 18, 2021, pg. 14).

Given the above, the June 2020 Short-List Alternative Solutions were modified and further refined into a series of network alternatives to form the Final Transportation Network Alternatives to be further assessed using a comprehensive evaluation framework as part of the Transportation Master Plan EA process.

As illustrated in **Exhibit 10-1** the **Final Transportation Network Alternatives** included the following:

- **Alternative 1:** Future Do Nothing
- **Alternative 2:** Additional Traffic Capacity
- **Alternative 3:** Additional Traffic Capacity with Modified Gardiner Ramps and New Lake Shore Boulevard West Ramp
- **Alternative 4A:** Neighbourhood Main Streets with a Two-lane Lake Shore Boulevard West
- **Alternative 4B:** Neighbourhood Main Streets with a Four-lane Lake Shore Boulevard West
- **Alternative 4C:** Neighbourhood Main Streets with a Four-lane Lake Shore Boulevard West and No Legion Road Extension

Exhibit 10-1: Transportation Network Alternatives



Source: Park Lawn Lake Shore TMP and Legion Road Staff Report June 18, 2021, pg. 14

Alternative 1 builds off of existing network conditions, wherein Park Lawn Road is currently four lanes, Lake Shore Boulevard West is generally four lanes, and The Queensway is also four lanes. Alternative 1 is essentially the future 'do nothing' base with only already programmed improvements included, such as the Legion Road extension. Each of the subsequent network alternatives (that is, Alternatives 2, 3, and 4 A/B/C) share several common street infrastructure elements as follows:

- An internal local street network and streetcar loop associated with the Christie's redevelopment proposal;
- A dedicated streetcar right-of-way and upgraded uni-directional cycle tracks on Lake Shore Boulevard West; and
- Four traffic lanes, uni-directional cycle tracks, and sidewalk and public realm improvements for The Queensway.

Each network alternative assumes the same amount of future growth and includes the planned Park Lawn GO Station.

The key variables between the network alternatives include:

- New public street connections;
- The number of traffic through lanes and turning lanes on Park Lawn Road and Lake Shore Boulevard West;
- Gardiner Expressway ramp access configurations;
- Cycling facility types and resulting cycling networks; and
- The quantity and quality of public realm space on key streets.

The Final Network Transportation Alternatives are further detailed in the sections that follow.

10.1 Final Network Alternatives

10.1.1 Legion Road Extension Background and Rationale

The Legion Road extension was the subject of an initial Environmental Assessment undertaken in 1997, and then a joint Transportation Services and Toronto Water EA completed in 2010, now referred to as the Bonar Creek/Legion Road (BCLR) project.

Key components of that project included:

- The extension of Legion Road North and Legion Road South to provide one lane of traffic in each direction (north-south), and pedestrian and cycling connections between Lake Shore Boulevard West and Manitoba Street;
- An underpass of the Legion Road extension below the rail corridor; and
- A stormwater pond and sewer connection to improve storm water quality entering Mimico Creek. However, due to significant capital cost escalations, Toronto Water has been evaluating the value of providing the stormwater pond as part of its Capital Plan and Budget process.

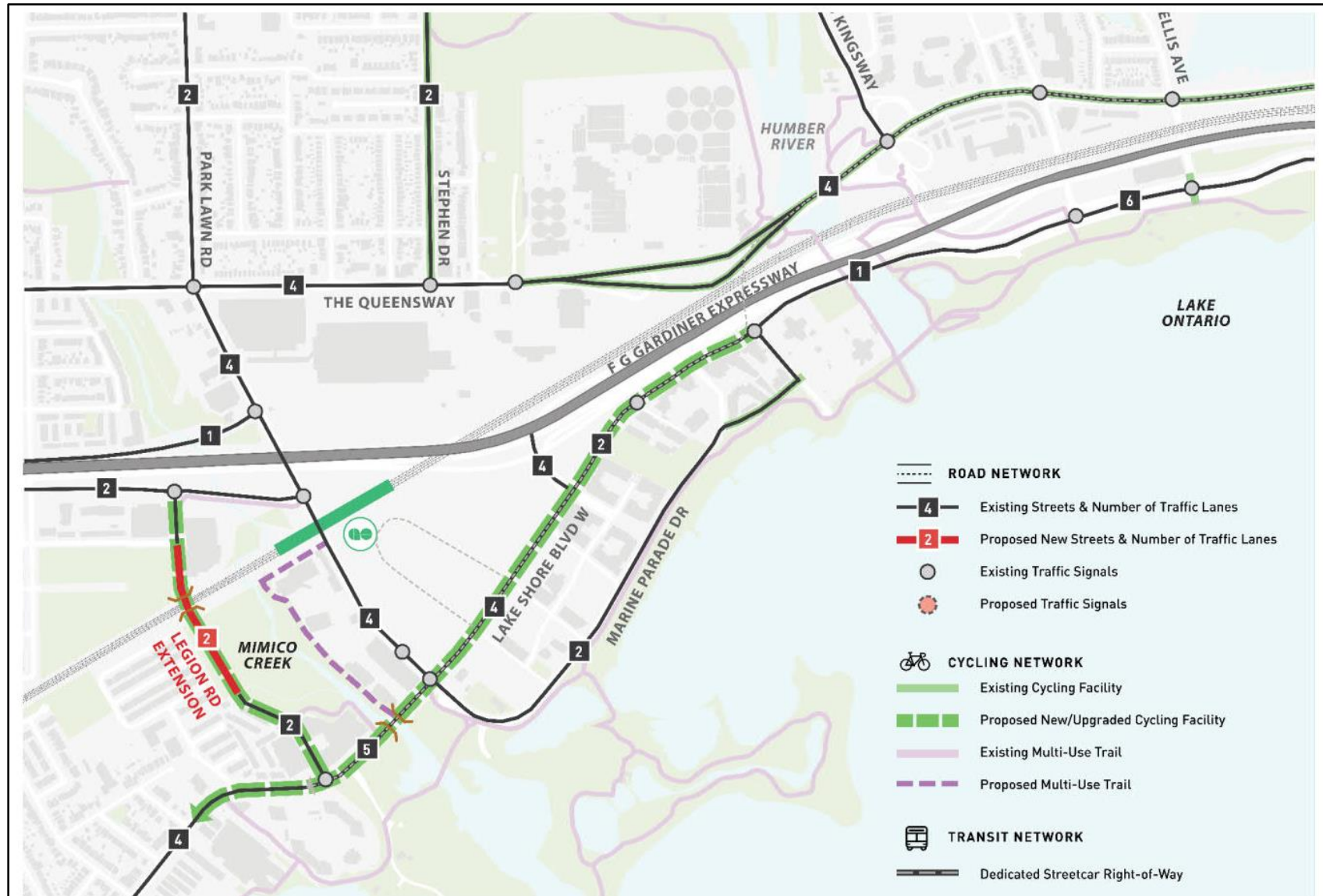
The design for Legion Road is currently approaching 30% completion, and the detailed design exercise for the extension is resuming. Given the prior project justification and long history of planning for the eventual implementation of the Legion Road connection, the link has been included in all the Transportation Network Alternatives. However, in order to re-review, and verify the justification and benefit of the Legion Road link, an additional scenario was developed, Alternative 4C, in order to compare advantages and impacts arising from including the Legion Road extension in the transportation network.

10.1.2 Alternative 1 – Future Do Nothing

Alternative 1, as illustrated in **Exhibit 10-2**, is a "do nothing/status quo" future transportation condition where little to no infrastructure improvements would be undertaken, with the exception of the completion of the Legion Road extension. The Legion Road extension has been included in this Alternative since it was identified in a previously completed Class EA, the detailed design phase was previously initiated, and since that detailed design has now resumed.

Alternative 1 does not address the area's problems and opportunities and is being used as a future baseline condition from an environmental planning and transportation modelling perspective to understand the transportation benefits (or impacts) of the other identified viable network alternatives.

Exhibit 10-2: Transportation Network Alternative 1 – Future Do Nothing (June 2021)



Source: June 18, 2021 Staff Report, pg. 32

10.1.3 Alternative 2 – Additional Traffic Capacity

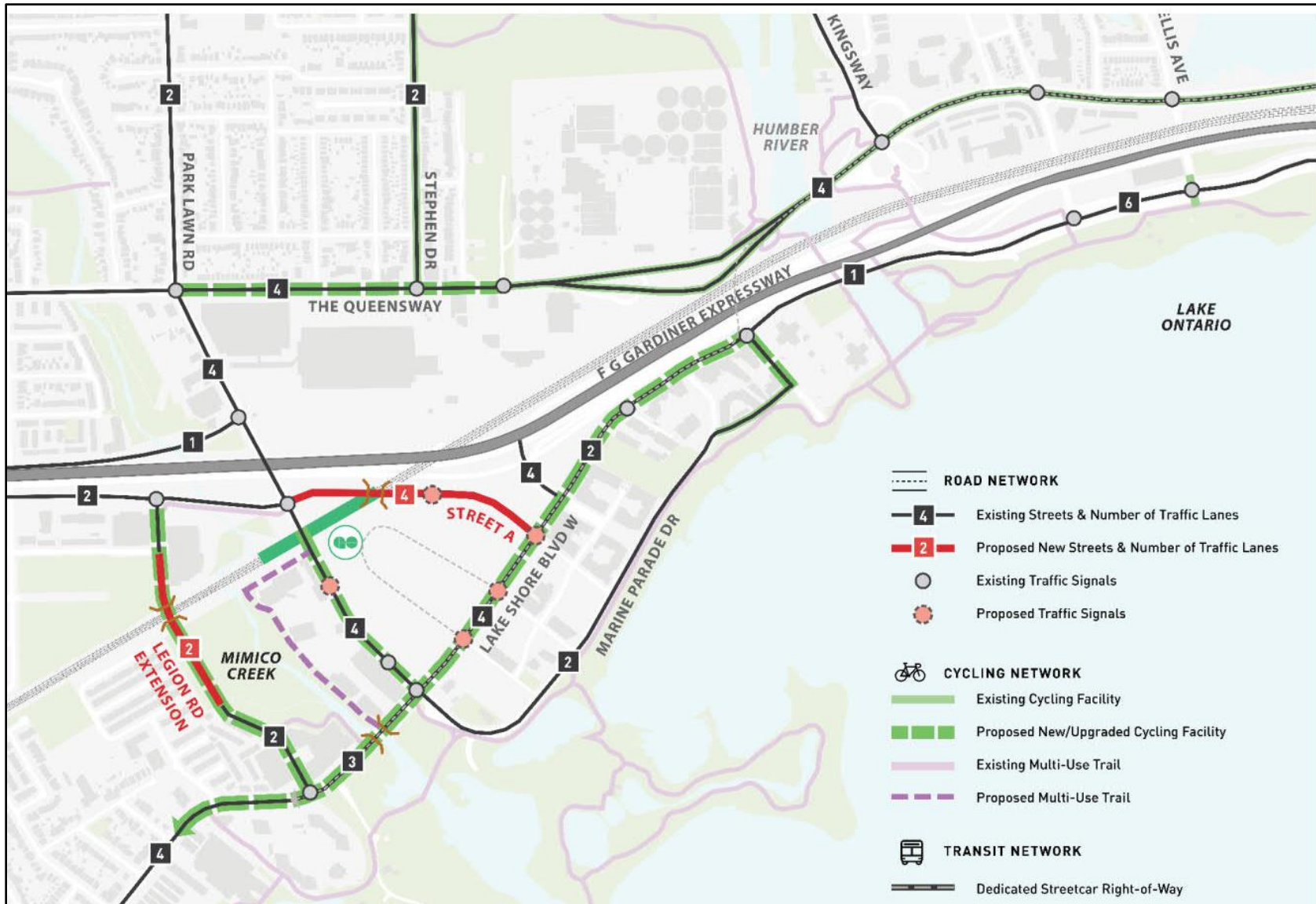
Alternative 2, as illustrated in **Exhibit 10-3**, focuses primarily on providing additional motor vehicle traffic capacity in the area with additional traffic through lanes and turning lanes to and from the Gardiner Expressway and on Park Lawn Road. Key elements of Alternative 2 include the following:

- A new east-west oriented street connection between Park Lawn Road and Lake Shore Boulevard West called Street A, and as proposed as part of First Capital's development application with four lanes of traffic, a sidewalk only on the south/west side of the street, and no bikeways;
- The Legion Road extension with a grade separation (bridge/underpass) under the rail corridor. The street would have two traffic lanes, sidewalks and bi-directional bikeways;
- Park Lawn Road to provide four through traffic lanes (plus auxiliary turn lanes), new northbound dual left turn lanes to the Gardiner Expressway westbound on-ramp, and a bi-directional bikeway on the east side of the street only between Lake Shore Boulevard West and the rail corridor; and
- Lake Shore Boulevard West would be modified to have a dedicated streetcar right-of-way, four traffic lanes west of Brookers Lane to Park Lawn Road, uni-directional bikeways and sidewalks, generally within a 36 to 40 metre right-of-way width.

10.1.4 Alternative 3 – Additional Traffic Capacity with Modified Gardiner Ramps and New Lake Shore Boulevard West Ramp

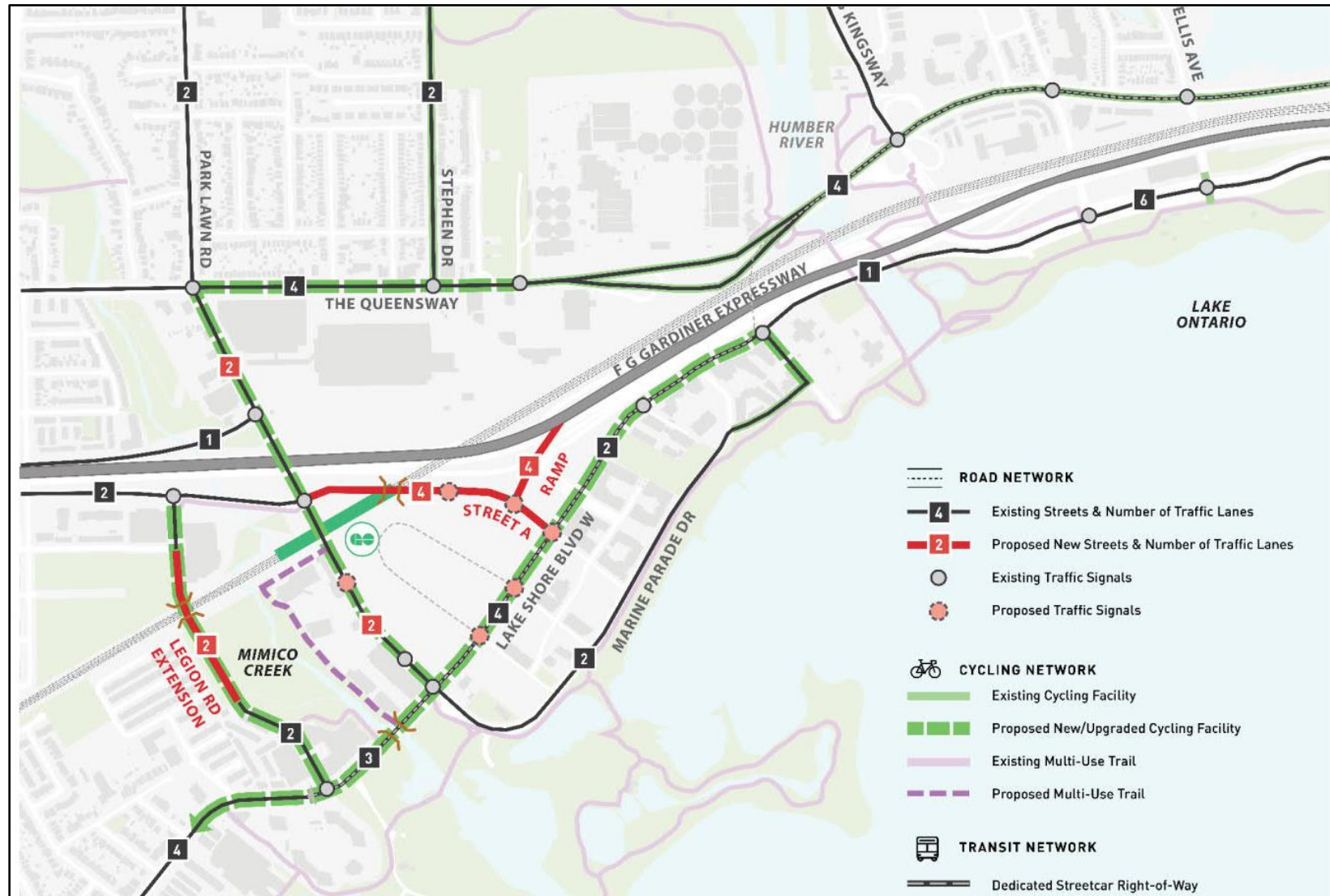
Alternative 3, as illustrated in **Exhibit 10-4**, is a similar street network to Alternative 2. This alternative focuses primarily on modifying the existing Brookers Lane/Gardiner Expressway ramps and relocating them to Street A, and also adding a new eastbound on-ramp to Lake Shore Boulevard West from the modified Street A/Gardiner Expressway ramp intersection. Another key difference of Alternative 3 from Alternative 2 is it proposes to reduce Park Lawn Road to two traffic lanes and remove dual left turn lanes allowing the vehicular road space on Park Lawn Road to be narrowed and thus the overall street to be developed with a more Neighbourhood Main Street character with a continuous cycling connection between Lake Shore Boulevard West and The Queensway.

Exhibit 10-3: Transportation Network Alternative 2 – Additional Traffic Capacity



Source: June 18, 2021 Staff Report, pg. 33

Exhibit 10-4: Transportation Network Alternative 3 – Additional Traffic Capacity with Modified Gardiner Ramps and New Lake Shore Ramp



Source: June 18, 2021 Staff Report, pg. 34

10.1.5 Alternative 4A – Neighbourhood Main Streets

Alternative 4A, as illustrated in **Exhibit 10-5**, focuses on transforming many of the area's existing major streets into more complete streets with wider sidewalks and more boulevard space for amenities like street furniture, green infrastructure and street trees. A 'Complete Street' is proposed for both Park Lawn Road and Lake Shore Boulevard West by narrowing the vehicular road space to accommodate enhanced cycling, pedestrian and other boulevard amenities. This alternative also proposes an additional new north-south street between Lake Shore Boulevard West and The Queensway, in addition to the Legion Road extension.

Key elements of this alternative include:

- A new North-South Street between Lake Shore Boulevard West and The Queensway with a grade separation (tunnel or bridge) under the rail and Gardiner Expressway corridors, as well as modified Brookers Lane/Gardiner Expressway ramps that connect with the new street. The street would have two traffic lanes, uni-directional cycle tracks and sidewalks;
- Street A (the new east-west street linking Park Lawn Road to Lake Shore Boulevard through the First Capital lands) would have a wider right-of-way (up to 28.5 m) than in Alternatives 2 and 3 in order to accommodate four traffic lanes, uni-directional bikeways, and sidewalks on both sides of the street;
- The Legion Road extension with a grade separation (bridge) under the rail corridor: the street would have two traffic lanes, sidewalks and bi-directional bikeways;
- Park Lawn Road would be reduced to two traffic lanes with no dual left turn lanes allowing the street to have 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 for bus passenger pick-up/drop-offs or loading/deliveries), wider sidewalks and more public realm space; and
- Lake Shore Boulevard West would have a reduction in the number of vehicular lanes within a 36 metre right-of-way. There would be a dedicated right-of-way for streetcar in the middle of the road, two traffic lanes, uni-directional cycle tracks, opportunities for dedicated curbside space, wider sidewalks and more public realm space.

Exhibit 10-5: Transportation Network Alternative 4A – Neighbourhood Main Streets



Source: June 18, 2021 Staff Report, pg. 35

10.1.6 Alternative 4B – Neighbourhood Main Streets with Four-Lane Lake Shore Boulevard West

Alternative 4B, as illustrated in **Exhibit 10-6**, is similar to Alternative 4A except it proposes a potentially wider 36 to 40 metre right-of-way for Lake Shore Boulevard West between Brookers Lane and Park Lawn Road to accommodate four traffic lanes, instead of two lanes. As with Alternative 4A, this alternative includes the proposed dedicated streetcar right-of-way, uni-directional cycle tracks, street trees/green infrastructure and wider sidewalks.

10.1.7 Alternative 4C – Neighbourhood Main Streets with Four-Lane Lake Shore Boulevard West and No Legion Road Extension

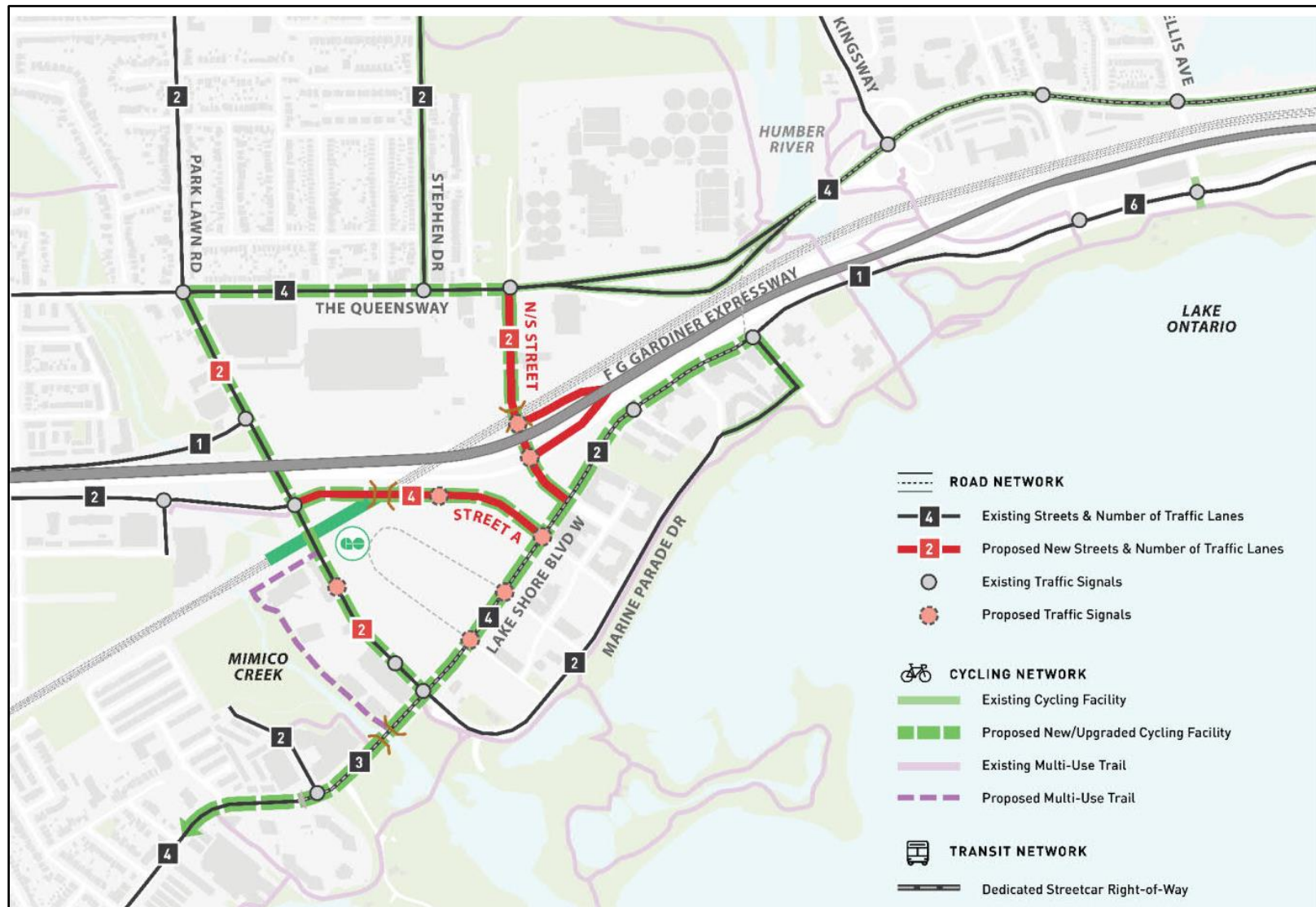
Alternative 4C, as illustrated in **Exhibit 10-7**, is also similar to Alternative 4A except it proposes a 36 to 40 metre right-of-way (similar to Alternative 4B) for Lake Shore Boulevard West between Brookers Lane and Park Lawn Road to accommodate four traffic lanes, instead of two lanes and accommodates a dedicated streetcar right-of-way, uni-directional cycle tracks, street trees/green infrastructure and wider sidewalks. However, the Legion Road extension is excluded from Alternative 4C.

Exhibit 10-6: Transportation Network Alternative 4B – Neighbourhood Main Streets with Four-Lane Lake Shore Boulevard West



Source: June 18, 2021 Staff Report, pg. 37

Exhibit 10-7: Transportation Network Alternative 4C – Neighbourhood Main Streets and Four-Lane Lake Shore and No Legion Road Extension



Source: June 18, 2021 Staff Report, pg. 38

10.2 Evaluation of Transportation Network Alternatives

10.2.1 Refinement of Evaluation Criteria June 2021

In addition to refining the 2020 Short List of Alternative Solutions to form the Final Transportation Network Alternatives to be further assessed, the City also refined the evaluation criteria to ensure a comprehensive evaluation framework that addressed the problems and opportunities and satisfied requirements under the MCEA.

As such, the draft criteria as presented in June 2020 for stakeholder and public engagement was modified to ensure a holistic framework to evaluate the Transportation Network Alternatives and assist in identifying a Preliminary Preferred Network. The evaluation framework was organized into seven broad thematic areas with a total of 26 criteria and 54 qualitative or quantitative metrics. **Exhibit 10-8**, as presented at PIC #3 in July/August 2021 summarizes the thematic areas and evaluation criteria ultimately used to complete the evaluation.

Exhibit 10-8: Final Evaluation Criteria (June 2021)

Icon	Thematic Area	Evaluation Criteria
	Policy Frameworks	<ul style="list-style-type: none"> ■ City of Toronto: Official Plan, mobility policies, guidelines, climate change, resiliency ■ Provincial Policies: Growth Plan
	Safe & Healthy Communities	<ul style="list-style-type: none"> ■ Safe & Active, Green & Vibrant Streets ■ Neighbourhood Connectivity & Choice
	Mobility	<ul style="list-style-type: none"> ■ Multi Modal: Auto Traffic, Transit, Walking, & Cycling ■ Gardiner Expressway Traffic Infiltration
	Natural Environment	<ul style="list-style-type: none"> ■ Environmentally Sensitive Features ■ Stormwater & Groundwater Quality ■ Air Quality
	Cultural Environment	<ul style="list-style-type: none"> ■ Archaeological & Indigenous Communities Rights ■ Built and Cultural Heritage
	Social Equity	<ul style="list-style-type: none"> ■ Affordability ■ Access to Opportunity & Daily Life
	Economic and Financial Considerations	<ul style="list-style-type: none"> ■ Engineering Feasibility & Constructability ■ Construction & Operating Costs & Noise ■ Property Impacts & Business Impacts ■ Goods Movement & Delivery

Source: Park Lawn Lake Shore TMP and Legion Road Staff Report June 18, 2021, pg. 17

Additional details pertaining to each of the criteria including the unit of measurement are further detailed in **Exhibit 10-9**. A qualitative and / or quantitative unit of measurement was used depending upon the criteria.

The categories of Policy Frameworks, Safe and Healthy Communities, Social Equity and Economic/Financial Considerations were primarily qualitative in nature while the remaining categories were a mix of qualitative and quantitative unit of measurements.

Traffic modelling was also utilized to quantitatively measure the impact of the various alternatives.

Exhibit 10-9: Evaluation Framework

Category	Criteria	Unit
Policy Frameworks		
City of Toronto and Provincial Policies	<ul style="list-style-type: none"> ■ Supports City's Official Plan (Map 3-Right-of-way Widths, Map 4-Higher Order Transit Corridors, Map 5-Surface Transit Priority Network), including the Christie's Secondary Plan ■ Supports Provincial planning policies (i.e. Growth Plan goal of providing "complete communities", and Metrolinx Regional Transportation Plan goal to have "a sustainable transportation system that is aligned with land use, and supports healthy and complete communities. The system will provide safe, convenient and reliable connections, and support a high quality of life, a prosperous and competitive economy, and a protected environment") 	Qualitative
Mobility Strategies, Guidelines, & Initiatives	<ul style="list-style-type: none"> ■ Supports and aligns with: <ul style="list-style-type: none"> – Complete Streets Guidelines: Enhance "Multi-modal transportation. Give reliable, convenient and attractive mobility choices to people and support more efficient, active and healthier forms of travel (by foot, bicycle, transit) to reduce vehicular congestion" – Cycling Network Plan: Achieves medium and high priority projects identified in the "Analysis Scores of Proposed Cycling Network" plan. Park Lawn is Medium, The Queensway is medium. – Goods Movement Strategy: vision of the Freight Goods Movement Strategy is to provide a goods movement system that is safe, reliable and sustainable, connecting people and products while protecting Toronto's vibrant and thriving economy and quality of life" 	Qualitative
Climate Change, Resiliency and Sustainability Strategies, Guidelines, and Initiatives	<ul style="list-style-type: none"> ■ How the Project may affect climate change concerns and how extreme weather could affect the Project through: <ul style="list-style-type: none"> – Minimal carbon footprint (CO2 emissions) – Able to adapt or be resilient to future extreme weather conditions and events 	Qualitative
Safe & Healthy Communities		
Safe & Active Streets	<ul style="list-style-type: none"> ■ Provide safe, continuous, connected and comfortable walking and cycling routes ■ Proportion of street right-of-way dedicated to active transportation ■ Improvement of safety, especially for vulnerable road users ■ Provide more frequently-spaced, protected intersection crossings for pedestrians and cyclists, especially on major streets 	Qualitative
Green & Vibrant Streets	<ul style="list-style-type: none"> ■ Potential to incorporate and enhance streetscape amenities and street trees within the road right-of-way ■ Ability to provide lay-bys for parking and deliveries 	Qualitative
Neighbourhood Connectivity & Choice	<ul style="list-style-type: none"> ■ Provide direct and convenient connections to key local destinations (i.e. Waterfront, Parks, schools, shopping, etc.) in the area community ■ Provide a range of transportation choices for people to get around 	Qualitative
Noise	<ul style="list-style-type: none"> ■ Potential noise impacts during construction and in the long term 	Qualitative
Mobility		
Auto Traffic	<ul style="list-style-type: none"> ■ Improving network connectivity and redundancy ■ Overcome existing physical barriers (rail, highway, rivers, etc.) ■ Traffic model metrics (e.g., vehicle link volumes, intersection LOS, etc.) 	Qualitative / Quantitative
Gardiner Traffic Neighbourhood Infiltration	<ul style="list-style-type: none"> ■ Reducing Gardiner Expressway non-local "by-pass" traffic infiltration impacts on street network 	Quantitative (# of locations creating infiltration opportunity)/ Qualitative
Cycling	<ul style="list-style-type: none"> ■ Overcome physical barriers (e.g., rail, Gardiner, rivers) ■ Improve cycling connections between key destinations within the study area and with the surrounding cycling network ■ Provide safe, dedicated, physically separated, continuous cycling facilities ■ Number of new route connections in the network 	Quantitative (# across barriers, and # of new connections) / Qualitative
Walking	<ul style="list-style-type: none"> ■ Overcome physical barriers (e.g., rail, Gardiner, rivers) ■ Improve walking connections between key destinations within the study area (e.g., parks, schools, shopping, GO Station, transit stops, etc.) and with surrounding neighbourhoods ■ Provide wider sidewalks and more space for pedestrians, especially on main streets, near transit stops, and adjacent to parks 	Quantitative (# across barriers, and # of new connections) / Qualitative

Exhibit 10-9: Evaluation Framework

Category	Criteria	Unit
Transit	<ul style="list-style-type: none"> ■ Improve walking, cycling, and surface transit connections to the proposed Park Lawn GO Station ■ Provide surface transit priority for streetcars on Lake Shore Blvd W ■ Improve surface transit service & route network flexibility 	Qualitative
Natural Environment		
Environmentally Sensitive Features and Compatibility with Natural Environment	<ul style="list-style-type: none"> ■ Potential impacts on area wildlife, including Species at Risk (SAR) ■ Potential impacts on fisheries and aquatic features ■ Potential impacts on vegetation 	Quantitative / Qualitative
Stormwater Management	<ul style="list-style-type: none"> ■ Reducing surface water run-off from streets (% of pavement hard surface in street ROW) ■ Improving stormwater quality and reducing stormwater quantity of runoff from streets ■ Opportunities for green infrastructure features in street ROW (e.g., space for street trees, rain gardens, etc.) ■ Minimizing underpass pumping stations 	Qualitative
Groundwater Quality	<ul style="list-style-type: none"> ■ Potential to impact area groundwater resources 	Qualitative
Air Quality	<ul style="list-style-type: none"> ■ Potential to improve air quality by reducing greenhouse gas emissions from vehicles 	Qualitative
Cultural Environment		
Archaeological Resources and Traditional Uses by Indigenous Communities	<ul style="list-style-type: none"> ■ Nature and extent of potential impacts (number of resources) 	Quantitative (# of resources)
Built Heritage and Cultural Heritage Landscapes	<ul style="list-style-type: none"> ■ Nature and extent of potential impacts to heritage resources (number of resources) 	Quantitative (# of resources)
Social Equity		
Affordability	<ul style="list-style-type: none"> ■ Improve safety and provide more reliable access to high-quality and affordable transportation, including transit, walking and cycling 	Qualitative
Access to Opportunity	<ul style="list-style-type: none"> ■ Improve access to jobs, schools, and shops 	Qualitative
Access to Daily Life	<ul style="list-style-type: none"> ■ Improve access to daily services and destinations for people of all ages, abilities and means 	Qualitative
Economic Environment		
Engineering Feasibility & Constructability	<ul style="list-style-type: none"> ■ Key technical challenges and complexity ■ Extent and nature of major utility impacts ■ Ability to stage construction with managed impacts to rail and road traffic, and to the area community 	Qualitative
Construction & Operating Costs	<ul style="list-style-type: none"> ■ Relative order-of-magnitude construction costs for roads, bridges, and utilities (excluding property) ■ Level of maintenance required to operate and maintain infrastructure 	Qualitative
Property Impacts	<ul style="list-style-type: none"> ■ Approximate number of hectares of privately owned lands required to be acquired 	Qualitative
Business Impacts	<ul style="list-style-type: none"> ■ Displacement of businesses required to provide new infrastructure ■ Support curbside activity for short-term deliveries, loading of goods and customers 	Qualitative
Goods Movement & Delivery	<ul style="list-style-type: none"> ■ Ability to support goods movement to area businesses ■ Improve connections and potential impacts to Ontario Food Terminal 	Qualitative

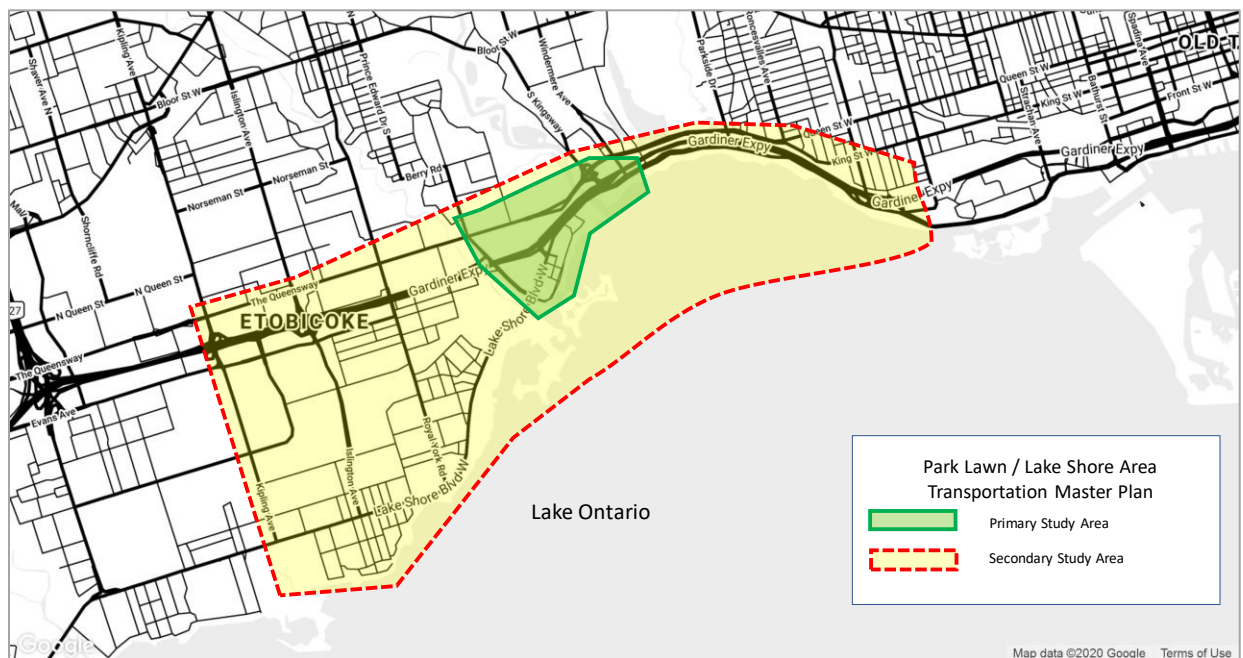
10.2.2 Transportation Assessment

Given the various network alternatives, a transportation assessment was undertaken to evaluate the traffic flows and impacts in the area. The following sections describe the general methodology and findings.

10.2.2.1 Transportation Modelling Approach and Results

A comprehensive traffic microsimulation model was developed to help inform the evaluation of the Network Alternatives. The traffic model was created for a much larger area than the TMP Study Area (generally bounded by Kipling Avenue to the west, The Queensway to the north, Jameson Avenue to the east, and Lake Ontario to the south) to better understand the traffic impacts of changes to the street network, in particular the driver decision-making for traffic along the Gardiner Expressway corridor. The primary study area and the broader study area (that is, the secondary study area) are shown in the following exhibit.

Exhibit 10-10: TMP Primary and Secondary Study Areas



The traffic model incorporates estimated future area growth for a 2041 horizon year, based on the City's long-term population and employment estimates. The specific population and employment data set for the area bounded by The Queensway to the

north, Humber River to the east, Lake Ontario to the south, and Mimico Creek to the west are summarized below:

- **2011:**
 - Population: 4,367
 - Employment: 2,632
- **2041:**
 - Population: 28,500
 - Employment: 6,500

The future 2041 population and job estimates were used to generate travel demand using the City's regional macro model and further adjustments were made to future local and regional travel mode share as part of the development of the traffic model.

It is expected that people living and working in the TMP Study Area will travel much differently in the future than they do today, with a significant shift from auto travel to increased transit, walking and cycling travel, as shown in **Exhibit 10-11**. These changes in the local area travel demand behaviour are primarily due to the major new mixed-use development at the Christie's site providing people's daily needs within a short walking distance, improved street network, improved access to better and more reliable transit service with the new Park Lawn GO Station and dedicated streetcar right-of-way on Lake Shore Boulevard West, an improved walking and cycling network, and the potential for demographic shifts in mode choice.

Exhibit 10-11: Existing and Future Travel Mode Share

Travel Mode Share	Existing (2011)	Future (2041)
by Car	57%	33%
by Transit	35%	52%
by Walking / Cycling	8%	15%

Source: Park Lawn Lake Shore TMP and Legion Road Staff Report June 18, 2021

The TMP Study Area traffic is influenced by east-west regional travel demand generated outside the TMP Study Area, especially along the Gardiner Expressway corridor. It is expected that regional travel demand is also likely to change in the long-term future, due to investment in regional transportation and transit infrastructure and broader changes in regional travel behaviour.

Performance metrics were developed from the traffic microsimulation model (Vissum) to help evaluate the performance of the transportation network alternatives and visualize

traffic conditions during the morning (AM) and afternoon (PM) Peak Hours. Vissum is an effective tool for evaluating traffic operations. The Vissum microsimulation models were developed using a multi-step approach which includes macro level demand modelling, mesoscopic analysis, and the final microsimulation models. Various model outputs were analyzed for comparison, including: traffic Level-of-Service (LOS) at intersections and for key traffic movements; overall average vehicle delay; traffic volumes; traffic density; and overall served and unserved auto traffic demand in the network.

A summary of the results from traffic modelling evaluation for the Network Alternatives is shown below in **Exhibit 10-12** for both the AM and PM peak hours, and has been ranked based on the overall network performance of the alternatives. The network performance addresses both locally-generated traffic (approximately 9% to 12.5% of total traffic demand including the Christie's site redevelopment) and regionally-generated traffic.

Exhibit 10-12: Summary of Overall Traffic Modelling Network Performance

Peak Hour	Alternative 2	Alternative 3	Alternative 4A	Alternative 4B	Alternative 4C
AM Peak Hour	Ranked 5 th	Ranked 2 nd	Ranked 4 th	Ranked 1 st	Ranked 3 rd
PM Peak Hour	Ranked 2 nd	Ranked 1 st	Ranked 5 th	Ranked 3 rd	Ranked 4 th

Source: Park Lawn Lake Shore TMP and Legion Road Staff Report June 18, 2021

10.2.2.2 Detailed Transportation Modelling Evaluation

This section and the subsections that follow provide a summary of the results of the traffic modelling completed for each of the Final Network Alternatives as taken from the *Park Lawn – Lake Shore Transportation Master Plan Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021)* included in its entirety in **Appendix G**.

Following the completion of the Existing Conditions AM and PM Vissim models in May 2020, AECOM developed the Future Do-Nothing (Alternative 1) models using a horizon year of 2041. The Future Do-Nothing Vissim models as well as the Future Build-Out modelling matrices were later provided to BA Group (consultant for First Capital, developer of Mr. Christie site at 2150 Lake Shore Boulevard West) for the development of two additional future scenarios: Alternative 2 and Alternative 3. The City and developer groups worked collaboratively on the transportation modelling in order to achieve consistency in the modelling approach and assumptions. Following the

development of Alternatives 2 and 3 by BA Group, AECOM and the City developed Alternatives 4A, 4B, and 4C.

The table on the following page presents a comparison of the Vissim model scenarios prepared as part of the study.

The traffic model for each of the Final Transportation Network Alternatives were evaluated based on an established set of criteria that included high level measures of the overall network performance in combination with key operational measures at intersections to assess how well each Alternative performs.

The following performance measures were used for evaluating each Alternative:

- Vehicles serviced during the simulation period;
- Latent vehicular demand at the end of the simulation period;
- Average delay per vehicle in the network; and
- Number of critical movements reported across all network intersections.

In addition to the above quantitative measures, the Alternatives were evaluated based on qualitative factors such as the observation of any Gardiner Expressway bypass activity. Any vehicles / paths observed exiting the Gardiner Expressway and then re-entering the Gardiner Expressway within the microsimulation model study area were considered bypass activity. These paths are undesirable due to the congestion added to local roads, contributing to worsened local operations. It was observed that the proposed road networks for certain Alternatives encourage the undesirable bypass activity, which was considered in the ranking of Alternatives.

Another key metric in the evaluation of the models was the amount of vehicular demand using the new Legion Road extension in the Alternative models. The proposed Legion Road extension will connect the existing north and south segments of the corridor providing a new north-south connection between Lake Shore Boulevard West and the Gardiner Expressway Eastbound Off-Ramp to Park Lawn Road. The proposed extension would also include a two-lane cross-section with bikeways and sidewalks.

Exhibit 10-13: Table Vissim Model Scenario Comparison

Model Scenario	Alternative 1 Future Do-Nothing	Alternative 2 Additional Traffic Capacity	Alternative 3 Additional Traffic Capacity	Alternative 4A Neighbourhood Main Streets	Alternative 4B Neighbourhood Main Streets, Four-Lane Lake Shore	Alternative 4C Neighbourhood Main Streets, Four-Lane Lake Shore, No Legion Road
Developed by	AECOM	BA Group	BA Group	AECOM	AECOM	AECOM
Legion Road Extension	Yes	Yes	Yes	Yes	Yes	No
Christie's Development	No	Yes	Yes	Yes	Yes	Yes
Park Lawn GO Station	No	Yes	Yes	Yes	Yes	Yes
Street A and Internal Loop Road	No	Yes	Yes	Yes	Yes	Yes
Brookers Ramps	Original	Original	Reconfigured	Reconfigured (to new north-south street)	Reconfigured (to new north-south street)	Reconfigured (to new north-south street)
Other Roads	Original	Modified Lake Shore Boulevard West	Modified Lake Shore Boulevard West	Two-lane Park Lawn Road and Lake Shore Boulevard West	Two-lane Park Lawn Road, Four-Lane Lake Shore Boulevard West	Two-lane Park Lawn Road, Four-Lane Lake Shore Boulevard West

Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Table 6

For each Alternative, intersection operations were evaluated for delay, Level of Service (LOS), and 95th percentile queues for each individual movement as well as the overall intersection. Levels of Service (LOS) A through D typically reflect adequate operations, while LOS E reflects increasing congestion and near/at capacity operations, and LOS F reflects long delays and, in some cases, severe traffic congestion. The LOS criteria for signalized and unsignalized intersection traffic control are summarized in the following table. In traffic operations, a movement or intersection is defined as “critical” when operating at LOS E or worse.

Exhibit 10-14: Intersection LOS Criteria

Levels of Service	Average Control Delay (seconds / vehicle) Traffic Signal Control	Average Control Delay (seconds / vehicle) Stop Control
A	0 to 10	0 to 10
B	>10 to 20	>10 to 15
C	>20 to 35	>15 to 25
D	>35 to 55	>25 to 35
E	>55 to 80	>35 to 50
F	>80	>50

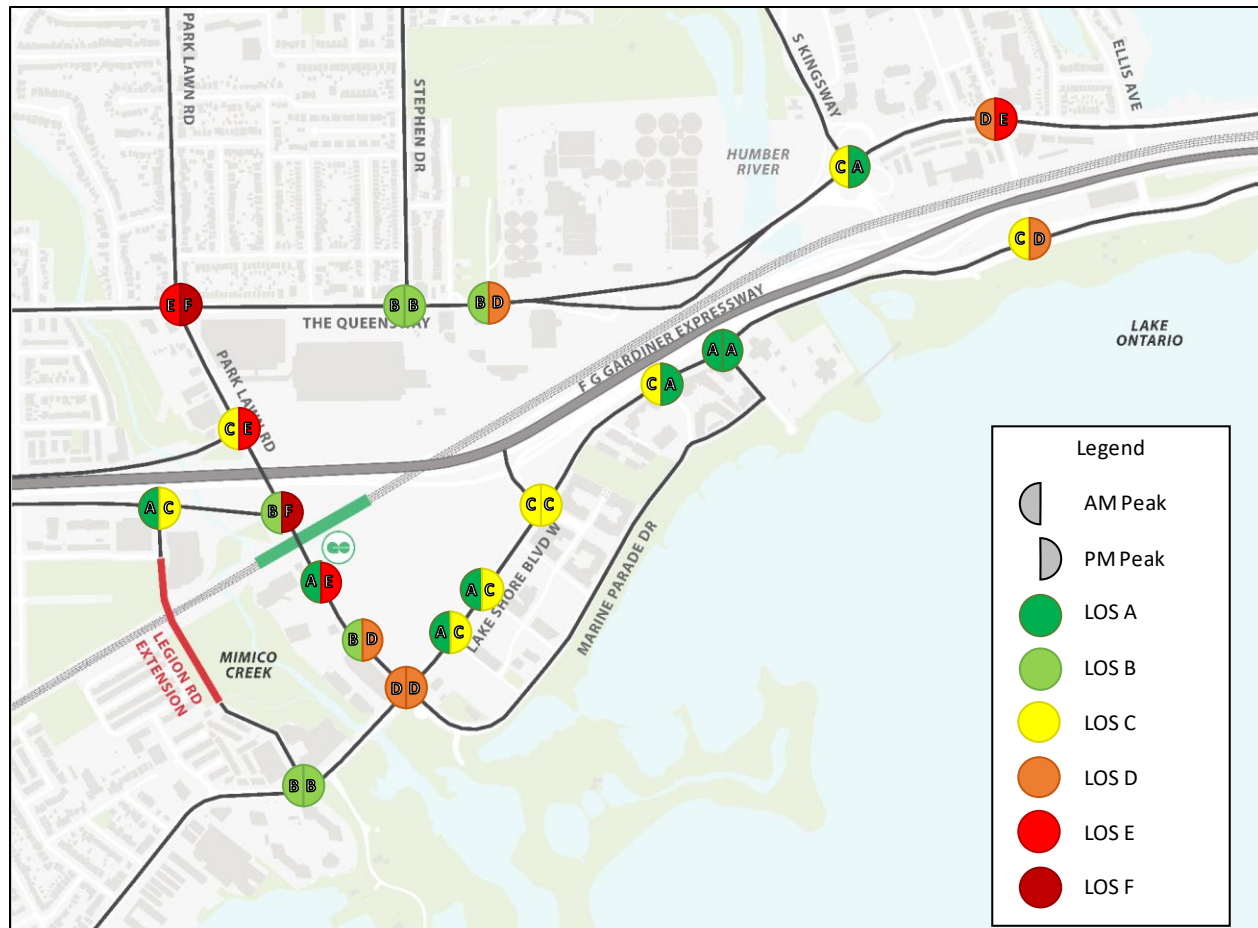
Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021), Table 7

10.2.2.2.1 Alternative 1 – Future Do-Nothing Conditions

The Alternative 1 Future Do-Nothing Conditions model was prepared by updating the Existing Conditions model to reflect the growth in background traffic between 2019 and 2041. No auto demand reduction or mode shift was applied for the Future Do-Nothing scenario. The Future Do-Nothing Conditions model utilizes the same road network as the Existing Conditions model with the only change being the addition of the Legion Road extension.

Traffic operations for Alternative 1 were extracted from the Vissim model for the 2041 AM and PM peak hours. **Exhibit 10-15** illustrates the overall intersection Levels of Service (LOS) for this alternative. A description of LOS is outlined on the prior page.

Exhibit 10-15: Alternative 1: Future Do-Nothing; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 16)

The traffic modelling completed for Alternative 1 revealed the following regarding traffic operations:

- During the AM peak hour, operations are generally acceptable with the most significant delay occurring for southbound vehicles on Windermere Avenue destined for The Queensway and Lake Shore Boulevard West. The AM peak hour reported 27 critical movements and 1 critical intersection, up from 22 critical movements and no critical intersections under Existing Conditions.
- During the PM peak hour, operations were noted to worsen dramatically, with a total of 52 critical movements and 5 critical intersections, up from 23 critical movements and 1 critical intersection in the Existing Conditions traffic operations assessment.

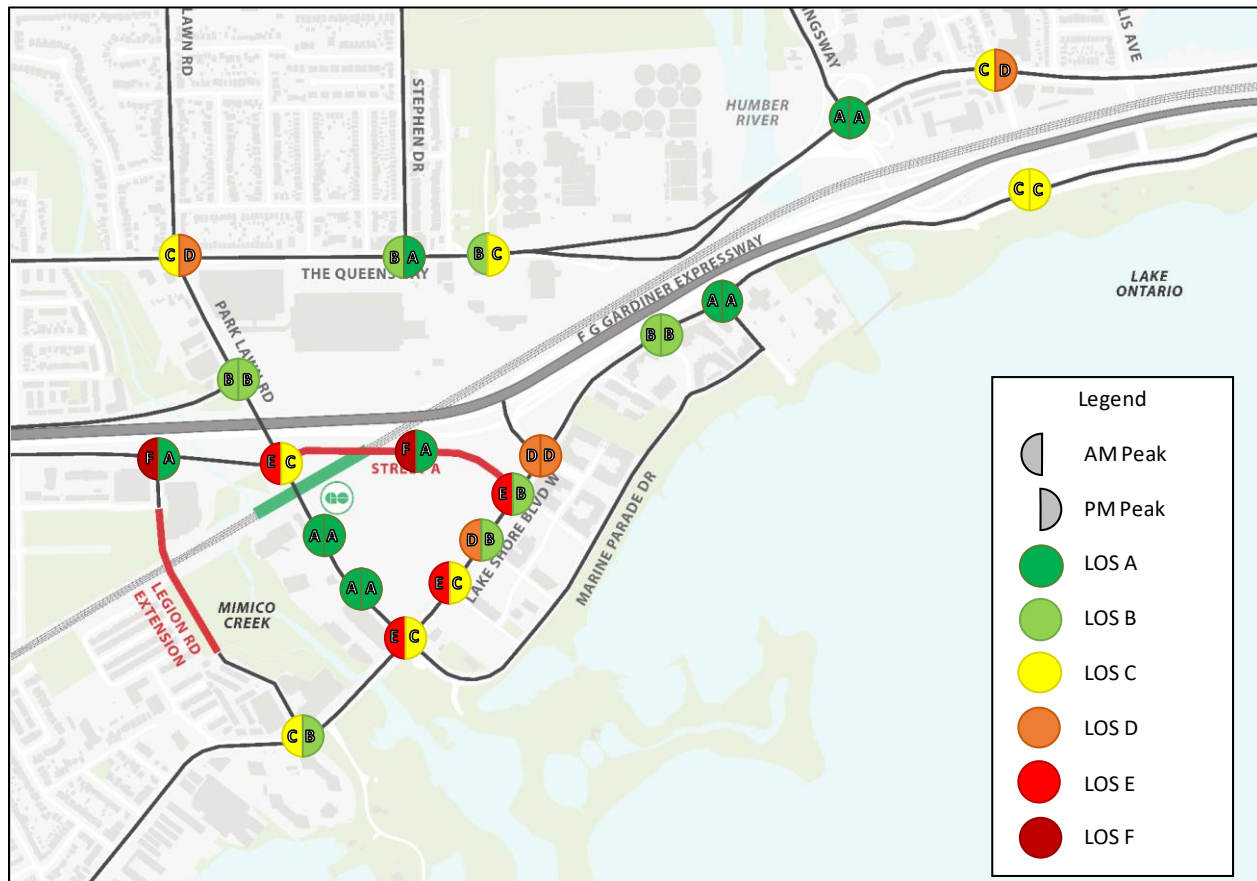
- During the PM peak hour, significant operational concerns are introduced along Park Lawn Road northbound and Lake Shore Boulevard West westbound as a queue is formed stemming from the intersection of Park Lawn Road and The Queensway. The queue is largely a result of insufficient capacity at the intersection, particularly for the northbound and westbound approaches. The northbound congestion on Park Lawn Road results in failing movements at all intersections along the corridor.
- No Gardiner Expressway by-pass activity is observed in the eastbound direction during the AM peak hour. That is, no vehicles were observed in the eastbound direction using the Gardiner Expressway Off-Ramp to Park Lawn Road, and then using Lake Shore Boulevard West to access the Gardiner Expressway Eastbound On-Ramp at Brookers Lane.
- A small amount of Gardiner Expressway by-pass traffic is observed in the westbound direction during the PM peak hour. Vehicles use the Gardiner Expressway Westbound Off-Ramp to Brookers Lane to continue west on Lake Shore Boulevard West and then north on Park Lawn Road before entering the Gardiner Expressway Westbound On-Ramp from Park Lawn Road.
- Legion Road saw 211 bidirectional vehicles (two-way total) during the AM peak hour and 264 bidirectional vehicles during the PM peak hour, indicating moderate usage. The vehicles alleviate demand from the already congested intersection of Park Lawn Road and Lake Shore Boulevard West. In the Future Do-Nothing scenario, in which no Street A is provided through the Christie's lands, Legion Road generally plays a larger role in alleviating traffic on the main roads.

10.2.2.2.2 Alternative 2 – Additional Traffic Capacity

The Alternative 2 model was initially developed by the BA Group and then modified to reflect the reduced auto demand and anticipated mode shift. Alternative 2 includes the extension of Legion Road with new and improved bikeways provided on Legion Road, The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court. A dedicated streetcar right-of-way is also provided for the full length of Lake Shore Boulevard West. This alternative also includes a new east-west corridor, Street A, in the road network providing additional traffic capacity between Park Lawn Road at the Gardiner Expressway South Ramp Terminal and Lake Shore Boulevard West to the west of Brookers Lane with the goal of relieving congestion at the intersection of Park Lawn Road and Lake Shore Boulevard West.

Traffic operations for Alternative 2 were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are summarized in **Exhibit 10-16** below.

Exhibit 10-16: Alternative 2 Additional Traffic Capacity; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 16)

The modelling completed for Alternative 2 revealed the following conclusions regarding traffic operations:

- During the AM peak hour, operations are shown to significantly worsen with 56 critical movements and 7 critical intersections. During the PM peak hour, operations are generally acceptable, with 21 critical movements and no critical intersections.
- Operations during the AM worsen due to congestion along Street A, particularly in the eastbound direction where vehicles experience up to 410 seconds (6.8

minutes) of delay. The single eastbound lane on Lake Shore Boulevard West between Street A and the Brookers Lane ramp terminal intersection also represents a bottleneck to the significant demand destined for the Gardiner Expressway Eastbound On-Ramp. This congestion creates a queue that extends from Street A onto the Gardiner Expressway Eastbound Off-Ramp to Park Lawn Road, extending past the Legion Road intersection. Eastbound congestion on Lake Shore Boulevard West also leads to queueing between the Brookers Lane ramp terminal intersection and west of Park Lawn Road.

- During the AM peak hour, Gardiner Expressway by-pass activity was observed in the eastbound direction, with vehicles using the Gardiner Expressway Off-Ramp to Park Lawn Road, continuing onto new Street A, and then using Lake Shore Boulevard West to access the Gardiner Expressway Eastbound On-Ramp at Brookers Lane. The bypass activity is shown in Figure 29 of the *PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021)* included in **Appendix G**.
- During the PM peak hour, no Gardiner Expressway by-pass activity was observed. That is, no westbound Gardiner Expressway traffic is observed using the Gardiner Expressway Westbound Off-Ramp to Brookers Lane to continue west on Lake Shore Boulevard West and then north on Park Lawn Road before entering the Gardiner Expressway Westbound On-Ramp from Park Lawn Road.
- Legion Road sees moderate usage in Alternative 3, with 407 bidirectional vehicles during the AM peak hour, but just 83 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. The road reduces demand for the high-demand southbound left-turn movement at the intersection of Park Lawn Road and Lake Shore Boulevard west during the AM peak hour.

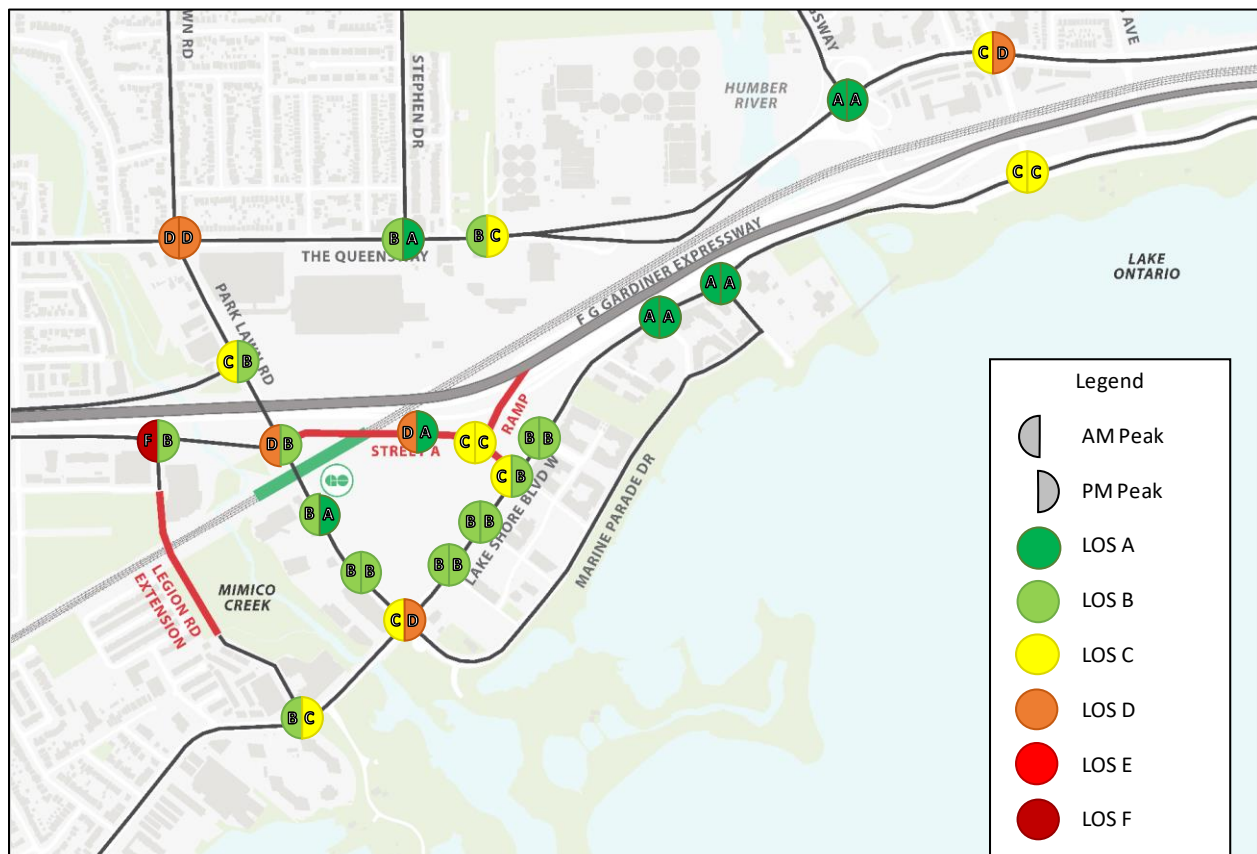
10.2.2.2.3 Alternative 3 – Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Boulevard West Ramp

The Alternative 3 model was initially prepared by the BA Group and then modified by to reflect the reduced auto demand and anticipated mode shift. Similar to Alternative 2, Alternative 3 includes a Legion Road extension and a new east-west corridor, Street A, along with further modifications to the Gardiner Expressway ramps currently terminating at the intersection of Lake Shore Boulevard West and Brookers Lane. With this

alternative the Gardiner Expressway Eastbound On-Ramp and Westbound Off-Ramp are reconfigured to connect directly to Street A reducing the need for vehicles to use the short section of Lake Shore Boulevard West to access the ramps from the Brookers Lane terminal. In addition, the Gardiner Expressway Eastbound On-Ramp includes a slip ramp to provide direct access to Lake Shore Boulevard West in the eastbound direction. Park Lawn Road is also reduced from the existing four lanes to a two-lane cross-section between The Queensway and Lake Shore Boulevard West. New and improved bikeways are also provided on Legion Road, The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court along with a dedicated streetcar right-of-way for the full length of Lake Shore Boulevard West.

Traffic operations for Alternative 3 were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are summarized in **Exhibit 10-17** below.

Exhibit 10-17: Alternative 3: Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 20)

The traffic modelling completed for Alternative 3 revealed the following conclusions regarding traffic operations:

- Operations during the AM peak hour saw an improvement compared to Alternative 1 (Future Do-Nothing Conditions). The AM peak hour reported 25 critical movements and just 1 critical intersection. Most delay was observed for vehicles using the Gardiner Expressway Eastbound Off-Ramp, particularly due to the additional traffic caused by Gardiner Expressway by-pass activity. Street A also saw considerable delay for vehicles traveling in the eastbound direction, similar to Alternative 2.
- During the PM peak hour, traffic operations were generally acceptable with no reported critical intersections. Alternative 3 reported 22 total critical movements throughout the network during the PM peak hour, significantly less than Alternative 1 and just 1 additional critical movement compared to Alternative 2.
- During the AM peak hour, a significant amount of Gardiner Expressway bypass activity was observed for the eastbound direction. The reconfigured Gardiner Expressway Eastbound On-Ramp and Westbound Off-Ramp terminating at Street A encourage by-pass activity requiring minimal detour. During times of congestion in the eastbound direction, such as the AM peak hour, the by-pass becomes an attractive option for drivers wishing to avoid queue delay and / or slow speeds on the Gardiner Expressway mainline. The by-pass activity is shown in Figure 31 of the *PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Nov. 2021)* included in **Appendix G**.
- During the PM peak hour, no Gardiner Expressway by-pass activity was observed. That is, no westbound Gardiner Expressway traffic is observed using the Gardiner Expressway Westbound Off-Ramp to Street A to continue west onto the Gardiner Expressway Westbound On-Ramp from Park Lawn Road.
- Legion Road sees moderate usage in Alternative 3, with 199 bidirectional vehicles during the AM peak hour and 260 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. The road reduces demand for the high-demand southbound left-turn movement at the intersection of Park Lawn Road and Lake Shore Boulevard west during the AM peak hour. In addition, Legion Road helps to remove vehicles from Lake Shore Boulevard West, providing an alternative route to the Gardiner Expressway Eastbound On-Ramp by way of the new Relief Road.

10.2.2.2.4 *Alternative 4A – Neighbourhood Main Streets & 2-Lane Lake Shore*

Alternative 4A includes an extension to Legion Road similar to Alternatives 1, 2, and 3 along with active transportation improvements along The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court. However, this alternative proposes a different reconfiguration of the Gardiner Expressway Eastbound On-Ramp and Westbound Off-Ramp compared to the other alternatives. Alternative 4A includes a new North-South Street connecting The Queensway to Lake Shore Boulevard West just east of Street A. The Gardiner Expressway ramps currently terminating at Brookers Lane are reconfigured to terminate at the new North-South Street, providing access to both The Queensway at the Humber Bay Water Treatment Plant and Lake Shore Boulevard West at Brookers Lane.

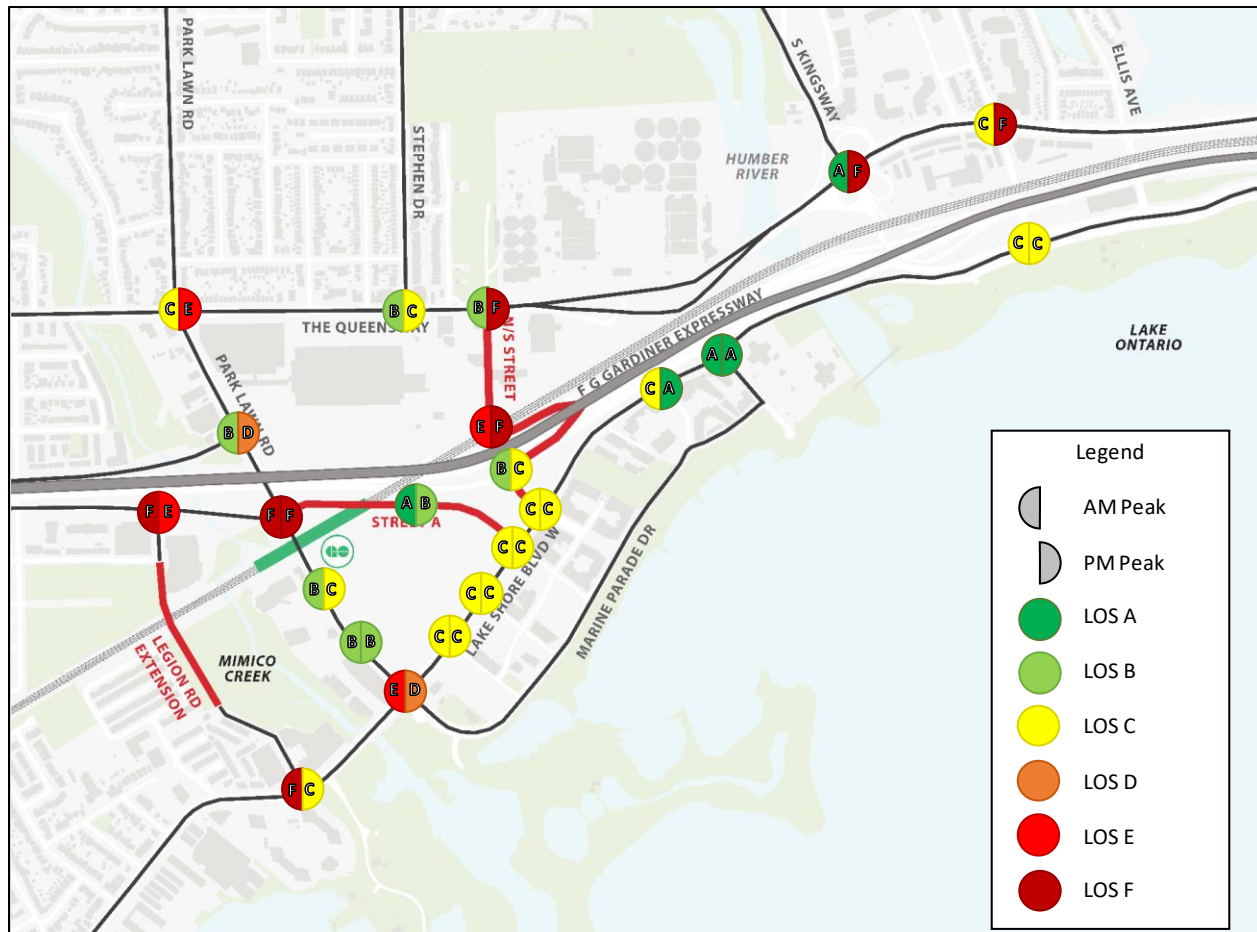
Alternative 4A is the only future alternative featuring a two-lane cross-section on Lake Shore Boulevard West through the primary study area (i.e., from Legion Road to Palace Pier Court). The dedicated streetcar right-of-way on Lake Shore Boulevard West features fully protected left-turn movements along the corridor. Park Lawn Road is also reduced from the current four-lanes to a two-lane cross-section north and south of the Gardiner Expressway ramp terminals.

Traffic operations for Alternative 4A were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are presented in **Exhibit 10-18**.

The modelling completed for Alternative 4A revealed a notable increase in congestion and critical movements due to the reduction of both Park Lawn Road and Lake Shore Boulevard to two-lanes each. The following is a summary of the traffic operations:

- During the AM peak hour, Alternative 4A reported 37 critical movements and five critical intersections, compared to 25 critical movements and no critical intersections in the technically preferred Alternative 4B. The following intersections are projected to operate at LOS E or F for Alternative 4A:
 - Eastbound off-ramp from the Gardiner Expressway to Park Lawn Road, at both Legion Road and at Park Lawn Road;
 - Lake Shore Boulevard West at Legion Road and at Park Lawn Road; and
 - New North-south Street at the westbound off-ramp from the Gardiner Expressway;

Exhibit 10-18: Alternative 4A Neighbourhood Main Streets, 2-Lane Lake Shore; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 22)

- The AM peak hour analysis revealed the highest amount of undesirable movement and intersection operations throughout the network, largely caused by the reduced capacity on Lake Shore Boulevard West. The Gardiner Expressway Eastbound Off-Ramp to Park Lawn Road was shown to generate a queue which extended over 1,500 metres to the Gardiner Expressway mainline. The eastbound direction on Lake Shore Boulevard West also generated a queue which extended over 800 metres to the limit of the model.
- The PM peak hour reported 67 critical movements and 9 critical intersections for Alternative 4A, making it the worst performing alternative from a traffic operations perspective.

- During the PM peak hour, Alternative 4A saw several key intersections with congestion along the main corridors in the road network, including the following intersections projected to operate at LOS E or F:
 - The Queensway at Park Lawn Road, Aldgate Avenue (unsignalized), the new North-south Street, Humber Water Treatment Plant (unsignalized), South Kingsway, and Windermere Avenue;
 - Eastbound off-ramp from the Gardiner Expressway to Park Lawn Road, at both Legion Road and at Park Lawn Road; and
 - New North-south Street at the westbound off-ramp from the Gardiner Expressway;
- During the PM peak hour, the reconfigured Gardiner Expressway Westbound Off-Ramp to the new North-South Street experiences significant congestions.
- The lack of capacity on Lake Shore Boulevard West leads to a diversion of eastbound vehicles to Marine Parade Drive, the parallel corridor to the south, during the AM peak hour. This leads to additional congestion on Marine Parade Drive, with vehicles experiencing up to approximately 150 seconds of delay to turn onto Lake Shore Boulevard West from Marine Parade Drive during the AM peak hour.
- No Gardiner Expressway by-pass activity (that is, no trips leaving the Gardiner to travel on the area major streets and then re-enter the Gardiner again) was observed in Alternative 4A in either direction during the AM or PM peak hours generally due to the two-lane capacity reduction along both Park Lawn Road and Lake Shore Boulevard West that results in congestion on these major streets as well as the New North-south Street. This resulting area congestion is a disincentive for bypass activity exiting the Gardiner since there is no travel time advantage to leave the Gardiner.
- Alternative 4A saw 115 bidirectional vehicles on Legion Road during the AM peak hour and 250 bidirectional vehicles on Legion Road during the PM peak hour. During the AM, the corridor alleviates demand from the eastbound left-turn movement at the intersection of Park Lawn Road and Lake Shore Boulevard West by providing an alternate route for vehicles originating from the west on Lake Shore Boulevard West and destined for northbound Park Lawn Road. In addition, vehicles exiting the Gardiner Expressway Eastbound Off-Ramp to Park Lawn Road use the earlier exit to Legion Road to reach Lake Shore Boulevard West to the south. Similar trends are observed during the PM peak hour, with most demand being alleviated from the Park Lawn

Road and Lake Shore Boulevard West intersection. Legion Road also helps to facilitate access to the new right-in-right-out driveway off of Park Lawn Road (Parking Lot E for the Christie's site) by providing a route for vehicles to enter / exit from the Park Lawn Road northbound lanes.

10.2.2.2.5 Alternative 4B - Neighbourhood Main Streets, Four-Lane Lake Shore Boulevard West

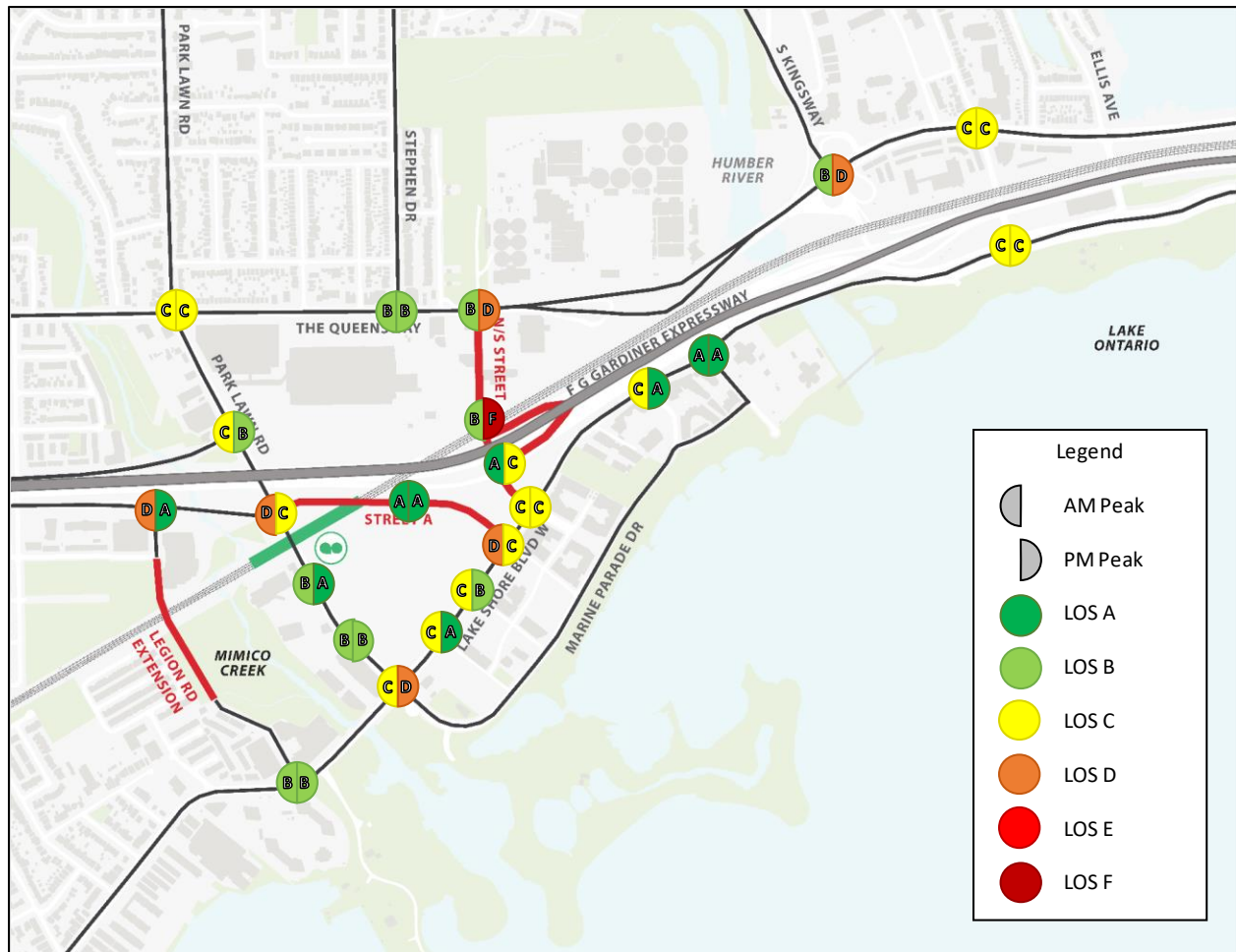
Alternative 4B provides a four-lane cross-section to Lake Shore Boulevard West from Park Lawn Road to Brookers Lane / New North-South Street. For a short segment west of Park Lawn Road, Lake Shore Boulevard West provides two eastbound lanes and one westbound lane due to the limited available cross-section on the bridge over Mimico Creek. All other network features are similar to the Alternative 4A model, including the Legion Road extension and active transportation improvements along The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court. The dedicated transit right-of-way on Lake Shore Boulevard West is retained and Park Lawn Road remains at two lanes to the north and to the south of the Gardiner Expressway ramp terminals.

Traffic operations for Alternative 4B were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are summarized in **Exhibit 10-19**.

The modelling completed for Alternative 4B revealed the following regarding traffic operations:

- 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 2 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 south ramp terminal during the PM peak hour is one of the only critical intersections in Alternative 4B.

Exhibit 10-19: Alternative 4B Neighbourhood Main Streets, 4-Lane Lake Shore; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 24)

- 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 and 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. activity That is, no trips were observed leaving the Gardiner to travel on the area major streets and then re-enter the Gardiner again.

- Legion Road sees moderate usage in Alternative 4B, 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.

10.2.2.2.6 Alternative 4C - Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road

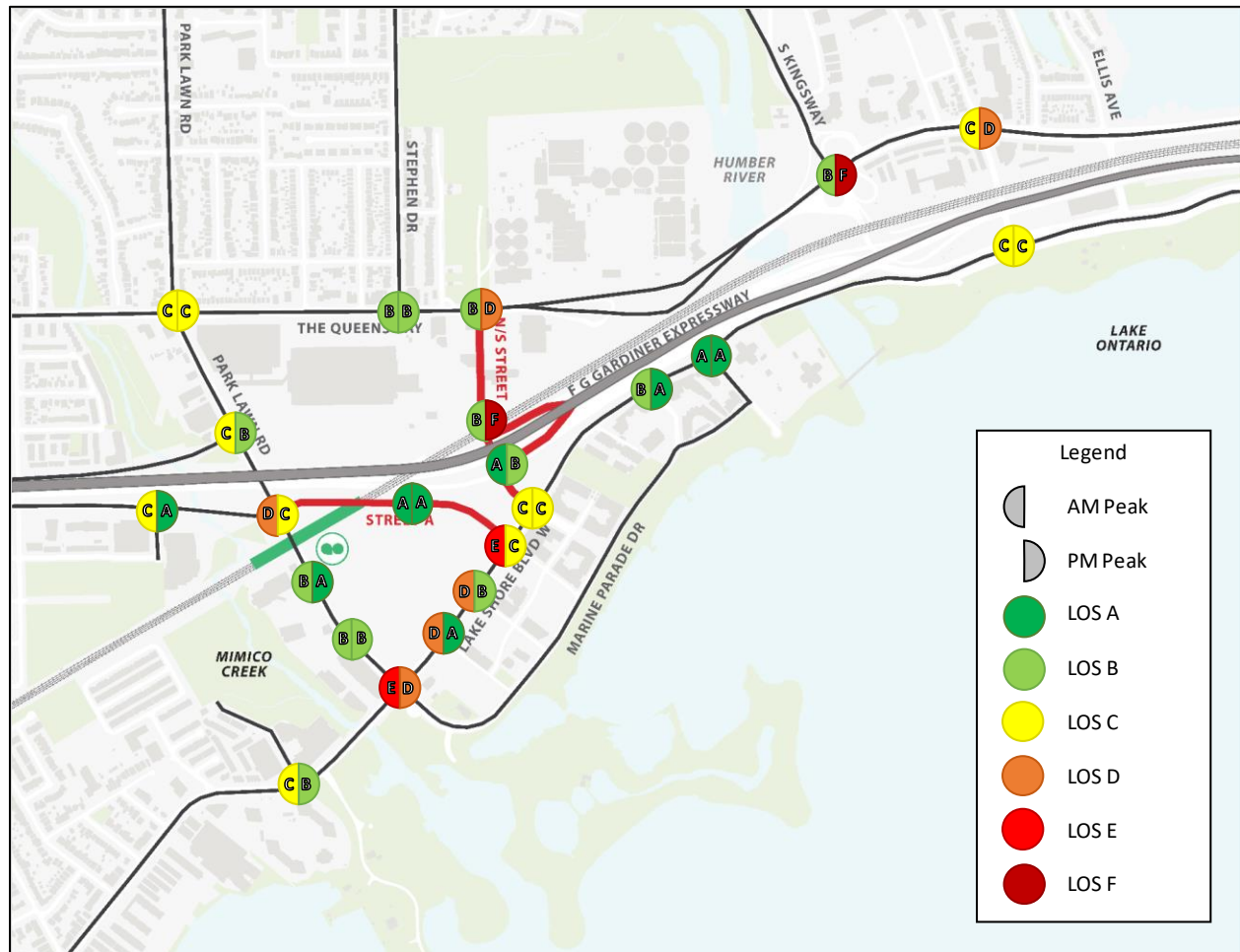
Due to the generally low traffic volumes observed on Legion Road in Alternatives 4A and 4B, Alternative 4C was developed to assess the impacts of not including the Legion Road extension in the road network. With the exception of the Legion Road extension, Alternative 4C matches Alternative 4B in terms of network connections.

Traffic operations for Alternative 4C were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are summarized in **Exhibit 10-20**.

The modelling completed for Alternative 4C revealed the following conclusions regarding traffic operations:

- Alternative 4C sees a total of 32 critical movements and 2 critical intersections during the AM peak hour, compared to 25 critical movements and no critical intersections in the technically preferred Alternative 4B. The critical intersections include Park Lawn Road at Lake Shore Boulevard West and also Street A at Lake Shore Boulevard West.
- During the PM peak hour, Alternative 4C sees 32 critical movements and 3 critical intersections, compared to 25 critical movements and 2 critical intersections in the technically preferred Alternative 4B. The critical intersections include the new North-South Street & Gardiner Expressway North Ramp Terminal where westbound vehicles using the off-ramp experience up to 580 seconds (9.7 minutes) of delay. Other critical intersections include The South Kingsway at The Queensway as well as The Queensway at the Humber Bay Water Treatment Plant Entrance.

Exhibit 10-20: Alternative 4C: Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road; Intersection LOS in the 2041 AM and PM Peak Hours



Source: PL-L TMP Development and Evaluation of Future Conditions (2041) Models Technical Memo (AECOM, Oct. 2021), Fig. 26)

- During the AM peak hour, intersections along Lake Shore Boulevard West between Park Lawn Road and the new North-South Street / Brookers Lane experience worse delay and congestion than Alternative 4B, particularly in the eastbound direction.
- During the PM peak hour, Alternative 4C mainly sees operational issues in the peak westbound direction along The Queensway and the reconfigured Gardiner Expressway Westbound Off-Ramp to the new North-South Street. The demand for the new North-South Street exceeds its capacity, particularly in the southbound direction during the PM peak hour.

- No Gardiner Expressway bypass activity was observed in Alternative 4C in either direction during the AM or PM peak hours.
- With the removal of Legion Road, the southbound left-turn and eastbound left-turn movements at the intersection of Park Lawn Road at Lake Shore Boulevard West see 50% and 16% more demand during the AM peak hour, respectively. During the PM peak hour, the southbound left-turn remains mostly unchanged, but the eastbound left-turn movement sees an 88% increase in traffic demand with the removal of Legion Road from the road network.

10.2.2.2.7 Conclusions

The comparison of future microsimulation alternatives reveals operational issues and concerns for all scenario models, of which some are characteristic of an urbanizing and intensifying area. However, Alternative 4B represents the most balanced approach, providing additional traffic capacity and new connections, including the Legion Road Extension, while removing opportunities for the undesirable Gardiner Expressway by-pass activity observed for the eastbound direction during the AM peak hour in both Alternative 2 and Alternative 3.

Except for Alternative 3, which saw a significant trend of Gardiner Expressway by-pass activity in the eastbound direction during the AM peak hour, Alternative 4B reported the least number of critical movements and intersections between the AM and PM models. While Alternative 4B saw slightly worsened operations during the PM peak hour compared to Alternative 3, further mitigation measures will be explored in future study for implementing and improving the traffic operations in Alternative 4B.

The modified Gardiner Expressway Westbound Off-Ramp to the new North-South Street is the main location of concern for Alternative 4B, where delay for vehicles using the off-ramp reached as high as 410 seconds. Optimizing the signal timing and configuration at the intersection of Lake Shore Boulevard West and the new North-South Street / Brookers Lane to provide higher capacity for the southbound approach would help to alleviate congestion on the new North-South Street causing delays on the off-ramp. A dual left-turn from the off-ramp may improve operations but will require a three to four-lane cross-section on the new North-South Street to accommodate two receiving lanes. This may also not address the issue and lead to more significant queueing on the new North-South Street. It was noted that the queues in the southbound direction extend and affect the intersection of The Queensway and the new North-South Street, which in turn impacts westbound vehicles on The Queensway wishing to turn left onto the street.

10.2.2.3 Legion Road Extension Sensitivity Finding

As noted, all Final Network Alternatives include an extension of Legion Road, except for Alternative 4C. The estimated costs of the Legion Road extension have fluctuated considerably as detailed design activities have advanced. This, in combination with the new transportation connection opportunities generated with the revitalization of the Christie's site necessitated doing a sensitivity and cost/benefit analysis for the extension. Alternative 4C was developed to understand the resultant traffic operation implications to the street network if the Legion Road extension was not included in the street network. The team also reviewed other potential benefits of the extension using a multi-modal lens considering pedestrian and cycling movements in the area.

The sensitivity testing completed demonstrated that while Legion Road is not anticipated to have considerable volumes of traffic in the future, it will provide some benefit for the overall street network in the area by reducing congestion at other key intersections, and in particular at Park Lawn Road and Lake Shore Boulevard West. It also appears, from the transportation modelling, that the extension may assist in deterring traffic from diverting from the Gardiner Expressway to the local street network in the AM Peak Hour.

From a multi-modal connectivity and access perspective, there are few street connections in the area across the rail corridor and Gardiner Expressway, with the only street connection across the rail corridor being Park Lawn Road. It is over 1.5 km to the next nearest crossing to the west at Royal York Boulevard, and 1.0 km to the east at Windermere Avenue (with the exception of the pedestrian and streetcar crossing of the rail corridor at the TTC's Humber Loop). By way of comparison, rail crossings in the eastern waterfront area are spaced approximately 300-400 metres apart across the rail the corridor.

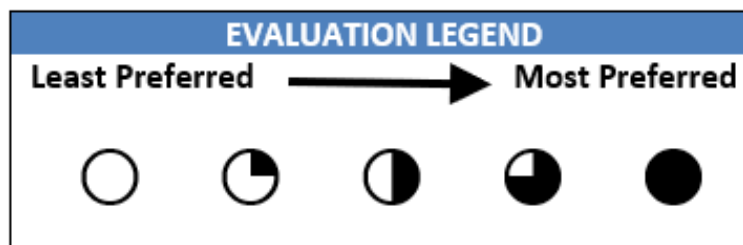
While the Legion Road extension does not cross the Gardiner Expressway barrier, it provides a connection across the rail corridor to Grand Avenue via Manitoba Street to the existing Grand Avenue bridge crossing of the Expressway. As a result, the extension will assist in removing physical barriers in the area and connect areas to the north to the waterfront and vice versa, reducing the distance required to be travelled to cross the physical barriers in the area. It also improves local street network connectivity and circulation for all modes, and improves access to neighbourhood destinations in the larger community, including Grand Avenue Park, as well as shopping and retail on Royal York Road and The Queensway.

10.2.3 Evaluation of Final Transportation Network Alternatives

Using the finalized evaluation criteria an evaluation matrix was developed to assess the alternatives and to clearly illustrate the advantages and disadvantages associated with each option through a comparison of their potential for impact on each of the criteria. This process enabled the selection of a Preliminary Preferred Alternative Solution that will best address the issues and deficiencies, but optimally keep impacts to a minimum.









































A simple scoring method was applied to provide a visual comparison between the alternatives that ranged from Least Preferred (circle) to Most Preferred (solid circle) moving incrementally from a quarter, half, three-quarters to full circle as illustrated in **Exhibit 10-21**.

Exhibit 10-21: Evaluation Matrix Scoring Method

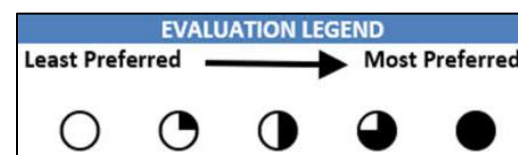


A preliminary evaluation summary was presented in July/August 2021 during PIC #3 along with the evaluation matrices. This was later updated following the PIC and the receipt of input. The final evaluation summary is illustrated in **Exhibit 10-22**. To review the full, more detailed evaluation matrices please refer to **Appendix I**. A more preferred option indicates that it strikes a better balance between addressing the identified deficiency and minimizing impacts to the area environment (natural, socio-economic, and cultural).

Exhibit 10-22: Preliminary Evaluation Summary

EVALUATION CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4A	ALTERNATIVE 4B	ALTERNATIVE 4C
POLICY FRAMEWORK	SCREENED OUT					
SAFE & HEALTHY COMMUNITIES	SCREENED OUT					
MOBILITY	SCREENED OUT					
NATURAL ENVIRONMENT	SCREENED OUT					
CULTURAL ENVIRONMENT	SCREENED OUT					
SOCIAL EQUITY	SCREENED OUT					
ECONOMIC & FINANCIAL CONSIDERATIONS	SCREENED OUT					
OVERALL	SCREENED OUT					

Alternative 4B is the preliminary preferred network alternative.



Source: PIC #3 Presentation July 2021

10.2.4 Summary of Transportation Network Alternatives Evaluation

This section provides a summary of the evaluation completed including the advantages and disadvantages associated with each alternative. It explains the ability of each alternative to address the identified problems / opportunities and the potential for adverse effect on the natural, socio-economic, technical, and cultural environments.

10.2.4.1 Alternative 1 – Future ‘Do Nothing’

While Alternative 1 does have some advantages it also has some significant disadvantages. As noted, Alternative 1 is a "do nothing/status quo" future transportation condition where little to no infrastructure improvements would be undertaken, with the exception of the Legion Road extension. Alternative 1 will provide one new street connection that will assist in improving connectivity and circulation, and also help to overcome the physical barriers of the Gardiner Expressway and rail corridor. It has the potential to impact one Built Heritage Resource (CN Rail bridge over Mimico Creek) and will have the lowest impacts on the Mimico Creek ravine system with the least property to secure. It will also have the lowest capital cost with one new grade separation (bridge) and the shortest-term implementation timeline and least challenging constructability.

A key disadvantage of this alternative is that it does not address the problems and opportunities as it will be largely maintaining the "status quo." This option also requires the Christie's redevelopment to solely rely on Park Lawn Road and Lake Shore Boulevard West for traffic access. It provides limited space for active transportation and public realm improvements on Park Lawn Road and Lake Shore Boulevard West. It also maintains existing access to/from the Gardiner Expressway with a potential for cut-through traffic. It maintains large intersections that reduce pedestrian and cyclist safety providing minimal improvement to access for all ages, abilities and means and offers limited cycling network connectivity. **Given the above this option was screened out since it does not address basic problems and opportunities.**

The above advantages and disadvantages associated with this option are highlighted in **Exhibit 10-23** for ease of comparison as summarized from the Public Meeting #3 presentation (July/Aug. 2021).

Exhibit 10-23: Alternative 1 Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ One new street connection that improves connectivity, circulation, and helps overcome Gardiner Expressway/rail corridor physical barriers ■ Lowest capital cost with one new grade separation ■ Shortest-term implementation timeline and least challenging constructability ■ Least property to secure ■ Potential to impact one Built Heritage Resource (CN Rail bridge over Mimico Creek) ■ Lowest impacts on Mimico Creek ravine system 	<ul style="list-style-type: none"> ■ Does not address the problems and opportunities as largely maintains “status quo” ■ Requires Christie’s redevelopment to solely rely on Park Lawn and Lake Shore for traffic access ■ Limited space for active transportation and public realm improvements on Park Lawn Road or Lake Shore Boulevard West ■ Limited cycling network connectivity ■ Maintains existing access to/from Gardiner Expressway with potential for cut-through traffic ■ Maintains large intersections that reduce pedestrian and cyclist safety ■ Low ability to improve access for all ages, abilities and means

Source: Summarized from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.2 Alternative 2 – Additional Traffic Capacity

An advantage of Alternative 2 is that it proposes two new street connections that will provide improvements to connectivity and circulation and assist in overcoming the Gardiner Expressway/rail corridor physical barriers. In comparison to the other alternatives, it will have moderate property to secure and will have a moderate ability to improve access for all ages, abilities and means. In terms of implementation, it will have a medium-term timeline and will also be less challenging from a constructability perspective.

The disadvantage of this alternative is that it proposes limited space for active transportation and public realm improvements on Park Lawn Road as well as limited cycling network connectivity in comparison to the other alternatives. This option will increase traffic access to/from Gardiner Expressway which may encourage cut-through traffic. The larger intersections and dual left turn lanes will also reduce pedestrian and cyclist safety. This option will have a moderate potential to impact natural heritage features (i.e. wildlife, habitat, vegetation etc.) resulting from the construction of the Legion Road extension and a potential widening of the Mimico Creek bridge at Lake Shore Boulevard West in the Mimico Creek ravine system (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area); as well as from

construction of an improved highway access, and the new Street A in proximity to City of Toronto Natural Heritage System lands. It has potential to impact six heritage resources (bridges/structures). While there is the potential for impact resulting from the works proposed, the application of appropriate mitigation can assist in reducing the extent. It will also have a high capital cost as it proposes two new grade separations and the potential Mimico Creek bridge widening.

In terms of the overall traffic modelling network performance, this option ranked 5th for the AM Peak Hour performance and 2nd in terms of the PM Peak Hour performance.

The above advantages and disadvantages associated with this option are highlighted in **Exhibit 10-24** for ease of comparison as summarized from the Public Meeting #3 presentation (July/Aug. 2021).

Exhibit 10-24: Alternative 2 Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ Two new street connections that improve connectivity, circulation, and help overcome Gardiner Expressway/rail corridor physical barriers. ■ Medium-term implementation timeline and less challenging from a constructability perspective. ■ Moderate property to secure. ■ Moderate ability to improve access for all ages, abilities and means. 	<ul style="list-style-type: none"> ■ Limited space for active transportation and public realm Improvements on Park Lawn Road. ■ Limited cycling network connectivity. ■ Increases traffic access to/from Gardiner Expressway which may encourage cut-through traffic. ■ Larger intersections and dual left turn lanes reduce pedestrian and cyclist safety. ■ High capital cost with two new grade separations and potential Mimico Creek bridge widening. ■ Moderate natural impacts (Mimico Creek ravine system and Natural Heritage System lands) and potential to impact six heritage resources (bridges/structures).

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.3 Alternative 3 – Additional Traffic Capacity with Modified Gardiner Ramps & New Lake Shore Boulevard West Ramp

The advantages associated with Alternative 3 include more space for active transportation and public realm improvements on Park Lawn Road. It also proposes two new street connections that will provide improvements to connectivity, circulation, and help overcome the physical barriers of the Gardiner Expressway and rail corridor. It

requires a moderate amount of property to secure and provides a moderate ability to improve access for all ages, abilities and means.

This disadvantage of Alternative 3 is that it proposes limited cycling network connectivity and increases traffic access to/from Gardiner Expressway and eastbound Lake Shore Boulevard West with modified ramps and a new ramp on Street A with the potential to encourage cut-through traffic. Additionally, the modified Gardiner ramps and new Lake Shore Boulevard West ramp on Street 'A' exclude an additional future north-south street connection between Lake Shore Boulevard West and The Queensway.

This option will incur a higher capital cost than Alternative 2 with two new grade separations, modified Brookers Lane/Gardiner ramps, new eastbound Lake Shore Boulevard West on-ramp, This option has a high potential to impact natural heritage features resulting from the construction of the Legion Road extension and a potential widening of the Mimico Creek bridge at Lake Shore Boulevard West in the Mimico Creek ravine system (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area); as well from the construction of an improved highway access and new Street A in proximity to City of Toronto Natural Heritage System lands. This option also has the potential to impact six heritage resources (bridges/structures). While there is the potential for impact resulting from the works proposed, the application of appropriate mitigation can assist in reducing the extent. Alternative 3 will have a longer-term implementation timeline and more challenging constructability.

In terms of the overall traffic modelling network performance, this option ranked 2nd for the AM Peak Hour performance and 1st in terms of the PM Peak Hour performance.

The above advantages and disadvantages associated with this option are highlighted in **Exhibit 10-25** for ease of comparison as summarized from the Public Meeting #3 presentation (July/Aug. 2021).

Exhibit 10-25: Alternative 3 Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ More space for active transportation and public realm improvements on Park Lawn Road. ■ Two new street connections that improve connectivity, circulation, and help overcome Gardiner Expressway/rail corridor physical barriers. 	<ul style="list-style-type: none"> ■ Limited cycling network connectivity ■ Increases traffic access to/from Gardiner Expressway and eastbound Lake Shore Boulevard West with modified ramps and new ramp on Street A with potential to encourage cut-through traffic. ■ Modified Gardiner ramps and new Lake Shore Boulevard West ramp on Street A preclude

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ Moderate property to secure. ■ Moderate ability to improve access for all ages, abilities and means. 	<p>additional future north-south street connecting Lake Shore Boulevard West and The Queensway.</p> <ul style="list-style-type: none"> ■ Higher capital cost than Alternative 2 with two new grade separations, modified Brookers Lane/Gardiner ramps, new eastbound Lake Shore on-ramp, and potential Mimico Creek bridge widening. ■ Longer-term implementation timeline and more challenging constructability. ■ High natural impacts (Mimico Creek ravine system and Natural Heritage System lands) and potential to impact six heritage resources (bridges/structures).

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.4 Alternative 4A – Additional Traffic Capacity with Modified Gardiner Ramps and New Lake Shore Boulevard West Ramp

Alternative 4A has several advantages that include more space for active transportation and public realm improvements on Park Lawn Road and the ability to minimize the right-of-way width of Lake Shore Boulevard West. It also proposes excellent cycling network connectivity. The proposed three new street connections will improve vehicular connectivity and help to overcome the Gardiner Expressway/rail corridor physical barriers. The improvements proposed will reduce traffic access to/from Gardiner Expressway with the potential to discourage cut-through traffic. Of the alternatives it proposes the most compact intersections and no intersections with dual left turn lanes which will improve pedestrian and cyclist safety. It will also maintain the existing Mimico Creek bridge width.

In terms of disadvantages this alternative will incur very high capital costs associated with the proposed three new grade separations and modified Brookers Lane/Gardiner ramps. This option will have a high potential to impact natural heritage features (i.e. Mimico Creek ravine system & Natural Heritage System lands) resulting from the construction of the Legion Road extension in the Mimico Creek ravine system (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area); as well from the construction of an improved highway access, the new Street A, and new North-South street in proximity to City of Toronto Natural Heritage System lands. Alternative 4A also has the potential to impact seven heritage resources (six bridges, and Ontario Food Terminal site). While there is the potential for impact resulting from the works proposed, the application of appropriate mitigation can assist in reducing the

extent of impacts. Of the alternatives this option will have the greatest number of congested intersections, will have the longest implementation timeline, and the most challenging constructability with a significant amount of property to secure.

In terms of the overall traffic modelling network performance, this option ranked 4th for the AM Peak Hour performance and 5th in terms of the PM Peak Hour performance.

The above advantages and disadvantages associated with this option are highlighted in **Exhibit 10-26** for ease of comparison as summarized from the Public Meeting #3 presentation (July/Aug. 2021).

Exhibit 10-26: Alternative 4A Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ More space for active transportation and public realm improvements on Park Lawn Road and ability to minimize the right-of-way width of Lake Shore Boulevard West. ■ Excellent cycling network connectivity. ■ Three new street connections that improve connectivity and help overcome Gardiner Expressway/rail corridor physical barriers. ■ Reduces traffic access to/from Gardiner Expressway with potential to discourage cut-through traffic. ■ Most compact intersections and no intersections with dual left turn lanes improve pedestrian and cyclist safety. ■ Maintains existing Mimico Creek bridge width. 	<ul style="list-style-type: none"> ■ Very high capital cost with three new grade separations and modified Brookers Lane/Gardiner ramps. ■ Longest implementation timeline and most challenging constructability. ■ Significant property to secure. ■ Most number of congested intersections. ■ High natural impacts (Mimico Creek ravine system & Natural Heritage System lands) and potential to impact seven heritage resources (six bridges, and Ontario Food Terminal site).

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.5 Alternative 4B – Neighbourhood Main Streets with a Four-Lane Lake Shore Boulevard West

Alternative 4B has a number of advantages that include more space for active transportation and public realm improvements on Park Lawn Road. Three new street connections will improve connectivity, circulation, and help to overcome Gardiner Expressway/rail corridor physical barriers. It will reduce traffic access to/from Gardiner Expressway with the potential to discourage cut-through traffic. It also proposes more compact intersections and no intersections with dual left turn lanes resulting in improved pedestrian and cyclist safety and excellent cycling network connectivity.

The disadvantage of Alternative 4B is that it will have the highest capital costs of the alternatives under consideration given the proposed three new grade separations, modified Brookers Lane/Gardiner ramps, and the potential Mimico Creek bridge widening. It will also have the lengthiest implementation timeline and be more challenging from a constructability perspective. There will be significant property to secure related to Lake Shore Blvd West and the new streets proposed. It will have a high potential to impact natural heritage features resulting from the construction of the Legion Road extension and the potential widening of the Mimico Creek bridge at Lake Shore Boulevard West in the Mimico Creek ravine system (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area); as well from the construction of an improved highway access, new Street A, and a new North-South Street in proximity to City of Toronto Natural Heritage System lands. Alternative 4B also has the potential to impact seven heritage resources (i.e., six bridges, and Ontario Food Terminal site). While there is the potential for impact resulting from the works proposed, the application of appropriate mitigation can assist in reducing the extent of impacts.

In terms of the overall traffic modelling network performance, this option ranked 1st for the AM Peak Hour performance and 3rd in terms of the PM Peak Hour performance.

The above advantages and disadvantages associated with this option are summarized in **Exhibit 10-27** for ease of comparison as taken from the July 26/Aug. 9, 2021 Public Meeting #3 presentation.

Exhibit 10-27: Alternative 4B Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ More space for active transportation and public realm improvements on Park Lawn Road ■ Excellent cycling network connectivity ■ Three new street connections that improve connectivity, circulation, and help overcome Gardiner Expressway/rail corridor physical barriers ■ Reduces traffic access to/from Gardiner Expressway with potential to discourage cut-through traffic ■ More compact intersections and no intersections with dual left turn lanes improve pedestrian and cyclist safety 	<ul style="list-style-type: none"> ■ Highest capital cost with three new grade separations, modified Brookers Lane/Gardiner ramps, and potential Mimico Creek bridge widening ■ Longest implementation timeline and challenging from a constructability perspective ■ Significant property to secure: new streets and on Lake Shore Boulevard West ■ High natural impacts (Mimico Creek ravine system Natural Heritage System lands) and potential to impact seven heritage resources (six bridges, and Ontario Food Terminal site)

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.6 Alternative 4C – Neighbourhood Main Streets with a Four-Lane Lake Shore and No Legion Road Extension

Alternative 4C has a number of advantages that include more space for active transportation and public realm improvements on Park Lawn Road. Two new street connections will improve connectivity, circulation, and help to overcome Gardiner Expressway/rail corridor physical barriers. It will reduce traffic access to/from Gardiner Expressway and discourage potential cut-through traffic. It also proposes more compact intersections and no intersections with dual left turn lanes resulting in improved pedestrian and cyclist safety and offers excellent cycling network connectivity.

The disadvantages associated with this option are that it will have a high capital cost related to the proposed two new grade separations, modified Brookers Lane/Gardiner ramps, and the potential Mimico Creek bridge widening. It will also have a long implementation timeline and be more challenging from a constructability perspective. This option also has significant property to secure associated with Lake Shore Boulevard West and the new streets proposed. This option will have a moderate potential to impact natural heritage features resulting from the construction of an improved highway access, a new Street A, and a new North-South Street in proximity to City of Toronto Natural Heritage System lands; in addition to a potential widening of the Mimico Creek bridge at Lake Shore Boulevard West (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area). However, since this alternative does not include an extension of Legion Road there will be reduced impacts to the Mimico Creek ravine area in comparison to the other alternatives. Alternative 4C has the potential to impact seven heritage resources (six bridges, and Ontario Food Terminal site). While there is the potential for impact resulting from the works proposed, the application of appropriate mitigation can assist in reducing the extent of impacts.

In terms of the overall traffic modelling network performance, this option ranked 3rd for the AM Peak Hour performance and 4th in terms of the PM Peak Hour performance.

The above advantages and disadvantages associated with this option are summarized in **Exhibit 10-28** for ease of comparison as taken from the July 26/Aug. 9, 2021 Public Meeting #3 presentation.

Exhibit 10-28: Alternative 4C Summary of Advantages / Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> ■ More space for active transportation and public realm improvements on Park Lawn Road ■ Excellent cycling network connectivity ■ Two new street connections that improve connectivity, circulation, and help overcome Gardiner Expressway/rail corridor physical barriers ■ Reduces traffic access to/from Gardiner Expressway, discourages potential cut-through traffic ■ More compact intersections and no intersections with dual left turn lanes improve pedestrian and cyclist safety 	<ul style="list-style-type: none"> ■ High capital cost with two new grade separations, modified Brookers Lane/Gardiner ramps, and potential Mimico Creek bridge widening ■ Long implementation timeline and challenging from a constructability perspective ■ Significant property to secure: new streets and on Lake Shore Boulevard West ■ High natural impacts (Mimico Creek ravine system Natural Heritage System lands) and potential to impact seven heritage resources (six bridges, and Ontario Food Terminal site)

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

10.2.4.7 Legion Road Extension

As noted in the above summaries for the various Alternatives, there are a number of advantages arising from including the Legion Road extension in the transportation network and also some challenges / key issues. In comparing those Alternatives with Legion Road (that is, Alternatives 1, 2, 3, 4A, and 4B) versus the Alternative without Legion Road (that is, Alternative 4C), there are a number of general conclusions pertaining to Legion Road.

The Legion Road extension will provide a new street connection that will assist in improving connectivity and circulation, and also help to overcome the physical barriers of the Gardiner Expressway and rail corridor. The link would provide redundancy and some additional traffic capacity in the road network, allowing traffic to better balance and optimize use of the overall transportation network. The provision of the new link and elimination of the rail corridor barrier also improves the local street network connectivity and circulation for all modes of travel (pedestrians, cyclists, and vehicles), including good movement. It will also have some ability to improve access for all ages, abilities and means since it reduces a barrier to travel for people of all socio-economic position and ability.

However, the Legion Road extension has a high capital cost, and has the potential to impact one Built Heritage Resource (CN Rail bridge over Mimico Creek). The link also has some potential to impact natural heritage features (i.e. wildlife, habitat, vegetation

etc.) resulting from the construction of the Legion Road extension in the Mimico Creek ravine system (part of the City of Toronto Natural Heritage System and a TRCA Regulated Policy Area).

Overall, despite the high capital cost and environmental impacts, the Legion Road extension improves overall community connectivity, improves traffic circulation and capacity, provides redundancy in the road network, better accommodates all modes of travel, and helps provide better transportation equity for the community. As such, the Legion Road extension is identified as a key element of the Preliminary Preferred Network Alternative.

The above advantages and disadvantages associated with the Legion Road extension are summarized in **Exhibit 10-28** for ease of comparison as taken from the July 26/Aug. 9, 2021 Public Meeting #3 presentation.

Exhibit 10-29: Legion Road Extension Summary of Advantages / Disadvantages

Advantages	Challenges / Key Issues
<ul style="list-style-type: none"> ■ Helps overcome rail corridor physical barrier between neighbourhoods – provides a new connection across the rail corridor (currently 1.5 km+ to next nearest rail crossings east and west of Park Lawn Road) ■ Provides some new traffic capacity in the area and alleviates issues at key intersections (Park Lawn Road / Lake Shore Boulevard West) ■ Improves local street network connectivity and circulation for all modes, including goods movement ■ Improves access to neighbourhood destinations in the larger community, including Grand Avenue Park, shopping and retail on Royal York Road and The Queensway 	<ul style="list-style-type: none"> ■ High cost and particularly in combination with costs associated with Street A (estimated at \$182-197M) ■ Constructability of both Street A and Legion Road grade separation in similar time horizons to be determined taking into consideration rail corridor operations ■ Other new streets identified provide greater transportation benefits (Street A, North-South Street)

Source: Taken from the Park Lawn – Lake Shore TMP Public Meeting #3 Presentation, July 26th and Aug. 9, 2021

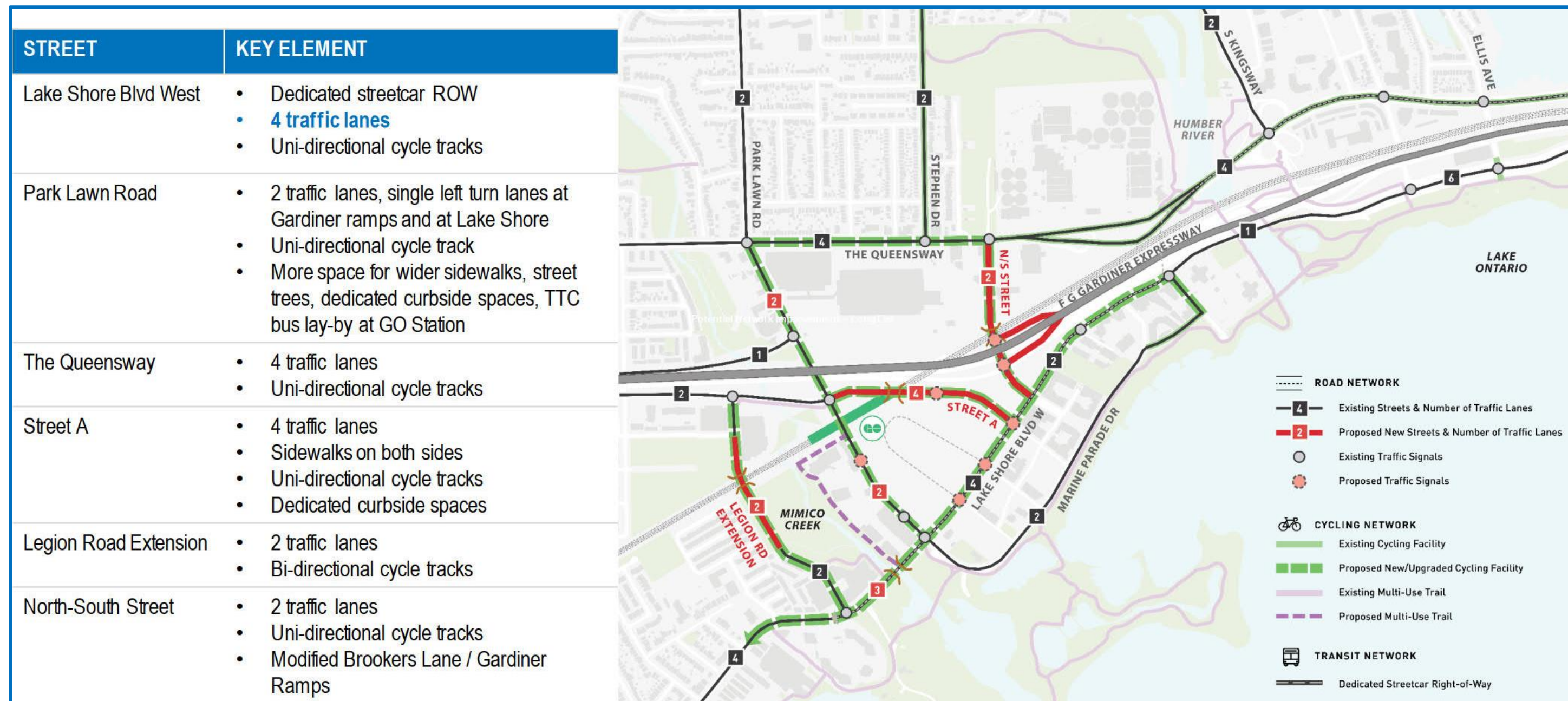
11. Preliminary Preferred Alternative Solution

Based on the evaluation completed and consideration of the advantages and disadvantages of each option, the City identified Transportation Network Alternative 4B as the Preliminary Preferred Alternative Solution for the Park Lawn Lake Shore TMP.

As illustrated in **Exhibit 11-1**, Transportation Network Alternative 4B (Neighbourhood Main Streets with Four-Lane Lake Shore Boulevard West) proposes the following key elements:

- A new North-South Street 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 street would have two traffic lanes, uni-directional cycle tracks and sidewalks;
- Street A would have a wider right-of-way (up to 28.5 m) than Alternatives 2 and 3 that can accommodate four traffic lanes, uni-directional bikeways, and sidewalks on both sides of the street;
- A Legion Road extension with a grade separation under the rail corridor providing two traffic lanes, sidewalks and bi-directional bikeways;
- Park Lawn Road would be reduced to two traffic lanes with no dual left turn lanes allowing the street to have 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 for bus passenger pick-up/drop-offs or loading/deliveries), wider sidewalks and more public realm space; and
- Lake Shore Boulevard West is proposed to be transformed 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, upgraded uni-directional cycle tracks, wider sidewalks, and other public realm improvements. Based on additional design work undertaken, the right-of-way width required to accommodate all of these elements is typically 36 metres, with additional right-of-way required at intersections to accommodate traffic turn lanes and streetcar stop platforms.

Exhibit 11-1: Preliminary Preferred Alternative Solution for the Park Lawn Lake Shore TMP



Based on the evaluation completed Transportation Network Alternative 4B was selected as the Preliminary Preferred Alternative Solution for the Park Lawn Lake Shore TMP for the following reasons:

- This network alternative responds to concerns about area street network connectivity by proposing to ultimately add three new street connections that help overcome the rail corridor / Gardiner Expressway physical barriers, provides excellent walking and cycling connectivity, supports the long-term build out of the Christie's site, improves community access to higher-order transit, improves streetcar priority, helps reduce neighbourhood traffic impacts of the Gardiner Expressway, and identifies the area transportation improvements needed to address existing and future issues using a comprehensive evidence-based evaluation approach.
- The Preliminary Preferred Alternative Solution best meets the evaluation criteria and has been informed by stakeholder and public input and feedback received to date from local residents and businesses. This network alternative provides a connected multi-modal transportation network that accommodates all transportation users, and prioritizes transit use, walking, and cycling.
- The Preliminary Preferred Alternative Solution reflects the proposed new Park Lawn GO Station, located on Park Lawn Road at the rail corridor, and a dedicated streetcar connection through the Christie's development site along with two other new local streets, which are projects being undertaken by the developer First Capital and Metrolinx, with involvement from the City. The new GO Station and streetcar loop connection will help 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 preliminary preferred network proposes a series of improvements to 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, upgraded uni-directional cycle tracks, wider sidewalks, and other public realm improvements. The right-of-way width required to accommodate all these elements is expected to typically be 36 m, with additional right-of-way required at intersections to accommodate traffic turn lanes and streetcar stop platforms.
- 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, these new signals are proposed at the new internal street to the Christie's site and streetcar loop (referred to as Street B), and Street A. A new signal is also proposed at the access to 86 Park Lawn Road.

- Park Lawn Road is also proposed to become more of a neighbourhood main street, with two traffic lanes, uni-directional cycle tracks all the way from Lake Shore Boulevard West up to The Queensway, more space for wider sidewalks, and other public realm improvements. 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.
- The Queensway is proposed to continue to have four traffic lanes. Uni-directional cycle tracks and other public realm improvements are proposed. It should be noted that The Queensway is currently planned for road reconstruction and watermain work in 2023. Transportation Services is currently assessing the feasibility of various safety improvements including intersection enhancements and cycle tracks as part of this work. If feasible, public consultation would be planned well in advance of the road and watermain work.
- Street A is a new generally east-west street connection between Park Lawn Road and Lake Shore Boulevard West that unlocks the Christie's site development potential. It is proposed to have four traffic lanes, uni-directional cycle tracks, and sidewalks on both sides of the street. Street A will be one of the primary vehicle access routes for the entrance to the underground parking and servicing for the Christie's development, and will help improve the area street network connectivity and circulation for all modes that includes a crossing of the physical barrier of the rail corridor. Street A will also have one of the passenger entrances to the future Park Lawn GO Station and may accommodate some passenger pick-up and drop-off activity. In the Council adopted Secondary Plan and Zoning By-law, Street A must be entirely constructed as part of Phase 1 of any development on the site and a holding provision for Phase 2 ensures that the street (and all other Phase 1 work) is secured and/or completed to the City's satisfaction prior to the release of the hold.
- The new North-South street is proposed as an important new street connection between Lake Shore Boulevard West and The Queensway, and

would involve modifying the existing Brookers Lane/Gardiner ramps to connect directly with the new North-South Street. The North-South Street is planned to have two vehicle traffic lanes, uni-directional cycle tracks, and sidewalks, as well as new signalized intersections with the modified Gardiner Expressway on- and off-ramps. This new street would provide another much-needed connection under the Gardiner Expressway and rail corridors for all users and would provide an alternative north-south travel route to Park Lawn Road. Opportunities for this street connection should be considered in concert with the recent employment conversion request to the east of the Ontario Food Terminal operation north of the Gardiner Expressway.

- As previously noted, the Legion Road extension is also part of the Preliminary Preferred Alternative Solution, providing a new street connection with two traffic lanes and a bi-directional bikeway that helps improve connectivity and overcome the rail corridor physical barrier between neighbourhoods to the north and south of it.
- From a traffic management perspective, the Preliminary Preferred Alternative Solution reduces access to and from the Gardiner Expressway to help discourage potential cut-through traffic. Based on the traffic modelling analysis, it has generally acceptable Levels-of-Service (LOS) in the AM and PM Peak Hours, with a few intersections and traffic movements that operate at LOS E or F in the future, in keeping with expected conditions in built-up areas of the City.
- The Preliminary Preferred Alternative Solution has the most overall transportation improvements in the area and new street connections, and as such it has a high capital cost with three new grade separations, modified Brookers Lane/Gardiner ramps, and potential Mimico Creek bridge widening. It also has a longer overall implementation timeline on account of these major infrastructure elements. The grade separations in this area are also challenging from a constructability perspective, particularly where these cross both the rail corridor and the Gardiner Expressway (e.g., new North-South Street), and in the vicinity of Hydro One towers/footings. There is significant property to secure, the majority of which is anticipated to be secured through the development review process and Planning Act approvals.

12. Refinements Following Public Information Event #3 (July / August 2021)

Section 2 – Consultation provides a summary of consultation activities and feedback received from residents, businesses, and other stakeholders during Phase 2 – Stage 2 consultation, which took place from July 22 to August 15, 2021, and focused primarily on the development of network alternatives, the evaluation of network alternatives, and the identification of a Preliminary Preferred Network Alternative. Feedback on the Preliminary Preferred Network Alternative during the outreach pertained to comments such as traffic and congestion, property impacts, costs, and timelines for implementation. This feedback contributed to additional investigations and subsequent refinements to the Preliminary Preferred Network Alternative.

12.1 Identified Solution Refinements

Throughout the course of the TMP study and also subsequent to presentation of the Preliminary Preferred Alternative Solution through the July/August 2021 public engagement, a number of additional refinements to the area network and the Preliminary Preferred Alternative Solution were considered. These are summarized in the sections below.

12.1.1 Street A: Two Versus Four Lanes

During and subsequent to conclusion of the third round of public consultation, the total number of through lanes along Street A was identified as an area where refinements should be reconsidered. This was determined in discussion with First Capital, one of the key development proponents within the Christies area lands. First Capital completed additional transportation modelling that suggested the street network was able to operate within acceptable limits with Street A only including two vehicular lanes (that is, one per direction). Reducing the number of vehicles would allow for further optimization of the allocated right-of-way space for all users of this vital element of the road network.

Although, the four general purpose traffic lanes (that is, two lanes per direction) has greater vehicular capacity, there is the potential for other benefits with simply providing

two lanes (one lane per direction) and re-allocating some of the road space from auto vehicular travel to other modes. These include:

- Four lanes along Street A has greater likelihood to attract eastbound oriented by-pass traffic from the Gardiner Expressway during congested freeway operations. That is, during the morning peak period, some eastbound Gardiner Expressway traffic may re-orient and travel via the eastbound off-ramp to Park Lawn Boulevard, along Street A, and then navigate back on to the eastbound Gardiner Expressway via the reconfigured Brookers Lane ramps, thereby avoiding some freeway congestion. This bypass traffic is an undesirable element in a community. The provision of simply two lanes of traffic on Street A will discourage this bypass traffic.
- A narrower road vehicular cross-section allows for other street enhancements:
 - Provision of a curbside lane for pick-up/drop-off activity associated with the nearby proposed Park Lawn GO Station, or for loading operations for potential commercial businesses in the area;
 - Wider sidewalks and greater protection for cyclists;
 - Additional streetscaping and furniture to enhance aesthetics and pedestrian realm of the corridor.

The benefits and disbenefits for the ultimate provision of two versus four lanes along Street A will be reviewed and confirmed in the forthcoming Schedule C Environmental Assessment for Street A.

12.2 Other Considered Network Opportunities

12.2.1 Humber Bay Shore Area One-way Streets

As documented in the *Technical Memo: Development and Evaluation of the Future Conditions (2041) Models* (AECOM, Nov. 15, 2021), the City considered the potential to convert one or more of the Humber Bay Shores area corridors south of Lake Shore Boulevard West (i.e., Marine Parade Drive, Shore Breeze Drive, Silver Moon Drive, The Marginal Boulevard, and Brookers Lane) into one-way streets where feasible. Simulated traffic volumes for the above noted corridors during the AM and PM peak hours were extracted from the Preferred Network Solution model (i.e., Alternative 4B), to review the travel patterns within the area. The results are summarized in **Exhibit 12-1**. Please refer to **Appendix G** for a full copy of the above noted memo.

Exhibit 12-1: Simulated Traffic Volumes Along Key North-South Corridors in Humber Bay Shores Area

Alternative 4B Simulation Volumes	2041 AM Peak Hour		2041 PM Peak Hour	
	Northbound	Southbound	Northbound	Southbound
Marine Parade Drive south of Lake Shore Boulevard West at Park Lawn Road (west leg)	104	275	158	111
Shore Breeze Drive south of Lake Shore Boulevard West	48	15	22	43
Silver Moon Drive south of Lake Shore Boulevard West	57	20	39	65
The Marginal Boulevard south of Lake Shore Boulevard West	72	72	116	201
Brooker's Lane south of Lake Shore Boulevard West	240	62	176	148
Marine Parade Drive south of Lake Shore Boulevard West (east leg)	222	42	44	58

Source: [Development and Evaluation of the Future Conditions \(2041\) Models Technical Memo, AECOM, Nov. 15, 2021](#)

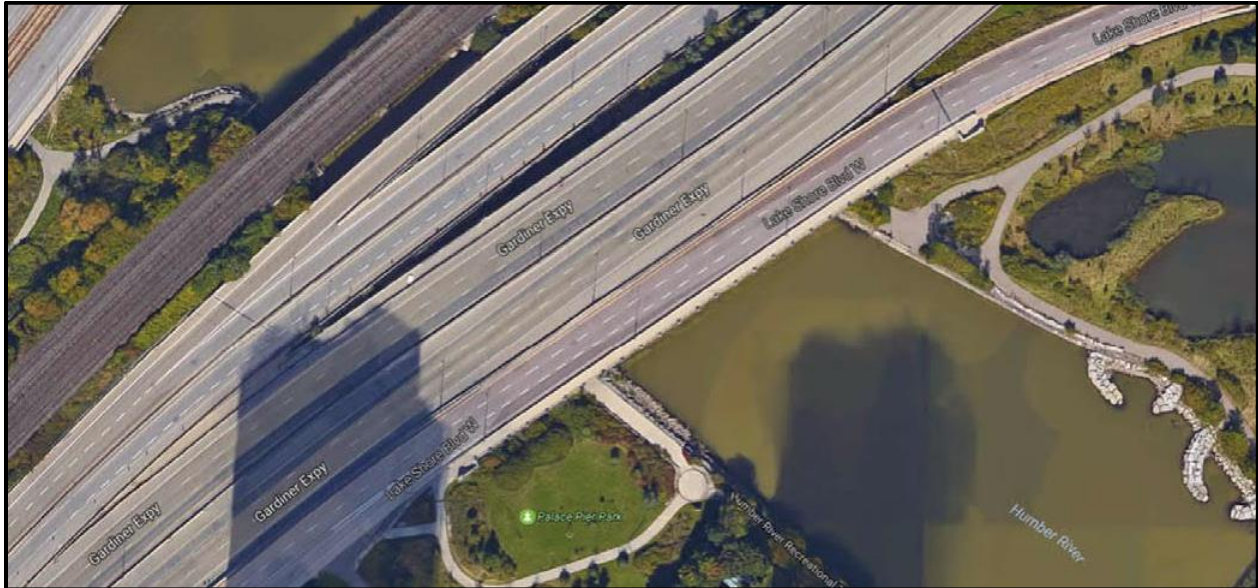
The analysis determined that the subject north-south corridors are moderately to well utilized depending on the peak hour. One direction carries the dominant flow during the AM peak hour and the reverse direction carries the dominant flow during the PM peak hour. Further analysis is recommended for this area to review the potential to use a one-way network of north-south streets to help improve traffic calming and minimize cut-through traffic infiltration through the neighbourhood.

12.2.2 Widening Eastbound Lake Shore Boulevard West Across Humber River

The City also initiated a high-level feasibility review based on geometric design and engineering for select potential alternative transportation solutions. The review considered horizontal and vertical conditions that significantly affect or are constrained by factors such as the ability of the infrastructure improvements to be accommodated within the available area; property impacts and acquisition; and significant structural or other area fixed constraints, such as the Humber River, Gardiner Expressway and ramps, rail corridor, hydro corridor or even complex land ownership parcels (i.e., condominium corporations). This review was summarized in the *High-Level Geometric Feasibility Assessment Technical Memo (AECOM, Feb. 2017)*. Please refer to **Appendix H** for a copy of the memo.

As part of geometric feasibility assessment, the potential for widening the southernmost bridge crossing of the Humber River was considered. The subject structure is contained within the cluster of Gardiner Expressway and Lake Shore Boulevard West bridges as illustrated in **Exhibit 12-2**.

Exhibit 12-2: Lake Shore Boulevard West at Humber River



Source: [High-Level Geometric Feasibility Assessment Technical Memo](#), Google Maps, AECOM Feb. 2017

The assessment concluded that the addition of one or two new traffic and / or transit lanes could be accommodated, and that the key challenge would be typical planning/design related issues associated with such a large span as follows:

- Addressing the ≈ 75 m river span;
- Providing for ≈ 160 m span between bridge abutments in order to accommodate embankment slopes and the multi-use trail (MUT) adjacent to the Humber River, including provision for an environment that promotes security for MUT users such as wide platforms and illumination;
- Work over water;
- Work in close proximity to the Gardiner Expressway and Lake Shore Boulevard West; and
- Accommodating all vehicle types and loads, including consideration for light rail transit vehicles (rail vibration impacts), and designing according to the Canadian Highway Bridge Design Code (CHBDC).

12.2.3 Widening Lake Shore Boulevard West Lane at Palace Pier

As part of the aforementioned geometric feasibility assessment, the potential to provide additional lanes or a dedicated bikeway for Lake Shore Boulevard West at Palace Pier was also considered. As illustrated in **Exhibit 12-3** Lake Shore Boulevard West adjacent to Palace Pier is a single one-way eastbound lane. This merges with the two-lane Gardiner Expressway sub-collector, resulting in a combined three-lane cross-section for Lake Shore Boulevard West as it approaches and traverses over the Humber River.

Exhibit 12-3: Lake Shore Boulevard West Adjacent to Palace Pier



Palace Pier, an adjacent high-rise residential condominium structure, is located immediately to the south of Lake Shore Boulevard West in this area. Based on a review of architectural drawings dated 1978, there is a four-level underground parking structure and mechanical vent shaft at the narrowest point along the single Lake Shore Boulevard West lane and located in very close proximity to Lake Shore Boulevard West.

The proximity of the parking structure vent shaft to Lake Shore Boulevard West is illustrated in **Exhibit 12-3** and **Exhibit 12-4**. The images also show a monolithic curb and sidewalk directly adjacent to Lake Shore Boulevard West.

Exhibit 12-4: Lake Shore Boulevard West at Palace Pier



Source: High-Level Geometric Feasibility Assessment Technical Memo, Google Maps, AECOM Feb. 2017

Based on the existing conditions and a review of area plans, it is not possible to provide additional lanes or include both a sidewalk and bikeway in this area without significant impacts to the Palace Pier lands and structure, and without significant construction and expense. As such, given these significant constraints the provision of additional vehicular travel lanes or a widening for a dedicated bikeway was determined to be infeasible.

Given this noted constraint, and in order to at least provide network continuity of the Lake Shore Boulevard West bikeway in this area (which terminates at Palace Pier Court), it would be ideal to consider providing a bikeway routing cyclists via another route. An ideal connection would be along Palace Pier Court, which would connect the existing bikeways on Lake Shore Boulevard West (west of Palace Pier Court) to the facilities on Waterfront Drive and along the Waterfront Trail.

12.2.4 New North-South Street

The implementation of the new North-South Street requires coordination with key impacted landowners in the area, notably Hydro One, Fiera Properties (that is, the commercial plaza at 125 The Queensway anchored by Sobeys), and the Ontario Food Terminal (OFT). The OFT is a significant consideration given its designation as a provincially significant employment zone in the *Province's A Place to Grow: Growth Plan for the Greater Golden Horseshoe Plan (Growth Plan 2019)*.

Prior to and after the July 26 and August 9, 2021 public consultation sessions, the City had several communications with the Hydro One, Fiera Properties, OFT regarding potential impacts, their 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 the North-South Street connection are also being considered with Fiera Properties in concert with their recent employment conversion request submitted to the City for their lands.

In order to address these concerns and potential impacts, a number of North-South Street concept alignments and profiles were developed with varying degrees of curvature and tunnel length. These concept alignments are presented and discussed in Section 14 – Implementation Plan of this TMP, and will be subject of further Environmental Assessment study and design in the future.