



Appendix G.4

Development and Evaluation of the Future Conditions (2041) Models Technical Memo
(Nov. 2021)



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Park Lawn – Lake Shore Transportation Master Plan

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Memo

Subject: Development and Evaluation of the Future Conditions (2041) Models

1 Introduction

AECOM Canada Ltd. (AECOM) was retained by the City of Toronto (i.e., the “City”) to undertake a Transportation Master Plan (TMP) Study for the Park Lawn – Lake Shore (PLLS) area. The purpose of the study is to identify transportation improvements needed to provide multi-modal mobility options for people who live, work, visit, and pass through the PLLS area, and to support further development of the PLLS area.

AECOM previously completed and submitted the calibrated Existing Conditions microsimulation model in May of 2020. The details of the Existing Conditions traffic model development were documented in the technical memorandum *Development and Calibration / Validation of the Existing Conditions (2019) Models*, dated May 25, 2020. The technical memorandum included the details of model development, calibration, and validation as well as existing conditions traffic operational assessment for the AM and PM peak period in 2019.

This memorandum documents the next steps of the study, including the development and evaluation of the Future Do-Nothing (i.e., Alternative 1) and Alternative 2, 3, 4A, 4B, and 4C models.

The primary study area, generally bounded by Mimico Creek to the west, The Queensway to the north, Windermere Avenue to the east, and Lake Ontario to the south, is shown in **Figure 1**. To capture major traffic patterns in the primary study area, a broader study area known as the secondary study area, also shown in **Figure 1**, was used for travel demand estimation. The secondary study area is generally bounded by Kipling Avenue to the west, The Queensway to the north, Jameson Avenue to the east, and Lake Ontario to the south.

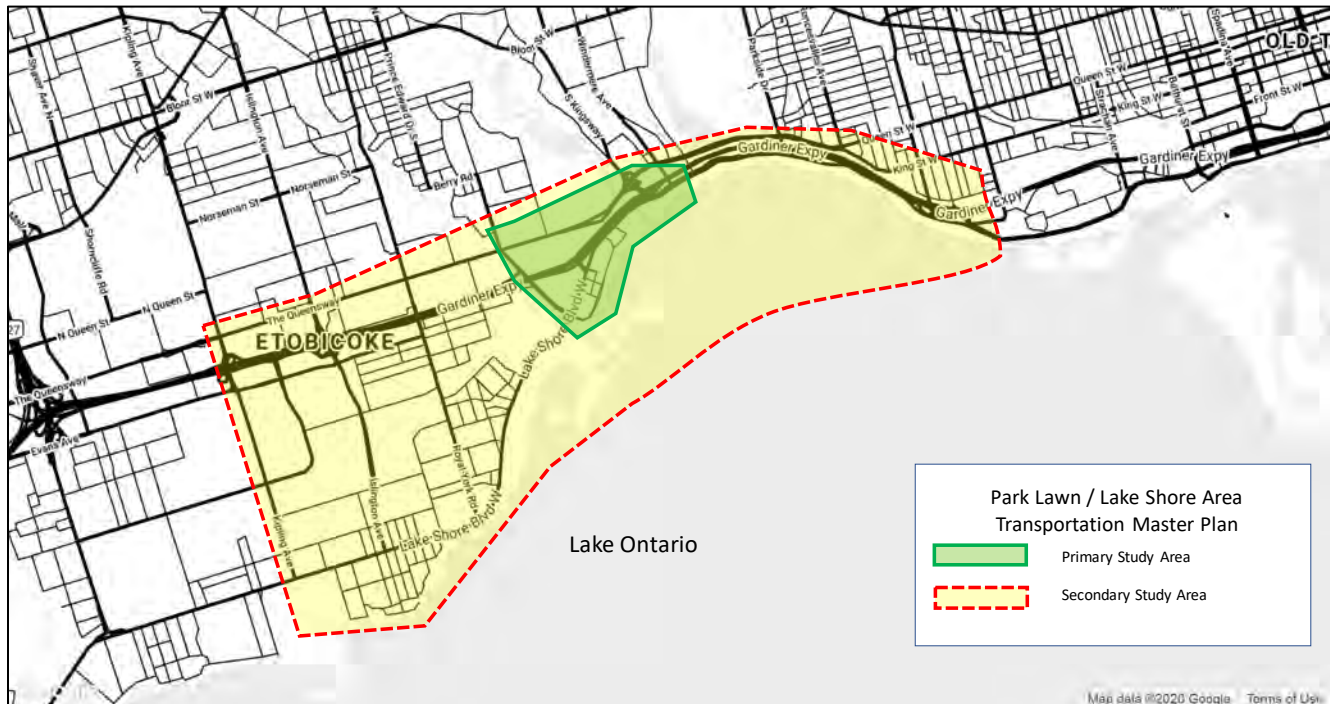


Figure 1: Park Lawn / Lake Shore TMP Primary and Secondary Study Areas

2 Travel Demand Estimation

This section describes the steps taken to develop the initial Future Do-Nothing (Alternative 1) and Future Build-Out traffic volume forecasts for the 2041 horizon year, and the subsequent steps taken to develop each Alternative. While the focus of the TMP Study is on the primary study area, the secondary study area was used for macro and mesoscopic modelling to capture major patterns of travel in the broader study area and under different land use and transportation improvement alternatives in the future scenarios.

2.1 City's Emme Travel Demand Model

The City's Emme Regional Transportation Demand Model was utilized to develop the Future Do-Nothing and Future Build-Out Conditions forecast travel patterns in the study area.

The City provided a Emme sub-area model including the following information:

- The 2041 Future Do-Nothing road network representing the PLLS secondary study area;
- The 2041 peak hour auto traversal demand matrices for the AM and PM peak hours assuming no development on Mr. Christie lands at 2150 Lake Shore Boulevard West; and
- The 2041 peak hour auto traversal demand matrices for the AM and PM peak hours assuming full build-out of Mr. Christie lands at 2150 Lake Shore Boulevard West as per First Capital/Pemberton development plans.

The limits of the Emme sub-area model are shown in **Figure 2**.

The Emme traversal matrices were used as starting points for the Visum Origin-Destination (OD) matrices and were further adjusted as described in the next sections to develop the final Vissim OD matrices.



Figure 2: Emme Sub-Area Model Road Network

2.2 Visum Road Network Refinement

As for the Existing Conditions Emme sub-area model, the Future Do-Nothing sub-area model required a number of road network refinements to more closely represent the existing road network. The road network included in the City's Emme sub-area model and imported into the Visum mesoscopic model is shown in **Figure 3**.

The key road network refinements made to the Visum model are shown in **Figure 4** and are as follows:

- The section of Gardiner Expressway west of Park Lawn Road was coded in the model as a core-collector with access provided to the Park Lawn Road off-ramp and the Islington Avenue on- and off-ramps only via collector roads;
- New links were added to the model to represent Aldgate Avenue, access road to Humber Treatment Plant, Silver Moon Drive, Humber Bay Shores Development's "Street A" (south side of Lake Shore Boulevard across from the former Mr. Christie's east access driveway), Brookers Lane, Palace Pier Court, and Waterfront Drive;
- New links were added to the model to represent the Gardiner eastbound off- and on-ramps to Horner Avenue. The extension of Horner Avenue to Judson Street also added to the model;
- The Gardiner westbound off-ramp to St Lawrence Avenue and its intersection with The Queensway was also added to the model;
- New links were added to the model to represent the section of Windermere Avenue between The Queensway and Lake Shore Boulevard West and the section of Ellis Avenue north of The Queensway;
- New links were added to the model to represent the section of Colborne Lodge Drive between The Queensway and Lake Shore Boulevard West and the section of Ellis Avenue north of The Queensway;
- Number of lanes for the section of Evans Avenue between Kipling Avenue to Royal York Road was reduced from two to one in each direction; and
- Number of lanes for the Gardiner Expressway westbound collector ramp to Islington Avenue was reduced from two to one.

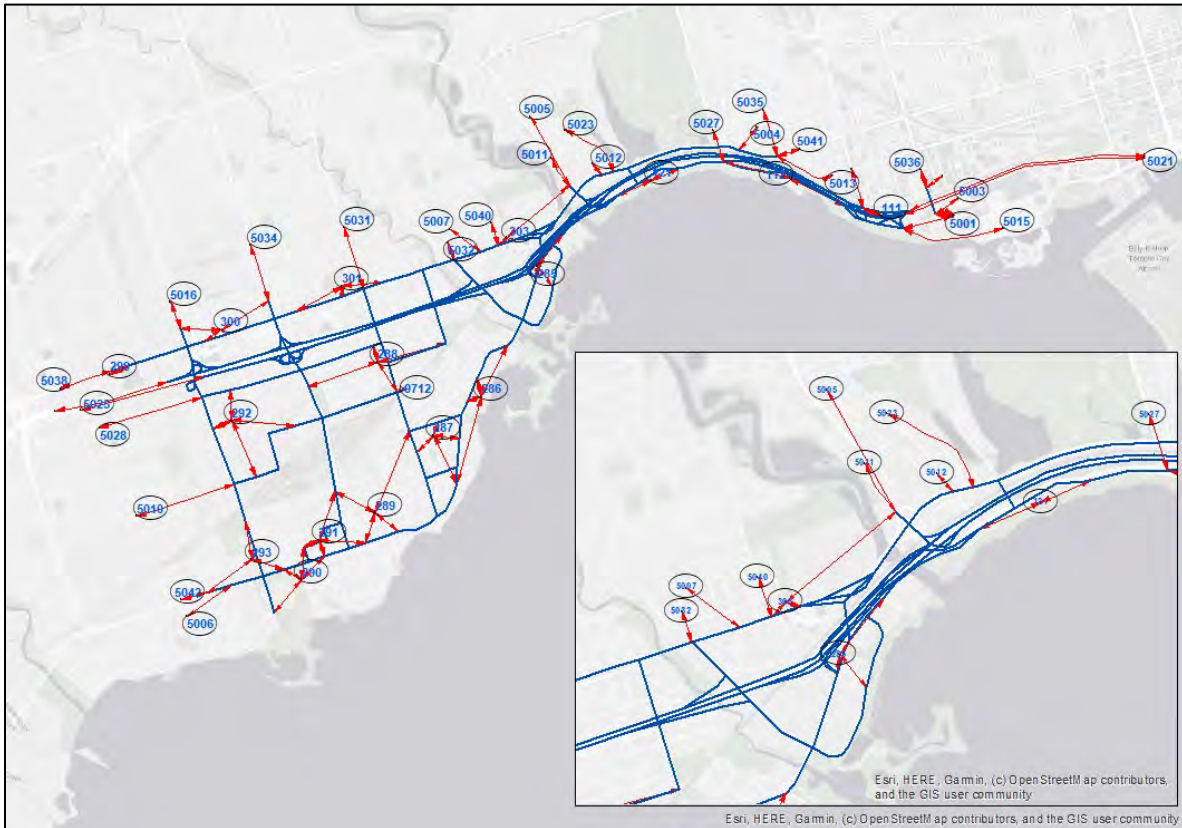


Figure 3: Preliminary Road Network Imported from the City's Future Do-Nothing Emme Sub-Area Model

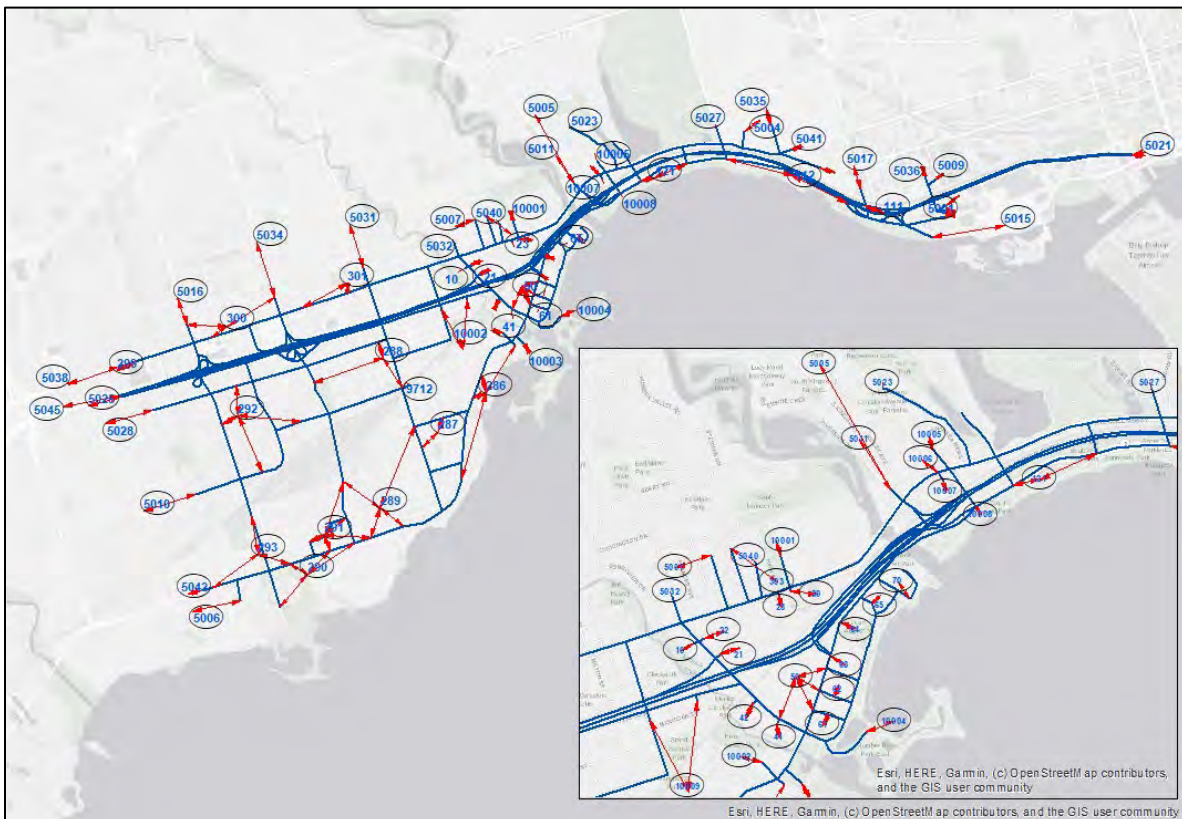


Figure 4: Refined Road Network in the Modified Future Do-Nothing Visum Sub-Area Model

2.3 Traffic Zones Splitting

The traffic zones included in the City's Emme subarea model are based on the Transportation Tomorrow Survey (TTS) traffic zone boundaries. As under the Existing Conditions model development, Traffic Zone #285 encompasses most of the primary study area and required further breakdown to develop the detailed zone system used in the Vissim microsimulation models. The zone splitting process documented in the May 25, 2020 memorandum was repeated to split Traffic Zone #285 into seven sub-zones, as shown in **Figure 5**.

The seven sub-zones are as follows:

- Sub-Zone #1: The area bounded by Mimico Creek to the west, The Queensway to the north, Park Lawn Road to the east, and Gardiner Expressway to the south;
- Sub-Zone #2: The area representing the Ontario Food Terminal (OFT). This zone was then further disaggregated to three traffic zones based on access locations;
- Sub-Zone #3: The area representing the Sobeys commercial plaza (125 The Queensway) located immediately to the east of the OFT and bounded by The Queensway to the north, Humber TTC Loop to the east, and Gardiner Expressway to the south;
- Sub-Zone #4: The area bounded by Mimico Creek to the west, Gardiner Expressway to the north, Park Lawn Road to the east, and Lake Shore Boulevard West to the south. This zone was then further disaggregated to two sub-zones;
- Sub-Zone #5: The area representing the former Mr. Christie's Bakery, now First Capital / Pemberton development property for the 2150 Lake Shore Boulevard West development;
- Sub-Zone #6: The area representing the Humber Bay Shores residential and commercial area south of Lake Shore Boulevard West. This zone was then further disaggregated to five sub-zones; and
- Sub-Zone #7: The area representing Palace Pier Condominiums, bounded by Marine Parade Drive to the west, Lake Shore Boulevard West to the north, Humber River to the east, and Lake Ontario to the south.



Figure 5: Traffic Sub-Zone Numbers and Boundaries Included in Traffic Zone #285

To best replicate the existing road network and its features, the seven sub-zones were further broken to 14 traffic zones based on network connectivity and their access points. The 14 zones match the same zone breakdown as under the development of the Existing Conditions model. Network connectors were added for each of the 14 traffic zones to represent their access points to the local road network. **Figure 6** shows the final modified zone and connector setup in Visum for the primary study area in the 2041 Future Do-Nothing Conditions (Alternative 1) and 2041 Future Build-Out Conditions.

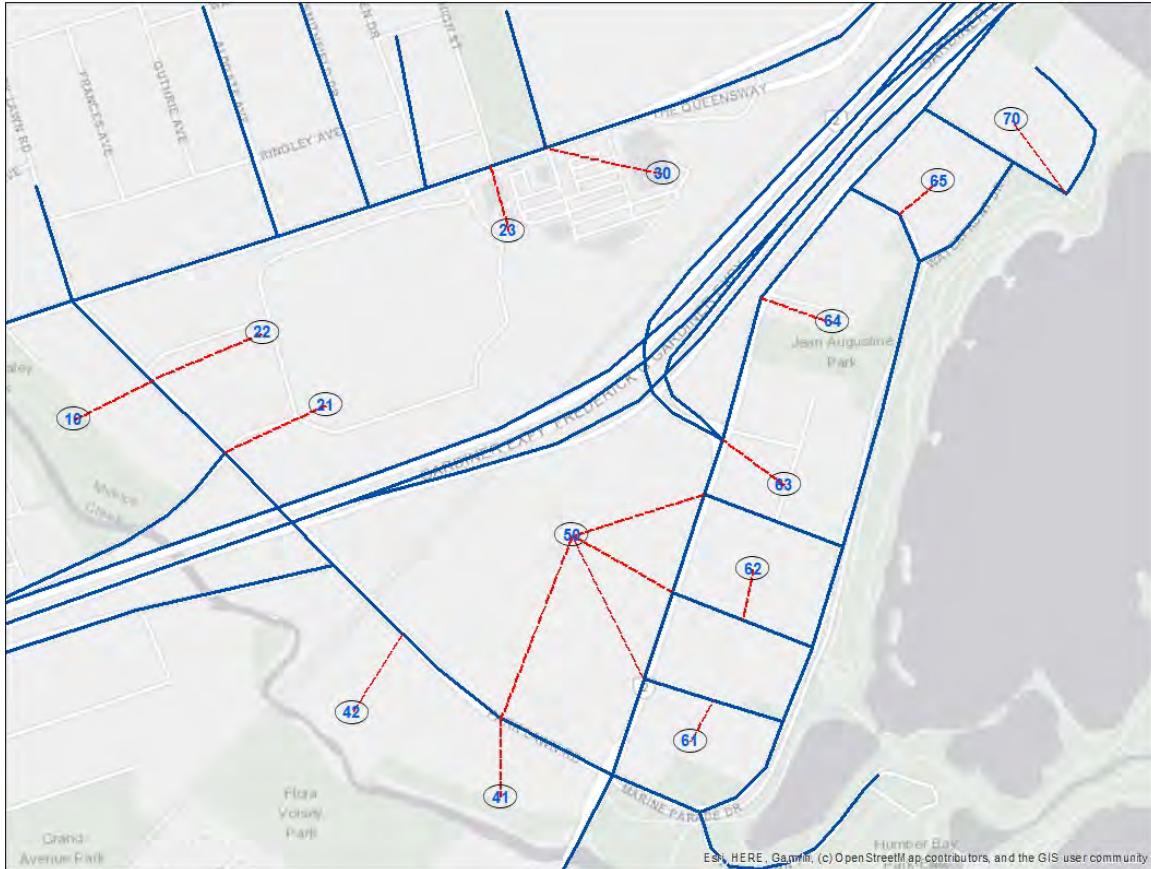


Figure 6: Visum Traffic Zone and Connector Setup for the Primary Study Area Under Future Do-Nothing Conditions

2.4 Development of Visum and Vissim OD Matrix

The process for developing the Existing Conditions Visum and Vissim OD matrices, documented in the May 25, 2020 memorandum, was repeated to develop the corresponding Future Do-Nothing and Future Build-Out matrices. As population and employment data for the 2041 horizon year was readily available, no further growth was applied to the 2041 trips to / from the seven sub-zones included in the PLLS primary study area. **Table 1** summarizes the population and employment in Zone 285 under the 2011, 2015, and 2041 horizon years. The forecast indicates both significant population and employment growth in the study area by 2041.

Table 1: Population and Employment in 2011, 2015, and 2041 for the Sub-Zones Included in the Primary Study Area

Sub-Zone #	2011		2015		2041 (est.)	
	Population	Employment	Population	Employment	Population	Employment
Total	4,367	2,632	10,487	2,685	28,500	6,500

The trips to / from the seven sub-zones were further disaggregated to the fourteen traffic zones as shown in **Figure 6** based on the adjusted inbound and outbound traffic distribution at their access points. The trips to / from the fourteen traffic zones are shown in **Table 2** for the Future Do-Nothing Conditions and **Table 3** for the Future Build-Out Conditions matrices.

Table 2: Inbound and Outbound Traffic to Zone 285 Sub-Zones in 2041 under Future Do-Nothing Conditions

Macro Model Zone	Sub-Zone	Micro Model Zone	Location Description	Outbound Volume		Inbound Volume	
				AM	PM	AM	PM
285	1	100	Starbucks Access, Etc.	127	84	135	66
	2	201	Ontario Food Terminal - Gardiner North Ramp Exit	100	34	0	0
		202	Ontario Food Terminal - Park Lawn Access	4	152	95	1
		203	Ontario Food Terminal - The Queensway Access	28	7	165	20
	3	300	TD Plaza Access	126	461	193	479
	4	401	Metro Driveway	473	277	100	346
		402	South Beach Condos Access	210	90	29	124
	5	500	Mr. Christie Site	0	0	0	0
	6	601	Shore Breeze Drive	95	80	30	112
		602	Silver Moon Drive	76	107	146	217
		603	Brookers Lane	368	490	85	301
		604	Newport Beach Condos	80	104	42	57
		605	5 Marine Parade Condos	64	83	24	48
	7	700	Palace Pier Condos	137	205	0	101
Total:				2638	2952	1519	2860

Table 3: Inbound and Outbound Traffic to Zone 285 Sub-Zones in 2041 with Full Build-Out of Mr. Christie Site at 2150 Lake Shore Boulevard

Macro Model Zone	Sub-Zone	Micro Model Zone	Location Description	Outbound Volume		Inbound Volume	
				AM	PM	AM	PM
285	1	100	Starbucks Access, Etc.	127	84	135	66
	2	201	Ontario Food Terminal - Gardiner North Ramp Exit	100	34	0	0
		202	Ontario Food Terminal - Park Lawn Access	4	152	95	1
		203	Ontario Food Terminal - The Queensway Access	28	7	165	20
	3	300	TD Plaza Access	126	461	193	479
	4	401	Metro Driveway	473	277	100	346
		402	South Beach Condos Access	210	90	29	124
	5	500	Mr. Christie Site	751	777	475	989
	6	601	Shore Breeze Drive	95	80	30	112
		602	Silver Moon Drive	76	107	146	217
		603	Brookers Lane	368	490	85	301
		604	Newport Beach Condos	80	104	42	57
		605	5 Marine Parade Condos	64	83	24	48
	7	700	Palace Pier Condos	137	205	0	101
Total:				2638	2952	1519	2860

Following the disaggregation of Traffic Zone 285, the Visum traversal matrix was extracted to match the limits of the Vissim microsimulation model. A comparison of the network limits for the Vissim microsimulation model and the Visum mesoscopic simulation model, which matches the Emme macrosimulation model, is shown in **Figure 7**, including the location of key network portals (i.e., entry and exit points) for each network.

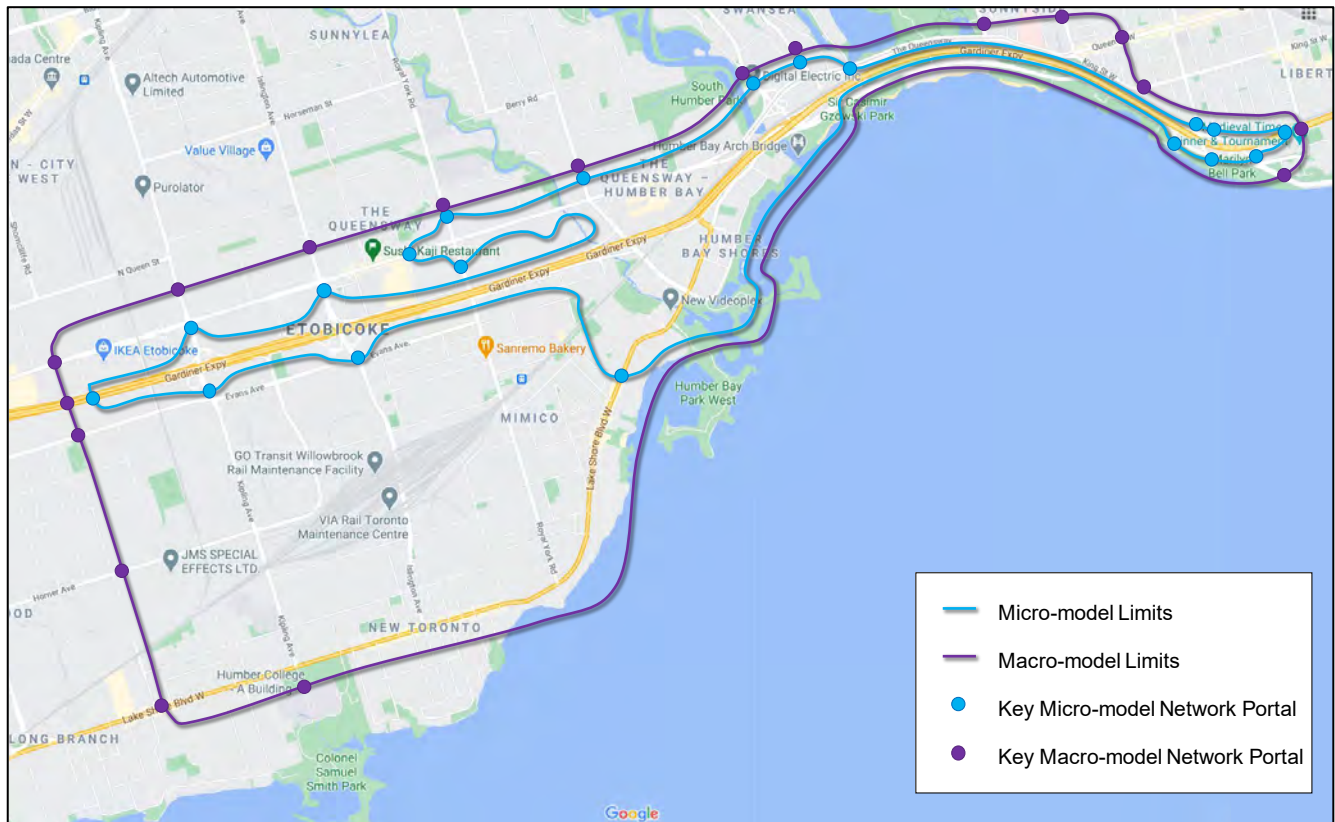


Figure 7: Microsimulation and Macrosimulation Model Limits and Key Network Portals

2.5 Post Modelling Adjustments and Auto Demand Reduction

2.5.1 Post Modelling Adjustments

Under the development of the Existing Conditions traversal matrix, further adjustments were performed within Vissim to calibrate the model volumes to the reference count data following the zone splitting process completed in Visum. The details of these adjustments are documented in the May 25, 2020 technical memorandum. To reflect these adjustments in the future Alternatives models, the same overall net change in trips between the raw and adjusted matrices was applied on a zone-by-zone basis to the Future Do-Nothing and Future Build-Out traversal matrices. The final Future Build-Out microsimulation OD matrices representing the 2041 AM and PM peak hours was provided to BA Group for the development of Alternative 2 and Alternative 3. The details of the Alternative 2 and Alternative 3 models are documented in Section 3.7.

2.5.2 Auto Demand Reduction

Subsequent to the development of the Alternative 2 and Alternative 3 microsimulation models by BA Group, the City and AECOM collaborated to revisit the auto traffic demand estimated using the Visum sub-area model. The original methodology for developing the forecast was further adjusted to reflect additional trip mode-choice factors which may contribute to lower auto demand in the 2041 horizon year. Specifically, impacts due comprehensive mixed-use development planning, provision of the Park Lawn GO Station and Lake Shore LRT as well as other transit enhancements, improved active transportation facilities, and development planning to change and/or discourage auto-trips during the peak periods including reduced parking provisions and other travel demand management measures (such as remote working and flexible work hours which has successfully been demonstrated through the ongoing COVID-19 pandemic). This is expected to reduce overall demand in the study area and contribute to peak spreading (i.e., the distribution of peak hour trips to pre-peak and post-peak hours). Further, network improvements including additional cycling routes, transit capacity, and active transportation facilities are expected to attract a shift from auto to other modes, further reducing auto demand.

To reflect the anticipated trip reduction and mode shift in auto demand within the study area, demand adjustments were applied on a zone-by-zone basis. For the sub-zones within Traffic Zone 285 of the study area, encompassing the residential and commercial developments along the west side of Park Lawn Road and south side of Lake Shore Boulevard West, the Ontario Food Terminal, as well as the Mr. Christie development at 2150 Lake Shore Boulevard West, an overall reduction of 30% was applied. Considering the nature of the operations at the Ontario Food Terminal, no trip reduction was applied to its representative sub-zones. For all other zones, including arterial and highway traffic bypassing the study area, an overall reduction of 10% was applied. The demand adjustments were applied to all Alternative models except for the Future Do-Nothing Conditions (Alternative 1). These reductions were also later applied to updated versions of the Alternative 2 and Alternative 3 models to develop comparable scenarios. **Figure 8** summarizes the contributing factors which were applied when reducing auto trips for Zone 285 and all other zones.

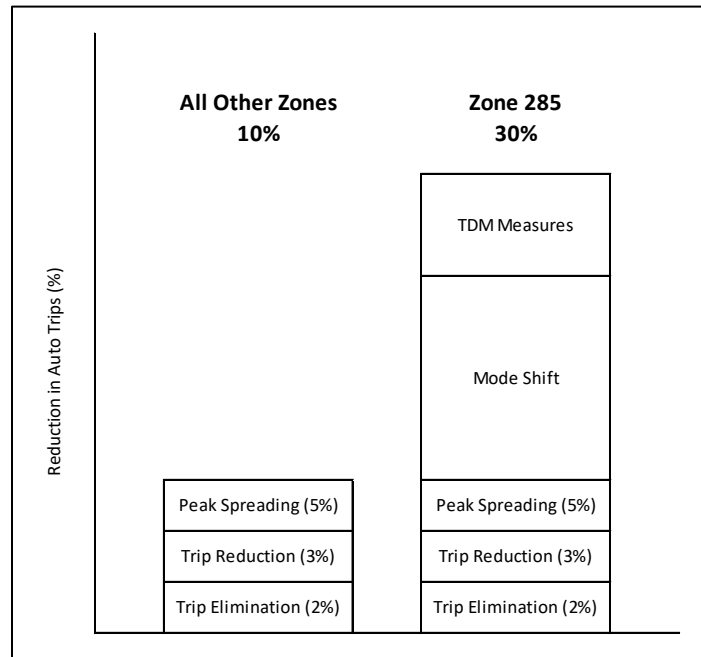


Figure 8: Auto Mode Shift and Trip Reduction Percentages by Zone

As noted, both trip reduction / elimination and mode shifts were applied to Zone 285 to reflect the anticipated changes in travel patterns in the 2041 horizon year. The trip reductions, broken down by sub-zone, are shown in **Figure 9**.

The auto mode shifts to active (i.e., walking or cycling) as a result of new or improved active transportation facilities, broken down by sub-zone, are shown in **Figure 10**. The locations of new or improved active transportation facilities are shown in green.

The auto mode shifts to transit as a result of new or improved transit infrastructure, broken down by sub-zone, are shown in **Figure 11**. The locations of new or improved transit infrastructure are shown in red.

Finally, the total overall trip reductions and mode shifts applied to Zone 285, broken down by sub-zone, are summarized in **Figure 12**. The locations of new or improved active transportation facilities and transit infrastructure are shown in green and red, respectively.



Figure 9: Auto Trip Reductions for Zone 285 by Sub-Zone



Figure 10: Auto Mode Shift to Active for Zone 285 by Sub-Zone



Figure 11: Auto Mode Shift to Transit for Zone 285 by Sub-Zone



Figure 12: Total Auto Reduction and Mode Shift for Zone 285 by Sub-Zone

The auto demand reductions were applied to each sub-zone for both inbound and outbound trips during the AM and PM peak hours. The original and reduced auto trip breakdown for the Zone 285 sub-zones are shown in **Table 4**.

Table 4: Auto Demand Reduction for Zone 285 by Sub-Zone

Macro Model Zone	Sub-Zone	Micro Model Zone	Location Description	Outbound Volume		Inbound Volume		% Reduction	Reduced Outbound Volume		Reduced Inbound Volume	
				AM	PM	AM	PM		AM	PM	AM	PM
285	1	100	Starbucks Access, Etc.	127	84	135	66	30%	89	59	94	46
	2	201	Ontario Food Terminal - Gardiner North Ramp Exit	100	34	0	0	0%	100	34	0	0
		202	Ontario Food Terminal - Park Lawn Access	4	152	95	1		4	152	95	1
		203	Ontario Food Terminal - The Queensway Access	28	7	165	20		28	7	165	20
	3	300	TD Plaza Access	126	461	193	479	30%	88	322	135	335
	4	401	Metro Driveway	473	277	100	346	30%	331	194	70	242
		402	South Beach Condos Access	210	90	29	124		147	63	20	87
	5	500	Mr. Christie Site	751	777	475	989	40%	451	466	285	593
	6	601	Shore Breeze Drive	95	80	30	112	25%	72	60	23	84
		602	Silver Moon Drive	76	107	146	217		57	80	109	163
		603	Brookers Lane	368	490	85	301		276	368	63	226
		604	Newport Beach Condos	80	104	42	57		60	78	31	43
		605	5 Marine Parade Condos	64	83	24	48		48	62	18	36
	7	700	Palace Pier Condos	137	205	0	101	25%	102	154	0	75
Total:				2638	2952	1519	2860	30%	1852	2100	1110	1951

Considering the nature of the study area, only a small portion of overall demand in the model network is originating from or is destined to the local zones. The Gardiner Expressway carries a significant amount of traffic during both peak hours, as do The Queensway and Lake Shore Boulevard West. In the Existing Conditions, local traffic represented 7.5% of overall demand during the AM and 9.5% of overall demand during the PM. In the Future Do-Nothing Conditions (Alternative 1), the local traffic represents 7.4% and 9.8% of overall demand during the AM and PM peak hours, respectively. Under the initial Future Build-Out Conditions, including the development implemented with no demand reduction applied, local traffic represented 9.9% of overall demand during the AM peak hour and 13.2% of overall demand during the PM peak hour. Following the demand reduction, local traffic represents 8.2% of overall demand during the AM peak hour and 10.9% of overall demand during the PM peak hour.

Following the auto demand reduction and mode shift, the mode breakdown for auto drivers, auto passengers, transit users, and active transportation users (i.e., walking and cycling) reflected a change in travel patterns within the study area. **Table 5** presents the mode share for each mode under the 2011, 2041, and 2041 Post-Adjustment scenarios.

Table 5: Mode Share Breakdown in 2011, 2041, and 2041 Post-Adjustment

Zone(s)	Mode	2011	2041	2041 Post-Adjustment
Zone 285	Auto Driver	43%	35%	25%
	Auto Passenger	14%	11%	8%
	Transit	35%	47%	52%
	Active	7%	6%	15%
All Other Zones	Auto Driver	43%	35%	32%
	Auto Passenger	14%	11%	10%
	Transit	35%	47%	51%
	Active	7%	6%	7%

3 Microsimulation Model

With the modelling work commencing in 2019, PTV Vissim 2020 (SP-4) was selected as the software for the microsimulation modeling works. The model development involved the modelling of several minor and major roadways, interchanges, access driveways, and transit facilities within the study area. The transit facilities, including bus bays, streetcar stops, and light rail connections, were modelled to capture the affect of transit operations on automobile traffic.

For each future Alternative, two models were developed, one representing the AM peak hour and one representing the PM peak hour. The extents of the Vissim microsimulation model network are shown in **Figure 13**.

3.1 Signal Timings

Existing signal timing plans were previously provided by the City of Toronto and coded into the Existing Conditions Vissim model using the built-in Ring and Barrier Controller (RBC) module. The timings were input to match the phasing sequence and clearance times used in the field. Vehicle and pedestrian actuation were also coded with the use of detectors. Where SCOOT is in place, the typical timing plans were used as recommended by ITS Operation.

The Future Do-Nothing models retained the existing signal timing plan phases while optimizing the splits to improve intersection operations. Where required and feasible, new protected left-turn phases were implemented. During the development of each subsequent Alternative model, signal timings were adjusted as required to optimize operations while maintaining the required walk, flash don't walk, and yellow and red clearance times.

3.2 Network Traffic Assignment

3.2.1 Auto Traffic Assignment

As for the Existing Conditions models, dynamic traffic assignment (DTA) was used to assign the auto demand matrix to the network in each of the future Alternatives models. The matrices from the Future Do-Nothing Visum models representing the 2041 AM and PM peak hours were used as the initial auto matrices for the Future Do-Nothing Conditions microsimulation models. The finalized Future Do-Nothing models and the Future Build-Out matrices were shared with BA Group (transportation consultant for the developer First Capital / Pemberton of the 2150 Lake Shore Boulevard lands) for the development of Alternative 2 and Alternative 3. For each Alternative model, path routing decisions were reviewed after each run and compared against real-world travel options to determine the validity of the paths for each set of origin-destination pairs.

3.2.2 Dynamic Traffic Assignment Parameters

Automobile traffic within each model was assigned to the network using dynamic traffic assignment. Equilibrium assignment was selected as the preferred path choice model in the development of the Vissim network. After several tests comparing stochastic assignment (Kirchhoff) and equilibrium assignment results during the development of the Existing Conditions models, it was found that the equilibrium path choice model resulted in more realistic and balanced path selection.

In the initial run, the total matrix volume is scaled to 20% of the actual peak hour volume. In each subsequent run, the volume is increased by 5% until 100% of the volume input is reached. This approach is used in order to allow the model to reach convergence more easily, avoiding the potential over saturation of a path in the initial few runs.

The model convergence criteria are based on the travel times on paths used by vehicles in the network. If, for over 75% of paths, the travel time in two subsequent runs does not change more than 20%, the model is considered to be converged. With this convergence criterion, the model usually converges in approximately 30 runs.

After running the model until it is confirmed that an acceptable level convergence is met, the routing is locked and the model is run for an additional five runs, from which the average is extracted and used for assessing traffic operations. Five runs were selected as the appropriate quantity of simulation runs as meets the City's requirement of 5 runs, as per the City of Toronto's Methodology for Aimsun Modelling report, and provides a sufficient number of model runs to average out any significant outliers.



Figure 13: Vissim Microsimulation Model Network with Major Intersections Identified

3.2.3 Truck Traffic Assignment

Truck traffic within the network study area was assigned using static routing in the model. Total truck traffic link volumes on boundary links at the edges of the model were entered using “vehicle inputs” and then statically routed throughout the network. The routing is implemented at an individual intersection level for arterial roads and ramp level for the Gardiner Expressway.

3.3 Public Transport Lines

Existing public transport lines are coded into the model for TTC bus routes and streetcar routes located within the study area. For each line, the respective public transport stops are also coded to closely match real-world conditions, including bus bays and streetcar right-of-way areas. For the Future Alternatives models, existing transit routes from the Existing Conditions model were retained and added to, where applicable. The following transit routes are coded into the future models:

- 15 Evans
- 44 Kipling South
- 66A Prince Edward
- 66B Prince Edward
- 76A Royal York South
- 76B Royal York South
- 77 Swansea
- 80A Queensway
- 110 Islington South
- 176 Mimico GO
- 501 Queen (modified to run through the new Loop Road in the development at 2150 Lake Shore Boulevard West in Alternatives 2, 3, 4A, 4B, and 4C)
- 504 King (modified to run through the new Loop Road in the development at 2150 Lake Shore Boulevard West before turning back eastwards in Alternatives 2, 3, 4A, 4B, and 4C)
- 508 Lake Shore
- 944 Kipling South Express

The TTC Service Summary dated November 24, 2019 to January 4th, 2020 was used in combination with TTC website information in order to input the bus departure times according to the schedule during each period. The schedules from prior to the COVID-19 pandemic were retained to reflect typical pre-pandemic conditions. **Figure 13** presents the TTC Network Map in the vicinity of the study area, showing the routes of the transit facilities included in the model.



Figure 14: TTC System Map - Study Area Transit Routes

3.3.1 Transit Dwell Time

Vissim calculates the transit vehicle dwell times based on the passenger on (boarding) and off (alighting) counts entered for each transit stop. Due to the unavailability of future passenger counts, transit stops were setup to calculate the dwell time based on certain parameters. For the modelled bus stops in the network, dwell time is calculated by Vissim using a normal distribution with a mean of 20 seconds and standard deviation of 5 seconds. For the streetcar stops in the network, dwell time is calculated by Vissim using a normal distribution with a mean of 30 seconds and standard deviation of 7.5 seconds.

3.4 Active Transportation

3.4.1 Pedestrian Traffic

A nominal increase was applied to the pedestrian count volumes obtained from the turning movement counts provided by the City. The pedestrian volumes are entered into the microsimulation model as static pedestrian traffic inputs at the intersection crosswalk level, complete with pedestrian signals and detectors as well as appropriate walk and flash don't walk times. Pedestrians are largely modelled into the network to reflect delay experienced by other road users as they accommodate the pedestrians at intersections and other conflict points. Further, pedestrian traffic at crosswalks is known to platoon due to the nature of signal cycles. As such, increasing the number of pedestrians is not expected to further impact intersection operations.

3.4.2 Cycling Traffic

As with pedestrian volumes, a nominal increase was applied to the cyclist traffic implemented into the Existing Conditions models to reflect background growth. In locations where new cycling infrastructure is introduced, additional cyclist volumes were entered in the form of vehicle inputs and static routing to reflect delay experienced by other road users at intersections along the cycle paths.

3.5 Simulation Period

Simulation parameters were unchanged from the Existing Conditions microsimulation models. A simulation warm-up period of one half-hour is used prior to the three-hour peak period analysis. The number of vehicles assumed for the warm-up period is 47% of the total vehicular traffic during the AM peak hour and 49% during the PM peak hour; this translates into a warm-up traffic flow equal to 94% and 98% of the peak hour traffic flow for the AM and PM models, respectively. The pre-peak factors were developed using peak-period traffic counts on three sections of Park Lawn Road: north of the Gardiner on-ramp intersection; north of the Gardiner off-ramp intersection; and north of Lake Shore Boulevard West. The resulting pre-peak and post-peak factor of 94.5% was utilized within the models for the AM peak period, while a pre-peak and post-peak factor of 98% was used for the PM peak period.

3.6 Existing Conditions

The Existing Conditions model was completed in May of 2020 and represents the 2019 horizon year. The model was calibrated against observed traffic volume and travel time data in collaboration with the City. The details of the development and assessment of the Existing Conditions model are summarized in the technical memorandum *Development and Calibration / Validation of the Existing Conditions (2019) Models*, dated May 25, 2020.

The following observations were made for the Existing Conditions:

- Both AM and PM peak hour operations are shown to be generally acceptable, with just 1 critical intersection (i.e., operating at overall LOS E or LOS F) reported during the PM peak hour (Park Lawn Road & Lake Shore Boulevard West). A total of 22 critical movements were identified during the AM peak hour and 23 critical movements were identified during the PM peak hour.
- No Gardiner Expressway by-pass activity was observed in either direction during the AM or PM peak hours.
- During the AM peak hour, most significant delays were observed for vehicles entering the network from the north. The southbound approaches at Park Lawn Road & The Queensway as well as Windermere Avenue & The Queensway saw delay for vehicles trying to reach the east-west corridors. The South Kingsway also saw congestion for vehicles using the ramps for accessing The Queensway and the eastbound Gardiner Expressway. The levels of delay are generally manageable.
- During the PM peak hour, most significant delays were observed for the vehicles completing the eastbound left-turn and westbound approach movements at Park Lawn Road & Lake Shore Boulevard West. Both The Queensway and Lake Shore Boulevard West saw some congestion in the eastbound direction approaching their intersections with Windermere Avenue.

3.7 Future Conditions Alternatives

Following the calibration and submission of the Existing Conditions AM and PM Vissim models to the City in May of 2020, AECOM developed the Future Do-Nothing (Alternative 1) models using a horizon year of 2041, which were provided to the City in July of 2020. Subsequently, the Future Do-Nothing Vissim models as well as the Future Build-Out matrices were provided to BA Group for the development of two additional future scenarios: Alternative 2 and Alternative 3.

BA Group is the transportation consultant for the developer (First Capital) of the Mr. Christie site at 2150 Lake Shore Boulevard West. The City and developer groups are working collaboratively on the area lands so that a consistent development plan, Secondary Plan and Transportation Master Plan are created.

Following the development of Alternatives 2 and 3 by BA Group, AECOM collaborated with the City to develop Alternatives 4A, 4B, and 4C. **Table 6** presents a comparison of the Vissim model scenarios prepared as part of the study.

The following section summarizes the key observations and compares the models for each future Alternative.

Table 6: Vissim Model Scenario Comparison

Model Scenario	Alternative 1 Future Do-Nothing	Alternative 2 Additional Traffic Capacity	Alternative 3 Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp	Alternative 4A Neighbourhood Main Streets, 2-Lane Lake Shore	Alternative 4B Neighbourhood Main Streets, 4-Lane Lake Shore	Alternative 4C Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road
Developed by	AECOM	BA Group	BA Group	AECOM	AECOM	AECOM
Legion Rd Ext.	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
Relief Road & Loop Road	No	Yes	Yes	Yes	Yes	Yes
Brookers Ramps	Original	Original	Reconfigured	Reconfigured (with new N-S street)	Reconfigured (with new N-S street)	Reconfigured (with new N-S street)
Other roads	Original	Modified Lake Shore Blvd	Modified Lake Shore Blvd	2-lane Park Lawn Road and Lake Shore Blvd	2-lane Park Lawn Road, 4-lane Lake Shore Blvd	2-lane Park Lawn Road, 4-lane Lake Shore Blvd

3.7.1 Evaluation Criteria

The model Alternatives were evaluated based on a set of criteria agreed upon with the City of Toronto. High level measures of the overall network performance were used 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 are considered bypass activity. These paths are undesirable due to the congestion added to local roads, contributing to worsened operations. It was observed that the proposed road networks for certain Alternatives encourage the undesirable bypass activity, which was taken account into 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 which include the project. The proposed Legion Road extension would see the north and south segments of Legion Road connected, 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 see a two-lane cross section with cycling facilities and sidewalks.

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 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 **Table 7**. In traffic operations, a movement or intersection is defined as “critical” when operating at LOS E or worse.

Table 7: Intersection LOS Criteria

Levels of Service	Average Control Delay (seconds / vehicle)	
	Traffic Signal Control	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: Highway Capacity Manual (2000)

3.7.2 Alternative 1 - Future Do-Nothing Conditions

The Future Do-Nothing Conditions model, also referred to as Alternative 1, was prepared by updating the Existing Conditions model to reflect the growth in background traffic between 2019 and 2041. The details of the trip forecasting development process are included in Sections 2.4 and 2.5. No auto demand reduction or mode shift was applied for the Future Do-Nothing scenario.

The Future Do-Nothing Conditions model features the same road network as the Existing Conditions model. The only change to the road network is the addition of the Legion Road extension.

An overview of the Alternative 1 road network is shown in **Figure 15**.

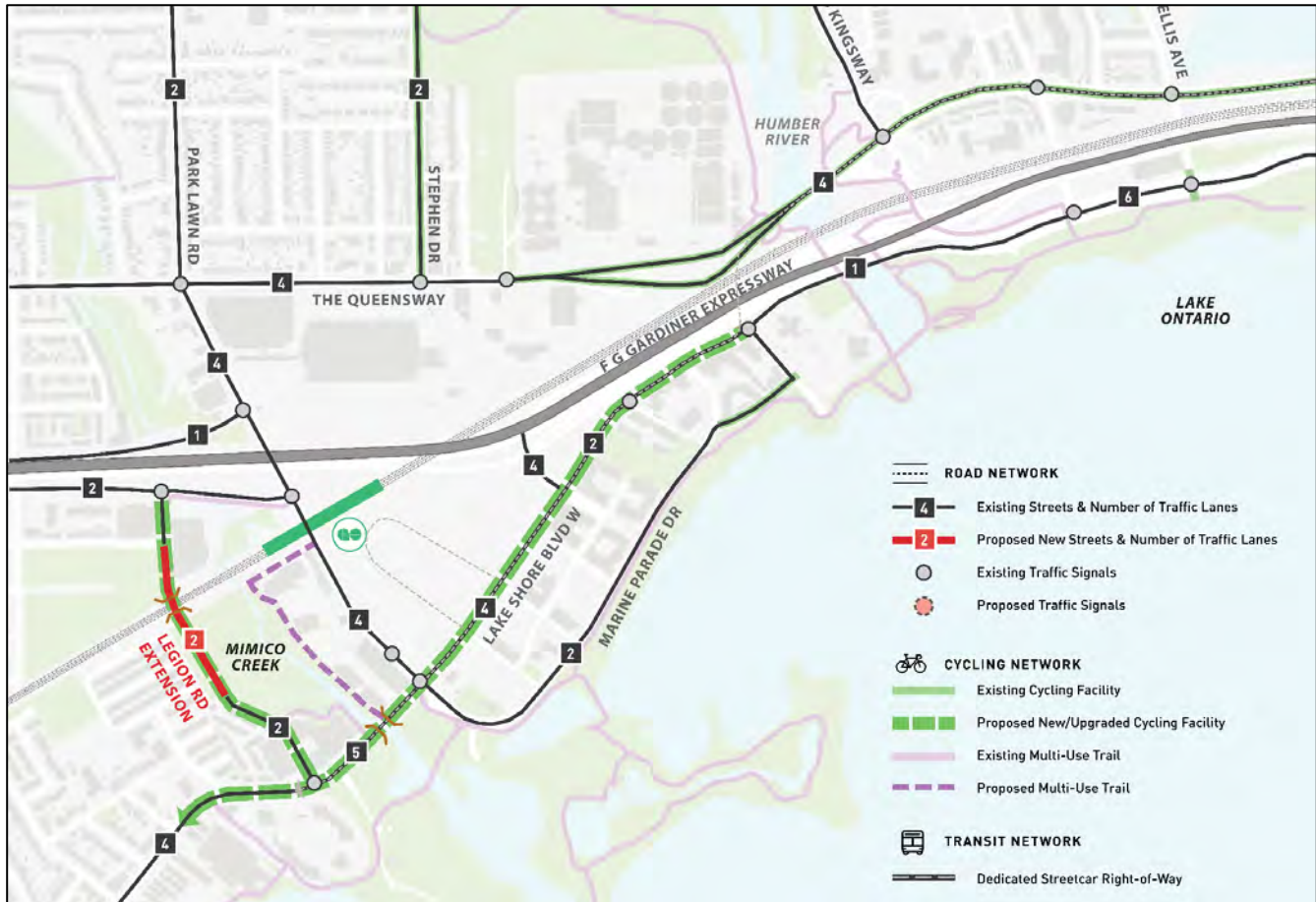


Figure 15: Alternative 1 – “Future Do-Nothing” Road Network Modifications

3.7.2.1 Alternative 1 Traffic Operations

Traffic operations for Alternative 1 were extracted from the Vissim model for the 2041 AM and PM peak hours. The overall intersection Levels of Service are summarized in **Figure 16**. Detailed operational results for each movement are included in **Appendix B** in **Table 9**.

The following observations were made for Alternative 1:

- During the AM peak hour, operations are generally acceptable with the most significant delay occurring for southbound vehicles on Windermere 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 & 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.
- 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 Brooker's 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 & Lake Shore Boulevard West. In the Future Do-Nothing scenario, in which no Relief Road is provided, Legion Road generally plays a larger role in alleviating traffic on the main roads.

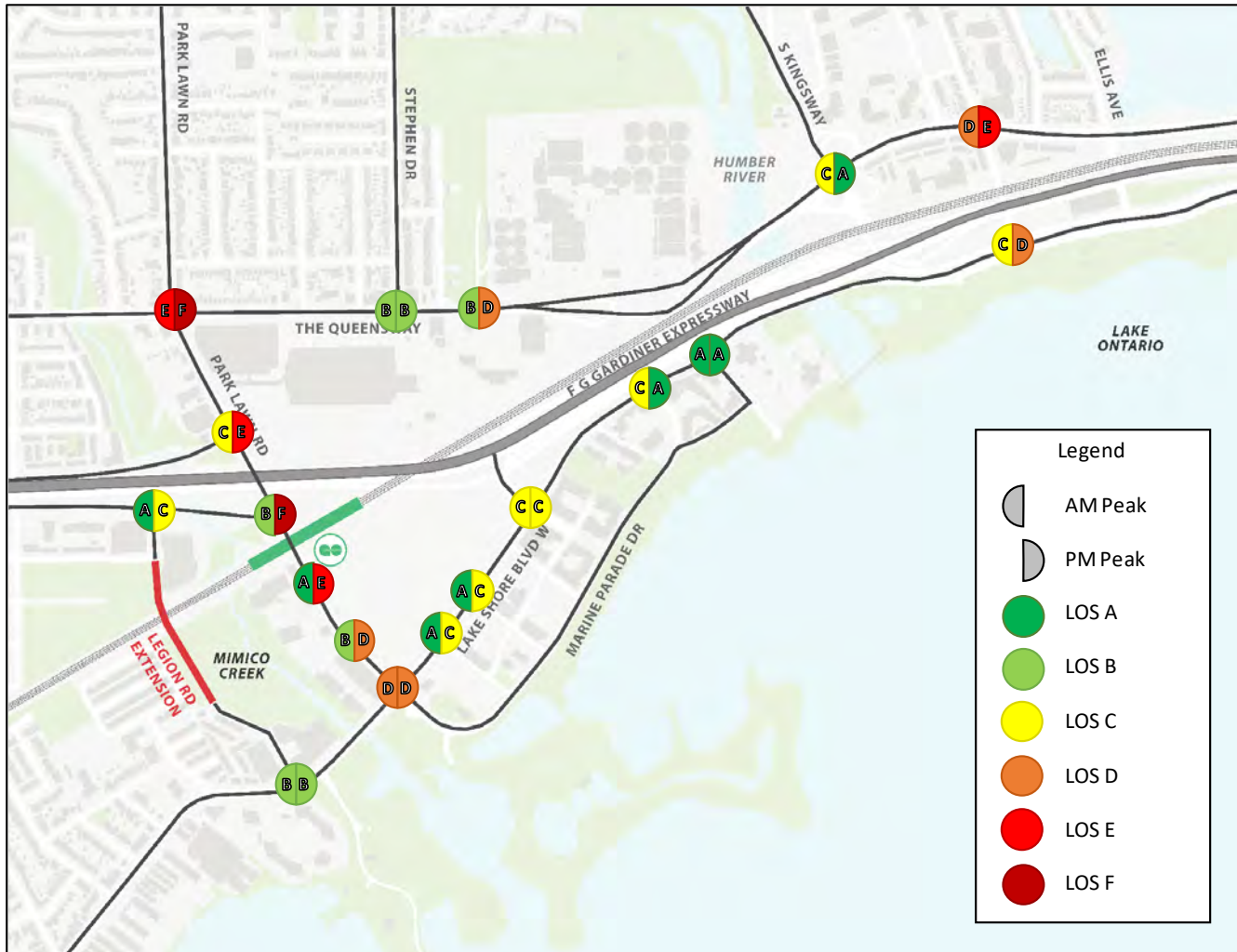


Figure 16: Alternative 1 – “Future Do-Nothing” Intersection LOS in the 2041 AM and PM Peak Hours

3.7.3 Alternative 2 - Additional Traffic Capacity

The Alternative 2 model was prepared by BA Group and subsequently tweaked by AECOM to reflect the reduced auto demand and mode shift described in Section 2.5.2. Alternative 2 introduces the Relief Road, also known as ‘Street A’, to 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 Brooker’s Lane. The goal of the Relief Road is to provide relief to the congested intersection of Park Lawn Road & Lake Shore Boulevard West.

The Legion Road extension project is also included in Alternative 2, with new and improved cycling facilities on Legion Road, The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court. A dedicated streetcar right-of-way is introduced for the full length of Lake Shore Boulevard West as well.

An overview of the Alternative 2 road network with key network improvements is shown in **Figure 17**.

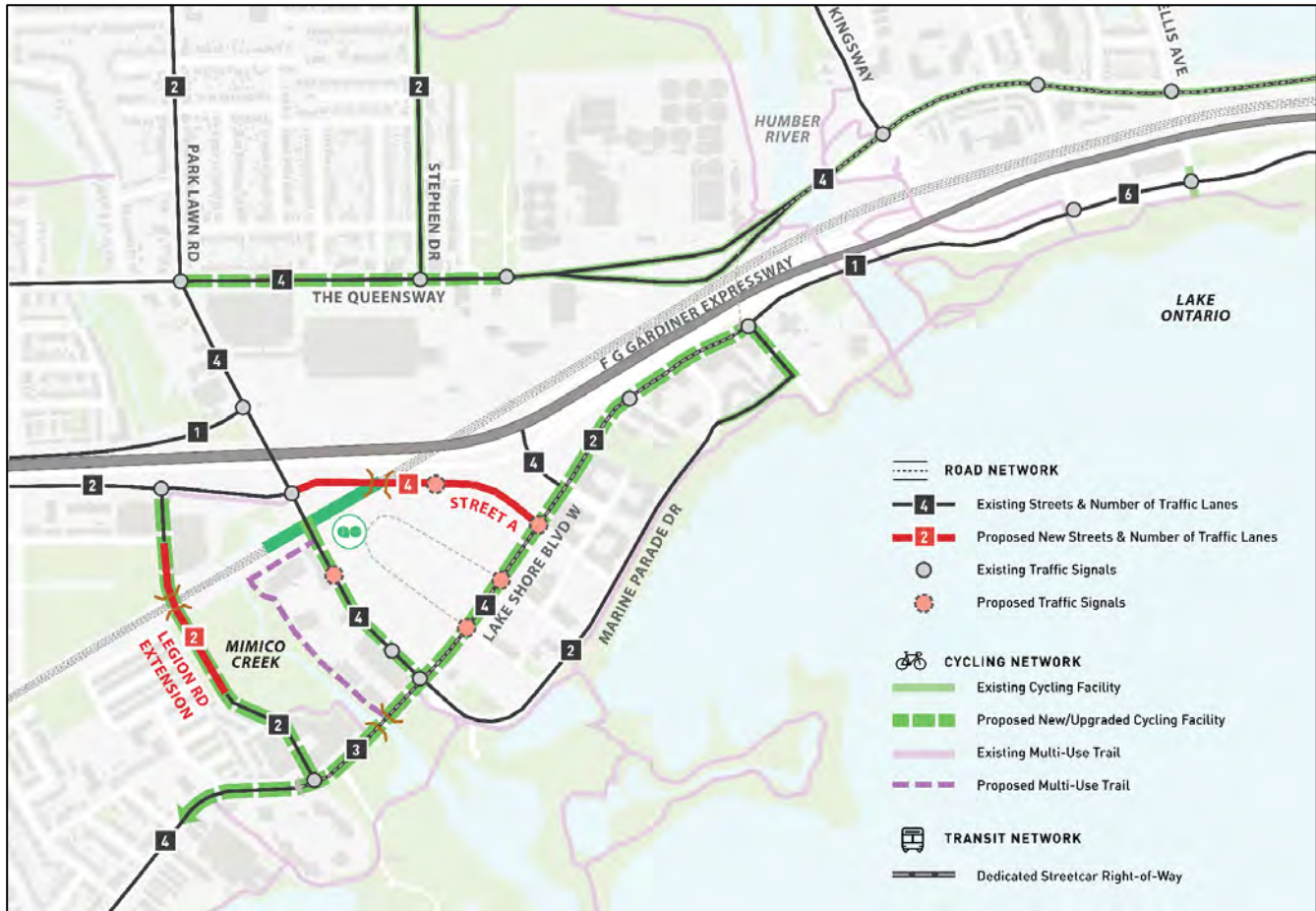


Figure 17: Alternative 2 – “Additional Traffic Capacity” Road Network Modifications

3.7.3.1 Alternative 2 Traffic Operations

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 **Figure 18**. Detailed operational results for each movement are included in **Appendix B** in **Table 10**.

The following observations were made for Alternative 2:

- 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 the Relief Road, 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 the Relief Road and the Brooker's 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 the Relief Road onto the Gardiner Expressway Eastbound Off-Ramp to Park Lawn Road, extending past the Legion Road intersection. Eastbound congestion on Lake Shore Boulevard also leads to queueing between the Brooker's 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 the Relief Road, and then using Lake Shore Boulevard West to access the Gardiner Expressway Eastbound On-Ramp at Brooker's Lane. The bypass activity is shown in **Appendix C** in **Figure 29**.
- During the PM peak hour, no Gardiner Expressway by-pass activity was observed.

- 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 & Lake Shore Boulevard west during the AM peak hour.

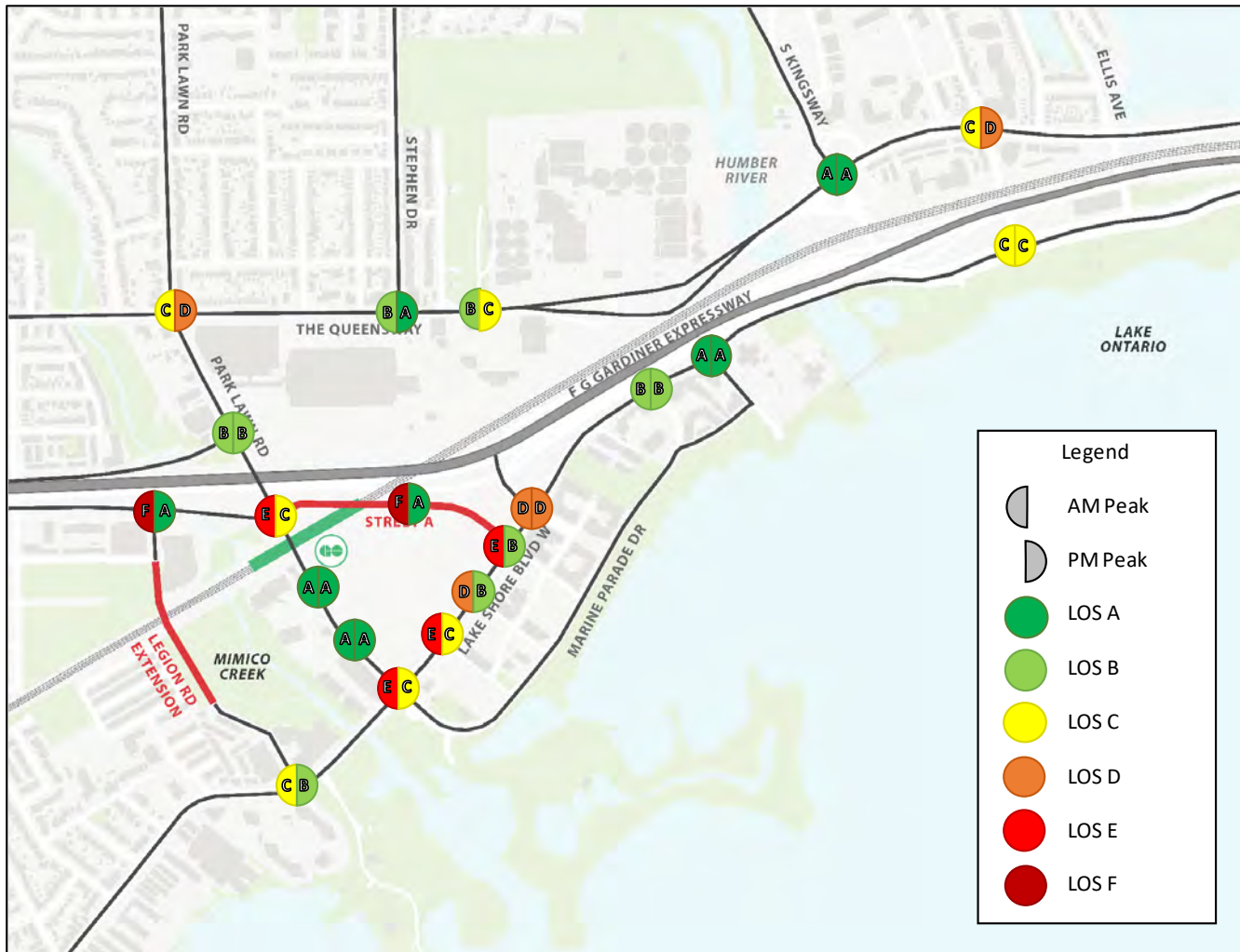


Figure 18: Alternative 2 – “Additional Traffic Capacity” Intersection LOS in the 2041 AM and PM Peak Hours

3.7.4 Alternative 3 - Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp

Like the Alternative 2 model, Alternative 3 was prepared by BA Group and then modified by AECOM to reflect the reduced auto demand and anticipated mode shift. Alternative 3 retains the Relief Road introduced in Alternative 2 and includes further modifications to the Gardiner Expressway ramps currently terminating at Lake Shore Boulevard West & Brooker’s Lane. The Gardiner Expressway Eastbound On-Ramp and Westbound Off-Ramp are reconfigured in Alternative 3 to connect directly to the Relief Road, thereby reducing the need for vehicles to traverse the short section of Lake Shore Boulevard West to access the ramps from the Brooker’s Lane terminal. In addition, the Gardiner Expressway Eastbound On-Ramp has a slip ramp introduced, providing direct access to Lake Shore Boulevard Eastbound. Park Lawn Road is also reduced to a two-lane cross section between The Queensway and Lake Shore Boulevard West in Alternative 3.

The Legion Road extension project is also included in Alternative 3, with new and improved cycling facilities on Legion Road, The Queensway, Park Lawn Road, Lake Shore Boulevard West, and Palace Pier Court. A dedicated streetcar right-of-way is introduced for the full length of Lake Shore Boulevard West as well.

An overview of the Alternative 3 road network with key network improvements is shown in **Figure 19**.

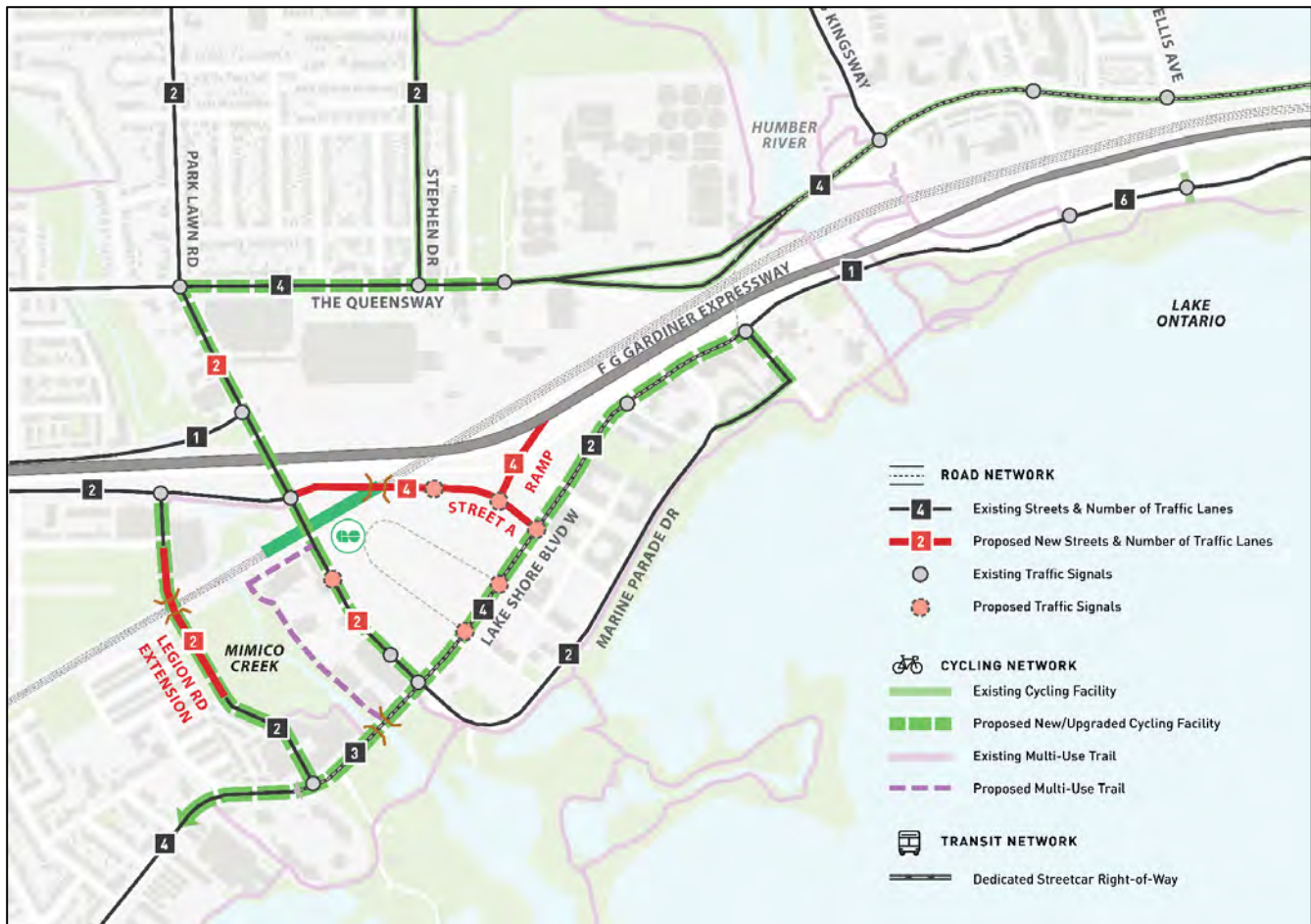


Figure 19: Alternative 3 – “Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp” Road Network Modifications

3.7.4.1 Alternative 3 Traffic Operations

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 **Figure 20**. Detailed operational results for each movement are included in **Appendix B** in **Table 11**.

The following observations were made for Alternative 3:

- 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. The Relief Road 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 the Relief Road inadvertently encourage bypass activity requiring minimal detour. During times of congestion in the eastbound direction, such as the AM peak hour, the bypass becomes an attractive option for

drivers wishing to avoid queue delay and / or slow speeds on the Gardiner Expressway mainline. The bypass activity is shown in **Appendix C in Figure 31**.

- During the PM peak hour, no Gardiner Expressway by-pass activity was observed.
- 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 & 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.

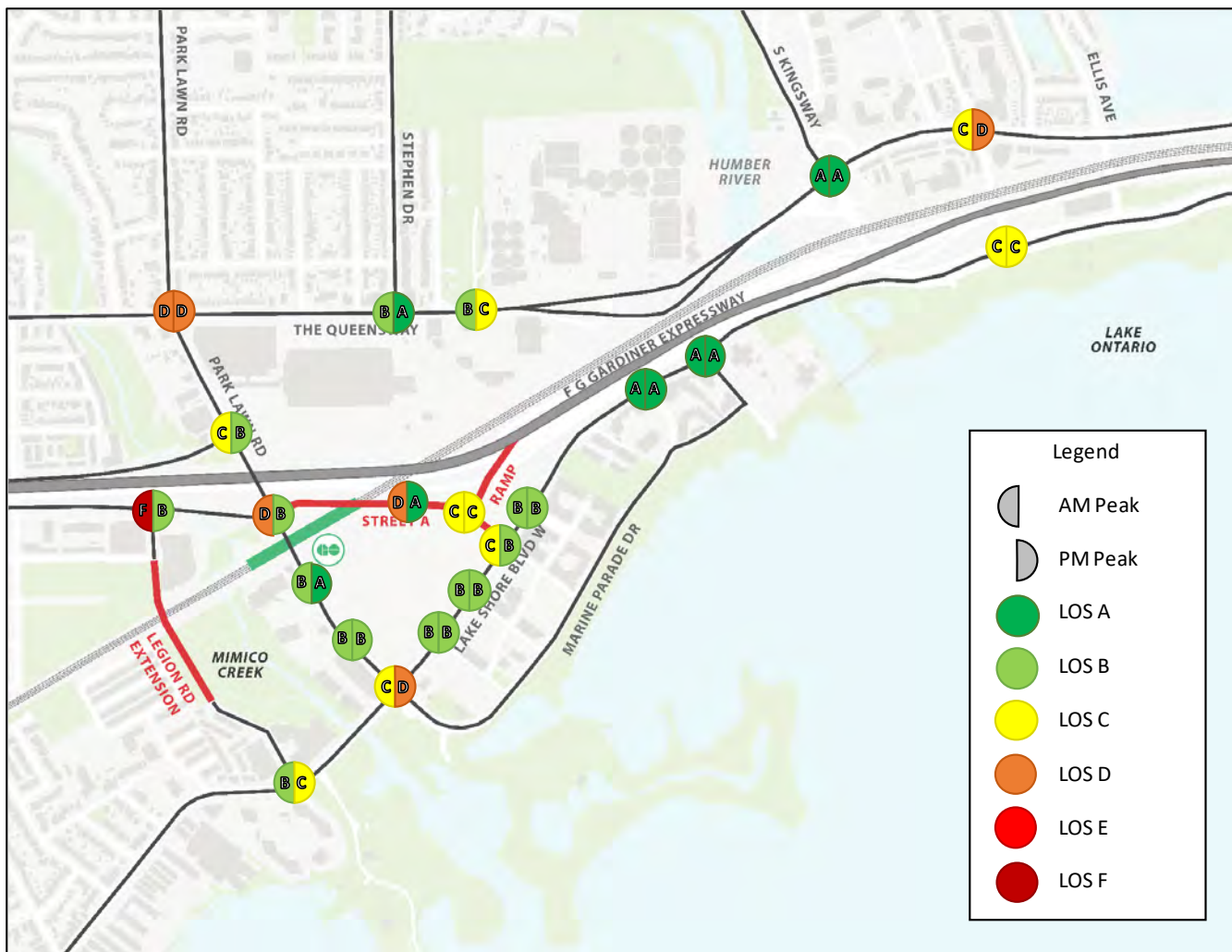


Figure 20: Alternative 3 – “Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp”
 Intersection LOS in the 2041 AM and PM Peak Hours

3.7.5 Alternative 4A - Neighbourhood Main Streets, 2-Lane Lake Shore

Alternative 4A through 4C propose a different reconfiguration of the Gardiner Expressway Eastbound On-Ramp and Westbound Off-Ramp compared to the other alternatives. The Alternatives introduce a new North-South Street to the road network, connecting The Queensway to Lake Shore Boulevard West just east of the planned Relief Road (Street A). The Gardiner Expressway ramps currently terminating at Brooker’s 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 Brooker’s Lane.

Alternative 4A is the only future Alternative featuring a two-lane cross section on Lake Shore Boulevard through the primary study area (i.e., from Legion Road to Palace Pier Court). Like Alternative 1, Alternative 2, and Alternative 3, the Legion Road extension project is present with active transportation improvements. The dedicated streetcar right-of-way on Lake Shore Boulevard features fully protected left-turn movements along the corridor. Park Lawn Road is also reduced to a two-lane cross section to the north and to the south of the Gardiner Expressway ramp terminals in Alternative 4A.

An overview of the Alternative 4A road network with key network improvements is shown in **Figure 21**.

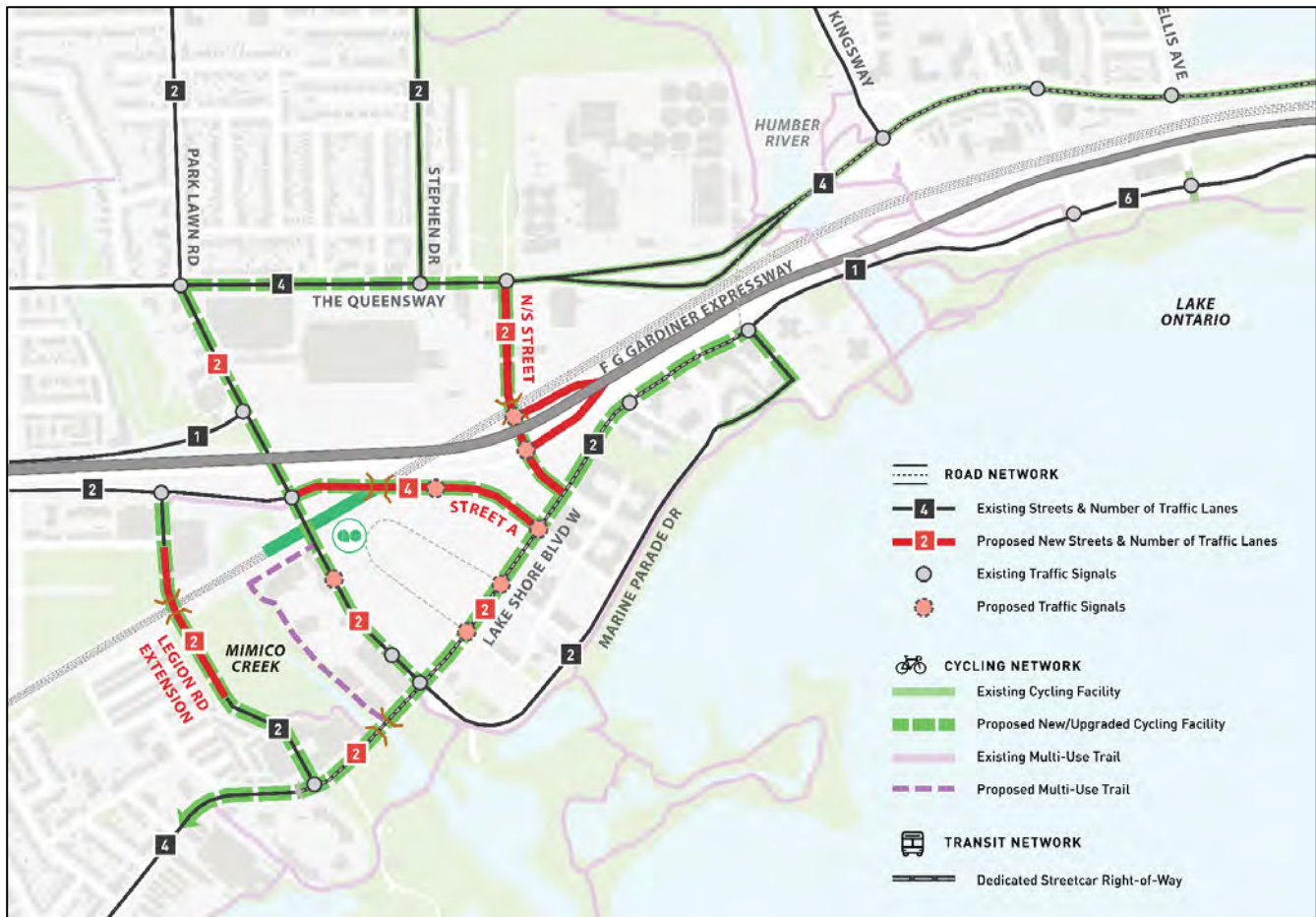


Figure 21: Alternative 4A – “Neighbourhood Main Streets, 2-Lane Lake Shore” Road Network Modifications

3.7.5.1 Alternative 4A Traffic Operations

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 summarized in **Figure 22**. Detailed operational results for each movement are included in **Appendix B** in **Table 12**.

The following observations were made for Alternative 4A:

- During the AM peak hour, Alternative 4A reported 37 critical movements and 5 critical intersections, compared to 25 critical movements and no critical intersections in the technically preferred Alternative 4B.
- The AM peak hour analysis revealed undesirable operations throughout the network, largely caused by the lack of 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 gridlock form along the main corridors in the road network, including The Queensway, the new North-South Street, Lake Shore Boulevard West, and Park Lawn Road. The gridlock is most evident in the clockwise direction, as vehicles entering and exiting the study area conflict and create congestion.
- During the PM peak hour, the reconfigured Gardiner Expressway Westbound Off-Ramp to the new North-South Street is shown to generate a queue over 1,100 metres, reaching the Gardiner Expressway mainline. The westbound queue on The Queensway extends from the new North-South Street eastwardly to the east limit of the model approximately 2,100 metres away. This queueing causes issues on The South Kingsway and Windermere Avenue at the east end of the model.
- The lack of capacity on Lake Shore Boulevard West leads to a diversion of vehicles to Marine Parade Drive, the parallel corridor to the south. This leads to additional congestion on Marine Parade Drive, with vehicles experiencing approximately 150 seconds of delay to turn onto Lake Shore Boulevard during the AM peak hour.
- No Gardiner Expressway bypass activity was observed in Alternative 4A in either direction during the AM or PM peak hours.
- 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 Park Lawn Road & 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 & Lake Shore Boulevard intersection. Legion Road also helps to facilitate access to the new right-in-right-out driveway off of Park Lawn Road (Parking Lot E) by providing a route for vehicles to enter / exit from the Park Lawn Road northbound lanes.

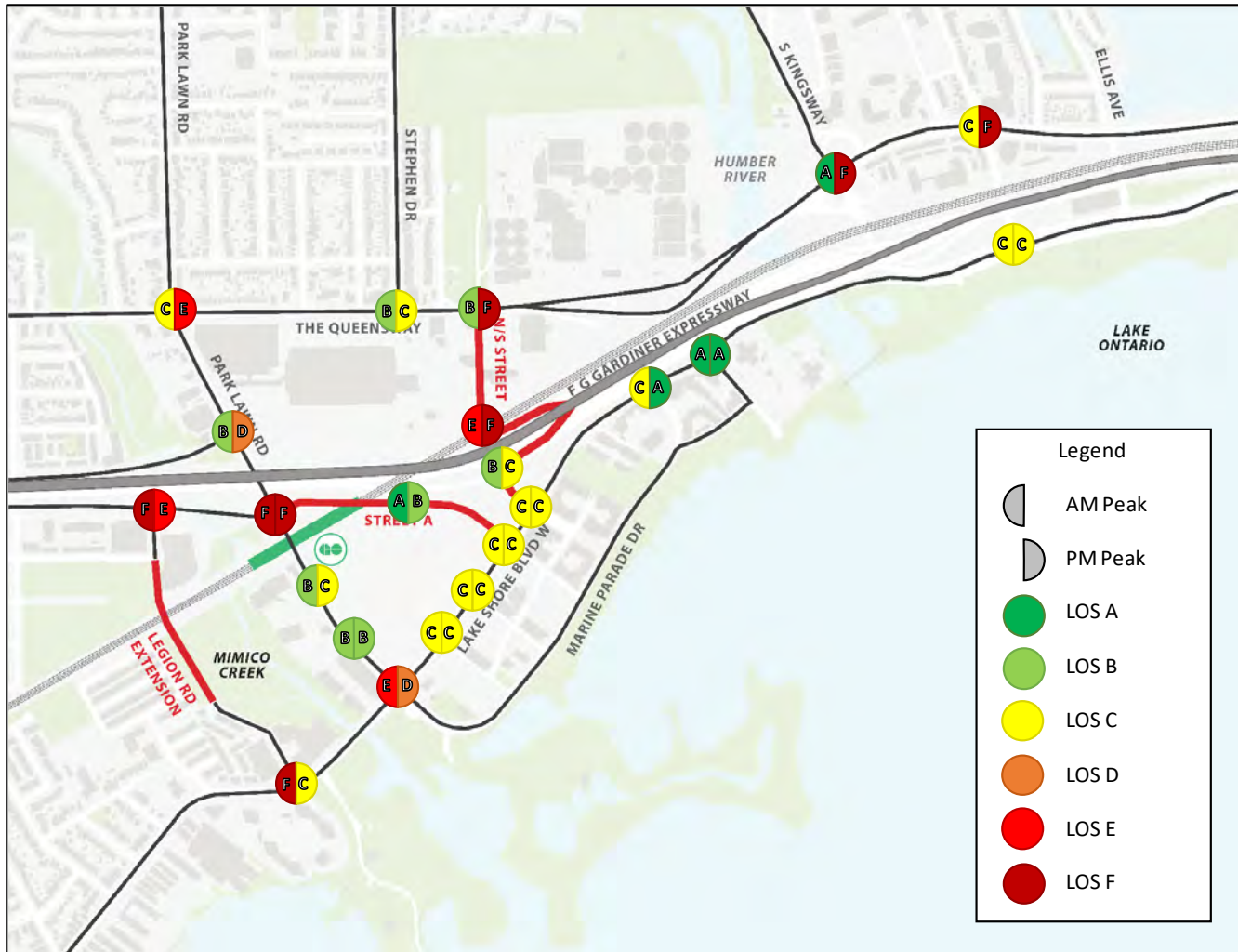


Figure 22: Alternative 4A – “Neighbourhood Main Streets, 2-Lane Lake Shore” Intersection LOS in the 2041 AM and PM Peak Hours

3.7.6 Alternative 4B - Neighbourhood Main Streets, 4-Lane Lake Shore

Alternative 4B reintroduces a four-lane cross section to Lake Shore Boulevard West from Park Lawn Road to Brooker’s Lane / New North-South Street. For a short segment to the west of Park Lawn Road, Lake Shore Boulevard West runs with two eastbound lanes and one westbound lane due to the limited available cross section on the bridge over Mimico Creek.

All other network features match those coded into the Alternative 4A model, including the Legion Road extension project 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 one lane per direction to the north and to the south of the Gardiner Expressway ramp terminals.

An overview of the Alternative 4B road network with key network improvements is shown in **Figure 23**.

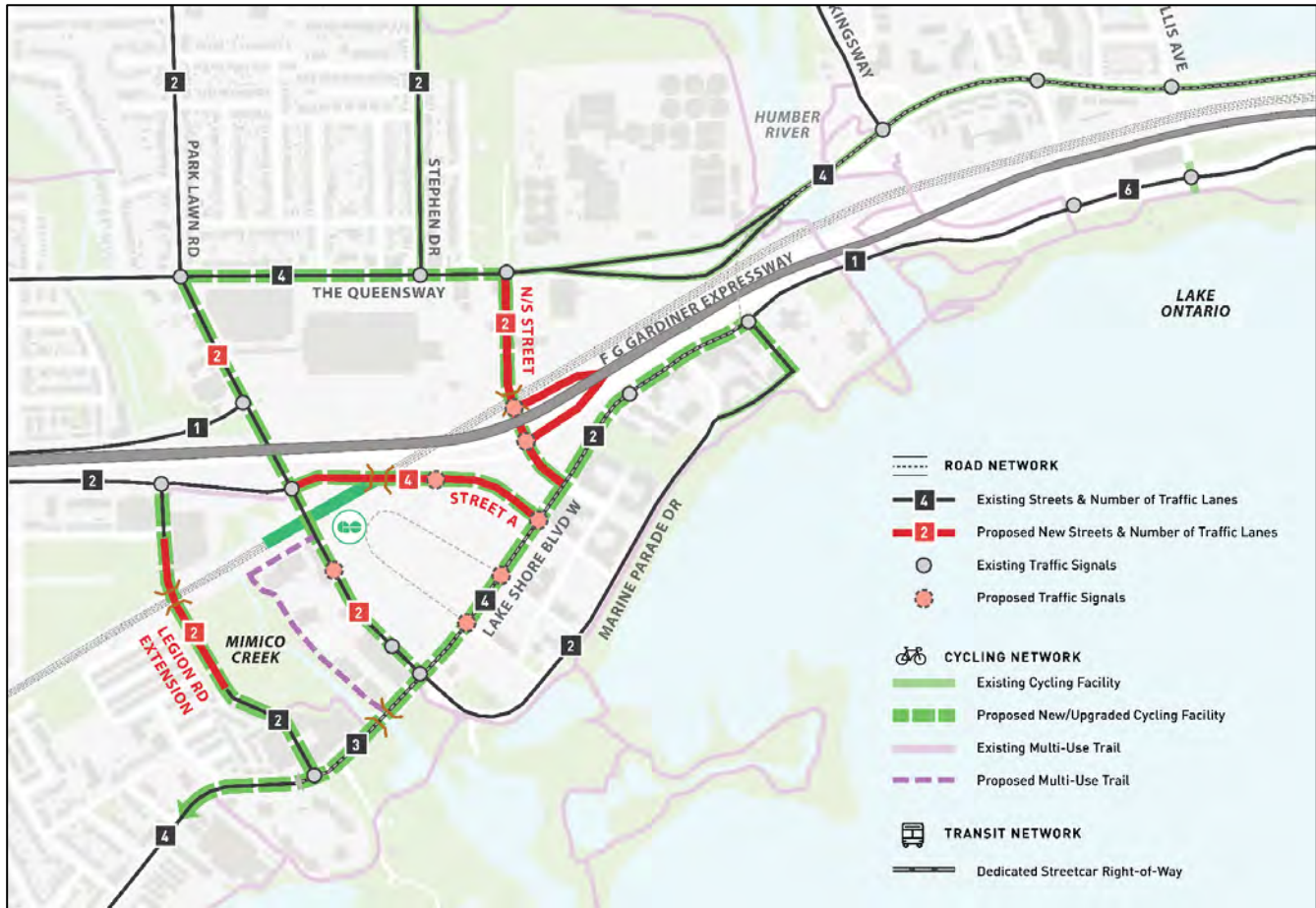


Figure 23: Alternative 4B – “Neighbourhood Main Streets, 4-Lane Lake Shore” Road Network Modifications

3.7.6.1 Alternative 4B Traffic Operations

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 **Figure 24**. Detailed operational results for each movement are included in **Appendix B** in **Table 13**.

The following observations were made for Alternative 4B:

- 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.
- During the PM peak hour, vehicles traveling westbound on The Queensway towards the new North-South Street will experience congestion due to delay at the intersection of The Queensway & North-South Street, particularly for the westbound left-turn. The queue at the westbound approach to the intersection of The Queensway and the new North-South Street reaches approximately 430 metres in length.
- No Gardiner Expressway bypass activity was observed in Alternative 4B in either direction during the AM or PM peak hours.

- Legion Road sees moderate usage 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 off of Park Lawn Road (Parking Lot E) by providing a route for vehicles to enter / exit from the Park Lawn Road northbound lanes.

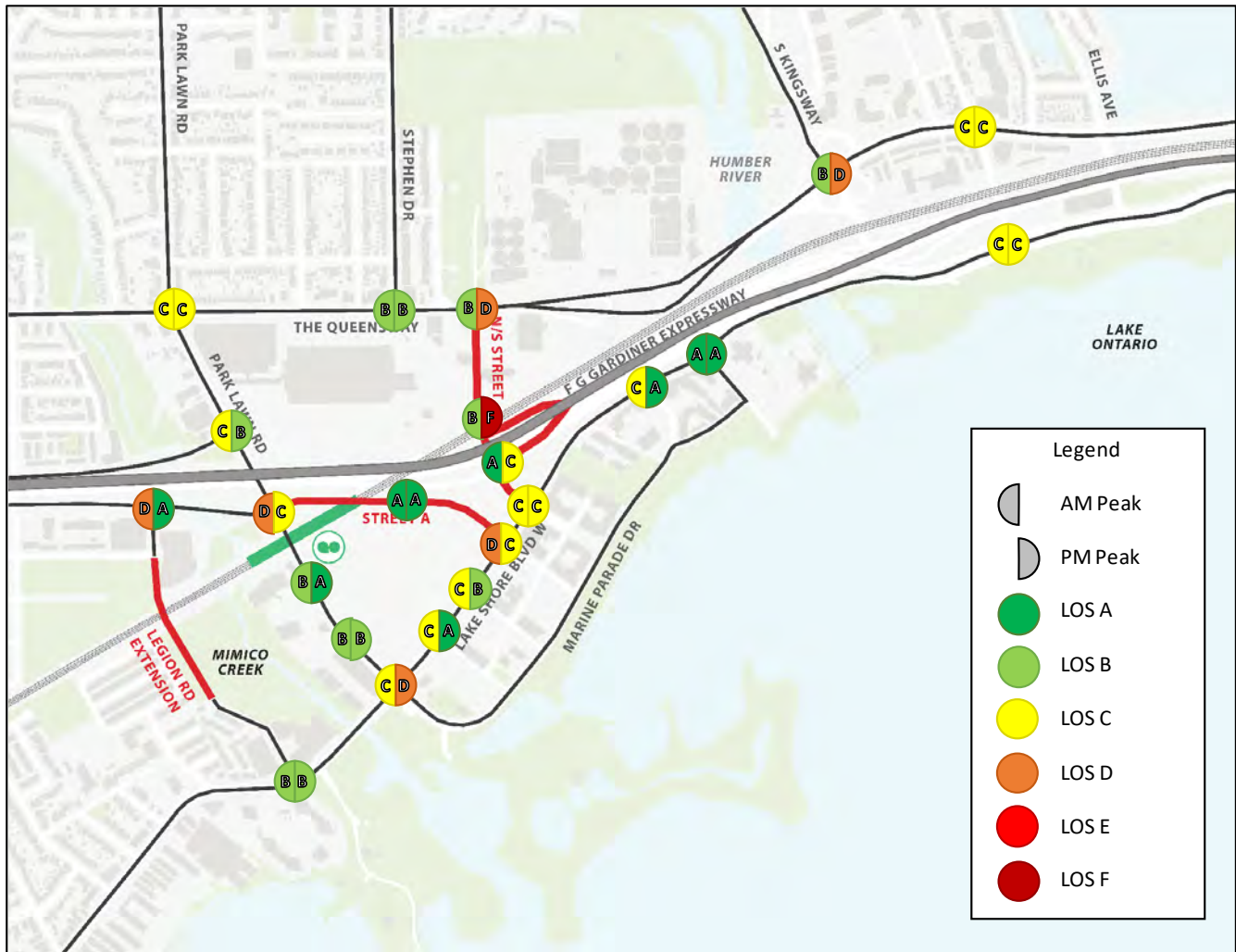


Figure 24: Alternative 4B – “Neighbourhood Main Streets, 4-Lane Lake Shore” Intersection LOS in the 2041 AM and PM Peak Hours

Notwithstanding that Alternative 4B has been identified as the Technically Preferred Alternative and noting that there are some critical movements and operations, it is recommended that mitigative measures be explored to potentially ameliorate identified operational issues.

3.7.7 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 project in the road network. With the exception of the Legion Road extension, Alternative 4C matches Alternative 4B in terms of network connections and number of lanes.

An overview of the Alternative 4C road network with key network improvements is shown in **Figure 25**.

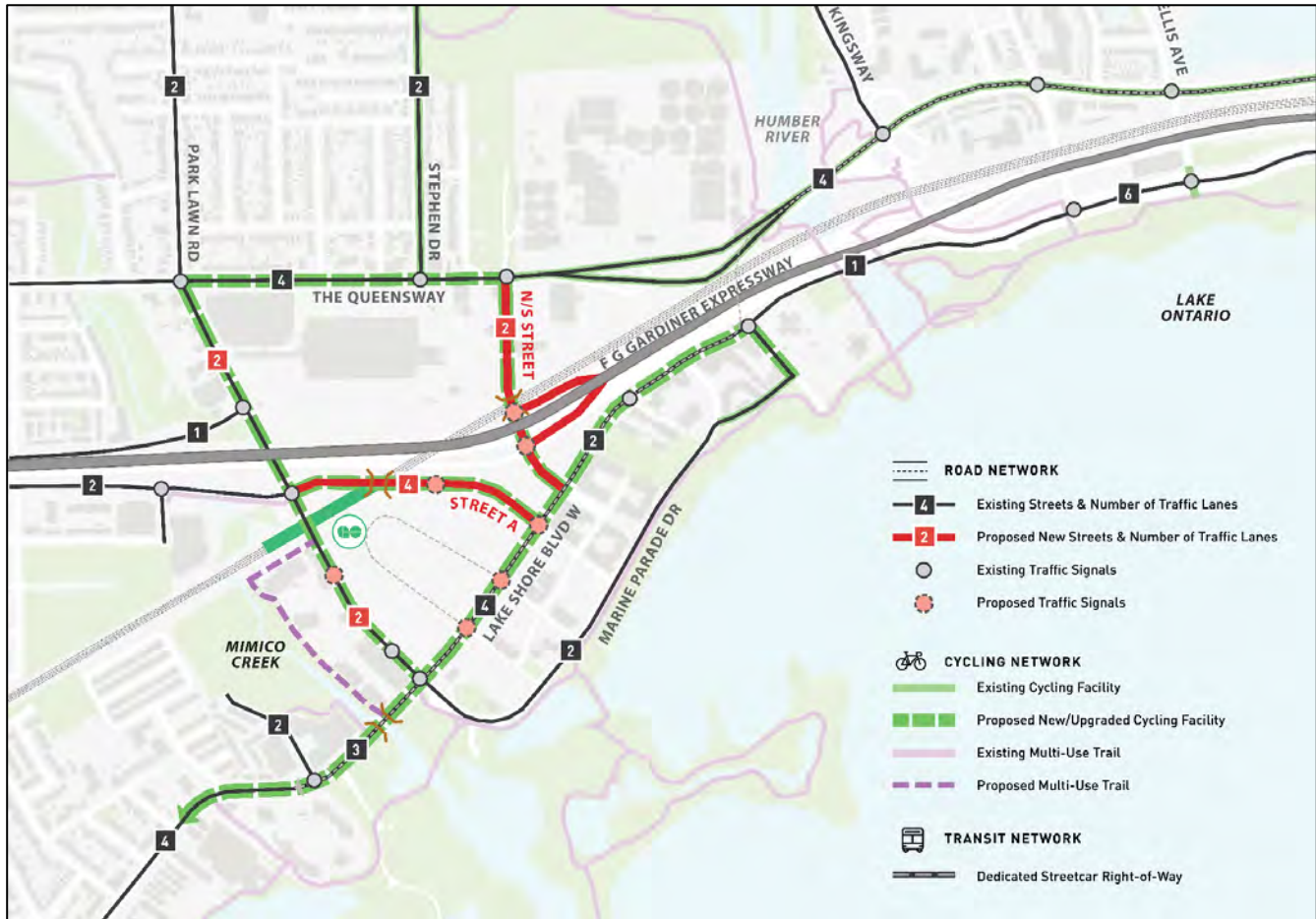


Figure 25: Alternative 4C – “Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road” Road Network Modifications

3.7.7.1 Alternative 4C Traffic Operations

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 **Figure 26**. Detailed operational results for each movement are included in **Appendix B** in **Table 13**.

The following observations were made for Alternative 4C:

- 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 & Lake Shore Boulevard West and Relief Road & 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 & The Queensway as well as The Queensway & Humber Bay Water Treatment Plant Entrance.
- During the AM peak hour, intersections along Lake Shore Boulevard West between Park Lawn Road and the new North-South Street / Brooker’s 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 Park Lawn Road & 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.

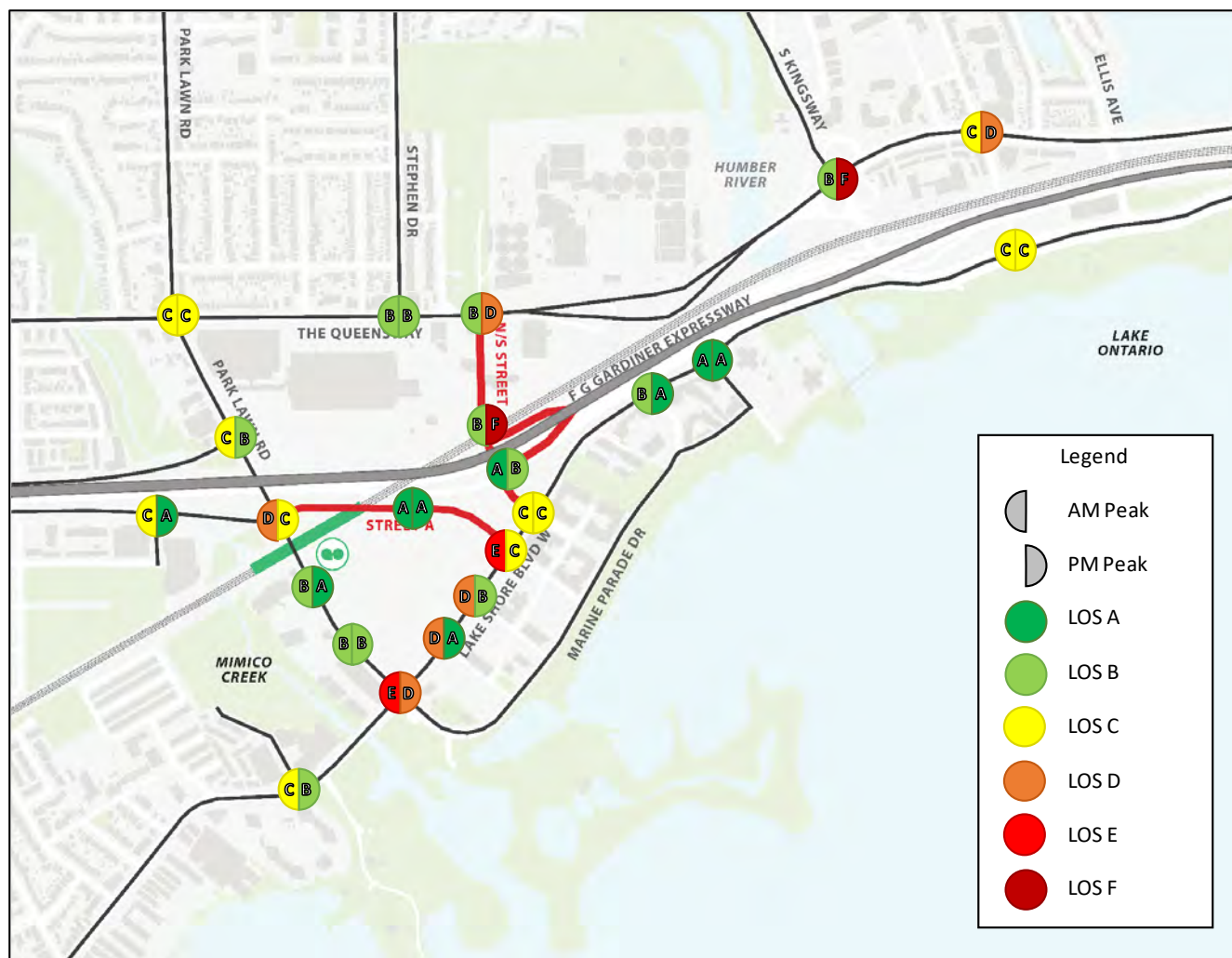


Figure 26: Alternative 4C – “Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road” Intersection LOS in the 2041 AM and PM Peak Hours

3.8 Humber Bay Shores Traffic Volumes

Simulated traffic volumes in the Humber Bay Shores area south of Lake Shore Boulevard West were extracted from the Alternative 4B model, the technically preferred alternative, to review travel patterns along the key north-south connections including: Marine Parade Drive, Shore Breeze Drive, Silver Moon Drive, The Marginal Boulevard, and Brooker’s Lane.

The City considered potential for converting one or more of these corridors into one-way streets where feasible. Simulated traffic volumes travelling along each corridor during the AM and PM peak hours are summarized in **Table 8**.

Table 8: 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

Generally, the extracted traffic volumes indicate that the north-south corridors reviewed are moderately to well utilized depending on the peak hour. Where one direction may carry the dominant flow during the AM peak hour, the reverse direction carries the dominant flow during the PM peak hour (e.g., Shore Breeze Drive carrying 48 northbound vehicles and 15 southbound vehicles during the AM peak hour and 22 northbound and 43 southbound vehicles during the PM peak hour). As such, none of the corridors present particularly favourable conditions for conversion into one-way corridors. Further to this, retaining the noted roads as two-direction corridors provides optimum route flexibility for all modes of travel, minimizes circuitous travel routing distance, and also reduces greenhouse gas emissions (since travel distances are reduced).

3.9 Preferred Gardiner Expressway On/Off-Ramp Configuration

The future Alternatives provide various options for reconfiguring the eastbound on-ramp and westbound off-ramp to Gardiner Expressway currently terminating at Lake Shore Boulevard West and Brooker's Lane under the Existing Conditions. Alternative 1 and Alternative 2 maintain the existing configuration without any modifications, with the ramps terminating at the north leg of the noted Lake Shore Boulevard West & Brooker's Lane intersection. Alternative 3 reconfigures the ramps to terminate at the proposed Relief Road just north of Lake Shore Boulevard West, providing convenient access to the development at 2150 Lake Shore Boulevard West. Finally, Alternatives 4A, 4B, and 4C see the ramps reconfigured to terminate at a new North-South Street which would connect The Queensway (through the lands located at 125 The Queensway) with Lake Shore Boulevard West at Brooker's Lane.

The proposed ramp reconfigurations in Alternatives 3 and 4A / 4B / 4C present a number of advantages and disadvantages in terms of traffic operations. The list below summarizes several key differences between these two ramp configuration options.

- Alternative 3 provides nearby Gardiner Expressway ramp connectivity for travel to / from the east for vehicles originating from and destined to the proposed development at 2150 Lake Shore Boulevard West
- Alternatives 4A, 4B, and 4C provide a new crucial north-south connection between The Queensway and Lake Shore Boulevard West by way of the new North-South Street, alleviating demand on Park Lawn Road.
- Alternative 3 requires any vehicles using the ramp which are destined for The Queensway to use Park Lawn Road to access The Queensway and other streets to the north.
- Alternatives 4A, 4B, and 4C allow vehicles using the reconfigured ramps to more directly access The Queensway due to additional connectivity between the ramps and streets to the north.
- Alternative 3, due to the proximity between the Gardiner Expressway eastbound off-ramp and eastbound on-ramp by way of the Relief Road, sees a considerable amount of Gardiner Expressway bypass activity in the eastbound direction during the AM peak hour. This is largely a result of how convenient and direct the routing is, requiring low additional travel distance and few signalized intersections.
- Alternatives 4A, 4B, and 4C indicate no Gardiner Expressway bypass activity due to the longer and less direct routing required.

- Alternative 3 maintains generally acceptable operations at the ramp terminal intersection located along the Relief Road
- Alternatives 4A, 4B, and 4C feature a ramp terminal intersection along the New North-South Street which provides limited capacity for vehicles exiting the Gardiner Expressway westbound off-ramp. The limited capacity leads to notable delays for vehicles exiting the highway and entering the local road network.

Generally, these points illustrate that the ramp connection provided in Alternatives 4A, 4B, and 4C is preferable to that provided in Alternative 3, particularly due to its mitigation of Gardiner Expressway bypass activity in Alternative 3 which unnecessarily attracts broader city traffic from the Gardiner Expressway on to the local road network creating undesirable impacts to local traffic operations.

4 Conclusions

The previously developed Existing Conditions microsimulation model developed in Vissim was used as a base to develop several future Alternatives for the Park Lawn Lake Shore TMP study area. Beginning with the Future Do-Nothing Conditions (Alternative 1), AECOM developed a new set of demand matrices using the City's Emme subarea model and a comprehensive mesoscopic Visum model. Two sets of demand for the 2041 AM and PM peak hours were prepared: the Future Do-Nothing matrices and the Future Build-Out matrices. The Full Build-Out matrices include trips associated with future development at 2150 Lake Shore Boulevard West, formerly the Mr. Christie lands, being undertaken by First Capital.

Following the development and submission of the Future Do-Nothing Conditions model, the model files and Future Build-Out matrices were supplied to First Capital's transportation consultant, BA Group, to develop two additional alternatives: Alternative 2 and Alternative 3. The two Alternatives both introduced a Relief Road to the road network, also referred to as 'Street A', connecting the Gardiner Expressway Eastbound Off-Ramp intersection at Park Lawn Road to Lake Shore Boulevard West just west of Brooker's Lane. Other improvements including cycling facilities and the Legion Road extension project are also included in the Alternatives, while reconfigured Gardiner ramps are introduced in Alternative 3.

Subsequent to the completion of the Alternative 2 and Alternative 3 models, AECOM was tasked with preparing Vissim models for Alternative 4A, Alternative 4B, and Alternative 4C. An overview of the alternatives is shown in **Figure 27**.

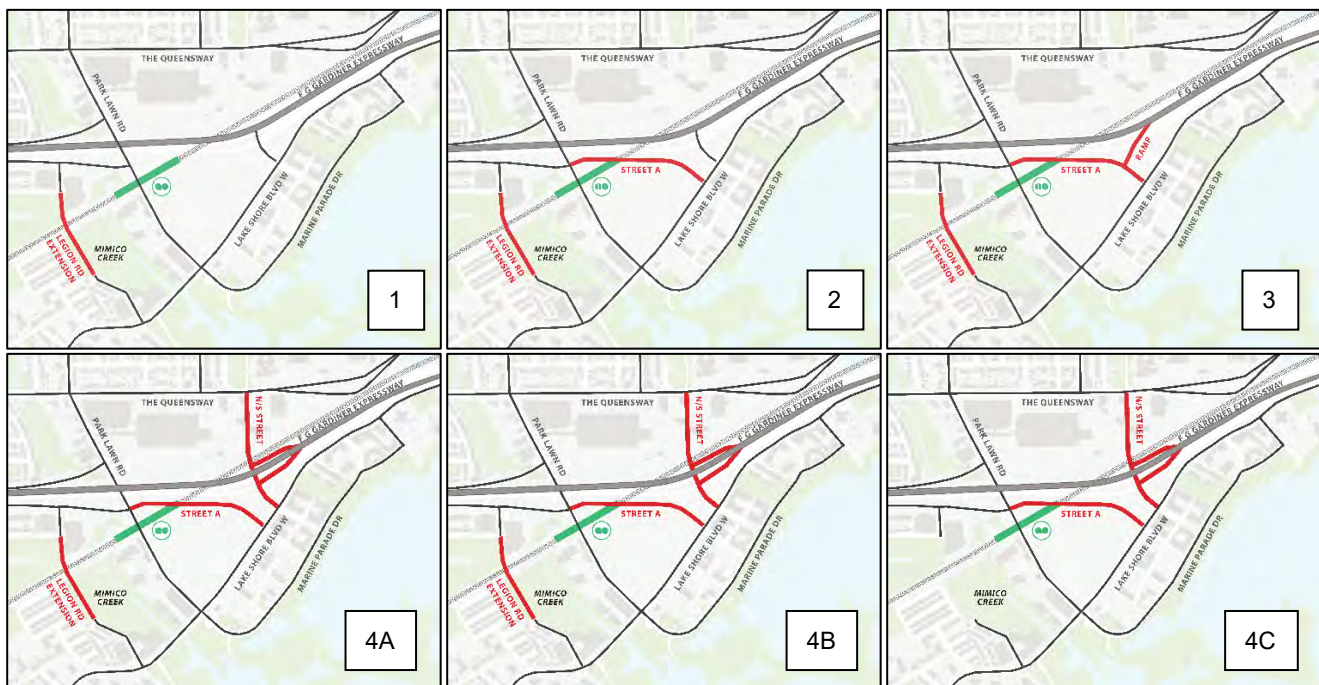


Figure 27: Future Alternative Summary

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 while removing opportunities for the undesirable Gardiner Expressway by-pass activity observed for the eastbound direction in 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 the future 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 / Brooker's 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 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.

Appendix A: Future Alternative Summary

Memorandum

Park Lawn Lake Shore TMP

Development and Evaluation of the Future Conditions (2041) Models

**Table 9: Alternative Evaluation Summary – AM Peak Hour**

Scenario	Vehicles Arrived during Simulation	Latent Demand	% of Demand Arrived	Average Delay Per Vehicle (s)	Critical Movements	Critical Intersections
Alternative 1	81,778	9,124	84%	306.36	27	1
Alternative 2	80,211	3,694	90%	217.06	56	7
Alternative 3	80,689	3,891	90%	206.68	25	1
Alternative 4A	79,641	3,415	89%	221.56	37	5
Alternative 4B	80,386	3,521	90%	209.69	25	0
Alternative 4C	80,372	3,717	90%	214.81	32	2

Table 10: Alternative Evaluation Summary - PM Peak Hour

Scenario	Vehicles Arrived during Simulation	Latent Demand	% of Demand Arrived	Average Delay Per Vehicle (s)	Critical Movements	Critical Intersections
Alternative 1	89,055	2,781	90%	229.32	52	5
Alternative 2	85,349	413	96%	67.97	21	0
Alternative 3	85,638	331	96%	62.93	22	0
Alternative 4A	82,110	1,439	93%	125.64	67	9
Alternative 4B	84,586	249	95%	89.50	25	2
Alternative 4C	84,276	526	95%	99.38	32	3

Appendix B: Traffic Operations

Table 11: Alternative 1 – "Future Do-Nothing" Traffic Operations

Intersection	Movement	Alternative 1 AM Peak Hour					Alternative 1 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & Lake Shore Boulevard West	SBR	24.9	204	C	63	36.5	D	34.0	73	C	35	51.7	D		
	SBT	44.0	195	D	70			33.4	194	C	78				
	SBL	45.2	636	D	92			36.7	560	D	82				
	EBR	0.0	0	A	0			28.6	25	C	0				
	EBT	36.2	1129	D	155			34.0	734	C	108				
	EBL	62.5	234	E	156			59.0	52	E	108				
	NBR	14.8	10	B	20			17.5	7	B	14				
	NBT	51.3	78	D	35			53.0	36	D	58				
	NBL	73.1	19	E	31			57.4	120	E	58				
	WBR	9.8	486	A	58			42.7	603	D	80				
	WBT	39.0	365	D	71			91.4	786	F	526				
	WBL	52.3	15	D	66			133.8	3	F	526				
Park Lawn Road & Metro Condos Access	SBR	12.0	60	B	68	13.3	B	11.7	232	B	79	48.8	D		
	SBT	13.0	826	B	82			14.6	771	B	117				
	SBL	303.6	2	F	0			290.6	1	F	0				
	EBR	4.4	204	A	14			3.6	68	A	18				
	EBT	0.0	0	A	14			0.0	0	A	18				
	EBL	19.3	249	B	61			91.8	148	F	151				
	NBR	16.7	2	B	66			23.7	1	C	145				
	NBT	13.3	799	B	70			94.5	688	F	150				
	NBL	43.9	1	D	0			0.0	0	A	0				
	WBR	0.0	0	A	0			0.0	0	A	0				
	WBT	0.0	0	A				0.0	0	A					
	WBL	0.0	0	A				0.0	0	A					
Park Lawn Road & South Beach Condos Access	SBR	4.4	18	A	-	2.6	A	1.0	90	A	-	78.5	E		
	SBT	0.3	818	A				2.2	996	A					
	SBL	0.0	0	A				0	0.0	0				A	68
	EBR	7.9	63	A				27	12.6	19				B	33
	EBT	0.0	0	A				-	0.0	0				A	-
	EBL	27.2	146	C				32	165.5	62				F	32
	NBR	0.0	0	A				-	0.0	0				A	-
	NBT	0.7	1037	A					167.5	841				F	
	NBL	6.1	6	A				22	280.4	20				F	195
	WBR	0.0	0	A				-	0.0	0				A	-
	WBT	0.0	0	A					0.0	0				A	
	WBL	0.0	0	A					0.0	0				A	
Park Lawn Road & Gardiner South Ramp Terminal	EBR	6.3	566	A	62	13.8	B	58.2	704	E	271	99.5	F		
	EBT	0.0	0	A	0			0.0	0	A	0				
	EBL	31.5	457	C	83			129.0	717	F	272				
	NBR	0.0	0	A	-			0.0	0	A	-				
	NBT	11.9	1169	B	120			151.5	910	F	345				
	NBL	14.1	6	B	2			134.5	6	F	4				
	WBR	0.0	0	A	-			0.0	0	A	-				
	WBT	0.0	0	A				0.0	0	A					
	WBL	0.0	0	A				0.0	0	A					
	SBR	7.3	42	A	35			5.0	58	A	37				
	SBT	8.7	271	A	35			10.7	385	B	47				
	SBL	0.0	0	A	-			0.0	0	A	-				
Park Lawn Road & Gardiner North Ramp Terminal	SBR	39.0	437	D	129	29.7	C	4.6	529	A	60	70.1	E		
	SBT	25.2	309	C	57			1.9	441	A	59				
	NBT	11.6	828	B	149			115.1	874	F	199				
	NBL	45.3	777	D	133			107.6	714	F	145				
	WBR	7.8	38	A	25			32.1	17	C	6				
	WBT	35.3	155	D	67			33.0	16	C	22				
	WBL	35.5	4	D	67			13.7	1	B	3				
Park Lawn Road & Starbucks Access	SBR	1.7	101	A	-	6.7	A	1.2	21	A	-	31.0	C		
	SBT	1.0	656	A				0.7	898	A					
	SBL	7.1	49	A	18			31.1	2	C	20				
	EBR	11.9	93	B	24			20.6	29	C	20				
	EBL	25.6	35	C				41.9	54	D					
	NBR	1.8	31	A	-			0.5	1	A	-				
	NBT	10.4	819	B				61.3	817	E					
	NBL	17.9	19	B	22			88.4	43	F	195				
	WBR	12.7	2	B	4			38.6	89	D	25				
	WBL	8.6	1	A				25.9	44	C					

Intersection	Movement	Alternative 1 AM Peak Hour					Alternative 1 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & The Queensway	SBR	30.7	191	C	88	61.4	E	26.9	227	C	72	86.3	F		
	SBT	42.0	458	D	101			37.8	368	D	104				
	SBL	117.3	108	F	73			36.0	98	D	32				
	EBR	96.1	87	F	351			76.3	158	E	276				
	EBT	94.1	1422	F	353			72.4	1109	E	286				
	EBL	81.7	112	F	40			68.1	250	E	75				
	NBR	14.8	232	B	118			41.7	354	D	242				
	NBT	55.9	547	E	249			97.7	451	F	282				
	NBL	50.8	74	D	28			75.3	136	E	44				
	WBR	24.0	5	C	20			127.3	15	F	20				
	WBT	30.5	987	C	168			117.1	1175	F	466				
	WBL	70.4	261	E	75			169.8	395	F	81				
The Queensway & Aldgate Avenue	SBR	8.2	31	A	10	3.2	A	0.0	0	A	11	23.2	C		
	SBL	22.6	12	C				63.2	22	E					
	EBT	4.4	1760	A				-	3.5	1554				A	-
	EBL	87.2	0	F				41	32.1	23				C	92
	WBR	2.6	27	A				-	28.3	68				C	
	WBT	1.1	1227	A					41.8	1573				D	
The Queensway & Smithfield Drive	SBR	7.8	10	A	6	5.9	A	51.8	27	D	18	13.5	B		
	SBL	16.5	11	B				64.2	7	E					
	EBT	9.6	1769	A				167	7.0	1527				A	145
	EBL	19.0	9	B					8.8	44				A	
	WBR	4.4	8	A				-	10.7	20				B	-
	WBT	0.5	1244	A					18.9	1631				B	
The Queensway & Stephen Drive	SBR	42.8	26	D	83	12.7	B	7.1	1	A	47	15.9	B		
	SBL	51.7	264	D				51.0	181	D				47	
	EBT	12.4	1779	B				17.8	1488	B				227	
	EBL	23.0	1	C				36.2	29	D				10	
	WBR	2.2	60	A				3.8	268	A				27	
	WBT	4.7	1227	A				12.0	1665	B				185	
The Queensway & Ontario Food Terminal Access	EBR	5.6	109	A	-	5.2	A	6.3	21	A	-	15.3	B		
	EBT	4.8	1934	A				7.8	1647	A					
	NBR	21.6	25	C				15	5.0	1				A	10
	NBL	34.4	6	C					30.4	4				C	
	WBT	4.1	1283	A				-	21.9	1925				C	-
	WBL	25.4	65	C					10.8	4				B	
The Queensway & 125 The Queensway Plaza Entrance	SBR	8.3	6	A	6	13.4	B	48.0	8	D	6	38.6	D		
	SBT	0.0	0	A				10	0.0	0				A	7
	SBL	70.4	9	E				10	76.1	6				E	7
	EBR	13.1	103	B				190	35.1	298				D	189
	EBT	13.6	1848	B				192	26.8	1338				C	191
	EBL	20.0	12	C				4	47.7	10				D	7
	NBR	13.2	74	B				18	34.7	128				C	20
	NBT	60.0	3	E				18	116.4	1				F	20
	NBL	68.3	50	E				19	99.6	316				F	101
	WBR	10.0	12	A				106	18.1	6				B	326
	WBT	9.6	1294	A				112	35.5	1602				D	331
	WBL	31.1	64	C				20	56.0	165				E	59
The Queensway & Humber Water Treatment Plant	EBT	0.6	1928	A	-	0.7	A	0.6	1470	A	-	9.9	A		
	WBT	0.7	1365	A				17.6	1778	B					
The Queensway & South Kingsway	SBR	25.9	295	C	49	22.4	C	15.3	296	B	82	5.4	A		
	SBT	35.2	388	D				0.7	644	A					
	SBL	181.7	359	F				16.5	160	B					
	EBR	5.8	286	A				5.2	133	A					
	EBT	7.8	1196	A				5.6	1092	A					
	EBL	8.8	441	A				6.1	242	A					
	NBT	0.7	651	A				0.6	380	A					
	NBL	8.2	170	A				10.0	214	A					
	WBR	12.7	163	B				7.7	178	A					
	WBT	3.5	894	A				4.0	1282	A					
	WBL	64.8	2	E				32.1	8	C					
	The Queensway & Southport Street	EBR	11.7	8				B	-	7.3				A	7.0
EBT		11.6	1541	B	9.4	1213	A								
NBR		0.0	0	A	0.3	65	A	0							
WBT		0.6	973	A	0.5	1426	A	-							

Intersection	Movement	Alternative 1 AM Peak Hour					Alternative 1 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
The Queensway & Windermere Avenue	SBR	125.3	174	F	236	48.8	D	198.4	183	F	240	59.4	E		
	SBT	123.9	400	F	236			202.0	200	F	240				
	SBL	130.5	51	F	16			242.9	109	F	29				
	EBR	34.5	216	C	211			18.2	144	B	149				
	EBT	32.8	1195	C	214			32.0	835	C	153				
	EBL	63.1	129	E	59			91.3	239	F	98				
	NBR	5.3	82	A	31			14.9	5	B	112				
	NBT	3.6	150	A	31			20.1	338	C	112				
	NBL	40.9	169	D	59			56.5	156	E	69				
	WBR	25.1	70	C	84			27.0	78	C	171				
	WBT	27.5	680	C	87			27.5	1151	C	174				
	WBL	61.7	43	E	25			64.6	92	E	43				
Lake Shore Boulevard West & Windermere Avenue	SBR	21.3	221	C	80	23.3	C	38.9	374	D	143	54.5	D		
	SBT	63.8	3	E	136			65.1	16	E	56				
	SBL	60.5	469	E	136			72.4	47	E	56				
	EBR	12.6	1	B	204			6.8	15	A	150				
	EBT	12.8	3415	B	231			9.1	3056	A	154				
	EBL	73.1	316	E	87			76.9	373	E	85				
	WBR	5.3	85	A	22			64.0	177	E	33				
	WBT	26.5	1496	C	133			109.4	2442	F	737				
	WBL	0.0	0	A	0			160.4	3	F	0				
Lake Shore Boulevard West & Palace Pier Court	EBR	5.9	4	A	17	7.0	A	2.7	101	A	19	3.5	A		
	EBT	5.8	1297	A	219			3.0	1089	A	143				
	NBR	19.7	77	B	30			9.0	110	A	18				
	NBL	40.0	20	D	30			0.0	0	A	18				
Lake Shore Boulevard West & Marine Parade Drive	EBR	3.3	29	A	139	25.1	C	2.8	52	A	98	5.1	A		
	EBT	5.1	1111	A				2.4	1052	A					
	NBR	159.7	164	F				29.8	119	C				132	
	NBL	183.6	8	F				54.9	1	D					
	WBT	0.0	20	A				-	0.0	0				A	-
	WBL	0.0	0	A				-	0.0	0				A	-
Lake Shore Boulevard West & Streetcar Tunnel	EBR	17.6	29	B	244	17.0	B	15.5	45	B	231	17.4	B		
	EBT	16.1	1099	B	244			16.3	1089	B	231				
	NBR	13.1	42	B	23			14.0	16	B	32				
	NBL	36.5	36	D	23			35.5	85	D	32				
	WBT	24.9	58	C	23			14.1	41	B	16				
Lake Shore Boulevard West & Gardiner Expressway Ramps / Brooker's Lane	SBR	3.5	491	A	0	24.7	C	11.2	924	B	0	25.4	C		
	SBT	35.2	37	D	4			33.5	117	C	5				
	SBL	40.4	16	D	0			35.2	110	D	0				
	EBR	35.5	46	D	273			41.5	160	D	158				
	EBT	32.7	1020	C	295			28.9	873	C	168				
	EBL	25.1	657	C	286			18.4	131	B	145				
	NBR	12.6	100	B	23			18.7	158	B	34				
	NBT	33.4	63	C	29			33.2	33	C	98				
	NBL	39.3	205	D	39			57.6	285	E	44				
	WBR	3.5	1	A	14			2.6	19	A	16				
	WBT	11.0	101	B	21			10.6	115	B	24				
	WBL	0.0	0	A	19			0.0	0	A	22				
Lake Shore Boulevard West & Silver Moon Drive	EBT	0.8	1736	A	-	1.1	A	1.1	1215	A	-	28.9	C		
	EBR	10.3	29	B	5.3			80	A	-					
	NBL	15.2	54	B	12			278.5	35	F	77				
	NBR	7.0	37	A				204.2	38	F					
	WBL	6.9	3	A	-			25.8	28	C	-				
	WBT	0.1	811	A				44.1	1337	D					
	SBL	0.0	0	A	-			0.0	0	A	-				
	SBT	0.0	0	A				0.0	0	A					
	SBR	0.0	0	A				0.0	0	A					
Lake Shore Boulevard West & Shore Breeze Drive	EBL	0.0	0	A	-	3.8	A	0.0	0	A	-	27.4	C		
	EBT	4.4	1702	A				2.1	1120	A					
	EBR	2.8	67	A				1.9	127	A					
	NBL	22.8	48	C				107.1	53	F				116	
	NBT	0.0	0	A				0.0	0	A					
	NBR	14.3	29	B				93.0	45	F				268	
	WBL	14.4	32	B				54.6	61	D					
	WBT	0.5	766	A				45.3	1271	D					-
	WBR	0.0	0	A				-	0.0	0				A	-

Intersection	Movement	Alternative 1 AM Peak Hour					Alternative 1 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Gardiner Off-Ramp & Legion Road	EBT	3.6	680	A	45	6.4	A	12.2	1044	B	315	25.3	C
	EBR	1.2	121	A	6			3.8	259	A	49		
	NBR	9.3	346	A	44			71.5	357	E	325		
	WBL	39.9	48	D	22			68.7	63	E	29		
The Queensway & Royal York Road	EBL	51.1	69	D	31	33.5	C	33.7	160	C	47	38.2	D
	EBT	34.0	1037	C	164			27.8	1094	C	210		
	EBR	34.9	125	C	158			29.4	111	C	204		
	NBL	34.5	112	C	32			33.7	115	C	35		
	NBT	42.0	337	D	64			44.4	324	D	53		
	NBR	37.7	102	D	58			29.9	32	C	39		
	WBL	41.5	114	D	37			40.0	102	D	31		
	WBT	25.7	909	C	140			40.4	1111	D	192		
	WBR	27.7	135	C	135			34.2	107	C	189		
	SBL	35.4	163	D	36			39.9	140	D	38		
	SBT	35.7	224	D	42			47.1	378	D	68		
	SBR	39.2	126	D	66			89.5	122	F	115		
The Queensway & Grand Avenue	EBT	71.7	1217	E	310	40.6	D	16.3	1219	B	196	13.0	B
	EBR	75.4	58	E	295			17.0	56	B	194		
	NBL	31.8	96	C	28			24.1	58	C	20		
	NBR	27.0	427	C	122			8.2	321	A	54		
	WBL	29.7	194	C	36			19.5	225	B	38		
	WBT	11.3	1059	B	121			9.2	1291	A	143		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.0	672	A	50	15.3	B	8.8	1005	A	69	14.3	B
	WBL	32.4	498	C	73			39.7	497	D	67		
	WBR	14.2	539	B	62			11.9	456	B	53		
	SBT	10.7	954	B	84			9.7	1309	A	91		
Lake Shore Boulevard West & Legion Road	EBL	0.0	0	A	-	16.9	B	0.0	0	A	-	17.7	B
	EBT	18.4	1063	B	108			16.9	715	B	76		
	NBL	21.7	34	C	43			20.2	12	C	11		
	NBR	8.1	170	A	43			5.8	23	A	11		
	WBT	14.8	532	B	81			18.9	819	B	105		
	WBR	12.7	41	B	8			13.0	50	B	5		
	SBL	28.5	103	C	32			22.5	77	C	22		
	SBR	11.2	48	B	11			10.9	33	B	10		

Table 12: Alternative 2 – "Additional Traffic Capacity" Traffic Operations

Intersection	Movement	Alternative 2 AM Peak Hour					Alternative 2 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & Lake Shore Boulevard West	SBR	16.8	210	B	64	68.0	E	12.1	261	B	64	31.6	C		
	SBT	26.0	107	C	42			28.1	198	C	61				
	SBL	74.2	76	E	35			61.2	101	E	34				
	EBR	82.0	250	F	296			12.7	337	B	62				
	EBT	89.9	904	F				16.8	283	B					
	EBL	77.2	288	E	202			69.3	219	E	109				
	NBR	22.1	11	C	16			13.5	12	B	17				
	NBT	83.8	41	F	42			63.7	42	E	63				
	NBL	67.0	59	E	42			54.0	134	D	63				
	WBR	6.8	67	A	17			5.9	23	A	10				
	WBT	44.8	300	D	72			34.7	479	C	79				
	WBL	54.3	11	D	72			0.0	0	A	78				
Park Lawn Road & Metro Condos Access	SBR	3.8	23	A	48	9.7	A	6.6	189	A	71	9.3	A		
	SBT	7.4	344	A	48			7.6	525	A	71				
	SBL	14.7	38	B	12			8.2	25	A	6				
	EBR	5.4	48	A	24			4.0	37	A	6				
	EBT	17.6	66	B	23			55.5	0	E	6				
	EBL	18.5	202	B	51			22.7	148	C	43				
	NBR	6.2	1	A	25			0.0	0	A	32				
	NBT	6.4	381	A	57			8.3	258	A	45				
	NBL	16.1	1	B	0			0.0	0	A	0				
	WBR	5.5	42	A	11			7.4	201	A	49				
	WBT	24.6	4	C				20.0	28	C					
	WBL	23.2	1	C				0.0	0	A					
Park Lawn Road & South Beach Condos Access	SBR	15.4	14	B	-	6.9	A	5.1	77	A	-	5.5	A		
	SBT	5.8	343	A				4.9	719	A					
	SBL	8.3	62	A				14	4.6	145				A	27
	EBR	6.4	40	A				21	6.0	5				A	11
	EBT	0.0	0	A				-	0.0	0				A	-
	EBL	23.7	106	C				26	24.6	57				C	20
	NBR	1.4	33	A				-	1.6	76				A	-
	NBT	4.5	619	A					4.4	554				A	
	NBL	8.6	5	A				1	8.4	12				A	7
	WBR	5.1	121	A				-	5.3	125				A	-
	WBT	0.0	0	A					0.0	0				A	
	WBL	26.8	18	C					28.1	18				C	
Park Lawn Road & Gardiner South Ramp Terminal	EBR	90.8	152	F	34	71.8	E	6.6	432	A	37	20.2	C		
	EBT	134.9	289	F	270			25.0	270	C	119				
	EBL	161.4	553	F				38.8	369	D					
	NBR	41.4	52	D	-			5.3	101	A	-				
	NBT	28.3	775	C	103			18.3	623	B	64				
	NBL	32.7	7	C	6			34.2	6	C	9				
	WBR	11.6	311	B	-			12.1	277	B	-				
	WBT	27.6	136	C				28.7	14	C					
	WBL	64.3	9	E				62.2	23	E					
	SBR	37.9	7	D	58			21.3	55	C	65				
	SBT	27.8	255	C	58			19.5	487	B	68				
	SBL	100.8	40	F	-			30.9	170	C	-				
Park Lawn Road & Gardiner North Ramp Terminal	SBR	25.6	243	C	67	17.8	B	11.8	331	B	48	13.7	B		
	SBT	26.7	308	C	51			11.0	702	B	59				
	NBT	8.4	1023	A	97			3.0	743	A	49				
	NBL	21.6	617	C	69			32.4	522	C	65				
	WBR	9.2	39	A	21			7.2	12	A	6				
	WBT	36.2	152	D	66			46.1	15	D	21				
	WBL	32.7	4	C	66			41.7	10	D	21				
Park Lawn Road & Starbucks Access	SBR	1.1	71	A	-	4.6	A	2.3	14	A	-	2.0	A		
	SBT	0.7	486	A				0.4	944	A					
	SBL	8.4	51	A				18	0.0	0				A	63
	EBR	8.4	64	A				16	7.0	27				A	42
	EBL	21.8	25	C					13.5	30				B	
	NBR	2.5	38	A				-	0.0	0				A	-
	NBT	5.9	1003	A					1.8	721				A	
	NBL	7.6	21	A				1	5.7	32				A	0
	WBR	8.8	2	A				5	7.5	85				A	12
	WBL	13.3	2	B					11.2	62				B	

Intersection	Movement	Alternative 2 AM Peak Hour					Alternative 2 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
Park Lawn Road & The Queensway	SBR	24.9	188	C	74	34.8	C	31.1	173	C	72	36.1	D
	SBT	37.1	397	D	79			41.7	423	D	79		
	SBL	101.4	93	F	57			62.2	65	E	35		
	EBR	38.2	73	D	225			33.1	169	C	174		
	EBT	37.1	1396	D	232			34.1	1012	C	179		
	EBL	26.5	107	C	26			37.8	239	D	69		
	NBR	13.0	446	B	167			6.3	266	A	55		
	NBT	51.8	523	D	243			45.2	415	D	180		
	NBL	44.3	60	D	25			46.8	147	D	46		
	WBR	16.9	5	B	20			27.8	12	C	20		
	WBT	23.7	782	C	108			31.7	989	C	198		
	WBL	42.0	139	D	51			52.0	366	D	74		
The Queensway & Aldgate Avenue	SBR	6.1	29	A	9	3.4	A	0.0	0	A	7	2.1	A
	SBL	19.2	12	B				26.0	14	C			
	EBT	4.5	1938	A	-			2.5	1318	A	-		
	EBL	19.5	0	B	67			15.3	20	B	7		
	WBR	2.3	24	A	-			2.1	56	A	-		
	WBT	0.6	899	A				1.2	1378	A			
The Queensway & Smithfield Drive	SBR	5.6	7	A	6	6.9	A	12.3	22	B	15	2.2	A
	SBL	12.2	10	B				21.2	13	C			
	EBT	9.9	1941	A	202			3.4	1290	A	58		
	EBL	13.3	12	B				12.8	43	B			
	WBR	3.5	7	A	-			3.1	20	A	-		
	WBT	0.3	921	A				0.5	1415	A			
The Queensway & Stephen Drive	SBR	44.7	24	D	100	13.3	B	31.3	2	C	38	8.1	A
	SBL	56.7	252	E				44.9	169	D			
	EBT	11.6	1952	B	278			7.4	1274	A	142		
	EBL	24.0	1	C	0			23.5	27	C	9		
	WBR	2.1	67	A	20			4.1	274	A	27		
	WBT	4.8	907	A	77			4.7	1432	A	182		
The Queensway & Ontario Food Terminal Access	EBR	3.7	137	A	-	4.0	A	2.1	21	A	-	5.4	A
	EBT	3.9	2067	A				2.8	1423	A			
	NBR	24.0	26	C	20			11.8	4	B	9		
	NBL	40.0	5	D				29.2	3	C			
	WBT	2.0	973	A	-			7.6	1703	A	-		
	WBL	31.1	58	C				12.7	6	B			
The Queensway & 125 The Queensway Plaza Entrance	SBR	8.5	5	A	6	10.3	B	14.5	8	B	6	22.0	C
	SBT	0.0	0	A				7	0.0	0			
	SBL	49.2	8	D	7			55.1	4	E	6		
	EBR	11.3	70	B	189			16.3	215	B	176		
	EBT	10.1	2010	B	191			17.1	1201	B	180		
	EBL	14.2	14	B	3			34.8	11	C	5		
	NBR	13.5	52	B	13			9.6	95	A	16		
	NBT	70.9	2	E	13			0.0	0	A	16		
	NBL	58.0	36	E	18			65.9	224	E	59		
	WBR	8.3	9	A	80			14.8	7	B	198		
	WBT	7.5	990	A	82			21.6	1475	C	201		
	WBL	25.6	53	C	18			13.7	122	B	25		
The Queensway & Humber Water Treatment Plant	EBT	0.6	2065	A	-	0.5	A	0.5	1298	A	-	3.7	A
	WBT	0.4	1048	A				6.2	1602	A			
The Queensway & South Kingsway	SBR	12.6	297	B	39	9.8	A	20.0	351	B	69	4.8	A
	SBT	2.0	366	A				0.7	561	A			
	SBL	66.0	351	E	-			14.3	100	B	-		
	EBR	5.5	413	A				4.4	98	A			
	EBT	6.2	1203	A				3.5	937	A			
	EBL	8.0	457	A				3.6	261	A			
	NBT	0.6	692	A				0.3	391	A			
	NBL	7.7	152	A				8.1	126	A			
	WBR	9.2	82	A				8.1	154	A			
	WBT	2.9	598	A				3.2	1131	A			
	WBL	21.9	2	C				28.8	10	C			
	The Queensway & Southport Street	EBR	5.9	6				A	-	5.7			
EBT		7.8	1550	A	10.4	1015	B						
NBR		0.0	0	A	0	0.0	0	A	0				
WBT		0.6	638	A	-	0.5	1273	A	-				

Intersection	Movement	Alternative 2 AM Peak Hour					Alternative 2 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
The Queensway & Windermere Avenue	SBR	59.2	83	E	218	33.7	C	48.8	161	D	168	43.3	D		
	SBT	65.4	407	E	218			55.4	198	E	168				
	SBL	71.1	72	E	17			57.3	108	E	27				
	EBR	27.9	277	C	190			31.2	82	C	133				
	EBT	25.5	1135	C	195			45.8	705	D	133				
	EBL	62.3	132	E	63			79.6	221	E	98				
	NBR	5.5	75	A	34			36.0	3	D	121				
	NBT	5.3	120	A	34			29.6	324	C	121				
	NBL	28.7	61	C	18			27.4	121	C	43				
	WBR	22.5	62	C	68			32.4	81	C	146				
	WBT	24.3	520	C	69			35.5	1017	D	150				
	WBL	63.4	28	E	22			66.2	71	E	36				
Lake Shore Boulevard West & Windermere Avenue	SBR	30.0	296	C	91	20.9	C	22.9	309	C	74	23.7	C		
	SBT	67.3	3	E	131			58.9	7	E	19				
	SBL	55.5	480	E	131			56.1	39	E	19				
	EBR	0.4	0	A	176			12.2	17	B	128				
	EBT	11.6	3320	B	175			10.4	3064	B	157				
	EBL	52.3	183	D	71			74.7	367	E	89				
	WBR	4.9	76	A	26			11.8	163	B	27				
	WBT	25.7	1483	C	119			33.0	2453	C	220				
	WBL	0.0	0	A	0			94.0	2	F	0				
Lake Shore Boulevard West & Palace Pier Court	EBR	1.9	2	A	17	3.6	A	2.9	74	A	19	3.2	A		
	EBT	3.0	1175	A	132			2.7	881	A	81				
	NBR	12.9	57	B	16			9.1	84	A	14				
	NBL	44.6	4	D	16			0.0	0	A	14				
Lake Shore Boulevard West & Marine Parade Drive	EBR	4.8	40	A	116	18.0	B	3.6	38	A	67	18.0	B		
	EBT	4.3	910	A				2.9	615	A					
	NBR	69.1	247	E	151			49.1	312	D	150				
	NBL	78.7	7	E				59.6	2	E					
	WBT	0.0	4	A	-			0.0	0	A	-				
	WBL	0.0	0	A	-			0.0	0	A	-				
Lake Shore Boulevard West & Streetcar Tunnel	EBR	12.3	21	B	185	14.7	B	9.7	42	A	0	13.3	B		
	EBT	13.9	917	B	185			10.6	638	B	121				
	NBR	13.6	31	B	19			19.6	13	B	29				
	NBL	34.8	27	C	19			41.8	61	D	29				
	WBT	25.7	25	C	16			19.1	10	B	8				
Lake Shore Boulevard West & Gardiner Expressway Ramps / Brooker's Lane	SBR	17.3	505	B	0	50.7	D	53.4	90	D	0	36.6	D		
	SBT	45.4	72	D	40			53.9	171	D	4				
	SBL	58.4	13	E	0			53.4	90	D	0				
	EBR	0.0	0	A	643			58.8	1	E	121				
	EBT	70.0	717	E	643			31.7	227	C	57				
	EBL	66.5	333	E	643			30.2	131	C	121				
	NBR	42.9	83	D	36			5.8	150	A	15				
	NBT	32.4	46	C	36			33.5	27	C	16				
	NBL	67.2	80	E	36			53.5	107	D	36				
	WBR	3.5	1	A	12			6.6	6	A	19				
	WBT	17.8	52	B	11			22.6	66	C	0				
	WBL	0.0	0	A	0			0.0	0	A	0				
Lake Shore Boulevard West & Silver Moon Drive	EBT	69.2	966	E	-	53.0	D	14.4	306	B	-	13.6	B		
	EBR	45.5	19	D	-			16.0	63	B	-				
	NBL	47.8	36	D	31			17.9	7	B	6				
	NBR	75.5	28	E				9.2	30	A					
	WBL	0.0	0	A	-			0.0	0	A	-				
	WBT	4.4	336	A	-			12.7	480	B	-				
	SBL	60.1	103	E	-			30.5	20	C	-				
	SBT	27.8	0	C				-	0.0	0				A	-
	SBR	12.4	8	B				-	4.0	24				A	-
Lake Shore Boulevard West & Shore Breeze Drive	EBL	146.7	6	F	-	58.1	E	49.8	21	D	-	21.5	C		
	EBT	75.2	967	E	-			7.7	335	A	-				
	EBR	88.8	13	F	-			35.4	3	D	-				
	NBL	30.0	25	C	16			29.1	52	C	22				
	NBT	54.7	6	D				33.5	22	C					
	NBR	22.5	0	C				0.0	0	A					
	WBL	82.9	1	F	8			124.8	0	F	23				
	WBT	16.6	345	B	-			31.6	580	C	-				
	WBR	4.1	45	A	-			9.0	203	A	-				

Intersection	Movement	Alternative 2 AM Peak Hour					Alternative 2 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Gardiner Off-Ramp & Legion Road	EBT	166.4	964	F	838	129.6	F	2.7	921	A	3	6.5	A
	EBR	36.2	198	D	43			1.8	206	A	60		
	NBR	46.9	50	D	24			8.1	150	A	11		
	WBL	44.3	151	D	63			64.3	73	E	16		
The Queensway & Royal York Road	EBL	43.4	60	D	23	30.7	C	50.8	148	D	0	33.1	C
	EBT	28.4	995	C	144			31.4	980	C	48		
	EBR	28.6	110	C	135			30.6	100	C	149		
	NBL	31.0	101	C	33			35.4	100	D	140		
	NBT	41.3	303	D	63			40.5	295	D	29		
	NBR	42.8	97	D	60			37.3	34	D	67		
	WBL	31.6	54	C	22			35.2	102	D	41		
	WBT	25.7	857	C	137			26.7	972	C	25		
	WBR	26.0	117	C	133			25.3	117	C	146		
	SBL	34.3	162	C	36			34.0	129	C	144		
	SBT	37.1	202	D	42			39.8	332	D	31		
	SBR	34.2	110	C	59			43.1	115	D	61		
The Queensway & Grand Avenue	EBT	20.7	1199	C	148	16.4	B	18.8	1102	B	71	14.6	B
	EBR	18.1	56	B	142			18.2	49	B	132		
	NBL	27.4	134	C	32			27.3	86	C	126		
	NBR	13.3	387	B	79			9.5	329	A	23		
	WBL	20.1	142	C	28			23.1	200	C	46		
	WBT	9.7	898	A	113			9.1	1104	A	39		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.6	605	B	48	16.0	B	9.2	901	A	109	14.6	B
	WBL	30.2	461	C	82			39.7	486	D	62		
	WBR	18.0	581	B	67			11.6	428	B	68		
	SBT	10.9	876	B	74			9.2	1149	A	54		
Lake Shore Boulevard West & Legion Road	EBL	49.0	17	D	-	32.8	C	28.2	8	C	-	17.1	B
	EBT	48.9	930	D	219			15.6	674	B	85		
	NBL	21.9	31	C	44			17.8	12	B	92		
	NBR	15.0	206	B	44			4.1	21	A	11		
	WBT	14.8	533	B	69			16.2	792	B	11		
	WBR	13.1	62	B	6			15.8	63	B	99		
	SBL	38.1	94	D	81			30.6	163	C	5		
	SBR	13.0	43	B	14			11.8	33	B	45		
Relief Road & Parking Lot A	EBR	144.4	56	F	-	181.7	F	1.9	163	A	-	8.1	A
	EBT	436.4	284	F				4.8	377	A			
	NBR	386.7	44	F				4.9	59	A			
	NBL	74.3	86	E				33.8	117	C			
	WBT	6.0	371	A				5.6	201	A			
	WBL	14.0	29	B				7.7	62	A			
Lake Shore Boulevard West & Relief Road	SBR	115.4	2	F	-	58.9	E	5.2	3	A	-	18.4	B
	SBT	137.3	19	F				23.1	57	C			
	SBL	134.9	232	F				24.5	371	C			
	EBR	65.6	1	E				5.8	0	A			
	EBT	62.4	1053	E				12.0	356	B			
	EBL	195.1	3	F				172.5	2	F			
	WBR	18.2	293	B				14.0	240	B			
	WBT	17.7	345	B				17.0	583	B			
	NBR	59.2	14	E				12.8	21	B			
	NBT	84.8	106	F				51.9	19	D			
	NBL	85.2	3	F				45.4	33	D			
Relief Road & Driveway 5	EBR	299.9	3	F	-	176.1	F	1.1	10	A	-	7.5	A
	EBT	408.3	303	F				12.3	425	B			
	NBR	3.9	0	A				6.5	28	A			
	WBT	0.1	402	A				0.1	263	A			
Relief Road & Street D	SBR	71.3	12	E	-	51.8	D	0.1	39	A	-	4.7	A
	SBT	108.6	289	F				7.5	415	A			
	EBR	1871.5	2	F				5.2	17	A			
	NBT	1.3	402	A				1.0	262	A			
Lake Shore Boulevard West & Humber Bay Park Road	EBR	5.3	24	A	-	4.0	A	0.2	11	A	-	3.0	A
	EBT	3.8	1487	A				0.2	857	A			
	NBR	9.6	28	A				7.9	18	A			
	NBL	39.4	13	D				26.1	7	C			
	WBT	2.9	592	A				5.4	857	A			
	WBL	18.4	14	B				6.2	49	A			

Intersection	Movement	Alternative 2 AM Peak Hour					Alternative 2 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Park Lawn Road & Humber Bay Park Road	SBR	0.5	45	A	-	0.6	A	0.6	74	A	-	0.3	A
	SBT	0.1	322	A				0.0	460	A			
	EBR	12.3	15	B				7.3	8	A			
	EBL	7.4	14	A				7.8	11	A			
	NBT	0.0	79	A				0.0	162	A			
	NBL	0.8	2	A				2.7	5	A			
Park Lawn Road & Driveway 4	SBT	0.3	392	A	-	0.4	A	0.4	560	A	-	0.5	A
	NBR	0.4	16	A				0.4	31	A			
	NBT	0.5	379	A				0.5	255	A			
	WBR	0.7	52	A				0.5	55	A			
Street C & Parking Lot F	EBT	2.0	128	A	-	1.6	A	0.8	47	A	-	2.5	A
	WBR	0.2	11	A				0.6	29	A			
	WBT	0.7	47	A				3.1	229	A			
Street C & Loop Road	SBR	3.1	2	A	-	19.1	B	2.5	30	A	-	9.5	A
	EBL	24.9	129	C				25.8	47	C			
	NBT	6.0	1	A				6.4	17	A			
	NBL	6.7	56	A				7.3	229	A			
Street D & Loop Road	SBT	3.3	117	A	-	3.2	A	0.1	32	A	-	3.0	A
	SBL	0.6	11	A				0.7	31	A			
	WBR	6.5	2	A				7.1	29	A			
	WBL	6.6	2	A				7.3	11	A			
Street D & Driveway	EBR	1.2	6	A	-	30.2	C	0.5	29	A	-	1.7	A
	EBT	12.0	1	B				0.5	2	A			
	NBR	142.4	5	F				4.8	15	A			
	NBL	0.0	0	A				5.2	20	A			
	WBT	0.1	3	A				0.1	20	A			
	WBL	0.8	9	A				0.6	19	A			

Table 13: Alternative 3 – “Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp” Traffic Operations

Intersection	Movement	Alternative 3 AM Peak Hour					Alternative 3 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & Lake Shore Boulevard West	SBR	17.2	222	B	8	34.1	C	18.2	137	B	31	35.4	D		
	SBT	24.6	63	C	12			28.2	129	C	54				
	SBL	31.8	179	C	2			30.1	118	C	10				
	EBR	26.3	18	C	82			14.0	258	B	66				
	EBT	29.0	1050	C				17.3	259	B					
	EBL	55.2	260	E	27			41.6	102	D	34				
	NBR	12.2	10	B	1			16.2	12	B	20				
	NBT	18.3	47	B	0			64.0	24	E	28				
	NBL	60.5	45	E	13			55.2	137	E	57				
	WBR	13.5	46	B	13			21.8	17	C	38				
	WBT	54.5	267	D	61			59.9	433	E	172				
	WBL	0.0	0	A	44			0.0	0	A	5				
Park Lawn Road & Metro Condos Access	SBR	7.3	44	A	19	11.6	B	6.8	201	A	78	10.5	B		
	SBT	10.1	390	B	20			8.6	380	A	82				
	SBL	18.8	20	B	2			8.6	23	A	6				
	EBR	4.1	71	A	3			6.5	1	A	10				
	EBT	20.0	10	B	3			23.0	16	C	10				
	EBL	17.9	234	B	21			21.8	169	C	42				
	NBR	6.5	14	A	15			4.8	4	A	52				
	NBT	10.5	356	B	15			9.0	143	A	48				
	NBL	7.9	2	A	0			12.7	20	B	7				
	WBR	12.2	73	B	2			3.7	90	A	19				
	WBT	16.0	4	B				21.8	19	C					
	WBL	10.0	1	A				21.5	4	C					
Park Lawn Road & South Beach Condos Access	SBR	3.1	12	A	-	10.7	B	3.8	78	A	-	6.7	A		
	SBT	6.6	372	A				5.2	587	A					
	SBL	6.0	56	A				1	5.0	190				A	31
	EBR	6.9	50	A				2	9.0	3				A	7
	EBT	0.0	0	A				-	0.0	0				A	-
	EBL	23.9	98	C				20	23.7	60				C	24
	NBR	6.7	33	A				-	3.6	32				A	-
	NBT	11.5	628	B					6.7	365				A	
	NBL	24.5	3	C				0	9.2	7				A	13
	WBR	10.7	112	B				-	7.7	125				A	-
	WBT	0.0	0	A					0.0	0				A	
	WBL	24.9	28	C					25.0	18				C	
Park Lawn Road & Gardiner South Ramp Terminal	EBR	40.3	176	D	12	53.3	D	13.2	404	B	58	19.9	B		
	EBT	90.2	716	F	230			22.1	368	C	95				
	EBL	90.8	393	F				20.1	478	C					
	NBR	18.9	157	B	-			3.9	125	A	-				
	NBT	38.1	673	D	163			22.5	412	C	59				
	NBL	41.2	7	D	2			29.5	10	C	9				
	WBR	15.7	357	B	-			12.4	392	B	-				
	WBT	38.6	181	D				33.1	74	C					
	WBL	72.1	15	E				46.6	107	D					
	SBR	11.3	11	B	0			11.6	123	B	26				
	SBT	27.4	244	C	35			22.2	343	C	151				
	SBL	43.6	60	D	-			30.8	169	C	-				
Park Lawn Road & Gardiner North Ramp Terminal	SBR	9.1	239	A	10	28.7	C	5.3	334	A	34	11.0	B		
	SBT	36.8	306	D	47			14.3	623	B	159				
	NBT	30.0	770	C	137			6.1	748	A	102				
	NBL	29.2	651	C	109			15.9	529	B	91				
	WBR	19.5	32	B	5			15.5	12	B	7				
	WBT	35.7	156	D	28			44.3	17	D	20				
	WBL	34.4	11	C	28			43.1	10	D	20				
Park Lawn Road & Starbucks Access	SBR	3.1	68	A	-	11.1	B	0.5	15	A	-	6.7	A		
	SBT	5.7	481	A				1.4	869	A					
	SBL	12.4	46	B	35			6.3	0	A	51				
	EBR	13.0	64	B	3			18.0	27	B	12				
	EBL	30.0	25	C				24.6	30	C					
	NBR	14.4	34	B	-			0.0	0	A	-				
	NBT	14.2	761	B				8.2	727	A					
	NBL	14.7	15	B	94			12.9	32	B	147				
	WBR	26.7	2	C	0			22.6	83	C	25				
	WBL	11.3	1	B				27.2	65	C					

Intersection	Movement	Alternative 3 AM Peak Hour					Alternative 3 PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & The Queensway	SBR	10.2	187	B	5	35.9	D	14.3	173	B	28	36.0	D		
	SBT	42.6	400	D	60			50.8	427	D	176				
	SBL	78.6	91	E	25			58.6	64	E	28				
	EBR	41.7	72	D	124			36.0	169	D	171				
	EBT	40.2	1402	D	131			34.3	1008	C	174				
	EBL	30.7	107	C	10			35.4	240	D	63				
	NBR	14.6	255	B	6			8.0	247	A	26				
	NBT	46.0	474	D	216			44.0	418	D	274				
	NBL	42.7	64	D	10			50.5	172	D	52				
	WBR	19.1	5	B	3			22.1	11	C	20				
	WBT	24.9	788	C	34			31.5	966	C	185				
	WBL	46.2	124	D	23			48.0	289	D	72				
The Queensway & Aldgate Avenue	SBR	8.0	29	A	1	2.8	A	7.4	4	A	7	2.0	A		
	SBL	21.4	12	C				20.5	10	C					
	EBT	3.7	1749	A				-	2.7	1295				A	-
	EBL	37.2	0	D				5	11.7	21				B	62
	WBR	2.4	25	A				-	2.0	55				A	-
	WBT	0.6	884	A					1.0	1273				A	
The Queensway & Smithfield Drive	SBR	6.0	7	A	0	3.6	A	9.5	22	A	19	1.8	A		
	SBL	11.8	9	B				19.3	11	B					
	EBT	5.2	1754	A				45	2.7	1259				A	65
	EBL	5.5	10	A					9.1	45				A	
	WBR	3.7	7	A				-	2.5	20				A	-
	WBT	0.3	906	A					0.4	1306				A	
The Queensway & Stephen Drive	SBR	38.8	23	D	34	11.0	B	27.9	2	C	41	8.1	A		
	SBL	48.9	249	D				34	44.2	166				D	41
	EBT	8.8	1763	A				101	7.2	1243				A	127
	EBL	17.7	1	B				0	19.3	28				B	10
	WBR	2.3	67	A				2	4.2	275				A	26
	WBT	4.6	891	A				16	4.9	1325				A	172
The Queensway & Ontario Food Terminal Access	EBR	2.9	131	A	-	3.1	A	1.7	22	A	-	4.5	A		
	EBT	3.0	1880	A				1.5	1388	A					
	NBR	11.8	27	B				2	7.1	3				A	10
	NBL	31.7	5	C					20.2	4				C	
	WBT	2.0	956	A				-	7.2	1596				A	-
	WBL	23.1	48	C					9.0	5				A	
The Queensway & 125 The Queensway Plaza Entrance	SBR	7.3	6	A	0	10.0	B	9.2	8	A	6	20.9	C		
	SBT	0.0	0	A				3	0.0	0				A	7
	SBL	54.3	8	D				3	62.1	4				E	7
	EBR	5.9	78	A				5	9.4	217				A	32
	EBT	9.8	1818	A				77	15.1	1165				B	172
	EBL	19.7	13	B				1	32.3	9				C	5
	NBR	9.5	52	A				3	8.0	94				A	14
	NBT	70.3	2	E				3	0.0	0				A	14
	NBL	64.6	35	E				9	64.4	227				E	66
	WBR	7.4	10	A				20	21.3	6				C	183
	WBT	7.9	962	A				23	22.0	1364				C	190
	WBL	18.2	35	B				2	11.8	119				B	17
The Queensway & Humber Water Treatment Plant	EBT	0.6	1874	A	-	0.5	A	0.7	1259	A	-	2.9	A		
	WBT	0.4	1002	A				4.7	1486	A					
The Queensway & South Kingsway	SBR	12.2	289	B	15	9.0	A	16.1	308	B	52	4.3	A		
	SBT	1.1	364	A				0.6	560	A					
	SBL	53.0	352	D				13.8	143	B					
	EBR	6.7	377	A				4.5	94	A					
	EBT	5.8	1096	A				2.7	940	A					
	EBL	7.7	410	A				3.2	225	A					
	NBT	0.5	643	A				0.3	359	A					
	NBL	7.4	143	A				8.0	110	A					
	WBR	9.4	123	A				8.2	188	A					
	WBT	2.8	566	A				3.0	1071	A					
	WBL	27.9	25	C				27.3	9	C					
The Queensway & Southport Street	EBR	6.4	6	A	-	5.3	A	7.4	20	A	-	5.5	A		
	EBT	7.4	1445	A				11.2	1062	B					
	NBR	0.0	0	A				0.0	0	A				0	
	WBT	0.7	669	A				0.5	1242	A				-	

Intersection	Movement	Alternative 3 AM Peak Hour					Alternative 3 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
The Queensway & Windermere Avenue	SBR	57.9	80	E	160	32.0	C	50.4	142	D	173	44.6	D
	SBT	63.0	406	E	160			58.4	218	E	173		
	SBL	70.7	73	E	8			56.9	107	E	27		
	EBR	26.3	229	C	78			35.4	121	D	142		
	EBT	26.0	1131	C	82			47.9	707	D	142		
	EBL	61.3	80	E	19			87.8	225	F	100		
	NBR	5.7	74	A	4			22.4	3	C	111		
	NBT	4.2	169	A	4			26.9	300	C	111		
	NBL	31.8	102	C	12			26.2	157	C	48		
	WBR	19.0	35	B	20			32.2	81	C	140		
	WBT	22.2	552	C	21			35.2	985	D	145		
	WBL	62.4	26	E	9			70.1	100	E	46		
Lake Shore Boulevard West & Windermere Avenue	SBR	29.8	303	C	39	22.0	C	24.1	400	C	95	24.1	C
	SBT	65.5	2	E	48			58.7	8	E	19		
	SBL	55.5	421	E	48			57.7	36	E	19		
	EBR	1.5	1	A	67			9.8	18	A	121		
	EBT	13.1	3596	B	88			9.9	3071	A	135		
	EBL	62.9	268	E	53			77.6	391	E	88		
	WBR	5.5	76	A	3			12.9	150	B	26		
	WBT	25.9	1482	C	43			33.3	2466	C	227		
	WBL	0.0	0	A	0			94.9	3	F	0		
Lake Shore Boulevard West & Palace Pier Court	EBR	6.5	3	A	2	5.1	A	3.0	74	A	19	2.8	A
	EBT	3.9	1112	A	68			2.2	634	A	57		
	NBR	17.4	57	B	9			7.1	84	A	14		
	NBL	39.9	18	D	9			0.0	0	A	14		
Lake Shore Boulevard West & Marine Parade Drive	EBR	4.9	36	A	36	5.2	A	3.2	46	A	43	6.1	A
	EBT	4.2	1058	A				1.8	480	A			
	NBR	22.8	39	C	13			15.9	221	B	61		
	NBL	23.4	22	C				21.2	1	C			
	WBT	0.0	18	A	-			0.0	0	A	-		
	WBL	0.0	0	A	-			0.0	0	A	-		
Lake Shore Boulevard West & Streetcar Tunnel	EBR	11.9	25	B	123	20.0	C	4.1	43	A	73	10.4	B
	EBT	19.6	1061	B	123			6.7	512	A	73		
	NBR	16.1	32	B	10			21.5	13	C	28		
	NBL	48.4	28	D	10			39.6	63	D	28		
	WBT	19.4	61	B	7			18.2	25	B	14		
Lake Shore Boulevard West & Brooker's Lane	SBR	7.0	15	A	6	12.6	B	7.2	17	A	21	12.3	B
	SBT	0.0	0	A	3			0.0	0	A	8		
	SBL	46.6	6	D	55			42.7	4	D	162		
	EBR	19.4	39	B	119			7.9	201	A	98		
	EBT	9.4	989	A	119			8.1	410	A	57		
	EBL	0.0	0	A	23			98.2	0	F	19		
	NBR	16.0	92	B	10			6.1	143	A	18		
	NBT	66.7	7	E	9			39.0	22	D	39		
	NBL	46.7	89	D	15			41.3	124	D	38		
	WBR	0.0	0	A	0			0.0	0	A	0		
	WBT	2.7	89	A	1			4.2	88	A	0		
	WBL	0.0	0	A	0			0.0	0	A	0		
Lake Shore Boulevard West & Silver Moon Drive	EBT	18.3	1216	B	-	16.6	B	14.2	298	B	-	13.2	B
	EBR	16.2	20	B	-			10.8	68	B	-		
	NBL	31.5	27	C	10			14.2	0	B	25		
	NBR	12.7	29	B				15.4	29	B			
	WBL	0.0	0	A	-			0.0	0	A	-		
	WBT	13.7	296	B	-			18.4	451	B	-		
	SBL	0.0	0	A	-			27.7	2	C	-		
	SBT	37.5	3	D	-			29.5	3	C	-		
	SBR	4.9	134	A	-			5.3	337	A	-		
Lake Shore Boulevard West & Shore Breeze Drive	EBL	74.4	4	E	-	15.2	B	50.2	16	D	-	12.6	B
	EBT	13.2	1205	B	-			7.0	271	A	-		
	EBR	14.0	42	B	-			11.0	58	B	-		
	NBL	34.7	8	C	4			29.6	20	C	12		
	NBT	36.7	14	D				41.7	23	D			
	NBR	0.0	0	A	-			0.0	0	A	-		
	WBL	53.6	1	D	0			64.7	0	E	2		
	WBT	25.7	180	C	-			13.0	138	B	-		
	WBR	6.1	26	A	-			11.1	40	B	-		

Intersection	Movement	Alternative 3 AM Peak Hour					Alternative 3 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Gardiner Off-Ramp & Legion Road	EBT	113.8	1159	F	999	103.9	F	4.7	846	A	66	16.3	B
	EBR	65.4	84	E	3			6.0	228	A	29		
	NBR	122.3	136	F	178			15.3	403	B	63		
	WBL	47.4	192	D	60			76.3	208	E	95		
The Queensway & Royal York Road	EBL	44.2	59	D	10	31.4	C	55.6	148	E	46	34.4	C
	EBT	29.3	1002	C	56			31.5	985	C	148		
	EBR	30.2	112	C	52			32.4	99	C	142		
	NBL	36.1	99	D	11			35.4	101	D	27		
	NBT	42.9	304	D	36			39.4	294	D	55		
	NBR	42.4	96	D	45			35.4	33	D	42		
	WBL	31.4	54	C	6			36.9	103	D	30		
	WBT	25.8	862	C	52			28.6	977	C	154		
	WBR	26.8	120	C	49			26.2	115	C	151		
	SBL	35.0	161	D	17			36.0	130	D	31		
	SBT	36.5	201	D	22			39.4	331	D	61		
	SBR	33.8	111	C	41			60.0	115	E	107		
The Queensway & Grand Avenue	EBT	21.9	1199	C	63	17.0	B	20.1	1102	C	134	15.3	B
	EBR	20.3	55	C	59			19.2	48	B	129		
	NBL	26.9	136	C	10			25.7	85	C	23		
	NBR	12.8	387	B	30			9.6	329	A	52		
	WBL	20.7	142	C	8			22.5	199	C	35		
	WBT	9.8	900	A	21			10.0	1112	A	133		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.8	601	B	10	16.4	B	8.6	897	A	60	14.7	B
	WBL	31.7	462	C	31			41.1	492	D	79		
	WBR	18.7	588	B	34			12.7	424	B	56		
	SBT	10.6	869	B	18			8.8	1143	A	88		
Lake Shore Boulevard West & Legion Road	EBL	47.9	8	D	-	15.4	B	55.0	93	D	-	27.0	C
	EBT	15.2	962	B	24			13.8	586	B	57		
	NBL	19.5	31	B	12			22.4	11	C	12		
	NBR	7.9	209	A	12			5.0	20	A	12		
	WBT	17.4	531	B	47			35.3	708	D	261		
	WBR	15.5	15	B	50			34.1	7	C	266		
	SBL	21.5	165	C	14			23.9	2	C	17		
	SBR	4.6	52	A	1			15.3	33	B	14		
Relief Road & Parking Lot A	EBR	51.1	64	D	-	40.5	D	11.3	147	B	-	9.8	A
	EBT	54.8	874	D				6.7	513	A			
	NBR	93.0	72	F				6.0	59	A			
	NBL	37.7	95	D				34.2	117	C			
	WBT	5.8	458	A				7.4	462	A			
	WBL	9.7	25	A				8.4	77	A			
Relief Road & Gardiner Ramp	WBR	21.1	228	C	-	26.5	C	16.4	268	B	-	25.5	C
	WBL	40.6	382	D				22.1	770	C			
	SBT	22.9	77	C				24.6	231	C			
	NBT	31.1	254	C				58.9	272	E			
	SBL	24.1	925	C				24.1	925	C			
	NBR	19.0	376	B				19.0	376	B			
Lake Shore Boulevard West & Relief Road	SBR	15.7	162	B	-	33.3	C	4.3	124	A	-	19.7	B
	SBT	31.0	68	C				14.9	114	B			
	SBL	32.3	124	C				18.0	402	B			
	EBR	0.3	0	A				11.8	4	B			
	EBT	31.5	900	C				12.2	173	B			
	EBL	61.4	290	E				79.3	88	E			
	WBR	11.3	177	B				9.9	213	A			
	WBT	29.5	15	C				29.7	16	C			
	NBR	27.2	3	C				17.3	36	B			
	NBT	38.6	127	D				30.3	122	C			
	NBL	31.8	2	C				33.0	1	C			
Relief Road & Driveway 5	EBR	82.1	3	F	-	48.8	D	25.1	11	C	-	12.2	B
	EBT	73.4	947	E				23.5	564	C			
	NBR	0.0	0	A				0.0	0	A			
	WBT	0.1	481	A				0.2	540	A			
Relief Road & Street D	SBR	0.7	168	A	-	2.1	A	0.8	412	A	-	2.9	A
	SBT	2.2	303	A				2.6	605	A			
	EBR	10.6	50	B				8.1	36	A			
	NBT	1.8	597	A				4.9	426	A			

Intersection	Movement	Alternative 3 AM Peak Hour					Alternative 3 PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Lake Shore Boulevard West & Humber Bay Park Road	EBR	0.6	9	A	-	2.9	A	0.6	37	A	-	17.4	B
	EBT	0.2	1329	A				0.2	615	A			
	NBR	11.7	25	B				13.3	14	B			
	NBL	32.4	15	C				123.5	11	F			
	WBT	7.9	547	A				31.4	715	C			
	WBL	9.1	27	A				22.6	24	C			
Park Lawn Road & Humber Bay Park Road	SBR	0.6	31	A	-	1.3	A	0.7	76	A	-	0.3	A
	SBT	0.0	51	A				0.0	311	A			
	EBR	9.1	14	A				6.4	8	A			
	EBL	6.5	15	A				7.1	10	A			
	NBT	0.0	72	A				0.0	148	A			
	NBL	0.5	6	A				1.2	4	A			
Park Lawn Road & Driveway 4	SBT	0.7	461	A	-	1.6	A	0.2	385	A	-	0.2	A
	NBR	0.2	30	A				0.2	32	A			
	NBT	2.1	317	A				0.5	110	A			
	WBR	7.2	52	A				0.1	55	A			
Street C & Parking Lot F	EBT	0.5	44	A	-	0.7	A	0.7	43	A	-	0.8	A
	WBR	0.2	11	A				0.3	29	A			
	WBT	0.9	78	A				1.0	113	A			
Street C & Loop Road	SBR	2.0	46	A	-	11.7	B	2.0	64	A	-	9.8	A
	EBL	26.1	46	C				25.9	43	C			
	NBT	4.8	1	A				6.0	1	A			
	NBL	6.6	42	A				7.5	78	A			
Street D & Loop Road	SBT	0.1	10	A	-	10.0	B	0.2	8	A	-	28.6	C
	SBL	0.7	37	A				0.7	35	A			
	WBR	11.5	46	B				31.5	64	C			
	WBL	13.0	127	B				31.7	334	C			
Street D & Driveway	EBR	0.4	5	A	-	0.9	A	0.5	19	A	-	1.2	A
	EBT	0.5	33	A				0.5	16	A			
	NBR	4.7	16	A				5.2	20	A			
	NBL	6.1	19	A				10.8	15	B			
	WBT	0.1	155	A				0.7	384	A			
	WBL	0.0	14	A				0.3	28	A			

Table 14: Alternative 4A – “Neighbourhood Main Streets, 2-Lane Lake Shore" Traffic Operations

Intersection	Movement	Alternative 4A AM Peak Hour					Alternative 4A PM Peak Hour										
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS						
Park Lawn Road & Lake Shore Boulevard West	SBR	26.9	178	C	53	65.5	E	32.8	128	C	45	48.9	D				
	SBT	29.1	174	C	53			28.3	99	C	41						
	SBL	35.5	137	D	44			33.7	151	C	54						
	EBR	83.8	55	F	7			26.6	55	C	8						
	EBT	92.3	573	F	327			49.2	430	D	263						
	EBL	120.8	166	F	27			62.9	152	E	29						
	NBR	20.5	11	C	18			18.7	10	B	20						
	NBT	59.4	56	E	36			75.1	35	E	41						
	NBL	68.8	46	E	31			69.6	116	E	68						
	WBR	13.3	42	B	13			15.5	23	B	17						
	WBT	48.5	311	D	123			56.5	397	E	386						
	WBL	56.2	3	E	8			0.0	0	A	33						
Park Lawn Road & Metro Condos Access	SBR	4.6	33	A	73	10.3	B	7.0	157	A	79	19.0	B				
	SBT	9.0	358	A	74			9.6	319	A	79						
	SBL	19.1	25	B	15			24.3	9	C	5						
	EBR	6.9	131	A	19			5.3	56	A	11						
	EBT	15.1	14	B	19			18.9	1	B	11						
	EBL	19.5	172	B	44			38.5	115	D	57						
	NBR	6.2	32	A	72			8.4	17	A	85						
	NBT	9.3	267	A	70			28.9	189	C	83						
	NBL	11.9	1	B	0			28.9	18	C	7						
	WBR	7.7	164	A	29			26.6	200	C	95						
	WBT	17.6	4	B				19.3	17	B							
	WBL	36.9	1	D				0.0	0	A							
Park Lawn Road & South Beach Condos Access	SBR	4.2	11	A	-	10.5	B	5.0	43	A	-	29.6	C				
	SBT	6.3	282	A				7.0	460	A							
	SBL	6.1	63	A				10	7.4	144				A	21		
	EBR	6.3	73	A				22	17.1	3				B	12		
	EBT	0.0	0	A				-	0.0	0				A	-		
	EBL	25.6	74	C				26	56.8	56				E	24		
	NBR	9.6	30	A				-	37.9	60				D	-		
	NBT	10.8	573	B					57.8	424				E			
	NBL	14.3	3	B				1	22.5	5				C	0		
	WBR	8.4	103	A				-	35.4	128				D	-		
	WBT	0.0	0	A					0.0	0				A			
	WBL	23.6	59	C					27.3	22				C			
Park Lawn Road & Gardiner South Ramp Terminal	EBR	65.8	134	E	28	81.8	F	38.5	357	D	64	93.4	F				
	EBT	114.4	168	F	272			70.0	319	E	237						
	EBL	168.9	724	F	272			111.2	582	F	259						
	NBR	12.5	26	B	-			55.9	42	E	-						
	NBT	32.8	711	C	147			77.6	550	E	301						
	NBL	31.2	5	C	6			63.2	4	E	5						
	WBR	48.2	233	D	-			385.1	168	F	-						
	WBT	29.9	149	C				164.6	33	F							
	WBL	36.9	5	D				80.9	10	F							
	SBR	10.4	13	B	24			10.1	25	B	23						
	SBT	28.0	211	C	82			31.3	275	C	108						
	SBL	40.3	36	D	-			49.8	115	D	-						
Park Lawn Road & Gardiner North Ramp Terminal	SBR	9.0	233	A	35	19.6	B	7.1	271	A	36	35.8	D				
	SBT	35.1	258	D	106			24.9	415	C	135						
	NBT	18.3	1040	B	234			57.8	844	E	501						
	NBL	15.9	621	B	122			21.1	441	C	131						
	WBR	9.5	30	A	24			31.7	22	C	31						
	WBT	37.0	131	D	63			39.7	88	D	62						
	WBL	31.0	4	C	63			34.9	5	C	62						
Park Lawn Road & Starbucks Access	SBR	2.7	73	A	-	8.6	A	2.2	14	A	-	22.7	C				
	SBT	4.9	427	A				1.9	626	A							
	SBL	15.7	38	B				85	0.0	0				A	27		
	EBR	12.6	63	B				21	18.6	24				B	19		
	EBL	41.5	24	D					66.0	31				E			
	NBR	11.6	14	B					0.0	0				A		-	
	NBT	9.2	1049	A				-	34.0	827				C	26		
	NBL	12.3	8	B					1	50.3				27			D
	WBR	16.6	1	B					5	48.5				67		D	
	WBL	18.9	1	B				30.8		36				C			

Intersection	Movement	Alternative 4A AM Peak Hour					Alternative 4A PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & The Queensway	SBR	8.8	188	A	25	32.3	C	8.9	178	A	26	57.8	E		
	SBT	35.9	377	D	120			40.9	424	D	153				
	SBL	54.1	106	D	50			55.4	79	E	33				
	EBR	39.2	68	D	266			80.7	137	F	312				
	EBT	40.4	1372	D	266			95.2	933	F	315				
	EBL	33.1	108	C	33			66.1	220	E	65				
	NBR	15.8	594	B	66			48.9	459	D	72				
	NBT	43.8	422	D	299			70.2	339	E	307				
	NBL	41.8	58	D	29			59.2	112	E	39				
	WBR	18.0	7	B	20			20.7	15	C	16				
	WBT	22.8	763	C	99			26.3	693	C	133				
	WBL	43.3	95	D	43			37.0	80	D	42				
The Queensway & Aldgate Avenue	SBR	10.2	28	B	12	7.8	A	8.9	1	A	10	65.6	E		
	SBL	33.0	12	C				77.6	13	E					
	EBT	10.7	2062	B				-	102.4	1434				F	-
	EBL	0.0	0	A				186	100.6	19				F	317
	WBR	1.6	24	A				-	1.8	43				A	-
	WBT	0.6	840	A				-	0.9	785				A	-
The Queensway & Smithfield Drive	SBR	5.7	7	A	8	11.1	B	7.8	12	A	7	37.1	D		
	SBL	33.2	10	C				43.9	5	D					
	EBT	15.6	2047	B				59.0	1396	E				448	
	EBL	13.5	9	B				45.2	36	D				-	
	WBR	3.1	8	A				2.1	12	A				-	
	WBT	0.1	860	A				0.2	815	A				-	
The Queensway & Stephen Drive	SBR	40.7	24	D	87	14.8	B	39.5	3	D	55	30.2	C		
	SBL	54.7	252	D				82.9	170	F				55	
	EBT	14.2	2044	B				42.1	1366	D				525	
	EBL	36.7	1	D				22.9	23	C				5	
	WBR	2.1	68	A				4.9	193	A				26	
	WBT	4.8	846	A				5.6	824	A				138	
The Queensway & Ontario Food Terminal Access	EBR	5.4	87	A	-	4.4	A	21.0	33	C	-	12.9	B		
	EBT	5.3	2206	A				18.3	1499	B					
	NBR	16.1	19	B				30.8	3	C				12	
	NBL	26.5	4	C				25.6	4	C				-	
	WBT	1.4	913	A				4.4	1013	A				-	
	WBL	20.2	35	C				21.8	9	C				-	
The Queensway & New North-South Street	SBR	6.3	5	A	6	12.6	B	8.8	6	A	6	64.0	E		
	SBT	76.8	2	E				51.8	2	D				7	
	SBL	61.4	6	E				66.4	4	E				7	
	EBR	11.9	392	B				47.0	308	D				46	
	EBT	13.4	1816	B				42.6	1165	D				195	
	EBL	12.8	12	B				40.6	11	D				8	
	NBR	8.5	32	A				8.4	123	A				19	
	NBT	60.4	2	E				0.0	0	A				19	
	NBL	60.5	44	E				56.3	233	E				113	
	WBR	7.2	9	A				56.8	4	E				977	
	WBT	6.2	918	A				78.9	798	E				977	
	WBL	31.0	127	C				143.8	346	F				111	
The Queensway & Humber Water Treatment Plant	EBT	0.2	1857	A	-	0.3	A	0.4	1305	A	-	176.6	F		
	WBT	0.4	1052	A				370.8	1184	F					
The Queensway & South Kingsway	SBR	12.4	298	B	42	9.0	A	813.0	117	F	409	139.3	F		
	SBT	1.1	366	A				255.6	188	F					
	SBL	51.8	349	D				267.9	51	F					
	EBR	8.7	380	A				2.7	118	A					
	EBT	6.3	1076	A				8.7	959	A					
	EBL	7.6	406	A				7.1	255	A					
	NBT	0.5	639	A				0.3	369	A					
	NBL	7.5	141	A				120.4	96	F					
	WBR	10.0	91	A				122.7	78	F					
	WBT	2.3	608	A				262.7	991	F					
	WBL	24.0	5	C				166.2	2	F					
	The Queensway & Southport Street	EBR	2.5	8				A	-	3.7				A	5.9
EBT		5.1	1415	A	7.6	935	A								
NBR		0.0	0	A	0.0	0	A								
WBT		0.8	663	A	49.2	1063	D	-							

Intersection	Movement	Alternative 4A AM Peak Hour					Alternative 4A PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
The Queensway & Windermere Avenue	SBR	60.4	102	E	222	30.5	C	202.5	147	F	235	240.3	F
	SBT	66.0	382	E	222			208.8	149	F	235		
	SBL	70.4	73	E	18			198.6	93	F	25		
	EBR	21.9	223	C	157			22.2	29	C	130		
	EBT	21.0	1095	C	157			28.8	652	C	132		
	EBL	62.3	87	E	42			79.2	240	E	99		
	NBR	5.8	74	A	35			9.8	1	A	273		
	NBT	5.2	122	A	35			126.4	209	F	273		
	NBL	28.4	70	C	18			290.9	197	F	179		
	WBR	21.3	34	C	64			491.1	52	F	761		
	WBT	21.7	565	C	67			491.3	749	F	762		
	WBL	72.4	10	E	19			458.4	46	F	37		
Lake Shore Boulevard West & Windermere Avenue	SBR	27.5	252	C	79	20.0	C	37.2	180	D	91	33.4	C
	SBT	65.7	3	E	97			43.5	9	D	24		
	SBL	57.0	425	E	97			46.1	36	D	24		
	EBR	5.7	0	A	225			13.6	16	B	191		
	EBT	11.4	3434	B	226			14.1	3101	B	205		
	EBL	49.4	186	D	68			123.0	170	F	84		
	WBR	4.4	82	A	24			56.5	299	E	78		
	WBT	25.3	1484	C	117			50.4	2164	D	480		
	WBL	0.0	0	A	0			112.1	2	F	0		
Lake Shore Boulevard West & Palace Pier Court	EBR	1.8	22	A	17	5.6	A	3.7	71	A	18	5.6	A
	EBT	4.1	1190	A	197			3.8	789	A	140		
	NBR	19.9	52	B	26			16.5	79	B	32		
	NBL	41.1	31	D	26			40.0	21	D	32		
Lake Shore Boulevard West & Marine Parade Drive	EBR	4.2	39	A	137	29.3	C	3.7	43	A	89	3.7	A
	EBT	5.2	961	A				3.3	809	A			
	NBR	132.3	233	F	427			15.1	25	B	20		
	NBL	154.6	8	F				16.8	6	B			
	WBT	0.3	31	A	-			0.0	21	A	-		
	WBL	0.0	0	A	-			0.0	0	A	-		
Lake Shore Boulevard West & Streetcar Tunnel	EBR	9.6	16	A	206	16.6	B	7.5	33	A	186	16.2	B
	EBT	15.8	971	B	206			14.6	837	B	186		
	NBR	16.1	29	B	22			15.2	11	B	26		
	NBL	43.5	26	D	22			40.9	60	D	26		
	WBT	20.6	46	C	21			19.6	39	B	16		
Lake Shore Boulevard West & New North-South Street / Brooker's Lane	SBR	27.1	538	C	98	21.3	C	23.1	554	C	21	25.7	C
	SBT	44.5	74	D	206			36.4	78	D	205		
	SBL	27.6	30	C	14			27.7	40	C	98		
	EBR	22.4	2	C	310			40.2	24	D	360		
	EBT	12.5	851	B	310			18.7	683	B	360		
	EBL	0.0	0	A	0			0.0	0	A	0		
	NBR	13.6	88	B	43			23.8	130	C	44		
	NBT	35.6	219	D	41			30.5	107	C	40		
	NBL	87.3	8	F	40			138.9	31	F	39		
	WBR	5.9	2	A	0			6.3	9	A	7		
	WBT	12.4	51	B	15			46.2	67	D	60		
	WBL	0.0	0	A	0			0.0	0	A	0		
Lake Shore Boulevard West & Silver Moon Drive	EBT	25.6	700	C	-	21.7	C	22.8	521	C	-	27.0	C
	EBR	41.7	16	D	-			20.2	56	C	-		
	NBL	31.7	25	C	25			44.9	7	D	21		
	NBR	24.1	26	C				15.4	28	B			
	WBL	0.0	0	A	-			0.0	0	A	-		
	WBT	8.6	326	A	-			27.5	415	C	-		
	SBL	43.3	52	D	-			46.1	3	D	-		
	SBT	43.2	5	D				261.1	6	F			
	SBR	5.6	23	A				47.7	53	D			
Lake Shore Boulevard West & Shore Breeze Drive	EBL	79.5	3	E	-	21.6	C	93.4	10	F	-	29.3	C
	EBT	29.1	647	C	-			26.0	500	C	-		
	EBR	24.4	85	C	-			17.6	46	B	-		
	NBL	31.7	79	C	34			51.8	111	D	46		
	NBT	36.4	13	D				32.3	15	C			
	NBR	0.0	0	A	-			0.0	0	A	-		
	WBL	84.2	2	F	5			42.5	3	D	10		
	WBT	9.1	367	A	-			31.7	466	C	-		
	WBR	8.6	142	A	-			18.9	206	B	-		

Intersection	Movement	Alternative 4A AM Peak Hour					Alternative 4A PM Peak Hour					Intersection Delay & LOS	
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)		
Gardiner Off-Ramp & Legion Road	EBT	262.2	905	F	1010	230.1	F	71.2	993	E	383	76.9	E
	EBR	129.3	77	F	75			67.8	207	E	223		
	NBR	168.9	185	F	225			92.4	296	F	283		
	WBL	163.7	149	F	193			125.6	62	F	35		
The Queensway & Royal York Road	EBL	44.2	60	D	26	30.4	C	46.8	145	D	50	34.0	C
	EBT	28.9	991	C	141			34.7	979	C	275		
	EBR	27.7	110	C	140			33.3	96	C	267		
	NBL	29.5	102	C	36			37.0	106	D	40		
	NBT	40.7	301	D	56			41.9	301	D	54		
	NBR	43.4	92	D	58			37.7	41	D	45		
	WBL	32.6	52	C	23			34.5	83	C	37		
	WBT	24.8	853	C	134			25.6	777	C	133		
	WBR	25.9	119	C	131			23.3	96	C	130		
	SBL	33.3	163	C	36			32.4	129	C	41		
	SBT	35.8	200	D	34			38.2	329	D	61		
	SBR	35.2	110	D	61			41.3	119	D	73		
The Queensway & Grand Avenue	EBT	21.1	1184	C	157	16.6	B	38.4	1046	D	285	26.3	C
	EBR	20.2	55	C	152			48.8	54	D	282		
	NBL	27.9	135	C	31			34.3	87	C	28		
	NBR	13.2	387	B	84			27.7	310	C	113		
	WBL	19.4	140	B	26			19.3	138	B	34		
	WBT	9.7	895	A	105			10.0	868	A	112		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.6	604	B	47	16.3	B	9.8	939	A	66	13.6	B
	WBL	30.2	464	C	84			31.6	493	C	63		
	WBR	19.0	582	B	70			10.8	423	B	53		
	SBT	11.2	874	B	74			10.3	1213	B	90		
Lake Shore Boulevard West & Legion Road	EBL	252.9	14	F	-	116.6	F	20.7	127	C	-	24.7	C
	EBT	261.6	523	F	509			25.7	549	C	207		
	NBL	0.0	0	A	45			0.0	0	A	17		
	NBR	54.8	205	D	45			31.3	20	C	17		
	WBT	20.1	520	C	133			25.2	632	C	182		
	WBR	22.6	33	C	0			51.0	14	D	0		
	SBL	51.2	86	D	24			23.1	124	C	38		
	SBR	4.7	55	A	7			5.2	33	A	7		
New North-South Street & Gardiner North Ramp Terminal	NBT	14.7	5	B	6	76.2	E	16.7	27	B	15	429.6	F
	WBL	95.0	508	F	158			713.5	400	F	1006		
	WBR	81.5	14	F	103			690.9	68	F	1008		
	SBT	55.6	453	E	213			142.1	418	F	284		
New North-South Street & Gardiner South Ramp Terminal	NBT	0.5	5	A	-	18.5	B	0.2	27	A	-	33.2	C
	NBR	1.1	214	A				1.0	84	A			
	SBT	33.2	629	C				44.8	679	D			
	SBL	1.6	325	A				1.5	136	A			
Relief Road & Parking Lot A	EBR	1.4	51	A	-	8.9	A	2.8	147	A	-	16.7	B
	EBT	6.1	181	A				6.1	332	A			
	NBR	5.3	99	A				6.2	81	A			
	NBL	34.8	98	C				41.2	119	D			
	WBT	4.8	295	A				44.0	150	D			
	WBL	6.4	42	A				7.7	61	A			
Lake Shore Boulevard West & Relief Road	SBR	10.2	13	B	-	31.3	C	24.1	1	C	-	34.0	C
	SBT	32.0	21	C				33.7	142	C			
	SBL	42.2	264	D				49.9	221	D			
	EBR	39.1	114	D				38.1	13	D			
	EBT	38.4	588	D				46.2	481	D			
	EBL	77.0	5	E				80.0	5	E			
	WBR	11.5	250	B				6.5	182	A			
	WBT	16.1	333	B				14.8	444	B			
	NBR	23.0	1	C				44.4	4	D			
	NBT	52.1	81	D				83.3	37	F			
	NBL	59.1	14	E				136.5	20	F			
Relief Road & Driveway 5	EBR	0.0	4	A	-	0.4	A	0.0	9	A	-	0.8	A
	EBT	0.5	271	A				0.3	400	A			
	NBR	4.7	31	A				5.5	29	A			
	WBT	0.0	338	A				1.0	223	A			
Relief Road & Street D	SBR	0.1	36	A	-	3.6	A	0.4	83	A	-	3.8	A
	SBT	8.4	264	A				7.0	341	A			
	EBR	5.4	34	A				6.6	26	A			
	NBT	0.0	337	A				0.0	226	A			

Intersection	Movement	Alternative 4A AM Peak Hour					Alternative 4A PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Lake Shore Boulevard West & Humber Bay Park Road	EBR	10.3	7	B	-	14.3	B	0.5	22	A	-	13.3	B
	EBT	16.0	810	B				4.3	670	A			
	NBR	49.9	24	D				25.2	15	C			
	NBL	39.3	17	D				70.3	9	E			
	WBT	9.4	550	A				21.6	645	C			
	WBL	15.2	23	B				25.9	22	C			
Park Lawn Road & Humber Bay Park Road	SBR	0.5	28	A	-	0.9	A	0.7	67	A	-	0.9	A
	SBT	0.3	202	A				0.0	88	A			
	EBR	9.8	15	A				7.8	22	A			
	EBL	6.8	14	A				6.4	10	A			
	NBT	0.0	86	A				0.0	145	A			
	NBL	0.9	11	A				0.8	3	A			
Park Lawn Road & Driveway 4	SBT	0.3	488	A	-	0.7	A	0.6	374	A	-	3.9	A
	NBR	0.2	24	A				2.9	35	A			
	NBT	1.1	236	A				9.0	168	A			
	WBR	1.8	60	A				11.4	57	B			
Street C & Parking Lot F	EBT	1.5	72	A	-	1.5	A	0.2	26	A	-	13.1	B
	WBR	0.3	10	A				2.4	25	A			
	WBT	1.6	168	A				15.9	219	B			
Street C & Loop Road	SBR	2.4	28	A	-	13.2	B	2.3	31	A	-	18.4	B
	EBL	27.6	75	C				29.5	26	C			
	NBT	5.1	10	A				31.8	12	C			
	NBL	8.5	149	A				18.7	215	B			
Street D & Loop Road	SBT	0.2	58	A	-	2.9	A	0.1	14	A	-	5.2	A
	SBL	0.7	25	A				1.0	25	A			
	WBR	7.0	28	A				7.2	32	A			
	WBL	7.6	20	A				7.6	49	A			
Street D & Driveway	EBR	0.5	11	A	-	2.2	A	0.4	14	A	-	1.5	A
	EBT	0.4	15	A				0.3	10	A			
	NBR	4.8	19	A				4.7	17	A			
	NBL	5.4	23	A				5.7	25	A			
	WBT	0.0	26	A				0.1	56	A			
	WBL	0.5	10	A				0.6	27	A			

Table 15: Alternative 4B - "Neighbourhood Main Streets, 4-Lane Lake Shore" Traffic Operations

Intersection	Movement	Alternative 4B AM Peak Hour					Alternative 4B PM Peak Hour									
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS					
Park Lawn Road & Lake Shore Boulevard West	SBR	28.5	175	C	50	32.8	C	24.8	131	C	41	43.3	D			
	SBT	23.6	112	C	42			26.7	89	C	40					
	SBL	34.9	101	C	41			31.4	161	C	58					
	EBR	20.0	156	B	130			17.2	22	B	69					
	EBT	24.7	872	C	137			17.5	609	B	71					
	EBL	49.5	221	D	49			42.4	127	D	41					
	NBR	15.1	12	B	15			12.9	11	B	18					
	NBT	59.3	60	E	37			65.8	33	E	31					
	NBL	81.7	32	F	23			65.2	114	E	53					
	WBR	14.6	44	B	40			85.6	25	F	147					
	WBT	47.0	333	D	106			80.5	490	F	213					
	WBL	46.6	7	D	7			0.0	0	A	39					
Park Lawn Road & Metro Condos Access	SBR	5.8	48	A	60	10.9	B	7.2	180	A	77	10.5	B			
	SBT	8.6	335	A	60			10.2	318	B	77					
	SBL	19.8	11	B	6			6.2	1	A	0					
	EBR	8.4	48	A	26			5.6	61	A	12					
	EBT	19.0	87	B	26			16.8	2	B	12					
	EBL	18.9	182	B	46			21.2	126	C	33					
	NBR	5.9	28	A	81			5.4	14	A	52					
	NBT	9.0	326	A	79			8.2	162	A	51					
	NBL	7.8	1	A	0			17.7	20	B	6					
	WBR	6.2	101	A	16			6.9	68	A	22					
	WBT	21.3	3	C				18.0	20	B						
	WBL	34.7	1	C				0.0	0	A						
Park Lawn Road & South Beach Condos Access	SBR	4.0	15	A	-	11.3	B	4.0	65	A	-	7.0	A			
	SBT	6.4	304	A				5.1	472	A				-		
	SBL	5.4	74	A				5.4	169	A				17		
	EBR	6.1	61	A				7.8	10	A				11		
	EBT	0.0	0	A				0.0	0	A				-		
	EBL	26.3	86	C				26	25.3	53				C	22	
	NBR	9.0	20	A				-	7.1	37				A	-	
	NBT	12.6	586	B				-	7.0	311				A	-	
	NBL	28.2	3	C				5	13.0	10				B	6	
	WBR	11.0	109	B				-	6.8	124				A	-	
	WBT	0.0	0	A					0.0	0				A		
	WBL	24.0	29	C					26.3	18				C		
Park Lawn Road & Gardiner South Ramp Terminal	EBR	23.3	171	C	27	53.1	D	11.7	350	B	50	26.1	C			
	EBT	38.4	160	D	270			19.5	349	B	69					
	EBL	85.9	641	F	269			23.4	538	C	148					
	NBR	17.8	10	B	-			7.1	49	A	-					
	NBT	37.5	754	D	223			23.5	427	C	60					
	NBL	30.0	6	C	6			28.5	7	C	6					
	WBR	86.4	245	F	-			51.4	388	D	-					
	WBT	31.4	158	C				29.4	46	C						
	WBL	35.1	23	D				38.0	35	D						
	SBR	24.8	10	C	23			10.4	46	B	24					
	SBT	26.4	197	C	68			26.8	320	C	103					
	SBL	52.3	57	D	-			33.1	124	C	-					
Park Lawn Road & Gardiner North Ramp Terminal	SBR	9.7	234	A	45	22.6	C	6.7	301	A	35	16.9	B			
	SBT	33.3	260	C	88			25.6	481	C	171					
	NBT	24.1	1018	C	388			11.9	807	B	166					
	NBL	17.9	623	B	133			18.3	545	B	114					
	WBR	9.7	38	A	21			10.7	30	B	20					
	WBT	36.6	152	D	71			39.8	90	D	60					
	WBL	37.0	5	D	71			36.0	7	D	60					
Park Lawn Road & Starbucks Access	SBR	4.2	73	A	-	12.9	B	1.0	14	A	-	8.4	A			
	SBT	8.0	428	A				1.5	715	A				-		
	SBL	18.8	53	B				121	0.4	0				A	56	
	EBR	13.2	64	B				21	15.1	19				B	13	
	EBL	46.9	25	D					29.5	38				C		
	NBR	12.2	28	B					0.0	0				A		-
	NBT	14.4	1009	B				-	10.2	799				B	6	
	NBL	18.4	13	B					12.5	32				B		
	WBR	20.3	2	C					5	25.4				99		C
	WBL	8.8	1	A				-	26.9	47				C		

Intersection	Movement	Alternative 4B AM Peak Hour					Alternative 4B PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
Park Lawn Road & The Queensway	SBR	8.7	187	A	27	33.1	C	10.8	178	B	26	33.7	C
	SBT	38.3	391	D	140			43.5	423	D	150		
	SBL	58.2	98	E	44			52.8	72	D	32		
	EBR	39.3	72	D	235			30.0	148	C	196		
	EBT	37.7	1382	D	241			34.0	1062	C	199		
	EBL	30.4	106	C	32			46.3	245	D	72		
	NBR	15.4	505	B	64			10.0	362	A	40		
	NBT	48.3	475	D	306			44.9	421	D	299		
	NBL	46.6	58	D	30			50.2	152	D	51		
	WBR	13.4	7	B	20			23.4	16	C	22		
	WBT	24.1	763	C	104			29.0	906	C	155		
	WBL	47.2	93	D	48			43.7	160	D	61		
The Queensway & Aldgate Avenue	SBR	9.8	29	A	13	4.4	A	10.9	1	B	8	2.4	A
	SBL	31.1	13	C				29.3	15	C			
	EBT	5.8	1956	A	-			3.4	1486	A	-		
	EBL	0.0	0	A	199			8.9	20	A	87		
	WBR	1.7	25	A	-			2.0	54	A	-		
	WBT	0.5	836	A				0.6	1078	A			
The Queensway & Smithfield Drive	SBR	8.2	7	A	7	9.2	A	6.2	12	A	7	5.4	A
	SBL	25.8	10	C				22.2	5	C			
	EBT	13.1	1932	B	331			9.2	1461	A	166		
	EBL	14.1	9	B				12.6	44	B			
	WBR	3.4	7	A	-			1.8	17	A	-		
	WBT	0.2	859	A				0.2	1120	A			
The Queensway & Stephen Drive	SBR	41.7	24	D	80	14.6	B	34.4	3	C	51	12.0	B
	SBL	53.8	252	D	80			57.0	174	E	50		
	EBT	13.8	1937	B	408			13.9	1434	B	229		
	EBL	24.0	1	C	0			14.2	27	B	8		
	WBR	2.4	67	A	20			4.0	257	A	24		
	WBT	5.0	844	A	82			4.4	1134	A	171		
The Queensway & Ontario Food Terminal Access	EBR	5.5	129	A	-	4.5	A	6.7	43	A	-	6.7	A
	EBT	5.0	2059	A				8.2	1557	A			
	NBR	14.6	26	B	15			25.0	4	C	12		
	NBL	29.9	5	C				29.4	6	C			
	WBT	1.8	908	A	-			4.8	1386	A	-		
	WBL	20.2	47	C				15.4	12	B			
The Queensway & New North-South Street	SBR	6.9	5	A	6	12.9	B	12.8	6	B	6	46.4	D
	SBT	52.1	2	D	9			42.2	2	D	9		
	SBL	62.2	6	E	9			72.0	5	E	9		
	EBR	13.7	419	B	43			24.2	341	C	43		
	EBT	13.6	1649	B	192			30.3	1202	C	192		
	EBL	16.0	13	B	6			27.2	12	C	7		
	NBR	7.0	30	A	8			8.6	123	A	24		
	NBT	85.4	2	F	8			76.2	1	E	24		
	NBL	60.1	50	E	19			57.9	265	E	113		
	WBR	5.1	9	A	66			35.3	7	D	970		
	WBT	6.5	917	A	68			54.0	1148	D	973		
	WBL	27.0	121	C	29			91.7	448	F	109		
The Queensway & Humber Water Treatment Plant	EBT	0.2	1693	A	-	0.3	A	0.4	1335	A	-	108.0	F
	WBT	0.4	1043	A				196.8	1617	F			
The Queensway & South Kingsway	SBR	12.8	299	B	43	10.0	B	208.5	269	F	408	39.5	D
	SBT	1.3	366	A	-			49.1	425	D	-		
	SBL	68.5	345	E				76.1	80	E			
	EBR	2.6	92	A				3.5	97	A			
	EBT	5.6	1205	A				4.5	1024	A			
	EBL	7.3	399	A				4.8	244	A			
	NBT	0.7	633	A				0.4	366	A			
	NBL	7.6	136	A				21.5	124	C			
	WBR	8.8	126	A				22.6	178	C			
	WBT	2.9	605	A				51.0	1293	D			
	WBL	22.9	2	C				31.4	7	C			
	The Queensway & Southport Street	EBR	5.4	6	A			-	5.3	A	2.5		
EBT		7.3	1550	A	4.8	1051	A						
NBR		0.0	0	A	0.0	0	A						
WBT		0.7	690	A	2.3	1474	A						

Intersection	Movement	Alternative 4B AM Peak Hour					Alternative 4B PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
The Queensway & Windermere Avenue	SBR	62.2	102	E	221	32.5	C	32.6	215	C	141	34.3	C
	SBT	67.1	386	E	221			42.8	139	D	141		
	SBL	71.5	72	E	18			57.2	110	E	26		
	EBR	25.8	318	C	183			24.1	61	C	124		
	EBT	23.3	1110	C	184			24.7	748	C	125		
	EBL	65.1	119	E	63			67.1	224	E	89		
	NBR	5.6	75	A	25			10.6	2	B	93		
	NBT	4.4	120	A	25			12.2	325	B	93		
	NBL	30.6	90	C	29			38.4	261	D	81		
	WBR	19.8	34	B	68			32.7	80	C	137		
	WBT	23.6	568	C	70			35.7	1022	D	149		
	WBL	74.7	9	E	18			64.4	66	E	35		
Lake Shore Boulevard West & Windermere Avenue	SBR	27.6	255	C	73	21.5	C	15.9	215	B	43	25.9	C
	SBT	68.2	2	E	152			39.0	11	D	27		
	SBL	60.0	521	E	152			47.0	50	D	27		
	EBR	13.7	0	B	190			14.4	15	B	171		
	EBT	12.0	3439	B	199			14.2	3166	B	211		
	EBL	51.6	208	D	76			105.0	365	F	91		
	WBR	4.7	80	A	21			9.4	258	A	36		
	WBT	25.5	1480	C	119			31.5	2323	C	193		
	WBL	0.0	0	A	0			89.8	3	F	0		
Lake Shore Boulevard West & Palace Pier Court	EBR	2.2	22	A	17	6.2	A	4.3	86	A	19	6.1	A
	EBT	4.6	1294	A	246			4.4	898	A	175		
	NBR	24.1	58	C	33			17.1	84	B	34		
	NBL	40.7	35	D	33			40.2	21	D	34		
Lake Shore Boulevard West & Marine Parade Drive	EBR	6.8	42	A	150	23.1	C	3.9	58	A	134	4.6	A
	EBT	6.0	1081	A				4.1	919	A			
	NBR	113.3	215	F	186			18.7	38	B	36		
	NBL	109.5	7	F				18.3	6	B			
	WBT	0.1	35	A	-			-0.1	21	A	-		
	WBL	0.0	0	A	-			0.0	0	A	-		
Lake Shore Boulevard West & Streetcar Tunnel	EBR	13.3	26	B	235	19.1	B	13.6	41	B	216	17.7	B
	EBT	19.0	1088	B	235			16.7	954	B	216		
	NBR	13.8	32	B	24			19.9	19	B	30		
	NBL	38.0	27	D	24			39.6	56	D	30		
	WBT	17.0	48	B	22			16.5	61	B	21		
Lake Shore Boulevard West & New North-South Street / Brooker's Lane	SBR	15.3	560	B	87	25.2	C	18.4	686	B	21	26.1	C
	SBT	34.9	60	C	93			29.9	144	C	205		
	SBL	37.4	30	D	15			30.2	49	C	97		
	EBR	34.0	2	C	418			9.4	4	A	186		
	EBT	17.4	965	B	418			25.2	790	C	186		
	EBL	68.4	280	E	411			74.4	147	E	161		
	NBR	13.5	98	B	22			9.4	142	A	25		
	NBT	31.0	46	C	39			27.2	34	C	39		
	NBL	38.6	96	D	39			0.0	0	A	39		
	WBR	8.0	1	A	0			8.2	2	A	4		
	WBT	18.5	55	B	19			32.7	99	C	38		
	WBL	0.0	0	A	0			0.0	0	A	0		
Lake Shore Boulevard West & Silver Moon Drive	EBT	23.4	955	C	-	22.1	C	15.0	710	B	-	16.7	B
	EBR	16.7	19	B	-			10.2	65	B	-		
	NBL	33.7	28	C	30			45.8	2	D	14		
	NBR	19.2	29	B				6.8	37	A			
	WBL	0.0	0	A	-			0.0	0	A	-		
	WBT	9.6	358	A	-			21.3	544	C	-		
	SBL	53.3	114	D	-			30.8	2	C	-		
	SBT	38.2	1	D				0.0	0	A			
	SBR	5.3	26	A				4.6	42	A			
Lake Shore Boulevard West & Shore Breeze Drive	EBL	52.6	3	D	-	25.2	C	55.3	5	E	-	6.8	A
	EBT	31.0	961	C				-	3.2	704			
	EBR	26.9	14	C	25			3.6	42	A	11		
	NBL	30.3	35	C				26.4	10	C			
	NBT	38.8	13	D	27.1			12	C	5			
	NBR	0.0	0	A	0.0			0	A				
	WBL	58.1	1	E	7			46.7	1		D		
	WBT	12.4	372	B	-			10.2	570	B	-		
	WBR	7.4	78	A	-			7.7	79	A	-		

Intersection	Movement	Alternative 4B AM Peak Hour					Alternative 4B PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Gardiner Off-Ramp & Legion Road	EBT	67.5	801	E	591	52.1	D	3.8	970	A	60	7.3	A
	EBR	10.0	119	A	13			2.0	221	A	19		
	NBR	27.6	224	C	116			10.6	268	B	32		
	WBL	41.6	172	D	61			43.2	101	D	38		
The Queensway & Royal York Road	EBL	45.4	60	D	27	31.7	C	53.9	150	D	56	35.1	D
	EBT	28.3	996	C	141			32.5	1015	C	169		
	EBR	29.0	110	C	137			32.3	100	C	161		
	NBL	31.9	101	C	27			38.8	104	D	30		
	NBT	40.9	300	D	60			42.1	298	D	66		
	NBR	51.8	97	D	65			41.1	42	D	48		
	WBL	32.9	53	C	22			42.6	102	D	35		
	WBT	28.3	854	C	129			28.1	937	C	157		
	WBR	26.1	115	C	125			24.0	114	C	154		
	SBL	35.0	163	C	39			34.5	133	C	35		
	SBT	37.5	202	D	46			39.8	327	D	67		
	SBR	31.4	111	C	56			60.9	118	E	106		
The Queensway & Grand Avenue	EBT	21.6	1193	C	143	17.1	B	18.6	1135	B	137	15.2	B
	EBR	20.1	56	C	138			18.1	58	B	133		
	NBL	28.7	136	C	33			26.8	92	C	26		
	NBR	13.6	389	B	88			10.9	338	B	59		
	WBL	20.6	141	C	28			21.7	185	C	37		
	WBT	10.2	885	B	105			10.8	1073	B	143		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.6	604	B	47	16.6	B	9.8	935	A	72	14.2	B
	WBL	32.3	462	C	72			32.9	506	C	73		
	WBR	18.9	584	B	69			12.6	439	B	55		
	SBT	10.8	872	B	75			10.3	1207	B	101		
Lake Shore Boulevard West & Legion Road	EBL	49.7	10	D	-	16.3	B	48.8	12	D	-	16.3	B
	EBT	14.9	960	B	74			13.0	704	B	53		
	NBL	0.0	0	A	45			0.0	0	A	13		
	NBR	10.3	208	B	45			8.1	20	A	13		
	WBT	19.8	541	B	146			19.4	720	B	167		
	WBR	18.8	33	B	0			21.4	14	C	0		
	SBL	25.2	111	C	29			20.6	76	C	25		
	SBR	5.0	61	A	11			5.3	42	A	6		
New North-South Street & Gardiner North Ramp Terminal	NBT	10.2	4	B	5	13.2	B	13.6	8	B	6	312.5	F
	WBL	12.9	525	B	91			508.9	524	F	687		
	WBR	10.3	22	B	22			510.2	72	F	673		
	SBT	13.7	473	B	108			76.0	485	E	255		
New North-South Street & Gardiner South Ramp Terminal	NBT	0.5	4	A	-	1.1	A	0.3	8	A	-	20.1	C
	NBR	1.1	327	A				1.0	169	A			
	SBT	0.9	639	A				26.7	880	C			
	SBL	1.3	358	A				1.4	129	A			
Relief Road & Parking Lot A	EBR	1.3	61	A	-	8.6	A	1.8	144	A	-	6.8	A
	EBT	4.3	165	A				4.1	378	A			
	NBR	5.0	82	A				5.0	87	A			
	NBL	35.6	87	D				35.2	88	D			
	WBT	6.7	370	A				5.2	386	A			
	WBL	3.3	33	A				6.5	70	A			
Lake Shore Boulevard West & Relief Road	SBR	13.5	1	B	-	45.4	D	24.3	5	C	-	20.8	C
	SBT	34.0	62	C				32.9	193	C			
	SBL	85.8	185	F				50.9	232	D			
	EBR	75.6	0	E				118.6	1	F			
	EBT	61.8	1072	E				18.1	697	B			
	EBL	151.3	2	F				60.0	9	E			
	WBR	10.6	348	B				10.0	348	A			
	WBT	9.9	348	A				10.5	550	B			
	NBR	6.7	0	A				35.8	13	D			
	NBT	46.0	53	D				34.6	94	C			
	NBL	39.8	19	D				29.8	9	C			
Relief Road & Driveway 5	EBR	0.1	2	A	-	0.2	A	0.1	10	A	-	0.2	A
	EBT	0.2	245	A				0.1	456	A			
	NBR	4.9	26	A				5.3	28	A			
	WBT	0.0	405	A				0.0	454	A			
Relief Road & Street D	SBR	0.1	45	A	-	3.5	A	0.3	83	A	-	1.8	A
	SBT	10.2	228	B				3.9	401	A			
	EBR	6.4	20	A				7.4	25	A			
	NBT	0.0	404	A				0.0	452	A			

Intersection	Movement	Alternative 4B AM Peak Hour					Alternative 4B PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Lake Shore Boulevard West & Humber Bay Park Road	EBR	0.4	24	A	-	3.6	A	0.2	21	A	-	6.2	A
	EBT	0.2	1255	A				0.1	780	A			
	NBR	10.6	24	B				9.4	16	A			
	NBL	41.0	17	D				34.4	9	C			
	WBT	9.7	577	A				12.1	734	B			
	WBL	9.8	15	A				10.2	39	B			
Park Lawn Road & Humber Bay Park Road	SBR	0.5	39	A	-	0.7	A	0.7	74	A	-	1.1	A
	SBT	0.0	236	A				0.1	37	A			
	EBR	9.4	15	A				7.6	23	A			
	EBL	6.8	15	A				6.9	9	A			
	NBT	0.0	73	A				0.0	132	A			
	NBL	0.3	6	A				0.1	3	A			
Park Lawn Road & Driveway 4	SBT	0.3	382	A	-	0.8	A	0.2	378	A	-	0.5	A
	NBR	0.1	23	A				0.2	43	A			
	NBT	1.2	299	A				1.0	138	A			
	WBR	2.4	52	A				0.9	55	A			
Street C & Parking Lot F	EBT	2.1	126	A	-	1.4	A	0.1	16	A	-	1.0	A
	WBR	0.2	12	A				0.3	27	A			
	WBT	0.8	104	A				1.3	89	A			
Street C & Loop Road	SBR	2.2	29	A	-	14.7	B	2.4	34	A	-	6.6	A
	EBL	23.7	127	C				23.9	16	C			
	NBT	7.5	7	A				4.8	14	A			
	NBL	6.3	87	A				5.3	82	A			
Street D & Loop Road	SBT	0.3	120	A	-	2.2	A	0.0	1	A	-	5.3	A
	SBL	0.7	12	A				0.7	29	A			
	WBR	6.7	29	A				7.1	34	A			
	WBL	7.6	23	A				7.2	43	A			
Street D & Driveway	EBR	0.5	8	A	-	1.9	A	0.5	17	A	-	1.2	A
	EBT	0.6	4	A				0.4	12	A			
	NBR	4.6	16	A				4.9	14	A			
	NBL	5.4	20	A				5.3	22	A			
	WBT	0.0	33	A				0.0	55	A			
	WBL	0.7	12	A				0.6	28	A			

Table 16: Alternative 4C – "Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road" Traffic Operations

Intersection	Movement	Alternative 4C AM Peak Hour					Alternative 4C PM Peak Hour								
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS				
Park Lawn Road & Lake Shore Boulevard West	SBR	28.0	245	C	62	56.2	E	24.9	170	C	43	43.7	D		
	SBT	25.3	69	C	42			25.5	85	C	38				
	SBL	55.5	149	E	66			31.2	152	C	47				
	EBR	50.5	194	D	206			18.7	17	B	74				
	EBT	64.5	838	E	210			18.0	638	B	75				
	EBL	77.2	256	E	50			43.9	214	D	49				
	NBR	22.3	11	C	15			13.7	12	B	18				
	NBT	65.3	60	E	40			62.1	41	E	34				
	NBL	112.4	25	F	22			66.9	112	E	51				
	WBR	13.0	43	B	36			84.8	36	F	139				
	WBT	50.6	324	D	126			82.7	488	F	214				
	WBL	51.4	7	D	8			0.0	0	A	31				
Park Lawn Road & Metro Condos Access	SBR	5.6	52	A	87	11.7	B	7.3	163	A	73	10.3	B		
	SBT	10.2	414	B	87			9.7	347	A	73				
	SBL	21.2	40	C	16			7.1	4	A	1				
	EBR	8.7	45	A	26			5.6	59	A	11				
	EBT	18.0	86	B	26			12.4	1	B	11				
	EBL	19.3	186	B	47			21.5	128	C	35				
	NBR	7.7	27	A	98			5.6	20	A	85				
	NBT	9.5	361	A	96			8.3	263	A	83				
	NBL	11.8	1	B	0			15.4	19	B	6				
	WBR	8.6	141	A	26			7.5	69	A	20				
	WBT	34.5	3	C				18.3	34	B					
	WBL	29.4	1	C				0.0	0	A					
Park Lawn Road & South Beach Condos Access	SBR	4.5	15	A	-	12.6	B	4.2	55	A	-	7.6	A		
	SBT	5.9	379	A				5.2	489	A				-	
	SBL	5.6	74	A				5.6	165	A				20	
	EBR	6.8	72	A				23	8.0	4				A	8
	EBT	0.0	0	A				-	0.0	0				A	-
	EBL	25.6	76	C				26	24.8	59				C	25
	NBR	14.1	20	B				-	8.7	39				A	-
	NBT	15.8	665	B					8.4	412				A	
	NBL	16.5	3	B				1	13.4	8				B	2
	WBR	10.3	86	B				-	7.3	124				A	-
	WBT	0.0	0	A					0.0	0				A	
	WBL	25.6	53	C					26.8	18				C	
Park Lawn Road & Gardiner South Ramp Terminal	EBR	17.2	244	B	38	42.4	D	11.5	389	B	49	22.3	C		
	EBT	31.1	213	C	184			20.4	354	C	78				
	EBL	64.5	587	E	258			20.7	420	C	112				
	NBR	17.2	9	B	-			8.4	57	A	-				
	NBT	35.3	799	D	236			23.8	530	C	71				
	NBL	40.5	12	D	7			25.8	5	C	5				
	WBR	72.7	224	E	-			27.4	379	C	-				
	WBT	30.3	171	C				32.5	52	C					
	WBL	27.5	22	C				36.8	37	D					
	SBR	19.9	7	B	23			12.5	28	B	23				
	SBT	27.6	199	C	78			25.4	282	C	106				
	SBL	45.6	42	D	-			36.5	135	D	-				
Park Lawn Road & Gardiner North Ramp Terminal	SBR	9.3	238	A	41	21.6	C	6.6	304	A	34	16.4	B		
	SBT	33.6	246	C	102			24.5	439	C	131				
	NBT	22.0	972	C	322			12.1	789	B	185				
	NBL	18.0	637	B	131			17.6	539	B	120				
	WBR	10.1	38	B	23			9.5	30	A	18				
	WBT	36.2	152	D	71			39.7	91	D	60				
	WBL	37.0	5	D	71			34.0	8	C	60				
Park Lawn Road & Starbucks Access	SBR	5.8	74	A	-	12.7	B	0.6	15	A	-	7.9	A		
	SBT	9.5	420	A				1.0	677	A				-	
	SBL	20.4	50	C				135	2.6	0				A	9
	EBR	14.0	64	B				24	13.1	21				B	13
	EBL	50.5	24	D					28.4	36				C	
	NBR	12.4	32	B				-	0.0	0				A	-
	NBT	13.1	961	B					9.6	784				A	
	NBL	15.9	14	B				1	11.4	32				B	2
	WBR	11.4	2	B				5	24.4	100				C	26
	WBL	10.6	1	B					25.0	48				C	

Intersection	Movement	Alternative 4C AM Peak Hour					Alternative 4C PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
Park Lawn Road & The Queensway	SBR	8.8	187	A	24	31.5	C	10.7	178	B	28	31.7	C
	SBT	39.2	378	D	130			39.9	429	D	128		
	SBL	71.6	111	E	57			44.1	73	D	28		
	EBR	31.0	72	C	219			29.8	148	C	187		
	EBT	33.5	1378	C	223			30.3	1055	C	198		
	EBL	27.1	107	C	29			48.2	243	D	69		
	NBR	13.7	442	B	60			9.1	343	A	38		
	NBT	48.8	485	D	305			41.4	428	D	296		
	NBL	42.0	60	D	28			45.3	155	D	45		
	WBR	10.7	7	B	20			18.9	16	B	20		
	WBT	21.0	760	C	99			28.7	932	C	162		
	WBL	46.3	96	D	46			43.4	116	D	45		
The Queensway & Aldgate Avenue	SBR	9.4	29	A	14	3.0	A	11.7	1	B	9	1.7	A
	SBL	26.3	12	C				20.0	15	B			
	EBT	3.8	1926	A	-			2.1	1458	A	-		
	EBL	0.0	0	A	101			8.7	21	A	61		
	WBR	1.5	25	A	-			1.9	58	A	-		
	WBT	0.7	840	A				0.7	1078	A			
The Queensway & Smithfield Drive	SBR	7.3	7	A	7	7.7	A	6.7	12	A	8	4.4	A
	SBL	23.0	10	C				21.0	5	C			
	EBT	11.0	1921	B	225			7.4	1434	A	122		
	EBL	12.7	10	B				12.4	43	B			
	WBR	3.6	7	A	-			1.6	18	A	-		
	WBT	0.1	862	A				0.2	1124	A			
The Queensway & Stephen Drive	SBR	40.2	24	D	92	13.4	B	30.9	3	C	48	11.7	B
	SBL	52.9	252	D				56.5	173	E			
	EBT	11.9	1921	B	309			13.2	1407	B	196		
	EBL	4.4	1	A	0			14.5	28	B	8		
	WBR	2.6	67	A	20			5.0	282	A	29		
	WBT	5.1	847	A	75			4.6	1143	A	178		
The Queensway & Ontario Food Terminal Access	EBR	4.6	136	A	-	4.0	A	6.6	43	A	-	6.8	A
	EBT	4.4	2034	A				7.5	1525	A			
	NBR	15.0	26	B	14			20.2	5	C	12		
	NBL	27.9	5	C				24.3	5	C			
	WBT	1.8	910	A	-			5.9	1425	A	-		
	WBL	18.5	47	B				12.9	13	B			
The Queensway & New North-South Street	SBR	6.5	5	A	6	12.1	B	8.0	6	A	6	45.9	D
	SBT	52.1	2	D				9	42.1	2			
	SBL	63.0	6	E	9			76.7	5	E	9		
	EBR	10.0	329	B	36			23.0	354	C	43		
	EBT	12.6	1718	B	191			30.3	1151	C	191		
	EBL	18.3	15	B	6			39.3	12	D	8		
	NBR	6.9	31	A	8			9.3	127	A	21		
	NBT	86.0	2	F	8			44.1	3	D	22		
	NBL	61.1	54	E	18			58.8	268	E	104		
	WBR	5.2	9	A	64			33.5	6	C	973		
	WBT	6.4	915	A	66			53.3	1191	D	976		
	WBL	27.8	131	C	36			87.6	448	F	109		
The Queensway & Humber Water Treatment Plant	EBT	0.2	1760	A	-	0.3	A	0.4	1289	A	-	136.1	F
	WBT	0.4	1052	A				242.5	1644	F			
The Queensway & South Kingsway	SBR	12.8	300	B	44	10.2	B	548.6	193	F	409	89.2	F
	SBT	2.0	366	A				156.9	307	F			
	SBL	66.2	343	E	-			181.0	66	F	-		
	EBR	6.8	186	A				2.6	58	A			
	EBT	6.4	1170	A				5.9	1015	A			
	EBL	8.2	405	A				5.2	238	A			
	NBT	0.7	640	A				0.4	360	A			
	NBL	7.3	131	A				60.8	128	E			
	WBR	10.1	129	B				47.9	184	D			
	WBT	2.7	618	A				118.2	1287	F			
	WBL	26.1	1	C				55.9	7	E			
	The Queensway & Southport Street	EBR	4.8	6				A	-	5.4			
EBT		7.7	1509	A	5.0	1029	A						
NBR		0.0	0	A	0	0	A	0					
WBT		0.7	704	A	-	10.7	1420	B	-				

Intersection	Movement	Alternative 4C AM Peak Hour					Alternative 4C PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		
The Queensway & Windermere Avenue	SBR	61.3	114	E	224	33.1	C	53.1	191	D	191	45.9	D
	SBT	68.4	372	E	224			62.7	166	E	191		
	SBL	74.0	73	E	17			74.5	110	E	28		
	EBR	25.3	274	C	195			22.1	47	C	129		
	EBT	24.5	1123	C	197			24.3	744	C	131		
	EBL	67.0	105	E	53			73.3	229	E	93		
	NBR	5.8	75	A	32			8.8	3	A	109		
	NBT	4.7	125	A	33			15.5	322	B	109		
	NBL	30.8	100	C	30			51.1	221	D	82		
	WBR	20.1	34	C	67			51.5	79	D	243		
	WBT	23.6	566	C	68			55.7	1032	E	246		
	WBL	75.6	11	E	18			74.1	59	E	33		
Lake Shore Boulevard West & Windermere Avenue	SBR	26.3	240	C	77	20.7	C	22.5	209	C	58	26.7	C
	SBT	66.8	2	E	136			43.5	11	D	27		
	SBL	59.2	479	E	136			44.8	51	D	27		
	EBR	12.8	0	B	178			14.5	15	B	162		
	EBT	11.1	3421	B	181			14.2	3160	B	192		
	EBL	52.8	222	D	80			105.9	359	F	91		
	WBR	5.3	79	A	25			10.2	211	B	32		
	WBT	25.3	1481	C	119			32.7	2352	C	194		
	WBL	0.0	0	A	0			89.8	3	F	0		
Lake Shore Boulevard West & Palace Pier Court	EBR	1.6	22	A	17	5.8	A	3.9	84	A	20	6.4	A
	EBT	4.5	1310	A	234			4.8	900	A	202		
	NBR	21.8	57	C	27			17.7	84	B	36		
	NBL	38.7	27	D	27			41.3	21	D	36		
Lake Shore Boulevard West & Marine Parade Drive	EBR	6.7	44	A	150	18.5	B	4.7	59	A	137	5.0	A
	EBT	6.1	1105	A				4.6	929	A			
	NBR	87.6	205	F	178			19.8	30	B	30		
	NBL	93.1	7	F				18.9	6	B			
	WBT	0.1	27	A	-			-0.1	21	A	-		
	WBL	0.0	0	A	-			0.0	0	A	-		
Lake Shore Boulevard West & Streetcar Tunnel	EBR	15.3	24	B	243	20.6	C	13.9	42	B	217	18.5	B
	EBT	20.6	1114	C	243			17.3	965	B	217		
	NBR	13.6	32	B	20			20.7	19	C	31		
	NBL	36.3	27	D	20			41.4	56	D	31		
	WBT	17.8	45	B	17			17.5	50	B	17		
Lake Shore Boulevard West & New North-South Street / Brooker's Lane	SBR	14.3	559	B	83	25.6	C	18.6	683	B	17	27.1	C
	SBT	39.5	80	D	97			29.6	133	C	205		
	SBL	42.2	29	D	14			28.3	49	C	97		
	EBR	39.7	3	D	422			40.5	32	D	181		
	EBT	17.8	993	B	422			25.0	797	C	181		
	EBL	73.3	278	E	446			76.1	169	E	212		
	NBR	12.8	97	B	20			10.2	146	B	43		
	NBT	30.9	46	C	30			29.3	37	C	40		
	NBL	41.6	32	D	30			0.0	0	A	40		
	WBR	11.6	1	B	2			7.9	2	A	2		
	WBT	18.6	53	B	19			35.4	87	D	36		
	WBL	0.0	0	A	0			0.0	0	A	0		
Lake Shore Boulevard West & Silver Moon Drive	EBT	49.0	975	D	-	39.6	D	15.5	732	B	-	19.3	B
	EBR	35.4	19	D	-			11.1	65	B	-		
	NBL	33.1	26	C	30			49.8	8	D	15		
	NBR	25.8	29	C				7.0	38	A			
	WBL	0.0	0	A	-			0.0	0	A	-		
	WBT	9.2	349	A	-			27.2	537	C	-		
	SBL	67.9	108	E	-			10.9	2	B	-		
	SBT	20.9	1	C	-			82.8	0	F	-		
	SBR	8.9	30	A	-			4.9	46	A	-		
Lake Shore Boulevard West & Shore Breeze Drive	EBL	53.1	3	D	-	39.9	D	49.5	5	D	-	7.1	A
	EBT	55.0	990	E	-			3.1	737	A	-		
	EBR	50.5	17	D	-			6.6	34	A	-		
	NBL	29.6	51	C	25			29.7	15	C	13		
	NBT	33.5	12	C				31.4	9	C			
	NBR	0.0	0	A	-			0.0	0	A	-		
	WBL	45.9	2	D	7			118.5	0	F	2		
	WBT	12.3	387	B	-			10.6	569	B	-		
	WBR	7.3	120	A	-			9.7	95	A	-		

Intersection	Movement	Alternative 4C AM Peak Hour					Alternative 4C PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Gardiner Off-Ramp & Legion Road	EBT	29.3	867	C	280	27.3	C	3.7	1013	A	57	6.2	A
	EBR	3.6	60	A	9			1.8	180	A	12		
	NBR	12.9	222	B	44			8.7	152	A	20		
	WBL	42.7	187	D	61			40.7	85	D	35		
The Queensway & Royal York Road	EBL	43.7	60	D	25	31.5	C	56.1	147	E	52	35.4	D
	EBT	28.2	996	C	142			33.7	1014	C	170		
	EBR	28.7	110	C	136			32.8	100	C	164		
	NBL	31.7	101	C	28			38.5	105	D	31		
	NBT	40.8	300	D	62			41.8	298	D	66		
	NBR	52.1	97	D	65			40.1	42	D	48		
	WBL	34.3	53	C	26			43.6	106	D	37		
	WBT	27.0	855	C	125			27.9	984	C	171		
	WBR	26.0	116	C	119			25.9	114	C	171		
	SBL	35.8	162	D	38			34.4	133	C	35		
	SBT	38.2	201	D	49			39.8	327	D	65		
	SBR	35.3	111	D	60			60.7	118	E	106		
The Queensway & Grand Avenue	EBT	20.5	1194	C	144	16.7	B	18.5	1136	B	133	14.9	B
	EBR	17.5	56	B	142			18.8	58	B	130		
	NBL	28.5	134	C	32			25.8	92	C	23		
	NBR	13.3	389	B	84			10.8	339	B	70		
	WBL	20.7	141	C	29			20.3	174	C	34		
	WBT	10.7	886	B	107			10.6	1115	B	140		
Kipling Avenue & Gardiner North Ramp Terminal	NBT	10.8	606	B	48	16.5	B	9.9	937	A	62	14.2	B
	WBL	32.2	457	C	92			33.3	508	C	59		
	WBR	18.8	585	B	66			12.1	439	B	54		
	SBT	10.9	876	B	76			10.3	1209	B	92		
Lake Shore Boulevard West & Legion Road	EBL	71.8	4	E	-	28.8	C	52.2	6	D	-	17.2	B
	EBT	36.8	968	D	117			13.3	709	B	53		
	NBL	0.0	0	A	45			0.0	0	A	12		
	NBR	23.1	208	C	45			7.5	20	A	12		
	WBT	18.2	560	B	144			20.1	721	C	177		
	WBR	21.6	54	C	0			23.4	41	C	0		
	SBL	34.7	107	C	30			22.2	165	C	41		
	SBR	4.8	43	A	8			5.5	32	A	6		
New North-South Street & Gardiner North Ramp Terminal	NBT	14.0	4	B	4	11.8	B	15.4	12	B	6	353.4	F
	WBL	11.6	520	B	92			582.7	526	F	1005		
	WBR	7.9	26	A	21			560.5	81	F	838		
	SBT	12.1	389	B	72			81.3	490	F	247		
New North-South Street & Gardiner South Ramp Terminal	NBT	0.4	4	A	-	0.9	A	0.3	12	A	-	19.7	B
	NBR	1.1	325	A				1.0	190	A			
	SBT	0.8	658	A				27.2	866	C			
	SBL	0.8	252	A				1.3	147	A			
Relief Road & Parking Lot A	EBR	1.5	63	A	-	8.1	A	2.2	144	A	-	6.8	A
	EBT	5.3	201	A				4.1	403	A			
	NBR	5.0	85	A				5.0	87	A			
	NBL	35.8	85	D				35.3	88	D			
	WBT	5.3	356	A				5.2	384	A			
	WBL	4.4	33	A				6.8	62	A			
Lake Shore Boulevard West & Relief Road	SBR	20.3	2	C	-	60.8	E	16.6	15	B	-	22.9	C
	SBT	64.7	52	E				32.6	174	C			
	SBL	127.5	195	F				59.4	267	E			
	EBR	71.4	0	E				26.3	4	C			
	EBT	80.4	1086	F				18.9	724	B			
	EBL	164.3	2	F				61.7	10	E			
	WBR	10.3	285	B				10.4	345	B			
	WBT	11.2	349	B				11.8	542	B			
	NBR	12.3	0	B				34.7	6	C			
	NBT	39.6	101	D				38.1	85	D			
	NBL	35.6	33	D				37.6	6	D			
Relief Road & Driveway 5	EBR	1.5	3	A	-	11.1	B	0.0	9	A	-	0.3	A
	EBT	28.0	264	C				0.2	480	A			
	NBR	5.1	26	A				5.4	28	A			
	WBT	0.0	389	A				0.0	444	A			
Relief Road & Street D	SBR	4.8	47	A	-	24.8	C	0.4	78	A	-	4.3	A
	SBT	60.9	232	E				9.2	430	A			
	EBR	73.1	45	E				6.4	25	A			
	NBT	0.0	389	A				0.0	442	A			

Intersection	Movement	Alternative 4C AM Peak Hour					Alternative 4C PM Peak Hour						
		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS		Delay (s)	Vehicles	LOS	95th Percentile Queue (m)	Intersection Delay & LOS	
Lake Shore Boulevard West & Humber Bay Park Road	EBR	7.4	6	A	-	6.9	A	0.1	9	A	-	6.5	A
	EBT	5.3	1281	A				0.1	888	A			
	NBR	21.7	29	C				9.5	18	A			
	NBL	48.3	12	D				48.7	7	D			
	WBT	8.8	614	A				13.2	763	B			
	WBL	7.7	35	A				11.3	50	B			
Park Lawn Road & Humber Bay Park Road	SBR	0.6	40	A	-	0.8	A	0.9	74	A	-	1.1	A
	SBT	0.1	231	A				0.1	28	A			
	EBR	11.0	15	B				7.4	22	A			
	EBL	6.9	15	A				6.8	10	A			
	NBT	0.0	66	A				0.0	141	A			
	NBL	1.4	7	A				0.3	5	A			
Park Lawn Road & Driveway 4	SBT	1.0	459	A	-	1.4	A	0.2	405	A	-	0.7	A
	NBR	0.2	22	A				0.2	41	A			
	NBT	1.7	334	A				1.3	245	A			
	WBR	2.9	52	A				2.1	55	A			
Street C & Parking Lot F	EBT	2.9	153	A	-	2.1	A	0.1	26	A	-	1.0	A
	WBR	0.2	12	A				0.3	27	A			
	WBT	1.4	145	A				1.3	104	A			
Street C & Loop Road	SBR	2.4	28	A	-	14.5	B	2.3	35	A	-	8.3	A
	EBL	23.0	153	C				25.2	26	C			
	NBT	7.5	7	A				5.0	13	A			
	NBL	7.3	128	A				6.4	95	A			
Street D & Loop Road	SBT	0.4	113	A	-	2.3	A	0.0	11	A	-	5.0	A
	SBL	0.8	43	A				0.8	28	A			
	WBR	7.0	28	A				7.3	35	A			
	WBL	8.1	26	A				7.4	38	A			
Street D & Driveway	EBR	11.6	7	B	-	8.8	A	0.5	17	A	-	1.3	A
	EBT	22.0	34	C				0.4	11	A			
	NBR	8.3	16	A				4.9	14	A			
	NBL	6.8	20	A				5.4	21	A			
	WBT	0.1	35	A				0.1	52	A			
	WBL	0.6	12	A				0.6	26	A			

Memorandum

Park Lawn Lake Shore TMP

Development and Evaluation of the Future Conditions (2041) Models

Appendix C: Peak Direction Off-Ramp Flow Bundles



Figure 28: Alternative 1 (Future Do-Nothing) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour



Figure 29: Alternative 1 (Future Do-Nothing) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour



Figure 30: Alternative 2 (Additional Traffic Capacity) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour



Figure 31: Alternative 2 (Additional Traffic Capacity) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour



Figure 32: Alternative 3 (Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp, Park Lawn at 2-Lanes) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour

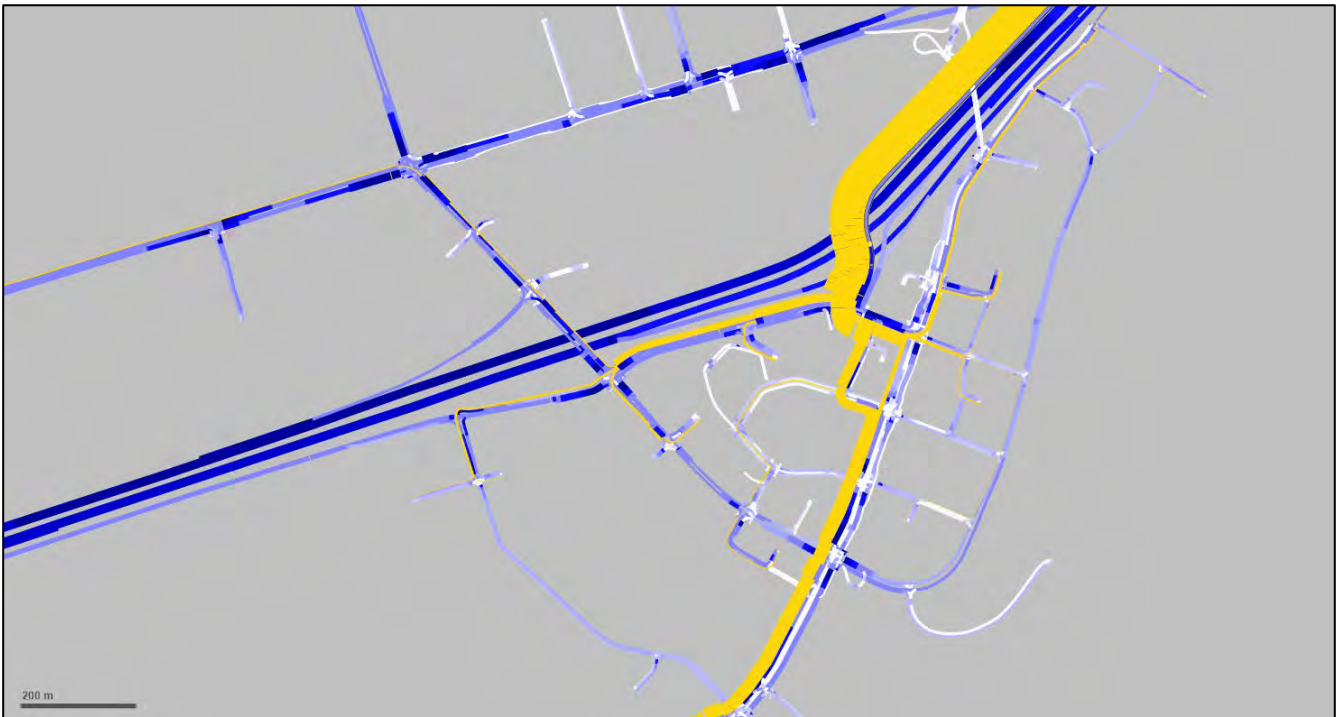


Figure 33: Alternative 3 (Additional Traffic Capacity, Modified Gardiner Ramps, New Lake Shore Ramp, Park Lawn at 2-Lanes) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour

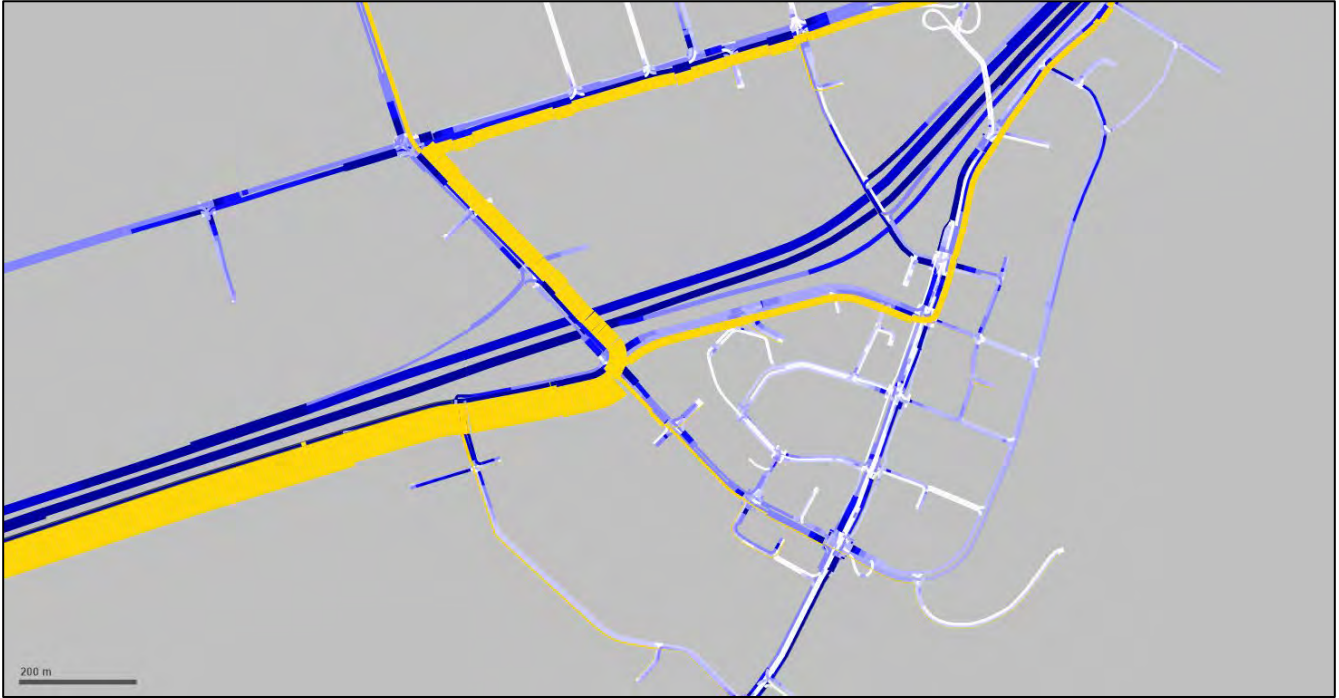


Figure 34: Alternative 4A (Neighbourhood Main Streets, 2-Lane Lake Shore) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour



Figure 35: Alternative 4A (Neighbourhood Main Streets, 2-Lane Lake Shore) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour



Figure 36: Alternative 4B (Neighbourhood Main Streets, 4-Lane Lake Shore) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour



Figure 37: Alternative 4B (Neighbourhood Main Streets, 4-Lane Lake Shore) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour



Figure 38: Alternative 4C (Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road) Off-Ramp Flow Bundles - Eastbound Direction during AM Peak Hour



Figure 39: Alternative 4C (Neighbourhood Main Streets, 4-Lane Lake Shore, No Legion Road) Off-Ramp Flow Bundles - Westbound Direction during PM Peak Hour