Appendix 5

Operating Plan for the Reference Case

December 2010

METROLINX
An agency of the Government of Ontario

APPENDIX 5

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EXECUTIVE SUMMARY

Metrolinx has commissioned an electrification study of the GO Transit system for one or more of its seven rail corridors. GO Transit is the Greater Toronto and Hamilton Area's (GTHA) interregional public transportation service. It currently operates a 243-mile rail network with 180 train starts per weekday. In order to meet the region's growth and demand for commuter rail services, GO is considering the possibility of extending most of its corridors and increasing the daily train service. The corridor extensions would grow the rail network to 333 miles and the increase in train frequency would result in 489 train starts per weekday by year 2020/2021 (termed as the Reference Case). The Reference Case traffic of 489 train starts per day is predicated on a significant capital infrastructure program which is not yet in place and has not been assessed systematically for operational feasibility.

As part of the overall regional planning, an airport shuttle service is being planned between Union Station and Pearson International Airport. The airport service will share the right-of-way with GO commuter trains on the Georgetown corridor. The plan is to initially operate the Airport Rail Link (ARL) service with a pair of diesel multiple unit (DMU) rail cars and then convert to an electrical multiple unit (EMU) operation if the Georgetown corridor is electrified.

In addition to the possibility of electrification, GO is interested in exploring other technology options and would like the consultants to carry out an assessment of all alternative forms of technology to power its trains. The alternative powering options that satisfied the key criteria of being a proven technology that is implementable within the Reference Case time period narrowed down to the following:

- Diesel-Electric Locomotives (Base Case);
- Electric Locomotives;
- Diesel Multiple Units;
- Electric Multiple Units; and
- Dual-Mode Locomotives.

An assessment of these technologies is being carried out at the Reference Case traffic level. As part of this assessment, it is necessary to develop the GO operating scenario for the Reference Case in order to develop an estimate of the number of train sets required, peak load, and energy requirements to operate the projected service. The operating scenario was developed specifically for this study and was based on numerous assumptions (such as the location of overnight train storage etc.) which are subject to further planning and analysis. The operating scenario, peak load and energy requirements are the key inputs in sizing and spacing of the electric substations.

The analysis showed that a total of 92 train sets are needed to operate the GO Reference Case service and four train sets are needed for the ARL service (excluding spares/standby). The weekday system energy requirement for GO train operation with the diesel-electric locomotive and ARL trains with DMU is estimated at 58,320 imperial gallons (including hotel power and 10% allowance for train idling).

An operations analysis was carried out to estimate the transit time difference/savings in the train operation with the different technology options. The transit time difference arises principally from the difference in the hauling capacity of the different technologies. Train operation with a Tier-4 compliant

MP40 diesel-electric locomotive or equivalent is the base against which the transit times with the alternate technologies are compared. EMUs have significantly higher pulling capacity compared to diesel-electric locomotive throughout the full operating range of GO trains and hence offer the highest savings in transit time. With EMUs, the estimated savings are approximately 10 to 20 minutes for most of the corridors.

The electric locomotive has a somewhat higher pulling capacity in the mid to upper speed range but an inferior pulling capacity in the lower speed range and therefore offers little savings in transit time. With the electric locomotives, the estimated savings are approximately 4 to 8 minutes for most of the corridors. The dual-mode locomotive in the diesel mode is very similar to an MP40 locomotive in most respects and has no transit time savings, while the dual-mode locomotive in the electric mode offers minimal savings due to its similar pulling effort compared to a MP40 unit (but not as much as an electric locomotive). With the dual-mode locomotive in the electric mode, the estimated savings are approximately 2 to 6 minutes for most of the corridors.

The following sections provide a summary of the railway operations analysis and various steps, methodology and key assumptions made in the development of the operating scenario. It should be noted that the developed scenario is conceptual in nature and a number of assumptions were made to enable the development of the plan within the time frame allowed for this study. The main purpose of this operating scenario was to provide a basis for the comparative exercise of different propulsion technologies for the electrification study. A detailed assessment is needed to refine the operating scenario needed for future implementation.

1. DEVELOPMENT OF THE OPERATING SCENARIO

The objective of this exercise was to develop a weekday timetable at a conceptual level to set the upper limit on the peak load and size of the substations required. The main purpose of this schedule was to provide a basis for the comparative exercise for the electrification study. A second objective was to develop the number of train sets required and the train set cycling including overnight and midday staging to serve the proposed timetable concept.

The steps in the development of the operating scenario and the operation analysis were:

- Developing the timetable for the Reference Case;
- Conducting a string line diagram analysis of the timetable to verify and validate that the timetable meets the key requirements such as minimum headway between trains on each corridor and the projected transit time performance; and
- Determining the number of train sets required and the train set cycling. As part of the cycling, also determining the non-revenue moves including overnight and mid-day staging to serve the proposed timetable and as input, to estimate peak load and energy demand for revenue and non- revenue moves.

Each of these steps is discussed in the following sections of the report following a brief overview of the GO current and Reference Case train operation.

1.1. Overview of GO Current & Reference Case Train Operation

GO operates over seven corridors that are Lakeshore West (LKW), Lakeshore East (LKE), Milton (MLL), Georgetown (GTL), Barrie (BER), Richmond Hill (RI) and Stouffville (STL). Union Station is the hub of GO services. The system map is provided in Figure 1. With the exception of Lakeshore West and Lakeshore East that have mid-day train service, the other corridors have train operation only during morning and afternoon rush hour periods and early morning and early evening off-peak periods. Furthermore, only Lakeshore West and East have counter-peak service. A summary of the current daily weekday train frequency, corridor length and typical transit time for local trains on each corridor is provided in Table 1.

Figure 1 – GO Transit System Map

Table 1 – Summary of GO Transit Current Weekday Operation

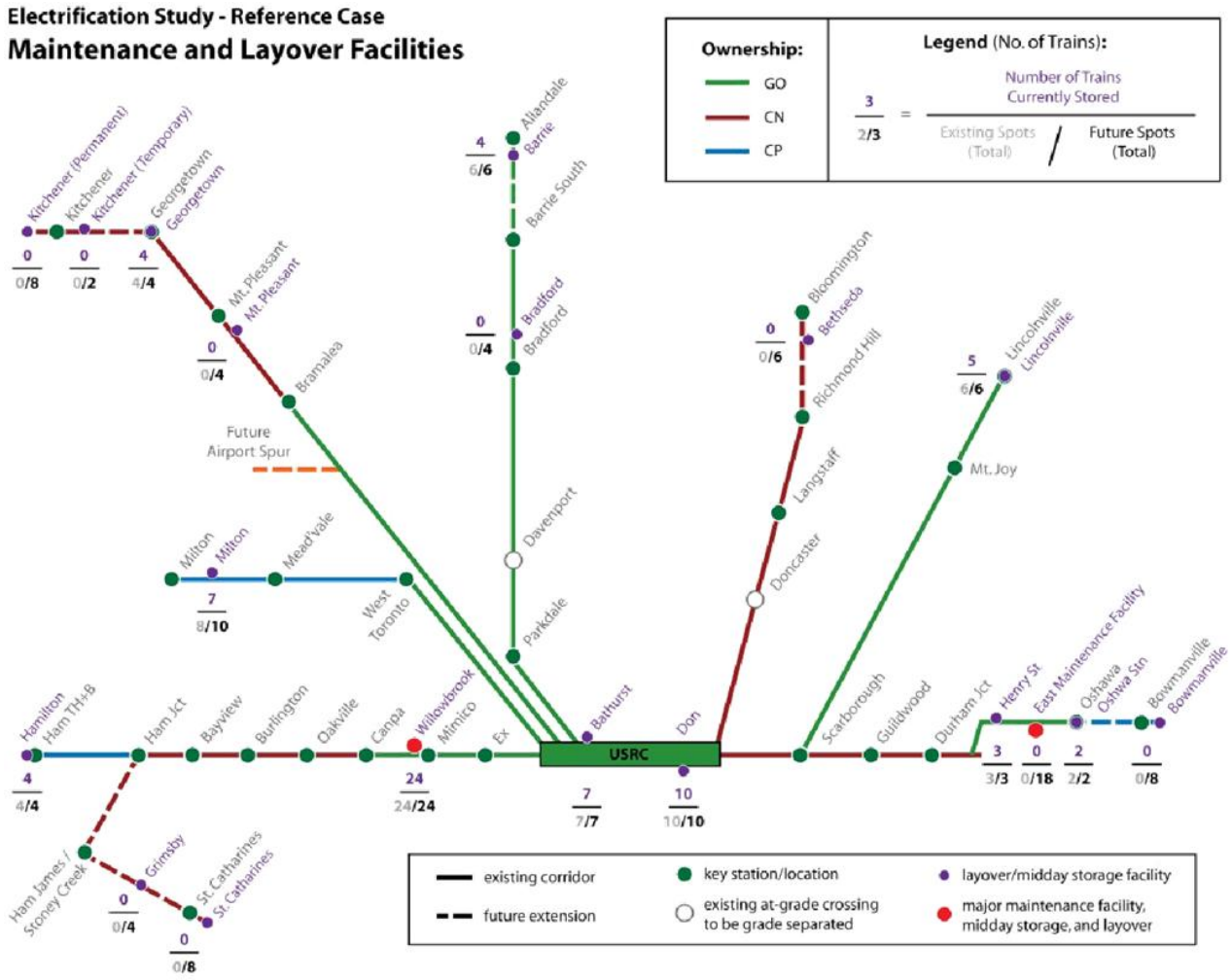
			Train Frequency				Local Train Transit Time			
							Inbound		Outbound	
Corridor	End Stations	Route Miles	AM Peak	PM Peak	Off-Peak	Total	# of Trains	Transit Time (min)	# of Trains	Transit Time (min)
Lakeshore West	Union Station - Hamilton	39.3	16	20	27	63	32	77	31	75
Lakeshore East	Union Station - Oshawa	31.6	17	21	25	63	33	63	30	58
Milton	Union Station - Milton	31.2	7	7	0	14	7	56	7	58
Georgetown	Union Station - Georgetown	29.3	7	6	0	13	7	66	6	63
Barrie	Union Station - Barrie South	59.5	4	4	0	8	4	98	4	100
Richmond Hill	Union Station - Richmond Hill	21	4	4	1	9	4	48	5	41
Stouffville	Union Station - Lincolnville	30.7	4	5	1	10	5	74	5	73
	Totals	242.6	59	67	54	180	92		88	

The GO rolling stock consists of 495 bi-level passenger cars and a fleet of 27 MP40 units and 29 F59PH units for a total of 56 locomotives. The typical make-up of the trains is one F59PH locomotive and 10 bi-level cars or one MP40 locomotive and 12 bi-level cars. The fleet is organized into 41 train sets excluding spares. The F59PH units are being phased out as new MP40 units are received. Ultimately the fleet will consist entirely of MP40 units that will be retrofitted to Tier 4 standard.

The rolling stock fleet is maintained at the Willowbrook maintenance facility. In addition to Willowbrook, with staging capacity of 24 trains, the fleet is stored overnight at or near the end station on most of the corridors to begin the morning service. The seven outpost locations are Oshawa, Whitby, Hamilton TH&B, Milton, Georgetown, Barrie South and Lincolnville for a combined capacity of 29 trains. The trains are held at three staging facilities in the proximity of Union Station during the mid-day period to facilitate the ready flow of trains to Union Station for the afternoon service. The three mid-day storage facilities are Bathurst Yard, Don Yard and Willowbrook for a total capacity of 41 trains.

For a breakdown of the staging capacity at each location for the current and Reference Case, please refer to the map in Figure 2.

Figure 2 – Capacity Overview of GO Staging Facilities - Current and Reference Case



GO is proposing to extend the service on five of the seven corridors. The extension sections are shown in the network diagram provided in Figure 3 on page 4. As a result of these extensions, the GO network would grow to 333 miles. In conjunction with extending the network, GO is planning to increase the train frequency on each corridor to 489 train starts per weekday over the entire network (the Reference Case scenario). This represents a huge increase and near tripling of the current service (489 vs. 180 train starts). A summary of the GO service for the Reference Case scenario is provided in Table 2.

Figure 3 – GO Transit System Map – Reference Case

Table 2 – Summary of GO Transit Reference Case Weekday Operation

							Local Train Transit Time			
			Train Frequency				Inbound		Outbound	
Corridor	End Stations	Route Miles	AM Peak	PM Peak	Off-Peak	Total	# of Trains	Transit Time (min)	# of Trains	Transit Time (min)
Lakeshore West	Union Station - St. Cath. / Ham. TH&B	73.8	26	30	48	104	52	119	52	119
Lakeshore East	Union Station - Bowmanville	43	23	27	48	98	49	81	49	83
Milton	Union Station - Milton	31.2	17	21	24	62	30	57	32	57
Georgetown	Union Station - Kitchener	62.6	17	20	24	61	30	109	31	114
Barrie	Union Station - Allandale	63	13	16	24	53	26	102	27	104
Richmond Hill	Union Station - Bloomington	28.5	12	16	24	52	25	55	27	56
Stouffville	Union Station - Lincolnville	30.7	15	20	24	59	28	66	31	68
	Totals	332.8	123	150	216	489	240		249	

As displayed in Table 2, there is a large increase in service for the Reference Case. This is in large part due to the introduction of hourly off-peak[1] service in each direction (two 6-hour periods) on Barrie, Milton, Georgetown, Richmond Hill and Stouffville and the expansion of current hourly service to half hourly service over Lakeshore East and West. The second biggest source of increase is the growth in the number of trains during the morning and afternoon peak periods. Finally, the third and smallest source is the increase in the number of trains in the counter-peak direction. Note that currently two of the corridors (Barrie and Milton) do not have any off-peak service and three corridors, Georgetown, Richmond Hill and Stouffville, each have a single train during the off-peak period.

Although the increase in train frequency during the morning and afternoon peak periods is not as large as during the off-peak periods, it has the most impact on the train operation (fleet size, infrastructure requirements, etc.). Even a small increase in train frequency during the peak period has significant impact because Union Station and its access tracks are already operating at or near the limit of their capacity. Furthermore, the Union Station platform track occupancy is at a premium at current levels and handling any increase, even a small one, requires careful planning, slotting of trains and platform allocation. The train frequency during the morning and afternoon peaks is the main determinant of the fleet size and the peak energy load and size of the substations. Hence the projected changes in the morning and afternoon peak will require a large increase in the number of train sets.

1.2. Designing the Timetable for the Reference Case

The first step in the development of the prototype timetable is to have a calibrated train performance calculator (TPC) model to estimate the transit time performance of the trains. To this end, the CANAC RAILS2000 [2] TPC model was calibrated against the current GO timetable.

In order to undertake TPC simulations of the seven different corridors, the track profile of each corridor (such as grade and curvature) over each section and station locations (mileposts) were coded. The current operating speed limits including slow orders over the various sections of the track were obtained from the corridor timetables. The source of the track data was CN track charts, CN and CP timetables, Google Earth maps, the BCA Report (October 2009), Oshawa Feasibility Study (April 2009) and Milton Corridor Expansion Feasibility Study (July 2009). The characteristics of the MP40 locomotive and bi-level cars were also coded.

The current GO schedule is based on an MP40 locomotive hauling 12 bi-level cars. The performance of an MP40 locomotive with 12 bi-level cars was simulated and the transit time results were compared to the current schedule for each corridor with the current end stations. Station to station times and full trip transit times were compared. The transit time comparison was done by adding an allowance of 4% to the TPC determined time between stations and an additional 4% allowance of the total journey time for the last station, assuming 30 seconds dwell at each stop. The train departure at intermediate stations was rounded up or down to the nearest minute. A number of iterations were carried out by adjusting

[1] Off-peak refers to two periods: a six-hour period during mid-day between the morning and afternoon peak periods and a six-hour period during the evening following the afternoon peak

[2] CANAC proprietary software for capacity planning

the TPC parameters. The set of parameters that yielded the best results/closest match with the current train schedule on the different corridors was determined and used in all subsequent simulations.

It was determined that the Base Case train make-up for the electrification study was an MP40 locomotive and 10 bi-level cars. With the calibrated TPC model, train simulations were done for the local and express trains with 10 bi-level cars by including the extension sections on each corridor. The methodology developed in the calibration exercise was applied to the TPC transit time to develop the zero-based train schedule for local and express 10 car trains in each direction for each corridor. This library of train schedules for different types of trains was used in developing the Reference Case timetable. The zero-based train schedules for each corridor with the calibrated model are provided in Appendix A.

Designing the timetable entails resolving multiple conflicting factors, some of which are:

1. Providing best possible service to the riders;
2. Ensuring safety of train operation and having safe headway built into the schedule at all times;
3. Having some catch-up capability in the schedule including capacity to recover from normal variability in train operation and having some capacity to handle disruptions that can occur occasionally;
4. Designing cycling of equipment in a way that minimizes the number of train sets needed to provide the service;
5. Making efficient use of resources and scarce infrastructure e.g. the capacity of Union Station and its access tracks are a critical limitation; most efficient use of their capacity is paramount; and
6. Reducing the number of non-revenue moves, train-miles and hours.

1.3. Assumptions for Developing The Timetable & the Operating SCENARIO

A number of assumptions were made in developing the timetable and the operating scenario.

GO has developed plans to undertake a number of capacity improvement projects in anticipation of the expected increase in the train traffic. An overview of the GO infrastructure for the Reference Case with the planned enhancements is provided in Figure 4. A key assumption in the timetable is that there would be sufficient infrastructure enhancement on each of the seven corridors including the Union Station Rail Corridor (USRC) and Union Station itself to handle the Reference Case train volume.

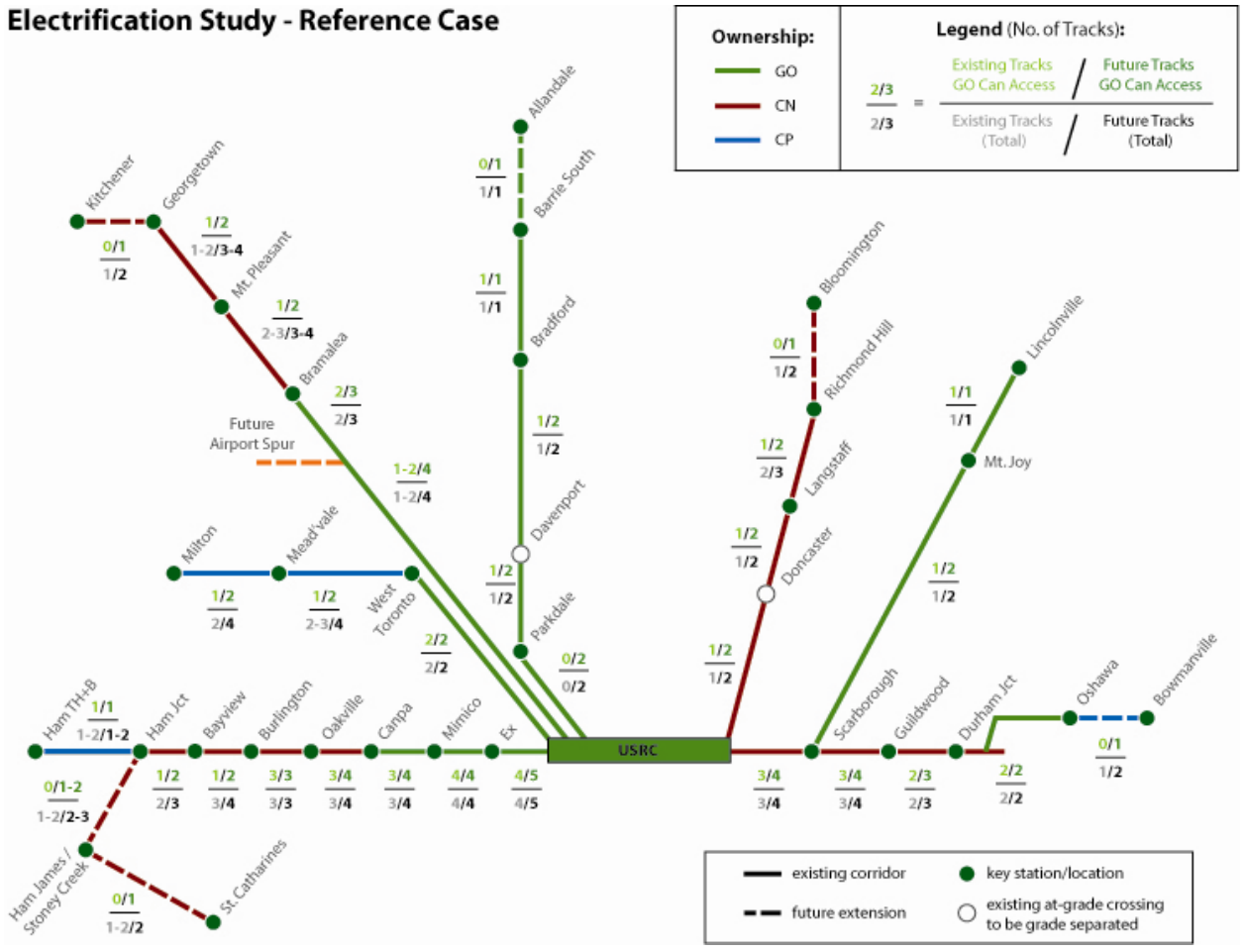
The timetable was based on the zero-based train schedule developed for each type of train with the calibrated TPC. GO guidelines on the train frequency, number of local and express trains desired on each corridor in each direction and in each time period of the day, were used to set the train frequency.

Other assumptions are listed below:

1. GO weekday timetable for the seven corridors would be developed using the guidelines on the number of trains desired during the AM and PM peak and off-peak period on each corridor as provided in the GO Planning Draft 2 spreadsheets, dated April 28, 2010.

2. The proposed enhancements to the Union Station platform/access tracks capacity and the infrastructure on the seven corridors would be such so as to enable the operation of the Reference Case traffic volume.

Figure 4 – Overview of Reference Case GO System Infrastructure



3. The developed schedule would essentially be conceptual in nature e.g., if there are six trains in an hour, the trains would be slotted roughly 10 minutes apart.

4. An attempt would be made to properly space arriving and departing trains to and from Union Station, but capacity limits at Union Station would be ignored.

5. The developed schedule would not be tested or refined to eliminate conflicts in the use of the shared track sections including the use of access tracks or platforms by trains from the different corridors.

6. An attempt would be made to rationally allocate and assign train sets to minimize the non-revenue moves and overall number of train sets required. However, a detailed analysis would not be carried out to optimize the use and number of train sets.

7. Bathurst, Don Yard, Willowbrook and the new maintenance facility at Whitby will be used for mid-day layover storage.

8. The full staging capacity at the new end stations would be used for overnight storage to provide the morning service.

9. In order to avoid conflicts between local and express trains, it will be assumed that at least on portions of the network, express trains can run on dedicated track. To this end, four tracks between Oakville and Union Station (Lakeshore West corridor) will be used as follows: 2 tracks will accommodate local trains, 1 track will be used to separate express from local trains, and the fourth track will be used to accommodate equipment moves. On Lakeshore East, there will be 3 tracks between Pickering and Union Station; 2 will be used to run local trains while the third will accommodate express trains.

10. On the Georgetown line, ARL trains will generally run on 2 of the 4 tracks but shared with GO/VIA as needed to accommodate counter-peak movements. It will be assumed that GO trains will have priority, and VIA trains will be scheduled around GO trains.

11. A provision for increased capacity would permit separation of GO and freight/VIA traffic at key locations. For example, there will be four tracks between West Toronto and Milton. Two of these tracks will be dedicated to GO service and two tracks will be available to run CP freight trains.

12. CN/CP/ONR and VIA trains will not be electrified and will work around the GO commuter schedule on shared corridors, if any. The sizing of the power supply for the GO electrification assumes CN/CP/ONR and VIA trains will continue to operate using diesel propulsion.

13. The base case train make-up is one Tier-4 compliant MP40 locomotive unit (or equivalent) and 10 bi-level cars.

14. No change in maximum allowable speeds of GO trains.

15. For the morning rush hour service, 10 staging spots are available at Kitchener, or two more than proposed in the Metrolinx layover facilities plans dated April, 2010.

16. A total of 8 staging spots are assumed at Stoney Creek, or four more than proposed in the Metrolinx layover facilities plans dated April, 2010.

17. A passing siding is assumed at approximately MP 40 in the vicinity of the Stouffville station for the positioning move of a train set for the morning service from Lincolnville.

18. In double track sections on Richmond Hill and Lakeshore East where one track is reserved for GO and the other for freight service, it is assumed that the freight track can be used during the morning rush hour period for train set positioning moves.

19. Due to capacity constraints on the Lakeshore East corridor and the inability to punctually bring train sets to Union Station for the afternoon peak service, 10 additional staging spots are assumed at Don Yard for mid-day storage for a net of 20 staging spots at Don Yard.

20. Train cycles assume a minimum turn-around time of 15 minutes at the outpost; this is used for determining and optimizing the number of train sets required.

21. The minimum turn-around time at Union Station is 10 minutes and for through trains, the minimum dwell time is 5 minutes.

22. ARL train transit time in each direction between Union Station and the airport is 25 minutes. Five minutes are needed to switch ends and begin reverse moves at both end stations for a total cycle time of 60 minutes.

23. ARL train sets would be stored overnight at the Willowbrook facility.

24. ARL trains would operate for 17.5 hours each day at 15 minute intervals for a total of 70 revenue moves in each direction plus non-revenue moves for a total of 148 moves per day (140 revenue + 8 non-revenue).

As stated earlier, in developing the timetable, GO guidelines were followed in terms of the number of train starts d each time period for each of the corridors. The trains were uniformly distributed based on specified hourly frequency. The local and express trains, if any, on each corridor, were slotted so as to maintain a minimum time separation of five minutes between trains. The timetable for individual corridors was optimized to balance the train flow at Union Station and integrate with the timetables of the other corridors.

The timetable for the ARL trains between Union Station and Pearson International Airport was developed using the high level parameters provided for this service. The parameters that were used to develop the service included:

- 25 minute transit time in each direction;
- 5 minute turn time for the train sets at Union Station and at the airport;
- 15 minute intervals between trains both from Union Station and the airport;
- ARL train sets staged at the Willowbrook facility; and
- Nominal hours of operation from Union Station to the airport from 6:30 AM to midnight each day.

The timetable for the seven GO corridors and for the ARL airport shuttle service is provided in Appendix B. By corridor, the station abbreviations used are as follows:

- Lakeshore West: HJ (Hamilton-James), THB (Hamilton TH&B), St.C (St. Catharines), Oak (Oakville) and Ald (Aldershot);

- Lakeshore East: OSH2 (Oshawa 2 (Bloor)), WHY (Whitby), BOW (Bowmanville) and PIC (Pickering North);
- Milton: MLT (Milton) and MEA (Meadowvale);
- Georgetown: BRA (Bramalea), MP (Mount Pleasant) and KIT (Kitchener);
- Barrie: ALL (Allandale) and BRA (Bradford);
- Richmond Hill: RIC (Richmond Hill) and BLO (Bloomington);
- Stouffville: MT (Mount Joy) and ST (Stouffville).

1.4. String Diagram Analysis of the Timetable

The timetable was developed through an iterative process by reviewing the results in the string line diagram. String lines of the train schedule for each of the corridors were plotted throughout the timetable development process. The string line diagram was used to ensure that the proposed timetable met all of the constraints and the train schedules did not violate any guidelines such as the minimum safe time separation between trains on each of the corridors.

The string line diagram was also used to map out the strategy for assigning train sets to operate the schedule. The string line diagram of the finalized timetable was used as the starting point to assign train sets and to determine the non-revenue moves required. The Reference Case string line diagram for the seven corridors including the ARL service is provided in Appendix C.

1.5. Train Set Requirements and Train Cycling

The string line diagram of the seven corridors was used to assign train sets to each and every revenue move and show the train set cycling for the non-revenue moves. A high level attempt was undertaken to optimize equipment cycling in order to reduce the number of equipment sets needed while fully respecting all of the operating constraints such as the minimum turn time required at the outposts and for through and reversing trains at Union Station. A number of iterations were carried out by assigning the train sets to run the different legs and the assignments that yielded the lowest number of train sets were summarized in the spreadsheet provided in Appendix D.

Special consideration was provided to platform occupancy at Union Station, which was considered a bottleneck. Running of the equipment set through Union Station rather then turning it around, saved 5 minutes in occupancy time for each train, and in some cases optimized equipment cycling. To this end, the Lakeshore East and Lakeshore West were linked to have run-through service as much as possible. Assumptions made relative to train cycling procedures were developed in relation to the main corridor operation and did not consider Union Station operations. As such, the derived cycling patterns may not be optimal in terms of USRC track allotment and midday storage requirements.

To run the GO Reference Case schedule, a total of 92 train sets are required. A total of four train sets are required for ARL service (five including one standby). The combined number of train sets required for the Lakeshore East and Lakeshore West corridors and the breakdown of the number of train sets required for each of the remaining five corridors is shown in Table 3. The details related to the cycling of each train set are provided in Appendix D.

Table 3 – Train Set Count by Corridor

Corridor	MP40 Diesel-Electric Loco & 10 bi-level cars
Lakeshore West & Lakeshore East	37
Milton	11
Georgetown	14
Richmond Hill	7
Barrie	11
Stouffville	12
Total - GO System	92
ARL -Airport Rail Link Service	4

2. OPERATIONS ANALYSIS AND TRANSIT TIME COMPARISONS WITH DIFFERENT TECHNOLOGY OPTIONS

2.1. Transit Time Comparison with Different Technology Options

Performance characteristics including weight, dispatch adhesion and tractive and dynamic braking effort of the EMU, electric locomotive, and the dual-mode locomotives with both the diesel and electric mode of operation were coded into the train performance simulation model. The train performance was simulated with each of these powering options with the 10-bi-level cars and in the case of the EMU, with 12 units to have equivalent passenger capacity.

Transit time results for end-to-end routes with different technology options are compared against the base case and provided in Table 4. EMUs have significantly higher pulling capacity compared to diesel-electric locomotives throughout the full operating range of GO trains and hence offer the highest savings in transit time. With EMUs, the estimated savings are approximately 10 to 20 minutes for most of the corridors. The electric locomotive has a somewhat higher pulling capacity in the mid to upper speed range but a lower pull in the lower speed range and therefore offers small savings in transit time. With the electric locomotives, the estimated savings are approximately 4 to 8 minutes for most of the corridors. The dual-mode locomotive in the diesel mode is very similar to an MP40 locomotive in most respects and has no transit time savings, while the dual-mode locomotive in the electric mode offers some savings due to its superior pulling effort compared to a MP40 unit (but not as much as an electric locomotive). With the dual-mode locomotive in the electric mode, the estimated savings are approximately 2 to 6 minutes for most of the corridors.

Transit time savings for local and express trains with the electric and EMU options for different stations on each corridor are given in Appendix 5F.

Table 4 – Transit Time Comparison with Different Technology Options (10 bi-level cars)

Transit Time Comparison Summary Table - Different Technology Options

		Lakeshore West - St. Catherine				LW - Aldershot		Lakeshore West - Hamilton TH&B				Lakeshore East				Milton		Georgetown			Barrie		Richmond Hill		Stouffville	
Option	Consist Detail	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)
1	Diesel Loco-Hauled Cars : MP40 Loco + 10 Cars (Base Case)	119	119	102	102	45	46	76	75	58	59	81	83	65	66	57	57	109	114	98	102	104	55	56	66	68
2	Electric Loco-Hauled Cars : Electric Loco + 10 Cars	111	111	95	95	41	42	69	69	54	54	75	75	59	59	54	53	102	103	94	98	98	55	55	65	65
3	EMU Train : 6 Powered Cars + 6 Unpowered Cars	99	99	88	88	36	37	59	59	48	48	65	65	54	54	48	48	95	96	89	90	90	51	51	60	60
4	Dual Mode Loco- 10 Hauled Cars - Diesel Loco	119	119	101	102	45	46	75	75	58	58	82	82	65	66	56	56	108	113	95	102	103	55	56	66	68
5	Dual Mode Loco- 10 Hauled Cars - Electric Loco	115	115	98	98	43	44	73	73	56	57	78	78	60	60	55	54	104	107	95	100	100	55	55	65	66

Transit Time Savings Over Base Case

		Lakeshore West - St. Catherine				LW - Aldershot		Lakeshore West - Hamilton TH&B				Lakeshore East				Milton		Georgetown			Barrie		Richmond Hill		Stouffville	
Option	Consist Detail	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Out - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)	In - Exp (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)	Inbound (Minutes)	Outbound (Minutes)
2	Electric Loco-Hauled Cars : Electric Loco + 10 Cars	8	8	7	7	4	4	7	6	4	5	6	8	6	7	3	4	7	11	4	4	6	0	1	1	3
3	EMU Train : 6 Powered Cars + 6 Unpowered Cars	20	20	14	14	9	9	17	16	10	11	16	18	11	12	9	9	14	18	9	12	14	4	5	6	8
4	Dual Mode Loco- 10 Hauled Cars - Diesel Loco	0	0	1	0	0	0	1	0	0	1	0	1	0	0	1	1	1	1	3	0	1	0	0	0	0
5	Dual Mode Loco- 10 Hauled Cars - Electric Loco	4	4	4	4	2	2	3	2	2	2	3	5	5	6	2	3	5	7	3	2	4	0	1	1	2

2.2. Weekday Fuel Consumption, Train-miles and Ton-Miles for Reference Case

Using the TPC, an estimate of fuel consumption was determined for each train type on each of the corridors for the local and express trains, in both the revenue and non-revenue category. The train-miles and ton-miles for each train type in revenue and non-revenue moves were determined from the trip length and train weight. The estimate of fuel consumption and the train-miles and ton-miles for each train type were applied to the number of trains of each type operated on each weekday and on each corridor.

The fuel consumption estimate for the GO service in 489 revenue moves on each weekday is 48,450 imperial gallons and 7,870 imperial gallons for the 216 non-revenue moves. The fuel consumption estimate for the weekday ARL service is 1,960 imperial gallons. The total weekday system energy requirement for GO train operation with the diesel-electric locomotive and ARL trains with DMU is estimated at 58,320 imperial gallons (including hotel power and 10% allowance for train idling). The detailed estimates by train type and the number of trains operated for each type in each of the corridors for revenue and non revenue moves are provided in Appendix E.

The weekday train-miles and ton-miles statistics by train type, corridor and system for non-revenue and revenue service for GO and ARL are also provided in Appendix E.

APPENDIX 5A – ZERO-BASED TRAIN SCHEDULE FOR THE SEVEN CORRIDORS AND ARL WITH CALIBRATED TPC MODEL

Lakeshore West & St. Catherines - Outbound															
	Union Station	**Exhibition**	**Mimico**	**Long Branch**	**Port Credit**	**Clarkson**	**Oakville**	**Bronte**	**Appleby**	**Burlington**	**Aldershot**	**Hamilton-James**	**Stoney Creek**	**Grimsby**	**St. Catherines**
Milepost	**0.0**	**2.0**	**6.7**	**9.6**	**12.8**	**16.7**	**21.4**	**24.7**	**27.9**	**31.5**	**34.6**	**39.3 / 43.7**	**37.6**	**27.4**	**11.8**
Cumulative TPC Time (min)	0.00	4.25	10.33	15.23	19.97	25.43	31.65	36.62	41.57	46.79	51.66	60.10	72.28	83.62	99.91
TPC Run time Segment (min)	0.0	4.3	6.1	4.9	4.7	5.5	6.2	5.0	5.0	5.2	4.9	8.4	12.2	11.3	16.3
TPC Run time Segment + 4% (min)	0.0	4.4	6.3	5.1	4.9	5.7	6.5	5.2	5.2	5.4	5.1	8.8	12.7	11.8	16.9
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	4.4	6.3	5.1	4.9	5.7	6.5	5.2	5.2	5.4	5.1	8.8	12.7	11.8	21.1
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	4.9	6.8	5.6	5.4	6.2	7.0	5.7	5.7	5.9	5.6	9.3	13.2	12.3	21.6
RoundUp To Nearest Minute (min)	0	5	7	6	6	6	7	6	6	6	6	10	13	13	22
New Schedule Time (based on TPC)	**0**	**5**	**12**	**18**	**24**	**30**	**37**	**43**	**49**	**55**	**61**	**71**	**84**	**97**	**119**

Lakeshore West & St. Catherines - Inbound															
	St. Catherines	**Grimsby**	**Stoney Creek**	**Hamilton-James**	**Aldershot**	**Burlington**	**Appleby**	**Bronte**	**Oakville**	**Clarkson**	**Port Credit**	**Long Branch**	**Mimico**	**Exhibition**	**Union Station**
Milepost	**11.8**	**27.4**	**37.6**	**43.7 / 39.3**	**34.6**	**31.5**	**27.9**	**24.7**	**21.4**	**16.7**	**12.8**	**9.6**	**6.7**	**2**	**0**
Cumulative TPC Time (min)	0.00	16.25	27.60	39.77	48.63	53.38	58.63	63.54	68.53	74.86	80.13	84.93	89.81	95.75	99.80
TPC Run time Segment (min)	0.0	16.3	11.4	12.2	8.9	4.8	5.2	4.9	5.0	6.3	5.3	4.8	4.9	5.9	4.0
TPC Run time Segment + 4% (min)	0.0	16.9	11.8	12.6	9.2	4.9	5.5	5.1	5.2	6.6	5.5	5.0	5.1	6.2	4.2
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	16.9	11.8	12.6	9.2	4.9	5.5	5.1	5.2	6.6	5.5	5.0	5.1	6.2	8.4
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	17.4	12.3	13.1	9.7	5.4	6.0	5.6	5.7	7.1	6.0	5.5	5.6	6.7	8.9
RoundUp To Nearest Minute (min)	0	18	13	13	10	6	6	6	6	7	6	6	6	7	9
New Schedule Time (based on TPC)	**0**	**18**	**31**	**44**	**54**	**60**	**66**	**72**	**78**	**85**	**91**	**97**	**103**	**110**	**119**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore West & Hamilton TH&B - Outbound												
	Union Station	**Exhibition**	**Mimico**	**Long Branch**	**Port Credit**	**Clarkson**	**Oakville**	**Bronte**	**Appleby**	**Burlington**	**Aldershot**	**Hamilton-TH&B**
Milepost	**0**	**2**	**6.7**	**9.6**	**12.8**	**16.7**	**21.4**	**24.7**	**27.9**	**31.5**	**34.6**	**57.5**
Cumulative TPC Time (min)	0.00	4.25	10.33	15.23	19.97	25.43	31.65	36.62	41.57	46.79	51.66	62.26
TPC Run time Segment (min)	0.0	4.3	6.1	4.9	4.7	5.5	6.2	5.0	5.0	5.2	4.9	10.6
TPC Run time Segment + 4% (min)	0.0	4.4	6.3	5.1	4.9	5.7	6.5	5.2	5.2	5.4	5.1	11.0
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	4.4	6.3	5.1	4.9	5.7	6.5	5.2	5.2	5.4	5.1	13.6
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	4.92	6.83	5.60	5.42	6.19	6.97	5.67	5.65	5.93	5.56	14.12
RoundUp To Nearest Minute (min)	0	5	7	6	6	6	7	6	6	6	6	14
New Schedule Time (based on TPC)	**0**	**5**	**12**	**18**	**24**	**30**	**37**	**43**	**49**	**55**	**61**	**75**

Lakeshore West & Hamilton TH&B - Inbound												
	Hamilton-TH&B	**Aldershot**	**Burlington**	**Appleby**	**Bronte**	**Oakville**	**Clarkson**	**Port Credit**	**Long Branch**	**Mimico**	**Exhibition**	**Union Station**
Milepost	**57.5**	**34.6**	**31.5**	**27.9**	**24.7**	**21.4**	**16.7**	**12.8**	**9.6**	**6.7**	**2**	**0**
Cumulative TPC Time (min)	0.00	10.86	15.61	20.86	25.77	30.75	37.09	42.36	47.16	52.04	57.98	62.03
TPC Run time Segment (min)	0.00	10.86	4.75	5.25	4.91	4.98	6.33	5.27	4.80	4.88	5.94	4.05
TPC Run time Segment + 4% (min)	0	11.30	4.94	5.46	5.11	5.18	6.59	5.48	4.99	5.08	6.18	4.21
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	11.30	4.94	5.46	5.11	5.18	6.59	5.48	4.99	5.08	6.18	6.79
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	11.8	5.4	6.0	5.6	5.7	7.1	6.0	5.5	5.6	6.7	7.3
RoundUp To Nearest Minute (min)	0	12	6	6	6	6	7	6	6	6	7	8
New Schedule Time (based on TPC)	**0**	**12**	**18**	**24**	**30**	**36**	**43**	**49**	**55**	**61**	**68**	**76**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Richmond Hill - Outbound							
	Union Station	**Oriole**	**Old Cummer**	**Langstaff**	**Richmond Hill**	**Stouffville**	**Bloomington**
Milepost	**0.0**	**12.2**	**14.1**	**18.3**	**21.0**	**26.3**	**28.5**
Cumulative TPC Time (min)	0.00	21.21	24.78	31.08	35.66	43.25	47.49
TPC Run time Segment (min)	0	21.21	3.57	6.30	4.58	7.59	4.24
TPC Run time Segment + 4% (min)	0	22.06	3.71	6.55	4.76	7.90	4.41
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	22.06	3.71	6.55	4.76	7.90	6.39
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	22.6	4.2	7.1	5.3	8.4	6.9
RoundUp To Nearest Minute (min)	0	23	4	7	6	9	7
New Schedule Time (based on TPC)	**0**	**23**	**27**	**34**	**40**	**49**	**56**

Richmond Hill - Inbound							
	Bloomington	**Stouffville**	**Richmond Hill**	**Langstaff**	**Old Cummer**	**Oriole**	**Union Station**
Milepost	**28.5**	**26.3**	**21**	**18.3**	**14.1**	**12.2**	**0**
Cumulative TPC Time (min)	0.00	4.26	11.55	16.05	22.10	25.70	47.05
TPC Run time Segment (min)	0	4.26	7.28	4.50	6.06	3.60	21.34
TPC Run time Segment + 4% (min)	0	4.43	7.57	4.68	6.30	3.74	22.20
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	4.43	7.57	4.68	6.30	3.74	24.15
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	4.93	8.19	5.18	6.80	4.24	24.65
RoundUp To Nearest Minute (min)	0	5	8	5	7	5	25
New Schedule Time (based on TPC)	**0**	**5**	**13**	**18**	**25**	**30**	**55**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Barrie - Outbound												
	Union Station	Downsview (York)	Rutherford	Maple	King City	Aurora	Newmarket	East Gwillimbury	Bradford	Innisfil	Barrie South	Allandale
Milepost	**0**	**10.9**	**16.7**	**18.3**	**22.7**	**29.9**	**34.2**	**35.5**	**41.5**	**51.9**	**59.5**	**63**
Cumulative TPC Time (min)	0.00	14.86	22.98	26.36	33.63	42.69	48.60	51.43	59.13	70.54	80.13	88.07
TPC Run time Segment (min)	0	14.86	8.12	3.38	7.26	9.06	5.92	2.82	7.70	11.42	9.58	7.94
TPC Run time Segment + 4% (min)	0	15.46	8.44	3.52	7.55	9.42	6.15	2.94	8.01	11.87	9.97	8.26
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	15.46	8.44	3.52	7.55	9.42	6.15	2.94	8.01	11.87	9.97	11.92
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	15.96	8.94	4.02	8.05	9.92	6.65	3.44	8.51	12.37	10.47	12.42
RoundUp To Nearest Minute (min)	0	16	9	4	8	10	7	4	9	13	11	13
New Schedule Time (based on TPC)	**0**	**16**	**25**	**29**	**37**	**47**	**54**	**58**	**67**	**80**	**91**	**104**

Barrie - Inbound												
	Allandale	Barrie South	Innisfil	Bradford	East Gwillimbury	Newmarket	Aurora	King City	Maple	Rutherford	Downsview (York)	Union Station
Milepost	**63**	**59.5**	**51.9**	**41.5**	**35.5**	**34.2**	**29.9**	**22.7**	**18.3**	**16.7**	**10.9**	**0**
Cumulative TPC Time (min)	0.00	7.71	18.06	28.96	36.83	39.71	45.84	55.42	62.06	65.61	73.39	86.80
TPC Run time Segment (min)	0	7.71	10.35	10.90	7.87	2.88	6.13	9.58	6.64	3.55	7.78	13.40
TPC Run time Segment + 4% (min)	0	8.02	10.76	11.34	8.18	3.00	6.37	9.96	6.91	3.69	8.10	13.94
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	8.02	10.76	11.34	8.18	3.00	6.37	9.96	6.91	3.69	8.10	17.55
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	8.5	11.2	11.8	8.7	3.5	6.9	10.5	7.4	4.2	8.6	18.0
RoundUp To Nearest Minute (min)	0	9	11	12	9	4	7	11	8	4	9	18
New Schedule Time (based on TPC)	**0**	**9**	**20**	**32**	**41**	**45**	**52**	**63**	**71**	**75**	**84**	**102**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore East - Outbound													
	Union Station	Danforth	Scarborough	Eglinton	Guildwood	Rouge Hill	Pickering North	Ajax	Whitby	Oshawa 1	Oshawa 2 (Bloor)	Courtice Road	Bowmanville (Martin)
Milepost	333.8	328.6	325.2	323.2	321.2	317.3	1	3.5	8.9	173.6	171.6	168.9	164.9
Cumulative TPC Time (min)	0.00	8.45	13.77	17.59	21.64	26.53	32.97	37.09	43.77	51.51	55.12	59.69	65.59
TPC Run time Segment (min)	0	8.45	5.32	3.82	4.05	4.88	6.44	4.12	6.68	7.74	3.62	4.57	5.90
TPC Run time Segment + 4% (min)	0	8.79	5.53	3.98	4.21	5.08	6.70	4.28	6.95	8.05	3.76	4.75	6.14
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	8.79	5.53	3.98	4.21	5.08	6.70	4.28	6.95	8.05	3.76	4.75	8.87
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	9.3	6.0	4.5	4.7	5.6	7.2	4.8	7.5	8.5	4.3	5.2	9.4
RoundUp To Nearest Minute (min)	0	10	6	5	5	6	8	5	8	9	5	6	10
New Schedule Time (based on TPC)	**0**	**10**	**16**	**21**	**26**	**32**	**40**	**45**	**53**	**62**	**67**	**73**	**83**

Lakeshore East - Inbound													
	Bowmanville (Martin)	Courtice Road	Oshawa 2 (Bloor)	Oshawa 1	Whitby	Ajax	Pickering North	Rouge Hill	Guildwood	Eglinton	Scarborough	Danforth	Union Station
Milepost	164.9	168.9	171.6	173.6	8.9	3.5	1	317.3	321.2	323.2	325.2	328.6	333.8
Cumulative TPC Time (min)	0.00	5.77	10.36	14.08	21.77	28.77	32.88	39.26	44.81	48.79	52.71	57.54	65.27
TPC Run time Segment (min)	0	5.77	4.60	3.72	7.69	7.00	4.11	6.38	5.55	3.98	3.92	4.83	7.74
TPC Run time Segment + 4% (min)	0	6.00	4.78	3.87	8.00	7.27	4.28	6.64	5.77	4.14	4.07	5.02	8.05
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.00	4.78	3.87	8.00	7.27	4.28	6.64	5.77	4.14	4.07	5.02	10.76
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	6.50	5.28	4.37	8.19	7.77	4.78	7.19	6.27	4.64	4.57	5.52	11.26
RoundUp To Nearest Minute (min)	0	7	6	5	8	8	5	7	7	5	5	6	12
New Schedule Time (based on TPC)	**0**	**7**	**13**	**18**	**26**	**34**	**39**	**46**	**53**	**58**	**63**	**69**	**81**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Georgetown - Outbound													
	Union Station	Bloor	Weston	Etobicoke N.	Malton	Bramalea	Brampton	Mount Pleasant	Georgetown	Acton	Guelph	Breslau	Kitchener
Milepost	**0**	**4**	**8.6**	**11**	**14.7**	**11.6**	**15.4**	**18.3**	**23.5**	**36.1**	**48.8**	**58.4**	**62.6**
Cumulative TPC Time (min)	0.00	6.57	13.50	18.01	25.57	29.87	35.81	40.59	47.69	57.49	70.96	87.91	94.33
TPC Run time Segment (min)	0	6.57	6.94	4.51	7.57	4.30	5.93	4.78	7.10	9.80	13.47	16.95	6.42
TPC Run time Segment + 4% (min)	0	6.83	7.21	4.69	7.87	4.47	6.17	4.98	7.38	10.19	14.01	17.62	6.68
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.83	7.21	4.69	7.87	4.47	6.17	4.98	7.38	10.19	14.01	17.62	10.60
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	7.33	7.71	5.21	8.37	4.97	6.67	5.48	7.88	10.69	14.51	18.21	11.21
RoundUp To Nearest Minute (min)	0	8	8	6	9	5	7	6	8	11	15	19	12
New Schedule Time (based on TPC)	**0**	**8**	**16**	**22**	**31**	**36**	**43**	**49**	**57**	**68**	**83**	**102**	**114**

Georgetown - Inbound													
	Kitchener	Breslau	Guelph	Acton	Georgetown	Mount Pleasant	Brampton	Bramalea	Malton	Etobicoke N.	Weston	Bloor	Union Station
Milepost	**62.6**	**58.4**	**48.8**	**36.1**	**23.5**	**18.3**	**15.4**	**11.6**	**14.7**	**11**	**8.6**	**4**	**0**
Cumulative TPC Time (min)	0.00	6.20	21.60	36.00	44.23	51.07	55.60	61.21	65.41	72.90	77.28	84.17	90.43
TPC Run time Segment (min)	0	6.20	15.40	14.40	8.23	6.84	4.53	5.61	4.20	7.49	4.38	6.89	6.26
TPC Run time Segment + 4% (min)	0	6.45	16.01	14.98	8.56	7.11	4.72	5.83	4.37	7.79	4.56	7.17	6.51
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.45	16.01	14.98	8.56	7.11	4.72	5.83	4.37	7.79	4.56	7.17	10.28
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	6.95	16.51	15.20	9.06	7.61	5.20	6.33	4.87	8.19	5.06	7.67	10.78
RoundUp To Nearest Minute (min)	0	7	17	15	9	8	6	7	5	8	5	8	11
New Schedule Time (based on TPC)	**0**	**7**	**24**	**39**	**48**	**56**	**62**	**69**	**74**	**82**	**87**	**95**	**109**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Stouffville - Outbound										
	Union Station	**Kennedy**	**Agincourt**	**Milliken**	**Unionville**	**Centennial**	**Markham**	**Mount Joy**	**Stouffville**	**Lincolnville**
Milepost	**333.8**	**59.5**	**55.5**	**52.9**	**50.7**	**48.5**	**47.0**	**45.8**	**40.6**	**38.8**
Cumulative TPC Time (min)	0.00	14.02	21.01	25.57	30.29	35.09	38.54	41.49	50.15	55.83
TPC Run time Segment (min)	0.00	14.02	6.98	4.57	4.72	4.80	3.46	2.94	8.66	5.68
TPC Run time Segment + 4% (min)	0	14.58	7.26	4.75	4.90	4.99	3.59	3.06	9.01	5.91
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	14.58	7.26	4.75	4.90	4.99	3.59	3.06	9.01	8.23
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	15.08	7.76	5.25	5.40	5.49	4.09	3.56	9.51	8.73
RoundUp To Nearest Minute (min)	0	15	8	6	6	6	4	4	10	9
New Schedule Time (based on TPC)	**0**	**15**	**23**	**29**	**35**	**41**	**45**	**49**	**59**	**68**

Stouffville - Inbound										
	Lincolnville	**Stouffville**	**Mount Joy**	**Markham**	**Centennial**	**Unionville**	**Milliken**	**Agincourt**	**Kennedy**	**Union Station**
Milepost	**38.8**	**40.6**	**45.8**	**47.0**	**48.5**	**50.7**	**52.9**	**55.5**	**59.5**	**333.8**
Cumulative TPC Time (min)	0.00	5.80	14.22	17.50	21.30	26.00	30.72	34.67	41.21	53.72
TPC Run time Segment (min)	0.00	5.80	8.42	3.28	3.80	4.70	4.72	3.95	6.53	12.51
TPC Run time Segment + 4% (min)	0	6.03	8.75	3.41	3.95	4.89	4.91	4.11	6.80	13.01
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.03	8.75	3.41	3.95	4.89	4.91	4.11	6.80	15.25
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	6.53	9.20	3.91	4.45	5.39	5.41	4.61	7.30	15.75
RoundUp To Nearest Minute (min)	0	7	9	4	5	6	6	5	8	16
New Schedule Time (based on TPC)	**0**	**7**	**16**	**20**	**25**	**31**	**37**	**42**	**50**	**66**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Milton - Outbound									
	Union Station	**Kipling**	**Dixie**	**Cooksville**	**Erindale**	**Streetsville**	**Meadowvale**	**Lisgar**	**Milton**
Milepost	**0**	**9.7**	**12.4**	**15.4**	**18.1**	**20.3**	**23.1**	**25.1**	**31.2**
Cumulative TPC Time (min)	0.00	13.30	17.67	22.17	26.92	30.82	35.45	39.50	46.63
TPC Run time Segment (min)	0	13.30	4.37	4.50	4.75	3.90	4.63	4.05	7.12
TPC Run time Segment + 4% (min)	0	13.83	4.54	4.68	4.94	4.06	4.82	4.21	7.41
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	13.83	4.54	4.68	4.94	4.06	4.82	4.21	9.35
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	14.3	5.0	5.2	5.4	4.6	5.3	4.7	9.8
RoundUp To Nearest Minute (min)	0	15	5	5	6	5	6	5	10
New Schedule Time (based on TPC)	**0**	**15**	**20**	**25**	**31**	**36**	**42**	**47**	**57**

Milton - Inbound									
	Milton	**Lisgar**	**Meadowvale**	**Streetsville**	**Erindale**	**Cooksville**	**Dixie**	**Kipling**	**Union Station**
Milepost	**31.2**	**25.1**	**23.1**	**20.3**	**18.1**	**15.4**	**12.4**	**9.7**	**0**
Cumulative TPC Time (min)	0.00	7.10	11.18	15.90	19.81	24.58	29.04	33.49	46.59
TPC Run time Segment (min)	0	7.10	4.08	4.72	3.91	4.77	4.46	4.46	13.09
TPC Run time Segment + 4% (min)	0	7.38	4.25	4.90	4.07	4.96	4.64	4.64	13.62
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	7.38	4.25	4.90	4.07	4.96	4.64	4.64	15.55
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0	7.9	4.7	5.4	4.6	5.5	5.1	5.1	16.2
RoundUp To Nearest Minute (min)	0	8	5	6	5	6	5	5	17
New Schedule Time (based on TPC)	**0**	**8**	**13**	**19**	**24**	**30**	**35**	**40**	**57**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore West & St. Catherines EXPRESS - Outbound															
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-James	Stoney Creek	Grimsby	St. Catherines
Milepost	**0.0**	**2**	**6.7**	**9.6**	**12.8**	**16.7**	**21.4**	**24.7**	**27.9**	**31.5**	**34.6**	**39.3 / 43.7**	**37.6**	**27.4**	**11.8**
Cumulative TPC Time (min)	0.00						19.80	24.77	29.72	34.94	39.81	48.25	60.43	71.77	88.06
TPC Run time Segment (min)	0.0						19.8	5.0	5.0	5.2	4.9	8.4	12.2	11.3	16.3
TPC Run time Segment + 4% (min)	0.0						20.6	5.2	5.2	5.4	5.1	8.8	12.7	11.8	16.9
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0						20.6	5.2	5.2	5.4	5.1	8.8	12.7	11.8	20.6
Station Stop Time (min)	0.0						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00						21.09	5.67	5.65	5.93	5.56	9.28	13.17	12.21	21.11
RoundUp To Nearest Minute (min)	0						21	6	6	6	6	10	13	13	21
New Schedule Time (based on TPC)	**0**						**21**	**27**	**33**	**39**	**45**	**55**	**68**	**81**	**102**

Lakeshore West & St. Catherines EXPRESS - Inbound															
	St. Catherines	Grimsby	Stoney Creek	Hamilton-James	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	**11.8**	**27.4**	**37.6**	**43.7 / 39.3**	**34.6**	**31.5**	**27.9**	**24.7**	**21.4**	**16.7**	**12.8**	**9.6**	**6.7**	**2**	**0**
Cumulative TPC Time (min)	0.00	16.25	27.60	39.77	48.63	53.38	58.63	63.54	68.53						87.75
TPC Run time Segment (min)	0.0	16.3	11.4	12.2	8.9	4.8	5.2	4.9	5.0						19.2
TPC Run time Segment + 4% (min)	0.0	16.9	11.8	12.6	9.2	4.9	5.5	5.1	5.2						20.0
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	16.9	11.8	12.6	9.2	4.9	5.5	5.1	5.2						23.6
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5						0.5
Total GridTime + Station Stop Time (min)	0.00	17.40	12.30	13.19	9.72	5.44	5.96	5.61	5.68						24.14
RoundUp To Nearest Minute (min)	0	18	13	13	10	6	6	6	6						24
New Schedule Time (based on TPC)	**0**	**18**	**31**	**44**	**54**	**60**	**66**	**72**	**78**						**102**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore West & Hamilton TH&B EXPRESS - Outbound												
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-TH&B
Milepost	0	2	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	57.5
Cumulative TPC Time (min)	0.00						20.48	25.65	30.80	36.18	41.21	51.71
TPC Run time Segment (min)	0.0						20.5	5.2	5.2	5.4	5.0	10.5
TPC Run time Segment + 4% (min)	0.0						21.3	5.4	5.4	5.6	5.2	10.9
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0						21.3	5.4	5.4	5.6	5.2	12.6
Station Stop Time (min)	0.0						0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00						21.80	5.88	5.86	6.09	5.73	13.14
RoundUp To Nearest Minute (min)	0						22	6	6	6	6	13
New Schedule Time (based on TPC)	**0**						**22**	**28**	**34**	**40**	**46**	**59**

Lakeshore West & Hamilton TH&B EXPRESS - Inbound												
	Hamilton-TH&B	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	57.5	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
Cumulative TPC Time (min)	0.00	11.04	15.96	21.40	26.48	31.64						51.36
TPC Run time Segment (min)	0.0	11.0	4.9	5.4	5.1	5.2						19.7
TPC Run time Segment + 4% (min)	0.0	11.5	5.1	5.7	5.3	5.4						20.5
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	11.5	5.1	5.7	5.3	5.4						22.6
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5						0.5
Total GridTime + Station Stop Time (min)	0.00	11.98	5.19	6.16	5.78	5.86						23.15
RoundUp To Nearest Minute (min)	0	12	5	6	6	6						23
New Schedule Time (based on TPC)	**0**	**12**	**17**	**23**	**29**	**35**						**58**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore West - Aldershot EXPRESS - Outbound											
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot
Milepost	**0**	**2**	**6.7**	**9.6**	**12.8**	**16.7**	**21.4**	**24.7**	**27.9**	**31.5**	**34.6**
Cumulative TPC Time (min)	0.00						19.80	24.77	29.72	34.94	39.71
TPC Run time Segment (min)	0.0						19.8	5.0	5.0	5.2	4.8
TPC Run time Segment + 4% (min)	0.0						20.6	5.2	5.2	5.4	5.0
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0						20.6	5.2	5.2	5.4	6.41
Station Stop Time (min)	0.0						0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0						21.1	5.7	5.7	5.9	6.9
RoundUp To Nearest Minute (min)	0						21	6	6	6	7
New Schedule Time (based on TPC)	**0**						**21**	**27**	**33**	**39**	**46**

Lakeshore West - Aldershot EXPRESS - Inbound											
	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	**34.6**	**31.5**	**27.9**	**24.7**	**21.4**	**16.7**	**12.8**	**9.6**	**6.7**	**2**	**0**
Cumulative TPC Time (min)	0.00	4.70	9.95	14.86	19.84						38.94
TPC Run time Segment (min)	0.0	4.7	5.2	4.9	5.0						19.1
TPC Run time Segment + 4% (min)	0.0	4.9	5.5	5.1	5.2						19.9
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0.0	4.9	5.5	5.1	5.2						20.69
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5						0.5
Total GridTime + Station Stop Time (min)	0.0	5.4	6.0	5.6	5.7						21.2
RoundUp To Nearest Minute (min)	0	6	6	6	6						21
New Schedule Time (based on TPC)	**0**	**6**	**12**	**18**	**24**						**45**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Lakeshore East EXPRESS - Outbound													
	Union Station	Danforth (NO STOP)	Scarborough (NO STOP)	Eglinton (NO STOP)	Guildwood (NO STOP)	Rouge Hill (NO STOP)	Pickering North	Ajax	Whitby	Oshawa 1	Oshawa 2 (Bloor)	Courtice Road	Bowmanville (Martin)
Milepost	333.8	328.6	325.2	323.2	321.2	317.3	1	3.5	8.9	173.6	171.6	168.9	164.9
Cumulative TPC Time (min)	0.00						22.48	26.60	33.28	41.02	44.64	49.20	55.10
TPC Run time Segment (min)	0						22.48	4.12	6.68	7.74	3.62	4.57	5.90
TPC Run time Segment + 4% (min)	0						23.38	4.28	6.95	8.05	3.76	4.75	6.14
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0						23.38	4.28	6.95	8.05	3.76	4.75	8.43
Station Stop Time (min)	0.0						0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.0						23.9	4.8	7.5	8.5	4.3	5.2	8.9
RoundUp To Nearest Minute (min)	0						24	5	8	9	5	6	9
New Schedule Time (based on TPC)	**0**						**24**	**29**	**37**	**46**	**51**	**57**	**66**

Lakeshore East EXPRESS - Inbound													
	Bowmanville (Martin)	Courtice Road	Oshawa 2 (Bloor)	Oshawa 1	Whitby	Ajax	Pickering North	Rouge Hill (NO STOP)	Guildwood (NO STOP)	Eglinton (NO STOP)	Scarborough (NO STOP)	Danforth (NO STOP)	Union Station
Milepost	164.9	168.9	171.6	173.6	8.9	3.5	1	317.3	321.2	323.2	325.2	328.6	333.8
Cumulative TPC Time (min)	0.00	5.77	10.36	14.08	21.77	28.77	32.88						54.38
TPC Run time Segment (min)	0	5.77	4.60	3.72	7.69	7.00	4.11						21.50
TPC Run time Segment + 4% (min)	0	6.00	4.78	3.87	8.00	7.27	4.28						22.36
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.00	4.78	3.87	8.00	7.27	4.28						24.63
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5						0.5
Total GridTime + Station Stop Time (min)	0.0	6.5	5.3	4.4	8.5	7.8	4.8						25.1
RoundUp To Nearest Minute (min)	0	7	6	5	9	8	5						25
New Schedule Time (based on TPC)	**0**	**7**	**13**	**18**	**27**	**35**	**40**						**65**

Appendix 5A Cont'd– Zero-Based Train Schedule for the Seven Corridors and ARL with Calibrated TPC Model

Georgetown EXPRESS - Inbound													
	Kitchener	Breslau	Guelph	Acton	Georgetown	Mount Pleasant	Brampton	Bramalea	Malton (NO STOP)	Etobicoke N. (NO STOP)	Weston (NO STOP)	Bloor (NO STOP)	Union Station
Milepost	**62.6**	**58.4**	**48.8**	**36.1**	**23.5**	**18.3**	**15.4**	**11.6**	**14.7**	**11**	**8.6**	**4**	**0**
Cumulative TPC Time (min)	0.00	6.20	21.60	36.00	44.23	51.07	55.60	61.21					85.21
TPC Run time Segment (min)	0	6.20	15.40	14.40	8.23	6.84	4.53	5.61					24.01
TPC Run time Segment + 4% (min)	0	6.45	16.01	14.98	8.56	7.11	4.72	5.83					24.97
TPC Run time Segment + 4% + add 4% of Total added to last station(min)	0	6.45	16.01	14.98	8.56	7.11	4.72	5.83					28.51
Station Stop Time (min)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5					0.5
Total GridTime + Station Stop Time (min)	0.00	6.95	16.51	15.19	9.06	7.61	5.22	6.33					29.01
RoundUp To Nearest Minute (min)	0	7	17	15	9	8	6	7					29
New Schedule Time (based on TPC)	**0**	**7**	**24**	**39**	**48**	**56**	**62**	**69**					**98**

Pearson Rail Link - Inbound				
	Pearson Airport	Weston	Bloor	Union Station
Milepost	**1.86**	**8.6**	**4**	**0**
Cumulative TPC Time (min)	0.00	10.40	16.96	23.39
TPC Run time Segment (min)	0	10.40	6.56	6.43
TPC Run time Segment + 4% (min)	0	10.68	6.68	6.59
Station Stop Time (min)	0.0	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	11.18	7.18	7.09
RoundUp To Nearest Minute (min)	0	11	7	7
New Schedule Time (based on TPC)	**0**	**11**	**18**	**25**

Pearson Rail Link - Outbound				
	Union Station	Bloor	Weston	Pearson Airport
Milepost	**0.00**	**4.00**	**8.60**	**1.86**
Cumulative TPC Time (min)	0.00	6.58	13.16	23.75
TPC Run time Segment (min)	0	6.58	6.58	10.59
TPC Run time Segment + 4% (min)	0	6.68	6.69	10.65
Station Stop Time (min)	0.0	0.5	0.5	0.5
Total GridTime + Station Stop Time (min)	0.00	7.18	7.19	11.15
RoundUp To Nearest Minute (min)	0	7	7	11
New Schedule Time (based on TPC)	**0**	**7**	**14**	**25**

APPENDIX 5B – GO AND ARL REFERENCE CASE CONCEPTUAL TIMETABLE

Reference Case Lakeshore West Timetable

	HJ	THB	HJ	St.C	HJ	THB	Oak	St.C	Oak	Ald	HJ	THB	Oak	St.C	Oak	Ald	HJ	THB	HJ	St.C	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ
	6:28	6:43	6:58	7:13	7:28	7:35	7:38	7:47	7:48	7:55	7:58	8:05	8:08	8:18	8:18	8:21	8:28	8:43	8:58	9:13	9:28	9:58	10:28	10:58	11:28	11:58	12:28	12:58	13:28	13:58
	LKWL02	LKWL04	LKWL06	LKWL08	LKWL10	LKWE02	LKWL12	LKWE04	LKWL14	LKWE06	LKWL16	LKWE08	LKWL18	LKWE10	LKWL20	LKWE12	LKWL22	LKWL24	LKWL26	LKWL28	LKWL30	LKWL32	LKWL34	LKWL36	LKWL38	LKWL40	LKWL42	LKWL44	LKWL46	LKWL48
St. Catherines				5:14				6:05						6:36						7:14										
Grimsby				5:32				6:23						6:54						7:32										
Stoney Creek				5:45				6:36						7:07						7:45										
Hamilton-James	5:13		5:43	5:58	6:13			6:49			6:43			7:20			7:13		7:43	7:58	8:13	8:43	9:13	9:43	10:13	10:43	11:13	11:43	12:13	12:43
Hamilton TH&B		5:27				6:37						7:07						7:27												
Aldershot	5:23	5:39	5:53	6:08	6:23	6:49		6:59		7:10	6:53	7:19		7:30		7:35	7:23	7:39	7:53	8:08	8:23	8:53	9:23	9:53	10:23	10:53	11:23	11:53	12:23	12:53
Burlington	5:29	5:45	5:59	6:14	6:29	6:54		7:05		7:16	6:59	7:24		7:36		7:41	7:29	7:45	7:59	8:14	8:29	8:59	9:29	9:59	10:29	10:59	11:29	11:59	12:29	12:59
Appleby	5:35	5:51	6:05	6:20	6:35	7:00		7:11		7:22	7:05	7:30		7:42		7:47	7:35	7:51	8:05	8:20	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05
Bronte	5:41	5:57	6:11	6:26	6:41	7:06		7:17		7:28	7:11	7:36		7:48		7:53	7:41	7:57	8:11	8:26	8:41	9:11	9:41	10:11	10:41	11:11	11:41	12:11	12:41	13:11
Oakville	5:47	6:03	6:17	6:32	6:47	7:12	6:57	7:23	7:07	7:34	7:17	7:42	7:27	7:54	7:37	7:59	7:47	8:03	8:17	8:32	8:47	9:17	9:47	10:17	10:47	11:17	11:47	12:17	12:47	13:17
Clarkson	5:54	6:10	6:24	6:39	6:54		7:04		7:14		7:24		7:34		7:44		7:54	8:10	8:24	8:39	8:54	9:24	9:54	10:24	10:54	11:24	11:54	12:24	12:54	13:24
Port Credit	6:00	6:16	6:30	6:45	7:00		7:10		7:20		7:30		7:40		7:50		8:00	8:16	8:30	8:45	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30
Long Branch	6:06	6:22	6:36	6:51	7:06		7:16		7:26		7:36		7:46		7:56		8:06	8:22	8:36	8:51	9:06	9:36	10:06	10:36	11:06	11:36	12:06	12:36	13:06	13:36
Mimico	6:12	6:28	6:42	6:57	7:12		7:22		7:32		7:42		7:52		8:02		8:12	8:28	8:42	8:57	9:12	9:42	10:12	10:42	11:12	11:42	12:12	12:42	13:12	13:42
Exhibition	6:19	6:35	6:49	7:04	7:19		7:29		7:39		7:49		7:59		8:09		8:19	8:35	8:49	9:04	9:19	9:49	10:19	10:49	11:19	11:49	12:19	12:49	13:19	13:49
Union Station	6:28	6:43	6:58	7:13	7:28	7:35	7:38	7:47	7:48	7:55	7:58	8:05	8:08	8:18	8:18	8:20	8:28	8:43	8:58	9:13	9:28	9:58	10:28	10:58	11:28	11:58	12:28	12:58	13:28	13:58

	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	St.C	HJ	THB	HJ	THB	Oak	Ald	HJ	St.C	Oak	Ald
	6:35	7:05	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35	15:05	15:35	15:45	16:05	16:15	16:35	16:36	16:42	16:55	17:05	17:00	17:10	17:25
	LKWL01	LKWL03	LKWL05	LKWL07	LKWL09	LKWL11	LKWL13	LKWL15	LKWL17	LKWL19	LKWL21	LKWL23	LKWL25	LKWL27	LKWL29	LKWL31	LKWL33	LKWL35	LKWL37	LKWL39	LKWL41	LKWL43	LKWL45	LKWE01	LKWL47	LKWE03	LKWL49	LKWE05	LKWL51	LKWE07
Union Station	6:35	7:05	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35	15:05	15:35	15:45	16:05	16:15	16:35	16:36	16:42	16:55	17:05	17:00	17:10	17:25
Exhibition	6:40	7:10	7:40	8:10	8:40	9:10	9:40	10:10	10:40	11:10	11:40	12:10	12:40	13:10	13:40	14:10	14:40	15:10	15:40	15:50	16:10	16:20	16:40		16:47		17:10		17:15	
Mimico	6:47	7:17	7:47	8:17	8:47	9:17	9:47	10:17	10:47	11:17	11:47	12:17	12:47	13:17	13:47	14:17	14:47	15:17	15:47	15:57	16:17	16:27	16:47		16:54		17:17		17:22	
Long Branch	6:53	7:23	7:53	8:23	8:53	9:23	9:53	10:23	10:53	11:23	11:53	12:23	12:53	13:23	13:53	14:23	14:53	15:23	15:53	16:03	16:23	16:33	16:53		17:00		17:23		17:28	
Port Credit	6:59	7:29	7:59	8:29	8:59	9:29	9:59	10:29	10:59	11:29	11:59	12:29	12:59	13:29	13:59	14:29	14:59	15:29	15:59	16:09	16:29	16:39	16:59		17:06		17:29		17:34	
Clarkson	7:05	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35	15:05	15:35	16:05	16:15	16:35	16:45	17:05		17:13		17:35		17:41	
Oakville	7:12	7:42	8:12	8:42	9:12	9:42	10:12	10:42	11:12	11:42	12:12	12:42	13:12	13:42	14:12	14:42	15:12	15:42	16:12	16:22	16:42	16:52	17:12	16:58	17:19	17:17	17:42	17:21	17:47	17:47
Bronte	7:18	7:48	8:18	8:48	9:18	9:48	10:18	10:48	11:18	11:48	12:18	12:48	13:18	13:48	14:18	14:48	15:18	15:48	16:18	16:28	16:48	16:58	17:18	17:04		17:23	17:48	17:27		17:53
Appleby	7:24	7:54	8:24	8:54	9:24	9:54	10:24	10:54	11:24	11:54	12:24	12:54	13:24	13:54	14:24	14:54	15:24	15:54	16:24	16:34	16:54	17:04	17:24	17:10		17:29	17:54	17:33		17:59
Burlington	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	16:40	17:00	17:10	17:30	17:16		17:35	18:00	17:39		18:05
Aldershot	7:36	8:06	8:36	9:06	9:36	10:06	10:36	11:06	11:36	12:06	12:36	13:06	13:36	14:06	14:36	15:06	15:36	16:06	16:36	16:46	17:06	17:16	17:36	17:22		17:41	18:06	17:45		18:11
Hamilton TH&B																						17:30		17:35						
Hamilton-James	7:46	8:16	8:46	9:16	9:46	10:16	10:46	11:16	11:46	12:16	12:46	13:16	13:46	14:16	14:46	15:16	15:46	16:16	16:46	16:56	17:16		17:46				18:16	17:55		
Stoney Creek																				17:09								18:08		
Grimsby																				17:22								18:21		
St. Catherines																				17:44								18:42		

Reference Case Lakeshore West Timetable cont'd

HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ
13:58	14:28	14:58	15:28	15:58	16:28	16:58	17:28	17:58	18:28	18:58	19:28	19:58	20:28	20:58	21:28	21:58	22:28	22:58	23:28	23:58	0:28	0:58	
LKWL48	LKWL50	LKWL52	LKWL54	LKWL56	LKWL58	LKWL60	LKWL62	LKWL64	LKWL66	LKWL68	LKWL70	LKWL72	LKWL74	LKWL76	LKWL78	LKWL80	LKWL82	LKWL84	LKWL86	LKWL88	LKWL90	LKWL92	
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AId	Oak	HJ	THB	HJ	St.C	Oak	HJ	THB	HJ	St.C	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ	HJ
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	17:36	17:53	18:02	18:23		18:33	18:53	19:03	19:23	19:33	19:53	20:23	20:53	21:23	21:53	22:23	22:53	23:23	23:53	0:23	0:53	1:23	
	17:42	17:59	18:08	18:29		18:39	18:59	19:09	19:29	19:39	19:59	20:29	20:59	21:29	21:59	22:29	22:59	23:29	23:59	0:29	0:59	1:29	
	17:49	18:05	18:14	18:35		18:46	19:05	19:15	19:35	19:45	20:05	20:35	21:05	21:35	22:05	22:35	23:05	23:35	0:05	0:35	1:05	1:35	
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18:05		18:30	18:39	19:00	18:46		19:30	19:40	20:00	20:10	20:30	21:00	21:30	22:00	22:30	23:00	23:30	0:00	0:30	1:00	1:30	2:00	
18:11		18:36	18:45	19:06	18:52		19:36	19:46	20:06	20:16	20:36	21:06	21:36	22:06	22:36	23:06	23:36	0:06	0:36	1:06	1:36	2:06	
			18:59					20:00															
		18:46		19:16	19:02		19:46		20:16	20:26	20:46	21:16	21:46	22:16	22:46	23:16	23:46	0:16	0:46	1:16	1:46	2:16	
					19:15					20:39													
					19:28					20:52													
					19:49					21:14													

LKWE07	LKWL53	LKWL55	LKWL57	LKWL59	LKWE09	LKWL61	LKWL63	LKWL65	LKWL67	LKWL69	LKWL71	LKWL73	LKWL75	LKWL77	LKWL79	LKWL81	LKWL83	LKWL85	LKWL87	LKWL89	LKWL91	LKWL93
17:25	17:18	17:35	17:44	18:05	18:07	18:15	18:35	18:45	19:05	19:15	19:35	20:05	20:35	21:05	21:35	22:05	22:35	23:05	23:35	0:05	0:35	1:05
	17:23	17:40	17:49	18:10		18:20	18:40	18:50	19:10	19:20	19:40	20:10	20:40	21:10	21:40	22:10	22:40	23:10	23:40	0:10	0:40	1:10
	17:30	17:47	17:56	18:17		18:27	18:47	18:57	19:17	19:27	19:47	20:17	20:47	21:17	21:47	22:17	22:47	23:17	23:47	0:17	0:47	1:17
	17:36	17:53	18:02	18:23		18:33	18:53	19:03	19:23	19:33	19:53	20:23	20:53	21:23	21:53	22:23	22:53	23:23	23:53	0:23	0:53	1:23
	17:42	17:59	18:08	18:29		18:39	18:59	19:09	19:29	19:39	19:59	20:29	20:59	21:29	21:59	22:29	22:59	23:29	23:59	0:29	0:59	1:29
	17:49	18:05	18:14	18:35		18:46	19:05	19:15	19:35	19:45	20:05	20:35	21:05	21:35	22:05	22:35	23:05	23:35	0:05	0:35	1:05	1:35
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17:53		18:18	18:27	18:48	18:34		19:18	19:28	19:48	19:58	20:18	20:48	21:18	21:48	22:18	22:48	23:18	23:48	0:18	0:48	1:18	1:48
17:59		18:24	18:33	18:54	18:40		19:24	19:34	19:54	20:04	20:24	20:54	21:24	21:54	22:24	22:54	23:24	23:54	0:24	0:54	1:24	1:54
18:05		18:30	18:39	19:00	18:46		19:30	19:40	20:00	20:10	20:30	21:00	21:30	22:00	22:30	23:00	23:30	0:00	0:30	1:00	1:30	2:00
18:11		18:36	18:45	19:06	18:52		19:36	19:46	20:06	20:16	20:36	21:06	21:36	22:06	22:36	23:06	23:36	0:06	0:36	1:06	1:36	2:06
			18:59					20:00														
		18:46		19:16	19:02		19:46		20:16	20:26	20:46	21:16	21:46	22:16	22:46	23:16	23:46	0:16	0:46	1:16	1:46	2:16
					19:15					20:39												
					19:28					20:52												
					19:49					21:14												

Reference Case Lakeshore East Timetable

	OSH2	WHY	OSH2	BOW	OSH2		PIC		OSH2		PIC		PIC	OSH2	BOW	OSH2	WHY	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2
	6:30	6:45	7:00	7:15	7:30	7:36	7:42	7:50	8:00	8:00	8:06	8:09	8:18	8:30	8:45	9:00	9:15	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30
	LKEL02	LKEL04	LKEL06	LKEL08	LKEL10	LKEE02	LKEL12	LKEE04	LKEL14	LKEE06	LKEL16	LKEE08	LKEL18	LKEL20	LKEL22	LKEL24	LKEL26	LKEL28	LKEL30	LKEL32	LKEL34	LKEL36	LKEL38	LKEL40	LKEL42	LKEL44	LKEL46	LKEL48	LKEL50	LKEL52
Bowmanville				5:54		6:31		6:45		6:55		7:04			7:24															
Courtice Road				6:01		6:38		6:52		7:02		7:11			7:31															
Oshawa 2 (Bloor)	5:22		5:52	6:07	6:22	6:44		6:58	6:52	7:08		7:17		7:22	7:37	7:52	8:07	8:22	8:52	9:22	9:52	10:22	10:52	11:22	11:52	12:22	12:52	13:22	13:52	14:22
Oshawa 1	5:27		5:57	6:12	6:27	6:49		7:03	6:57	7:13		7:22		7:27	7:42	7:57	8:12	8:27	8:57	9:27	9:57	10:27	10:57	11:27	11:57	12:27	12:57	13:27	13:57	14:27
Whitby	5:35	5:50	6:05	6:20	6:35	6:58		7:12	7:05	7:22		7:31		7:35	7:50	8:05	8:20	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35
Ajax	5:43	5:58	6:13	6:28	6:43	7:06		7:20	7:13	7:30		7:39		7:43	7:58	8:13	8:28	8:43	9:13	9:43	10:13	10:43	11:13	11:43	12:13	12:43	13:13	13:43	14:13	14:43
Pickering North	5:48	6:03	6:18	6:33	6:48	7:11	7:00	7:25	7:18	7:35	7:27	7:44	7:37	7:48	8:03	8:18	8:33	8:48	9:18	9:48	10:18	10:48	11:18	11:48	12:18	12:48	13:18	13:48	14:18	14:48
Rouge Hill	5:55	6:10	6:25	6:40	6:55		7:07		7:25		7:34		7:44	7:55	8:10	8:25	8:40	8:55	9:25	9:55	10:25	10:55	11:25	11:55	12:25	12:55	13:25	13:55	14:25	14:55
Guildwood	6:02	6:17	6:32	6:47	7:02		7:14		7:32		7:41		7:51	8:02	8:17	8:32	8:47	9:02	9:32	10:02	10:32	11:02	11:32	12:02	12:32	13:02	13:32	14:02	14:32	15:02
Eglinton	6:07	6:22	6:37	6:52	7:07		7:19		7:37		7:46		7:56	8:07	8:22	8:37	8:52	9:07	9:37	10:07	10:37	11:07	11:37	12:07	12:37	13:07	13:37	14:07	14:37	15:07
Scarborough	6:12	6:27	6:42	6:57	7:12		7:24		7:42		7:51		8:01	8:12	8:27	8:42	8:57	9:12	9:42	10:12	10:42	11:12	11:42	12:12	12:42	13:12	13:42	14:12	14:42	15:12
Danforth	6:18	6:33	6:48	7:03	7:18		7:30		7:48		7:57		8:07	8:18	8:33	8:48	9:03	9:18	9:48	10:18	10:48	11:18	11:48	12:18	12:48	13:18	13:48	14:18	14:48	15:18
Union Station	6:30	6:45	7:00	7:15	7:30	7:36	7:42	7:50	8:00	8:00	8:09	8:09	8:19	8:30	8:45	9:00	9:15	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30

	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	WHY	OSH2	BOW	OSH2	OSH2	BOW	PIC	BOW	OSH2	PIC	BOW	OSH2
	6:33	7:03	7:33	8:03	8:33	9:03	9:33	10:03	10:33	11:03	11:33	12:03	12:33	13:03	13:33	14:03	14:33	15:03	15:18	15:33	15:48	16:03	16:33	16:40	16:48	16:55	17:03	17:18	17:24	17:33
	LKEL01	LKEL03	LKEL05	LKEL07	LKEL09	LKEL11	LKEL13	LKEL15	LKEL17	LKEL19	LKEL21	LKEL23	LKEL25	LKEL27	LKEL29	LKEL31	LKEL33	LKEL35	LKEL37	LKEL39	LKEL41	LKEL43	LKEL45	LKEE01	LKEL47	LKEE03	LKEL49	LKEL51	LKEE05	LKEL53
Union Station	6:33	7:03	7:33	8:03	8:33	9:03	9:33	10:03	10:33	11:03	11:33	12:03	12:33	13:03	13:33	14:03	14:33	15:03	15:18	15:33	15:48	16:03	16:33	16:40	16:48	16:55	17:03	17:18	17:24	17:33
Danforth	6:43	7:13	7:43	8:13	8:43	9:13	9:43	10:13	10:43	11:13	11:43	12:13	12:43	13:13	13:43	14:13	14:43	15:13	15:28	15:43	15:58	16:13	16:43		16:58		17:13	17:28		17:43
Scarborough	6:49	7:19	7:49	8:19	8:49	9:19	9:49	10:19	10:49	11:19	11:49	12:19	12:49	13:19	13:49	14:19	14:49	15:19	15:34	15:49	16:04	16:19	16:49		17:04		17:19	17:34		17:49
Eglinton	6:54	7:24	7:54	8:24	8:54	9:24	9:54	10:24	10:54	11:24	11:54	12:24	12:54	13:24	13:54	14:24	14:54	15:24	15:39	15:54	16:09	16:24	16:54		17:09		17:24	17:39		17:54
Guildwood	6:59	7:29	7:59	8:29	8:59	9:29	9:59	10:29	10:59	11:29	11:59	12:29	12:59	13:29	13:59	14:29	14:59	15:29	15:44	15:59	16:14	16:29	16:59		17:14		17:29	17:44		17:59
Rouge Hill	7:05	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35	15:05	15:35	15:50	16:05	16:20	16:35	17:05		17:20		17:35	17:50		18:05
Pickering North	7:13	7:43	8:13	8:43	9:13	9:43	10:13	10:43	11:13	11:43	12:13	12:43	13:13	13:43	14:13	14:43	15:13	15:43	15:58	16:13	16:28	16:43	17:13	17:04	17:28	17:19	17:43	17:58	17:48	18:13
Ajax	7:18	7:48	8:18	8:48	9:18	9:48	10:18	10:48	11:18	11:48	12:18	12:48	13:18	13:48	14:18	14:48	15:18	15:48	16:03	16:18	16:33	16:48	17:18	17:09		17:24	17:48		17:53	18:18
Whitby	7:26	7:56	8:26	8:56	9:26	9:56	10:26	10:56	11:26	11:56	12:26	12:56	13:26	13:56	14:26	14:56	15:26	15:56	16:11	16:26	16:41	16:56	17:26	17:17		17:32	17:56		18:01	18:26
Oshawa 1	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	13:05	13:35	14:05	14:35	15:05	15:35	16:05		16:35	16:50	17:05	17:35	17:26		17:41	18:05		18:10	18:35
Oshawa 2 (Bloor)	7:40	8:10	8:40	9:10	9:40	10:10	10:40	11:10	11:40	12:10	12:40	13:10	13:40	14:10	14:40	15:10	15:40	16:10		16:40	16:55	17:10	17:40	17:31		17:46	18:10		18:15	18:40
Courtice Road																					17:01			17:37		17:52			18:21	
Bowmanville																					17:11			17:46		18:01			18:30	

Reference Case Lakeshore East Timetable cont'd

OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2
16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	0:00	0:30	1:00
LKEL54	LKEL56	LKEL58	LKEL60	LKEL62	LKEL64	LKEL66	LKEL68	LKEL70	LKEL72	LKEL74	LKEL76	LKEL78	LKEL80	LKEL82	LKEL84	LKEL86	LKEL88	LKEL90
14:52	15:22	15:52	16:22	16:52	17:22	17:52	18:22	18:52	19:22	19:52	20:22	20:52	21:22	21:52	22:22	22:52	23:22	23:52
14:57	15:27	15:57	16:27	16:57	17:27	17:57	18:27	18:57	19:27	19:57	20:27	20:57	21:27	21:57	22:27	22:57	23:27	23:57
15:05	15:35	16:05	16:35	17:05	17:35	18:05	18:35	19:05	19:35	20:05	20:35	21:05	21:35	22:05	22:35	23:05	23:35	0:05
15:13	15:43	16:13	16:43	17:13	17:43	18:13	18:43	19:13	19:43	20:13	20:43	21:13	21:43	22:13	22:43	23:13	23:43	0:13
15:18	15:48	16:18	16:48	17:18	17:48	18:18	18:48	19:18	19:48	20:18	20:48	21:18	21:48	22:18	22:48	23:18	23:48	0:18
15:25	15:55	16:25	16:55	17:25	17:55	18:25	18:55	19:25	19:55	20:25	20:55	21:25	21:55	22:25	22:55	23:25	23:55	0:25
15:32	16:02	16:32	17:02	17:32	18:02	18:32	19:02	19:32	20:02	20:32	21:02	21:32	22:02	22:32	23:02	23:32	0:02	0:32
15:37	16:07	16:37	17:07	17:37	18:07	18:37	19:07	19:37	20:07	20:37	21:07	21:37	22:07	22:37	23:07	23:37	0:07	0:37
15:42	16:12	16:42	17:12	17:42	18:12	18:42	19:12	19:42	20:12	20:42	21:12	21:42	22:12	22:42	23:12	23:42	0:12	0:42
15:48	16:18	16:48	17:18	17:48	18:18	18:48	19:18	19:48	20:18	20:48	21:18	21:48	22:18	22:48	23:18	23:48	0:18	0:48
16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	0:00	0:30	1:00
WHY	OSH2	BOW	OSH2	WHY	OSH2	BOW	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2	OSH2
17:48	18:03	18:18	18:33	18:48	19:03	19:18	19:30	20:03	20:33	21:03	21:33	22:03	22:33	23:03	23:33	0:03	0:33	1:03
LKEL55	LKEL57	LKEL59	LKEL61	LKEL63	LKEL65	LKEL67	LKEL69	LKEL71	LKEL73	LKEL75	LKEL77	LKEL79	LKEL81	LKEL83	LKEL85	LKEL87	LKEL89	LKEL91
17:48	18:03	18:18	18:33	18:48	19:03	19:18	19:30	20:03	20:33	21:03	21:33	22:03	22:33	23:03	23:33	0:03	0:33	1:03
17:58	18:13	18:28	18:43	18:58	19:13	19:28	19:40	20:13	20:43	21:13	21:43	22:13	22:43	23:13	23:43	0:13	0:43	1:13
18:04	18:19	18:34	18:49	19:04	19:19	19:34	19:46	20:19	20:49	21:19	21:49	22:19	22:49	23:19	23:49	0:19	0:49	1:19
18:09	18:24	18:39	18:54	19:09	19:24	19:39	19:51	20:24	20:54	21:24	21:54	22:24	22:54	23:24	23:54	0:24	0:54	1:24
18:14	18:29	18:44	18:59	19:14	19:29	19:44	19:56	20:29	20:59	21:29	21:59	22:29	22:59	23:29	23:59	0:29	0:59	1:29
18:20	18:35	18:50	19:05	19:20	19:35	19:50	20:02	20:35	21:05	21:35	22:05	22:35	23:05	23:35	0:05	0:35	1:05	1:35
18:28	18:43	18:58	19:13	19:28	19:43	19:58	20:10	20:43	21:13	21:43	22:13	22:43	23:13	23:43	0:13	0:43	1:13	1:43
18:33	18:48	19:03	19:18	19:33	19:48	20:03	20:15	20:48	21:18	21:48	22:18	22:48	23:18	23:48	0:18	0:48	1:18	1:48
18:41	18:56	19:11	19:26	19:41	19:56	20:11	20:23	20:56	21:26	21:56	22:26	22:56	23:26	23:56	0:26	0:56	1:26	1:56
	19:05	19:20	19:35		20:05	20:20	20:32	21:05	21:35	22:05	22:35	23:05	23:35	0:05	0:35	1:05	1:35	2:05
	19:10	19:25	19:40		20:10	20:25	20:37	21:10	21:40	22:10	22:40	23:10	23:40	0:10	0:40	1:10	1:40	2:10
		19:31				20:31												
		19:41				20:41												

Reference Case Milton Timetable

	MLT	MLT	MLT	MEA	MLT	MLT	MLT	MEA	MLT	MLT	MLT	MLT	MLT	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA	MEA
	6:38	6:58	7:18	7:25	7:28	7:43	7:58	8:25	8:13	8:28	8:38	8:58	9:18	9:25	10:25	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:25	20:25	21:25	22:25	23:25	0:25	1:25
	MLL01	MLL03	MLL05	MLL07	MLL11	MLL13	MLL15	MLL17	MLL19	MLL21	MLL23	MLL25	MLL27	MLL29	MLL31	MLL33	MLL35	MLL37	MLL39	MLL41	MLL43	MLL45	MLL47	MLL49	MLL51	MLL53	MLL55	MLL57	MLL59	MLL61
Milton	5:39	5:59	6:20		6:30	6:45	7:00		7:15	7:30	7:40	8:00	8:20																	
Lisgar	5:47	6:07	6:28		6:38	6:53	7:08		7:23	7:38	7:48	8:08	8:28																	
Meadowvale	5:52	6:12	6:33	6:40	6:43	6:58	7:13	7:40	7:28	7:43	7:53	8:13	8:33	8:40	9:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:40	19:40	20:40	21:40	22:40	23:40	0:40
Streetsville	5:58	6:18	6:39	6:46	6:49	7:04	7:19	7:46	7:34	7:49	7:59	8:19	8:39	8:46	9:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:46	18:46	19:46	20:46	21:46	22:46	23:46	0:46
Erindale	6:03	6:23	6:44	6:51	6:54	7:09	7:24	7:51	7:39	7:54	8:04	8:24	8:44	8:51	9:51	10:51	11:51	12:51	13:51	14:51	15:51	16:51	17:51	18:51	19:51	20:51	21:51	22:51	23:51	0:51
Cooksville	6:09	6:29	6:50	6:57	7:00	7:15	7:30	7:57	7:45	8:00	8:10	8:30	8:50	8:57	9:57	10:57	11:57	12:57	13:57	14:57	15:57	16:57	17:57	18:57	19:57	20:57	21:57	22:57	23:57	0:57
Dixie	6:14	6:34	6:55	7:02	7:05	7:20	7:35	8:02	7:50	8:05	8:15	8:35	8:55	9:02	10:02	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:02	21:02	22:02	23:02	0:02	1:02
Kipling	6:19	6:39	7:00	7:07	7:10	7:25	7:40	8:07	7:55	8:10	8:20	8:40	9:00	9:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:07	18:07	19:07	20:07	21:07	22:07	23:07	0:07	1:07
Union Station	6:36	6:56	7:17	7:24	7:27	7:42	7:57	8:24	8:12	8:27	8:37	8:57	9:17	9:24	10:24	11:24	12:24	13:24	14:24	15:24	16:24	17:24	18:24	19:24	20:24	21:24	22:24	23:24	0:24	1:24

	MED	MED	MED	MED	MED	MED	MED	MED	MED	MLT	MED	MLT	MLT	MLT	MED	MLT	MLT	MLT	MLT	MED	MLT	MLT	MLT	MED	MLT	MLT	MED	MED	MED	MED	MED	MED
	6:35	7:35	8:35	9:35	10:35	11:35	12:35	13:35	14:35	15:30	15:35	15:50	16:10	16:30	16:35	16:45	17:00	17:15	17:30	17:35	17:50	18:10	18:30	18:35	18:50	19:10	19:35	20:35	21:35	22:35	23:35	0:35
	MLL02	MLL04	MLL06	MLL08	MLL10	MLL12	MLL14	MLL16	MLL18	MLL20	MLL24	MLL26	MLL28	MLL30	MLL32	MLL34	MLL36	MLL38	MLL40	MLL42	MLL44	MLL46	MLL48	MLL50	MLL52	MLL54	MLL56	MLL58	MLL60	MLL62	MLL64	MLL66
Union Station	6:35	7:35	8:35	9:35	10:35	11:35	12:35	13:35	14:35	15:30	15:35	15:50	16:10	16:30	16:35	16:45	17:00	17:15	17:30	17:35	17:50	18:10	18:30	18:35	18:50	19:10	19:35	20:35	21:35	22:35	23:35	0:35
Kipling	6:50	7:50	8:50	9:50	10:50	11:50	12:50	13:50	14:50	15:45	15:50	16:05	16:25	16:45	16:50	17:00	17:15	17:30	17:45	17:50	18:05	18:25	18:45	18:50	19:05	19:25	19:50	20:50	21:50	22:50	23:50	0:50
Dixie	6:55	7:55	8:55	9:55	10:55	11:55	12:55	13:55	14:55	15:50	15:55	16:10	16:30	16:50	16:55	17:05	17:20	17:35	17:50	17:55	18:10	18:30	18:50	18:55	19:10	19:30	19:55	20:55	21:55	22:55	23:55	0:55
Cooksville	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	15:55	16:00	16:15	16:35	16:55	17:00	17:10	17:25	17:40	17:55	18:00	18:15	18:35	18:55	19:00	19:15	19:35	20:00	21:00	22:00	23:00	0:00	1:00
Erindale	7:06	8:06	9:06	10:06	11:06	12:06	13:06	14:06	15:06	16:01	16:06	16:21	16:41	17:01	17:06	17:16	17:31	17:46	18:01	18:06	18:21	18:41	19:01	19:06	19:21	19:41	20:06	21:06	22:06	23:06	0:06	1:06
Streetsville	7:11	8:11	9:11	10:11	11:11	12:11	13:11	14:11	15:11	16:06	16:11	16:26	16:46	17:06	17:11	17:21	17:36	17:51	18:06	18:11	18:26	18:46	19:06	19:11	19:26	19:46	20:11	21:11	22:11	23:11	0:11	1:11
Meadowvale	7:19	8:19	9:19	10:19	11:19	12:19	13:19	14:19	15:19	16:12	16:19	16:32	16:52	17:12	17:19	17:27	17:42	17:57	18:12	18:19	18:32	18:52	19:12	19:19	19:32	19:52	20:19	21:19	22:19	23:19	0:19	1:19
Lisgar										16:17		16:37	16:57	17:17		17:32	17:47	18:02	18:17		18:37	18:57	19:17		19:37	19:57						
Milton										16:27		16:47	17:07	17:27		17:42	17:57	18:12	18:27		18:47	19:07	19:27		19:47	20:07						

Reference Case Georgetown Timetable

	KIT	KIT	MP	KIT	KIT	KIT	BRA	KIT	MP	KIT	KIT	KIT	MP	KIT	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP
	6:34	6:54	7:02	7:14	7:29	7:33	7:42	8:04	8:02	8:03	8:26	8:46	9:02	9:04	10:02	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:02	21:02	22:02	23:02	0:02	1:02	
	GTL02	GTL04	GTL06	GTL08	GTL10	GTE02	GTL12	GTL14	GTL16	GTE04	GTL18	GTL20	GTL22	GTL24	GTL26	GTL28	GTL30	GTL32	GTL34	GTL36	GTL38	GTL40	GTL42	GTL44	GTL46	GTL48	GTL50	GTL52	GTL54	GTL56	
Kitchener	4:45	5:05		5:25	5:40	5:57		6:15		6:27	6:37	6:57		7:15																	
Breslau	4:52	5:12		5:32	5:47	6:04		6:22		6:34	6:44	7:04		7:22																	
Guelph	5:09	5:29		5:49	6:04	6:20		6:39		6:50	7:01	7:21		7:39																	
Acton	5:24	5:44		6:04	6:19	6:35		6:54		7:05	7:16	7:36		7:54																	
Georgetown	5:33	5:53		6:13	6:28	6:44		7:03		7:14	7:25	7:45		8:03																	
Mount Pleasant	5:41	6:01	6:08	6:21	6:36	6:52		7:11	7:08	7:22	7:33	7:53	8:08	8:11	9:08	10:08	11:08	12:08	13:08	14:08	15:08	16:08	17:08	18:08	19:08	20:08	21:08	22:08	23:08	0:08	
Brampton	5:47	6:07	6:14	6:27	6:42	6:58		7:17	7:14	7:28	7:39	7:59	8:14	8:17	9:14	10:14	11:14	12:14	13:14	14:14	15:14	16:14	17:14	18:14	19:14	20:14	21:14	22:14	23:14	0:14	
Bramalea	5:54	6:14	6:21	6:34	6:49	7:04	7:02	7:24	7:21	7:34	7:46	8:06	8:21	8:24	9:21	10:21	11:21	12:21	13:21	14:21	15:21	16:21	17:21	18:21	19:21	20:21	21:21	22:21	23:21	0:21	
Malton	5:59	6:19	6:26	6:39	6:54		7:07	7:29	7:26		7:51	8:11	8:26	8:29	9:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26	18:26	19:26	20:26	21:26	22:26	23:26	0:26	
Etobicoke N.	6:07	6:27	6:34	6:47	7:02		7:15	7:37	7:34		7:59	8:19	8:34	8:37	9:34	10:34	11:34	12:34	13:34	14:34	15:34	16:34	17:34	18:34	19:34	20:34	21:34	22:34	23:34	0:34	
Weston	6:12	6:32	6:40	6:52	7:07		7:20	7:42	7:40		8:04	8:24	8:40	8:42	9:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	17:40	18:40	19:40	20:40	21:40	22:40	23:40	0:40	
Bloor	6:20	6:40	6:48	7:00	7:15		7:28	7:50	7:48		8:12	8:32	8:48	8:50	9:48	10:48	11:48	12:48	13:48	14:48	15:48	16:48	17:48	18:48	19:48	20:48	21:48	22:48	23:48	0:48	
Union Station	6:34	6:54	7:02	7:14	7:29	7:33	7:42	8:04	8:02	8:03	8:26	8:46	9:02	9:04	10:02	11:02	12:02	13:02	14:02	15:02	16:02	17:02	18:02	19:02	20:02	21:02	22:02	23:02	0:02	1:02	

	MP	MP	MP	MP	MP	MP	MP	MP	MP	KIT	BRA	KIT	MP	KIT	KIT	MP	KIT	KIT	KIT	MP	KIT	KIT	BRA	KIT	MP	MP	MP	MP	MP	MP	MP
	7:12	8:12	9:12	10:12	11:12	12:12	13:12	14:12	15:12	15:32	15:45	16:02	16:12	16:32	16:52	17:12	17:17	17:32	17:52	18:12	18:17	18:32	18:45	19:02	19:12	20:12	21:12	22:12	23:12	0:12	1:12
	GTL01	GTL03	GTL05	GTL07	GTL09	GTL11	GTL13	GTL15	GTL17	GTL19	GTL21	GTL23	GTL25	GTL27	GTL29	GTL31	GTL33	GTL35	GTL37	GTL39	GTL41	GTL43	GTL45	GTL47	GTL49	GTL51	GTL53	GTL55	GTL57	GTL59	GTL61
Union Station	7:12	8:12	9:12	10:12	11:12	12:12	13:12	14:12	15:12	15:32	15:45	16:02	16:12	16:32	16:52	17:12	17:17	17:32	17:52	18:12	18:17	18:32	18:45	19:02	19:12	20:12	21:12	22:12	23:12	0:12	1:12
Bloor	7:20	8:20	9:20	10:20	11:20	12:20	13:20	14:20	15:20	15:40	15:53	16:10	16:20	16:40	17:00	17:20	17:25	17:40	18:00	18:20	18:25	18:40	18:53	19:10	19:20	20:20	21:20	22:20	23:20	0:20	1:20
Weston	7:28	8:28	9:28	10:28	11:28	12:28	13:28	14:28	15:28	15:48	16:01	16:18	16:28	16:48	17:08	17:28	17:33	17:48	18:08	18:28	18:33	18:48	19:01	19:18	19:28	20:28	21:28	22:28	23:28	0:28	1:28
Etobicoke N.	7:34	8:34	9:34	10:34	11:34	12:34	13:34	14:34	15:34	15:54	16:07	16:24	16:34	16:54	17:14	17:34	17:39	17:54	18:14	18:34	18:39	18:54	19:07	19:24	19:34	20:34	21:34	22:34	23:34	0:34	1:34
Malton	7:43	8:43	9:43	10:43	11:43	12:43	13:43	14:43	15:43	16:03	16:16	16:33	16:43	17:03	17:23	17:43	17:48	18:03	18:23	18:43	18:48	19:03	19:16	19:33	19:43	20:43	21:43	22:43	23:43	0:43	1:43
Bramalea	7:48	8:48	9:48	10:48	11:48	12:48	13:48	14:48	15:48	16:08	16:23	16:38	16:48	17:08	17:28	17:48	17:53	18:08	18:28	18:48	18:53	19:08	19:23	19:38	19:48	20:48	21:48	22:48	23:48	0:48	1:48
Brampton	7:55	8:55	9:55	10:55	11:55	12:55	13:55	14:55	15:55	16:15		16:45	16:55	17:15	17:35	17:55	18:00	18:15	18:35	18:55	19:00	19:15		19:45	19:55	20:55	21:55	22:55	23:55	0:55	1:55
Mount Pleasant	8:03	9:03	10:03	11:03	12:03	13:03	14:03	15:03	16:03	16:21		16:51	17:03	17:21	17:41	18:03	18:06	18:21	18:41	19:03	19:06	19:21		19:51	20:03	21:03	22:03	23:03	0:03	1:03	2:03
Georgetown										16:29		16:59		17:29	17:49		18:14	18:29	18:49		19:14	19:29		19:59							
Acton										16:40		17:10		17:40	18:00		18:25	18:40	19:00		19:25	19:40		20:10							
Guelph										16:55		17:25		17:55	18:15		18:40	18:55	19:15		19:40	19:55		20:25							
Breslau										17:14		17:44		18:14	18:34		18:59	19:14	19:34		19:59	20:14		20:44							
Kitchener										17:26		17:56		18:26	18:46		19:11	19:26	19:46		20:11	20:26		20:56							

Reference Case Barrie Timetable

	ALL	BRA	ALL	ALL	ALL	BRA	ALL	ALL	BRA	ALL	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA
	6:55	7:20	7:25	7:45	8:05	8:20	8:25	8:55	9:20	9:25	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20	20:20	21:20	22:20	23:20	0:20	1:20
	BER02	BER04	BER06	BER08	BER10	BER12	BER14	BER16	BER18	BER20	BER22	BER24	BER26	BER28	BER30	BER32	BER34	BER36	BER38	BER40	BER42	BER44	BER46	BER48	BER50	BER52
Allandale	5:13		5:43	6:03	6:23		6:43	7:13		7:43																
Barrie South	5:22		5:52	6:12	6:32		6:52	7:22		7:52																
Innisfil	5:33		6:03	6:23	6:43		7:03	7:33		8:03																
Bradford	5:45	6:07	6:15	6:35	6:55	7:07	7:15	7:45	8:07	8:15	9:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:07	18:07	19:07	20:07	21:07	22:07	23:07	0:07
East Gwillimbury	5:54	6:16	6:24	6:44	7:04	7:16	7:24	7:54	8:16	8:24	9:16	10:16	11:16	12:16	13:16	14:16	15:16	16:16	17:16	18:16	19:16	20:16	21:16	22:16	23:16	0:16
Nemarket	5:58	6:20	6:28	6:48	7:08	7:20	7:28	7:58	8:20	8:28	9:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20	20:20	21:20	22:20	23:20	0:20
Aurora	6:05	6:27	6:35	6:55	7:15	7:27	7:35	8:05	8:27	8:35	9:27	10:27	11:27	12:27	13:27	14:27	15:27	16:27	17:27	18:27	19:27	20:27	21:27	22:27	23:27	0:27
King City	6:16	6:38	6:46	7:06	7:26	7:38	7:46	8:16	8:38	8:46	9:38	10:38	11:38	12:38	13:38	14:38	15:38	16:38	17:38	18:38	19:38	20:38	21:38	22:38	23:38	0:38
Maple	6:24	6:46	6:54	7:14	7:34	7:46	7:54	8:24	8:46	8:54	9:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:46	18:46	19:46	20:46	21:46	22:46	23:46	0:46
Rutherford	6:28	6:50	6:58	7:18	7:38	7:50	7:58	8:28	8:50	8:58	9:50	10:50	11:50	12:50	13:50	14:50	15:50	16:50	17:50	18:50	19:50	20:50	21:50	22:50	23:50	0:50
Downsview	6:37	6:59	7:07	7:27	7:47	7:59	8:07	8:37	8:59	9:07	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:59	17:59	18:59	19:59	20:59	21:59	22:59	23:59	0:59
Union Station	6:55	7:20	7:25	7:45	8:05	8:20	8:25	8:55	9:20	9:25	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	18:20	19:20	20:20	21:20	22:20	23:20	0:20	1:20

	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	BRA	ALL	ALL	BRA	ALL	ALL	BRA	ALL	ALL	BRA	ALL	ALL	BRA	BRA	BRA	BRA	BRA	BRA
	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	15:45	16:15	16:30	16:45	17:15	17:30	17:45	18:15	18:30	18:45	19:15	19:30	20:30	21:30	22:30	23:30	0:30
	BER01	BER03	BER05	BER07	BER09	BER11	BER13	BER15	BER17	BER19	BER21	BER23	BER25	BER27	BER29	BER31	BER33	BER35	BER37	BER39	BER41	BER43	BER45	BER47	BER49	BER51	BER53
Union Station	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	15:45	16:15	16:30	16:45	17:15	17:30	17:45	18:15	18:30	18:45	19:15	19:30	20:30	21:30	22:30	23:30	0:30
Downsview	6:46	7:46	8:46	9:46	10:46	11:46	12:46	13:46	14:46	15:46	16:01	16:31	16:46	17:01	17:31	17:46	18:01	18:31	18:46	19:01	19:31	19:46	20:46	21:46	22:46	23:46	0:46
Rutherford	6:55	7:55	8:55	9:55	10:55	11:55	12:55	13:55	14:55	15:55	16:10	16:40	16:55	17:10	17:40	17:55	18:10	18:40	18:55	19:10	19:40	19:55	20:55	21:55	22:55	23:55	0:55
Maple	6:59	7:59	8:59	9:59	10:59	11:59	12:59	13:59	14:59	15:59	16:14	16:44	16:59	17:14	17:44	17:59	18:14	18:44	18:59	19:14	19:44	19:59	20:59	21:59	22:59	23:59	0:59
King City	7:07	8:07	9:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	16:22	16:52	17:07	17:22	17:52	18:07	18:22	18:52	19:07	19:22	19:52	20:07	21:07	22:07	23:07	0:07	1:07
Aurora	7:17	8:17	9:17	10:17	11:17	12:17	13:17	14:17	15:17	16:17	16:32	17:02	17:17	17:32	18:02	18:17	18:32	19:02	19:17	19:32	20:02	20:17	21:17	22:17	23:17	0:17	1:17
Nemarket	7:24	8:24	9:24	10:24	11:24	12:24	13:24	14:24	15:24	16:24	16:39	17:09	17:24	17:39	18:09	18:24	18:39	19:09	19:24	19:39	20:09	20:24	21:24	22:24	23:24	0:24	1:24
East Gwillimbury	7:28	8:28	9:28	10:28	11:28	12:28	13:28	14:28	15:28	16:28	16:43	17:13	17:28	17:43	18:13	18:28	18:43	19:13	19:28	19:43	20:13	20:28	21:28	22:28	23:28	0:28	1:28
Bradford	7:40	8:40	9:40	10:40	11:40	12:40	13:40	14:40	15:40	16:40	16:52	17:22	17:40	17:52	18:22	18:40	18:52	19:22	19:40	19:52	20:22	20:40	21:40	22:40	23:40	0:40	1:40
Innisfil											17:05	17:35		18:05	18:35		19:05	19:35		20:05	20:35						
Barrie South											17:16	17:46		18:16	18:46		19:16	19:46		20:16	20:46						
Allandale											17:29	17:59		18:29	18:59		19:29	19:59		20:29	20:59						

Reference Case Richmond Hill Timetable

	BLO	RIC	BLO	BLO	RIC	BLO	BLO	RIC	BLO	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC
	6:52	7:09	7:22	7:52	8:09	8:22	8:52	9:09	9:22	10:09	11:09	12:09	13:09	14:09	15:09	16:09	17:09	18:09	19:09	20:09	21:09	22:09	23:09	0:09	1:09	
	RI01	RI03	RI05	RI07	RI09	RI11	RI13	RI15	RI17	RI19	RI21	RI23	RI25	RI27	RI29	RI31	RI33	RI35	RI37	RI39	RI41	RI43	RI45	RI47	RI49	
Bloomington	5:57		6:27	6:57		7:27	7:57		8:27																	
Stouffville	6:02		6:32	7:02		7:32	8:02		8:32																	
Richmond Hill	6:10	6:27	6:40	7:10	7:27	7:40	8:10	8:27	8:40	9:27	10:27	11:27	12:27	13:27	14:27	15:27	16:27	17:27	18:27	19:27	20:27	21:27	22:27	23:27	0:27	
Langstaff	6:15	6:32	6:45	7:15	7:32	7:45	8:15	8:32	8:45	9:32	10:32	11:32	12:32	13:32	14:32	15:32	16:32	17:32	18:32	19:32	20:32	21:32	22:32	23:32	0:32	
Old Cummer	6:22	6:39	6:52	7:22	7:39	7:52	8:22	8:39	8:52	9:39	10:39	11:39	12:39	13:39	14:39	15:39	16:39	17:39	18:39	19:39	20:39	21:39	22:39	23:39	0:39	
Oriole	6:27	6:44	6:57	7:27	7:44	7:57	8:27	8:44	8:57	9:44	10:44	11:44	12:44	13:44	14:44	15:44	16:44	17:44	18:44	19:44	20:44	21:44	22:44	23:44	0:44	
Union Station	6:52	7:09	7:22	7:52	8:09	8:22	8:52	9:09	9:22	10:09	11:09	12:09	13:09	14:09	15:09	16:09	17:09	18:09	19:09	20:09	21:09	22:09	23:09	0:09	1:09	

	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	RIC	BLO	RIC	BLO	BLO	RIC	BLO	BLO	RIC	BLO	BLO	RIC	BLO	RIC	RIC	RIC	RIC	RIC	RIC
	7:19	8:19	9:19	10:19	11:19	12:19	13:19	14:19	15:19	16:04	16:19	16:34	17:04	17:19	17:34	18:04	18:19	18:34	19:04	19:19	19:34	20:19	21:19	22:19	23:19	0:19	1:19
	RI02	RI04	RI06	RI08	RI10	RI12	RI14	RI16	RI18	RI20	RI22	RI24	RI26	RI28	RI30	RI32	RI34	RI36	RI38	RI40	RI42	RI44	RI46	RI48	RI50	RI52	RI54
Union Station	7:19	8:19	9:19	10:19	11:19	12:19	13:19	14:19	15:19	16:04	16:19	16:34	17:04	17:19	17:34	18:04	18:19	18:34	19:04	19:19	19:34	20:19	21:19	22:19	23:19	0:19	1:19
Oriole	7:42	8:42	9:42	10:42	11:42	12:42	13:42	14:42	15:42	16:27	16:42	16:57	17:27	17:42	17:57	18:27	18:42	18:57	19:27	19:42	19:57	20:42	21:42	22:42	23:42	0:42	1:42
Old Cummer	7:46	8:46	9:46	10:46	11:46	12:46	13:46	14:46	15:46	16:31	16:46	17:01	17:31	17:46	18:01	18:31	18:46	19:01	19:31	19:46	20:01	20:46	21:46	22:46	23:46	0:46	1:46
Langstaff	7:53	8:53	9:53	10:53	11:53	12:53	13:53	14:53	15:53	16:38	16:53	17:08	17:38	17:53	18:08	18:38	18:53	19:08	19:38	19:53	20:08	20:53	21:53	22:53	23:53	0:53	1:53
Richmond Hill	8:01	9:01	10:01	11:01	12:01	13:01	14:01	15:01	16:01	16:44	17:01	17:16	17:46	18:01	18:16	18:46	19:01	19:16	19:46	20:01	20:16	21:01	22:01	23:01	0:01	1:01	2:01
Stouffville										16:53		17:23	17:53		18:23	18:53		19:23	19:53		20:23						
Bloomington										17:00		17:30	18:00		18:30	19:00		19:30	20:00		20:30						

Reference Case Stouffville Timetable

	ST	ST	ST	MT	ST	ST	ST	MT	ST	ST	ST	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT			
	6:37	6:52	7:07	7:25	7:37	7:52	8:07	8:25	8:37	8:52	9:07	9:25	10:25	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:25	20:25	21:25	22:25	23:25	0:25	1:25			
	STL02	STL04	STL06	STL08	STL10	STL12	STL14	STL16	STL18	STL20	STL22	STL24	STL26	STL28	STL30	STL32	STL34	STL36	STL38	STL40	STL42	STL44	STL46	STL48	STL50	STL52	STL54	STL56			
Linconville	5:31	5:46	6:01		6:31	6:46	7:01		7:31	7:46	8:01																				
Stouffville	5:38	5:53	6:08		6:38	6:53	7:08		7:38	7:53	8:08																				
Mount Joy	5:47	6:02	6:17	6:35	6:47	7:02	7:17	7:35	7:47	8:02	8:17	8:35	9:35	10:35	11:35	12:35	13:35	14:35	15:35	16:35	17:35	18:35	19:35	20:35	21:35	22:35	23:35	0:35			
Markham	5:51	6:06	6:21	6:39	6:51	7:06	7:21	7:39	7:51	8:06	8:21	8:39	9:39	10:39	11:39	12:39	13:39	14:39	15:39	16:39	17:39	18:39	19:39	20:39	21:39	22:39	23:39	0:39			
Centennial	5:56	6:11	6:26	6:44	6:56	7:11	7:26	7:44	7:56	8:11	8:26	8:44	9:44	10:44	11:44	12:44	13:44	14:44	15:44	16:44	17:44	18:44	19:44	20:44	21:44	22:44	23:44	0:44			
Unionville	6:02	6:17	6:32	6:50	7:02	7:17	7:32	7:50	8:02	8:17	8:32	8:50	9:50	10:50	11:50	12:50	13:50	14:50	15:50	16:50	17:50	18:50	19:50	20:50	21:50	22:50	23:50	0:50			
Milliken	6:08	6:23	6:38	6:56	7:08	7:23	7:38	7:56	8:08	8:23	8:38	8:56	9:56	10:56	11:56	12:56	13:56	14:56	15:56	16:56	17:56	18:56	19:56	20:56	21:56	22:56	23:56	0:56			
Agincourt	6:13	6:28	6:43	7:01	7:13	7:28	7:43	8:01	8:13	8:28	8:43	9:01	10:01	11:01	12:01	13:01	14:01	15:01	16:01	17:01	18:01	19:01	20:01	21:01	22:01	23:01	0:01	1:01			
Kennedy	6:21	6:36	6:51	7:09	7:21	7:36	7:51	8:09	8:21	8:36	8:51	9:09	10:09	11:09	12:09	13:09	14:09	15:09	16:09	17:09	18:09	19:09	20:09	21:09	22:09	23:09	0:09	1:09			
Union Station	6:37	6:52	7:07	7:25	7:37	7:52	8:07	8:25	8:37	8:52	9:07	9:25	10:25	11:25	12:25	13:25	14:25	15:25	16:25	17:25	18:25	19:25	20:25	21:25	22:25	23:25	0:25	1:25			
	MJ	MJ	MJ	MJ	MJ	MJ	MJ	MJ	MJ	MJ	ST	ST	ST	MJ	ST	ST	ST	MJ	ST	ST	ST	MJ	ST	ST	ST	MJ	MJ	MJ	MJ	MJ	MJ
	6:35	7:35	8:35	9:35	10:35	11:35	12:35	13:35	14:35	15:35	15:50	16:05	16:20	16:35	16:50	17:05	17:20	17:35	17:50	18:05	18:20	18:35	18:50	19:05	19:20	19:35	20:35	21:35	22:35	23:35	0:35
	STL01	STL03	STL05	STL07	STL09	STL11	STL13	STL15	STL17	STL19	STL21	STL23	STL25	STL27	STL29	STL31	STL33	STL35	STL37	STL39	STL41	STL43	STL45	STL47	STL49	STL51	STL53	STL55	STL57	STL59	STL61
Union Station	6:35	7:35	8:35	9:35	10:35	11:35	12:35	13:35	14:35	15:35	15:50	16:05	16:20	16:35	16:50	17:05	17:20	17:35	17:50	18:05	18:20	18:35	18:50	19:05	19:20	19:35	20:35	21:35	22:35	23:35	0:35
Kennedy	6:50	7:50	8:50	9:50	10:50	11:50	12:50	13:50	14:50	15:50	16:05	16:20	16:35	16:50	17:05	17:20	17:35	17:50	18:05	18:20	18:35	18:50	19:05	19:20	19:35	19:50	20:50	21:50	22:50	23:50	0:50
Agincourt	6:58	7:58	8:58	9:58	10:58	11:58	12:58	13:58	14:58	15:58	16:13	16:28	16:43	16:58	17:13	17:28	17:43	17:58	18:13	18:28	18:43	18:58	19:13	19:28	19:43	19:58	20:58	21:58	22:58	23:58	0:58
Milliken	7:04	8:04	9:04	10:04	11:04	12:04	13:04	14:04	15:04	16:04	16:19	16:34	16:49	17:04	17:19	17:34	17:49	18:04	18:19	18:34	18:49	19:04	19:19	19:34	19:49	20:04	21:04	22:04	23:04	0:04	1:04
Unionville	7:10	8:10	9:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	16:25	16:40	16:55	17:10	17:25	17:40	17:55	18:10	18:25	18:40	18:55	19:10	19:25	19:40	19:55	20:10	21:10	22:10	23:10	0:10	1:10
Centennial	7:16	8:16	9:16	10:16	11:16	12:16	13:16	14:16	15:16	16:16	16:31	16:46	17:01	17:16	17:31	17:46	18:01	18:16	18:31	18:46	19:01	19:16	19:31	19:46	20:01	20:16	21:16	22:16	23:16	0:16	1:16
Markham	7:20	8:20	9:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	16:35	16:50	17:05	17:20	17:35	17:50	18:05	18:20	18:35	18:50	19:05	19:20	19:35	19:50	20:05	20:20	21:20	22:20	23:20	0:20	1:20
Mount Joy	7:26	8:26	9:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	16:39	16:54	17:09	17:26	17:39	17:54	18:09	18:26	18:39	18:54	19:09	19:26	19:39	19:54	20:09	20:26	21:26	22:26	23:26	0:26	1:26
Stouffville											16:49	17:04	17:19		17:49	18:04	18:19		18:49	19:04	19:19		19:49	20:04	20:19						
Linconville											16:58	17:13	17:28		17:58	18:13	18:28		18:58	19:13	19:28		19:58	20:13	20:28						

Reference Case ARL Timetable

	ARL01	ARL03	ARL06	ARL09	ARL11	ARL13	ARL15	ARL17	ARL19	ARL21	ARL23	ARL25	ARL27	ARL29	ARL31	ARL33	ARL35	ARL37	ARL39	ARL41	ARL43	ARL45	ARL47	ARL49	ARL51	ARL53	ARL55	ARL57	ARL59	ARL61
Toronto USRC	6:32	6:47	7:02	7:17	7:32	7:47	8:02	8:17	8:32	8:47	9:02	9:17	9:32	9:47	10:02	10:17	10:32	10:47	11:02	11:17	11:32	11:47	12:02	12:17	12:32	12:47	13:02	13:17	13:32	13:47
Bathurst																														
Strachan Ave.																														
Bloor	6:39	6:54	7:09	7:24	7:39	7:54	8:09	8:24	8:39	8:54	9:09	9:24	9:39	9:54	10:09	10:24	10:39	10:54	11:09	11:24	11:39	11:54	12:09	12:24	12:39	12:54	13:09	13:24	13:39	13:54
Weston	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00
Etobicoke																														
Woodbine E.																														
ARL Jct. Hwy 427																														
Curve 6																														
X-over																														
Airport Terminal	6:57	7:12	7:27	7:42	7:57	8:12	8:27	8:42	8:57	9:12	9:27	9:42	9:57	10:12	10:27	10:42	10:57	11:12	11:27	11:42	11:57	12:12	12:27	12:42	12:57	13:12	13:27	13:42	13:57	14:12

	ARL02	ARL04	ARL06	ARL08	ARL10	ARL12	ARL14	ARL16	ARL18	ARL20	ARL22	ARL24	ARL26	ARL28	ARL30	ARL32	ARL34	ARL36	ARL38	ARL40	ARL42	ARL44	ARL46	ARL48	ARL50	ARL52	ARL54	ARL56	ARL58	ARL60
Airport Terminal	7:02	7:17	7:32	7:47	8:02	8:17	8:32	8:47	9:02	9:17	9:32	9:47	10:02	10:17	10:32	10:47	11:02	11:17	11:32	11:47	12:02	12:17	12:32	12:47	13:02	13:17	13:32	13:47	14:02	14:17
X-over																														
Curve 6																														
ARL Jct. Hwy 427																														
Woodbine E.																														
Etobicoke																														
Weston	7:14	7:29	7:44	7:59	8:14	8:29	8:44	8:59	9:14	9:29	9:44	9:59	10:14	10:29	10:44	10:59	11:14	11:29	11:44	11:59	12:14	12:29	12:44	12:59	13:14	13:29	13:44	13:59	14:14	14:29
Bloor	7:20	7:35	7:50	8:05	8:20	8:35	8:50	9:05	9:20	9:35	9:50	10:05	10:20	10:35	10:50	11:05	11:20	11:35	11:50	12:05	12:20	12:35	12:50	13:05	13:20	13:35	13:50	14:05	14:20	14:35
Strachan Ave.																														
John Street																														
Toronto USRC	7:27	7:42	7:57	8:12	8:27	8:42	8:57	9:12	9:27	9:42	9:57	10:12	10:27	10:42	10:57	11:12	11:27	11:42	11:57	12:12	12:27	12:42	12:57	13:12	13:27	13:42	13:57	14:12	14:27	14:42

Reference Case ARL Timetable cont'd

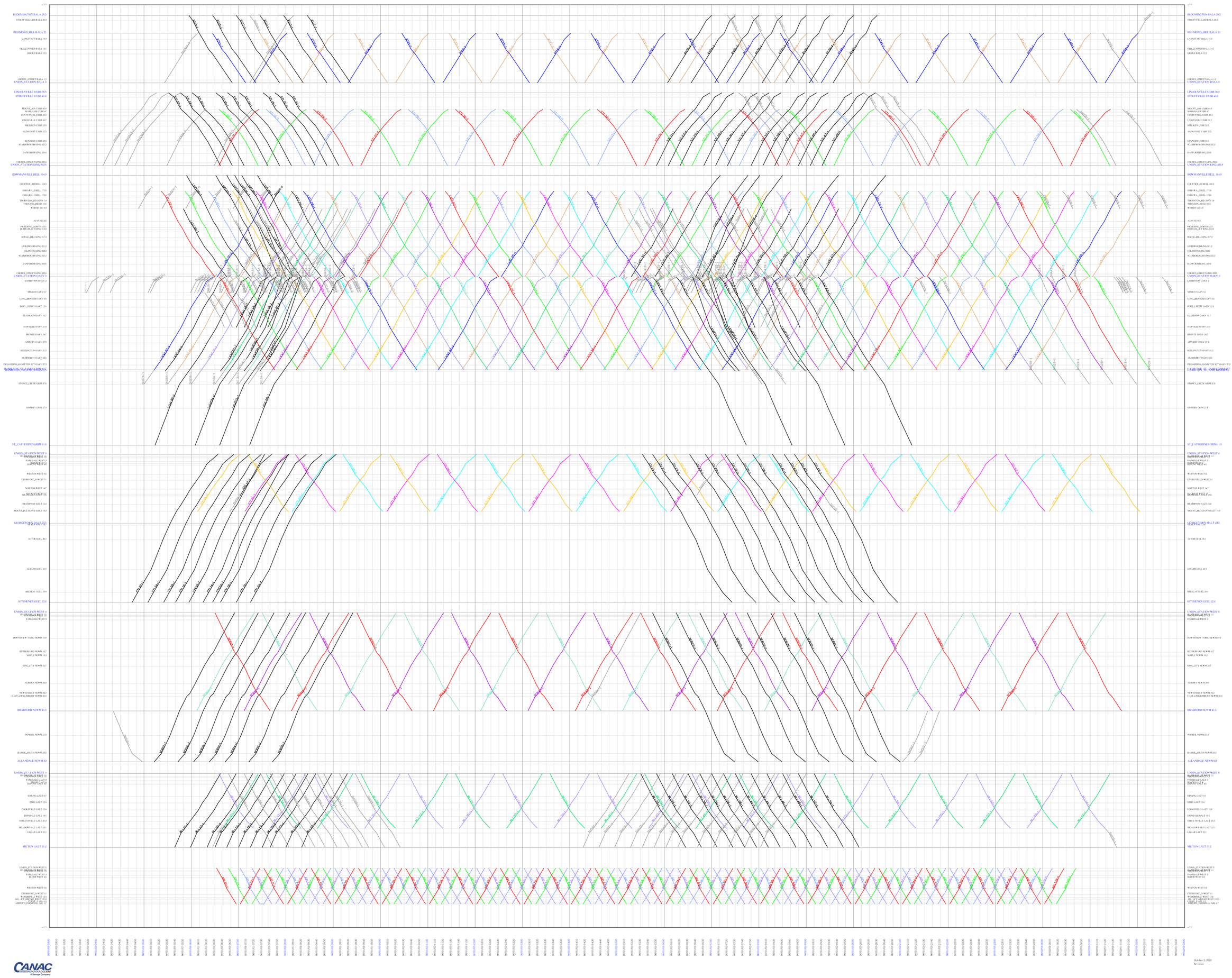
ARL63	ARL65	ARL67	ARL69	ARL71	ARL73	ARL75	ARL77	ARL79	ARL81	ARL83	ARL85	ARL87	ARL89	ARL91	ARL93	ARL95	ARL97	ARL99	ARL101	ARL103	ARL105	ARL107	ARL109	ARL111	ARL113	ARL115	ARL117	ARL119	ARL121
14:02	14:17	14:32	14:47	15:02	15:17	15:32	15:47	16:02	16:17	16:32	16:47	17:02	17:17	17:32	17:47	18:02	18:17	18:32	18:47	19:02	19:17	19:32	19:47	20:02	20:17	20:32	20:47	21:02	21:17
14:09	14:24	14:39	14:54	15:09	15:24	15:39	15:54	16:09	16:24	16:39	16:54	17:09	17:24	17:39	17:54	18:09	18:24	18:39	18:54	19:09	19:24	19:39	19:54	20:09	20:24	20:39	20:54	21:09	21:24
14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	21:15	21:30
14:27	14:42	14:57	15:12	15:27	15:42	15:57	16:12	16:27	16:42	16:57	17:12	17:27	17:42	17:57	18:12	18:27	18:42	18:57	19:12	19:27	19:42	19:57	20:12	20:27	20:42	20:57	21:12	21:27	21:42
ARL62	ARL64	ARL66	ARL68	ARL70	ARL72	ARL74	ARL76	ARL78	ARL80	ARL82	ARL84	ARL86	ARL88	ARL90	ARL92	ARL94	ARL96	ARL98	ARL100	ARL102	ARL104	ARL106	ARL108	ARL110	ARL112	ARL114	ARL116	ARL118	ARL120
14:32	14:47	15:02	15:17	15:32	15:47	16:02	16:17	16:32	16:47	17:02	17:17	17:32	17:47	18:02	18:17	18:32	18:47	19:02	19:17	19:32	19:47	20:02	20:17	20:32	20:47	21:02	21:17	21:32	21:47
14:44	14:59	15:14	15:29	15:44	15:59	16:14	16:29	16:44	16:59	17:14	17:29	17:44	17:59	18:14	18:29	18:44	18:59	19:14	19:29	19:44	19:59	20:14	20:29	20:44	20:59	21:14	21:29	21:44	21:59
14:50	15:05	15:20	15:35	15:50	16:05	16:20	16:35	16:50	17:05	17:20	17:35	17:50	18:05	18:20	18:35	18:50	19:05	19:20	19:35	19:50	20:05	20:20	20:35	20:50	21:05	21:20	21:35	21:50	22:05
14:57	15:12	15:27	15:42	15:57	16:12	16:27	16:42	16:57	17:12	17:27	17:42	17:57	18:12	18:27	18:42	18:57	19:12	19:27	19:42	19:57	20:12	20:27	20:42	20:57	21:12	21:27	21:42	21:57	22:12

Reference Case ARL Timetable cont'd

ARL123	ARL125	ARL127	ARL129	ARL131	ARL133	ARL135	ARL137	ARL139	ARL141
21:32	21:47	22:02	22:17	22:32	22:47	23:02	23:17	23:32	23:47
21:39	21:54	22:09	22:24	22:39	22:54	23:09	23:24	23:39	23:54
21:45	22:00	22:15	22:30	22:45	23:00	23:15	23:30	23:45	0:00
21:57	22:12	22:27	22:42	22:57	23:12	23:27	23:42	23:57	0:12
ARL122	ARL124	ARL126	ARL128	ARL130	ARL132	ARL134	ARL136	ARL138	ARL140
22:02	22:17	22:32	22:47	23:02	23:17	23:32	23:47	0:02	0:17
22:14	22:29	22:44	22:59	23:14	23:29	23:44	23:59	0:14	0:29
22:20	22:35	22:50	23:05	23:20	23:35	23:50	0:05	0:20	0:35
22:27	22:42	22:57	23:12	23:27	23:42	23:57	0:12	0:27	0:42

APPENDIX 5C – REFERENCE CASE STRING LINE DIAGRAM

Reference Case GO and ARL Schedule Including Non-Revenue Moves



APPENDIX 5D – TRAIN SET CYCLING SUMMARY

APPENDIX 5D – TRAIN SET CYCLING SUMMARY

Set #	Morning Storage	Moves																								Overnight Storage	Stringline Color
1	Whitby	**DH01A**	LKEL02	LKWL01	LKWL30	LKEL13	LKEL40	LKWL25	LKWL54	LKEL39	LKEL64	LKWL63	LKWL78	LKEL77	LKEL88	LKWL91									**DH01B**	Stoney Creek	RED
2	Whitby	**DH02A**	LKEL06	LKWL03	LKWL32	LKEL15	LKEL42	LKWL27	LKWL56	LKEL43	LKEL66	LKWL67	LKWL80	LKEL79	LKEL90	LKWL93									**DH02B**	Stoney Creek	GREEN
3	Whitby	**DH03A**	LKEL10	LKWL05	LKWL34	LKEL17	LKEL44	LKWL29	LKWL58	LKEL45	LKEL68	LKWL71	LKWL82	LKEL81											**DH03B**	Whitby	PALE BLUE
4	Whitby	**DH04A**	LKEL14	LKWL07	LKWL36	LKEL19	LKEL46	LKWL31	LKWL60	LKEL49	LKEL70	LKWL73	LKWL84	LKEL83											**DH04B**	Whitby	ORANGE
5	Whitby	**DH05A**	LKEL20	LKWL09	LKWL38	LKEL21	LKEL48	LKWL33	LKWL62	LKEL53	LKEL72	LKWL75	LKWL86	LKEL85											**DH05B**	Whitby	MAGENTA
6	Whitby	**DH06A**	LKEL24	LKWL11	LKWL40	LKEL23	LKEL50	LKWL35	LKWL64	LKEL57	LKEL74	LKWL77	LKWL88	LKEL87											**DH06B**	Whitby	CYAN
7	Stoney Creek	**DH07A**	LKWL02	LKEL01	LKEL28	LKWL13	LKWL42	LKEL25	LKEL52	LKWL37	LKWL66	LKEL61	LKEL76	LKWL79	LKWL90	LKEL89									**DH07B**	Whitby	BLUE
8	Stoney Creek	**DH08A**	LKWL06	LKEL03	LKEL30	LKWL15	LKWL44	LKEL27	LKEL54	LKWL41	LKWL68	LKEL65	LKEL78	LKWL81	LKWL92	LKEL91									**DH08B**	Whitby	BROWN
9	Stoney Creek	**DH09A**	LKWL10	LKEL05	LKEL32	LKWL17	LKWL46	LKEL29	LKEL56	LKWL45	LKWL70	LKEL69	LKEL80	LKWL83											**DH09B**	Stoney Creek	LILAC
10	Stoney Creek	**DH10A**	LKWL16	LKEL07	LKEL34	LKWL19	LKWL48	LKEL31	LKEL58	LKWL49	LKWL72	LKEL71	LKEL82	LKWL85											**DH10B**	Stoney Creek	DRK.GREEN
11	Stoney Creek	**DH11A**	LKWL22	LKEL09	LKEL36	LKWL21	LKWL50	LKEL33	LKEL60	LKWL55	LKWL74	LKEL73	LKEL84	LKWL87											**DH11B**	Stoney Creek	TEAL
12	Stoney Creek	**DH12A**	LKWL26	LKEL11	LKEL38	LKWL23	LKWL52	LKEL35	LKEL62	LKWL59	LKWL76	LKEL75	LKEL86	LKWL89											**DH12B**	Stoney Creek	DEEP PURPLE
13	Willowbrook	**DH13A**	STL01	STL24	STL07	STL30	STL13	STL36	STL19	STL42	STL43	STL48	STL55	STL54	STL61										**DH13B**	Willowbrook	RED
14	Willowbrook	**DH14A**	STL08	STL03	STL26	STL09	STL32	STL15	STL38	STL27	STL44	STL51	STL50	STL57	STL56										**DH14B**	Willowbrook	GREEN
15	Willowbrook	**DH15A**	STL16	STL05	STL28	STL11	STL34	STL17	STL40	STL35	STL46	STL53	STL52	STL59											**DH15B**	Willowbrook	PALE BLUE
16	Mount Pleasant		GTL06	GTL01	GTL26	GTL07	GTL32	GTL13	GTL38	GTL25	GTL44	GTL49	GTL50	GTL55	GTL56	GTL61										Mount Pleasant	ORANGE
17	Mount Pleasant		GTL16	GTL03	GTL28	GTL09	GTL34	GTL15	GTL40	GTL31	GTL46	GTL51	GTL52	GTL57												Mount Pleasant	MAGENTA
18	Mount Pleasant		GTL22	GTL05	GTL30	GTL11	GTL36	GTL17	GTL42	GTL39	GTL48	GTL53	GTL54	GTL59												Mount Pleasant	CYAN
19	Willowbrook	**DH19A**	RI03	RI02	RI15	RI06	RI21	RI10	RI25	RI14	RI29	RI18	RI33	RI28	RI37	RI40	RI41	RI46	RI45	RI50	RI49	RI54	**DH19B**	Bloomington	BLUE
20	Bloomington	**DH20A**	RI09	RI04	RI19	RI08	RI23	RI12	RI27	RI16	RI31	RI22	RI35	RI34	RI39	RI44	RI43	RI48	RI47	RI52			**DH20B**	Willowbrook	BROWN
21	Willowbrook	**DH21A**	MLL02	MLL17	MLL06	MLL31	MLL10	MLL35	MLL14	MLL39	MLL18	MLL43	MLL32	MLL47	MLL50	MLL51	MLL58	MLL55	MLL62	MLL59	MLL66		**DH21B**	Milton	LILAC
22	Milton	**DH22A**	MLL07	MLL04	MLL29	MLL08	MLL33	MLL12	MLL37	MLL16	MLL41	MLL24	MLL45	MLL42	MLL49	MLL56	MLL53	MLL60	MLL57	MLL64	MLL61		**DH22B**	Willowbrook	DRK.GREEN
23	Bradford		BER04	BER03	BER22	BER09	BER28	BER15	BER34	BER25	BER40	BER43	BER46	BER49	BER52								**DH23A**	Willowbrook	TEAL
24	Bradford		BER12	BER05	BER24	BER11	BER30	BER17	BER36	BER31	BER42	BER45	BER48	BER51										Bradford	DEEP PURPLE
25	Willowbrook	**DH25A**	BER01	BER18	BER07	BER26	BER13	BER32	BER19	BER38	BER37	BER44	BER47	BER50	BER53									Bradford	RED

Set #	Morning Storage	Moves					Afternoon Storage						Overnight Storage	Stringline Color
26	Bloomington		RI01	DH26A	RI17		DH26B	Bathurst	DH26C	RI20	DH26D	RI36	Bloomington	BLACK
27	Bloomington		RI05				DH27A	Bathurst	DH27B	RI24	DH27C	RI38	Bloomington	BLACK
28	Bloomington		RI07				DH28A	Bathurst	DH28B	RI26	DH28C	RI42	Bloomington	BLACK
29	Bloomington		RI11				DH29A	Bathurst	DH29B	RI30			Bloomington	BLACK
30	Bloomington		RI13				DH30A	Bathurst	DH30B	RI32			Bloomington	BLACK
31	Willowbrook	DH31A	STL02				DH31B	Willowbrook	DH31C	STL21			Lincolnville	BLACK
32	Willowbrook	DH32A	STL04				DH32B	Willowbrook	DH32C	STL23	DH32D	STL45	DH32E Willowbrook	BLACK
33	Willowbrook	DH33A	STL06				DH33B	Willowbrook	DH33C	STL25	DH33D	STL47	DH33E Willowbrook	BLACK
34	Lincolnville		STL10				DH34A	Willowbrook	DH34B	STL29	DH34C	STL49	DH34D Willowbrook	BLACK
35	Lincolnville		STL12				DH35A	Willowbrook	DH35B	STL31			Lincolnville	BLACK
36	Lincolnville		STL14				DH36A	Willowbrook	DH36B	STL33			Lincolnville	BLACK
37	Lincolnville		STL18				DH37A	Willowbrook	DH37B	STL37			Lincolnville	BLACK
38	Lincolnville		STL20				DH38A	Willowbrook	DH38B	STL39			Lincolnville	BLACK
39	Lincolnville		STL22				DH39A	Willowbrook	DH39B	STL41			Lincolnville	BLACK
														BLACK
40	Kitchener		GTL02				DH40A	Don	DH40B	GTL19			Kitchener	BLACK
41	Kitchener		GTL04				DH41A	Don	DH41B	GTL21	DH41C	GTL35	Kitchener	BLACK
42	Kitchener		GTL08				DH42A	Don	DH42B	GTL23			Kitchener	BLACK
43	Kitchener		GTL10				DH43A	Don	DH43B	GTL27			Kitchener	BLACK
44	Kitchener		GTE02				DH44A	Don	DH44B	GTL29			Kitchener	BLACK
45	Kitchener		GTL14				DH45A	Don	DH45B	GTL33			Kitchener	BLACK
46	Kitchener		GTE04				DH46A	Don	DH46B	GTL37			Kitchener	BLACK
47	Kitchener		GTL18				DH47A	Don	DH47B	GTL41			Kitchener	BLACK
48	Kitchener		GTL20				DH48A	Don	DH48B	GTL43			Kitchener	BLACK
49	Kitchener		GTL24				DH49A	Don	DH49B	GTL47			Kitchener	BLACK
50	Mount Pleasant	DH50A	GTL12				DH50B	Bathurst	DH50C	GTL45			DH50D Mount Pleasant	BLACK
51	Bradford	DH51A	BER02				DH51B	Whitby	DH51C	BER23			Allandale	BLACK
52	Allandale		BER06				DH52A	Whitby	DH52B	BER27			Allandale	BLACK
53	Allandale		BER08				DH53A	Don X	DH53B	BER29			Allandale	BLACK
54	Allandale		BER10				DH54A	Don X	DH54B	BER33			Allandale	BLACK
55	Allandale		BER14				DH55A	Whitby	DH55B	BER35			Allandale	BLACK
56	Allandale		BER16				DH56A	Whitby	DH56B	BER39			DH56C Bradford	BLACK
57	Allandale		BER20				DH57A	Whitby	DH57B	BER41			DH57C Bradford	BLACK
58	Bradford							Bradford	DH58A	BER21			Allandale	BLACK
59	Milton		MLL01	DH59A	MLL25		DH59B	Milton	DH59C	MLL20	DH59D	MLL44	Milton	BLACK
60	Milton		MLL03	DH60A	MLL27		DH60B	Milton	DH60C	MLL26	DH60D	MLL46	Milton	BLACK
61	Milton		MLL05				DH61A	Milton	DH61B	MLL28	DH61C	MLL48	Milton	BLACK
62	Milton		MLL11				DH62A	Milton	DH62B	MLL30	DH62C	MLL52	Milton	BLACK
63	Milton		MLL13				DH63A	Milton	DH63B	MLL34	DH63C	MLL54	Milton	BLACK
64	Milton		MLL15				DH64A	Milton	DH64B	MLL36			Milton	BLACK
65	Milton		MLL19				DH65A	Milton	DH65B	MLL38			Milton	BLACK
66	Milton		MLL21				DH66A	Milton	DH66B	MLL40			Milton	BLACK
67	Milton		MLL23				DH67A	Milton					Milton	BLACK
68	Hamilton TH&B		LKWL04				DH68A	Don X	DH68B	LKWL43			Hamilton TH&B	BLACK
69	Whitby		LKEL04				DH69A	Bathurst	DH69B	LKEL37			Whitby	BLACK
70	St-Catherines		LKWL08				DH70A	Willowbrook	DH70B	LKWL39			St-Catherines	BLACK
71	Willowbrook	DH71A	LKWL12				DH71B	Whitby	DH71C	LKWE01			Hamilton TH&B	BLACK
72	Willowbrook	DH72A	LKWL14				DH72B	Whitby	DH72C	LKWL47			DH72D Willowbrook	BLACK
73	Hamilton TH&B		LKWE02				DH73A	Don X	DH73B	LKWE03			DH73C Stoney Creek	BLACK
74	St-Catherines		LKWE04				DH74A	Don X	DH74B	LKWE05			St-Catherines	BLACK
75	Willowbrook	DH75A	LKWL18				DH75B	Whitby	DH75C	LKWL51			DH75D Willowbrook	BLACK
76	Stoney Creek	DH76A	LKWE06				DH76B	Don X	DH76C	LKWE07			DH76D Stoney Creek	BLACK
77	Hamilton TH&B		LKWE08				DH77A	Don X	DH77B	LKWL57			Hamilton TH&B	BLACK
78	St-Catherines		LKWE10				DH78A	Don X	DH78B	LKWE09			St-Catherines	BLACK
79	Stoney Creek	DH79A	LKWE12				DH79B	Whitby	DH79C	LKWL61			DH79D Willowbrook	BLACK
80	Hamilton TH&B		LKWL24				DH80A	Willowbrook	DH80B	LKWL65			Hamilton TH&B	BLACK
81	St-Catherines		LKWL28				DH81A	Willowbrook	DH81B	LKWL69			St-Catherines	BLACK
82	Bowmanville		LKEL08				DH82A	Willowbrook	DH82B	LKEL41			Bowmanville	BLACK
83	Bowmanville		LKEE02				DH83A	Willowbrook	DH83B	LKEE01			Bowmanville	BLACK
84	Whitby	DH84A	LKEL12				DH84B	Willowbrook	DH84C	LKEL47			DH84D Whitby	BLACK
85	Bowmanville		LKEE04				DH85A	Willowbrook	DH85B	LKEE03			Bowmanville	BLACK
86	Whitby	DH86A	LKEL16				DH86B	Willowbrook	DH86C	LKEL51			DH86D Whitby	BLACK
87	Bowmanville		LKEE06				DH87A	Willowbrook	DH87B	LKEE05			Bowmanville	BLACK
88	Bowmanville		LKEE08				DH88A	Willowbrook	DH88B	LKEL55			Whitby	BLACK
89	Bowmanville		LKEL22				DH89A	Willowbrook	DH89B	LKEL59			Bowmanville	BLACK
90	Whitby	DH90A	LKEL26				DH90B	Willowbrook	DH90C	LKEL67			Bowmanville	BLACK
91	Whitby	DH91A	LKEL18				DH91B	Willowbrook	DH91C	LKEL63			Whitby	BLACK
92	Willowbrook	DH92A	LKWL20				DH92B	Don X	DH92C	LKWL53			Willowbrook	BLACK

Set #	Morning Storage	Moves																					Overnight Storage		Stringline Color
A1	Willowbrook	**DHA1A**	ARL01	ARL02	ARL11	ARL10	ARL19	ARL18	ARL27	ARL26	ARL35	ARL34	ARL43	ARL42	ARL51	ARL50	ARL59	ARL58	ARL67	ARL66	ARL75	ARL74	**...**			RED
			...	ARL83	ARL82	ARL91	ARL90	ARL99	ARL98	ARL107	ARL106	ARL115	ARL114	ARL123	ARL122	ARL131	ARL130	ARL139	ARL138				**DHA1B**	Willowbrook		RED
A2	Willowbrook	**DHA2A**	ARL03	**ARL04**	ARL13	ARL12	ARL21	ARL20	ARL29	ARL28	ARL37	ARL36	ARL45	ARL44	ARL53	ARL52	ARL61	ARL60	ARL69	ARL68	ARL77	ARL76	**...**			GREEN
			...	ARL85	ARL84	ARL93	ARL92	ARL101	ARL100	ARL109	ARL108	ARL117	ARL116	ARL125	ARL124	ARL133	ARL132	ARL141	ARL140				**DHA2B**	Willowbrook		GREEN
A3	Willowbrook	**DHA3A**	ARL06	ARL06	ARL15	ARL14	ARL23	ARL22	ARL31	ARL30	ARL39	ARL38	ARL47	ARL46	ARL55	ARL54	ARL63	ARL62	ARL71	ARL70	ARL79	ARL78	**...**			PALE BLUE
			...	ARL87	ARL86	ARL95	ARL94	ARL103	ARL102	ARL111	ARL110	ARL119	ARL118	ARL127	ARL126	ARL135	ARL134						**DHA3B**	Willowbrook		PALE BLUE
A4	Willowbrook	**DHA4A**	ARL09	ARL08	ARL17	ARL16	ARL25	ARL24	ARL33	ARL32	ARL41	ARL40	ARL49	ARL48	ARL57	ARL56	ARL65	ARL64	ARL73	ARL72	ARL81	ARL80	**...**			LILLAC
			...	ARL89	ARL88	ARL97	ARL96	ARL105	ARL104	ARL113	ARL112	ARL121	ARL120	ARL129	ARL128	ARL137	ARL136						**DHA4B**	Willowbrook		LILLAC

APPENDIX 5E – WEEKDAY FUEL CONSUMPTION, TRAIN-MILES AND TON-MILES IN REVENUE SERVICE

Location	Local / Express	Origin	Destination	Trains / Day	Dist.(mi)	Fuel Cons. (gal.)	Tot. Fuel Cons. (gal.)	Tot. Fuel Cons. + Hotel Power and Idling (gal.)	Tot. Fuel / Corr.	Tot. Train-Miles	Train-Miles / Corr.	Train-Ton-Miles / Corr.*
Barrie	Local	Allandale	Union Station	7	63.0	130	911	1,093	5,608	441.0	2,522	2,036,515
Barrie	Local	Bradford	Union Station	19	41.5	85	1,622	1,947		788.5		
Barrie	Local	Union Station	Bradford	19	41.5	100	1,901	2,281		788.5		
Barrie	Local	Union Station	Allandale	8	63.0	147	1,173	1,408		504.0		
Georgetown	Local	Kitchener	Union Station	8	62.6	123	980	1,176	5,116	500.4	2,221	1,793,167
Georgetown	Express	Kitchener	Union Station	2	62.6	115	230	277		125.1		
Georgetown	Local	Mount Pleasant	Union Station	19	24.1	48	918	1,102		458.7		
Georgetown	Local	Bramalea	Union Station	1	17.4	35	35	42		17.4		
Georgetown	Local	Union Station	Bramalea	2	17.4	48	96	115		34.9		
Georgetown	Local	Union Station	Mount Pleasant	19	24.1	69	1,316	1,579		458.7		
Georgetown	Local	Union Station	Kitchener	10	62.6	154	1,540	1,847		625.5		
Lakeshore East	Local	Bowmanville	Union Station	2	43.0	110	220	264	9,182	86.0	3,514	2,837,507
Lakeshore East	Express	Bowmanville	Union Station	4	43.0	95	379	455		171.9		
Lakeshore East	Local	Oshawa 2	Union Station	38	36.3	95	3,623	4,347		1,378.6		
Lakeshore East	Local	Whitby	Union Station	2	28.8	78	155	186		57.7		
Lakeshore East	Local	Pickering North	Union Station	3	20.9	56	168	202		62.8		
Lakeshore East	Local	Union Station	Pickering North	3	20.9	55	166	200		62.8		
Lakeshore East	Local	Union Station	Whitby	2	28.8	77	154	185		57.7		
Lakeshore East	Local	Union Station	Oshawa 2	38	36.3	96	3,660	4,392		1,378.6		
Lakeshore East	Local	Union Station	Bowmanville	3	43.0	116	349	419		128.9		
Lakeshore East	Express	Union Station	Bowmanville	3	43.0	102	307	369		128.9		
Lakeshore West	Local	St. Catherines	Union Station	2	71.2	154	308	370	10,809	142.4	4,185	3,379,549
Lakeshore West	Express	St. Catherines	Union Station	2	71.2	138	276	331		142.4		
Lakeshore West	Local	Hamilton-TH&B	Union Station	2	39.9	106	212	255		79.8		
Lakeshore West	Express	Hamilton-TH&B	Union Station	2	39.9	90	180	216		79.8		
Lakeshore West	Local	Hamilton-St. James	Union Station	38	39.3	106	4,046	4,855		1,493.4		
Lakeshore West	Express	Aldershot	Union Station	2	34.6	79	159	191		69.2		
Lakeshore West	Local	Oakville	Union Station	4	21.4	58	232	279		85.6		
Lakeshore West	Local	Union Station	Oakville	4	21.4	59	236	284		85.6		
Lakeshore West	Express	Union Station	Aldershot	2	34.6	83	166	199		69.2		
Lakeshore West	Local	Union Station	Hamilton-St. James	38	39.3	105	4,002	4,803		1,493.4		
Lakeshore West	Local	Union Station	Hamilton-TH&B	3	39.9	94	281	337		119.7		
Lakeshore West	Express	Union Station	Hamilton-TH&B	1	39.9	108	108	129		39.9		
Lakeshore West	Local	Union Station	St. Catherines	2	71.2	159	317	381		142.4		
Lakeshore West	Express	Union Station	St. Catherines	2	71.2	142	284	341		142.4		
Milton	Local	Milton	Union Station	11	31.2	66	728	874	3,914	343.2	1,627	1,313,480
Milton	Local	Meadowvale	Union Station	19	23.1	45	863	1,036		438.9		
Milton	Local	Union Station	Meadowvale	19	23.1	64	1,208	1,450		438.9		
Milton	Local	Union Station	Milton	13	31.2	86	1,114	1,337		405.6		
Richmond Hill	Local	Bloomington	Union Station	6	28.5	35	213	256	2,259	171.0	1,197	966,578
Richmond Hill	Local	Richmond Hill	Union Station	19	21.0	26	500	600		399.0		
Richmond Hill	Local	Union Station	Richmond Hill	19	21.0	50	954	1,145		399.0		
Richmond Hill	Local	Union Station	Bloomington	8	28.5	74	593	711		228.0		
Stouffville	Local	Lincolnville	Union Station	9	30.7	53	477	573	3,489	276.4	1,546	1,248,306
Stouffville	Local	Mount Joy	Union Station	19	23.7	45	846	1,015		450.5		
Stouffville	Local	Union Station	Mount Joy	19	23.7	61	1,158	1,390		450.5		
Stouffville	Local	Union Station	Lincolnville	12	30.7	84	1,007	1,209		368.5		
				489			**40,380**	**48,450**		**16,810**		**13,575,100**
Airport Rail Link	Local	Union Station	Pearson Airport	70	15.4	14	960	1,152	1,636	1,077.3	2,155	383,520
Airport Rail Link	Local	Pearson Airport	Union Station	70	15.4	10	677	812		1,077.3		
				140			**1,640**	**1,960**		**2,150**		**383,520**

* Revenue Diesel Train Weight: **807.5 tons**

* Revenue ARL DMU Train Weight: **178.0 tons**

Total Weekday Fuel Consumption = **50,410** Imperial Gallons
(incl. 20% allowance for Hotel Power and Idling)

Appendix 5E (continued) – Weekday Fuel Consumption, Train-Miles and Ton-Miles in Non-Revenue Service

Corridor	Location	Local / Express	Origin	Destination	Storage	Trains / Day	Dist. (mi)	Fuel Cons. (gal.)	Tot. Fuel Cons. (gal.)	Tot. Fuel Cons. + Hotel Power and Idling (gal.)	Tot. Fuel / Corr.	Tot. Train-Miles	Train-Miles / Corr.	Train-Ton-Miles / Corr.*
BARRIE	Barrie	Local	Allandale	Bradford	Into Overnight	2	21.5	45	89	107	1,037	43.0	414	284,419
	Barrie	Local	Bradford	Allandale	Out of Overnight	1	21.5	47	47	56		21.5		
	Lakeshore East	Local	Don Yard	Union Station	Out of Midday	2	1.5	2	3	4		3.0		
	Lakeshore East	Local	Union Station	Don Yard	Into Midday	2	1.5	2	4	5		3.0		
	Lakeshore West	Local	Willowbrook	Union Station	Out of Overnight	1	6.7	17	17	21		6.7		
	Lakeshore West	Local	Union Station	Willowbrook	Into Overnight	1	6.7	18	18	21		6.7		
	Lakeshore East	Local	Union Station	Whitby	Into Midday	5	28.8	77	385	462		144.2		
	Lakeshore East	Local	Whitby	Union Station	Out of Midday	5	28.8	78	388	466		144.2		
	Barrie	Local	Bradford	Union Station	Out of Midday	1	41.5	85	85	102		41.5		
GEORGETOWN	Georgetown	Local	Bramalea	Union Station	No Storage	1	17.4	35	35	42	112	17.4	63	43,615
	Georgetown	Local	Bramalea	Mount Pleasant	Into Overnight	1	6.7	21	21	25		6.7		
	Lakeshore East	Local	Don Yard	Union Station	Out of Midday	10	1.5	2	16	20		15.0		
	Lakeshore East	Local	Union Station	Don Yard	Into Midday	10	1.5	2	21	25		15.0		
	Lakeshore West	Local	Bathurst	Union Station	Out of Midday	1	1.3	2	2	3		1.3		
	Lakeshore West	Local	Union Station	Bathurst	Into Midday	1	1.3	3	3	4		1.3		
	Georgetown	Local	Mount Pleasant	Bramalea	Out of Overnight	1	6.7	14	14	16		6.7		
LAKESHORE	Lakeshore East	Local	Don Yard	Union Station	Out of Midday	7	1.5	2	11	14	994	10.5	388	266,743
	Lakeshore East	Local	Union Station	Don Yard	Into Midday	7	1.5	2	15	18		10.5		
	Lakeshore East	Local	Oshawa 2	Whitby	Into Overnight	6	7.5	18	106	128		44.7		
	Lakeshore East	Local	Whitby	Oshawa 2	Out of Overnight	7	7.5	19	136	163		52.2		
	Lakeshore East	Local	Pickering North	Whitby	Into Overnight	2	7.9	22	43	52		15.8		
	Lakeshore East	Local	Whitby	Pickering North	Out of Overnight	3	7.9	22	65	78		23.7		
	Lakeshore East	Local	Union Station	Whitby	Into Midday	4	28.8	77	308	369		115.3		
	Lakeshore East	Local	Whitby	Union Station	Out of Midday	4	28.8	78	310	373		115.3		
	Lakeshore West	Local	Aldershot	Stoney Creek Yard	Into Overnight	2	8.4	12	25	30	878	16.8	372	256,025
	Lakeshore West	Local	Stoney Creek Yard	Aldershot	Out of Overnight	2	8.4	13	26	31		16.8		
	Lakeshore West	Local	Hamilton-St. James	Stoney Creek Yard	Into Overnight	6	3.7	4	27	32		22.2		
	Lakeshore West	Local	Stoney Creek Yard	Hamilton-St. James	Out of Overnight	6	3.7	2	12	15		22.2		
	Lakeshore West	Local	Oakville	Willowbrook	Into Overnight	4	14.7	41	163	196		58.8		
	Lakeshore West	Local	Willowbrook	Oakville	Out of Overnight	4	14.7	41	166	199		58.8		
	Lakeshore West	Local	Bathurst	Union Station	Out of Midday	1	1.3	2	2	3		1.3		
	Lakeshore West	Local	Union Station	Bathurst	Into Midday	1	1.3	3	3	4		1.3		
	Lakeshore West	Local	Willowbrook	Union Station	Out of Midday	13	6.7	17	225	270		87.1		
	Lakeshore West	Local	Union Station	Willowbrook	Into Midday	13	6.7	18	229	275		87.1		
MILTON	Milton	Local	Meadowvale	Milton	Into Overnight	1	8.1	22	22	27	1,881	8.1	778	535,150
	Milton	Local	Milton	Meadowvale	Out of Overnight	1	8.1	21	21	25		8.1		
	Lakeshore West	Local	Willowbrook	Union Station	Out of Overnight	1	6.7	17	17	21		6.7		
	Lakeshore West	Local	Union Station	Willowbrook	Into Overnight	1	6.7	18	18	21		6.7		
	Milton	Local	Milton	Union Station	Out of Midday	8	31.2	66	529	635		249.6		
					No Storage	5	31.2	66	331	397		156.0		
	Milton	Local	Union Station	Milton	Into Midday	9	31.2	86	772	926		280.8		
					No Storage	2	31.2	86	171	206		62.4		
RICHMOND HILL	Richmond Hill	Local	Bloomington	Richmond Hill	Out of Overnight	1	7.5	9	9	11	353	7.5	197	135,713
	Richmond Hill	Local	Richmond Hill	Bloomington	Into Overnight	1	7.5	24	24	29		7.5		
	Richmond Hill	Local	Bloomington	Union Station	No Storage	3	28.5	35	106	128		85.5		
	Richmond Hill	Local	Union Station	Bloomington	No Storage	1	28.5	74	74	89		28.5		
	Lakeshore West	Local	Bathurst	Union Station	Out of Midday	5	1.3	2	11	13		6.5		
	Lakeshore West	Local	Union Station	Bathurst	Into Midday	5	1.3	3	17	20		6.5		
	Richmond Hill	Local	Richmond Hill	Willowbrook	Into Overnight	1	27.7	44	44	53		27.7		
	Richmond Hill	Local	Willowbrook	Richmond Hill	Out of Overnight	1	27.7	67	67	81		27.7		
STOUFFVILLE	Stouffville	Local	Lincolnville	Willowbrook	Into Overnight	3	37.4	71	212	254	1,305	112.2	572	393,408
	Stouffville	Local	Willowbrook	Lincolnville	Out of Overnight	3	37.4	101	304	364		112.2		
	Lakeshore West	Local	Willowbrook	Union Station	Out of Midday	9	6.7	17	156	187		60.3		
					Out of Overnight	1	6.7	17	17	21		6.7		
	Lakeshore West	Local	Union Station	Willowbrook	Into Midday	9	6.7	18	159	190		60.3		
					Into Overnight	1	6.7	18	18	21		6.7		
	Stouffville	Local	Lincolnville	Union Station	No Storage	3	30.7	53	159	191		92.1		
	Stouffville	Local	Mount Joy	Willowbrook	Into Overnight	2	30.4	62	124	149		60.8		
	Stouffville	Local	Willowbrook	Mount Joy	Out of Overnight	2	30.4	78	157	188		60.8		
						216			**6,560**	**7,870**		**2,790**		**1,915,070**
	Airport Rail Link	Local	Union Station	Willowbrook	Into Overnight	4	6.7	5	19	23	36	26.8	54	8,040
	Airport Rail Link	Local	Willowbrook	Union Station	Out of Overnight	4	6.7	4	17	21		26.8		
						8			**36**	**40**		**54**		**8,040**

* Non-Revenue Diesel Train Weight: **687.5 tons**

* Non-Revenue ARL DMU Train Weight: **150.0 tons**

Total Weekday Fuel Consumption = **7,910** Imperial Gallons
(incl. 20% allowance for Hotel Power and Idling)

APPENDIX 5F – EXPRESS TRAIN TRANSIT TIME SAVINGS WITH DIFFERENT TECHNOLOGY OPTIONS

Appendix 5F – Local Train Transit Time Savings with Different Technology Options

Lakeshore West & St. Catherines - Outbound															
	Union Station	Exhibition	Mimico	Long Branch	Port Credit	Clarkson	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-James	Stoney Creek	Grimsby	St. Catherines
Milepost	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.3/43.7	37.6	27.4	11.8
TPC Cumulative Distance	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.3	45.4	55.6	71.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	5	12	18	24	30	37	43	49	55	61	71	84	97	119
Electric Locomotive	0	5	12	17	22	28	34	39	44	50	55	65	78	90	111
12-Car EMU	0	5	11	15	19	24	29	33	37	42	46	55	68	79	99
Electric Locomotive Time Savings	0	0	0	1	2	2	3	4	5	5	6	6	6	7	8
EMU Time Savings	0	0	1	3	5	6	8	10	12	13	15	16	16	18	20

Lakeshore West & St. Catherines - Inbound															
	St. Catherines	Grimsby	Stoney Creek	Hamilton-James	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson	Port Credit	Long Branch	Mimico	Exhibition	Union Station
Milepost	11.8	27.4	37.6	43.7/39.3	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
TPC Cumulative Distance	0.0	15.6	25.8	31.9	36.6	39.7	43.3	46.5	49.8	54.5	58.4	61.6	64.5	69.2	71.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	18	31	44	54	60	66	72	78	85	91	97	103	110	119
Electric Locomotive	0	17	29	42	52	57	63	68	73	80	86	91	96	102	111
12-Car EMU	0	17	28	41	50	54	59	63	67	72	77	81	85	91	99
Electric Locomotive Time Savings	0	1	2	2	2	3	3	4	5	5	5	6	7	8	8
EMU Time Savings	0	1	3	3	4	6	7	9	11	13	14	16	18	19	20

Lakeshore West & Hamilton TH&B - Outbound												
	Union Station	Exhibition	Mimico	Long Branch	Port Credit	Clarkson	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-TH&B
Milepost	0	2	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	57.5
TPC Cumulative Distance	0	2	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.9
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	5	12	18	24	30	37	43	49	55	61	75
Electric Locomotive	0	5	12	17	22	28	34	39	44	50	55	69
12-Car EMU	0	5	11	15	19	24	29	33	37	42	46	59
Electric Locomotive Time Savings	0	0	0	1	2	2	3	4	5	5	6	6
EMU Time Savings	0	0	1	3	5	6	8	10	12	13	15	16

Lakeshore West & Hamilton TH&B - Inbound												
	Hamilton-TH&B	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson	Port Credit	Long Branch	Mimico	Exhibition	Union Station
Milepost	57.5	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
TPC Cumulative Distance	0	5.3	8.4	12	15.2	18.5	23.2	27.1	30.3	33.2	37.9	39.9
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	12	18	24	30	36	43	49	55	61	68	76
Electric Locomotive	0	12	17	23	28	33	40	46	51	56	62	69
12-Car EMU	0	12	16	21	25	29	34	39	43	47	53	59
Electric Locomotive Time Savings	0	0	1	1	2	3	3	3	4	5	6	7
EMU Time Savings	0	0	2	3	5	7	9	10	12	14	15	17

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Lakeshore East - Outbound													
	Union Station	Danforth	Scarborough	Eglinton	Guildwood	Rouge Hill	Pickering North	Ajax	Whitby	Oshawa 1	Oshawa 2 (Bloor)	Courtice Road	Bowmanville (Martin)
Milepost	333.8	328.6	325.2	323.2	321.2	317.3	1	3.5	8.9	173.6	171.6	168.9	164.9
TPC Cumulative Distance	0	5.2	8.6	10.6	12.6	16.5	20.93	23.43	28.83	34.28	36.28	38.98	42.98
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	10	16	21	26	32	40	45	53	62	67	73	83
Electric Locomotive	0	9	15	19	24	30	37	42	49	57	61	66	75
12-Car EMU	0	8	13	17	21	26	32	36	42	49	53	57	65
Electric Locomotive Time Savings	0	1	1	2	2	2	3	3	4	5	6	7	8
EMU Time Savings	0	2	3	4	5	6	8	9	11	13	14	16	18

Lakeshore East - Inbound													
	Bowmanville (Martin)	Courtice Road	Oshawa 2 (Bloor)	Oshawa 1	Whitby	Ajax	Pickering North	Rouge Hill	Guildwood	Eglinton	Scarborough	Danforth	Union Station
Milepost	164.9	168.9	171.6	173.6	8.9	3.5	1	317.3	321.2	323.2	325.2	328.6	333.8
TPC Cumulative Distance	0	4	6.7	8.7	14.15	19.55	22.05	26.48	30.38	32.38	34.38	37.78	42.98
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	7	13	18	26	34	39	46	53	58	63	69	81
Electric Locomotive	0	7	12	16	24	31	36	43	49	54	58	64	75
12-Car EMU	0	6	10	14	21	27	31	37	42	46	50	55	65
Electric Locomotive Time Savings	0	0	1	2	2	3	3	3	4	4	5	5	6
EMU Time Savings	0	1	3	4	5	7	8	9	11	12	13	14	16

Milton - Outbound									
	Union Station	Kipling	Dixie	Cooksville	Erindale	Streetsville	Meadowvale	Lisgar	Milton
Milepost	0	9.7	12.4	15.4	18.1	20.3	23.1	25.1	31.2
TPC Cumulative Distance	0	9.7	12.4	15.4	18.1	20.3	23.1	25.1	31.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	15	20	25	31	36	42	47	57
Electric Locomotive	0	14	19	24	29	34	39	44	53
12-Car EMU	0	14	18	23	27	31	36	40	48
Electric Locomotive Time Savings	0	1	1	1	2	2	3	3	4
EMU Time Savings	0	1	2	2	4	5	6	7	9

Milton - Inbound									
	Milton	Lisgar	Meadowvale	Streetsville	Erindale	Cooksville	Dixie	Kipling	Union Station
Milepost	31.2	25.1	23.1	20.3	18.1	15.4	12.4	9.7	0
TPC Cumulative Distance	0	6.1	8.1	10.9	13.1	15.8	18.8	21.5	31.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	8	13	19	24	30	35	40	57
Electric Locomotive	0	8	13	18	23	28	33	38	54
12-Car EMU	0	7	11	16	20	24	29	33	48
Electric Locomotive Time Savings	0	0	0	1	1	2	2	2	3
EMU Time Savings	0	1	2	3	4	6	6	7	9

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Georgetown - Outbound													
	Union Station	Bloor	Weston	Etobicoke N.	Malton	Bramalea	Brampton	Mount Pleasant	Georgetown	Acton	Guelph	Breslau	Kitchener
Milepost	0	4	8.6	11	14.7	11.6	15.4	18.3	23.5	36.1	48.8	58.4	62.6
TPC Cumulative Distance	0	4	8.6	11	14.7	17.44	21.24	24.14	29.34	36.05	48.75	58.35	62.55
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	8	16	22	31	36	43	49	57	68	83	102	114
Electric Locomotive	0	8	16	21	29	34	40	45	52	61	75	93	103
12-Car EMU	0	7	14	19	26	30	36	41	48	56	69	86	96
Electric Locomotive Time Savings	0	0	0	1	2	2	3	4	5	7	8	9	11
EMU Time Savings	0	1	2	3	5	6	7	8	9	12	14	16	18

Georgetown - Inbound													
	Kitchener	Breslau	Guelph	Acton	Georgetown	Mount Pleasant	Brampton	Bramalea	Malton	Etobicoke N.	Weston	Bloor	Union Station
Milepost	62.6	58.4	48.8	36.1	23.5	18.3	15.4	11.6	14.7	11	8.6	4	0
TPC Cumulative Distance	0	4.2	13.8	26.5	33.21	38.41	41.31	45.11	47.85	51.55	53.95	58.55	62.55
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	7	24	39	48	56	62	69	74	82	87	95	109
Electric Locomotive	0	7	23	38	47	55	60	66	71	79	84	92	102
12-Car EMU	0	7	23	37	45	52	57	63	67	74	78	85	95
Electric Locomotive Time Savings	0	0	1	1	1	1	2	3	3	3	3	3	7
EMU Time Savings	0	0	1	2	3	4	5	6	7	8	9	10	14

Barrie - Outbound												
	Union Station	Downsview (York)	Rutherford	Maple	King City	Aurora	Newmarket	East Gwillimbury	Bradford	Innisfil	Barrie South	Allandale
Milepost	0	10.9	16.7	18.3	22.7	29.9	34.2	35.5	41.5	51.9	59.5	63
TPC Cumulative Distance	0	10.9	16.7	18.3	22.7	29.9	34.2	35.5	41.5	51.9	59.5	63
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	16	25	29	37	47	54	58	67	80	91	104
Electric Locomotive	0	15	23	27	34	44	51	55	64	76	86	98
12-Car EMU	0	14	22	25	31	40	46	49	57	68	78	90
Electric Locomotive Time Savings	0	1	2	2	3	3	3	3	3	4	5	6
EMU Time Savings	0	2	3	4	6	7	8	9	10	12	13	14

Barrie - Inbound												
	Allandale	Barrie South	Innisfil	Bradford	East Gwillimbury	Newmarket	Aurora	King City	Maple	Rutherford	Downsview (York)	Union Station
Milepost	63	59.5	51.9	41.5	35.5	34.2	29.9	22.7	18.3	16.7	10.9	0
TPC Cumulative Distance	0	3.5	11.1	21.5	27.5	28.8	33.1	40.3	44.7	46.3	52.1	63
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	9	20	32	41	45	52	63	71	75	84	102
Electric Locomotive	0	9	20	31	40	44	51	61	68	72	80	98
12-Car EMU	0	9	19	30	38	41	47	56	62	65	73	90
Electric Locomotive Time Savings	0	0	0	1	1	1	1	2	3	3	4	4
EMU Time Savings	0	0	1	2	3	4	5	7	9	10	11	12

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Richmond Hill - Outbound							
	Union Station	Oriole	Old Cummer	Langstaff	Richmond Hill	Stouffville	Bloomington
Milepost	0.0	12.2	14.1	18.3	21.0	26.3	28.5
TPC Cumulative Distance	0	12.2	14.1	18.3	21	26.3	28.5
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	23	27	34	40	49	56
Electric Locomotive	0	23	27	34	40	48	55
12-Car EMU	0	23	27	33	37	45	51
Electric Locomotive Time Savings	0	0	0	0	0	1	1
EMU Time Savings	0	0	0	1	3	4	5

Richmond Hill - Inbound							
	Bloomington	Stouffville	Richmond Hill	Langstaff	Old Cummer	Oriole	Union Station
Milepost	28.5	26.3	21	18.3	14.1	12.2	0
TPC Cumulative Distance	0	2.2	7.5	10.2	14.4	16.3	28.5
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	5	13	18	25	30	55
Electric Locomotive	0	5	13	18	25	30	55
12-Car EMU	0	5	13	17	23	27	51
Electric Locomotive Time Savings	0	0	0	0	0	0	0
EMU Time Savings	0	0	0	1	2	3	4

Stouffville - Outbound										
	Union Station	Kennedy	Agincourt	Milliken	Unionville	Centennial	Markham	Mount Joy	Stouffville	Lincolnville
Milepost	333.8	59.5	55.5	52.9	50.7	48.5	47.0	45.8	40.6	38.8
TPC Cumulative Distance	0	10.01	14.01	16.61	18.81	21.01	22.51	23.71	28.91	30.71
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	15	23	29	35	41	45	49	59	68
Electric Locomotive	0	14	22	27	32	38	43	47	56	65
12-Car EMU	0	13	21	26	31	36	40	43	52	60
Electric Locomotive Time Savings	0	1	1	2	3	3	2	2	3	3
EMU Time Savings	0	2	2	3	4	5	5	6	7	8

Stouffville - Inbound										
	Lincolnville	Stouffville	Mount Joy	Markham	Centennial	Unionville	Milliken	Agincourt	Kennedy	Union Station
Milepost	38.8	40.6	45.8	47.0	48.5	50.7	52.9	55.5	59.5	333.8
TPC Cumulative Distance	0	1.8	7	8.2	9.7	11.9	14.1	16.7	20.7	30.71
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	7	16	20	25	31	37	42	50	66
Electric Locomotive	0	7	16	20	25	31	36	41	49	65
12-Car EMU	0	7	16	19	23	28	33	38	45	60
Electric Locomotive Time Savings	0	0	0	0	0	0	1	1	1	1
EMU Time Savings	0	0	0	1	2	3	4	4	5	6

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Lakeshore West & St. Catherines - Outbound - EXPRESS															
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-James	Stoney Creek	Grimsby	St. Catherines
Milepost	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.3/43.7	37.6	27.4	11.8
TPC Cumulative Distance	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.3	45.4	55.6	71.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0						21	27	33	39	45	55	68	81	102
Electric Locomotive	0						20	25	30	36	41	50	63	75	95
12-Car EMU	0						19	23	27	32	36	45	58	69	88
Electric Locomotive Time Savings	0						1	2	3	3	4	5	5	6	7
EMU Time Savings	0						2	4	6	7	9	10	10	12	14

Lakeshore West & St. Catherines - Inbound - EXPRESS															
	St. Catherines	Grimsby	Stoney Creek	Hamilton-James	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	11.8	27.4	37.6	43.7/39.3	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
TPC Cumulative Distance	0.0	15.6	25.8	31.9	36.6	39.7	43.3	46.5	49.8	54.5	58.4	61.6	64.5	69.2	71.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	18	31	44	54	60	66	72	78						102
Electric Locomotive	0	17	29	42	51	56	62	67	72						95
12-Car EMU	0	17	28	41	50	54	59	63	67						88
Electric Locomotive Time Savings	0	1	2	2	3	4	4	5	6						7
EMU Time Savings	0	1	3	3	4	6	7	9	11						14

Lakeshore West & Aldershot - Outbound - EXPRESS											
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot
Milepost	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6
TPC Cumulative Distance	0.0	2.0	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0						21	27	33	39	46
Electric Locomotive	0						20	25	30	36	42
12-Car EMU	0						19	23	27	32	37
Electric Locomotive Time Savings	0						1	2	3	3	4
EMU Time Savings	0						2	4	6	7	9

Lakeshore West & Aldershot - Inbound - EXPRESS											
	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
TPC Cumulative Distance	36.6	39.7	43.3	46.5	49.8	54.5	58.4	61.6	64.5	69.2	71.2
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	6	12	18	24						45
Electric Locomotive	0	5	11	16	21						41
12-Car EMU	0	4	9	13	17						36
Electric Locomotive Time Savings	0	1	1	2	3						4
EMU Time Savings	0	2	3	5	7						9

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Lakeshore West & Hamilton TH&B - Outbound - EXPRESS												
	Union Station	Exhibition (NO STOP)	Mimico (NO STOP)	Long Branch (NO STOP)	Port Credit (NO STOP)	Clarkson (NO STOP)	Oakville	Bronte	Appleby	Burlington	Aldershot	Hamilton-TH&B
Milepost	0	2	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	57.5
TPC Cumulative Distance	0	2	6.7	9.6	12.8	16.7	21.4	24.7	27.9	31.5	34.6	39.9
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0						22	28	34	40	46	59
Electric Locomotive	0						20	25	30	36	41	54
12-Car EMU	0						19	23	27	32	36	48
Electric Locomotive Time Savings	0						2	3	4	4	5	5
EMU Time Savings	0						3	5	7	8	10	11

Lakeshore West & Hamilton TH&B - Inbound - EXPRESS												
	Hamilton-TH&B	Aldershot	Burlington	Appleby	Bronte	Oakville	Clarkson (NO STOP)	Port Credit (NO STOP)	Long Branch (NO STOP)	Mimico (NO STOP)	Exhibition (NO STOP)	Union Station
Milepost	57.5	34.6	31.5	27.9	24.7	21.4	16.7	12.8	9.6	6.7	2	0
TPC Cumulative Distance	0	5.3	8.4	12	15.2	18.5	23.2	27.1	30.3	33.2	37.9	39.9
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	12	17	23	29	35						58
Electric Locomotive	0	12	17	23	28	33						54
12-Car EMU	0	11	15	20	24	28						48
Electric Locomotive Time Savings	0	0	0	0	1	2						4
EMU Time Savings	0	1	2	3	5	7						10

Lakeshore East - Outbound - EXPRESS													
	Union Station	Danforth (NO STOP)	Scarborough (NO STO	Eglinton (NO STOP)	Guildwood (NO STOP)	Rouge Hill (NO STOP)	Pickering North	Ajax	Whitby	Oshawa 1	Oshawa 2 (Bloor)	Courtice Road	Bowmanville (Martin)
Milepost	333.8	328.6	325.2	323.2	321.2	317.3	1	3.5	8.9	173.6	171.6	168.9	164.9
TPC Cumulative Distance	0	5.2	8.6	10.6	12.6	16.5	20.93	23.43	28.83	34.28	36.28	38.98	42.98
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0						24	29	37	46	51	57	66
Electric Locomotive	0						22	27	34	42	46	51	59
12-Car EMU	0						21	25	31	38	42	47	54
Electric Locomotive Time Savings	0						2	2	3	4	5	6	7
EMU Time Savings	0						3	4	6	8	9	10	12

Lakeshore East - Inbound - EXPRESS													
	Bowmanville (Martin)	Courtice Road	Oshawa 2 (Bloor)	Oshawa 1	Whitby	Ajax	Pickering North	Rouge Hill (NO STOP)	Guildwood (NO STOP)	Eglinton (NO STOP)	Scarborough (NO STOP)	Danforth (NO STOP)	Union Station
Milepost	164.9	168.9	171.6	173.6	8.9	3.5	1	317.3	321.2	323.2	325.2	328.6	333.8
TPC Cumulative Distance	0	4	6.7	8.7	14.15	19.55	22.05	26.48	30.38	32.38	34.38	37.78	42.98
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	7	13	18	27	35	40						65
Electric Locomotive	0	7	12	16	24	31	36						59
12-Car EMU	0	6	10	14	22	28	32						54
Electric Locomotive Time Savings	0	0	1	2	3	4	4						6
EMU Time Savings	0	1	3	4	5	7	8						11

Appendix 5F (continued)– Local Train Transit Time Savings with Different Technology Options

Georgetown - Inbound - EXPRESS													
	Kitchener	Breslau	Guelph	Acton	Georgetown	Mount Pleasant	Brampton	Bramalea	Malton (NO STOP)	Etobicoke N. (NO STOP)	Weston (NO STOP)	Bloor (NO STOP)	Union Station
Milepost	62.6	58.4	48.8	36.1	23.5	18.3	15.4	11.6	14.7	11	8.6	4	0
TPC Cumulative Distance	0	4.2	13.8	26.5	33.21	38.41	41.31	45.11	47.85	51.55	53.95	58.55	62.55
	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes	Minutes
Base Case	0	7	24	39	48	56	62	69					98
Electric Locomotive	0	7	23	38	47	55	60	66					94
12-Car EMU	0	7	23	37	45	52	57	63					89
Electric Locomotive Time Savings	0	0	1	1	1	1	2	3					4
EMU Time Savings	0	0	1	2	3	4	5	6					9