LAKEVIEW VILLAGE

TRAFFIC CONSIDERATIONS REPORT ADDENDUM #2

FINAL▪ AUGUST 2021

REPORT PREPARED FOR

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TMIG PROJECT NUMBER 17201

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APPENDICES

TABLES

1 INTRODUCTION & CONTEXT

TMIG received City comments dated June 22, 2021 on the April 2021 submission of the Lakeview Village Transportation Considerations Report (TCR) Addendum and accompanying April 2021 Supplemental Traffic Analysis Report submitted as Appendix C of the TCR Addendum. TMIG also received Peer Review comments dated June 7, 2021. The comments from City Staff and the Peer Reviewer have been numbered for ease of response and review, and the original comments have been provided in **Appendix A** for reference purposes.

TMIG also provided City of Mississauga staff a memo summarizing the assumptions and findings of an infrastructure phasing analysis, dated July 19, 2021 appended as **Appendix B**, that is to be read in conjunction with this response to comments addendum letter. On July 30, 2021, City Staff provided TMIG with preliminary comments to our phasing analysis memo (provided in **Appendix B)** that we have duly considered in this formal submission.

Section 2 of this Response to Comments (RTC) document will address comments provided by the Peer Reviewer. City Staff comments will be addressed in **Section 3**.

Of particular importance to this submission is final resolution of the transit mode shift assumptions. The City's Lakeshore Connecting Communities team has informed TMIG that the Environmental Assessment for the implementation of the Bus Rapid Transit system along Lakeshore Road is kicking off in September, with construction commencement scheduled for 2024/2025. This timeline is well before TMIG's projected 2031 buildout for Lakeview, as analyzed in our TCR and the enclosed phasing analysis.

The positive effects of this major City-led infrastructure investment in reducing private auto travel and enhancing general mobility in this part of Mississauga can't be understated. As described in our phasing analysis, we have tested the extent of the Lakeview Community development that could proceed prior to the BRT coming on-line, but given the timeline provided by the City's EA team, such a scenario is moot; the bus rapid transit system will be up and running well before the projected 2031 development buildout timeline. In combination with the transportation system improvements outlined in this submission, the additional throughput and general capacity increases promoted and provided by the BRT will assure that near-full buildout of the Lakeview Community development can proceed without any planning constraints applied.

Our detailed responses and additional technical analyses addressing the latest City staff and Peer Review comments follow.

2 PEER REVIEW COMMENTS (JUNE 7, 2021)

2.1 Comment #1

Comment:

Multi-modal level of service analyses are becoming common in Transportation Impact Assessments undertaken for urban mixed-use developments; since the site design has a significant focus on alternative modes of transportation, it would help validate the expected level of comfort and capacity on the study area network, and help bring to light trade-offs which would otherwise not be visible, such as the provision of more north-south walk time for pedestrians versus east-west green time for vehicles on Lakeshore Road. The traffic operations analysis should also ensure that sufficient pedestrian walk, and flashing don't walk times are provided at the key intersections along Lakeshore Road to facilitate pedestrian crossings or transit access once the BRT platforms are constructed in the median.

TMIG Response:

All signal timings were optimized throughout all study scenarios and time periods. If testing of certain adjustments to the timings at key intersections are desired, we can certainly undertake those analyses, but any such investigations should in no way prevent the City from proceeding to Draft Plan approval. We suggest this could be done at a later date during the implementation stage of the BRT system and/or when particular infrastructure elements are triggered (by Lakeview or by other background developments).

We see no action necessary at this point on this matter to inform the approval of the Draft Plan.

2.2 Comment #2

Comment:

The intersections with Fergus and Alexandra should be treated as normal intersections and be assessed as part of the study. Alexandra Ave provided one of the few rail crossing in the study area and should not be treated as a sink or not included in the analysis.

TMIG Response:

This comment refers to TMIG's response to a Vissim-related comment in the April 2021 TCR Addendum document. As stated in TMIG's previous response, Alexandra Avenue and Fergus Avenue were utilized as mid-block sink/sources to address balancing between adjacent intersections to reduce artificial weaving behaviour at these locations (in particular, a mid-block sink between Alexandra Road and Lakefront Promenade would cause highly irregular behaviour as the existing distance between the intersections is a mere 50 metres).

Please note that although westbound vehicles on Lakeshore Road were directed to Alexandra Avenue as a sink, those vehicles and the imbalances they created between Lakeshore Road and the rail crossings were addressed with another mid-block sink (i.e. these vehicles using Alexandra as a sink/source do not cross the rail line).

TMIG can discuss further details of the Vissim modeling exercise with City Staff and the Peer Reviewer prior to the next submission of the Vissim Report, however, we see no action necessary at this point on this matter to inform the approval of the Draft Plan.

2.3 Comment #3

Comment:

The 2041 analysis horizon year should be considered in the Vissim microsimulation analysis. This is a key horizon year for the transportation study which would allow for the identification of network impacts by the proposed development relative to the 2041 future background conditions and would allow for more detailed interactions to be modelled at the railway crossings, thereby providing a more realistic estimate of the future queue spillbacks.

TMIG Response:

Please see response to Peer Reviewer Comment #11 in **Section 2.11**, regarding discussion on microsimulation results in Vissim versus SimTraffic.

As discussed with City Staff, VISSIM microsimulation can be completed as a condition of Draft Plan approval once all traffic analysis assumptions, and the internal phasing analysis (provided with this addendum) is reviewed and approved.

We see no action necessary at this point on this matter to inform the approval of the Draft Plan.

2.4 Comment #4

Comment:

The trip generation table for Serson North appears to have an error in the calculation of auto driver trips, as a 50% mode split has been applied.

TMIG Response:

The trip generation summary table provided in Appendix C-E of the Supplemental Traffic Analysis Report has been reviewed for accuracy, and it appears the 2041 50% mode split table was inserted in error instead of the 'standard' 2041 BRT trip generation for the Serson North development. It should be noted that the correct mode split percentages and associated background development volumes were accounted for in each analysis scenario regardless of any tabular reporting errors.

The correct Serson North Trip Generation table that was to be originally included as Appendix C-E of the Supplemental Traffic Analysis Report has been attached to this document as **Appendix C**.

2.5 Comment #5

Comment:

The trip generation table for the 2041 50% mode split sensitivity appears to have an error, as a 50% mode split was not applied to the office land use.

TMIG Response:

Appendix C-D, "Trip Generation Summary – Rangeview Estates", referenced in the Peer Review comment matrix for Comment #5, represents the trip generation completed for Rangeview Estates for the base 2041 BRT scenario, not the 2041 BRT 50% mode split sensitivity scenario. Accordingly, a 50% mode split was <u>not</u> applied in the trip generation summary table provided in Appendix C-D. The Rangeview Estates 50% mode split trip generation summary table is provided in Appendix C-F of the Supplemental Report.

2.6 Comment #6

Comment:

The turning movement diagrams for fire trucks and garbage trucks show many areas of conflict with other approaches to the internal intersections. We understand that tighter curb radii were used at internal intersections due to the urban environment and the effect it has on reducing automobile speeds; however, based on the current diagrams, trucks will have difficulty maneuvering within the internal roadway network without conflicting with vehicles that are stopped at the intersections.

TMIG Response:

This ROW and intersection layouts have been an ongoing topic of discussion since the initiation of the Lakeview project, and are being addressed in conjunction with the many other issues driving the ROW widths and general character of the Lakeview Community. While obviously related, this is not a TCR-led matter, and cannot be addressed in an isolated manner.

In recent submissions to the City on the specific matter of the intersection designs and truck manoeuvring we have shown how the City's standard intersection designs can be accommodated by the proposed ROW, including increasing the corner radii to 12-metres AND widening the travelled lane widths to satisfy City standards. Given we have demonstrated that the standard designs can be implemented, we see no action necessary at this point on this matter (within the context of the TCR) to inform the approval of the Draft Plan.

2.7 Comment #7

Comment:

The non-residential trip generation in the table does not match the trip generation in Appendix C-F, even when adjusting the office land use calculation to use a 50% mode split.

TMIG Response:

The Lakeview Village trip generation summary table in Appendix C-F was reviewed for accuracy and the Office land use section of the Lakeview Village trip generation table has been updated and provided as **Appendix D**. Please note that the total trips provided in Table 2-8 are accurate and were used in the updated analysis presented in the April 2021 Supplemental Traffic Analysis Report.

2.8 Comment #8

Comment:

Please revisit the trip distribution proportions at the network gateways. It is expected that trip distributions will generally follow opposite inbound/outbound trends between the AM and PM peak hours due to commuting patterns, as was summarized from the TTS trip distribution table (Table 3-1). The distributions at the network gateways result in unexpected travel patterns, such as the 5% AM inbound and 26.5% PM outbound at the E leg of Dixie Road, which results in only 70 AM inbound trips but 534 PM outbound trips during the 2031 BAU scenario. Additionally, the eastern versus western limit patterns are not consistent, with the AM outbound proportion at the Dixie intersection comprising 43% and the inbound during the PM at the same intersection comprising only 33% of trips.

TMIG Response:

TMIG would like to clarify the terms presented in the above comment and the April 2021 Report, as they directly influence the interpretation of the gateway's traffic volumes. The distribution represents the location of the origin or destination of trips to and from the site according to the TTS distribution. The assignment represents how the vehicles move through the local network to ultimately reach their destination. The assignment is expressed based on the number of trips to the gateway and does not necessarily equate with the distribution but is often related. However, depending on the location of a site, the local characteristics may influence the assignment to the gateways.

An example to illustrate this point would be the gateway assignment for a site that has no direct connection to the south due to the local road network (potentially one-way roads, or an incomplete road network), then gateways that would be expected to only serve the east or west would also serve the south depending on how rational the route is.

For this project, instead of a physical restriction to the local road network, there is a capacity restriction for certain movements at the gateways. The primary drivers of the capacity constraints are the growth applied to the existing conditions, and the assumption that no existing vehicles would divert their route or to other modes. However, due to the site being located between two major north-south arterials and both are or will be connected to the QEW it is expected that residents and employees of the development would adapt their route to minimize their delay, even if the first/last portion of their route is not the most direct route. This was the approach taken in the April 2021 report, where TMIG clearly noted that the assignment was capacity-driven and as such it was not expected that the percentage of trips at the gateways would directly correlate to the distribution.

2.9 Comment #9

Comment:

The summary of operational results should include the queueing conditions at intersection movements within the study area to identify whether queues will extend beyond the available storage lengths at the intersections with Dixie Road, Cawthra Road, and other study are intersections following the changes to trip generation and distribution.

TMIG Response:

Queueing analysis using SimTraffic was not provided in previous TCR submissions, as the Vissim microsimulation modelling was intended to produce more detailed queueing behaviours throughout the study area. The queueing results provided for the rail crossings and completed in SimTraffic were intended for discussion purposes within the main TCR document, separate from the Vissim queueing results, and as a 'proof of concept' exercise.

2.10 Comment #10

Comment:

Slight discrepancies are observed between the delays in the table and the delays reported in Appendix C-J

TMIG Response:

Noted. The contents of Table 4-3 are correct. Appendix C-J of the Supplemental Report was reviewed, and it was determined that the Synchro reports provided in the appendix were not the most up to date copies. The synchro reports that correspond to the values in Table 4-3 of the Supplemental Traffic Analysis Report are provided in **Appendix E**.

2.11 Comment #11

Comment:

Acknowledging the limitations of Synchro and SimTraffic in the analysis of railway crossings, Vissim would be a preferable tool for the analysis of the railway conditions across all scenarios as it would allow for much more complex and realistic modelling of the railway pre-emption and would identify whether the significant queueing on Haig Boulevard in the 2041 Future Total condition is realistic.

TMIG Response:

TMIG would like to note that as each crossing is free-flow except for the amount of time that would be blocked by trains, any form of microsimulation would be an approximation of the operations. The comment in the April 2021 Report regarding the approximation used was to explain that Synchro cannot fully model pre-emption, but not to dismiss the results of the analysis. Although Vissim would allow for a more "complex" modeling of the crossing with trains randomly distributed and a programmed signal controller, fundamentally this is the same as the procedure that was used by TMIG for SimTraffic. When considering the impact of the rail crossing in isolation only the following information is relevant:

- Number of trains per hour
- Time that the crossing is occupied by the train (i.e. vehicles cannot proceed)
- Arrival rate of vehicles

The above can be completed using queuing theory based on the rate of arrival and the service time (i.e.time when the crossing is not blocked), and effectively both microsimulation packages are approximating the results of the queuing theory based on differing levels of complexity, but the underlying principles do not change. Therefore, TMIG does not see the benefit of using Vissim analysis to assess the impact of the rail crossings over the completed SimTraffic analysis.

As noted in the comment, there was queuing at the Haig Boulevard crossing, however as discussed in the report this was independent of the rail crossing but rather was a function of the green time provided at Lakeshore Road East and Haig Boulevard in 2041. More information on this result is discussed in the response to Comment #13 in **Section 2.13**.

2.12 Comment #12

Comment:

The report should identify the number of trains that were assumed at the crossing and provide the Synchro models for review; however, the preceding comment is maintained in that Vissim would be the preferrable approach to analyzing the crossing.

TMIG Response:

Previous versions of the TCR document have all included a section discussing the estimation of the number of trains travelling through the study area during each peak hour. The train crossing estimations were not modified from previous iterations of the report, thus detailed discussion about the estimation process or the total train crossings was not included in the Supplemental Report.

Detailed information about the rail crossing frequencies estimated for analysis purposes can be found in Section 7.8.2 of the June 2020 TCR document, however, Section 7.8.2 and applicable supporting documentation from the TCR is provided in **Appendix F** for ease of reference.

Please see response to Peer Reviewer Comment #11 in **Section 2.11** regarding discussion on microsimulation results in Vissim versus SimTraffic.

2.13 Comment #13

Comment:

Please identify why the queueing conditions during the 2041 Total Modal Split scenario are worse at the intersection with Haig Boulevard compared to the 2041 Future Total BRT scenario despite the reduction in vehicles.

TMIG Response:

For the 2041 Total Modal Split results, the signal timing at Lakeshore Road East and Haig Boulevard included a northbound left-turn that was not included in the 2041 Model. The phase was included to address the over-capacity northbound left-turn movement that was also present in the 2041 Future Total BRT scenario. This phase had the result of decreasing the capacity of the Haig Boulevard movements, which resulted in the blocking that had the queue spillback to the rail crossing. More information on the queuing associated with the 2041 conditions is presented in our response to Comment 14 in **Section 2.14**.

2.14 Comment #14

Comment:

The discussion on the Haig Avenue / Rail Crossing sensitivity analysis is unclear with regards to what the outcomes / findings of the analysis were, and the recommended mitigation measures moving forward. An additional table summary should be provided to compare the operations with and without the downstream mitigation and identify whether the configuration is recommended to be constructed.

TMIG Response:

It was TMIG's understanding that the City was explicitly interested in the queues due to the railroad crossing, and this sensitivity analysis was provided to show that the queue was not a result of the crossing, but rather upstream blocking. As discussed in the report the 2041 horizons had numerous movements that approached or exceeded capacity, and this was driven in part by the continued application of growth from 2031 to 2041. As such, TMIG does not believe that detailed recommendations for the future operations should be made based on very conservative projections. The purpose of the sensitivity was to demonstrate that the queuing was not associated with the rail crossing but rather the projection of volumes. The stated “improvement” results in less blocking and greatly improves the southbound queues, but as noted above did not represent a formal improvement for the study.

In regard to the required road improvements, TMIG believes that the phasing study (provided with this addendum) is a more appropriate area to identify the improvements on a near-term basis and then build upon them as the development progresses.

3 CITY OF MISSISSAUGA COMMENTS (JUNE 22, 2021)

3.1 Comment #1

Comment:

This Addendum Report appears to be structured as a comment response matrix to City and Peer Reviewer comments on the Transportation Considerations Report (TCR, June 2020). One final comprehensive report addressing all City and Peer Review comments on the TCR (June 2020) and TCR Addendum (April 2021) shall be provided with all relevant information to support the associated Official Plan Amendment, Rezoning and Draft Plan of Subdivision applications.

TMIG Response:

Noted. As discussed with City Staff, we suggest that this be made a Condition of Draft Plan approval.

3.2 Comment #2

Comment:

Notwithstanding the above, it can be acknowledged from both the City and Peer Reviewer that some comments previously provided on the TCR (June 2020) have been addressed through this TCR Addendum (April 2021). As the reports were provided outside of the formal process, staff will require a final comprehensive report to be formally provided to address the comments to form part of the public record. Staff will continue to work with the consultant to structure this final report.

TMIG Response:

See response to City Comment #1 in **Section 3.1**.

3.3 Comment #3

Comment:

No recommendations or conclusions were provided in the addendum.

TMIG Response:

Noted. The addendum was formatted in a response to comments format (similar to that of this submission), and was not the appropriate document in which to place finalized recommendations and conclusions. While the Supplemental Traffic Analysis Report did not provide a formal and extensive recommendations and conclusions section, Table 5-3 did provide a summary of lane and operational modifications at key study area intersections. Subsequent submissions, such as the final compiled/updated Traffic Considerations Report and scoped phasing analysis memo shall include a Recommendations and Conclusions section.

Based on the results of the 2031 phasing analysis, the following modifications and improvements are recommended to accommodate the development of Lakeview Village and its associated traffic ***prior*** to full build-out. The phasing analysis recommendations assume implementation of the Lakeshore Road median-running BRT lanes and associated infrastructure, however, it was assumed the southern legs of Ogden Avenue and Haig Boulevard would ***not*** be constructed in 2031 as a conservative measure.

- Construction of westbound right-turn lane at Cawthra Road and Lakeshore Road East
- Construction of westbound right-turn lane at Dixie Road and Lakeshore Road East
- Construction of eastbound right-turn lane at Lakefront Promenade and Lakeshore Road East
- Northbound lanes reconfigured at Lakefront Promenade and Lakeshore Road East to include a dedicated left-turn lane and a shared through/right lane
- Construction of eastbound right-turn lane at Hydro Road and Lakeshore Road East
- Northbound lanes reconfigured at Hydro Road and Lakeshore Road East to include a dedicated left-turn lane and a shared left/through/right lane
- Signalization of Hydro Road and Lakeshore Road East intersection, as per Lakeshore Connecting Communities BRT roll plan drawings
- Lakeshore Road East Signal timing plans assumed 130 second cycle lengths during the weekday a.m. peak hour and 140 second cycle lengths during the p.m. peak hour (It should be noted that Business as Usual [BAU] phasing scenario assumed a 120 second cycle length).
- Additional details supporting the recommendation listed above are provided in the Phasing Sensitivity Analysis, provided in **Appendix G**.

Based on the results of the April 2021 Supplemental Traffic Analysis Report prepared by TMIG, the following modifications and improvements are recommended to accommodate the full build-out of Lakeview Village under 2031 and 2041 BRT conditions:

- Construction of westbound right-turn lane at Cawthra Road and Lakeshore Road East
- Northbound lanes reconfigured at Lakefront Promenade and Lakeshore Road East to include a dedicated left-turn lane and a shared through/right lane
- Northbound lanes at Ogden Avenue and Lakeshore Road East configured to include a dedicated left-turn lane and a shared left/through/right lane
- Construction of eastbound right-turn lane at Hydro Road and Lakeshore Road East
- Northbound lanes reconfigured at Hydro Road and Lakeshore Road East to include a dedicated left-turn lane and a shared left/through/right lane
- Signalization of Hydro Road and Lakeshore Road East intersection, as per Lakeshore Connecting Communities BRT roll plan drawings
- Northbound lanes at Haig Boulevard and Lakeshore Road East configured to include a dedicated left-turn lane and a shared through/right lane
- Construction of eastbound right-turn lane at Haig Boulevard and Lakeshore Road East
- Construction of westbound right-turn lane at Dixie Road and Lakeshore Road East
- Southbound lanes reconfigured at Dixie Road and Lakeshore Road East to include a dedicated right-turn lane and a shared left/through lane
- Westbound and Eastbound U-turn movements restricted at Dixie Road and Lakeshore Road East to facilitate introduction of southbound right-turn overlap phase
- Lakeshore Road East Signal timing plans assumed 130 second cycle lengths during the weekday a.m. peak hour and 140 second cycle lengths during the p.m. peak hour

The 2031 and 2041 BRT recommendations assume implementation of the Lakeshore Road median-running BRT lanes and associated infrastructure.

3.4 Comment #4

Comment:

The developer shall review, and address comments made by the City retained peer reviewer on the Transportation Considerations Report Addendum (April 2021)

TMIG Response:

This Addendum fully responds to the Peer Reviewer's comments (dated June 7, 2021). Please refer to **Section 2**.

3.5 Comment #5

Comment:

The final report shall be stamped and signed by a licensed professional engineer.

TMIG Response:

Noted.

3.6 Comment #6

Comment:

It shall be noted that this "Appendix C" Supplementary Report was reviewed independent of the original TCR (June 2020). It is also acknowledged that assumptions made in the TCR (June 2020) were carried over into this Appendix C (April 2021) report. Notwithstanding, one final comprehensive report addressing all City and Peer Review comments on the TCR (June 2020) and TCR Addendum, including Appendix C (April 2021) shall be provided with all relevant information to support the associated Official Plan Amendment, Rezoning and Draft Plan of Subdivision applications.

TMIG Response:

See response to City Comment #1 in **Section 3.1**.

3.7 Comment #7

Comment:

Recommendation and Conclusion sections are also missing from the Appendix C (April 2021) report and shall be provided with a list of all recommended mitigation measures to accommodate the site from a transportation perspective. Detailed recommendations regarding on-site and off-site roadway improvements, site access, TDM measures, site access, future traffic studies etc. are required. Timing for any recommended improvements should be indicated and a multi-modal lens should be applied.

TMIG Response:

See response to City Comment #3 in **Section 3.3**. Subsequent submissions, such as the final compiled/updated Traffic Considerations Report and scoped phasing analysis memo shall include a Recommendations and Conclusions section.

3.8 Comment #8 (TRIP GENERATION)

Comment:

Provide justification for what the 50% external trip assumption is based on.

TMIG Response:

As discussed in Section 2.1.1 of the Supplemental Traffic Analysis Report, several trip generation characteristics of the school block and external influences, such as the density and walkability of Lakeview Village and the potential for pupils from outside the development were considered when developing the trip generation methodology for the school block.

Generally, elementary schools have a certain catchment area in the community immediately surrounding the school from which their student population is drawn from, and within that area, students may be offered bus service based on their physical distance from the school. According to the Peel District School Board's School Accommodation Criteria, the planned Lakefront community will yield the estimated student population to populate the proposed elementary school. Therefore, it was assumed that the elementary school would primarily draw upon pupils living in the Lakeview Village development and adjacent future developments, such as Rangeview Estates, which are all within a reasonable walking distance to the school. It is likely minimal bus routes will be provided within the development to transport students to the school. Also, due to the walkability and dense urban nature of Lakeview Village, it is assumed a higher percentage of parents will walk their students to school compared to a traditional suburban elementary school.

TMIG originally intended to apply a much more aggressive reduction to the ITE vehicle trip generation results, as it was assumed that only school staff and a few school bus routes would generate trips external to the Lakeview Village development, and that the majority of trips would be internal to the development. However, City Staff requested that additional external trips be considered to account for any specialized programming that may result in a catchment area outside of Lakeview Village. To ensure these potential external trips were accounted for, an internal reduction of only 50% was applied to the ITE-generated vehicle trips. This reduction still takes into account the impact of extensive pedestrian and cycling networks planned for Lakeview Village and the majority of students living in close proximity to the school.

3.9 Comment #9 (MODE SPLITS)

Comment:

Further justification will be required on the 50% Auto Driver mode split for 2041.

TMIG Response:

It is TMIG's understanding that this comment has been resolved, as per email communication with City Staff received on July 30, 2021 (as provided in **Appendix B**).

Prior to resolution of this comment, TMIG had been in discussions with City Staff regarding the 2041 50% mode split assumption, and a June 9, 2021 email circulated to City Staff on the subject has been attached as **Appendix H**. The email summarized sustainable mode split information and goals outlined in Peel Region's Long Range Transportation Plan and the technical process that was undertaken prior to endorsement by the Regional Council in February 2018.

3.10 Comment #10 (SITE TRIP DISTRIBUTION AND ASSIGNMENT)

Comment:

There appears to be discrepancies on trips provided in the Tables and trips illustrated in Figures. As an example, inbound/outbound trips in Table 2-5 don't appear to match the sum of the inbound/outbound trips in Appendix C-H.

TMIG Response:

The total site trips provided in Table 2-5 "Lakeview Village Site Trip Generation Summary" of the Supplemental Traffic Analysis Report are correct, as are the site trip volume Figures C-H1 and C-H2 provided in Appendix C-H.

Of note, Figure C-H1 shows site traffic volumes at study area intersections south of Rangeview Road whereas Figure C-H2 shows volumes north of Rangeview Road (inclusive). As some blocks of development have accesses to north-south internal roadways north of Street B, a portion of site traffic will travel to and from the north without traveling through the internal study area intersections. Accordingly, if site traffic entering and exiting the intersections shown on Figure C-H1 were totaled, they would <u>not</u> add up to the total site volumes presented in Table 2-5 of the Supplemental Report. The site traffic volumes shown on Figure C-H2 were reviewed, and it was confirmed that the inbound/outbound volumes totaled at two different sets of locations (external gateways into study area and Lakeshore Road connections) reflected the total site traffic volumes provided in Table 2-5.

3.11 Comment #11 (SITE TRIP DISTRIBUTION AND ASSIGNMENT)

Comment:

There appears to be a significant amount of trips to/from roads that are not available (e.g., Street 'F' (Ogden Avenue) and Street 'I' (Haig Boulevard)) within the proposed Plan of Subdivision. Please confirm where the trips are to/from as there is no connection to Lakeshore and there does not appear to be any access to adjacent proposed blocks.

TMIG Response:

The purpose of the Transportation Considerations Report and the recently submitted Supplemental Traffic Analysis Report was to assess the operations of the study area upon full build-out of Lakeview Village, which will include the future southerly extensions of Ogden Avenue and Haig Boulevard per the City's Official Plan

Amendment 89. Although these roads pass through lands that are not owned by LCPL, it was assumed that they would be in place as other developments begin moving forward, as the BRT lanes are constructed on Lakeshore Road, and as able through agreements between all interested parties.

In regards to analysis without the two noted roads in place, TMIG has conducted phasing sensitivity analysis to confirm the infrastructure improvements required to support varying future levels of development with Lakeview, all under the assumption that Lakefront Promenade and Hydro Road will act as the two main access points to Lakeshore Road (i.e. it was assumed that connections to Lakeshore Road via. Street 'F' and Street 'I' were not constructed). The phasing analysis is provided in **Appendix G**.

3.12 Comment #12 (SITE TRIP DISTRIBUTION AND ASSIGNMENT)

Comment:

Provide Future Total figures for the entire study area, including internal road network.

TMIG Response:

Additional Future Total traffic volume figures have been prepared and attached in **Appendix I** for review. Please note that the volumes presented for the internal road network in these new future total figures will generally be the same as those presented in the site volume figures, as the majority of the internal road network will consist of new roadways that do <u>not</u> attract or reroute existing or background traffic. One exception is southbound and northbound traffic on Lakefront Promenade that was bound to and from the existing Lakefront Promenade Park and Marina to the west of Lakeview Village.

3.13 Comment #13 (SITE TRIP DISTRIBUTION AND ASSIGNMENT)

Comment:

Please elaborate further with respect to how the trip distribution and assignment were derived. The report assumes that a minimal amount of traffic is destined to/from the north, which may not be reflective of expected travel patterns. How does the proposed trip distribution compare to existing travel patterns in the area? Why is the trip distribution/assignment for residential trips assumed to be the same as non-residential trips? All residential site trip generation tables should show the amount of internal trip reduction assumed.

TMIG Response:

As presented in the report, the TTS data was used to develop the distribution. Appendix C-G of the report provided the breakdown of the queried trips as well as their assigned direction based on the Planning District and Traffic Analysis Zone. As can be seen in these provided tables, the existing queried TAZs did not have a significant number of trips bound to and from the north, but predominately resulted in trips to the east and west via the QEW or local arterials. However, this does not significantly change the local assignment, as the gateways were assigned traffic based on a capacity-driven approach as noted in the report and in our response to Peer Review Comment #8 in **Section 2.8**. The trip distribution for the residential trips and the non-residential trips were combined to maximize the sample size and provide an overall distribution for the site. Ultimately, the overall distribution does not significantly change the local assignment as there are several routes for vehicles once they exit the immediate study area that would allow for travellers to reach their destination.

3.14 Comment #14 (BACKGROUND DEVELOPMENTS)

Comment:

Rangeview Estates: Please confirm how the site statistics were established for the Rangeview Estates Trip Generation as there may be a discrepancy with the current City Official Plan.

TMIG Response:

As per information provided in previous TCR submissions, trip generation estimates for the Rangeview Estates background development was based on information extracted from 'Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix A&C', dated July 23, 2014. An excerpt of Section 7.5.1.1 and Appendix E of the June 2020 TCR have been provided in **Appendix J** of this document for ease of reference.

Secondary trip generation for the Rangeview Estates background development based on land use statistics in Mississauga's Official Plan was conducted using the same trip generation methodology outlined in TMIG's April 2021 Supplemental Traffic Analysis Report. The Official Plan trip generation estimations included the following assumptions:

- 925 Low-rise Residential units
- 1850 Mid-rise Residential units
- 925 High-rise Residential units

Table 1 summarizes the difference between the total estimated Rangeview Estates site traffic generated by the Official Plan site statistics and those developed by TMIG and used in all prior drafts of the TCR and April 2021 Supplemental Traffic Analysis Report. Complete trip generation summary tables that detail the conversion of vehicle trips to person trips, internal reductions (as applicable) and application of mode split are provided in **Appendix J** for both sets of statistics.

Table 1 – Rangeview Trip Generation Comparison

Trip Generation Description	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Trip Generation as per TMIG Supplemental Traffic Analysis Report (April 2021)	195	640	835	547	295	842
Trip Generation as per TMIG methodology using Official Plan Stats (Residential Only)	144	812	956	656	301	957
Difference	**-51**	**+172**	**+121**	**+109**	**+6**	**+115**

The trip generation method we preferred was based on a practical interpretation of what is likely to be developed along the Lakeshore corridor. Specifically, we fully expect there to be at-grade commercial/retail uses constructed to service the local community, and our trip generation methods embraced that mixed-use approach. We acknowledge that the GFA dedicated to the commercial use was at the expense of a number of residential units, and the quantum is summarized in the preceding table. We are of the opinion that should Rangeview develop with the original Official Plan statistics, as outlined in the table there could be additional trips introduced into the system. However, the overall impact of this volume of trips (equating to about 2 additional trips per minute during the peak hour), is inconsequential to the overall trip estimates and should not materially affect our findings and conclusions.

3.15 Comment #15 (BACKGROUND DEVELOPMENTS)

Comment:

Serson North: Please confirm how the site statistics were established for the Serson North Trip Generation as there may be a discrepancy with the current City Official Plan.

TMIG Response:

Similar to the Rangeview Estates background development, TMIG assumed site statistics for the Serson North development based on information extracted from 'Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix A&C', dated July 23, 2014 (Servicing Strategy), as outlined in previous TCR submissions and as used in the recent Supplemental Traffic Analysis Report.

The specific objective of the Servicing Strategy was to identify to what extent the existing municipal infrastructure (stormwater, drinking water, and wastewater) could meet the needs of a potentially re-developed site. The municipal servicing scenarios considered in the Servicing Strategy report have been developed based on the 2014 Inspiration Lakeview Master Plan block and yield calculations prepared by Urban Strategies Inc. (see **Appendix K**). The Servicing Strategy identified the Serson North lands as parcels Private Lands (PVT) 16E and 17E with an estimated employment yield of approximately 236,800ft^2 and 212,000ft^2, respectively, of employment GFA.

TMIG reviewed the non-residential statistics for the Lakeview area in the Mississauga Official Plan, however, further clarification with City Staff is required as useable site statistics for the specific Serson North lands are not readily available within the Official Plan document without making additional assumptions.

Accordingly, based on best available information at the time, TMIG stands by its original process to estimate the non-residential GFA (approximately 448,800ft^2) of Serson North for use in the TCR and Supplemental Report.

3.16 Comment #16 (BACKGROUND DEVELOPMENTS)

Comment:

Additional Background Developments: 960 East Avenue; 1041 Lakeshore Road East; 1303 Lakeshore Road East; 1345 Lakeshore Road East; 1381 Lakeshore Road East; 1407 Lakeshore Road East.

TMIG Response:

TMIG and the City went to great lengths during our extensive pre-consultation process, as well as in our various submissions and discussions in the intervening years, to identify and assess all key background sources to include in the forecasting of future background traffic. We had collectively decided to rely on the good work performed by the City and their consultant in support of the Lakeshore Connecting Communities study (for the Bus Rapid Transit initiative) to inform our future modeling baselines. We see no value in changing that approach at this late date to consider new applications brought forth in the intervening years since our pre-consultations took place. Moreover, it is understood the Lakeshore corridor growth rates provided by City staff included all future employment and population forecasts within the study area, of which the forecasting model inherently includes the background developments listed in Comment #16, and assumed no trip generators in the Lakeview Waterfront development (inclusive of the Lakeview Village, Rangeview Estates and Serson North development)

We see no action necessary at this point on this matter to inform the approval of the Draft Plan.

3.17 Comment #17 (INTERSECTION CAPACITY ANALYSIS)

Comment:

Provide a Sensitivity Analysis using Arcady for the proposed roundabout at Lakefront Promenade and Street A.

TMIG Response:

Roundabout capacity analysis has been conducted in Arcady for all future total scenarios. The roundabout at Street 'A' and Lakefront Promenade is predicted to operate well with all legs experiencing LOS A during both the weekday a.m. and p.m. peak hours under all future total scenarios.

Summary reports are provided in **Appendix L**. Please note that the volumes at the roundabout are identical in the 2031 BAU, 2031 BRT, and 2041 BRT future total scenarios due to the roundabout being an internal intersection with no background growth or traffic assigned. As such, the 2031 BRT analysis report provided in **Appendix L** is representative of all three future total scenarios. Separate analysis and reports were conducted for the 2041 50% mode split future total scenario.

3.18 Comment #18 (INTERSECTION CAPACITY ANALYSIS)

Comment:

Please include form of traffic control for unsignalized intersections (e.g. TWSC, AWSC, RDBT, etc.), where applicable.

TMIG Response:

A figure depicting all internal traffic control and lane configurations has been prepared and is provided in **Appendix M**.

3.19 Comment #19 (INTERSECTION CAPACITY ANALYSIS)

Comment:

A number of study area intersections are forecast to operate with over capacity movements including significant delays and queuing. Please confirm what mitigation measures are being implemented such that the adjacent road network can accommodate the proposed development.

TMIG Response:

Within the Supplemental Traffic Analysis report, several improvements were applied to the traffic analysis, such as modifications to lane configurations, implementation of new auxiliary turn lanes, and optimization and adjustment of existing traffic signal timings. These geometric and operation improvements have already been used to improve capacity at several key movements throughout the study area.

During pre-consultation discussions with City Staff, it was understood between TMIG and City Staff that the study area is already congested and will continue to be congested in the future. Accordingly, further discussion is required to understand the City's expectations for vehicular traffic capacity throughout the network, as even the implementation of a BRT system has inherent impacts on the capacity of the roadway. Often, a trade-off between private vehicle capacity and transit efficiency/reliability is a part of implementing a new BRT system. If the implementation of higher-order transit does not impact the attractiveness of single occupant vehicular travel (i.e. increase in delay and congestion), there will be less of a felt need to consider transit as a feasible and attractive transportation alternative.

Notwithstanding the above, TMIG has provided a suite of mitigation measures including infrastructure improvements (see response to City Comment #3 in **Section 3.3**), and TDM initiatives, to accommodate the proposed development.

3.20 Comment #20 (SYNCHRO CALIBRATIONS)

Comment:

Any adjustments to capacity analysis parameters must be confirmed via in-field studies and/or confirmed as acceptable by City Transportation staff.

TMIG Response:

As per ongoing discussions with City Staff, the ongoing COVID-19 pandemic and its current impacts to traffic patterns/volumes make in-field studies at this time difficult and hard to present as accurate compared to pre-pandemic levels. City Staff and TMIG are working on alternative solutions, such as revisiting in-field traffic studies post Draft Plan Approval.

Notwithstanding the above, the Lakeview Village Transportation Infrastructure Phasing Sensitivity Analysis (August 2021) applied default capacity analysis parameters to the traffic model.

3.21 Comment #21 (SYNCHRO CALIBRATIONS)

Comment:

Provide further justification to the adjustments made to the Saturation Flow Rates via in-field studies.

TMIG Response:

See response to City Comment #20 in **Section 3.20**.

3.22 Comment #22 (SYNCHRO CALIBRATIONS)

Comment:

Append York Region BRT clearance time raw data for review.

TMIG Response:

TMIG provided example York Region BRT signal timings to City Staff for review on July 19, 2021 via email correspondence. A copy of the email and its attachments are provided in **Appendix N**. At the time this document was written, the BRT timings submitted to City Staff were still under review.

3.23 Comment #23 (SYNCHRO CALIBRATIONS)

Comment:

Provide further justification of the modifications made to Lost Time Adjustment via in-field studies.

TMIG Response:

See response to City Comment #20 in **Section 3.20**.

3.24 Comment #24 (SYNCHRO CALIBRATIONS)

Comment:

Bus Blockages do not appear to be included in the traffic modelling for the proposed transit roads. As this would reduce intersection capacity, this should be included in the analysis.

TMIG Response:

Currently, only three bus stop locations are provided in each direction along the proposed bus route for a total of six bus stop locations:

- Lakefront Promenade at Street ‘B’ – both bus stops on north leg (southbound nearside and northbound farside)
- Street ‘A’ at Street ‘F’ – nearside stop on east and west legs
- Street ‘I’ at Street ‘B’ – nearside stop on north and south legs

Assuming 15 minutes headways in each direction during peak hours for local bus service, a maximum of 4 bus blockages are expected to occur at the three proposed bus stop locations.

A Synchro sensitivity analysis was conducted by inputting 4 bus blockages per hour at the three intersections where bus stops are currently proposed. Synchro reports are provided in **Appendix O**, however, no material difference in capacity or delay resulted from the addition of bus blockages at these intersections.

3.25 Comment #25 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

It shall be acknowledged that there are ongoing discussions with respect to road design and right-of-way widths. The vehicle swept paths are currently undesirable but will be reviewed with the other agencies in greater context as part of the right-of-way discussions.

TMIG Response:

Mississauga Fire Department provided the LCPL team the aerial platform fire truck specifications. Per the City of Mississauga Fire Services comments, TMIG completed an updated review of the fire truck circulation utilizing the preferred design vehicle at the study intersections to assess if the ROW cross sections could accommodate the turning movements of an aerial platform fire truck. The resulting fire truck simulations were presented in Appendix E-D of the April 2021 TCR Addendum confirming City of Mississauga platform fire truck can circulate through the intersections within the proposed Lakeview Village road network with no projected conflict.

Additionally, as requested by the City of Mississauga Fire Services, TMIG created an alternative road network scenario in which the Lakeview Community internal intersections corner radii were increased to 12.0m. The submitted 'Lakeview Community – Review of Fire Truck Circulation with 12.0m Curb Radius' Memo prepared by TMIG (dated June 2, 2021). As shown in the memo figures, a City of Mississauga platform fire truck can circulate through the intersections with no projected conflict. Accordingly, TMIG does not project any design constraints should the Lakeview Community intersections be modified to accommodate a 12.0m curb radius (where applicable).

It is our opinion that further modifications to the ROW cross section will have no impact to the fire truck swept path simulations as the pavement width and corner radii at the study intersections will remain intact as previously proposed.

3.26 Comment #26 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

It is acknowledged that a revised VISSIM Microsimulation analysis is being prepared. Staff will provide additional comments once submitted for review.

TMIG Response:

See response to Peer Reviewer comment #3 in **Section 2.3**.

3.27 Comment #27 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

The study shall be updated to address development phasing of the proposed subdivision to assess the traffic related impacts of each development phase including cumulative impacts.

TMIG Response:

We agree that a phasing analysis would be informative to better understand the timing of, and need for, infrastructure upgrades to support **the success of the Lakeview Community development. The phasing analysis has been completed and is provided in Appendix** G**.**

3.28 Comment #28 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

Regarding the AWS warrants, please also indicate whether the directional split warrants are met. If not, AWS would not be warranted. Please confirm. The City does not permit the installation of unwarranted AWS.

TMIG Response:

All-way Stop Control (AWSC) Warrants for the internal intersections were conducted as a part of the Supplemental Traffic Analysis Report and were summarized in Appendix C-Q of the report. The warrants have been reviewed and a sensitivity analysis has been conducted in Synchro to determine if any significant differences in operational capacity occurs if select intersections were converted from AWSC to Two-way Stop Control (TWSC).

It was determined that there is no substantial difference in capacity and delay operational results at internal intersections converted to TWSC, in that all internal intersections continue to operate well during both the weekday a.m. and p.m. peak hours, operating at LOS D or better with reserve capacity. Unsignalized Synchro reports for the internal study area AWSC and TWSC intersections are provided in **Appendix P**.

Of note, although the AWSC warrants provided in Appendix C-Q of the Supplemental Traffic Analysis Report indicates that an All-way stop is not warranted at the intersection of Street 'I' and Street 'E', analysis of the intersection using two-way stop control resulted in significant delay for the minor roadway. Due to operational issues under two-way stop control conditions and safety concerns regarding the safe crossing of elementary school children at this intersection (located at the northeast corner of the school block), TMIG recommends the installation of AWSC. **Table 2** provides a summary of the operational results of the intersection under both TWSC and AWSC. Full Synchro reports for the intersection under both stop control conditions are provided in **Appendix P**.

Table 2 – Comparison of Operational Results of TWSC vs. AWSC at Street 'I' and Street 'E'

Intersection	Movement	Weekday AM			Weekday PM		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
Street I & Street E / Site Access (TWSC)	EBLTR	0.87	81	**F**	0.42	57	**F**
	WBLTR	0.20	21	C	**0.99**	78	**F**
	NBLTR	0.00	0	A	0.01	0	A
	SBLTR	0.11	3	A	0.03	1	A
Street I & Street E / Site Access (AWSC)	EBLTR	0.33	13	B	0.11	12	B
	WBLTR	0.11	10	B	0.64	20	C
	NBLTR	0.64	17	C	0.75	26	D
	SBLTR	0.69	19	C	0.74	25	C

3.29 Comment #29 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

In addition to other recommendations, a recommendation for updated traffic studies, site access and other site-specific traffic related requirements should be included within this section.

TMIG Response:

Subsequent to Draft Plan approval, and the clearing of any traffic-related conditions, we fully expect that some Site Plan Applications will require internal traffic analyses and site access management assessments throughout the years to come as Lakeview develops. We would argue however that making recommendations about the need for future studies should be a mandate of the City, and should not be a requirement for this submission.

3.30 Comment #30 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

Left turns shall be considered at intersections along the Major Collector Roads, including along the proposed Transit Routes.

TMIG Response:

Noted.

3.31 Comment #31 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

Please include a collision analysis along Lakeshore Road East.

TMIG Response:

While we don't disagree with this requirement, we do not agree that it is necessary to inform Draft Plan approval. Furthermore, given the future BRT plans, the character and design of Lakeshore will be vastly altered by the City, and it would be helpful to be able to review the City's own collision analyses to understand staff expectations for our submission. In any event, we have made requested and paid for collision data along the Lakeshore corridor and once in receipt of the data we will assess and report on the results.

We do not believe this is a requirement for, or should hold up approval of, the Draft Plan application.

3.32 Comment #32 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

Provide a figure for proposed lane configurations and stop controls for the internal road network.

TMIG Response:

A figure detailing the internal intersection stop controls and lane configurations was produced to address this comment and City Comment #18 (refer to **Section 3.18**). The figure is located in **Appendix M**.

3.33 Comment #33 (ADDITIONAL COMMENTS / OUTSTANDING ITEMS)

Comment:

Active Transportation Network shown in Appendix D appears to be outdated.

TMIG Response:

The Active Transportation Network shown in Appendix D of the April 2021 TCR Addendum was to most up to date at the time, however TMIG would like to note that upcoming changes to the ROW design and cross-sections will require minor modifications to the active transportation network. The latest version of the active transportation network can be provided upon completion of updates to the ROWs throughout the draft plan.

We do not believe this is a requirement for, or should hold up approval of, the Draft Plan application.

APPENDIX A

City of Mississauga and Peer Reviewer Comments

Memo

Date:	Monday, June 07, 2021
Project:	Transportation Planning Roster Assignment
To:	Ryan Au
From:	HDR
Subject:	Lakeview Village Transportation Peer Review

Introduction

HDR was retained by the City of Mississauga to undertake a Peer Review of the transportation assessment materials submitted as part of the Lakeview Village Development Master Plan, which envisions a large multi-use development being constructed south of Lakeshore Road at Hydro Road, in the City of Mississauga. HDR had provided comments on the submitted materials to TMIG, and TMIG has since updated the analysis to address comments from both the City of Mississauga and HDR. Additional Peer Review services were undertaken to review the Lakeview Village Addendum materials which included:

- Lakeview Village Traffic Considerations Report Addendum, April 2021
- Lakeview Village Supplemental Traffic Analysis Report, April 2021

The contents of the two reports and appendices were reviewed to ensure that the analyses, findings, and recommendations used sound engineering principles and follow current industry practices.

Summary Findings of the Peer Review

HDR acknowledges that many of the comments raised during the initial Peer Review were addressed by TMIG in the Lakeview Village Addendum reports. Below are the remaining key comments that were not addressed and/or HDR does not agree with the updates applied:

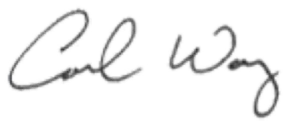
- **Trip Distribution:** Please revisit the trip distribution proportions at the network gateways. It is expected that trip distributions will generally follow opposite inbound/outbound trends between the AM and PM peak hours due to commuting patterns, as was summarized from the TTS trip distribution table (Table 3-1). The distributions at the network gateways result in unexpected travel patterns, such as the 5% AM inbound and 26.5% PM outbound at the E leg of Dixie Road, which results in only 70 AM inbound trips but 534 PM outbound trips during the 2031 BAU scenario. Additionally, the eastern versus western limit patterns are not consistent, with the AM outbound proportion at the Dixie intersection comprising 43% and the inbound during the PM at the same intersection comprising only 33% of trips.

- **Capacity Analysis:** The summary of operational results should include the queueing conditions at intersection movements within the study area to identify whether queues will extend beyond the available storage lengths at the intersections with Dixie Road, Cawthra Road, and other study are intersections following the changes to trip generation and distribution.
- **Multi-Modal Level of Service Analysis:** Multi-modal level of service analyses are becoming common in Transportation Impact Assessments undertaken for urban mixed-use developments; since the site design has a significant focus on alternative modes of transportation, it would help validate the expected level of comfort and capacity on the study area network, and help bring to light trade-offs which would otherwise not be visible, such as the provision of more north-south walk time for pedestrians versus east-west green time for vehicles on Lakeshore Road. The traffic operations analysis should also ensure that sufficient pedestrian walk and flashing don't walk times are provided at the key intersections along Lakeshore Road to facilitate pedestrian crossings or transit access once the BRT platforms are constructed in the median.
- **Vehicle Swept Paths:** The turning movement diagrams for fire trucks and garbage trucks show many areas of conflict with other approaches to the internal intersections. We understand that tighter curb radii were used at internal intersections due to the urban environment and the effect it has on reducing automobile speeds; however, based on the current diagrams, trucks will have difficulty maneuvering within the internal roadway network without conflicting with vehicles that are stopped at the intersections.
- **Microsimulation:** The 2041 analysis horizon year should be considered in the Vissim microsimulation analysis. This is a key horizon year for the transportation study which would allow for the identification of network impacts by the proposed development relative to the 2041 future background conditions, and would allow for more detailed interactions to be modelled at the railway crossings, thereby providing a more realistic estimate of the future queue spillbacks.
- **Mitigation Measures:** The Lakeview Village Supplemental Traffic Analysis Report should identify the outcomes of the sensitivity analysis noted for the Haig Avenue / Rail Crossing intersection, and whether the geometric configuration tested at Haig Avenue / Lakeshore Road is being proposed as a 2041 horizon year mitigation measure.

A detailed summary of Peer Review comments on the addendum materials is attached for reference, which includes the above noted comments and some more detailed comments.

It should be noted that although the addendum reports have addressed the majority of the comments raised for the Transportation Considerations Report June 2020, there are still a few key comments to be addressed, which will need further updates to the documentation and analysis. Should you have any questions or need clarifications on this Peer Review, please do not hesitate to contact me.

Yours truly,
HDR Corporation



Carl Wong, P.Eng.
Associate Vice President | Traffic Lead

hdrinc.com 100 York Boulevard, Suite 300, Richmond Hill, ON, CA L4B 1J8
(289) 695-4600

Attachment
Lakeview Village Peer Review Comments

Lakeview Village Peer Review			
Traffic Considerations Report Addendum, Final April 2021			
No.	Page/Section	Para/Exhibit	Comment
1	Page 25 / Section 3.37	Paragraph 2	Multi-modal level of service analyses are becoming common in Transportation Impact Assessments undertaken for urban mixed-use developments; since the site design has a significant focus on alternative modes of transportation, it would help validate the expected level of comfort and capacity on the study area network, and help bring to light trade-offs which would otherwise not be visible, such as the provision of more north-south walk time for pedestrians versus east-west green time for vehicles on Lakeshore Road. The traffic operations analysis should also ensure that sufficient pedestrian walk and flashing don't walk times are provided at the key intersections along Lakeshore Road to facilitate pedestrian crossings or transit access once the BRT platforms are constructed in the median.
2	Page 27 / Section 3.45	Paragraph 2	The intersections with Fergus and Alexandra should be treated as normal intersections and be assessed as part of the study. Alexandra Ave provided one of the few rail crossing in the study area and should not be treated as a sink or not included in the analysis.
3	Page 28 / Section 3.46	Paragraph 1	The 2041 analysis horizon year should be considered in the Vissim microsimulation analysis. This is a key horizon year for the transportation study which would allow for the identification of network impacts by the proposed development relative to the 2041 future background conditions, and would allow for more detailed interactions to be modelled at the railway crossings, thereby providing a more realistic estimate of the future queue spillbacks.
4	Appendix C-E	-	The trip generation table for Serson North appears to have an error in the calculation of auto driver trips, as a 50% mode split has been applied.
5	Appendix C-D	-	The trip generation table for the 2041 50% mode split sensitivity appears to have an error, as a 50% mode split was not applied to the office land use.
6	Appendix E-D	-	The turning movement diagrams for fire trucks and garbage trucks show many areas of conflict with other approaches to the internal intersections. We understand that tighter curb radii were used at internal intersections due to the urban environment and the effect it has on reducing automobile speeds; however, based on the current diagrams, trucks will have difficulty maneuvering within the internal roadway network without conflicting with vehicles that are stopped at the intersections.
Supplemental Traffic Analysis Report, Final April 2021			
No.	Page/Section	Para/Exhibit	Comment
7	Page 6 / Section 2.3.3	Table 2-8	The non-residential trip generation in the table does not match the trip generation in Appendix C-F, even when adjusting the office land use calculation to use a 50% mode split.
8	Page 8 / Section 3	Table 3-2	Please revisit the trip distribution proportions at the network gateways. It is expected that trip distributions will generally follow opposite inbound/outbound trends between the AM and PM peak hours due to commuting patterns, as was summarized from the TTS trip distribution table (Table 3-1). The distributions at the network gateways result in unexpected travel patterns, such as the 5% AM inbound and 26.5% PM outbound at the E leg of Dixie Road, which results in only 70 AM inbound trips but 534 PM outbound trips during the 2031 BAU scenario. Additionally, the eastern versus western limit patterns are not consistent, with the AM outbound proportion at the Dixie intersection comprising 43% and the inbound during the PM at the same intersection comprising only 33% of trips.
9	Page 10 / Section 4.1.1	Table 4-1	The summary of operational results should include the queueing conditions at intersection movements within the study area to identify whether queues will extend beyond the available storage lengths at the intersections with Dixie Road, Cawthra Road, and other study are intersections following the changes to trip generation and distribution.
10	Page 15 / Section 4.1.2	Table 4-3	Slight discrepancies are observed between the delays in the table and the delays reported in Appendix C-J.
11	Page 35 / Section 4.2	Paragraph 1	Acknowledging the limitations of Synchro and SimTraffic in the analysis of railway crossings, Vissim would be a preferable tool for the analysis of the railway conditions across all scenarios as it would allow for much more complex and realistic modelling of the railway preemption, and would identify whether the significant queueing on Haig Boulevard in the 2041 Future Total condition is realistic.
12	Page 35 / Section 4.2	Paragraph 1	The report should identify the number of trains that were assumed at the crossing and provide the Synchro models for review, however, the preceeding comment is maintained in that Vissim would be the preferrable approach to analyzing the crossing.
13	Page 36 / Section 4.2	Table 4-16	Please identify why the queueing conditions during the 2041 Total Modal Split scenario are worse at the intersection with Haig Boulevard compared to the 2041 Future Total BRT scenario despite the reduction in vehicles.
14	Page 36 / Section 4.2	Paragraph 1	The discussion on the Haig Avenue / Rail Crossing sensitivity analysis is unclear with regards to what the outcomes / findings of the analysis were, and the recommended mitigation measures moving forward. An additional table summary should be provided to compare the operations with and without the downstream mitigation and identify whether the configuration is recommended to be constructed.

City of Mississauga
Transportation and Works Department
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Michael Dowdall, P.Eng.
The Municipal Infrastructure Group Ltd.
8800 Dufferin Street, Suite 200
Vaughan, ON, L4K 0C5

June 22, 2021

Re: Lakeview Village Transportation Considerations Report Addendum
Lakeview Community Partners Limited
1082 Lakeshore Road East
City Files: 21T-M 19001, OZ/OPA 19/021, Ward 1

TRANSPORTATION CONSIDERATIONS REPORT ADDENDUM (APRIL 2021)

(i) This Addendum Report appears to be structured as a comment response matrix to City and Peer Reviewer comments on the Transportation Considerations Report (TCR, June 2020). One final comprehensive report addressing all City and Peer Review comments on the TCR (June 2020) and TCR Addendum (April 2021) shall be provided with all relevant information to support the associated Official Plan Amendment, Rezoning and Draft Plan of Subdivision applications.

(ii) Notwithstanding the above, it can be acknowledged from both the City and Peer Reviewer that some comments previously provided on the TCR (June 2020) have been addressed through this TCR Addendum (April 2021). As the reports were provided outside of the formal process, staff will require a final comprehensive report to be formally provided to address the comments to form part of the public record. Staff will continue to work with the consultant to structure this final report.

(iii) No recommendations or conclusions were provided in the addendum.

(iv) The developer shall review, and address comments made by the City retained peer reviewer on the Transportation Considerations Report Addendum (April 2021)

(v) The final report shall be stamped and signed by a licensed professional engineer.

APPENDIX C - SUPPLEMENTAL TRAFFIC ANALYSIS REPORT (APRIL 2021)

(vi) It shall be noted that this “Appendix C” Supplementary Report was reviewed independent of the original TCR (June 2020). It is also acknowledged that assumptions made in the TCR (June 2020) were carried over into this Appendix C (April 2021) report. Notwithstanding, one final comprehensive report addressing all City and Peer Review comments on the TCR (June 2020) and TCR Addendum, including Appendix C (April 2021) shall be provided with all relevant information to support the associated Official Plan Amendment, Rezoning and Draft Plan of Subdivision applications.

(vii) Recommendation and Conclusion sections are also missing from the Appendix C (April 2021) report and shall be provided with a list of all recommended mitigation measures to accommodate the site from a transportation perspective. Detailed recommendations regarding on-site and off-site roadway improvements, site access, TDM measures, site access, future traffic studies etc. are required. Timing for any recommended improvements should be indicated and a multi-modal lens should be applied.

TRIP GENERATION

(viii) Provide justification for what the 50% external trip assumption is based on.

MODE SPLITS

(ix) Further justification will be required on the 50% Auto Driver mode split for 2041.

SITE TRIP DISTRIBUTION AND ASSIGNMENT

(x) There appears to be discrepancies on trips provided in the Tables and trips illustrated in Figures. As an example, inbound/outbound trips in Table 2-5 don't appear to match the sum of the inbound/outbound trips in Appendix C-H.

(xi) There appears to be a significant amount of trips to/from roads that are not available (e.g. Street 'F' (Ogden Avenue) and Street 'I' (Haig Boulevard)) within the proposed Plan of Subdivision. Please confirm where the trips are to/from as there is no connection to Lakeshore and there does not appear to be any access to adjacent proposed blocks.

(xii) Provide Future Total figures for the entire study area, including internal road network.

(xiii) Please elaborate further with respect to how the trip distribution and assignment were derived. The report assumes that a minimal amount of traffic is destined to/from the north, which may not be reflective of expected travel patterns. How does the proposed trip distribution compare to existing travel patterns in the area? Why is the trip distribution/assignment for residential trips assumed to be the same as non-residential trips?

BACKGROUND DEVELOPMENTS

(xiv) Rangeview Estates: Please confirm how the site statistics were established for the Rangeview Estates Trip Generation as there may be a discrepancy with the current City Official Plan.

(xv) Serson North: Please confirm how the site statistics were established for the Serson North Trip Generation as there may be a discrepancy with the current City Official Plan.

(xvi) Additional Background Developments: 960 East Avenue; 1041 Lakeshore Road East; 1303 Lakeshore Road East; 1345 Lakeshore Road East; 1381 Lakeshore Road East; 1407 Lakeshore Road East.

INTERSECTION CAPACITY ANALYSIS

(xvii) Provide a Sensitivity Analysis using Arcady for the proposed roundabout at Lakefront Promenade and Street A.

(xviii) Please include form of traffic control for unsignalized intersections (e.g. TWSC, AWSC, RDBT, etc.), where applicable.

(xix) A number of study area intersections are forecast to operate with over capacity movements including significant delays and queuing. Please confirm what mitigation measures are being implemented such that the adjacent road network can accommodate the proposed development.

SYNCHRO CALIBRATIONS

(xx) Any adjustments to capacity analysis parameters must be confirmed via in-field studies and/or confirmed as acceptable by City Transportation staff.

(xxi) Provide further justification to the adjustments made to the Saturation Flow Rates via in-field studies.

(xxii) Append York Region BRT clearance time raw data for review.

(xxiii) Provide further justification of the modifications made to Lost Time Adjustment via in-field studies.

(xxiv) Bus Blockages do not appear to be included in the traffic modelling for the proposed transit roads. As this would reduce intersection capacity, this should be included in the analysis.

ADDITIONAL COMMENTS / OUTSTANDING ITEMS

(xxv) It shall be acknowledged that there are ongoing discussions with respect to road design and right-of-way widths. The vehicle swept paths are currently undesirable but will be reviewed with the other agencies in greater context as part of the right-of-way discussions.

(xxvi) It is acknowledged that a revised VISSIM Microsimulation analysis is being prepared. Staff will provide additional comments once submitted for review.

(xxvii) The study shall be updated to address development phasing of the proposed subdivision to assess the traffic related impacts of each development phase including cumulative impacts.

(xxviii) Regarding the AWS warrants, please also indicate whether the directional split warrants are met. If not, AWS would not be warranted. Please confirm. The City does not permit the installation of unwarranted AWS.

(xxix) In addition to other recommendations, a recommendation for updated traffic studies, site access and other site specific traffic related requirements should be included within this section.

(xxx) Left turns shall be considered at intersections along the Major Collector Roads, including along the proposed Transit Routes.

(xxxi) Please include a collision analysis along Lakeshore Road East.

(xxxii) Provide a figure for proposed lane configurations and stop controls for the internal road network.

(xxxiii) Active Transportation Network shown in Appendix D appears to be outdated.

Should you have any questions, please contact Ryan Au at 905-615-3200 Ext. 3128, Ryan.Au@mississauga.ca.

Sincerely,

MISSISSAUGA

Ryan Au, P.Eng.
Traffic Planning Coordinator
T 905-615-3200 ext. 3713
ryan.au@mississauga.ca

City of Mississauga | Transportation & Works Department
201 City Centre Drive, Suite 800 | Mississauga ON | L5B 2T4

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APPENDIX B

City Communication

Kyla Zijlstra

From:	Ryan Au <Ryan.Au@mississauga.ca>
Sent:	July 30, 2021 2:40 PM
To:	Michael Dowdall; Jim Bacchus; Kyla Zijlstra
Cc:	Glen Broll (glenb@gsai.ca); David Breveglieri; Lin Rogers; Marzo, Christina
Subject:	FW: Lakeview Village Information Request
Attachments:	17201_Phasing_Sensitivity_Memo_20210719_1-1.pdf

Hi Mike,

At a high level, as you prepare the Phasing Analysis Report please ensure to also include the following:

(1) Provide a Figure to help illustrate the different development phases that is in line with this study. The Figure should include the proposed land use, site statistics, proposed phase and Lot/Block numbers.
(2) Include assumed build-out year for each phase in the Phasing Scenario summary tables.
(3) Include a Full-Build Out scenario, that includes all land uses within the Lakeview Village development as it was noted some land uses were not included.
(4) The memo identifies departures in assumptions and analysis from previously submitted traffic studies. As all of these traffic studies are related, the assumptions and analysis should be consistent in a revised comprehensive report.
(5) It is also noted that the TCR assumed an internal capture rate for the whole development (full build out) but should be revaluated based on the phasing approach. For example, the current Phase 1 considers a "residential first" approach which would mean there would be no employment, office, retail uses etc. available and all trips would essentially be external until those uses become available. ***Please see additional comments below provided by our Planning and Building Department.***
(6) Provide Trip Generation Summary by phases. If there are any trip reductions at each phase, it should also be identified (i.e. mode splits, internal capture, pass-by).
(7) Provide further clarification on the infrastructure details. For example, the memo identifies traffic signalization for Phase 1A and addition of dedicated turn lanes in Phases 2 and 3. We will require functional designs/plans to establish feasibility and ensure these infrastructure improvements can fit within the right-of-way.
(8) Base case should be existing transportation infrastructure conditions. For example, if Phase 1A requires the signalization of Hydro Road / Lakeshore Road East in order to proceed, then that should be identified as a recommendation for Phase 1A. The recommendations from previous phases should set the new base cases for the subsequent phases.
(9) Provide a Recommendation section and Conclusion section.

In addition to these comments, we have now confirmed the mode splits provided in the TCR are acceptable and you may use them in your traffic analysis. As for the cycle lengths, we are confirming with our signals staff but early suggestions are that they should be no more than 120 seconds as many of them are today under existing conditions. There may be opportunities for Traffic Signal Coordination as a recommendation.

I've also copied Christina to see if there is anything to add from a Regional perspective as early suggestions appear to show road improvements on Regional Roads.

If you have any questions, feel free to reach out.

Thanks,

MISSISSAUGA

Ryan Au, P.Eng.
Traffic Planning Coordinator
T 905-615-3200 ext. 3713
ryan.au@mississauga.ca

City of Mississauga | Transportation & Works Department
201 City Centre Drive, Suite 800 | Mississauga ON | L5B 2T4

Please consider the environment before printing.

From: David Breveglieri
Sent: Thursday, July 29, 2021 2:35 PM
To: Lin Rogers <Lin.Rogers@mississauga.ca>
Cc: Ryan Au <Ryan.Au@mississauga.ca>; Dave Martin <dave.martin@mississauga.ca>; Emma Calvert <Emma.Calvert@mississauga.ca>; Hugh Lynch <Hugh.Lynch@mississauga.ca>
Subject: RE: Lakeview Village Information Request

Hi Lin,

Planning has reviewed the memo regarding the phasing of the development as it relates to transportation infrastructure. Of the four scenarios outlined it appears that the first three contemplate development permissions prior to the construction of the BRT. Of those three, it appears only one contemplates permission for the development of the Innovation Corridor, and up to a maximum of one million square feet, while permitting full build out of the residential development.

It is Planning's preference that the Innovation Corridor be prioritised for development without any encumbrances as it relates to the phasing of traffic infrastructure. Lakeview Village is a long term development and it is anticipated that some of the residential development won't happen within a 10 year time horizon, however, the occupancy of Innovation Corridor will be opportunity driven and as such timelines associated with its programming are unknown. The activation strategy for those lands is underway and it is preferable not to preclude development opportunities by limiting the corridors development potential through holding symbols or other mechanisms.

The Economic Development Office is currently undertaking the Innovation Corridor Activation Project, in consultation with HR&A Advisors, which will involve the marketing program of the corridor and bringing the lands to market. EDO has also expressed concerns with any restriction being placed on the immediate development potential of the Innovation Corridor and the impact it will have to their activation plans.

MISSISSAUGA

David Breveglieri
Planner, Development South
T 905-615-3200 ext.5551
david.breveglieri@mississauga.ca

City of Mississauga | Planning and Building Department,
Development & Design Division

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MEMORANDUM

DATE	July 19, 2021
TO	**City of Mississauga, Transportation and Works Department** **ATTN: Lin Rogers**
CC	Lakeview Community Partners Limited, GSAI
SUBJECT	Lakeview Village Transportation Infrastructure Phasing Analysis Summary of Proposed Submission
FROM	TMIG
PROJECT NUMBER	17201

The Municipal Infrastructure Group, a T.Y. Lin International Company (TMIG), is pleased to provide the enclosed summary of our forthcoming Phasing Analysis for the Lakeview Village development on Mississauga's waterfront.

As part of the City's review of TMIG's April 2021 Transportation Considerations Report (TCR) Addendum, staff have provided additional comments and requested the completion of the Phasing Analysis. The forthcoming phasing analysis will determine the level of Lakeview development (both residential and non-residential uses) that could take place prior to major transportation infrastructure improvements such as the extensions of Ogden Avenue and Haig Boulevard. The analysis focuses on the 2031 Business and Usual (BAU) and 2031 Bus Rapid Transit (BRT) planning horizons.

As TMIG has already completed the phasing analysis (with some outstanding minor edits and fulsome report to be finalized), the enclosed is intended as an outline for City Staff's review prior to submission.

Phasing Scenarios

TMIG's phasing analysis assessed two different development scenarios, each of which were further broken down into two sets of infrastructure scenarios for a total of four analysis scenarios. The details of Scenarios 1A and 1B are summarized in **Table 1**. The details of Scenarios 2 and 3 are summarized in **Table 2**.

Scenarios 1A and 1B took a "residential first" approach, focusing on the impacts of site traffic generated by all the residential blocks currently envisioned for Lakeview Village. The non-residential uses east of Street 'I' (the Innovation Corridor employment area) were excluded from analysis efforts for Scenarios 1A and 1B.

Scenarios 2 and 3 include all uses from prior scenarios, plus site traffic generated by a substantial amount of the Office and Research & Development land uses planned in the Innovation Corridor along Street 'I' (including private and City owned lands).

In all scenarios examined, forecasted background growth along the Lakeshore corridor and at its key external intersections at Dixie Road and Cawthra Road was assumed as per TMIG's most recent TCR RTC Addendum (1.5% annual growth rate applied to westbound traffic during the a.m. peak and 0.5% annual growth rate applied to eastbound traffic during p.m. peak).

Furthermore, although Bus Rapid Transit along Lakeshore is now committed by the City to be implemented by the 2031 horizon, for the BAU scenarios (Scenarios 1A, 1B, and 2), existing mode splits derived for the TCR Addendum (representing the average of data from the Port Credit and Lakeview 2016 TTS zones) were applied. Scenario 3 contemplates the effects of the BRT on increasing the transit mode split as per the *Region's Long Range Transportation Plan* (2019).

Development statistics, infrastructure details, and analysis details (such as trip generation and Synchro settings) that inform each analysis scenario are summarized in **Table 1** and **Table 2**.

Of note, none of the scenarios assume full buildout of the Lakeview Village lands, though some scenarios allow for considerable build-out of the development. For example, the waterfront hotel/retail block within the Lakefront Square is not included in the phasing analysis, although it could in theory be constructed in exchange for a reduction in other land use statistics included in the current analysis scenarios (such as a reduction in Office/Research and Development land uses).

Table 1 – Phasing Scenario 1A and 1B Details

<table>
<tr><th>Scenario Number</th><th>Development Statistics</th><th>Infrastructure Details</th><th>Analysis Details</th></tr>
<tr><td>1A</td><td rowspan="2">• 8,050 residential units (374 townhouse, 5,287 mid-rise, and 2,389 high-rise)
• Elementary School (850 Students)
• Day Care Center (39 Students)
• At-grade Retail associated with residential buildings (133,160 ft² GFA)</td><td>• Assumed existing transportation infrastructure along Lakeshore Road with the exception of the signalization of Hydro Road and Lakeshore Road East, necessary for the base case</td><td>• Trip Generation, Mode Split, Trip Distribution, and Trip Assignment as per TCR Addendum
• Default Saturation Flow of 1,900vph used in Synchro
• Default Lost Time Adjustment (LTA) of 0 seconds applied to all movements with the exception of -1 seconds applied to protected left-turn phases
• Signal Timings Optimized</td></tr>
<tr><td>1B</td><td>In addition to Scenario 1A:
• Addition of dedicated westbound right-turn lanes at Cawthra Road and Dixie Road on Lakeshore Road East</td><td>Analysis assumptions identical to Scenario 1A</td></tr>
</table>

Note: The at-grade retail GFA assumed for all scenarios assumes that retail trips generated by retail uses at Lakeshore Road/Hydro Road, within the Lakefront Square, and within other residential blocks along the waterfront will have the potential to generate external trips whereas the remaining residential blocks with at-grade retail were assumed to serve only Lakeview Village residents/not generate external trips. This is a departure from pervious TCR analysis assumptions, however, this will provide a more accurate reflection of the role of at-grade retail and neighbourhood activation within an urban setting.

Table 2 – Phasing Scenario 2 and 3 Details

Scenario Number	Development Statistics	Infrastructure Details	Analysis Details
2	• In addition to Scenario 1A/1B: • Office (500,000 ft² GFA) • Research & Development (500,000 ft² GFA)	In addition to Scenario 1A & 1B: • Addition of dedicated eastbound right-turn lane at Hydro Road and Lakeshore Road	Analysis details identical to Scenario 1A
3	• In addition to Scenario 1A/1B: • Office (745,315 ft² GFA) • Research & Development (745,315 ft2 GFA)	• Bus Rapid Transit • Assumes the median-running bus rapid transit (BRT) lanes and multi-modal infrastructure improvements on Lakeshore Road have been implemented, as per the City's *Lakeshore Road Transportation Master Plan* • Addition of dedicated westbound right-turn lanes at Cawthra Road and Dixie Road on Lakeshore Road East • Addition of dedicated eastbound right-turn lanes at Hydro Road and Lakefront Promenade on Lakeshore Road East • Southern extensions planned for Ogden Avenue and Haig Boulevard were assumed to NOT be constructed for the purposes of the phasing analysis.	Analysis details identical to Scenario 1A with the following exception: • Mode split percentages used in trip generation were modified to match 2031 modal slit targets for Rapid Transit Corridor "Super-zones", as per Table 8 of the Region of Peel's *50% Sustainable Mode Share Target Background Paper* which was included in the Region's *Long Range Transportation Plan* (2019) • Lakeshore Road signal timings modified and optimized to reflect BRT median lane operations, such as protected-only westbound and eastbound left-turn phases

Using capacity restraint, TMIG progressively increased the amount of Office and Research & Development site trips to determine how much of this GFA could be constructed for Scenarios 2 and 3 (subject to the infrastructure assumptions outlined in **Table 2**).

Scenario 3 Analysis – BRT Considerations

Scenario 3 focused on the impact of the implementation of the median-running Bus Rapid Transit (BRT) lanes on Lakeshore Road East, as detailed in the City's *Lakeshore Road Transportation Master Plan*.

One of the predicated impacts of the implementation of the BRT is a reduction in the auto-driver mode split within the Lakeview area compared to that of the 2031 "BAU" scenarios (Scenarios 1A, 1B, and 2). Please note that this 2031 BRT modification to the mode split was not implemented in the TCR Addendum as a conservative measure, but we believe it is appropriate to include it now in the phasing analysis, which is meant to be a more detailed analysis of the road network capacity and to better align with the City's proposed delivery timing of the BRT (i.e., Phase 2 implemented by 2031).

Based on information presented in the Region of Peel's *50% Sustainable Mode Share Target Background Paper* which was produced to inform the Region of Peel's 2019 *Long Range Transportation Plan*, Lakeview Village and the surrounding area fall within a "Rapid Transit Corridor Super-Zone". Table 8 of the Sustainable Mode Paper, provided as **Figure 1** for reference, outlines modal split targets for 2021, 2031, and 2041. The 2031 modal splits in Table 8 were applied to both the weekday a.m. and p.m. peak hours, reducing the auto driver share to 55.5% for analysis purposes (compared to the 60% and 61% auto-driver split applied to the a.m. and p.m. peak hour, respectively, in the recent TCR Addendum).

Figure 1 – Table 8 from Region of Peel's 50% Sustainable Mode Share Target Background Paper

TABLE 8: Summary Table of Modal Split Targets for each Super-Zone Category (2011 – 2041)

Rapid Transit Corridor				
	2011	2021	2031	2041
Driving	62.3%	59.7%	55.5%	51.0%
Carpool	14.7%	16.2%	17.5%	19.2%
Transit	13.1%	14.5%	16.3%	18.5%
Walk/Cycle	6.9%	7.4%	8.5%	9.5%
Others	3.0%	2.2%	2.2%	1.8%

Scenario 3 maintained the majority of the infrastructure improvements recommended in Scenario 2, but also incorporated the addition of an eastbound right-turn lane at Lakefront Promenade to aid in improving the overall operations of the intersection. Of note, there is an existing dedicated eastbound right-turn lane at Lakefront Promenade and Lakeshore Road today, that has been maintained in the traffic analysis modelling for Scenarios 1A, 1B, and 2. The "addition" of the eastbound right-turn lane at Lakefront Promenade acknowledges that the right turn is not currently included in the City's BRT roll plans.

Although the 745, 315 ft^2 GFA of Office and 745, 315 ft^2 GFA of Research & Development space represents a significant amount of non-residential traffic that can be accommodated in Scenario 3, this does not represent the full build-out of the Lakeview Village development. The following land use statistics summarize the outstanding development components that cannot be accommodated by Scenario 3 road network / BRT (of course, should there be a desire to proceed with any of these components earlier, then a commensurate amount of other non-residential space would need to be deferred):

- Remainder of at-grade retail associated with residential buildings (outside of Lakeview Square) and hotel (69,558 ft^2 GFA)
- Hotel (191 rooms assumed for TCR analysis)
- Community Center (435,856 ft^2 GFA)

We trust that the enclosed has provided some context to our future phasing analysis submission and will aid in expediting the review of the analysis once submitted. Please feel free to contact us should you have any comments and/or questions regarding the forthcoming phasing analysis.

Regards,

TMIG

APPENDIX C

Serson North Trip Generation – 2041 BRT

Trip Generation Summary – Serson North Background Development (2041 BRT)

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
General Office Building (LUC 710) *Dense Multi-use Urban Context* 224,427 ft² GFA	Fitted Curve Equation	T = 0.72(X) + 21.64			T = 0.83(X) + 7.99		
	Distribution	86%	14%	-	17%	83%	-
	Gross Vehicle Site Trips	158	25	183	33	161	194
	Vehicle to Person Trip Conversion Rate	1.47			1.46		
	Gross Person Trips	231	38	269	48	236	284
	Internal Reduction	-	-	-	-	-	-
	Total External Person Trips	231	38	269	48	236	284
	Mode Split Reduction	93	15	108	19	92	111
	Total Auto Driver Trips	**138**	**23**	**161**	**29**	**144**	**173**
Research and Development Center (LUC 760) 224,428 ft² GFA	Average Rate	0.42			0.49		
	Distribution	75%	25%	-	15%	85%	-
	Gross Vehicle Site Trips	71	23	94	16	94	110
	Vehicle to Person Trip Conversion Rate	1.36			1.45		
	Gross Person Trips	96	32	128	24	135	159
	Internal Reduction	-	-	-	-	-	-
	Total External Person Trips	96	32	128	24	135	159
	Mode Split Reduction	39	13	52	9	53	62
	Total Auto Driver Trips	**57**	**19**	**76**	**15**	**82**	**97**
Total Serson North Auto Driver Trips		**195**	**42**	**237**	**44**	**226**	**270**

APPENDIX D

Lakeview Village Trip Generation Summary – 2041 BRT 50% Mode Split Sensitivity

Trip Generation Summary – 2041 50% Mode Split Sensitivity – Lakeview Village

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 374 units	Fitted Curve Equation	Ln(T) = 0.95 Ln(X) - 0.51			Ln(T) = 0.89 Ln(X) - 0.02		
	Distribution	23%	77%	-	63%	37%	-
	Gross Vehicle Site Trips	38	129	167	120	71	191
	Vehicle to Person Trip Conversion Rate	1.13			1.21		
	Gross Person Trips	43	146	189	146	85	231
	Internal Reduction	1	2	3	13	9	22
	Total External Person Trips	42	144	186	133	76	209
	Mode Split Reduction	20	73	93	66	39	105
	Total Auto Driver Trips	**22**	**71**	**93**	**67**	**37**	**104**
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 5287 units	Average Rate	0.20			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	127	930	1057	685	267	952
	Vehicle to Person Trip Conversion Rate	1.90			2.00		
	Gross Person Trips	241	1768	2009	1370	533	1903
	Internal Reduction	5	31	36	119	59	178
	Total External Person Trips	236	1737	1973	1251	474	1725
	Mode Split Reduction	118	868	986	626	236	862
	Total Auto Driver Trips	**118**	**869**	**987**	**625**	**238**	**863**
Multifamily Housing (High-Rise) LUC 222 *Dense Multi-use Urban Context* 2389 units	Fitted Curve Equation or Average Rate	Ln(T) = 0.84 Ln(X) - 0.65			2.17		
	Distribution	12%	88%	-	70%	30%	-
	Gross Vehicle Site Trips	43	316	359	318	136	454
	Vehicle to Person Trip Conversion Rate	2.81			2.17		
	Gross Person Trips	121	889	1010	690	295	985
	Internal Reduction	2	16	18	60	32	92
	Total External Person Trips	119	873	992	630	263	893
	Mode Split Reduction	60	436	496	315	131	446
	Total Auto Driver Trips	**59**	**437**	**496**	**315**	**132**	**447**
Hotel LUC 310 191 rooms	Fitted Curve Equation	T = 0.50(X) - 5.34			T = 0.75(X) - 26.02		
	Distribution	59%	41%	-	51%	49%	-
	Gross Vehicle Site Trips	53	37	90	60	57	117
	Vehicle to Person Trip Conversion Rate	1.00			1.00		
	Gross Person Trips	53	37	90	60	57	117
	Internal Reduction	-	-	-	-	-	-
	Total External Person Trips	53	37	90	60	57	117

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Mode Split Reduction	26	18	44	30	28	58
	Total Auto Driver Trips	**27**	**19**	**46**	**30**	**29**	**59**
Recreational Community Center LUC 495 435,856 ft^2 GFA	Fitted Curve Equation	Ln(T) = 0.54 Ln(X) + 2.73			Ln(T) = 0.76 Ln(X) + 2.00		
	Distribution	66%	34%	-	47%	53%	-
	Gross Vehicle Site Trips	269	139	408	352	397	749
	Vehicle to Person Trip Conversion Rate	1.86			1.82		
	Gross Person Trips	501	258	759	641	722	1363
	Internal Reduction	-	-	-	-	-	-
	Total External Person Trips	501	258	759	641	722	1363
	Mode Split Reduction	250	129	379	320	361	681
	Total Auto Driver Trips	**251**	**129**	**380**	**321**	**361**	**682**
General Office Building LUC 710 *Dense Multi-use Urban Context* 745,316 ft^2 GFA	Fitted Curve Equation	T = 0.72(X) + 21.64			T = 0.83(X) + 7.99		
	Distribution	86%	14%	-	17%	83%	-
	Gross Vehicle Site Trips	480	78	558	107	520	627
	Vehicle to Person Trip Conversion Rate	1.47			1.46		
	Gross Person Trips	706	115	821	156	759	915
	Internal Reduction	49	32	81	51	65	116
	Total External Person Trips	657	83	740	105	694	799
	Mode Split Reduction	328	41	369	52	347	399
	Total Auto Driver Trips	**329**	**42**	**371**	**53**	**347**	**400**
Research and Development Center LUC 760 745,315 ft^2 GFA	Average Rate	0.42			0.49		
	Distribution	75%	25%	-	15%	85%	-
	Gross Vehicle Site Trips	235	78	313	55	310	365
	Vehicle to Person Trip Conversion Rate	1.36			1.45		
	Gross Person Trips	320	106	426	80	450	530
	Internal Reduction	-	-	-	-	-	-
	Total External Person Trips	320	106	426	80	450	530
	Mode Split Reduction	160	53	213	40	225	265
	Total Auto Driver Trips	**160**	**53**	**213**	**40**	**225**	**265**
Shopping Center LUC 820 202,718 ft2 GFA	Fitted Curve Equation	T = 0.50(X) + 151.78			Ln(T) = 0.74Ln(X) + 2.89		
	Distribution	62%	38%	-	48%	52%	-
	Gross Vehicle Site Trips	157	96	253	440	477	917
	Vehicle to Person Trip Conversion Rate	1.31			1.43		
	Gross Person Trips	206	126	332	629	682	1311
	Internal Reduction	60	36	96	113	191	304
	Total External Person Trips	146	90	236	516	491	1007
	Mode Split Reduction	73	45	118	258	245	503

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Total Auto Driver Trips	**73**	**45**	**118**	**258**	**246**	**504**
Elementary School LUC 520 850 student capacity	Average Rate	0.67			0.17		
	Distribution	54%	46%	-	48%	52%	-
	Gross Vehicle Site Trips	308	262	570	70	75	145
	Internal Reduction (50%)	154	131	285	35	38	73
	Total Auto Driver Trips	**154**	**131**	**285**	**35**	**37**	**72**
Day Care Center LUC 565 39 student capacity	Fitted Curve Equation	T = 0.66(X) + 8.42			Ln(T) = 0.87 Ln(X) + 0.29		
	Distribution	53%	47%	-	47%	53%	-
	Gross Vehicle Site Trips	18	16	34	15	17	32
	Internal Reduction	9	8	17	8	9	17
	Total Auto Driver Trips	**9**	**8**	**17**	**7**	**8**	**15**

APPENDIX E

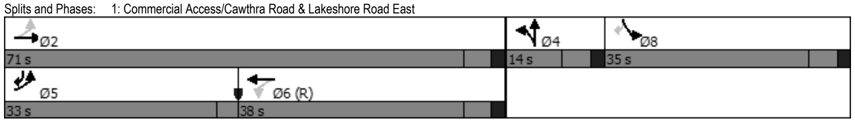
Future Background Synchro Capacity Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1072	0	3	695	172	0	0	0	238	0	379
Future Volume (vph)	482	1072	0	3	695	172	0	0	0	238	0	379
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	482	1072	0	3	867	0	0	0	0	238	0	379
Turn Type	pm+pt	NA		Perm	NA					Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		4	4		8		5
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0		5.0
Minimum Split (s)	17.0	38.0		38.0	38.0		14.0	14.0		35.0		17.0
Total Split (s)	33.0	71.0		38.0	38.0		14.0	14.0		35.0		33.0
Total Split (%)	27.5%	59.2%		31.7%	31.7%		11.7%	11.7%		29.2%		27.5%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-2.0	-1.0		-1.0	-1.0			-1.0		-2.0		0.0
Total Lost Time (s)	1.0	5.0		5.0	5.0			5.0		4.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.66	0.36		0.01	0.48					0.54		0.50
Control Delay	11.7	4.2		25.0	24.3					53.0		9.4
Queue Delay	0.0	0.0		0.0	0.0					0.0		0.0
Total Delay	11.7	4.2		25.0	24.3					53.0		9.4
Queue Length 50th (m)	27.7	31.7		0.5	69.5					27.3		19.9
Queue Length 95th (m)	65.7	46.6		m1.7	85.7					38.6		35.3
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0			15.0						200.0		
Base Capacity (vph)	760	2981		258	1788					846		785
Starvation Cap Reductn	0	0		0	0					0		0
Spillback Cap Reductn	0	0		0	0					0		0
Storage Cap Reductn	0	0		0	0					0		0
Reduced v/c Ratio	0.63	0.36		0.01	0.48					0.28		0.48

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1072	0	3	695	172	0	0	0	238	0	379
Future Volume (vph)	482	1072	0	3	695	172	0	0	0	238	0	379
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0		5.0	5.0					4.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.97		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99					1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00					1.00		1.00
Frt	1.00	1.00		1.00	0.97					1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)	1753	3767		1819	3509					3278		1527
Flt Permitted	0.24	1.00		0.27	1.00					0.95		1.00
Satd. Flow (perm)	449	3767		511	3509					3278		1527
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	482	1072	0	3	695	172	0	0	0	238	0	379
RTOR Reduction (vph)	0	0	0	0	12	0	0	0	0	0	0	150
Lane Group Flow (vph)	482	1072	0	3	855	0	0	0	0	238	0	229
Confl. Peds. (#/hr)	25		8	8		25	13					13
Heavy Vehicles (%)	4%	2%	0%	0%	5%	7%	0%	0%	0%	8%	0%	6%
Turn Type	pm+pt	NA		Perm	NA					Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	94.0	94.0		59.8	59.8					14.0		45.2
Effective Green, g (s)	96.0	95.0		60.8	60.8					16.0		45.2
Actuated g/C Ratio	0.80	0.79		0.51	0.51					0.13		0.38
Clearance Time (s)	3.0	6.0		6.0	6.0					6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)	719	2982		258	1777					437		575
v/s Ratio Prot	c0.19	0.28			c0.24					c0.07		0.10
v/s Ratio Perm	0.35			0.01								0.05
v/c Ratio	0.67	0.36		0.01	0.48					0.54		0.40
Uniform Delay, d1	9.6	3.6		14.7	19.3					48.6		27.4
Progression Factor	1.00	1.00		1.22	1.12					1.00		1.00
Incremental Delay, d2	2.5	0.3		0.1	0.9					1.4		0.5
Delay (s)	12.1	4.0		18.0	22.5					50.0		27.9
Level of Service	B	A		B	C					D		C
Approach Delay (s)		6.5			22.5			0.0			36.4	
Approach LOS		A			C			A			D	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

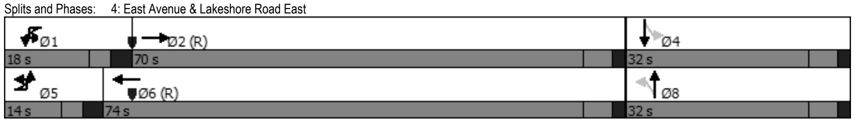
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	37	1198	66	86	16	862	9	19	1	8	32	1
Future Volume (vph)	37	1198	66	86	16	862	9	19	1	8	32	1
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Storage Length (m)	20.0		25.0		60.0		20.0	0.0		0.0	20.0	
Storage Lanes	1		0		1		0	1		0	1	
Taper Length (m)	40.0				50.0			70.0			20.0	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		95.7				101.7			208.9			195.3
Travel Time (s)		6.9				7.3			15.0			14.1
Lane Group Flow (vph)	37	1264	0	0	102	871	0	19	9	0	32	11
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	2		1	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	24.0		14.0	14.0	24.0		32.0	32.0		32.0	32.0
Total Split (s)	14.0	70.0		18.0	18.0	74.0		32.0	32.0		32.0	32.0
Total Split (%)	11.7%	58.3%		15.0%	15.0%	61.7%		26.7%	26.7%		26.7%	26.7%
Yellow Time (s)	3.0	4.0		3.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-1.0			-3.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	3.0	5.0			3.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
v/c Ratio	0.21	0.48			0.45	0.30		0.17	0.06		0.27	0.08
Control Delay	48.0	14.0			54.6	5.4		53.8	29.3		57.1	27.5
Queue Delay	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	48.0	14.0			54.6	5.4		53.8	29.3		57.1	27.5
Queue Length 50th (m)	7.2	96.7			23.5	28.5		4.3	0.2		7.3	0.2
Queue Length 95th (m)	16.0	131.6			40.9	47.1		11.6	5.2		17.0	5.9
Internal Link Dist (m)		71.7				77.7			184.9			171.3
Turn Bay Length (m)	20.0				60.0						20.0	
Base Capacity (vph)	174	2641			243	2912		309	370		317	375
Starvation Cap Reductn	0	0			0	0		0	0		0	0
Spillback Cap Reductn	0	0			0	0		0	0		0	0
Storage Cap Reductn	0	0			0	0		0	0		0	0
Reduced v/c Ratio	0.21	0.48			0.42	0.30		0.06	0.02		0.10	0.03

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 4: East Avenue & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	37	1198	66	86	16	862	9	19	1	8	32	1
Future Volume (vph)	37	1198	66	86	16	862	9	19	1	8	32	1
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Total Lost time (s)	3.0	5.0			3.0	5.0		5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	0.99			1.00	1.00		1.00	0.87		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1785	3625			1785	3552		1743	1616		1783	1635
Flt Permitted	0.95	1.00			0.95	1.00		0.75	1.00		0.75	1.00
Satd. Flow (perm)	1785	3625			1785	3552		1377	1616		1411	1635
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	1198	66	86	16	862	9	19	1	8	32	1
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	8	0	0	9
Lane Group Flow (vph)	37	1262	0	0	102	871	0	19	1	0	32	2
Confl. Peds. (#/hr)	11		11		11		11	3		1	1	
Heavy Vehicles (%)	0%	5%	2%	0%	0%	8%	2%	2%	0%	2%	0%	0%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	5.5	84.0			12.2	90.7		5.8	5.8		5.8	5.8
Effective Green, g (s)	8.5	85.0			15.2	91.7		6.8	6.8		6.8	6.8
Actuated g/C Ratio	0.07	0.71			0.13	0.76		0.06	0.06		0.06	0.06
Clearance Time (s)	6.0	6.0			6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	126	2567			226	2714		78	91		79	92
v/s Ratio Prot	0.02	c0.35			c0.06	0.25			0.00			0.00
v/s Ratio Perm								0.01			c0.02	
v/c Ratio	0.29	0.49			0.45	0.32		0.24	0.02		0.41	0.02
Uniform Delay, d1	52.9	7.8			48.5	4.4		54.1	53.4		54.6	53.4
Progression Factor	0.91	1.59			1.01	1.02		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.7			1.4	0.3		1.6	0.1		3.4	0.1
Delay (s)	49.4	13.1			50.3	4.8		55.8	53.5		58.0	53.5
Level of Service	D	B			D	A		E	D		E	D
Approach Delay (s)		14.1				9.6			55.0			56.9
Approach LOS		B				A			E			E

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

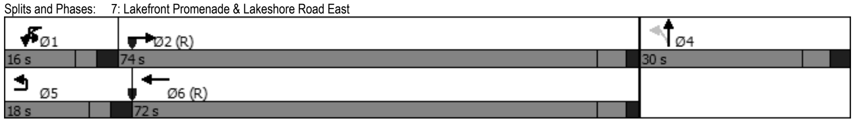
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	10
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	59	0	1038	55	5	20	734	0	23	0	20	0
Future Volume (vph)	59	0	1038	55	5	20	734	0	23	0	20	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Storage Length (m)		15.0		10.0		15.0		0.0	90.0		0.0	0.0
Storage Lanes		1		0		1		0	1		0	0
Taper Length (m)		40.0				55.0			30.0			7.5
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			68.0				88.5			238.4		
Travel Time (s)			4.9				6.4			17.2		
Lane Group Flow (vph)	59	0	1093	0	0	25	734	0	23	20	0	0
Turn Type	Prot		NA		Prot	Prot	NA		Perm	NA		
Protected Phases	5		2		1	1	6			4		
Permitted Phases									4			
Detector Phase	5		2		1	1	6		4	4		
Switch Phase												
Minimum Initial (s)	8.0		8.0		8.0	8.0	8.0		8.0	8.0		
Minimum Split (s)	14.0		26.0		14.0	14.0	26.0		29.0	29.0		
Total Split (s)	18.0		74.0		16.0	16.0	72.0		30.0	30.0		
Total Split (%)	15.0%		61.7%		13.3%	13.3%	60.0%		25.0%	25.0%		
Yellow Time (s)	3.0		4.0		3.0	3.0	4.0		4.0	4.0		
All-Red Time (s)	3.0		2.0		3.0	3.0	2.0		3.0	3.0		
Lost Time Adjust (s)	-3.0		-1.0			-3.0	-1.0		-2.0	-2.0		
Total Lost Time (s)	3.0		5.0			3.0	5.0		5.0	5.0		
Lead/Lag	Lead		Lag		Lead	Lead	Lag					
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes					
Recall Mode	None		C-Max		None	None	C-Max		None	None		
v/c Ratio	0.31		0.36			0.15	0.26		0.16	0.06		
Control Delay	55.3		3.3			61.4	3.0		53.3	0.3		
Queue Delay	0.0		0.0			0.0	0.0		0.0	0.0		
Total Delay	55.3		3.3			61.4	3.0		53.3	0.3		
Queue Length 50th (m)	14.1		27.5			5.9	13.8		5.1	0.0		
Queue Length 95th (m)	27.6		32.6			15.1	21.0		13.3	0.0		
Internal Link Dist (m)			44.0				64.5			214.4		
Turn Bay Length (m)	15.0					15.0			90.0			
Base Capacity (vph)	230		2997			190	2861		357	495		
Starvation Cap Reductn	0		0			0	0		0	0		
Spillback Cap Reductn	0		0			0	0		0	0		
Storage Cap Reductn	0		0			0	0		0	0		
Reduced v/c Ratio	0.26		0.36			0.13	0.26		0.06	0.04		

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.7
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	69.4	
Travel Time (s)	5.0	
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)	45.4	
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	59	0	1038	55	5	20	734	0	23	0	20	0
Future Volume (vph)	59	0	1038	55	5	20	734	0	23	0	20	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Total Lost time (s)	3.0		5.0			3.0	5.0		5.0	5.0		
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00		
Frpb, ped/bikes	1.00		1.00			1.00	1.00		1.00	0.98		
Flpb, ped/bikes	1.00		1.00			1.00	1.00		0.98	1.00		
Frt	1.00		0.99			1.00	1.00		1.00	0.85		
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1825		3632			1757	3659		1718	1569		
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1825		3632			1757	3659		1718	1569		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	0	1038	55	5	20	734	0	23	0	20	0
RTOR Reduction (vph)	0	0	2	0	0	0	0	0	0	19	0	0
Lane Group Flow (vph)	59	0	1091	0	0	25	734	0	23	1	0	0
Confl. Peds. (#/hr)				2		2			11		5	5
Heavy Vehicles (%)	0%	0%	5%	2%	0%	2%	5%	0%	2%	0%	2%	0%
Turn Type	Prot		NA		Prot	Prot	NA		Perm	NA		
Protected Phases	5		2		1	1	6			4		
Permitted Phases									4			
Actuated Green, G (s)	8.1		90.8			5.1	87.8		5.1	5.1		
Effective Green, g (s)	11.1		91.8			8.1	88.8		7.1	7.1		
Actuated g/C Ratio	0.09		0.76			0.07	0.74		0.06	0.06		
Clearance Time (s)	6.0		6.0			6.0	6.0		7.0	7.0		
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	168		2778			118	2707		101	92		
v/s Ratio Prot	c0.03		c0.30			0.01	0.20			0.00		
v/s Ratio Perm									c0.01			
v/c Ratio	0.35		0.39			0.21	0.27		0.23	0.01		
Uniform Delay, d1	51.1		4.7			52.9	5.1		53.8	53.2		
Progression Factor	1.04		0.59			1.19	0.50		1.00	1.00		
Incremental Delay, d2	1.2		0.4			0.9	0.2		1.2	0.1		
Delay (s)	54.5		3.2			63.7	2.8		55.0	53.2		
Level of Service	D		A			E	A		D	D		
Approach Delay (s)			5.8				4.8			54.2		
Approach LOS			A				A			D		

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.7
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		11
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

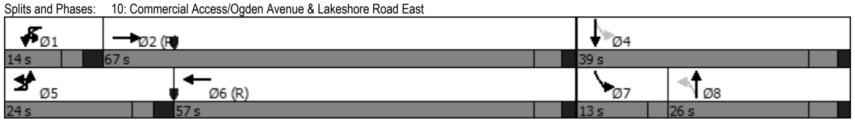
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	109	985	3	2	7	591	34	1	0	3	85
Future Volume (vph)	7	109	985	3	2	7	591	34	1	0	3	85
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5
Storage Length (m)		85.0		30.0		115.0		0.0	90.0		0.0	35.0
Storage Lanes		1		0		1		0	0		0	1
Taper Length (m)		50.0				50.0			30.0			70.0
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			94.1				85.5			131.5		
Travel Time (s)			6.8				6.2			9.5		
Lane Group Flow (vph)	0	116	988	0	0	9	625	0	0	4	0	85
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		pm+pt
Protected Phases	5	5	2		1	1	6			8		7
Permitted Phases									8			4
Detector Phase	5	5	2		1	1	6		8	8		7
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0		5.0
Minimum Split (s)	14.0	14.0	24.0		14.0	14.0	24.0		26.0	26.0		11.0
Total Split (s)	24.0	24.0	67.0		14.0	14.0	57.0		26.0	26.0		13.0
Total Split (%)	20.0%	20.0%	55.8%		11.7%	11.7%	47.5%		21.7%	21.7%		10.8%
Yellow Time (s)	3.0	3.0	4.0		3.0	3.0	4.0		4.0	4.0		3.0
All-Red Time (s)	3.0	3.0	2.0		3.0	3.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		-3.0	-1.0			-3.0	-1.0			-1.0		-2.0
Total Lost Time (s)		3.0	5.0			3.0	5.0			5.0		1.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag		Lag	Lag		Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	C-Max		None	None	C-Max		None	None		None
v/c Ratio		0.49	0.33			0.05	0.26			0.01		0.38
Control Delay		49.0	6.5			50.6	9.3			0.0		51.5
Queue Delay		0.0	0.0			0.0	0.0			0.0		0.0
Total Delay		49.0	6.5			50.6	9.3			0.0		51.5
Queue Length 50th (m)		26.4	25.1			1.7	37.5			0.0		19.0
Queue Length 95th (m)		47.5	74.6			7.2	31.5			0.0		30.6
Internal Link Dist (m)			70.1				61.5			107.5		
Turn Bay Length (m)		85.0				115.0						35.0
Base Capacity (vph)		307	3003			164	2394			417		233
Starvation Cap Reductn		0	0			0	0			0		0
Spillback Cap Reductn		0	0			0	0			0		0
Storage Cap Reductn		0	0			0	0			0		0
Reduced v/c Ratio		0.38	0.33			0.05	0.26			0.01		0.36

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 118 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1	38
Future Volume (vph)	1	38
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.5
Storage Length (m)		35.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	360.5	
Travel Time (s)	26.0	
Lane Group Flow (vph)	39	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	8.0	
Minimum Split (s)	26.0	
Total Split (s)	39.0	
Total Split (%)	32.5%	
Yellow Time (s)	4.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	-1.0	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
v/c Ratio	0.21	
Control Delay	17.0	
Queue Delay	0.0	
Total Delay	17.0	
Queue Length 50th (m)	0.2	
Queue Length 95th (m)	9.6	
Internal Link Dist (m)	336.5	
Turn Bay Length (m)		
Base Capacity (vph)	476	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.08	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	109	985	3	2	7	591	34	1	0	3	85
Future Volume (vph)	7	109	985	3	2	7	591	34	1	0	3	85
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5
Total Lost time (s)		3.0	5.0			3.0	5.0			5.0		1.0
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00			0.99		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00			1.00		1.00
Frt		1.00	1.00			1.00	0.99			0.90		1.00
Flt Protected		0.95	1.00			0.95	1.00			0.99		0.95
Satd. Flow (prot)		1752	3623			1797	3500			1654		1747
Flt Permitted		0.95	1.00			0.95	1.00			0.96		1.00
Satd. Flow (perm)		1752	3623			1797	3500			1610		1833
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	109	985	3	2	7	591	34	1	0	3	85
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	4	0	0
Lane Group Flow (vph)	0	116	988	0	0	9	623	0	0	0	0	85
Confl. Peds. (#/hr)		7		8		8		7	1		1	1
Heavy Vehicles (%)	0%	2%	6%	2%	0%	2%	9%	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		pm+pt
Protected Phases	5	5	2		1	1	6			8		7
Permitted Phases									8			4
Actuated Green, G (s)		13.2	87.2			1.6	75.6			1.6		13.2
Effective Green, g (s)		16.2	88.2			4.6	76.6			2.6		15.2
Actuated g/C Ratio		0.13	0.74			0.04	0.64			0.02		0.13
Clearance Time (s)		6.0	6.0			6.0	6.0			6.0		3.0
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		3.0
Lane Grp Cap (vph)		236	2662			68	2234			34		232
v/s Ratio Prot		c0.07	c0.27			0.01	0.18					0.03
v/s Ratio Perm										0.00		c0.02
v/c Ratio		0.49	0.37			0.13	0.28			0.00		0.37
Uniform Delay, d1		48.1	5.8			55.8	9.5			57.4		48.1
Progression Factor		0.89	1.40			1.00	0.99			1.00		1.00
Incremental Delay, d2		1.6	0.4			0.9	0.3			0.0		1.0
Delay (s)		44.3	8.5			56.4	9.8			57.5		49.1
Level of Service		D	A			E	A			E		D
Approach Delay (s)			12.3				10.5			57.5		
Approach LOS			B				B			E		

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1	38
Future Volume (vph)	1	38
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.5
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1587	
Flt Permitted	1.00	
Satd. Flow (perm)	1587	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1	38
RTOR Reduction (vph)	34	0
Lane Group Flow (vph)	5	0
Confl. Peds. (#/hr)		1
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	13.2	
Effective Green, g (s)	14.2	
Actuated g/C Ratio	0.12	
Clearance Time (s)	6.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	187	
v/s Ratio Prot	0.00	
v/s Ratio Perm		
v/c Ratio	0.03	
Uniform Delay, d1	46.8	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	46.9	
Level of Service	D	
Approach Delay (s)	48.4	
Approach LOS	D	

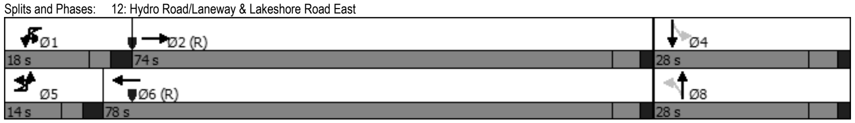
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	3	1021	28	52	817	0	5	0	27	2	0
Future Volume (vph)	1	3	1021	28	52	817	0	5	0	27	2	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Storage Length (m)		25.0		0.0	30.0		0.0	90.0		0.0	0.0	
Storage Lanes		1		0	1		0	1		0	0	
Taper Length (m)		45.0			50.0			30.0			7.6	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			138.4			186.1			233.0			173.9
Travel Time (s)			10.0			13.4			16.8			12.5
Lane Group Flow (vph)	0	4	1049	0	52	817	0	5	27	0	0	11
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	5	2		1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0	24.0		14.0	24.0		26.0	26.0		24.0	24.0
Total Split (s)	14.0	14.0	74.0		18.0	78.0		28.0	28.0		28.0	28.0
Total Split (%)	11.7%	11.7%	61.7%		15.0%	65.0%		23.3%	23.3%		23.3%	23.3%
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0		3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-3.0	-1.0		-3.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		3.0	5.0		3.0	5.0		5.0	5.0			5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
v/c Ratio		0.02	0.37		0.29	0.26		0.05	0.09			0.06
Control Delay		52.5	5.3		51.3	3.6		52.8	0.6			0.5
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0			0.0
Total Delay		52.5	5.3		51.3	3.6		52.8	0.6			0.5
Queue Length 50th (m)		0.8	51.7		13.1	19.7		1.1	0.0			0.0
Queue Length 95th (m)		m3.3	21.5		26.4	34.9		5.2	0.0			0.0
Internal Link Dist (m)			114.4			162.1			209.0			149.9
Turn Bay Length (m)		25.0			30.0			90.0				
Base Capacity (vph)		167	2856		219	3137		264	464			367
Starvation Cap Reductn		0	0		0	0		0	0			0
Spillback Cap Reductn		0	0		0	0		0	0			0
Storage Cap Reductn		0	0		0	0		0	0			0
Reduced v/c Ratio		0.02	0.37		0.24	0.26		0.02	0.06			0.03

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	9
Future Volume (vph)	9
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	3	1021	28	52	817	0	5	0	27	2	0
Future Volume (vph)	1	3	1021	28	52	817	0	5	0	27	2	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		3.0	5.0		3.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	1.00		1.00	1.00		1.00	0.85			0.89
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.99
Satd. Flow (prot)		1825	3611		1750	3558		1747	1601			1668
Flt Permitted		0.95	1.00		0.95	1.00		0.75	1.00			0.93
Satd. Flow (perm)		1825	3611		1750	3558		1380	1601			1565
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	3	1021	28	52	817	0	5	0	27	2	0
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	26	0	0	10
Lane Group Flow (vph)	0	4	1048	0	52	817	0	5	1	0	0	1
Confl. Peds. (#/hr)		2		4	4		2	1				
Heavy Vehicles (%)	0%	0%	6%	2%	2%	8%	0%	2%	0%	2%	0%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)		1.6	89.3		7.9	95.6		4.8	4.8			4.8
Effective Green, g (s)		4.6	90.3		10.9	96.6		5.8	5.8			5.8
Actuated g/C Ratio		0.04	0.75		0.09	0.80		0.05	0.05			0.05
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		69	2717		158	2864		66	77			75
v/s Ratio Prot		0.00	c0.29		c0.03	0.23			0.00			
v/s Ratio Perm								c0.00				0.00
v/c Ratio		0.06	0.39		0.33	0.29		0.08	0.02			0.01
Uniform Delay, d1		55.6	5.2		51.1	3.0		54.5	54.4			54.4
Progression Factor		1.05	0.89		0.97	1.42		1.00	1.00			1.00
Incremental Delay, d2		0.3	0.4		1.2	0.2		0.5	0.1			0.0
Delay (s)		58.7	5.0		50.5	4.4		55.0	54.5			54.4
Level of Service		E	A		D	A		E	D			D
Approach Delay (s)			5.2			7.2			54.6			54.4
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	9
Future Volume (vph)	9
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	9
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

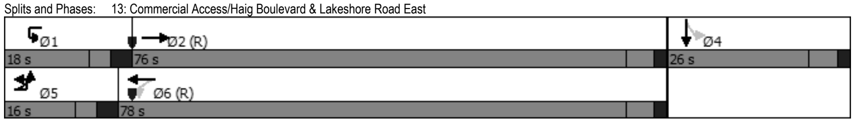
Intersection Summary

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	1209	0	33	0	1120	41	0	0	0	35	0
Future Volume (vph)	19	1209	0	33	0	1120	41	0	0	0	35	0
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0		100.0		0.0	0.0		0.0	60.0	
Storage Lanes	1		0		1		0	0		0	0	
Taper Length (m)	50.0				50.0			7.5			7.5	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		186.1				142.9			130.3			353.7
Travel Time (s)		13.4				10.3			9.4			25.5
Lane Group Flow (vph)	19	1209	0	0	33	1161	0	0	0	0	0	61
Turn Type	Prot	NA		Prot	Perm	NA					Perm	NA
Protected Phases	5	2		1		6						4
Permitted Phases					6						4	
Detector Phase	5	2		1	6	6					4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0					8.0	8.0
Minimum Split (s)	14.0	22.0		14.0	22.0	22.0					24.0	24.0
Total Split (s)	16.0	76.0		18.0	78.0	78.0					26.0	26.0
Total Split (%)	13.3%	63.3%		15.0%	65.0%	65.0%					21.7%	21.7%
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0					4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0					2.0	2.0
Lost Time Adjust (s)	-3.0	-1.0			-3.0	-1.0						-1.0
Total Lost Time (s)	3.0	5.0			3.0	5.0						5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	C-Max	C-Max					None	None
v/c Ratio	0.12	0.38			0.09	0.39						0.30
Control Delay	60.7	1.9			4.8	4.6						9.7
Queue Delay	0.0	0.0			0.0	0.0						0.0
Total Delay	60.7	1.9			4.8	4.6						9.7
Queue Length 50th (m)	4.7	19.7			0.8	19.2						0.0
Queue Length 95th (m)	m13.0	21.3			m4.5	65.1						8.2
Internal Link Dist (m)		162.1				118.9			106.3			329.7
Turn Bay Length (m)	50.0				100.0							
Base Capacity (vph)	193	3195			375	3004						366
Starvation Cap Reductn	0	305			0	0						0
Spillback Cap Reductn	0	0			0	0						0
Storage Cap Reductn	0	0			0	0						0
Reduced v/c Ratio	0.10	0.42			0.09	0.39						0.17

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Commercial Access/Haig Boulevard & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	26
Future Volume (vph)	26
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	1209	0	33	0	1120	41	0	0	0	35	0
Future Volume (vph)	19	1209	0	33	0	1120	41	0	0	0	35	0
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			3.0	5.0						5.0
Lane Util. Factor	1.00	0.95			1.00	0.95						1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00						0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00						1.00
Frt	1.00	1.00			1.00	0.99						0.94
Flt Protected	0.95	1.00			0.95	1.00						0.97
Satd. Flow (prot)	1789	3659			1825	3638						1710
Flt Permitted	0.95	1.00			0.23	1.00						0.97
Satd. Flow (perm)	1789	3659			447	3638						1710
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1209	0	33	0	1120	41	0	0	0	35	0
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	0	0	0	57
Lane Group Flow (vph)	19	1209	0	0	33	1160	0	0	0	0	0	4
Confl. Peds. (#/hr)	7						7				1	
Heavy Vehicles (%)	2%	5%	2%	0%	2%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	Perm	NA					Perm	NA
Protected Phases	5	2		1		6						4
Permitted Phases					6						4	
Actuated Green, G (s)	3.3	101.6			92.3	92.3						6.4
Effective Green, g (s)	6.3	102.6			95.3	93.3						7.4
Actuated g/C Ratio	0.05	0.85			0.79	0.78						0.06
Clearance Time (s)	6.0	6.0			6.0	6.0						6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0						3.0
Lane Grp Cap (vph)	93	3128			354	2828						105
v/s Ratio Prot	0.01	c0.33				c0.32						
v/s Ratio Perm					0.07							0.00
v/c Ratio	0.20	0.39			0.09	0.41						0.04
Uniform Delay, d1	54.4	1.9			2.7	4.4						52.9
Progression Factor	1.18	0.78			1.16	1.02						1.00
Incremental Delay, d2	1.1	0.4			0.5	0.4						0.1
Delay (s)	65.4	1.8			3.7	4.9						53.1
Level of Service	E	A			A	A						D
Approach Delay (s)		2.8				4.8			0.0			53.1
Approach LOS		A				A			A			D

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	26
Future Volume (vph)	26
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	26
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

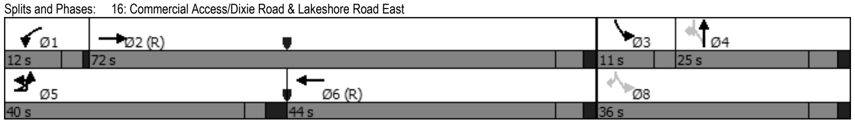
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	33	352	769	20	9	896	171	3	0	0	151	0
Future Volume (vph)	33	352	769	20	9	896	171	3	0	0	151	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Storage Length (m)		265.0		0.0	15.0		30.0	0.0		0.0	90.0	
Storage Lanes		1		0	1		0	0		0	1	
Taper Length (m)		50.0			50.0			7.5			7.5	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			203.1			149.6			114.4			328.7
Travel Time (s)			14.6			10.8			8.2			23.7
Lane Group Flow (vph)	0	385	789	0	9	1067	0	0	3	0	151	0
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		pm+pt	
Protected Phases	5	5	2		1	6			4		3	
Permitted Phases								4			8	
Detector Phase	5	5	2		1	6		4	4		3 8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		5.0	
Minimum Split (s)	14.0	14.0	26.0		12.0	26.0		25.0	25.0		11.0	
Total Split (s)	40.0	40.0	72.0		12.0	44.0		25.0	25.0		11.0	
Total Split (%)	33.3%	33.3%	60.0%		10.0%	36.7%		20.8%	20.8%		9.2%	
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0		4.0	4.0		3.0	
All-Red Time (s)	3.0	3.0	2.0		1.0	2.0		2.0	2.0		0.0	
Lost Time Adjust (s)		-3.0	-1.0		-3.0	-1.0			-1.0		-2.0	
Total Lost Time (s)		3.0	5.0		1.0	5.0			5.0		1.0	
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes	Yes		Yes	
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	
v/c Ratio		0.78	0.30		0.05	0.70			0.02		0.44	
Control Delay		42.4	11.0		50.8	32.3			48.3		44.8	
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	
Total Delay		42.4	11.0		50.8	32.3			48.3		44.8	
Queue Length 50th (m)		77.3	42.3		2.0	102.9			0.7		31.3	
Queue Length 95th (m)		111.3	94.1		7.1	#162.8			3.6		48.3	
Internal Link Dist (m)			179.1			125.6			90.4			304.7
Turn Bay Length (m)		265.0			15.0						90.0	
Base Capacity (vph)		544	2620		167	1528			303		457	
Starvation Cap Reductn		0	0		0	0			0		0	
Spillback Cap Reductn		0	0		0	0			0		0	
Storage Cap Reductn		0	0		0	0			0		0	
Reduced v/c Ratio		0.71	0.30		0.05	0.70			0.01		0.33	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Lane Group	SBR	Ø8
Lane Configurations		
Traffic Volume (vph)	220	
Future Volume (vph)	220	
Ideal Flow (vphpl)	1900	
Storage Length (m)	0.0	
Storage Lanes	1	
Taper Length (m)		
Right Turn on Red	Yes	
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Lane Group Flow (vph)	220	
Turn Type	Perm	
Protected Phases		8
Permitted Phases	4 8	
Detector Phase	4 8	
Switch Phase		
Minimum Initial (s)		8.0
Minimum Split (s)		25.0
Total Split (s)		36.0
Total Split (%)		30%
Yellow Time (s)		4.0
All-Red Time (s)		2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		None
v/c Ratio	0.51	
Control Delay	9.8	
Queue Delay	0.0	
Total Delay	9.8	
Queue Length 50th (m)	0.0	
Queue Length 95th (m)	20.3	
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)	534	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.41	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	33	352	769	20	9	896	171	3	0	0	151	0
Future Volume (vph)	33	352	769	20	9	896	171	3	0	0	151	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	5.0		1.0	5.0			5.0		1.0	
Lane Util. Factor		1.00	0.95		1.00	0.95			1.00		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	1.00			1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00			1.00		1.00	
Frt		1.00	1.00		1.00	0.98			1.00		1.00	
Flt Protected		0.95	1.00		0.95	1.00			0.95		0.95	
Satd. Flow (prot)		1701	3650		1825	3577			1822		1807	
Flt Permitted		0.95	1.00		0.95	1.00			0.95		0.78	
Satd. Flow (perm)		1701	3650		1825	3577			1822		1475	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	33	352	769	20	9	896	171	3	0	0	151	0
RTOR Reduction (vph)	0	0	1	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	0	385	788	0	9	1056	0	0	3	0	151	0
Confl. Peds. (#/hr)								1				
Heavy Vehicles (%)	0%	8%	5%	0%	0%	5%	4%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		pm+pt	
Protected Phases	5	5	2		1	6			4		3	
Permitted Phases								4			8	
Actuated Green, G (s)		31.6	81.9		1.6	49.9			9.5		20.5	
Effective Green, g (s)		34.6	82.9		4.6	50.9			10.5		22.5	
Actuated g/C Ratio		0.29	0.69		0.04	0.42			0.09		0.19	
Clearance Time (s)		6.0	6.0		4.0	6.0			6.0		3.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0			3.0		3.0	
Lane Grp Cap (vph)		490	2521		69	1517			159		304	
v/s Ratio Prot		c0.23	0.22		0.00	c0.30					c0.04	
v/s Ratio Perm									0.00		0.05	
v/c Ratio		0.79	0.31		0.13	0.70			0.02		0.50	
Uniform Delay, d1		39.3	7.3		55.8	28.2			50.0		43.2	
Progression Factor		0.80	1.56		1.00	1.00			1.00		1.00	
Incremental Delay, d2		7.7	0.3		0.9	2.7			0.0		1.3	
Delay (s)		39.3	11.7		56.6	30.9			50.1		44.5	
Level of Service		D	B		E	C			D		D	
Approach Delay (s)			20.8			31.1			50.1			43.4
Approach LOS			C			C			D			D

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	220
Future Volume (vph)	220
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.99
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1477
Flt Permitted	1.00
Satd. Flow (perm)	1477
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	220
RTOR Reduction (vph)	182
Lane Group Flow (vph)	38
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	9%
Turn Type	Perm
Protected Phases	
Permitted Phases	4 8
Actuated Green, G (s)	20.5
Effective Green, g (s)	20.5
Actuated g/C Ratio	0.17
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	252
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.15
Uniform Delay, d1	42.3
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	42.6
Level of Service	D
Approach Delay (s)	
Approach LOS	

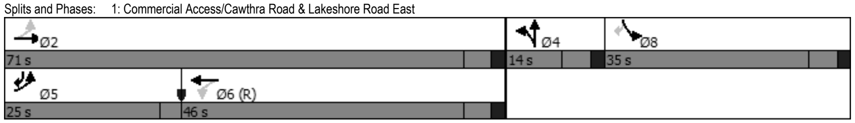
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	708	2	0	1087	280	2	4	1	199	0	425
Future Volume (vph)	309	708	2	0	1087	280	2	4	1	199	0	425
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	309	710	0	0	1367	0	0	7	0	199	0	425
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		4	4		8		5
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0		5.0
Minimum Split (s)	17.0	38.0		38.0	38.0		14.0	14.0		35.0		17.0
Total Split (s)	25.0	71.0		46.0	46.0		14.0	14.0		35.0		25.0
Total Split (%)	20.8%	59.2%		38.3%	38.3%		11.7%	11.7%		29.2%		20.8%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-2.0	-1.0		-1.0	-1.0			-1.0		-2.0		-1.0
Total Lost Time (s)	1.0	5.0		5.0	5.0			5.0		4.0		2.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.72	0.24			0.62			0.05		0.49		0.71
Control Delay	26.6	4.5			22.6			49.3		53.1		25.8
Queue Delay	0.0	0.0			0.0			0.0		0.0		0.0
Total Delay	26.6	4.5			22.6			49.3		53.1		25.8
Queue Length 50th (m)	31.3	16.8			97.7			1.3		22.8		50.5
Queue Length 95th (m)	66.3	42.7			#208.7			6.1		33.5		69.7
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0									200.0		
Base Capacity (vph)	501	2918			2208			140		887		660
Starvation Cap Reductn	0	0			0			0		0		0
Spillback Cap Reductn	0	0			0			0		0		0
Storage Cap Reductn	0	0			0			0		0		0
Reduced v/c Ratio	0.62	0.24			0.62			0.05		0.22		0.64

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	708	2	0	1087	280	2	4	1	199	0	425
Future Volume (vph)	309	708	2	0	1087	280	2	4	1	199	0	425
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0			5.0			5.0		4.0		2.0
Lane Util. Factor	1.00	0.95			0.95			1.00		0.97		1.00
Frpb, ped/bikes	1.00	1.00			0.99			1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.97			0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00			0.99		0.95		1.00
Satd. Flow (prot)	1771	3728			3623			1858		3437		1590
Flt Permitted	0.11	1.00			1.00			0.99		0.95		1.00
Satd. Flow (perm)	208	3728			3623			1858		3437		1590
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	309	708	2	0	1087	280	2	4	1	199	0	425
RTOR Reduction (vph)	0	0	0	0	13	0	0	1	0	0	0	134
Lane Group Flow (vph)	309	710	0	0	1354	0	0	6	0	199	0	291
Confl. Peds. (#/hr)	49		20	20		49	23					23
Heavy Vehicles (%)	3%	3%	0%	0%	1%	3%	0%	0%	0%	3%	0%	1%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	88.1	88.1			67.0			1.6		12.3		30.4
Effective Green, g (s)	90.1	89.1			68.0			2.6		14.3		32.4
Actuated g/C Ratio	0.75	0.74			0.57			0.02		0.12		0.27
Clearance Time (s)	3.0	6.0			6.0			6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0		3.0
Lane Grp Cap (vph)	417	2768			2053			40		409		429
v/s Ratio Prot	c0.12	0.19			c0.37			c0.00		0.06		c0.11
v/s Ratio Perm	0.43											0.08
v/c Ratio	0.74	0.26			0.66			0.15		0.49		0.68
Uniform Delay, d1	24.6	4.9			18.0			57.6		49.4		39.2
Progression Factor	1.00	1.00			1.21			1.00		1.00		1.00
Incremental Delay, d2	6.9	0.2			1.6			1.7		0.9		4.2
Delay (s)	31.5	5.1			23.4			59.4		50.3		43.4
Level of Service	C	A			C			E		D		D
Approach Delay (s)		13.1			23.4			59.4			45.6	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

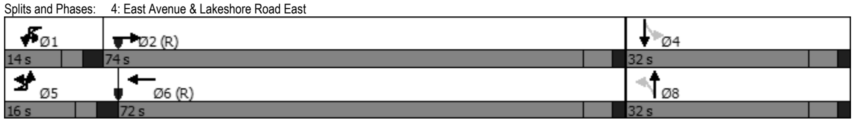
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	49	927	28	22	8	1300	24	22	15	21	24	1
Future Volume (vph)	49	927	28	22	8	1300	24	22	15	21	24	1
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Storage Length (m)	20.0		25.0		60.0		20.0	0.0		0.0	20.0	
Storage Lanes	1		0		1		0	1		0	1	
Taper Length (m)	40.0				50.0			70.0			20.0	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		95.7				101.7			208.9			195.3
Travel Time (s)		6.9				7.3			15.0			14.1
Lane Group Flow (vph)	49	955	0	0	30	1324	0	22	36	0	24	5
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	2		1	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	24.0		14.0	14.0	24.0		32.0	32.0		32.0	32.0
Total Split (s)	16.0	74.0		14.0	14.0	72.0		32.0	32.0		32.0	32.0
Total Split (%)	13.3%	61.7%		11.7%	11.7%	60.0%		26.7%	26.7%		26.7%	26.7%
Yellow Time (s)	3.0	4.0		3.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-1.0			-3.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	3.0	5.0			3.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
v/c Ratio	0.27	0.32			0.18	0.46		0.20	0.23		0.22	0.04
Control Delay	52.0	6.2			52.6	7.2		55.5	31.9		56.2	34.4
Queue Delay	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	52.0	6.2			52.6	7.2		55.5	31.9		56.2	34.4
Queue Length 50th (m)	10.2	57.3			6.9	56.7		5.0	3.4		5.4	0.2
Queue Length 95th (m)	20.9	36.6			16.8	64.0		13.1	13.5		13.8	4.2
Internal Link Dist (m)		71.7				77.7			184.9			171.3
Turn Bay Length (m)	20.0				60.0						20.0	
Base Capacity (vph)	199	3007			169	2896		315	407		309	377
Starvation Cap Reductn	0	0			0	0		0	0		0	0
Spillback Cap Reductn	0	0			0	0		0	0		0	0
Storage Cap Reductn	0	0			0	0		0	0		0	0
Reduced v/c Ratio	0.25	0.32			0.18	0.46		0.07	0.09		0.08	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 4: East Avenue & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	49	927	28	22	8	1300	24	22	15	21	24	1
Future Volume (vph)	49	927	28	22	8	1300	24	22	15	21	24	1
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Total Lost time (s)	3.0	5.0			3.0	5.0		5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99	1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00		1.00	0.91		1.00	0.88
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1785	3785			1775	3792		1768	1738		1780	1662
Flt Permitted	0.95	1.00			0.95	1.00		0.75	1.00		0.73	1.00
Satd. Flow (perm)	1785	3785			1775	3792		1404	1738		1375	1662
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	927	28	22	8	1300	24	22	15	21	24	1
RTOR Reduction (vph)	0	1	0	0	0	1	0	0	20	0	0	4
Lane Group Flow (vph)	49	954	0	0	30	1323	0	22	16	0	24	1
Confl. Peds. (#/hr)	5		5		5		5	7		2	2	
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	7.7	89.7			5.3	87.3		7.0	7.0		7.0	7.0
Effective Green, g (s)	10.7	90.7			8.3	88.3		8.0	8.0		8.0	8.0
Actuated g/C Ratio	0.09	0.76			0.07	0.74		0.07	0.07		0.07	0.07
Clearance Time (s)	6.0	6.0			6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	159	2860			122	2790		93	115		91	110
v/s Ratio Prot	c0.03	0.25			0.02	c0.35			0.01			0.00
v/s Ratio Perm								0.02			c0.02	
v/c Ratio	0.31	0.33			0.25	0.47		0.24	0.14		0.26	0.01
Uniform Delay, d1	51.2	4.8			52.9	6.4		53.1	52.8		53.2	52.3
Progression Factor	0.98	1.18			1.01	0.94		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.1	0.3			1.0	0.6		1.3	0.6		1.6	0.0
Delay (s)	51.2	5.9			54.3	6.6		54.4	53.3		54.8	52.3
Level of Service	D	A			D	A		D	D		D	D
Approach Delay (s)		8.2				7.7			53.7			54.3
Approach LOS		A				A			D			D

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	7
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

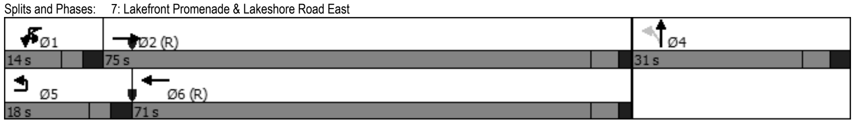
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	0	793	14	4	8	1068	0	44	0	24	0
Future Volume (vph)	40	0	793	14	4	8	1068	0	44	0	24	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Storage Length (m)		15.0		10.0		15.0		0.0	90.0		0.0	0.0
Storage Lanes		1		0		1		0	1		0	0
Taper Length (m)		40.0				55.0			30.0			7.5
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			68.0				88.5			238.4		
Travel Time (s)			4.9				6.4			17.2		
Lane Group Flow (vph)	40	0	807	0	0	12	1068	0	44	24	0	0
Turn Type	Prot		NA		Prot	Prot	NA		Perm	NA		
Protected Phases	5		2		1	1	6			4		
Permitted Phases									4			
Detector Phase	5		2		1	1	6		4	4		
Switch Phase												
Minimum Initial (s)	8.0		8.0		8.0	8.0	8.0		8.0	8.0		
Minimum Split (s)	14.0		26.0		14.0	14.0	26.0		29.0	29.0		
Total Split (s)	18.0		75.0		14.0	14.0	71.0		31.0	31.0		
Total Split (%)	15.0%		62.5%		11.7%	11.7%	59.2%		25.8%	25.8%		
Yellow Time (s)	3.0		4.0		3.0	3.0	4.0		4.0	4.0		
All-Red Time (s)	3.0		2.0		3.0	3.0	2.0		3.0	3.0		
Lost Time Adjust (s)	0.0		-1.0			-3.0	-1.0		-2.0	-2.0		
Total Lost Time (s)	6.0		5.0			3.0	5.0		5.0	5.0		
Lead/Lag	Lead		Lag		Lead	Lead	Lag					
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes					
Recall Mode	None		C-Max		None	None	C-Max		None	None		
v/c Ratio	0.30		0.26			0.07	0.36		0.28	0.06		
Control Delay	60.8		2.7			68.7	2.2		54.7	0.3		
Queue Delay	0.0		0.0			0.0	0.0		0.0	0.0		
Total Delay	60.8		2.7			68.7	2.2		54.7	0.3		
Queue Length 50th (m)	9.3		13.0			2.8	11.4		9.9	0.0		
Queue Length 95th (m)	20.8		30.9			m7.2	15.6		21.1	0.0		
Internal Link Dist (m)			44.0				64.5			214.4		
Turn Bay Length (m)	15.0					15.0			90.0			
Base Capacity (vph)	182		3160			161	2940		375	537		
Starvation Cap Reductn	0		0			0	0		0	0		
Spillback Cap Reductn	0		0			0	0		0	0		
Storage Cap Reductn	0		0			0	0		0	0		
Reduced v/c Ratio	0.22		0.26			0.07	0.36		0.12	0.04		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.7
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	69.4	
Travel Time (s)	5.0	
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)	45.4	
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	0	793	14	4	8	1068	0	44	0	24	0
Future Volume (vph)	40	0	793	14	4	8	1068	0	44	0	24	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Total Lost time (s)	6.0		5.0			3.0	5.0		5.0	5.0		
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00		
Frpb, ped/bikes	1.00		1.00			1.00	1.00		1.00	0.98		
Flpb, ped/bikes	1.00		1.00			1.00	1.00		0.99	1.00		
Frt	1.00		1.00			1.00	1.00		1.00	0.85		
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1825		3791			1761	3767		1733	1566		
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1825		3791			1761	3767		1733	1566		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	0	793	14	4	8	1068	0	44	0	24	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	22	0	0
Lane Group Flow (vph)	40	0	807	0	0	12	1068	0	44	2	0	0
Confl. Peds. (#/hr)		4		5		5		4	6		6	6
Heavy Vehicles (%)	0%	0%	1%	2%	0%	2%	2%	0%	2%	0%	2%	0%
Turn Type	Prot		NA		Prot	Prot	NA		Perm	NA		
Protected Phases	5		2		1	1	6			4		
Permitted Phases									4			
Actuated Green, G (s)	5.6		91.9			1.6	87.9		7.5	7.5		
Effective Green, g (s)	5.6		92.9			4.6	88.9		9.5	9.5		
Actuated g/C Ratio	0.05		0.77			0.04	0.74		0.08	0.08		
Clearance Time (s)	6.0		6.0			6.0	6.0		7.0	7.0		
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	85		2934			67	2790		137	123		
v/s Ratio Prot	c0.02		c0.21			0.01	c0.28			0.00		
v/s Ratio Perm									c0.03			
v/c Ratio	0.47		0.27			0.18	0.38		0.32	0.02		
Uniform Delay, d1	55.8		3.9			55.9	5.6		52.2	50.9		
Progression Factor	1.05		0.74			1.35	0.31		1.00	1.00		
Incremental Delay, d2	4.0		0.2			1.2	0.4		1.4	0.1		
Delay (s)	62.5		3.1			76.6	2.1		53.6	51.0		
Level of Service	E		A			E	A		D	D		
Approach Delay (s)			5.9				3.0			52.7		
Approach LOS			A				A			D		

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.7
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		6
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

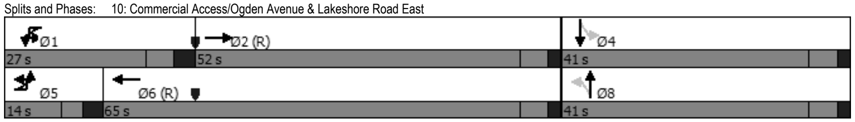
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	88	828	0	0	1092	39	3	1	1	51	0
Future Volume (vph)	16	88	828	0	0	1092	39	3	1	1	51	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Storage Length (m)		85.0		30.0	115.0		0.0	0.0		0.0	35.0	
Storage Lanes		1		0	1		0	0		0	1	
Taper Length (m)		50.0			50.0			7.5			70.0	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.1			85.5			108.5			360.5
Travel Time (s)			6.8			6.2			7.8			26.0
Lane Group Flow (vph)	0	104	828	0	0	1131	0	0	5	0	51	42
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	5	2		1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0	24.0		15.0	24.0		26.0	26.0		26.0	26.0
Total Split (s)	14.0	14.0	52.0		27.0	65.0		41.0	41.0		41.0	41.0
Total Split (%)	11.7%	11.7%	43.3%		22.5%	54.2%		34.2%	34.2%		34.2%	34.2%
Yellow Time (s)	3.0	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0		3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-3.0	-1.0		-3.0	-1.0			-1.0		-2.0	-1.0
Total Lost Time (s)		3.0	5.0		4.0	5.0			5.0		4.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
v/c Ratio		0.46	0.25			0.44			0.03		0.36	0.15
Control Delay		47.9	3.9			8.1			44.0		56.7	1.1
Queue Delay		0.0	0.0			0.0			0.0		0.0	0.0
Total Delay		47.9	3.9			8.1			44.0		56.7	1.1
Queue Length 50th (m)		23.4	21.2			64.3			0.9		11.4	0.0
Queue Length 95th (m)		39.6	48.5			84.4			4.7		23.2	0.0
Internal Link Dist (m)			70.1			61.5			84.5			336.5
Turn Bay Length (m)		85.0									35.0	
Base Capacity (vph)		228	3249			2585			460		425	571
Starvation Cap Reductn		0	0			0			0		0	0
Spillback Cap Reductn		0	0			0			0		0	0
Storage Cap Reductn		0	0			0			0		0	0
Reduced v/c Ratio		0.46	0.25			0.44			0.01		0.12	0.07

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Ideal Flow (vphpl)	1900
Lane Width (m)	3.5
Storage Length (m)	35.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	88	828	0	0	1092	39	3	1	1	51	0
Future Volume (vph)	16	88	828	0	0	1092	39	3	1	1	51	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		3.0	5.0			5.0			5.0		4.0	5.0
Lane Util. Factor		1.00	0.95			0.95			1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00			1.00		1.00	0.98
Flpb, ped/bikes		1.00	1.00			1.00			1.00		0.99	1.00
Frt		1.00	1.00			0.99			0.97		1.00	0.85
Flt Protected		0.95	1.00			1.00			0.97		0.95	1.00
Satd. Flow (prot)		1755	3804			3741			1779		1741	1568
Flt Permitted		0.95	1.00			1.00			0.84		0.75	1.00
Satd. Flow (perm)		1755	3804			3741			1534		1382	1568
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	88	828	0	0	1092	39	3	1	1	51	0
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	1	0	0	39
Lane Group Flow (vph)	0	104	828	0	0	1130	0	0	4	0	51	3
Confl. Peds. (#/hr)		7					7				3	
Heavy Vehicles (%)	0%	2%	1%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)		12.6	99.3			80.7			8.7		8.7	8.7
Effective Green, g (s)		15.6	100.3			81.7			9.7		10.7	9.7
Actuated g/C Ratio		0.13	0.84			0.68			0.08		0.09	0.08
Clearance Time (s)		6.0	6.0			6.0			6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0			3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		228	3179			2546			123		123	126
v/s Ratio Prot		c0.06	0.22			c0.30						0.00
v/s Ratio Perm									0.00		c0.04	
v/c Ratio		0.46	0.26			0.44			0.03		0.41	0.03
Uniform Delay, d1		48.3	2.1			8.8			50.8		51.7	50.8
Progression Factor		0.87	1.63			0.78			1.00		1.00	1.00
Incremental Delay, d2		1.4	0.2			0.6			0.1		2.3	0.1
Delay (s)		43.5	3.6			7.4			50.9		53.9	50.9
Level of Service		D	A			A			D		D	D
Approach Delay (s)			8.0			7.4			50.9			52.6
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Ideal Flow (vphpl)	1900
Lane Width	3.5
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	42
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	5
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

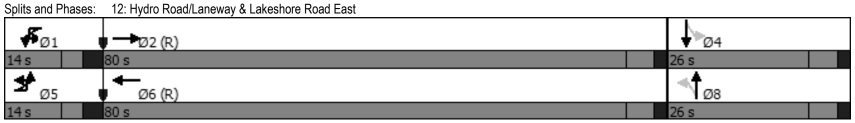
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	2	3	901	6	3	1144	9	8	0	39	2	0
Future Volume (vph)	2	3	901	6	3	1144	9	8	0	39	2	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Storage Length (m)		25.0		0.0	30.0		0.0	90.0		0.0	0.0	
Storage Lanes		1		0	1		0	1		0	0	
Taper Length (m)		45.0			50.0			30.0			7.6	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			138.4			186.1			233.0			173.9
Travel Time (s)			10.0			13.4			16.8			12.5
Lane Group Flow (vph)	0	5	907	0	3	1153	0	8	39	0	0	5
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	5	2		1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0	24.0		14.0	24.0		26.0	26.0		24.0	24.0
Total Split (s)	14.0	14.0	80.0		14.0	80.0		26.0	26.0		26.0	26.0
Total Split (%)	11.7%	11.7%	66.7%		11.7%	66.7%		21.7%	21.7%		21.7%	21.7%
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0		3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-3.0	-1.0		-3.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		3.0	5.0		3.0	5.0		5.0	5.0			5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
v/c Ratio		0.03	0.27		0.02	0.35		0.08	0.12			0.03
Control Delay		44.2	5.8		58.7	2.4		53.5	0.7			0.2
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0			0.0
Total Delay		44.2	5.8		58.7	2.4		53.5	0.7			0.2
Queue Length 50th (m)		1.3	27.4		0.7	22.4		1.8	0.0			0.0
Queue Length 95th (m)		m4.6	69.2		m1.5	25.6		6.8	0.0			0.0
Internal Link Dist (m)			114.4			162.1			209.0			149.9
Turn Bay Length (m)		25.0			30.0			90.0				
Base Capacity (vph)		165	3318		160	3318		243	469			330
Starvation Cap Reductn		0	0		0	414		0	0			0
Spillback Cap Reductn		0	0		0	0		0	0			0
Storage Cap Reductn		0	0		0	0		0	0			0
Reduced v/c Ratio		0.03	0.27		0.02	0.40		0.03	0.08			0.02

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	3
Future Volume (vph)	3
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	2	3	901	6	3	1144	9	8	0	39	2	0
Future Volume (vph)	2	3	901	6	3	1144	9	8	0	39	2	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		3.0	5.0		3.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	1.00		1.00	1.00		1.00	0.85			0.92
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1803	3763		1750	3762		1750	1601			1731
Flt Permitted		0.95	1.00		0.95	1.00		0.75	1.00			0.85
Satd. Flow (perm)		1803	3763		1750	3762		1390	1601			1504
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	3	901	6	3	1144	9	8	0	39	2	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	37	0	0	5
Lane Group Flow (vph)	0	5	907	0	3	1153	0	8	2	0	0	0
Confl. Peds. (#/hr)		2		6	6		2					
Heavy Vehicles (%)	0%	2%	2%	0%	2%	2%	0%	2%	0%	2%	0%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2		1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)		1.6	95.6		1.6	95.6		4.8	4.8			4.8
Effective Green, g (s)		4.6	96.6		4.6	96.6		5.8	5.8			5.8
Actuated g/C Ratio		0.04	0.80		0.04	0.80		0.05	0.05			0.05
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		69	3029		67	3028		67	77			72
v/s Ratio Prot		c0.00	0.24		0.00	c0.31			0.00			
v/s Ratio Perm								c0.01				0.00
v/c Ratio		0.07	0.30		0.04	0.38		0.12	0.02			0.00
Uniform Delay, d1		55.6	3.0		55.6	3.3		54.7	54.4			54.3
Progression Factor		0.88	2.30		1.17	0.81		1.00	1.00			1.00
Incremental Delay, d2		0.4	0.3		0.2	0.3		0.8	0.1			0.0
Delay (s)		49.4	7.2		65.5	3.0		55.5	54.5			54.4
Level of Service		D	A		E	A		E	D			D
Approach Delay (s)			7.4			3.2			54.7			54.4
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	3
Future Volume (vph)	3
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	3
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

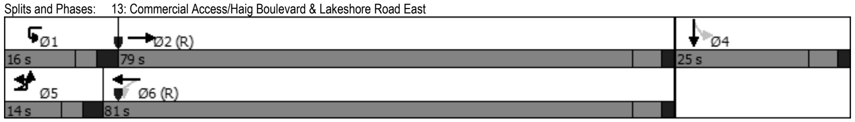
Intersection Summary

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	24	969	0	18	0	1400	84	0	0	0	26	0
Future Volume (vph)	24	969	0	18	0	1400	84	0	0	0	26	0
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0		100.0		0.0	0.0		0.0	60.0	
Storage Lanes	1		0		1		0	0		0	0	
Taper Length (m)	50.0				50.0			7.5			7.5	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		186.1				142.9			130.3			353.7
Travel Time (s)		13.4				10.3			9.4			25.5
Lane Group Flow (vph)	24	969	0	0	18	1484	0	0	0	0	0	46
Turn Type	Prot	NA		Prot	Perm	NA					Perm	NA
Protected Phases	5	2		1		6						4
Permitted Phases					6						4	
Detector Phase	5	2		1	6	6					4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0					8.0	8.0
Minimum Split (s)	14.0	22.0		14.0	22.0	22.0					24.0	24.0
Total Split (s)	14.0	79.0		16.0	81.0	81.0					25.0	25.0
Total Split (%)	11.7%	65.8%		13.3%	67.5%	67.5%					20.8%	20.8%
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0					4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	2.0	2.0					2.0	2.0
Lost Time Adjust (s)	-3.0	-1.0			-3.0	-1.0						-1.0
Total Lost Time (s)	3.0	5.0			3.0	5.0						5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	C-Max	C-Max					None	None
v/c Ratio	0.14	0.29			0.04	0.50						0.23
Control Delay	62.4	1.5			6.6	7.6						5.3
Queue Delay	0.0	0.0			0.0	0.0						0.0
Total Delay	62.4	1.5			6.6	7.6						5.3
Queue Length 50th (m)	5.4	8.5			0.9	49.5						0.0
Queue Length 95th (m)	14.9	10.2			m2.2	92.0						3.1
Internal Link Dist (m)		162.1				118.9			106.3			329.7
Turn Bay Length (m)	50.0				100.0							
Base Capacity (vph)	167	3289			463	2983						350
Starvation Cap Reductn	0	0			0	0						0
Spillback Cap Reductn	0	0			0	0						0
Storage Cap Reductn	0	0			0	0						0
Reduced v/c Ratio	0.14	0.29			0.04	0.50						0.13

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Commercial Access/Haig Boulevard & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	24	969	0	18	0	1400	84	0	0	0	26	0
Future Volume (vph)	24	969	0	18	0	1400	84	0	0	0	26	0
Ideal Flow (vphpl)	1900	2000	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			3.0	5.0						5.0
Lane Util. Factor	1.00	0.95			1.00	0.95						1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00						0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00						0.99
Frt	1.00	1.00			1.00	0.99						0.94
Flt Protected	0.95	1.00			0.95	1.00						0.97
Satd. Flow (prot)	1789	3767			1825	3719						1695
Flt Permitted	0.95	1.00			0.30	1.00						0.97
Satd. Flow (perm)	1789	3767			568	3719						1695
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	969	0	18	0	1400	84	0	0	0	26	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	0	43
Lane Group Flow (vph)	24	969	0	0	18	1482	0	0	0	0	0	3
Confl. Peds. (#/hr)	15						15	2		9	9	
Heavy Vehicles (%)	2%	2%	0%	0%	0%	2%	2%	0%	0%	0%	2%	0%
Turn Type	Prot	NA		Prot	Perm	NA					Perm	NA
Protected Phases	5	2		1		6						4
Permitted Phases					6						4	
Actuated Green, G (s)	5.0	101.6			90.6	90.6						6.4
Effective Green, g (s)	8.0	102.6			93.6	91.6						7.4
Actuated g/C Ratio	0.07	0.85			0.78	0.76						0.06
Clearance Time (s)	6.0	6.0			6.0	6.0						6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0						3.0
Lane Grp Cap (vph)	119	3220			443	2838						104
v/s Ratio Prot	0.01	c0.26				c0.40						
v/s Ratio Perm					0.03							0.00
v/c Ratio	0.20	0.30			0.04	0.52						0.03
Uniform Delay, d1	53.0	1.7			3.0	5.6						52.9
Progression Factor	1.21	0.72			1.51	1.23						1.00
Incremental Delay, d2	0.8	0.2			0.1	0.5						0.1
Delay (s)	64.8	1.5			4.7	7.4						53.0
Level of Service	E	A			A	A						D
Approach Delay (s)		3.0				7.4			0.0			53.0
Approach LOS		A				A			A			D

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	20
Future Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	20
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

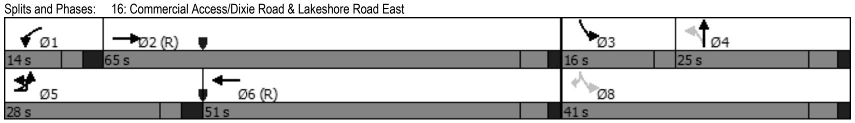
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	233	704	13	2	1198	220	1	3	0	278	0
Future Volume (vph)	19	233	704	13	2	1198	220	1	3	0	278	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Storage Length (m)		265.0		0.0	15.0		30.0	0.0		0.0	90.0	
Storage Lanes		1		0	1		0	0		0	1	
Taper Length (m)		50.0			50.0			7.5			7.5	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			203.1			149.6			114.4			328.7
Travel Time (s)			14.6			10.8			8.2			23.7
Lane Group Flow (vph)	0	252	717	0	2	1418	0	0	4	0	278	0
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		pm+pt	
Protected Phases	5	5	2		1	6			4		3	
Permitted Phases								4			8	
Detector Phase	5	5	2		1	6		4	4		3 8	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		5.0	
Minimum Split (s)	14.0	14.0	26.0		14.0	26.0		25.0	25.0		8.0	
Total Split (s)	28.0	28.0	65.0		14.0	51.0		25.0	25.0		16.0	
Total Split (%)	23.3%	23.3%	54.2%		11.7%	42.5%		20.8%	20.8%		13.3%	
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0		4.0	4.0		3.0	
All-Red Time (s)	3.0	3.0	2.0		3.0	2.0		2.0	2.0		0.0	
Lost Time Adjust (s)		-3.0	-1.0		-3.0	-1.0			-1.0		-2.0	
Total Lost Time (s)		3.0	5.0		3.0	5.0			5.0		1.0	
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes	Yes		Yes	
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	
v/c Ratio		0.72	0.29		0.01	0.83			0.02		0.58	
Control Delay		52.3	13.6		50.0	34.6			46.5		42.6	
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	
Total Delay		52.3	13.6		50.0	34.6			46.5		42.6	
Queue Length 50th (m)		55.3	32.0		0.4	152.0			0.9		56.8	
Queue Length 95th (m)		85.6	94.1		3.1	#223.6			4.0		76.5	
Internal Link Dist (m)			179.1			125.6			90.4			304.7
Turn Bay Length (m)		265.0			15.0						90.0	
Base Capacity (vph)		379	2485		167	1712			314		595	
Starvation Cap Reductn		0	0		0	0			0		0	
Spillback Cap Reductn		0	0		0	0			0		0	
Storage Cap Reductn		0	0		0	0			0		0	
Reduced v/c Ratio		0.66	0.29		0.01	0.83			0.01		0.47	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	304
Future Volume (vph)	304
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	304
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Detector Phase	8
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	25.0
Total Split (s)	41.0
Total Split (%)	34.2%
Yellow Time (s)	4.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	0.56
Control Delay	10.9
Queue Delay	0.0
Total Delay	10.9
Queue Length 50th (m)	7.7
Queue Length 95th (m)	30.2
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	633
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.48

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	233	704	13	2	1198	220	1	3	0	278	0
Future Volume (vph)	19	233	704	13	2	1198	220	1	3	0	278	0
Ideal Flow (vphpl)	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	5.0		3.0	5.0			5.0		1.0	
Lane Util. Factor		1.00	0.95		1.00	0.95			1.00		1.00	
Frpb, ped/bikes		1.00	1.00		1.00	1.00			1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00			0.99		1.00	
Frt		1.00	1.00		1.00	0.98			1.00		1.00	
Flt Protected		0.95	1.00		0.95	1.00			0.99		0.95	
Satd. Flow (prot)		1776	3756		1825	3672			1883		1807	
Flt Permitted		0.95	1.00		0.95	1.00			0.99		0.92	
Satd. Flow (perm)		1776	3756		1825	3672			1883		1747	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	233	704	13	2	1198	220	1	3	0	278	0
RTOR Reduction (vph)	0	0	1	0	0	12	0	0	0	0	0	0
Lane Group Flow (vph)	0	252	716	0	2	1406	0	0	4	0	278	0
Confl. Peds. (#/hr)		1		2	2		1	16				
Heavy Vehicles (%)	0%	3%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Perm	NA		pm+pt	
Protected Phases	5	5	2		1	6			4		3	
Permitted Phases								4			8	
Actuated Green, G (s)		20.6	68.8		1.6	49.8			3.8		31.6	
Effective Green, g (s)		23.6	69.8		4.6	50.8			4.8		33.6	
Actuated g/C Ratio		0.20	0.58		0.04	0.42			0.04		0.28	
Clearance Time (s)		6.0	6.0		6.0	6.0			6.0		3.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0			3.0		3.0	
Lane Grp Cap (vph)		349	2184		69	1554			75		502	
v/s Ratio Prot		c0.14	0.19		0.00	c0.38					c0.12	
v/s Ratio Perm									0.00		0.03	
v/c Ratio		0.72	0.33		0.03	0.91			0.05		0.55	
Uniform Delay, d1		45.1	13.0		55.5	32.3			55.4		36.8	
Progression Factor		0.89	1.31		1.00	1.00			1.00		1.00	
Incremental Delay, d2		7.1	0.4		0.2	9.1			0.3		1.3	
Delay (s)		47.4	17.4		55.7	41.4			55.7		38.1	
Level of Service		D	B		E	D			E		D	
Approach Delay (s)			25.3			41.5			55.7			36.7
Approach LOS			C			D			E			D

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	304
Future Volume (vph)	304
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1534
Flt Permitted	1.00
Satd. Flow (perm)	1534
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	304
RTOR Reduction (vph)	194
Lane Group Flow (vph)	110
Confl. Peds. (#/hr)	16
Heavy Vehicles (%)	2%
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	31.6
Effective Green, g (s)	31.6
Actuated g/C Ratio	0.26
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	403
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.27
Uniform Delay, d1	35.1
Progression Factor	1.00
Incremental Delay, d2	0.4
Delay (s)	35.5
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

APPENDIX F

Rail Crossing Calculations from June 2020 TCR

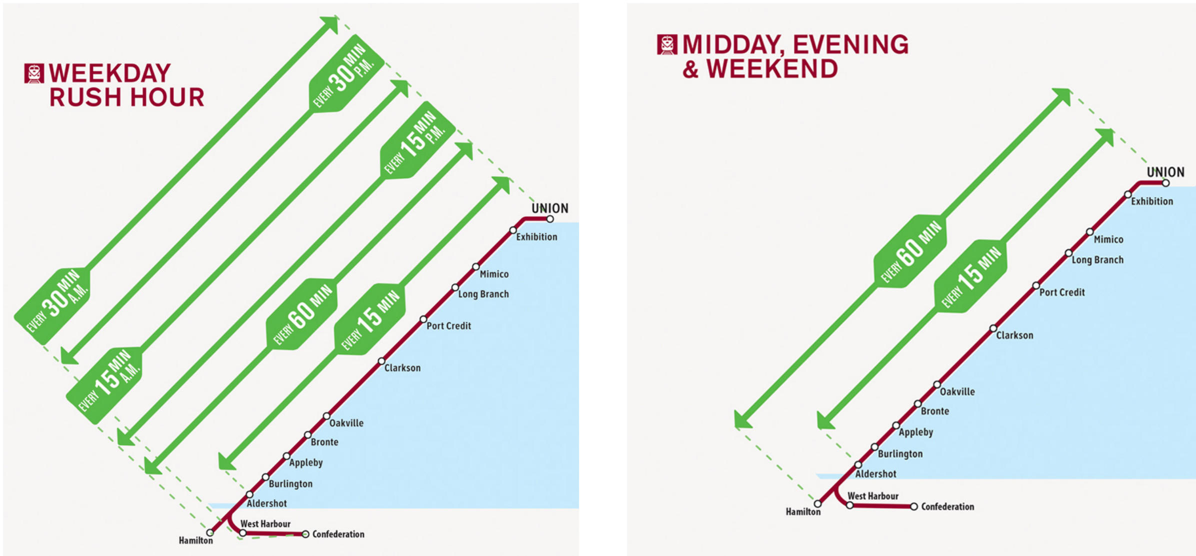


Figure 7-11 – Lakeshore West Regional Express Rail Service

7.8.1 GO Expansion - Regional Express Rail

Metrolinx, the provider of GO Transit services, has planned an expansion of GO Transit along many of its rail corridors in order to introduce Regional Express Rail (RER) service to the GTHA. RER service has been planned for the Lakeshore West GO Train line to provide two-way, all day service between Toronto and Aldershot seven days a week.

The RER project, also known as the GO Expansion, will provide express service by increasing the existing 30-minute service on the Lakeshore West line to an average of 15-minute service or better within the next 10 years. Figure 7-15 summarizes the frequency of train service envisioned for the Lakeshore West GO Train line to transform the existing commuter service into a convenient rapid transit route for communities along the Lakeshore West rail corridor.

Excerpts from Metrolinx's website are located in Appendix H and provide a detailed summary of the GO Expansion project and information specific to the Lakeshore West GO Train line.

7.8.2 Lakeshore West Rail Crossings

There are three at-grade rail crossings of the Lakeshore West Rail corridor within the study area. The three north-south roads that cross the rail corridor are Alexandra Avenue, Ogden Avenue, and Haig Boulevard. For analysis purposes, the frequency of rail crossings during the a.m. and p.m. peak hour periods were calculated and applied to the traffic model in order to assess vehicular operations at the three rail crossings.

Current schedules for both GO Rail and VIA Rail routes using the Lakeshore West rail corridor were consulted, and the maximum possible number of combined GO Rail and VIA Rail crossings were determined for both the a.m. and p.m. peak hours. After calculating the existing frequency of train crossings, the RER was used to determine the increase in frequency to use to model train crossings for the 2031 and 2041 planning horizons.

Table 7-33 – Frequency of Rail Crossings within Lakeview Village Study Area

Planning Horizon	Rail Company	Maximum Number of Combined GO and VIA Rail Crossings	
		A.M. Peak Hour	P.M. Peak Hour
2018	GO Rail	8	7
	VIA Rail	1	2
	Total	9	9
2031 & 2041	GO Rail	15	15
	VIA Rail	1	3
	Total	16	18

Table 7-33 lists the calculated number of train crossings that occur during the a.m. and p.m. peak periods based on existing schedules and the future planned RER frequency of service. Detailed calculations and the GO Rail and VIA Rail train schedules that were used as a part of the calculations can be found in Appendix I.

The total number of crossings each hour took into account trains traveling in both the eastbound and westbound directions. The Lakeshore West rail corridor has three sets of rails running through the Lakeview Village study area, allowing for the possibility of two trains passing through an at-grade simultaneously. For the purposes of a conservative analysis, it was assumed that all trains would traverse the at-grade crossings individually with no overlap in schedules.

Using Synchro 10 software, the at-grade rail crossings were modeled as pre-timed signalized intersections. The amount of time required for north-south vehicular traffic to stop while a train crosses was determined through the observation of a proxy site GO Rail at-grade crossing in Newmarket. It was determined through observation that from the time rail crossing barriers began to lower to the time they returned to a raised position after a train crosses, approximately 60 seconds passed.

The timing of the 'signalized' rail crossings was determined by dividing the hour-long model simulation period by the total number of rail crossings within the hour to determine the length of the signal's cycle. The east-west phase assigned to the train was given a 60 second green period, and the north-south phase for vehicular traffic was assigned the remaining cycle time as its green period.

For example, during the existing a.m. peak hour, nine trains are expected to travel through the at-grade crossings. This means that a 400-second-long cycle length will allow the pre-timed signal to complete a cycle (a train crossing) nine times within an hour. Of the 400 seconds, 60 seconds would be assigned to the east-west train phase, and 340 seconds to the north-south vehicle phase. This means that just under every six minutes, a simulated train crossing will occur within the Synchro traffic model.

Lakeview Village Traffic Considerations Report - FINAL.indd 74 6/16/2020 3:04:52 PM

APPENDIX I

Train Crossing Calculations

Train Crossing Calculations

EXISTING - Hourly Volume Summary

Based on Estimated Crossing time at Ogden Avenue

Peak Hour Start	Peak Hour End	# Trains EB	# Trains WB	Total Trains	
6:00:00 AM	6:59:00 AM	3	2	5	
6:15:00 AM	7:14:00 AM	5	3	8	
6:30:00 AM	7:29:00 AM	5	3	8	
6:45:00 AM	7:44:00 AM	6	3	9	1 VIA WB
7:00:00 AM	7:59:00 AM	6	2	8	
7:15:00 AM	8:14:00 AM	6	2	8	
7:30:00 AM	8:29:00 AM	7	2	9	1 VIA EB
7:45:00 AM	8:44:00 AM	7	2	9	1 VIA EB
8:00:00 AM	8:59:00 AM	7	2	9	1 VIA EB
4:00:00 PM	4:59:00 PM	3	5	8	
4:15:00 PM	5:14:00 PM	3	4	7	
4:30:00 PM	5:29:00 PM	2	5	7	
4:45:00 PM	5:44:00 PM	2	6	8	
5:00:00 PM	5:59:00 PM	3	6	9	1 VIA EB and 1 VIA WB
5:15:00 PM	6:14:00 PM	2	5	7	
5:30:00 PM	6:29:00 PM	3	5	8	
5:45:00 PM	6:44:00 PM	1	3	4	
6:00:00 PM	6:59:00 PM	2	4	6	

Both AM and PM have a peak of 9 GO and VIA crossings during a given hour.

9	crossings per hour
60	assumed time (s) for train to cross rails / have safety arms lower and rise
3600	s/hr
400	cycle length (s)
60	EW train phase (s)
340	NS auto phase (s)

FUTURE - Hourly Volume Summary

**NO GROWTH TO VIA SCHEDULES WAS ASSUMED
Based on Estimated Crossing time at Ogden Avenue

Peak Hour		Total Trains
6:00:00 AM	6:59:00 AM	16
6:15:00 AM	7:14:00 AM	16
6:30:00 AM	7:29:00 AM	16
6:45:00 AM	7:44:00 AM	16
7:00:00 AM	7:59:00 AM	15
7:15:00 AM	8:14:00 AM	15
7:30:00 AM	8:29:00 AM	16
7:45:00 AM	8:44:00 AM	16
8:00:00 AM	8:59:00 AM	16
4:00:00 PM	4:59:00 PM	16
4:15:00 PM	5:14:00 PM	16
4:30:00 PM	5:29:00 PM	16
4:45:00 PM	5:44:00 PM	18
5:00:00 PM	5:59:00 PM	17
5:15:00 PM	6:14:00 PM	17
5:30:00 PM	6:29:00 PM	17
5:45:00 PM	6:44:00 PM	15
6:00:00 PM	6:59:00 PM	15

AM has a peak of 16 GO and VIA crossings during a given hour.

16	crossings per hour
60	assumed time (s) for train to cross rails / have safety arms lower and rise
3600	s/hr
225	cycle length (s)
60	EW train phase (s)
165	NS auto phase (s)

PM has a peak of 18 GO and VIA crossings during a given hour.

18	crossings per hour
60	assumed time (s) for train to cross rails / have safety arms lower and rise
3600	s/hr
200	cycle length (s)
60	EW train phase (s)
140	NS auto phase (s)

Existing GO Schedule - Eastbound (Weekdays)

Route	Station	Scheduled Arrival	Station	Scheduled Arrival	Travel Time between Stations	Total Distance between stops (km)	Distance to Ogden (km)	Est. Crossing time @ Ogden
LW	Port Credit	5:42:00 AM	Long Branch	5:47:00 AM	0:05	5.1	3.3	5:45:14 AM
LW	Port Credit	6:12:00 AM	Long Branch	6:17:00 AM	0:05	5.1	3.3	6:15:14 AM
LW	Clarkson	6:35:00 AM	Union	7:00:00 AM	0:25	26.7	9.3	6:43:42 AM
LW	Port Credit	6:50:00 AM	Long Branch	6:55:00 AM	0:05	5.1	3.3	6:53:14 AM
LW	Clarkson	6:55:00 AM	Union	7:20:00 AM	0:25	26.7	9.3	7:03:42 AM
LW	Clarkson	7:05:00 AM	Union	7:30:00 AM	0:25	26.7	9.3	7:13:42 AM
LW	Port Credit	7:20:00 AM	Long Branch	7:25:00 AM	0:05	5.1	3.3	7:23:14 AM
LW	Clarkson	7:25:00 AM	Union	7:50:00 AM	0:25	26.7	9.3	7:33:42 AM
LW	Clarkson	7:35:00 AM	Union	8:00:00 AM	0:25	26.7	9.3	7:43:42 AM
LW	Port Credit	7:50:00 AM	Long Branch	7:55:00 AM	0:05	5.1	3.3	7:53:14 AM
LW	Clarkson	7:55:00 AM	Union	8:20:00 AM	0:25	26.7	9.3	8:03:42 AM
LW	Clarkson	8:05:00 AM	Union	8:30:00 AM	0:25	26.7	9.3	8:13:42 AM
LW	Port Credit	8:20:00 AM	Long Branch	8:25:00 AM	0:05	5.1	3.3	8:23:14 AM
LW	Clarkson	8:25:00 AM	Union	8:50:00 AM	0:25	26.7	9.3	8:33:42 AM
LW	Clarkson	8:35:00 AM	Union	9:00:00 AM	0:25	26.7	9.3	8:43:42 AM
LW	Port Credit	8:47:00 AM	Long Branch	8:52:00 AM	0:05	5.1	3.3	8:50:14 AM
LW	Port Credit	8:58:00 AM	Long Branch	9:03:00 AM	0:05	5.1	3.3	9:01:14 AM
LW	Port Credit	9:16:00 AM	Long Branch	9:21:00 AM	0:05	5.1	3.3	9:19:14 AM
LW	Port Credit	9:46:00 AM	Long Branch	9:51:00 AM	0:05	5.1	3.3	9:49:14 AM
LW	Port Credit	10:11:00 AM	Long Branch	10:16:00 AM	0:05	5.1	3.3	10:14:14 AM
LW	Port Credit	10:46:00 AM	Long Branch	10:51:00 AM	0:05	5.1	3.3	10:49:14 AM
LW	Port Credit	11:16:00 AM	Long Branch	11:21:00 AM	0:05	5.1	3.3	11:19:14 AM
LW	Port Credit	11:41:00 AM	Long Branch	11:46:00 AM	0:05	5.1	3.3	11:44:14 AM
LW	Port Credit	12:11:00 PM	Long Branch	12:16:00 PM	0:05	5.1	3.3	12:14:14 PM
LW	Port Credit	12:41:00 PM	Long Branch	12:46:00 PM	0:05	5.1	3.3	12:44:14 PM
LW	Port Credit	1:11:00 PM	Long Branch	1:16:00 PM	0:05	5.1	3.3	1:14:14 PM
LW	Port Credit	1:41:00 PM	Long Branch	1:46:00 PM	0:05	5.1	3.3	1:44:14 PM
LW	Port Credit	2:11:00 PM	Long Branch	2:16:00 PM	0:05	5.1	3.3	2:14:14 PM
LW	Port Credit	2:41:00 PM	Long Branch	2:46:00 PM	0:05	5.1	3.3	2:44:14 PM
LW	Port Credit	3:11:00 PM	Long Branch	3:16:00 PM	0:05	5.1	3.3	3:14:14 PM
LW	Port Credit	3:25:00 PM	Long Branch	3:30:00 PM	0:05	5.1	3.3	3:28:14 PM
LW	Port Credit	3:38:00 PM	Long Branch	3:43:00 PM	0:05	5.1	3.3	3:41:14 PM
LW	Port Credit	3:55:00 PM	Long Branch	4:00:00 PM	0:05	5.1	3.3	3:58:14 PM
LW	Port Credit	4:08:00 PM	Long Branch	4:13:00 PM	0:05	5.1	3.3	4:11:14 PM
LW	Port Credit	4:25:00 PM	Long Branch	4:30:00 PM	0:05	5.1	3.3	4:28:14 PM
LW	Port Credit	4:41:00 PM	Long Branch	4:46:00 PM	0:05	5.1	3.3	4:44:14 PM
LW	Port Credit	5:05:00 PM	Long Branch	5:10:00 PM	0:05	5.1	3.3	5:08:14 PM
LW	Port Credit	5:41:00 PM	Long Branch	5:46:00 PM	0:05	5.1	3.3	5:44:14 PM
LW	Port Credit	6:11:00 PM	Long Branch	6:16:00 PM	0:05	5.1	3.3	6:14:14 PM
LW	Port Credit	6:41:00 PM	Long Branch	6:46:00 PM	0:05	5.1	3.3	6:44:14 PM
LW	Port Credit	7:16:00 PM	Long Branch	7:21:00 PM	0:05	5.1	3.3	7:19:14 PM
LW	Port Credit	7:41:00 PM	Long Branch	7:46:00 PM	0:05	5.1	3.3	7:44:14 PM
LW	Port Credit	8:11:00 PM	Long Branch	8:16:00 PM	0:05	5.1	3.3	8:14:14 PM
LW	Port Credit	8:41:00 PM	Long Branch	8:46:00 PM	0:05	5.1	3.3	8:44:14 PM
LW	Port Credit	9:11:00 PM	Long Branch	9:16:00 PM	0:05	5.1	3.3	9:14:14 PM
LW	Port Credit	9:41:00 PM	Long Branch	9:46:00 PM	0:05	5.1	3.3	9:44:14 PM
LW	Port Credit	10:11:00 PM	Long Branch	10:16:00 PM	0:05	5.1	3.3	10:14:14 PM
LW	Port Credit	10:41:00 PM	Long Branch	10:46:00 PM	0:05	5.1	3.3	10:44:14 PM
LW	Port Credit	11:11:00 PM	Long Branch	11:16:00 PM	0:05	5.1	3.3	11:14:14 PM
LW	Port Credit	11:41:00 PM	Long Branch	11:46:00 PM	0:05	5.1	3.3	11:44:14 PM
LW	Port Credit	12:11:00 AM	Long Branch	12:16:00 AM	0:05	5.1	3.3	12:14:14 AM

Existing GO Schedule - Westbound (Weekdays)

Route	Station	Scheduled Arrival	Station	Scheduled Arrival	Travel Time between Stations	Total Distance between stops (km)	Distance to Ogden (km)	Est. Crossing time @ Ogden
LW	Long Branch	6:32:00 AM	Port Credit	6:38:00 AM	0:06	5.1	1.8	6:34:07 AM
LW	Long Branch	7:04:00 AM	Port Credit	7:10:00 AM	0:06	5.1	1.8	7:06:07 AM
LW	Long Branch	7:39:00 AM	Port Credit	7:45:00 AM	0:06	5.1	1.8	7:41:07 AM
LW	Long Branch	8:09:00 AM	Port Credit	8:15:00 AM	0:06	5.1	1.8	8:11:07 AM
LW	Long Branch	8:34:00 AM	Port Credit	8:40:00 AM	0:06	5.1	1.8	8:36:07 AM
LW	Long Branch	9:09:00 AM	Port Credit	9:15:00 AM	0:06	5.1	1.8	9:11:07 AM
LW	Long Branch	9:39:00 AM	Port Credit	9:45:00 AM	0:06	5.1	1.8	9:41:07 AM
LW	Long Branch	10:04:00 AM	Port Credit	10:10:00 AM	0:06	5.1	1.8	10:06:07 AM
LW	Long Branch	10:34:00 AM	Port Credit	10:40:00 AM	0:06	5.1	1.8	10:36:07 AM
LW	Long Branch	11:04:00 AM	Port Credit	11:10:00 AM	0:06	5.1	1.8	11:06:07 AM
LW	Long Branch	11:34:00 AM	Port Credit	11:40:00 AM	0:06	5.1	1.8	11:36:07 AM
LW	Long Branch	12:04:00 PM	Port Credit	12:10:00 PM	0:06	5.1	1.8	12:06:07 PM
LW	Long Branch	12:34:00 PM	Port Credit	12:40:00 PM	0:06	5.1	1.8	12:36:07 PM
LW	Long Branch	1:04:00 PM	Port Credit	1:10:00 PM	0:06	5.1	1.8	1:06:07 PM
LW	Long Branch	1:34:00 PM	Port Credit	1:40:00 PM	0:06	5.1	1.8	1:36:07 PM
LW	Long Branch	2:04:00 PM	Port Credit	2:10:00 PM	0:06	5.1	1.8	2:06:07 PM
LW	Long Branch	2:34:00 PM	Port Credit	2:40:00 PM	0:06	5.1	1.8	2:36:07 PM
LW	Long Branch	3:04:00 PM	Port Credit	3:10:00 PM	0:06	5.1	1.8	3:06:07 PM
LW	Long Branch	3:36:00 PM	Port Credit	3:42:00 PM	0:06	5.1	1.8	3:38:07 PM
LW	Union	3:30:00 PM	Clarkson	3:53:00 PM	0:23	26.7	17.4	3:44:59 PM
LW	Long Branch	4:01:00 PM	Port Credit	4:07:00 PM	0:06	5.1	1.8	4:03:07 PM
LW	Union	4:00:00 PM	Clarkson	4:23:00 PM	0:23	26.7	17.4	4:14:59 PM
LW	Long Branch	4:31:00 PM	Port Credit	4:37:00 PM	0:06	5.1	1.8	4:33:07 PM
LW	Union	4:30:00 PM	Clarkson	4:53:00 PM	0:23	26.7	17.4	4:44:59 PM
LW	Long Branch	5:01:00 PM	Port Credit	5:07:00 PM	0:06	5.1	1.8	5:03:07 PM
LW	Union	5:00:00 PM	Clarkson	5:23:00 PM	0:23	26.7	17.4	5:14:59 PM
LW	Long Branch	5:31:00 PM	Port Credit	5:37:00 PM	0:06	5.1	1.8	5:33:07 PM
LW	Union	5:15:00 PM	Clarkson	5:38:00 PM	0:23	26.7	17.4	5:29:59 PM
LW	Union	5:30:00 PM	Clarkson	5:53:00 PM	0:23	26.7	17.4	5:44:59 PM
LW	Long Branch	6:01:00 PM	Port Credit	6:07:00 PM	0:06	5.1	1.8	6:03:07 PM
LW	Union	6:00:00 PM	Clarkson	6:23:00 PM	0:23	26.7	17.4	6:14:59 PM
LW	Long Branch	6:36:00 PM	Port Credit	6:42:00 PM	0:06	5.1	1.8	6:38:07 PM
LW	Union	6:30:00 PM	Clarkson	6:53:00 PM	0:23	26.7	17.4	6:44:59 PM
LW	Long Branch	7:04:00 PM	Port Credit	7:10:00 PM	0:06	5.1	1.8	7:06:07 PM
LW	Long Branch	7:34:00 PM	Port Credit	7:40:00 PM	0:06	5.1	1.8	7:36:07 PM
LW	Long Branch	8:04:00 PM	Port Credit	8:10:00 PM	0:06	5.1	1.8	8:06:07 PM
LW	Long Branch	8:34:00 PM	Port Credit	8:40:00 PM	0:06	5.1	1.8	8:36:07 PM
LW	Long Branch	9:04:00 PM	Port Credit	9:10:00 PM	0:06	5.1	1.8	9:06:07 PM
LW	Long Branch	9:34:00 PM	Port Credit	9:40:00 PM	0:06	5.1	1.8	9:36:07 PM
LW	Long Branch	10:04:00 PM	Port Credit	10:10:00 PM	0:06	5.1	1.8	10:06:07 PM
LW	Long Branch	10:34:00 PM	Port Credit	10:40:00 PM	0:06	5.1	1.8	10:36:07 PM
LW	Long Branch	11:04:00 PM	Port Credit	11:10:00 PM	0:06	5.1	1.8	11:06:07 PM
LW	Long Branch	11:34:00 PM	Port Credit	11:40:00 PM	0:06	5.1	1.8	11:36:07 PM
LW	Long Branch	12:04:00 AM	Port Credit	12:10:00 AM	0:06	5.1	1.8	12:06:07 AM
LW	Long Branch	12:34:00 AM	Port Credit	12:40:00 AM	0:06	5.1	1.8	12:36:07 AM
LW	Long Branch	1:04:00 AM	Port Credit	1:10:00 AM	0:06	5.1	1.8	1:06:07 AM

Existing GO Schedule - Hourly Frequency of Trains

Based on Estimated Crossing time at Ogden Avenue

Peak Hour Start	Peak Hour End	# Trains EB	# Trains WB	Total Trains
6:00:00 AM	6:59:00 AM	3	1	4
6:15:00 AM	7:14:00 AM	5	2	7
6:30:00 AM	7:29:00 AM	5	2	7
6:45:00 AM	7:44:00 AM	6	2	8
7:00:00 AM	7:59:00 AM	6	2	8
7:15:00 AM	8:14:00 AM	6	2	8
7:30:00 AM	8:29:00 AM	6	2	8
7:45:00 AM	8:44:00 AM	6	2	8
8:00:00 AM	8:59:00 AM	6	2	8
4:00:00 PM	4:59:00 PM	3	4	7
4:15:00 PM	5:14:00 PM	3	3	6
4:30:00 PM	5:29:00 PM	2	4	6
4:45:00 PM	5:44:00 PM	1	4	5
5:00:00 PM	5:59:00 PM	2	5	7
5:15:00 PM	6:14:00 PM	1	4	5
5:30:00 PM	6:29:00 PM	2	4	6
5:45:00 PM	6:44:00 PM	1	3	4
6:00:00 PM	6:59:00 PM	2	4	6

Existing VIA Schedule - Eastbound (Weekdays)

Route	Station	Scheduled Departure	Station	Scheduled Departure	Travel Time between Stations	Total Distance between stops (km)	Distance to Ogden (km)	Est. Crossing time @ Ogden
82	Brantford	7:28:00 AM	Toronto	8:35:00 AM	1:07	96.1	78.7	8:22:52 AM
70	Oakville	9:38:00 AM	Toronto	10:04:00 AM	0:26	34.2	16.8	9:50:46 AM
72	Oakville	12:48:00 PM	Toronto	1:11:00 PM	0:23	34.2	16.8	12:59:18 PM
76	Oakville	5:27:00 PM	Toronto	5:52:00 PM	0:25	34.2	16.8	5:39:17 PM
78	Oakville	9:29:00 PM	Toronto	9:51:00 PM	0:22	34.2	16.8	9:39:48 PM
63-98	Oakville	7:18:00 PM	Toronto	7:41:00 PM	0:23	34.2	16.8	7:29:18 PM

Existing VIA Schedule - Westbound (Weekdays)

Route	Station	Scheduled Departure	Station	Scheduled Departure	Travel Time between Stations	Total Distance between stops (km)	Distance to Ogden (km)	Est. Crossing time @ Ogden
69	Toronto	9:49:00 PM	Oakville	10:12:00 PM	0:23	34.2	17.4	10:00:42 PM
71	Toronto	6:45:00 AM	Oakville	7:10:00 AM	0:25	34.2	17.4	6:57:43 AM
73	Toronto	12:15:00 PM	Oakville	12:40:00 PM	0:25	34.2	17.4	12:27:43 PM
83	Toronto	4:35:00 PM	Aldershot	5:13:00 PM	0:38	55.4	17.4	4:46:56 PM
75	Toronto	5:30:00 PM	Oakville	5:56:00 PM	0:26	34.2	17.4	5:43:14 PM
79	Toronto	7:35:00 PM	Oakville	7:59:00 PM	0:24	34.2	17.4	7:47:13 PM
97-64	Toronto	8:55:00 AM	Oakville	9:19:00 AM	0:24	34.2	17.4	9:07:13 AM

Existing VIA Schedule - Hourly Frequency of Trains

Based on Estimated Crossing time at Ogden Avenue

Peak Hour Start	Peak Hour End	# Trains EB	# Trains WB	Total Trains
6:00:00 AM	6:59:00 AM	0	1	1
6:15:00 AM	7:14:00 AM	0	1	1
6:30:00 AM	7:29:00 AM	0	1	1
6:45:00 AM	7:44:00 AM	0	1	1
7:00:00 AM	7:59:00 AM	0	0	0
7:15:00 AM	8:14:00 AM	0	0	0
7:30:00 AM	8:29:00 AM	1	0	1
7:45:00 AM	8:44:00 AM	1	0	1
8:00:00 AM	8:59:00 AM	1	0	1
4:00:00 PM	4:59:00 PM	0	1	1
4:15:00 PM	5:14:00 PM	0	1	1
4:30:00 PM	5:29:00 PM	0	1	1
4:45:00 PM	5:44:00 PM	1	2	3
5:00:00 PM	5:59:00 PM	1	1	2
5:15:00 PM	6:14:00 PM	1	1	2
5:30:00 PM	6:29:00 PM	1	1	2
5:45:00 PM	6:44:00 PM	0	0	0
6:00:00 PM	6:59:00 PM	0	0	0

Future Hourly Frequency of GO Trains According to RER

AM Peak Hour

Frequency (min	# trains/hou	Direction	Origin	Destination
15	4	EB	Aldershot	Union
15	4	WB	Union	Aldershot
15	4	EB	Hamilton	Union
30	2	EB	West Harbour	Union
60	1	EB	Hamilton	Union
TOTAL	15			
wout Hamilton	8			

PM Peak Hour

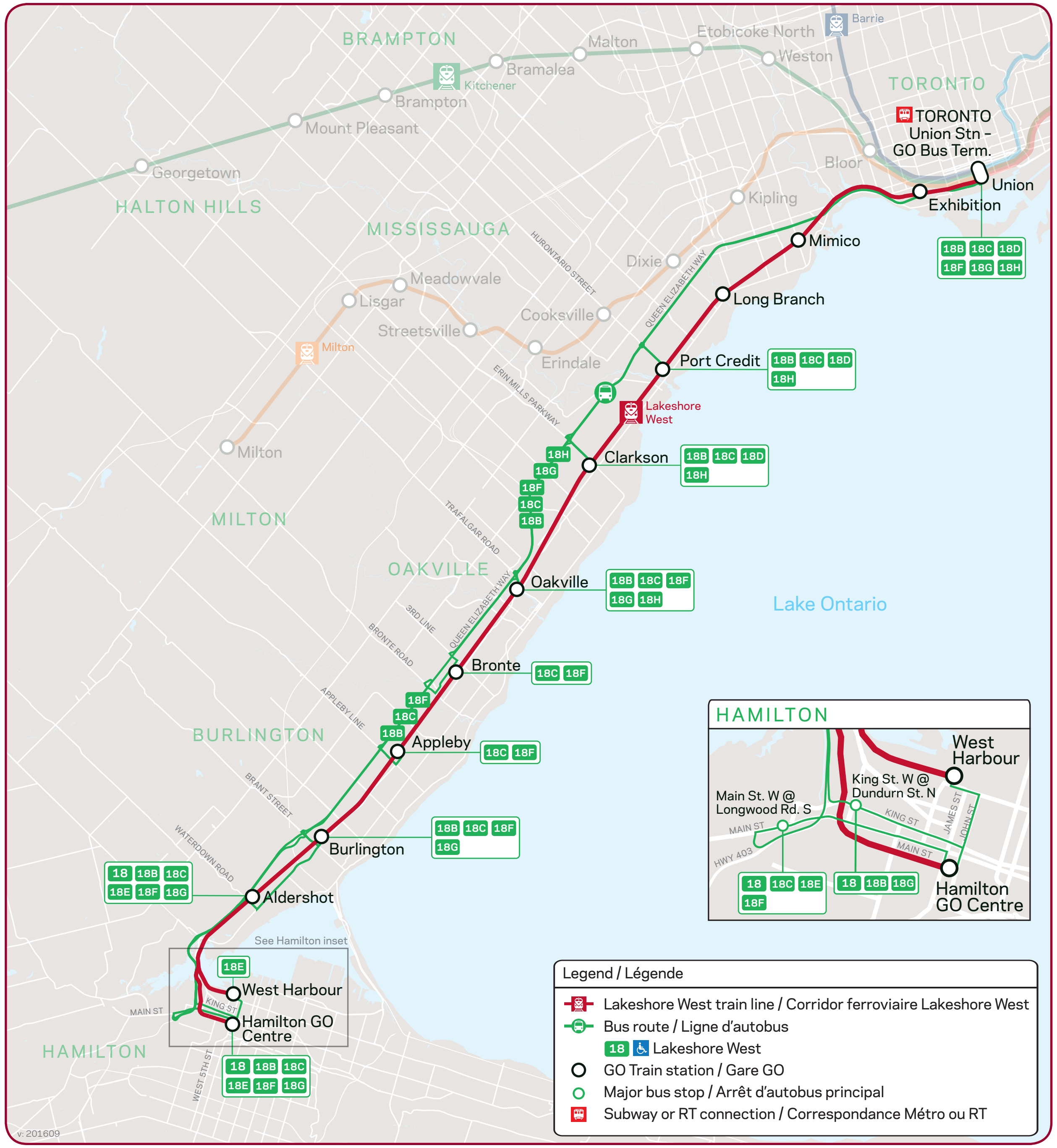
Frequency (min)	# trains/hour	Direction	Origin	Destination
15	4	EB	Aldershot	Union
15	4	WB	Union	Aldershot
15	4	WB	Union	Hamilton
30	2	WB	Union	West Harbour
60	1	WB	Union	Hamilton
TOTAL	15			
wout Hamilton	8			

*Green Highlighting - Hamilton trains could become the Aldershot to Union express trains (if passengers need to transfer between trains here instead of going all the way to Union Station)

01 -18

Route numbers
Nombres d'itinéraire

Lakeshore West



ALL GOOD TO GO

gotransit.com – Desktop and mobile website for everything you need to know about GO.

On The GO alerts – Customized service and delay updates sent right to your inbox. Sign up at **gotransit.com/OnTheGO**

PRESTO – Tap into convenience and savings with a PRESTO card. Get one at **prestocard.ca**

Triplinx – The official transit trip planner for the Greater Toronto & Hamilton area, at **triplinx.ca**

BON DÉPART EN TOUT TEMPS AVEC GO

gotransit.com – site Web accessible d'un ordinateur de bureau ou d'un appareil mobile fournissant tous les renseignements sur GO

Alertes On The GO – nouvelles personnalisées sur le service et les retards envoyées directement dans votre boîte de réception; inscrivez-vous sur **gotransit.com/OnTheGOFR**

PRESTO – économies et aspect pratique assurés avec une carte PRESTO; obtenez la vôtre sur **prestocard.ca**

Triplinx – planificateur de trajet de transport en commun officiel de la région du grand Toronto et de Hamilton, sur **triplinx.ca**

416 869 3200
1 888 GET ON GO (438 6646)
1 800 387 3652 TTY/ATS

gotransit.com/schedules

29-5-2017

Lakeshore West

GO Train and Bus Schedule

Horaire des trains et des autobus GO

- West Harbour GO
- Hamilton GO Centre
- Aldershot GO
- Hamilton (King & Dundurn)
- Burlington GO
- Appleby GO
- Bronte GO
- Oakville GO
- Clarkson GO
- Port Credit GO
- Long Branch GO
- Mimico GO
- Exhibition GO
- Union Station

Daily
Quotidiennement

Includes GO Bus routes 15 and 18
Inclut les routes 15 et 18 d'autobus GO

Effective/ À partir de:

23 JUNE JUIN 2018

METROLINX

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

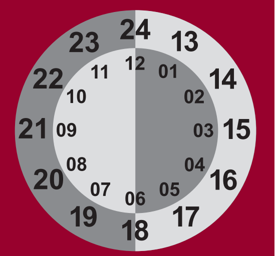
Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

Train trips

Bus trips

→ Trip does not serve this location.

↓ Check below for connecting trips.

GO Train service is accessible to passengers using mobility devices at this location.

GO Bus service is accessible to passengers using mobility devices at this location.

GO Train & GO Bus service is accessible to passengers using mobility devices at this location.

Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

M-Th	Trip operates Monday to Thursday ONLY.
Fri	Trip operates on Fridays ONLY. If Friday is a holiday, the trip operates on the Thursday before the holiday.
Sat	Trip Operates on Saturdays ONLY.
Sun	Trip Operates on Sundays ONLY.
D	Stops to let off passengers on request only.
h	Trip holds for connection from bus.

Bicycles

1. Bicycles are not allowed in Union Station or on-board eastbound trains during morning rush hour (6:30-9:30) and westbound trains during evening rush hour (15:30-18:30).

2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00

Légende

Horaire des trains

Horaire des autobus

→ Trajet ne sert pas cette station.

↓ Vérifiez les trajets de correspondance cidessous.

Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

M-Th	Service offert du lundi au jeudi.
Fri	Service offert les vendredis SEULEMENT ou les jeudis précédant un vendredi férié.
Sat	Service offert les samedis SEULEMENT.
Sun	Service offert les dimanche SEULEMENT.
D	Arrêt sur demande seulement.
h	Attentes des trajets pour les connexions d'autobus.

Vélos

1. Les vélos ne sont pas permis à la gare Union ou dans les trains en direction est durant les heures de pointe du matin (entre 6 h 30 et 9 h 30) et dans les trains en direction ouest durant les heures de pointe de la soirée (entre 15 h 30 et 18 h 30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Nombre d'itinéraire	Zone→ Trip Number / N° du trajet	Exception 1	Exception 2	West Harbour GO (Hamilton 18, Dp.)	Hamilton GO Centre (Hamilton 18, Dp.)	King St. W. & Dundurn St. (Hamilton 18)	Aldershot GO (Burlington 17)	Transfer - Correspondances Trip Number - N° du trajet	Aldershot GO (Burlington 17)	Burlington GO (Burlington 16)	Appleby GO (Burlington 15)	Bronte GO (Oakville 14)	Oakville GO (Oakville 13)	Clarkson GO (Mississauga 12)	Port Credit GO (Mississauga 11)	Long Branch GO (Toronto 3)	Mimico GO (Toronto 3)	Exhibition GO (Toronto 2)	Union Station (Toronto 2, Ar.)
18G	18020				04 15	04 19	04 30	→	04 30	04 40	→	→	04 55↓	→	→	→	→	→	05 25
18H	18022												04 55**h**	05 05	05 15	→	→	→	05 40
18	18040				04 33	04 37	04 48	700	05 03	05 09	05 16	05 21	05 27	05 35	05 42	05 47	05 53	05 59	06 10
18	18060				05 03	05 07	05 18	900	05 33	05 39	05 46	05 51	05 57	06 05	06 12	06 17	06 23	06 29	06 40
18	18090				05 33	05 37	05 48↓												
	490				05 48	→	06 03	→	06 03	06 09	06 16	06 21	06 27↓	06 35	→	→	→	→	07 00
								702		06 17	06 24	06 29	06 35	06 43	06 50	06 55	07 01	07 08	07 15
	470			06 09	→	→	06 23	→	06 23	06 29	06 36	06 41	06 47	06 55	→	→	→	→	07 20
18	18160				06 03	06 07	06 18↓												
	492				06 18	→	06 33	→	06 33	06 39	06 46	06 51	06 57↓	07 05	→	→	→	→	07 30
								902		06 47	06 54	06 59	07 05	07 13	07 20	07 25	07 31	07 38	07 45
	704			06 39	→	→	06 53	→	06 53	06 59	07 06	07 11	07 17	07 25	→	→	→	→	07 50
18	18170				06 33	06 37	06 48↓												
	494				06 48	→	07 03	→	07 03	07 09	07 16	07 21	07 27↓	07 35	→	→	→	→	08 00
								904					07 35	07 43	07 50	07 55	08 01	08 08	08 15
								706	07 23	07 29	07 36	07 41	07 47	07 55	→	→	→	→	08 20
18	18220				07 01	07 08	07 18↓												
	496				07 18	→	07 33	→	07 33	07 39	07 46	07 51	07 57↓	08 05	→	→	→	→	08 30
								906					08 05	08 13	08 20	08 25	08 31	08 38	08 45
								708	07 53	07 59	08 06	08 11	08 17	08 25	→	→	→	→	08 50
18	18250				07 31	07 38	07 48	472	08 03	08 09	08 16	08 21	08 27	08 35	→	→	→	→	09 00
								908					08 32	08 40	08 47	08 52	08 58	09 04	09 15
								474			08 31	08 37	08 43	08 51	08 58	09 03	09 11	09 17	09 28
18	18290				08 04	08 11	08 21	710	08 36	08 42	08 49	08 55	09 01	09 09	09 16	09 21	09 29	09 35	09 46
18	18340				08 34	08 41	08 51	910	09 06	09 12	09 19	09 25	09 31	09 39	09 46	09 51	09 59	10 05	10 16
18	18370				09 01	09 08	09 16	712	09 31	09 37	09 44	09 50	09 56	10 04	10 11	10 16	10 24	10 30	10 41
18	18400				09 36	09 43	09 51	912	10 06	10 12	10 19	10 25	10 31	10 39	10 46	10 51	10 59	11 05	11 16
18	18420				10 06	10 13	10 21	714	10 36	10 42	10 49	10 55	11 01	11 09	11 16	11 21	11 29	11 35	11 46
18	18440				10 31	10 38	10 46	914	11 01	11 07	11 14	11 20	11 26	11 34	11 41	11 46	11 54	12 00	12 11

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Nombre d'itinéraire	Zone→ Trip Number / N° du trajet	Exception 1	Exception 2	West Harbour GO (Hamilton 18, Dp.)	Hamilton GO Centre (Hamilton 18, Dp.)	King St. W. & Dundurn St. (Hamilton 18)	Aldershot GO (Burlington 17)	Transfer - Correspondances Trip Number - N° du trajet	Aldershot GO (Burlington 17)	Burlington GO (Burlington 16)	Appleby GO (Burlington 15)	Bronte GO (Oakville 14)	Oakville GO (Oakville 13)	Clarkson GO (Mississauga 12)	Port Credit GO (Mississauga 11)	Long Branch GO (Toronto 3)	Mimico GO (Toronto 3)	Exhibition GO (Toronto 2)	Union Station (Toronto 2, Ar.)
18	18460				11 01	11 08	11 16	716	11 31	11 37	11 44	11 50	11 56	12 04	12 11	12 16	12 24	12 30	12 41
18	18490				11 31	11 38	11 46	916	12 01	12 07	12 14	12 20	12 26	12 34	12 41	12 46	12 54	13 00	13 11
18	18510				12 01	12 08	12 16	718	12 31	12 37	12 44	12 50	12 56	13 04	13 11	13 16	13 24	13 30	13 41
18	18530				12 31	12 38	12 46	918	13 01	13 07	13 14	13 20	13 26	13 34	13 41	13 46	13 54	14 00	14 11
18	18550				13 01	13 08	13 16	720	13 31	13 37	13 44	13 50	13 56	14 04	14 11	14 16	14 24	14 30	14 41
18	18570				13 31	13 38	13 46	920	14 01	14 07	14 14	14 20	14 26	14 34	14 41	14 46	14 54	15 00	15 11
18	18590				14 01	14 08	14 16	722	14 31	14 37	14 44	14 50	14 56	15 04	15 11	15 16	15 24	15 30	15 41
								424					15 10	15 18	15 25	15 30	15 38	15 44	15 55
18	18610				14 28	14 35	14 43	922	14 58	15 04	15 11	15 17	15 23	15 31	15 38	15 43	15 51	15 57	16 08
								426					15 40	15 48	15 55	16 00	16 08	16 14	16 25
18	18630				14 56	15 06	15 13	724	15 28	15 34	15 41	15 47	15 53	16 01	16 08	16 13	16 21	16 27	16 38
								428					16 10	16 18	16 25	16 30	16 38	16 44	16 55
18	18650				15 29	15 39	15 46	924	16 01	16 07	16 14	16 20	16 26	16 34	16 41	16 46	16 54	17 00	17 11
18	18670				15 53	16 03	16 10	726	16 25	16 31	16 38	16 44	16 50	16 58	17 05	17 10	17 18	17 24	17 35
18	18690				16 29	16 39	16 46	926	17 01	17 07	17 14	17 20	17 26	17 34	17 41	17 46	17 54	18 00	18 11
18	18720				16 59	17 09	17 16	728	17 31	17 37	17 44	17 50	17 56	18 04	18 11	18 16	18 24	18 30	18 41
18	18730				17 29	17 39	17 46	928	18 01	18 07	18 14	18 20	18 26	18 34	18 41	18 46	18 54	19 00	19 11
18	18750				18 04	18 11	18 21	730	18 36	18 42	18 49	18 55	19 01	19 09	19 16	19 21	19 29	19 35	19 46
18	18770				18 31	18 38	18 46	930	19 01	19 07	19 14	19 20	19 26	19 34	19 41	19 46	19 54	20 00	20 11
18	18790				19 01	19 08	19 16	732	19 31	19 37	19 44	19 50	19 56	20 04	20 11	20 16	20 24	20 30	20 41
18	18810				19 31	19 38	19 46	932	20 01	20 07	20 14	20 20	20 26	20 34	20 41	20 46	20 54	21 00	21 11
18	18830				20 01	20 08	20 16	734	20 31	20 37	20 44	20 50	20 56	21 04	21 11	21 16	21 24	21 30	21 41
18	18840				20 31	20 38	20 46	934	21 01	21 07	21 14	21 20	21 26	21 34	21 41	21 46	21 54	22 00	22 11
18	18860				21 01	21 08	21 16	736	21 31	21 37	21 44	21 50	21 56	22 04	22 11	22 16	22 24	22 30	22 41
18	18870				21 31	21 38	21 46	936	22 01	22 07	22 14	22 20	22 26	22 34	22 41	22 46	22 54	23 00	23 11
18	18880				22 01	22 08	22 16	738	22 31	22 37	22 44	22 50	22 56	23 04	23 11	23 16	23 24	23 30	23 41
18	18900				22 31	22 38	22 46	938	23 01	23 07	23 14	23 20	23 26	23 34	23 41	23 46	23 54	24 00	00 11
18	18920				23 01	23 08	23 16	740	23 31	23 37	23 44	23 50	23 56	00 04	00 11	00 16	00 24	00 30	00 41
18	18930				23 31	23 38	23 46												

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Nombre d'itinéraire	Zone→ Trip Number / N° du trajet	Exception 1	2 Toronto Dp. Union Station	2 Toronto Exhibition GO	3 Toronto Mimico GO	3 Toronto Long Branch GO	11 Mississauga Port Credit GO	12 Mississauga Clarkson GO	13 Oakville Oakville GO	14 Oakville Bronte GO	15 Burlington Appleby GO	16 Burlington Ar. Burlington GO	17 Burlington Ar. Aldershot GO	Transfer - Correspondances Trip Number - N° du trajet	17 Burlington Dp. Aldershot GO	18 Hamilton Ar. Main St. W. @ Longwood Rd. S	18 Hamilton Hamilton GO Centre	18 Hamilton Ar. West Harbour GO
18C	18051		05 30	→	→	→	05 48	06 00	06 12	06 23	06 33	06 45	06 55	→	06 55	07 02	07 15	
18	703		06 13	06 19	06 27	06 32	06 38	06 44	06 51	06 57	07 03	07 10	07 16	18071	07 24	07 34	07 44	
18	903		06 43	06 50	06 58	07 04	07 10	07 16	07 24	07 30	07 37	07 44	07 51	18091	07 59	08 09	08 19	
18	705		07 18	07 25	07 33	07 39	07 45	07 51	07 59	08 05	08 12	08 19	08 26	18121	08 34	08 44	08 54	
18	905		07 48	07 55	08 03	08 09	08 15	08 21	08 29	08 35	08 42	08 49	08 56	18141	09 04	09 11	09 21	
18	707		08 13	08 20	08 28	08 34	08 40	08 46	08 54	09 00	09 07	09 14	09 21	18161	09 29	09 36	09 46	
18	907		08 48	08 55	09 03	09 09	09 15	09 21	09 29	09 35	09 42	09 49	09 56	18171	10 04	10 11	10 21	
18	709		09 18	09 25	09 33	09 39	09 45	09 51	09 59	10 05	10 12	10 19	10 26	18191	10 34	10 41	10 51	
18	909		09 43	09 50	09 58	10 04	10 10	10 16	10 24	10 30	10 37	10 44	10 51	18201	10 59	11 06	11 16	
18	711		10 13	10 20	10 28	10 34	10 40	10 46	10 54	11 00	11 07	11 14	11 21	18221	11 29	11 36	11 46	
18	911		10 43	10 50	10 58	11 04	11 10	11 16	11 24	11 30	11 37	11 44	11 51	18241	11 59	12 06	12 16	
18	713		11 13	11 20	11 28	11 34	11 40	11 46	11 54	12 00	12 07	12 14	12 21	18261	12 29	12 36	12 46	
18E	913		11 43	11 50	11 58	12 04	12 10	12 16	12 24	12 30	12 37	12 44	12 51	18281	12 59	13 06	13 16	**D**13 26
18	715		12 13	12 20	12 28	12 34	12 40	12 46	12 54	13 00	13 07	13 14	13 21	18301	13 29	13 36	13 46	
18E	915		12 43	12 50	12 58	13 04	13 10	13 16	13 24	13 30	13 37	13 44	13 51	18331	13 59	14 06	14 16	**D**14 26
18	717		13 13	13 20	13 28	13 34	13 40	13 46	13 54	14 00	14 07	14 14	14 21	18371	14 29	14 36	14 46	
18E	917		13 43	13 50	13 58	14 04	14 10	14 16	14 24	14 30	14 37	14 44	14 51	18411	14 59	15 06	15 19	**D**15 29
18	719		14 13	14 20	14 28	14 34	14 40	14 46	14 54	15 00	15 07	15 14	15 21	18451	15 29	15 36	15 49	
18E	919		14 43	14 50	14 58	15 04	15 10	15 16	15 24	15 30	15 37	15 44	15 51	18491	15 59	16 06	16 19	**D**16 29
	721		15 15	15 22	15 30	15 36	15 42	15 48	15 56↓									
18	471		15 30	→	→	→	→	15 53	16 01	16 07	16 14	16 21	16 28	18541	16 36	16 48	17 00	
18	921		15 40	15 47	15 55	16 01	16 07	16 13	16 21	16 27	16 34	16 41	16 48	18571	16 56	17 08	17 20	
	473		16 00	→	→	→	→	16 23	16 31	16 37	16 44	16 51	16 58	→	16 58	→	→	17 12
18	723		16 10	16 17	16 25	16 31	16 37	16 43	16 51	16 57	17 04	17 11	17 18	18581	17 26	17 38	17 50	
	475		16 30	→	→	→	→	16 53	17 01	17 07	17 14	17 21	17 28	→	17 28	→	17 45	
18	923		16 40	16 47	16 55	17 01	17 07	17 13	17 21	17 27	17 34	17 41	17 48	18641	17 56	18 08	18 20	
	477		17 00	→	→	→	→	17 23	17 31	17 37	17 44	17 51	17 58	→	17 58	→	18 15	

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Nombre d'itinéraire	Zone→ Trip Number / N° du trajet	Exception 1	2 Toronto Dp. Union Station	2 Toronto Exhibition GO	3 Toronto Mimico GO	3 Toronto Long Branch GO	11 Mississauga Port Credit GO	12 Mississauga Clarkson GO	13 Oakville Oakville GO	14 Oakville Bronte GO	15 Burlington Appleby GO	16 Burlington Ar. Burlington GO	17 Burlington Ar. Aldershot GO	Transfer - Correspondances Trip Number - N° du trajet	17 Burlington Dp. Aldershot GO	18 Hamilton Ar. Main St. W. @ Longwood Rd. S	18 Hamilton Hamilton GO Centre	18 Hamilton Ar. West Harbour GO
18	479		17 10	17 17	17 25	17 31	17 37	17 43	17 51	17 57	18 04	18 11	18 18	18671	18 26	18 36	18 46	
	481		17 15	→	→	→	→	17 38	17 46	17 52	17 59	18 06	18 13	→	18 13	→	→	18 27
	483		17 30	→	→	→	→	17 53	18 01	18 07	18 14	18 21	18 28	→	18 28	→	18 45	
18E	925		17 40	17 47	17 55	18 01	18 07	18 13	18 21	18 27	18 34	18 41	18 48	18721	18 56	19 03	19 13	**D**19 18
	485		18 00	→	→	→	→	18 23	18 31	18 37	18 44	18 51	18 58	→	18 58	→	19 15	
	727		18 15	18 22	18 30	18 36	18 42	18 48	18 56	19 02	19 09	19 16						
18	487		18 30	→	→	→	→	18 53	19 01	19 07	19 14	19 21	19 28	18741	19 36	19 43	19 53	
18E	927		18 43	18 50	18 58	19 04	19 10	19 16	19 24	19 30	19 37	19 44	19 51	18781	19 59	20 06	20 16	**D**20 21
18	729		19 13	19 20	19 28	19 34	19 40	19 46	19 54	20 00	20 07	20 14	20 21	18801	20 29	20 36	20 44	
18E	929		19 43	19 50	19 58	20 04	20 10	20 16	20 24	20 30	20 37	20 44	20 51	18841	20 59	21 06	21 14	**D**21 19
18	731		20 13	20 20	20 28	20 34	20 40	20 46	20 54	21 00	21 07	21 14	21 21	18861	21 29	21 36	21 44	
18E	931		20 43	20 50	20 58	21 04	21 10	21 16	21 24	21 30	21 37	21 44	21 51	18871	21 59	22 06	22 14	**D**22 19
18	733		21 13	21 20	21 28	21 34	21 40	21 46	21 54	22 00	22 07	22 14	22 21	18881	22 29	22 36	22 44	
18	933		21 43	21 50	21 58	22 04	22 10	22 16	22 24	22 30	22 37	22 44	22 51	18901	22 59	23 06	23 14	
18	735		22 13	22 20	22 28	22 34	22 40	22 46	22 54	23 00	23 07	23 14	23 21	18911	23 29	23 36	23 44	
18	935		22 43	22 50	22 58	23 04	23 10	23 16	23 24	23 30	23 37	23 44	23 51	18921	23 59	00 06	00 14	
18	737		23 13	23 20	23 28	23 34	23 40	23 46	23 54	24 00	00 07	00 14	00 21	18931	00 29	00 36	00 44	
18	937		23 43	23 50	23 58	00 04	00 10	00 16	00 24	00 30	00 37	00 44	00 51	18941	00 59	01 06	01 14	
18	739		00 13	00 20	00 28	00 34	00 40	00 46	00 54	01 00	01 07	01 14	01 21	18951	01 29	01 36	01 44	
18	939		00 43	00 50	00 58	01 04	01 10	01 16	01 24	01 30	01 37	01 44	01 51	18961	01 59	02 06	02 14	
18D	18975	**Fri**	01 30	→	→	→	**D**01 48	**D**02 00										
18F	18973	**Fri**	01 30	→	→	→	→	→	**D**01 57	**D**02 05	**D**02 15	**D**02 23	**D**02 33	→	**D**02 33	D02 40	**D**02 50	
18C	18971	**M-Th**	01 30	→	→	→	**D**01 48	**D**01 58	**D**02 07	**D**02 15	**D**02 25	**D**02 33	**D**02 43	→	**D**02 43	D02 50	**D**03 00	
18C	18981	**Fri**	02 00	→	→	→	**D**02 18	**D**02 28	**D**02 37	**D**02 45	**D**02 55	**D**03 03	**D**03 13	→	**D**03 13	D03 20	**D**03 30	
18D	18995	**Fri**	02 30	→	→	→	**D**02 48	**D**03 00										
18F	18993	**Fri**	02 30	→	→	→	→	→	**D**02 57	**D**03 05	**D**03 15	**D**03 23	**D**03 33	→	**D**03 33	**D**03 40	**D**03 50	
18C	18991	**M-Th**	02 30	→	→	→	**D**02 48	**D**02 58	**D**03 07	**D**03 15	**D**03 25	**D**03 33	**D**03 43	→	**D**03 43	**D**03 50	**D**0 400	

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number Nombre d'itinéraire	Zone→ Trip Number N° du trajet	Exception 1	Hamilton 18 Dp. Hamilton GO Centre	Hamilton 18 King St. W. & Dundurn St. N.	Burlington 17 Ar. Aldershot GO	Transfer -Correspondances Trip Number -N° du trajet	Burlington 17 Dp. Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 11 Port Credit GO	Toronto 3 Long Branch GO	Toronto 3 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Ar Union Station
18B	18050		04 30	04 37	04 45	→	04 45	04 55	→	→	05 10	05 20	05 30	→	→	→	05 55
18G	18090	Sat	05 30	05 37	05 45	→	05 45	05 55	→	→	06 10	→	→	→	→	→	06 40
18B	18090	Sun	05 30	05 37	05 45	→	05 45	05 55	→	→	06 10	06 20	06 30	→	→	→	06 55
18H	18092	Sat									06 10	06 20	06 30	→	→	→	06 55
18	18100		06 01	06 08	06 16	706	06 31	06 37	06 44	06 50	06 56	07 04	07 11	07 16	07 24	07 30	07 40
18	18170		06 31	06 38	06 46	906	07 01	07 07	07 14	07 20	07 26	07 34	07 41	07 46	07 54	08 00	08 10
18	18200		07 01	07 08	07 16	708	07 31	07 37	07 44	07 50	07 56	08 04	08 11	08 16	08 24	08 30	08 40
18	18250		07 31	07 38	07 46	908	08 01	08 07	08 14	08 20	08 26	08 34	08 41	08 46	08 54	09 00	09 10
18	18300		08 01	08 08	08 16	710	08 31	08 37	08 44	08 50	08 56	09 04	09 11	09 16	09 24	09 30	09 40
18	18340		08 31	08 38	08 46	910	09 01	09 07	09 14	09 20	09 26	09 34	09 41	09 46	09 54	10 00	10 10
18	18360		09 01	09 08	09 16	712	09 31	09 37	09 44	09 50	09 56	10 04	10 11	10 16	10 24	10 30	10 40
18	18400		09 31	09 38	09 46	912	10 01	10 07	10 14	10 20	10 26	10 34	10 41	10 46	10 54	11 00	11 10
18	18420		10 01	10 08	10 16	714	10 31	10 37	10 44	10 50	10 56	11 04	11 11	11 16	11 24	11 30	11 40
18	18440		10 31	10 38	10 46	914	11 01	11 07	11 14	11 20	11 26	11 34	11 41	11 46	11 54	12 00	12 10
18	18470		11 01	11 08	11 16	716	11 31	11 37	11 44	11 50	11 56	12 04	12 11	12 16	12 24	12 30	12 40
18	18490		11 31	11 38	11 46	916	12 01	12 07	12 14	12 20	12 26	12 34	12 41	12 46	12 54	13 00	13 10
18	18510		12 01	12 08	12 16	718	12 31	12 37	12 44	12 50	12 56	13 04	13 11	13 16	13 24	13 30	13 40
18	18530		12 31	12 38	12 46	918	13 01	13 07	13 14	13 20	13 26	13 34	13 41	13 46	13 54	14 00	14 10
18	18550		13 01	13 08	13 16	720	13 31	13 37	13 44	13 50	13 56	14 04	14 11	14 16	14 24	14 30	14 40
18	18570		13 31	13 38	13 46	920	14 01	14 07	14 14	14 20	14 26	14 34	14 41	14 46	14 54	15 00	15 10

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number Nombre d'itinéraire	Zone→ Trip Number N° du trajet	Exception 1	Hamilton 18 Dp. Hamilton GO Centre	Hamilton 18 King St. W. & Dundurn St. N.	Burlington 17 Ar. Aldershot GO	Transfer -Correspondances Trip Number -N° du trajet	Burlington 17 Dp. Aldershot GO	Burlington 16 Burlington GO	Burlington 15 Appleby GO	Oakville 14 Bronte GO	Oakville 13 Oakville GO	Mississauga 12 Clarkson GO	Mississauga 11 Port Credit GO	Toronto 3 Long Branch GO	Toronto 3 Mimico GO	Toronto 2 Exhibition GO	Toronto 2 Ar Union Station
18	18590		14 01	14 08	14 16	722	14 31	14 37	14 44	14 50	14 56	15 04	15 11	15 16	15 24	15 30	15 40
18	18610		14 31	14 38	14 46	922	15 01	15 07	15 14	15 20	15 26	15 34	15 41	15 46	15 54	16 00	16 10
18	18630		15 01	15 08	15 16	724	15 31	15 37	15 44	15 50	15 56	16 04	16 11	16 16	16 24	16 30	16 40
18	18650		15 31	15 38	15 46	924	16 01	16 07	16 14	16 20	16 26	16 34	16 41	16 46	16 54	17 00	17 10
18	18670		16 01	16 08	16 16	726	16 31	16 37	16 44	16 50	16 56	17 04	17 11	17 16	17 24	17 30	17 40
18	18690		16 31	16 38	16 46	926	17 01	17 07	17 14	17 20	17 26	17 34	17 41	17 46	17 54	18 00	18 10
18	18710		17 01	17 08	17 16	728	17 31	17 37	17 44	17 50	17 56	18 04	18 11	18 16	18 24	18 30	18 40
18	18730		17 31	17 38	17 46	928	18 01	18 07	18 14	18 20	18 26	18 34	18 41	18 46	18 54	19 00	19 10
18	18750		18 01	18 08	18 16	730	18 31	18 37	18 44	18 50	18 56	19 04	19 11	19 16	19 24	19 30	19 40
18	18770		18 31	18 38	18 46	930	19 01	19 07	19 14	19 20	19 26	19 34	19 41	19 46	19 54	20 00	20 10
18	18790		19 01	19 08	19 16	732	19 31	19 37	19 44	19 50	19 56	20 04	20 11	20 16	20 24	20 30	20 40
18	18810		19 31	19 38	19 46	932	20 01	20 07	20 14	20 20	20 26	20 34	20 41	20 46	20 54	21 00	21 10
18	18820		20 01	20 08	20 16	734	20 31	20 37	20 44	20 50	20 56	21 04	21 11	21 16	21 24	21 30	21 40
18	18840		20 31	20 38	20 46	934	21 01	21 07	21 14	21 20	21 26	21 34	21 41	21 46	21 54	22 00	22 10
18	18860		21 01	21 08	21 16	736	21 31	21 37	21 44	21 50	21 56	22 04	22 11	22 16	22 24	22 30	22 40
18	18870		21 31	21 38	21 46	936	22 01	22 07	22 14	22 20	22 26	22 34	22 41	22 46	22 54	23 00	23 10
18	18880		22 01	22 08	22 16	738	22 31	22 37	22 44	22 50	22 56	23 04	23 11	23 16	23 24	23 30	23 40
18	18900		22 31	22 38	22 46	938	23 01	23 07	23 14	23 20	23 26	23 34	23 41	23 46	23 54	00 01	00 10
18	18920		23 01	23 08	23 16	740	23 31	23 37	23 44	23 50	23 56	00 04	00 11	00 16	00 24	00 30	00 40
18	18930		23 31	23 38	23 46												

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Nombre d'itinéraire	Trip Number / N° du trajet	Exception 1	Toronto 2 Dp. Union Station	Toronto 2 Exhibition GO	Toronto 3 Mimico GO	Toronto 3 Long Branch GO	Mississauga 11 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Ar. Aldershot GO	Transfer - Correspondances / Trip Number - N° du trajet	Burlington 17 Dp. Aldershot GO	Hamilton 18 Main St. W. @ Longwood Rd. S	Hamilton 18 Ar. Hamilton GO Centre
18	903		06 43	06 50	06 58	07 04	07 10	07 16	07 24	07 30	07 37	07 44	07 51	18081	07 59	08 06	08 14
18	705		07 13	07 20	07 28	07 34	07 40	07 46	07 54	08 00	08 07	08 14	08 21	18111	08 29	08 36	08 44
18	905		07 43	07 50	07 58	08 04	08 10	08 16	08 24	08 30	08 37	08 44	08 51	18131	08 59	09 06	09 14
18	707		08 13	08 20	08 28	08 34	08 40	08 46	08 54	09 00	09 07	09 14	09 21	18151	09 29	09 36	09 44
18	907		08 43	08 50	08 58	09 04	09 10	09 16	09 24	09 30	09 37	09 44	09 51	18171	09 59	10 06	10 14
18	709		09 13	09 20	09 28	09 34	09 40	09 46	09 54	10 00	10 07	10 14	10 21	18191	10 29	10 36	10 44
18	909		09 43	09 50	09 58	10 04	10 10	10 16	10 24	10 30	10 37	10 44	10 51	18201	10 59	11 06	11 14
18	711		10 13	10 20	10 28	10 34	10 40	10 46	10 54	11 00	11 07	11 14	11 21	18221	11 29	11 36	11 44
18	911		10 43	10 50	10 58	11 04	11 10	11 16	11 24	11 30	11 37	11 44	11 51	18241	11 59	12 06	12 14
18	713		11 13	11 20	11 28	11 34	11 40	11 46	11 54	12 00	12 07	12 14	12 21	18261	12 29	12 37	12 46
18	913		11 43	11 50	11 58	12 04	12 10	12 16	12 24	12 30	12 37	12 44	12 51	18281	12 59	13 07	13 16
18	715		12 13	12 20	12 28	12 34	12 40	12 46	12 54	13 00	13 07	13 14	13 21	18301	13 29	13 37	13 46
18	915		12 43	12 50	12 58	13 04	13 10	13 16	13 24	13 30	13 37	13 44	13 51	18331	13 59	14 07	14 16
18	717		13 13	13 20	13 28	13 34	13 40	13 46	13 54	14 00	14 07	14 14	14 21	18371	14 29	14 37	14 46
18	917		13 43	13 50	13 58	14 04	14 10	14 16	14 24	14 30	14 37	14 44	14 51	18411	14 59	15 07	15 16
18	719		14 13	14 20	14 28	14 34	14 40	14 46	14 54	15 00	15 07	15 14	15 21	18451	15 29	15 37	15 46
18	919		14 43	14 50	14 58	15 04	15 10	15 16	15 24	15 30	15 37	15 44	15 51	18491	15 59	16 07	16 16
18	721		15 13	15 20	15 28	15 34	15 40	15 46	15 54	16 00	16 07	16 14	16 21	18511	16 29	16 37	16 46
18	921		15 43	15 50	15 58	16 04	16 10	16 16	16 24	16 30	16 37	16 44	16 51	18541	16 59	17 07	17 16
18	723		16 13	16 20	16 28	16 34	16 40	16 46	16 54	17 00	17 07	17 14	17 21	18591	17 29	17 37	17 46
18	923		16 43	16 50	16 58	17 04	17 10	17 16	17 24	17 30	17 37	17 44	17 51	18641	17 59	18 07	18 16
18	725		17 13	17 20	17 28	17 34	17 40	17 46	17 54	18 00	18 07	18 14	18 21	18681	18 29	18 37	18 46

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Nombre d'itinéraire	Trip Number / N° du trajet	Exception 1	Toronto 2 Dp. Union Station	Toronto 2 Exhibition GO	Toronto 3 Mimico GO	Toronto 3 Long Branch GO	Mississauga 11 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Ar. Aldershot GO	Transfer - Correspondances / Trip Number - N° du trajet	Burlington 17 Dp. Aldershot GO	Hamilton 18 Main St. W. @ Longwood Rd. S	Hamilton 18 Ar. Hamilton GO Centre
18	925		17 43	17 50	17 58	18 04	18 10	18 16	18 24	18 30	18 37	18 44	18 51	18721	18 59	19 06	19 16
18	727		18 13	18 20	18 28	18 34	18 40	18 46	18 54	19 00	19 07	19 14	19 21	18751	19 29	19 36	19 46
18	927		18 43	18 50	18 58	19 04	19 10	19 16	19 24	19 30	19 37	19 44	19 51	18781	19 59	20 06	20 16
18	729		19 13	19 20	19 28	19 34	19 40	19 46	19 54	20 00	20 07	20 14	20 21	18801	20 29	20 36	20 46
18	929		19 43	19 50	19 58	20 04	20 10	20 16	20 24	20 30	20 37	20 44	20 51	18841	20 59	21 06	21 16
18	731		20 13	20 20	20 28	20 34	20 40	20 46	20 54	21 00	21 07	21 14	21 21	18851	21 29	21 36	21 44
18	931		20 43	20 50	20 58	21 04	21 10	21 16	21 24	21 30	21 37	21 44	21 51	18871	21 59	22 06	22 14
18	733		21 13	21 20	21 28	21 34	21 40	21 46	21 54	22 00	22 07	22 14	22 21	18881	22 29	22 36	22 44
18	933		21 43	21 50	21 58	22 04	22 10	22 16	22 24	22 30	22 37	22 44	22 51	18901	22 59	23 06	23 14
18	735		22 13	22 20	22 28	22 34	22 40	22 46	22 54	23 00	23 07	23 14	23 21	18911	23 29	23 36	23 44
18	935		22 43	22 50	22 58	23 04	23 10	23 16	23 24	23 30	23 37	23 44	23 51	18931	23 59	00 06	00 14
18	737		23 13	23 20	23 28	23 34	23 40	23 46	23 54	24 00	00 07	00 14	00 21	18941	00 29	00 36	00 44
18	937		23 43	23 50	23 58	00 04	00 10	00 16	00 24	00 30	00 37	00 44	00 51	18961	00 59	01 06	01 14
18	739		00 13	00 20	00 28	00 34	00 40	00 46	00 54	01 00	01 07	01 14	01 21	18971	01 29	01 36	01 44
18	939		00 43	00 50	00 58	01 04	01 10	01 16	01 24	01 30	01 37	01 44	01 51	18981	01 59	02 06	02 14
18D	18993	**Sat**	01 30	→	→	→	**D**01 48	**D**02 00									
18F	18991	**Sat**	01 30	→	→	→	→	→	**D**01 57	**D**02 05	**D**02 15	**D**02 23	**D**02 33	→	**D**02 33	**D**02 40	**D**02 50
18C	18991	**Sun**	01 30	→	→	→	**D**01 48	**D**01 58	**D**02 07	**D**02 15	**D**02 25	**D**02 33	**D**02 43	→	**D**02 43	**D**02 50	**D**03 00
18C	18995	**Sat**	02 00	→	→	→	**D**02 18	**D**02 28	**D**02 37	**D**02 45	**D**02 55	**D**03 03	**D**03 13	→	**D**03 13	**D**03 20	**D**03 30
18D	18989	**Sat**	02 30	→	→	→	**D**02 48	**D**03 00									
18F	18997	**Sat**	02 30	→	→	→	→	→	**D**02 57	**D**03 05	**D**03 15	**D**03 23	**D**03 33	→	**D**03 33	**D**03 40	**D**03 50
18C	18999	**Sun**	02 30	→	→	→	**D**02 48	**D**02 58	**D**03 07	**D**03 15	**D**03 25	**D**03 33	**D**03 43	→	**D**03 43	**D**03 50	**D**04 00

Schedules are subject to change.
Les horaires sont susceptibles d'être modifiés.

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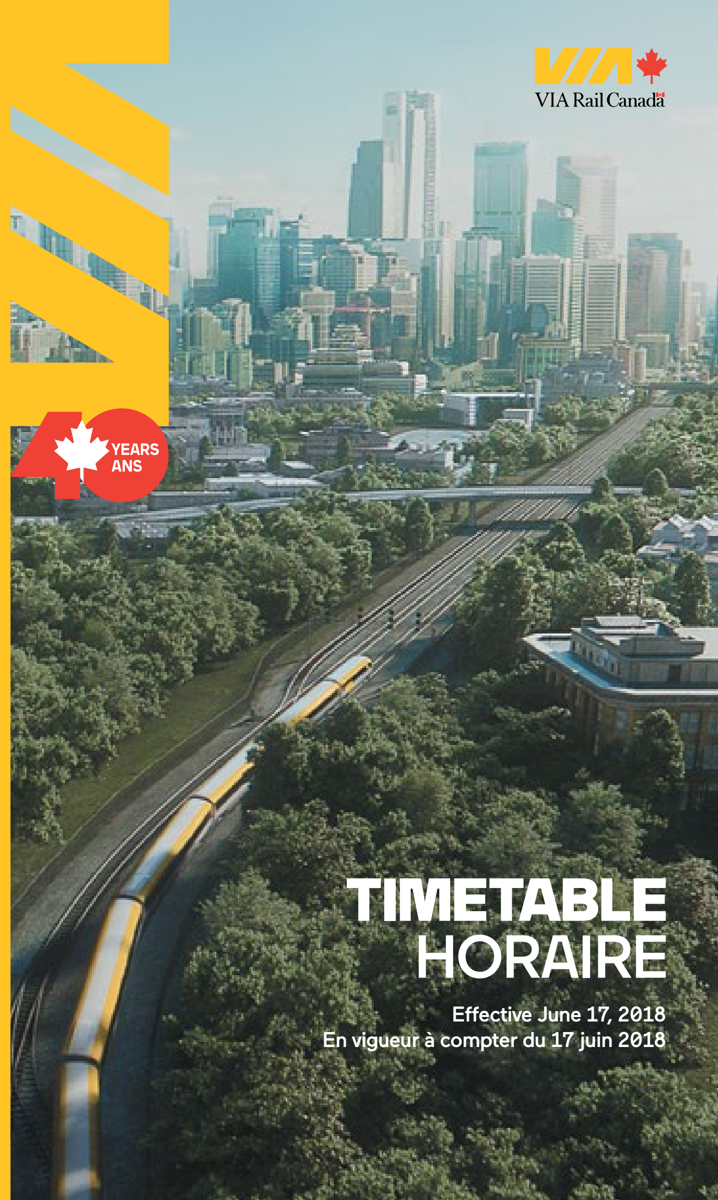

VIA Rail Canada

TIMETABLE
HORAIRE

Effective June 17, 2018
En vigueur à compter du 17 juin 2018

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- Réservez, payez et modifiez vos voyages
- Accédez à vos cartes d'embarquement
- Recevez les mises à jour en temps réel

E-boarding pass / Carte d'embarquement électronique

We'll email you a boarding pass with a bar code whenever you book a seat. You can present a printed version of this e-boarding pass or display its bar code on your mobile device, along with a photo ID upon request, at the boarding gate and on board the train. Skip the ticket counter – you can board the train directly.

Lorsque vous réserverez une place à bord d'un train, nous vous ferons parvenir par courriel une carte d'embarquement comportant un code-barres. Vous pourrez imprimer cette carte d'embarquement ou l'afficher sur votre appareil mobile et la présenter à la porte d'embarquement ou à bord du train, en l'accompagnant d'une carte d'identité avec photo. Plus besoin de passer à la billetterie, vous pourrez monter à bord directement.

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How to use the timetable / Comment utiliser l'horaire

In all sections, schedules are linear and usually read from the top down. Schedules for some routes read from the bottom up. Arrows will indicate the direction to follow.

In general, the schedule for each route indicates the departure time only. Stations at which the train stops are listed on the left. Locations in bold indicate a possible connection.

Les horaires de chaque section sont linéaires et se lisent généralement de haut en bas. Pour certaines liaisons, l'horaire se lit de bas en haut. Suivez le sens des flèches pour orienter votre lecture.

En général, l'horaire de chaque liaison n'indique que l'heure de départ. Le nom des localités desservies est inscrit à gauche. Les localités en gras indiquent une possibilité de correspondance.

Legend / Légende

Days / Jours		Time Zone		Fuseaux horaires
1	Monday / Lundi	Atlantic Time	AT / HA	Heure de l'Atlantique
2	Tuesday / Mardi	Eastern Time	ET / HE	Heure de l'Est
3	Wednesday / Mercredi	Central Time	CT / HC	Heure du Centre
4	Thursday / Jeudi	Mountain Time	MT / HR	Heure des Rocheuses
5	Friday / Vendredi	Pacific Time	PT / HP	Heure du Pacifique
6	Saturday / Samedi			
7	Sunday / Dimanche			

Bold numbers indicate the days when train service is offered. Grey numbers indicate days when no service is offered on a given route.
Example: **12345**67

Les chiffres en caractères gras indiquent les jours où les trains sont en service. Ceux en gris désignent les jours où il n'y a pas de service sur la liaison.
Exemple : **12345**67

There is a seat assignment in Economy class in the Québec City – Windsor corridor, except on trains 650 and 651. / Il y a une assignation des sièges en classe Économie dans le corridor Québec – Windsor, sauf pour les trains 650 et 651.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Telephone numbers / Numéros de téléphone

Canada or United States / Canada ou États-Unis
....1 888 VIA-RAIL* – 1 888 842-7245* – viarail.ca

Montréal: Local call from 514, 450 and 438 area codes /
Appel local des indicatifs régionaux 514, 450 et 438 .... 514 989-2626

Moncton: Local call / Appel local.... 506 857-9830

Reward Program / Programme de récompense
VIA Préférence....1 888 VIA-PREF* – 1 888 842-7733* – viapreference.ca

TTY / ATS....1 800 268-9503*

Amtrak ....1 800 USA-RAIL* – 1 800 872-7245* – Amtrak.com

*toll-free / sans frais

Visit viarail.ca or call one of our telephone sales agents to find out when stations are open. / Pour connaître les heures d'ouverture des gares, consultez le site viarail.ca ou communiquez par téléphone avec un agent de VIA Rail.

Baggage Policy

CARRY-ON BAGGAGE ALLOWANCE

ECONOMY CLASS

1 personal item
Max. 11.5 kg (25 lb.)
Max. 43 x 15 x 33 cm (17 x 6 x 13 in.)

+

1 large item
Max. 23 kg (50 lb.)
Max. 158 linear cm
(62 linear in.)

OR

2 small items
Max. 11.5 kg (25 lb.) each
Max. 54.5 x 39.5 x 23 cm
(21.5 x 15.5 x 9 in.) each

BUSINESS CLASS

1 personal item
Max. 11.5 kg (25 lb.)
Max. 43 x 15 x 33 cm (17 x 6 x 13 in.)

+

2 large items
Max. 23 kg (50 lb.) each
Max. 158 linear cm (62 linear in.) each

YOUTH from 12 to 25 years old

1 personal item
Max. 11.5 kg (25 lb.)
Max. 43 x 15 x 33 cm (17 x 6 x 13 in.)

+

2 large items
Max. 23 kg (50 lb.) each
Max. 158 linear cm (62 linear in.) each

SLEEPER PLUS / PRESTIGE CLASS

1 personal item per person
Max. 11.5 kg (25 lb.)
Max. 43 x 15 x 33 cm (17 x 6 x 13 in.)

+

2 small items <u>per cabin</u>
Max. 11.5 kg (25 lb.) each
Max. 54.5 x 39.5 x 23 cm (21.5 x 15.5 x 9 in.) each

CHECKED BAGGAGE ALLOWANCE

2 large checked items
Max. 23 kg (50 lb.) each
Max. 158 li. cm (62 li. in.) each

Visit **viarail.ca** to see the full up-to-date version of the policy.

Politique relative aux bagages

FRANCHISE DE BAGAGES À MAIN

CLASSE ÉCONOMIE

1 article personnel
Max. 11,5 kg (25 lb)
Max. 43 x 15 x 33 cm (17 x 6 x 13 po)

+

1 grand article
Max. 23 kg (50 lb)
Max. 158 cm linéaires
(62 po linéaires)

OU

2 petits articles
Max. 11,5 kg (25 lb) chacun
Max. 54,5 x 39,5 x 23 cm
(21,5 x 15,5 x 9 po) chacun

CLASSE AFFAIRES

1 article personnel
Max. 11,5 kg (25 lb)
Max. 43 x 15 x 33 cm (17 x 6 x 13 po)

+

2 grands articles
Max. 23 kg (50 lb) chacun
Max. 158 cm linéaires (62 po linéaires) chacun

JEUNES de 12 à 25 ans

1 article personnel
Max. 11,5 kg (25 lb)
Max. 43 x 15 x 33 cm (17 x 6 x 13 po)

+

2 grands articles
Max. 23 kg (50 lb) chacun
Max. 158 cm linéaires (62 po linéaires) chacun

CLASSE VOITURE-LITS PLUS/PRESTIGE

1 article personnel par voyageur
Max. 11,5 kg (25 lb)
Max. 43 x 15 x 33 cm (17 x 6 x 13 po)

+

2 petits articles <u>par cabine</u>
Max. 11,5 kg (25 lb) chacun
Max. 54,5 x 39,5 x 23 cm (21,5 x 15,5 x 9 po) chacun

FRANCHISE DE BAGAGES ENREGISTRÉS

2 grands articles enregistrés
Max. 23 kg (50 lb) chacun
Max. 158 cm li. (62 po li.) chacun

Pour la version complète et à jour de la politique, visitez **viarail.ca**

Wi-Fi: Available on most trains. / Offert dans la plupart des trains.

QUÉBEC → SAINTE-FOY → MONTRÉAL → OTTAWA

TRAIN		33	15	35	37 🧳	25	637 🧳	39	29 🧳*
DAYS / JOURS		**12345**67	**1**23**4**5**6**7	**1234567**	**12345**67	12345**6**7	123456**7**	**12345**6**7**	**1234567**
BUSINESS / AFFAIRES		✓		✓	✓	✓	✓	✓	✓
Québec, QC	DP	05:25	From/De Halifax	08:15	13:00	13:00	13:00	15:00	17:45
Sainte-Foy	↓	05:52	06:28	08:41	13:26	13:26	13:26	15:26	18:11
Charny				08:49					
Drummondville		07:15	08:36	10:31	15:09	15:09	15:09	16:54	19:43
Saint-Hyacinthe		07:58	09:15	11:09					20:21
Saint-Lambert		08:24	09:50	11:38	16:03	16:04	16:03	18:00	20:49
Montréal	AR	08:35	10:03	11:49	16:14	16:15	16:14	18:11	21:00
	DP	09:00		12:04	16:50		16:50	18:50	
Dorval, QC ✈	↓	09:34		12:39	17:24		17:24	19:24	
Coteau, ON								19:51	
Alexandria		10:22		13:27	18:09		18:09	20:13	
Casselman		10:44		13:50					
Ottawa	AR	11:14		14:15	18:58		18:58	20:58	
	DP				19:13			21:08	
Fallowfield, ON	AR				19:35			21:24	

No local service between Québec City, Sainte-Foy and Charny, or Saint-Lambert and Montréal. / Pas de service local entre Québec, Sainte-Foy et Charny, ainsi qu'entre Saint-Lambert et Montréal.

Seat assignment is not available on train 15. / L'assignation des sièges n'est pas offerte pour le train 15.

✈ Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

🧳 Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car not available on Saturday. / Voiture à bagages non disponible le samedi.

Wi-Fi Available on most trains. / Offert dans la plupart des trains.

OTTAWA → MONTRÉAL → SAINTE-FOY → QUÉBEC

TRAIN		20	22	622 *	624 **	24	26	28	14
DAYS / JOURS		**12345**67	**12345**67	12345**67**	12345**67**	**12345**67	**1234567**	**12345**6**7**	12**3**4**5**6**7**
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	
Fallowfield, ON	DP		06:04			09:48			
Ottawa	AR		06:21			10:05			
	DP		06:30		10:15	10:17	14:20	16:10	
Casselman									
Alexandria, ON			07:18		11:07	11:10	15:08		
Coteau, ON			07:46				15:29[2]		
Dorval ✈			08:11		11:58	11:55	15:55	17:45	
Montréal	AR		08:31		12:17	12:15	16:15	18:05	
	DP	06:20	08:56	09:06	12:45	12:45	16:40	18:25	19:00
Saint-Lambert		06:33	09:18	09:18	13:08	13:08	17:02	18:48	19:25
Saint-Hyacinthe		07:00		09:43			17:29	19:16	19:58
Drummondville		07:29	10:12	10:12	14:01	14:01	18:15	19:45	20:47
Charny					15:56	15:56			
Sainte-Foy		09:19	11:58	11:57	16:04	16:04	20:00	21:30	22:34
Québec, QC	AR	09:43	12:22	12:22	16:28	16:28	20:24	21:54	To/Vers Halifax

No local service between Québec City, Sainte-Foy and Charny, or Saint-Lambert and Montréal. / Pas de service local entre Québec, Sainte-Foy et Charny, ainsi qu'entre Saint-Lambert et Montréal.

Seat assignment is not available on train 14. / L'assignation des sièges n'est pas offerte pour le train 14.

✈ Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

2 The train stops at this station only on Fridays. / Le train arrête à cette gare seulement les vendredis.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available only on Saturday. / Voiture à bagages disponible seulement samedi.

** Baggage car available only on Sunday. / Voiture à bagages disponible seulement dimanche.

Available on most trains. / Offert dans la plupart des trains.

MONTRÉAL → ALEXANDRIA → OTTAWA → FALLOWFIELD

TRAIN		51	33	633	35	635	37	637	39	639
DAYS / JOURS		12345	12345	67	1234567	123457	12345	7	123457	6
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	✓	✓
Montréal, QC	DP	06:10	09:00	09:00	12:04	15:00	16:50	16:50	18:50	19:00
Dorval		06:34	09:34	09:24	12:39	15:26	17:24	17:24	19:24	19:24
Coteau, QC									19:51	19:50
Alexandria, ON		07:18	10:22	10:11	13:27		18:09	18:09	20:13	20:12
Casselman		07:45	10:44	10:33	13:50					
Ottawa	AR	08:10	11:14	11:04	14:15	16:59	18:58	18:58	20:58	20:56
	DP	08:25					19:13		21:08	
Fallowfield, ON	AR	08:42					19:35		21:24	

FALLOWFIELD → OTTAWA → ALEXANDRIA → MONTRÉAL

TRAIN		22	24	624 **	34 *	26	28	38
DAYS / JOURS		12345	12345	67	1234567	1234567	123457	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓
Fallowfield, ON	DP	06:04	09:48					
Ottawa	AR	06:21	10:05					
	DP	06:30	10:17	10:15	11:35	14:20	16:10	18:30
Casselman					12:02			19:02
Alexandria, ON		07:18	11:10	11:07	12:26	15:08		19:26
Coteau, QC		07:46				15:29 3		
Dorval		08:11	11:55	11:58	13:12	15:55	17:45	20:12
Montréal, QC	AR	08:31	12:15	12:17	13:31	16:15	18:05	20:32

No local service between Montréal and Dorval, or Ottawa and Fallowfield. / Pas de service local entre Montréal et Dorval, ainsi qu'entre Ottawa et Fallowfield.

3 The train stops at this station only on Fridays. / Le train arrête à cette gare seulement les vendredis.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail(1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available only on Saturday. / Voiture à bagages disponible seulement samedi.

** Baggage car available only on Sunday. / Voiture à bagages disponible seulement dimanche.

Wi-Fi Available on most trains. / Offert dans la plupart des trains.

MONTRÉAL → KINGSTON → TORONTO → ALDERSHOT

TRAIN		651	655	51	61	63 *	65 **	67	69	669
DAYS / JOURS		12345	67	12345	123456	1234567	1234567	1234567	12345 7	1234567
BUSINESS AFFAIRES				✓	✓	✓	✓	✓	✓	✓
Montréal, QC	DP			06:10	06:37	08:55	11:00	15:45	16:40	18:30
Dorval, QC	↓			06:34	07:04	09:20	11:26	16:08	17:04	18:55
Cornwall, ON	↓			Via Ottawa	07:55	10:13	12:18	16:59		19:48
Brockville	↓			09:43			13:04		18:34	
Gananoque	↓									
Kingston	AR			10:23	09:21	11:39	13:45	18:22	19:14	21:12
	DP	05:32	06:45	10:26	09:24	11:43	13:49	18:26	19:17	21:15
Napanee	↓	05:55	07:06							
Belleville	↓	06:16	07:25		10:02		14:31			
Trenton Jct.	↓	06:28	07:37							
Cobourg	↓	07:00	08:06	11:36			15:09			
Port Hope	↓	07:10	08:15							
Oshawa	↓	07:40	08:42		11:11	13:35	15:43	20:10	21:01	23:04
Guildwood	↓	08:01	08:58	12:26			16:01			
Toronto	AR	08:25	09:14	12:42	11:41	14:07	16:17	20:39	21:30	23:33
	DP								21:49	
Oakville	↓								22:12	
Aldershot, ON	AR								22:24	

No local service between Toronto and Guildwood, or Dorval and Montréal. / Pas de service local entre Toronto et Guildwood, ainsi qu'entre Dorval et Montréal.

Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available only on Sunday. Checked baggage is available for passengers boarding at Montreal Central Station and detraining at Toronto Union Station only. / Voiture à bagages disponibles seulement dimanche. L'enregistrement des bagages est seulement offert pour les passagers qui embarquent à la gare centrale de Montréal et débarquent à la gare Union de Toronto.

** Baggage car available only on Monday, Thursday and Saturday. / Voiture à bagages disponible seulement lundi, jeudi et samedi.

Wi-Fi Available on most trains. / Wi-Fi Offert dans la plupart des trains.

TORONTO → KINGSTON → MONTRÉAL

TRAIN		60	62 ◫*	64 ◫**	66	68	668	650
DAYS / JOURS		123456	1234567	1234567	1234567	12345 7	1234567	12345 7
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓
Toronto, ON ✈	DP	06:40	09:20	11:30	15:15	17:00	17:57	19:35
Guildwood	↓	07:00		11:49			18:16	
Oshawa	↓	07:19	09:53	12:08	15:47	17:31	18:33	20:07
Port Hope	↓							20:34
Cobourg	↓	07:54	10:25	12:45		18:02		20:42
Trenton Jct.	↓							
Belleville	↓	08:29		13:26	16:53			21:19
Napanee	↓							
Kingston	AR	09:07	11:34	14:03	17:28		20:14	21:56
	DP	09:11	11:38	14:08	17:32		20:18	
Gananoque	↓							
Brockville	↓			14:57		19:54		
Cornwall, ON	↓	10:48	13:11	15:46	18:59		21:46	
Coteau, QC	↓							
Dorval ✈	↓	11:37	14:00	16:38	19:48	21:29	22:36	
Montréal, QC	AR	11:57	14:20	16:58	20:09	21:49	22:56	

No local service between Toronto and Guildwood, or Dorval and Montréal. / Pas de service local entre Toronto et Guildwood, ainsi qu'entre Dorval et Montréal.

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

✈ Shuttle service runs between the station and the airport. / Service de navette assuré entre la gare et l'aéroport.

◫ Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available on Saturday only. / Voiture à bagages disponible seulement samedi.

** Baggage car not available on Saturday. / Voiture à bagages non disponbile samedi.

Wi-Fi Available on most trains. / Offert dans la plupart des trains.

TORONTO → KINGSTON → OTTAWA

TRAIN		50	52	40	42	644	44	46	646	54	48
DAYS / JOURS		123456	1234567	1234567	1234567	1234567	1234567	12345 7	12345 7	12345	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Toronto, ON ✈	DP	06:40	09:20	10:45	12:20	13:20	14:20	15:40	16:35	17:40	18:40
Guildwood		07:00								17:58	18:58
Oshawa		07:19	09:53		12:52	13:53	14:54	16:17	17:06	18:14	19:16
Port Hope										18:40	19:43
Cobourg		07:54	10:25			14:26		16:50		18:48	19:53
Trenton Jct.										19:15	20:19
Belleville		08:29				15:03			18:11	19:30	20:36
Napanee										19:50	20:54
Kingston	AR	09:07	11:34	12:54	14:32	15:39	16:32	17:59		20:09	21:13
	DP	09:11	11:38	12:56	14:34	15:42	16:36	18:02		20:12	21:16
Gananoque											21:38
Brockville		10:08	12:34				17:20	18:47			22:03
Smiths Falls		10:39					17:50				22:33
Fallowfield		11:12	13:40	14:40	16:17	17:26	18:24	19:47	20:24	21:49	23:00
Ottawa, ON	AR	11:29	13:56	15:02	16:34	17:48	18:46	20:09	20:42	22:07	23:16

No local service between Toronto and Guildwood, or Fallowfield and Ottawa. / Pas de service local entre Toronto et Guildwood, ainsi qu'entre Fallowfield et Ottawa.

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

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Wi-Fi: Available on most trains. / Offert dans la plupart des trains.

OTTAWA → KINGSTON → TORONTO

TRAIN		41	641	43	51	643	45	53	47	645	55	647	59
DAYS / JOURS		12345	6	12345	12345	67	1234567	1234567	1234567	1234567	123457	123457	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ottawa, ON	DP	05:30	06:40	07:20	08:25	09:05	10:27	11:40	12:28	14:30	15:30	16:51	18:26
Fallowfield	↓	05:55	06:59	07:40	08:45	09:26	10:46	12:00	12:49	14:55	15:49	17:10	18:52
Smiths Falls	↓	06:22	07:26		09:14	09:54							19:25
Brockville	↓	06:51	07:55		09:43	10:29			13:56		16:54		19:58
Gananoque	↓								14:22				
Kingston	AR	07:31	08:35	09:10	10:23	11:09	12:26	13:35	14:41	16:32	17:34	18:49	20:38
Kingston	DP	07:34	08:38	09:13	10:26	11:12	12:28	13:39	14:45	16:35	17:38	18:51	20:41
Napanee	↓					11:33							
Belleville	↓	08:16	09:19			11:56		14:21	15:28	17:16	18:18		21:22
Trenton Jct.	↓					12:08							21:32
Cobourg	↓	08:51	09:54		11:36	12:34					18:52		22:00
Port Hope	↓					12:42							
Oshawa	↓	09:27	10:29			13:14		15:29	16:38	18:23	19:25	20:43	22:33
Guildwood	↓		10:46		12:26	13:32		15:49	16:58				22:50
Toronto ✈	AR	10:02	11:02	11:25	12:42	13:47	14:48	16:03	17:15	19:05	19:57	21:16	23:07

No local service between Ottawa and Fallowfield, or Guildwood and Toronto. / Pas de service local entre Ottawa et Fallowfield, ainsi qu'entre Guildwood et Toronto.

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

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Wi-Fi Available on most trains. / Offert dans la plupart des trains.

TORONTO → LONDON → WINDSOR

TRAIN		71	73	83	75 *	81	79
DAYS / JOURS		1234567	1234567	12345	12345 7	6	1234567
BUSINESS / AFFAIRES		✓ 1	✓ 1	✓	✓	✓	✓
Toronto, ON ✈	DP	06:45	12:15	16:35	17:30	17:30	19:35
Oakville	↓	07:10	12:40		17:56	17:56	19:59
Aldershot	↓	07:25	12:58	17:13	18:12	18:12	20:13
Brantford	↓	07:53	13:27	17:43	18:44	18:44	20:41
Woodstock	↓	08:25	13:55	18:12	19:14	19:14	21:09
Ingersoll	↓	08:38					21:23
London	AR	09:00	14:23	18:49	19:55	19:55	21:45
	DP	09:05	14:30		20:01		21:50
Glencoe	↓	09:34					22:19
Chatham	↓	10:13	15:39		21:04		22:53
Windsor, ON	AR	11:02	16:30		21:56		23:44

TORONTO WINDSOR

1 Business class is not available on Saturdays. / La classe Affaires n'est pas offerte les samedis.

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

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* Baggage car available on Monday and Thursday. / Voiture à bagages disponible lundi et jeudi.

WINDSOR → LONDON → TORONTO

TRAIN		82	70	80	72 *	76	78
DAYS / JOURS		12345	123456	7	1234567	1234567	1234567
BUSINESS AFFAIRES		✓	✓	✓	✓	✓ 1	✓ 1
Windsor, ON	DP		05:30		09:05	13:45	17:45
Chatham			06:18		09:51	14:30	18:32
Glencoe					10:23	15:03	19:04
London	AR		07:20		10:56	15:37	19:36
	DP	06:25	07:30	07:30	11:02	15:43	19:42
Ingersoll			07:52	07:52			20:02
Woodstock		06:56	08:07	08:07	11:31		20:14
Brantford		07:28	08:41	08:41	12:02	16:40	20:45
Aldershot			09:21	09:21	12:34	17:13	21:15
Oakville			09:38	09:38	12:48	17:27	21:29
Toronto, ON ✈	AR	08:35	10:04	10:04	13:11	17:52	21:51

1 Business class is not available on Saturdays. / La classe Affaires n'est pas offerte les samedis.

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

Checked baggage is available on this train at certain stations only. For more information, please call VIA Rail (1 888 842-7245) or visit our website (viarail.ca). / L'enregistrement des bagages est offert pour ce train à certaines gares seulement. Pour plus d'information, veuillez appeler VIA Rail (1 888 842-7245) ou visiter notre site Web (viarail.ca).

* Baggage car available on Tuesday and Friday. / Voiture à bagages disponible seulement mardi et vendredi.

Available on most trains.

Offert dans la plupart des trains.

TORONTO → LONDON → SARNIA

TRAIN		85	87
DAYS / JOURS		1234567	1234567
Toronto, ON ✈	DP	10:55	17:40
Malton	↓	11:16	18:01
Brampton	↓	11:29	18:14
Georgetown	↓	11:40	18:26
Guelph	↓	12:06	18:51
Kitchener	↓	12:32	19:18
Stratford	↓	13:09	19:55
St. Marys	↓	13:33	20:23
London	AR	14:17	21:09
	DP		21:14
Strathroy	↓		21:37
Wyoming	↓		22:05
Sarnia, ON	AR		22:20

SARNIA → LONDON → TORONTO

TRAIN		84	88
DAYS / JOURS		1234567	1234567
Sarnia, ON	DP	06:10	
Wyoming	↓	06:26	
Strathroy	↓	06:59	
London	AR	07:22	
	DP	07:32	19:51
St. Marys	↓	08:16	20:41
Stratford	↓	08:40	21:05
Kitchener	↓	09:18	21:42
Guelph	↓	09:44	22:12
Georgetown	↓	10:10	22:37
Brampton	↓	10:20	22:47
Malton	↓	10:32	
Toronto, ON ✈	AR	10:53	23:17

✈ Travel between Union Station and Pearson Airport on UP Express trains in 25 minutes, with departures every 15 minutes. / Voyagez entre la gare Union et l'aéroport Pearson à bord des trains UP Express. Trajet de 25 minutes et départs toutes les 15 minutes.

TORONTO ▶ NIAGARA FALLS ▶ NEW YORK

TRAIN		97-64
DAYS / JOURS		1234567
Toronto, ON ✈	DP	08:55
Oakville	VIA	09:19
Aldershot		09:32
Grimsby		10:09
St. Catharines		10:29
Niagara Falls, ON	AR	10:51
Niagara Falls, NY	DP	12:12
Buffalo (Exchange)	AMTRAK	12:50
Buffalo (Depew)		13:04
Rochester		13:58
Syracuse		15:14
Rome		15:57
Utica		16:15
Amsterdam		17:16
Schenectady		18:03
Albany–Rensselaer		19:15
Hudson		19:37
Rhinecliff		19:59
Poughkeepsie		20:15
Croton-Harmon		20:56
Yonkers		21:16
New York, NY	AR	21:55

NEW YORK ▶ NIAGARA FALLS ▶ TORONTO

TRAIN		63-98
DAYS / JOURS		1234567
New York, NY	DP	06:40
Yonkers	AMTRAK	07:05
Croton-Harmon		07:24
Poughkeepsie		08:11
Rhinecliff		08:26
Hudson		08:46
Albany–Rensselaer		09:31
Schenectady		09:54
Amsterdam		10:15
Utica		11:12
Rome		11:26
Syracuse		12:15
Rochester		13:29
Buffalo (Depew)		14:33
Buffalo (Exchange)		14:46
Niagara Falls, NY	AR	15:58
Niagara Falls, ON	DP	17:45
St. Catharines	VIA	18:08
Grimsby		18:27
Aldershot		19:04
Oakville		19:18
Toronto, ON ✈	AR	19:41

Amtrak schedules are subject to change. / Les horaires d'Amtrak sont susceptibles d'être modifiés.

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VIA Rail and its partners

VIA Rail et ses partenaires

Airline Partners **Compagnies aériennes**	Aeromexico, Air North, Cathay Pacific, Air Transat, Hainan Airlines, First Air, LOT, Qatar Airways, Royal Jordanian
Shuttle Service **Service de navette**	AirConnect VIA, **Billy Bishop Airport Shuttle**, **Taxi Québec**
Inter-city Bus **Autocars interurbains**	Maritime Bus, Robert, Red Arrow, RTC, Ontario Coachway Airport Service, Wilson's Transportation Ltd
Inter-city/Public Transit Rail **Transport ferroviaire interurbain / en commun**	Amtrak, Réseau de transport métropolitain, GO (A Division of METROLINX), UP Union Pearson Express
Car Sharing **Autopartage**	Communauto, Enterprise CarShare, Zipcar, Community CarShare, CarShare Atlantic, Discount

Atlantic Canada

Wi-Fi: Available in the service car. / Offert dans la voiture-services.

HALIFAX ⇄ MONTRÉAL

TRAIN		15 🧳		14 🧳	
DAYS / JOURS		12**3**4**5**6**7**		12**3**4**5**6**7**	
NAME / NOM		OCEAN / OCÉAN		OCEAN / OCÉAN	
Halifax, NS AT / HA	DP	13:00	DAY / JOUR 1 (12**3**4**5**6**7**)	AR 17:51	DAY / JOUR 2 (**1**23**4**5**6**7)
Truro		14:31	DAY / JOUR 1	16:22	DAY / JOUR 2
Springhill Jct. ★		15:43	DAY / JOUR 1	15:03	DAY / JOUR 2
Amherst, NS		16:08	DAY / JOUR 1	14:42	DAY / JOUR 2
Sackville, NB		16:25	DAY / JOUR 1	14:26	DAY / JOUR 2
Moncton	AR	17:17	DAY / JOUR 1	DP 13:38	DAY / JOUR 2
	DP	17:32	DAY / JOUR 1	AR 13:23	DAY / JOUR 2
Rogersville ★		18:43	DAY / JOUR 1	12:15	DAY / JOUR 2
Miramichi		19:37	DAY / JOUR 1	11:23	DAY / JOUR 2
Bathurst		21:28	DAY / JOUR 1	09:37	DAY / JOUR 2
Petit Rocher ★		21:49	DAY / JOUR 1	09:10	DAY / JOUR 2
Jacquet River ★		22:12	DAY / JOUR 1	08:47	DAY / JOUR 2
Charlo ★		22:36	DAY / JOUR 1	08:23	DAY / JOUR 2
Campbellton, NB AT / HA		23:18	DAY / JOUR 1	07:48	DAY / JOUR 2
Matapédia, QC ET / HE		22:52	DAY / JOUR 1	06:10	DAY / JOUR 2
Causapscal ★		23:40	DAY / JOUR 1	05:23	DAY / JOUR 2
Amqui		00:02	DAY / JOUR 1	05:03	DAY / JOUR 2
Sayabec ★		00:22	DAY / JOUR 2 (**1**23**4**5**6**7)	04:40	DAY / JOUR 2
Mont-Joli		01:26	DAY / JOUR 2	03:39	DAY / JOUR 2
Rimouski		02:01	DAY / JOUR 2	03:01	DAY / JOUR 2
Trois-Pistoles ★		03:04	DAY / JOUR 2	01:55	DAY / JOUR 2
Rivière-du-Loup		03:53	DAY / JOUR 2	01:13	DAY / JOUR 2
La Pocatière		04:36	DAY / JOUR 2	00:28	DAY / JOUR 1 (12**3**4**5**6**7**)
Montmagny ★		05:10	DAY / JOUR 2	23:55	DAY / JOUR 1
Sainte-Foy*	AR	06:13	DAY / JOUR 2	DP 22:49	DAY / JOUR 1
	DP	06:28	DAY / JOUR 2	AR 22:34	DAY / JOUR 1
Drummondville		08:36	DAY / JOUR 2	20:47	DAY / JOUR 1
Saint-Hyacinthe		09:15	DAY / JOUR 2	19:58	DAY / JOUR 1
Saint-Lambert		09:50	DAY / JOUR 2	19:25	DAY / JOUR 1
Montréal, QC ET / HE	AR	10:03	DAY / JOUR 2	DP 19:00	DAY / JOUR 1

★ Stops on request when traveller is seen by train staff. / Arrête sur demande lorsque le voyageur est aperçu par le personnel du train.

* A shuttle operates between Sainte-Foy and Québec City (Gare du Palais) in both directions. Reservations are required. / Une navette circule entre Sainte-Foy et Québec (Gare du Palais) dans les deux directions. Les réservations sont requises.

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MONTRÉAL → JONQUIÈRE

TRAIN			601
DAYS / JOURS			1 3 5
Montréal, QC ET / HE		DP	08:15
Sauvé		↓	08:50
Anjou			09:00
Joliette			09:38
Saint-Justin	★		10:05
Saint-Paulin	★		10:14
Charette	★		10:24
Shawinigan			10:43
Grand-Mère	★		10:51
Garneau	★		10:59
Saint-Tite	★	↓	11:11
Hervey		AR	11:30
		DP	11:40
Rousseau	42	↓	12:12
Rivière-à-Pierre			12:34
Miquick	42		13:06
Club Jacques-Cartier	★		13:17
Falrie	42		13:20
Pont Beaudet	42		13:21
Saint-Hilaire	★		13:22
Bima	42		13:25
Lac Malouin	42		13:27
Club Iroquois	★		13:30
Stadacona	★		13:33
Sanford	42		13:40
Lac-aux-Perles	★		13:47
Hirondelle	★		13:49
Club Nicol	★		13:55
Club Triton	42		14:00
Lac Édouard			14:08
Cherokee	42		14:15
Caribou	42		14:17
Club Grégoire	42		14:19
Club Sommet	★		14:27
Summit	42		14:29
Brooks	★		14:35
Kiskissink	★		14:46
Van Bruyssel	★		14:48
Lac des Roches	42		14:56
Kondiaronk	★		14:59
Club Lizotte	42		15:16
Lac Bouchette	★		15:34
Chambord			16:05
Hébertville (Alma)		↓	16:40
Jonquière, QC ET / HE		AR	17:10

★ Stops on request when traveller is seen by train staff. / Arrête sur demande lorsque le voyageur est aperçu par le personnel du train.

42 For a stop at this station, reservations are required at least 40 minutes before the train departs from the original station. / Pour un arrêt à cette gare, les réservations sont requises au moins 40 minutes avant le départ du train de sa gare d'origine.

JONQUIÈRE → MONTRÉAL

TRAIN			600	602
DAYS / JOURS			2 4	7
Jonquière, QC ET / HE		DP	08:10	11:10
Hébertville (Alma)		↓	08:39	11:39
Chambord			09:11	12:11
Lac Bouchette	★		09:41	12:41
Club Lizotte	42		10:03	13:03
Kondiaronk	★		10:15	13:15
Lac des Roches	42		10:17	13:17
Van Bruyssel	★		10:25	13:25
Kiskissink	★		10:27	13:27
Brooks	★		10:38	13:38
Summit	42		10:44	13:44
Club Sommet	★		10:46	13:46
Club Grégoire	42		10:51	13:51
Caribou	42		10:55	13:55
Cherokee	42		10:57	13:57
Lac Édouard			11:05	14:05
Club Triton	42		11:13	14:13
Club Nicol	★		11:17	14:17
Hirondelle	★		11:22	14:22
Lac-aux-Perles	★		11:24	14:24
Sanford	42		11:30	14:30
Stadacona	★		11:37	14:37
Club Iroquois	★		11:40	14:40
Lac Malouin	42		11:43	14:43
Bima	42		11:45	14:45
Saint-Hilaire	★		11:47	14:47
Pont Beaudet	42		11:48	14:48
Falrie	42		11:49	14:49
Club Jacques-Cartier	★		11:52	14:52
Miquick	42		12:09	15:09
Rivière-à-Pierre			12:40	15:40
Rousseau	42		13:00	16:00
Hervey			14:00	17:00
Saint-Tite	★		14:19	17:19
Garneau	★		14:31	17:31
Grand-Mère	★		14:39	17:39
Shawinigan			14:48	17:48
Charette	★		15:06	18:06
Saint-Paulin	★		15:13	18:13
Saint-Justin	★		15:25	18:25
Joliette			15:54	18:54
Anjou			16:30	19:30
Sauvé		↓	16:41	19:41
Montréal, QC ET / HE		AR	17:15	20:15

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MONTRÉAL → LA TUQUE → SENNETERRE

TRAIN		603
DAYS / JOURS		1 3 5
Montréal, QC ET / HE	DP	08:15
Sauvé		08:50
Anjou		09:00
Joliette		09:38
Saint-Justin ★		10:05
Saint-Paulin ★		10:14
Charette ★		10:24
Shawinigan		10:43
Grand-Mère ★		10:51
Garneau ★		10:59
Saint-Tite ★		11:11
Hervey	AR	11:30
	DP	12:00
La Tuque		13:18
Fitzpatrick		13:21
Cressman ★		13:43
Club Vermillon ★		13:52
Rapide Blanc ★		13:55
Lac Darey ★		14:08
Duplessis ★		14:18
McTavish ★		14:24
Windigo ★		14:31
Ferguson ★		14:39
Club Wigwam ★		14:43
Vandry ★		14:51
Dessane ★		14:56
Saint-Maurice Riv. Boom ★		15:01
Weymont, QC ET / HE	AR	15:04

TRAIN		603
DAYS / JOURS		1 3 5
Weymont, QC ET / HE	DP	15:04
Sanmaur ★		15:08
Cann ★		15:14
Club Bélanger ★		15:24
Hibbard ★		15:30
Casey ★		15:42
McCarthy ★		15:56
Club Sisco ★		15:58
Manjobagues ★		16:04
Parent		16:25
Timbrell ★		16:37
Club Rita ★		16:42
Strachan ★		16:45
Club Maniwawa ★		16:49
Greening ★		16:56
Oskelaneo Lodge ★		17:01
Rivière Oskélanéo ★		17:13
Clova		17:21
Coquar ★		17:29
Monet ★		17:40
Consolidated Bathurst ★		17:46
Club Kapitachuan ★		17:51
Bourmont ★		17:53
Club Beaudin ★		17:58
Langlade ★		18:02
Da-Rou-Lac Lodge ★		18:04
Gagnon ★		18:10
Dix ★		18:13
Bolger ★		18:21
Forsythe ★		18:31
Press ★		18:50
Signai ★		18:58
Mégiscane ★		19:15
Senneterre, QC ET / HE	AR	19:40

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SENNETERRE → LA TUQUE → MONTRÉAL

TRAIN			604	606
DAYS / JOURS			1**2**3**4**567	123456**7**
Senneterre, QC ET / HE		DP	05:45	08:45
Mégiscane	★		05:58	08:58
Signai	★		06:15	09:15
Press	★		06:23	09:23
Forsythe	★		06:41	09:41
Bolger	★		06:56	09:56
Dix	★		06:59	09:59
Gagnon	★		07:02	10:02
Da-Rou-Lac Lodge	★		07:07	10:07
Langlade	★		07:09	10:09
Club Beaudin	★		07:12	10:12
Bourmont	★		07:14	10:14
Club Kapitachuan	★		07:17	10:17
Consolidated Bathurst	★		07:22	10:22
Monet	★		07:31	10:31
Coquar	★		07:42	10:42
Clova			07:50	10:50
Rivière Oskélanéo	★		08:00	11:00
Oskelaneo Lodge	★		08:07	11:07
Greening	★		08:13	11:13
Club Maniwawa	★		08:27	11:27
Strachan	★		08:30	11:30
Club Rita	★		08:32	11:32
Timbrell	★		08:34	11:34
Parent			08:50	11:50
Manjobagues	★		09:03	12:03
Club Sisco	★		09:08	12:08
McCarthy	★		09:10	12:10
Casey	★		09:25	12:25
Hibbard	★		09:37	12:37
Club Bélanger	★		09:44	12:44
Cann	★		09:52	12:52
Sanmaur	★		09:58	12:58
Weymont, QC ET / HE		AR	10:01	13:01

TRAIN			604	606
DAYS / JOURS			1**2**3**4**567	123456**7**
Weymont, QC ET / HE		DP	10:01	13:01
Saint-Maurice Riv. Boom	★		10:04	13:04
Dessane	★		10:10	13:10
Vandry	★		10:15	13:15
Club Wigwam	★		10:23	13:23
Ferguson	★		10:27	13:27
Windigo	★		10:34	13:34
McTavish	★		10:41	13:41
Duplessis	★		10:48	13:48
Lac Darey	★		10:58	13:58
Rapide Blanc	★		11:10	14:10
Club Vermillon	★		11:13	14:13
Cressman	★		11:22	14:22
Fitzpatrick			11:43	14:43
La Tuque			11:53	14:53
Hervey		AR	13:25	16:25
		DP	14:00	17:00
Saint-Tite	★		14:19	17:19
Garneau	★		14:31	17:31
Grand-Mère	★		14:39	17:39
Shawinigan			14:48	17:48
Charette	★		15:06	18:06
Saint-Paulin	★		15:13	18:13
Saint-Justin	★		15:25	18:25
Joliette			15:54	18:54
Anjou			16:30	19:30
Sauvé			16:41	19:41
Montréal, QC ET / HE		AR	17:15	20:15

SENNETERRE MONTRÉAL

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SUDBURY → WHITE RIVER

TRAIN		185
DAYS / JOURS		2 4 6
Sudbury, ON* ET / HE	DP	09:00
Azilda ★		09:10
Chelmsford ★		09:15
Larchwood ★		09:19
Levack ★		09:30
Cartier		09:50
Benny ★		10:05
Stralak ★		10:12
Pogamasing ★		10:25
Sheahan ★		10:30
Forks** ★		10:40
Metagama ★		10:50
Sinker** ★		10:55
Biscotasing		11:20
Roberts ★		11:30
Ramsey		11:45
Woman River ★		12:05
Sultan ★		12:20
Kormak ★		12:35
Kinogama ★		12:40
Nemegos ★		12:55
Devon ★		13:05
Chapleau		13:35
Esher ★		13:50
Musk ★		14:00
Nicholson ★		14:10
Bolkow ★		14:30
Dalton		14:45
Missanabie		15:10
Lochalsh ★		15:30
Franz		15:50
Swanson** ★		16:00
Girdwood ★		16:25
Amyot** ★		16:35
O'Brien ★		16:50
White River, ON ET / HE	AR	17:05

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* Sudbury, ON, is 10 km from Sudbury Jct., ON. No shuttle service. / Sudbury, Ontario, est située à 10 km de Sudbury Jct., Ontario. Aucun service de navette.

** New stop available as of July 26, 2018. / Nouvel arrêt disponible dès le 26 juillet, 2018.

WHITE RIVER → SUDBURY

TRAIN		186
DAYS / JOURS		3 5 7
White River, ON ET / HE	DP	07:00
O'Brien ★		07:15
Amyot** ★		07:35
Girdwood ★		07:45
Swanson** ★		08:10
Franz		08:20
Lochalsh ★		08:40
Missanabie		09:00
Dalton		09:20
Bolkow ★		09:35
Nicholson ★		09:55
Musk ★		10:02
Esher ★		10:15
Chapleau		10:45
Devon ★		11:00
Nemegos ★		11:15
Kinogama ★		11:29
Kormak ★		11:31
Sultan ★		11:50
Woman River ★		12:05
Ramsey		12:20
Roberts ★		12:37
Biscotasing		12:45
Sinker** ★		13:10
Metagama ★		13:15
Forks** ★		13:31
Sheahan ★		13:41
Pogamasing ★		13:45
Stralak ★		14:03
Benny ★		14:10
Cartier		14:30
Levack ★		14:45
Larchwood ★		14:51
Chelmsford ★		15:00
Azilda ★		15:05
Sudbury, ON* ET / HE	AR	15:50

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TORONTO → WINNIPEG → JASPER → VANCOUVER

TRAIN		1 🧳
DAYS / JOURS	Oct. 8, 2018 to Apr. 27, 2019	1234567
	Apr. 29, 2018 to Oct. 7, 2018	1234567

Station			Time	Day
Toronto, ON ET / HE (Union Station / Gare Union)	(L)	DP	22:00	
Washago	42		00:40	DAY / JOUR 1 1234567
Parry Sound (CP Station / Gare CP)	42		02:42	
Sudbury Jct.*			05:13	
Capreol	(L)	AR	05:38	
		DP	06:08	
Laforest	42		07:08	
McKee's Camp	42		07:11	
Felix	42		07:30	
Ruel	42		07:48	
Westree	42		08:16	
Gogama	42		08:53	
Foleyet	42		10:59	
Elsas	42		11:53	
Oba	42		13:51	
Hornepayne		AR	14:40	
		DP	15:20	
Hillsport	42		16:28	
Caramat	42		17:18	
Longlac	42		17:49	
Nakina	42		18:29	
Auden	42		19:41	
Ferland	42		20:32	
Mud River	42		20:42	
Armstrong	42		21:31	
Collins ET / HE	42		22:10	
Allanwater Bridge CT / HC	42		21:48	
Flindt Landing	42		22:05	
Savant Lake	42		22:18	
Sioux Lookout		AR	23:39	
		DP	00:09	DAY / JOUR 2 1234567
Richan	42		01:28	
Red Lake Road	42		02:09	
Canyon	42		02:40	
Farlane	42		03:19	
Redditt	42		03:37	
Minaki	42		04:03	
Ottermere	42		04:27	
Malachi	42		04:32	
Copelands Landing	42		04:36	
Rice Lake, ON	42		04:46	
Winnitoba, MB	42		04:51	
Ophir	42		04:57	
Brereton Lake	42		05:18	
Elma	42		05:49	
Winnipeg, MB CT / HC	(L)	AR	08:00	
		DP	11:45	
Portage la Prairie	42		13:19	
Rivers, MB	42		15:16	
Melville, SK N1			17:39	
Watrous N1	42		20:29	
Saskatoon N1	(L)	AR	21:55	
		DP	22:20	
Biggar N1			23:59	
Unity, SK N1 CT / HC	42		01:14	DAY / JOUR 3 1234567
Wainwright, AB MT / HR	42		03:03	
Viking	42		04:06	
Edmonton	(L)	AR	06:22	
		DP	07:37	
Evansburg	42		08:55	
Edson	42		10:13	
Hinton	42		11:24	
Jasper, AB MT / HR	(L)	AR	13:00	
		DP	14:30	
Valemount, BC PT / HP	42		16:07	
Blue River	42		18:27	
Clearwater	42		20:44	
Kamloops North		AR	23:09	
		DP	23:44	
Ashcroft (CN Station / Gare CN)	42		01:27	DAY / JOUR 4 1234567
Boston Bar	42		04:14	
Hope	42		05:43	
Chilliwack	42		06:40	
Abbotsford	42		07:08	
Vancouver, BC PT / HP		AR	09:42	

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1 5 6 7 Train 1 does not operate on the days indicated by the boxed numbers from October 8 to April 27 only. / Le train 1 ne circule pas les jours indiqués par les chiffres encadrés, du 8 octobre au 27 avril seulement.

42 For a stop at this station, reservations are required at least 40 minutes before the train departure from the last station where a passenger list (L) is issued. / Pour un arrêt à cette gare, les réservations sont requises au moins 40 minutes avant le départ du train de la dernière gare où une liste de voyageurs (L) est émise.

* Sudbury Jct., ON, is 10 km from Sudbury, ON. No shuttle service. / Sudbury Jct., Ontario est située à 10 km de Sudbury, Ontario. Aucun service de navette.

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N1 Saskatchewan: Always standard time. / Saskatchewan : Toujours l'heure normale.

VANCOUVER → JASPER → WINNIPEG → TORONTO

TRAIN			2 ▣	
DAYS / JOURS Oct. 8, 2018 to Apr. 27, 2019			1234567	
DAYS / JOURS Apr. 29, 2018 to Oct. 7, 2018			1234567	
Vancouver, BC PT / HP (Pacific Central Station / Gare centrale du Pacifique)	(L)	DP	20:30	DAY / JOUR 1
Mission	42		22:05	
Agassiz	42		22:33	
Katz	42		22:47	
North Bend	42		01:16	DAY / JOUR 2
Ashcroft (CN Station / Gare CN)	42		04:02	
Kamloops North		AR	06:00	
		DP	06:35	
Clearwater	42		08:46	
Blue River	42		10:50	
Valemount, BC PT / HP	42		12:50	
Jasper, AB MT / HR	(L)	AR	16:00	
		DP	17:30	
Hinton	42		18:55	
Edson	42		20:20	
Evansburg	42		21:38	
Edmonton	(L)	AR	23:00	
		DP	23:59	
Viking	42		02:19	DAY / JOUR 3
Wainwright, AB MT / HR	42		03:24	
Unity, SK N1 CT / HC	42		05:16	
Biggar N1			06:31	
Saskatoon N1	(L)	AR	08:07	
		DP	08:32	
Watrous N1	42		10:01	
Melville, SK N1			12:52	
Rivers, MB	42		17:17	
Portage la Prairie	42		19:10	
Winnipeg, MB CT / HC	(L)	AR	20:45	
		DP	22:30	
Elma	42		23:35	
Brereton Lake	42		23:56	
Ophir	42		00:13	DAY / JOUR 4
Winnitoba, MB	42		00:17	
Rice Lake, ON	42		00:22	
Copelands Landing	42		00:31	
Malachi	42		00:35	
Ottermere	42		00:39	
Minaki	42		01:00	
Redditt	42		01:29	
Farlane	42		01:46	
Canyon	42		02:21	
Red Lake Road	42		02:51	
Richan	42		03:41	
Sioux Lookout		AR	05:02	
		DP	05:42	
Savant Lake	42		07:07	
Flindt Landing	42		07:27	
Allanwater Bridge CT / HC	42		07:42	
Collins ET / HE	42		09:27	
Armstrong	42		09:48	
Mud River	42		10:29	
Ferland	42		10:33	
Auden	42		11:13	
Nakina	42		12:28	
Longlac	42		13:03	
Caramat	42		13:33	
Hillsport	42		14:23	
Hornepayne		AR	15:35	
		DP	16:10	
Oba	42		17:10	
Elsas	42		19:10	
Foleyet	42		19:58	
Gogama	42		21:43	
Westree	42		22:02	
Ruel	42		22:38	
Felix	42		22:44	
McKee's Camp	42		23:12	
Laforest	42		23:23	
Capreol	(L)	AR	00:18	DAY / JOUR 5
		DP	00:48	
Sudbury Jct.*			01:17	
Parry Sound (CN Station / Gare CN)	42		04:33	
Washago	42		06:49	
Toronto, ON ET / HE (Union Station / Gare Union)		AR	09:30	

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1 2 3 4 7 Train 2 does not operate on the days indicated by the boxed numbers from October 8, to April 27, only. / Le train 2 ne circule pas les jours indiqués par les chiffres encadrés, du 8 octobre, au 27 avril seulement.

42 For a stop at this station, reservations are required at least 40 minutes before the train departure from the last station where a passenger list (L) is issued. / Pour un arrêt à cette gare, les réservations sont requises au moins 40 minutes avant le départ du train de la dernière gare où une liste de voyageurs (L) est émise.

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JASPER ▶ PRINCE GEORGE ▶ PRINCE RUPERT

TRAIN			5
DAYS / JOURS			3 5 7
Jasper, AB MT / HR		DP	12:45
Harvey, BC PT / HP	★		13:38
Dunster	★		14:12
McBride			14:44
Goat River	★		15:41
Loos	★		15:58
Dome Creek	★		16:32
Bend	★		16:36
Penny	★		16:56
Longworth	★		17:11
Hutton	★		17:24
Sinclair Mills	★		17:30
McGregor	★		17:43
Upper Fraser	★		17:52
Aleza Lake	★		18:01
Willow River	★		18:31
Prince George (Via Station / Gare VIA)		AR	19:08

DAYS / JOURS			1 4 6
Prince George (Via Station / Gare VIA)		DP	08:00
Vanderhoof			09:55
Fort Fraser	★		10:32
Endako			10:50
Burns Lake			11:58
Houston			13:08
Telkwa	★		13:52
Smithers			14:20
New Hazelton	★		15:37
Kitwanga	★		16:27
Cedarvale	★		16:51
Dorreen	★		17:12
Pacific	★		17:21
Usk	★		17:40
Terrace (Kitimat)			18:05
Kwinitsa	★		19:09
Cassiar Cannery			19:45
Prince Rupert, BC PT / HP		AR	20:25

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PRINCE RUPERT ▶ PRINCE GEORGE ▶ JASPER

TRAIN			6
DAYS / JOURS			3 5 7
Prince Rupert, BC PT / HP		DP	08:00
Cassiar Cannery			08:20
Kwinitsa	★		09:17
Terrace (Kitimat)			10:25
Usk	★		10:48
Pacific	★		11:07
Dorreen	★		11:19
Cedarvale	★		11:44
Kitwanga	★		12:08
New Hazelton	★		12:30
Smithers			14:24
Telkwa	★		14:37
Houston			15:22
Burns Lake			16:32
Endako			17:25
Fort Fraser	★		17:57
Vanderhoof			18:35
Prince George (Via Station / Gare VIA)		AR	20:29

DAYS / JOURS			1 4 6
Prince George (Via Station / Gare VIA)		DP	09:45
Willow River	★		10:18
Aleza Lake	★		10:47
Upper Fraser	★		10:55
McGregor	★		11:03
Sinclair Mills	★		11:14
Hutton	★		11:18
Longworth	★		11:29
Penny	★		11:43
Bend	★		12:02
Dome Creek	★		12:03
Loos	★		12:37
Goat River	★		12:52
McBride			13:48
Dunster	★		14:05
Harvey, BC PT / HP	★		14:54
Jasper, AB MT / HR		AR	18:30

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WINNIPEG → THE PAS → CHURCHILL

TRAIN			693 ▣	691 ▣
DAYS / JOURS			1234567 (3)	1234567 (7)
Winnipeg, MB CT / HC		DP	12:05	
Portage la Prairie	★		13:15	
Gladstone	47		14:07	
Plumas	47		14:44	
Glenella	47		15:16	
McCreary	47		15:57	
Laurier	47		16:15	
Ochre River	47		16:36	
Dauphin	★		17:06	
Gilbert Plains	★		17:44	
Grandview	★		18:00	
Roblin, MB	★		18:55	
Togo, SK N1	★		18:22	
Kamsack N1	★		18:59	
Veregin N1	48		19:12	
Mikado N1	48		19:22	
Canora N1			19:46	
Sturgis N1	★		20:21	
Endeavour N1	★		20:54	
Reserve N1	★		21:34	
Hudson Bay, SK N1	★		22:32	
			DAY / JOUR 1 – 1234567 (3)	
The Pas, MB		AR	01:45	
		DP	02:30	02:30
Tremaudan			★	★
Orok			03:07	03:07
Atikameg Lake			★	★
Finger			★	★
Budd			★	★
Halcrow			04:01	04:01
Cormorant			04:12	04:12
Dering			04:20	04:20
Rawebb			★	★
Dyce			04:59	04:59
Paterson			★	★
Wekusko			05:43	05:43
Turnbull			06:10	06:10
Ponton			06:42	06:42
Button			★	★
Dunlop			★	★
Pipun			07:25	07:25
Wabowden			07:48	07:48
Lyddal			08:16	08:16
Odhill			08:38	08:38
Earchman			★	★
La Pérouse			★	★
Hockin			09:22	09:22
Thicket Portage			09:37	09:37
Leven			09:54	09:54
			DAY / JOUR 2 – 1234567 (4)	DAY / JOUR 1 – 1234567 (7)

Please refer to our website for the latest version of the schedule. Please note that the train service between Gillam and Churchill has been suspended due to the closure of the railway infrastructure. / **Veuillez vous référer à notre site Web pour connaître la dernière version de l'horaire en vigueur.** Les services de train entre Gillam et Churchill sont présentement suspendus en raison de la fermeture de la voie ferrée.

TRAIN		693 ▣	695 ▣	691 ▣
DAYS / JOURS		1234567 (4)	1234567 (5)	1234567 (7)
Thompson, MB CT / HC	AR	12:00		12:00
	DP	17:00	17:00	17:00
Sipiwesk		18:35	18:35	18:35
Pikwitonei		19:02	19:02	19:02
Bridgar		19:13	19:13	19:13
Wilde		★	★	★
Arnot		★	★	★
Mile 238.3		★	★	★
Boyd		★	★	★
Pit Siding		20:35	20:35	20:35
Munk		★	★	★
Mile 278.6		★	★	★
Ilford		21:36	21:36	21:36
Nonsuch		★	★	★
Wivenhoe		22:13	22:13	22:13
Luke		★	★	★
Gillam (Nelson River)	AR	23:00	23:00	23:00
	DP			
Kettle Rapids				
Bird				
Amery				
Charlebois				
Weir River				
Lawledge				
Thibaudeau				
Silcox				
Herchmer				
Kellet				
O'Day				
Back				
M'Clintock				
Belcher				
Cromarty				
Chesnaye				
Lamprey				
Bylot				
Digges				
Tidal				
Churchill, MB CT / HC	AR			
		DAY / JOUR 2 – 1234567 (4)	DAY / JOUR 1 – 1234567 (5)	DAY / JOUR 1 – 1234567 (7)

TEMPORARILY OUT OF SERVICE BETWEEN GILLAM AND CHURCHILL
TEMPORAIREMENT HORS SERVICE ENTRE GILLAM ET CHURCHILL

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N1 Saskatchewan: Always standard time. / Saskatchewan : Toujours l'heure normale.

47 Alighting stop and, on advance notice, boarding stop. / Arrête pour laisser descendre et, sur préavis, pour laisser monter les voyageurs.

48 Boarding stops for travellers going beyond Hudson Bay. / Arrête pour laisser monter les voyageurs allant au-delà de Hudson Bay.

CHURCHILL → THE PAS → WINNIPEG

TRAIN		692	694	690
DAYS / JOURS		1	5	6
Churchill, MB CT / HC	DP			
Tidal				
Digges				
Bylot				
Lamprey				
Chesnaye				
Cromarty				
Belcher				
M'Clintock				
Back				
O'Day				
Kellett				
Herchmer				
Silcox				
Thibaudeau				
Lawledge				
Weir River				
Charlebois				
Amery				
Bird				
Kettle Rapids				
Gillam (Nelson River)	AR			
	DP	05:30	05:30	05:30
Luke		★	★	★
Wivenhoe		06:16	06:16	06:16
Nonsuch		★	★	★
Ilford		06:53	06:53	06:53
Mile 278.6		★	★	★
Munk		★	★	★
Pit Siding		07:54	07:54	07:54
Boyd		★	★	★
Mile 238.3		★	★	★
Arnot		★	★	★
Wilde		★	★	★
Bridgar		09:16	09:16	09:16
Pikwitonei		09:27	09:27	09:27
Sipiwesk		09:54	09:54	09:54
Thompson, MB CT / HC	AR	11:30	11:30	11:30
	DP	14:00		14:00
Leven		16:05		16:05
Thicket Portage		16:22		16:22
Hockin		16:37		16:37
La Pérouse		★		★
Earchman		★		★
Odhill		17:21		17:21
Lyddal		17:43		17:43
Wabowden		18:11		18:11
Pipun		18:34		18:34

DAY / JOUR 1 – 1234567 · DAY / JOUR 1 – 1234567 · DAY / JOUR 1 – 1234567

TEMPORARILY OUT OF SERVICE BETWEEN CHURCHILL AND GILLAM

TEMPORAIREMENT HORS SERVICE ENTRE CHURCHILL ET GILLAM

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TRAIN			692	690
DAYS / JOURS			1	6
Dunlop			★	★
Button			★	★
Ponton			19:17	19:17
Turnbull			19:49	19:49
Wekusko			20:16	20:16
Paterson			★	★
Dyce			21:00	21:00
Rawebb			★	★
Dering			21:39	21:39
Cormorant			21:47	21:47
Halcrow			21:58	21:58
Budd			★	★
Finger			★	★
Atikameg Lake			★	★
Orok			22:52	22:52
Tremaudan			★	★
The Pas, MB		AR	23:30	23:30
		DP	00:15	
Hudson Bay, SK N1	★		01:27	
Reserve N1	★		02:09	
Endeavour N1	★		02:55	
Sturgis N1	★		03:24	
Canora N1			04:18	
Mikado N1	48		04:30	
Veregin N1	48		04:43	
Kamsack N1	★		04:58	
Togo, SK N1	★		05:37	
Roblin, MB	★		07:14	
Grandview	★		08:12	
Gilbert Plains	★		08:32	
Dauphin	★		09:06	
Ochre River	47		09:20	
Laurier	47		09:38	
McCreary	47		09:54	
Glenella	47		10:34	
Plumas	47		11:06	
Gladstone	47		11:51	
Portage la Prairie	★		12:37	
Winnipeg, MB CT / HC		AR	13:45	

DAY / JOUR 1 – 1234567 · DAY / JOUR 1 – 1234567 · DAY / JOUR 2 – 1234567

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47 Alighting stop and, on advance notice, boarding stop. / Arrête pour laisser descendre et, sur préavis, pour laisser monter les voyageurs.

48 Alighting stop for travellers from beyond Hudson Bay. / Arrête pour laisser descendre les voyageurs provenant d'au-delà de Hudson Bay.

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APPENDIX G

Phasing Analysis Memo (2031)

MEMORANDUM

DATE	August 25, 2021
TO	**City of Mississauga, Transportation and Works Department** **ATTN: Lin Rogers**
SUBJECT	Lakeview Village Transportation Infrastructure Phasing Analysis Appendix G of Lakeview Village TCR Addendum #2 (August 2021)
FROM	TMIG
PROJECT NUMBER	17201

The Municipal Infrastructure Group, a T.Y. Lin International Company (TMIG), is pleased to provide the enclosed Phasing Analysis for the Lakeview Village development on Mississauga's waterfront. This analysis builds on previous submissions to the City, including our Traffic Considerations Report (TCR) of June 2020 and our more recent Response to Comments Addendum (TCR RTC Addendum) of April 2021 addressing comments provided by City Staff and Peer Reviewer on TMIG's June 2020 TCR submission.

As part of the City's review of TMIG's April 2021 TCR Addendum, staff have provided additional comments (see **Appendix G-1**) and requested completion of the enclosed Phasing Analysis. The phasing analysis has determined the level of Lakeview Village development (both residential and non-residential uses) that could take place prior to major transportation infrastructure improvements such as the extensions of Ogden Avenue and Haig Boulevard. This analysis focuses on the 2031 planning horizon.

Analysis Scenarios and Methodology

TMIG assessed a total of three different development scenarios, the first of which was further broken down into two sets of infrastructure scenarios for a total of four analysis scenarios. The details of Scenarios 1A and 1B are summarized in **Table 1**. The details of Scenarios 2 and 3 are summarized in **Table 2** and **Table 3**, respectively.

Scenarios 1A and 1B took a "residential first" approach, focusing on the impacts of site traffic generated by all the residential blocks currently envisioned for Lakeview Village. The non-residential uses east of Street 'I' (the Innovation Corridor employment area) were excluded from analysis efforts for Scenarios 1A and 1B.

Scenarios 2 and 3 included all uses from prior scenarios, plus site traffic generated by a substantial amount of the Office and Research & Development land uses planned in the Innovation Corridor along Street 'I' (including private and City owned lands).

In all scenarios examined, forecasted background growth along the Lakeshore corridor and at its key external intersections at Dixie Road and Cawthra Road was assumed as per TMIG's most recent TCR RTC Addendum (1.5% annual growth rate applied to westbound traffic during the a.m. peak hour and 0.5% annual growth rate applied to eastbound traffic during p.m. peak hour).

Furthermore, although Bus Rapid Transit (BRT) along Lakeshore is now committed by the City to be implemented by the 2031 horizon, for the Business as Usual (BAU) scenarios (Scenarios 1A, 1B, and 2), existing mode splits derived for the TCR Addendum (representing the average of data from the Port Credit and Lakeview 2016 TTS zones) were applied. Scenario 3 contemplates the effects of the BRT on increasing the transit mode split as per the *Region's Long Range Transportation Plan* (2019).

The amount of site traffic generated by residential units and non-residential GFA was reviewed for each scenario to determine the level of development that can be supported and what improvements to external infrastructure might be required to accommodate same. For the purposes of the phasing analysis, the southern extensions of Ogden Avenue (Street 'F') and Haig Boulevard (Street 'I') into Lakeview Village were not included to examine a worst-case scenario in terms of direct Lakeview access to Lakeshore Road East (i.e., only Hydro Road, Lakefront Promenade, and East Avenue, assumed available for Lakeview Village traffic).

Development statistics, infrastructure details, and analysis details (such as trip generation and Synchro settings) that inform each analysis scenario are summarized in **Table 1**, **Table 2**, and **Table 3**.

Of note, the at-grade retail GFA listed for each scenario represent that amount of GFA that is predicted to attract trips external to Lakeview Village. For all scenarios, it was assumed that retail trips generated by retail uses at Lakeshore Road/Hydro Road and within the Lakefront Square will have the potential to generate external trips, whereas the remaining residential blocks with at-grade retail were assumed to serve only Lakeview Village residents/not generate external trips. This is a departure from previous TCR analysis assumptions, however, this update in methodology provides a more accurate reflection of the role of at-grade retail and neighbourhood activation within an urban setting.

To further clarify the level of development used in each analysis scenario, figures have been provided in **Appendix G-2** that identify which blocks are included in each scenario, what type of land use is in each block, and a tabular summary of the total GFA of each land use that was accounted for in the trip generation of each scenario. A single figure was created for Scenario 1A and 1B, as both analysis scenarios assume the same level of development (see **Table 1**).

Trip generation for each analysis scenario, unless otherwise stated, was completed as per the trip generation methodology outlined in TMIG's recent *Supplemental Traffic Analysis Report* (April 2021) submitted with the April 2021 TCR Addendum. For ease of reference, the trip generation methodology section of the Supplemental Report has been provided in **Appendix G-3**.

Table 1 – 2031 Analysis Scenario 1A and 1B Details

Analysis Scenario Number	Development Statistics	Infrastructure Details	Analysis Details
1A	• 8,050 residential units (374 townhouse, 5,287 mid-rise, and 2,389 high-rise) • Elementary School (850 Students) • Day Care Center (39 Students) • At-grade Retail associated with residential buildings (133,160 ft^2 GFA)	• Assumed existing transportation infrastructure along Lakeshore Road with the exception of the signalization of Hydro Road and Lakeshore Road East, necessary for the base case	• Trip Generation, Mode Split, Trip Distribution, and Trip Assignment as per TCR Addendum • Default Saturation Flow of 1,900vph used in Synchro • Default Lost Time Adjustment (LTA) of 0 seconds applied to all movements with the exception of -1 seconds applied to protected left-turn phases • Signal Timings Optimized
1B	• 8,050 residential units (374 townhouse, 5,287 mid-rise, and 2,389 high-rise) • Elementary School (850 Students) • Day Care Center (39 Students) • At-grade Retail associated with residential buildings (133,160 ft2 GFA)	• Assumed existing transportation infrastructure along Lakeshore Road with the exception of the signalization of Hydro Road and Lakeshore Road East, necessary for the base case • Addition of dedicated westbound right-turn lanes at Cawthra Road and Dixie Road on Lakeshore Road East	• Trip Generation, Mode Split, Trip Distribution, and Trip Assignment as per TCR Addendum • Default Saturation Flow of 1,900vph used in Synchro • Default Lost Time Adjustment (LTA) of 0 seconds applied to all movements with the exception of -1 seconds applied to protected left-turn phases • Signal Timings Optimized

Scenario 1A

Based on the estimated volume of site trips generated using the development statistics outlined in **Table 1**, the 2031 BAU study area road network is expected to operate with key individual movements at, or beyond, design capacity. A trip generation summary table for Analysis Scenario 1A and 1B (both use same development statistics) is provided in **Appendix G-4**. Synchro HCM 2000 capacity results for Analysis Scenario 1A are provided in **Appendix G-5**.

At the intersection of Cawthra Road and Lakeshore Road East, the eastbound left movement is approaching capacity during the weekday a.m. peak hour with a volume to capacity (v/c) ratio of 0.99, while the shared westbound through/right movement is expected to exceed capacity with a v/c ratio of 1.06. During the weekday p.m. peak hour, the eastbound left and shared westbound through/right movements are expected to operate with v/c ratios of 0.99 and 1.15, respectively.

The Lakeshore Road intersections that serve as access points to the Lakeview Village development, East Avenue, Lakefront Promenade, and Hydro Road, all operate with individual movement v/c ratios of 0.99 or less during both peak hours.

The Dixie Road and Lakeshore Road intersection operates with some reserve capacity during the weekday a.m. peak hour, with individual movements expected to operate with v/c ratios of 0.92 or less. However, during the p.m. peak hour both the shared westbound through/right and southbound right movements are expected to operate just over capacity, both with a v/c ratio of 1.01.

This is not an unexpected result given the magnitude of development examined, but as described in the following sections, implementation of key infrastructure upgrades at strategic locations along the corridor can alleviate these issues to permit a substantial amount of development to proceed without major infrastructure investments.

Scenario 1B

Scenario 1B investigated what road infrastructure improvements external to the development are recommended to address the exceedances at specific movements, as noted in Scenario 1A. The same 'residential-first' development statistics were assumed, and a progressive approach to resolving the external capacity issues noted above was undertaken, resulting in the following findings. However, to better facilitate high westbound through and right-turning volumes, a dedicated westbound right turn lane on Lakeshore Road East was tested at both Cawthra Road and Dixie Road.

With the addition of the dedicated westbound right-turn lanes and signal re-optimization, the v/c ratio of individual movements at Cawthra Road and Lakeshore Road East improve significantly compared to Scenario 1A and do not exceed 0.80 and 0.89 during the a.m. and p.m. peak hours, respectively. At Dixie Road and Lakeshore Road East, the v/c ratio of individual movements do not exceed 0.86 and 0.96 during the a.m. and p.m. peak hours, respectively, also marking an improvement compared to Scenario 1A results.

In summary, westbound right turn lanes are recommended to better accommodate the full residential buildout of the Lakeview Village development (including the school block and selected retail). These improvements would result in additional 'headroom' in terms of reserve capacity in the external network, in turn allowing for some non-residential development to proceed. This is further investigated and documented in Scenarios 2 and 3.

A trip generation summary table for Analysis Scenario 1B is provided in **Appendix G-4**. Synchro HCM 2000 capacity results are provided in **Appendix G-6**.

Table 2 – Analysis Scenario 2 Details

Analysis Scenario Number	Development Statistics	Infrastructure Details	Analysis Details
2	• 8,050 residential units (374 townhouse, 5,287 mid-rise, and 2,389 high-rise) • Elementary School (850 Students) • Day Care Center (39 Students) • At-grade Retail associated with residential buildings (133,160 ft^2 GFA) • Office (500,000 ft^2 GFA) • Research & Development (500,000 ft^2 GFA)	• Assumed existing transportation infrastructure along Lakeshore Road with the exception of the signalization of Hydro Road and Lakeshore Road East, necessary for the base case • Maintained addition of dedicated westbound right-turn lanes at Cawthra Road and Dixie Road on Lakeshore Road East applied to Analysis Scenario 1B • Addition of dedicated eastbound right-turn lane at Hydro Road and Lakeshore Road	• Trip Generation, Mode Split, Trip Distribution, and Trip Assignment as per TCR Addendum • Default Saturation Flow of 1,900vph used in Synchro • Default Lost Time Adjustment (LTA) of 0 seconds applied to all movements with the exception of -1 seconds applied to protected left-turn phases • Signal Timings Optimized

Scenario 2

The development statistics provided in **Table 2** inform the site trip generation estimations and capacity analysis of Scenario 2, which strives to determine how much non-residential development might be possible (and what might be needed to support it) over and above the residential buildout examined in the prior scenarios, with a focus on employment uses (i.e., a mix of Office and Research / Development space). A trip generation summary table for Analysis Scenario 2 is provided in **Appendix G-7**. Synchro HCM 2000 capacity results are provided in **Appendix G-8**.

As summarized in **Table 2**, in addition to the development levels assumed for Scenarios 1A and 1B, approximately 500,000 ft^2 GFA of Office space and 500,000 ft^2 GFA of Research and Development space was added for trip generation purposes. The external infrastructure improvements outlined in Scenario 1B were also applied to Scenario 2, plus a dedicated eastbound right-turn lane at Hydro Road was introduced as a 'minor' improvement to the local network.

Please note that using capacity restraint, TMIG progressively increased the amount of Office and R&D site trips to determine how much of this GFA could be constructed without other major transportation infrastructure improvements being triggered (also note that a 'minor' eastbound right turn lane at Hydro Road was presumed installed for Scenario 2. This is the only change from the infrastructure assumed in Scenario 1B.).

The road network improvements described in Scenario 1B (plus the minor local eastbound right-turn lane improvement to Hydro Road) allows for all of the Scenario 1A/1B development to proceed plus site traffic generated by 500,000 ft^2 GFA of Office and 500,000 ft^2 GFA Research & Development space. These land uses can all be accommodated by the Scenario 2 study area network without exceeding the capacity of individual movements at signalized intersections.

Table 3 – Analysis Scenario 3 Details

Analysis Scenario Number	Development Statistics	Infrastructure Details	Analysis Details
3	• 8,050 residential units (374 townhouse, 5,287 mid-rise, and 2,389 high-rise) • Elementary School (850 Students) • Day Care Center (39 Students) • At-grade Retail associated with residential buildings (133,160 ft^2 GFA) • Office (745,315 ft^2 GFA) • Research & Development (745,315 ft^2 GFA)	• Bus Rapid Transit • Assumes the median-running bus rapid transit (BRT) lanes and multi-modal infrastructure improvements on Lakeshore Road have been implemented, as per the City's *Lakeshore Road Transportation Master Plan* • Maintained addition of dedicated westbound right-turn lanes at Cawthra Road and Dixie Road on Lakeshore Road East applied to Analysis Scenario 1B • Addition of dedicated eastbound right-turn lanes at Hydro Road and Lakefront Promenade on Lakeshore Road East • Southern extensions planned for Ogden Avenue and Haig Boulevard were assumed to <u>NOT</u> be constructed for the purposes of the phasing analysis.	• Trip Generation, Trip Distribution, and Trip Assignment as per TCR Addendum • Mode split percentages used in trip generation were modified to match 2031 modal slit targets for Rapid Transit Corridor "Super-zones", as per Table 8 of the Region of Peel's *50% Sustainable Mode Share Target Background Paper* which was included in the Region's *Long Range Transportation Plan* (2019) • Default Saturation Flow of 1,900vph used in Synchro • Default Lost Time Adjustment (LTA) of 0 seconds applied to all movements with the exception of -1 seconds applied to protected left-turn phases • Lakeshore Road signal timings modified and optimized to reflect BRT median lane operations, such as protected-only westbound and eastbound left-turn phases

<u>**Scenario 3**</u>

As per **Table 3**, Analysis Scenario 3 maintained the same development statistics used for Scenario 1A & 1B with the addition of non-residential uses for trip generation purposes. Scenario 3 focused on the impact of the implementation of the median-running Bus Rapid Transit (BRT) lanes on Lakeshore Road East, as detailed in the City's *Lakeshore Road Transportation Master Plan*. One of the predicated impacts of the implementation of the BRT is a reduction in the auto-driver mode split within the Lakeview area compared to that of the 2031 "BAU" scenarios (Scenarios 1A, 1B, and 2). Please note that this 2031 BRT modification to the mode split was not implemented in the TCR Addendum as a conservative measure, but we believe it is appropriate to include it now in the phasing analysis, which is meant to be a more detailed analysis of the road network capacity and to better align with the City's proposed delivery timing of the BRT (i.e., Phase 2 implemented by 2031).

Based on information presented in the Region of Peel's *50% Sustainable Mode Share Target Background Paper* which was produced to inform the Region of Peel's 2019 *Long Range Transportation Plan*, Lakeview Village and the surrounding area fall within a "Rapid Transit Corridor Super-Zone". Table 8 of the Sustainable Mode Paper, provided as **Figure 1** for reference, provides a summary of the modal split targets for 2021, 2031, and 2041. The 2031 modal splits in Table 8 were applied to both the weekday a.m. and p.m. peak hours in Analysis Scenario 3, reducing the auto driver share to 55.5% for analysis purposes.

Figure 1 – Table 8 from Region of Peel's 50% Sustainable Mode Share Target Background Paper

TABLE 8: Summary Table of Modal Split Targets for each Super-Zone Category (2011 – 2041)

Rapid Transit Corridor				
	2011	**2021**	**2031**	**2041**
Driving	62.3%	59.7%	55.5%	51.0%
Carpool	14.7%	16.2%	17.5%	19.2%
Transit	13.1%	14.5%	16.3%	18.5%
Walk/Cycle	6.9%	7.4%	8.5%	9.5%
Others	3.0%	2.2%	2.2%	1.8%

Scenario 3 maintained the majority of the infrastructure improvements recommended in Scenario 2, but also incorporated the addition of an eastbound right-turn lane at Lakefront Promenade to aid in improving the overall operations of the intersection. Of note, there is an existing dedicated eastbound right-turn lane at Lakefront Promenade and Lakeshore Road today, that has been maintained in the traffic analysis modelling for Scenarios 1A, 1B, and 2. For Scenario 3, we have maximized the available storage to better accommodate the expected flows.

The BRT road network analyzed in Scenario 3 can accommodate the site trips generated by the 8,050 residential units, school block, and select at-grade retail analyzed in Scenarios 1A and 1B plus additional site traffic generated by approximately 745,315 ft^2 GFA Office and 745,315 ft^2 GFA Research & Development land uses. No individual movement at a signalized intersection exceeds a v/c ratio of 1.0 during either the weekday a.m. or p.m. peak hour.

A trip generation summary table for Analysis Scenario 3 is provided in **Appendix G-9**. Synchro HCM 2000 capacity results are provided in **Appendix G-10**.

Although the 745,315 ft^2 GFA of Office and 745,315 ft^2 GFA of Research & Development space represents a significant amount of non-residential traffic that can be accommodated in Scenario 3 compared to Scenario 1A/1B, this does not represent the full build-out of the Lakeview Village development. The following land use statistics summarize the outstanding development components and associated traffic that were not assigned to the Scenario 3 road network / BRT, and that would require the Ogden and Haig extensions to be in place (of course, should there be a desire to proceed with any of these components earlier, then a commensurate amount of other non-residential space would need to be deferred):

- Remainder of at-grade retail associated with hotel block (30,764 ft^2 GFA)
- Hotel (191 rooms assumed for TCR analysis)
- Community Center (435,856 ft^2 GFA) – at this time the programming for these lands has not been confirmed, however, it is anticipated the site-related peak period of the future 'park' land uses will occur primarily during the weekend with nominal impact to the a.m. and p.m. peak hour adjacent street peak.

It should be noted that movements at signalized intersections will generally experience higher delays under BRT conditions compared to BAU conditions due to required changes to the signal timing plans along Lakeshore Road East to accommodate the median-running BRT lanes. The median-running BRT lanes also requires the accommodation of U-turning traffic within the left-turn lanes (restricted to protected-only phasing).

Summary of Recommendations:

Based on the results of the 2031 phasing analysis, the following modifications and improvements are recommended to accommodate the development of Lakeview Village and its associated traffic ***prior*** to full build-out. The following phasing analysis recommendations correspond to Analysis Scenario 3, which assumes implementation of the Lakeshore Road median-running BRT lanes and associated infrastructure. As stated previously, please note that it was assumed the southern legs of Ogden Avenue and Haig Boulevard would ***not*** be constructed in 2031 as a conservative measure.

- Construction of westbound right-turn lane at Cawthra Road and Lakeshore Road East
- Construction of westbound right-turn lane at Dixie Road and Lakeshore Road East
- Construction of eastbound right-turn lane at Lakefront Promenade and Lakeshore Road East
- Northbound lanes reconfigured at Lakefront Promenade and Lakeshore Road East to include a dedicated left-turn lane and a shared through/right lane
- Construction of eastbound right-turn lane at Hydro Road and Lakeshore Road East
- Northbound lanes reconfigured at Hydro Road and Lakeshore Road East to include a dedicated left-turn lane and a shared left/through/right lane
- Signalization of Hydro Road and Lakeshore Road East intersection, as per Lakeshore Connecting Communities BRT roll plan drawings
- Lakeshore Road East Signal timing plans assumed 130 second cycle lengths during the weekday a.m. peak hour and 140 second cycle lengths during the p.m. peak hour (it should be noted that BAU Analysis Scenarios 1A, 1B, and 2 assumed 120 second cycle lengths for both peak hours)

Conceptual designs for the recommended westbound right-turn lanes on Lakeshore Road East at Cawthra Road and Dixie Road (Scenarios 1B, 2, and 3) are provided in **Appendix G-11**. Conceptual designs for the recommended interim modifications (Scenario2) to the existing Lakefront Promenade and Hydro Road intersections at Lakeshore Road East have also been prepared and are located in **Appendix G-11**.

Conclusion

As shown through Analysis Scenario 1A, minor improvements to the existing study area road infrastructure will be required to accommodate more than just residential site traffic without individual movements predicted to operate over-capacity.

Analysis Scenarios 1B, 2, and 3, with their respective infrastructure improvements, can all accommodate site traffic from 8,050 residential units, the school block, and select at-grade retail (approximately 133,160 ft^2 GFA). Scenario 2 can accommodate Scenario 1B traffic with additional site traffic generated by 500,000 ft^2 GFA of Office and 500,000 ft^2 GFA Research and Development land uses, while Scenario 3 (Scenario 2 with BRT) can accommodate Scenario 1B traffic with additional traffic generated by all 745,315 ft^2 GFA of Office and 745,315 ft^2 GFA Research and Development.

Assuming implementation of the intersection improvements outlined in the foregoing and the planned roll-out of the BRT by the 2031 horizon, development of all 8,050 residential units, plus all the Innovation Corridor, plus a substantial amount of other non-residential uses can be accommodated by the study area road network prior to the southerly extensions of Ogden Avenue and Haig Boulevard into Lakeview Village.

APPENDIX G-1

Communication with City Staff

Kyla Zijlstra

From:	Ryan Au <Ryan.Au@mississauga.ca>
Sent:	July 30, 2021 2:40 PM
To:	Michael Dowdall; Jim Bacchus; Kyla Zijlstra
Cc:	Glen Broll (glenb@gsai.ca); David Breveglieri; Lin Rogers; Marzo, Christina
Subject:	FW: Lakeview Village Information Request
Attachments:	17201_Phasing_Sensitivity_Memo_20210719_1-1.pdf

Hi Mike,

At a high level, as you prepare the Phasing Analysis Report please ensure to also include the following:

(1) Provide a Figure to help illustrate the different development phases that is in line with this study. The Figure should include the proposed land use, site statistics, proposed phase and Lot/Block numbers.
(2) Include assumed build-out year for each phase in the Phasing Scenario summary tables.
(3) Include a Full-Build Out scenario, that includes all land uses within the Lakeview Village development as it was noted some land uses were not included.
(4) The memo identifies departures in assumptions and analysis from previously submitted traffic studies. As all of these traffic studies are related, the assumptions and analysis should be consistent in a revised comprehensive report.
(5) It is also noted that the TCR assumed an internal capture rate for the whole development (full build out) but should be revaluated based on the phasing approach. For example, the current Phase 1 considers a “residential first” approach which would mean there would be no employment, office, retail uses etc. available and all trips would essentially be external until those uses become available. ***Please see additional comments below provided by our Planning and Building Department.***
(6) Provide Trip Generation Summary by phases. If there are any trip reductions at each phase, it should also be identified (i.e. mode splits, internal capture, pass-by).
(7) Provide further clarification on the infrastructure details. For example, the memo identifies traffic signalization for Phase 1A and addition of dedicated turn lanes in Phases 2 and 3. We will require functional designs/plans to establish feasibility and ensure these infrastructure improvements can fit within the right-of-way.
(8) Base case should be existing transportation infrastructure conditions. For example, if Phase 1A requires the signalization of Hydro Road / Lakeshore Road East in order to proceed, then that should be identified as a recommendation for Phase 1A. The recommendations from previous phases should set the new base cases for the subsequent phases.
(9) Provide a Recommendation section and Conclusion section.

In addition to these comments, we have now confirmed the mode splits provided in the TCR are acceptable and you may use them in your traffic analysis. As for the cycle lengths, we are confirming with our signals staff but early suggestions are that they should be no more than 120 seconds as many of them are today under existing conditions. There may be opportunities for Traffic Signal Coordination as a recommendation.

I’ve also copied Christina to see if there is anything to add from a Regional perspective as early suggestions appear to show road improvements on Regional Roads.

If you have any questions, feel free to reach out.

Thanks,

Ryan Au, P.Eng.
Traffic Planning Coordinator
T 905-615-3200 ext. 3713
ryan.au@mississauga.ca

City of Mississauga | Transportation & Works Department
201 City Centre Drive, Suite 800 | Mississauga ON | L5B 2T4

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From: David Breveglieri
Sent: Thursday, July 29, 2021 2:35 PM
To: Lin Rogers <Lin.Rogers@mississauga.ca>
Cc: Ryan Au <Ryan.Au@mississauga.ca>; Dave Martin <dave.martin@mississauga.ca>; Emma Calvert <Emma.Calvert@mississauga.ca>; Hugh Lynch <Hugh.Lynch@mississauga.ca>
Subject: RE: Lakeview Village Information Request

Hi Lin,

Planning has reviewed the memo regarding the phasing of the development as it relates to transportation infrastructure. Of the four scenarios outlined it appears that the first three contemplate development permissions prior to the construction of the BRT. Of those three, it appears only one contemplates permission for the development of the Innovation Corridor, and up to a maximum of one million square feet, while permitting full build out of the residential development.

It is Planning's preference that the Innovation Corridor be prioritised for development without any encumbrances as it relates to the phasing of traffic infrastructure. Lakeview Village is a long term development and it is anticipated that some of the residential development won't happen within a 10 year time horizon, however, the occupancy of Innovation Corridor will be opportunity driven and as such timelines associated with its programming are unknown. The activation strategy for those lands is underway and it is preferable not to preclude development opportunities by limiting the corridors development potential through holding symbols or other mechanisms.

The Economic Development Office is currently undertaking the Innovation Corridor Activation Project, in consultation with HR&A Advisors, which will involve the marketing program of the corridor and bringing the lands to market. EDO has also expressed concerns with any restriction being placed on the immediate development potential of the Innovation Corridor and the impact it will have to their activation plans.

MISSISSAUGA

David Breveglieri
Planner, Development South
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david.breveglieri@mississauga.ca

City of Mississauga | Planning and Building Department,
Development & Design Division

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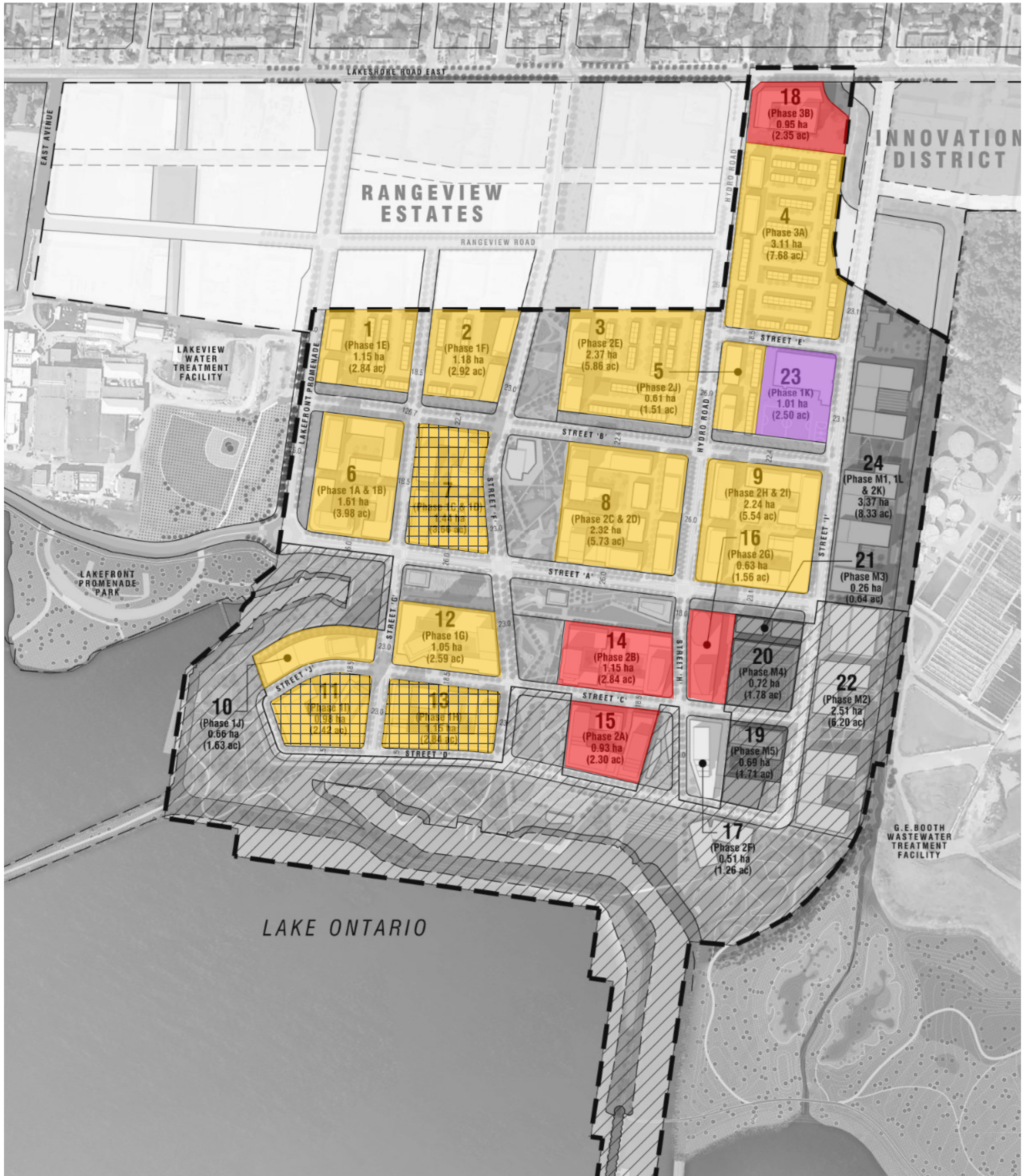
APPENDIX G-2

Development Level Figures by Analysis Scenario



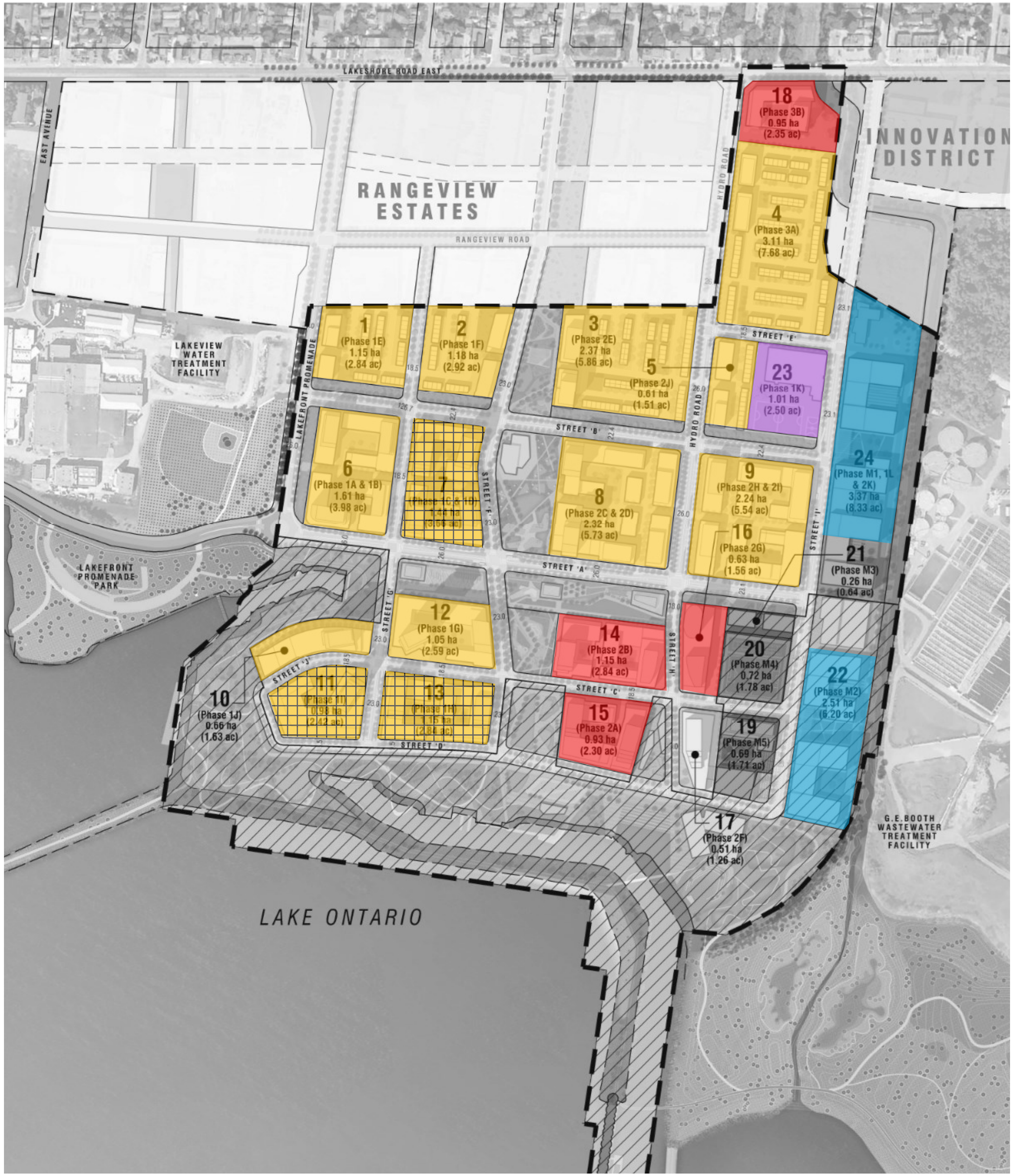
Scenario 1A and 1B

LEGEND

- Residential Block
- Residential Block with At-grade Retail (Internal Trip Generation)
- Residential Block with At-grade Retail (External Trip Generation)
- School Block

Type	ITE Land Use Code	Quantity of Unit	Unit
Residential	Multifamily Housing (Low-Rise) (LUC 220)	374	Units
	Multifamily Housing (Mid-Rise) (LUC 221)	5287	Units
	Multifamily Housing (High-Rise) (LUC 222)	2389	Units
	Total Residential	**8050**	**Units**
Non-Residential	Hotel (LUC 310)	N/A	N/A
	Recreational Community Center (LUC 495)	N/A	N/A
	General Office Building (LUC 710)	N/A	N/A
	Research and Development Center (LUC 760)	N/A	N/A
	Shopping Center[1] (LUC 820)	133,161	ft^2 (GFA)
	Elementary School (LUC 520)	850	students
	Day Care Center (LUC 565)	39	students

1. The GFA associated with LUC 820 in this table represents the external trip generating component of the residential block at-grade retail



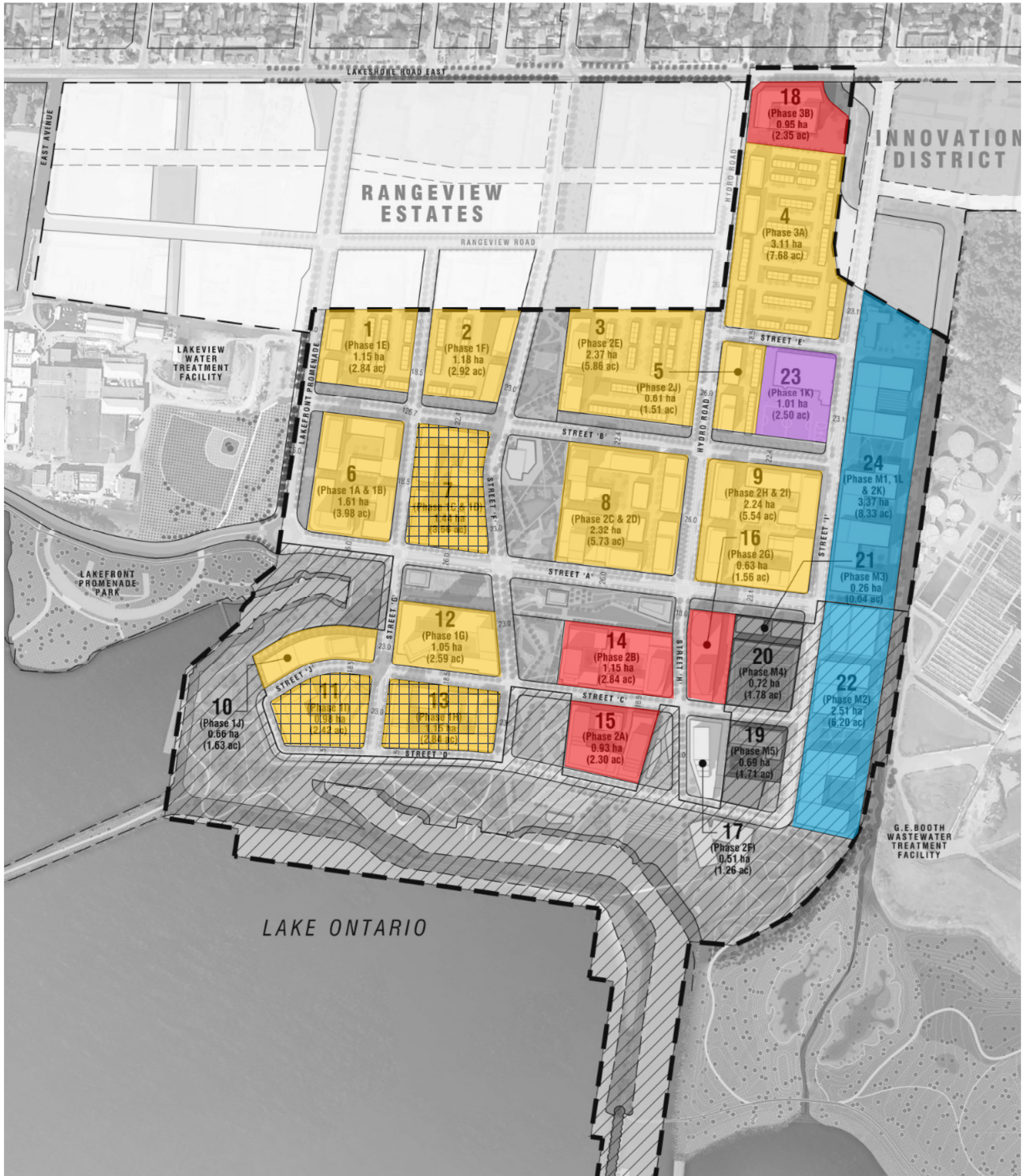
Scenario 2

LEGEND

- Residential Block
- Residential Block with At-grade Retail (Internal Trip Generation)
- Residential Block with At-grade Retail (External Trip Generation)
- School Block
- Innovation Corridor Blocks (Office and Research & Development)

Type	ITE Land Use Code	Quantity of Unit	Unit
Residential	Multifamily Housing (Low-Rise) (LUC 220)	374	Units
	Multifamily Housing (Mid-Rise) (LUC 221)	5287	Units
	Multifamily Housing (High-Rise) (LUC 222)	2389	Units
	Total Residential	**8050**	**Units**
Non-Residential	Hotel (LUC 310)	N/A	N/A
	Recreational Community Center (LUC 495)	N/A	N/A
	General Office Building (LUC 710)	500,000	ft^2 (GFA)
	Research and Development Center (LUC 760)	500,000	ft^2 (GFA)
	Shopping Center[1] (LUC 820)	133,161	ft^2 (GFA)
	Elementary School (LUC 520)	850	students
	Day Care Center (LUC 565)	39	students

1. The GFA associated with LUC 820 in this table represents the external trip generating component of the residential block at-grade retail



Scenario 3

LEGEND

- Residential Block
- Residential Block with At-grade Retail (Internal Trip Generation)
- Residential Block with At-grade Retail (External Trip Generation)
- School Block
- Innovation Corridor Blocks (Office and Research & Development)

Type	ITE Land Use Code	Quantity of Unit	Unit
Residential	Multifamily Housing (Low-Rise) (LUC 220)	374	Units
	Multifamily Housing (Mid-Rise) (LUC 221)	5287	Units
	Multifamily Housing (High-Rise) (LUC 222)	2389	Units
	Total Residential	**8050**	**Units**
Non-Residential	Hotel (LUC 310)	N/A	N/A
	Recreational Community Center (LUC 495)	N/A	N/A
	General Office Building (LUC 710)	745,316	ft^2 (GFA)
	Research and Development Center (LUC 760)	745,315	ft^2 (GFA)
	Shopping Center[1] (LUC 820)	133,161	ft^2 (GFA)
	Elementary School (LUC 520)	850	students
	Day Care Center (LUC 565)	39	students

1. The GFA associated with LUC 820 in this table represents the external trip generating component of the residential block at-grade retail

APPENDIX G-3

Trip Generation Methodology Excerpt from April 2021 Supplemental Traffic Analysis Report (TMIG)

1 INTRODUCTION

TMIG received City comments dated February 5, 2021 on the June 2020 submission of the Lakeview Village Transportation Considerations Report (TCR) in addition to Peer Review comments dated February 3, 2021. The comments from City Staff and the Peer Reviewer have been addressed in the Traffic Considerations Report Addendum, dated April 2021. Several comments were technical in nature and required revisions to previous analysis efforts and methodologies.

This supplemental report contains a summary of the trip generation methodology, analysis methodology and results, and other technical content that was updated to address comments from City Staff and the Peer Reviewer. As applicable, specific sections or appendices of this report have been referenced in the Lakeview Village Traffic Considerations Report Addendum document.

Updated analysis for the original TCR study intersections as well as analysis associated with the internal road network are contained in this report.

2 TRIP GENERATION

Several of the Peer Review comments requested a review and update of components of the site trip generation methodology. TMIG prepared a technical memo, dated March 10th, 2021 that was circulated to City Staff and the Peer Reviewer for approval. The technical memo presented the proposed updates to the Lakeview Village site trip generation methodology that has been used to inform the traffic volumes analyzed at the TCR and Internal study intersections. Subject to the findings contained herein, the Peer Reviewer has agreed with the trip generation methodology in principle. The updated trip generation methodology and site traffic generation results are provided in this report.

2.1 Methodology

In previous iterations of the TCR analysis, trips generated by non-residential uses were calculated using ITE trip generation rates whereas the residential trips were estimated based on a first principles approach that incorporated local TTS data and occupancy rates. As per Peer Reviewer comments and further discussion with City Staff during a February 25, 2021 meeting, TMIG has unified the trip generation approach using ITE trip generation rates for both residential and non-residential uses.

The TCR comments also suggested the use of ITE trip generation rates specific to "dense multi-use urban" data when sufficient sample data was available to better reflect the dense urban context of the proposed development. Upon review of ITE's 10th edition Trip Generation Manual, Mid-rise and High-rise residential apartment buildings were identified as residential land uses with adequate dense multi-use urban data. Of the non-residential uses, only the office building use, ITE Land Use Code (LUC) 710 had sufficient data available.

TMIG took the trips generated by the base ITE vehicle rates and applied the vehicle trip to person trip conversion rates provided in the ITE LUC Descriptions to estimate the total person trips generated by each land use. Upon converting vehicle trips to person trips, mixed-use internal capture adjustments to the site trips were calculated as per Chapter 6 of ITE's 3rd edition of the Trip Generation Handbook. Mixed-use internal capture adjustments account for interaction trips between different land uses within the same development. Internal capture trips between residential, office, and retail uses were calculated and subtracted from the gross person trips to determine the total external person trips.

Finally, the total external person trips were divided by transportation mode, as per the averaged 2016 TTS mode split results (see **Section 2.2**). The total external trips assigned to the auto-driver mode were used as site traffic volumes to be applied to the vehicular capacity analysis of the external TCR study area and the internal Lakeview Village study intersections.

A summary of the updated trip generation methodology is as follows:

- Calculate ITE Baseline Vehicle Trip Generation for all residential and non-residential uses.

- ITE's "dense multi-use urban" context was used for LUC 221, 222, and 710
- ITE baseline vehicle trips converted to baseline person trips using conversion rates supplied in ITE LUC Descriptions
- Baseline person trips for residential, retail, and office uses inputted into the multi-use internal reduction process outlined in Chapter 6 of ITE's 3rd edition of the Trip Generation handbook.
- The calculated internal trip reductions subtracted from the total baseline person trips to calculate the total external baseline person trips
- The external baseline person trips were divided into to auto driver, auto passenger, transit, walk, and cycle trips based on the average 2016 TTS mode split provided in **Section 2.2** of this report

2.1.1 School Block Trip Generation Methodology

As requested by City staff, the site trip generation has been updated to include the school land uses in the traffic analysis. Given the unique urban nature of the school and its anticipated trip generation characteristics, the trip generation methodology of the school block deviates from the methodology applied to the rest of the land uses within Lakeview Village.

As per preliminary Comments from Peel District School Board (PDSB) sent to the City on April 16, 2019, an 850-pupil elementary school is required within the Lakeview Village development. The comments from PDSB are provided in **Appendix C-A**. A daycare center with the capacity to care for 39 children is also planned to be housed within the elementary school block.

Vehicle trips for the elementary school and daycare center were calculated based on the projected capacity of 850 and 39 students, respectively. ITE Land Use Code (LUC) 520: Elementary School and 565: Day Care Center were selected to represent the two proposed land uses within the Lakeview Village school block.

The descriptions of ITE LUC 520 and 565 do not provide the vehicle trip to person trip conversion rates that are provided in the descriptions of other planned land uses within Lakeview Village. ITE LUC 520 and 565 also do not provide trip rates specific to a "dense multi-use urban" context. It was assumed that the vehicle trips generated through the use of ITE's trip generation rates accounted for trips by staff, school buses, and parents picking up and dropping off their children.

It was assumed that the Lakeview Village Elementary School catchment area would be internal to the Lakeview Village development (i.e. no students traveling from surrounding communities), which would lead to minimal vehicular traffic as Lakeview Village will be a highly walkable and cycle-friendly community. However, should French Immersion or other specialized, high-demand programming be implemented at the elementary school, there is a greater possibility of students external to Lakeview Village enrolling.

To account for potential impacts of French Immersion or specialized programming, it was assumed that 50% of the vehicle trips generated by the elementary school would be from communities external to Lakeview Village. These trips will primarily be attributed to French Immersion students (private auto and school buses) and school staff members commuting from outside of Lakeview Village. The remaining 50% of trips generated by the school are assumed to be internal to Lakeview and will be converted from private auto trips to walk and cycling trips (due to the walkability of Lakeview Village and the close proximity of the school to the surrounding residential blocks).

External site trips to the school block will be distributed to the external study area network as per TMIG's updated 2016 TTS trip distribution update. A summary of the Lakeview Village school block trip generation is provided in **Table 2-1**.

Table 2-1– Lakeview Village School Block Trip Generation

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Elementary School (LUC 520) 850 Student Capacity	Average Rate	0.67			0.17		
	Distribution	54%	46%	-	48%	52%	-
	Gross Site Trips	308	262	570	69	76	145
	Internal Reduction (50%)	154	131	285	34	38	72
	Total Auto Trips	154	131	285	35	38	73
Day Care Center (LUC 565) 39 Student Capacity	Fitted Curve Equation	T = 0.66(X) + 8.42			Ln(T) = 0.87 Ln(X) + 0.29		
	Distribution	53%	47%	-	47%	53%	-
	Gross Site Trips	18	16	34	15	17	32
	Internal Reduction (50%)	9	8	17	7	9	16
	Total Auto Trips	9	8	17	8	8	16
Total School Block Auto Driver Trips		163	139	302	43	46	89

Of note, the trip generation rates and fitted curve equations for the weekday a.m. and p.m. peak hours correspond to the adjacent street peak, not the peak hour of the school's operations. Predictably, the weekday p.m. peak hour trips appear to be much lower than the a.m. peak, as a school's p.m. peak hour of traffic generation occurs outside of the peak hour of most adjacent land uses, such as office and retail uses.

2.2 Transportation Tomorrow Survey Data Review

The TCR comments recommended that all TTS data used in the report be updated from 2011 to 2016 survey results. 2016 TTS data was used to update both the mode split and external distribution percentages that were previously based on 2011 TTS Data in the TCR.

The updated mode split resulting from 2016 data is provided in **Table 2-2.** As per the previous TCR methodology, the mode split applied to site trip generation efforts was calculated through the averaging of existing mode splits from Lakeview and Port Credit TTS zones. Raw TTS data used to calculate the mode split has been provided in **Appendix C-B.**

Table 2-2 – 2016 TTS Mode Split

Mode of Transportation	Lakeview		Port Credit		Average	
	AM	PM	AM	PM	AM	PM
Transit	11%	22%	28%	32%	20%	27%
Auto-Driver	59%	61%	61%	61%	60%	61%
Auto-Passenger	27%	14%	6%	4%	17%	9%
Walk	3%	4%	5%	2%	4%	3%
Cycle	0%	0%	0%	0%	0%	0%

Note: 2016 TTS Lakeview data based on GTA Traffic Zones 3642, 3643, 3875, and 3876. 2016 TTS Port Credit data based on GTA Traffic Zone 3877.

Note: Rounding of percentages may cause the appearance of minor discrepancies (i.e. all modes appearing to not sum to 100%)

The average mode split results were used in the trip generation methodology for all site and background development generated trips under future total conditions (2031 BAU, 2031 BRT, 2041 BRT). The averaged mode split was modified slightly from the 2016 TTS results to achieve a 50% auto driver mode split for the 2041 50% mode split sensitivity scenario. The difference between the 50% auto driver split and the average auto driver mode split was divided among the remaining transportation modes proportionately. **Table 2-3** compares the 2016 TTS average mode split with the modified 50% sensitivity mode split.

Table 2-3 – Average 2016 TTS Mode Split vs. 50% Auto Driver Mode Split Sensitivity Comparison

Mode of Transportation	2016 TTS Average		50% Auto Driver		Difference	
	AM	PM	AM	PM	AM	PM
Transit	20%	27%	25%	35%	+5%	+8%
Auto-Driver	60%	61%	50%	50%	-10%	-11%
Auto-Passenger	17%	9%	21%	12%	+4%	+3%
Walk	4%	3%	5%	4%	+1%	+1%
Cycle	0%	0%	0%	0%	+0%	+0%

Note: Rounding of percentages may cause the appearance of minor discrepancies (i.e. all modes appearing to not sum to 100%)

As per the June 2020 TCR, the trip distribution was based on TTS data from the existing Lakeview area. The trip distribution has been updated to reflect 2016 TTS data and travel patterns, and is explained in greater detail in **Section 3** of this report.

2.3 Site Trip Generation

2.3.1 Lakeview Village

Site Trip generation for Lakeview Village under future total conditions (2031 BAU, 2031 BRT, 2041 BRT) was conducted as per the updated methodology outlined in **Section 2.1**. **Table 2-4** provides an updated summary of the Lakeview Village site statistics used to estimate person trip generation through ITE trip rates and equations. **Table 2-5** provides a summary of the total residential and non-residential auto-driver trips. A full summary of the trip generation process, broken down by land use code, is provided in **Appendix C-C**.

Table 2-4 – Lakeview Village Site Statistics

Land Use Type	ITE Land Use Code	Quantity of Unit	Unit
Residential	Multifamily Housing (Low-Rise) (LUC 220)	374	Units
	Multifamily Housing (Mid-Rise) (LUC 221)	5,287	Units
	Multifamily Housing (High-Rise) (LUC 222)	2,389	Units
	Total Residential Units	**8,050**	**Units**
Non-Residential	Hotel (LUC 310)	191	rooms
	Recreational Community Center (LUC 495)	435,856	GFA (ft^2)
	General Office Building (LUC 710)	745,316	GFA (ft^2)
	Research and Development Center (LUC 760)	745,316	GFA (ft^2)
	Shopping Center (LUC 820)	202,718	GFA (ft^2)
	Elementary School (LUC 520)	850	students
	Day Care Center (LUC 565)	39	students

Table 2-5 – Lakeview Village Site Trip Generation Summary

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	237	1,641	1,878	1,231	497	1,728
Non-Residential	1,163	481	1,644	899	1,520	2,420
Total Trips	**1,400**	**2,122**	**3,522**	**2,130**	**2,017**	**4,148**

2.3.2 2041 Background Developments

Site Trip generation for the 2041 background developments (Rangeview Estates and Serson North) under future total conditions (2041 BRT) was conducted as per the updated trip generation methodology outlined in **Section 2.1**.

2.3.2.1 Rangeview Estates

The site statistics assumed for Rangeview Estates remained the same as those used in the June 2020 TCR. All residential units were assumed to fall under ITE LUC 221 – Multi-family Housing (Mid-Rise). **Table 2-6** provides a summary of the total residential and non-residential auto-driver trips generated by Rangeview Estates in 2041 under future total BRT conditions. A full summary of the trip generation process, broken down by land use code, is provided in **Appendix C-D**.

Table 2-6 – Rangeview Estates Site Trip Generation Summary

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	79	587	666	435	166	601
Non-Residential	116	53	169	12	129	241
Total Trips	**195**	**640**	**835**	**547**	**295**	**842**

2.3.2.2 Serson North

The site statistics assumed for the Serson North background development remained the same as those used in the June 2020 TCR. The office component of the trip generation was updated to reflect the ITE's "dense multi-use urban" context and associated rates. **Table 2-7** provides a summary of the total non-residential auto-driver trips generated by Serson North in 2041 under future total BRT conditions. A full summary of the trip generation process, broken down by land use code, is provided in **Appendix C-E**.

Table 2-7 – Serson North Site Trip Generation Summary

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Office (LUC 710)	138	23	161	29	144	173
Research and Development (LUC 760)	57	19	76	15	82	97
Total Trips	195	42	237	44	226	270

2.3.3 50% Mode Split Sensitivity Analysis

As discussed in **Section 2.2**, The average 2016 TTS mode split used in all other scenarios was modified for the purposes of analyzing the impacts on the 2041 BRT network should a 50% alternative mode split be achieved in the Lakeview area. For analysis purposes, it was assumed that 50% of all external trips would be auto-driver trips, and the remaining 50% of trips would be taken by alternative modes, such as transit, walking, and cycling.

Apart from updating the mode split percentages, all other steps of the trip generation methodology remained the same for Lakeview Village, Rangeview Estates, and Serson North developments for the 2041 BRT 50% mode split scenario. Trip generation tables for the 2041 50% mode split sensitivity can be found in **Appendix C-F** for all three developments, and include trips broken down by ITE LUC. 2041 50% mode split trip generation summaries for Lakeview Village, Rangeview Estates, and Serson North are provided in **Table 2-8**, **Table 2-9**, and **Table 2-10**, respectively.

Table 2-8 – Lakeview Village Site Trip Generation Summary – 2041 50% Mode Split Sensitivity

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	199	1,377	1,576	1,007	407	1,414
Non-Residential	1,003	427	1,430	744	1,253	1,998
Total Trips	**1,202**	**1,804**	**3,006**	**1,751**	**1,660**	**3,412**

Table 2-9 – Rangeview Estates Site Trip Generation Summary – 2041 50% Mode Split Sensitivity

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	67	493	560	356	136	492
Non-Residential	98	45	143	92	107	199
Total Trips	**165**	**538**	**703**	**448**	**243**	**691**

Table 2-10 – Serson North Site Trip Generation Summary – 2041 50% Mode Split Sensitivity

Type of Trip	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Office (LUC 710)	116	19	135	24	118	142
Research and Development (LUC 760)	48	16	64	12	68	80
Total Trips	**164**	**35**	**199**	**36**	**186**	**222**

3 SITE TRIP DISTRIBUTION AND ASSIGNMENT

As per the June 2020 TCR, the trip distribution was based on the 2011 TTS data from the existing Lakeview area. The trip distribution has been updated to reflect 2016 TTS data and travel patterns. A summary of the distribution can be seen in **Table 3-1**, note that south is not included in the directions as any planning districts that would be geographically south of the site have been designated as “west” as they would involve travel around Lake Ontario. Raw 2016 TTS trip distribution data can be found in **Appendix C-G** for both trips internal to Mississauga and external to the surround areas.

Table 3-1 – 2016 TTS Data Distribution Summary (TAZ: 3642, 3643, 3875, 3876)

Direction To/From	Weekday AM		Weekday PM	
	In	Out	In	Out
East	22%	52%	55%	24%
West	74%	39%	41%	72%
North	4%	9%	4%	4%
Total	**100%**	**100%**	**100%**	**100%**

In the previously submitted TCR the assignment and distribution were completed as one step, with each of the network boundaries (gateways) having a percentage of the distribution directly assigned to them. Due to the site's lakefront location and its primary connections to Lakeshore Road East, regardless of the cardinal direction of a destination Planning District (PD) or Traffic Analysis Zone (TAZ) most of the trips are assigned to the east or west. Effectively there are four main gateways for the site:

1. North Leg of Lakeshore Road East and Cawthra Road: Serves traffic destined to and from the north (internal to Mississauga and the QEW), west (via QEW), and south (via QEW). For traffic from the west side of the site, this route is also an option for trips to and from the east via the QEW.
2. North Leg of Lakeshore Road East and Dixie Road: Serves traffic destined to and from the north (internal to Mississauga and the QEW), east (via QEW), and north (via QEW). For traffic from the east side of the site, this route is also an option for trips to and from the west via the QEW.
3. East Leg of Lakeshore Road East and Dixie Road: Serves traffic destined to and from the east (local traffic and alternative to QEW travel) and from the north (internal to Mississauga via other north-south arterials).
4. West Leg of Lakeshore Road East and Cawthra Road: Serves traffic destined to and from the west (local and alternative to QEW travel) and from the north (internal to Mississauga via other north-south arterials).

The north legs of Ogden Avenue and Haig Boulevard still have some site traffic assigned to them, as they are collectors with direct access to the south QEW service road. However, the assignment on these minor gateways have been significantly reduced from the previous TCR. Ultimately, due to the site's location the local assignment is primarily driven by capacity as opposed to the overall distribution, as most trips would be bound for either the QEW or a reasonable alternative. Along with the update associated with the TTS data used, TMIG also updated the local road assignment, which included expanding the assignment exercise to the internal road network. The process included the following steps:

1. The generated trip estimates for the Lakeview Village blocks were assigned to their local access points and the internal network with a focus on the north-south connections to Lakeshore Road East: East Ave (via Rangeview Road), Lakefront Promenade, Ogden Avenue (Street 'F'), Hydro Road, and Haig Boulevard (Street 'I').
2. Initially, the expected trips were assigned to Lakeshore and the surrounding gateways using the closest possible route to the surrounding road network based on the overall distribution. This process involved splitting the distribution between the gateways.
3. After the initial assignment, the assignment was adjusted based on the evaluation of critical movements along the Lakeshore Road East network. Realistically, if no diversion to existing traffic is expected/accounted for, new trips will be on routes that still have capacity within the system. The results of the local assignment on a gateway basis are presented in **Table 3-2**.

Table 3-2 – Percentage of Site Trips by Study Network Gateway

Gateway	AM		PM	
	IN	OUT	IN	OUT
North Leg of Lakeshore Road East and Dixie Road	17%	13%	24%	8%
East Leg of Lakeshore Road East and Dixie Road	5%	30%	9%	26.5%
North Leg of Lakeshore Road East and Cawthra Road	38%	30%	35%	26.5%
West Leg of Lakeshore Road East and Cawthra Road	33%	13%	17%	25%
North leg of Lakeshore Road East and Ogden Avenue	4%	9%	9%	9%
North leg of Lakeshore Road East and Haig Boulevard	3%	5%	6%	5%
Total	**100%**	**100%**	**100%**	**100%**

Figures C-H1 and C-H2 in **Appendix C-H** illustrate the Internal site traffic assignment through the internal Lakeview Village study intersections and the external TCR study intersections, respectively.

Figures C-H3 and C-H4 in **Appendix C-H** illustrate the Internal site traffic assignment through the internal Lakeview Village study intersections and the external TCR study intersections, respectively, for the 2041 50% mode split sensitivity scenario.

The following additional traffic figures from the TCR have been updated and included in **Appendix C-H** for reference purposes:

- Figure C-H5 – Lakeview Village Site Traffic, 2031 Business as Usual network
- Figure C-H6 – 2031 Future Background Traffic Volumes
- Figure C-H7 – 2031 Future Total BRT Traffic Volumes
- Figure C-H8 – 2031 Future Total BAU Traffic Volumes
- Figure C-H9 – 2041 Rangeview Estates Site Traffic Volumes
- Figure C-H10 – 2041 Serson North Site Traffic Volumes
- Figure C-H11 – 2041 Future Background Traffic Volumes
- Figure C-H12 – 2041 Future Total Traffic Volumes
- Figure C-H13 – 2041 Rangeview Estates Site Traffic Volumes, 50% Mode Split Sensitivity
- Figure C-H14 – 2041 Serson North Site Traffic Volumes, 50% Mode Split Sensitivity
- Figure C-H15 – 2041 Future Background Traffic Volumes, 50% Mode Split Sensitivity
- Figure C-H16 – 2041 Future Total Traffic Volumes, 50% Mode Split Sensitivity
- Figure C-H17 – Existing Traffic Volumes

4 CAPACITY ANALYSIS

The following sections summarize the updated capacity results for the study intersections from the original TCR. In addition to the analysis that was previously focused on Lakeshore Road East and the rail crossings, there is also analysis for the road network internal to the site. Detailed information on the network configuration, Synchro parameters, and improvements to the model are provided in **Section 5**.

All the traffic operations analysis was completed using the HCM 2000 result implemented in Synchro Studio 10. All queues were taken from SimTraffic with the following parameters:though

- Seeding Interval of 5-15 minutes depending on horizon (full internal and external coded model had 15 minutes)
- Recording Interval of 60 minutes

APPENDIX G-4

Analysis Scenario 1A and 1B Trip Generation Summary

Table G-4A – Scenario 1A and Scenario 1B - Lakeview Trip Generation – 2031 BAU

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 374 units	Fitted Curve Equation	Ln(T) = 0.95 Ln(X) - 0.51			Ln(T) = 0.89 Ln(X) - 0.02		
	Distribution	23%	77%	-	63%	37%	-
	Gross Vehicle Site Trips	38	129	167	120	71	191
	Vehicle to Person Trip Conversion Rate	1.13			1.21		
	Gross Person Trips	43	146	189	146	85	231
	Internal Reduction	-1	-1	-2	-9	-4	-13
	Total External Person Trips	42	145	187	137	81	218
	Mode Split Reduction	-17	-59	-76	-53	-32	-85
	Total Auto Driver Trips	**25**	**86**	**111**	**84**	**49**	**133**
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 5287 units	Average Rate	0.2			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	127	930	1057	685	267	952
	Vehicle to Person Trip Conversion Rate	1.9			2.0		
	Gross Person Trips	241	1768	2009	1370	533	1903
	Internal Reduction	-5	-18	-23	-80	-27	-107
	Total External Person Trips	236	1750	1986	1290	506	1796
	Mode Split Reduction	-95	-707	-802	-502	-196	-698
	Total Auto Driver Trips	**141**	**1043**	**1184**	**788**	**310**	**1098**
Multifamily Housing (High-Rise) LUC 222 *Dense Multi-use Urban Context* 2389 units	Fitted Curve Equation or Average Rate	Ln(T) = 0.84 Ln(X) - 0.65			0.19		
	Distribution	12%	88%		70%	30%	
	Gross Vehicle Site Trips	43	316	359	318	136	454
	Vehicle to Person Trip Conversion Rate	2.81			2.17		
	Gross Person Trips	121	889	1010	690	295	985
	Internal Reduction	-2	-9	-11	-41	-15	-56
	Total External Person Trips	119	880	999	649	280	929
	Mode Split Reduction	-48	-355	-403	-252	-109	-361

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Total Auto Driver Trips	**71**	**525**	**596**	**397**	**171**	**568**
Shopping Center LUC 820 133,161 ft^2 GFA	Fitted Curve Equation	T = 0.50(X) + 151.78			Ln(T) = 0.74Ln(X) + 2.89		
	Distribution	62%	38%		48%	52%	
	Gross Vehicle Site Trips	135	83	218	322	350	672
	Vehicle to Person Trip Conversion Rate	1.31			1.43		
	Gross Person Trips	177	109	286	461	499	960
	Internal Reduction	-28	-8	-36	-46	-130	-176
	Total External Person Trips	149	101	250	415	369	784
	Mode Split Reduction	-60	-41	-101	-161	-144	-305
	Total Auto Driver Trips	**89**	**60**	**149**	**254**	**225**	**479**
Elementary School LUC 520 850 student capacity	Average Rate	0.67			0.17		
	Distribution	54%	46%	-	48%	52%	-
	Gross Vehicle Site Trips	308	262	570	70	75	145
	Internal Reduction (50%)	-154	-131	-285	-35	-38	-73
	Total Auto Driver Trips	**154**	**131**	**285**	**35**	**37**	**72**
Day Care Center LUC 565 39 Student Capacity	Fitted Curve Equation	T = 0.66(X) + 8.42			Ln(T) = 0.87 Ln(X) + 0.29		
	Distribution	53%	47%	-	47%	53%	-
	Gross Vehicle Site Trips	18	16	34	15	17	32
	Internal Reduction (50%)	-9	-8	-17	-8	-9	-17
	Total Auto Driver Trips	**9**	**8**	**17**	**7**	**8**	**15**

Table G-4B – Scenario 1A and 1B Lakeview Residential and Non-Residential Total Site Trip Generation

Parameters	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	237	1654	1891	1269	530	1799
Non-Residential	252	199	451	296	270	566
Total Trips	**489**	**1853**	**2342**	**1565**	**800**	**2365**

APPENDIX G-5

Analysis Scenario 1A Synchro HCM 2000 Capacity Reports

Timings

2031 Total BAU AM Peak Hour

1: Commercial Access/Cawthra Road & Lakeshore Road East

08-19-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Future Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	482	1232	0	3	1660	0	0	0	0	425	0	379
Turn Type	pm+pt	NA		Perm	NA					Prot		pm+ov
Protected Phases	5	2			6		3	3		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0		11.0	11.0		35.0		10.0
Total Split (s)	32.0	74.0		42.0	42.0		11.0	11.0		35.0		32.0
Total Split (%)	26.7%	61.7%		35.0%	35.0%		9.2%	9.2%		29.2%		26.7%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0			0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.98	0.47		0.01	1.06					0.71		0.51
Control Delay	72.2	7.9		29.0	68.2					52.9		15.5
Queue Delay	0.0	0.0		0.0	0.0					0.0		0.0
Total Delay	72.2	7.9		29.0	68.2					52.9		15.5
Queue Length 50th (m)	95.5	56.0		0.4	~210.7					49.0		35.9
Queue Length 95th (m)	#164.1	81.1		m1.3	#271.7					62.5		56.1
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0			15.0						200.0		
Base Capacity (vph)	503	2600		203	1569					819		750
Starvation Cap Reductn	0	0		0	0					0		0
Spillback Cap Reductn	0	0		0	0					0		0
Storage Cap Reductn	0	0		0	0					0		0
Reduced v/c Ratio	0.96	0.47		0.01	1.06					0.52		0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 145

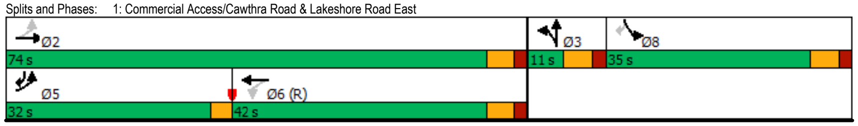
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



HCM Signalized Intersection Capacity Analysis

2031 Total BAU AM Peak Hour

1: Commercial Access/Cawthra Road & Lakeshore Road East

08-19-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Future Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0					5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95					0.97		1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98					1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00					1.00		1.00
Frt	1.00	1.00		1.00	0.93					1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)	1755	3579		1820	3165					3278		1522
Flt Permitted	0.07	1.00		0.23	1.00					0.95		1.00
Satd. Flow (perm)	125	3579		435	3165					3278		1522
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
RTOR Reduction (vph)	0	0	0	0	89	0	0	0	0	0	0	85
Lane Group Flow (vph)	482	1232	0	3	1571	0	0	0	0	425	0	294
Confl. Peds. (#/hr)	25		8	8		25	13					13
Heavy Vehicles (%)	4%	2%	0%	0%	5%	7%	0%	0%	0%	8%	0%	6%
Turn Type	pm+pt	NA		Perm	NA					Prot		pm+ov
Protected Phases	5	2			6		3	3		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	87.2	87.2		56.1	56.1					20.8		48.9
Effective Green, g (s)	88.2	87.2		56.1	56.1					21.8		48.9
Actuated g/C Ratio	0.74	0.73		0.47	0.47					0.18		0.41
Clearance Time (s)	3.0	6.0		6.0	6.0					6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0					3.0		3.0
Lane Grp Cap (vph)	487	2600		203	1479					595		620
v/s Ratio Prot	c0.24	0.34			c0.50					c0.13		0.11
v/s Ratio Perm	0.49			0.01								0.08
v/c Ratio	0.99	0.47		0.01	1.06					0.71		0.47
Uniform Delay, d1	39.1	6.8		17.1	31.9					46.2		26.1
Progression Factor	1.00	1.00		1.44	1.04					1.00		1.00
Incremental Delay, d2	37.7	0.6		0.1	40.1					4.1		0.6
Delay (s)	76.8	7.5		24.8	73.3					50.2		26.7
Level of Service	E	A		C	E					D		C
Approach Delay (s)		27.0			73.2			0.0			39.1	
Approach LOS		C			E			A			D	

Intersection Summary			
HCM 2000 Control Delay	47.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Future Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	12	1612	0	16	1479	0	204	9	0	6	11	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	83.0	83.0		83.0	83.0		37.0	37.0		37.0	37.0	
Total Split (%)	69.2%	69.2%		69.2%	69.2%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.07	0.66		0.11	0.62		0.78	0.03		0.02	0.03	
Control Delay	9.9	15.8		7.8	8.5		65.3	20.2		35.5	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.9	15.8		7.8	8.5		65.3	20.2		35.5	18.8	
Queue Length 50th (m)	1.0	125.7		1.0	59.6		46.0	0.2		1.2	0.2	
Queue Length 95th (m)	m2.7	178.9		m2.6	71.4		67.3	4.3		4.5	4.8	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	178	2437		145	2394		355	423		364	429	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.66		0.11	0.62		0.57	0.02		0.02	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Future Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3432		1785	3377		1741	1616		1782	1634	
Flt Permitted	0.13	1.00		0.11	1.00		0.75	1.00		0.75	1.00	
Satd. Flow (perm)	252	3432		205	3377		1376	1616		1410	1634	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
RTOR Reduction (vph)	0	4	0	0	0	0	0	6	0	0	8	0
Lane Group Flow (vph)	12	1608	0	16	1479	0	204	3	0	6	3	0
Confl. Peds. (#/hr)	11		11	11		11	3		1	1		3
Heavy Vehicles (%)	0%	5%	2%	0%	8%	2%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	85.1	85.1		85.1	85.1		22.9	22.9		22.9	22.9	
Effective Green, g (s)	85.1	85.1		85.1	85.1		22.9	22.9		22.9	22.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.19	0.19		0.19	0.19	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	2433		145	2394		262	308		269	311	
v/s Ratio Prot		c0.47			0.44			0.00			0.00	
v/s Ratio Perm	0.05			0.08			c0.15			0.00		
v/c Ratio	0.07	0.66		0.11	0.62		0.78	0.01		0.02	0.01	
Uniform Delay, d1	5.3	9.6		5.5	9.0		46.1	39.3		39.5	39.4	
Progression Factor	1.22	1.36		0.78	0.73		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.3		1.5	1.1		13.6	0.0		0.0	0.0	
Delay (s)	7.2	14.3		5.8	7.7		59.7	39.4		39.5	39.4	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		14.3			7.7			58.8			39.4	
Approach LOS		B			A			E			D	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

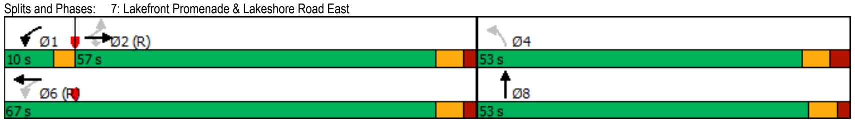
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Future Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1187	206	89	1006	0	359	518	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		40.0	24.0				
Total Split (s)	57.0	57.0	57.0	10.0	67.0		53.0	53.0				
Total Split (%)	47.5%	47.5%	47.5%	8.3%	55.8%		44.2%	44.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.67	0.25	0.33	0.48		0.69	0.90				
Control Delay		25.1	16.4	11.7	9.9		43.3	46.0				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		25.1	16.4	11.7	9.9		43.3	46.0				
Queue Length 50th (m)		75.0	10.9	4.9	35.4		73.6	85.7				
Queue Length 95th (m)		120.5	39.6	12.9	53.9		93.4	117.4				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1774	809	266	2080		672	706				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.67	0.25	0.33	0.48		0.53	0.73				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Future Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.98	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3476	1525	1750	3476		1718	1566				
Flt Permitted		1.00	1.00	0.14	1.00		0.95	1.00				
Satd. Flow (perm)		3476	1525	252	3476		1718	1566				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
RTOR Reduction (vph)	0	0	31	0	0	0	0	107	0	0	0	0
Lane Group Flow (vph)	0	1187	175	89	1006	0	359	411	0	0	0	0
Confl. Peds. (#/hr)			2	2			11		5	5		11
Heavy Vehicles (%)	0%	5%	2%	2%	5%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		61.2	61.2	71.8	71.8		35.2	36.2				
Effective Green, g (s)		61.2	61.2	72.8	71.8		36.2	36.2				
Actuated g/C Ratio		0.51	0.51	0.61	0.60		0.30	0.30				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1772	777	260	2079		518	472				
v/s Ratio Prot		c0.34		0.02	c0.29			c0.26				
v/s Ratio Perm			0.11	0.18			0.21					
v/c Ratio		0.67	0.22	0.34	0.48		0.69	0.87				
Uniform Delay, d1		21.9	16.3	13.7	13.6		37.0	39.7				
Progression Factor		0.98	1.19	0.79	0.60		1.00	1.00				
Incremental Delay, d2		1.8	0.6	0.8	0.8		4.0	16.0				
Delay (s)		23.1	20.0	11.6	9.0		41.0	55.7				
Level of Service		C	B	B	A		D	E				
Approach Delay (s)		22.6			9.2			49.7			0.0	
Approach LOS		C			A			D			A	

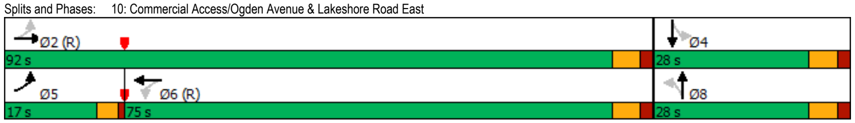
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Future Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			157.4			360.5	
Travel Time (s)		6.8			6.2			11.3			26.0	
Lane Group Flow (vph)	170	1566	0	7	1043	0	1	3	0	57	49	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	11.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	17.0	92.0		75.0	75.0		28.0	28.0		28.0	28.0	
Total Split (%)	14.2%	76.7%		62.5%	62.5%		23.3%	23.3%		23.3%	23.3%	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.36	0.54		0.03	0.43		0.01	0.02		0.46	0.26	
Control Delay	2.8	2.6		4.7	6.0		48.0	0.0		63.1	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.8	2.7		4.7	6.0		48.0	0.0		63.1	17.6	
Queue Length 50th (m)	3.5	35.2		0.4	48.4		0.2	0.0		13.0	0.2	
Queue Length 95th (m)	m6.2	39.7		m0.7	m51.4		1.9	0.0		25.8	11.5	
Internal Link Dist (m)		70.1			61.5			133.4			336.5	
Turn Bay Length (m)	85.0			115.0			90.0			35.0		
Base Capacity (vph)	532	2906		223	2430		249	341		254	329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	71		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.55		0.03	0.43		0.00	0.01		0.22	0.15	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Future Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3442		1784	3299		1786	1579		1747	1585	
Flt Permitted	0.24	1.00		0.16	1.00		0.73	1.00		0.76	1.00	
Satd. Flow (perm)	442	3442		304	3299		1363	1579		1390	1585	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
RTOR Reduction (vph)	0	0	0	0	6	0	0	3	0	0	44	0
Lane Group Flow (vph)	170	1566	0	7	1038	0	1	0	0	57	5	0
Confl. Peds. (#/hr)	7		8	8		7	1		1	1		1
Heavy Vehicles (%)	2%	6%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	98.9	98.9		87.0	87.0		9.1	9.1		9.1	9.1	
Effective Green, g (s)	99.9	98.9		87.0	87.0		9.1	9.1		9.1	9.1	
Actuated g/C Ratio	0.83	0.82		0.72	0.72		0.08	0.08		0.08	0.08	
Clearance Time (s)	4.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	464	2836		220	2391		103	119		105	120	
v/s Ratio Prot	0.03	c0.45			0.31			0.00			0.00	
v/s Ratio Perm	0.28			0.02			0.00			c0.04		
v/c Ratio	0.37	0.55		0.03	0.43		0.01	0.00		0.54	0.04	
Uniform Delay, d1	2.7	3.4		4.6	6.6		51.3	51.3		53.4	51.4	
Progression Factor	0.56	0.54		0.69	0.79		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.2	0.5		0.0	0.0		5.6	0.1	
Delay (s)	1.9	2.5		3.4	5.7		51.3	51.3		59.1	51.5	
Level of Service	A	A		A	A		D	D		E	D	
Approach Delay (s)		2.4			5.7			51.3			55.6	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Future Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1621	0	115	876	0	328	538	0	0	11	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	68.0	68.0		11.0	79.0		30.0	30.0		11.0	11.0	
Total Split (%)	56.7%	56.7%		9.2%	65.8%		25.0%	25.0%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
v/c Ratio	0.01	0.92		0.59	0.43		0.92	0.96			0.06	
Control Delay	15.3	33.3		36.6	17.9		73.8	56.4			0.7	
Queue Delay	0.0	0.3		0.0	0.0		0.0	0.0			0.0	
Total Delay	15.3	33.6		36.6	17.9		73.8	56.4			0.7	
Queue Length 50th (m)	0.4	167.3		14.8	52.8		76.8	86.6			0.0	
Queue Length 95th (m)	m0.7	#187.2		33.4	73.0		#160.4	#184.6			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0			30.0			90.0					
Base Capacity (vph)	316	1769		200	2056		358	561			173	
Starvation Cap Reductn	0	15		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.01	0.92		0.57	0.43		0.92	0.96			0.06	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Future Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.86			0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1822	3386		1750	3380		1660	1534			1628	
Flt Permitted	0.32	1.00		0.07	1.00		0.75	0.98			0.99	
Satd. Flow (perm)	608	3386		122	3380		1311	1507			1628	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
RTOR Reduction (vph)	0	9	0	0	0	0	0	149	0	0	11	0
Lane Group Flow (vph)	3	1612	0	115	876	0	328	389	0	0	0	0
Confl. Peds. (#/hr)	2		4	4		2	1					1
Heavy Vehicles (%)	0%	6%	2%	2%	8%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Actuated Green, G (s)	57.6	57.6		68.2	68.2		32.8	32.8			1.0	
Effective Green, g (s)	57.6	57.6		69.2	68.2		32.8	32.8			1.0	
Actuated g/C Ratio	0.48	0.48		0.58	0.57		0.27	0.27			0.01	
Clearance Time (s)	6.0	6.0		3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	291	1625		187	1920		358	411			13	
v/s Ratio Prot		c0.48		c0.04	0.26						c0.00	
v/s Ratio Perm	0.00			0.31			0.25	c0.26				
v/c Ratio	0.01	0.99		0.61	0.46		0.92	0.95			0.01	
Uniform Delay, d1	16.3	31.0		24.6	15.1		42.3	42.7			59.0	
Progression Factor	1.07	0.93		1.60	1.38		1.00	1.00			1.00	
Incremental Delay, d2	0.1	19.6		5.3	0.7		27.3	30.8			0.2	
Delay (s)	17.5	48.3		44.5	21.5		69.6	73.5			59.2	
Level of Service	B	D		D	C		E	E			E	
Approach Delay (s)		48.3			24.1			72.0			59.2	
Approach LOS		D			C			E			E	

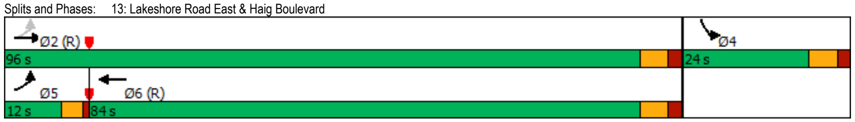
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	2006	1227	41	35	41
Future Volume (vph)	112	2006	1227	41	35	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	112	2006	1268	0	76	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	7.0	8.0	8.0		5.0	
Minimum Split (s)	12.0	22.0	22.0		24.0	
Total Split (s)	12.0	96.0	84.0		24.0	
Total Split (%)	10.0%	80.0%	70.0%		20.0%	
Yellow Time (s)	3.0	4.0	4.0		4.0	
All-Red Time (s)	1.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0		-1.0	
Total Lost Time (s)	3.0	6.0	6.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
v/c Ratio	0.28	0.67	0.48		0.45	
Control Delay	1.7	2.0	4.6		35.6	
Queue Delay	0.0	0.1	0.0		0.0	
Total Delay	1.7	2.1	4.6		35.6	
Queue Length 50th (m)	2.0	33.8	29.9		7.9	
Queue Length 95th (m)	m1.6	m31.5	47.5		22.4	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	411	2988	2616		301	
Starvation Cap Reductn	0	196	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.27	0.72	0.48		0.25	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	2006	1227	41	35	41
Future Volume (vph)	112	2006	1227	41	35	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0		5.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1789	3476	3458		1691	
Flt Permitted	0.18	1.00	1.00		0.98	
Satd. Flow (perm)	347	3476	3458		1691	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	2006	1227	41	35	41
RTOR Reduction (vph)	0	0	2	0	38	0
Lane Group Flow (vph)	112	2006	1266	0	38	0
Confl. Peds. (#/hr)	7			7	1	3
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	100.8	100.8	89.6		7.2	
Effective Green, g (s)	101.8	100.8	89.6		8.2	
Actuated g/C Ratio	0.85	0.84	0.75		0.07	
Clearance Time (s)	4.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	392	2919	2581		115	
v/s Ratio Prot	0.02	c0.58	0.37		c0.02	
v/s Ratio Perm	0.22					
v/c Ratio	0.29	0.69	0.49		0.33	
Uniform Delay, d1	2.7	3.6	6.1		53.3	
Progression Factor	0.54	0.34	0.63		1.00	
Incremental Delay, d2	0.2	0.7	0.6		1.7	
Delay (s)	1.7	1.9	4.4		55.0	
Level of Service	A	A	A		D	
Approach Delay (s)		1.9	4.4		55.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

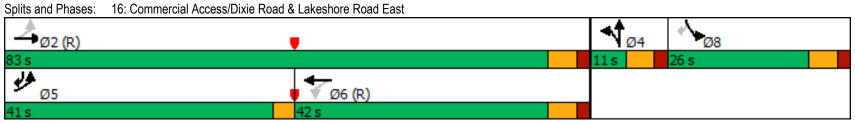
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Future Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	593	1345	0	9	1091	0	0	3	0	151	0	303
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0		11.0	11.0		26.0		11.0
Total Split (s)	41.0	83.0		42.0	42.0		11.0	11.0		26.0		41.0
Total Split (%)	34.2%	69.2%		35.0%	35.0%		9.2%	9.2%		21.7%		34.2%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0			0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.89	0.51		0.06	0.82			0.04		0.62		0.38
Control Delay	30.7	6.3		30.4	40.6			56.3		60.0		9.6
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		0.0
Total Delay	30.7	6.3		30.4	40.6			56.3		60.0		9.6
Queue Length 50th (m)	74.3	14.5		1.4	121.7			0.7		34.0		18.9
Queue Length 95th (m)	#194.1	161.5		5.8	#188.5			4.0		53.3		38.2
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0						90.0		
Base Capacity (vph)	676	2624		150	1325			76		316		816
Starvation Cap Reductn	0	0		0	0			0		0		0
Spillback Cap Reductn	0	0		0	0			0		0		0
Storage Cap Reductn	0	0		0	0			0		0		0
Reduced v/c Ratio	0.88	0.51		0.06	0.82			0.04		0.48		0.37

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Future Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00
Frt	1.00	1.00		1.00	0.98			1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95		0.95		1.00
Satd. Flow (prot)	1690	3471		1825	3400			1825		1807		1493
Flt Permitted	0.09	1.00		0.20	1.00			0.95		0.95		1.00
Satd. Flow (perm)	160	3471		390	3400			1825		1807		1493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
RTOR Reduction (vph)	0	1	0	0	12	0	0	0	0	0	0	72
Lane Group Flow (vph)	593	1344	0	9	1079	0	0	3	0	151	0	231
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	8%	5%	0%	0%	5%	4%	0%	0%	0%	1%	0%	9%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	85.9	85.9		41.6	41.6			1.0		15.1		56.4
Effective Green, g (s)	86.9	85.9		41.6	41.6			1.0		16.1		56.4
Actuated g/C Ratio	0.72	0.72		0.35	0.35			0.01		0.13		0.47
Clearance Time (s)	3.0	6.0		6.0	6.0			6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0		3.0
Lane Grp Cap (vph)	655	2484		135	1178			15		242		701
v/s Ratio Prot	c0.32	0.39			c0.32			c0.00		c0.08		0.11
v/s Ratio Perm	0.34			0.02								0.04
v/c Ratio	0.91	0.54		0.07	0.92			0.20		0.62		0.33
Uniform Delay, d1	31.0	7.9		26.2	37.5			59.1		49.1		19.9
Progression Factor	0.56	0.82		1.00	1.00			1.00		1.00		1.00
Incremental Delay, d2	12.9	0.6		1.0	12.5			6.5		4.9		0.3
Delay (s)	30.1	7.2		27.2	50.1			65.6		54.0		20.2
Level of Service	C	A		C	D			E		D		C
Approach Delay (s)		14.2			49.9			65.6			31.5	
Approach LOS		B			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

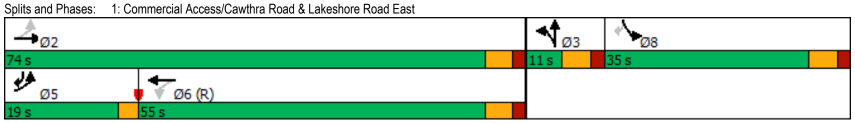
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Future Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		0	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	309	976	0	0	1779	0	0	7	0	747	0	425
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		3	3		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0		11.0	11.0		35.0		10.0
Total Split (s)	19.0	74.0		55.0	55.0		11.0	11.0		35.0		19.0
Total Split (%)	15.8%	61.7%		45.8%	45.8%		9.2%	9.2%		29.2%		15.8%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0			0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.96	0.43			1.06			0.09		0.89		0.62
Control Delay	75.0	11.7			63.8			54.4		58.0		24.5
Queue Delay	0.0	0.0			0.0			0.0		0.0		0.0
Total Delay	75.0	11.7			63.8			54.4		58.0		24.5
Queue Length 50th (m)	54.6	52.4			~237.1			1.4		87.2		56.1
Queue Length 95th (m)	#115.3	84.8			#311.3			6.3		#117.3		87.9
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0									200.0		
Base Capacity (vph)	321	2291			1680			78		859		682
Starvation Cap Reductn	0	0			0			0		0		0
Spillback Cap Reductn	0	0			0			0		0		0
Storage Cap Reductn	0	0			0			0		0		0
Reduced v/c Ratio	0.96	0.43			1.06			0.09		0.87		0.62

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 145
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Future Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0			6.0		5.0		3.0
Lane Util. Factor	1.00	0.95			0.95			1.00		0.97		1.00
Frpb, ped/bikes	1.00	1.00			0.98			1.00		1.00		0.97
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.96			0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00			0.99		0.95		1.00
Satd. Flow (prot)	1772	3543			3382			1858		3437		1576
Flt Permitted	0.07	1.00			1.00			0.99		0.95		1.00
Satd. Flow (perm)	131	3543			3382			1858		3437		1576
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
RTOR Reduction (vph)	0	0	0	0	31	0	0	1	0	0	0	66
Lane Group Flow (vph)	309	976	0	0	1748	0	0	6	0	747	0	359
Confl. Peds. (#/hr)	49		20	20		49	23					23
Heavy Vehicles (%)	3%	3%	0%	0%	1%	3%	0%	0%	0%	3%	0%	1%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		3	3		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	72.8	72.8			53.8			1.0		28.2		44.2
Effective Green, g (s)	73.8	72.8			53.8			1.0		29.2		44.2
Actuated g/C Ratio	0.61	0.61			0.45			0.01		0.24		0.37
Clearance Time (s)	3.0	6.0			6.0			6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0		3.0
Lane Grp Cap (vph)	313	2149			1516			15		836		580
v/s Ratio Prot	c0.14	0.28			c0.52			c0.00		c0.22		0.08
v/s Ratio Perm	0.47											0.15
v/c Ratio	0.99	0.45			1.15			0.40		0.89		0.62
Uniform Delay, d1	40.0	12.8			33.1			59.2		43.9		31.0
Progression Factor	1.00	1.00			0.83			1.00		1.00		1.00
Incremental Delay, d2	46.9	0.7			75.9			16.6		11.9		2.0
Delay (s)	86.9	13.5			103.4			75.8		55.8		33.0
Level of Service	F	B			F			E		E		C
Approach Delay (s)		31.2			103.4			75.8			47.5	
Approach LOS		C			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	66.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Future Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	11	1770	0	8	1656	0	102	36	0	5	5	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	90.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	
Total Split (%)	75.0%	75.0%		75.0%	75.0%		25.0%	25.0%		25.0%	25.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.06	0.64		0.06	0.59		0.63	0.16		0.03	0.03	
Control Delay	6.5	15.0		4.1	7.0		66.2	26.4		44.0	29.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.5	15.0		4.1	7.0		66.2	26.4		44.0	29.4	
Queue Length 50th (m)	0.9	164.0		0.3	105.8		23.2	3.2		1.1	0.2	
Queue Length 95th (m)	m1.7	212.0		m0.9	130.6		39.4	12.3		4.7	3.8	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	175	2782		145	2823		280	364		275	335	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.64		0.06	0.59		0.36	0.10		0.02	0.01	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Future Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3547		1750	3605		1765	1737		1779	1659	
Flt Permitted	0.12	1.00		0.10	1.00		0.75	1.00		0.73	1.00	
Satd. Flow (perm)	223	3547		186	3605		1401	1737		1374	1659	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
RTOR Reduction (vph)	0	5	0	0	1	0	0	19	0	0	4	0
Lane Group Flow (vph)	11	1765	0	8	1655	0	102	17	0	5	1	0
Confl. Peds. (#/hr)	5		5	5		5	7		2	2		7
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	94.0	94.0		94.0	94.0		14.0	14.0		14.0	14.0	
Effective Green, g (s)	94.0	94.0		94.0	94.0		14.0	14.0		14.0	14.0	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.12	0.12		0.12	0.12	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	2778		145	2823		163	202		160	193	
v/s Ratio Prot		c0.50			0.46			0.01			0.00	
v/s Ratio Perm	0.05			0.04			c0.07			0.00		
v/c Ratio	0.06	0.64		0.06	0.59		0.63	0.09		0.03	0.01	
Uniform Delay, d1	3.0	5.6		2.9	5.2		50.5	47.3		47.0	46.9	
Progression Factor	1.40	2.26		0.81	1.06		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.0		0.7	0.9		7.3	0.2		0.1	0.0	
Delay (s)	4.7	13.7		3.1	6.4		57.8	47.5		47.1	46.9	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		13.6			6.4			55.1			47.0	
Approach LOS		B			A			E			D	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

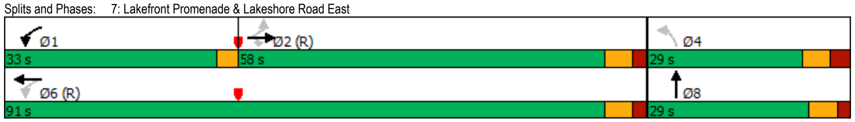
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Future Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1117	351	375	1241	0	203	225	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		29.0	24.0				
Total Split (s)	58.0	58.0	58.0	33.0	91.0		29.0	29.0				
Total Split (%)	48.3%	48.3%	48.3%	27.5%	75.8%		24.2%	24.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.57	0.41	0.75	0.47		0.72	0.37				
Control Delay		20.9	17.3	30.0	8.5		62.6	1.8				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		20.9	17.3	30.0	8.5		62.6	1.8				
Queue Length 50th (m)		65.6	29.2	50.9	56.2		45.5	0.0				
Queue Length 95th (m)		104.1	60.9	88.2	83.6		69.2	0.0				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1951	848	611	2642		332	639				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.57	0.41	0.61	0.47		0.61	0.35				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Future Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3614	1510	1750	3579		1733	1563				
Flt Permitted		1.00	1.00	0.17	1.00		0.95	1.00				
Satd. Flow (perm)		3614	1510	312	3579		1733	1563				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
RTOR Reduction (vph)	0	0	34	0	0	0	0	189	0	0	0	0
Lane Group Flow (vph)	0	1117	317	375	1241	0	203	36	0	0	0	0
Confl. Peds. (#/hr)	4		5	5		4	6		6	6		6
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		64.8	64.8	88.6	88.6		18.4	19.4				
Effective Green, g (s)		64.8	64.8	89.6	88.6		19.4	19.4				
Actuated g/C Ratio		0.54	0.54	0.75	0.74		0.16	0.16				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1951	815	494	2642		280	252				
v/s Ratio Prot		c0.31		c0.14	0.35			0.02				
v/s Ratio Perm			0.21	0.43			c0.12					
v/c Ratio		0.57	0.39	0.76	0.47		0.72	0.14				
Uniform Delay, d1		18.4	16.1	17.3	6.3		47.8	43.2				
Progression Factor		0.96	1.06	1.68	1.19		1.00	1.00				
Incremental Delay, d2		1.0	1.2	6.0	0.5		9.0	0.3				
Delay (s)		18.7	18.2	35.1	8.0		56.7	43.4				
Level of Service		B	B	D	A		E	D				
Approach Delay (s)		18.5			14.3			49.7			0.0	
Approach LOS		B			B			D			A	

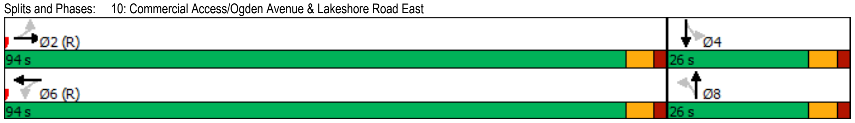
Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Future Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			158.0			360.5	
Travel Time (s)		6.8			6.2			11.4			26.0	
Lane Group Flow (vph)	105	1325	0	0	1636	0	3	2	0	95	113	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	94.0	94.0		94.0	94.0		26.0	26.0		26.0	26.0	
Total Split (%)	78.3%	78.3%		78.3%	78.3%		21.7%	21.7%		21.7%	21.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.59	0.47			0.59		0.02	0.01		0.61	0.49	
Control Delay	20.7	1.5			6.9		44.7	37.0		66.2	30.6	
Queue Delay	0.0	0.0			0.3		0.0	0.0		0.0	0.0	
Total Delay	20.7	1.5			7.2		44.7	37.0		66.2	30.6	
Queue Length 50th (m)	1.5	9.6			102.2		0.7	0.2		21.7	11.2	
Queue Length 95th (m)	#18.4	14.1			188.3		3.5	2.6		37.5	27.8	
Internal Link Dist (m)		70.1			61.5			134.0			336.5	
Turn Bay Length (m)	85.0						90.0			35.0		
Base Capacity (vph)	178	2844			2793		195	288		231	313	
Starvation Cap Reductn	0	0			467		0	0		0	0	
Spillback Cap Reductn	0	69			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.59	0.48			0.70		0.02	0.01		0.41	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Future Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00			0.99		1.00	0.93		1.00	0.85	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	3614			3545		1776	1727		1741	1568	
Flt Permitted	0.12	1.00			1.00		0.63	1.00		0.76	1.00	
Satd. Flow (perm)	227	3614			3545		1172	1727		1386	1568	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
RTOR Reduction (vph)	0	0	0	0	2	0	0	1	0	0	55	0
Lane Group Flow (vph)	105	1325	0	0	1634	0	3	1	0	95	58	0
Confl. Peds. (#/hr)	7		2	2		7	5		3	3		5
Heavy Vehicles (%)	2%	1%	1%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	94.5	94.5			94.5		13.5	13.5		13.5	13.5	
Effective Green, g (s)	94.5	94.5			94.5		13.5	13.5		13.5	13.5	
Actuated g/C Ratio	0.79	0.79			0.79		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	2846			2791		131	194		155	176	
v/s Ratio Prot		0.37			0.46			0.00			0.04	
v/s Ratio Perm	c0.46						0.00			c0.07		
v/c Ratio	0.59	0.47			0.59		0.02	0.01		0.61	0.33	
Uniform Delay, d1	5.1	4.3			5.0		47.4	47.3		50.8	49.1	
Progression Factor	0.85	0.21			1.09		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.5			0.8		0.1	0.0		7.0	1.1	
Delay (s)	16.7	1.4			6.3		47.5	47.3		57.8	50.2	
Level of Service	B	A			A		D	D		E	D	
Approach Delay (s)		2.5			6.3			47.4			53.6	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Future Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1462	0	317	1449	0	195	212	0	0	5	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	60.0	60.0		22.0	82.0		27.0	27.0		11.0	11.0	
Total Split (%)	50.0%	50.0%		18.3%	68.3%		22.5%	22.5%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
v/c Ratio	0.02	0.84		0.84	0.58		0.80	0.49			0.03	
Control Delay	25.0	32.4		47.6	14.2		70.9	12.3			0.2	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0			0.0	
Total Delay	25.0	32.4		47.6	14.4		70.9	12.3			0.2	
Queue Length 50th (m)	0.3	118.0		60.8	97.4		45.4	4.4			0.0	
Queue Length 95th (m)	m1.0	#206.7		#110.6	145.1		#89.5	27.7			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0			30.0			90.0					
Base Capacity (vph)	170	1747		391	2493		253	442			176	
Starvation Cap Reductn	0	1		0	356		0	0			0	
Spillback Cap Reductn	0	0		0	82		0	4			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.02	0.84		0.81	0.68		0.77	0.48			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Future Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.87			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99			0.98	
Satd. Flow (prot)	1788	3414		1750	3575		1662	1541			1731	
Flt Permitted	0.18	1.00		0.07	1.00		0.75	0.97			0.98	
Satd. Flow (perm)	338	3414		126	3575		1320	1503			1731	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
RTOR Reduction (vph)	0	31	0	0	0	0	0	155	0	0	5	0
Lane Group Flow (vph)	3	1431	0	317	1449	0	195	57	0	0	0	0
Confl. Peds. (#/hr)	2		6	6		2						
Heavy Vehicles (%)	2%	2%	0%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Actuated Green, G (s)	55.6	55.6		78.9	78.9		22.1	22.1			1.0	
Effective Green, g (s)	55.6	55.6		79.9	78.9		22.1	22.1			1.0	
Actuated g/C Ratio	0.46	0.46		0.67	0.66		0.18	0.18			0.01	
Clearance Time (s)	6.0	6.0		3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	156	1581		372	2350		243	276			14	
v/s Ratio Prot		c0.42		c0.15	0.41						c0.00	
v/s Ratio Perm	0.01			0.42			c0.15	0.04				
v/c Ratio	0.02	0.91		0.85	0.62		0.80	0.21			0.00	
Uniform Delay, d1	17.4	29.8		36.7	11.8		46.9	41.5			59.0	
Progression Factor	1.33	1.05		1.05	1.32		1.00	1.00			1.00	
Incremental Delay, d2	0.2	8.4		12.8	0.9		17.2	0.4			0.1	
Delay (s)	23.4	39.7		51.3	16.6		64.0	41.9			59.1	
Level of Service	C	D		D	B		E	D			E	
Approach Delay (s)		39.7			22.8			52.5			59.1	
Approach LOS		D			C			D			E	

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	1245	1916	84	26	114
Future Volume (vph)	64	1245	1916	84	26	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	64	1245	2000	0	140	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	
Minimum Split (s)	22.0	22.0	22.0		9.5	
Total Split (s)	102.0	102.0	102.0		18.0	
Total Split (%)	85.0%	85.0%	85.0%		15.0%	
Yellow Time (s)	4.0	4.0	4.0		3.5	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max		None	
v/c Ratio	0.53	0.43	0.69		0.73	
Control Delay	18.3	0.8	4.4		58.5	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	18.3	1.0	4.4		58.5	
Queue Length 50th (m)	0.5	5.3	47.0		22.6	
Queue Length 95th (m)	m1.6	5.6	m40.9		#44.3	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	120	2927	2902		220	
Starvation Cap Reductn	0	853	0		0	
Spillback Cap Reductn	0	0	20		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.53	0.60	0.69		0.64	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	1245	1916	84	26	114
Future Volume (vph)	64	1245	1916	84	26	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.89	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1789	3579	3545		1636	
Flt Permitted	0.08	1.00	1.00		0.99	
Satd. Flow (perm)	146	3579	3545		1636	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	1245	1916	84	26	114
RTOR Reduction (vph)	0	0	2	0	37	0
Lane Group Flow (vph)	64	1245	1998	0	103	0
Confl. Peds. (#/hr)	15			15	9	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	98.1	98.1	98.1		11.4	
Effective Green, g (s)	98.1	98.1	98.1		11.4	
Actuated g/C Ratio	0.82	0.82	0.82		0.10	
Clearance Time (s)	6.0	6.0	6.0		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	119	2925	2898		155	
v/s Ratio Prot		0.35	c0.56		c0.06	
v/s Ratio Perm	0.44					
v/c Ratio	0.54	0.43	0.69		0.66	
Uniform Delay, d1	3.6	3.1	4.6		52.4	
Progression Factor	1.02	0.14	0.72		1.00	
Incremental Delay, d2	10.7	0.3	0.8		10.2	
Delay (s)	14.3	0.7	4.1		62.7	
Level of Service	B	A	A		E	
Approach Delay (s)		1.4	4.1		62.7	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

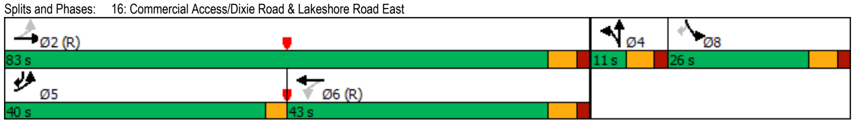
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Future Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	297	929	0	2	1559	0	0	4	0	278	0	679
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Detector Phase	5	2		6	6		4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0		11.0	11.0		26.0		11.0
Total Split (s)	40.0	83.0		43.0	43.0		11.0	11.0		26.0		40.0
Total Split (%)	33.3%	69.2%		35.8%	35.8%		9.2%	9.2%		21.7%		33.3%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0			0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None		None
v/c Ratio	0.70	0.38		0.01	0.93			0.05		0.78		0.96
Control Delay	24.4	9.8		24.5	41.4			56.8		61.8		51.0
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0		0.0
Total Delay	24.4	9.8		24.5	41.4			56.8		61.8		51.0
Queue Length 50th (m)	39.8	54.7		0.2	173.1			0.9		60.9		120.5
Queue Length 95th (m)	54.7	87.3		2.3	#305.4			4.7		#111.2		151.0
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0						90.0		
Base Capacity (vph)	616	2476		282	1677			79		361		882
Starvation Cap Reductn	0	0		0	0			0		0		0
Spillback Cap Reductn	0	0		0	0			0		0		0
Storage Cap Reductn	0	0		0	0			0		0		0
Reduced v/c Ratio	0.48	0.38		0.01	0.93			0.05		0.77		0.77

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Future Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0			6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		1.00		1.00
Frt	1.00	1.00		1.00	0.98			1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95		1.00
Satd. Flow (prot)	1772	3571		1823	3497			1897		1807		1569
Flt Permitted	0.07	1.00		0.31	1.00			0.99		0.95		1.00
Satd. Flow (perm)	134	3571		590	3497			1897		1807		1569
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
RTOR Reduction (vph)	0	1	0	0	9	0	0	0	0	0	0	79
Lane Group Flow (vph)	297	928	0	2	1550	0	0	4	0	278	0	600
Confl. Peds. (#/hr)	1		2	2		1	16					16
Heavy Vehicles (%)	3%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6								8
Actuated Green, G (s)	78.4	78.4		52.5	52.5			1.0		22.6		45.5
Effective Green, g (s)	79.4	78.4		52.5	52.5			1.0		23.6		45.5
Actuated g/C Ratio	0.66	0.65		0.44	0.44			0.01		0.20		0.38
Clearance Time (s)	3.0	6.0		6.0	6.0			6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0		3.0
Lane Grp Cap (vph)	414	2333		258	1529			15		355		594
v/s Ratio Prot	0.14	0.26			c0.44			c0.00		0.15		c0.19
v/s Ratio Perm	0.33			0.00								0.19
v/c Ratio	0.72	0.40		0.01	1.01			0.27		0.78		1.01
Uniform Delay, d1	33.8	9.7		19.0	33.8			59.1		45.8		37.2
Progression Factor	0.59	1.15		1.00	1.00			1.00		1.00		1.00
Incremental Delay, d2	5.6	0.5		0.1	26.5			9.3		10.8		39.3
Delay (s)	25.7	11.7		19.1	60.2			68.5		56.5		76.5
Level of Service	C	B		B	E			E		E		E
Approach Delay (s)		15.1			60.2			68.5			70.7	
Approach LOS		B			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX G-6

Analysis Scenario 1B Synchro HCM 2000 Capacity Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Future Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0	35.0	11.0	11.0		35.0		10.0
Total Split (s)	32.0	74.0		42.0	42.0	35.0	11.0	11.0		35.0		32.0
Total Split (%)	26.7%	61.7%		35.0%	35.0%	29.2%	9.2%	9.2%		29.2%		26.7%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.79	0.48		0.02	0.59	0.69				0.67		0.50
Control Delay	26.3	8.7		30.7	30.8	9.0				49.7		14.6
Queue Delay	0.0	0.0		0.0	0.0	0.0				0.0		0.0
Total Delay	26.3	8.7		30.7	30.8	9.0				49.7		14.6
Queue Length 50th (m)	55.2	59.6		0.4	80.4	32.1				48.0		34.8
Queue Length 95th (m)	#111.8	86.8		m1.3	123.9	51.2				60.8		53.5
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0			15.0		70.0				200.0		
Base Capacity (vph)	618	2556		197	1580	1121				819		767
Starvation Cap Reductn	0	0		0	0	0				0		0
Spillback Cap Reductn	0	0		0	0	0				0		0
Storage Cap Reductn	0	0		0	0	0				0		0
Reduced v/c Ratio	0.78	0.48		0.02	0.59	0.65				0.52		0.49

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 105

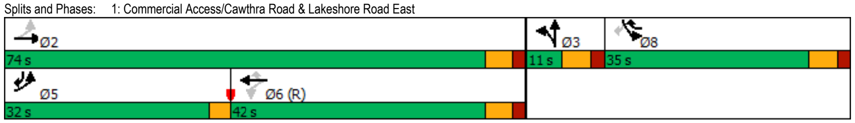
Control Type: Actuated-Coordinated

\# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Future Volume (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0				5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.97		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97				1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (prot)	1753	3579		1820	3476	1480				3278		1522
Flt Permitted	0.20	1.00		0.23	1.00	1.00				0.95		1.00
Satd. Flow (perm)	365	3579		435	3476	1480				3278		1522
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	482	1232	0	3	932	728	0	0	0	425	0	379
RTOR Reduction (vph)	0	0	0	0	0	104	0	0	0	0	0	84
Lane Group Flow (vph)	482	1232	0	3	932	624	0	0	0	425	0	295
Confl. Peds. (#/hr)	25		8	8		25	13					13
Heavy Vehicles (%)	4%	2%	0%	0%	5%	7%	0%	0%	0%	8%	0%	6%
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	85.7	85.7		54.6	54.6	76.9				22.3		50.4
Effective Green, g (s)	86.7	85.7		54.6	54.6	76.9				23.3		50.4
Actuated g/C Ratio	0.72	0.71		0.46	0.46	0.64				0.19		0.42
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0				6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	600	2556		197	1581	1022				636		639
v/s Ratio Prot	c0.19	0.34			0.27	c0.11				c0.13		0.11
v/s Ratio Perm	0.39			0.01		0.31						0.09
v/c Ratio	0.80	0.48		0.02	0.59	0.61				0.67		0.46
Uniform Delay, d1	19.1	7.5		17.9	24.4	12.7				44.8		25.0
Progression Factor	1.00	1.00		1.43	1.15	0.92				1.00		1.00
Incremental Delay, d2	7.7	0.7		0.1	1.4	0.9				2.7		0.5
Delay (s)	26.8	8.1		25.8	29.3	12.6				47.4		25.6
Level of Service	C	A		C	C	B				D		C
Approach Delay (s)		13.4			22.0			0.0			37.1	
Approach LOS		B			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Future Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	12	1612	0	16	1479	0	204	9	0	6	11	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	83.0	83.0		83.0	83.0		37.0	37.0		37.0	37.0	
Total Split (%)	69.2%	69.2%		69.2%	69.2%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.07	0.66		0.11	0.62		0.78	0.03		0.02	0.03	
Control Delay	9.2	15.3		7.8	8.5		65.3	20.2		35.5	18.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.2	15.3		7.8	8.5		65.3	20.2		35.5	18.8	
Queue Length 50th (m)	1.0	125.5		1.0	59.6		46.0	0.2		1.2	0.2	
Queue Length 95th (m)	m2.4	178.8		m2.6	71.4		67.3	4.3		4.5	4.8	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	178	2437		145	2394		355	423		364	429	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.66		0.11	0.62		0.57	0.02		0.02	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Future Volume (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3432		1785	3377		1741	1616		1782	1634	
Flt Permitted	0.13	1.00		0.11	1.00		0.75	1.00		0.75	1.00	
Satd. Flow (perm)	252	3432		205	3377		1376	1616		1410	1634	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	1497	115	16	1470	9	204	1	8	6	1	10
RTOR Reduction (vph)	0	4	0	0	0	0	0	6	0	0	8	0
Lane Group Flow (vph)	12	1608	0	16	1479	0	204	3	0	6	3	0
Confl. Peds. (#/hr)	11		11	11		11	3		1	1		3
Heavy Vehicles (%)	0%	5%	2%	0%	8%	2%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	85.1	85.1		85.1	85.1		22.9	22.9		22.9	22.9	
Effective Green, g (s)	85.1	85.1		85.1	85.1		22.9	22.9		22.9	22.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.19	0.19		0.19	0.19	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	2433		145	2394		262	308		269	311	
v/s Ratio Prot		c0.47			0.44			0.00			0.00	
v/s Ratio Perm	0.05			0.08			c0.15			0.00		
v/c Ratio	0.07	0.66		0.11	0.62		0.78	0.01		0.02	0.01	
Uniform Delay, d1	5.3	9.6		5.5	9.0		46.1	39.3		39.5	39.4	
Progression Factor	1.13	1.31		0.78	0.73		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.3		1.5	1.1		13.6	0.0		0.0	0.0	
Delay (s)	6.7	13.9		5.8	7.7		59.7	39.4		39.5	39.4	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		13.8			7.7			58.8			39.4	
Approach LOS		B			A			E			D	

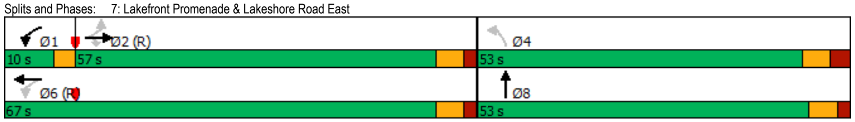
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Future Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1187	206	89	1006	0	359	518	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		40.0	24.0				
Total Split (s)	57.0	57.0	57.0	10.0	67.0		53.0	53.0				
Total Split (%)	47.5%	47.5%	47.5%	8.3%	55.8%		44.2%	44.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.67	0.25	0.33	0.48		0.69	0.90				
Control Delay		25.1	16.4	11.8	9.9		43.3	46.0				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		25.1	16.4	11.8	9.9		43.3	46.0				
Queue Length 50th (m)		75.0	10.7	5.0	35.7		73.6	85.7				
Queue Length 95th (m)		120.5	39.6	12.9	53.5		93.4	117.4				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1774	809	266	2080		672	706				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.67	0.25	0.33	0.48		0.53	0.73				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Future Volume (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.98	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3476	1525	1750	3476		1718	1566				
Flt Permitted		1.00	1.00	0.14	1.00		0.95	1.00				
Satd. Flow (perm)		3476	1525	252	3476		1718	1566				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1187	206	89	1006	0	359	0	518	0	0	0
RTOR Reduction (vph)	0	0	31	0	0	0	0	107	0	0	0	0
Lane Group Flow (vph)	0	1187	175	89	1006	0	359	411	0	0	0	0
Confl. Peds. (#/hr)			2	2			11		5	5		11
Heavy Vehicles (%)	0%	5%	2%	2%	5%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		61.2	61.2	71.8	71.8		35.2	36.2				
Effective Green, g (s)		61.2	61.2	72.8	71.8		36.2	36.2				
Actuated g/C Ratio		0.51	0.51	0.61	0.60		0.30	0.30				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1772	777	260	2079		518	472				
v/s Ratio Prot		c0.34		0.02	c0.29			c0.26				
v/s Ratio Perm			0.11	0.18			0.21					
v/c Ratio		0.67	0.22	0.34	0.48		0.69	0.87				
Uniform Delay, d1		21.9	16.3	13.7	13.6		37.0	39.7				
Progression Factor		0.98	1.19	0.79	0.60		1.00	1.00				
Incremental Delay, d2		1.8	0.6	0.8	0.8		4.0	16.0				
Delay (s)		23.1	20.0	11.6	9.0		41.0	55.7				
Level of Service		C	B	B	A		D	E				
Approach Delay (s)		22.6			9.2			49.7			0.0	
Approach LOS		C			A			D			A	

Intersection Summary

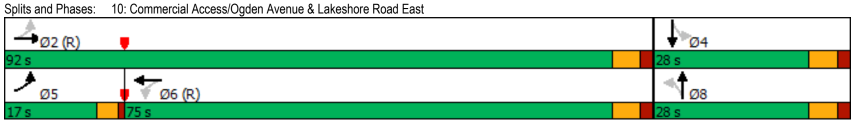
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Future Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			157.4			360.5	
Travel Time (s)		6.8			6.2			11.3			26.0	
Lane Group Flow (vph)	170	1566	0	7	1043	0	1	3	0	57	49	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	11.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	17.0	92.0		75.0	75.0		28.0	28.0		28.0	28.0	
Total Split (%)	14.2%	76.7%		62.5%	62.5%		23.3%	23.3%		23.3%	23.3%	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.36	0.54		0.03	0.43		0.01	0.02		0.46	0.26	
Control Delay	2.8	2.6		4.9	6.4		48.0	0.0		63.1	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.8	2.7		4.9	6.4		48.0	0.0		63.1	17.6	
Queue Length 50th (m)	3.5	35.2		0.4	52.0		0.2	0.0		13.0	0.2	
Queue Length 95th (m)	m6.2	39.7		m0.7	m51.4		1.9	0.0		25.8	11.5	
Internal Link Dist (m)		70.1			61.5			133.4			336.5	
Turn Bay Length (m)	85.0			115.0			90.0			35.0		
Base Capacity (vph)	532	2906		223	2430		249	341		254	329	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	71		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.55		0.03	0.43		0.00	0.01		0.22	0.15	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Future Volume (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3442		1784	3299		1786	1579		1747	1585	
Flt Permitted	0.24	1.00		0.16	1.00		0.73	1.00		0.76	1.00	
Satd. Flow (perm)	442	3442		304	3299		1363	1579		1390	1585	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	1563	3	7	922	121	1	0	3	57	1	48
RTOR Reduction (vph)	0	0	0	0	6	0	0	3	0	0	44	0
Lane Group Flow (vph)	170	1566	0	7	1038	0	1	0	0	57	5	0
Confl. Peds. (#/hr)	7		8	8		7	1		1	1		1
Heavy Vehicles (%)	2%	6%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	98.9	98.9		87.0	87.0		9.1	9.1		9.1	9.1	
Effective Green, g (s)	99.9	98.9		87.0	87.0		9.1	9.1		9.1	9.1	
Actuated g/C Ratio	0.83	0.82		0.72	0.72		0.08	0.08		0.08	0.08	
Clearance Time (s)	4.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	464	2836		220	2391		103	119		105	120	
v/s Ratio Prot	0.03	c0.45			0.31			0.00			0.00	
v/s Ratio Perm	0.28			0.02			0.00			c0.04		
v/c Ratio	0.37	0.55		0.03	0.43		0.01	0.00		0.54	0.04	
Uniform Delay, d1	2.7	3.4		4.6	6.6		51.3	51.3		53.4	51.4	
Progression Factor	0.56	0.54		0.71	0.84		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.2	0.5		0.0	0.0		5.6	0.1	
Delay (s)	1.9	2.5		3.5	6.1		51.3	51.3		59.1	51.5	
Level of Service	A	A		A	A		D	D		E	D	
Approach Delay (s)		2.4			6.0			51.3			55.6	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Future Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1621	0	115	876	0	328	538	0	0	11	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	68.0	68.0		11.0	79.0		30.0	30.0		11.0	11.0	
Total Split (%)	56.7%	56.7%		9.2%	65.8%		25.0%	25.0%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
v/c Ratio	0.01	0.92		0.59	0.43		0.92	0.96			0.06	
Control Delay	15.3	33.3		36.7	17.7		73.8	56.4			0.7	
Queue Delay	0.0	0.3		0.0	0.0		0.0	0.0			0.0	
Total Delay	15.3	33.6		36.7	17.7		73.8	56.4			0.7	
Queue Length 50th (m)	0.4	167.3		15.1	49.4		76.8	86.6			0.0	
Queue Length 95th (m)	m0.7	#187.2		33.3	73.7		#160.4	#184.6			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0			30.0			90.0					
Base Capacity (vph)	316	1769		200	2056		358	561			173	
Starvation Cap Reductn	0	15		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.01	0.92		0.57	0.43		0.92	0.96			0.06	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Future Volume (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.86			0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1822	3386		1750	3380		1660	1534			1628	
Flt Permitted	0.32	1.00		0.07	1.00		0.75	0.98			0.99	
Satd. Flow (perm)	608	3386		122	3380		1311	1507			1628	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1436	185	115	876	0	364	0	502	2	0	9
RTOR Reduction (vph)	0	9	0	0	0	0	0	149	0	0	11	0
Lane Group Flow (vph)	3	1612	0	115	876	0	328	389	0	0	0	0
Confl. Peds. (#/hr)	2		4	4		2	1					1
Heavy Vehicles (%)	0%	6%	2%	2%	8%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Actuated Green, G (s)	57.6	57.6		68.2	68.2		32.8	32.8			1.0	
Effective Green, g (s)	57.6	57.6		69.2	68.2		32.8	32.8			1.0	
Actuated g/C Ratio	0.48	0.48		0.58	0.57		0.27	0.27			0.01	
Clearance Time (s)	6.0	6.0		3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	291	1625		187	1920		358	411			13	
v/s Ratio Prot		c0.48		c0.04	0.26						c0.00	
v/s Ratio Perm	0.00			0.31			0.25	c0.26				
v/c Ratio	0.01	0.99		0.61	0.46		0.92	0.95			0.01	
Uniform Delay, d1	16.3	31.0		24.6	15.1		42.3	42.7			59.0	
Progression Factor	1.07	0.93		1.60	1.36		1.00	1.00			1.00	
Incremental Delay, d2	0.1	19.6		5.3	0.7		27.3	30.8			0.2	
Delay (s)	17.5	48.3		44.6	21.2		69.6	73.5			59.2	
Level of Service	B	D		D	C		E	E			E	
Approach Delay (s)		48.3			23.9			72.0			59.2	
Approach LOS		D			C			E			E	

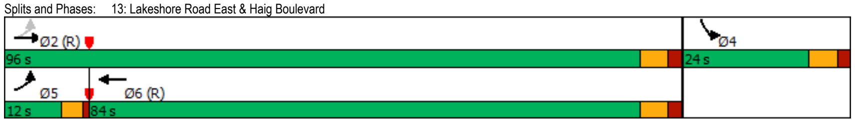
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	2006	1227	41	35	41
Future Volume (vph)	112	2006	1227	41	35	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	112	2006	1268	0	76	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	7.0	8.0	8.0		5.0	
Minimum Split (s)	12.0	22.0	22.0		24.0	
Total Split (s)	12.0	96.0	84.0		24.0	
Total Split (%)	10.0%	80.0%	70.0%		20.0%	
Yellow Time (s)	3.0	4.0	4.0		4.0	
All-Red Time (s)	1.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0		-1.0	
Total Lost Time (s)	3.0	6.0	6.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
v/c Ratio	0.28	0.67	0.48		0.45	
Control Delay	1.7	2.0	4.3		35.6	
Queue Delay	0.0	0.1	0.0		0.0	
Total Delay	1.7	2.1	4.3		35.6	
Queue Length 50th (m)	2.0	33.8	29.4		7.9	
Queue Length 95th (m)	m1.6	m31.5	46.9		22.4	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	411	2988	2616		301	
Starvation Cap Reductn	0	196	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.27	0.72	0.48		0.25	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	2006	1227	41	35	41
Future Volume (vph)	112	2006	1227	41	35	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0		5.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1789	3476	3458		1691	
Flt Permitted	0.18	1.00	1.00		0.98	
Satd. Flow (perm)	347	3476	3458		1691	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	2006	1227	41	35	41
RTOR Reduction (vph)	0	0	2	0	38	0
Lane Group Flow (vph)	112	2006	1266	0	38	0
Confl. Peds. (#/hr)	7			7	1	3
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	100.8	100.8	89.6		7.2	
Effective Green, g (s)	101.8	100.8	89.6		8.2	
Actuated g/C Ratio	0.85	0.84	0.75		0.07	
Clearance Time (s)	4.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	392	2919	2581		115	
v/s Ratio Prot	0.02	c0.58	0.37		c0.02	
v/s Ratio Perm	0.22					
v/c Ratio	0.29	0.69	0.49		0.33	
Uniform Delay, d1	2.7	3.6	6.1		53.3	
Progression Factor	0.54	0.34	0.58		1.00	
Incremental Delay, d2	0.2	0.7	0.6		1.7	
Delay (s)	1.7	1.9	4.1		55.0	
Level of Service	A	A	A		D	
Approach Delay (s)		1.9	4.1		55.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

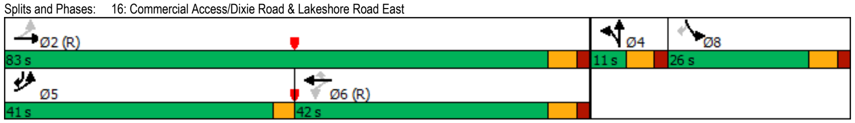
16: Commercial Access/Dixie Road & Lakeshore Road East

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Future Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	593	1345	0	9	920	171	0	3	0	151	0	303
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0	31.0	11.0	11.0		26.0		11.0
Total Split (s)	41.0	83.0		42.0	42.0	42.0	11.0	11.0		26.0		41.0
Total Split (%)	34.2%	69.2%		35.0%	35.0%	35.0%	9.2%	9.2%		21.7%		34.2%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None
v/c Ratio	0.84	0.51		0.06	0.68	0.25		0.04		0.62		0.38
Control Delay	23.0	6.3		30.4	35.9	12.6		56.3		60.0		9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	23.0	6.3		30.4	35.9	12.6		56.3		60.0		9.6
Queue Length 50th (m)	54.5	14.5		1.4	96.5	9.5		0.7		34.0		18.9
Queue Length 95th (m)	#179.2	161.5		5.8	#142.5	28.1		4.0		53.3		38.2
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	712	2624		150	1344	674		76		316		816
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.83	0.51		0.06	0.68	0.25		0.04		0.48		0.37

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



16: Commercial Access/Dixie Road & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Future Volume (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95		0.95		1.00
Satd. Flow (prot)	1690	3471		1825	3476	1570		1825		1807		1493
Flt Permitted	0.14	1.00		0.20	1.00	1.00		0.95		0.95		1.00
Satd. Flow (perm)	244	3471		390	3476	1570		1825		1807		1493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	593	1325	20	9	920	171	3	0	0	151	0	303
RTOR Reduction (vph)	0	1	0	0	0	71	0	0	0	0	0	72
Lane Group Flow (vph)	593	1344	0	9	920	100	0	3	0	151	0	231
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	8%	5%	0%	0%	5%	4%	0%	0%	0%	1%	0%	9%
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	85.9	85.9		41.6	41.6	41.6		1.0		15.1		56.4
Effective Green, g (s)	86.9	85.9		41.6	41.6	41.6		1.0		16.1		56.4
Actuated g/C Ratio	0.72	0.72		0.35	0.35	0.35		0.01		0.13		0.47
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	686	2484		135	1205	544		15		242		701
v/s Ratio Prot	c0.30	0.39			c0.26			c0.00		c0.08		0.11
v/s Ratio Perm	0.32			0.02		0.06						0.04
v/c Ratio	0.86	0.54		0.07	0.76	0.18		0.20		0.62		0.33
Uniform Delay, d1	26.5	7.9		26.2	34.8	27.3		59.1		49.1		19.9
Progression Factor	0.52	0.82		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	8.6	0.6		1.0	4.6	0.7		6.5		4.9		0.3
Delay (s)	22.4	7.2		27.2	39.5	28.1		65.6		54.0		20.2
Level of Service	C	A		C	D	C		E		D		C
Approach Delay (s)		11.8			37.6			65.6			31.5	
Approach LOS		B			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Timings 2031 Total BAU PM Peak Hour

1: Commercial Access/Cawthra Road & Lakeshore Road East

08-19-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Future Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	309	976	0	0	1287	492	0	7	0	747	0	425
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0	35.0	11.0	11.0		35.0		10.0
Total Split (s)	22.0	74.0		52.0	52.0	35.0	11.0	11.0		35.0		22.0
Total Split (%)	18.3%	61.7%		43.3%	43.3%	29.2%	9.2%	9.2%		29.2%		18.3%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.84	0.44			0.81	0.43		0.09		0.82		0.56
Control Delay	50.1	13.1			31.1	3.1		54.4		49.8		19.5
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	50.1	13.1			31.1	3.1		54.4		49.8		19.5
Queue Length 50th (m)	51.0	58.0			98.0	10.3		1.4		83.3		46.4
Queue Length 95th (m)	#102.7	84.8			#191.5	24.2		6.3		#117.3		83.0
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0					70.0				200.0		
Base Capacity (vph)	387	2214			1591	1157		78		928		772
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.80	0.44			0.81	0.43		0.09		0.80		0.55

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

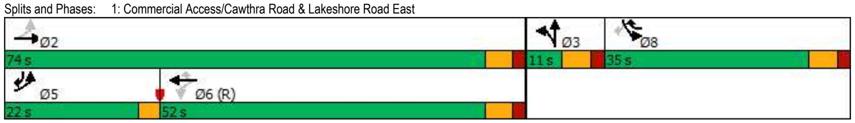
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 95

Control Type: Actuated-Coordinated

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



HCM Signalized Intersection Capacity Analysis 2031 Total BAU PM Peak Hour

1: Commercial Access/Cawthra Road & Lakeshore Road East

08-19-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Future Volume (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97		1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.96		1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85		0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3543			3614	1516		1858		3437		1577
Flt Permitted	0.08	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	146	3543			3614	1516		1858		3437		1577
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	309	974	2	0	1287	492	2	4	1	747	0	425
RTOR Reduction (vph)	0	0	0	0	0	108	0	1	0	0	0	63
Lane Group Flow (vph)	309	976	0	0	1287	384	0	6	0	747	0	362
Confl. Peds. (#/hr)	49		20	20		49	23					23
Heavy Vehicles (%)	3%	3%	0%	0%	1%	3%	0%	0%	0%	3%	0%	1%
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	70.2	70.2			48.1	78.9		1.0		30.8		49.9
Effective Green, g (s)	71.2	70.2			48.1	78.9		1.0		31.8		49.9
Actuated g/C Ratio	0.59	0.59			0.40	0.66		0.01		0.27		0.42
Clearance Time (s)	3.0	6.0			6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	358	2072			1448	996		15		910		655
v/s Ratio Prot	c0.14	0.28			c0.36	0.10		c0.00		c0.22		0.09
v/s Ratio Perm	0.37					0.15						0.14
v/c Ratio	0.86	0.47			0.89	0.39		0.40		0.82		0.55
Uniform Delay, d1	35.6	14.3			33.5	9.4		59.2		41.4		26.6
Progression Factor	1.00	1.00			0.87	1.09		1.00		1.00		1.00
Incremental Delay, d2	18.8	0.8			7.5	0.2		16.6		6.0		1.0
Delay (s)	54.5	15.0			36.5	10.5		75.8		47.4		27.6
Level of Service	D	B			D	B		E		D		C
Approach Delay (s)		24.5			29.3			75.8			40.2	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

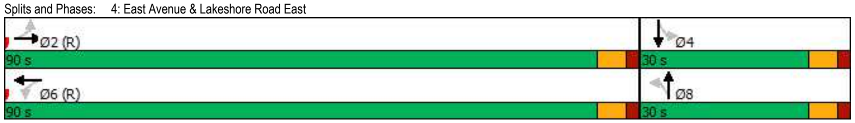
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Future Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	11	1770	0	8	1656	0	102	36	0	5	5	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	90.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	
Total Split (%)	75.0%	75.0%		75.0%	75.0%		25.0%	25.0%		25.0%	25.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.06	0.64		0.06	0.59		0.63	0.16		0.03	0.03	
Control Delay	6.9	14.1		4.1	7.0		66.2	26.4		44.0	29.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.9	14.1		4.1	7.0		66.2	26.4		44.0	29.4	
Queue Length 50th (m)	0.8	153.3		0.3	105.8		23.2	3.2		1.1	0.2	
Queue Length 95th (m)	m1.9	216.9		m0.9	130.6		39.4	12.3		4.7	3.8	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	175	2782		145	2823		280	364		275	335	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.64		0.06	0.59		0.36	0.10		0.02	0.01	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East



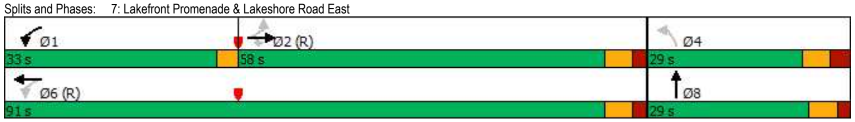
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Future Volume (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3547		1750	3605		1765	1737		1779	1659	
Flt Permitted	0.12	1.00		0.10	1.00		0.75	1.00		0.73	1.00	
Satd. Flow (perm)	223	3547		186	3605		1401	1737		1374	1659	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	1585	185	8	1632	24	102	15	21	5	1	4
RTOR Reduction (vph)	0	5	0	0	1	0	0	19	0	0	4	0
Lane Group Flow (vph)	11	1765	0	8	1655	0	102	17	0	5	1	0
Confl. Peds. (#/hr)	5		5	5		5	7		2	2		7
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	94.0	94.0		94.0	94.0		14.0	14.0		14.0	14.0	
Effective Green, g (s)	94.0	94.0		94.0	94.0		14.0	14.0		14.0	14.0	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.12	0.12		0.12	0.12	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	2778		145	2823		163	202		160	193	
v/s Ratio Prot		c0.50			0.46			0.01			0.00	
v/s Ratio Perm	0.05			0.04			c0.07			0.00		
v/c Ratio	0.06	0.64		0.06	0.59		0.63	0.09		0.03	0.01	
Uniform Delay, d1	3.0	5.6		2.9	5.2		50.5	47.3		47.0	46.9	
Progression Factor	1.49	2.11		0.81	1.06		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.0		0.7	0.9		7.3	0.2		0.1	0.0	
Delay (s)	5.0	12.8		3.1	6.4		57.8	47.5		47.1	46.9	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		12.7			6.4			55.1			47.0	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Future Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1117	351	375	1241	0	203	225	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		29.0	24.0				
Total Split (s)	58.0	58.0	58.0	33.0	91.0		29.0	29.0				
Total Split (%)	48.3%	48.3%	48.3%	27.5%	75.8%		24.2%	24.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.57	0.41	0.75	0.47		0.72	0.37				
Control Delay		20.3	16.7	29.4	9.0		62.6	1.8				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		20.3	16.7	29.4	9.0		62.6	1.8				
Queue Length 50th (m)		65.6	29.3	50.9	61.7		45.5	0.0				
Queue Length 95th (m)		104.1	60.8	88.3	83.7		69.2	0.0				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1951	848	611	2642		332	639				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.57	0.41	0.61	0.47		0.61	0.35				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Future Volume (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3614	1510	1750	3579		1733	1563				
Flt Permitted		1.00	1.00	0.17	1.00		0.95	1.00				
Satd. Flow (perm)		3614	1510	312	3579		1733	1563				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1117	351	375	1241	0	203	0	225	0	0	0
RTOR Reduction (vph)	0	0	34	0	0	0	0	189	0	0	0	0
Lane Group Flow (vph)	0	1117	317	375	1241	0	203	36	0	0	0	0
Confl. Peds. (#/hr)	4		5	5		4	6		6	6		6
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		64.8	64.8	88.6	88.6		18.4	19.4				
Effective Green, g (s)		64.8	64.8	89.6	88.6		19.4	19.4				
Actuated g/C Ratio		0.54	0.54	0.75	0.74		0.16	0.16				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1951	815	494	2642		280	252				
v/s Ratio Prot		c0.31		c0.14	0.35			0.02				
v/s Ratio Perm			0.21	0.43			c0.12					
v/c Ratio		0.57	0.39	0.76	0.47		0.72	0.14				
Uniform Delay, d1		18.4	16.1	17.3	6.3		47.8	43.2				
Progression Factor		0.93	1.02	1.64	1.25		1.00	1.00				
Incremental Delay, d2		1.0	1.2	6.0	0.5		9.0	0.3				
Delay (s)		18.1	17.6	34.3	8.4		56.7	43.4				
Level of Service		B	B	C	A		E	D				
Approach Delay (s)		18.0			14.4			49.7			0.0	
Approach LOS		B			B			D			A	

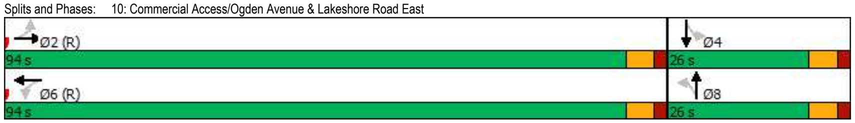
Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Future Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			158.0			360.5	
Travel Time (s)		6.8			6.2			11.4			26.0	
Lane Group Flow (vph)	105	1325	0	0	1636	0	3	2	0	95	113	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	94.0	94.0		94.0	94.0		26.0	26.0		26.0	26.0	
Total Split (%)	78.3%	78.3%		78.3%	78.3%		21.7%	21.7%		21.7%	21.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.59	0.47			0.59		0.02	0.01		0.61	0.49	
Control Delay	20.7	1.5			6.7		44.7	37.0		66.2	30.6	
Queue Delay	0.0	0.0			0.3		0.0	0.0		0.0	0.0	
Total Delay	20.7	1.5			7.0		44.7	37.0		66.2	30.6	
Queue Length 50th (m)	1.5	9.6			91.2		0.7	0.2		21.7	11.2	
Queue Length 95th (m)	#18.4	14.1			187.8		3.5	2.6		37.5	27.8	
Internal Link Dist (m)		70.1			61.5			134.0			336.5	
Turn Bay Length (m)	85.0						90.0			35.0		
Base Capacity (vph)	178	2844			2793		195	288		231	313	
Starvation Cap Reductn	0	0			467		0	0		0	0	
Spillback Cap Reductn	0	69			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.59	0.48			0.70		0.02	0.01		0.41	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Future Volume (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00			0.99		1.00	0.93		1.00	0.85	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	3614			3545		1776	1727		1741	1568	
Flt Permitted	0.12	1.00			1.00		0.63	1.00		0.76	1.00	
Satd. Flow (perm)	227	3614			3545		1172	1727		1386	1568	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	1325	0	0	1561	75	3	1	1	95	0	113
RTOR Reduction (vph)	0	0	0	0	2	0	0	1	0	0	55	0
Lane Group Flow (vph)	105	1325	0	0	1634	0	3	1	0	95	58	0
Confl. Peds. (#/hr)	7		2	2		7	5		3	3		5
Heavy Vehicles (%)	2%	1%	1%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	94.5	94.5			94.5		13.5	13.5		13.5	13.5	
Effective Green, g (s)	94.5	94.5			94.5		13.5	13.5		13.5	13.5	
Actuated g/C Ratio	0.79	0.79			0.79		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	2846			2791		131	194		155	176	
v/s Ratio Prot		0.37			0.46			0.00			0.04	
v/s Ratio Perm	c0.46						0.00			c0.07		
v/c Ratio	0.59	0.47			0.59		0.02	0.01		0.61	0.33	
Uniform Delay, d1	5.1	4.3			5.0		47.4	47.3		50.8	49.1	
Progression Factor	0.85	0.21			1.06		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.5			0.8		0.1	0.0		7.0	1.1	
Delay (s)	16.7	1.4			6.1		47.5	47.3		57.8	50.2	
Level of Service	B	A			A		D	D		E	D	
Approach Delay (s)		2.5			6.1			47.4			53.6	
Approach LOS		A			A			D			D	

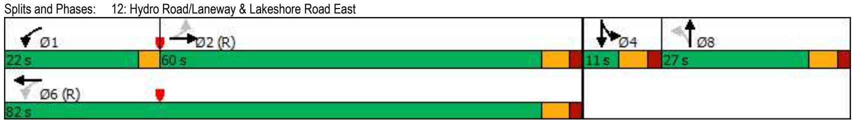
Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Future Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1462	0	317	1449	0	195	212	0	0	5	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	60.0	60.0		22.0	82.0		27.0	27.0		11.0	11.0	
Total Split (%)	50.0%	50.0%		18.3%	68.3%		22.5%	22.5%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	
v/c Ratio	0.02	0.84		0.84	0.58		0.80	0.49			0.03	
Control Delay	25.0	32.1		48.9	13.2		70.9	12.3			0.2	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0			0.0	
Total Delay	25.0	32.1		48.9	13.5		70.9	12.3			0.2	
Queue Length 50th (m)	0.3	118.0		60.6	82.3		45.4	4.4			0.0	
Queue Length 95th (m)	m1.0	#206.6		#110.8	144.3		#89.5	27.7			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0			30.0			90.0					
Base Capacity (vph)	170	1747		391	2493		253	442			176	
Starvation Cap Reductn	0	1		0	356		0	0			0	
Spillback Cap Reductn	0	0		0	80		0	4			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.02	0.84		0.81	0.68		0.77	0.48			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Future Volume (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0		2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.87			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99			0.98	
Satd. Flow (prot)	1788	3414		1750	3575		1662	1541			1731	
Flt Permitted	0.18	1.00		0.07	1.00		0.75	0.97			0.98	
Satd. Flow (perm)	338	3414		126	3575		1320	1503			1731	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1066	396	317	1440	9	217	0	190	2	0	3
RTOR Reduction (vph)	0	31	0	0	0	0	0	155	0	0	5	0
Lane Group Flow (vph)	3	1431	0	317	1449	0	195	57	0	0	0	0
Confl. Peds. (#/hr)	2		6	6		2						
Heavy Vehicles (%)	2%	2%	0%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2			6			8					
Actuated Green, G (s)	55.6	55.6		78.9	78.9		22.1	22.1			1.0	
Effective Green, g (s)	55.6	55.6		79.9	78.9		22.1	22.1			1.0	
Actuated g/C Ratio	0.46	0.46		0.67	0.66		0.18	0.18			0.01	
Clearance Time (s)	6.0	6.0		3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	156	1581		372	2350		243	276			14	
v/s Ratio Prot		c0.42		c0.15	0.41						c0.00	
v/s Ratio Perm	0.01			0.42			c0.15	0.04				
v/c Ratio	0.02	0.91		0.85	0.62		0.80	0.21			0.00	
Uniform Delay, d1	17.4	29.8		36.7	11.8		46.9	41.5			59.0	
Progression Factor	1.33	1.04		1.10	1.23		1.00	1.00			1.00	
Incremental Delay, d2	0.2	8.4		12.8	0.9		17.2	0.4			0.1	
Delay (s)	23.4	39.4		53.1	15.4		64.0	41.9			59.1	
Level of Service	C	D		D	B		E	D			E	
Approach Delay (s)		39.4			22.2			52.5			59.1	
Approach LOS		D			C			D			E	

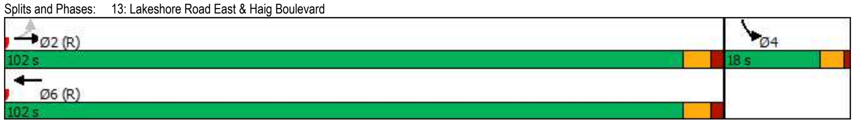
Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	1245	1916	84	26	114
Future Volume (vph)	64	1245	1916	84	26	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	64	1245	2000	0	140	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	
Minimum Split (s)	22.0	22.0	22.0		9.5	
Total Split (s)	102.0	102.0	102.0		18.0	
Total Split (%)	85.0%	85.0%	85.0%		15.0%	
Yellow Time (s)	4.0	4.0	4.0		3.5	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max		None	
v/c Ratio	0.53	0.43	0.69		0.73	
Control Delay	18.3	0.8	5.1		58.5	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	18.3	1.0	5.1		58.5	
Queue Length 50th (m)	0.5	5.3	46.9		22.6	
Queue Length 95th (m)	m1.6	5.6	63.6		#44.3	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	120	2927	2902		220	
Starvation Cap Reductn	0	853	0		0	
Spillback Cap Reductn	0	0	18		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.53	0.60	0.69		0.64	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	1245	1916	84	26	114
Future Volume (vph)	64	1245	1916	84	26	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.89	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1789	3579	3545		1636	
Flt Permitted	0.08	1.00	1.00		0.99	
Satd. Flow (perm)	146	3579	3545		1636	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	1245	1916	84	26	114
RTOR Reduction (vph)	0	0	2	0	37	0
Lane Group Flow (vph)	64	1245	1998	0	103	0
Confl. Peds. (#/hr)	15			15	9	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	98.1	98.1	98.1		11.4	
Effective Green, g (s)	98.1	98.1	98.1		11.4	
Actuated g/C Ratio	0.82	0.82	0.82		0.10	
Clearance Time (s)	6.0	6.0	6.0		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	119	2925	2898		155	
v/s Ratio Prot		0.35	c0.56		c0.06	
v/s Ratio Perm	0.44					
v/c Ratio	0.54	0.43	0.69		0.66	
Uniform Delay, d1	3.6	3.1	4.6		52.4	
Progression Factor	1.02	0.14	0.83		1.00	
Incremental Delay, d2	10.7	0.3	0.9		10.2	
Delay (s)	14.3	0.7	4.7		62.7	
Level of Service	B	A	A		E	
Approach Delay (s)		1.4	4.7		62.7	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

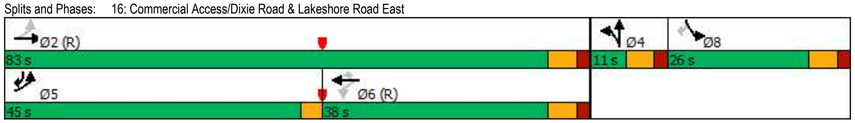
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Future Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	297	929	0	2	1339	220	0	4	0	278	0	679
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0	31.0	11.0	11.0		26.0		11.0
Total Split (s)	45.0	83.0		38.0	38.0	38.0	11.0	11.0		26.0		45.0
Total Split (%)	37.5%	69.2%		31.7%	31.7%	31.7%	9.2%	9.2%		21.7%		37.5%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None
v/c Ratio	0.66	0.38		0.01	0.81	0.28		0.05		0.78		0.92
Control Delay	23.0	7.5		27.5	34.3	14.0		56.8		61.8		42.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	23.0	7.5		27.5	34.3	14.0		56.8		61.8		42.1
Queue Length 50th (m)	37.8	46.5		0.2	135.6	14.4		0.9		60.9		114.6
Queue Length 95th (m)	45.0	71.3		2.5	#264.3	43.8		4.7		#111.2		132.2
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	685	2476		274	1661	792		79		361		951
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.43	0.38		0.01	0.81	0.28		0.05		0.77		0.71

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Future Volume (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3571		1823	3579	1581		1897		1807		1570
Flt Permitted	0.07	1.00		0.31	1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	138	3571		590	3579	1581		1897		1807		1570
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	297	916	13	2	1339	220	1	3	0	278	0	679
RTOR Reduction (vph)	0	1	0	0	0	63	0	0	0	0	0	87
Lane Group Flow (vph)	297	928	0	2	1339	157	0	4	0	278	0	592
Confl. Peds. (#/hr)	1		2	2		1	16					16
Heavy Vehicles (%)	3%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	78.4	78.4		50.9	50.9	50.9		1.0		22.6		47.1
Effective Green, g (s)	79.4	78.4		50.9	50.9	50.9		1.0		23.6		47.1
Actuated g/C Ratio	0.66	0.65		0.42	0.42	0.42		0.01		0.20		0.39
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	438	2333		250	1518	670		15		355		616
v/s Ratio Prot	0.14	0.26			c0.37			c0.00		0.15		c0.20
v/s Ratio Perm	0.30			0.00		0.10						0.18
v/c Ratio	0.68	0.40		0.01	0.88	0.23		0.27		0.78		0.96
Uniform Delay, d1	31.3	9.7		20.0	31.8	22.1		59.1		45.8		35.5
Progression Factor	0.65	0.87		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	4.0	0.5		0.1	7.7	0.8		9.3		10.8		26.6
Delay (s)	24.3	9.0		20.0	39.5	22.9		68.5		56.5		62.1
Level of Service	C	A		C	D	C		E		E		E
Approach Delay (s)		12.7			37.2			68.5			60.5	
Approach LOS		B			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX G-7

Analysis Scenario 2 Trip Generation Summary

Table G-7A – Scenario 2 - Lakeview Trip Generation – 2031 BAU

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 374 units	Fitted Curve Equation	Ln(T) = 0.95 Ln(X) - 0.51			Ln(T) = 0.89 Ln(X) - 0.02		
	Distribution	23%	77%	-	63%	37%	-
	Gross Vehicle Site Trips	38	129	167	120	71	191
	Vehicle to Person Trip Conversion Rate	1.13			1.21		
	Gross Person Trips	43	146	189	146	85	231
	Internal Reduction	-1	-2	-3	-9	-8	-17
	Total External Person Trips	42	144	186	137	77	214
	Mode Split Reduction	-17	-58	-75	-53	-30	-83
	Total Auto Driver Trips	**25**	**86**	**111**	**84**	**47**	**131**
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 5287 units	Average Rate	0.2			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	127	930	1057	685	267	952
	Vehicle to Person Trip Conversion Rate	1.9			2.0		
	Gross Person Trips	241	1768	2009	1370	533	1903
	Internal Reduction	-5	-26	-31	-87	-49	-136
	Total External Person Trips	236	1742	1978	1283	484	1767
	Mode Split Reduction	-95	-705	-800	-500	-188	-688
	Total Auto Driver Trips	**141**	**1037**	**1178**	**783**	**296**	**1079**
Multifamily Housing (High-Rise) LUC 222 *Dense Multi-use Urban Context* 2389 units	Fitted Curve Equation or Average Rate	Ln(T) = 0.84 Ln(X) - 0.65			0.19		
	Distribution	12%	88%		70%	30%	
	Gross Vehicle Site Trips	43	316	359	318	136	454
	Vehicle to Person Trip Conversion Rate	2.81			2.17		
	Gross Person Trips	121	889	1010	690	295	985
	Internal Reduction	-2	-14	-16	-44	-26	-70
	Total External Person Trips	119	875	994	646	269	915
	Mode Split Reduction	-48	-353	-401	-251	-105	-356

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Total Auto Driver Trips	**71**	**522**	**593**	**395**	**164**	**559**
General Office Building LUC 710 *Dense Multi-use Urban Context* 500,000 ft² GFA	Fitted Curve Equation	T = 0.72(X) + 21.64			T = 0.83(X) + 7.99		
	Distribution	86%	14%		17%	83%	
	Gross Vehicle Site Trips	328	54	382	72	351	423
	Vehicle to Person Trip Conversion Rate	1.47			1.46		
	Gross Person Trips	482	79	561	105	513	618
	Internal Reduction	-33	-22	-55	-47	-47	-94
	Total External Person Trips	449	57	506	58	466	524
	Mode Split Reduction	-181	-23	-204	-23	-181	-204
	Total Auto Driver Trips	**268**	**34**	**302**	**35**	**285**	**320**
Research and Development Center LUC 760 500,000 ft² GFA	Average Rate	0.42			0.49		
	Distribution	75%	25%		15%	85%	
	Gross Vehicle Site Trips	158	52	210	37	208	245
	Vehicle to Person Trip Conversion Rate	1.36			1.45		
	Gross Person Trips	215	71	286	53	302	355
	Internal Reduction	N/A	N/A	N/A	N/A	N/A	N/A
	Total External Person Trips	215	71	286	53	302	355
	Mode Split Reduction	-87	-29	-116	-21	-117	-138
	Total Auto Driver Trips	**128**	**42**	**170**	**32**	**185**	**217**
Shopping Center LUC 820 133,161 ft² GFA	Fitted Curve Equation	T = 0.50(X) + 151.78			Ln(T) = 0.74Ln(X) + 2.89		
	Distribution	62%	38%		48%	52%	
	Gross Vehicle Site Trips	135	83	218	322	350	672
	Vehicle to Person Trip Conversion Rate	1.31			1.43		
	Gross Person Trips	177	109	286	461	499	960
	Internal Reduction	-50	-27	-77	-83	-140	-223
	Total External Person Trips	127	82	209	378	359	737
	Mode Split Reduction	-51	-33	-84	-147	-140	-287

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Total Auto Driver Trips	**76**	**49**	**125**	**231**	**219**	**450**
Elementary School LUC 520 850 student capacity	Average Rate	0.67			0.17		
	Distribution	54%	46%	-	48%	52%	-
	Gross Vehicle Site Trips	308	262	570	70	75	145
	Internal Reduction (50%)	-154	-131	-285	-35	-38	-73
	Total Auto Driver Trips	**154**	**131**	**285**	**35**	**37**	**72**
Day Care Center LUC 565 39 Student Capacity	Fitted Curve Equation	T = 0.66(X) + 8.42			Ln(T) = 0.87 Ln(X) + 0.29		
	Distribution	53%	47%	-	47%	53%	-
	Gross Vehicle Site Trips	18	16	34	15	17	32
	Internal Reduction (50%)	-9	-8	-17	-8	-9	-17
	Total Auto Driver Trips	**9**	**8**	**17**	**7**	**8**	**15**

Table G-7B – Scenario 2 Lakeview Residential and Non-Residential Total Site Trip Generation

Parameters	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	237	1645	1882	1262	507	1769
Non-Residential	635	264	899	340	734	1075
Total Trips	**872**	**1909**	**2781**	**1602**	**1241**	**2844**

APPENDIX G-8

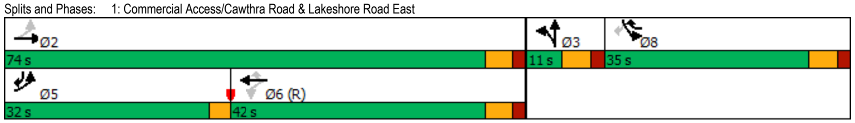
Analysis Scenario 2 Synchro HCM 2000 Capacity Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
Future Volume (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0	35.0	11.0	11.0		35.0		10.0
Total Split (s)	32.0	74.0		42.0	42.0	35.0	11.0	11.0		35.0		32.0
Total Split (%)	26.7%	61.7%		35.0%	35.0%	29.2%	9.2%	9.2%		29.2%		26.7%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.84	0.57		0.02	0.66	0.71				0.73		0.46
Control Delay	35.0	12.3		34.3	35.6	8.6				47.7		12.1
Queue Delay	0.0	0.0		0.0	0.0	0.0				0.0		0.0
Total Delay	35.0	12.3		34.3	35.6	8.6				47.7		12.1
Queue Length 50th (m)	68.1	81.8		0.4	88.5	27.5				64.2		31.6
Queue Length 95th (m)	#129.3	116.2		m1.3	127.1	39.7				78.0		47.9
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0			15.0		70.0				200.0		
Base Capacity (vph)	581	2398		156	1425	1079				852		825
Starvation Cap Reductn	0	0		0	0	0				0		0
Spillback Cap Reductn	0	0		0	0	0				0		0
Storage Cap Reductn	0	0		0	0	0				0		0
Reduced v/c Ratio	0.83	0.57		0.02	0.66	0.69				0.67		0.46

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
Future Volume (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0				5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.97		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97				1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (prot)	1754	3579		1821	3476	1485				3278		1519
Flt Permitted	0.17	1.00		0.20	1.00	1.00				0.95		1.00
Satd. Flow (perm)	316	3579		384	3476	1485				3278		1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	482	1358	0	3	940	745	0	0	0	571	0	379
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	0	0	0	77
Lane Group Flow (vph)	482	1358	0	3	940	643	0	0	0	571	0	302
Confl. Peds. (#/hr)	25		8	8		25	13					13
Heavy Vehicles (%)	4%	2%	0%	0%	5%	7%	0%	0%	0%	8%	0%	6%
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	80.4	80.4		49.2	49.2	76.8				27.6		55.8
Effective Green, g (s)	81.4	80.4		49.2	49.2	76.8				28.6		55.8
Actuated g/C Ratio	0.68	0.67		0.41	0.41	0.64				0.24		0.46
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0				6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	564	2397		157	1425	1024				781		706
v/s Ratio Prot	c0.21	0.38			0.27	c0.14				c0.17		0.10
v/s Ratio Perm	0.37			0.01		0.29						0.10
v/c Ratio	0.85	0.57		0.02	0.66	0.63				0.73		0.43
Uniform Delay, d1	24.2	10.5		21.1	28.6	13.0				42.2		21.4
Progression Factor	1.00	1.00		1.38	1.12	0.77				1.00		1.00
Incremental Delay, d2	12.0	1.0		0.2	2.0	1.0				3.5		0.4
Delay (s)	36.3	11.5		29.2	34.0	11.0				45.7		21.9
Level of Service	D	B		C	C	B				D		C
Approach Delay (s)		18.0			23.8			0.0			36.2	
Approach LOS		B			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1731	153	16	1489	9	210	1	8	6	1	10
Future Volume (vph)	12	1731	153	16	1489	9	210	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	12	1884	0	16	1498	0	210	9	0	6	11	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	83.0	83.0		83.0	83.0		37.0	37.0		37.0	37.0	
Total Split (%)	69.2%	69.2%		69.2%	69.2%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.07	0.78		0.19	0.63		0.79	0.03		0.02	0.03	
Control Delay	8.9	19.4		11.5	8.7		65.7	20.1		35.3	18.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.9	19.4		11.5	8.7		65.7	20.1		35.3	18.7	
Queue Length 50th (m)	0.8	175.3		1.0	61.1		47.3	0.2		1.2	0.2	
Queue Length 95th (m)	m1.9	235.7		m2.8	73.0		69.3	4.3		4.5	4.8	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	172	2423		86	2383		355	423		364	429	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.78		0.19	0.63		0.59	0.02		0.02	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1731	153	16	1489	9	210	1	8	6	1	10
Future Volume (vph)	12	1731	153	16	1489	9	210	1	8	6	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3426		1785	3377		1741	1616		1782	1634	
Flt Permitted	0.13	1.00		0.07	1.00		0.75	1.00		0.75	1.00	
Satd. Flow (perm)	244	3426		123	3377		1376	1616		1410	1634	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	1731	153	16	1489	9	210	1	8	6	1	10
RTOR Reduction (vph)	0	4	0	0	0	0	0	6	0	0	8	0
Lane Group Flow (vph)	12	1880	0	16	1498	0	210	3	0	6	3	0
Confl. Peds. (#/hr)	11		11	11		11	3		1	1		3
Heavy Vehicles (%)	0%	5%	2%	0%	8%	2%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	84.7	84.7		84.7	84.7		23.3	23.3		23.3	23.3	
Effective Green, g (s)	84.7	84.7		84.7	84.7		23.3	23.3		23.3	23.3	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.19	0.19		0.19	0.19	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	2418		86	2383		267	313		273	317	
v/s Ratio Prot		c0.55			0.44			0.00			0.00	
v/s Ratio Perm	0.05			0.13			c0.15			0.00		
v/c Ratio	0.07	0.78		0.19	0.63		0.79	0.01		0.02	0.01	
Uniform Delay, d1	5.5	11.5		6.0	9.3		46.0	39.0		39.1	39.0	
Progression Factor	1.08	1.33		0.73	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	2.1		4.5	1.2		14.1	0.0		0.0	0.0	
Delay (s)	6.5	17.5		8.8	7.9		60.1	39.0		39.2	39.0	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		17.4			7.9			59.2			39.1	
Approach LOS		B			A			E			D	

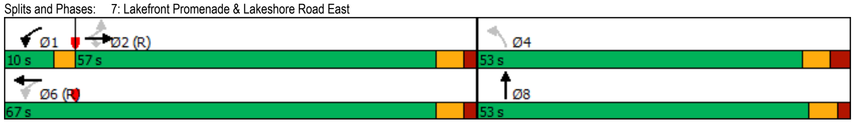
Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1302	325	143	1015	0	369	0	533	0	0	0
Future Volume (vph)	0	1302	325	143	1015	0	369	0	533	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1302	325	143	1015	0	369	533	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		40.0	24.0				
Total Split (s)	57.0	57.0	57.0	10.0	67.0		53.0	53.0				
Total Split (%)	47.5%	47.5%	47.5%	8.3%	55.8%		44.2%	44.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.77	0.42	0.60	0.50		0.69	0.90				
Control Delay		31.1	22.8	36.3	11.3		42.1	47.5				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		31.1	22.8	36.3	11.3		42.1	47.5				
Queue Length 50th (m)		97.0	35.6	14.4	35.8		74.8	90.5				
Queue Length 95th (m)		155.5	m64.2	#41.5	59.4		96.4	125.3				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1695	776	239	2042		672	702				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.77	0.42	0.60	0.50		0.55	0.76				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



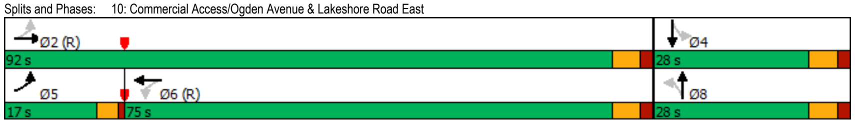
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1302	325	143	1015	0	369	0	533	0	0	0
Future Volume (vph)	0	1302	325	143	1015	0	369	0	533	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.98	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3476	1525	1750	3476		1718	1566				
Flt Permitted		1.00	1.00	0.10	1.00		0.95	1.00				
Satd. Flow (perm)		3476	1525	176	3476		1718	1566				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1302	325	143	1015	0	369	0	533	0	0	0
RTOR Reduction (vph)	0	0	33	0	0	0	0	100	0	0	0	0
Lane Group Flow (vph)	0	1302	292	143	1015	0	369	433	0	0	0	0
Confl. Peds. (#/hr)			2	2			11		5	5		11
Heavy Vehicles (%)	0%	5%	2%	2%	5%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		58.5	58.5	70.5	70.5		36.5	37.5				
Effective Green, g (s)		58.5	58.5	71.5	70.5		37.5	37.5				
Actuated g/C Ratio		0.49	0.49	0.60	0.59		0.31	0.31				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1694	743	236	2042		536	489				
v/s Ratio Prot		c0.37		c0.05	0.29			c0.28				
v/s Ratio Perm			0.19	0.31			0.21					
v/c Ratio		0.77	0.39	0.61	0.50		0.69	0.88				
Uniform Delay, d1		25.2	19.5	18.2	14.4		36.1	39.2				
Progression Factor		1.04	1.22	1.96	0.66		1.00	1.00				
Incremental Delay, d2		2.6	1.2	4.2	0.8		3.7	17.2				
Delay (s)		29.0	25.0	39.9	10.3		39.8	56.3				
Level of Service		C	C	D	B		D	E				
Approach Delay (s)		28.2			14.0			49.6			0.0	
Approach LOS		C			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1690	3	7	977	123	1	0	3	64	1	56
Future Volume (vph)	173	1690	3	7	977	123	1	0	3	64	1	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			157.4			360.5	
Travel Time (s)		6.8			6.2			11.3			26.0	
Lane Group Flow (vph)	173	1693	0	7	1100	0	1	3	0	64	57	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	11.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	17.0	92.0		75.0	75.0		28.0	28.0		28.0	28.0	
Total Split (%)	14.2%	76.7%		62.5%	62.5%		23.3%	23.3%		23.3%	23.3%	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.39	0.59		0.04	0.46		0.01	0.01		0.49	0.29	
Control Delay	3.5	2.8		4.1	5.5		47.0	0.0		63.8	16.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.5	2.9		4.1	5.5		47.0	0.0		63.8	16.6	
Queue Length 50th (m)	3.6	37.2		0.4	48.2		0.2	0.0		14.6	0.2	
Queue Length 95th (m)	m5.6	45.0		m0.7	m49.2		1.9	0.0		27.8	12.3	
Internal Link Dist (m)		70.1			61.5			133.4			336.5	
Turn Bay Length (m)	85.0			115.0			90.0			35.0		
Base Capacity (vph)	506	2891		188	2414		248	341		254	336	
Starvation Cap Reductn	0	74		0	0		0	0		0	0	
Spillback Cap Reductn	0	35		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.60		0.04	0.46		0.00	0.01		0.25	0.17	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1690	3	7	977	123	1	0	3	64	1	56
Future Volume (vph)	173	1690	3	7	977	123	1	0	3	64	1	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	3.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3443		1785	3300		1786	1579		1747	1584	
Flt Permitted	0.22	1.00		0.14	1.00		0.72	1.00		0.76	1.00	
Satd. Flow (perm)	409	3443		258	3300		1354	1579		1390	1584	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	173	1690	3	7	977	123	1	0	3	64	1	56
RTOR Reduction (vph)	0	0	0	0	5	0	0	3	0	0	52	0
Lane Group Flow (vph)	173	1693	0	7	1095	0	1	0	0	64	5	0
Confl. Peds. (#/hr)	7		8	8		7	1		1	1		1
Heavy Vehicles (%)	2%	6%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	98.4	98.4		86.4	86.4		9.6	9.6		9.6	9.6	
Effective Green, g (s)	99.4	98.4		86.4	86.4		9.6	9.6		9.6	9.6	
Actuated g/C Ratio	0.83	0.82		0.72	0.72		0.08	0.08		0.08	0.08	
Clearance Time (s)	4.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	439	2823		185	2376		108	126		111	126	
v/s Ratio Prot	0.03	c0.49			0.33			0.00			0.00	
v/s Ratio Perm	0.30			0.03			0.00			c0.05		
v/c Ratio	0.39	0.60		0.04	0.46		0.01	0.00		0.58	0.04	
Uniform Delay, d1	3.1	3.8		4.8	7.0		50.8	50.8		53.2	51.0	
Progression Factor	0.81	0.50		0.55	0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.7		0.3	0.6		0.0	0.0		7.1	0.1	
Delay (s)	2.9	2.6		3.0	5.2		50.9	50.8		60.3	51.1	
Level of Service	A	A		A	A		D	D		E	D	
Approach Delay (s)		2.6			5.2			50.8			56.0	
Approach LOS		A			A			D			E	

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	307	165	922	0	375	0	516	2	0	9
Future Volume (vph)	3	1448	307	165	922	0	375	0	516	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1448	307	165	922	0	337	554	0	0	11	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2		2	6			8					
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	64.0	64.0	64.0	11.0	75.0		34.0	34.0		11.0	11.0	
Total Split (%)	53.3%	53.3%	53.3%	9.2%	62.5%		28.3%	28.3%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	
v/c Ratio	0.01	0.87	0.37	0.82	0.47		0.84	0.91			0.06	
Control Delay	19.7	34.0	10.5	59.4	22.4		59.1	45.9			0.7	
Queue Delay	0.0	0.3	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	19.7	34.2	10.5	59.4	22.4		59.1	45.9			0.7	
Queue Length 50th (m)	0.4	119.6	14.1	25.3	61.6		75.5	86.4			0.0	
Queue Length 95th (m)	m0.7	155.8	37.5	#59.4	83.4		#154.3	#181.8			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0		50.0	30.0			90.0					
Base Capacity (vph)	267	1664	839	201	1943		401	607			173	
Starvation Cap Reductn	0	25	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	0		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.01	0.88	0.37	0.82	0.47		0.84	0.91			0.06	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East

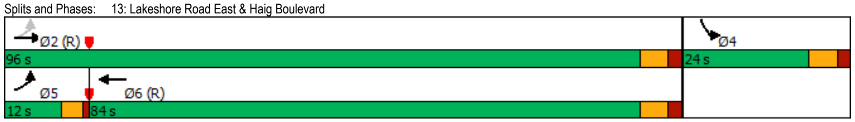
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	307	165	922	0	375	0	516	2	0	9
Future Volume (vph)	3	1448	307	165	922	0	375	0	516	2	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.86			0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1822	3444	1548	1750	3380		1660	1534			1628	
Flt Permitted	0.29	1.00	1.00	0.07	1.00		0.75	0.98			0.99	
Satd. Flow (perm)	554	3444	1548	131	3380		1311	1507			1628	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1448	307	165	922	0	375	0	516	2	0	9
RTOR Reduction (vph)	0	0	99	0	0	0	0	146	0	0	11	0
Lane Group Flow (vph)	3	1448	208	165	922	0	337	408	0	0	0	0
Confl. Peds. (#/hr)	2		4	4		2	1					1
Heavy Vehicles (%)	0%	6%	2%	2%	8%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2		2	6			8					
Actuated Green, G (s)	53.2	53.2	53.2	64.2	64.2		36.8	36.8			1.0	
Effective Green, g (s)	53.2	53.2	53.2	65.2	64.2		36.8	36.8			1.0	
Actuated g/C Ratio	0.44	0.44	0.44	0.54	0.54		0.31	0.31			0.01	
Clearance Time (s)	6.0	6.0	6.0	3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	245	1526	686	192	1808		402	462			13	
v/s Ratio Prot		c0.42		c0.06	0.27						c0.00	
v/s Ratio Perm	0.01		0.13	0.40			0.26	c0.27				
v/c Ratio	0.01	0.95	0.30	0.86	0.51		0.84	0.88			0.01	
Uniform Delay, d1	18.7	32.1	21.5	30.8	17.8		38.8	39.6			59.0	
Progression Factor	1.19	1.00	1.20	1.50	1.44		1.00	1.00			1.00	
Incremental Delay, d2	0.1	12.6	1.0	26.5	0.9		14.1	17.9			0.2	
Delay (s)	22.3	44.6	26.9	72.7	26.5		53.0	57.4			59.2	
Level of Service	C	D	C	E	C		D	E			E	
Approach Delay (s)		41.5			33.5			55.7			59.2	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	2030	1312	41	35	52
Future Volume (vph)	114	2030	1312	41	35	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	114	2030	1353	0	87	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	7.0	8.0	8.0		5.0	
Minimum Split (s)	12.0	22.0	22.0		24.0	
Total Split (s)	12.0	96.0	84.0		24.0	
Total Split (%)	10.0%	80.0%	70.0%		20.0%	
Yellow Time (s)	3.0	4.0	4.0		4.0	
All-Red Time (s)	1.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0		-1.0	
Total Lost Time (s)	3.0	6.0	6.0		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
v/c Ratio	0.31	0.70	0.53		0.49	
Control Delay	2.2	3.6	5.1		33.2	
Queue Delay	0.0	0.1	0.0		0.0	
Total Delay	2.2	3.8	5.1		33.2	
Queue Length 50th (m)	2.1	41.2	35.2		7.9	
Queue Length 95th (m)	m2.4	41.4	53.7		23.1	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	373	2884	2546		309	
Starvation Cap Reductn	0	167	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.31	0.75	0.53		0.28	

Intersection Summary
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	2030	1312	41	35	52
Future Volume (vph)	114	2030	1312	41	35	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0		5.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.92	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1789	3476	3459		1679	
Flt Permitted	0.16	1.00	1.00		0.98	
Satd. Flow (perm)	306	3476	3459		1679	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	2030	1312	41	35	52
RTOR Reduction (vph)	0	0	1	0	48	0
Lane Group Flow (vph)	114	2030	1352	0	39	0
Confl. Peds. (#/hr)	7			7	1	3
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	99.6	99.6	88.4		8.4	
Effective Green, g (s)	100.6	99.6	88.4		9.4	
Actuated g/C Ratio	0.84	0.83	0.74		0.08	
Clearance Time (s)	4.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	357	2885	2548		131	
v/s Ratio Prot	0.02	c0.58	0.39		c0.02	
v/s Ratio Perm	0.24					
v/c Ratio	0.32	0.70	0.53		0.30	
Uniform Delay, d1	3.5	4.2	6.8		52.2	
Progression Factor	0.59	0.60	0.61		1.00	
Incremental Delay, d2	0.3	0.8	0.7		1.3	
Delay (s)	2.4	3.3	4.9		53.5	
Level of Service	A	A	A		D	
Approach Delay (s)		3.3	4.9		53.5	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

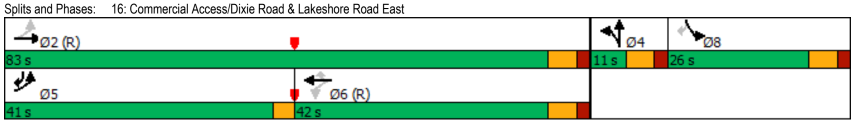
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	600	1342	20	9	940	171	3	0	0	151	0	368
Future Volume (vph)	600	1342	20	9	940	171	3	0	0	151	0	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	600	1362	0	9	940	171	0	3	0	151	0	368
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0	31.0	11.0	11.0		26.0		11.0
Total Split (s)	41.0	83.0		42.0	42.0	42.0	11.0	11.0		26.0		41.0
Total Split (%)	34.2%	69.2%		35.0%	35.0%	35.0%	9.2%	9.2%		21.7%		34.2%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None
v/c Ratio	0.85	0.52		0.06	0.72	0.26		0.04		0.62		0.45
Control Delay	23.2	6.7		31.0	37.9	12.9		56.3		60.0		11.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	23.2	6.7		31.0	37.9	12.9		56.3		60.0		11.6
Queue Length 50th (m)	60.0	16.8		1.4	100.4	9.6		0.7		34.0		28.4
Queue Length 95th (m)	#188.7	168.8		5.8	#147.6	28.1		4.0		53.3		52.5
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	710	2624		142	1301	655		76		316		826
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.85	0.52		0.06	0.72	0.26		0.04		0.48		0.45

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	600	1342	20	9	940	171	3	0	0	151	0	368
Future Volume (vph)	600	1342	20	9	940	171	3	0	0	151	0	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95		0.95		1.00
Satd. Flow (prot)	1690	3471		1825	3476	1570		1825		1807		1493
Flt Permitted	0.12	1.00		0.20	1.00	1.00		0.95		0.95		1.00
Satd. Flow (perm)	211	3471		383	3476	1570		1825		1807		1493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	600	1342	20	9	940	171	3	0	0	151	0	368
RTOR Reduction (vph)	0	1	0	0	0	73	0	0	0	0	0	70
Lane Group Flow (vph)	600	1361	0	9	940	98	0	3	0	151	0	298
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	8%	5%	0%	0%	5%	4%	0%	0%	0%	1%	0%	9%
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	85.9	85.9		40.1	40.1	40.1		1.0		15.1		57.9
Effective Green, g (s)	86.9	85.9		40.1	40.1	40.1		1.0		16.1		57.9
Actuated g/C Ratio	0.72	0.72		0.33	0.33	0.33		0.01		0.13		0.48
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	692	2484		127	1161	524		15		242		720
v/s Ratio Prot	c0.32	0.39			c0.27			c0.00		c0.08		0.15
v/s Ratio Perm	0.31			0.02		0.06						0.05
v/c Ratio	0.87	0.55		0.07	0.81	0.19		0.20		0.62		0.41
Uniform Delay, d1	27.5	8.0		27.2	36.5	28.4		59.1		49.1		20.1
Progression Factor	0.50	0.87		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	8.4	0.6		1.1	6.2	0.8		6.5		4.9		0.4
Delay (s)	22.0	7.6		28.3	42.6	29.2		65.6		54.0		20.5
Level of Service	C	A		C	D	C		E		D		C
Approach Delay (s)		12.0			40.5			65.6			30.2	
Approach LOS		B			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

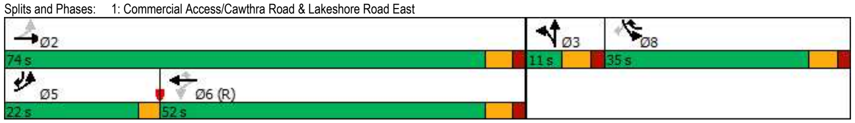
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	980	2	0	1397	609	2	4	1	760	0	425
Future Volume (vph)	309	980	2	0	1397	609	2	4	1	760	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	309	982	0	0	1397	609	0	7	0	760	0	425
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	10.0	38.0		38.0	38.0	35.0	11.0	11.0		35.0		10.0
Total Split (s)	22.0	74.0		52.0	52.0	35.0	11.0	11.0		35.0		22.0
Total Split (%)	18.3%	61.7%		43.3%	43.3%	29.2%	9.2%	9.2%		29.2%		18.3%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.84	0.45			0.89	0.53		0.09		0.82		0.56
Control Delay	50.2	13.4			38.4	4.2		54.4		49.3		19.3
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	50.2	13.4			38.4	4.2		54.4		49.3		19.3
Queue Length 50th (m)	51.2	60.5			119.6	11.9		1.4		83.8		45.4
Queue Length 95th (m)	#102.2	85.6			#221.3	52.2		6.3		#120.5		83.4
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0					70.0				200.0		
Base Capacity (vph)	386	2197			1576	1157		78		941		776
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.80	0.45			0.89	0.53		0.09		0.81		0.55

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	980	2	0	1397	609	2	4	1	760	0	425
Future Volume (vph)	309	980	2	0	1397	609	2	4	1	760	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97		1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.96		1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85		0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3543			3614	1517		1858		3437		1577
Flt Permitted	0.08	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	148	3543			3614	1517		1858		3437		1577
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	309	980	2	0	1397	609	2	4	1	760	0	425
RTOR Reduction (vph)	0	0	0	0	0	109	0	1	0	0	0	61
Lane Group Flow (vph)	309	982	0	0	1397	500	0	6	0	760	0	364
Confl. Peds. (#/hr)	49		20	20		49	23					23
Heavy Vehicles (%)	3%	3%	0%	0%	1%	3%	0%	0%	0%	3%	0%	1%
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	69.6	69.6			47.5	78.9		1.0		31.4		50.5
Effective Green, g (s)	70.6	69.6			47.5	78.9		1.0		32.4		50.5
Actuated g/C Ratio	0.59	0.58			0.40	0.66		0.01		0.27		0.42
Clearance Time (s)	3.0	6.0			6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	359	2054			1430	997		15		927		663
v/s Ratio Prot	c0.14	0.28			c0.39	0.13		c0.00		c0.22		0.09
v/s Ratio Perm	0.36					0.20						0.14
v/c Ratio	0.86	0.48			0.98	0.50		0.40		0.82		0.55
Uniform Delay, d1	36.2	14.6			35.7	10.5		59.2		41.1		26.2
Progression Factor	1.00	1.00			0.97	1.00		1.00		1.00		1.00
Incremental Delay, d2	18.6	0.8			16.5	0.3		16.6		5.7		0.9
Delay (s)	54.8	15.4			51.3	10.8		75.8		46.8		27.1
Level of Service	D	B			D	B		E		D		C
Approach Delay (s)		24.9			39.0			75.8			39.7	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

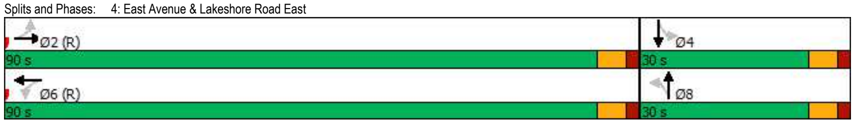
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1601	188	8	1815	24	146	15	21	5	1	4
Future Volume (vph)	11	1601	188	8	1815	24	146	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Storage Length (m)	20.0		25.0	60.0		20.0	0.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	40.0			50.0			70.0			20.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		95.7			101.7			208.9			195.3	
Travel Time (s)		6.9			7.3			15.0			14.1	
Lane Group Flow (vph)	11	1789	0	8	1839	0	146	36	0	5	5	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		28.0	28.0		28.0	28.0	
Total Split (s)	90.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	
Total Split (%)	75.0%	75.0%		75.0%	75.0%		25.0%	25.0%		25.0%	25.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.09	0.67		0.06	0.68		0.72	0.13		0.02	0.02	
Control Delay	10.0	17.1		5.5	10.3		67.2	23.9		40.6	27.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	17.1		5.5	10.3		67.2	23.9		40.6	27.0	
Queue Length 50th (m)	0.9	163.1		0.3	132.1		33.1	3.1		1.0	0.2	
Queue Length 95th (m)	m2.4	228.3		m1.0	175.5		52.3	11.8		4.5	3.7	
Internal Link Dist (m)		71.7			77.7			184.9			171.3	
Turn Bay Length (m)	20.0			60.0						20.0		
Base Capacity (vph)	119	2679		126	2718		280	364		275	335	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.67		0.06	0.68		0.52	0.10		0.02	0.01	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1601	188	8	1815	24	146	15	21	5	1	4
Future Volume (vph)	11	1601	188	8	1815	24	146	15	21	5	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.91		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1785	3547		1750	3606		1765	1737		1779	1659	
Flt Permitted	0.08	1.00		0.09	1.00		0.75	1.00		0.73	1.00	
Satd. Flow (perm)	158	3547		168	3606		1401	1737		1374	1659	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	1601	188	8	1815	24	146	15	21	5	1	4
RTOR Reduction (vph)	0	6	0	0	1	0	0	18	0	0	3	0
Lane Group Flow (vph)	11	1783	0	8	1838	0	146	18	0	5	2	0
Confl. Peds. (#/hr)	5		5	5		5	7		2	2		7
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	90.5	90.5		90.5	90.5		17.5	17.5		17.5	17.5	
Effective Green, g (s)	90.5	90.5		90.5	90.5		17.5	17.5		17.5	17.5	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.15	0.15		0.15	0.15	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	2675		126	2719		204	253		200	241	
v/s Ratio Prot		0.50			c0.51			0.01			0.00	
v/s Ratio Perm	0.07			0.05			c0.10			0.00		
v/c Ratio	0.09	0.67		0.06	0.68		0.72	0.07		0.03	0.01	
Uniform Delay, d1	3.9	7.3		3.8	7.4		48.9	44.2		43.9	43.8	
Progression Factor	1.50	1.97		0.83	1.08		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	1.1		0.9	1.3		11.3	0.1		0.1	0.0	
Delay (s)	7.2	15.5		4.1	9.3		60.2	44.4		44.0	43.8	
Level of Service	A	B		A	A		E	D		D	D	
Approach Delay (s)		15.4			9.3			57.1			43.9	
Approach LOS		B			A			E			D	

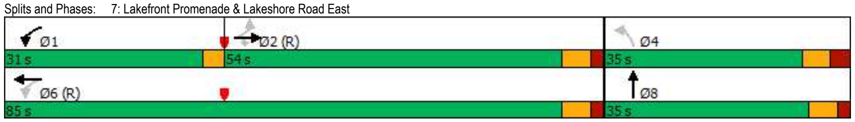
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1125	359	384	1334	0	293	0	334	0	0	0
Future Volume (vph)	0	1125	359	384	1334	0	293	0	334	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0		10.0	15.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	40.0			55.0			30.0			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.0			88.5			238.4			69.4	
Travel Time (s)		4.9			6.4			17.2			5.0	
Lane Group Flow (vph)	0	1125	359	384	1334	0	293	334	0	0	0	0
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Detector Phase	2	2	2	1	6		4	8				
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	8.0		8.0	5.0				
Minimum Split (s)	26.0	26.0	26.0	10.0	26.0		29.0	24.0				
Total Split (s)	54.0	54.0	54.0	31.0	85.0		35.0	35.0				
Total Split (%)	45.0%	45.0%	45.0%	25.8%	70.8%		29.2%	29.2%				
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		3.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		-1.0	0.0				
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0				
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None				
v/c Ratio		0.66	0.48	0.79	0.54		0.81	0.51				
Control Delay		30.1	25.1	37.4	12.9		62.3	3.8				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		30.1	25.1	37.4	12.9		62.3	3.8				
Queue Length 50th (m)		85.8	41.3	62.2	74.3		65.3	0.0				
Queue Length 95th (m)		123.5	75.5	99.3	110.1		93.9	6.1				
Internal Link Dist (m)		44.0			64.5			214.4			45.4	
Turn Bay Length (m)			10.0	15.0			90.0					
Base Capacity (vph)		1711	752	546	2471		418	693				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.66	0.48	0.70	0.54		0.70	0.48				

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1125	359	384	1334	0	293	0	334	0	0	0
Future Volume (vph)	0	1125	359	384	1334	0	293	0	334	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.5	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)		6.0	6.0	2.0	6.0		6.0	6.0				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	0.98				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3614	1510	1750	3579		1733	1563				
Flt Permitted		1.00	1.00	0.14	1.00		0.95	1.00				
Satd. Flow (perm)		3614	1510	257	3579		1733	1563				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1125	359	384	1334	0	293	0	334	0	0	0
RTOR Reduction (vph)	0	0	37	0	0	0	0	264	0	0	0	0
Lane Group Flow (vph)	0	1125	322	384	1334	0	293	70	0	0	0	0
Confl. Peds. (#/hr)	4		5	5		4	6		6	6		6
Heavy Vehicles (%)	0%	1%	2%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		custom	NA				
Protected Phases		2		1	6			8				
Permitted Phases	2		2	6			4					
Actuated Green, G (s)		56.9	56.9	82.9	82.9		24.1	25.1				
Effective Green, g (s)		56.9	56.9	83.9	82.9		25.1	25.1				
Actuated g/C Ratio		0.47	0.47	0.70	0.69		0.21	0.21				
Clearance Time (s)		6.0	6.0	3.0	6.0		7.0	6.0				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		1713	715	478	2472		362	326				
v/s Ratio Prot		c0.31		c0.16	0.37			0.04				
v/s Ratio Perm			0.21	0.40			c0.17					
v/c Ratio		0.66	0.45	0.80	0.54		0.81	0.21				
Uniform Delay, d1		24.1	21.1	24.5	9.1		45.2	39.3				
Progression Factor		1.08	1.20	1.36	1.24		1.00	1.00				
Incremental Delay, d2		1.6	1.7	8.3	0.7		12.5	0.3				
Delay (s)		27.6	27.0	41.6	12.1		57.7	39.6				
Level of Service		C	C	D	B		E	D				
Approach Delay (s)		27.5			18.7			48.1			0.0	
Approach LOS		C			B			D			A	

Intersection Summary

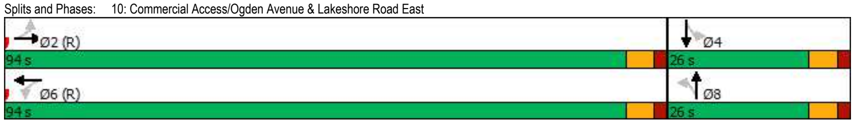
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1422	0	0	1662	95	3	1	1	97	0	114
Future Volume (vph)	125	1422	0	0	1662	95	3	1	1	97	0	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Storage Length (m)	85.0		30.0	115.0		0.0	90.0		0.0	35.0		35.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			30.0			70.0		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			85.5			158.0			360.5	
Travel Time (s)		6.8			6.2			11.4			26.0	
Lane Group Flow (vph)	125	1422	0	0	1757	0	3	2	0	97	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (s)	94.0	94.0		94.0	94.0		26.0	26.0		26.0	26.0	
Total Split (%)	78.3%	78.3%		78.3%	78.3%		21.7%	21.7%		21.7%	21.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
v/c Ratio	0.84	0.50			0.63		0.02	0.01		0.61	0.51	
Control Delay	53.3	1.7			7.4		44.3	37.0		66.3	35.4	
Queue Delay	0.0	0.0			0.4		0.0	0.0		0.0	0.0	
Total Delay	53.3	1.7			7.8		44.3	37.0		66.3	35.4	
Queue Length 50th (m)	17.5	12.2			53.7		0.7	0.2		22.1	13.9	
Queue Length 95th (m)	m#62.5	17.4			223.0		3.4	2.6		37.9	30.6	
Internal Link Dist (m)		70.1			61.5			134.0			336.5	
Turn Bay Length (m)	85.0						90.0			35.0		
Base Capacity (vph)	149	2840			2784		194	288		231	303	
Starvation Cap Reductn	0	0			452		0	0		0	0	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.84	0.50			0.75		0.02	0.01		0.42	0.38	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1422	0	0	1662	95	3	1	1	97	0	114
Future Volume (vph)	125	1422	0	0	1662	95	3	1	1	97	0	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.5
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00			0.99		1.00	0.93		1.00	0.85	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3614			3539		1776	1727		1741	1568	
Flt Permitted	0.10	1.00			1.00		0.62	1.00		0.76	1.00	
Satd. Flow (perm)	191	3614			3539		1167	1727		1386	1568	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	1422	0	0	1662	95	3	1	1	97	0	114
RTOR Reduction (vph)	0	0	0	0	3	0	0	1	0	0	45	0
Lane Group Flow (vph)	125	1422	0	0	1754	0	3	1	0	97	69	0
Confl. Peds. (#/hr)	7		2	2		7	5		3	3		5
Heavy Vehicles (%)	2%	1%	1%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	94.3	94.3			94.3		13.7	13.7		13.7	13.7	
Effective Green, g (s)	94.3	94.3			94.3		13.7	13.7		13.7	13.7	
Actuated g/C Ratio	0.79	0.79			0.79		0.11	0.11		0.11	0.11	
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	150	2840			2781		133	197		158	179	
v/s Ratio Prot		0.39			0.50			0.00			0.04	
v/s Ratio Perm	c0.66						0.00			c0.07		
v/c Ratio	0.83	0.50			0.63		0.02	0.01		0.61	0.38	
Uniform Delay, d1	8.0	4.5			5.5		47.2	47.1		50.6	49.2	
Progression Factor	1.08	0.23			1.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.1	0.5			0.9		0.1	0.0		6.9	1.4	
Delay (s)	43.7	1.6			6.8		47.3	47.1		57.5	50.6	
Level of Service	D	A			A		D	D		E	D	
Approach Delay (s)		5.0			6.8			47.2			53.8	
Approach LOS		A			A			D			D	

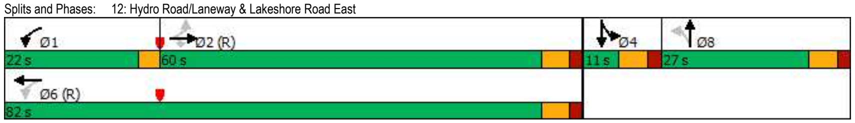
Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1155	406	324	1448	9	330	0	275	2	0	3
Future Volume (vph)	3	1155	406	324	1448	9	330	0	275	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	25.0		50.0	30.0		0.0	90.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	45.0			50.0			30.0			7.6		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		138.4			186.1			230.8			173.9	
Travel Time (s)		10.0			13.4			16.6			12.5	
Lane Group Flow (vph)	3	1155	406	324	1457	0	297	308	0	0	5	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2		2	6			8					
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0		8.0	8.0		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0		26.0	26.0		11.0	11.0	
Total Split (s)	60.0	60.0	60.0	22.0	82.0		27.0	27.0		11.0	11.0	
Total Split (%)	50.0%	50.0%	50.0%	18.3%	68.3%		22.5%	22.5%		9.2%	9.2%	
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	
v/c Ratio	0.02	0.69	0.46	0.90	0.64		0.91	0.53			0.03	
Control Delay	26.7	29.7	12.3	53.7	16.4		76.0	10.8			0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.4		0.0	0.1			0.0	
Total Delay	26.7	29.7	12.3	53.7	16.7		76.0	10.9			0.2	
Queue Length 50th (m)	0.3	84.3	16.6	59.4	89.0		69.8	6.2			0.0	
Queue Length 95th (m)	m0.8	120.0	43.8	#97.8	144.2		#150.4	36.2			0.0	
Internal Link Dist (m)		114.4			162.1			206.8			149.9	
Turn Bay Length (m)	25.0		50.0	30.0			90.0					
Base Capacity (vph)	127	1671	879	388	2264		327	579			176	
Starvation Cap Reductn	0	0	0	0	313		0	0			0	
Spillback Cap Reductn	0	0	0	0	134		0	10			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.02	0.69	0.46	0.84	0.75		0.91	0.54			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1155	406	324	1448	9	330	0	275	2	0	3
Future Volume (vph)	3	1155	406	324	1448	9	330	0	275	2	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7	3.7
Total Lost time (s)	6.0	6.0	6.0	2.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87			0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.98	
Satd. Flow (prot)	1788	3579	1568	1750	3575		1662	1541			1731	
Flt Permitted	0.14	1.00	1.00	0.10	1.00		0.75	0.97			0.98	
Satd. Flow (perm)	273	3579	1568	193	3575		1320	1501			1731	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	1155	406	324	1448	9	330	0	275	2	0	3
RTOR Reduction (vph)	0	0	158	0	0	0	0	207	0	0	5	0
Lane Group Flow (vph)	3	1155	248	324	1457	0	297	101	0	0	0	0
Confl. Peds. (#/hr)	2		6	6		2						
Heavy Vehicles (%)	2%	2%	0%	2%	2%	0%	2%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Split	NA	
Protected Phases		2		1	6			8		4	4	
Permitted Phases	2		2	6			8					
Actuated Green, G (s)	51.2	51.2	51.2	71.2	71.2		29.8	29.8			1.0	
Effective Green, g (s)	51.2	51.2	51.2	72.2	71.2		29.8	29.8			1.0	
Actuated g/C Ratio	0.43	0.43	0.43	0.60	0.59		0.25	0.25			0.01	
Clearance Time (s)	6.0	6.0	6.0	3.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	116	1527	669	349	2121		327	372			14	
v/s Ratio Prot		c0.32		c0.14	0.41						c0.00	
v/s Ratio Perm	0.01		0.16	0.42			c0.22	0.07				
v/c Ratio	0.03	0.76	0.37	0.93	0.69		0.91	0.27			0.00	
Uniform Delay, d1	19.9	29.1	23.4	32.0	16.7		43.8	36.4			59.0	
Progression Factor	1.39	1.06	1.54	1.30	1.11		1.00	1.00			1.00	
Incremental Delay, d2	0.4	3.2	1.4	23.8	1.3		27.5	0.4			0.1	
Delay (s)	28.1	34.2	37.6	65.3	19.9		71.3	36.8			59.1	
Level of Service	C	C	D	E	B		E	D			E	
Approach Delay (s)		35.0			28.1			53.7			59.1	
Approach LOS		D			C			D			E	

Intersection Summary

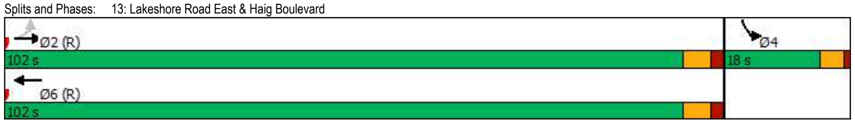
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	1397	1929	84	26	116
Future Volume (vph)	86	1397	1929	84	26	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	60.0	0.0
Storage Lanes	1			0	0	0
Taper Length (m)	50.0				7.5	
Right Turn on Red				Yes		Yes
Link Speed (k/h)		50	50		50	
Link Distance (m)		186.1	142.9		353.7	
Travel Time (s)		13.4	10.3		25.5	
Lane Group Flow (vph)	86	1397	2013	0	142	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0		5.0	
Minimum Split (s)	22.0	22.0	22.0		9.5	
Total Split (s)	102.0	102.0	102.0		18.0	
Total Split (%)	85.0%	85.0%	85.0%		15.0%	
Yellow Time (s)	4.0	4.0	4.0		3.5	
All-Red Time (s)	2.0	2.0	2.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max		None	
v/c Ratio	0.74	0.48	0.69		0.74	
Control Delay	43.7	1.1	5.1		59.6	
Queue Delay	0.0	0.2	0.0		0.0	
Total Delay	43.7	1.3	5.1		59.6	
Queue Length 50th (m)	12.4	6.3	47.8		23.2	
Queue Length 95th (m)	m#36.2	8.7	63.9		#47.0	
Internal Link Dist (m)		162.1	118.9		329.7	
Turn Bay Length (m)	50.0				60.0	
Base Capacity (vph)	116	2922	2897		219	
Starvation Cap Reductn	0	631	0		0	
Spillback Cap Reductn	0	0	18		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.74	0.61	0.70		0.65	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	1397	1929	84	26	116
Future Volume (vph)	86	1397	1929	84	26	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.89	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1789	3579	3545		1636	
Flt Permitted	0.08	1.00	1.00		0.99	
Satd. Flow (perm)	143	3579	3545		1636	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	1397	1929	84	26	116
RTOR Reduction (vph)	0	0	2	0	36	0
Lane Group Flow (vph)	86	1397	2011	0	106	0
Confl. Peds. (#/hr)	15			15	9	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	98.0	98.0	98.0		11.5	
Effective Green, g (s)	98.0	98.0	98.0		11.5	
Actuated g/C Ratio	0.82	0.82	0.82		0.10	
Clearance Time (s)	6.0	6.0	6.0		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	116	2922	2895		156	
v/s Ratio Prot		0.39	0.57		c0.06	
v/s Ratio Perm	c0.60					
v/c Ratio	0.74	0.48	0.69		0.68	
Uniform Delay, d1	5.1	3.3	4.7		52.5	
Progression Factor	1.42	0.18	0.82		1.00	
Incremental Delay, d2	27.6	0.4	1.0		11.1	
Delay (s)	34.9	1.0	4.8		63.6	
Level of Service	C	A	A		E	
Approach Delay (s)		3.0	4.8		63.6	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

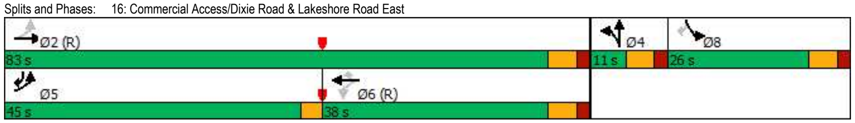
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1033	13	2	1342	220	1	3	0	278	0	689
Future Volume (vph)	332	1033	13	2	1342	220	1	3	0	278	0	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	332	1046	0	2	1342	220	0	4	0	278	0	689
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	7.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		7.0
Minimum Split (s)	11.0	31.0		31.0	31.0	31.0	11.0	11.0		26.0		11.0
Total Split (s)	45.0	83.0		38.0	38.0	38.0	11.0	11.0		26.0		45.0
Total Split (%)	37.5%	69.2%		31.7%	31.7%	31.7%	9.2%	9.2%		21.7%		37.5%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None		None
v/c Ratio	0.73	0.42		0.01	0.82	0.28		0.05		0.78		0.93
Control Delay	28.1	8.4		27.5	35.0	14.1		56.8		61.8		42.9
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	28.1	8.4		27.5	35.0	14.1		56.8		61.8		42.9
Queue Length 50th (m)	52.5	68.5		0.2	137.4	14.5		0.9		60.9		116.9
Queue Length 95th (m)	63.3	102.8		2.5	#265.0	43.8		4.7		#111.2		135.9
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	686	2476		242	1646	786		79		361		951
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.48	0.42		0.01	0.82	0.28		0.05		0.77		0.72

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1033	13	2	1342	220	1	3	0	278	0	689
Future Volume (vph)	332	1033	13	2	1342	220	1	3	0	278	0	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3572		1823	3579	1581		1897		1807		1570
Flt Permitted	0.07	1.00		0.27	1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	140	3572		525	3579	1581		1897		1807		1570
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	332	1033	13	2	1342	220	1	3	0	278	0	689
RTOR Reduction (vph)	0	1	0	0	0	63	0	0	0	0	0	87
Lane Group Flow (vph)	332	1045	0	2	1342	157	0	4	0	278	0	602
Confl. Peds. (#/hr)	1		2	2		1	16					16
Heavy Vehicles (%)	3%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%	2%
Turn Type	pm+pt	NA		Perm	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		4	4		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	78.4	78.4		50.4	50.4	50.4		1.0		22.6		47.6
Effective Green, g (s)	79.4	78.4		50.4	50.4	50.4		1.0		23.6		47.6
Actuated g/C Ratio	0.66	0.65		0.42	0.42	0.42		0.01		0.20		0.40
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	446	2333		220	1503	664		15		355		622
v/s Ratio Prot	0.16	0.29			c0.38			c0.00		0.15		c0.20
v/s Ratio Perm	0.33			0.00		0.10						0.18
v/c Ratio	0.74	0.45		0.01	0.89	0.24		0.27		0.78		0.97
Uniform Delay, d1	33.0	10.2		20.3	32.3	22.4		59.1		45.8		35.5
Progression Factor	0.71	0.92		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	6.3	0.6		0.1	8.5	0.8		9.3		10.8		27.9
Delay (s)	29.7	10.0		20.3	40.8	23.2		68.5		56.5		63.4
Level of Service	C	B		C	D	C		E		E		E
Approach Delay (s)		14.8			38.3			68.5			61.4	
Approach LOS		B			D			E			E	

Intersection Summary

HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX G-9

Analysis Scenario 3 Trip Generation Summary

Table G-9A – Scenario 3 - Lakeview Trip Generation – 2031 BRT

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 374 units	Fitted Curve Equation	Ln(T) = 0.95 Ln(X) - 0.51			Ln(T) = 0.89 Ln(X) - 0.02		
	Distribution	23%	77%	-	63%	37%	-
	Gross Vehicle Site Trips	38	129	167	120	71	191
	Vehicle to Person Trip Conversion Rate	1.13			1.21		
	Gross Person Trips	43	146	189	146	85	231
	Internal Reduction	-1	-2	-3	-10	-7	-17
	Total External Person Trips	42	144	186	136	78	214
	Mode Split Reduction	-19	-64	-83	-60	-35	-95
	Total Auto Driver Trips	**23**	**80**	**103**	**76**	**43**	**119**
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 5287 units	Average Rate	0.2			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	127	930	1057	685	267	952
	Vehicle to Person Trip Conversion Rate	1.9			2.0		
	Gross Person Trips	241	1768	2009	1370	533	1903
	Internal Reduction	-5	-31	-36	-90	-49	-139
	Total External Person Trips	236	1737	1973	1280	484	1764
	Mode Split Reduction	-105	-773	-878	-570	-215	-785
	Total Auto Driver Trips	**131**	**964**	**1095**	**710**	**269**	**979**
Multifamily Housing (High-Rise) LUC 222 *Dense Multi-use Urban Context* 2389 units	Fitted Curve Equation or Average Rate	Ln(T) = 0.84 Ln(X) - 0.65			0.19		
	Distribution	12%	88%		70%	30%	
	Gross Vehicle Site Trips	43	316	359	318	136	454
	Vehicle to Person Trip Conversion Rate	2.81			2.17		
	Gross Person Trips	121	889	1010	690	295	985
	Internal Reduction	-2	-16	-18	-45	-27	-72
	Total External Person Trips	119	873	992	645	268	913
	Mode Split Reduction	-53	-389	-442	-287	-119	-406

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
	Total Auto Driver Trips	**66**	**484**	**550**	**358**	**149**	**507**
General Office Building LUC 710 *Dense Multi-use Urban Context* 745,316 ft² GFA	Fitted Curve Equation	T = 0.72(X) + 21.64			T = 0.83(X) + 7.99		
	Distribution	86%	14%		17%	83%	
	Gross Vehicle Site Trips	480	78	558	107	520	627
	Vehicle to Person Trip Conversion Rate	1.47			1.46		
	Gross Person Trips	706	115	821	156	759	915
	Internal Reduction	-49	-32	-81	-47	-52	-99
	Total External Person Trips	657	83	740	109	707	816
	Mode Split Reduction	-292	-37	-329	-49	-315	-364
	Total Auto Driver Trips	**365**	**46**	**411**	**60**	**392**	**452**
Research and Development Center LUC 760 745,315 ft² GFA	Average Rate	0.42			0.49		
	Distribution	75%	25%		15%	85%	
	Gross Vehicle Site Trips	235	78	313	55	310	365
	Vehicle to Person Trip Conversion Rate	1.36			1.45		
	Gross Person Trips	320	106	426	80	450	530
	Internal Reduction	N/A	N/A	N/A	N/A	N/A	N/A
	Total External Person Trips	320	106	426	80	450	530
	Mode Split Reduction	-142	-47	-189	-36	-200	-236
	Total Auto Driver Trips	**178**	**59**	**237**	**44**	**250**	**294**
Shopping Center LUC 820 133,161 ft² GFA	Fitted Curve Equation	T = 0.50(X) + 151.78			Ln(T) = 0.74Ln(X) + 2.89		
	Distribution	62%	38%		48%	52%	
	Gross Vehicle Site Trips	135	83	218	322	350	672
	Vehicle to Person Trip Conversion Rate	1.31			1.43		
	Gross Person Trips	177	109	286	461	499	960
	Internal Reduction	-60	-36	-96	-83	-140	-223
	Total External Person Trips	117	73	190	378	359	737
	Mode Split Reduction	-52	-32	-84	-168	-160	-328

<table>
<tr><th rowspan="3">Land Use</th><th rowspan="3">Parameters</th><th colspan="6">Peak Hour of Trip Generator</th></tr>
<tr><th colspan="3">Weekday AM</th><th colspan="3">Weekday PM</th></tr>
<tr><th>In</th><th>Out</th><th>Total</th><th>In</th><th>Out</th><th>Total</th></tr>
<tr><td></td><td>Total Auto Driver Trips</td><td>65</td><td>41</td><td>106</td><td>210</td><td>199</td><td>409</td></tr>
<tr><td rowspan="5">Elementary School
LUC 520
850 student capacity</td><td>Average Rate</td><td colspan="3">0.67</td><td colspan="3">0.17</td></tr>
<tr><td>Distribution</td><td>54%</td><td>46%</td><td>-</td><td>48%</td><td>52%</td><td>-</td></tr>
<tr><td>Gross Vehicle Site Trips</td><td>308</td><td>262</td><td>570</td><td>70</td><td>75</td><td>145</td></tr>
<tr><td>Internal Reduction (50%)</td><td>-154</td><td>-131</td><td>-285</td><td>-35</td><td>-38</td><td>-73</td></tr>
<tr><td>Total Auto Driver Trips</td><td>154</td><td>131</td><td>285</td><td>35</td><td>37</td><td>72</td></tr>
<tr><td rowspan="5">Day Care Center
LUC 565
39 Student Capacity</td><td>Fitted Curve Equation</td><td colspan="3">T = 0.66(X) + 8.42</td><td colspan="3">Ln(T) = 0.87 Ln(X) + 0.29</td></tr>
<tr><td>Distribution</td><td>53%</td><td>47%</td><td>-</td><td>47%</td><td>53%</td><td>-</td></tr>
<tr><td>Gross Vehicle Site Trips</td><td>18</td><td>16</td><td>34</td><td>15</td><td>17</td><td>32</td></tr>
<tr><td>Internal Reduction (50%)</td><td>-9</td><td>-8</td><td>-17</td><td>-8</td><td>-9</td><td>-17</td></tr>
<tr><td>Total Auto Driver Trips</td><td>9</td><td>8</td><td>17</td><td>7</td><td>8</td><td>15</td></tr>
</table>

Table G-9B – Scenario 3 Lakeview Residential and Non-Residential Total Site Trip Generation

Parameters	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Residential	220	1528	1748	1144	461	1605
Non-Residential	771	285	1056	356	886	1243
Total Trips	**991**	**1813**	**2804**	**1500**	**1347**	**2848**

APPENDIX G-10

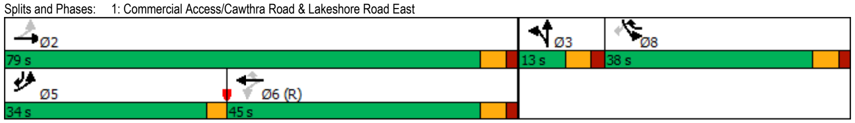
Analysis Scenario 3 Synchro HCM 2000 Capacity Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
Future Volume (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0	8.0	7.0	7.0		8.0		5.0
Minimum Split (s)	17.0	38.0		38.0	38.0	35.0	13.0	13.0		35.0		17.0
Total Split (s)	34.0	79.0		45.0	45.0	38.0	13.0	13.0		38.0		34.0
Total Split (%)	26.2%	60.8%		34.6%	34.6%	29.2%	10.0%	10.0%		29.2%		26.2%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.84	0.58		0.02	0.66	0.67				0.76		0.45
Control Delay	36.5	13.7		23.0	28.7	6.3				51.5		10.7
Queue Delay	0.0	0.0		0.0	0.0	0.0				0.0		0.0
Total Delay	36.5	13.7		23.0	28.7	6.3				51.5		10.7
Queue Length 50th (m)	74.9	94.3		0.2	76.5	6.0				75.9		28.7
Queue Length 95th (m)	#139.4	134.3		m0.7	122.0	12.5				89.4		44.6
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0			15.0		70.0				200.0		
Base Capacity (vph)	574	2390		149	1414	1093				874		848
Starvation Cap Reductn	0	0		0	0	0				0		0
Spillback Cap Reductn	0	0		0	0	0				0		0
Storage Cap Reductn	0	0		0	0	0				0		0
Reduced v/c Ratio	0.84	0.58		0.02	0.66	0.66				0.70		0.45

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
Future Volume (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		6.0	6.0	6.0				5.0		3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				0.97		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97				1.00		0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (prot)	1754	3579		1821	3476	1483				3278		1518
Flt Permitted	0.17	1.00		0.19	1.00	1.00				0.95		1.00
Satd. Flow (perm)	318	3579		369	3476	1483				3278		1518
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	482	1397	0	3	927	716	0	0	0	616	0	379
RTOR Reduction (vph)	0	0	0	0	0	111	0	0	0	0	0	92
Lane Group Flow (vph)	482	1397	0	3	927	605	0	0	0	616	0	287
Confl. Peds. (#/hr)	25		8	8		25	13					13
Heavy Vehicles (%)	4%	2%	0%	0%	5%	7%	0%	0%	0%	8%	0%	6%
Turn Type	pm+pt	NA		Perm	NA	pm+ov				Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	86.8	86.8		52.9	52.9	84.1				31.2		62.1
Effective Green, g (s)	87.8	86.8		52.9	52.9	84.1				32.2		62.1
Actuated g/C Ratio	0.68	0.67		0.41	0.41	0.65				0.25		0.48
Clearance Time (s)	3.0	6.0		6.0	6.0	6.0				6.0		3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	567	2389		150	1414	1027				811		725
v/s Ratio Prot	c0.21	0.39			c0.27	0.14				c0.19		0.09
v/s Ratio Perm	0.37			0.01		0.27						0.09
v/c Ratio	0.85	0.58		0.02	0.66	0.59				0.76		0.40
Uniform Delay, d1	26.1	11.8		23.1	31.2	13.1				45.3		21.9
Progression Factor	1.00	1.00		0.85	0.82	0.61				1.00		1.00
Incremental Delay, d2	11.7	1.1		0.2	1.9	0.7				4.1		0.4
Delay (s)	37.8	12.8		19.8	27.7	8.7				49.4		22.2
Level of Service	D	B		B	C	A				D		C
Approach Delay (s)		19.2			19.4			0.0			39.1	
Approach LOS		B			B			A			D	

Intersection Summary

HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	37	1802	165	86	16	1457	9	200	1	8	32	1
Future Volume (vph)	37	1802	165	86	16	1457	9	200	1	8	32	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Storage Length (m)	20.0		25.0		60.0		20.0	0.0		0.0	20.0	
Storage Lanes	1		0		1		0	1		0	1	
Taper Length (m)	40.0				50.0			70.0			20.0	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		95.7				101.7			208.9			195.3
Travel Time (s)		6.9				7.3			15.0			14.1
Lane Group Flow (vph)	37	1967	0	0	102	1466	0	200	9	0	32	11
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	2		1	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	24.0		14.0	14.0	24.0		28.0	28.0		28.0	28.0
Total Split (s)	14.0	85.0		15.0	15.0	86.0		30.0	30.0		30.0	30.0
Total Split (%)	10.8%	65.4%		11.5%	11.5%	66.2%		23.1%	23.1%		23.1%	23.1%
Yellow Time (s)	3.0	4.0		3.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	0.0			-1.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0			5.0	6.0		6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
v/c Ratio	0.30	0.92			0.72	0.64		0.87	0.03		0.14	0.04
Control Delay	67.8	27.0			81.1	14.3		85.0	24.4		46.2	22.7
Queue Delay	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	67.8	27.0			81.1	14.3		85.0	24.4		46.2	22.7
Queue Length 50th (m)	8.5	255.8			25.6	101.0		49.4	0.2		6.9	0.2
Queue Length 95th (m)	m15.0	#302.5			m#52.9	118.9		#86.9	5.2		16.3	5.6
Internal Link Dist (m)		71.7				77.7			184.9			171.3
Turn Bay Length (m)	20.0				60.0						20.0	
Base Capacity (vph)	123	2129			143	2276		253	305		260	309
Starvation Cap Reductn	0	0			0	0		0	0		0	0
Spillback Cap Reductn	0	0			0	0		0	0		0	0
Storage Cap Reductn	0	0			0	0		0	0		0	0
Reduced v/c Ratio	0.30	0.92			0.71	0.64		0.79	0.03		0.12	0.04

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	37	1802	165	86	16	1457	9	200	1	8	32	1
Future Volume (vph)	37	1802	165	86	16	1457	9	200	1	8	32	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Total Lost time (s)	5.0	6.0			5.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99	1.00		1.00	1.00
Frt	1.00	0.99			1.00	1.00		1.00	0.87		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1785	3424			1785	3377		1741	1616		1782	1633
Flt Permitted	0.95	1.00			0.95	1.00		0.75	1.00		0.75	1.00
Satd. Flow (perm)	1785	3424			1785	3377		1375	1616		1410	1633
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	1802	165	86	16	1457	9	200	1	8	32	1
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	7	0	0	8
Lane Group Flow (vph)	37	1962	0	0	102	1466	0	200	2	0	32	3
Confl. Peds. (#/hr)	11		11		11		11	3		1	1	
Heavy Vehicles (%)	0%	5%	2%	0%	0%	8%	2%	2%	0%	2%	0%	0%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	4.8	80.7			9.4	85.3		21.9	21.9		21.9	21.9
Effective Green, g (s)	5.8	80.7			10.4	85.3		21.9	21.9		21.9	21.9
Actuated g/C Ratio	0.04	0.62			0.08	0.66		0.17	0.17		0.17	0.17
Clearance Time (s)	6.0	6.0			6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	79	2125			142	2215		231	272		237	275
v/s Ratio Prot	0.02	c0.57			c0.06	c0.43			0.00			0.00
v/s Ratio Perm								c0.15			0.02	
v/c Ratio	0.47	0.92			0.72	0.66		0.87	0.01		0.14	0.01
Uniform Delay, d1	60.6	21.9			58.4	13.6		52.6	45.0		46.0	45.0
Progression Factor	1.08	0.87			0.95	0.93		1.00	1.00		1.00	1.00
Incremental Delay, d2	3.6	7.0			14.8	1.5		27.0	0.0		0.3	0.0
Delay (s)	68.9	26.0			70.2	14.0		79.6	45.0		46.3	45.0
Level of Service	E	C			E	B		E	D		D	D
Approach Delay (s)		26.8				17.7			78.1			45.9
Approach LOS		C				B			E			D

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	10
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	59	0	1338	359	5	162	1002	0	350	0	509	0
Future Volume (vph)	59	0	1338	359	5	162	1002	0	350	0	509	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Storage Length (m)		15.0		10.0		15.0		0.0	90.0		0.0	0.0
Storage Lanes		1		1		1		0	1		0	0
Taper Length (m)		40.0				55.0			30.0			7.5
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			68.0				88.5			238.4		
Travel Time (s)			4.9				6.4			17.2		
Lane Group Flow (vph)	0	59	1338	359	0	167	1002	0	350	509	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		custom	NA		
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases				2					4			
Detector Phase	5	5	2	2	1	1	6		4	8		
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	5.0		
Minimum Split (s)	14.0	14.0	26.0	26.0	14.0	14.0	26.0		29.0	24.0		
Total Split (s)	14.0	14.0	62.0	62.0	21.0	21.0	69.0		47.0	47.0		
Total Split (%)	10.8%	10.8%	47.7%	47.7%	16.2%	16.2%	53.1%		36.2%	36.2%		
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0		4.0	4.0		
All-Red Time (s)	3.0	3.0	2.0	2.0	3.0	3.0	2.0		3.0	2.0		
Lost Time Adjust (s)		-1.0	0.0	0.0		-1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0	6.0	6.0		5.0	6.0		7.0	6.0		
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max		None	None		
v/c Ratio		0.45	0.82	0.46		0.78	0.53		0.75	0.93		
Control Delay		71.8	29.2	14.6		84.4	21.0		53.6	56.9		
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay		71.8	29.2	14.6		84.4	21.0		53.6	56.9		
Queue Length 50th (m)		15.9	127.6	22.9		44.2	59.4		79.6	92.0		
Queue Length 95th (m)		m19.9	m166.2	m30.8		#77.5	99.7		111.8	#150.5		
Internal Link Dist (m)			44.0				64.5			214.4		
Turn Bay Length (m)		15.0		10.0		15.0			90.0			
Base Capacity (vph)		131	1627	784		221	1877		528	596		
Starvation Cap Reductn		0	0	0		0	0		0	0		
Spillback Cap Reductn		0	0	0		0	0		0	0		
Storage Cap Reductn		0	0	0		0	0		0	0		
Reduced v/c Ratio		0.45	0.82	0.46		0.76	0.53		0.66	0.85		

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 109 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.7
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	69.4	
Travel Time (s)	5.0	
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)	45.4	
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	59	0	1338	359	5	162	1002	0	350	0	509	0
Future Volume (vph)	59	0	1338	359	5	162	1002	0	350	0	509	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Total Lost time (s)		5.0	6.0	6.0		5.0	6.0		7.0	6.0		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		1.00	1.00		
Frpb, ped/bikes		1.00	1.00	0.97		1.00	1.00		1.00	0.98		
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		0.98	1.00		
Frt		1.00	1.00	0.85		1.00	1.00		1.00	0.85		
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1825	3476	1524		1751	3476		1716	1565		
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1825	3476	1524		1751	3476		1716	1565		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	0	1338	359	5	162	1002	0	350	0	509	0
RTOR Reduction (vph)	0	0	0	71	0	0	0	0	0	109	0	0
Lane Group Flow (vph)	0	59	1338	288	0	167	1002	0	350	400	0	0
Confl. Peds. (#/hr)				2		2			11		5	5
Heavy Vehicles (%)	0%	0%	5%	2%	0%	2%	5%	0%	2%	0%	2%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		custom	NA		
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases				2					4			
Actuated Green, G (s)		6.7	60.8	60.8		14.9	69.0		35.3	36.3		
Effective Green, g (s)		7.7	60.8	60.8		15.9	69.0		35.3	36.3		
Actuated g/C Ratio		0.06	0.47	0.47		0.12	0.53		0.27	0.28		
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0		7.0	6.0		
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		108	1625	712		214	1844		465	436		
v/s Ratio Prot		0.03	c0.38			c0.10	0.29			c0.26		
v/s Ratio Perm				0.19					0.20			
v/c Ratio		0.55	0.82	0.40		0.78	0.54		0.75	0.92		
Uniform Delay, d1		59.5	30.0	22.7		55.4	20.1		43.4	45.4		
Progression Factor		1.11	0.82	0.87		1.10	0.94		1.00	1.00		
Incremental Delay, d2		3.6	3.2	1.1		16.1	1.1		6.8	24.0		
Delay (s)		69.3	27.8	20.8		77.0	20.0		50.1	69.4		
Level of Service		E	C	C		E	B		D	E		
Approach Delay (s)			27.7				28.1			61.5		
Approach LOS			C				C			E		

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Lakefront Promenade & Lakeshore Road East

2031 Total AM Peak Hour
08-19-2021

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.7
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		11
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

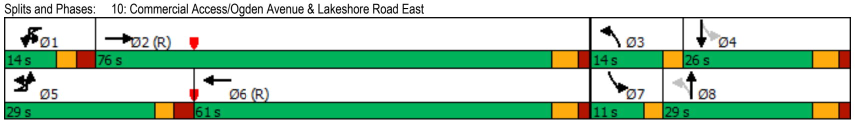
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	191	1692	3	2	7	981	118	1	0	3	105
Future Volume (vph)	7	191	1692	3	2	7	981	118	1	0	3	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5
Storage Length (m)		85.0		30.0		115.0		0.0	90.0		0.0	35.0
Storage Lanes		1		0		1		0	1		0	1
Taper Length (m)		50.0				50.0			30.0			70.0
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			94.1				85.5			162.6		
Travel Time (s)			6.8				6.2			11.7		
Lane Group Flow (vph)	0	198	1695	0	0	9	1099	0	1	3	0	105
Turn Type	Prot	Prot	NA		Prot	Prot	NA		pm+pt	NA		pm+pt
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases									8			4
Detector Phase	5	5	2		1	1	6		3	8		7
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0		5.0	8.0		5.0
Minimum Split (s)	14.0	14.0	24.0		14.0	14.0	24.0		14.0	26.0		11.0
Total Split (s)	29.0	29.0	76.0		14.0	14.0	61.0		14.0	29.0		11.0
Total Split (%)	22.3%	22.3%	58.5%		10.8%	10.8%	46.9%		10.8%	22.3%		8.5%
Yellow Time (s)	3.0	3.0	4.0		3.0	3.0	4.0		3.0	4.0		3.0
All-Red Time (s)	3.0	3.0	2.0		3.0	3.0	2.0		0.0	2.0		0.0
Lost Time Adjust (s)		-1.0	0.0			-1.0	0.0		-1.0	0.0		-1.0
Total Lost Time (s)		5.0	6.0			5.0	6.0		2.0	6.0		2.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag		Lead	Lag		Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	C-Max		None	None	C-Max		None	None		None
v/c Ratio		0.71	0.61			0.07	0.53		0.01	0.01		0.56
Control Delay		61.3	3.5			70.3	7.1		50.0	0.0		65.8
Queue Delay		0.0	0.0			0.0	0.0		0.0	0.0		0.0
Total Delay		61.3	3.6			70.3	7.1		50.0	0.0		65.8
Queue Length 50th (m)		50.5	27.1			2.3	45.7		0.3	0.0		26.4
Queue Length 95th (m)		m64.1	69.4			m4.6	m61.5		1.9	0.0		41.5
Internal Link Dist (m)			70.1				61.5			138.6		
Turn Bay Length (m)		85.0				115.0			90.0			35.0
Base Capacity (vph)		333	2781			124	2086		197	403		187
Starvation Cap Reductn		0	87			0	0		0	0		0
Spillback Cap Reductn		0	80			0	0		0	0		0
Storage Cap Reductn		0	0			0	0		0	0		0
Reduced v/c Ratio		0.59	0.63			0.07	0.53		0.01	0.01		0.56

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1	58
Future Volume (vph)	1	58
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.5
Storage Length (m)		35.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	360.5	
Travel Time (s)	26.0	
Lane Group Flow (vph)	59	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	8.0	
Minimum Split (s)	26.0	
Total Split (s)	26.0	
Total Split (%)	20.0%	
Yellow Time (s)	4.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	
v/c Ratio	0.38	
Control Delay	21.7	
Queue Delay	0.0	
Total Delay	21.7	
Queue Length 50th (m)	0.3	
Queue Length 95th (m)	13.7	
Internal Link Dist (m)	336.5	
Turn Bay Length (m)		
Base Capacity (vph)	292	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.20	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	7	191	1692	3	2	7	981	118	1	0	3	105
Future Volume (vph)	7	191	1692	3	2	7	981	118	1	0	3	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5
Total Lost time (s)		5.0	6.0			5.0	6.0		2.0	6.0		2.0
Lane Util. Factor		1.00	0.95			1.00	0.95		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	0.99		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	1.00		1.00
Frt		1.00	1.00			1.00	0.98		1.00	0.85		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1751	3443			1797	3302		1786	1579		1747
Flt Permitted		0.95	1.00			0.95	1.00		1.00	1.00		0.87
Satd. Flow (perm)		1751	3443			1797	3302		1880	1579		1599
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	191	1692	3	2	7	981	118	1	0	3	105
RTOR Reduction (vph)	0	0	0	0	0	0	5	0	0	3	0	0
Lane Group Flow (vph)	0	198	1695	0	0	9	1094	0	1	0	0	105
Confl. Peds. (#/hr)		7		8		8		7	1		1	1
Heavy Vehicles (%)	0%	2%	6%	2%	0%	2%	9%	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		pm+pt	NA		pm+pt
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases									8			4
Actuated Green, G (s)		19.8	95.4			1.6	77.2		2.8	1.6		15.0
Effective Green, g (s)		20.8	95.4			2.6	77.2		4.8	1.6		16.0
Actuated g/C Ratio		0.16	0.73			0.02	0.59		0.04	0.01		0.12
Clearance Time (s)		6.0	6.0			6.0	6.0		3.0	6.0		3.0
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		280	2526			35	1960		67	19		209
v/s Ratio Prot		c0.11	c0.49			0.01	0.33		0.00	0.00		c0.04
v/s Ratio Perm									0.00			0.02
v/c Ratio		0.71	0.67			0.26	0.56		0.01	0.00		0.50
Uniform Delay, d1		51.7	9.1			62.7	16.0		60.3	63.4		53.2
Progression Factor		1.02	0.44			1.22	0.43		1.00	1.00		1.00
Incremental Delay, d2		5.3	1.0			3.4	1.0		0.1	0.0		1.9
Delay (s)		57.9	4.9			79.8	7.8		60.4	63.5		55.1
Level of Service		E	A			E	A		E	E		E
Approach Delay (s)			10.5				8.4			62.7		
Approach LOS			B				A			E		

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1	58
Future Volume (vph)	1	58
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.5
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1584	
Flt Permitted	1.00	
Satd. Flow (perm)	1584	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1	58
RTOR Reduction (vph)	53	0
Lane Group Flow (vph)	6	0
Confl. Peds. (#/hr)		1
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	10.8	
Effective Green, g (s)	10.8	
Actuated g/C Ratio	0.08	
Clearance Time (s)	6.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	131	
v/s Ratio Prot	0.00	
v/s Ratio Perm		
v/c Ratio	0.04	
Uniform Delay, d1	54.9	
Progression Factor	1.00	
Incremental Delay, d2	0.1	
Delay (s)	55.0	
Level of Service	D	
Approach Delay (s)	55.0	
Approach LOS	E	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	3	1428	348	178	939	0	357	0	491	2	0
Future Volume (vph)	1	3	1428	348	178	939	0	357	0	491	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Storage Length (m)		25.0		50.0	30.0		0.0	90.0		0.0	0.0	
Storage Lanes		1		1	1		0	1		0	0	
Taper Length (m)		45.0			50.0			30.0			7.6	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			138.4			186.1			230.8			173.9
Travel Time (s)			10.0			13.4			16.6			12.5
Lane Group Flow (vph)	0	4	1428	348	178	939	0	321	527	0	0	11
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Perm	NA		Split	NA
Protected Phases	5	5	2		1	6			8		4	4
Permitted Phases				2				8				
Detector Phase	5	5	2	2	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	8.0	8.0	7.0	8.0		8.0	8.0		5.0	5.0
Minimum Split (s)	13.0	13.0	24.0	24.0	13.0	24.0		26.0	26.0		11.0	11.0
Total Split (s)	13.0	13.0	64.0	64.0	20.0	71.0		34.0	34.0		12.0	12.0
Total Split (%)	10.0%	10.0%	49.2%	49.2%	15.4%	54.6%		26.2%	26.2%		9.2%	9.2%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	2.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-1.0	0.0	0.0	-1.0	0.0		0.0	0.0			0.0
Total Lost Time (s)		5.0	6.0	6.0	5.0	6.0		6.0	6.0			6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	C-Max	C-Max	None	C-Max		None	None		None	None
v/c Ratio		0.04	0.93	0.44	0.89	0.48		0.90	0.94			0.05
Control Delay		66.2	37.3	9.5	87.7	9.0		74.6	53.7			0.4
Queue Delay		0.0	1.0	0.0	0.0	0.1		0.0	37.7			0.0
Total Delay		66.2	38.3	9.5	87.7	9.1		74.6	91.4			0.4
Queue Length 50th (m)		1.2	131.2	16.8	39.4	70.7		79.4	87.0			0.0
Queue Length 95th (m)		m2.1	#224.6	30.6	#85.4	92.4		#159.3	#181.8			0.0
Internal Link Dist (m)			114.4			162.1			206.8			149.9
Turn Bay Length (m)		25.0		50.0	30.0			90.0				
Base Capacity (vph)		112	1536	787	201	1960		357	562			244
Starvation Cap Reductn		0	25	0	0	269		0	0			0
Spillback Cap Reductn		0	0	0	0	0		0	75			0
Storage Cap Reductn		0	0	0	0	0		0	0			0
Reduced v/c Ratio		0.04	0.95	0.44	0.89	0.56		0.90	1.08			0.05

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	9
Future Volume (vph)	9
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	3	1428	348	178	939	0	357	0	491	2	0
Future Volume (vph)	1	3	1428	348	178	939	0	357	0	491	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		5.0	6.0	6.0	5.0	6.0		6.0	6.0			6.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00
Frpb, ped/bikes		1.00	1.00	0.97	1.00	1.00		1.00	1.00			0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	0.86			0.89
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99
Satd. Flow (prot)		1825	3444	1546	1750	3380		1659	1534			1653
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.75	0.98			0.99
Satd. Flow (perm)		1825	3444	1546	1750	3380		1311	1507			1653
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	3	1428	348	178	939	0	357	0	491	2	0
RTOR Reduction (vph)	0	0	0	102	0	0	0	0	152	0	0	11
Lane Group Flow (vph)	0	4	1428	246	178	939	0	321	375	0	0	0
Confl. Peds. (#/hr)		2		4	4		2	1				
Heavy Vehicles (%)	0%	0%	6%	2%	2%	8%	0%	2%	0%	2%	0%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Perm	NA		Split	NA
Protected Phases	5	5	2		1	6			8		4	4
Permitted Phases				2				8				
Actuated Green, G (s)		1.4	54.4	54.4	14.0	67.0		35.4	35.4			2.2
Effective Green, g (s)		2.4	54.4	54.4	15.0	67.0		35.4	35.4			2.2
Actuated g/C Ratio		0.02	0.42	0.42	0.12	0.52		0.27	0.27			0.02
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		33	1441	646	201	1742		356	410			27
v/s Ratio Prot		0.00	c0.41		c0.10	0.28						c0.00
v/s Ratio Perm				0.16				0.24	c0.25			
v/c Ratio		0.12	0.99	0.38	0.89	0.54		0.90	0.91			0.01
Uniform Delay, d1		62.8	37.6	26.1	56.7	21.1		45.6	45.8			62.8
Progression Factor		1.14	0.78	0.68	0.93	0.49		1.00	1.00			1.00
Incremental Delay, d2		1.4	20.1	1.5	29.4	1.0		24.9	24.5			0.1
Delay (s)		73.1	49.4	19.1	82.4	11.5		70.5	70.4			62.9
Level of Service		E	D	B	F	B		E	E			E
Approach Delay (s)			43.5			22.8			70.4			62.9
Approach LOS			D			C			E			E

Intersection Summary			
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	9
Future Volume (vph)	9
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	9
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	110	1989	33	1338	41	35	56
Future Volume (vph)	110	1989	33	1338	41	35	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		100.0		0.0	60.0	0.0
Storage Lanes	1		1		0	0	0
Taper Length (m)	50.0		50.0			7.5	
Right Turn on Red					Yes		Yes
Link Speed (k/h)		50		50		50	
Link Distance (m)		186.1		142.9		353.7	
Travel Time (s)		13.4		10.3		25.5	
Lane Group Flow (vph)	110	1989	33	1379	0	91	0
Turn Type	Prot	NA	Prot	NA		Perm	
Protected Phases	5	2	1	6			
Permitted Phases						4	
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0	
Minimum Split (s)	14.0	22.0	14.0	22.0		24.0	
Total Split (s)	20.0	92.0	14.0	86.0		24.0	
Total Split (%)	15.4%	70.8%	10.8%	66.2%		18.5%	
Yellow Time (s)	3.0	4.0	3.0	4.0		4.0	
All-Red Time (s)	3.0	2.0	3.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0		0.0	
Total Lost Time (s)	5.0	6.0	5.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max		None	
v/c Ratio	0.56	0.75	0.24	0.58		0.53	
Control Delay	49.5	17.3	49.2	28.5		39.0	
Queue Delay	0.0	1.9	0.0	0.0		0.0	
Total Delay	49.5	19.2	49.2	28.5		39.0	
Queue Length 50th (m)	27.9	159.7	6.8	160.8		10.0	
Queue Length 95th (m)	m33.3	m187.1	m11.9	190.2		26.6	
Internal Link Dist (m)		162.1		118.9		329.7	
Turn Bay Length (m)	50.0		100.0			60.0	
Base Capacity (vph)	221	2651	135	2369		275	
Starvation Cap Reductn	0	475	0	0		0	
Spillback Cap Reductn	0	0	0	0		0	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.50	0.91	0.24	0.58		0.33	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

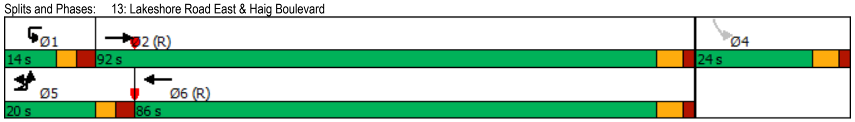
Offset: 93 (72%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	110	1989	33	1338	41	35	56
Future Volume (vph)	110	1989	33	1338	41	35	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00	1.00		0.92	
Flt Protected	0.95	1.00	0.95	1.00		0.98	
Satd. Flow (prot)	1789	3476	1825	3459		1674	
Flt Permitted	0.95	1.00	0.95	1.00		0.98	
Satd. Flow (perm)	1789	3476	1825	3459		1674	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	1989	33	1338	41	35	56
RTOR Reduction (vph)	0	0	0	1	0	47	0
Lane Group Flow (vph)	110	1989	33	1378	0	44	0
Confl. Peds. (#/hr)	7				7	1	3
Heavy Vehicles (%)	2%	5%	0%	5%	2%	2%	2%
Turn Type	Prot	NA	Prot	NA		Perm	
Protected Phases	5	2	1	6			
Permitted Phases						4	
Actuated Green, G (s)	13.3	96.7	5.5	88.9		9.8	
Effective Green, g (s)	14.3	96.7	6.5	88.9		9.8	
Actuated g/C Ratio	0.11	0.74	0.05	0.68		0.08	
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	196	2585	91	2365		126	
v/s Ratio Prot	c0.06	c0.57	0.02	0.40			
v/s Ratio Perm						c0.03	
v/c Ratio	0.56	0.77	0.36	0.58		0.35	
Uniform Delay, d1	54.9	10.0	59.7	10.8		57.1	
Progression Factor	0.81	1.51	0.80	2.36		1.00	
Incremental Delay, d2	1.8	1.1	2.1	0.9		1.7	
Delay (s)	46.2	16.2	50.2	26.3		58.7	
Level of Service	D	B	D	C		E	
Approach Delay (s)		17.8		26.9		58.7	
Approach LOS		B		C		E	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

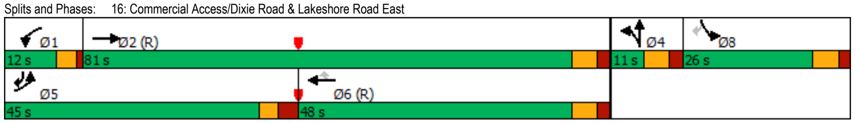
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	621	1313	20	9	946	171	3	0	0	151	0	388
Future Volume (vph)	621	1313	20	9	946	171	3	0	0	151	0	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	621	1333	0	9	946	171	0	3	0	151	0	388
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2		1	6		4	4		8		5
Permitted Phases						6						8
Detector Phase	5	2		1	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	5.0	5.0		8.0		8.0
Minimum Split (s)	14.0	31.0		12.0	31.0	31.0	11.0	11.0		26.0		14.0
Total Split (s)	45.0	81.0		12.0	48.0	48.0	11.0	11.0		26.0		45.0
Total Split (%)	34.6%	62.3%		9.2%	36.9%	36.9%	8.5%	8.5%		20.0%		34.6%
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	3.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0		3.0
Lost Time Adjust (s)	-1.0	0.0		-1.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	5.0	6.0		3.0	6.0	6.0		6.0		5.0		6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None		None
v/c Ratio	0.90	0.51		0.07	0.84	0.28		0.04		0.65		0.46
Control Delay	57.8	8.5		58.1	49.1	7.0		61.7		66.7		13.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	57.8	8.5		58.1	49.1	7.0		61.7		66.7		13.5
Queue Length 50th (m)	164.1	52.4		2.2	118.5	2.1		0.8		37.2		34.1
Queue Length 95th (m)	#270.4	113.2		7.9	144.9	17.9		4.1		57.6		69.0
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	690	2609		126	1123	614		70		291		837
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.90	0.51		0.07	0.84	0.28		0.04		0.52		0.46

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	621	1313	20	9	946	171	3	0	0	151	0	388
Future Volume (vph)	621	1313	20	9	946	171	3	0	0	151	0	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		3.0	6.0	6.0		6.0		5.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95		0.95		1.00
Satd. Flow (prot)	1690	3471		1825	3476	1570		1825		1807		1493
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95		0.95		1.00
Satd. Flow (perm)	1690	3471		1825	3476	1570		1825		1807		1493
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	621	1313	20	9	946	171	3	0	0	151	0	388
RTOR Reduction (vph)	0	1	0	0	0	114	0	0	0	0	0	59
Lane Group Flow (vph)	621	1332	0	9	946	57	0	3	0	151	0	329
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	8%	5%	0%	0%	5%	4%	0%	0%	0%	1%	0%	9%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2		1	6		4	4		8		5
Permitted Phases						6						8
Actuated Green, G (s)	52.1	89.7		1.6	37.2	37.2		1.0		15.7		67.8
Effective Green, g (s)	53.1	89.7		2.6	37.2	37.2		1.0		16.7		67.8
Actuated g/C Ratio	0.41	0.69		0.02	0.29	0.29		0.01		0.13		0.52
Clearance Time (s)	6.0	6.0		4.0	6.0	6.0		6.0		6.0		6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	690	2394		36	994	449		14		232		847
v/s Ratio Prot	c0.37	0.38		0.00	c0.27			c0.00		c0.08		0.16
v/s Ratio Perm						0.04						0.06
v/c Ratio	0.90	0.56		0.25	0.95	0.13		0.21		0.65		0.39
Uniform Delay, d1	36.0	10.1		62.7	45.5	34.4		64.1		53.9		18.7
Progression Factor	1.25	0.94		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	10.8	0.6		3.6	19.0	0.6		7.6		6.4		0.3
Delay (s)	55.8	10.2		66.4	64.5	35.0		71.7		60.3		19.0
Level of Service	E	B		E	E	C		E		E		B
Approach Delay (s)		24.7			60.1			71.7			30.5	
Approach LOS		C			E			E			C	

Intersection Summary

HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

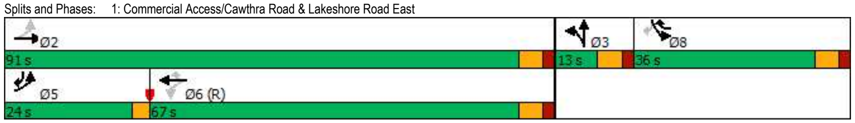
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	963	2	0	1424	637	2	4	1	724	0	425
Future Volume (vph)	309	963	2	0	1424	637	2	4	1	724	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		70.0	0.0		0.0	200.0		0.0
Storage Lanes	1		0	1		1	0		0	2		1
Taper Length (m)	30.0			40.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		297.1			137.6			85.4			591.2	
Travel Time (s)		21.4			9.9			6.1			42.6	
Lane Group Flow (vph)	309	965	0	0	1424	637	0	7	0	724	0	425
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Detector Phase	5	2		6	6	8	3	3		8		5
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0	8.0	7.0	7.0		8.0		5.0
Minimum Split (s)	17.0	38.0		38.0	38.0	35.0	13.0	13.0		35.0		17.0
Total Split (s)	24.0	91.0		67.0	67.0	36.0	13.0	13.0		36.0		24.0
Total Split (%)	17.1%	65.0%		47.9%	47.9%	25.7%	9.3%	9.3%		25.7%		17.1%
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		0.0
Lost Time Adjust (s)	-1.0	0.0		0.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	2.0	6.0		6.0	6.0	6.0		6.0		5.0		3.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Recall Mode	None	Max		C-Max	C-Max	None	None	None		None		None
v/c Ratio	0.86	0.42			0.85	0.55		0.08		0.82		0.57
Control Delay	61.8	13.3			28.1	9.2		61.1		57.2		23.3
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	61.8	13.3			28.1	9.2		61.1		57.2		23.3
Queue Length 50th (m)	64.7	65.4			188.1	60.0		1.6		94.4		54.9
Queue Length 95th (m)	#123.3	87.1			219.8	111.4		6.8		#139.8		100.5
Internal Link Dist (m)		273.1			113.6			61.4			567.2	
Turn Bay Length (m)	15.0					70.0				200.0		
Base Capacity (vph)	364	2288			1671	1167		93		884		751
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.85	0.42			0.85	0.55		0.08		0.82		0.57

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection
Natural Cycle: 115
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Commercial Access/Cawthra Road & Lakeshore Road East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	963	2	0	1424	637	2	4	1	724	0	425
Future Volume (vph)	309	963	2	0	1424	637	2	4	1	724	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0	6.0		6.0		5.0		3.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97		1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.95		1.00		1.00		0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85		0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3542			3614	1504		1858		3437		1573
Flt Permitted	0.06	1.00			1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	118	3542			3614	1504		1858		3437		1573
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	309	963	2	0	1424	637	2	4	1	724	0	425
RTOR Reduction (vph)	0	0	0	0	0	109	0	1	0	0	0	68
Lane Group Flow (vph)	309	965	0	0	1424	528	0	6	0	724	0	357
Confl. Peds. (#/hr)	49		20	20		49	23					23
Heavy Vehicles (%)	3%	3%	0%	0%	1%	3%	0%	0%	0%	3%	0%	1%
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Split	NA		Prot		pm+ov
Protected Phases	5	2			6	8	3	3		8		5
Permitted Phases	2			6		6						8
Actuated Green, G (s)	85.6	85.6			60.0	95.0		1.4		35.0		57.6
Effective Green, g (s)	86.6	85.6			60.0	95.0		1.4		36.0		57.6
Actuated g/C Ratio	0.62	0.61			0.43	0.68		0.01		0.26		0.41
Clearance Time (s)	3.0	6.0			6.0	6.0		6.0		6.0		3.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	351	2165			1548	1020		18		883		647
v/s Ratio Prot	c0.15	0.27			c0.39	0.13		c0.00		c0.21		0.09
v/s Ratio Perm	0.39					0.22						0.14
v/c Ratio	0.88	0.45			0.92	0.52		0.33		0.82		0.55
Uniform Delay, d1	44.7	14.5			37.7	11.1		68.8		48.9		31.4
Progression Factor	1.00	1.00			0.68	2.79		1.00		1.00		1.00
Incremental Delay, d2	21.7	0.7			7.9	0.3		10.6		6.0		1.0
Delay (s)	66.5	15.2			33.6	31.5		79.5		55.0		32.4
Level of Service	E	B			C	C		E		D		C
Approach Delay (s)		27.6			32.9			79.5			46.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

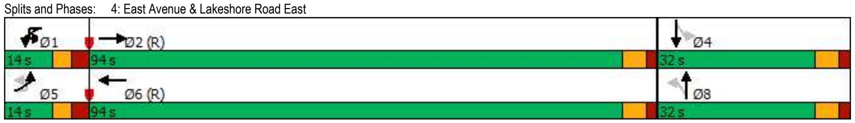
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	49	1557	178	22	8	1859	24	157	15	21	24	1
Future Volume (vph)	49	1557	178	22	8	1859	24	157	15	21	24	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Storage Length (m)	20.0		25.0		60.0		20.0	0.0		0.0	20.0	
Storage Lanes	1		0		1		0	1		0	1	
Taper Length (m)	40.0				50.0			70.0			20.0	
Right Turn on Red			Yes				Yes			Yes		
Link Speed (k/h)		50				50			50			50
Link Distance (m)		95.7				101.7			208.9			195.3
Travel Time (s)		6.9				7.3			15.0			14.1
Lane Group Flow (vph)	49	1735	0	0	30	1883	0	157	36	0	24	5
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Detector Phase	5	2		1	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	24.0		14.0	14.0	24.0		28.0	28.0		28.0	28.0
Total Split (s)	14.0	94.0		14.0	14.0	94.0		32.0	32.0		32.0	32.0
Total Split (%)	10.0%	67.1%		10.0%	10.0%	67.1%		22.9%	22.9%		22.9%	22.9%
Yellow Time (s)	3.0	4.0		3.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	0.0			-1.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	6.0			5.0	6.0		6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None
v/c Ratio	0.40	0.69			0.26	0.76		0.78	0.13		0.12	0.02
Control Delay	77.8	8.0			66.9	13.1		81.8	27.6		51.0	31.8
Queue Delay	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	77.8	8.0			66.9	13.1		81.8	27.6		51.0	31.8
Queue Length 50th (m)	13.5	65.1			8.0	95.2		42.2	3.6		5.8	0.3
Queue Length 95th (m)	m23.6	72.1			m14.4	161.0		64.8	13.2		14.1	4.2
Internal Link Dist (m)		71.7				77.7			184.9			171.3
Turn Bay Length (m)	20.0				60.0						20.0	
Base Capacity (vph)	122	2517			116	2469		259	339		255	310
Starvation Cap Reductn	0	0			0	0		0	0		0	0
Spillback Cap Reductn	0	0			0	0		0	0		0	0
Storage Cap Reductn	0	0			0	0		0	0		0	0
Reduced v/c Ratio	0.40	0.69			0.26	0.76		0.61	0.11		0.09	0.02

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 86 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Avenue & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	49	1557	178	22	8	1859	24	157	15	21	24	1
Future Volume (vph)	49	1557	178	22	8	1859	24	157	15	21	24	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.7	3.7	3.5	3.7
Total Lost time (s)	5.0	6.0			5.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99	1.00		1.00	1.00
Frt	1.00	0.98			1.00	1.00		1.00	0.91		1.00	0.88
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1785	3548			1775	3606		1761	1737		1778	1657
Flt Permitted	0.95	1.00			0.95	1.00		0.75	1.00		0.73	1.00
Satd. Flow (perm)	1785	3548			1775	3606		1399	1737		1373	1657
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	1557	178	22	8	1859	24	157	15	21	24	1
RTOR Reduction (vph)	0	5	0	0	0	1	0	0	18	0	0	3
Lane Group Flow (vph)	49	1730	0	0	30	1882	0	157	18	0	24	2
Confl. Peds. (#/hr)	5		5		5		5	7		2	2	
Heavy Vehicles (%)	0%	1%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases								8			4	
Actuated Green, G (s)	7.0	96.7			5.0	94.7		20.3	20.3		20.3	20.3
Effective Green, g (s)	8.0	96.7			6.0	94.7		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.06	0.69			0.04	0.68		0.15	0.15		0.15	0.15
Clearance Time (s)	6.0	6.0			6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	102	2450			76	2439		202	251		199	240
v/s Ratio Prot	c0.03	0.49			0.02	c0.52			0.01			0.00
v/s Ratio Perm								c0.11			0.02	
v/c Ratio	0.48	0.71			0.39	0.77		0.78	0.07		0.12	0.01
Uniform Delay, d1	64.0	13.1			65.2	15.3		57.7	51.7		52.1	51.2
Progression Factor	1.10	0.48			0.99	0.66		1.00	1.00		1.00	1.00
Incremental Delay, d2	3.1	1.5			3.0	2.2		17.0	0.1		0.3	0.0
Delay (s)	73.6	7.8			67.6	12.2		74.6	51.8		52.4	51.2
Level of Service	E	A			E	B		E	D		D	D
Approach Delay (s)		9.6				13.1			70.4			52.2
Approach LOS		A				B			E			D

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	7
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	0	1102	335	4	362	1358	0	313	0	361	0
Future Volume (vph)	40	0	1102	335	4	362	1358	0	313	0	361	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Storage Length (m)		15.0		10.0		15.0		0.0	90.0		0.0	0.0
Storage Lanes		1		1		1		0	1		0	0
Taper Length (m)		40.0				55.0			30.0			7.5
Right Turn on Red				Yes				Yes			Yes	
Link Speed (k/h)			50				50			50		
Link Distance (m)			68.0				88.5			238.4		
Travel Time (s)			4.9				6.4			17.2		
Lane Group Flow (vph)	0	40	1102	335	0	366	1358	0	313	361	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Perm	NA		
Protected Phases	5	5	2		1	1	6			4		
Permitted Phases				2					4			
Detector Phase	5	5	2	2	1	1	6		4	4		
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		
Minimum Split (s)	14.0	14.0	26.0	26.0	14.0	14.0	26.0		29.0	29.0		
Total Split (s)	14.0	14.0	58.0	58.0	42.0	42.0	86.0		40.0	40.0		
Total Split (%)	10.0%	10.0%	41.4%	41.4%	30.0%	30.0%	61.4%		28.6%	28.6%		
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	3.0	4.0		4.0	4.0		
All-Red Time (s)	3.0	3.0	2.0	2.0	3.0	3.0	2.0		3.0	3.0		
Lost Time Adjust (s)		-1.0	0.0	0.0		-1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0	6.0	6.0		5.0	6.0		7.0	7.0		
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	C-Max	C-Max	None	None	C-Max		Min	Min		
v/c Ratio		0.34	0.72	0.47		0.87	0.62		0.86	0.57		
Control Delay		68.5	32.4	17.1		80.4	4.9		76.3	6.8		
Queue Delay		0.0	0.0	0.0		0.0	0.1		0.0	0.0		
Total Delay		68.5	32.4	17.1		80.4	5.0		76.3	6.8		
Queue Length 50th (m)		11.3	135.6	22.3		81.0	24.5		82.6	0.0		
Queue Length 95th (m)		m17.8	144.3	33.3		m116.8	32.7		#121.3	18.5		
Internal Link Dist (m)			44.0				64.5			214.4		
Turn Bay Length (m)		15.0		10.0		15.0			90.0			
Base Capacity (vph)		118	1526	707		462	2208		407	662		
Starvation Cap Reductn		0	0	0		0	132		0	0		
Spillback Cap Reductn		0	0	0		0	0		0	0		
Storage Cap Reductn		0	0	0		0	0		0	0		
Reduced v/c Ratio		0.34	0.72	0.47		0.79	0.65		0.77	0.55		

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 113 (81%), Referenced to phase 2:EBT and 6:WBT, Start of Green

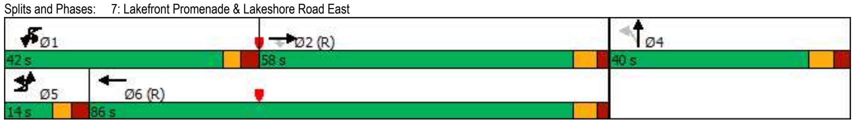
Natural Cycle: 90

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakefront Promenade & Lakeshore Road East



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.7	3.7
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Right Turn on Red		Yes
Link Speed (k/h)	50	
Link Distance (m)	69.4	
Travel Time (s)	5.0	
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)	45.4	
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	0	1102	335	4	362	1358	0	313	0	361	0
Future Volume (vph)	40	0	1102	335	4	362	1358	0	313	0	361	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.5	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7
Total Lost time (s)		5.0	6.0	6.0		5.0	6.0		7.0	7.0		
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		1.00	1.00		
Frpb, ped/bikes		1.00	1.00	0.96		1.00	1.00		1.00	0.98		
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		0.99	1.00		
Frt		1.00	1.00	0.85		1.00	1.00		1.00	0.85		
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1825	3614	1506		1750	3579		1730	1564		
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1825	3614	1506		1750	3579		1730	1564		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	0	1102	335	4	362	1358	0	313	0	361	0
RTOR Reduction (vph)	0	0	0	72	0	0	0	0	0	285	0	0
Lane Group Flow (vph)	0	40	1102	263	0	366	1358	0	313	76	0	0
Confl. Peds. (#/hr)		4		5		5		4	6		6	6
Heavy Vehicles (%)	0%	0%	1%	2%	0%	2%	2%	0%	2%	0%	2%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Perm	NA		
Protected Phases	5	5	2		1	1	6			4		
Permitted Phases				2					4			
Actuated Green, G (s)		6.5	59.1	59.1		32.6	85.2		29.3	29.3		
Effective Green, g (s)		7.5	59.1	59.1		33.6	85.2		29.3	29.3		
Actuated g/C Ratio		0.05	0.42	0.42		0.24	0.61		0.21	0.21		
Clearance Time (s)		6.0	6.0	6.0		6.0	6.0		7.0	7.0		
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)		97	1525	635		420	2178		362	327		
v/s Ratio Prot		0.02	c0.30			c0.21	0.38			0.05		
v/s Ratio Perm				0.17					c0.18			
v/c Ratio		0.41	0.72	0.41		0.87	0.62		0.86	0.23		
Uniform Delay, d1		64.1	33.6	28.3		51.1	17.3		53.4	46.0		
Progression Factor		0.98	0.84	0.78		1.24	0.21		1.00	1.00		
Incremental Delay, d2		2.3	2.5	1.6		14.1	1.0		18.8	0.4		
Delay (s)		65.4	30.8	23.8		77.7	4.7		72.3	46.4		
Level of Service		E	C	C		E	A		E	D		
Approach Delay (s)			30.2				20.2			58.4		
Approach LOS			C				C			E		

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Lane Width	3.7	3.7
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		6
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

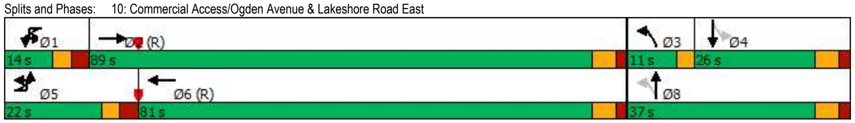
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	149	1413	0	0	1668	99	3	1	1	118	0
Future Volume (vph)	16	149	1413	0	0	1668	99	3	1	1	118	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Storage Length (m)		85.0		30.0	115.0		0.0	90.0		0.0	35.0	
Storage Lanes		1		0	1		0	1		0	1	
Taper Length (m)		50.0			50.0			30.0			70.0	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.1			85.5			170.6			360.5
Travel Time (s)			6.8			6.2			12.3			26.0
Lane Group Flow (vph)	0	165	1413	0	0	1767	0	3	2	0	118	110
Turn Type	Prot	Prot	NA		Prot	NA		pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases								8			4	
Detector Phase	5	5	2		1	6		3	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		5.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0	24.0		14.0	24.0		11.0	26.0		26.0	26.0
Total Split (s)	22.0	22.0	89.0		14.0	81.0		11.0	37.0		26.0	26.0
Total Split (%)	15.7%	15.7%	63.6%		10.0%	57.9%		7.9%	26.4%		18.6%	18.6%
Yellow Time (s)	3.0	3.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0		3.0	2.0		0.0	2.0		2.0	2.0
Lost Time Adjust (s)		-1.0	0.0		-1.0	0.0		-1.0	0.0		0.0	0.0
Total Lost Time (s)		5.0	6.0		5.0	6.0		2.0	6.0		6.0	6.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes			Yes	Yes
Recall Mode	None	None	C-Max		None	C-Max		None	None		None	None
v/c Ratio		0.73	0.50			0.81		0.01	0.01		0.72	0.31
Control Delay		60.0	14.4			18.4		44.0	39.0		82.3	2.3
Queue Delay		0.0	0.2			0.2		0.0	0.0		0.0	0.0
Total Delay		60.0	14.6			18.7		44.0	39.0		82.3	2.3
Queue Length 50th (m)		46.9	106.6			258.8		0.7	0.3		31.8	0.0
Queue Length 95th (m)		m#75.3	157.7			#181.1		3.2	2.6		51.6	0.0
Internal Link Dist (m)			70.1			61.5			146.6			336.5
Turn Bay Length (m)		85.0						90.0			35.0	
Base Capacity (vph)		235	2826			2185		213	382		201	390
Starvation Cap Reductn		0	559			69		0	0		0	0
Spillback Cap Reductn		0	178			0		0	0		0	0
Storage Cap Reductn		0	0			0		0	0		0	0
Reduced v/c Ratio		0.70	0.62			0.84		0.01	0.01		0.59	0.28

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 74 (53%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Commercial Access/Ogden Avenue & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	110
Future Volume (vph)	110
Ideal Flow (vphpl)	1900
Lane Width (m)	3.5
Storage Length (m)	35.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	149	1413	0	0	1668	99	3	1	1	118	0
Future Volume (vph)	16	149	1413	0	0	1668	99	3	1	1	118	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.7
Total Lost time (s)		5.0	6.0			6.0		2.0	6.0		6.0	6.0
Lane Util. Factor		1.00	0.95			0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00			1.00		1.00	0.99		1.00	0.98
Flpb, ped/bikes		1.00	1.00			1.00		1.00	1.00		0.99	1.00
Frt		1.00	1.00			0.99		1.00	0.93		1.00	0.85
Flt Protected		0.95	1.00			1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1753	3614			3537		1782	1726		1739	1565
Flt Permitted		0.95	1.00			1.00		0.54	1.00		0.76	1.00
Satd. Flow (perm)		1753	3614			3537		1022	1726		1385	1565
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	149	1413	0	0	1668	99	3	1	1	118	0
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	1	0	0	97
Lane Group Flow (vph)	0	165	1413	0	0	1764	0	3	1	0	118	13
Confl. Peds. (#/hr)		7		2	2		7	5		3	3	
Heavy Vehicles (%)	0%	2%	1%	1%	2%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	NA		pm+pt	NA		Perm	NA
Protected Phases	5	5	2		1	6		3	8			4
Permitted Phases								8			4	
Actuated Green, G (s)		17.1	107.1			84.0		20.9	20.9		16.6	16.6
Effective Green, g (s)		18.1	107.1			84.0		21.9	20.9		16.6	16.6
Actuated g/C Ratio		0.13	0.76			0.60		0.16	0.15		0.12	0.12
Clearance Time (s)		6.0	6.0			6.0		3.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		226	2764			2122		172	257		164	185
v/s Ratio Prot		c0.09	0.39			c0.50		c0.00	0.00			0.01
v/s Ratio Perm								0.00			c0.09	
v/c Ratio		0.73	0.51			0.83		0.02	0.00		0.72	0.07
Uniform Delay, d1		58.6	6.3			22.3		50.0	50.7		59.5	54.8
Progression Factor		0.75	2.19			0.68		1.00	1.00		1.00	1.00
Incremental Delay, d2		9.6	0.6			3.4		0.0	0.0		14.0	0.2
Delay (s)		53.6	14.5			18.6		50.0	50.7		73.5	55.0
Level of Service		D	B			B		D	D		E	E
Approach Delay (s)			18.6			18.6			50.3			64.6
Approach LOS			B			B			D			E

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

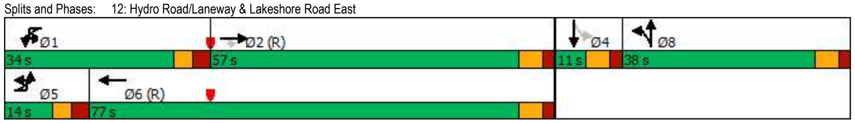
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	110
Future Volume (vph)	110
Ideal Flow (vphpl)	1900
Lane Width	3.5
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	110
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	5
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	2	3	1177	382	302	1430	9	358	0	295	2	0
Future Volume (vph)	2	3	1177	382	302	1430	9	358	0	295	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Storage Length (m)		25.0		50.0	30.0		0.0	90.0		0.0	0.0	
Storage Lanes		1		1	1		0	1		0	0	
Taper Length (m)		45.0			50.0			30.0			7.6	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			138.4			186.1			230.8			173.9
Travel Time (s)			10.0			13.4			16.6			12.5
Lane Group Flow (vph)	0	5	1177	382	302	1439	0	322	331	0	0	5
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Split	NA		Perm	NA
Protected Phases	5	5	2		1	6		8	8			4
Permitted Phases				2							4	
Detector Phase	5	5	2	2	1	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		5.0	5.0
Minimum Split (s)	14.0	14.0	24.0	24.0	14.0	24.0		26.0	26.0		11.0	11.0
Total Split (s)	14.0	14.0	57.0	57.0	34.0	77.0		38.0	38.0		11.0	11.0
Total Split (%)	10.0%	10.0%	40.7%	40.7%	24.3%	55.0%		27.1%	27.1%		7.9%	7.9%
Yellow Time (s)	3.0	3.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	2.0	3.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-1.0	0.0	0.0	-1.0	0.0		0.0	0.0			0.0
Total Lost Time (s)		5.0	6.0	6.0	5.0	6.0		6.0	6.0			6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	C-Max	C-Max	None	C-Max		None	None		None	None
v/c Ratio		0.04	0.76	0.49	0.84	0.61		0.87	0.60			0.02
Control Delay		78.4	48.6	25.7	47.7	32.8		75.0	14.2			0.2
Queue Delay		0.0	10.4	0.0	0.0	17.6		0.0	0.4			0.0
Total Delay		78.4	59.0	25.7	47.7	50.4		75.0	14.5			0.2
Queue Length 50th (m)		1.3	171.1	66.8	73.9	212.6		89.4	13.4			0.0
Queue Length 95th (m)		m3.2	#205.1	100.8	m#114.5	245.1		#142.1	46.2			0.0
Internal Link Dist (m)			114.4			162.1			206.8			149.9
Turn Bay Length (m)		25.0		50.0	30.0			90.0				
Base Capacity (vph)		115	1549	783	381	2342		395	575			221
Starvation Cap Reductn		0	28	0	0	929		0	0			0
Spillback Cap Reductn		0	356	0	0	202		0	40			0
Storage Cap Reductn		0	0	0	0	0		0	0			0
Reduced v/c Ratio		0.04	0.99	0.49	0.79	1.02		0.82	0.62			0.02

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 96 (69%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Hydro Road/Laneway & Lakeshore Road East



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	3
Future Volume (vph)	3
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Right Turn on Red	Yes
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	2	3	1177	382	302	1430	9	358	0	295	2	0
Future Volume (vph)	2	3	1177	382	302	1430	9	358	0	295	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7	3.7	3.7
Total Lost time (s)		5.0	6.0	6.0	5.0	6.0		6.0	6.0			6.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00
Frpb, ped/bikes		1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	0.87			0.92
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.98
Satd. Flow (prot)		1803	3579	1563	1750	3575		1662	1542			1731
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	0.99			1.00
Satd. Flow (perm)		1803	3579	1563	1750	3575		1662	1542			1766
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	3	1177	382	302	1430	9	358	0	295	2	0
RTOR Reduction (vph)	0	0	0	114	0	0	0	0	212	0	0	5
Lane Group Flow (vph)	0	5	1177	268	302	1439	0	322	119	0	0	0
Confl. Peds. (#/hr)		2		6	6		2					
Heavy Vehicles (%)	0%	2%	2%	0%	2%	2%	0%	2%	0%	2%	0%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Split	NA		Perm	NA
Protected Phases	5	5	2		1	6		8	8			4
Permitted Phases				2							4	
Actuated Green, G (s)		1.6	55.8	55.8	27.9	82.1		31.3	31.3			1.0
Effective Green, g (s)		2.6	55.8	55.8	28.9	82.1		31.3	31.3			1.0
Actuated g/C Ratio		0.02	0.40	0.40	0.21	0.59		0.22	0.22			0.01
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		33	1426	622	361	2096		371	344			12
v/s Ratio Prot		0.00	c0.33		c0.17	0.40		c0.19	0.08			
v/s Ratio Perm				0.17								c0.00
v/c Ratio		0.15	0.83	0.43	0.84	0.69		0.87	0.35			0.00
Uniform Delay, d1		67.6	37.7	30.6	53.3	20.0		52.4	45.7			69.0
Progression Factor		1.26	1.28	1.53	0.64	1.97		1.00	1.00			1.00
Incremental Delay, d2		1.9	5.0	1.9	10.0	1.1		18.8	0.6			0.1
Delay (s)		87.1	53.3	48.8	44.0	40.7		71.2	46.3			69.1
Level of Service		F	D	D	D	D		E	D			E
Approach Delay (s)			52.3			41.3			58.6			69.1
Approach LOS			D			D			E			E

Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	3
Future Volume (vph)	3
Ideal Flow (vphpl)	1900
Lane Width	3.7
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	3
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

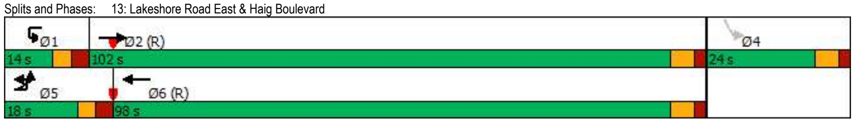
Intersection Summary

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	91	1434	18	1895	84	26	110
Future Volume (vph)	91	1434	18	1895	84	26	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		100.0		0.0	60.0	0.0
Storage Lanes	1		1		0	0	0
Taper Length (m)	50.0		50.0			7.5	
Right Turn on Red					Yes		Yes
Link Speed (k/h)		50		50		50	
Link Distance (m)		186.1		142.9		353.7	
Travel Time (s)		13.4		10.3		25.5	
Lane Group Flow (vph)	91	1434	18	1979	0	136	0
Turn Type	Prot	NA	Prot	NA		Perm	
Protected Phases	5	2	1	6			
Permitted Phases						4	
Detector Phase	5	2	1	6		4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0	
Minimum Split (s)	14.0	22.0	14.0	22.0		24.0	
Total Split (s)	18.0	102.0	14.0	98.0		24.0	
Total Split (%)	12.9%	72.9%	10.0%	70.0%		17.1%	
Yellow Time (s)	3.0	4.0	3.0	4.0		4.0	
All-Red Time (s)	3.0	2.0	3.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0		0.0	
Total Lost Time (s)	5.0	6.0	5.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max		None	
v/c Ratio	0.57	0.51	0.15	0.79		0.67	
Control Delay	69.0	17.1	60.8	30.2		44.8	
Queue Delay	0.0	5.0	0.0	47.3		1.3	
Total Delay	69.0	22.1	60.8	77.5		46.1	
Queue Length 50th (m)	20.1	189.1	4.6	259.8		16.7	
Queue Length 95th (m)	m30.6	222.7	m5.7	284.7		37.3	
Internal Link Dist (m)		162.1		118.9		329.7	
Turn Bay Length (m)	50.0		100.0			60.0	
Base Capacity (vph)	174	2828	118	2503		274	
Starvation Cap Reductn	0	1313	0	0		0	
Spillback Cap Reductn	0	0	0	717		42	
Storage Cap Reductn	0	0	0	0		0	
Reduced v/c Ratio	0.52	0.95	0.15	1.11		0.59	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Lakeshore Road East & Haig Boulevard



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	91	1434	18	1895	84	26	110
Future Volume (vph)	91	1434	18	1895	84	26	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00	0.99		0.89	
Flt Protected	0.95	1.00	0.95	1.00		0.99	
Satd. Flow (prot)	1789	3579	1825	3543		1633	
Flt Permitted	0.95	1.00	0.95	1.00		0.99	
Satd. Flow (perm)	1789	3579	1825	3543		1633	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	1434	18	1895	84	26	110
RTOR Reduction (vph)	0	0	0	2	0	68	0
Lane Group Flow (vph)	91	1434	18	1977	0	68	0
Confl. Peds. (#/hr)	15				15	9	2
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	2%
Turn Type	Prot	NA	Prot	NA		Perm	
Protected Phases	5	2	1	6			
Permitted Phases						4	
Actuated Green, G (s)	11.5	107.0	3.3	98.8		11.7	
Effective Green, g (s)	12.5	107.0	4.3	98.8		11.7	
Actuated g/C Ratio	0.09	0.76	0.03	0.71		0.08	
Clearance Time (s)	6.0	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	159	2735	56	2500		136	
v/s Ratio Prot	c0.05	0.40	0.01	c0.56			
v/s Ratio Perm						c0.04	
v/c Ratio	0.57	0.52	0.32	0.79		0.50	
Uniform Delay, d1	61.2	6.5	66.4	13.7		61.4	
Progression Factor	0.97	2.54	0.95	1.91		1.00	
Incremental Delay, d2	3.5	0.5	1.9	1.5		2.9	
Delay (s)	62.6	17.0	65.1	27.7		64.3	
Level of Service	E	B	E	C		E	
Approach Delay (s)		19.7		28.0		64.3	
Approach LOS		B		C		E	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

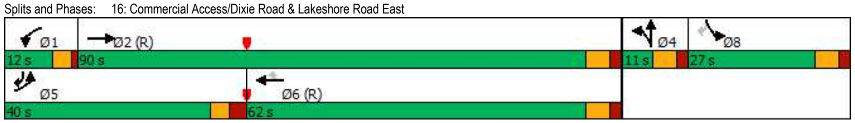
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	1061	13	2	1333	220	1	3	0	278	0	664
Future Volume (vph)	360	1061	13	2	1333	220	1	3	0	278	0	664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	265.0		0.0	15.0		30.0	0.0		0.0	90.0		0.0
Storage Lanes	1		0	1		1	0		0	1		1
Taper Length (m)	50.0			50.0			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		203.1			149.6			114.4			328.7	
Travel Time (s)		14.6			10.8			8.2			23.7	
Lane Group Flow (vph)	360	1074	0	2	1333	220	0	4	0	278	0	664
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2		1	6		4	4		8		5
Permitted Phases						6						8
Detector Phase	5	2		1	6	6	4	4		8		5
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	7.0	7.0	5.0	5.0		8.0		8.0
Minimum Split (s)	14.0	26.0		12.0	26.0	26.0	11.0	11.0		25.0		14.0
Total Split (s)	40.0	90.0		12.0	62.0	62.0	11.0	11.0		27.0		40.0
Total Split (%)	28.6%	64.3%		8.6%	44.3%	44.3%	7.9%	7.9%		19.3%		28.6%
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		4.0		3.0
All-Red Time (s)	3.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0		3.0
Lost Time Adjust (s)	-1.0	0.0		-1.0	0.0	0.0		0.0		-1.0		0.0
Total Lost Time (s)	5.0	6.0		3.0	6.0	6.0		6.0		5.0		6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						Yes
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None		None
v/c Ratio	0.84	0.44		0.02	0.87	0.29		0.06		0.76		0.91
Control Delay	78.6	3.7		62.0	45.2	10.5		67.2		67.0		47.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0		0.0
Total Delay	78.6	3.7		62.0	45.2	10.5		67.2		67.0		47.2
Queue Length 50th (m)	65.9	16.5		0.5	184.1	12.4		1.1		71.5		124.8
Queue Length 95th (m)	#138.1	23.4		3.5	#229.2	30.9		5.2		#133.9		#244.8
Internal Link Dist (m)		179.1			125.6			90.4			304.7	
Turn Bay Length (m)	265.0			15.0		30.0				90.0		
Base Capacity (vph)	449	2453		117	1524	757		67		364		745
Starvation Cap Reductn	0	0		0	0	0		0		0		0
Spillback Cap Reductn	0	0		0	0	0		0		0		0
Storage Cap Reductn	0	0		0	0	0		0		0		0
Reduced v/c Ratio	0.80	0.44		0.02	0.87	0.29		0.06		0.76		0.89

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 50 (36%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Commercial Access/Dixie Road & Lakeshore Road East



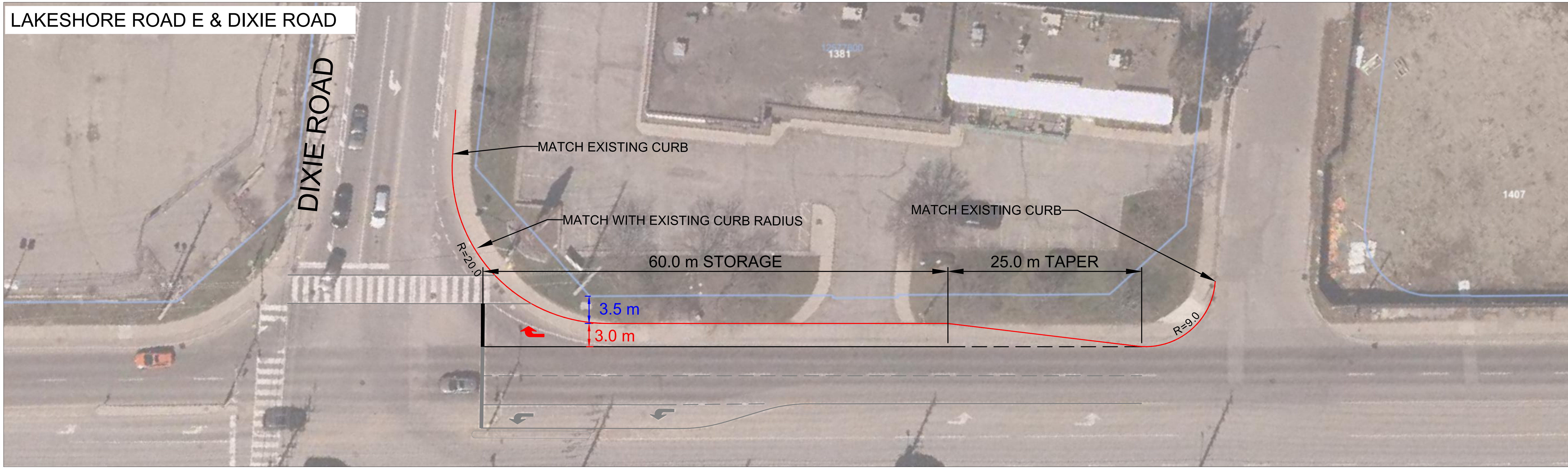
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	1061	13	2	1333	220	1	3	0	278	0	664
Future Volume (vph)	360	1061	13	2	1333	220	1	3	0	278	0	664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		3.0	6.0	6.0		6.0		5.0		6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00		1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00		1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95		1.00
Satd. Flow (prot)	1772	3572		1825	3579	1579		1897		1807		1567
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95		1.00
Satd. Flow (perm)	1772	3572		1825	3579	1579		1897		1807		1567
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	360	1061	13	2	1333	220	1	3	0	278	0	664
RTOR Reduction (vph)	0	1	0	0	0	90	0	0	0	0	0	55
Lane Group Flow (vph)	360	1073	0	2	1333	130	0	4	0	278	0	609
Confl. Peds. (#/hr)	1		2	2		1	16					16
Heavy Vehicles (%)	3%	2%	0%	0%	2%	1%	0%	0%	0%	1%	0%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2		1	6		4	4		8		5
Permitted Phases						6						8
Actuated Green, G (s)	33.0	88.2		1.6	54.8	54.8		1.0		27.2		60.2
Effective Green, g (s)	34.0	88.2		2.6	54.8	54.8		1.0		28.2		60.2
Actuated g/C Ratio	0.24	0.63		0.02	0.39	0.39		0.01		0.20		0.43
Clearance Time (s)	6.0	6.0		4.0	6.0	6.0		6.0		6.0		6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	430	2250		33	1400	618		13		363		740
v/s Ratio Prot	c0.20	0.30		0.00	c0.37			c0.00		0.15		c0.19
v/s Ratio Perm						0.08						0.19
v/c Ratio	0.84	0.48		0.06	0.95	0.21		0.31		0.77		0.82
Uniform Delay, d1	50.4	13.7		67.5	41.3	28.3		69.2		52.8		35.2
Progression Factor	1.24	0.30		1.00	1.00	1.00		1.00		1.00		1.00
Incremental Delay, d2	12.5	0.7		0.8	15.1	0.8		13.0		9.3		7.4
Delay (s)	74.7	4.8		68.3	56.4	29.0		82.2		62.1		42.5
Level of Service	E	A		E	E	C		F		E		D
Approach Delay (s)		22.3			52.5			82.2			48.3	
Approach LOS		C			D			F			D	

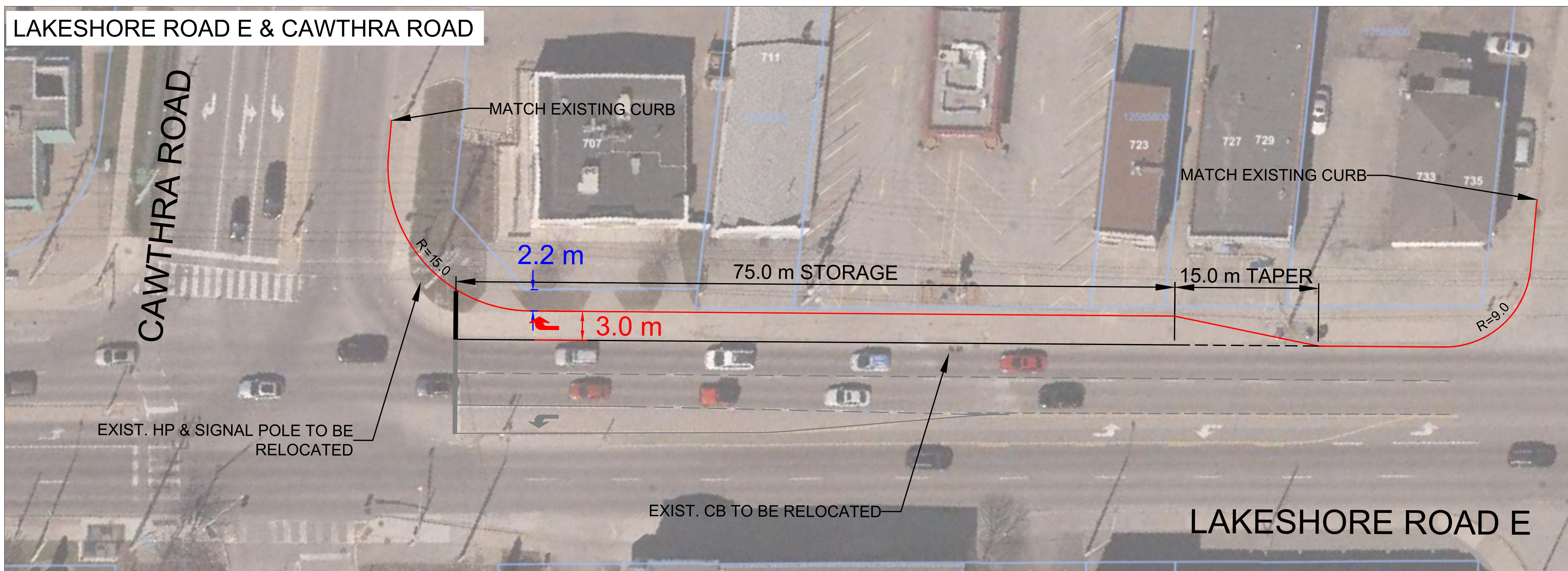
Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX G-11

Conceptual Designs – Lakeshore Road at Cawthra Road, Dixie Road, Lakefront Promenade, and Hydro Road





NOTES:

1. MEASUREMENTS IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN.
2. THIS DRAWING REPRESENTS A CONCEPTUAL DESIGN ONLY AND DOES NOT CONSIDER DETAILED TOPOGRAPHIC INFORMATION SUCH AS GRADING. EXISTING PAVEMENT MARKINGS FROM AERIAL PHOTO.

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p: 905.738.5700
f: 905.738.0065

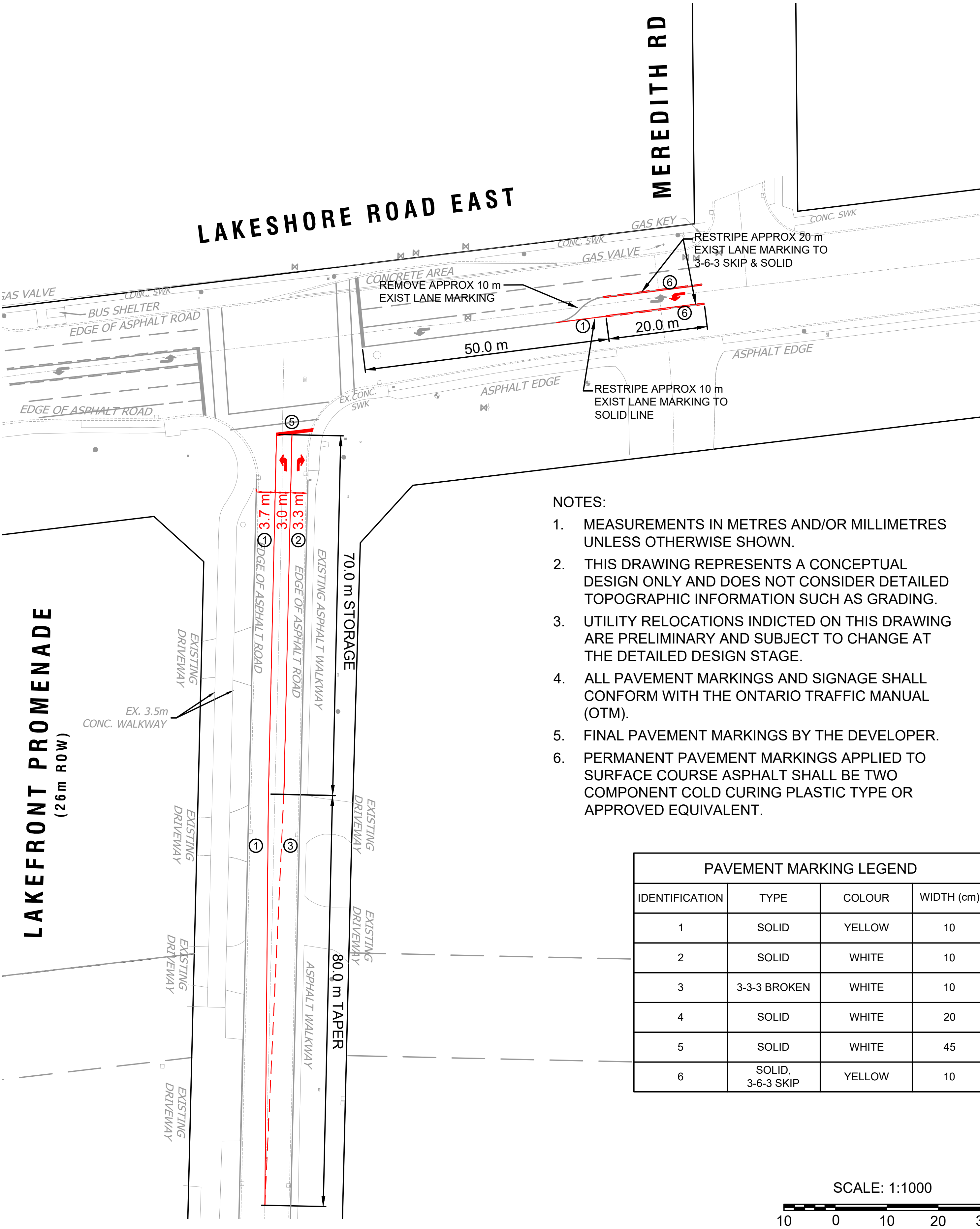
LAKEVIEW VILLAGE
LAKESHORE ROAD E CONCEPTUAL DESIGN

SCALE: 1:500

5 0 5 10 15m

DRAWING No. CD-0

DATE 25/AUG/21



NOTES:

1. MEASUREMENTS IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN.
2. THIS DRAWING REPRESENTS A CONCEPTUAL DESIGN ONLY AND DOES NOT CONSIDER DETAILED TOPOGRAPHIC INFORMATION SUCH AS GRADING.
3. UTILITY RELOCATIONS INDICTED ON THIS DRAWING ARE PRELIMINARY AND SUBJECT TO CHANGE AT THE DETAILED DESIGN STAGE.
4. ALL PAVEMENT MARKINGS AND SIGNAGE SHALL CONFORM WITH THE ONTARIO TRAFFIC MANUAL (OTM).
5. FINAL PAVEMENT MARKINGS BY THE DEVELOPER.
6. PERMANENT PAVEMENT MARKINGS APPLIED TO SURFACE COURSE ASPHALT SHALL BE TWO COMPONENT COLD CURING PLASTIC TYPE OR APPROVED EQUIVALENT.

PAVEMENT MARKING LEGEND

IDENTIFICATION	TYPE	COLOUR	WIDTH (cm)
1	SOLID	YELLOW	10
2	SOLID	WHITE	10
3	3-3-3 BROKEN	WHITE	10
4	SOLID	WHITE	20
5	SOLID	WHITE	45
6	SOLID, 3-6-3 SKIP	YELLOW	10

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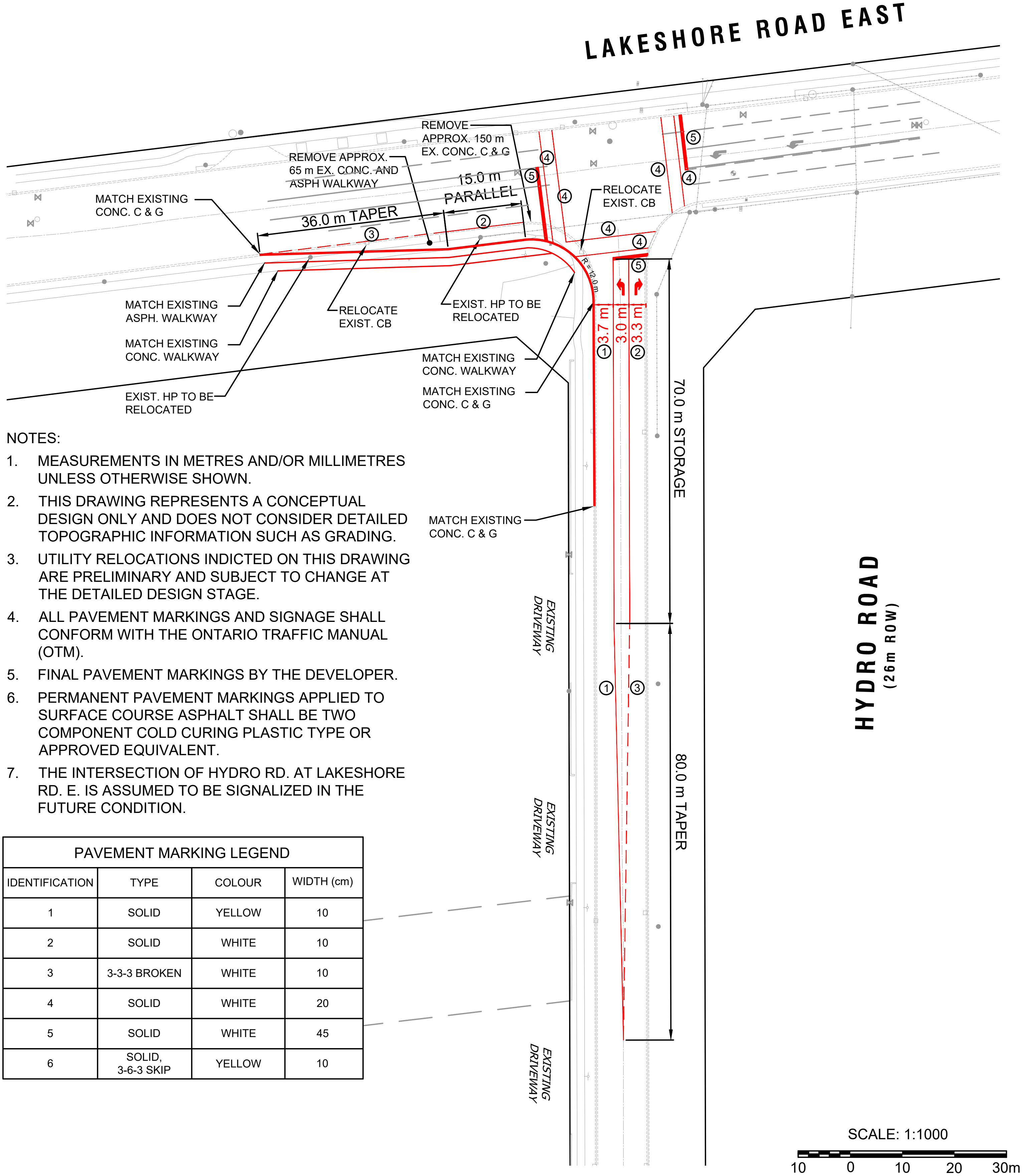
LAKEVIEW VILLAGE
LAKEFRONT PROMENADE
CONCEPTUAL DESIGN
INTERIM CONDITION

N

PROJECT No: 17201

DATE: 10/AUG/21

FIGURE CD-1



NOTES:

1. MEASUREMENTS IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN.
2. THIS DRAWING REPRESENTS A CONCEPTUAL DESIGN ONLY AND DOES NOT CONSIDER DETAILED TOPOGRAPHIC INFORMATION SUCH AS GRADING.
3. UTILITY RELOCATIONS INDICTED ON THIS DRAWING ARE PRELIMINARY AND SUBJECT TO CHANGE AT THE DETAILED DESIGN STAGE.
4. ALL PAVEMENT MARKINGS AND SIGNAGE SHALL CONFORM WITH THE ONTARIO TRAFFIC MANUAL (OTM).
5. FINAL PAVEMENT MARKINGS BY THE DEVELOPER.
6. PERMANENT PAVEMENT MARKINGS APPLIED TO SURFACE COURSE ASPHALT SHALL BE TWO COMPONENT COLD CURING PLASTIC TYPE OR APPROVED EQUIVALENT.
7. THE INTERSECTION OF HYDRO RD. AT LAKESHORE RD. E. IS ASSUMED TO BE SIGNALIZED IN THE FUTURE CONDITION.

PAVEMENT MARKING LEGEND

IDENTIFICATION	TYPE	COLOUR	WIDTH (cm)
1	SOLID	YELLOW	10
2	SOLID	WHITE	10
3	3-3-3 BROKEN	WHITE	10
4	SOLID	WHITE	20
5	SOLID	WHITE	45
6	SOLID, 3-6-3 SKIP	YELLOW	10

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LAKEVIEW VILLAGE
HYDRO ROAD CONCEPTUAL DESIGN
INTERIM CONDITION

N

PROJECT No: 17201

DATE: 10/AUG/21

FIGURE CD-2

APPENDIX H

50% Mode Split Justification Documentation

Kyla Zijlstra

To: Michael Dowdall
Subject: RE: Lakeview Village Bi-Weekly Traffic Meeting

From: Michael Dowdall <MDowdall@tmig.ca>
Sent: June 9, 2021 11:37 AM
To: Lin Rogers <Lin.Rogers@mississauga.ca>; Ryan Au <Ryan.Au@mississauga.ca>
Cc: Jim Bacchus <JBacchus@tmig.ca>; Kyla Zijlstra <KZijlstra@tmig.ca>
Subject: FW: Lakeview Village Bi-Weekly Traffic Meeting

Ryan and Lin,

Further to our meeting June 1st, it is understood the City's interpretation of Peel Region's 50% sustainable mode share applies to a full 24-hour period and not a peak hour, and may not necessarily be exactly 50% depending on the time of day. It was agreed TMIG was to provide justification to apply the 50% sustainable mode share to the TCR's peak period 2041 trip generation methodology as outlined below:

Peel Region's Long Range Transportation Plan (LRTP), identifies the need for a Region wide 50% sustainable mode share target by 2041. The 50% mode share 'vision' and 'trends' target are specifically identified during the **AM peak period** throughout the LRTP. Moreover, the LRTP technical analysis and modelling work examined by Peel was based on population and employment forecasts during the AM peak period to '*demonstrate that roads can only be widened to a practical limit, and a shift in modal shares is required to manage growth of vehicular trips and minimize* congestion'.

The overarching objective of the LRTP is to shift 50% of trips in the Region to sustainable modes by 2041 which represents a **13%** increase from today's use across the Region. Furthermore, the sustainable mode share target for the City of Mississauga is 55%, an increase of **17%.** The current auto-driver share derived from 2016 TTS data is 60% within the existing Lakeview Village zone. Application of the 50% sustainable mode share under the TCR's 2041 traffic scenario results in a **10%** increase to the non-auto driver (sustainable) share, below the Region's objective to increase the sustainable share by 13% and 17% across the Region and City respectively.

As stated in the LRTP:

> *Achieving the 50% sustainable mode share target will be a joint effort between the Region of Peel and the three local municipalities. This target is an average of the sustainable mode share targets identified for each local municipality, which were developed in consultation with local municipal staff, technical and modelling analysis, and best practices research. The sustainable mode share targets for each local municipality are:*

Local Municipality	2011 Sustainable Mode Share	2041 Sustainable Mode Share Target
City of Brampton	37%	48%
Town of Caledon	29%	32%
City of Mississauga	38%	55%

Together, these mode share targets results in a 50% average sustainable mode share target for the Region of Peel.

Additionally, t*he development of Region of Peel's modal split targets went through two important phases spanning over 3 years: an internal analysis, and afterwards,* ***a detailed review by an external consultant (IBI)****. Both phases followed a sound methodology that used both quantitative and qualitative methods. References and information from Local Municipalities and the Province were sources for developing the modal share targets. Through Peel and IBI's examination, a 50% sustainable modal split target by 2041 is feasible, and via modelling analysis it was confirmed that this target will support the Region with addressing congestion and increased travel times in light of the forecasted growth. As further commitment on behalf of the Region to decrease traffic congestion, manage growth, and support development of viable communities, the 50% sustainable mode share target was* ***endorsed by Regional Council in February 2018****.*

Based on TMIG's supplemental review of the LRTP as per the above, it is our opinion application of a 50% sustainable mode share is valid, supportable by Peel, and not only an acceptable and justified auto-driver reduction, but a conservative one since the Region's own investigation as well as an independent consultant's review indicates Mississauga's mode split to sustainable travel is actually 55% in the longer term. Furthermore, it has been confirmed that this mode split should be applied to the peak period trip generation, and not spread across a 24 hour period as an average.

We trust this information is more than sufficient to provide the City the proof it requires to accept the sustainable mode splits originally proposed and as maintained through all of our traffic-related submissions to date.

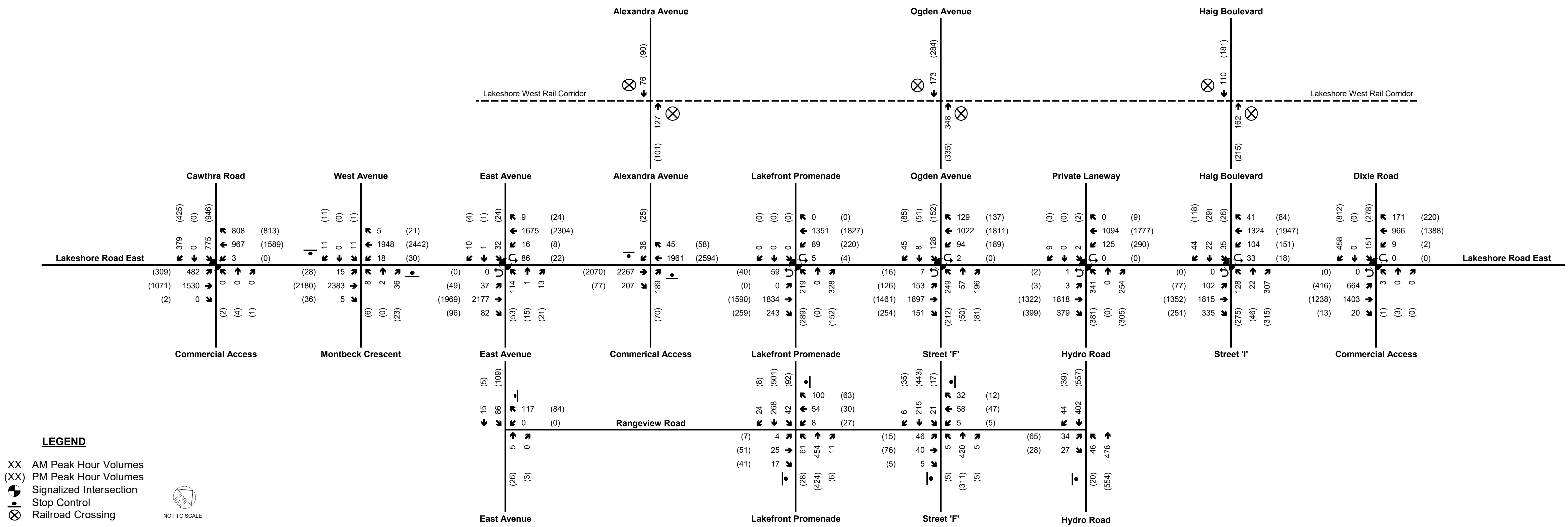
Here's a OneDrive link to the relevant Peel LRTP material.

Regards,

Michael Dowdall
TMIG | **TYLI**
+1.437.993.2662

APPENDIX I

Internal Network Future Total Traffic Volume Figures



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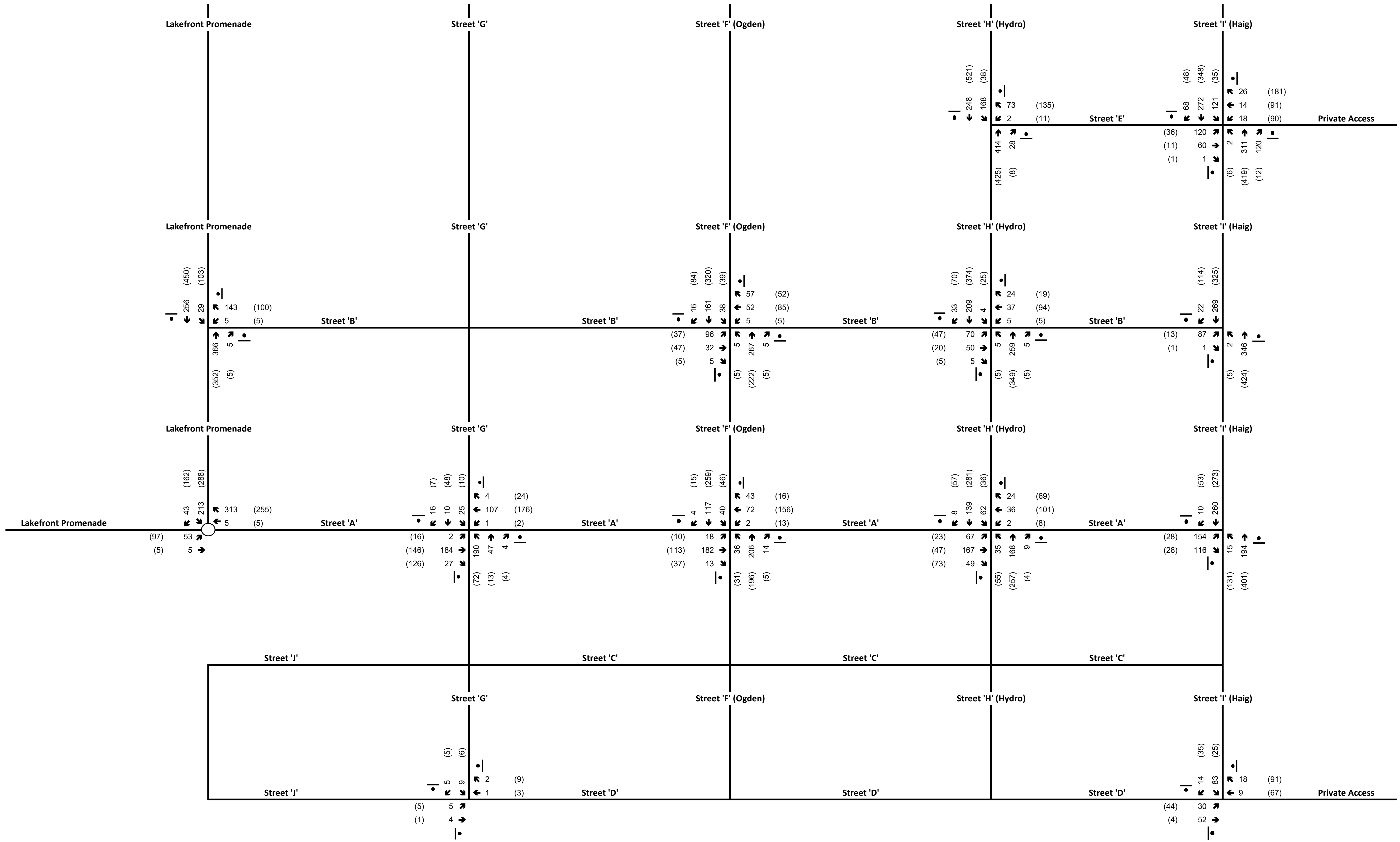
2031 Future Total BRT Traffic Volumes

Figure I-1A (External)



LEGEND

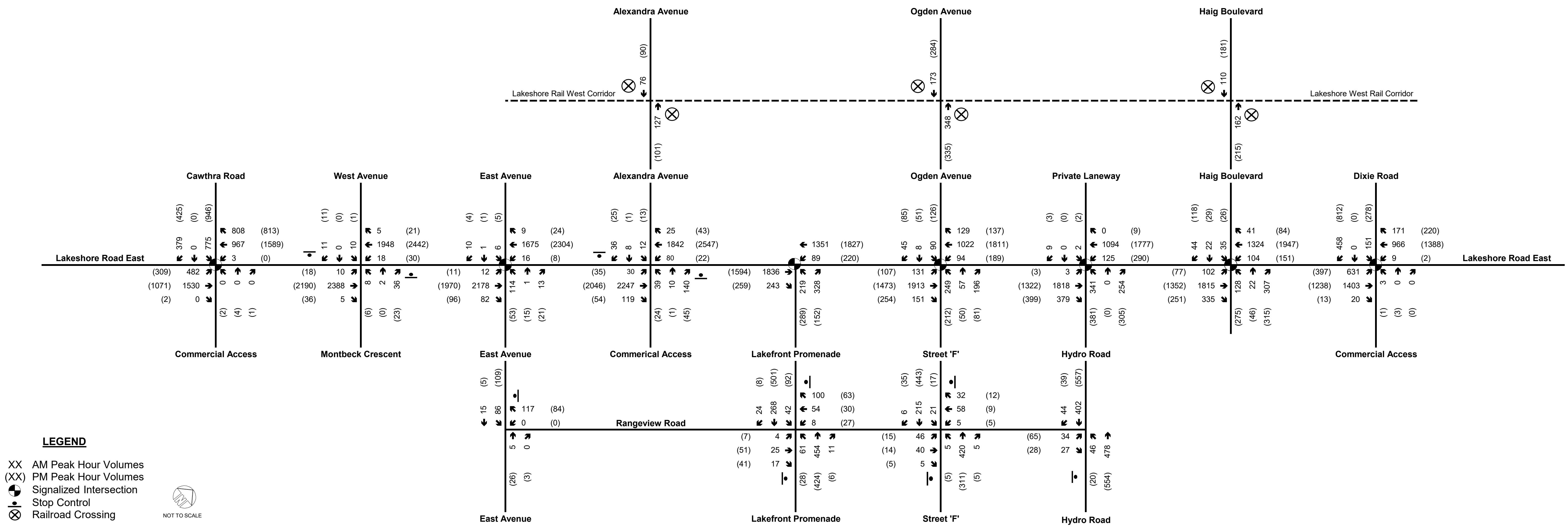
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Stop Control
Roundabout

NOT TO SCALE

TMIG A TYLIN INTERNATIONAL COMPANY

2031 Future Total BRT Traffic Volumes

Figure I-1B (Internal)



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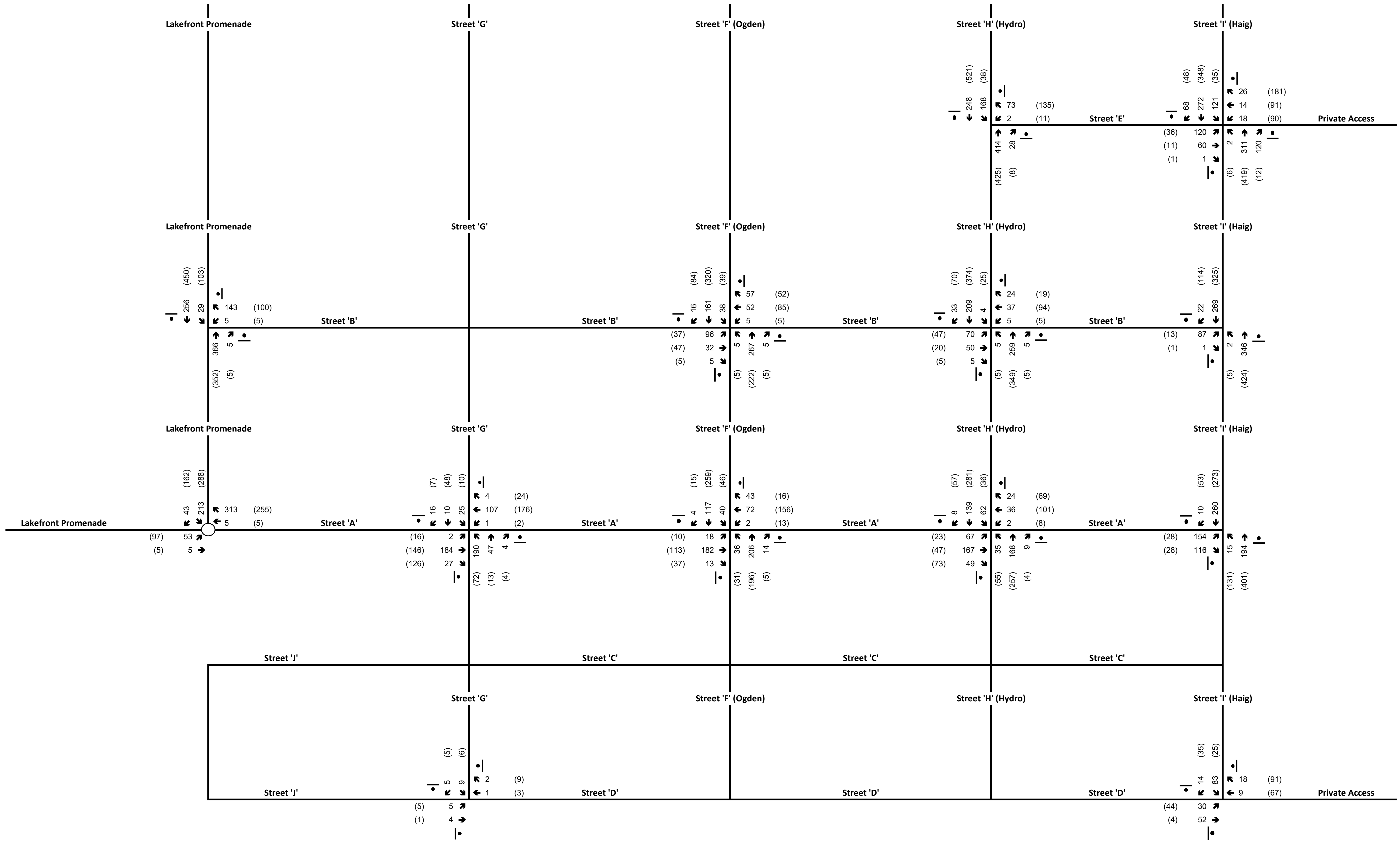
2031 Future Total BAU Traffic Volumes

Figure I-2A (External)



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Stop Control
Roundabout

NOT TO SCALE

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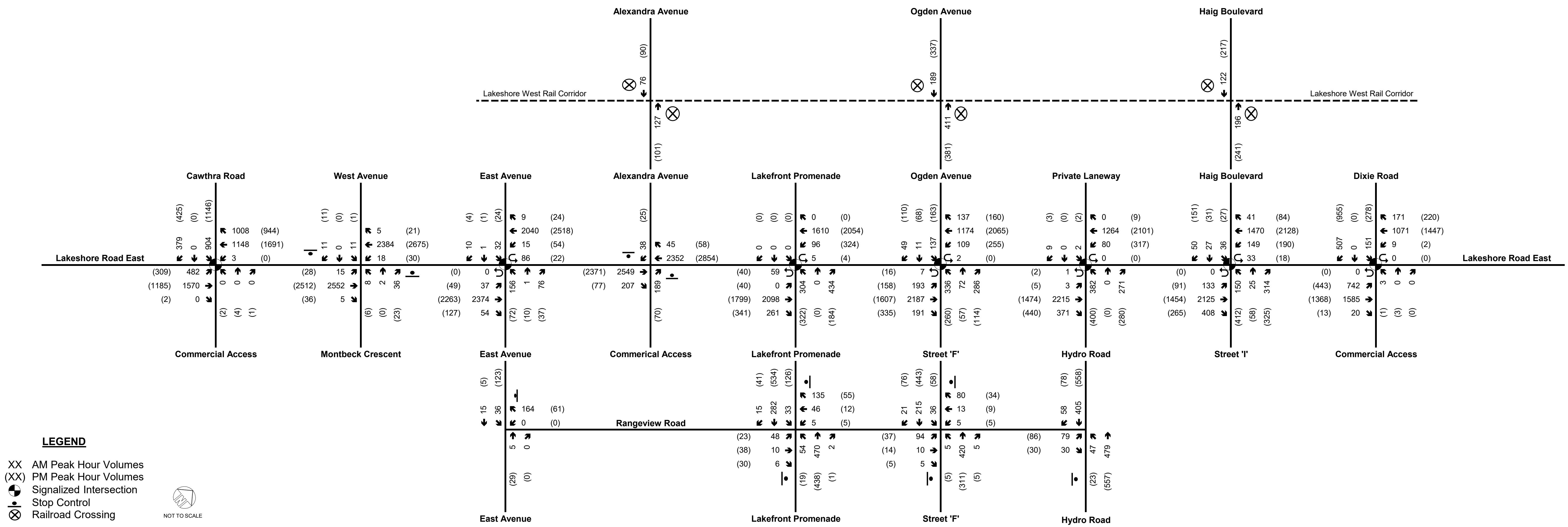
2031 Future Total BAU Traffic Volumes

Figure I-2B (Internal)



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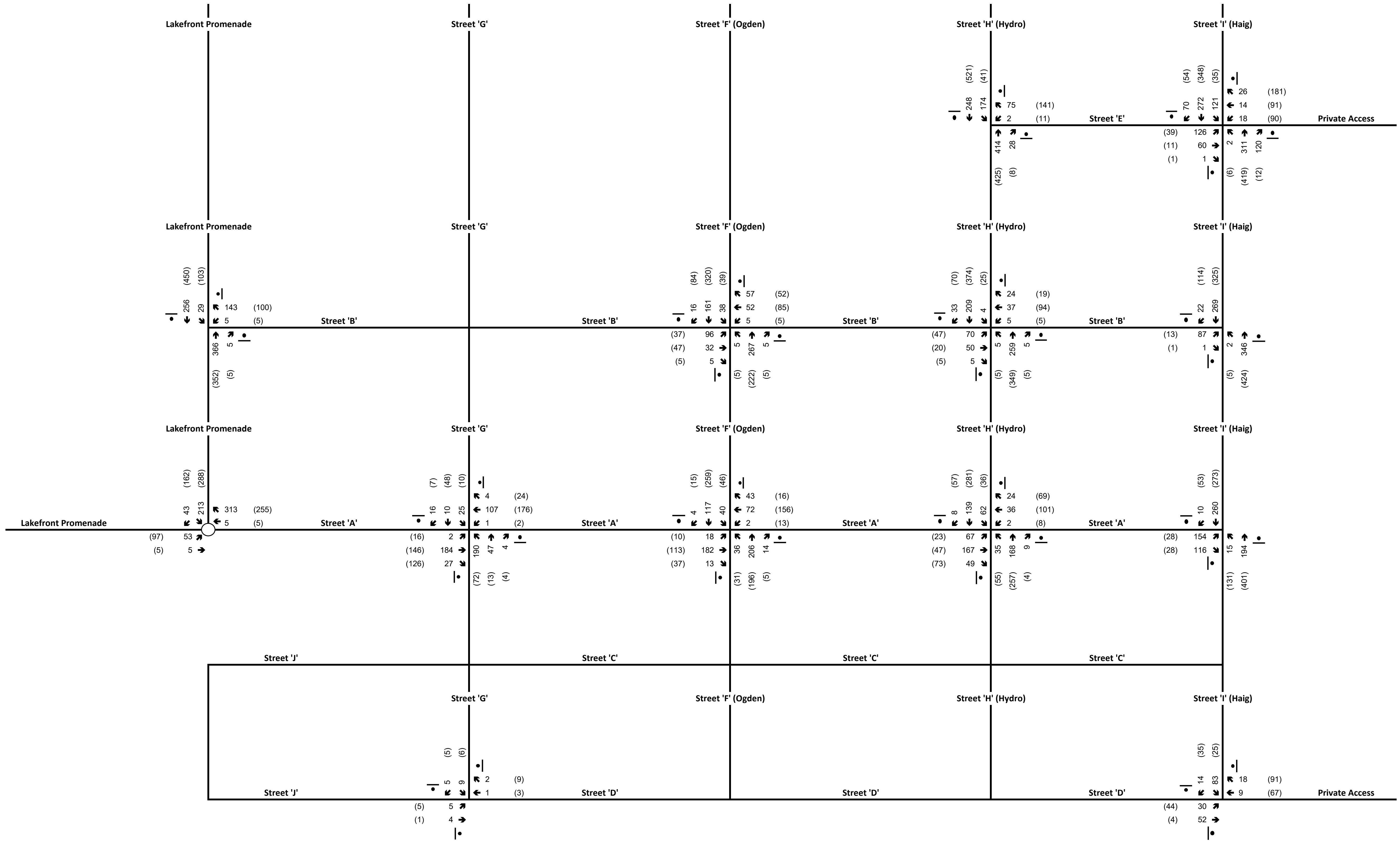
2041 Future Total BRT Traffic Volumes

Figure I-3A (External)



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Stop Control
Roundabout

NOT TO SCALE

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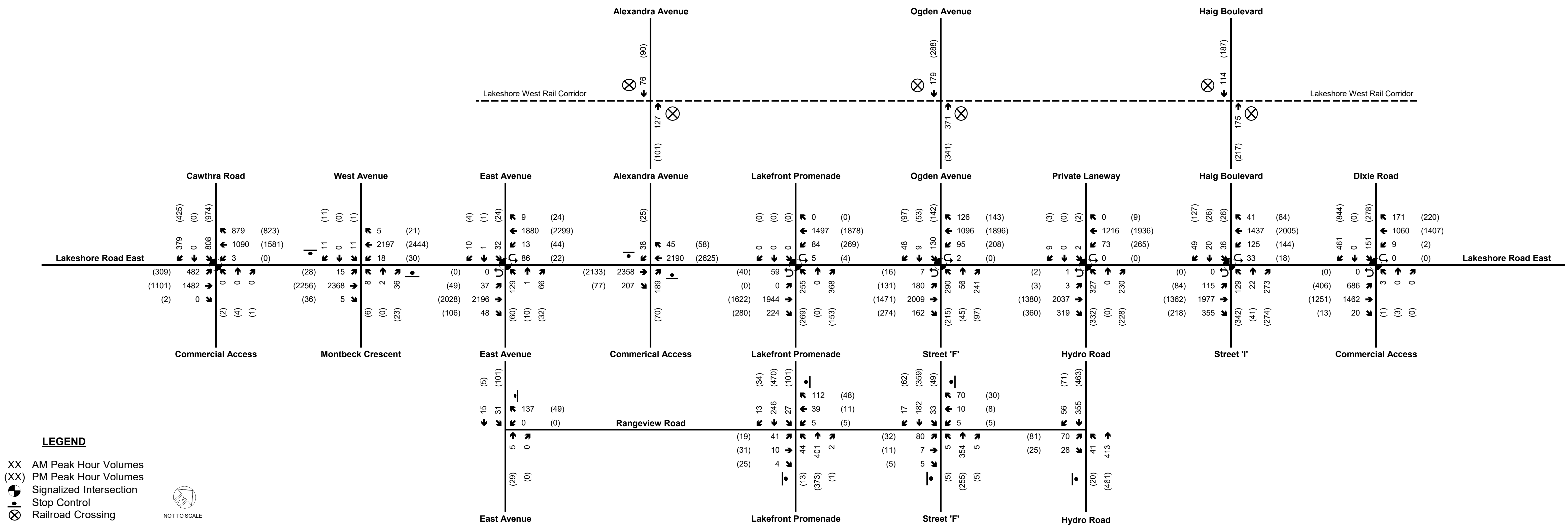
2041 Future Total BRT Traffic Volumes

Figure I-3B (Internal)



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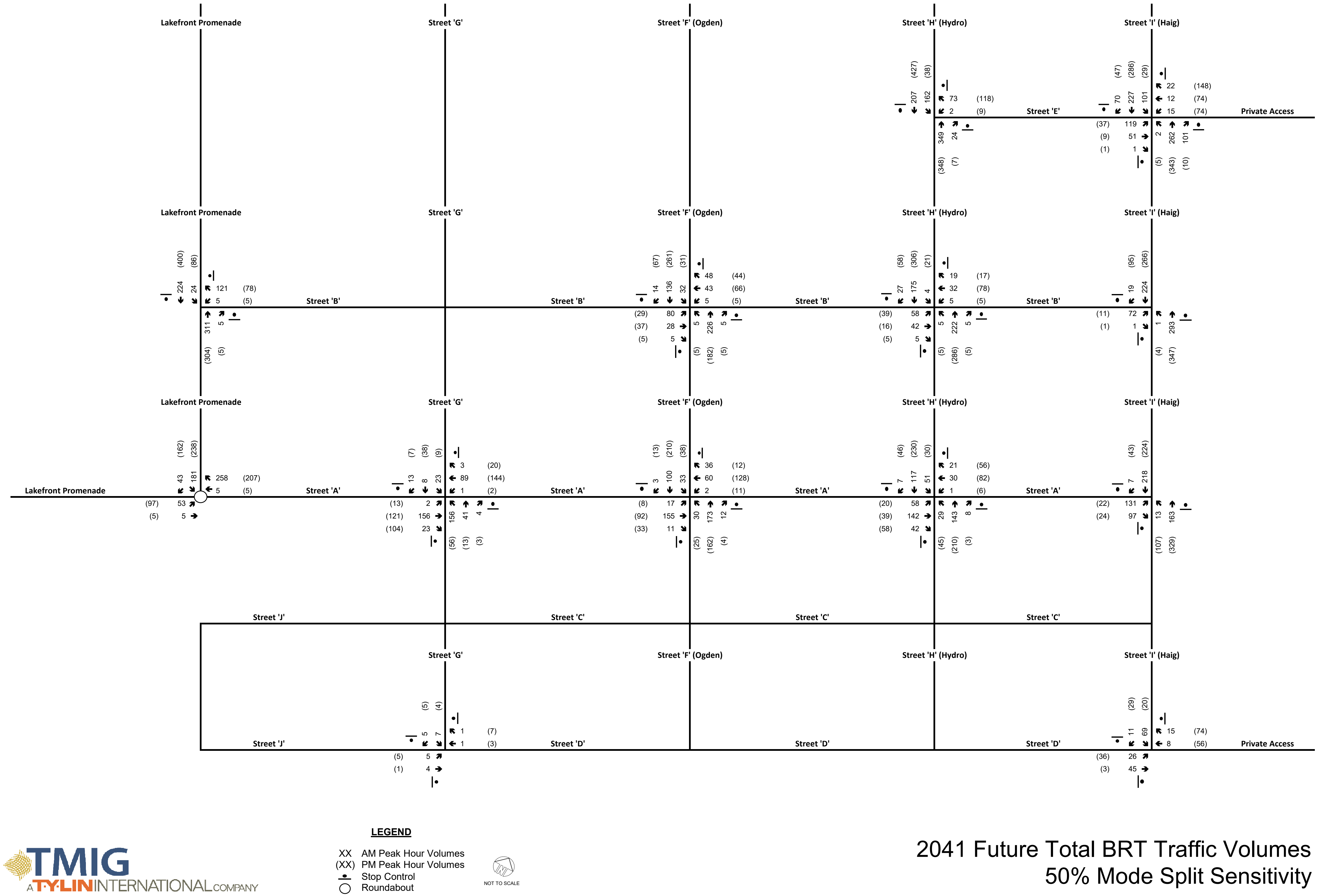
2041 Future Total BRT Traffic Volumes

50% Mode Split Sensitivity

Figure I-4A (External)



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2041 Future Total BRT Traffic Volumes
50% Mode Split Sensitivity
Figure I-4B (Internal)

APPENDIX J

Rangeview Estates Trip Generation Sensitivity and Site Statistics

Table J-1 – Rangeview Trip Generation Proposed in Lakeview

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	**Out**	**Total**
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 2981 units	Average Rate	0.2			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	72	524	596	386	151	537
	Vehicle to Person Trip Conversion Rate	1.9			2.0		
	Gross Person Trips	136	997	1133	773	300	1073
	Internal Reduction	3	12	15	61	28	89
	Total External Person Trips	133	985	1118	712	272	984
	Mode Split Reduction	54	398	452	277	106	383
	Total Auto Driver Trips	79	587	666	435	166	601
General Office Building *Dense Multi-use Urban Context* LUC 710 47,152 ft² GFA	Fitted Curve Equation	T = 0.72(X) + 21.64			T = 0.83(X) + 7.99		
	Distribution	86%	14%	-	17%	83%	-
	Gross Vehicle Site Trips	48	8	56	8	39	47
	Vehicle to Person Trip Conversion Rate	1.47			1.46		
	Gross Person Trips	71	11	82	12	57	69
	Internal Reduction	5	3	8	11	12	23
	Total External Person Trips	66	8	74	1	45	46
	Mode Split Reduction	27	3	30	0	18	18
	Total Auto Driver Trips	39	5	44	1	27	28
Shopping Center LUC 820 47,151 ft² GFA	Fitted Curve Equation	T = 0.50(X) + 151.78			Ln(T) = 0.74Ln(X) + 2.89		
	Distribution	62%	38%	-	48%	52%	-
	Gross Vehicle Site Trips	109	66	175	150	162	312
	Vehicle to Person Trip Conversion Rate	1.31			1.43		
	Gross Person Trips	143	87	230	214	231	445
	Internal Reduction	13	6	19	32	64	96
	Total External Person Trips	130	81	211	182	167	349
	Mode Split Reduction	53	33	86	71	65	136
	Total Auto Driver Trips	77	48	125	111	102	213

Table J-2 – Rangeview Trip Generation from Official Plan

Land Use	Parameters	Peak Hour of Trip Generator					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 925 units	Fitted Curve Equation	Ln(T) = 0.95 Ln(X) - 0.51			Ln(T) = 0.89 Ln(X) - 0.02		
	Distribution	23%	77%	-	63%	37%	-
	Gross Vehicle Site Trips	91	304	395	269	159	428
	Vehicle to Person Trip Conversion Rate	1.13			1.21		
	Total External Person Trips	103	343	446	326	192	518
	Mode Split Reduction	42	138	180	126	75	201
	Total Auto Driver Trips	61	205	266	200	117	317
Multifamily Housing (Mid-Rise) LUC 221 *Dense Multi-use Urban Context* 1850 units	Average Rate	0.2			0.18		
	Distribution	12%	88%	-	72%	28%	-
	Gross Vehicle Site Trips	44	326	370	240	93	333
	Vehicle to Person Trip Conversion Rate	1.9			2.0		
	Total External Person Trips	84	619	703	480	186	666
	Mode Split Reduction	34	250	284	187	72	259
	Total Auto Driver Trips	50	369	419	293	114	407
Multifamily Housing (High-Rise) LUC 222 *Dense Multi-use Urban Context* 925 units	Average Rate or Fitted Curve Equation	Ln(T) = 0.84 Ln(X) - 0.65			2.17		
	Distribution	12%	88%	-	70%	30%	-
	Gross Vehicle Site Trips	19	143	162	123	53	176
	Vehicle to Person Trip Conversion Rate	2.81			2.17		
	Total External Person Trips	55	400	455	267	114	381
	Mode Split Reduction	22	162	184	104	44	148
	Total Auto Driver Trips	33	238	271	163	70	233

Table J-3 – Rangeview Trip Generation Comparison

Trip Generation Description	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Trip Generation as per TMIG Supplemental Traffic Analysis Report (April 2021)	195	640	835	547	295	842
Trip Generation as per TMIG methodology using Official Plan Stats (Residential Only)	144	812	956	656	301	957
Difference	**-51**	**+172**	**+121**	**+109**	**+6**	**+115**

Table 7-16 – 2031 BAU Non-Residential Site Trip Generation

Land Use	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Retail	Gross Trips	140	85	225	347	376	723
	Mixed-Use Adjustment	66	37	103	63	106	169
	Transit	11	7	18	43	40	83
	New Trips	63	41	104	241	230	471
Office	Gross Trips	732	119	851	143	753	896
	Mixed-Use Adjustment	40	25	65	40	34	74
	Transit	104	14	118	15	108	123
	New Trips	588	80	668	88	611	699
Research & Development	Gross Trips	276	92	368	65	365	430
	Mixed-Use Adjustment	15	20	35	18	16	34
	Transit	39	11	50	7	52	59
	New Trips	222	61	283	40	297	337
Community Center	Gross Trips	174	90	264	190	215	405
	Mixed-Use Adjustment	0	0	0	0	0	0
	Transit	26	13	39	28	32	60
	New Trips	148	77	225	162	183	345
Hotel	Gross Trips	53	37	90	60	57	117
	Mixed-Use Adjustment	0	0	0	0	0	0
	Transit	0	0	0	0	0	0
	New Trips	53	37	90	60	57	117
Total	**New Trips**	**1,074**	**296**	**1,370**	**591**	**1,378**	**1,969**

Table 7-17 – 2031 BAU Total Residential and Non-Residential Site Trip Generation

Year	Parameter	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
2031 BAU	Residential Trips	383	1,141	1,524	1,295	821	2,116
	Non-Residential Trips	1,074	296	1,370	591	1,378	1,969
	Total Trips	**1,457**	**1,437**	**2,894**	**1,886**	**2,199**	**4,085**

7.4.2 Trip Distribution and Assignment

The site trip distribution and assignment methodology presented in Section 7.3.5 of this report was also applied to the trips that would be generated by the Lakeview Village development at full-build out if the BRT route was not in place within the study area.

The estimated site trips generated by the Lakeview Village development under the 2031 BAU scenario were assigned to the study area road network for the weekday a.m. and p.m. peak hours as shown in Figure 7-3.

7.5 Background Developments

7.5.1 Rangeview Estates

The Rangeview Estates development north of Lakeview Village lands is made up of parcels of land not owned by LCPL but are included in the Lakeview Major Node Character Area of the City's Official Plan. These parcels are subject to the City's MOP policies and have the potential to develop over a longer period of time compared to Lakeview Village, as they contain existing businesses, and development will require the sale and land assembly of various parcels. During pre-consultation with City transportation staff, it was determined that the Rangeview Estates development will commence construction post 2031 and will reach full-build out by the 2041 planning horizon.

The Rangeview Estates development will span from East Avenue in the west to Hydro Road in the east. Lakeshore Road East acts as the Lakeview Village development's northern boundary, and its limits abut Lakeview Village lands south of Rangeview Road. Figure 7-4 details the extent of the Rangeview Estate lands and its location relative to the Lakeview Village development.

7.5.1.1 Trip Generation

The Rangeview Estates site has been envisioned as a mixed-use development, comprised of residential, retail, and commercial uses. While site statistics for the Rangeview Estates development are still preliminary, the site statistics have been extracted from 'Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix A & C', dated July 23, 2014, prepared by TMIG (2014 TMIG Servicing Strategy), see Appendix E, and were used for trip generation purposes. The total commercial GFA proposed was 59,502ft^2 located within Private Parcel Areas #4 and #5, as summarized in 2014 TMIG Servicing Strategy Appendix A & C.

The Lakeview Waterfront OPA provides for a mixed-use community that includes a wide range and mix of uses including residential, employment, institutional, recreational, park and open space. The distribution of land uses reflects opportunities on Lakeshore Road providing visibility for commercial uses. Comparison of the 2014 TMIG Servicing Strategy land use assumptions with MOPA89 observed an increase in the total mixed-use development lands proposed along Lakeshore Road East. The 34,800ft^2 commercial GFA estimated for Private Parcel #4 was therefore doubled to reflect mixed-uses located in Private Parcel #3. As a result, the Rangeview Estates total mixed-use GFA estimates increased from 59,502ft^2 to 94,303ft^2 and subsequently

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Figure 7-4 – Rangeview Estates Site Location

split in half between office and retail commercial uses. The estimated Rangeview Estates land use summary is presented in Table 7-18.

The same trip generation methodology applied to the Lakeview Village development was also applied to the Rangeview Estates lands. Trips produced by the residential component of the site were developed on a person trip basis using 2011 TTS data, drawing upon Port Credit's modal split patterns as a proxy site to account for the higher-order transit that is planned for the Lakeshore Road corridor.

Table 7-18 – Rangeview Estates Land Use Summary

Land Use	Number of Units or GFA (ft²)
Residential	2,981 Units
Retail	47,151 ft²
Office	47,152 ft²

Source: Inspiration Lakeview Conceptual Municipal Servicing Strategy – Appendix C

The average PPU rate was adjusted to reflect the estimated residential unit mix of Rangeview Estates instead of the Lakeview Village PPU. It was assumed that no townhouses will be built in Rangeview Estates lands, but only apartments. A standard 40% of the units were assumed to be "small apartments" with 700 ft2 G.F.A. or less, as per the City of Mississauga's Development Charges Study. These assumptions resulted in a PPU of 2.18.

Table 7-19 summarizes the trip generation results of the residential component of the Rangeview Estates development. The residential trip generation methodology is discussed in greater detail in Section 7.3.2 of this report.

Table 7-19 – Rangeview Estates Residential Site Trip Generation

Component	Residential Peak Hour Trip Generation					
Number of Units	2,981					
Occupancy	Assume 100% Occupancy					
	Unit Occupancy of 2.18 persons/unit					
Number of Residents	6,492					
Residential Trips[1]	Assumed % of residents traveling during the weekday AM peak hour		18.0%	Assumed % of residents traveling during the weekday PM peak hour		20.5%
	# trips during AM peak		1,169	# trips during PM peak		1,331
Modal Split[2]	Split Percentage		Trips	Split Percentage		Trips
Transit	22.5%		263	17.5%		233
Auto-Driver	57.5%		672	65.0%		865
Auto-Passenger	12.5%		146	15.0%		200
Walk	6.5%		76	1.5%		20
Cycle	1.0%		12	1.0%		13
Directional Distribution[3]	Inbound	Outbound	Total	Inbound	Outbound	Total
	25%	75%	100%	61%	39%	100%
Person Trips						
Transit	66	197	263	142	91	233
Auto-Driver	168	504	672	528	337	865
Auto-Passenger	37	110	147	122	78	200
Walk	19	57	76	12	8	20
Cycle	3	9	12	8	5	13
Total Trips	293	877	1,170	812	519	1,331
Auto Trip Rate (veh trips/unit)	0.06	0.17	0.23	0.18	0.11	0.29
Mixed-use Adjustment	3	6	9	28	13	41
Total Auto-Driver Trips used for analysis[4]	**165**	**498**	**663**	**500**	**324**	**824**

Notes:
1. Based on 2011 TTS Data for apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
2. Based on 2011 TTS Data for residential trips to/from apartment and townhouse dwelling units within 2006 GTA Traffic Zone 3877
3. Directional Distribution based on average of ITE 10e Multi-family Housing LUC 221 (mid-rise) and 222 (High-rise)
4. Mixed-use adjustments have been applied to the total auto-driver volumes used for analysis and will be discussed in Section 7.3.4.

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APPENDIX E

Rangeview Estates Site Statistics

Lakeshore Rd. E.
Cawthra Rd.
Ogden Ave.
Hydro Corridor
Haig Blvd.
East Rd.
Lakefront Prom.
New Serson St.
Rangeview Rd.
New Ogden Ave.
Hydro Road
New Haig Blvd.
New Aviator Ave.
Lakefront Blvd.
Blue Greenway Rd.
Waterway Rd.
New 4 Sisters Promenade
OS-02
OS-10
OS-03
OS-05
OS-11
OS-07
OS-08
OS-09
OS-14
OS-12
OS-15
OS-17
OS-20
OS-22
OS-21
OS-16
Lakeview Water Treatment Facility
Douglas Kennedy Park
Lakefront Promenade Park
G.E. Booth Wastewater Treatment Facility
Marie Curtis Park
Lakeview Waterfront Connection
Lake Ontario
PVT 00 Private Employment Land Parcel
OPG 00 OPG Parcel
Public Open Space
Property Line
Conceptual Transit Alignment + Station Location

TMIG
The Municipal Infrastructure Group Ltd.

INSPIRATION LAKEVIEW MASTER PLAN

WATER AND WASTEWATER SERVICING CALCULATIONS

TMIG PROJECT: 13134
DATE: 22-May-2014
BY: SM
CHECKED: KCB

Employment Lands

RESIDENTIAL POPULATIONS (by Unit Type; Persons per Unit: 2.7 for each unit type)

Parcel	Parcel Area (m²)	Towers Units	Towers Pop.	Mid-Rise Units	Mid-Rise Pop.	B2B TH Units	B2B TH Pop.	Stacked TH Units	Stacked TH Pop.	Trad. TH Units	Trad. TH Pop.	Resi. GFA	Total Units	Total Res. Pop.
Pvt-01 R	14,782.50	0	0	88	236	0	0	98	265	0	0	16,990	186	501
Pvt-02 R	12,251.90	0	0	84	228	0	0	100	270	0	0	16,827	184	498
Pvt-03 R	9,125.97	0	0	93	252	0	0	44	119	0	0	13,028	137	371
Pvt-04 M	11,673.70	0	0	196	528	0	0	20	54	0	0	21,246	216	582
Pvt-05 M	21,391.63	0	0	220	594	0	0	80	216	0	0	28,720	300	810
Pvt-06 R	8,635.40	0	0	0	0	0	0	84	227	0	0	7,056	84	227
Pvt-07 R	12,471.40	0	0	0	0	0	0	114	308	0	0	9,576	114	308
Pvt-08 R	7,393.01	98	263	28	76	0	0	62	167	0	0	17,762	188	506
Pvt-09 R	7,411.60	98	266	88	237	0	0	0	0	21	57	21,347	207	559
Pvt-10 R	13,303.79	97	262	156	422	0	0	54	146	12	32	31,394	319	861
Pvt-11 R	15,978.60	0	0	0	0	204	551	0	0	0	0	22,644	204	551
Pvt-12 R	16,170.80	0	0	0	0	120	324	80	216	0	0	20,040	200	540
Pvt-13 R	7,542.90	0	0	61	165	0	0	30	81	13	35	10,307	104	281
Pvt-14 R	8,658.00	115	310	77	207	0	0	0	0	26	70	22,534	218	587
Pvt-15 R	15,151.80	97	262	186	503	0	0	24	65	13	35	32,057	321	865
PvT-16E	37,216.80	0	0	0	0	0	0	0	0	0	0	0	0	0
PvT-17E	31,259.50	0	0	0	0	0	0	0	0	0	0	0	0	0
Can. Post	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	250,419.30	505	1,362	1,277	3,448	324	875	790	2,133	85	230	291,528	2,981	8,047

EMPLOYMENT EQUIVALENT POPULATIONS (m2 per Person (Equiv): Retail 100, Incubator 14, Cultural 100, Institutional 14, Employment 14)

Parcel	Retail m²	Retail Pop.	Incubator m²	Incubator Pop.	Cultural m²	Cultural Pop.	Institutional m²	Institutional Pop.	Employment m²	Employment Pop.	Equiv Empl. Pop.
Pvt-01 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-02 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-03 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-04 M	3,233	32	0	0	0	0	0	0	0	0	32
Pvt-05 M	2,295	23	0	0	0	0	0	0	0	0	23
Pvt-06 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-07 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-08 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-09 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-10 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-11 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-12 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-13 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-14 R	0	0	0	0	0	0	0	0	0	0	0
Pvt-15 R	0	0	0	0	0	0	0	0	0	0	0
PvT-16E	0	0	0	0	0	0	0	0	22,000	1,571	1,571
PvT-17E	0	0	0	0	0	0	0	0	19,700	1,407	1,407
Can. Post	0	0	0	0	0	0	0	0	0	0	0
	5,528	55	0	0	0	0	0	0	41,700	2,979	3,034

WATER DEMANDS and WASTEWATER FLOWS (L/s). Avg Daily Consumption (Lpcd): Res. 280, Empl. 300; Max Day Demand Factor: Res. 2.0, Empl. 1.4; Peak Hour Demand Factor: Res. 3.0, Empl. 3.0; Wastewater Avg Daily Consumption (Lpcd): Res. 302.8, Empl. 302.8; Peaking Factor: Harmon Factor; Extraneous Allowance (L/ha/s): 0.2

Parcel	Avg Day Demand Res.	Avg Day Demand Empl.	Avg Day Demand Total	Max Day Demand Res.	Max Day Demand Empl.	Max Day Demand Total	Peak Hour Demand Res.	Peak Hour Demand Empl.	Peak Hour Demand Total	Avg Day Flow Res.	Avg Day Flow Empl.	Avg Day Flow Total	Peak Flow Harmon Factor	Peak Flow Total	Design Flow Extraneous Allowance	Design Flow Total
Pvt-01 R	1.6	0.0	1.6	3.2	0.0	3.2	4.9	0.0	4.9	1.8	0.0	1.8	1.53	2.7	0.3	3.0
Pvt-02 R	1.6	0.0	1.6	3.2	0.0	3.2	4.8	0.0	4.8	1.7	0.0	1.7	1.53	2.7	0.2	2.9
Pvt-03 R	1.2	0.0	1.2	2.4	0.0	2.4	3.6	0.0	3.6	1.3	0.0	1.3	1.60	2.1	0.2	2.3
Pvt-04 M	1.9	0.1	2.0	3.8	0.2	3.9	5.7	0.3	6.0	2.0	0.1	2.2	1.49	3.2	0.2	3.4
Pvt-05 M	2.6	0.1	2.7	5.3	0.1	5.4	7.9	0.2	8.1	2.8	0.1	2.9	1.43	4.2	0.4	4.6
Pvt-06 R	0.7	0.0	0.7	1.5	0.0	1.5	2.2	0.0	2.2	0.8	0.0	0.8	1.73	1.4	0.2	1.6
Pvt-07 R	1.0	0.0	1.0	2.0	0.0	2.0	3.0	0.0	3.0	1.1	0.0	1.1	1.65	1.8	0.2	2.0
Pvt-08 R	1.6	0.0	1.6	3.3	0.0	3.3	4.9	0.0	4.9	1.8	0.0	1.8	1.53	2.7	0.1	2.9
Pvt-09 R	1.8	0.0	1.8	3.6	0.0	3.6	5.4	0.0	5.4	2.0	0.0	2.0	1.51	3.0	0.1	3.1
Pvt-10 R	2.8	0.0	2.8	5.6	0.0	5.6	8.4	0.0	8.4	3.0	0.0	3.0	1.42	4.3	0.3	4.6
Pvt-11 R	1.8	0.0	1.8	3.6	0.0	3.6	5.4	0.0	5.4	1.9	0.0	1.9	1.51	2.9	0.3	3.2
Pvt-12 R	1.8	0.0	1.8	3.5	0.0	3.5	5.3	0.0	5.3	1.9	0.0	1.9	1.51	2.9	0.3	3.2
Pvt-13 R	0.9	0.0	0.9	1.8	0.0	1.8	2.7	0.0	2.7	1.0	0.0	1.0	1.67	1.6	0.2	1.8
Pvt-14 R	1.9	0.0	1.9	3.8	0.0	3.8	5.7	0.0	5.7	2.1	0.0	2.1	1.50	3.1	0.2	3.3
Pvt-15 R	2.8	0.0	2.8	5.6	0.0	5.6	8.4	0.0	8.4	3.0	0.0	3.0	1.42	4.3	0.3	4.6
PvT-16E	0.0	5.5	5.5	0.0	7.6	7.6	0.0	16.4	16.4	0.0	5.5	5.5	1.32	7.3	0.7	8.0
PvT-17E	0.0	4.9	4.9	0.0	6.8	6.8	0.0	14.7	14.7	0.0	4.9	4.9	1.34	6.6	0.6	7.2
Can. Post	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.50	0.0	0.0	0.0
	26.1	10.5	36.6	52.2	14.7	66.9	78.2	31.6	109.8	28.2	10.6	38.8	1.13	43.8	5.0	48.8

OPG Lands

RESIDENTIAL POPULATIONS (by Unit Type; Persons per Unit: 2.7 for each unit type)

Parcel	Parcel Area (m²)	Towers Units	Towers Pop.	Mid-Rise Units	Mid-Rise Pop.	B2B TH Units	B2B TH Pop.	Stacked TH Units	Stacked TH Pop.	Trad. TH Units	Trad. TH Pop.	Resi. GFA	Total Units	Total Res. Pop.
OPG-01 R	12,051.50	0	0	224	605	0	0	30	81	0	0	24,940	254	686
OPG-02 R	7,025.58	94	255	103	279	0	0	0	0	13	35	21,452	211	569
OPG-03 R	7,405.40	99	268	111	298	0	0	0	0	16	43	23,047	226	609
OPG-04 R	4,990.40	0	0	123	331	0	0	0	0	0	0	12,266	123	331
OPG-05 R	11,814.30	98	263	194	523	0	0	18	49	9	24	31,789	318	859
OPG-06 R	11,563.80	116	314	277	747	0	0	0	0	0	0	39,285	393	1,061
OPG-07 M	11,505.83	199	538	185	500	0	0	0	0	0	0	38,415	384	1,037
OPG-08 R	13,738.90	151	407	154	417	0	0	0	0	18	49	32,859	323	873
OPG-09 R	18,202.60	107	290	205	553	0	0	0	0	29	78	34,997	341	921
OPG-10 R	7,862.50	94	253	264	712	0	0	32	86	0	0	38,439	390	1,052
OPG-11 R	9,542.00	94	253	137	369	0	0	0	0	13	35	24,718	243	657
OPG-12 E	21,834.00	0	0	0	0	0	0	0	0	0	0	0	0	0
OPG-13 M	12,265.60	132	357	254	687	0	0	0	0	0	0	38,656	387	1,044
OPG-14 R	22,931.78	431	1,164	293	791	0	0	0	0	22	59	75,235	746	2,014
OPG-15 M	11,403.50	0	0	210	567	0	0	0	0	0	0	21,000	210	567
OPG-16 M	8,103.20	0	0	160	432	0	0	0	0	0	0	15,987	160	432
OPG-17 M	15,485.10	0	0	199	538	0	0	0	0	0	0	19,908	199	538
OPG-18 C	16,071.70	0	0	0	0	0	0	0	0	0	0	0	0	0
OPG-19 M	5,338.00	0	0	109	295	0	0	0	0	0	0	10,935	109	295
OPG-20 DE	42,800.00	0	0	0	0	0	0	0	0	0	0	0	0	0
OPG-21 Inst	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	271,935.69	1,615	4,361	3,201	8,642	0	0	80	216	120	324	503,928	5,016	13,543

EMPLOYMENT EQUIVALENT POPULATIONS (m2 per Person (Equiv): Retail 100, Incubator 14, Cultural 100, Institutional 14, Employment 14)

Parcel	Retail m²	Retail Pop.	Incubator m²	Incubator Pop.	Cultural m²	Cultural Pop.	Institutional m²	Institutional Pop.	Employment m²	Employment Pop.	Equiv Empl. Pop.
OPG-01 R	0	0	0	0	0	0	0	0	0	0	0
OPG-02 R	0	0	0	0	0	0	0	0	0	0	0
OPG-03 R	0	0	0	0	0	0	0	0	0	0	0
OPG-04 R	0	0	0	0	0	0	0	0	0	0	0
OPG-05 R	0	0	0	0	0	0	0	0	0	0	0
OPG-06 R	0	0	0	0	0	0	0	0	0	0	0
OPG-07 M	3,747	37	0	0	0	0	0	0	0	0	37
OPG-08 R	4,028	40	0	0	0	0	0	0	0	0	40
OPG-09 R	0	0	0	0	0	0	0	0	0	0	0
OPG-10 R	0	0	0	0	0	0	0	0	0	0	0
OPG-11 R	0	0	0	0	0	0	0	0	0	0	0
OPG-12 E	0	0	0	0	0	0	0	0	26,000	1,857	1,857
OPG-13 M	2,968	30	0	0	0	0	0	0	0	0	30
OPG-14 R	3,406	34	0	0	0	0	0	0	0	0	34
OPG-15 M	0	0	1,890	135	0	0	0	0	0	0	135
OPG-16 M	0	0	1,988	142	0	0	0	0	0	0	142
OPG-17 M	2,050	21	4,123	295	0	0	0	0	0	0	315
OPG-18 C	0	0	0	0	8,000	80	0	0	0	0	80
OPG-19 M	0	0	3,925	280	0	0	0	0	0	0	280
OPG-20 DE	0	0	0	0	0	0	35,000	2,500	0	0	2,500
OPG-21 Inst	0	0	0	0	0	0	0	0	0	0	0
	16,199	162	11,926	852	8,000	80	35,000	2,500	26,000	1,857	5,451

WATER DEMANDS and WASTEWATER FLOWS (L/s). Avg Daily Consumption (Lpcd): Res. 280, Empl. 300; Max Day Demand Factor: Res. 2.0, Empl. 1.4; Peak Hour Demand Factor: Res. 3.0, Empl. 3.0; Wastewater Avg Daily Consumption (Lpcd): Res. 302.8, Empl. 302.8; Peaking Factor: Harmon Factor; Extraneous Allowance (L/ha/s): 0.2

Parcel	Avg Day Demand Res.	Avg Day Demand Empl.	Avg Day Demand Total	Max Day Demand Res.	Max Day Demand Empl.	Max Day Demand Total	Peak Hour Demand Res.	Peak Hour Demand Empl.	Peak Hour Demand Total	Avg Day Flow Res.	Avg Day Flow Empl.	Avg Day Flow Total	Peak Flow Harmon Factor	Peak Flow Total	Design Flow Extraneous Allowance	Design Flow Total
OPG-01 R	2.2	0.0	2.2	4.4	0.0	4.4	6.7	0.0	6.7	2.4	0.0	2.4	1.46	3.5	0.2	3.8
OPG-02 R	1.8	0.0	1.8	3.7	0.0	3.7	5.5	0.0	5.5	2.0	0.0	2.0	1.50	3.0	0.1	3.1
OPG-03 R	2.0	0.0	2.0	3.9	0.0	3.9	5.9	0.0	5.9	2.1	0.0	2.1	1.49	3.2	0.1	3.3
OPG-04 R	1.1	0.0	1.1	2.1	0.0	2.1	3.2	0.0	3.2	1.2	0.0	1.2	1.63	1.9	0.1	2.0
OPG-05 R	2.8	0.0	2.8	5.6	0.0	5.6	8.3	0.0	8.3	3.0	0.0	3.0	1.42	4.3	0.2	4.5
OPG-06 R	3.4	0.0	3.4	6.9	0.0	6.9	10.3	0.0	10.3	3.7	0.0	3.7	1.38	5.1	0.2	5.4
OPG-07 M	3.4	0.1	3.5	6.7	0.2	6.9	10.1	0.4	10.5	3.6	0.1	3.8	1.38	5.2	0.2	5.4
OPG-08 R	2.8	0.1	3.0	5.7	0.2	5.9	8.5	0.4	8.9	3.1	0.1	3.2	1.41	4.5	0.3	4.8
OPG-09 R	3.0	0.0	3.0	6.0	0.0	6.0	9.0	0.0	9.0	3.2	0.0	3.2	1.41	4.5	0.4	4.9
OPG-10 R	3.4	0.0	3.4	6.8	0.0	6.8	10.2	0.0	10.2	3.7	0.0	3.7	1.38	5.1	0.2	5.3
OPG-11 R	2.1	0.0	2.1	4.3	0.0	4.3	6.4	0.0	6.4	2.3	0.0	2.3	1.47	3.4	0.2	3.6
OPG-12 E	0.0	6.4	6.4	0.0	9.0	9.0	0.0	19.3	19.3	0.0	6.5	6.5	1.30	8.4	0.4	8.9
OPG-13 M	3.4	0.1	3.5	6.8	0.1	6.9	10.1	0.3	10.5	3.7	0.1	3.8	1.38	5.2	0.2	5.4
OPG-14 R	6.5	0.1	6.6	13.1	0.2	13.2	19.6	0.4	19.9	7.1	0.1	7.2	1.28	9.2	0.5	9.7
OPG-15 M	1.8	0.5	2.3	3.7	0.7	4.3	5.5	1.4	6.9	2.0	0.5	2.5	1.46	3.6	0.2	3.8
OPG-16 M	1.4	0.5	1.9	2.8	0.7	3.5	4.2	1.5	5.7	1.5	0.5	2.0	1.50	3.0	0.2	3.2
OPG-17 M	1.7	1.1	2.8	3.5	1.5	5.0	5.2	3.3	8.5	1.9	1.1	3.0	1.42	4.2	0.3	4.6
OPG-18 C	0.0	0.3	0.3	0.0	0.4	0.4	0.0	0.8	0.8	0.0	0.3	0.3	2.08	0.6	0.3	0.9
OPG-19 M	1.0	1.0	1.9	1.9	1.4	3.3	2.9	2.9	5.8	1.0	1.0	2.0	1.50	3.0	0.1	3.1
OPG-20 DE	0.0	8.7	8.7	0.0	12.2	12.2	0.0	26.0	26.0	0.0	8.8	8.8	1.26	11.0	0.9	11.9
OPG-21 Inst	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.50	0.0	0.0	0.0
	43.9	18.9	62.8	87.8	26.5	114.3	131.7	56.8	188.5	47.5	19.1	66.6	1.10	73.1	5.4	78.6

GRAND TOTAL	Resi. GFA	Total Units	Total Res. Pop.	Equiv Empl. Pop.	Avg Day Demand	Max Day Demand	Peak Hour Demand	Avg Day Flow	Peak Flow	Design Flow
GRAND TOTAL	795,456	7,997	21,591	8,485	99 L/s	181 L/s	298 L/s	105 L/s	117 L/s	127 L/s

Average Unit Sizes (gross)

Mid-Rise & Tower Apartment Units	100
Stacked Townhouse Units	84
Back-to-back Townhouse Units	111
Traditional Townhouse Units	130

150	0.018	5	88.4
200	0.031	5	157.1
300	0.071	5	353.4
400	0.126	5	628.3

high dens res, employ

APPENDIX K

Serson North Site Statistics

PLAN PER INSPIRATION LAKEVIEW MASTER PLAN. URBAN STRATEGIES INC, MAY 2014

TMIG The Municipal Infrastructure Group Ltd	INSPIRATION LAKEVIEW	MASTER PLAN DEVELOPMENT SCENARIO (Urban Strategies Inc., May 2014)	SCALE: N.T.S.		TMIG PROJECT No. 13134
			DATE: JULY 2014		
			DESIGNED BY:	DRAWN BY: CAD	FIGURE No. 2-1
			CHECKED BY: K.B.	CHECKED BY:	

File : G:\Projects\2013\13134 - Inspiration Lakeview\DWG\Figures\Figure 2-1.dwg, Layout : Fig 2-1 Date :Jul 22, 2014 - 10:53am, Edit By : smattachini

APPENDIX A

Detailed Site Statistics (May 1, 2014)

Lakeshore Rd. E.
Cawthra Rd.
Ogden Ave.
Hydro Corridor
Haig Blvd.
East Rd.
Lakefront Prom.
New Serson St.
Rangeview Rd.
New Ogden Ave.
Hydro Road
New Haig Blvd.
New Aviator Ave.
Lakefront Blvd.
Blue Greenway Rd.
Waterway Rd.
New 4 Sisters Promenade
OS-02
OS-10
OS-03
OS-05
OS-11
OS-07
OS-08
OS-09
OS-14
OS-12
OS-15
OS-17
OS-20
OS-22
OS-21
OS-16
Lakeview Water Treatment Facility
Douglas Kennedy Park
Lakefront Promenade Park
Marie Curtis Park
G.E. Booth Wastewater Treatment Facility
Lakeview Waterfront Connection
Lake Ontario
Private Employment Land Parcel
OPG Parcel
Public Open Space
Property Line
Conceptual Transit Alignment + Station Location

Inspiration Lakeview: Draft Yields - 01 05 2014

Urban Strategies Inc.

Lakeview Site Area **1,003,568.7**

land area 1003572

Total Dev. Area	522,355.0	52.0%
Total Non-Dev. Area	481,213.7	48.0%

Residential Summary

	Emp. Lands	OPG	Total		Target % Dist.
Taller Building Elements	505	1,615	**2,120**	27%	25%
Mid-Rise	1,277	3,201	**4,478**	56%	55%
Back-to Back-Stack	324	0	**324**	4%	10%
Stacked Townhouse	790	80	**870**	11%	8%
Traditional Townhouse	85	120	**205**	3%	2%
	2,981	5,016	**7,997**	units	

Non-Res Summary

	Emp Lands	OPG	Total	
Retail	5,528	16,199	**21,727**	
Incubator	0	11,926	**11,926**	
Cultural	0	8,000	**8,000**	
Inst.	0	35,000	**35,000**	
Emp.	64,000	45,000	**109,000**	m²
Total Non-Res Area			**185,653**	

O.S. Summary

	Emp. Lands	OPG	Total	
Parkland	6,608.6	124,113.1	130,721.7	
OS ROW	14,121.6	7,715.4	21,837.0	
Private OS*	32,445.8	26,626.4	59,072.2	
Hazard	0.0	153,433.0	153,433.0	
	53,176	311,888	**365,064**	m²

Non-Developable Area Summary

	Emp. Lands	OPG	Total	
Parkland	6,608.6	124,113.1	**130,722**	13.0%
OS ROW	14,121.6	7,715.4	**21,837**	2.2%
Hazard	0.0	153,433.0	**153,433**	15.3%
Road ROWs	71,776.0	95,527.0	**167,303**	16.7%
LRT ROWs	1,963.0	5,956.0	**7,919**	0.8%
	94,469	386,744	**481,214**	m²

Employment Lands **344,888** 34.4%

Developable Area:

	Parcel Area	Residential: Towers		Mid-Rise		B2B TH		Stacked TH		Trad. TH		Total	Resi.
	m²	GFA	Units	GFA	Units	GFA	Units	GFA	Units	GFA	Units	Units	GFA
Pvt-01 R	14,782.5		0	8,758	88	0		8,232	98	0		186	16,990
Pvt-02 R	12,251.9		0	8,427	84	0		8,400	100	0		184	16,827
Pvt-03 R	9,126.0		0	9,332	93	0		3,696	44	0		137	13,028
Pvt-04 M	11,673.7		0	19,566	196	0		1,680	20	0		216	21,246
Pvt-05 M	21,391.6		0	22,000	220	0		6,720	80	0		300	28,720
Pvt-06 R	8,635.4		0	0	0	0		7,056	84	0		84	7,056
Pvt-07 R	12,471.4		0	0	0	0		9,576	114	0		114	9,576
Pvt-08 R	7,393.0	9,753	98	2,801	28	0		5,208	62	0		188	17,762
Pvt-09 R	7,411.6	9,834	98	8,783	88	0		0		2,730	21	207	21,347
Pvt-10 R	13,303.8	9,686	97	15,612	156	0		4,536	54	1,560	12	319	31,394
Pvt-11 R	15,978.6		0		0	22,644	204	0		0		204	22,644
Pvt-12 R	16,170.8		0		0	13,320	120	6,720	80	0		200	20,040
Pvt-13 R	7,542.9		0	6,097	61	0		2,520	30	1,690	13	104	10,307
Pvt-14 R	8,658.0	11,476	115	7,678	77	0		0		3,380	26	218	22,534
Pvt-15 R	15,151.8	9,708	97	18,643	186	0		2,016	24	1,690	13	321	32,057
PvT-16 E	37,216.8					0		0		0		0	0
PvT-17E	31,259.5					0		0		0		0	0
		50,457	505	127,697	1,277	35,964	324	66,360	790	11,050	85	2,981	291,528

	Retail	Incub.	Cultural	Inst.	Emp.	Total GFA	Private OS	Density*
	m²	m²	m²	m²	m²	m²	m²	FSI*
Pvt-01 R	0	0	0	0	0	16,990	2,738.7	1.1
Pvt-02 R	0	0	0	0	0	16,827	1,282.0	1.4
Pvt-03 R	0	0	0	0	0	13,028		1.4
Pvt-04 M	3233	0	0	0	0	24,479	460.0	2.1
Pvt-05 M	2295	0	0	0	0	31,015	2,390.0	1.4
Pvt-06 R	0	0	0	0	0	7,056	2,149.0	0.8
Pvt-07 R	0	0	0	0	0	9,576	2,837.6	0.8
Pvt-08 R	0	0	0	0	0	17,762		2.4
Pvt-09 R	0	0	0	0	0	21,347		2.9
Pvt-10 R	0	0	0	0	0	31,394	1,203.5	2.4
Pvt-11 R	0	0	0	0	0	22,644	4,406.0	1.4
Pvt-12 R	0	0	0	0	0	20,040	3,543.0	1.2
Pvt-13 R	0	0	0	0	0	10,307	842.8	1.4
Pvt-14 R	0	0	0	0	0	22,534	929.2	2.6
Pvt-15 R	0	0	0	0	0	32,057	2,217.0	2.1
PvT-16 E	0	0	0	0	22000	22,000	5,357.0	0.6
PvT-17E	0	0	0	0	19700	22,000	2,090.0	0.7
								n/a
	5,528	0	0	0	41,700	341,056	32,445.8	*Includes Priv. OS

250,419.3 72.6% of employment lands
25.0% of Lakeview

Non-Developable Area:

	m²		
Pvt OS-P02	2,420.4		
Pvt OS P05	4,188.2		
Total Parkland	6,608.6	0.66%	of Lakeview
OS ROW	14,121.6	1.41%	of Lakeview
Hazard		0.00%	of Lakeview
Road ROWs	71,776.0	7.15%	of Lakeview
LRT ROWs	1,963.0	0.20%	of Lakeview
Total	94,469.2	27.4%	of employment lands
		9.4%	of Lakeview

OPG Lands **658,680** 65.6%

Developable Area

	Parcel Area	Residential: Towers		Mid-Rise		B2B TH		Stacked TH		Trad. TH		Total	Resi.
	m²	GFA	Units	GFA	Units	GFA	Units	GFA	Units	GFA	Units	Units	GFA
OPG-01 R	12,051.5		0	22,420	224	0		2,520	30	0		254	24,940
OPG-02 R	7,025.6	9,437	94	10,325	103	0		0		1,690	13	211	21,452
OPG-03 R	7,405.4	9,914	99	11,053	111	0		0		2,080	16	226	23,047
OPG-04 R	4,990.4		0	12,266	123	0		0		0		123	12,266
OPG-05 R	11,814.3	9,750	98	19,357	194	0		1,512	18	1,170	9	318	31,789
OPG-06 R	11,563.8	11,622	116	27,663	277	0		0		0		393	39,285
OPG-07 M	11,505.8	19,911	199	18,504	185	0		0		0		384	38,415
OPG-08 R	13,738.9	15,087	151	15,432	154	0		0		2,340	18	323	32,859
OPG-09 R	18,202.6	10,743	107	20,484	205	0		0		3,770	29	341	34,997
OPG-10 R	7,862.5	9,375	94	26,376	264	0		2,688	32	0		390	38,439
OPG-11 R	9,542.0	9,375	94	13,653	137	0		0		1,690	13	243	24,718
OPG-12 E	21,834.0		0		0	0		0		0		0	0
OPG-13 M	12,265.6	13,222	132	25,434	254	0		0		0		387	38,656
OPG-14 R	22,931.8	43,093	431	29,282	293	0		0		2,860	22	746	75,235
OPG-15 M	11,403.5		0	21,000	210	0		0		0		210	21,000
OPG-16 M	8,103.2		0	15,987	160	0		0		0		160	15,987
OPG-17 M	15,485.1		0	19,908	199	0		0		0		199	19,908
OPG-18 C	16,071.7		0		0	0		0		0		0	0
OPG-19 M	5,338.0		0	10,935	109	0		0		0		109	10,935
OPG-20 Inst	42,800.0												
		161,529	1,615	320,079	3,201	0	0	6,720	80	15,600	120	5,016	503,928

	Retail	Incub.	Cultural	Inst.	Emp.	Total GFA	Private OS	Density*
	m²	m²	m²	m²	m²	m²	m²	FSI*
OPG-01 R	0	0	0	0	0	24,940		2.1
OPG-02 R	0	0	0	0	0	21,452	497.1	3.1
OPG-03 R	0	0	0	0	0	23,047	543.4	3.1
OPG-04 R	0	0	0	0	0	12,266	496.0	2.5
OPG-05 R	0	0	0	0	0	31,789		2.7
OPG-06 R	0	0	0	0	0	39,285		3.4
OPG-07 M	3,747	0	0	0	0	42,162		3.7
OPG-08 R	4,028	0	0	0	0	36,887	1,440.9	2.7
OPG-09 R	0	0	0	0	0	34,997	3,226.9	1.9
OPG-10 R	0	0	0	0	0	38,439	836.5	4.9
OPG-11 R		0	0	0	0	24,718	1,742.0	2.6
OPG-12 E		0	0	0	26,000	26,000		1.2
OPG-13 M	2,968	0	0	0	0	41,624		3.4
OPG-14 R	3,406	0	0	0	0	78,641	2,146.6	3.4
OPG-15 M	0	1,890	0	0	0	22,890	2,621.0	2.0
OPG-16 M	0	1,988	0	0	0	17,975	1011	2.2
OPG-17 M	2,050	4,123	0	0	0	26,081	1,705.0	1.7
OPG-18 C	0	0	8,000	0	0	8,000	3,786.0	0.5
OPG-19 M	0	3,925	0	0	0	14,860		2.8
OPG-20 Inst	0	0	0	35,000		35,000	6,574.0	0.8
	16,199.00	11,926	8,000	35,000	26,000	601,053	26,626	*Includes Priv. OS

271,935.7 41.3% of OPG lands
27.1% of Lakeview

Non-Developable Area:

	m²		
OPG OS-P03	4,684.0		
OPG OS-P07	3,781.0		
OPG OS-P08	4,890.6		
OPG OS-P09	4,538.4		
OPG OS-P10	5,485.4		
OPG OS-P11	4,297.0		
OPG OS-P12	9,585.5		
OPG OS-P14	8,719.3		
OPG OS-P15	3,965.6		
OPG OS-P16	6,115.0		
OPG OS-P17	14,820.0		
OPG OS-P20	9,246.2		
OPG OS-P21	5,578.0		
OPG OS-P22	38,407.0		
Total Parkland	124,113.1	12.37%	of Lakeview
OS ROW	7,715.4	0.77%	of Lakeview
Hazard	153,433.0	15.29%	of Lakeview
Road ROWs	95,527.0	9.52%	of Lakeview
LRT ROWs	5,956.0	0.59%	of Lakeview
Total	386,744.5	58.7%	of OPG lands
		38.5%	of Lakeview

Average Unit Sizes (gross)

Mid-Rise & Tower Apartment Units	100
Stacked Townhouse Units	84
Back-to-back Townhouse Units	111
Traditional Townhouse Units	130

*note hazard lands include setback along shore, CVC managed lands and OS located within the 150m setback since park designation is not allowed.

APPENDIX L

Arcady Roundabout Analysis

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: FT_2031_BRT_90-int.j9
Path: G:\Projects\2017\17201 - Lakeview Community - Mississauga\Transportation\Draft 6 - March 2021\03 Analysis\05 Arcady
Report generation date: 2021-08-06 1:32:30 PM

»Future Total BRT - 90%-intercept - 2031, AM
»Future Total BRT - 90%-intercept - 2031, PM

Summary of intersection performance

	AM						PM					
	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Future Total BRT - 90%-intercept - 2031											
1 - Street A - WB	1.3	3.08	0.21	A	3.28	A	0.6	3.00	0.18	A	3.87	A
2 - Lakefront Promenade - SB	1.2	3.68	0.21	A			1.6	4.60	0.36	A		
3 - Lakefront Promenade - EB	0.5	2.67	0.04	A			0.5	2.88	0.08	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	2021-08-05
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	TYLI\kyla.zijlstra
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓			0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2031	AM	PHF	00:00	01:00	15	✓
D2	2031	PM	PHF	00:00	01:00	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Future Total BRT - 90%-intercept	✓	100.000	100.000

Future Total BRT - 90%-intercept - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.28	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Name	Description
1	Street A - WB	WB
2	Lakefront Promenade - SB	SB
3	Lakefront Promenade - EB	EB

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Street A - WB	4.10	5.55	31.7	25.2	40.5	15.0	
2 - Lakefront Promenade - SB	3.35	4.67	68.7	25.0	40.5	31.0	
3 - Lakefront Promenade - EB	4.25	5.61	19.4	34.8	40.5	13.0	

Slope / Intercept / Capacity

Leg Intercept Adjustments

Leg	Type	Reason	Percentage intercept adjustment (%)
1 - Street A - WB	Percentage		90.00
2 - Lakefront Promenade - SB	Percentage		90.00
3 - Lakefront Promenade - EB	Percentage		90.00

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
1 - Street A - WB	0.665	1554
2 - Lakefront Promenade - SB	0.583	1261
3 - Lakefront Promenade - EB	0.675	1578

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2031	AM	PHF	00:00	01:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		PHF	✓	318	100.000
2 - Lakefront Promenade - SB		PHF	✓	256	100.000
3 - Lakefront Promenade - EB		PHF	✓	58	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	318	1.00	SecondQuarter
2 - Lakefront Promenade - SB	256	1.00	SecondQuarter
3 - Lakefront Promenade - EB	58	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	313	5
	2 - Lakefront Promenade - SB	213	0	43
	3 - Lakefront Promenade - EB	5	53	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - Street A - WB	0.21	3.08	0.3	1.3	A	318	318
2 - Lakefront Promenade - SB	0.21	3.68	0.3	1.2	A	256	256
3 - Lakefront Promenade - EB	0.04	2.67	0.0	0.5	A	58	58

Future Total BRT - 90%-intercept - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.87	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2031	PM	PHF	00:00	01:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		PHF	✓	260	100.000
2 - Lakefront Promenade - SB		PHF	✓	450	100.000
3 - Lakefront Promenade - EB		PHF	✓	102	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	260	1.00	SecondQuarter
2 - Lakefront Promenade - SB	450	1.00	SecondQuarter
3 - Lakefront Promenade - EB	102	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	255	5
	2 - Lakefront Promenade - SB	288	0	162
	3 - Lakefront Promenade - EB	5	97	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - Street A - WB	0.18	3.00	0.2	0.6	A	260	260
2 - Lakefront Promenade - SB	0.36	4.60	0.6	1.6	A	450	450
3 - Lakefront Promenade - EB	0.08	2.88	0.1	0.5	A	102	102

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: FT_2031_BRT_100-int.j9
Path: G:\Projects\2017\17201 - Lakeview Community - Mississauga\Transportation\Draft 6 - March 2021\03 Analysis\05 Arcady
Report generation date: 2021-08-06 1:40:15 PM

»Future Total BRT - 100%-intercept - 2031, AM
»Future Total BRT - 100%-intercept - 2031, PM

Summary of intersection performance

	AM						PM					
	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Future Total BRT - 100%-intercept - 2031											
1 - Street A - WB	1.0	2.69	0.19	A	2.88	A	0.5	2.63	0.16	A	3.33	A
2 - Lakefront Promenade - SB	1.0	3.23	0.19	A			1.9	3.91	0.33	A		
3 - Lakefront Promenade - EB	0.5	2.37	0.04	A			0.5	2.53	0.07	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	2021-08-05
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	TYLI\kyla.zijlstra
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
✓		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031	AM	PHF	00:00	01:00	15
D2	2031	PM	PHF	00:00	01:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Future Total BRT - 100%-intercept	100.000

Future Total BRT - 100%-intercept - 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	2.88	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Name	Description
1	Street A - WB	WB
2	Lakefront Promenade - SB	SB
3	Lakefront Promenade - EB	EB

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Street A - WB	4.10	5.55	31.7	25.2	40.5	15.0	
2 - Lakefront Promenade - SB	3.35	4.67	68.7	25.0	40.5	31.0	
3 - Lakefront Promenade - EB	4.25	5.61	19.4	34.8	40.5	13.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
1 - Street A - WB	0.665	1727
2 - Lakefront Promenade - SB	0.583	1401
3 - Lakefront Promenade - EB	0.675	1754

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031	AM	PHF	00:00	01:00	15

Vehicle mix source	PCE Factor for a Truck (PCE)
Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		✓	318	100.000
2 - Lakefront Promenade - SB		✓	256	100.000
3 - Lakefront Promenade - EB		✓	58	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	318	1.00	SecondQuarter
2 - Lakefront Promenade - SB	256	1.00	SecondQuarter
3 - Lakefront Promenade - EB	58	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	313	5
	2 - Lakefront Promenade - SB	213	0	43
	3 - Lakefront Promenade - EB	5	53	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1 - Street A - WB	0.19	2.69	0.2	1.0	A
2 - Lakefront Promenade - SB	0.19	3.23	0.2	1.0	A
3 - Lakefront Promenade - EB	0.04	2.37	0.0	0.5	A

Future Total BRT - 100%-intercept - 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.33	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031	PM	PHF	00:00	01:00	15

Vehicle mix source	PCE Factor for a Truck (PCE)
Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		✓	260	100.000
2 - Lakefront Promenade - SB		✓	450	100.000
3 - Lakefront Promenade - EB		✓	102	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	260	1.00	SecondQuarter
2 - Lakefront Promenade - SB	450	1.00	SecondQuarter
3 - Lakefront Promenade - EB	102	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	255	5
	2 - Lakefront Promenade - SB	288	0	162
	3 - Lakefront Promenade - EB	5	97	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1 - Street A - WB	0.16	2.63	0.2	0.5	A
2 - Lakefront Promenade - SB	0.33	3.91	0.5	1.9	A
3 - Lakefront Promenade - EB	0.07	2.53	0.1	0.5	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: FT_2041_BRT_50p_90-int.j9
Path: G:\Projects\2017\17201 - Lakeview Community - Mississauga\Transportation\Draft 6 - March 2021\03 Analysis\05 Arcady
Report generation date: 2021-08-06 2:48:16 PM

»Future Total BRT - 90%-intercept - 2041 50% Mode Split, AM
»Future Total BRT - 90%-intercept - 2041 50% Mode Split, PM

Summary of intersection performance

	AM						PM					
	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Future Total BRT - 90%-intercept - 2041 50% Mode Split											
1 - Street A - WB	0.5	2.94	0.18	A	3.16	A	0.5	2.89	0.15	A	3.68	A
2 - Lakefront Promenade - SB	0.9	3.57	0.18	A			1.9	4.32	0.32	A		
3 - Lakefront Promenade - EB	0.5	2.63	0.04	A			0.5	2.80	0.07	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	2021-08-05
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	TYLI\kyla.zijlstra
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓			0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2041 50% Mode Split	AM	PHF	00:00	01:00	15	✓
D2	2041 50% Mode Split	PM	PHF	00:00	01:00	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Future Total BRT - 90%-intercept	✓	100.000	100.000

Future Total BRT - 90%-intercept - 2041 50% Mode Split, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.16	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Name	Description
1	Street A - WB	WB
2	Lakefront Promenade - SB	SB
3	Lakefront Promenade - EB	EB

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Street A - WB	4.10	5.55	31.7	25.2	40.5	15.0	
2 - Lakefront Promenade - SB	3.35	4.67	68.7	25.0	40.5	31.0	
3 - Lakefront Promenade - EB	4.25	5.61	19.4	34.8	40.5	13.0	

Slope / Intercept / Capacity

Leg Intercept Adjustments

Leg	Type	Reason	Percentage intercept adjustment (%)
1 - Street A - WB	Percentage		90.00
2 - Lakefront Promenade - SB	Percentage		90.00
3 - Lakefront Promenade - EB	Percentage		90.00

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
1 - Street A - WB	0.665	1554
2 - Lakefront Promenade - SB	0.583	1261
3 - Lakefront Promenade - EB	0.675	1578

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2041 50% Mode Split	AM	PHF	00:00	01:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		PHF	✓	263	100.000
2 - Lakefront Promenade - SB		PHF	✓	224	100.000
3 - Lakefront Promenade - EB		PHF	✓	58	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	263	1.00	SecondQuarter
2 - Lakefront Promenade - SB	224	1.00	SecondQuarter
3 - Lakefront Promenade - EB	58	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	258	5
	2 - Lakefront Promenade - SB	181	0	43
	3 - Lakefront Promenade - EB	5	53	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - Street A - WB	0.18	2.94	0.2	0.5	A	263	263
2 - Lakefront Promenade - SB	0.18	3.57	0.2	0.9	A	224	224
3 - Lakefront Promenade - EB	0.04	2.63	0.0	0.5	A	58	58

Future Total BRT - 90%-intercept - 2041 50% Mode Split, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.68	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2041 50% Mode Split	PM	PHF	00:00	01:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		PHF	✓	212	100.000
2 - Lakefront Promenade - SB		PHF	✓	400	100.000
3 - Lakefront Promenade - EB		PHF	✓	102	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	212	1.00	SecondQuarter
2 - Lakefront Promenade - SB	400	1.00	SecondQuarter
3 - Lakefront Promenade - EB	102	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	207	5
	2 - Lakefront Promenade - SB	238	0	162
	3 - Lakefront Promenade - EB	5	97	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - Street A - WB	0.15	2.89	0.2	0.5	A	212	212
2 - Lakefront Promenade - SB	0.32	4.32	0.5	1.9	A	400	400
3 - Lakefront Promenade - EB	0.07	2.80	0.1	0.5	A	102	102

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: FT_2041_BRT_50p_100-int.j9
Path: G:\Projects\2017\17201 - Lakeview Community - Mississauga\Transportation\Draft 6 - March 2021\03 Analysis\05 Arcady
Report generation date: 2021-08-06 2:55:07 PM

»Future Total BRT - 100%-intercept - 2041 50% Mode Split, AM
»Future Total BRT - 100%-intercept - 2041 50% Mode Split, PM

Summary of intersection performance

	AM						PM					
	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Future Total BRT - 100%-intercept - 2041 50% Mode Split											
1 - Street A - WB	0.5	2.58	0.16	A	2.78	A	0.5	2.54	0.13	A	3.19	A
2 - Lakefront Promenade - SB	0.5	3.14	0.16	A			1.8	3.71	0.29	A		
3 - Lakefront Promenade - EB	0.5	2.34	0.04	A			0.5	2.47	0.07	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	2021-08-05
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	TYLI\kyla.zijlstra
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
✓		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2041 50% Mode Split	AM	PHF	00:00	01:00	15
D2	2041 50% Mode Split	PM	PHF	00:00	01:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Future Total BRT - 100%-intercept	100.000

Future Total BRT - 100%-intercept - 2041 50% Mode Split, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	2.78	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Name	Description
1	Street A - WB	WB
2	Lakefront Promenade - SB	SB
3	Lakefront Promenade - EB	EB

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Street A - WB	4.10	5.55	31.7	25.2	40.5	15.0	
2 - Lakefront Promenade - SB	3.35	4.67	68.7	25.0	40.5	31.0	
3 - Lakefront Promenade - EB	4.25	5.61	19.4	34.8	40.5	13.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
1 - Street A - WB	0.665	1727
2 - Lakefront Promenade - SB	0.583	1401
3 - Lakefront Promenade - EB	0.675	1754

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2041 50% Mode Split	AM	PHF	00:00	01:00	15

Vehicle mix source	PCE Factor for a Truck (PCE)
Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		✓	263	100.000
2 - Lakefront Promenade - SB		✓	224	100.000
3 - Lakefront Promenade - EB		✓	58	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	263	1.00	SecondQuarter
2 - Lakefront Promenade - SB	224	1.00	SecondQuarter
3 - Lakefront Promenade - EB	58	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	258	5
	2 - Lakefront Promenade - SB	181	0	43
	3 - Lakefront Promenade - EB	5	53	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1 - Street A - WB	0.16	2.58	0.2	0.5	A
2 - Lakefront Promenade - SB	0.16	3.14	0.2	0.5	A
3 - Lakefront Promenade - EB	0.04	2.34	0.0	0.5	A

Future Total BRT - 100%-intercept - 2041 50% Mode Split, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Street A - WB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Lakefront Promenade - SB - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Lakefront Promenade and Street 'A'	Standard Roundabout		1, 2, 3	3.19	A

Intersection Network Options

Driving side	Lighting
Right	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2041 50% Mode Split	PM	PHF	00:00	01:00	15

Vehicle mix source	PCE Factor for a Truck (PCE)
Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - Street A - WB		✓	212	100.000
2 - Lakefront Promenade - SB		✓	400	100.000
3 - Lakefront Promenade - EB		✓	102	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - Street A - WB	212	1.00	SecondQuarter
2 - Lakefront Promenade - SB	400	1.00	SecondQuarter
3 - Lakefront Promenade - EB	102	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	207	5
	2 - Lakefront Promenade - SB	238	0	162
	3 - Lakefront Promenade - EB	5	97	0

Vehicle Mix

Truck Percentages

		To		
		1 - Street A - WB	2 - Lakefront Promenade - SB	3 - Lakefront Promenade - EB
From	1 - Street A - WB	0	2	2
	2 - Lakefront Promenade - SB	2	0	2
	3 - Lakefront Promenade - EB	2	2	0

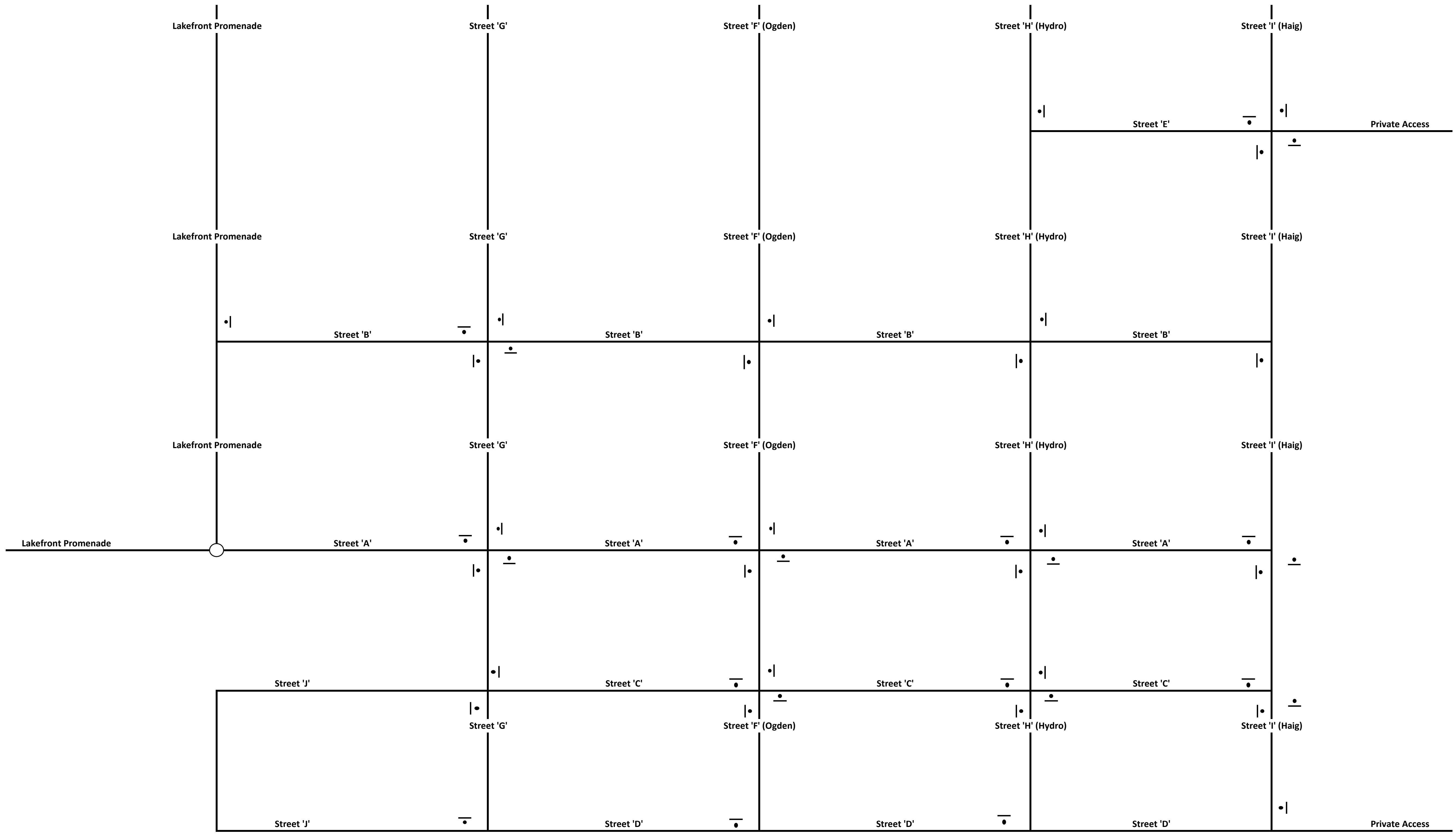
Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1 - Street A - WB	0.13	2.54	0.1	0.5	A
2 - Lakefront Promenade - SB	0.29	3.71	0.4	1.8	A
3 - Lakefront Promenade - EB	0.07	2.47	0.1	0.5	A

APPENDIX M

Internal Traffic Control and Lane Configuration Figure



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LEGEND

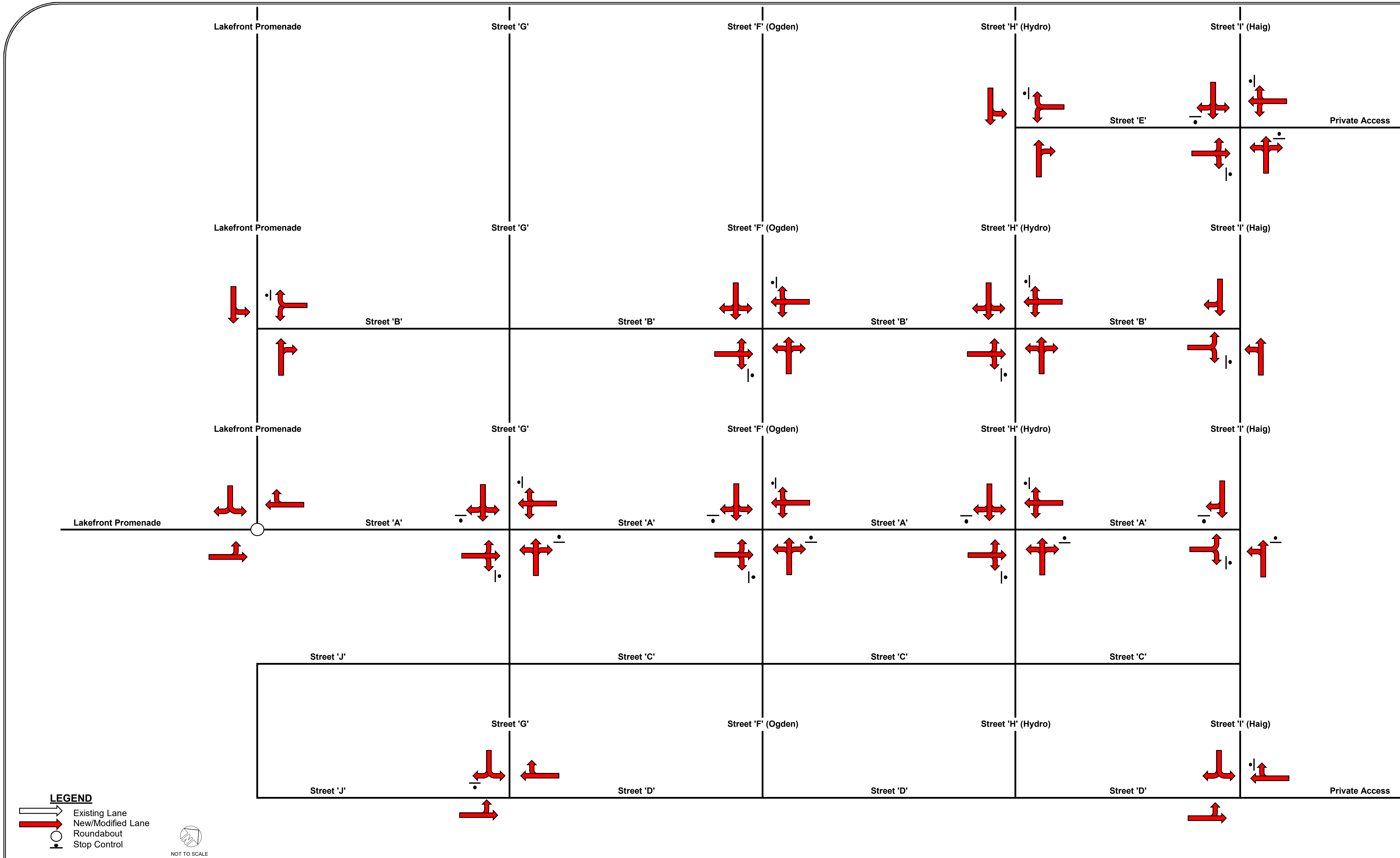
Stop Control
Roundabout

NOT TO SCALE

Lakeview Village - Traffic Control Sensitivity

All-Way and Two-Way Stop Controlled Intersections

Figure M-1



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LAKEVIEW VILLAGE
PROPOSED LANE CONFIGURATIONS

FIGURE M-2

APPENDIX N

York Region BRT Signal Timings Communication

Kyla Zijlstra

To:	Michael Dowdall; Lin Rogers
Cc:	Jim Bacchus; Ryan Au; Glen Broll
Subject:	RE: Lakeview Village Information Request

From: Michael Dowdall <MDowdall@tmig.ca>
Sent: July 19, 2021 10:32 PM
To: Lin Rogers <Lin.Rogers@mississauga.ca>
Cc: Jim Bacchus <JBacchus@tmig.ca>; Kyla Zijlstra <KZijlstra@tmig.ca>; Ryan Au <Ryan.Au@mississauga.ca>; Glen Broll <glenb@gsai.ca>
Subject: RE: Lakeview Village Information Request

Hi Lin,

Attached please find our Phasing Analysis Memo for your review. Please let me know if you have comments or questions on the attached ASAP so we can address them before our formal submission.
As discussed, did you have the opportunity to obtain sample signal timing plans for the proposed Hurontario transitway? I have attached a copy of the York's Hwy 7 STP for your review. Each operate with 140 second cycle lengths.
Additionally, Ryan mentioned CoM would have comments on the 50% sustainable mode split, is this ready to be circulated for our review

Thank you.

Michael Dowdall
TMIG | TYLI
+1.437.993.2662

LOCATION: Highway 7 at Jane Street
CTCS: 296
MODE/COMMENT: SA
PREPARED/CHECKED BY: M.L.
PREPARATION DATE: Mar.
IMPLEMENTATION DATE:

MUNICIPALITY: Vaughan
COMPUTER SYSTEM: Centracs
CONTROLLER/CABINET: Econolite ASC3 / TS2T1
CONFLICT FLASH: Red & Red
DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)
CHANNEL/DROP:

N

NEMA Phase (York)		AM 6:00-9:30 M-F	PM 15:30-19:30 M-F	OFF 9:30-15:30, 19:30-23:59M-F & 7:00-23:59 Sat&	Free 23:59-6:00 M-F & 23:59-7:00 Sat&	Phase Mode (Fixed/Demanded/Callable)
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 99	
	System Plan	Plan 1	Plan 2	Plan 3	Plan 99	
1. E/B Left Turn Arrow	WLK FDW MIN 10 EXT 5 MAX1 35 MAX2 AMB 3.0 ALR 3.0 SPLIT	17	17	17	0	EBLA/EB U-Turn Fully Protected Callable/Extendable by Stopbar Loop
2. Westbound Hwy 7	WLK 7 FDW 25 MIN 30 EXT 5 MAX1 35 MAX2 AMB 4.5 ALR 4.0 SPLIT	45	45	42	0	Fixed
3. N/B Left Turn Arrow	WLK FDW MIN 10 EXT 5 MAX1 35 MAX2 AMB 3.5 ALR 6.5 SPLIT	21	21	24	0	NBL Protected / Permissive Callable/Extendable by Stopbar Loop
4. Southbound Jane Street	WLK 7 FDW 19 MIN 10 EXT 5 MAX1 35 MAX2 AMB 4.5 ALR 4.0 SPLIT	36	36	36	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop
5. W/B Left Turn Arrow	WLK FDW MIN 10 EXT 5 MAX1 35 MAX2 0 AMB 3 ALR 3 SPLIT	20	20	17	0	WBLA/WB U-Turn Fully Protected Callable/Extendable by Stopbar Loop
6. Eastbound Hwy 7	WLK 7 FDW 25 MIN 30 EXT 5 MAX1 35 MAX2 0 AMB 4.5 ALR 4.0 SPLIT	42	42	42	0	Fixed
7. S/B Left Turn Arrow	WLK FDW MIN 10 EXT 5 MAX1 35 MAX2 0 AMB 3.5 ALR 6.5 SPLIT	21	21	24	0	SBL Protected / Permissive Callable/Extendable by Stopbar Loop
8. Northbound Jane Street	WLK 7 FDW 19 MIN 10 EXT 5 MAX1 35 MAX2 0 AMB 4.5 ALR 4.0 SPLIT	36	36	36	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop
13. E/B Right Turn Arrow Transit Only Hwy 7	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT	21	21	21	0	Callable/Extendable by Stopbar Loop Transit Phase Only
	CL	140	140	140	0 (FREE)	
	OF	94	124	113	0 (FREE)	
	VP	25	25	25	0 (FREE)	

Remarks

Emergency vehicle pre-emption 3:

Serve WBG/WBLT min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.

Emergency vehicle pre-emption 4:

Serve EBG/EBLT min 20 secs and up to 100 secs if there

Emergency vehicle pre-emption 5/6:

Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.

NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is provided. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or the minimum time provided during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.

EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.

Overlap A & C are only displayed when no EWLA are active.

If both WBLA/WB U-Turn and EB U-Turn are called without side street demand, signal will terminate main street green and go to All-Red before serving WBLA/WB U-Turn and EB U-Turn.

If only WBLA/WB U-Turn is called without side street demand, signal will terminate EB vehicle green and both EW transit green before serving WBLA/WB U-Turn. No issues with Yellow Trap as the advances are fully protected.

If only EBLA/WB U-Turn is called without side street demand, signal will terminate WB vehicle green and both EW transit green before serving EBLA/EB U-Turn. No issues with Yellow Trap as the advances are fully protected.

LEGEND:

SA - Semi-Actuated signal
WLK - Walk time
FDW - Flashing Don't Walk time
MIN - Minimum green time
EXT - Extension time
MAX1 - Maximum green time 1
MAX2 - Maximum green time 2
AMB - Amber
ALR - All Red
CL - Cycle Length
OF - Offset
VP - Vehicle Permissive
NSWK - North/South Walk
EWWK - East/West Walk
NSG - North/South Green
EWG - East/West Green
NSFD - North/South Flashing Don't Walk
EWFD - East/West Flashing Don't Walk
TSP - Transit Priority
APS - Audible Pedestrian Signal

NOTES:

LOCATION: Highway 7 at Maplecrete
CTCS: 866
MODE/COMMENT: SA
PREPARED/CHECKED BY: M.L.
PREPARATION DATE: Feb. 28, 2017
IMPLEMENTATION DATE:

MUNICIPALITY: Vaughan
COMPUTER SYSTEM: Centracs
CONTROLLER/CABINET TYPE: Econolite ASC3 / TS2T1
CONFLICT FLASH: Red & Red
DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)
CHANNEL/DROP:

N

NEMA Phase (York)		AM 6:00-09:30 M-F	PM 15:30-19:30 M-F	OFF 09:30-15:30, 19:30-23:59 M-F & 7:00-23:59 Sat&	Free 23:59-6:00 M-F & 23:59-7:00 Sat&	Phase Mode (Fixed/Demanded/Callable)
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 99	
	System Plan	Plan 1	Plan 2	Plan 3	Plan 99	
1. E/B Left Turn Arrow	WLK FDW MIN 7 EXT 5 MAX1 35 MAX2 AMB 3.0 ALR 3.0 SPLIT	14	14	14	0	EBLA/EB U-Turn Fully Protected Callable/Extendable by Stopbar Loop
2. Westbound	WLK 7 FDW 15 MIN 30 EXT 5 MAX1 35 MAX2 AMB 4.5 ALR 3.5 SPLIT	75	75	75	0	Fixed
3. N/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT	0	0	0	0	
4. Southbound	WLK 7 FDW 19 MIN 10 EXT 5 MAX1 35 MAX2 AMB 4.0 ALR 4.5 SPLIT	36	36	36	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop
5. W/B Left Turn Arrow	WLK FDW MIN 7 EXT 5 MAX1 35 MAX2 0 AMB 3 ALR 3 SPLIT	14	14	14	0	WBLA/WB U-Turn Fully Protected Callable/Extendable by Stopbar Loop
6. Eastbound 0	WLK 7 FDW 15 MIN 30 EXT 5 MAX1 35 MAX2 0 AMB 4.5 ALR 3.5 SPLIT	75	75	75	0	Fixed
7. S/B Left Turn Arrow NOT USED	WLK FDW MIN 0 EXT 0 MAX1 0 MAX2 0 AMB 0 ALR 0 SPLIT	0	0	0	0	
8. Northbound	WLK 7 FDW 19 MIN 10 EXT 5 MAX1 35 MAX2 0 AMB 4.0 ALR 4.5 SPLIT	36	36	36	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop
Transit Only	WLK FDW MIN 7 EXT 5 MAX1 35 MAX2 AMB 3.5 ALR 3 SPLIT	15	15	15	0	Callable/Extendable by Stopbar Loop Transit Phase Only
	CL	140	140	140	0 (FREE)	
	OF	50	41	22	0 (FREE)	
	VP	15	15	15	0 (FREE)	

Remarks

Emergency vehicle pre-emption 3:

Serve WBG/WBLT min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.

Emergency vehicle pre-emption 4:

Serve EBG/EBLT min 20 secs and up to 100 secs if there

Emergency vehicle pre-emption 5/6:

Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.

NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is provided. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or the minimum time provided during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.

EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.

Overlap A & C are only displayed when no EWLA are active.

If both WBLA/WB U-Turn and EB U-Turn are called without side street demand, signal will terminate main street green and go to All-Red before serving WBLA/WB U-Turn and EB U-Turn.

If only WBLA/WB U-Turn is called without side street demand, signal will terminate EB vehicle green and both EW transit green before serving WBLA/WB U-Turn. No issues with Yellow Trap as the advances are fully protected.

If only EBLA/WB U-Turn is called without side street demand, signal will terminate WB vehicle green and both EW transit green before serving EBLA/EB U-Turn. No issues with Yellow Trap as the advances are fully protected.

LEGEND:

SA - Semi-Actuated signal
WLK - Walk time
FDW - Flashing Don't Walk time
MIN - Minimum green time
EXT - Extension time
MAX1 - Maximum green time 1
MAX2 - Maximum green time 2
AMB - Amber
ALR - All Red
CL - Cycle Length
OF - Offset
VP - Vehicle Permissive
NSWK - North/South Walk
EWWK - East/West Walk
NSG - North/South Green
EWG - East/West Green
NSFD - North/South Flashing Don't Walk
EWFD - East/West Flashing Don't Walk
TSP - Transit Priority
APS - Audible Pedestrian Signal

APPENDIX O

Bus Blockage Sensitivity Analysis

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	143	366	5	29	256
Future Volume (vph)	5	143	366	5	29	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870		0.998			
Flt Protected	0.998					0.995
Satd. Flow (prot)	1635	0	1880	0	0	1874
Flt Permitted	0.998					0.995
Satd. Flow (perm)	1635	0	1880	0	0	1874
Link Speed (k/h)	50		50			50
Link Distance (m)	143.5		172.4			194.7
Travel Time (s)	10.3		12.4			14.0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	143	366	5	29	256
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	371	0	0	285
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26	14		14	26	
Sign Control	Stop		Free			Free

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 53.5% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	143	366	5	29	256
Future Volume (Veh/h)	5	143	366	5	29	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	143	366	5	29	256
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	682	368			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	368			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	79			98	
cM capacity (veh/h)	405	677			1188	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	148	371	285
Volume Left	5	0	29
Volume Right	143	5	0
cSH	662	1700	1188
Volume to Capacity	0.22	0.22	0.02
Queue Length 95th (m)	6.5	0.0	0.6
Control Delay (s)	12.0	0.0	1.0
Lane LOS	B		A
Approach Delay (s)	12.0	0.0	1.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	143	366	5	29	256
Future Volume (vph)	5	143	366	5	29	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870		0.998			
Flt Protected	0.998					0.995
Satd. Flow (prot)	1635	0	1850	0	0	1844
Flt Permitted	0.998					0.995
Satd. Flow (perm)	1635	0	1850	0	0	1844
Link Speed (k/h)	50		50			50
Link Distance (m)	143.5		172.4			194.7
Travel Time (s)	10.3		12.4			14.0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	0	4	4	0	4	4
Adj. Flow (vph)	5	143	366	5	29	256
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	371	0	0	285
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.01	0.99	0.99	1.01
Turning Speed (k/h)	26	14		14	26	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 53.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	143	366	5	29	256
Future Volume (Veh/h)	5	143	366	5	29	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	143	366	5	29	256
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	682	368			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	368			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	79			98	
cM capacity (veh/h)	405	677			1188	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	148	371	285
Volume Left	5	0	29
Volume Right	143	5	0
cSH	662	1700	1188
Volume to Capacity	0.22	0.22	0.02
Queue Length 95th (m)	6.5	0.0	0.6
Control Delay (s)	12.0	0.0	1.0
Lane LOS	B		A
Approach Delay (s)	12.0	0.0	1.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	1	2	346	269	22
Future Volume (vph)	87	1	2	346	269	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.990	
Flt Protected	0.953					
Satd. Flow (prot)	1791	0	0	1883	1865	0
Flt Permitted	0.953					
Satd. Flow (perm)	1791	0	0	1883	1865	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.7			189.6	136.8	
Travel Time (s)	12.5			13.7	9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	87	1	2	346	269	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	348	291	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26	14	26			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 31.3% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	1	2	346	269	22
Future Volume (Veh/h)	87	1	2	346	269	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	1	2	346	269	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	630	280	291			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	280	291			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	100	100			
cM capacity (veh/h)	445	759	1271			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	88	348	291
Volume Left	87	2	0
Volume Right	1	0	22
cSH	447	1271	1700
Volume to Capacity	0.20	0.00	0.17
Queue Length 95th (m)	5.5	0.0	0.0
Control Delay (s)	15.0	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.0	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	1	2	346	269	22
Future Volume (vph)	87	1	2	346	269	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.990	
Flt Protected	0.953					
Satd. Flow (prot)	1791	0	0	1853	1835	0
Flt Permitted	0.953					
Satd. Flow (perm)	1791	0	0	1853	1835	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.7			189.6	136.8	
Travel Time (s)	12.5			13.7	9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	0	0	4	4	4	4
Adj. Flow (vph)	87	1	2	346	269	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	348	291	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	1.01	1.01	0.99
Turning Speed (k/h)	26	14	26			14
Sign Control	Stop			Free	Free	

Intersection Summary		
Area Type: Other		
Control Type: Unsignalized		
Intersection Capacity Utilization 31.3%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	1	2	346	269	22
Future Volume (Veh/h)	87	1	2	346	269	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	1	2	346	269	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	630	280	291			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	280	291			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	100	100			
cM capacity (veh/h)	445	759	1271			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	88	348	291
Volume Left	87	2	0
Volume Right	1	0	22
cSH	447	1271	1700
Volume to Capacity	0.20	0.00	0.17
Queue Length 95th (m)	5.5	0.0	0.0
Control Delay (s)	15.0	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.0	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Future Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.950			0.993			0.997	
Flt Protected		0.996			0.999			0.993			0.988	
Satd. Flow (prot)	0	1861	0	0	1787	0	0	1857	0	0	1855	0
Flt Permitted		0.996			0.999			0.993			0.988	
Satd. Flow (perm)	0	1861	0	0	1787	0	0	1857	0	0	1855	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.1			236.6			154.7			183.7	
Travel Time (s)		9.3			17.0			11.1			13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	213	0	0	117	0	0	256	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 40.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Future Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	182	13	2	72	43	36	206	14	40	117	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	213	117	256	161
Volume Left (vph)	18	2	36	40
Volume Right (vph)	13	43	14	4
Hadj (s)	0.01	-0.18	0.03	0.07
Departure Headway (s)	5.2	5.2	5.1	5.2
Degree Utilization, x	0.31	0.17	0.36	0.23
Capacity (veh/h)	639	626	660	632
Control Delay (s)	10.5	9.2	10.9	9.8
Approach Delay (s)	10.5	9.2	10.9	9.8
Approach LOS	B	A	B	A

Intersection Summary

Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	40.5%		ICU Level of Service	A
Analysis Period (min)	15			

Lanes, Volumes, Timings
110: Street F & Street A

2031 Total AM Peak Hour - Bus Blockage
08-17-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Future Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.950			0.993			0.997	
Flt Protected		0.996			0.999			0.993			0.988	
Satd. Flow (prot)	0	1831	0	0	1759	0	0	1857	0	0	1855	0
Flt Permitted		0.996			0.999			0.993			0.988	
Satd. Flow (perm)	0	1831	0	0	1759	0	0	1857	0	0	1855	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.1			236.6			154.7			183.7	
Travel Time (s)		9.3			17.0			11.1			13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	4	4	4	4	4	4	0	0	0	0	0	0
Adj. Flow (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	213	0	0	117	0	0	256	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	1.01	0.99	0.99	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 40.5%		ICU Level of Service A
Analysis Period (min) 15		

HCM Unsignalized Intersection Capacity Analysis
110: Street F & Street A

2031 Total AM Peak Hour - Bus Blockage
08-17-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Future Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	182	13	2	72	43	36	206	14	40	117	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	213	117	256	161
Volume Left (vph)	18	2	36	40
Volume Right (vph)	13	43	14	4
Hadj (s)	0.01	-0.18	0.03	0.07
Departure Headway (s)	5.2	5.2	5.1	5.2
Degree Utilization, x	0.31	0.17	0.36	0.23
Capacity (veh/h)	639	626	660	632
Control Delay (s)	10.5	9.2	10.9	9.8
Approach Delay (s)	10.5	9.2	10.9	9.8
Approach LOS	B	A	B	A

Intersection Summary			
Delay	10.3		
Level of Service	B		
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	100	352	5	103	450
Future Volume (vph)	5	100	352	5	103	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.871		0.998			
Flt Protected	0.998					0.991
Satd. Flow (prot)	1637	0	1880	0	0	1866
Flt Permitted	0.998					0.991
Satd. Flow (perm)	1637	0	1880	0	0	1866
Link Speed (k/h)	50		50			50
Link Distance (m)	143.5		172.4			194.7
Travel Time (s)	10.3		12.4			14.0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	100	352	5	103	450
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	357	0	0	553
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Sign Control	Stop		Free			Free

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 64.7%		ICU Level of Service C
Analysis Period (min) 15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	100	352	5	103	450
Future Volume (Veh/h)	5	100	352	5	103	450
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	100	352	5	103	450
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1010	354			357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	354			357	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	85			91	
cM capacity (veh/h)	243	689			1202	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	105	357	553
Volume Left	5	0	103
Volume Right	100	5	0
cSH	634	1700	1202
Volume to Capacity	0.17	0.21	0.09
Queue Length 95th (m)	4.5	0.0	2.1
Control Delay (s)	11.8	0.0	2.3
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	2.3
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	100	352	5	103	450
Future Volume (vph)	5	100	352	5	103	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.871		0.998			
Flt Protected	0.998					0.991
Satd. Flow (prot)	1637	0	1850	0	0	1837
Flt Permitted	0.998					0.991
Satd. Flow (perm)	1637	0	1850	0	0	1837
Link Speed (k/h)	50		50			50
Link Distance (m)	143.5		172.4			194.7
Travel Time (s)	10.3		12.4			14.0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	0	4	4	0	4	4
Adj. Flow (vph)	5	100	352	5	103	450
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	0	357	0	0	553
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.01	0.99	0.99	1.01
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	100	352	5	103	450
Future Volume (Veh/h)	5	100	352	5	103	450
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	100	352	5	103	450
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1010	354			357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	354			357	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	85			91	
cM capacity (veh/h)	243	689			1202	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	105	357	553
Volume Left	5	0	103
Volume Right	100	5	0
cSH	634	1700	1202
Volume to Capacity	0.17	0.21	0.09
Queue Length 95th (m)	4.5	0.0	2.1
Control Delay (s)	11.8	0.0	2.3
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	2.3
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	1	5	424	325	114
Future Volume (vph)	13	1	5	424	325	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.965	
Flt Protected	0.956			0.999		
Satd. Flow (prot)	1783	0	0	1882	1818	0
Flt Permitted	0.956			0.999		
Satd. Flow (perm)	1783	0	0	1882	1818	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.7			189.6	136.8	
Travel Time (s)	12.5			13.7	9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	1	5	424	325	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	429	439	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Sign Control	Stop			Free	Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 36.3%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	1	5	424	325	114
Future Volume (Veh/h)	13	1	5	424	325	114
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1	5	424	325	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	816	382	439			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	382	439			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	345	665	1121			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	429	439
Volume Left	13	5	0
Volume Right	1	0	114
cSH	357	1121	1700
Volume to Capacity	0.04	0.00	0.26
Queue Length 95th (m)	0.9	0.1	0.0
Control Delay (s)	15.5	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	1	5	424	325	114
Future Volume (vph)	13	1	5	424	325	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.965	
Flt Protected	0.956			0.999		
Satd. Flow (prot)	1783	0	0	1851	1788	0
Flt Permitted	0.956			0.999		
Satd. Flow (perm)	1783	0	0	1851	1788	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.7			189.6	136.8	
Travel Time (s)	12.5			13.7	9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	0	0	4	4	4	4
Adj. Flow (vph)	13	1	5	424	325	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	429	439	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	1.01	1.01	0.99
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 36.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	1	5	424	325	114
Future Volume (Veh/h)	13	1	5	424	325	114
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1	5	424	325	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	816	382	439			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	382	439			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	345	665	1121			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	429	439
Volume Left	13	5	0
Volume Right	1	0	114
cSH	357	1121	1700
Volume to Capacity	0.04	0.00	0.26
Queue Length 95th (m)	0.9	0.1	0.0
Control Delay (s)	15.5	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Future Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.988			0.997			0.994	
Flt Protected		0.997			0.996			0.993			0.993	
Satd. Flow (prot)	0	1820	0	0	1853	0	0	1865	0	0	1859	0
Flt Permitted		0.997			0.996			0.993			0.993	
Satd. Flow (perm)	0	1820	0	0	1853	0	0	1865	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.1			236.6			154.7			183.7	
Travel Time (s)		9.3			17.0			11.1			13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	185	0	0	232	0	0	320	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 43.1%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Future Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	113	37	13	156	16	31	196	5	46	259	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	185	232	320
Volume Left (vph)	10	13	31	46
Volume Right (vph)	37	16	5	15
Hadj (s)	-0.09	0.00	0.05	0.03
Departure Headway (s)	5.7	5.7	5.5	5.3
Degree Utilization, x	0.25	0.29	0.35	0.47
Capacity (veh/h)	562	565	601	635
Control Delay (s)	10.6	11.1	11.5	13.1
Approach Delay (s)	10.6	11.1	11.5	13.1
Approach LOS	B	B	B	B

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Future Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.988			0.997			0.994	
Flt Protected		0.997			0.996			0.993			0.993	
Satd. Flow (prot)	0	1790	0	0	1824	0	0	1865	0	0	1859	0
Flt Permitted		0.997			0.996			0.993			0.993	
Satd. Flow (perm)	0	1790	0	0	1824	0	0	1865	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.1			236.6			154.7			183.7	
Travel Time (s)		9.3			17.0			11.1			13.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bus Blockages (#/hr)	4	4	4	4	4	4	0	0	0	0	0	0
Adj. Flow (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	185	0	0	232	0	0	320	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	1.01	0.99	0.99	1.01	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.1% ICU Level of Service A

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Future Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	113	37	13	156	16	31	196	5	46	259	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	185	232	320
Volume Left (vph)	10	13	31	46
Volume Right (vph)	37	16	5	15
Hadj (s)	-0.09	0.00	0.05	0.03
Departure Headway (s)	5.7	5.7	5.5	5.3
Degree Utilization, x	0.25	0.29	0.35	0.47
Capacity (veh/h)	562	565	601	635
Control Delay (s)	10.6	11.1	11.5	13.1
Approach Delay (s)	10.6	11.1	11.5	13.1
Approach LOS	B	B	B	B

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX P

All-way and Two-way Stop Control Sensitivity Analysis

101: Street H & Street E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	73	414	28	168	248
Future Volume (Veh/h)	2	73	414	28	168	248
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	73	414	28	168	248
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						345
pX, platoon unblocked						
vC, conflicting volume	1012	428			442	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012	428			442	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	88			85	
cM capacity (veh/h)	225	627			1118	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	75	442	416
Volume Left	2	0	168
Volume Right	73	28	0
cSH	598	1700	1118
Volume to Capacity	0.13	0.26	0.15
Queue Length 95th (m)	3.2	0.0	4.0
Control Delay (s)	11.9	0.0	4.5
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	4.5
Approach LOS	B		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

102: Street I & Street E/Site Access

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	120	60	1	18	14	26	2	311	120	121	272	68
Future Volume (vph)	120	60	1	18	14	26	2	311	120	121	272	68
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	120	60	1	18	14	26	2	311	120	121	272	68

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	181	58	433	461
Volume Left (vph)	120	18	2	121
Volume Right (vph)	1	26	120	68
Hadj (s)	0.16	-0.17	-0.13	0.00
Departure Headway (s)	6.5	6.6	5.3	5.4
Degree Utilization, x	0.33	0.11	0.64	0.69
Capacity (veh/h)	483	446	650	649
Control Delay (s)	12.7	10.3	17.1	19.3
Approach Delay (s)	12.7	10.3	17.1	19.3
Approach LOS	B	B	C	C

Intersection Summary			
Delay	16.9		
Level of Service	C		
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
103: Lakefront Promenade & Street B

2031 Total AM Peak Hour

08/05/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	143	366	5	29	256
Future Volume (Veh/h)	5	143	366	5	29	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	143	366	5	29	256
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	682	368			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	368			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	79			98	
cM capacity (veh/h)	405	677			1188	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	148	371	285
Volume Left	5	0	29
Volume Right	143	5	0
cSH	662	1700	1188
Volume to Capacity	0.22	0.22	0.02
Queue Length 95th (m)	6.5	0.0	0.6
Control Delay (s)	12.0	0.0	1.0
Lane LOS	B		A
Approach Delay (s)	12.0	0.0	1.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
105: Street F & Street B

2031 Total AM Peak Hour

08/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	32	5	5	52	57	5	267	5	38	161	16
Future Volume (Veh/h)	96	32	5	5	52	57	5	267	5	38	161	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	96	32	5	5	52	57	5	267	5	38	161	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	608	527	169	546	532	270	177			272		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	608	527	169	546	532	270	177			272		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	93	99	99	88	93	100			97		
cM capacity (veh/h)	335	441	875	411	438	769	1399			1291		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	133	114	277	215
Volume Left	96	5	5	38
Volume Right	5	57	5	16
cSH	365	556	1399	1291
Volume to Capacity	0.36	0.20	0.00	0.03
Queue Length 95th (m)	12.4	5.8	0.1	0.7
Control Delay (s)	20.4	13.1	0.2	1.6
Lane LOS	C	B	A	A
Approach Delay (s)	20.4	13.1	0.2	1.6
Approach LOS	C	B		

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	50	5	5	37	24	5	259	5	4	209	33
Future Volume (Veh/h)	70	50	5	5	37	24	5	259	5	4	209	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	70	50	5	5	37	24	5	259	5	4	209	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	548	508	226	535	522	262	242			264		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	548	508	226	535	522	262	242			264		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	89	99	99	92	97	100			100		
cM capacity (veh/h)	405	465	814	414	456	777	1324			1300		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	125	66	269	246
Volume Left	70	5	5	4
Volume Right	5	24	5	33
cSH	436	532	1324	1300
Volume to Capacity	0.29	0.12	0.00	0.00
Queue Length 95th (m)	8.9	3.2	0.1	0.1
Control Delay (s)	16.5	12.7	0.2	0.2
Lane LOS	C	B	A	A
Approach Delay (s)	16.5	12.7	0.2	0.2
Approach LOS	C	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	1	2	346	269	22
Future Volume (Veh/h)	87	1	2	346	269	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	1	2	346	269	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	630	280	291			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	280	291			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	100	100			
cM capacity (veh/h)	445	759	1271			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	88	348	291
Volume Left	87	2	0
Volume Right	1	0	22
cSH	447	1271	1700
Volume to Capacity	0.20	0.00	0.17
Queue Length 95th (m)	5.5	0.0	0.0
Control Delay (s)	15.0	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.0	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	2	184	27	1	107	4	190	47	4	25	10	16
Future Volume (vph)	2	184	27	1	107	4	190	47	4	25	10	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	184	27	1	107	4	190	47	4	25	10	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	213	112	241	51
Volume Left (vph)	2	1	190	25
Volume Right (vph)	27	4	4	16
Hadj (s)	-0.04	0.01	0.18	-0.06
Departure Headway (s)	4.8	5.0	5.0	5.0
Degree Utilization, x	0.28	0.15	0.33	0.07
Capacity (veh/h)	705	669	687	651
Control Delay (s)	9.6	8.9	10.4	8.4
Approach Delay (s)	9.6	8.9	10.4	8.4
Approach LOS	A	A	B	A

Intersection Summary			
Delay	9.7		
Level of Service	A		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Future Volume (vph)	18	182	13	2	72	43	36	206	14	40	117	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	182	13	2	72	43	36	206	14	40	117	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	213	117	256	161
Volume Left (vph)	18	2	36	40
Volume Right (vph)	13	43	14	4
Hadj (s)	0.01	-0.18	0.03	0.07
Departure Headway (s)	5.2	5.2	5.1	5.2
Degree Utilization, x	0.31	0.17	0.36	0.23
Capacity (veh/h)	639	626	660	632
Control Delay (s)	10.5	9.2	10.9	9.8
Approach Delay (s)	10.5	9.2	10.9	9.8
Approach LOS	B	A	B	A

Intersection Summary			
Delay	10.3		
Level of Service	B		
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	67	167	49	2	36	24	35	168	9	62	139	8
Future Volume (vph)	67	167	49	2	36	24	35	168	9	62	139	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	67	167	49	2	36	24	35	168	9	62	139	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	283	62	212	209
Volume Left (vph)	67	2	35	62
Volume Right (vph)	49	24	9	8
Hadj (s)	-0.02	-0.19	0.04	0.07
Departure Headway (s)	5.1	5.3	5.2	5.2
Degree Utilization, x	0.40	0.09	0.31	0.30
Capacity (veh/h)	661	597	647	641
Control Delay (s)	11.5	8.8	10.5	10.5
Approach Delay (s)	11.5	8.8	10.5	10.5
Approach LOS	B	A	B	B

Intersection Summary			
Delay	10.7		
Level of Service	B		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	154	116	15	194	260	10
Future Volume (vph)	154	116	15	194	260	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	154	116	15	194	260	10

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	270	209	270
Volume Left (vph)	154	15	0
Volume Right (vph)	116	0	10
Hadj (s)	-0.11	0.05	0.01
Departure Headway (s)	5.0	5.0	4.9
Degree Utilization, x	0.37	0.29	0.37
Capacity (veh/h)	675	675	692
Control Delay (s)	10.9	10.1	10.8
Approach Delay (s)	10.9	10.1	10.8
Approach LOS	B	B	B

Intersection Summary			
Delay	10.6		
Level of Service	B		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis — 2031 Total AM Peak Hour
117: Street J/Street D & Street G
08/05/2021

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	4	1	2	9	5
Future Volume (Veh/h)	5	4	1	2	9	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	4	1	2	9	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	3				16	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3				16	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1619				999	1082

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	9	3	14
Volume Left	5	0	9
Volume Right	0	2	5
cSH	1619	1700	1027
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	4.0	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	4.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis — 2031 Total AM Peak Hour
227: Street D/Street I & Site Access
08/05/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	18	30	52	83	14
Future Volume (Veh/h)	9	18	30	52	83	14
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	18	30	52	83	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	236	56			82	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236	56			82	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			95	
cM capacity (veh/h)	711	1011			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	27	82	97
Volume Left	9	0	83
Volume Right	18	52	0
cSH	886	1700	1515
Volume to Capacity	0.03	0.05	0.05
Queue Length 95th (m)	0.7	0.0	1.3
Control Delay (s)	9.2	0.0	6.5
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	6.5
Approach LOS	A		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

101: Street H & Street E

08/05/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	135	425	8	38	521
Future Volume (Veh/h)	11	135	425	8	38	521
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	135	425	8	38	521
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						345
pX, platoon unblocked						
vC, conflicting volume	1026	429			433	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1026	429			433	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	78			97	
cM capacity (veh/h)	251	626			1127	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	146	433	559
Volume Left	11	0	38
Volume Right	135	8	0
cSH	563	1700	1127
Volume to Capacity	0.26	0.25	0.03
Queue Length 95th (m)	7.8	0.0	0.8
Control Delay (s)	13.6	0.0	0.9
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	0.9
Approach LOS	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

102: Street I & Street E/Site Access

08/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	11	1	90	91	181	6	419	12	35	348	48
Future Volume (vph)	36	11	1	90	91	181	6	419	12	35	348	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	11	1	90	91	181	6	419	12	35	348	48

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	48	362	437	431
Volume Left (vph)	36	90	6	35
Volume Right (vph)	1	181	12	48
Hadj (s)	0.17	-0.22	0.02	-0.02
Departure Headway (s)	7.9	6.4	6.2	6.2
Degree Utilization, x	0.11	0.64	0.75	0.74
Capacity (veh/h)	366	525	557	554
Control Delay (s)	11.8	20.2	25.8	24.9
Approach Delay (s)	11.8	20.2	25.8	24.9
Approach LOS	B	C	D	C

Intersection Summary			
Delay	23.4		
Level of Service	C		
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	100	352	5	103	450
Future Volume (Veh/h)	5	100	352	5	103	450
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	100	352	5	103	450
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1010	354			357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	354			357	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	85			91	
cM capacity (veh/h)	243	689			1202	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	105	357	553
Volume Left	5	0	103
Volume Right	100	5	0
cSH	634	1700	1202
Volume to Capacity	0.17	0.21	0.09
Queue Length 95th (m)	4.5	0.0	2.1
Control Delay (s)	11.8	0.0	2.3
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	2.3
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	47	5	5	85	52	5	222	5	39	320	84
Future Volume (Veh/h)	37	47	5	5	85	52	5	222	5	39	320	84
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	37	47	5	5	85	52	5	222	5	39	320	84
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	769	677	362	703	716	224	404			227		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	769	677	362	703	716	224	404			227		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	87	99	98	75	94	100			97		
cM capacity (veh/h)	235	362	683	307	344	815	1155			1341		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	89	142	232	443
Volume Left	37	5	5	39
Volume Right	5	52	5	84
cSH	302	434	1155	1341
Volume to Capacity	0.29	0.33	0.00	0.03
Queue Length 95th (m)	9.1	10.7	0.1	0.7
Control Delay (s)	21.8	17.3	0.2	1.0
Lane LOS	C	C	A	A
Approach Delay (s)	21.8	17.3	0.2	1.0
Approach LOS	C	C		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
106: Street H & Street B

2031 Total PM Peak Hour
08/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	20	5	5	94	19	5	349	5	25	374	70
Future Volume (Veh/h)	47	20	5	5	94	19	5	349	5	25	374	70
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	47	20	5	5	94	19	5	349	5	25	374	70
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	886	823	409	836	856	352	444			354		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	886	823	409	836	856	352	444			354		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	75	93	99	98	67	97	100			98		
cM capacity (veh/h)	189	301	642	265	288	692	1116			1205		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	72	118	359	469
Volume Left	47	5	5	25
Volume Right	5	19	5	70
cSH	223	317	1116	1205
Volume to Capacity	0.32	0.37	0.00	0.02
Queue Length 95th (m)	10.2	12.7	0.1	0.5
Control Delay (s)	28.7	23.0	0.2	0.6
Lane LOS	D	C	A	A
Approach Delay (s)	28.7	23.0	0.2	0.6
Approach LOS	D	C		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
107: Street I & Street B

2031 Total PM Peak Hour
08/05/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	1	5	424	325	114
Future Volume (Veh/h)	13	1	5	424	325	114
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1	5	424	325	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	816	382	439			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	382	439			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	345	665	1121			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	429	439
Volume Left	13	5	0
Volume Right	1	0	114
cSH	357	1121	1700
Volume to Capacity	0.04	0.00	0.26
Queue Length 95th (m)	0.9	0.1	0.0
Control Delay (s)	15.5	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
109: Street G & Street A

2031 Total PM Peak Hour
08/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	146	126	2	176	24	72	13	4	10	48	7
Future Volume (vph)	16	146	126	2	176	24	72	13	4	10	48	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	146	126	2	176	24	72	13	4	10	48	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	288	202	89	65
Volume Left (vph)	16	2	72	10
Volume Right (vph)	126	24	4	7
Hadj (s)	-0.22	-0.04	0.17	0.00
Departure Headway (s)	4.3	4.6	5.3	5.2
Degree Utilization, x	0.35	0.26	0.13	0.09
Capacity (veh/h)	798	741	617	623
Control Delay (s)	9.6	9.2	9.1	8.7
Approach Delay (s)	9.6	9.2	9.1	8.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.3		
Level of Service	A		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
110: Street F & Street A

2031 Total PM Peak Hour
08/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Future Volume (vph)	10	113	37	13	156	16	31	196	5	46	259	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	113	37	13	156	16	31	196	5	46	259	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	185	232	320
Volume Left (vph)	10	13	31	46
Volume Right (vph)	37	16	5	15
Hadj (s)	-0.09	0.00	0.05	0.03
Departure Headway (s)	5.7	5.7	5.5	5.3
Degree Utilization, x	0.25	0.29	0.35	0.47
Capacity (veh/h)	562	565	601	635
Control Delay (s)	10.6	11.1	11.5	13.1
Approach Delay (s)	10.6	11.1	11.5	13.1
Approach LOS	B	B	B	B

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	23	47	73	8	101	69	55	257	4	36	281	57
Future Volume (vph)	23	47	73	8	101	69	55	257	4	36	281	57
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	47	73	8	101	69	55	257	4	36	281	57

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	143	178	316	374
Volume Left (vph)	23	8	55	36
Volume Right (vph)	73	69	4	57
Hadj (s)	-0.24	-0.19	0.06	-0.04
Departure Headway (s)	5.9	5.9	5.5	5.4
Degree Utilization, x	0.24	0.29	0.49	0.56
Capacity (veh/h)	515	523	605	636
Control Delay (s)	10.7	11.3	13.7	14.9
Approach Delay (s)	10.7	11.3	13.7	14.9
Approach LOS	B	B	B	B

Intersection Summary			
Delay	13.3		
Level of Service	B		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	28	28	131	401	273	53
Future Volume (vph)	28	28	131	401	273	53
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	28	28	131	401	273	53

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	56	532	326
Volume Left (vph)	28	131	0
Volume Right (vph)	28	0	53
Hadj (s)	-0.17	0.08	-0.06
Departure Headway (s)	5.6	4.5	4.6
Degree Utilization, x	0.09	0.67	0.41
Capacity (veh/h)	556	788	762
Control Delay (s)	9.2	16.0	10.8
Approach Delay (s)	9.2	16.0	10.8
Approach LOS	A	C	B

Intersection Summary			
Delay	13.7		
Level of Service	B		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
117: Street J/Street D & Street G

2031 Total PM Peak Hour
08/05/2021

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	1	3	9	6	5
Future Volume (Veh/h)	5	1	3	9	6	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	1	3	9	6	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	12				18	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	12				18	8
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1607				996	1075

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	6	12	11
Volume Left	5	0	6
Volume Right	0	9	5
cSH	1607	1700	1030
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	6.0	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	6.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
227: Street D/Street I & Site Access

2031 Total PM Peak Hour
08/05/2021

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	91	44	4	25	35
Future Volume (Veh/h)	67	91	44	4	25	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	99	48	4	27	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	142	50			52	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	142	50			52	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	90			98	
cM capacity (veh/h)	836	1018			1554	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	172	52	65
Volume Left	73	0	27
Volume Right	99	4	0
cSH	932	1700	1554
Volume to Capacity	0.18	0.03	0.02
Queue Length 95th (m)	5.1	0.0	0.4
Control Delay (s)	9.7	0.0	3.1
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	3.1
Approach LOS	A		

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	60	1	18	14	26	2	311	120	121	272	68
Future Volume (Veh/h)	120	60	1	18	14	26	2	311	120	121	272	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	120	60	1	18	14	26	2	311	120	121	272	68
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											365	
pX, platoon unblocked												
vC, conflicting volume	956	983	306	954	957	371	340			431		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	956	983	306	954	957	371	340			431		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	40	73	100	90	94	96	100			89		
cM capacity (veh/h)	200	222	734	173	230	675	1219			1129		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	181	58	433	461
Volume Left	120	18	2	121
Volume Right	1	26	120	68
cSH	208	285	1219	1129
Volume to Capacity	0.87	0.20	0.00	0.11
Queue Length 95th (m)	51.3	5.7	0.0	2.7
Control Delay (s)	81.0	20.8	0.1	3.1
Lane LOS	F	C	A	A
Approach Delay (s)	81.0	20.8	0.1	3.1
Approach LOS	F	C		

Intersection Summary			
Average Delay	15.3		
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	11	1	90	91	181	6	419	12	35	348	48
Future Volume (Veh/h)	36	11	1	90	91	181	6	419	12	35	348	48
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	11	1	90	91	181	6	419	12	35	348	48
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											365	
pX, platoon unblocked												
vC, conflicting volume	1106	885	372	886	903	425	396			431		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1106	885	372	886	903	425	396			431		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	62	96	100	64	66	71	99			97		
cM capacity (veh/h)	96	274	674	250	267	629	1163			1129		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	48	362	437	431
Volume Left	36	90	6	35
Volume Right	1	181	12	48
cSH	115	366	1163	1129
Volume to Capacity	0.42	0.99	0.01	0.03
Queue Length 95th (m)	13.5	86.6	0.1	0.7
Control Delay (s)	57.0	78.4	0.2	1.0
Lane LOS	F	F	A	A
Approach Delay (s)	57.0	78.4	0.2	1.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	24.7		
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		